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Environmental Compliance and Best Management Practices

Guidance Manual for K-12 Schools

October 2006

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HOW TO USE THIS MANUAL

We have designed this manual to be "user friendly." What do we mean by that?

Why is this Manual Different?

Compliance manuals are typically arranged by regulatory program area. That requires the "user" to review all of the requirements of a particular regulatory program, such as the Clean Air Act (CAA), to determine if any are applicable to his or her department. The user must become intimately familiar with each regulatory program area before determining if the activities under his or her jurisdiction are covered by the corresponding regulations…this can be time-consuming and frustrating!

"Typical School"

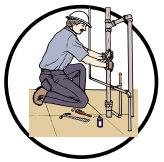
This is where we hope that this manual is a bit more "friendly" in that it is organized by the "target audience" or "end user." First, we have created a "Typical School," which is a school organized in such a way that it represents how many schools in the real world are organized. Our Typical School is subdivided into "Organizational Units" that share similar functions or activities. The "Organizational Units" may not be set up exactly like your school; however, by working with a number of school officials, we believe that it should be pretty close. Also, because this manual is intended to address a wide audience and encompass as many school activities as possible, it may include organizational units and/or activities not found at your school.

Target Audience

Next, we define the target audience for each "Organizational Unit" comprising the "Typical School." For example, for the Business/ Administrative functions of the school, we identify Business Officials. For the Academic/Vocational functions, we identify Science, Art and Technology Teachers and Supervisors. For Facilities Operations and Maintenance, as well as Grounds Maintenance, we identify appropriate Maintenance Workers, Facility Directors, and so on.

Administration

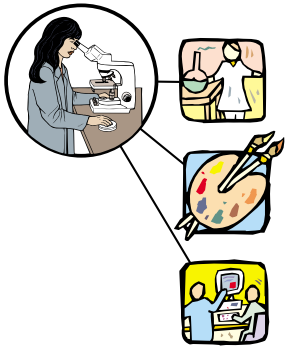
Academic / Vocational



Facilities Operation & Maintenance

Department Activities

Once the main "Organizational Units" are identified along with the appropriate target audience, we define, in greater detail, the numerous activities that would likely occur within each "Organizational Unit." For example, as part of the Academic/Vocational Unit, we include Science Labs (Biology, Chemistry and Physics) and Preparatory/Storage Rooms, Fine Arts Labs and Art Studios, Photography Labs, Computer Labs and "Shop" programs, just to name a few. Likewise, under the Facilities Operations and Maintenance Unit, we include Boilers, Tanks/Containers, Heating and Ventilation, Potable Water, Plumbing Shop, Electrical Shop and a whole host of additional departments and shops that would likely be affected by environmental regulation or have related Best Management Practices.

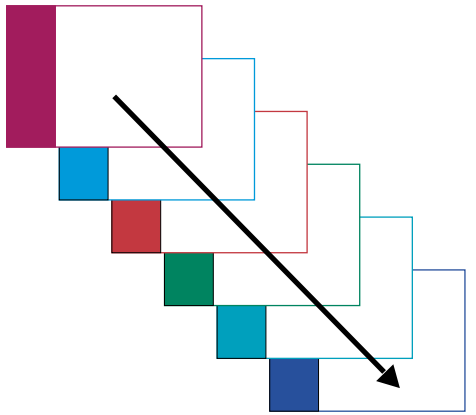


Let's say that you are responsible for Facilities Operation and Maintenance, more specifically, the Plumbing Shop. Simply turn to that section of the manual and we discuss what is required to comply with the appropriate federal environmental regulations and/or which Best Management Practices would apply to you.

In many cases state or local regulations may also apply. We have marked sections of the guidance manual that refer to state or local regulations with a light bulb and provide links to applicable Internet resources where available. If you are unsure about what to do in your situation you should contact the appropriate state or local agencies for additional information.

Use of Color and Graphics

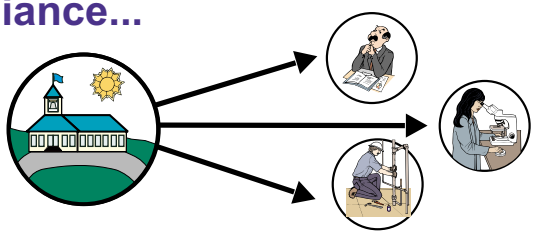
We have also tried to make the manual a bit more colorful, easier to read and have provided some graphics that we hope will help you find your way to compliance a little easier.



Five easy steps to evaluate and maintain compliance...

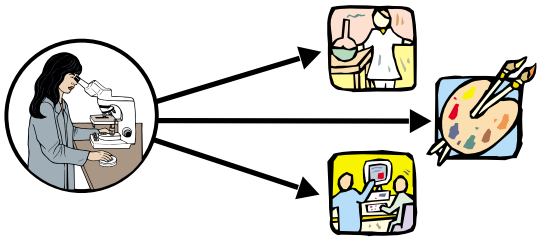
Step 1:
Where Do I Start?

Start with Section 1.0 (**The Burgundy Section**) to determine which "Organizational Unit" best describes your area of responsibility. This section also provides greater detail regarding the organization of this manual and includes quick-reference tables that can be used to help evaluate compliance.



Step 2:
What Activities are Covered?

Turn to the appropriate unit in Section 2.0 (**The Light Blue Section**) to determine which "Activities" you perform as part of your duties. This section discusses the many and varied activities conducted at schools, the types of environmental laws and regulations that may apply to each operation and the actions you must take to meet these environmental compliance requirements. Again, because this is a typical school, not all of these "activities" will apply to your school.



Step 3:
What Regulations Govern these Activities?

Each Activity described in Section 2.0 will reference applicable "Regulatory Program Areas," which are found in Section 3.0 (**The Red Section**). These Regulatory Program Areas are organized by major environmental acts such as the Clean Air Act (CAA). While Section 2.0 addresses the general day-to-day environmental issues and compliance-related tasks that you will need to deal with as part of your job, Section 3.0 provides a detailed summary of each of the legal requirements.

See CAA (Section 3.5)

Step 4:
What Else Should I Do?

Each activity will also reference Best Management Practices, also referred to as "BMPs," which are found in Section 4.0 (**The Green Section**). These BMPs list a variety of important step-by-step actions that you can take to help avoid common problems and protect the environment as well as student and worker health, beyond simply meeting regulatory compliance.

See BMP Indoor Air Quality (Section 4.1)

Step 5:
How Can My School Maintain Environmental Compliance?

Schools may want to consider implementing an Environmental Management System as a means to maintain environmental excellence. Section 5.0 (**The Teal Section**) describes the steps involved in developing and implementing a system to ensure continual environmental improvement at your school.

See CAA (Section 3.5)

See BMP Indoor Air Quality (Section 4.1)

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1.0 Introduction

This Multimedia Environmental Compliance Guidance Manual provides a model for a typical school or school district teaching grades K-12. The manual is divided into distinct Organizational Units that have common regulatory compliance requirements or would likely be managed as separate operational units of the school or school district. The chart provided in Figure 1-1 shows how the Organizational Units covered in this manual are organized:

Section 2.1
Administration / Business

- Administrative Offices

Section 2.2
Academic / Vocational

- Science Labs (Biology, Chemistry, Physics) and Laboratory Preparatory / Storage Rooms
- Field Trips
- Fine Art Labs / Art Studios
- Photography Labs
- Computer Labs
- "Shop" Programs
- Swimming Pool

Section 2.3
Facilities Operation and Maintenance

- Boilers
- Heating, Ventilation and Air Conditioning (HVAC)
- Potable Water
- Plumbing Shop
- Carpentry Shop
- Electrical Shop
- Painting Shop
- Solid Waste Management
- Construction / Renovation
- Cafeteria

Section 2.4
Grounds Maintenance

- Pesticide Use
- Fertilizer Use
- De-Icer / Salt / Sand Management
- Equipment Storage / Maintenance

Section 2.5
Custodial

- Custodial Services

Section 2.6
Transportation

- Equipment Storage / Maintenance

Section 2.7
Nursing Station / Infection Control

- Healthcare Services

Section 2.8
Printing Facility

- Equipment Operation and Maintenance

Your school system may have a different organizational structure and may not include all of the program areas described in this typical school system.

1.1 Identification of School Program Areas (Audience)

This section provides a brief description of the intended audience, the school faculty and staff in each program area. Multimedia Environmental Compliance Guidance for each of these school program areas can be found in Section 2.0.

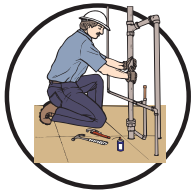
Administration/ Business (Business Officials)

Administration and business areas include all personnel who work in offices performing primarily non-teaching related work. These positions include district superintendents, financial officers, principals, assistant/vice principals, information technology managers and technicians, accountants, purchasing managers, administrative assistants, attendance workers, guidance counselors, academic area directors and other program area directors.

Academic/Vocational (Teachers and Science, Art and Technology Supervisors)

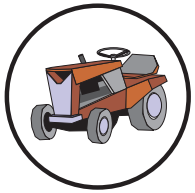
Academic areas included primarily focus on those that have the potential to directly affect the environment as a part of normal activities, although many best management practices apply to all academic personnel. Science areas targeted include biology, chemistry, physics and other experiment-based classes. Art areas include fine arts, photography, sculpture, printmaking, ceramics, pottery and painting. Technology areas include electronics, wood and metalworking shops and automotive and small engine repair classes. Personnel included in these areas include the teachers, aides, technicians and any support staff who store, handle and prepare chemicals or handle wastes generated from the classroom activities.

Facilities Operation and Maintenance (Maintenance Workers and Facility Directors)



Facilities operation and maintenance areas include personnel responsible for building maintenance, heating and utility plant operations, construction, solid waste management and the cafeteria. For this typical school, personnel in this area are not responsible for grounds maintenance or custodial duties, other than cleaning of specific facility engineering spaces. Facilities operation and maintenance staff include facility directors, construction supervisors, operators, technicians and general workers. Cafeteria personnel include food service managers, supervisors and workers. Duties performed by these individuals range from operation and maintenance of the facility boilers and air conditioners to changing light bulbs to serving student lunches.

