YORK COLLEGE
THE CITY UNIVERSITY OF NEW YORK

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EHS Hazardous Waste Management Plan
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HAZARDOUS WASTE MANAGEMENT PLAN

Copies of this plan will be made available to all members of the campus community that may potentially generate or handle hazardous wastes

Contents

I. Purpose

The purpose of this document is to present procedures to be followed in complying with the Resource Conservation and Recovery Act (RCRA) and New York State Environmental Conservation Law (ECL) Section 27-0900 *et seq.* and their regulations. This document compiles in one document many of the items necessary to document compliance with RCRA and New York ECL as they apply to hazardous waste. This document is also written to comply with City University of New York's (CUNY) Environmental Health and Safety Policy Manual, specifically the Hazardous Waste Management Policy and Procedures.

York College is located at 94-20 Guy R. Brewer Boulevard, Jamaica, New York. Hazardous wastes are generated both from academic sources and facility operations. Typical academic sources include art studios that may generate waste solvents, paints, and similar materials. Facility operations that may generate hazardous wastes include painting, cleaning, and other maintenance operations. Based on past rates of generation, York College is identified as a Small Quantity Generator (SQG) of hazardous wastes.

The threshold criteria for identifying a generator's category are as follows:

Category	Generation Quantity Limits
Conditionally Exempt (CESQG	Ã100 kg/mo (Ã220.46 lb/mo)
SQG	100 kg/mo (220.46 lb/mo) to 1,000 kg/mo (2,204.6 lb/mo)
Large Quantity Generator (LQG)	> 1,000 kg/mo (>2,204.6 lb/mo)

II Responsibilities

York College faculty, staff, students, contractors, and other parties that handle or generate hazardous wastes are required to properly handle, store and label hazardous wastes and to comply with applicable federal and state regulations. They are responsible to follow the policies and procedures set forth in this Hazardous Waste Management Plan and the Hazardous Waste Contingency Plan (Appendix A). The Contingency Plan identifies procedures to be implemented in the event of an emergency situation that may result in a fire, explosion, or release of a hazardous waste or hazardous waste constituents. It is the responsibility of all faculty, staff, students, contractors and other parties to see that hazardous wastes are managed in a safe, healthy, and environmentally sound manner. The Environmental Health & Safety Officer (EHSO) and campus administration are responsible for ensuring that all parties who may or do generate hazardous waste on campus comply with these requirements.

Included among the responsibilities of York College's EHSO is the oversight of hazardous waste management services at York College. These services include: the determination of whether or not a waste is a hazardous waste (see Appendix B), and waste pickup, storage, and shipment.

Under federal and state regulations, generators of hazardous waste are accountable for the management of these wastes from "cradle to grave," that is, from their point of generation to ultimate disposal. This responsibility includes taking steps to minimize the amount of waste generated, and to minimize the release of hazardous waste. Civil and criminal penalties may result from failure to comply with these requirements. At York College, generators of hazardous wastes may be academic facilities such as

laboratories or art rooms, as well as various facility operations. While York College is responsible for maintaining compliance, a student, faculty member, staff person, supervisor, or department head could have individual liability in the event of a violation of environmental requirements. Personnel from federal or state environmental regulatory agencies have the authority to inspect laboratories, storage areas, and other related locations for compliance with applicable regulatory requirements at any time.

Within the CUNY/York College system the following responsibilities are identified.

York College ***President*** is responsible for:

- Implementation of the Hazardous Waste Management Policy and Procedures at York College.
- Communicating the importance of the Hazardous Waste Management Policy and Procedures throughout the organization.
- Adherence to the CUNY Compliance Enforcement Policy.

York College ***Vice President*** for Finance and Administration is responsible for:

- Providing adequate human, fiscal, and administrative resources to help assure compliance with hazardous waste regulations and the Hazardous Waste Management Policy and Procedures.
- Tracking and reviewing hazardous waste compliance performance.
- Ensuring that the Dormitory Authority State of New York (DASNY) and the EHSO interact to support hazardous waste compliance in construction projects.

York College ***Department Chairs*** are responsible for:

- Communicating the importance of the Hazardous Waste Management Policy and Procedures throughout their respective departments.
- Assuring that departmental staff and facilities comply with these policies.
- Notifying the EHSO 30 days prior to the departure of any Principal Investigator.
- Planning and implementing the removal of waste materials from any generator leaving York College for any reason.

York College ***EHSO*** is responsible for:

- Reading and understanding federal, state, and city laws, rules, and regulations relating to hazardous waste and for staying current with changes in the laws, rules, and regulations.
- Overseeing the development of York College's Hazardous Waste Management Plan, to achieve the goals of CUNY's Hazardous Waste Management Policy and Procedures and to address the particular needs of York College with respect to the management of hazardous wastes.
- Interfacing with federal, state and New York City regulatory agencies.
- Implementing York College's Hazardous Waste Management Plan.

- Maintaining required documents and records of hazardous waste training, generation, shipment, and disposal.
- Directing training of faculty, staff, students and contractors at York College for the performance of their tasks as they may relate to hazardous wastes in an efficient and competent fashion and the provision of instruction regarding the impact that their activities can have on the environment if performed incorrectly.
- Conducting regular inspections of areas where hazardous wastes are stored to ensure that hazardous wastes have been properly identified, labeled, segregated, and stored for collection and disposal and to prevent the accumulation of old, unused, or abandoned chemicals.
- Awareness of the current legal requirements concerning hazardous waste disposal and to contact the CUNY Office of General Counsel when questions arise.
- Managing the arrangement of hazardous waste pickups and to ensure that disposal is safely and completely performed.
- Attending DASNY project meetings and obtaining contractor training records and any manifests.

