

Worcester Polytechnic Institute

Hazardous Waste Management Plan[®]

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Worcester Polytechnic Institute Hazardous Waste Management Plan

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1.0 Introduction

Safe and environmentally sound management of hazardous waste is an integral part of Worcester Polytechnic Institute's (WPI) mission. WPI is committed to meeting stringent federal, state, and local regulations and has committed extensive resources to ensure effective guidance is available to faculty, staff and students to meet and exceed compliance requirements. Responsibility for compliance with hazardous waste regulations begins with those generating waste material and continues through the complicated disposal and waste delivery process. Escalating concern for environmental quality and regulatory compliance underscore the importance of ensuring that the hazardous waste WPI generates is properly managed. Failure to comply with regulatory requirements has resulted in significant fines and liability, increase costs, and adverse publicity. For these and other reasons, WPI has developed this Hazardous Waste Management program designed to communicate the methods WPI will use to properly manage hazardous waste. Through the Environmental and Occupational Safety Office (EOSO), WPI has committed the resources necessary to ensuring compliance with this program and applicable regulations.

The EOSO is responsible for directing WPI's hazardous waste management activities. The EOSO's responsibilities includes managing the collection, processing, and disposal of chemical waste and providing resources and guidance for other hazardous waste and environmental health and safety compliance operations. For the purpose of this program, the term *waste* refers to chemical material that is unusable or unwanted by the individual controlling the material. Determinations of whether a material *is* hazardous waste, reusable material, recyclable material, or any one of several regulatory defined materials or processes, will be made by trained personnel under the direction of the WPI's Environmental and Occupational Safety Manager (EOSM).

The purpose of this program is to provide information and guidance on hazardous waste generation, storage, packaging, record development and maintenance and general management of hazardous and non-hazardous chemical wastes. To ensure that WPI provides a safe and environmentally sound operation, each department is expected to review, understand and follow the information and guidance provided in this Program. For further information or guidance to comply with this program, please contact Dave Messier, at 508-831-5216.

2.0 Regulatory Authority

In Massachusetts, management of hazardous waste is regulated by the United States Environmental Protection Agency (USEPA) and by the Massachusetts Department of Environmental Protection (MADEP). The respective regulations can be found in 40 CFR 260-268 (USEPA) and 310 CMR 30 (MADEP). Although there is overlap between these regulations, each regulation and regulatory agency has unique requirements. Since each Agency's regulations applies to WPI's operations, WPI has chosen to develop this program to meet the requirements of both Agencies.

3.0 Hazardous Waste Management Program Organization

The Hazardous Waste Management Program (HWMP) provides guidance for the safe management of hazardous waste by WPI. Additional guidance is provided in related Environmental and Occupational Safety programs and documents and from the EOSO Manager. Reviewing the HWMP is the first step in understanding methods to minimize risks associated with the handling of hazardous waste and for ensuring compliance with applicable regulations. Additional information and guidance is provided through training and access to internal and contract resources. Please contact the EOSO Manager, David Messier, 508-831-5216 if your responsibility involves generating, handling, or other hazardous waste management operations.

4.0 Hazardous Waste Management Program Introduction

The Hazardous Waste Management Program summarizes the process and steps WPI follows to effectively, efficiently and safely manage hazardous waste and complies with applicable environmental and safety regulations. Each section presented below outlines action necessary to comply with hazardous waste regulations and manage hazardous waste to minimize risk and prevent releases to the environment. Please contact the EOSO Manager for assistance in implementing these guidelines or for additional information or guidance.

5.0 Hazardous Waste Determination

The first step in managing hazardous waste is to determine whether a material is a waste and whether it possesses hazardous characteristics. Subsequent steps are used to properly classify the waste and determine the action necessary for proper management of the waste.

5.1 Determination if a Material is "Hazardous"

Simply defined, a hazardous waste is a material with properties that make it dangerous or capable of harming humans or the environment if not properly handled. Making the determination of whether a waste is hazardous is complicated and requires an extensive understanding of such information as the waste constituents, how the waste was generated, the material's chemical and physical characteristics, understanding USEPA and MADEP regulations and knowledge and experience classifying waste following regulatory protocols. Basically, the regulatory requirements for determining whether a waste is a hazardous waste is made by answering the following questions:

- Is the material **excluded** from the definition of solid or hazardous waste?
- Is the material **exempt** from regulation?
- Is the waste **listed** as a hazardous waste in the USEPA Tables?
- Does the waste exhibit one or more hazardous **characteristic** - ignitable, corrosive, reactive or toxic?
- Is the material a **state regulated** waste?

A material is considered to be a hazardous waste if the USEPA or MADEP specifically lists it as a hazardous waste or if it exhibits a hazardous characteristic.

Two methods are used to determine if the waste is hazardous; applying "generator" knowledge or waste analysis using approved test methods. Waste analysis is performed following strict regulatory protocols established by the USEPA or MADEP. Generator knowledge involves applying information of the hazardous nature and / or characteristics of the waste based on the materials, chemical constituents or processes used to generate the waste.

5.2 Non-Hazardous Waste

If a waste is not listed by the USEPA or MADEP as a hazardous wastes or the material does not exhibit hazardous characteristics, it may be deemed,

non-regulated (non-hazardous) waste or otherwise not subject to the MADEP hazardous waste regulations.

Action that may result in a waste be classified as "non-hazardous" includes: a regulated waste no longer exhibits the hazardous characteristics; the MADEP determines the waste is not a hazardous waste; a mixture no longer exhibits any such characteristic of hazardous waste. (A mixing process to render a waste non-hazardous is considered hazardous waste "treatment" which is subject to extensive regulatory requirements and possibly a permitting process); the generator petitions the MADEP to classify the waste as non-hazardous; or an approved recycled method is used.

There are waste materials specifically excluded by the MADEP as waste under the requirements of 310 CMR 30. A listing of these materials may be found in MADEP Hazardous Waste Regulation, 310 CMR 30.104: Wastes Not Subject to 310 CMR 30.000.

5.3 "Waste" Determination

Materials are usually considered "waste" when the generator has determined that the material serves no useful purpose and the material will be discarded. Hazardous waste regulations apply to materials that will be discarded, or will likely to be discarded. (The latter point is important because materials that have no further use and will eventually be discarded may be considered hazardous waste by regulatory agencies even though there are no current plans to discard the material. Therefore, it is imperative to consult the EOSM if materials will be stored for long periods without use or if the use of a material is not anticipated for extended periods.)

Waste materials can be solid, liquid, semi-solid or compressed gas. All such materials must be evaluated to determine if the hazardous waste regulations apply.

5.4 Waste Code Designation

After a material has been deemed a "waste" by WPI, the next step is to designate a hazardous waste "code" for the material. To minimize errors in designation of hazardous waste codes, the classification process is managed solely by the EOSM. The Laboratory Manager or other individual generating the waste will be involved in the waste code determination process.)