Grounds Maintenance (Facility Directors)



Grounds maintenance areas include personnel responsible for maintenance of school property outside of the facility buildings. Duties include mowing and landscaping; irrigation; snow removal; maintenance of driveways, parking lots and fencing; routine maintenance of equipment; upkeep of playing fields and playground equipment; and collection of trash and yard waste. Positions include facility directors, grounds managers, groundskeepers, pesticide applicators, technicians and general workers, some of whom may be hired on a part-time or seasonal basis.

Custodial (Facility Directors)

Custodial areas include personnel who are responsible for care and cleaning of the interior spaces of the building. Positions in this area include facility directors, service managers, supervisors, custodians/janitors and general workers responsible for ordering, storing, handling, using and disposing of commercial cleaning products. Also included are personnel responsible for the collection, storage and removal of trash, garbage and other waste streams from the school buildings.

Transportation (Transportation Supervisors)

Transportation areas include personnel responsible for the operation, inspection, maintenance repair and storage of school buses, vans, trucks, driver's education vehicles and other vehicles. Positions included in this area are district managers, supervisors, drivers and mechanics.

Nursing Station / Infection Control (Nurse / Athletic Directors)

Nursing station/infection control areas include personnel responsible for health service programs. Depending on the school size these positions potentially include nurses, health office assistants, athletic directors, sports trainers and coaches, and health technicians providing specialized assistance to children with physical handicaps.

Printing Facility (Facility Directors)

Printing facility areas include personnel responsible for operation and routine maintenance of various types of offset printing, high-speed and color copying equipment and related services. Positions include directors, graphic service technicians and workers.

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1.2 Regulatory Program Areas

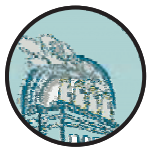
For each of the school organization units, this manual identifies activities that may be performed or materials that may be handled in a typical K-12 school that would likely trigger compliance with one or more federal regulations. This guidance manual covers the statutes or regulations that have been promulgated to implement the requirements of the major environmental legislative acts, namely:

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

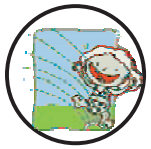
Emergency Planning and Community Right-to-Know Act (EPCRA)

Toxic Substances Control Act (TSCA)

Asbestos Hazard Emergency Response Act of 1986 (AHERA)



Clean Air Act (CAA)



Clean Water Act (CWA)

Safe Drinking Water Act (SDWA)

Oil Pollution Act of 1990 (OPA)

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Resource Conservation and Recovery Act (RCRA)

Hazardous and Solid Waste Amendments of 1984 (HSWA) - Underground Storage Tanks (UST)

Table 1-1 presents a matrix that identifies which legislation could potentially apply to each of the school's organizational units. A description of each of these regulatory programs and how they apply to the Typical School can be found in Section 3.0.

Table 1-1

This matrix identifies which legislation could potentially apply to each program area in our typical school.

School Program Area	Regulatory Program Areas										
	CERCLA (Section 3.1)	EPCRA (Section 3.2)	TSCA (Section 3.3)	AHERA (Section 3.4)	CAA (Section 3.5)	CWA (Section 3.6)	SDWA (Section 3.7)	OPA (Section 3.8)	FIFRA (Section 3.9)	RCRA (Section 3.10)	UST (Section 3.11)
2.1 Administration/Business											
2.1.1 Administrative Offices										✓	
2.2 Academic / Vocational											
2.2.1 General Activities	✓	✓			✓					✓	
2.2.2 Science Labs (Biology, Chemistry, Physics) and Laboratory Preparatory / Storage Rooms	✓	✓				✓	✓			✓	
2.2.3 Field Trips											
2.2.4 Fine Arts Labs / Art Studios						✓	✓			✓	
2.2.5 Photography Labs						✓	✓			✓	
2.2.6 Computer Labs										✓	
2.2.7 “Shop" Programs		✓			✓	✓	✓	✓		✓	✓
2.2.8 Swimming Pool	✓	✓				✓	✓		✓	✓	
2.3 Facilities Operation and Maintenance											
2.3.1 General Activities	✓	✓			✓	✓		✓		✓	✓
2.3.2 Boilers	✓	✓		✓	✓	✓	✓		✓	✓	
2.3.3 Heating and Ventilation and Air Conditioning (HVAC)					✓	✓			✓	✓	
2.3.4 Potable Water							✓				
2.3.5 Plumbing Shop						✓	✓			✓	
2.3.6 Carpentry Shop					✓					✓	

Legend:

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	CWA	Clean Water Act
EPCRA	Emergency Planning & Community Right-to-Know Act	SDWA	Safe Drinking Water Act
TSCA	Toxic Substances Control Act	OPA	Oil Pollution Act
AHERA	Asbestos Hazard Emergency Response Act	FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
CAA	Clean Air Act	RCRA	Resource Conservation and Recovery Act
		UST	Underground Storage Tanks

Table 1-1 (cont.)

School Program Area	Regulatory Program Areas										
	CERCLA (Section 3.1)	EPCRA (Section 3.2)	TSCA (Section 3.3)	AHERA (Section 3.4)	CAA (Section 3.5)	CWA (Section 3.6)	SDWA (Section 3.7)	OPA (Section 3.8)	FIFRA (Section 3.9)	RCRA (Section 3.10)	UST (Section 3.11)
2.3 Facilities Operation and Maintenance (cont.)											
2.3.7 Electrical Shop			✓		✓					✓	
2.3.8 Paint Shop	✓	✓		✓	✓	✓	✓			✓	
2.3.9 Solid Waste Management			✓		✓	✓	✓			✓	
2.3.10 Construction and Renovation			✓	✓	✓	✓				✓	
2.3.11 Cafeteria		✓				✓	✓	✓	✓	✓	
2.4 Grounds Maintenance											
2.4.1 Pesticide Use	✓	✓							✓	✓	
2.4.2 Fertilizer Use	✓	✓									
2.4.3 De-Icer / Salt / Sand Management		✓				✓	✓				
2.4.4 Equipment Storage / Maintenance	✓	✓			✓	✓	✓	✓		✓	✓
2.5 Custodial											
2.5.1 Custodial Services	✓	✓								✓	
2.6 Transportation											
2.6.1 Equipment Storage / Maintenance	✓	✓			✓	✓	✓	✓		✓	✓
2.7 Nursing Station / Infection Control											
2.7.1 Healthcare Services					✓				✓	✓	
2.8 Printing Facility											
2.8.1 Equipment Operation / Maintenance	✓	✓				✓	✓			✓	

Legend:

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	CWA	Clean Water Act
EPCRA	Emergency Planning & Community Right-to-Know Act	SDWA	Safe Drinking Water Act
TSCA	Toxic Substances Control Act	OPA	Oil Pollution Act
AHERA	Asbestos Hazard Emergency Response Act	FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
CAA	Clean Air Act	RCRA	Resource Conservation and Recovery Act
		UST	Underground Storage Tanks

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1.3 Best Management Practices

Best Management Practices (BMPs) are also provided to address potential environmental concerns that are not specifically addressed by the regulatory program areas. The following BMPs are provided:

Indoor Air Quality

Septic Tank/Cesspool Management

Storm Water Management

Solid Waste Recycling

Chemical Purchasing/Management

Pollution Prevention/Waste Reduction

Table 1-2 presents a matrix of BMPs that may be applicable to each program area in the typical school. A description of each of these BMPs and how they apply to the typical school can be found in Section 4.0.

Table 1-2

BMP's that may be applicable to each program area in our typical school.

School Program Area	Best Management Practices					
	Indoor Air Quality (Section 4.1)	Storm Water Management (Section 4.2)	Chemical Purchasing / Management (Section 4.3)	Septic Tank / Cesspool Management (Section 4.4)	Solid Waste Recycling (Section 4.5)	Pollution Prevention / Waste Reduction (Section 4.6)
2.1 Administration/Business						
2.1.1 Administrative Offices	☆				☆	☆
2.2 Academic / Vocational						
2.2.1 General Activities	☆		☆		☆	☆
2.2.2 Science Labs (Biology, Chemistry, Physics) and Laboratory Preparatory / Storage Rooms	☆		☆	☆		☆
2.2.3 Field Trips					☆	☆
2.2.4 Fine Arts Labs / Art Studios	☆			☆		☆
2.2.5 Photography Labs			☆	☆		☆
2.2.6 Computer Labs					☆	☆
2.2.7 “Shop" Programs			☆	☆	☆	
2.2.8 Swimming Pool	☆		☆			☆
2.3 Facilities Operation and Maintenance						
2.3.1 General Activities			☆			☆
2.3.2 Boilers	☆					☆
2.3.3 Heating and Ventilation and Air Conditioning (HVAC)	☆					
2.3.4 Potable Water						☆
2.3.5 Plumbing Shop		☆		☆	☆	☆
2.3.6 Carpentry Shop	☆		☆			

Table 1-2 (Cont.)

School Program Area	Best Management Practices					
	Indoor Air Quality (Section 4.1)	Storm Water Management (Section 4.2)	Chemical Purchasing/ Management (Section 4.3)	Septic Tank / Cesspool Management (Section 4.4)	Solid Waste Recycling (Section 4.5)	Pollution Prevention / Waste Reduction (Section 4.6)
2.3 Facilities Operation and Maintenance (cont.)						
2.3.7 Electrical Shop			☆		☆	☆
2.3.8 Paint Shop	☆	☆	☆	☆		☆
2.3.9 Solid Waste Management	☆			☆	☆	☆
2.3.10 Construction and Renovation	☆	☆			☆	
2.3.11 Cafeteria	☆		☆	☆	☆	☆
2.4 Grounds Maintenance						
2.4.1 Pesticide Use	☆		☆			☆
2.4.2 Fertilizer Use		☆	☆		☆	☆
2.4.3 De-Icer / Salt / Sand Management		☆	☆			☆
2.4.4 Equipment Storage / Maintenance		☆	☆	☆		☆
2.5 Custodial						
2.5.1 Custodial Services	☆		☆	☆	☆	☆
2.6 Transportation						
2.6.1 Equipment Storage / Maintenance		☆	☆	☆	☆	☆
2.7 Nursing Station / Infection Control						
2.7.1 Healthcare Services	☆					☆
2.8 Printing Facility						
2.8.1 Equipment Operation / Maintenance	☆		☆	☆	☆	☆

1.4 Environmental Management System

A school or school district may choose to develop and implement an Environmental Management System as a means of demonstrating its commitment to achieve and maintain environmental excellence. Section 5.0 describes the typical elements included in an Environmental Management System.