York College **personnel who use or generate hazardous materials or wastes** are responsible to:

- Read and understand, to the extent appropriate to their work, this Hazardous Waste Management Plan, and associated RCRA documentation.
- Actively participate in York College's waste minimization program by conducting their work in a manner to minimize potential adverse environmental impacts resulting from their work.
- Store chemicals in accordance with prudent laboratory practice.
- Plan activities/experiments to consume, to the extent feasible, all hazardous materials and to minimize the amount and toxicity of waste materials produced.
- Be familiar with the properties, health risks, and precautions required for handling their respective hazardous waste streams.
- Become familiar with data concerning chemicals used including information available in reference books, technical journal articles, Material Safety Data Sheets (MSDSs), and pertinent York College standard operating procedures (SOPs).
- Select and use all appropriate personal protective equipment (PPE) (*e.g.*, gloves, goggles, lab coat, or other measures as may be applicable) required to safely work with hazardous materials.
- Use proper engineering controls such as fume hoods, secondary containment and self-closing funnels to minimize exposure and hazards.
- Contact the EHSO with any questions regarding chemical or waste management, including training, chemical/waste identification, regulations, reference materials or other aspect of chemical or waste management.

DASNY

DASNY has responsibility for hazardous waste that it or its contractors generate during a given project on campus.

Hazardous waste storage

- DASNY and its contractors are to coordinate, in advance and throughout the project, with the York College EHSO to evaluate environmental implications of project activities; establish specific environmental regulatory responsibilities with respect to any and all DASNY projects. York College's EHSO will verify that compliance is being maintained;
- DASNY is to establish its own hazardous waste storage area, train its personnel, have a contingency plan, and comply with applicable RCRA requirements, or ensure that its contractors comply with requirements. Copies of training records, hazardous waste manifests, etc. to be provided to the EHSO; and
- Hazardous waste generated by DASNY is to be clearly segregated from York College's hazardous waste while in storage.

Hazardous Waste Manifests

- DASNY personnel cannot sign manifests that use York College's USEPA identification number.

All faculty, staff, students, contractors and other parties (including DASNY and its contractors) engaged in activities on York College's campus are subject to periodic internal environmental assessments of their facilities by York College's EHSO, by CUNY personnel, or a third party engaged by York College or CUNY as stated in the EHS Compliance Enforcement Policy. If issues of non-compliance with policies of CUNY or York College are discovered during the course of an audit/assessment, responses are required. Depending on the severity of the non-compliance, additional disciplinary actions may take place.

III. Hazardous waste management

Handling hazardous chemicals and wastes requires the use of proper laboratory safety procedures. If there are any questions or doubts regarding hazardous waste management, chemical waste management, or chemical management, contact the EHSO, Ext. 2662. This section will tell you about:

- how to properly identify a hazardous waste if generated;
- how and where hazardous waste must be accumulated and labeled in your work area;
- hazardous waste pickup procedures from your area to the storage area in the Academic Core Building;
- how hazardous waste must be stored and packaged for shipment;
- hazardous waste disposal; and
- inspections.

A. Hazardous waste generation and identification

The success of the hazardous waste management program begins with individuals that generate hazardous wastes being aware of their responsibilities. Proper hazardous waste management begins with the accurate characterization of wastes. Following characterization, hazardous wastes must be properly packaged, labeled, and stored at the accumulation points until they are moved to the on-site hazardous waste storage area. Chemical wastes must be properly identified and documented to prevent the generation of unknown waste materials. A York College hazardous waste label (available from the EHSO) must be applied to each waste container located at the satellite accumulation areas (see Appendix C). A completed label identifies the waste by name and its characteristics, as well as the location (*i.e.*, building name and room number) and telephone number of where the waste was generated. If in doubt with any aspect of the waste identification or labeling, call the EHSO at Ext. 2662 for guidance.

Every effort should be made to minimize the amount of hazardous waste that is generated. Every individual who will handle or generate laboratory waste must receive training in the safety procedures for chemical storage and waste management outlined in Section VIII of this Plan. This training is arranged by

the EHSO; call the EHSO, Ext. 2662 to schedule your attendance if you have not received this training or are unsure as to whether you should receive this training.

Waste identification

At York College, hazardous wastes are generated in two types of areas: academic settings (such as laboratories and art studios), and facility operations (such as maintenance operations). A waste is any solid, liquid, or contained gaseous material that is discarded by being disposed of, burned or incinerated, or recycled. (There are some exceptions for recycled materials.) Even materials that are recyclable or can be reused in some way (such as burning solvents for fuel) might be considered waste. If you are recycling waste materials, contact the EHSO, Ext. 2662, so that the recycling can be performed and documented in accordance with applicable regulations.

