DREXEL UNIVERSITY
HAZARDOUS WASTE MANAGEMENT PLAN

DEPARTMENT OF ENVIRONMENTAL HEALTH AND SAFETY

January 2010

HAZARDOUS WASTE MANAGEMENT PLAN

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Hazardous Waste Management Plan

General Policy for Managing Hazardous Waste

Mission Statement

To Anticipate, Recognize, Evaluate and Control environmental hazards at Drexel University while continuously striving to protect human health and the environment, and promote a University setting that is conductive to the highest level of education and research.

Training Initiatives

Drexel University Department of Environmental Health & Safety believes that training is an integral part in creating an environmentally aware and safe work place. We have integrated our environmental policies and goals into a comprehensive training program that provides:

- Employees with information to conduct their jobs in a safe manner;
- A mechanism to elevate environmental awareness of employees;
- A mechanism to demonstrate management's commitment to improved environmental performance;
- Compliance with regulatory requirements;

Pollution Prevention/Waste Minimization

Pollution Prevention and waste minimization are terms that refer to the practices that reduce or eliminate the amount of pollutants which would have entered any waste stream or that would have been released into the environment prior to recycling, treatment, or disposal.

Drexel University will prevent or reduce the amount and/or toxicity of hazardous waste in the laboratory by using practices and materials that avoid, reduce and control hazardous waste generation at the source.

Generator Classification

Drexel University (Center City/ East Falls/Main Campus) - Large Quantity Generator (LQG)

The LQG classification allows Center City/ East Falls/Main Campuses to:

1. Generate greater than 1,000 kg of hazardous waste or greater than 1 kg of acutely hazardous waste in one month.

2. Accumulate greater than 6,000 kg of hazardous waste for up to ninety (90) days.

Compliance

Drexel University will continue to comply with all Federal, State, and Local environmental laws and regulations.

Hazardous Waste Management Procedures in the Laboratory

Hazardous Waste

Hazardous waste includes substances that are solids, liquids and gases. The EPA definition of hazardous waste includes substances that possess a hazardous characteristic (e.g. toxic, ignitable, corrosive or reactive with other substances), or substances that are listed as hazardous waste by the EPA on the basis of their usage or chemical constituents.

Hazardous Waste Identification

The Department of Environmental Health and Safety will perform identification of hazardous wastes. Since the majority of chemicals used in our facility are reagent grade the identification will be performed using Material Safety Data Sheets, bottle labels, and 40 CFR Part 261 Subpart B, C, and D. A third party contractor will test for the ignitability, corrosivity, reactivity, and toxicity of unknown hazardous wastes.

Mixed Chemical Waste

The Department of Environmental Health and Safety shall require that only compatible chemical waste be combined into one waste container. Refer to the Laboratory Safety Manual and *MSDS* for chemical compatibilities.

Multi-Hazardous Waste

Multi-Hazardous waste is waste that contains any combination of chemical, radioactive, or biological hazards. Any waste stream that presents more than one type of hazard will require special management consideration because the selected treatment technology appropriate for one type of waste may not be appropriate for the other types. Multi-hazardous waste will be evaluated on an individual basis and the constituent that poses the greatest hazard will be given priority.

Drain Disposal

The Department of Environmental Health and Safety will permit drain disposal of elementary neutralized (pH adjustment of waste that are hazardous only because they exhibit the corrosivity characteristic) acidic aqueous solutions. The elementary

neutralized aqueous solution must have a final pH value between 6 and 8. The limit of material that may be neutralized is 1 liter.

The Department of Environmental Health and Safety will also permit drain disposal of common salts, sugars and agars in both liquid and solid forms. For solids, the material must be dissolved in tap water. The limit of material that may be disposed is 1kg of solid or 1 liter of liquid.

The Drexel University Department of Environmental Health & Safety shall prohibit the drain disposal of the following:

- Flammable or explosive pollutants
- Pollutants that will cause corrosive structural damage to the Publicly Owned Treatment Works (POTW), but in no case discharges with pH lower than 5.0.
- Solid or viscous pollutants that may cause an obstruction of flow in the POTW
- Pollutants capable of releasing fumes or vapors
- Pollutants, including oxygen-demanding pollutants (high biological oxygen demand), which may cause interference with the POTW
- Wastewater with sufficient heat to inhibit biological activity in the POTW (must not exceed 104 F at the POTW)
- Petroleum, oil, non-biodegradable cutting oil or products of mineral oil origin in amounts that will cause interference or pass through
- Organic chemicals
- Heavy metal solutions
- Nitric, Hydrofluoric, Perchloric, and Chromic acid
- Toxic/Poisonous solids and liquids

Satellite Accumulation Areas (40 CFR 262.34(c))

A satellite accumulation area is an area at or near a process that generates chemical wastes. The area must be under the control of the operator of that process.