2.0 Typical School Organizational Units

This section provides a description of the major organizational units of our typical school and lists typical activities in each area that may trigger a regulatory requirement and/or have environmental issues that are addressed by a Best Management Practice (BMP). Regulatory program areas are discussed in Section 3.0 and BMPs are provided in Section 4.0 of this guidance manual. The organizational units that are covered in this manual are as follows:

Administration / Business

Custodial

Academic / Vocational

Transportation

Facilities Operation and Maintenance

Nursing Station / Infection Control

Grounds Maintenance

Printing Facility

Your school may have a different organizational structure and may not include all of the organizational units described in this typical school system.

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2.1 Administration / Business

This section of the guidance document covers the program areas of the school that are utilized for or provide direct support to teaching of academic programs at the school.

Administrative Offices

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What Regulations or Best Management Practices Apply?

2.1.1 Administrative Offices

Offices and associated spaces devoted to providing work areas and support for personnel performing non-teaching related functions at the school or school district. While these functions may vary widely, activities that are conducted or materials used by many of the separate areas/operations included under the Administration/Business organizational unit have similar environmental compliance concerns.

Activity/Material	Regulatory Program Area	Best Management Practices
Administration	None	Indoor Air Quality
Spent Mercury-Containing Lamps and Battery Disposal	RCRA	Solid Waste Recycling, Pollution Prevention/Waste Reduction
Scrap Computers and Electronics Disposal	RCRA	Solid Waste Recycling
Office Paper, Plastic and Metal Disposal	None	Solid Waste Recycling, Pollution Prevention/Waste Reduction

Administration

A school or school district may choose to implement an environmental management system (EMS) as a demonstration of its commitment to achieve and maintain environmental excellence. The main components of a typical EMS are presented in Section 5.0 of this manual. The key to success of any EMS is a strong commitment to continual environmental improvement that is fully supported by the administration.

See BMP Indoor Air Quality (Section 4.1)

Another resource available to school administrators is a unique assessment tool designed by the USEPA to help school districts evaluate their facilities for key environmental, safety and health issues. ***This tool, named the "Healthy School Environments Assessment Tool" (Healthy SEAT) can be downloaded from the following website: http://www.epa.gov/schools/healthyseat.***

Indoor air quality is an important issue for all schools. Office spaces, as well as classrooms, may be prone to indoor air quality problems due to poor ventilation, excess moisture, dust and fumes from printing equipment. ***Information on this topic can be found in Section 4.1 of this manual and also from the USEPA at http://www.epa.gov/iaq/schools/tools4s2.html.***

An outreach tool entitled, "Indoor Air Quality Tools for Schools Action Kit," is also available through this website. It is designed to help all schools develop and implement an action plan to improve indoor air quality at little or no cost.

2.1.1 Administrative Offices (continued)

Spent Mercury-Containing Lamps and Battery Disposal

Fluorescent lamps and high intensity discharge (HID) lighting are energy efficient and are used in most office spaces. The coatings used on the inside of many such bulbs contain mercury, often in quantities that require that spent bulbs be recycled or disposed of as hazardous waste or universal waste in accordance with Resource Conservation and Recovery Act (RCRA) regulations. The types of lamps that may contain mercury include:

- Fluorescent tubes (including compact fluorescents),
- Mercury vapor lamps,
- Metal halide lamps,
- High pressure sodium lamps, and
- Neon lamps.

It is important to note that crushing of fluorescent, HID and other specialty light bulbs containing mercury by school personnel to reduce volume is not recommended as it will subject the school to additional regulatory requirements. Crushing of bulbs may also expose personnel to toxic fumes. Schools should consider using only low-mercury, "green-tipped" bulbs that generally do not require management as hazardous or universal waste. It is the school's responsibility to make a hazardous waste determination on spent bulbs to confirm whether or not they meet the definition of hazardous waste. Bulbs that are not RCRA hazardous still contain mercury at levels that may create an exposure hazard when broken. Care should be taken to avoid breaking or crushing the bulbs and they should never be placed in the trash dumpster, because that almost always leads to breakage and release of the mercury. These bulbs can still be recycled, thus reducing the amount of solid waste generated by your school and avoiding concerns related to mercury exposure. Recycling of all fluorescent bulbs is required under some state regulations. ***For further information relating to requirements for fluorescent lamps in New York State, refer to Section 2.3.7 on page 2-38.***

Batteries used in small electronics, thermostats, alarm panels and emergency lighting may also be required to managed as hazardous or universal waste under RCRA regulations because they contain lead, cadmium, silver or mercury or are corrosive or reactive (i.e. lithium). Use of "green-tipped" batteries that are not regulated under RCRA regulations should be considered, whenever possible. Recycling programs should be implemented to ensure proper disposal of all batteries.

See RCRA (Section 3.10)

See BMP Solid Waste Recycling (Section 4.5)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.1.1 Administrative Offices (continued)

Spent Mercury-Containing Lamps and Battery Disposal (continued)

Information on the proper management of spent mercury-containing lamps and batteries is provided in Section 3.10 of this manual. Additional information is available from the USEPA at http://www.epa.gov/epaoswer/hazwaste/id/univwast/.

State-specific universal waste regulations can be found through the links provided at http://www.epa.gov/epaoswer/hazwaste/id/univwast/statespf.htm.

Scrap Computers and Electronics Disposal

Scrap computers and electronics often contain hazardous constituents such as lead, mercury and chromium. In particular, spent cathode ray tubes (CRTs), including computer monitors and televisions and circuit boards must be managed as hazardous waste. Some states, including New Jersey, allow scrap computers to be managed as universal waste. In New York State, they may be recycled as scrap metal. To avoid having to manage these items as hazardous waste, a reuse program for computers and electronics should be implemented.

See BMP Solid Waste Recycling (Section 4.5)

See RCRA (Section 3.10)

Information on proper management of scrap computers and electronics, including links to state programs is available from the USEPA at http://www.epa.gov/epaoswer/hazwaste/recycle/ecycling/index.htm.

Paper / Plastic / Metal Recycling

Recycling programs implemented in administrative offices can provide momentum for programs throughout the school system. Office paper, printer cartridges, plastic and metal can all be easily recycled.

See BMP Solid Waste Recycling (Section 4.5)

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2.2 Academic / Vocational

This section addresses the activities and/or materials that are common to a number of Departments that are typically utilized to support the academic/vocational elements of school programs. These Departments are identified below.

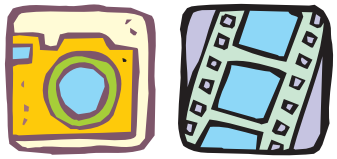
Although this list is diverse, many of these Departments have similar activities or use similar materials that could trigger environmental compliance issues. For example, most of the Departments identified use and store similar types and quantities of chemicals. A summary of these "shared" activities/materials are presented on the following pages. Activities/materials that primarily pertain to a single Department are presented in greater detail in the Department subsection.

Science Labs (Biology, Chemistry, Physics) and Preparatory / Storage Rooms

Field Trips

Fine Art Labs / Art Studios

Photography Labs



Computer Labs

"Shop" Programs

Swimming Pool

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What Regulations or Best Management Practices Apply?

2.2.1 General Activities

Activities (i.e. chemical use and storage, operation of fume hoods, spill response and cleanup and scrap computers and electronics disposal) that may be conducted by many of the operations under the Academic/Vocational organizational unit and have similar environmental compliance concerns.

Activity/Material	Regulatory Program Area	Best Management Practices
Chemical Use and Storage	CERCLA, EPCRA, RCRA	Chemical Purchasing/Management Pollution Prevention/Waste Reduction
Spill Response and Cleanup	CERCLA, EPCRA, RCRA	Chemical Purchasing/Management
Use of Fume Hoods	CAA	Indoor Air Quality
Scrap Computers and Electronics Disposal	RCRA	Solid Waste Recycling

Chemical Use and Storage

Chemicals are used and stored in most of the academic and vocational areas. It is assumed that hazardous chemicals and materials are present in small quantities in classrooms and laboratory work areas when class is in session and students are under direct supervision of the teacher or aide. Preparation and storage rooms, on the other hand, may store a wide variety of chemicals in larger quantities; however, access to these areas is limited to teachers, assistants and facility personnel. Typically, however, chemicals are not stored in quantities that require use of above or underground tanks.

Current Material Safety Data Sheets (MSDSs) for each chemical should be maintained in a binder close at hand for quick reference. ***MSDSs can be obtained from the chemical manufacturer or vendor. Many MSDSs are also available on the Vermont Safety Information Resources, Inc. (SIRI) MSDS database at http://www.siri.org/msds/.*** Also, an up-to-date inventory of the quantity of each chemical stored should be maintained. It is recommended that a chemical management system be put into place to ensure that chemicals are properly stored and quantities are reduced as much as possible. Safety issues and proper disposal of any waste generated are the primary concern. ***More information on safe chemical use and storage of chemicals in schools can be found at the USEPA's healthy schools website found at http://www.epa.gov/schools.*** By clicking on the "Resources" link, the user can browse to find program-specific information.

See CERCLA (Section 3.1)

See EPCRA (Section 3.2)

See RCRA (Section 3.10)

See BMP Chemical Purchasing / Management (Section 4.3)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.2.1 General Activities (continued)

It should be noted that some states, such as New York State, have restricted or banned the use of mercury in schools. Mercury conducts electricity, expands uniformly with temperature and easily forms alloys with other metals. For these reasons, it has been used in many products found in homes and schools, including thermometers, barometers, pressure-sensing devices, batteries, lamps and dental amalgam. Mercury does not degrade, is not destroyed by combustion and can cause health and ecological problems when released to the environment through human activities. Harm to human health may occur before symptoms become evident. ***Information on New York State legislation can be found at http://www.emsc.nysed.gov/facplan/Emergency/mercury_law_Q&A_101904.html. The University of Wisconsin's "Mercury in Schools" website summarizes requirements in each EPA region and state. It can be found at http://www.mercuryinschools.uwex.edu/.***

It is the school's responsibility to determine if any waste generated is regulated under RCRA regulations. This is commonly referred to as "making a hazardous waste determination." This would include spent chemicals used in the lab, expired or unwanted chemicals, contaminated gloves, and any spill cleanup debris. Schools must ensure that a RCRA hazardous waste is safely accumulated and transported off-site for proper disposal. Depending on the quantity of waste generated by a school, additional requirements for storage, handling and emergency response may apply. Use of fume hoods is discussed below, and management of waste will be discussed under each individual area in this section.