Hazardous waste can be one of two types:

1. **LISTED WASTE**. A waste is considered hazardous if it appears on one of the lists published in the federal regulations at 40 CFR Part 261 and in the New York State regulations at 6 NYCRR 371. These five groups include:

- **F- Listed Hazardous Waste from Non-specific Sources (40 CFR 261.31; 6 NYCCR 371.4 (b)).** These wastes are designated with a four-digit code beginning with the letter "F". Typical wastes that York College may generate that are considered F-wastes include spent solvents from laboratory operations. These wastes are typically designated as one of the F001 through F005 listings.
- **K - Listed Hazardous Waste from Specific Sources (40 CFR 261.32; 6 NYCCR 371.4(c))**. These wastes are wastes generated from specific industrial sources, such as wastes from petroleum refining. These wastes are designated with a four-digit code beginning with the letter "K". York College does not currently generate these types of waste streams.
- **U - Listed Hazardous Wastes which are Discarded, Commercial Chemical Products, or Off-Specification Commercial Chemical Products or Spill Residues (40 CFR 261.33(f); 6 NYCCR 371.4(d)(6))**. These wastes are typically: (1) virgin chemicals or hazardous materials that are intended to be discarded; (2) formulations in which the sole active ingredient is the listed constituent; and (3) spill residues and debris contaminated with the spilled material. These wastes are designated with a four-digit code beginning with the letter "U".
- **P - Listed Acute Hazardous Wastes (40 CFR 261.33(e); 6 NYCCR 371.4(d)(5)).** These wastes are similar to the U-listed wastes but are considered acutely hazardous and are designated with a four-digit code beginning with the letter "P". In addition to the P-wastes, certain Hazardous Wastes from Non-specific Sources (F020, F021, F022, F023, F026, F027 and F028) are also considered acute hazardous wastes. Examples of acutely hazardous waste include streams which have been generated at CUNY campuses include sodium cyanide (P-106) and osmium tetroxide (P-087).
- **NY Listed PCB Hazardous Wastes (6 NYCCR 371.4(e)).** In New York State, wastes containing greater than 50 ppm by weight or greater of PCBs are listed hazardous wastes. The NYSDEC has segregated this PCB waste stream into seven categories (B001 through B007).

Currently, more than 500 wastes are listed. Consult the EHSO when conducting a waste stream determination for assistance in reviewing the regulatory exclusions prior to finalizing your determination.

2. **CHARACTERISTIC WASTES**. If the waste does not appear on one of the hazardous waste lists, it still might be considered hazardous if it demonstrates one or more of the following characteristics:

- **Ignitability** (40 CFR 261.21; 6 NYCCR 371.3(b)) – The waste catches fire under certain conditions. Ignitable waste streams include: liquids with a flashpoint less than 140º F; non-liquids which burn and cause fire under normal temperature and pressure, ignitable compressed gas; or DOT oxidizer. Examples are some solvents, paints and degreasers. These wastes are designated with the four-digit code D001.

- **Corrosivity** (40 CFR 261.22; 6 NYCCR 371.3(c)) – The waste corrodes steel at a rate of greater than 0.25-inches per year at 55 C (130 F) or has a pH less than 2 or greater than 12.5. This is known as a corrosive waste. Examples are some acids, caustics, or cleaning fluids. These wastes are designated with the four-digit code D002.
- **Reactivity** (40 CFR 261.23; 6 NYCCR 371.3 (d)) – The waste is unstable and explodes, or produces toxic fumes, gases, and vapors when mixed with water or under other conditions such as heat or pressure. This is known as a reactive waste. Examples are certain cyanides or sulfide-bearing wastes. These wastes are designated with the four-digit code D003.
- **Toxicity** (40 CFR 261.24; 6 NYCCR 371.3 (e)) – The waste is harmful or fatal when ingested or absorbed by an organism. A waste stream that contains one of the listed forty (40) toxic chemicals that will leach into the soil or ground water when disposed of on land above the specified concentration, is known as a toxic waste. Examples are wastes that contain high concentrations of heavy metals, such as cadmium, lead, or mercury. These wastes are designated with the four-digit code D004 through D043, depending on the constituents.

For more information, contact the EHSO , Ext. 2662.

The list of hazardous waste in New York State may be found at

http://www.dec.state.ny.us/website/dshm/regs/371.pdf

Unidentified wastes
If a source (*e.g.*, a laboratory or studio) has a container with unidentified contents, all available information on the material should be gathered by the faculty, student, or staff member. This information may be helpful in narrowing the steps needed to suitably identify the material. Identification of unknown materials can be an expensive, time consuming, and potentially dangerous process. Any information that can narrow the potential range of waste materials can be useful. Besides safety issues, costs for classifying even small amounts of unknown materials are significant, and can range up to several thousand dollars. In many cases, personnel in a research group can, by process of elimination and knowledge of lab operations, provide valuable information on the chemical constituents.

Laboratories must manage unknown materials with great care. Containers must not be moved or opened when there is any question as to the safety of such an operation. This is because some materials are friction or shock sensitive and even the act of opening the cap can cause a violent reaction.

The laboratory must be able to certify that the container does not have highly reactive or explosive components.

The EHSO will make the final determination of whether or not a waste is a hazardous waste in accordance with the waste analysis plan (Appendix B). The EHSO will assist in this identification process. However, the laboratory staff must provide the background information. Reasonable attempts to identify unknowns must be made by the laboratory personnel. If highly reactive materials cannot be ruled out, laboratory staff must not handle the material, and the EHSO will arrange for proper identification and disposal.

It is important to note: The best way to prevent the generation of unknown waste materials is to properly use, label, and manage chemical materials and byproducts, including solutions and mixtures prepared on campus.

If a faculty member should leave the college for any reason, the EHSO must be notified immediately so that plans can be made for the disposition of chemicals and wastes under the responsibility of that faculty member.

B. Hazardous waste packaging and labeling

Every member of the campus community is responsible for the proper management of wastes. Containers used to store hazardous wastes at satellite accumulation areas must be labeled with a written description of the waste material and the words "Hazardous Waste." Use labels provided by the EHSO and fill them out completely using full chemical names (Appendix C). A chemical formula is not sufficient as a description. For example, the words “sulfuric acid” should be written on the label. The formula “H_2SO_4” by itself is not sufficient as a label description. In addition, the building name, floor number, and room number must also be identified. York College has prepared blank labels specifically for this purpose, and one of these labels must be affixed to all containers of hazardous wastes. Keep containers TIGHTLY CLOSED except when adding material to them. This is to prevent spills, leaks, fires and the release of fumes and is required by state and federal regulations. Each container must contain compatible wastes (see waste categories listed below). Segregate containers according to the compatibility of their contents and use separate secondary containment as necessary. Secondary containment devices such as trays, tubs, or buckets should be able to contain the contents of the largest container, if ruptured.

