CASE

Laboratory Safety Committee

Annual Report Fiscal Year

2002-2003

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CDC Select Agent Program	Submitted 3/12/2003	Humans/Bovine Spongiform Enchemlopathy (Prospective)

OSHA COMPLAINTS

11/8/2002 – Complaint # 204-257-471

Notice of safety and health hazards: Complaint: 1) air contaminants in Adelbert Hall, 2) noisy environment, and 3) ergonomic injuries. This complaint was investigated and no problems were identified. A report of these inspections and assessments was made to OSHA in writing, posted on 11/15/2002 and the matter was closed.

6/23/2003 – Complaint # 204-547-905

Notice of safety and health hazards: Complaint: 1) odor complaint from renovations of the Sears Building and 2) work sites with open cables and wires. The work site was inspected, and the perceived hazards mitigated. A report documenting the inspections and assessments was made to OSHA in writing, posted on 7/1/2003, and the matter was resolved without issue of an OSHA violation.

LABORATORY SAFETY COMMITTEE (LSC)

The 2002-2003 LSC membership is listed below. The President of the University must approve the voting membership of the Committee.

LSC PERFORMANCE & RECORD AUDITS

The LSC guidelines were updated, as were the audit functions of the Committee. The Committee promotes oversight and accountability of the Safety Services programs through its auditing of Department procedures and records. All areas considered for audit

RESPONSE TO ANNUAL AUDIT

This year, in response to audit inquiries, the Safety Services office (SSO) initiated the following procedural modifications.

The Committee also decided to institute an audit procedure whereby four areas will be

- Follow-up of serious inspection issues includes staff involvement until issues are resolved. Other issues are noted and taken up at the next inspection if progress is not made.

The SSO thanks the LSC for the audit of its safety activities over the past year.

SAFETY SERVICES OFFICE (SSO)

STAFFING

programs have had significant impact through provision of safety compliance, education, and awareness to all student, faculty, and staff.

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

quarterly visits to laboratories by the DOES Staff. The department received an average of three inquiries, requests, complaints, and/or concerns that were addressed daily through its department email address (does@po.cwru.edu).

ADMINISTRATIVE PRIORITIES

At the present time the Department is developing a detailed Office Procedures Manual. As part of this process, the Department is in the process of reviewing all office procedures. The intent is to establish comprehensive office SOPs. This project concentrates on data entry, safety triage, and electronic data handling procedures (for example, the office has begun to scan all waste sheets and outdated MSD sheets into computer databases). The office staff also continues to update its OSHA Laboratory Standard and Bloodborne Pathogen (BBP) training to enable better understanding of critical DOES programs and thus improve their ability to triage phone inquiries and to provide informed answers to non-technical questions.

EMPLOYEE COMPLIANCE COMMITTEE

As noted in the audit response described above, the SSO formed a new Employee

TRAINING

A major effort has been placed on increasing and modifying the training programs of the SSO. The SSO has made strides recently to contact individuals requiring new and annual training. The SSO has also reevaluated and rewritten the examinations used in training and has identified new areas and methods of training. Appropriate paperwork and record keeping has been maintained for all training presentations and sign-offs on declination statements for the BBP Standard.

Training was offered in the Laboratory Standard and a number of specific chemical standards included Formaldehyde, Methylene Chloride, Vinyl Chloride, and Benzene. Training was both internet-based and lecture-based using PowerPoint presentations in the SSO or on-site at various campus locations.

Feedback from classes and online sessions attended indicated that the overall impact of safety training on the university community was positive. Both initial and retraining classes were offered on a weekly basis. During the past year, the SSO held classes in the following major areas: Laboratory Safety, Right-to-Know, and BBP. More than 4000 individuals were trained in various safety areas over the year. Most retraining was accomplished over the Internet. More than 800 individuals or 30% of all training increasingly utilized online training in BBP, Formaldehyde Safety, Benzene Safety, and Respirator Safety. The SSO also presented four State Medical Waste classes for four employees, and 18 Contractor Right-To-Know classes for 80 employees.

Laboratory Safety Training

Graphic enhancements for the revised Laboratory Standard presentation were developed. Eighty-eight Laboratory Standard Classes were given for 800 employees. Several specialized Laboratory Safety classes for specific target groups included presentations for 100 dental and medical students, 10 high school summer students, and 30 students from SPUR and other programs.

Online re-training for the Laboratory Standard is also now available. The new online Laboratory Standard training, among other features, requires an Affirmation Statement acknowledging that the PI will administer site-specific training pertaining to laboratory hazards and specific safety procedures for their employees.

