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Subject: LABORATORY MANAGEMENT PLAN (in support of 40 CFR 262 Subpart K)	Effective Date 05/18/17	Page 1 of 9

LABORATORY MANAGEMENT PLAN (LMP)

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1. Introduction

The Pittsburgh Campus of the University of Pittsburgh is located in the City of Pittsburgh, Allegheny County, Pennsylvania. The University of Pittsburgh (the University), founded in 1787, uses the approximately 120-acre property to house educational and research facilities. The University is located approximately two (2) miles from downtown Pittsburgh in the suburb of Oakland. Approximately 12,000 full-time faculty and staff are employed at the Pittsburgh Campus. Educational and research activities from over 2,000 laboratories and research spaces result in the generation of various chemical waste streams. The University of Pittsburgh – Pittsburgh Campus is categorized as a Large Quantity Generator (LQG) of hazardous waste.

Facility Name:	University of Pittsburgh, Pittsburgh Campus
Owner Name:	University of Pittsburgh Department of Environmental Health and Safety Jerome Cochran Public Safety Building, 4 th Floor 3412 Forbes Ave. Pittsburgh, PA 15260 (412) 624-9505
Facility EPA ID#:	PAD000652016
County:	Allegheny

2. Applicability

The purpose of this Laboratory Management Plan (LMP) is to comply with the provisions of 40 CFR 262 (Subpart K - Alternative Requirements for Hazardous Waste Determination and Accumulation of Unwanted Material for Laboratories Owned Eligible Academic Entities). The LMP will be reviewed and revised as necessary by EH&S.

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What is a laboratory under Subpart K?	YES	NO
Teaching and research labs	√	
Art studios	√	
Photo labs	√	
Field labs	√	
Diagnostic labs in teaching hospitals	√	
Areas that support labs (e.g. chemical stockrooms, prep rooms)	√	
Chemical stockrooms that do not support labs		√
Vehicle maintenance areas		√
Custodial storage rooms		√
Machine shops		√
Print shops		√
Purchasing storage and excess		√
Service and Stores trade shops		√
Commercial photo processing		√
Power plants – Heat/Chill		√
Dining establishments		√
Sport/Recreational Facilities		√

3. LMP Requirements

The LMP is required to have two (2) parts that address nine (9) specific elements. Part I of the LMP is enforceable and Part II of the LMP describes best management practices and is not enforceable.

3.1 Part I: Enforceable Requirements

Part I is required to contain two (2) elements. The first element consists of a description of how containers of “unwanted material” will be labeled. The LMP must identify whether the term, “unwanted material” will be used on the label, or if another, equally effective term will be used to identify chemical waste. This element must also include the manner in which information that is “associated with the container” will be imparted.

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The second element must identify the method used for the removal of unwanted material. The University must identify and comply with one (1) of the following provisions:

1. 40 CFR 262.208(a)(1) - Remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months;

OR

2. 40 CFR 262.208(a)(2) - Remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

3.2 Part II: Non-enforceable Requirements

Part II contains seven (7) elements that are intended to address best management practices undertaken by the University to ensure that chemical waste is being properly managed in laboratories. A description of the following best practices is required:

1. Container labeling and management
2. Provision of training for laboratory workers and students commensurate with their duties and activities
3. Provision of training to ensure the safe on-site transfer of unwanted material by trained professionals
4. Removal of unwanted material from laboratories
5. Hazardous waste determinations, including specifying the duties of individuals involved in the process
6. Procedures and documentation of laboratory cleanouts
7. Emergency prevention measures

4. **University of Pittsburgh LMP – Part I**

4.1 Container Labeling

The University refers to chemical waste generated in laboratories as either “chemical waste” or “waste chemicals” (as reflected on University-provided chemical waste labels). The term, “unwanted material” is not used to identify chemical waste at the University.

When a material has no further use, laboratory personnel identify the material as a chemical waste by affixing a completed WASTE CHEMICALS label to the container. The labels are provided by EH&S to laboratories under this Plan.

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4.2 Chemical Waste Removal from Laboratories

The University requires that all chemical waste is removed from the laboratories no more than 12 months from the accumulation start date indicated on the chemical waste label.

Chemical wastes are removed on a biweekly schedule throughout the calendar year. EH&S is responsible for the removal of chemical waste once laboratory personnel have determined that the waste containers are either no longer needed or are required to be removed when approaching the 12-month time limit. All chemical waste is maintained in a designated Central Accumulation Area (CAA) under the control of EH&S until the time of removal from campus by a qualified vendor.

5. **University of Pittsburgh LMP – Part II**

5.1 Container Labeling and Management

All chemical waste is required to be labeled with a completed WASTE CHEMICALS label when waste is first added to the container. The following information must appear on the label:

- Common chemical name (no formulas, abbreviations, or structures)
- Quantity (volume and/or concentration)
- Department
- Phone number
- Name of individual or laboratory generating the waste
- Primary hazard of the waste
- Start date when waste is first added to the container

The University implements the following container management practices:

- Waste containers are required to be closed except when actively adding waste to the container.
- Containers used to collect waste chemicals must be compatible with the waste chemicals.
- Only compatible materials should be collected in the same waste container.
- High Performance Liquid Chromatography (HPLC) waste containers should be fitted with modified caps designed to provide a tight fit between the container opening and the waste line.

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Containers of chemical waste are segregated by hazard class and placed in secondary containers with absorbent/cushioning material prior to transport. Once the chemical waste reaches the designated Central Accumulation Area (CAA), the chemical waste containers are stored appropriately by EH&S. All hazardous waste determinations are conducted by EH&S personnel within four (4) calendar days of the waste arriving at the designated CAA. Once a chemical waste has been determined to be a hazardous waste, EH&S personnel will mark the “HAZARDOUS WASTE” checkbox at the bottom of the label. The “EH&S Accumulation Date” is entered on the label when the waste arrives at the CAA.