The first step in the waste disposal process involves obtaining a suitable container for the waste. Use the following guidelines when selecting a container:

- use plastic or glass containers compatible with the waste;
- containers must have a secure cap;
- empty containers in which the chemicals were supplied are usually adequate;
- containers must be clean and free of residue that might react with waste;
- container must be in good condition - DO NOT USE rusted, dented or degraded containers;

- 5-gallon or larger containers must be approved by the EHSO;

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- do not use beakers, or other labware, coffee cans, plastic milk jugs, soda bottles, or any container that resembles a drinking glass, cup, or coffee mug, etc.;
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- do not use rubber stoppers, corks, or glass stoppers;
- the EHSO will provide assistance with container selection for new waste streams; and
- do not use containers that formerly contained P-listed wastes.

DO NOT store incompatible wastes in the same container. These wastes must be collected and stored in separate containers. If there is any suspicion that mixed waste materials may react, or are incompatible in any way, these materials should not be combined, and should be kept segregated.

Use separate containers for each of the following types of waste:

- halogenated organic solvents;
- non-halogenated organic solvents;
- acids;
- bases;
- heavy metals;
- mercury;
- reactives;
- oxidizers; and
- toxic (poisons).

If you do not know the category of a waste, or you are unsure whether you should mix wastes, consult the MSDSs and contact the EHSO, Ext. 2662.

A funnel may help prevent spills when adding waste to containers. If used, the funnel should be clean and free of residues. Do not leave funnels in a container's opening, unless the funnel is permanently attached and can be capped when not in use. The EHSO can help you obtain one of these funnels if it is appropriate to your use. Segregate waste containers according to chemical compatibility just as you would unused chemicals. Flammables, oxidizers, reactive materials, corrosive acids and bases must be stored separately. Reactive and ignitable wastes must be protected from sources of reaction and/or ignition and be grounded. Use secondary containment for liquid waste. Secondary containment may be a tray, pan, bucket or other container capable of holding the contents of the primary container. Secondary containment also aids in separating incompatible waste and in containing leaks and spills.

It is good practice for all empty chemical containers to be triple-rinsed with water or another solvent capable of removing the original material. In some cases, such triple rinsing is required or else the container itself is hazardous waste. Follow the specific procedures below depending on whether the container is to be reused or disposed of.

Empty containers should be managed as follows:

If the container previously held a hazardous chemical or waste and will not be reused:

- Complete draining of the contents of the container for its original use;
- Triple-rinse the container with water or an appropriate solvent. Rinse solvent (rinsate) may require collection as hazardous waste - contact the EHSO for guidance. Whenever possible, reuse the rinse solvent for cleaning until it is spent; use fresh solvent only for the final rinse;
- Remove or mark over the old label; and
- Mark the container with the words "This Container is Triple Rinsed and Safe for Disposal," and dispose of properly.

If the container will be reused for a chemical (not waste):

- Reuse the container only with compatible new materials; and
- Clearly re-label the container with the full chemical name of the contents. Include a hazard warning if appropriate (*e.g.*, corrosive, flammable, etc.)

If the container will be reused for a hazardous waste:

- Reuse the container only with compatible or waste;
- Remove the original label; and
- Clearly re-label the container with the full chemical name of the contents using the EHSO-supplied hazardous waste label.

Call the EHSO to arrange for disposal of large containers, containers contaminated with highly toxic or acutely toxic materials and other containers about which you may have questions.

C. Satellite accumulation areas

Federal and state regulations require that the hazardous waste must be accumulated at or near the point of generation. In laboratories and other work locations where hazardous wastes are generated, such areas are referred to as “Satellite Accumulation Areas” (SAAs). Waste must be accumulated in the room or laboratory where they were generated. Waste generated in multiple rooms should not be centrally accumulated in one room/laboratory. A general rule of thumb is that you must be able to see the waste containers from the point of generation and waste should not be moved through doorways. SAAs in laboratories are typically located in fume hoods or under sinks. Waste containers and secondary containment containers should be positioned so that they do not block vents and potentially inhibit proper airflow. Waste containers can be stored in cabinets under fume hoods as long as they are being stored with other compatible chemicals. Waste containers should not be stored on the floor where they could create a tripping hazard and result in spills. Store all wastes with attention to the New York Fire Department (NYFD) flammable quantity storage limits, compatibility with other chemicals, and general prudent laboratory practice.

The containers holding the waste must be maintained in good condition (*e.g.*, no rust or structural defects). If a container begins to leak, the contents must be transferred to another container in good condition. Hazardous waste must be collected in a container that is compatible to prevent damage to the container and leakage of the hazardous waste. As previously discussed, hazardous waste containers must be kept closed except when waste is being added. Hazardous waste containers should be kept in a SAA that is marked with the Hazardous Waste Satellite Accumulation Area sign provided by the EHSO (Appendix D). Before moving the SAA or adding another area, the EHSO must be contacted so that the area may be documented and properly posted.