Chemical Safety Awareness Training

Several general awareness classes for target groups such as the Animal Resource Center (ARC) and Housekeeping were developed and conducted. These groups may enter a specialized laboratory on a daily basis and thus required specifically tailored safety training.

Right-To-Know Training

The Right-To-Know (Hazard Communication) Training was revised. Target groups such as Housekeeping, Maintenance, ARC, Security, and Shipping/Mailroom area were also trained. There were a total of 52 classes held for these employees. These groups may only occasionally enter research areas.

Bloodborne Pathogen Training

Sixty-two classes were held for BBP training of 910 employees. This year more than 300 employees utilized the BBP retraining online. The BBP presentation is currently being revised and new graphics have been developed. Training also includes monitoring of compliance and required vaccination and health monitoring programs.

DOT/IATA Shipping Training

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 particular 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,

OSHA LABORATORY PERFORMANCE STANDARD

Instrument Calibrations

Properly calibrated instruments were necessary for Industrial Hygiene (IH) and hood certifications in laboratories to perform accurate surveys and provide results with proper measurements. Annual factory calibrations of 20 instruments were maintained.

Instrument	**Model**	**Serial #**	**Frequency**	**Next Due**
High flow impactor pump	10-709	1298-2617	Annually	11/6/2004
Mini-Buck Calibrator	M-30	M-5648B	Annually	8/24/2004

eliminate deficiencies. The inspection protocol and form were revised to make them more comprehensive and user friendly during inspections and PI follow-ups.

CASE has more than 1000 Principal Investigators (PIs) authorized to use chemical and biological materials in 2000 laboratories. Laboratories are inspected by the SSO annually. Inspections include physical inspections, verification of training records, and follow-up. Audits are more frequent if there are particular concerns in a laboratory.

Inspections were conducted at outlying sites including UH, Metro Health, and Veterans Administration (VA) Hospitals. These outlying sites were inspected because CASE personnel are working in these areas.

Building	**Rooms Inspected**
Bingham	88
BRB	451
DeGrace (Biology)	31
Bolwell	2
Clark	0
Dental	111
Glennan	109
Health	1
KHS	111
Wearn	111
White	0
Wickenden	0
Wood	321
UCRC II	15
MacDonald	27
Mather	0
Med East	511
Metro Heath Hospital	4
Millis	128
Morley	35
Nursing (Bolton)	71
Olin	0
Pathology	169
Rad Waste	0
RBC	110
Research Tower	10
Rockefeller	30
Strosacker	14
Smith	160
Veterans Administration Hospital	0
Total	**2620**

RESPIRATOR PROGRAM

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. There are currently four Self-Contained Breathing Apparatus (SCBAs) in inventory, two are new and two will be recycled. A policy and questionnaire were developed for the medical students requesting N95 respirator fit testing for electives at other facilities as part of their program.

An assessment of Respiratory Hazards was utilized for the campus community. The assessment included employment of written methodology, assessment forms and questionnaires, employee interviews and evaluations, and exposure estimate calculations. All elastomeric face pieces and SCBAs were recycled to improve visibility and comfort. This allowed cost savings for the SSO through negotiation of credit for old elastomeric face pieces at approximately $2 X 14 half-face respirator mask and $7 X 12 full-face respirator mask.

HOOD CERTIFICATION PROGRAM

The University met compliance goals for OSHA, NFPA, as well as Ohio Radiation Safety programs by implementation of the SSO's "Hood Certification Program". Hood testing was carried in all laboratories that were occupied or used by CASE personnel. These areas included laboratories in CASE, UCRC II, & I (University West) UH, Metro Health and VA Hospitals. All chemical hoods located in these laboratories were tested in the past year with a velometer. Those flows, with an accompanying letter of pass/fail to the PI, were recorded on a computer program for audit purposes. The response of Plant Services in repairing those hoods failing the fume hood certification has been good. In future years, on an annual basis, our target will be to test one-third of the chemical hoods using ASHRAE 110 testing and two-thirds using face-velocity testing only. During fiscal year of 2002-2003, a total of 760 hoods were tested, among which 95 hoods were tested using the ASHRAE 110 method and more than 665 hoods were tested using face velocity method. This process yielded a failure rate of 7% for all hoods.

Following these procedures, the chemical hoods were calibrated to ensure proper engineering controls using the ASHRAE 110 testing techniques. The method of calibration consisted of three tests:

1. Face Velocity Measurement
2. Flow Visualization Test
3. Tracer Gas Containment Test

Biosafety cabinets and Laminar Flow hoods were certified through a contracted company named Laboratory Certification Services (LCS). Annually PIs were notified through inspection and department notification to re-certify their hoods. An online database was created on the DOES website that allowed the PI, to sign up for re-certification and to

request repairs. Two hundred eight-one Biosafety cabinets and Laminar Flow hoods were re-certified last year.