Calculations should be completed for each chemical to determine if any of these chemicals exceed the threshold triggering reporting requirements under CERCLA or EPCRA. Reducing the quantity of chemicals that are brought into a school or school system, and the resulting amount stored and used, will cut down on the number of regulations that are applicable to the school while also saving money and reducing potential hazards to students, faculty and staff, the community and the environment. Schools should explore ways to reduce the quantity of chemicals used and substitute less hazardous chemicals, through methods such as scaling down experiments, using chemicals more efficiently and substituting less hazardous chemicals wherever possible.

Microscale and miniscale chemistry procedures are environmentally safe pollution prevention methods of performing chemical processes using small quantities of chemicals without compromising the quality and standard of chemical applications in education and industry.

2.2.1 General Activities (continued)

Chemical Use and Storage (continued)

More information is available in Section 4.3 and also at the following websites: http://www.microscale.org and from the USEPA at http://cfpub.epa.gov/schools/top_sub.cfm?t_id=361.

It should be noted that some states and cities, such as New York State and New York City, have requirements that schools use only nonhazardous cleaning products. More information on this topic is included in Section 2.5 of this manual.

The United States Department of Labor Occupational Safety and Health Administration (OSHA) and the United States Department of Transportation (USDOT) also regulate chemical use, storage and transportation. **Information on these programs can be found at http://www.osha.gov and http://www.dot.gov.**

Operation of Fume Hoods

Fume hoods are designed to maintain a safe work environment by capturing vapors and other contaminants from the work area. The hazardous components may undergo filtering or treatment, but are more likely to be discharged directly to the outside air.

See CAA (Section 3.5)

See BMP Indoor Air Quality (Section 4.1)

Most fume hoods used for research and teaching-related activities are exempt from CAA permitting and reporting requirements; however, some states may have more stringent permitting and reporting requirements. ***Information on state-specific air permitting requirements can be found through links provided by the USEPA at http://www.epa.gov/air/oaqps/permits/approval.html.***

Spill Response and Cleanup

Even the most organized and well-run laboratory or shop may experience a spill of chemicals. It is important that plans are in place to safeguard students, school faculty and staff, the surrounding community and the environment in the case of an accidental spill. A procedure including steps to be taken in the case of a spill should be developed and either posted or kept with the MSDSs for the chemicals used. Reporting of spills or releases of hazardous substances and extremely hazardous substances is regulated under CERCLA and EPCRA if the amount released meets or exceeds the reportable quantity (RQ) in any 24-hour period. ***A list of these hazardous substances is provided in the Title III Consolidated List of Lists at the USEPA website at http://www.epa.gov/ceppo/pubs/title3.pdf.*** Schools typically do have quantities of chemicals that are reportable in the event of a release. For example, any

Spill Response and Cleanup (continued)

time 1 pound or more of mercury is released to the environment, it is mandatory to call the National Response Center at (800) 424-8802. The NRC Hotline operates 24 hours per day, 7 days per week. Because mercury is particularly dense, 1 pound is only about 2 tablespoons of mercury. Spills of mercury should only be cleaned up by trained personnel. ***Guidelines for response to a small mercury spill can be found at: www.health.state.ny.us/nysdoh/environ/hsees/mercury_brochures/docs/cleanup.pdf.***

Response and cleanup of any spill, release or discharge is the responsibility of the school. Spill cleanup debris, depending on the substance spilled, may be a hazardous waste subject to RCRA regulations. It is the school's responsibility to make this determination and ensure all waste generated from spill cleanup is safely managed and transported offsite for proper disposal.

Scrap Computers and Electronics Disposal

Scrap computers and electronics often contain hazardous constituents such as lead, mercury and chromium. In particular, spent cathode ray tubes (CRTs), including computer monitors, televisions and oscilloscopes and circuit boards must be managed as hazardous waste. Some states, including New Jersey, allow scrap computers to be managed as universal waste. In New York State, they may be recycled as scrap metal. To avoid having to manage these items as hazardous waste, a reuse program for computers and electronics should be implemented.

See RCRA (Section 3.10)

See BMP Solid Waste Recycling (Section 4.5)

Information on proper management of scrap computers and electronics, including links to state programs, is available from the USEPA at http://www.epa.gov/ epaoswer/hazwaste/recycle/ecycling/index.htm.

2.2.2 Science Labs (Biology, Chemistry, Physics) and Laboratory Preparatory / Storage Rooms

Classrooms designed primarily for conducting biology, chemistry and physics laboratory experiments. Laboratories typically containing multiple work areas with sinks, natural gas connections, and fume hoods. Laboratory preparatory rooms designed for the storage of chemicals and materials to be used in the science labs as well as daily setup of lecture bottles, materials, etc. for use in the science labs. These areas also typically contain sinks and fume hoods.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Chemical Use and Storage	CERCLA, EPCRA, RCRA	Chemical Purchasing/Management Pollution Prevention/Waste Reduction
Laboratory Waste	CERCLA, EPCRA, CWA, SDWA, RCRA	Septic Tank/Cesspool Management, Pollution Prevention/Waste Reduction
Small Animal Care		Indoor Air Quality

Chemical Use and Storage

Chemical use and storage is discussed in Section 2.2.1 General Activities provided at the beginning of Section 2.0. CERCLA and EPCRA regulations may apply to these activities. Best management practices for chemical purchasing and pollution prevention/waste reduction may also apply.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See RCRA (Section 3.10)
See BMP Chemical Purchasing / Management (Section 4.3)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Laboratory Waste

Management and disposal of laboratory waste in containers are often regulated under RCRA regulations. These laboratory waste streams include used chemicals, residues from experiments, spill cleanup, expired or off-spec chemicals and other chemical waste. It is the school's responsibility to make the determination whether hazardous waste regulations apply. Proper management of unused laboratory chemicals, including maintaining an inventory of chemicals in storage and keeping MSDSs for each chemical, will help with this determination.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)

2.2.2 Science Labs (Biology, Chemistry, Physics) and Laboratory Preparatory / Storage Rooms (continued)

Laboratory Waste (continued)

Unused chemicals should be segregated by chemical class. They should not be simply stored alphabetically, as that can lead to commingling of incompatible materials. Waste solvents must not be allowed to evaporate in fume hoods. This process is considered to be illegal treatment of hazardous waste. Also, solvent vapors may end up being redistributed into the school via roof top air handling systems.

School science laboratories typically have sinks and drains that are connected to a publicly owned treatment works (POTW). Discharges to a POTW are regulated under the CWA, and the school must determine what discharges of chemicals used in this area of the school are acceptable to be disposed of via sink drains. If the school discharges to a septic tank system, no chemicals should be discharged to the drain. Chemicals that are stored for disposal off-site should be placed in suitable closed containers and should be clearly marked with the contents. If the chemicals are a RCRA hazardous waste, the school must ensure that they are transported offsite for proper disposal. If mercury-containing thermometers are still in use or in storage, use of this equipment should be discontinued and the school must manage the equipment as universal or hazardous waste. Depending on the quantity of waste generated by a school, additional requirements for storage, handling and emergency response may apply.

See CWA (Section 3.6)

See SDWA (Section 3.7)

See RCRA (Section 3.10)

See BMP Septic Tank / Cesspool Management (Section 4.4)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Small Animal Care

Animals are occasionally kept in grade school classrooms and science classrooms, and improper or inadequate care of animals can adversely impact indoor air quality. In addition, animal dander is one of the most common asthma triggers. As a result, schools should either remove animals from classrooms or implement best management practices to minimize the chance of allergic reaction.

More information can be found in Section 4.1 of this manual as well as in the USEPA document entitled, "AQ Tools for Schools Managing Asthma in the School Environment," which can be found on-line at http://www.epa.gov/iaq/schools/asthma/10ways_asthma.pdf. In addition, information is available from the National Association of School Nurses at the following website: http://www.nasn.org/Default.aspx?tabid=61.

See BMP Indoor Air Quality (Section 4.1)

2.2.3 Field Trips

Off-campus learning experiences for students including trips to museums, cultural events and environmental field centers

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Field Investigation	None	Pollution Prevention/Waste Reduction
Lunch/Snacks	None	Solid Waste/Recycling
Transportation	None	Pollution Prevention/Waste Reduction

Field Investigation

Any supplies, equipment and chemicals brought on field trips to conduct sampling or testing should be brought back to the school for proper disposal or storage. Whenever possible have students work in groups to perform experiments, thereby utilizing less chemicals, glassware that requires cleaning, transporting and disposal.

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Lunch/Snacks

Students should be encouraged to bring lunches and snacks in reusable or recyclable containers. All waste should be brought back to the school for disposal or recycling. Students should receive instruction on proper disposal of food waste and containers.

See BMP Solid Waste Recycling (Section 4.5)

Transportation

Buses should avoid excess idling while discharging and picking up students. Individual states, as well as some local governmental agencies, may have passed laws limiting the amount of time that buses may idle. For example, New Jersey, New York State and the City of New York all limit the amount of time that buses can idle. New York State limits bus idling time to a maximum of 5 consecutive minutes, while New Jersey and New York City each limit bus idling time to a maximum of 3 consecutive minutes. Each of the entities has an exception if the engine is powering an auxiliary function, such as loading or unloading (e.g., wheel chair lifts). ***Links to more information on state requirements are provided by the USEPA at http://www.epa.gov/cleanschoolbus/whereyoulive.htm.***

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.2.4 Fine Arts Labs / Art Studios

Fine arts labs include painting, drawing and sculpture, whereas art studios are designed to provide students with the opportunity to experience hands-on creative activities utilizing a variety of mediums.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Painting/Printmaking	CWA, SDWA, RCRA	Septic Tank/Cesspool Management, Pollution Prevention/Waste Reduction Indoor Air Quality
Kilns/Drying Ovens	None	Indoor Air Quality

Painting / Printmaking

Painting and printmaking will typically involve some process that requires cleaning of brushes, stamps, screens or other apparatus. Schools typically have sinks and drains that are connected to a publicly owned treatment works (POTW). Discharges to a POTW are regulated under the CWA. Schools must determine if the POTW allows drain disposal of paints, inks or other materials used in this area. If the school discharges to a septic tank system, no chemicals should be disposed down the drain.