The Drexel University Department of Environmental Health & Safety designates each laboratory as a satellite accumulation area. The laboratory Principal Investigator, Moderator, Chemical Hygiene Officer, is responsible for following the policies of the University Department of Environmental Health & Safety regarding satellite accumulation areas.

Allowable Amount Accumulated

- Laboratories may accumulate as much as 5 gallons of hazardous waste or one quart of acutely hazardous waste (immediately hazardous to life and health) in compatible containers at or near any point of generation.

Labeling

- All containers must be labeled with the complete chemical name of each primary component. Formulas, acronyms and abbreviations are not acceptable.
- If possible, the label should include the approximate percentage of each chemical.
- Do not place the date or the words "Hazardous Waste" on the container. The Drexel University Department of Environmental Health & Safety will re-label the container during pick-up as either a recyclable/re-distributable material or as hazardous waste at which time the container will be dated and moved to the temporary storage vault.

Container Types

- All containers must be kept closed except when it is necessary to add or remove material. Evaporation of waste in fume hoods is **STRICTLY PROHIBITED.**
- All containers must be maintained in good condition (i.e. no rust, dents, or leaks, etc.)
- All containers must be compatible with the hazardous wastes they contain. Refer to Material Safety Data Sheets for container compatibility. If the MSDS is not available contact the Drexel University Department Environmental Health & Safety Department at:

All Campuses	(215) 895-5892 (215) 895-5909

Accumulation Time

- There will be no limit on accumulation time, however, once a container is full or more than 5 gallons of hazardous waste or 1 quart of acutely hazardous waste is accumulated, the full container or excess waste must be moved to the accumulation area within 72 hours.

Inspection

- Inspection of each satellite accumulation area shall be the responsibility of the principle investigator.

Chemical Pick-up Request

The Environmental Health & Safety Department shall provide chemical pick-up request forms for each laboratory. Chemical pick-up request forms should be immediately filled out when:

- Unwanted and old chemical reagents need to be removed
- The satellite accumulation waste container is full
- There is more than 5 gallons of hazardous waste or one quart of acutely hazardous waste accumulated.

Online Submission

Laboratory personnel can submit chemical pick-up requests by visiting the University Department of Environmental Health & Safety's website (www.drexel.edu/facilities/healthSafety/) and selecting the Service Request Forms link on the navigation bar.

University Department of Environmental Health & Safety shall respond to chemical pick-up request within 72 hours of receipt of request.

Emergency Spill Response Plan for Laboratories

The University Department of Environmental Health & Safety shall reference the Hazardous Materials Emergency Response Plan for emergency spill procedures.

Training

The University Department of Environmental Health & Safety will provide training to all university employees/students who handle hazardous waste in laboratories. Each employee/student shall receive training on proper handling of chemicals and emergency response procedures.

Initial training must be completed during the first month of employment (refresher training is provided annually thereafter). Hazardous waste training will be conducted as part of the annual laboratory safety training. Additional training sessions can be arranged by calling the University Department Environmental Health & Safety at:

All Campuses	(215) 895-5892
	(215) 895-5909

The University Department of Environmental Health & Safety shall document all hazardous waste training. Training records will be kept for at least three years from the date the employee last worked at the university.

Standard Procedures for Removal of Hazardous Waste from Laboratories

Only properly trained personnel from the University Department of Environmental Health & Safety shall only perform the removal of hazardous waste from the laboratory. The University Department of Environmental Health & Safety reserves the right to obtain outside contractor for major waste removals from laboratories.

Training

The University Department of Environmental Health & Safety personnel and/or contractors who remove hazardous waste from laboratories shall have the OSHA 40 Hour Hazwopper certification.

The University Department of Environmental Health & Safety documents training of all personnel involved in hazardous waste operations. The training records will be kept for at least three years from the date the employee last worked at the university.

Removal Procedures

Chemical Pick-up

1. The chemical request form should list all the materials that need to be removed. Any materials not listed will not be removed until a chemical request form is filled out.
2. If the material is improperly labeled it will not be removed until proper labeling is present.
3. Open containers will not be removed from the laboratory. Only closed containers will be removed.