5.5 Waste Constituents

A critical component of the waste determination and disposal process is determining the waste constituents. The process of identifying all appropriate constituents contained within a waste stream is complicated and erroneous determinations can result in catastrophic consequences. Changes to the waste stream constituents may alter the waste stream characteristics and affect subsequent handling, management and treatment.

After a waste has been coded by the EOSM, it is vital that new or different constituents are not added. If the waste constituents must be altered, it is necessary to contact the EOSM to determine if the waste stream must be re-coded or if the original code is appropriate.

Contact the EOSM if new or different chemical (wastes) will be added to a coded waste stream. The EOSO will work with you to determine if additional action is required or if the existing waste code is appropriate.

5.6 Generator Category

Once the volume of waste generated by WPI is determined, the next step in the management process is to determine the "generator category". Each generator category has specific waste volume, accumulation and storage requirements and corresponding time limits. Knowledge of the generator category enables WPI to ensure that the quantity of waste generated, how the waste is accumulated and the length of time stored on site, etc. comply with USEPA/MADEP requirements.

WPI currently manages one (1) Small Quantity [hazardous waste] Generator (SQG) location on the Main Campus and one (1) Very Small Quantity Generator (of exclusively waste oil) located at the Plant Services Vehicle Maintenance Facility. Therefore, WPI will operate to meet the following criteria to ensure compliance with USEPA and MADEP requirements:

5.7 Hazardous Waste Generator Locations

5.7.1 Main Campus

Generator Status: Small Quantity Generator

Waste Generation Requirements

- Less than 1,000 kilograms in a calendar month of regulated recyclable material or non-acutely hazardous waste; or

- Less than one (1) kilogram in a calendar month of acutely hazardous waste;
- Less than 100 kilograms of regulated recyclable material or any acutely hazardous in a calendar month of any residue, contaminated soil, water, or other debris resulting from the clean-up of a spill, into or on any land or water; or
- Less than ten (10) kilograms of inner liners from containers described in, or of paper bags containing residues of regulated recyclable material or waste listed.
- Oil

Waste Accumulation Limits

- Less than 2,000 kilograms at any one time, of non-acutely hazardous waste in containers, or 6,000 kilograms of waste in tanks;

If WPI uses both one or more containers and one or more tanks for accumulation, the total of all such waste in containers shall not equal or exceed in the aggregate 2,000 kilograms at any one time, and the total of all such waste in containers and tanks shall not equal or exceed, in the aggregate, 6,000 kilograms at any one time.

- Less than one kilogram of acutely hazardous waste at any one time.

Accumulation Time Limits

As a SQG in Massachusetts, WPI may accumulate the amounts indicated above under waste generation requirements at the site of generation for up to 180 days without having to obtain a storage license or permit from the MADEP, except as provided in Section 7.0, Temporary Accumulation of Hazardous Waste, below.

The 180-day period begins at the time the amount of hazardous waste generated during a calendar month, or the amount of hazardous waste accumulated at any one time, equals a total, in the aggregate, of 100 or more kilograms of non-acutely hazardous waste or any amount of acutely hazardous waste, residue, liners, etc. provided that the containers are properly dated, marked and labeled.

If these limits were exceeded ***at any time***, a violation of the USEPA and MADEP environmental regulations could result. Therefore, WPI **will manage hazardous waste to meet these limits.**

5.7.2 Plant Services Vehicle Maintenance Facility

Generator Status: Very Small Quantity Generator

Currently, the only waste generated at the Plant Services Vehicle Maintenance Facility is waste oil. Therefore, the Plant Services Facility has been determined to be a Very Small Quantity Generator and the following description applies to the generation of waste oil only. Contact the EOSM if hazardous waste, other than waste oil exclusively, will be generated at the Plant Services Facility.

Waste Generation Requirements

- Less than 100 kilograms of regulated recyclable material or non-acutely hazardous waste (including waste oil) in a calendar month; or
- Zero (0) kilograms of acutely hazardous waste in a calendar month;

Waste Accumulation Limits

- Never Accumulate more than 600 kilograms of hazardous waste (including waste oil) on-site;

Accumulation Time Limits

- There are no time limits for storing waste oil or hazardous waste on-site.

MADEP Requirements

All very small quantity generators of waste oil must comply with both 30.253, Generator Standards Governing Waste Oil and Used Oil Fuel and 310 CMR 30.353, Very Small Quantity Generators requirements, including, all regulations referenced in those standards.

6.0 USEPA Identification Numbers

The USEPA and MADEP require that all hazardous waste generators register their generator status by obtaining an USEPA Identification Number. This number is used to track waste from generation to ultimate disposal, and beyond. WPI must obtain an USEPA ID number before treating, storing, disposing, or transporting (or offering to transport) hazardous waste. USEPA ID numbers are site-specific numbers assigned to generators, transporters, and treatment, storage or disposal facilities, and need only be obtained once.

Each USEPA ID number consists of three letters and nine digits. The first two letters are simply the two-letter abbreviation for the state in which the facility is located. The third letter is either a "D" for facilities with permanent ID numbers or a "T" for a facility with a temporary number. A nine-digit number, uniquely associated with each site, follows the three letters. WPI requested and obtained an USEPA ID number. It is:

MAD041508581

7.0 Temporary Accumulation of Hazardous Waste

Both MADEP and USEPA regulations permit accumulation of hazardous waste in containers at or near each specific point of generation where wastes initially accumulate without meeting the generation, accumulation and time limits specified above or requiring licensing or permitting provided that the accumulation is carefully managed. The temporary accumulation of hazardous waste must be maintained in designated storage areas known as satellite accumulation areas (SAA). The temporary accumulation provisions permit storage of waste adjacent to the point of generation for the purpose of minimizing handling and risk, increasing disposal efficiency and controlling costs.

Because MADEP requirements are more stringent than the USEPA 's, WPI will comply with the MADEP requirements.

7.1 Satellite Accumulation Areas Requirements

Small Quantity Generators in Massachusetts are permitted to accumulate up to 55 gallons of hazardous waste or one (1) quart of acutely hazardous waste in satellite accumulation areas (SAA) if the following requirements are met:

- The hazardous waste must be generated as a result of a process occurring at the specific point of generation where the wastes are initially accumulated. (310 CMR 30.351(4)(a)).