Management and disposal of spent solvents and other waste materials, such as non-water based markers, glues, adhesives, paints, stains, finishes, clays and glazes may be regulated under RCRA hazardous waste regulations. It is the school's responsibility to make this determination. Schools must ensure that RCRA hazardous waste is safely accumulated and transported off-site for proper disposal. Depending on the quantity of waste generated by a school, additional requirements for storage, handling and emergency response may apply. Schools should consult the MSDSs for these materials and should consider replacing those that are regulated under RCRA with less hazardous or toxic substitutes if possible. A separate guidance manual has been prepared specifically addressing hazardous waste from school art programs and is available from USEPA-Region 2.

Indoor air quality is an important issue for all schools and use of some art supplies may adversely affect indoor air quality. ***More information on this topic can be found in Section 4.1 of this guidance manual and from the USEPA at http://www.epa.gov/iaq/schools/tools4s2.html.***

An outreach tool entitled, “Indoor Air Quality Tools for Schools Action Kit,” is available through this website. It is designed to help all schools develop and implement an action plan to improve indoor air quality at little or no cost.

See CWA (Section 3.6)

See SDWA (Section 3.7)

See RCRA (Section 3.10)

See BMP Indoor Air Quality (Section 4.1)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

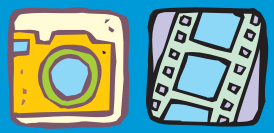
See BMP Septic Tank / Cesspool Management (Section 4.4)

2.2.4 Fine Arts Labs / Art Studios (continued)

Kilns / Drying Ovens

The operation of a kiln or drying oven in a school is not typically covered by federal laws and regulations under the CAA. However, measures should still be taken to ensure that adequate ventilation is provided to minimize impacts on indoor air quality.

See BMP
Indoor Air Quality
(Section 4.1)



2.2.5 Photography Labs

Photography labs designed for processing film and printing photographs. Typically they are equipped with a dark room, sinks and chemical storage as well as computers and related equipment for digital photography.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Spent Mercury-Containing Lamps	RCRA	Pollution Prevention/Waste Reduction
Photographic Waste	CWA, SDWA, RCRA	Septic Tank/Cesspool Management

Spent Mercury-Containing Lamps

Mercury vapor lamps and fluorescent lamps often have coatings containing mercury in quantities that require that spent bulbs be recycled or disposed of as hazardous waste or universal waste in accordance with RCRA hazardous waste or universal waste regulations. Care should be taken to avoid breaking or crushing the bulbs to avoid exposing staff and students to mercury.

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Photographic Waste

Management and disposal of photographic waste in tanks or containers would likely fall under RCRA regulations. It is the school's responsibility to make this determination. Schools must ensure that RCRA hazardous waste is safely accumulated and transported off-site for proper disposal. Depending on the quantity of waste generated by a school, additional requirements for storage, handling and emergency response may apply. Schools typically have sinks and drains that are connected to a publicly owned treatment works (POTW). Discharges to a POTW are regulated under the CWA. Photographic developer and fixer solutions usually must either pass through a silver recovery system before discharge to a POTW or must be collected and managed as a hazardous waste due to the silver content. Silver recovered in a silver recovery system must be managed in accordance with the regulations for precious metal recovery found in Section 3.10 of this manual. If the school discharges to a septic tank system, no photographic processing solutions should be discharged to the drain. Solutions of special toners, such as selenium, also must be collected for disposal as hazardous waste. Used photographic film should be collected and either managed as hazardous waste or managed in accordance with the requirements for precious metal recovery.

See CWA (Section 3.6)

See SDWA (Section 3.7)

See RCRA (Section 3.10)

See BMP Septic Tank / Cesspool Management (Section 4.4)

2.2.6 Computer Labs

Classrooms utilized for teaching via personal desktop computers.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Paper/Printer Cartridge Recycling	None	Solid Waste Recycling, Pollution Prevention/Waste Reduction

Paper / Printer Cartridge Recycling

Schools should implement best management practices to recycle computer paper and printer cartridges to reduce the quantity of solid waste generated at the school. Consideration should also be given to purchasing paper containing a high post-consumer content. Most recycled paper is indistinguishable from virgin product and requires far less use of water, chemicals and energy to produce.

See BMP Solid Waste Recycling (Section 4.5)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.2.7 “Shop” Programs

Classrooms and buildings specifically utilized for educational activities in support of vocational training related to automobile repair, carpentry, plumbing, electronics and painting.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Oil Storage	EPCRA, CAA, CWA, OPA, UST	Chemical Purchasing/Management
Management of Waste	CWA, SDWA, RCRA	Septic Tank/Cesspool Management Solid Waste Recycling

Oil Storage

Automotive shop programs and related vocational programs may require the storage of quantities of oil and petroleum products. If petroleum storage is limited to drums or small containers, applicable regulations would be limited to notification and clean up requirements in the case of a spill. If, on the other hand, oil or petroleum products are stored in tanks, additional regulatory areas are potentially applicable. If the tank is located underground, it may be subject to UST regulations. If the total storage capacity exceeds the threshold quantity of 42,000 gallons for underground tanks or 1,320 gallons for aboveground tanks, CWA/OPA regulations may apply, requiring the preparation of a spill prevention plan. State regulations may set lower thresholds. Air permits may be required in some states for petroleum storage tanks. EPCRA Community Right-to-Know reporting requirements may also apply, as well as notification and clean up requirements in the case of a spill.

Some states and local governmental agencies also regulate petroleum storage in tanks. ***The following website provides links to state and local air permitting authorities:*** ***http://www.epa.gov/air/oaqps/permits/approval.html.***

Links to state UST program contacts are available from the USEPA at http://www.epa.gov/oust/states/statcon1.htm.

See EPCRA (Section 3.2)
See CAA (Section 3.5)
See CWA (Section 3.6)
See OPA (Section 3.8)
See UST (Section 3.11)
See BMP Chemical Purchasing / Management (Section 4.3)

Management of Waste

It is important that oil, engine fluids, cleaning solvents, paints, adhesives, glues and associated waste material generated as a result of cleaning, repair and maintenance of equipment are collected for proper disposal. It is the school's responsibility to conduct a hazardous waste determination on all waste generated to determine if RCRA regulations apply. Oil and oily water is prohibited from being discharged to a sanitary or storm water sewer system or to a septic system. Used oil must be stored in covered containers labeled with the words “used oil”

See CWA (Section 3.6)
See RCRA (Section 3.10)
See SDWA (Section 3.7)

and kept in a secure location before being transported off-site for recycling or disposal. Lead-acid batteries must be sent back to the retailer under a “take-back” program or sent off for recycling under RCRA or universal waste regulations. Cars may also have mercury-containing switches, which must be managed as either hazardous waste or universal waste. Scrap metal generated as a result of shop activities should be collected for recycling. Areas used to store automobiles and other hydraulic equipment should be inspected on a regular basis for signs of leakage of oil.

See BMP Septic Tank / Cesspool Management (Section 4.4)

See BMP Solid Waste Recycling (Section 4.5)

Cleaning of equipment, tools and parts can lead to generation of waste such as solvent contaminated rags or spent solvents, which may be regulated as hazardous waste under RCRA. The use of self-contained parts washers that recirculate solvent between the storage container to the wash tray not only reduces generation of waste, but also reduces the chance of spills. It is important that parts washer covers remain closed when not in use to minimize the evaporation of solvents. The solvents used in parts washers are normally petroleum-based, although some aqueous-based parts cleaners are available.

Used automotive antifreeze, typically ethylene glycol, is toxic to humans and animals and may also contain heavy metals, such as lead, cadmium, and chromium, in high enough levels to potentially make it a regulated hazardous waste. Used antifreeze can, however be recycled. Antifreeze recycling involves two steps:

- Removing contaminants such as emulsified oils and heavy metals either by filtration, distillation, reverse osmosis, or ion exchange.
- Restoring critical antifreeze properties with additives. Additives typically contain chemicals that raise and stabilize pH, inhibit rust and corrosion, reduce water scaling, and slow the breakdown of ethylene glycol.

Additional information on management of used antifreeze may be found at http://www.epa.gov/garbage/antifree.htm.

2.2.8 Swimming Pool

Swimming pools and ancillary equipment including filtration system, heaters, and chemical bulk storage tanks.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Pool Maintenance and Chemical Disposal	CERCLA, EPCRA, FIFRA, CWA, SDWA, RCRA	Indoor Air Quality, Pollution Prevention/Waste Reduction Chemical Purchasing/Management

Pool Maintenance and Chemical Disposal

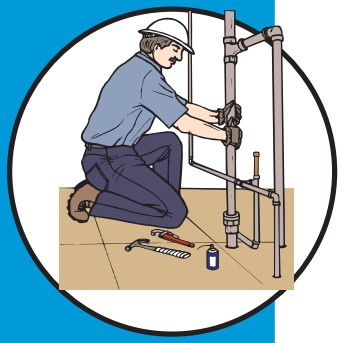
Chemical use and storage is discussed in Section 2.2.1 General Activities provided at the beginning of Section 2.0. CERCLA and EPCRA regulations may apply to these activities. Best management practices for chemical purchasing and pollution prevention/waste reduction may also apply.

Management and disposal of outdated or expired pool chemicals, spill residues and absorbents from spill cleanups would generally fall under RCRA hazardous waste regulations. It is the school's responsibility to make this determination and properly manage all waste generated. Another applicable regulatory area is FIFRA. Algaecides used in the treatment of swimming pool water must be registered with the USEPA and the utilization of these products typically require application by a certified applicator under state pesticide regulations. Indoor air quality concerns must also be considered when timing the application of pool chemicals, particularly if adequate ventilation is not provided.

Typically, school sinks and drains are connected to a publicly owned treatment works (POTW). Discharges to a POTW are regulated under the CWA. If the swimming pool must be drained annually for cleaning, the chlorinated water cannot be discharged directly to a water body or storm water system. The recommended procedure for disposal of water is to suspend addition of treatment chemicals and algaecides and discharge it to a sanitary sewer system after total chlorine is below 0.1 mg/liter and pH of the water is adjusted to between 6.5 and 8.5.