Transportation

1. A two level cart, with a three-inch lip on each level, will be used to transport all hazardous waste from the laboratory to the temporary accumulation area.
2. Liquid waste shall not be carried to the temporary accumulation area by manual means.
3. Freight elevators, where possible, will be used to transport waste to the temporary accumulation area.
4. Chemically incompatible materials shall be separated using the two levels on the cart.
5. Spill clean up materials will be present on the cart at all times during pick-up of hazardous materials. Drip pads shall line each level of the cart to prevent any mixing of incompatible chemicals.
6. Transportation cart shall be label with hazard warning signs.

Personal Protection

1. Personal protection equipment will be required during hazardous waste pick-ups.
2. Safety personnel will determine the level of protection required to safely transport the materials.

Temporary Accumulation Area

The Drexel University Department of Environmental Health & Safety shall store all hazardous waste in a central temporary accumulation area. This temporary storage facility complies with subpart DD of the 40 CFR Part 265.

The professional engineer certification that the containment building complies with the design standards specified in 40 CFR 265.1101 is in the facility's operation record.

Drexel University has three temporary storage facilities. The location of each temporary storage facility is as follows:

Campus	Building Name
University City	Stratton Hall
East Falls	Queen Lane
Center City	Bobst Building

Accumulation Time

Drexel University- All Campuses

- Hazardous waste must be removed from the temporary accumulation area within 89 days and transported to the designated TSD facility.
- The 89 days start once a hazardous waste is removed from a satellite accumulation area and delivered to the temporary accumulation area.

Labeling

- Once the container enters the temporary accumulation area, The Drexel University Department of Environmental Health & Safety will re-label all waste containers with the words "Hazardous Waste" or an EPA hazardous waste label and the date the container was placed in the area.
- If waste is accumulated in drums than the drum must be dated when the accumulation began.
- Unknown wastes undergoing sampling still have to follow the 90-day rule. The accumulation start date is when the waste is placed in the temporary accumulation area not when the lab results are returned.

Allowable Amount Accumulated

- Drexel University has no limit, due to generator class, to the amount of hazardous waste accumulated in the temporary accumulation area. However, all hazardous waste accumulated must be removed within ninety (90) days.

Incompatibles Storage

- Incompatible waste will be separated to the greatest extent possible using containment cabinets and shelves.
- The waste will be separated into six categories:
    1. Flammables
    2. Corrosive – Acids
    3. Corrosive – Bases
    4. Oxidizers
    5. Poisons
    6. Non-Hazardous

Container

- All hazardous waste containers must be kept closed except when it is necessary to add or remove waste.
- All containers must be maintained in good condition (i.e. no rust, dents, or leaks, etc.)
- All containers must be compatible with the hazardous wastes they contain. Refer to Material Safety Data Sheets for container compatibility.
- Documented inspections of waste containers shall be performed during chemical pick up. The condition of the containers will be documented by initialing the chemical pickup request for during the pick-up.

Inspection of the Temporary Accumulation Area

- The temporary accumulation areas shall be inspected weekly by the Drexel University Department of Environmental Health & Safety to look for any signs of corrosion, dents, bulges, cracks, or other signs of deterioration that could cause hazardous waste to be released.
- The weekly inspection shall be documented and retained for a period of one year.
- The standard for containment building condition reporting (40 CFR Part 265.1101 (c) (3)) shall be followed upon detection of a condition that could lead to or has caused a release of hazardous waste.

Preparedness and Prevention

- The temporary accumulation area shall be maintained and operated to minimize the potential for the release of hazardous material to the environment. (Refer to 40 CFR Part 265.31)
- The following emergency equipment and procedures shall be maintained in the temporary accumulation area and periodically tested to ensure it is in working order:

    - Fire alarms
    - Communication Equipment
    - Portable fire extinguishers (including special extinguishing equipment such as using foam, inert gas, or dry chemicals)
    - Spill control equipment
    - Decontamination equipment
    - Automatic sprinklers
    - A posted list of emergency contact numbers
- Refer to Appendix III for a detailed list of emergency equipment.
- All alarm systems and fire protection equipment shall be tested and maintained as necessary to assure its proper operation in the time of emergency by the Drexel's Facilities Management Department.
- Spill control equipment and decontamination equipment shall be tested and maintained as necessary to assure its proper operation in time of emergency by the University Department of Environmental Health & Safety.
- Whenever hazardous waste is being handled, all personnel involved in operation shall have two-way communication device capable of summoning external emergency assistance.
- Waste containers shall be arranged in the temporary accumulation area so that there is adequate aisle space to allow access for emergency personnel and equipment.
- Drexel University Department of Environmental Health & Safety shall comply with the Preparedness and Prevention Standard 40 CFR Part 265.37 concerning emergency arrangements with local and state authorities.