Each SAA can accumulate up to a total of 55 gallons of hazardous waste, or up to one quart of acutely hazardous wastes. Most laboratories will call for a pick-up before these quantities are reached. However, if these limits are reached, the generator must label the container with the date the accumulation limit was reached (when the container was filled) and the wastes must be moved to the Hazardous Waste Storage Facility within three days. SAAs should be inspected regularly by the designated laboratory Waste Coordinator to help assure that the containers are properly stored, are not leaking, and that the area is in compliance with the requirements outlined in this section. An inspection log sheet is included as Appendix E.

D. Hazardous waste pickup procedures

Before requesting a chemical waste pickup, make sure you have followed the procedures previously discussed regarding container selection, labeling, handling, and storage of hazardous waste. Make sure containers are clean on the outside and have caps that are tightly closed, and are properly labeled. Call the EHSO Ext. 2662 with your pickup request. Be ready to give the following information:

- your name;
- phone number;
- department name;
- building;
- room number;
- the type and quantity of waste to be picked up;
- size of containers to be picked up; and
- physical state of the material.

E. Hazardous waste storage areas

The campus hazardous waste storage area located in room 1F11, near the loading dock in the Academic Core Building, is the storage location for hazardous wastes prior to being shipped off campus. A current inventory of the wastes collected is to be continuously maintained by the EHSO. Proper labeling and segregation techniques are to be employed. The area is to be properly identified as a Hazardous Waste Storage Area by the EHSO and have limited access to personnel having specific assignments, and have “No Smoking” signs posted.

Operation of the hazardous waste storage area requires that the following:

- documentation that the waste in the area is stored for less than 180-days;
- labeling of the containers with the contents, the start date, and other required wording;
- segregation of incompatible wastes;
- storage of waste in compatible containers;
- drums are to be stacked no more than two high along with adequate aisle space between rows;
- containers are to be kept closed except when adding or removing wastes;
- spill kits and emergency equipment are to be available;
- a means of communication and Personal Protective Equipment (PPE) are to be readily available;
- weekly inspections of the area are to be conducted and documented;
- measures to minimize the potential for a release are to be implement;
- ignitable waste containers are to be grounded; and
- signage to: show locations of emergency equipment (fire extinguisher, spill material, emergency eyewash/shower, etc.), instructions for reporting fire, spill, release are to be posted.

At the time the waste is generated, it must be labeled as a hazardous waste. As a SQG, after waste pickup and transfer to the Hazardous Waste Storage Area, the waste is subject to a 180-day accumulation time limitation. At no time shall hazardous waste be stored in excess of the 180-day period. Extension of this time frame may occur only when situations beyond the control of the campus prevent the timely removal of the waste. Only the EHSO, in conjunction with the campus administration, shall have the authority to extend the storage time. In the event that storage over 180-days occurs, written notification must be made immediately to the NYSDEC.

F. Hazardous waste disposal procedures

The selection of a contractor for the removal, transportation, and/or disposal of hazardous waste will be conducted in a thorough and safety conscious manner. Prospective contractors must address all safety issues raised by York College before an authorization is awarded. The EHSO is the only entity that can engage a hazardous waste disposal firm. The EHSO will follow York College purchasing procedures in selecting the disposal firms, and should evaluate the compliance and financial resources of the waste disposal firms.

G. Inspections

The EHSO must perform inspections of the hazardous waste storage area in compliance with USEPA and NYSDEC regulations.

H. General practices

Treatment
Although treatment of hazardous waste without a permit is prohibited by federal and state regulations, elementary neutralization is allowed. That is, waste that is hazardous only because of its corrosive characteristics (and is not toxic, ignitable, reactive, or a listed waste), may be neutralized by the addition of bases or acids (as appropriate), producing a waste that it no longer meets the corrosivity characteristic criteria (see Section II.A.2., above). Only experienced personnel should conduct neutralization procedures.

Sanitary sewer disposal
Some materials can be safely discharged into the sanitary sewer. However, some materials can cause explosive conditions within the sewer system, damage the environment, or interfere with the operations of the wastewater treatment plant.

If a waste chemical meets all of the following criteria, the material may be suitable for disposal in a laboratory sink drain:

- it is water soluble;
- it has a pH greater than 5 and less than 9 S.U.;
- it is not considered toxic as defined by RCRA or New York State's hazardous waste regulations; and
- it is readily biodegradable (if it is an organic compound).

If there is any question about whether a waste can be disposed in a drain, call the EHSO. Only sinks with good flow should be used for disposal purposes, and only with small volumes of wastes. Do not use floor drains. Use appropriate PPE. Pour waste materials slowly into the drain with a stream of running water. Follow disposal by flushing with excess water. Strong acids and bases must be neutralized to a pH between 5.0 and 9.0 S.U. (to meet New York City sewer use requirements prior to drain disposal).

Examples of chemicals suitable for drain disposal include the following:

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- organic sugars;
- nucleotides;
- vitamins;
- surfactants; and
- strongly acidic or basic solutions must be neutralized before drain disposal.

Examples of chemicals that are not suitable for drain disposal include the following:

- flammable substances;
- solvents;
- oils and oil sludges;
- petroleum hydrocarbons;
- paints;
- water soluble polymers that could form gels in the sewer system;
- toxic chemicals such as carcinogens, mutagens, acutely toxic substances; and
- phenols.

Putting these materials down the drain is illegal and could be dangerous.

Other materials that are not suitable include any solid or viscous substances capable of causing obstruction to the flow of sewers.

I. Other hazardous waste management

Mercury waste
Elemental mercury can be recycled, the EHSO should be contacted to evaluate this option. Mixtures of mercury compounds and other wastes are difficult waste streams to dispose of. Thermometers and measuring instruments containing mercury should be replaced with equipment that uses non-hazardous fluids or electronic devices. Call the EHSO to collect the old devices, including mercury thermometers, for proper disposal as hazardous wastes. If a mercury spill should occur, immediately contact the EHSO.