- The SAA must be under the control of an individual directly responsible for the process generating the wastes. (310 CMR 30.351(4)(b))
- Only one container per waste stream may be used at any one time. The maximum capacity of the container is 55 gallons of hazardous waste or one (1) quart of acutely hazardous waste. (310 CMR 30.351(4)(c))
- When a container is full, it must be dated immediately and within 3 days, moved to the main storage area. (310 CMR 30.351(4)(d))
- The surface where containers in the SAA are stored must be free of cracks and gaps and sufficiently impervious to contain leaks, spills, and accumulated precipitation. (310 CMR 30.340(1)(f))
- Each container must be marked with the following:
 - The words “Hazardous Waste”
 - The chemical names, in words (e.g., acetone, toluene)
 - The components and their percentages
 - The hazard associated with the chemical mixture (e.g., ignitable, toxic, etc.) (310 CMR 30.682)
- Containers must be in good condition, compatible with waste and closed during storage. (Free of rust and/or structural damage). (310 CMR 30.683,684, 685(1))
- The containers must be handled in a manner to prevent rupture or leakage and must be spaced so they can be inspected. (310 CMR 30.685(2), 685(4))
- The satellite accumulation area must be inspected weekly. (310 CMR 30.686)

Failure to comply with these provisions may result in a determination that the waste exceeded the 180-day accumulation limit or the waste accumulation is unlicensed or un-permitted. This would be considered a violation of USEPA and MADEP requirements and could result in substantial fines and penalties. The EOSO is responsible for determining the applicability and appropriateness of particular SAA. The individual(s) responsible for each specific SAA is responsible for ensuring compliance with the requirements listed above.

7.2 Satellite Accumulation Area (SAA) Locations

WPI has established SAAs that meet the criteria described in Section 7.1 in areas adjacent to waste generation. A listing of these locations is provided in Appendix A.

7.3 Satellite Accumulation Area Inspections

Satellite Accumulation Areas are inspected weekly following the information contained in Appendix B. The SAA's responsible person or designee will indicate completion of the inspection by initialing the inspection posting in the appropriate location on the form. They are also responsible for either taking corrective action or contacting the EOSO for assistance.

8.0 Waste Storage Pending Off-Site Disposal

To minimize handling of waste and to increase disposal efficiency and economy, WPI established temporary accumulation areas at the point of waste generation, SAAs. To ensure that risks associated with the storage and handling of large volumes of hazardous waste gathered from the SAA and that regulatory requirements are met pending off-site disposal, WPI has established a disposal management system. This involves waste storage pending off-site disposal, waste packaging, labeling, and waste disposal management. Storage of hazardous waste in a Main Accumulation Area is a critical part of this process.

In preparation for off-site disposal, hazardous waste is staged in a manner to prevent spills, leaks and releases and comply with regulatory storage requirements. To achieve these objectives, proper waste containers must be selected, accumulation and storage time constraints must be met, and waste must be located in properly established and designated locations. In preparation for shipment off site to a treatment, storage or disposal facility (TSDF), hazardous waste containers are placed in a specially designed central storage area, known as the Main Accumulation Area, MAA. This location was selected and designed to minimize the risks and hazard of storage of large volumes of hazardous waste.

The EOSO is responsible for managing the MAA.

8.1 Main Accumulation Area

The selection, construction and management of the Main Accumulation Areas (MAA), located in Room 114, Goddard Hall is vital to the safe storage and proper handling of hazardous waste on the WPI Campus.

Once the containers in SAA are full or are approaching capacity, the Responsible Person must immediately arrange for transport of the container to the Main Accumulation Area. This is done following the process outlined in Section 11.0, Disposal Management. Waste in the MAA may be stored for a period not exceeding 180 days. Waste stored by WPI in the MAA, or any other location for a period exceeding 180 days (other than in a properly established and managed SAA) could result in a determination by either the MADEP or USEPA, or both that WPI is operating an un-permitted storage facility and could result in substantial fines and penalties.

8.2 Main Accumulation Area Inspections

The Main Accumulation Area is inspected weekly using the information contained in Appendix B. The Environmental and Occupational Safety Manager or his alternate inspects the area. Documentation of the inspection is maintained in the EOSM's office.

9.0 Waste Packaging

9.1 Introduction

Proper packaging of hazardous waste is necessary to prevent container failures that could result in release of contents, chemical exposure during handling, and non-compliance with regulatory requirements. To minimize the risk of container failure during handling and transportation proper selection of appropriate containers is required. The selection of appropriate containers involves knowledge of the waste constituents and characteristics, to ensure compatibility, how and where the material will be stored, handled and transported, and the container's material and construction specifications. Extensive knowledge and experience is required to ensure selection of the proper container. Therefore, the Environmental and Occupational Safety Manager or his alternate is the only WPI official authorized to select containers for storage of hazardous waste. The EOSM has received special US Department of Transportation (USDOT) regulatory training on such items as performance packaging requirements (USDOT Hazardous Materials Regulation, HM-181, etc.) to enable him to properly select appropriate waste containers.

9.2 Container Availability

WPI uses two sources of waste containers for accumulation of hazardous waste; reconditioned containers or reuse of original containers.

Reconditioned Containers - The EOSO maintains a supply of reconditioned containers for use in storage of hazardous waste. Containers are available from the Chemistry Department stock room, located in Room 114 of Goddard Hall, phone, 508-831-5244. The containers are supplied to WPI's waste generators at no charge.

Reuse of Original Containers - Properly prepared empty containers from research laboratories, other laboratory operations or other sources (with the concurrence of the EOSM, Contact David Messier) may be used provided the following conditions are met.

Container Condition - This means that the container cannot be rusted, dented, abraded, etc. or leaking. If any of these conditions exist, the container cannot be used.

Compatible - The container must be compatible with the waste that will be introduced into it.

Clean - It must be triple-rinsed before waste is added to the container. Remember to collect all rinsate. The rinsate (the residual mixture of waste and cleaning solvent, solution, etc) is considered a hazardous waste and must be contained and disposed of in compliance with RCRA.

Markings - All markings describing the container's previous contents must be removed. and

Label - a WPI hazardous waste label must be placed on the container.

Contact the EOSM if an alternative container is needed or a non-standard waste stream is generated or accumulated.

10.0 Labeling

10.1 Introduction

Waste containers must be properly labeled to ensure that required hazard, content and regulatory information are documented and communicated. Labeling requirements are based on the intended disposition of the container, i.e., whether the container is stored in a SAA, MAA or will shipped off-site to a treatment, storage or disposal facility for ultimate disposal. The labeling requirements for waste stored on site are found below. Pre-printed labels are available from the EOSO, 508-831-5216 or the Chemistry Department Stock Room, Room 114 Goddard Hall, phone, 508-831-5244.

10.2 Labeling Responsibility

Satellite Accumulation Areas - The person responsible for managing each SAA or the person first adding a waste to a container is responsible for ensuring that the container is fitted with a WPI approved label.

Main Accumulation Area - The EOSO is responsible for managing the MAA, ensuring labels on containers coming from the SAA contain appropriate information, and that containers in the MAA are properly labeled in preparation for shipment.

Note: There are special labeling requirements for waste containers being shipped directly from an SAA or other point-of-generation locations to an off-site location. Off-site shipments are not permitted without coordination through the Environmental and Occupational Safety office. Contact David Messier, EOSM, 508-831-5216 for guidance on the proper labeling of containers shipped directly off site.