Procedures For Hazardous Waste Removal (Off-site)

The Drexel University Department of Environmental Health & Safety shall require all contracted hazardous waste transporters to comply with the requirements set forth by this plan, in addition to the federal, state and local hazardous waste regulations.

Training

The contracted hazardous waste transporters shall comply with the training requirements listed in 49 CFR Part 172 Subpart H and 49 CFR Part 177.816.

The Drexel University Department of Environmental Health & Safety shall inform all hazardous waste contractors on the university's emergency spill response procedures.

Packing

The contracted hazardous waste transporter shall package all hazardous waste in accordance with all Department of Transportation regulations on packaging under 49 CFR Parts 173, 173.12 & Subpart B, 178, and 179.

The Drexel University Department of Environmental Health & Safety shall require all contracted hazardous waste transporters to carry emergency spill clean up materials when packing hazardous materials for transportation.

Labeling and Marking

Before transporting the hazardous waste packages, the transporter shall label each package in accordance with Department of Transportation labeling requirements (49 CFR Part 172 Subpart D and E).

The transporter shall mark all containers of 110 gallons or less used in transportation with the following words and information displayed in accordance with the requirements of 49 CFR 172.304:

"HAZARDOUS WASTE"
Federal Law Prohibits Improper Disposal
If found, contact the nearest police or public safety authority or the
"U.S. Environmental Protection Agency"
Drexel University
Building name and address
Manifest document number

Placarding

The transporter shall placard the transportation vehicle according to Department of Transportation regulations 49 CFR Part 172 Subpart F for hazardous materials.

Manifest

Drexel University Department of Environmental Health & Safety and hazardous waste transporter will mutually designate on the manifest one primary facility that is permitted to handle the waste described on the manifest.

Drexel University Department of Environmental Health & Safety shall require the hazardous waste transporter to complete all manifests prior to leaving the site. The Drexel University Department of Environmental Health & Safety shall review the completed manifest prior to signing.

Acquisition of Manifests

The transporter shall use the manifest format of the state receiving the hazardous waste. If that state does not supply the manifest then the transporter shall use the Pennsylvania manifest. If neither state supplies the manifest then the transporter shall obtain the manifest from any source.

Number of Copies

The manifest consists of at least the number of copies which will provide the Drexel University Department of Environmental Health & Safety, each transporter, and the owner or operator of the designated TSDF with one copy each for their records and another copy to be returned to Drexel University Department of Environmental Health & Safety.

Manifest Process

The manifest shall be signed and dated by the initial transporter and the Drexel University Department of Environmental Health & Safety. The Drexel University Department of Environmental Health & Safety shall retain one copy and give the transporter the remaining copies. A designated representative from the TSDF shall sign the manifest upon delivery and return a copy of the manifest to the Drexel University Department of Environmental Health & Safety within 35 days.

Record Keeping

The Drexel University Department of Environmental Health & Safety shall comply with the local, state and federal record keeping requirements. In addition, the safety and health department shall comply with the requirements set forth by this document.

Completed Chemical Pick-up Request Forms

Completed chemical pick-up requests forms shall be filed in a temporary filing system until the 89-day waste pick up. Upon completion of the 89-day pick up, the forms shall be filed in a permanent filing system and retained for twenty years.

Manifest

The Drexel University Department of Environmental Health & Safety shall keep a copy of each manifest signed in accordance with 40 CFR Part 262.23 for three years or until the Drexel University Department of Environmental Health & Safety receives a signed copy from the designated facility that received the waste. The signed copy from the designated facility shall be retained as a record for at least twenty years from the date the waste was accepted by the initial transporter.

Manifest Filing System

- The manifest, signed by the transporter and the Drexel University Department of Environmental Health & Safety, and any other information, will be filed in a folder.

- The folder shall be labeled with the month of pick-up, year, and facility name.
- A checklist will be created for each manifest. Refer to Appendix V for manifest checklist. The checklist information is dependent upon the state's manifest regulations.
- On the checklist, write down the manifest number and the description of work performed.
- Check off each item when the item is received.
- Place all information in the folder
- Once all the manifest information is received, the folder will be moved to the manifest processed area.
- The processed folders will be kept current for at least one (1) year. After one (1) year, the processed folders shall be archived.

Waste Tracking

The completed chemical pick up request forms shall be used to total the weight of all hazardous waste generated in each quarter. The Drexel University Department of Environmental Health & Safety shall keep a permanent database of the quarterly totals. The content of the database is as follows:

- Waste Number
- DOT Hazard Class (# or name)
- Quantity of each EPA Listed Waste
- Total of all Hazardous Waste generated in a quarter

The Drexel University Department of Environmental Health & Safety will print out each quarter's totals. This hardcopy will be filed and retained for a minimum of three (3) years.