Flammable and combustible waste
Flammable and combustible liquids include turpentine, mineral spirits, naphtha, petroleum distillates, oil-based paint, adhesives, and others. If a material is suspected of being flammable or combustible, check labels or the appropriate MSDS. If the flash point of a waste material is at or less than 140ºF, the material is considered to be a hazardous waste by ignitability, and must be disposed of as a hazardous waste. Flammable waste liquids should only be collected in a designated and approved flammable liquids waste safety can. Call the EHSO for questions about waste cans. Oily rags and rags/paper soaked with flammable liquids must also be collected in designated flammable waste disposal cans. **OILY OR SOLVENT SOAKED RAGS CAN SPONTANEOUSLY IGNITE.** Notify the EHSO for a pickup when waste containers become 80 percent full.

Never dispose of flammable liquids down the drain since vapors in an enclosed sewer system can result in potentially explosive or flammable conditions. City, state, and federal sewer regulations also prohibit the disposal of ignitable wastes in the sewer system.

Paint, pigment and finishes
Paint, varnish, stain, finish or sealant may be flammable or contain heavy metals such as lead, chromium, arsenic, or cadmium. Paint and pigment-containing hazardous materials must not be put in the regular trash. Call the EHSO to arrange for a waste pickup of expired or unwanted paint, pigment, varnish, stain, finish or sealants. Empty paint containers (with no free liquids) of oil based paints may be placed in the regular trash. Dry, water-based paint and pigments, including latex, acrylic or vinyl acrylic constituents, may be placed in the regular trash. Be sure there are no metal-containing pigments present. Contact the EHSO for assistance with checking labels for hazardous materials.

Ceramics
Clay and glazes may contain heavy metals such as lead, arsenic, barium, cadmium, chromium, and selenium. When a clay or a glaze containing these materials is discarded, it must be handled as hazardous waste. When arranging disposal of these materials, check labels to determine if the clay or glaze contains hazardous materials. When possible, use lead-free clay and heavy metal-free glazes.

Etching
Acids and bases used in etching are corrosive materials; they must not be poured down the drain. Waste acids may also contain metals such as zinc and copper. Heavy metal disposal to the sewers is regulated. Collect and store waste acids using the original containers in which they were supplied. Obtain hazardous

waste labels from the EHSO. Fill out the label with the requested information. Do not fill containers completely; leave about two inches of headspace to prevent buildup of pressure.

Waste photographic fixer
Waste fixer may contain silver, a valuable metal that should be recovered. New York City prohibits pouring photographic solutions down the drain. Waste fixer must be treated in a silver recovery unit or collected as hazardous waste. Call the EHSO to arrange for the installation or maintenance of a silver recovery unit.

Stop baths and developer
Stop baths and developers may contain hazardous waste; these solutions should not be poured down the drain since they may result in exceedances of New York City Sewer Use Ordinance discharge limitations. Check labels and MSDSs to determine if there are metals in the solutions and ask the EHSO for help with determining whether hazardous materials are present. Although most of these materials are not considered hazardous waste, they must be at a neutral pH prior to disposal through a drain. Collect stop bath and developer solutions using containers in which they were originally supplied. Do not fill containers completely; leave about two inches of headspace to prevent buildup of pressure.

J. UNIVERSAL WASTES

The Universal Waste Rule was written to streamline environmental regulations for wastes generated by large numbers of businesses in relatively small quantities. It is designed to reduce the amount of hazardous waste disposed of in municipal solid waste, encourage the recycling and proper disposal of certain common hazardous wastes, and reduce the regulatory burden for businesses that generate these wastes. Universal wastes are items commonly thrown into the trash by households and small businesses. Although handlers of universal wastes can meet less stringent standards for storing, transporting, and collecting these wastes, handlers must still comply with the full hazardous waste requirements for final recycling, treatment, or disposal. By providing a waste management structure that removes these wastes from municipal landfills and incinerators, this rule ensures stronger safeguards for public health and the environment.

York College has a separate Universal Waste Management Plan. Please refer to that plan for details of universal waste management on campus.

Universal waste management includes:

Battery recycling and disposal
Batteries contain hazardous components that must not be disposed of in the regular trash. Specially designed battery collection containers are available from the EHSO. Containers that remain in good condition are reusable. Containers should be placed in central locations that are easily accessible to generators of used batteries. Contact the EHSO, Ext. 2662 for waste battery pickup when the containers are full. Collect only the following batteries in battery collection containers:

- alkaline and non-alkaline household type batteries (AA, AAA, C, D, 9 volt);
- rechargeable batteries such as nickel-cadmium type; and

- "button" batteries found in watches, calculators, pagers, cameras.

The following items should **NOT** be placed in battery collection containers:

- leaking batteries - these should be attended to immediately. Call the EHSO for assistance;
- batteries containing liquids, such as car batteries, or large batteries, such as rechargeable camcorder and cellular phone batteries; and
- other batteries not listed above.

Call the EHSO to arrange for the proper handling and disposal of these types of batteries.

Fluorescent lamp disposal program
There is a fluorescent lamp disposal program for the management of fluorescent bulbs on campus. Most used fluorescent lamps are classified as hazardous waste. The inside of a fluorescent tube is coated with chemicals and the tube contains a small amount of mercury vapor. Fluorescent lamps should not be placed in the regular trash. Lamps must be disposed of by contacting the electrical office for lamp replacement or disposal of used fluorescent lamps.