The school should check on special requirements for such discharges with the local POTW. ***Links to state websites that provide more information can be found at http://cfpub.epa.gov/npdes/linkresult.cfm?program_id=3&link_category=2&view=link.***

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See CWA (Section 3.6)
See SDWA (Section 3.7)
See FIFRA (Section 3.9)
See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)
See BMP Chemical Purchasing / Management (Section 4.3)



2.3 Facilities Operation and Maintenance

Facilities operation and maintenance includes areas and activities related to building maintenance, heating and utility plant operations, construction, solid waste management and the cafeteria. The following areas and activities are included:

Boilers

Heating, Ventilation and Air Conditioning (HVAC)

Potable Water

Plumbing Shop

Carpentry Shop

Electrical Shop

Paint Shop

Solid Waste Management

Construction / Renovation

Cafeteria

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2.3.1 General Activities

Activities (storage of chemicals in tanks and containers, storage of oil or petroleum in tanks and containers and spill reporting/cleanup) that may be conducted by many of the operations under the Facilities Operation and Maintenance organizational unit and have similar environmental compliance concerns.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Storage of Chemicals in Tanks/Containers	CERCLA, EPCRA, RCRA, UST	Chemical Purchasing/Management
Storage of Petroleum in Tanks/Containers	EPCRA, CAA, CWA, OPA, UST	Chemical Purchasing/Management
Spill Cleanup	CERCLA, EPCRA, CWA, OPA, RCRA	Pollution Prevention/Waste Reduction

Storage of Chemicals in Tanks and Containers

Many different types of chemical products are used in facilities operation and maintenance. Portable containers, such as 55-gallon drums or 5-gallon containers or smaller pails, are more commonly used for storage of chemical products than tanks at most K-12 school facilities. An exception might be for storage of bulk chemicals used for water treatment. CERCLA and EPCRA regulatory program areas potentially apply to the storage of chemicals in tanks and containers. A determination must be made as to whether the chemicals stored are extremely hazardous substances (EHS) under EPCRA regulations and whether notification requirements are triggered. In the case of a spill, a determination must be made as to whether the reportable quantity threshold has been exceeded either under CERCLA or EPCRA regulations. EPCRA Community Right-to-Know reporting requirements may also apply. If a chemical bulk storage tank is located underground, it may be subject to UST regulations. If chemical waste is stored in containers or tanks, it may be subject to RCRA regulations if it is a characteristically hazardous waste (ignitable, corrosive, reactive or toxic) or a listed hazardous waste.

See CERCLA (Section 3.1)

See EPCRA (Section 3.2)

See RCRA (Section 3.10)

See UST (Section 3.11)

See BMP Chemical Purchasing / Management (Section 4.3)

Some states and local government agencies also regulate chemical storage in tanks and containers. ***Links to state UST program contacts are available from the USEPA at http://www.epa.gov/oust/states/statcon1.htm.*** The United States Department of Labor Occupational Safety and Health Administration (OSHA) and the United States Department of Transportation (USDOT) also regulate chemical use, storage and transportation. **Information on these programs can be found at http://www.osha.gov and http://www.dot.gov.**

2.3.1 General Activities (continued)

Storage of Oil or Petroleum in Tanks and Containers

Nearly all schools store some quantity of fuel oil and/or petroleum products. If the facility boilers do not fire on fuel oil, petroleum storage may be limited to drums or small containers, in which case regulatory requirements would be limited to notification and clean up requirements in the case of a spill. If, on the other hand, oil or petroleum products are stored in tanks, additional regulatory areas are potentially applicable. If the tank is located underground, it may be subject to UST regulations. If the total storage capacity exceeds the threshold quantity of 42,000 gallons for underground tanks or 1,320 gallons for aboveground tanks, CWA/OPA regulations may apply, requiring the preparation of a spill prevention plan. State regulations may set lower thresholds. EPCRA Community Right-to-Know reporting requirements may also apply, as well as notification and clean up requirements in the case of a spill.

Some states and local governmental agencies also regulate petroleum storage in tanks. ***Links to state UST program contacts are available from the USEPA at http://www.epa.gov/oust/states/statcon1.htm.***

Information on aboveground storage tanks can be found on-line at http://www.epa.gov/oilspill/spcccont.htm.

Air permits may be required in some states for petroleum storage tanks, and there are record keeping requirements and documentation of the sulfur content of fuel oil. ***Links to state UST program contacts are available from the USEPA at http://www.epa.gov/air/oaqps/permits/approval.html.***

See EPCRA (Section 3.2)
See CAA (Section 3.5)
See CWA (Section 3.6)
See OPA (Section 3.8)
See UST (Section 3.11)
See BMP Chemical Purchasing / Management (Section 4.3)

2.3.1 General Activities (continued)

Spill Reporting / Cleanup

Reporting of spills or releases of hazardous substances and extremely hazardous substances is regulated under CERCLA and EPCRA if the amount released exceeds the reportable quantity (RQ). Reporting of discharges of oil is also required under the CWA if the discharge has the potential to impact navigable waters or adjoining shorelines in "quantities that may be harmful." The term "navigable waters" has been broadly interpreted and includes intrastate lakes, rivers, streams (including intermittent streams), natural ponds and wetlands.

Cleanup of any spill, release or discharge is the responsibility of the school. Spill cleanup debris may be a hazardous waste subject to RCRA regulations. It is the school's responsibility to conduct a hazardous waste determination on waste generated from spill cleanup to confirm whether or not the material must be managed in accordance with RCRA regulations.

See CERCLA (Section 3.1)

See EPCRA (Section 3.2)

See CWA (Section 3.6)

See OPA (Section 3.8)

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.3.2 Boilers

Boilers and ancillary equipment utilized for heating buildings and generating hot water and/or steam.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Operation of Boilers	CAA	Indoor Air Quality
Boiler Maintenance	CERCLA, EPCRA, AHERA, CAA, CWA, SDWA, FIFRA, RCRA	Pollution Prevention/Waste Reduction

Operation of Boilers

Air emissions are generated as a result of the operation of boilers. The combustion process generates a variety of pollutants that are generally emitted directly to the atmosphere via a stack. The emission rate for a given pollutant depends on the size and type of the boiler, as well as the type of fuel burned. A facility will usually burn a certain fuel a majority of the time, such as natural gas, but will store back-up fuel on-site, such as No. 2 fuel oil, for use in emergencies. Depending on the size of the equipment and the type of fuel burned, an air permit may or may not be required to operate the equipment.

See CAA (Section 3.5)

See BMP Indoor Air Quality (Section 4.1)

Boiler Maintenance

Proper boiler maintenance is essential for efficient service. It is important to keep information provided by the boiler manufacturer in an accessible place and consult it whenever in doubt on maintenance of the equipment. Keeping detailed records of maintenance, fuel use and routine procedures, along with scheduling regular boiler inspections are key to keeping the boiler functioning well.

Steam boiler systems require treatment of the boiler water along with regular water analyses, adequate regulated blowdowns, correct maintenance, periodic safety checks and periodic inspection follow-up.

Boiler water treatment chemicals typically include water softeners, scale and corrosion inhibitors and dispersants. Storage of these chemicals may trigger EPCRA and/or CERCLA reporting requirements, so threshold determinations must be conducted.

See CERCLA (Section 3.1)

See EPCRA (Section 3.2)

See CWA (Section 3.6)

See SDWA (Section 3.7)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.3.2 Boilers (continued)

Boiler Maintenance (continued)

It should be noted that concentrated boiler treatment chemicals or cleaning supplies that are not used for their intended purpose, such as those that are off-spec or expired, may be hazardous waste. Additionally, spill residues and absorbents from spills of these chemicals might also fall under hazardous waste regulations. Also, many old boilers have mercury-containing switches and thermostats. When this equipment if removed, it must be managed as hazardous or universal waste.

If blowdown from the system is directed to the sanitary sewer to be treated at a POTW, a description of the chemicals used must be provided to the treatment plant. Some of these chemicals may interfere with the operation of the treatment plant or may cause a problem for sludge disposal.

If blowdown is directed to surface water or to a septic system, regulations under the CWA and SDWA apply.

Another applicable regulatory area may be FIFRA, as the addition of biocides or algaecides to cooling water may be regulated under state pesticide regulations. Also, upgrade of older boiler systems may involve removal of asbestos-containing material, which may be regulated under CAA and AHERA.

See AHERA (Section 3.4)
See CAA (Section 3.5)
See FIFRA (Section 3.9)
See RCRA (Section 3.10)

What Regulations or Best Management Practices Apply?

2.3.3 Heating, Ventilation and Air Conditioning (HVAC)

Air conditioning units, heating, ducts, blowers and ancillary ventilation, equipment, other than boilers included under Section 2.3.2.

Activity/Material	Regulatory Program Area	Best Management Practices
Operation of Refrigeration Units, Chillers, Air Conditioners, etc.	CAA, CWA, FIFRA, RCRA	Indoor Air Quality

Operation of Refrigeration Units, Chillers and Air Conditioners

Proper operation of comfort cooling and ventilation systems is an important component in maintaining healthy indoor air quality in the school. Preventive maintenance of these systems is an important function of this service area and may include the replacement of air conditioning filters; monitoring and control of airflow; repair and replacement of air handlers, exhaust fans and hoods; and maintenance and repair of evaporative coolers and air conditioning equipment. In addition, this area would typically be responsible for repair and maintenance of refrigerators, freezers and ice machines in the cafeteria.

Most schools operate some equipment that is charged with chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), both of which are classified as ozone-depleting substances. Maintenance, repair and disposal of this equipment is regulated under the CAA. If a school owns equipment containing more than 50 pounds of refrigerant, the school is required to use certified technicians to service the equipment and must maintain records regarding the quantity of refrigerant added during maintenance procedures and must calculate leakage rates. Equipment containing less than 50 pounds of refrigerant must also be serviced by a certified technician and while maintenance records for this equipment are not required to be kept, it is recommended that a log be maintained to help identify any equipment with slow leaks. Prior to disposal of this equipment, the refrigerant must be recovered or recycled. Refrigerants must not be vented to the atmosphere, and if they contain CFCs or HCFCs, they may be regulated as a hazardous waste under RCRA unless properly reclaimed for further use.