Inspection Records

The Drexel University Department of Environmental Health & Safety shall strictly inspect and document all areas involved in the universities hazardous waste operations.

Container Inspection records

- All container inspection records shall be filed in a temporary filing system until the waste is picked up. Upon completion of the pick up, the inspection records shall be filed and retained for at least one year.
- Any corrective actions pertaining to containers shall be kept with the inspection checklist in the same file.

Temporary Accumulation Area Inspection Records

- The Drexel University Department of Environmental Health & Safety shall maintain a file for the weekly inspection of the temporary accumulation area.
- Any corrective actions pertaining to the temporary accumulation area shall be kept with the inspection checklist in the same file.
- A new file shall be started every year. The previous year's inspection records shall be retained for at least one year.

Hazardous Waste Reports

The Drexel University Department of Environmental Health & Safety shall file all the required hazardous waste reports to the proper regulatory agencies.

Biennial Report

Drexel University shall submit a Biennial report (EPA Form 8700-13A) to the Regional Administrator or state by March 1st of each even-numbered year for all campuses. The report shall detail Drexel University's activities during the previous year. The following information shall be included in the report:

- Drexel University, building name, building EPA ID, and the building address.
- The calendar year covered by the report.
- The EPA ID number and name of each transporter used during the reporting year.
- The EPA ID number, name, and address for each off-site TSDF and recycler to which waste was shipped during the year.
- A description, EPA hazardous waste number (40 CFR Part 261, subpart C or D), DOT hazard class, and quantity of each hazardous waste shipped off-site to the designated TSDF. This information must be listed by the EPA ID number of each off-site facility to which waste was shipped.
- A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated.
- A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years.
- The certification signed by authorized person.

The Drexel University Department of Environmental Health & Safety shall retain a copy of each biennial report for a period of at least three years from the due date of the report.

Exception Report

Thirty-Five Day Limit

- If the Drexel University Department of Environmental Health & Safety, does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated TSDF within 35 days of the date the waste was accepted by the initial transporter then the transporter

and/or the owner or operator of the designated TSDF shall be contacted to determine the status of the hazardous waste.

Forty-Five Day Limit

- The Drexel University Department of Environmental Health & Safety shall file an exception report to the EPA Regional Administrator if the copy of the manifest with the handwritten signature of the owner or operator of the designated TSDF is not received within 45 days of the date the waste was accepted by the initial transporter.
- The Exception Report shall include the following:
    - A legible copy of the manifest for which University Environmental Health & Safety Department does not have confirmation of delivery.
    - A cover letter signed by the authorized representative explaining the efforts taken to locate the hazardous waste and the result of those efforts.

Sampling Report

The Drexel University Department of Environmental Health & Safety shall retain all records of any test results, waste analyses, or other determinations for a period of at least three years from the date that the waste was last sent to off-site TSDF.

Retention Time

The periods or retention referred to in this section may be extended automatically during the course of any unresolved enforcement action regarding the regulated activity, or as requested by the EPA Regional Administrator.

APPENDIX I

Chemical Pick-Up Request Form

Drexel University
University Environmental Health & Safety

Phone (215) 895-5907
Fax (215) 895-5926

Chemical Pick-Up Request / Chain of Custody

Dept. _____
Location _____

Page _____ of _____

Floor ___
Phone _____

Room # _____

Chemical / Product Name	Hazard Classification	Container Type	Number Of Containers	Total Quantity

Released By

Print _____
Sign _____
Fax ___ Date _____

Transport to Temporary Storage By

Print _____
Sign _____
Fax _____ Date _____

Received at Temporary Storage By

Print _____
Sign _____
Fax ___ Date _____

Released from Temporary Storage By

Print _____
Sign _____
Fax _____ Date _____

Transport to Disposal Facility By

Print _____
Sign _____
Fax ___ Date _____

Received at Disposal Facility By

Print _____
Sign _____
Fax _____ Date _____

APPENDIX II

Inspection Forms

Temporary Accumulation Area
Inspection Form

The University Department of Environmental Health & Safety requires the inspection of temporary accumulation areas weekly:

	Yes	No
1. Are there any signs of corrosion along the walls?	☐	☐
2. Are there any signs of dents, bulges, or cracks in any of the storage cabinets or waste drums?	☐	☐
3. Is there a posted list of emergency contact numbers in the temporary accumulation area?	☐	☐
4. Is decontamination equipment present?	☐	☐
5. Is the spill control equipment materials present ?	☐	☐
6. Are incompatible waste separated from one another?	☐	☐
7. Is the access door (i.e. lock, hinges, etc.) in good condition?	☐	☐
8. Is there adequate aisle space to allow access for emergency personnel and equipment?	☐	☐