Note: Direct shipment of hazardous waste or other hazardous materials off site requires additional action typically performed by the Environmental and Occupational Safety Office, i.e., manifesting, transporter notification, USDOT training, etc. Contact David Messier, EOSM, 508-831-5216 for guidance on the proper action if direct shipment off-site is planned.

10.3 Satellite Accumulation Area Container Labeling

The following label information must appear on all containers located in Satellite Accumulation Areas:

Each container stored in a SAA shall be marked with the following:

- The words "Hazardous Waste"
The chemical names, in words (e.g., acetone, toluene)
- The components and their percentages
- The hazard associated with the chemical mixture (e.g., ignitable, toxic)
- The Date when the container is full

A copy of WPI's SAA Label is shown in Appendix E. Labels may be obtained from the Environmental and Occupational Safety Office, 508-831-5216.

10.4 Main Accumulation Area Container Labeling

The following label information appears on containers stored in the Main Accumulation Area:

- The words "Hazardous Waste";
- The hazardous waste(s) identified in words (e.g., acetone, toluene);
- The hazard(s) associated with the waste(s) in words (e.g., ignitable, toxic, dangerous when wet, etc.);
- The date container became "Full" in a SAA or when waste is first added to the container in an area other than the SAA, e.g., MAA, etc.; and
- The date the container arrives in the MAA.

10.5 Shipment Off-Site

Waste prepared for shipment off-site contains label information required by the USDOT.

11.0 Disposal Management**11.1 General**

Disposal of hazardous waste at WPI includes the process used to move waste containers between the following:

- Satellite Accumulation Area to the Main Accumulation Facility (MAA); and
- Main Accumulation Facility and the off-site Treatment, Storage and Disposal facility (TSDF).

This process involves the following action items that are discussed, in detail, below and include:

- Scheduling waste pickup and relocation from the SAA to the MAA;
- Scheduling waste pickup from the MAA and shipment to the TSDF;
- Evaluation of the waste transporter and TSDF;
- Completion and maintenance of paperwork and records; and
- Management of certificates of disposal/destruction.

Process	Responsibility	Comments
Scheduling waste container pickup from the SAA	SAA Responsible Person or Designee	
Relocating Waste Containers from the SAA to the MAA;	Environmental and Occupational Safety Office	
Scheduling waste pickup from the MAA and shipment to the TSDF.	Environmental and Occupational Safety Office	
Evaluating the waste transporter and TSDF	Environmental and Occupational Safety Office	
Completing and maintaining documents and records	Environmental and Occupational Safety Office	
Managing certificates of disposal/destruction	Environmental and Occupational Safety Office	

11.2 Satellite Accumulation Area

Once waste containers located in the SAA reach (or approach) their accumulation limits they must be dated ("Full Date") and relocated to the MAA. The SAA Responsible Person or designee must contact EOSO, by phone, 508-831-5216 or e-mail, dmessier@wpi.edu to schedule a waste container pickup. The EOSO representative will schedule and remove the filled container within three (3) days of receiving the notification.

Note: It is imperative that the EOSO be contacted upon or in anticipation of an SAA container becoming "full". MADEP regulations require that full containers be immediately dated and relocated to the MAA within three (3) days (72 hours). Relocation to the MAA is required regardless of weekends, holidays or personal schedules. Failure to date or relocate the container within three (3) days could result in significant regulatory action.

11.3 Main Accumulation Area Volume

During weekly inspections of the MAA, the EOSO staff evaluates the status and the amount of waste and containers stored in the MAA. The EOSM will arrange for a waste pick-up by a Licensed Hazardous Waste Transporter, when:

- when there are a sufficient number of containers in the MAA for economic disposal of the waste;
- containers are approaching the 180 day storage limit described in Section 8.1;
- the MAA is approaching the accumulation limits listed in Section 5.6, Small Quantity Generator (SQG) Limits; or
- the MAA room is approaching capacity.

11.4 Off-site Disposal

Once the EOSM determines that waste stored in the MAA must be removed, he will contact a WPI approved Disposal Transporter. The EOSM will stage the appropriate containers for transport off-site, contact the approved Disposal Transporter and will schedule a waste pick-up. The waste pick-up will be completed within approximately two (2) weeks of notification.

11.5 Off-Site Transport of Hazardous Waste

WPI approves and utilizes numerous permitted Hazardous Waste Transporters, to transport shipments of waste to a permitted disposal facility. WPI has determined that each transporter approved by WPI to transport their waste possess a valid Massachusetts hazardous waste transporter permit and a valid USEPA Identification Number. All required records, reports, manifest documents and land disposal restriction forms, discussed in detail

below, will be completed by the Licensed Transporter and signed by John E. Miller, Associate Vice President, Business Affairs and Director of Physical Plant. Mr. Miller is currently the only WPI representative authorized to sign hazardous waste shipping paper, known as a Hazardous Waste Manifest.

As describe in Section 13.0, the EOSM maintain all records and forms in the Department's offices. Prior to leaving the campus, WPI's EOSM will evaluate each vehicle transporting WPI generated waste to ensure it is properly placarded with appropriate markings in compliance with rules adopted by the United States Department of Transportation (USDOT).

11.6 Disposal Facility

WPI is developing a process to evaluate and approve disposal facilities that receive WPI's hazardous waste. The EOSM maintain historic records of waste disposal and transportation in the Department's office.

11.7 Reporting and Recordkeeping

Reporting and recordkeeping documents are integral and vital to demonstrating compliance with USEPA and MADEP regulations and for limiting regulatory and financial liability. WPI carefully and accurately manages all appropriate documentation, reports and records as described in Section 14.0, Recordkeeping and Reporting, below. For more information contact the EOSM, 508-831-5216.

12.0 Waste Minimization

In WPI's ongoing efforts to minimize costs, control liability, and maintain a sound environmental program, every effort will be made to minimize the generation of hazardous waste. To accomplish this objective, WPI has developed a waste minimization strategy designed to identify and develop opportunities to control chemical use and reduce waste generation. Various methods have been identified and implemented where appropriate and applicable. These methods include the following:

- Chemical Redistribution Program - When laboratories no longer need chemicals they maintain, the EOSO will attempt to identify a suitable campus laboratory that can use the chemical. The Environmental and Occupation Safety Department will arrange for redistribution of the chemical to the new location. Contact David Messier for additional information.
- Purchasing control - Chemical purchases may be reviewed to ensure that appropriate materials and quantities are purchased. This helps to prevent purchasing more than minimum quantities of materials that could become P-listed waste.
- Laboratory Inventory Control - Outdated or obsolete chemical inventories are periodically evaluated and excess quantities, removed. These "removals" are performed periodically and can be scheduled by contacting the EOSM.
- Universal Waste Management - *A universal waste management program has been developed and implemented by WPI. Currently, WPI will handle mercury containing devices and pesticides under the Universal Waste Management rules established by the MADEP. Contact the EOSO for additional details. <Pending>*
- Recycling - Where appropriate, WPI will recycle materials instead of disposing of them as solid waste or hazardous waste. Currently, lead-acid batteries are recycled by WPI.
- Micro-Scale Experiments - WPI's Chemistry Department utilizes, where appropriate, and has designed and attempts to design experiments in undergraduate teaching laboratories using scale reduction techniques. The "micro-scale" method is utilized to minimize use of hazardous materials and the subsequent hazardous waste generation.