Pesticides
Pesticides that have been recalled or banned from use, are obsolete, have become damaged, or are no longer needed due to changes in facility needs may qualify as universal wastes. Contact the EHSO, Ext. 2662, to arrange for proper disposal.

Thermostats
Thermostats can contain as much as 3 grams of liquid mercury and may be located in almost any building, including commercial, industrial, agricultural, community, and household buildings. Contact the EHSO, Ext. 2662, to arrange for proper disposal.

Compressed gas cylinder disposal
Compressed gases may be contained in large cylinders, lecture bottles, propane and butane fuel bottles, and aerosol cans. Most compressed gas cylinders used at York College are leased from the vendor and are returned for reuse or disposal. Cylinder purchases are strongly discouraged because of the expense and difficulty associated with disposing of unused gases and cylinders. Prior to ordering a compressed gas cylinder, a disposal or return plan should be agreed upon in writing with the vendor. This plan should spell out all procedures necessary for returning the cylinder to the vendor. If no arrangements were made prior to purchase, attempts to return unwanted cylinders to the distributor or the manufacturer must still be made by the college purchaser. If a vendor does not accept a gas cylinder for return, it may be necessary to treat the cylinder and contents as hazardous waste. The EHSO can accept and dispose of most empty gas cylinders and those containing atmospheric gases if vendor's arrangements can't be made.

If a compressed gas cylinder is to be shipped, request appropriate instructions from the vendor. A valve cover must be present on the gas cylinder, and the correct US Department of Transportation (USDOT) description for the contents must be on the cylinder. Gas cylinder contents must be clearly identified with stamps, adhesive labels, or stencils. Applicable USDOT regulations must be adhered to before and after a cylinder is shipped. Additionally, the carrier may have its own requirements that must be followed.

A gas cylinder with unknown contents must be handled as a hazardous waste through the EHSO. Every attempt must be made by the user to identify the vendor and contents of an unknown cylinder. Purchase records and other documents should be searched to attempt to identify the cylinder's contents. Characterization and disposal costs for cylinders with unknown contents can be extremely expensive. Proper labeling and record keeping can prevent the cost and effort necessary to identify a tank containing unknown gases. For more information on handling of compressed gas cylinders, call the EHSO.

IV. Managing used oil

In most cases, used oil is not classified as a hazardous waste in New York State. However, depending on the materials that the oil may have been in contact with and how waste oil is disposed of, used oil may become a hazardous waste. For example, if oil was mixed with a listed hazardous waste (*i.e.* F-listed waste) it would be a hazardous waste.

Even though used oil generated at York College is likely to be non-hazardous, a discussion of the management of used oil has been included in this document due to the unique nature of used oil disposal. USEPA's used oil management standards are a set of "good housekeeping" requirements that encourage used oil handlers to recycle used oil instead of disposing of it. Used oil can be collected, refined and recycled, and used again—for the same job or a completely different task. Used oil is defined as "any oil that has been refined from crude oil or any synthetic oil that has been used and, as a result of such use, is contaminated by physical or chemical impurities." To meet USEPA's definition of used oil, a substance must meet each of the following criteria:

- Origin. Used oil must have been refined from crude oil or made from synthetic materials. Animal and vegetable oils are excluded from USEPA's definition of used oil. However, animal and vegetable oils are included in USEPA's definition of oil under the requirements for Spill Prevention, Control, and Countermeasure (SPCC) Plans. York College has a SPCC Plan; see the EHSO for specifics.
- Used oils used as lubricants, hydraulic fluids, head transfer fluids, buoyants, and for other similar purposes are considered used oil. Unused oil, such as bottom clean-out waste from virgin fuel oil storage tanks or virgin fuel oil recovered from a spill, do not meet USEPA's definition of used oil because these oils have never been used. USEPA's definition also excludes products such as cleaning agents used solely for their solvent properties, as well as certain petroleum-derived products such as antifreeze and kerosene.
- To meet USEPA's definition, used oil must become contaminated as a result of being used. This includes residues and contaminants generated from handling, storing, and processing used oil.

Physical contaminants can include dirt, metal scrapings, or sawdust. Chemical contaminants could include solvents, halogens, or saltwater.

V. Waste minimization

A goal of the hazardous waste management program is to reduce the amount of hazardous waste generated to the lowest practical quantity in order to conserve energy and natural resources through a program of effective waste minimization procedures (including recycling, reuse, product substitution, and treatment).

Purchasing procedures can minimize waste

Good purchasing decisions are the first steps in minimizing hazardous waste. Every effort must be made to keep purchased quantities to a minimum. Stockpiling products for future use or to take advantage of unit cost savings may not be appropriate since disposal costs of unused chemicals may exceed the initial savings from bulk purchases. The average cost to dispose of unused hazardous materials and other chemicals may be two to three times the original purchase cost. Purchase only the quantity of material that will be completely used within a reasonable time frame. Other practices that help to minimize the potential for waste disposal include the following:

- Limit the amount of ordered materials to expected volumes of use;
- Do not stockpile chemicals unnecessarily. Many chemicals, including organic compounds, degrade over time and lose their usefulness;
- Check inventories to avoid ordering chemicals that are already in stock;
- As a prudent practice, rotate chemical stocks to use up chemicals before their shelf lives expire; and
- Laboratories should investigate pre-weighed packaging options now available from chemical vendors. Particularly with highly toxic materials (*e.g.*, carcinogens, teratogens, etc.), the purchase of pre-weighed materials avoids unnecessary handling, storage and disposal of excess toxic materials. Micro-scale packing is also available.