Comments: _____

_____

_____

_____ _____

Please Print Name & Title Signature

_____ _____

Department Name Telephone Number

_____

Date

Ref.File: TAA Inspection Form

APPENDIX III

Emergency Equipment List

University City Campus – Stratton Hall – Temporary Accumulation Area

Fire Protection Equipment

1. Fire Alarm – located throughout the entire building – notifies and evacuates building occupants – notifies the Fire Department.
2. Fire Extinguisher – located in room 145 and throughout the building – ABC rating – extinguishes small fires.
3. Automatic Halon System – located in the temporary accumulation area – fire suppression system.

Communication

1. Cell Phones – all Health and Safety personnel involved in hazardous waste operations carries a Cell Phone – contact fire department and police.
2. Land Line Telephone – Located in room 145 directly adjacent to the storage facility – contact Health and Safety personnel, fire department and police.
3. Fire Alarm – located throughout the entire building – notifies and evacuates building occupants – notifies the Fire Department.

Spill Control Equipment

1. Shovel – located in room 145 directly adjacent to the storage facility and in the emergency response vehicles.
2. Broom – located in room 145 directly adjacent to the storage facility and the emergency response vehicles.
3. Squeegee – located in room 145 directly adjacent to the storage facility and the emergency response vehicles..
4. Absorbent pads – located in room 145 directly adjacent to the storage facility and the emergency response vehicles. – size is 1x1.5 feet – 30 pads for containment.
5. Absorbent booms – located in room 145 directly adjacent to the storage facility and the emergency response vehicles. – four feet in length – 15 booms for containment.
6. Oil Absorbent – located in room 145 directly adjacent to the storage facility and the emergency response vehicles. – 5 gallons.
7. Neutralizing agents – located in room 145 directly adjacent to the storage area and the emergency response vehicles – powder neutralizes solvents, acids, and bases – over 30 gallons.
8. Personal Protection Equipment – located in the emergency response vehicles – respirator, gloves, goggles, and saranex suites with booties and hood.

Decontamination Equipment

1. Deluge Shower – located in room 145 directly adjacent to the storage facility – decontaminates entire body of hazardous waste operation personnel.
2. Emergency Eyewash – located in room 145 directly adjacent to the storage facility – decontaminates eyes of hazardous waste operation personnel.

3. Water Supply – located in the building – utilized with buckets to decontaminate equipment.

Center City Campus – Bobst Building – Temporary Accumulation Area

Fire Protection Equipment

1. Fire Alarm – located throughout the entire building – notifies and evacuates building occupants – notifies the Fire Department.
2. Fire Extinguisher – located in storage area and throughout the building – ABC rating – extinguishes small fires.
3. Automatic Sprinkler System – located in the temporary accumulation area – fire suppression system.

Communication

1. Nextel Telephones – all Health and Safety personnel involved in hazardous waste oprations carries a Nextel telephone with two way capabilities – contact fire department and police.
2. Land Line Telephone – located in room directly adjacent to the storage facility – contact Health and Safety personnel, fire department and police.
3. Fire Alarm – located throughout the entire building – notifies and evacuates building occupants – notifies the Fire Department.

Spill Control Equipment

1. Shovel – located in the storage room and the emergency response vehicles.
2. Broom – located in the storage room and the emergency response vehicles.
3. Squeegee – located in the storage room and the emergency response vehicles.
4. Absorbent pads – located in the storage room and the emergency response vehicles. – size is 1x1.5 feet – 30 pads for containment.
5. Absorbent booms – located in the storage room and the emergency response vehicles. – four feet in length – 15 booms for containment.
6. Oil Absorbent – located in the storage room the emergency response vehicles. – 5 gallons.
7. Neutralizing agents – located in the storage room and the emergency response vehicles – powder neutralizes solvents, acids, and bases – over 30 gallons.
8. Personal Protection Equipment – located in the emergency response vehicles – respirator, gloves, goggles, and saranex suites with booties and hood.

Decontamination Equipment

1. No decontamination equipment present.

East Falls Campus – Queen Lane – Temporary Accumulation Area

Fire Protection Equipment

1. Fire Alarm – located throughout the entire building – notifies and evacuates building occupants – notifies the Fire Department.
2. Fire Extinguisher – located outside G92 and throughout the building – ABC rating – extinguishes small fires.
3. Automatic Sprinkler System – located in the temporary accumulation area – fire suppression system.