As new strategies are identified, evaluated and implemented, this section will be updated to reflect methods available for use by WPI. Contact EOSM to provide ideas or obtain information on waste minimization strategies.

13.0 Training

13.1 Introduction

Regulatory mandated and WPI required training is provided to ensure that individuals involved in hazardous waste management understand methods to minimize hazards and risks associated with the handling of hazardous waste. This training may include instruction in USEPA's Resource Conservation and Recovery Act (RCRA) United State's Department of Transportation (USDOT) and the Occupational Safety and Health Administration (OSHA) requirements, as appropriate.

13.2 Training Requirements - General

WPI has chosen to provide initial training programs to handlers of hazardous waste to ensure that waste material is safely and effectively managed. WPI conducts or makes available training programs that comply with the appropriate aspects of the USEPA, MADEP, USDOT, and OSHA regulations. Participation in a particular program is based on the duties performed by the individual. The determination of the appropriate training required for each department is made by the EOSM in cooperation with Academic Department Heads and communicated through this document.

In addition, others individuals that WPI feel will benefit from these training programs will receive appropriate training.

The following section summarizes the content of the training offered by WPI employees involved with the management of hazardous waste.

13.3 Training Program Scheduling

WPI requires that individuals receive several of the training programs summarized below prior to the commencement of any waste handling activities. WPI departments that generate waste must schedule new employees or employees newly assigned to a hazardous waste handling position for the appropriate training. Academic Department Heads are responsible for identifying individuals that require training based upon criteria develop by EOSO and for notifying the EOSM to schedule training or determining the training schedule.

Contact EOSM at 508-831-5216, or e-mail, dmessier@wpi.edu to obtain the training schedule or arrange for training. Regularly scheduled and periodic training sessions are posted on the EOSO's Intranet web site, located at <http://www.wpi.edu/Admin/Safety/>.

13.4 Training Summaries

13.4.1 Hazardous Waste Management

As a small quantity generator of hazardous waste, WPI has chosen to provide orientation training in hazardous waste management for all individuals who handle or generate hazardous waste as part of their operational responsibilities. These individuals must be familiar with proper waste handling and emergency procedures relevant to their waste management responsibilities.

As part of WPI's hazardous waste management program, individuals involved with handling hazardous waste receive this and other appropriate training to ensure a thorough understanding of hazardous waste management. The training includes instruction on how to properly handle hazardous waste, minimize risks, respond in the event of an incident and initiate an emergency response. Individuals with the following responsibilities are included in the Hazardous Waste Management and Laboratory Safety program:

- Principle Investigators;
- Post-doctoral Staff;
- Technicians;
- Graduate and Undergraduate Students;
- Machinists;
- Maintenance Staff;
- Maintenance Supervisors;
- Adjunct Faculty;
- Others, as appropriate;

13.4.2 - Resource Conservation and Recovery Act (RCRA) Training

Because of the EOSM's hazardous waste program responsibility, he receives initial and annual refresher training on the Resource Conservation and Recovery Act (RCRA). This program is designed to meet the requirements of 40 CFR 265.16 and 30 CMR 30.516. All new EOSO employees with hazardous waste program management responsibilities will receive a program of instruction that meets the requirements of these regulations, as outlined below, and under Section 13.4.3, US Department of Transportation (USDOT).

- Personnel will successfully complete a classroom program or on-the-job training that teaches them to perform their duties in a way that

ensures compliance with the requirements of WPI's program. This will include, as appropriate:

1. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
 2. Key parameters for automatic waste feed cut-off systems;
 3. Communications or alarm systems;
 4. Response to fires or explosions;
 5. Response to ground-water contamination incidents; and
 6. Shutdown of operations.
- Personnel will complete the program described above within six months after the date of their employment or assignment to a new hazardous waste management position, whichever is later.
 - Personnel who have not received RCRA training will not work in unsupervised positions until they have completed the training.
 - Employees will receive an annual review of the initial training.

13.4.3 US Department of Transportation (USDOT)

The US Department of Transportation requires that any individual offering "hazardous materials" for shipment must receive instruction to permit them to comply with USDOT regulations. USDOT's training requirements (49 CFR 172, Subpart H) apply to individuals involved with "hazardous materials" transportation process, as defined by the USDOT. (This definition includes hazardous waste.) This training is required for those individuals responsible for pre-transportation packaging, loading, transporting, unloading, paperwork completion, etc. of hazardous waste and hazardous materials.

Currently, only EOSO employees fall in this category. Therefore, as with RCRA training, all EOSO employees with program management responsibilities will receive initial and annual Hazardous Materials Transportation training that complies with the USDOT requirements specified in 49 CFR 172, Subpart H.

13.5 USDOT / USEPA Regulations Overlap

USEPA's RCRA defines a hazardous waste "transporter" as any person engaged in the off-site movement of hazardous waste by air, railway, highway, or water (40 CFR 260.10). Therefore, hazardous waste "transporters" must follow both USEPA and USDOT regulations. While USEPA regulations focus on the safe handling of hazardous waste during

generation and accumulation and the manifest system, USDOT regulations and training cover how to properly package, mark, and label hazardous materials in the transportation process, and emergency response procedures during transportation.

13.6 Training Records

Training Record Retention - Training records are retained for a minimum of three (3) years after an employee leaves a position requiring hazardous waste handling.

The following records are maintained by WPI:

- Sign-in sheet; and
- Presentation outline.

14.0 Record Keeping and Reporting

14.1 Introduction

Hazardous waste generators are required to develop, provide and maintain records that track waste from generation to ultimate disposal. The purpose of obtaining, maintaining and preserving these documents is to ensure that waste was properly managed and regulatory compliance requirements were met. The information and documentation may also be useful in determining and avoiding liability if the waste becomes involved in Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, Superfund) action through the transporter or disposal facility.