All chemical waste is removed from the CAAs and shipped offsite by the University’s licensed chemical waste contractor within the required 90-day storage time limit. The waste contractor ensures that:

- Chemical waste containers are classified appropriately per RCRA and DOT regulations;
- Chemical waste is packaged in properly marked and labeled UN/DOT-approved containers;
- Required shipping and disposal documentation is prepared (uniform hazardous waste manifest, land disposal restriction form, packing lists, etc.); and
- All containers are transported securely to a licensed hazardous waste disposal facility.

5.2 Training – Laboratory Personnel

All University faculty, staff, and students that work in laboratories receive training commensurate with their duties. “Chemical Safety in the Laboratory/Chemical Hygiene” training is provided by EH&S. The training reviews proper chemical handling, labeling, hazard identification, hazard communication, spill response procedures, chemical movement/transport procedures, proper storage, and chemical waste handling. Additional training opportunities are provided at laboratory specific training sessions, Departmental orientations, and/or School/Departmental safety seminars.

Additionally, EH&S inspects all laboratories and research spaces annually. The annual inspections serve as an educational opportunity for laboratory personnel. Chemical waste labeling and management procedures are assessed, reviewed and discussed by EH&S during the inspection process.

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5.3 Training – EH&S Personnel

EH&S personnel receive the following training:

- Chemical Safety in the Laboratory/Chemical Hygiene training at least every three years
- Resource Conservation and Recovery Act (RCRA) training at least every 12 months
- Department of Transportation (DOT) training as specified in 49 CFR 172.700 at least every three years
- Initial OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training followed by eight-hour annual refresher training

EH&S personnel responsible for making hazardous waste determinations have the experience and knowledge necessary to manage chemical waste appropriately. Only qualified and trained personnel are involved with handling chemical waste and making hazardous waste determinations.

5.4 Removal of Chemical Wastes from Laboratories

Chemical waste collections are conducted by EH&S biweekly throughout the calendar year. Chemical waste collection schedules are available at www.ehs.pitt.edu and are distributed accordingly. All chemical waste is moved to the CAA by EH&S using a licensed University-owned box truck fitted with the necessary supplies for safe chemical waste handling and transport (UN/DOT-approved containers, vermiculite, spill response equipment, etc.).

Laboratories are not permitted to accumulate greater than 55 gallons of chemical waste or one (1) quart of reactive acutely hazardous chemical waste. Due to the frequency of chemical waste collections, it is unlikely that any laboratory will approach the storage limit of 55 gallons of chemical waste or one (1) quart of reactive acutely hazardous chemical waste.

5.5 Hazardous Waste Determinations

All hazardous waste determinations are made by EH&S personnel. EH&S personnel receive the appropriate training and are qualified to make hazardous waste determinations, as outlined above.

Waste determinations are made within four (4) calendar days of the transfer of the chemical wastes to the designated CAA. Trained EH&S personnel review the

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contents of each chemical waste container by reviewing the information indicated on the chemical waste label. Following a review of the chemical constituents, EH&S indicates that the waste is a RCRA hazardous waste by marking the “Hazardous Waste” checkbox at the bottom of the label. If the waste is determined to be “non-hazardous”, the box is left unchecked. EH&S also enters the “EH&S Accumulation Date” on the label with the date when the chemical waste was transferred to the designated CAA.

The University’s licensed hazardous waste contractor removes waste chemicals from the designated CAA under the supervision of trained EH&S personnel within the 90-day storage limit. All required labels and marks (including RCRA waste codes) are affixed to each UN/DOT approved container by the contractor prior to shipment to a permitted hazardous waste disposal facility. A uniform hazardous manifest accompanies all waste chemical shipments.

5.6 Laboratory Cleanouts

If a laboratory cleanout is required, the affected University School/Department will notify EH&S. EH&S will evaluate and schedule the laboratory cleanout if necessary. All cleanouts will be completed within thirty (30) calendar days and may only be performed once every twelve (12) months per laboratory. Wastes generated during laboratory cleanouts will not affect the Large Quantity Generator status of the University, and EH&S will maintain all documentation associated with a specific laboratory cleanout (e.g. disposal documentation, departmental correspondence, etc.).

5.7 Emergency Prevention

All laboratory personnel are required to attend the University’s Chemical Safety in the Laboratory/Chemical Hygiene training, which reviews University-specific emergency procedures for spills, releases, injuries, and/or exposures within the laboratory. Proper emergency response procedures are also provided in the training. All laboratories are encouraged to maintain a spill response kit. The University’s Emergency Management Guidelines provide guidance on emergency situations and are available to all University faculty, staff and students. Lab-specific guides are available and posted within University laboratories.

All laboratories are required to maintain a chemical inventory. Inventories are submitted annually to EH&S. Inventories are reviewed by EH&S, and if a potentially reactive chemical that appears unsafe for routine handling is identified, EH&S personnel respond immediately to evaluate the chemical. If the chemical requires

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removal from the lab for the safety of occupants, EH&S will make the appropriate arrangements.

Laboratory personnel are trained to identify chemicals that may pose a greater danger if kept beyond their expiration date or if the physical state of the chemical changes. Examples of these chemical types include peroxide-forming chemicals and shock-sensitive materials. Laboratory personnel are instructed to contact EH&S for immediate assistance if these chemicals are discovered.

Unknown chemicals are labeled with a WASTE CHEMICALS label, and are identified as “unknown liquid” or “unknown solid.” EH&S safely transfers the unknown chemicals to a designated CAA. The University’s hazardous waste contractor then conducts an analysis to characterize the unknown chemicals. The contractor is responsible for proper disposal of the unknown chemicals upon characterization.