Communication

1. Nextel Telephones – all Health and Safety personnel involved in hazardous waste oprations carries a Nextel telephone with two way capabilities – contact fire department and police.
2. Land Line Telephone – located directly adjacent to the storage facility – contact Health and Safety personnel, fire department and police.
3. Fire Alarm – located throughout the entire building – notifies and evacuates building occupants – notifies the Fire Department.

Spill Control Equipment

1. Shovel – located in room G92 directly adjacent to the storage facility and in the emergency response vehicles.
2. Broom – located in room G92 directly adjacent to the storage facility and the emergency response vehicles.
3. Squeegee – located in room G92 directly adjacent to the storage facility and the emergency response vehicles..
4. Absorbent pads – located in room G92 directly adjacent to the storage facility and the emergency response vehicles. – size is 1x1.5 feet – 30 pads for containment.
5. Absorbent booms – located in room G92 directly adjacent to the storage facility and the emergency response vehicles. – four feet in length – 15 booms for containment.
6. Oil Absorbent – located in room G92 directly adjacent to the storage facility and the emergency response vehicles. – 5 gallons.
7. Neutralizing agents – located in room G92 directly adjacent to the storage area and the emergency response vehicles – powder neutralizes solvents, acids, and bases – over 30 gallons.
8. Personal Protection Equipment – located in the emergency response vehicles – respirator, gloves, goggles, and saranex suites with booties and hood.

Decontamination Equipment

1. No decontamination equipment present.

APPENDIX IV

Manifest Checklists

Pennsylvania Manifest Checklist:

(Check off each item when received)

Manifest Number: _____

Invoice Number: _____ _____

Generator manifest copy signed by the University Safety and Health Department and the transporter: _____

Packing List: _____

Land Disposal certification form: _____

Underlying Hazardous constituents form: _____

Chemical Pick up request: _____

Signed copy of the manifest from the TSDF: _____

Disposal Certificate: _____

Description of Work Performed:

New Jersey Manifest Checklist:

(Check off each item when received)

Manifest Number: _____

Invoice Number: _____ _____

Generator copy of manifest signed by the University Safety and Health Department and the transporter: _____

PADEP copy of manifest signed by the University Safety and Health Department and the transporter: _____

NJDEP copy of manifest signed by the University Safety and Health Department and the transporter: _____

Packing List: _____

Land Disposal Notification and Certification form: _____

Exempt Lab Pack LDR Certification Form: _____

Chemical Pick up requests: _____

Signed copy of the manifest from the TSDF: _____

Disposal Certificate: _____

Description of Work Performed:

_____

_____

Notes:

1.The NJDEP manifest copy must be mailed to NJDEP hazardous waste department.
2.Copies of the manifest signed by the TSDF's owner/operator must be sent to NJDEP.
3.All manifest signed by the university safety and health department, transporter, and TSD facility must be retained for three years.
4.If the manifest signed by the TSDF is not received within 35 days, then NJDEP must by contacted to inform them of the situation. An exception report must be sent to the EPA Regional Administrator.

Appendix V

Hazardous Waste Management Procedures in the Laboratory

Hazardous Waste Management Procedures in the Laboratory

Hazardous Waste

Hazardous waste includes substances that are solids, liquids and gases. The EPA definition of hazardous waste includes substances that possess a hazardous characteristic (e.g. toxic, ignitable, corrosive or reactive with other substances), or substances that are listed as hazardous waste by the EPA on the basis of their usage or chemical constituents.

Hazardous Waste Identification

The Drexel University Department of Environmental Health & Safety will perform identification of hazardous wastes. Since the majority of chemicals used in our facility are reagent grade the identification will be performed using Material Safety Data Sheets, bottle labels, and 40 CFR Part 261 Subpart B, C, and D. A third party contractor will test for the ignitability, corrosivity, reactivity, and toxicity of unknown hazardous wastes.

Mixed Chemical Waste

The Drexel University Department of Environmental Health & Safety shall require that only compatible chemical waste be combined into one waste container. Refer to the Laboratory Safety Manual and *MSDS* for chemical compatibilities.

Multi-Hazardous Waste

Multi-Hazardous waste is waste that contains any combination of chemical, radioactive, or biological hazards. Any waste stream that presents more than one type of hazard will require special management consideration because the selected treatment technology appropriate for one type of waste may not be appropriate for the other types. Multi-hazardous waste will be evaluated on an individual basis and the constituent that poses the greatest hazard will be given priority.