Both USEPA and MADEP specify recordkeeping and record maintenance requirements. Many of the requirements overlap. Regulations include:

- USEPA requires generators of hazardous waste to comply with the recordkeeping and reporting requirements set forth in 40 CFR 262.40 and 268.7(a)(8).
- MADEP requires small quantity generators of hazardous waste to comply with the recordkeeping and reporting requirements established by 310 CMR 331 (1, Manifest, 3, Test results, waste analyses, or other determinations 4, Record keeping periods for unresolved enforcement actions), 310 CMR 30.333: Exception Reporting, 310 CMR 30.334: Additional Reporting.
- Hazardous "waste" container storage areas (MAA's) must be inspected weekly under 40 CFR 265.174 and 310 CMR 30.686 (MAA's and SAA's). (See Section 8.1 and 8.2, MAA and Section 7.0 SAA management and Appendix B for further details.)
 - Appendix B - Satellite and Main Hazardous Waste Accumulation Area, Inspection Forms

This section outlines WPI's recordkeeping and reporting process as well as how records are organized and maintained.

14.2 Records Administration and Storage

14.2.1 Records Administration - Required records are maintained in the EOSO. The record-keeping system is organized as follows:

- The EOSM distributes signed manifests to the appropriate agencies following information outlined in section 14.3.1;
- Required records are maintained by year in the EOSO;
- In files - Manifest and Land Disposal Restrictions are attached;
- The Packing Lists and Profiles are filed separately; and

- Manages the system designed to ensure that manifests are received from the disposal facility within the 45-day limit.

14.3 Records

14.3.1 Hazardous Waste Manifests

When a hazardous waste manifest is used, an authorized WPI representative will sign it by hand and maintain a copy for WPI's records. The WPI representative authorized to sign manifests is the Director of Physical Plant.

Once the shipment has left the campus, WPI will mail a copy of each manifest to the destination and generator state's environmental agency within 10 days. WPI must receive a signed copy from the receiving ("disposal") facility within 45 days from the date the (initial) transporter received the waste. If, after 35 days WPI has not received the signed receiving facility copy, the EOSM will contact the transporter or the receiving facility to determine the status of the shipment. If the signed copy is not received within 45 days, WPI will submit an "Exception" report to the MADEP. See 14.3.3 Exception Reports below.

WPI must keep the manifest copy for three (3) years from the date the waste was accepted by the initial transporter. Manifest will be kept with the applicable Land Disposal Notification/Certification forms.

The manifest from the Destination State, the location where the waste will ultimately reside, is used for each hazardous waste shipment. If that state does not require its use, then the Massachusetts State manifest will be used.

Manifest Distribution Procedure

The following is the **Manifest Distribution Procedure**. The manifest must be distributed as indicated below. The EOSM will ensure that WPI obtains and provides the manifest copies as indicated below.

Manifest Distribution Procedure - Massachusetts

- Copy 1: Destination State - TSDF¹ mails to destination state's environmental agency within 14 days of receipt.
- Copy 2: Generator State - TSDF mails to generator's state environmental agency within 14 days of receipt.
- Copy 3: Generator Completed Copy - TSDF mails to **generator** within 14 days of receipt. **(See Exception Reports, below if this copy is not received within 45 days of Transporter Pick-up.)**
- Copy 4: TSDF Copy - TSDF retains.
- Copy 5: Transporter - Transporter retains.

- Copy 6: Destination State - WPI mails to destination state agency within 10 days of pick-up.
- Copy 7: Generator State - WPI mails to generator state agency within 10 days of pick-up. **Suggested Management practice for Copy 6 and 7** - Send certified mail, return receipt requested.
- Copy 8: Generator - WPI retains for records after pick-up.

1. TSDf - "Treatment, Storage, Disposal Facility. This is the ultimate location where WPI's waste will reside.

Record Retention:

Hazardous Waste Manifests are maintained on file for three (3) years from the signature date of the document.

14.3.2 Land Disposal Notification/Certifications

Each waste stream that either meets or does not meet a waste treatment standards indicated in 40 CFR 268.40 or 268.45 must have a one time, written notice/certification sent to each treatment, storage, or disposal facility with the initial shipment of that waste stream. These notifications or certifications must be kept on file for at least three (3) years. These forms are kept with WPI's copy of the signed manifest.

Record Retention:

Land Disposal Notifications must be kept for three (3) years from the date of the report. These reports should be kept with a copy of the manifest.

14.3.3 Exception Reports

WPI will take the following action if a signed copy of the manifest is not received from the receiving (TSDf) facility within **45 days** from the date the waste was accepted by the initial transporter:

- Submit an "exception" report indicating that the waste was not received by the disposal facility.
- Send a report to the MADEP, and to either the State in which the designated facility is located, or to the EPA in the case of a State not authorized to administer the RCRA program containing the following information:
 - A legible copy of the manifest; and
 - A cover letter signed by WPI's authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts.

WPI will contact the transporter and the disposal facility to determine the status of our waste if the manifest is not received within 35 days.

Record Retention: WPI will maintain Exception Reports for three (3) years from the due date of the report. These reports should be kept with a copy of the manifest in question.

14.3.4 Profiles/Waste Analyses Results

Each waste stream must be evaluated to determine if it is a hazardous waste as defined by 40 CFR 261 and to determine the proper waste code classification. This can be done by either testing the waste according to the methods set forth in 40 CFR 261 Subpart C or by applying generator knowledge of the waste in light of the materials or process used. Waste code assignment is determined by the waste characteristics and an understanding of how the waste is generated.

Record Retention: Test results, waste analyses, profiles, or other determinations will be kept for at least three (3) years from the date that the waste was last sent to off-site treatment, storage, or disposal facility. These records will be kept separate from the Land Disposal Notification/Certifications and Manifests.

14.3.5 Satellite and Main Accumulation Areas Inspections

The USEPA and the MADEP requires that WPI inspect their main accumulation areas weekly and MADEP requires that the satellite accumulation areas be inspected weekly. The regulations make no specific reference to required information or documentation. However, USEPA inspectors have made it clear that they expect "proof" that the generator is complying with this requirement. Appendix D provides interpretive references that discuss SAA inspections. See Appendix B for copies of the inspection form used by WPI.

Record Retention: The Satellite and Main Accumulation Areas Inspections records are maintained in the EOSO.

14.4 Reporting

Hazardous waste regulations require that only one report be submitted on a periodic basis. This report is the Exception report discussed in Section 14.3.3. Please refer to Section 14.3.3, Exception Reports for a discussion of WPI's action for developing and filing this report.

14.4.1 Biennial Reports

Because WPI is a small quantity generator of hazardous waste, a Biennial Report is not required and need not be develop or submit a Biennial Report annually (March 1st of every even-numbered year.) Should WPI become a large quantity generator by producing more than 1,000 kilograms (kg) of hazardous waste or more than 1 kg of acutely hazardous waste in any month, then a biennial report will be filed with the Massachusetts DEP by March 1 of every even-numbered year.

Record Retention: Large quantity generators must keep a copy of the report for a period of three years from the due date of the report. These reports will be kept separate from other reports.

15.0 Emergency Preparedness and Response

15.1 Introduction

Although not required by virtue of their status as a small quantity generator, WPI has chosen to develop a Contingency Plan and Emergency Procedures for hazardous chemical wastes and other emergencies. This program identifies risks associated with handling hazardous chemicals and communicates methods to effectively manage those risks.