If there are cooling towers associated with chillers at the school, treatment of the water with algaecides or biocides may be regulated under the state-administered pesticide program under FIFRA regulation. ***Links to state agencies that regulate pesticides are available through the USEPA website found at http://www.epa.gov/pesticides/local/index.htm.*** The Facility Operations and Maintenance Director should check with the local POTW before draining towers to the sanitary sewer system.

See CAA (Section 3.5)
See CWA (Section 3.6)
See FIFRA (Section 3.9)
See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)

What Regulations or Best Management Practices Apply?

2.3.4 Potable Water

Potable water either provided by a public water supply system or through privately owned water supply that is owned by the school.

Activity/Material	Regulatory Program Area	Best Management Practices
Drinking Water Treatment	SDWA	Pollution Prevention/Waste Reduction

Drinking Water Treatment

If a school supplies its own water, the school and/or district is required to conduct regular testing of the water for a number of contaminants and provide public notification of any violations of standards.

See SDWA (Section 3.7)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

If the drinking water for your school is supplied by a public water system, it is the supplier's responsibility to treat and test the water at a specified frequency. If water does not meet U.S. EPA standards, the water supplier must notify the users. The supplier must also provide an annual Consumer Confidence Report on the quality of the water. Schools are not required to test drinking water if it is supplied by a public water system.

However, as part of the U.S. EPA's "Lead in Schools Drinking Water Initiative," testing of drinking water was conducted at a number of schools throughout New York, New Jersey and Puerto Rico in 2004. Analysis of the water samples indicated that many schools had exceedances of lead action levels. ***Accordingly, the U. S. EPA strongly encourages all schools to implement a voluntary lead testing program in accordance with the guidance manual "Lead in Drinking Water in Schools and Non-residential Buildings," available at: http://www.epa.gov/safewater/consumer/leadinschools.html.***

2.3.5 Plumbing Shop

Facilities maintenance areas designed for maintaining facility plumbing. Areas may contain equipment for pipe cutting/bending, soldering as well as storage of materials and supplies.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Discharge to Drains	CWA, SDWA	Storm Water Management, Septic Tank/Cesspool Management
Use of Lead Piping or Copper Piping with Lead Solder	SDWA, RCRA	Pollution Prevention/Waste Reduction

Discharge to Drains

The Plumbing Shop generally provides for the storage of equipment and materials as well as workshop areas for maintenance and repair of the school's plumbing and piping systems. This typically consists of domestic hot/cold water systems and wastewater systems. Personnel responsible for maintaining these systems should be generally aware of the applicable regulatory restrictions regarding discharges to the drain system. If the school discharges to a POTW, regulations under the CWA apply. If the school discharges to a septic system, regulations under the SDWA and CWA apply and the BMPs provided for septic tank or cesspool management may also be helpful. Personnel should also be aware that improper connections to the storm water drainage system must be eliminated to prevent non-storm water from entering the system and potentially polluting surface waters.

See CWA (Section 3.6)
See SDWA (Section 3.7)
See BMP Storm Water Management (Section 4.2)
See BMP Septic Tank / Cesspool Management (Section 4.4)

Use of Lead Piping or Copper Piping with Lead Solder

Schools that obtain drinking water from a public water supplier are not required to test for lead and copper. In this situation, the entity that supplies the water is required to conduct lead and copper monitoring. However, the USEPA does encourage schools to assess the risk of lead in its water supply by implementing a lead testing program that is consistent with the "Lead in Drinking Water in Schools and Non-residential Buildings" guidance manual. **More information is available in Section 3.7 of this manual and at the following website: http://www.epa.gov/safewater/schools.**

See SDWA (Section 3.7)
See RCRA (Section 3.10)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.3.5 Plumbing Shop (continued)

Use of Lead Piping or Copper Piping with Lead Solder (continued)

Schools that supply their own water are required to test for lead and copper. If action level thresholds are exceeded, the school must meet requirements for additional water quality parameter monitoring, corrosion control treatment, source water monitoring/treatment, public education, and lead service line replacement. If a school makes the decision to remove lead piping or other piping or outlets that may contain lead, a hazardous waste determination must be conducted to determine if these materials meet the definition of hazardous waste and must be managed and disposed of in accordance with RCRA regulations.

Mercury-containing thermostats may be present on older equipment and gas valve regulators installed prior to 1960 may also contain mercury. This equipment must be managed as hazardous or universal waste when removed.

2.3.6 Carpentry Shop

Facilities maintenance areas designed for carpentry work. Typical activities are limited to small repair projects to maintain the building but may include cutting, shaping, joining adhering and finishing as well as cleaning and maintaining associated machinery.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Use of Fume Hoods/Spray Booths	CAA, RCRA	Indoor Air Quality, Chemical Purchasing/Management
Equipment Cleaning and Maintenance	RCRA	Indoor Air Quality

Use of Fume Hoods/Spray Booths

A major concern relating to the operation of the carpentry shop is maintaining proper ventilation for indoor air quality. If the carpentry shop has a spray paint booth or hood used for application of adhesives or other materials, certain regulations under state air programs may apply. ***Information on state-specific air permitting requirements can be found through links provided by the USEPA at http://www.epa.gov/air/oaqps/permits/approval/html.*** Other environmental concerns would be addressed by the best management practice for indoor air quality.

Management of waste paint, stains, surface coatings, solvents, adhesives, glues, and other waste materials may be regulated under RCRA hazardous waste regulations. In addition, a hazardous waste determination must be made on fume hood and spray booth filters when materials containing hazardous constituents are used. Best management practices for chemical purchasing provided in Section 4.3 may help reduce the amount of hazardous waste generated.

See CAA (Section 3.5)

See RCRA (Section 3.10)

See BMP Indoor Air Quality (Section 4.1)

See BMP Chemical Purchasing / Management (Section 4.3)

Equipment Cleaning and Maintenance

Cleaning and maintenance of equipment can result in sawdust particles becoming airborne. Carpentry shops should have ventilation systems to remove air contaminants and personnel should wear respiratory protection. Cleaning of equipment, tools and parts can also lead to the generation of waste such as solvent contaminated rags or spent solvents, which may be regulated as hazardous waste under RCRA. Small quantities of used oil may also be generated. This oil may contain metals, also making it subject to RCRA regulations unless it is reclaimed via a contract or "tolling arrangement."

See RCRA (Section 3.10)

See BMP Indoor Air Quality (Section 4.1)

2.3.7 Electrical Shop

Facilities maintenance areas designed for maintaining the school's electrical systems, including distribution systems, building electrical systems, fire alarms, security systems, and various types of electrical equipment. Areas may contain equipment for soldering and welding as well as storage of materials and supplies.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Use of Lead Solder	RCRA	Pollution Prevention/Waste Reduction
Electrical Equipment Containing Mercury	RCRA	Solid Waste Recycling, Pollution Prevention/Waste Reduction
Replacement of Spent Mercury-Containing Lamps and Batteries	RCRA	Pollution Prevention/Waste Reduction
Electrical Equipment Containing PCBs	TSCA	Pollution Prevention/Waste Reduction
Maintenance and Repair of Emergency Generator	CAA, RCRA	Chemical Management/Purchasing

Use of Lead Solder

Many activities in the electrical shop have the potential to generate hazardous waste. However, many of these same waste streams can be recycled or alternative materials can be used. Lead-free solder alternatives are available on the market, but schools must be aware that many of these contain silver or selenium, which at certain concentrations may also be classified as a hazardous waste regulated under RCRA when discarded.

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Electrical Equipment Containing Mercury

Some electrical components, such as thermostats, switches, level gauges and relays, used in electrical equipment may contain mercury. Mercury-containing equipment must either be recycled or managed as universal or hazardous waste when removed for disposal.

Additional information on sources of mercury in schools can be found at http://www.epa.gov/mercury/schools.htm.

See RCRA (Section 3.10)

See BMP Solid Waste Recycling (Section 4.5)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Replacement of Spent Mercury-Containing Lamps and Batteries

Telephone and fire alarm panels, motion detectors and emergency lights often use sealed lead-acid or lead-calcium batteries. When replaced, these batteries and other used batteries that contain mercury, cadmium or silver, or are corrosive or reactive (e.g., lithium) must be managed as universal or hazardous waste. Lead-acid batteries are generally returned to a vendor for reclamation through state-mandated recycling, retailer/wholesaler take-back programs or deposit programs that are not required to meet hazardous waste requirements beyond waste identification and safe storage and handling procedures for these particular batteries. A table listing different types of batteries, common uses and associated hazards is provided in Section 3.10. Some fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide light bulbs contain enough mercury to require management as universal or hazardous waste.

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Spent lamps from gymnasiums, theaters, swimming pool areas and parking lots may contain mercury. These include fluorescent lamps, mercury vapor lamps, metal halide lamps, high-pressure sodium lamps and neon lamps. When spent, these must be managed as universal or hazardous waste.

Low mercury, “green-tipped” fluorescent bulbs can be purchased which reduces use of mercury and may not require management as universal or hazardous waste. Some states, however, require that all fluorescent bulbs be recycled. New York State, under the Mercury - Added Consumer Products Law, prohibits generators of lamps (including schools) from placing spent fluorescent bulbs, including low-mercury or green-tipped bulbs, in dumpsters or otherwise managing them as ordinary trash, with the exception of small businesses of 100 or fewer employees that generate 15 or less non-hazardous waste bulbs per month; rather, the bulbs must be managed for recycling as universal waste, including handling and transport that prevents breakage until they reach their destination. Similarly, California requires that all spent fluorescent bulbs, including low-mercury or green-tipped bulbs, from commercial entities be recycled, disposed of as hazardous waste or sent to a universal waste handler. Even in other states, because these bulbs still contain mercury, it is still recommended that these bulbs be recycled and care be taken to avoid breaking or crushing the bulbs to avoid exposing staff and students to mercury. Spent lamps should never be placed in the dumpster because that almost always leads to breakage.

Information on the proper management of spent mercury-containing lamps and batteries is available from the USEPA at http://www.epa.gov/epaoswer/hazwaste/id/univwast/.