Drain Disposal

The Drexel University Department of Environmental Health & Safety will permit drain disposal of elementary neutralized (pH adjustment of waste that are hazardous only because they exhibit the corrosivity characteristic) acidic aqueous solutions. The elementary neutralized aqueous solution must have a final pH value between 6 and 8. The limit of material that may be neutralized is 1 liter.

The Department of Environmental Health & Safety will also permit drain disposal of common salts, sugars and agars in both liquid and solid forms. For solids, the material must be dissolved in tap water. The limit of material that may be disposed is 1kg of solid or 1 liter of liquid.

The Drexel University Department of Environmental Health & Safety shall prohibit the drain disposal of the following:

- Flammable or explosive pollutants
- Pollutants that will cause corrosive structural damage to the Publicly Owned Treatment Works (POTW), but in no case discharges with pH lower than 5.0.
- Solid or viscous pollutants that may cause an obstruction of flow in the POTW
- Pollutants capable of releasing fumes or vapors
- Pollutants, including oxygen-demanding pollutants (high biological oxygen demand), which may cause interference with the POTW
- Wastewater with sufficient heat to inhibit biological activity in the POTW (must not exceed 104 F at the POTW)
- Petroleum, oil, non-biodegradable cutting oil or products of mineral oil origin in amounts that will cause interference or pass through
- Organic chemicals
- Heavy metal solutions
- Nitric, Hydrofluoric, Perchloric, and Chromic acid
- Toxic/Poisonous solids and liquids

Satellite Accumulation Areas

A satellite accumulation area is an area at or near a process that generates chemical wastes. The area must be under the control of the operator of that process.

The Drexel University Department of Environmental Health & Safety designates each laboratory as a satellite accumulation area. The laboratory Principal Investigator, Moderator, Chemical Hygiene Officer, is responsible for following the policies of the safety and health department regarding satellite accumulation areas.

Allowable Amount Accumulated

- Laboratories may accumulate as much as 5 gallons of hazardous waste or one quart of acutely hazardous waste (immediately hazardous to life and health) in compatible containers at or near any point of generation.

Labeling

- All containers must be labeled with the complete chemical name of each primary component. Formulas, acronyms and abbreviations are not acceptable.
- If possible, the label should include the approximate percentage of each chemical.

- Do not place the date or the words “Hazardous Waste” on the container. The Drexel University Department of Safety and Health will re-label the container during pick-up as either a recyclable/re-distributable material or as hazardous waste at which time the container will be dated and moved to the temporary storage vault.

Container Types

- All containers must be kept closed except when it is necessary to add or remove material. Evaporation of waste in fume hoods is **STRICTLY PROHIBITED.**
- All containers must be maintained in good condition (i.e. no rust, dents, or leaks, etc.)
- All containers must be compatible with the hazardous wastes they contain. Refer to Material Safety Data Sheets for container compatibility. If the MSDS is not available contact the Drexel University Department Safety and Health at:

All Campuses	215-895-5892 215-895-5909

Accumulation Time

- There will be no limit on accumulation time; however, once a container is full or more than 5 gallons of hazardous waste or 1 quart of acutely hazardous waste is accumulated, the full container or excess waste must be moved to the accumulation area within 72 hours.

Inspection

- Inspection of each satellite accumulation area shall be the responsibility of the principle investigator.

<u>Chemical Pick-up Request</u>

The University Department of Safety and Health shall provide each laboratory a chemical pick-up request form. This form should be immediately filled out when:

- Unwanted and old chemical reagents need to be removed
- The satellite accumulation waste container is full
- There is more than 5 gallons of hazardous waste or one quart of acutely hazardous waste accumulated.

Online Submission

Laboratory personnel can submit chemical pick-up requests by visiting the University Department of Environmental Health & Safety's website (www.drexel.edu/facilities/healthSafety/) and selecting the Service Request Forms link on the navigation bar.

University Environmental Health & Safety Department shall respond to chemical pick-up request within 72 hours of receipt of request.

Emergency Spill Response Plan for Laboratories

The University Department of Environmental Health & Safety shall reference the Hazardous Materials Emergency Response Plan for emergency spill procedures.

Training

University Environmental Health & Safety Department will provide training to all university employees/students who handle hazardous waste in laboratories. Each employee/student shall receive training on proper handling of chemicals and emergency response procedures.

Initial training must be completed during the first month of employment (refresher training is provided annually thereafter). Hazardous waste training will be conducted as part of the annual laboratory safety training. Additional training sessions can be arranged by calling University Environmental Health & Safety Department at:

All Campuses	(215) 895-5892
	(215) 895-5909

University Environmental Health & Safety Department shall document all hazardous waste training. Training records will be kept for at least three years from the date the employee last worked at the university.