Risks associated with the handling of hazardous chemicals and hazardous waste include spills, leaks, releases, etc., termed, events. The Hazardous Waste Management Program is designed to institute methods to *prevent* hazardous material events. The Contingency Plan and Emergency Procedures ("Procedures") are designed to prevent and to minimize hazards to public health and safety, or to the environment from all unplanned release of hazardous waste stored at the Institute's hazardous waste storage area and to ensure that events are effectively and expeditiously managed.

The Procedures describes actions and designates personnel who will respond to emergencies including, Contingency Plan Actions and Emergency Evacuation Plan. Trained and specially equipped response personnel are available on the campus or are "on-call", 24 hours per day and can be contacted through the Campus Police Department or the Emergency Coordinators. See below. A list of emergency contacts and phone numbers is contained in Appendix C.

The remainder of this section is under development and will be provided once complete.

15.2 Emergency Coordinators

15.3 Emergency Equipment

15.4 Emergency Action Information - Posting

15.5 Emergency Procedures

15.6 Notification and Reporting

Notification:
Reporting

Appendix A

Worcester Polytechnic Institute

Satellite Accumulation Areas

Contact the EOS Office at x 5216 for more information.

Appendix B

Satellite and Main Hazardous Waste Accumulation Area
Inspection Forms

WPI Hazardous Waste Storage Area Weekly Inspection Log

1. Are all hazardous waste containers labeled with a hazardous waste label?
2. Are all the chemicals listed on the label? (No formulas or abbreviations).
3. Are all the hazards checked off that best describe the waste?
4. Are all the containers closed and capped tightly during storage?
5. Are all the containers stored within a designated secondary container?
6. Are all incompatible wastes segregated properly?
7. Is there only one container per waste stream in the storage area?
8. Is the building/room # information filled out at the top of the label?

Note To All Hazardous Waste Generators :

This inspection must be done every week. Please fill in the date; your name; if all conditions were OK, place a ✓ in that section; or, enter additional information in the Other section, for any corrective measures taken. Contact the Environmental and Occupational Safety Office at x5216, if you have any questions.

Date Name OK Other

WPI Hazardous Waste Inspection Form :
Main Accumulation Area : GH 114B

Date Odors Leaks Labels Containers Misc. Info Inspected by:

Appendix C

Emergency Notification List

Worcester Polytechnic Institute
Emergency Notification List**Emergency**

Worcester Police, Ambulance, Fire:	911
Worcester Memorial Hospital	508-793-6611
Massachusetts State Police (Worcester)	508-793-4431
Business Phones	
Worcester Police	508-799-8600
Worcester Fire	508-799-1816

Campus Emergency Notifications Telephone Numbers:*Campus Police maintain home phone numbers for all Emergency Coordinators*

Campus Police	5433
John J. Hanlon, Chief	
Off Campus	508-831-5433
Pager	508-727-2201
Environmental and Occupational Safety Office	
	5216
David Messier, Manager	
Off Campus	508-831-5216
Pager	978-576-7584
Physical Plant	
	5130
John E. Miller, Director	
Off Campus	508-831-5130
News Services	
	508-835-6340
Neil Norum, Director	

Hazardous Materials Responder

Triumvirate Environmental, Inc.	800-966-9282
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Massachusetts Department of Environmental Protection

Central Regional Office, Business Hours (9:00am - 4:00pm)	508-792-7650
After Hours	617-556-1133
	888-304-1133

US Environmental Protection Agency, Region I
National Response Center

	617-223-2265
	800-424-8802

USEPA Regulatory Interpretations

Resource Conservation and Recovery Act (RCRA) USEPA Regulatory Interpretations

On March 16, 1999, a Consent Decree was entered in Federal District Court, District of Connecticut, resolving a Complaint filed against Pfizer Inc located in Groton, Connecticut. The Complaint alleged violations of the Resource Conservation and Recovery Act (RCRA), the Clean Water Act and the Emergency Planning and Community Right-to-Know Act. In conjunction with the settlement, Region I issued to Pfizer Inc regulatory interpretations of certain RCRA requirements in order to facilitate future compliance at Pfizer's Groton facility. The specific requirements for which regulatory interpretations were issued are:

- satellite accumulation;
- movement of hazardous wastes to storage areas;
- stacking and configuration of drums to allow for proper inspection;
- inspection logs; and
- container labeling in laboratories.

Some of the interpretations, such as those for the inspection log and container labeling requirements, are based on federally authorized Connecticut hazardous waste regulations that are more stringent than the federal requirements. Moreover, the satellite accumulation interpretation has been geared toward specific factual scenarios that existed at the Pfizer Inc plant in Groton, Connecticut. Nevertheless, the interpretations may prove useful to the regulated community in New England. The interpretations are set forth below. If you have any questions regarding these interpretations, please contact Richard Piligian at (617) 918-1757, or Andrea Simpson at (617) 918-1738.

Satellite Accumulation

<http://www.epa.gov/region01/steward/rcra/satell.html>

Movement of Hazardous Wastes to Storage Areas

<http://www.epa.gov/region01/steward/rcra/haza.html>

Adequate Hazardous Waste Storage for Inspection

<http://www.epa.gov/region01/steward/rcra/adeq.html>

Inspection Logs

<http://www.epa.gov/region01/steward/rcra/inspec.html>

Container Labeling in Laboratories

<http://www.epa.gov/region01/steward/rcra/label.html>

Inspection of Satellite Accumulation Containers (RCRA, EPCRA, CERCLA Hotline Report January 2000)

A large quantity generator (LQG) that is accumulating hazardous waste on-site for 90 days or less in containers must comply with 40 CFR Part 265, Subpart I (Section 262.34(a)(1)(i)). Section 265.174 of Subpart I require owners and operators to inspect containers weekly for leaks and deterioration caused by corrosion or other factors. **Are LQGs required to inspect hazardous waste containers in satellite accumulation areas at or near the waste's point of generation in accordance with Section 262.34(c)?**

Hazardous waste containers used to accumulate hazardous waste at or near any point of generation (satellite accumulation) and in compliance with Section 262.34(c) are not required to be inspected weekly. A generator accumulating hazardous waste in satellite accumulation areas must comply with Sections 265.171, 265.172, and 265.173(a) (Section 262.34(c)(1)(i)). These requirements include that a LQG ensure that the containers are in good condition, that the waste is compatible with the containers, and that the containers are kept closed except when necessary to add or remove waste. In addition, if the container begins to leak the generator must transfer the waste to a container that is in good condition. Section 265.174, regarding weekly inspection, is not a requirement for containers of hazardous waste in a satellite accumulation area. Therefore, LQGs are not required to conduct a weekly inspection of containers in satellite accumulation areas so long as they comply with the provisions of Section 262.34(c).