Source Reduction

Source reduction refers to practices that reduce, avoid or eliminate hazardous waste at the point of generation. These practices may include:

- Use of smaller quantities of chemicals in experiments or processes.
- Where possible, substitution of less toxic or non-hazardous chemicals for their toxic counterparts.
- Planning of activities/experiments to consume hazardous materials to the full extent possible, and to minimize the amount and toxicity of waste materials produced.
- Recycling or reuse, when possible, of chemicals as opposed to disposal as hazardous waste. If you have no further need of a hazardous material, determine whether your colleagues can use it.

- Do not mix chemical wastes. Mixing reduces the likelihood that materials may be reused or redistributed and often increases disposal costs. If non-hazardous wastes are mixed with hazardous wastes, the combined volume is considered hazardous waste under state and federal regulations, and must be handled and disposed of as hazardous waste at increased costs compared to regular waste. If at all possible, do not combine other chemicals with organic solvents. Acids, bases, heavy metals, carcinogens, oxidizers, cyanides, sulfides, pesticides, non-halogenated solvents, and especially halogenated organic solvents (chloroform, methylene chloride, etc.) must be collected in separate, labeled, waste containers.

VI. Spill control

In the event of a chemical or oil spill or leak, the person discovering the release must immediately initiate the following actions:

1. If it is safe to do so without endangering yourself or others, extinguish all sources of ignition and isolate incompatible or reactive chemical substances.

2. If there is an immediate threat to human health, evacuate the immediate area.

3. Attempt to stop or contain the spill/release at the source (provided there are no health or safety hazards and there is a reasonable certainty of the origin of the leak).

4. Isolate all potential environmental receptors such as floor drains, catch basins, sumps, exposed soil, and runoff areas (if it is safe to due so without endangering yourself or others).

5. Contact Campus Security (718) 262 - 2222 to provide information regarding a spill event. Be prepared to provide Security with the following information:

    a) building and room number;
    b) material spilled and quantity;
    c) if radioactive or infectious agents are involved;
    d) other hazardous conditions that might exist in the area;
    e) time of the spill;
    f) damages or injuries caused by the spill;
    g) cause of spill; and
    h) actions taken.

The Spill Response Team Coordinator will direct and coordinate the spill clean-up activities and evaluate if an environmental contractor will be required to perform the clean-up activities. The Spill Response Team Coordinator will then initiate any notification procedures.

VII. Standard operating procedures

Standard operating procedures (SOPs) such as the “Partial List of Incompatible Materials” should be consulted.

VIII. Training

General

York College personnel who generate hazardous waste are required to have training appropriate to their level of responsibility. This training will be provided initially at the time of employment, and on an annual basis. The training is arranged by the EHSO and will be given at least twice per year. Special training will also be provided by the EHSO upon request from personnel working in areas with unusual hazardous waste management requirements. Training for hazardous waste management on campus will be updated to reflect the most current regulatory requirements. Training materials, included in Appendix F, include the following topics:

- identification of hazardous waste;
- container use, marking, labeling, and on-site transportation;
- accumulation area requirements;
- 180-day storage area requirements; and
- emergency procedures.

Special training
Individuals with specialized duties, and anyone with oversight responsibility for packaging and transportation of hazardous materials, are required by law to have additional training. Individuals who supervise or prepare hazardous materials for transport and/or sign manifest documents must complete course work that meets USDOT regulations. No York College personnel may arrange for disposal, transport, shipment or sign hazardous waste manifest documents without completing the appropriate training.

IX. Recordkeeping

Recordkeeping requirements are as follows:

- The EHSO, or his or her designee, will sign York College hazardous waste manifests. Hazardous waste contracts are developed and managed by the EHSO and include general hazardous waste, medical waste, and spill response;
- Records of all hazardous waste manifests will be kept on site for a minimum of three years from the treatment, storage, disposal facility (TSDF) returned copy date. Manifests beyond this date may be stored on site or stored in archives for a minimum of thirty years to serve as an accurate accounting of material shipped to potential CERCLA (Superfund) Sites;
- Written communication that the designated TSDF is authorized for the hazardous wastes being offered for shipment, has capacity to accept such hazardous waste, and will assure the ultimate disposal method is followed;

- Land Disposal Restriction (LDR) notices, LDR determination records, Hazardous Waste Profile Sheets, and Exception Reports will be kept with the associated manifests. These documents are to be kept with the manifest for the time period indicated herein;
- Waste analyses and laboratory analytical reports will be kept with the hazardous waste manifests for the established time period (three years on site, thirty years archived). Note that laboratory analytical reports may be kept with hazardous waste profiles, in contract files, permitting files, or in individually designated files depending on the nature of the contract and/or waste materials;
- Personnel training records on current personnel will kept until closure of the facility. Training records on former employees must be kept for at least three years from the date the employee last worked at the facility;
- Hazardous Waste Contingency Plan will be maintained at York College in the event that the college exceeds the threshold for LQG status;
- Notification and documentation to prove secondary material is not "Solid Waste" will be maintained until closure;
- Time, date, details of incidents requiring implementation of Contingency Plan will be kept until closure; and
- Note that the periods of retention referred to in this procedure are automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the USEPA Administrator (per 40 CFR 262.40(d)).

X. Information and contacts

City University of New York; Environmental, Health, and Safety Policy Manual
York College; RCRA Hazardous Waste Contingency Plan
York College; RCRA Hazardous Waste Training Materials
USEPA, Hazardous Waste Regulations; 40 CFR 260 *et seq.*
NYSDEC Hazardous Waste Regulations; 6 NYCRR 370 *et seq.*

York College Environmental Health & Safety Office Telephone (718) 262 –2662