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.

Indoor Air Quality (IAQ) Monitoring

An IAQ monitoring protocol has been established to ensure that concerns are addressed using the appropriate techniques in a timely manner. Air monitoring was done when necessary and an assessment was carried out through sampling and analysis. Follow up was carried out when the analyses were complete. A report was written for each complaint. The SSO responded to five major incidents, 141 odor complaints, 10 of which evolved into IAQ assessments involving sampling and analysis reflective of possible safety problems. There were also 59 incidents involving spills and two incidents involving mold in campus buildings excluding the West Quad. All response and follow-up procedures were completed for this program.

Seven IAQ complaints were investigated in the Service, Dively, Sears, Adelbert, Wood, Guildford, and Baker buildings. This involved assessing questionnaires, performing

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 will be stored only in the 4th floor laboratory and only amounts of BSE required for injection of the animals will be transported to the ARC Facility when required.

Laboratory Inspections Program

Fire Inspection Program

Fire drills are conducted twice per year. This year fire drills were conducted in 32 buildings. Evacuation Plans have been revised for 16 areas. There are three plans remaining that must be revised.

Building Walkthroughs

Walkthroughs of two buildings each week were carried out to determine areas that were in violation of any safety codes, including fire and means of egress. Ninety buildings were inspected this year.

Ergonomics Evaluations

Ergonomic issues were addressed on an individual basis to eliminate work-related muscular-skeletal disorders among employees. Twelve issues were evaluated this year affecting 30 employees in their workstations. Ergonomic evaluations were performed to minimize the amount of stress and strain placed on the body while working. The underlying premise of these recommendations was that the task should fit the worker rather than the worker be forced to make potentially harmful physical demands to perform the task. Most evaluations performed at CASE pertain to office workstations, laboratory work (pipetting/microscope usage), or material handling operations (lifting hazards). Some factors for evaluation included:

- The arrangement and adjustability of equipment, tools, or furniture
- Anthropometric data (for clearance, reach, worker dimensions, etc.)
- Tasks performed
- Reported health problems

Facility Inspections

Regular inspections of all facilities were carried out by the Physical Safety Specialist in collaboration with the Plant Services personnel involved in campus walkthroughs.

Remedial Services

The Physical Safety Specialist incorporated on-site problem solving in all areas of physical safety. Three noise complaints that were also resolved, and it was recommended that a more refined sound meter be purchased.

PLANT SAFETY

Training

Training overlapped with all safety areas of the department and was tailored specifically for Plant, Protective Services, and Custodial personnel.

Facility Inspections

- Indoor Air Quality Assessment
- Cessation of Regulated Operations as required by EPA Inspection.
- Mold Abatement

EMERGENCY RESPONSE PROGRAM

The SSO was involved in writing the campus-wide Emergency Response Plan by completing a section of the Campus Incident/Emergency Management Plan. The DOES Emergency Response Plan was developed and designed to integrate with this plan. This DOES plan was reviewed with Protective Services and Cleveland Fire Department representatives.

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. Security checks are carried out on the weekends during the level increase and all buildings, BSL3 facilities, and irradiators are inspected to ensure that they are secured. The DOES Conference Room has been designated as the emergency headquarters 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.

Response equipment was inventoried and re-supplied. The annual usage for each type of response equipment is as follows:

- 400-500 pairs of thin Nitrile gloves
- 10-12 pairs of other glove types over 12 mils
- 4-5 Tyvek suits
- 8-10 Tyvek QC suits
- 12 pairs Tyvek polycoated booties
- 30 lbs. Mercury absorbent
- 10-12 lbs. of various other absorbent for solvents, formaldehyde, acids, etc.
- 20-25 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) has also been evaluated for adequacy and the types materials kept on hand were augmented to increase response capabilities including:

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

For unit disposal costs, due to the volume of disposals, only select areas have been detailed in the table below.

LABORATORY WASTE BREAKDOWN PER MANAGEMENT CENTER

Waste Type	Arts/ Science	Engineering	Dental	Medical School	Kod	TD-02046.

ACCOMPLISHMENTS FOR 2002-2003

Notable new accomplishments included:

- Completion and publication on the Departmental website of a new Physical Safety Manual for the University.
- Establishment of a new Emergency Response Coordinating Facility.
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- Inclusion of the Right-To-Know Hazard Communication training on line.
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