Authorized states (Massachusetts requires weekly inspections) may require weekly inspection of containers in satellite accumulation areas, as states may have more stringent requirements than the federal regulations.

Appendix E
Waste Container Labels

HAZARDOUS WASTE

Campus Location: _____

Waste Name: _____

Components

_____ %

_____ %

_____ %

_____ %

_____ %

Hazards

Toxic Flammable

Corrosive Reactive

Other

Date when container is full: _____

Contact x5216 for Pick-Up.

Appendix F
Releases of Hazardous Substances That Require an Emergency Response

Releases Of Hazardous Substances That Require an Emergency Response

The function of this appendix is to present a thorough discussion of the distinction between incidental releases of hazardous substances and releases that require an emergency response.

Potential releases of hazardous substances in the workplace can be categorized into three distinct groups. These groups are:

1. Releases that are clearly incidental regardless of the circumstances,
2. Releases that may be incidental or may require an emergency response depending on the circumstances, and
3. Releases that clearly require an emergency response regardless of the circumstances.

Releases that are clearly incidental

Release of a hazardous substance that is limited in quantity and poses no emergency or significant threat to the safety and health of employees in the immediate vicinity is considered an incidental release.

An incidental release is a release of hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee cleaning it up, nor does it have the potential to become an emergency within a short time frame. Incidental releases are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to employees in the immediate work area or those assigned to clean them up.

If the hazardous substances that are in the work area are always stored in very small quantities, such as a laboratory which handles amounts in pint sizes down to test tubes, and the hazardous substances do not pose a significant safety and health threat at that volume, then the risks of having a release that escalates into an emergency are minimal. In this setting incidental releases will generally be the norm and employees will be trained to protect themselves in handling incidental releases per the training requirements of the Hazard Communication standard (29 CFR 1910.1200).

For example, a tanker truck is receiving a load of hazardous materials at a tanker truck loading station. At the time of an accidental spill, the product **can** be contained by employees in the immediate vicinity and cleaned up utilizing absorbent without posing a threat to the safety and health of employees. As such, the employer may respond to such incidental releases. This situation describes an "incidental spill" under the HAZWOPER OSHA standard. An incidental spill poses an insignificant threat to health or safety, and may be safely cleaned up by employees who are familiar with the hazards of the chemicals with which they are working.

Releases That May Be Incidental or Require an Emergency Response Depending on the Circumstances

The properties of hazardous substances, such as toxicity, volatility, flammability, explosiveness, corrosiveness, etc., as well as the particular circumstances of the release itself, such as quantity, confined space considerations, ventilation, etc., will have an impact on what employees can handle safely and what procedures should be followed. Additionally, there are other factors that may mitigate the hazards associated with a release and its remediation, such as the knowledge of the employee in the immediate work area, the response and personal protective equipment (PPE) at hand, and the pre-established standard operating procedures for responding to releases of hazardous substances. There are some engineering control measures that will mitigate the release that employees can activate to assist them in controlling and stopping the release.

These considerations (properties of the hazardous substance, the circumstances of the release, and the mitigating factors in the work area) combine to define the distinction between incidental releases and releases that require an emergency response. The distinction is facility-specific and is a function of the emergency response plan.

For example: A spill of the solvent toluene in a facility that manufactures toluene may not require an emergency response because of the advanced knowledge of the personnel in the immediate vicinity and equipment available to absorb and clean up the spill. However, the same spill inside a furniture refinishing shop with personnel that have had only the basic hazard communication training on toluene, may require an emergency response by more highly trained personnel. The furniture refinishing shop's emergency response plan in this case would call for evacuation for all but the most minor spills, while evacuation and emergency response would be necessary for only much larger spills at the chemical manufacturing facility.

Releases that Require an Emergency Response Regardless of the Circumstances

There are releases of hazardous substances that pose a sufficient threat to health and safety that, by their very nature, require an emergency response regardless of the circumstances surrounding the release or the mitigating factors. The Response Team must determine the potential for an emergency in a reasonably predictable worst-case scenario or "anticipated emergencies," and plan response procedures accordingly.

For example, a motor carrier is engaged in the transportation of hazardous materials. At the time of an accidental release, the product **cannot** be contained by employees in the immediate vicinity and cleaned up utilizing absorbent. Because of the larger problem, the motor carrier's employee evacuates the area and call for outside help, as instructed by employer.

In this instance, if in the event of a spill of a hazardous substance an employer instructs all of his/her employees to evacuate the danger area, then the employer may not be required to train those employees under 1910.120. However, the ability to decide whether a spill is an incidental spill or one requiring an emergency response requires training. Also, any employees who are expected to become actively involved in an emergency response due to a release of a hazardous substance are covered by 1910.120 and must be trained accordingly.

An emergency response includes, but is not limited to, the following situations:

1. The response comes from outside the immediate release area;
2. The release requires evacuation of employees in the area;
3. The release poses, or has the potential to pose, conditions that are immediately dangerous to life and health (IDLH);
4. The release poses a serious threat of fire or explosion (exceeds or has the potential to exceed the lower explosive limit or lower flammable limit);
5. The release requires immediate attention because of imminent danger;
6. The release may cause high levels of exposure to toxic substances;
7. There is uncertainty that the employee in the work area can handle the severity of the hazard with the PPE and equipment that has been provided and the exposure limit could easily be exceeded; and
8. The situation is unclear, or data are lacking on important factors.

Responders from Outside the Immediate Release Area

"Emergency response" is defined as follows:

"Emergency response" . . . means a response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence that results, or is likely to result, in an uncontrolled release of a hazardous substance. Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel are not considered to be emergency responses within the scope of this standard. Responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses.

The definition covers responses "by other designated responders." The use of the "or" means that responders are a separate group, different from employees within the immediate release area, directed to respond to the emergency by the employer.

For an incident to be an emergency response, conditions causing a dangerous situation which involve hazardous substances are sufficient; there need not be both an emergency and a response by outside responders before the employer prepares for an emergency.

For example: A release of chlorine gas above the IDLH, obscuring visibility and moving through a facility, is an emergency situation even if the initial responders

are from the immediate release area. Employees, who would respond to this hypothetical situation, whether they work in the immediate area or come from outside, must respond as though it were an emergency response.

Employees must not be made to respond to releases in the immediate release area that would otherwise require outside assistance from a trained hazardous materials team merely because the definition of an emergency response states that an emergency response is " . . . a response effort by employees from outside the immediate release area."

Conversely, incidental releases of hazardous substances that are routinely cleaned up by those from outside the immediate release area need not be considered emergency responses solely because the employee responsible for cleaning it up comes from outside the immediate release area. For example: Paint thinner is spilled in an art studio and the janitor is called from outside the immediate release area to mop it up. The janitor does not have to respond in accordance 29 CFR 1910.120, although the janitor would be expected to understand the hazards associated with paint thinner through hazard communication training.

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