2.3.7 Electrical Shop (continued)

Electrical Equipment Containing PCBs

Schools may have electrical equipment on-site that contains PCBs. Such equipment would most likely be oil-filled electrical transformers; however, a more common concern would be fluorescent light ballasts manufactured prior to July 1979. All PCB or PCB-contaminated items are subject to regulation under TSCA.

See TSCA (Section 3.3)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Emergency Generator

If your school has an emergency generator, operation of this equipment may be regulated under the CAA. Operation and maintenance of the unit will generate used oil and spent batteries, both of which are regulated under RCRA. Typically, emergency generators are fired on diesel or No. 2 fuel oil, although a few are fired on natural gas. A description of the federal regulatory requirements governing storage of petroleum in tanks can be found in the beginning of Section 2.3.

See CAA (Section 3.5)

See RCRA (Section 3.10)

See BMP Chemical Purchasing / Management (Section 4.3)

What Regulations or Best Management Practices Apply?

2.3.8 Paint Shop

Facilities maintenance areas designed for cleanup from painting activities and storage of paint, painting equipment and painting-related supplies.

Activity/Material	Regulatory Program Area	Best Management Practices
Use of Fume Hoods/Spray Booths	CAA, RCRA	Indoor Air Quality, Chemical Purchasing/Management
Preparation of Painted Surfaces	AHERA, CWA, RCRA	Indoor Air Quality, Storm Water Management
Brush and Equipment Cleaning	CWA, SDWA, RCRA	Septic Tank/Cesspool Management, Pollution Prevention/Waste Reduction

Use of Fume Hoods / Spray Booths

If the paint shop has a spray paint booth or hood used for application of paints and lacquers, certain regulations under the CAA may apply. Other concerns for indoor air quality are addressed in the BMP provided in Section 4.1.

Management of waste paint, stains, surface coatings, solvents, adhesives, glues, and other waste materials may be regulated under RCRA hazardous waste regulations. In addition, a hazardous waste determination must be made on fume hood and spray booth filters when materials containing hazardous constituents are used.

Best management practices for chemical purchasing provided in Section 4.3 may help reduce the amount of hazardous waste generated.

See CAA (Section 3.5)
See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)
See BMP Chemical Purchasing / Management (Section 4.3)

Preparation of Painted Surfaces

Removal of paint by sanding, scraping, needle gunning or heating can create airborne particulates that may contain high levels of lead and cadmium. The paint chips and debris from this activity may require management and disposal as hazardous waste regulated under RCRA regulations. Even if the paint does not contain elevated levels of lead and cadmium, if these activities take place within a building, indoor air quality will be compromised. If a power washer is used on outdoor areas, special procedures must be employed to keep contaminants from reaching the storm sewer system. Many different building materials including floor tiles, ceiling tiles and wall board may contain asbestos.

See AHERA (Section 3.4)
See CWA (Section 3.6)
See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)
See BMP Storm Water Management (Section 4.2)

2.3.8 Paint Shop (continued)

Brush and Equipment Cleaning

If brushes, rollers, paint sprayers and other equipment are cleaned for reuse, the discharge to the drain is regulated under the CWA if the school's wastewater is treated at a publicly owned treatment works (POTW). If the school discharges wastewater to a septic system, the discharge is regulated under the SDWA and CWA.

The use of oil-based enamels and stains should be limited as much as possible. However, when used, special procedures must be implemented to manage and dispose of spent solvents and rags used for cleaning of these brushes and equipment as RCRA hazardous waste.

See CWA (Section 3.6)

See SDWA (Section 3.7)

See RCRA (Section 3.10)

See BMP Septic Tank / Cesspool Management (Section 4.4)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.3.9 Solid Waste Management

Management of the collection, storage, transportation and disposal of solid waste generated within the school, including recycling programs and special waste streams. The term "solid waste," when used in the context of waste management, does not necessarily mean that the waste is solid in consistency. Rather, it is an all-encompassing phrase that describes unwanted or discarded solid, liquid, semisolid or contained gaseous material (i.e., compressed gas containers) whose disposal is not otherwise regulated by specific rules (such as those for hazardous waste, asbestos-containing building material, etc.) Examples include, but are not limited to, types of items such as the following: "garbage," "refuse," "trash" and other discarded materials resulting from human activities; demolition debris; and, material processed at a recycling facility.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Collection and Storage of Solid Waste	None	Indoor Air Quality, Pollution Prevention/Waste Reduction
Collection and Storage of Recyclable Material	None	Solid Waste Recycling
Disposal of Electrical Equipment Containing PCBs	TSCA	None
Disposal of Electrical Equipment Containing Mercury	RCRA	Solid Waste Recycling, Pollution Prevention/Waste Reduction
Disposal of Used Oil and Engine Fluids	CWA, SDWA, RCRA	Solid Waste Recycling
Disposal of Equipment containing Refrigerant	CAA	None
Disposal of Kitchen Grease	CWA, SDWA	Septic Tank/Cesspool Management, Solid Waste Recycling
Disposal of Spent Mercury-Containing Lamps and Batteries	RCRA	Solid Waste Recycling, Pollution Prevention/Waste Reduction
Disposal of Scrap Computers and Electronics	RCRA	Solid Waste Recycling, Pollution Prevention/Waste Reduction

Collection and Storage of Solid Waste

Proper management of solid waste is important in maintaining healthy indoor air quality and in minimizing the presence of insects and vermin. Daily pick up of trash from classrooms is essential and use of plastic liners and regular cleaning of containers will help to control odors and associated pests.

See BMP Indoor Air Quality (Section 4.1)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.3.9 Solid Waste Management (continued)

Collection and Storage of Recyclable Material

Proper collection and storage of recyclable material is important in maintaining its marketability. It is important that personnel responsible for collecting materials know the requirements for acceptability for recycling each waste stream. For example, office paper may have to be separated from other types of paper or certain types of plastic may not be recyclable. Once collected, it is important that the material is stored in a manner to retain its market value, for example, paper must be kept dry. Also, it must be stored so that it is easy to pick up for transportation off-site for recycling. All storage areas should be secured (fenced and locked, if outside) and under the control of the personnel responsible for the program.

See BMP Solid Waste Recycling (Section 4.5)

Disposal of Electrical Equipment Containing PCBs

Schools may have electrical equipment on-site that contains PCBs. This may be oil-filled electrical transformers, but more commonly would consist of fluorescent light ballasts manufactured prior to July 1979. Storage and disposal of these items are regulated under TSCA.

See TSCA (Section 3.3)

Disposal of Electrical Equipment Containing Mercury

Some components, such as thermostats, switches, level gauges and relays, used in electrical equipment may contain mercury. Mercury-containing equipment must be managed as universal waste or as hazardous waste.

See RCRA (Section 3.10)

See BMP Solid Waste Recycling (Section 4.5)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Disposal of Used Oil and Engine Fluids

Used oil and waste engine fluids may be generated in school shops, transportation maintenance areas, facilities maintenance areas and grounds maintenance areas. It is important that personnel in these areas have a clear understanding of proper management of these waste streams. Most are prohibited from being disposed of down the drain. These wastes must be collected in closed, labeled containers. The waste streams should not be mixed with other waste, such as solvents. Used oil management is regulated under RCRA regulations. A hazardous waste determination must be conducted on other waste to

See CWA (Section 3.6)

See SDWA (Section 3.7)

See RCRA (Section 3.10)

2.3.9 Solid Waste Management (continued)

Disposal of Used Oil and Engine Fluids (continued)

determine if it must be managed and disposed of in accordance with RCRA regulations. Waste that does not meet the definition of a RCRA hazardous waste should still be sent for recycling whenever possible. Personnel responsible for areas generating waste should keep MSDSs and consult them or call the manufacturer for information on proper disposal.

See BMP Solid Waste Recycling (Section 4.5)

Disposal of Equipment Containing Refrigerants

Most schools operate some equipment that is charged with refrigerant containing CFCs and HCFCs. Prior to disposal of this equipment, the refrigerant must be recovered or recycled by a certified technician using approved equipment. Refrigerants must not be vented to the atmosphere. If a contractor or appliance supplier is removing equipment, records stating that the refrigerant was properly removed prior to disposal should be kept. Refrigerants containing CFCs and HCFCs may be regulated as a hazardous waste under RCRA when equipment or refrigerant is removed from service unless reclaimed for further use.

See CAA (Section 3.5)

See RCRA (Section 3.10)

Disposal of Kitchen Grease

Kitchen grease generally must be collected and sent to a recycler. It is usually prohibited from being disposed of down the drain and usually cannot be disposed of in any quantity with the regular solid waste. Grease traps or interceptors should be installed on all drains from the food preparation area if grease and oil is used. Regular maintenance and cleanout of these units is required to keep them functioning efficiently.

See CWA (Section 3.6)

See SDWA (Section 3.7)

See BMP Septic Tank / Cesspool Management (Section 4.4)

See BMP Solid Waste Recycling (Section 4.5)

Disposal of Spent Mercury-Containing Lamps and Batteries

Some fluorescent, HID and other specialty light bulbs contain enough mercury to require management as universal or hazardous waste under RCRA regulations. Low mercury, “green-tipped” fluorescent bulbs can be purchased that may not require management as universal or hazardous waste. However, because these bulbs still contain mercury, it is still recommended that these bulbs be recycled and it is required under some state regulations.

See RCRA (Section 3.10)

Disposal of Spent Mercury-Containing Lamps and Batteries (continued)

Care should be taken to avoid breaking or crushing the bulbs and they should never be placed in the trash dumpster because that almost always leads to breakage and release of mercury. It should be noted that, unless all of the bulbs in a container are the low mercury type, the container must be managed as universal or hazardous waste.

Some batteries also must be sent back to the retailer under a "take-back program" or be managed as universal or hazardous waste under RCRA regulations because they contain lead, cadmium, silver, or mercury or are corrosive or reactive (e.g. lithium). Other "green-tipped" batteries, including alkaline zinc carbon and nickel metal hydride are not regulated under RCRA regulations but most can and should be recycled. A table listing different types of batteries, common uses and associated hazards is provided in Section 3.10. ***Information on the proper management of fluorescent lamps and batteries is available from the USEPA at http://www.epa.gov/epaoswer/hazwaste/id/univwast/.***

State-specific universal waste regulations can be found through links provided at http://www.epa.gov/epaoswer/hazwaste/id/univwast/statespf.htm.

See BMP Solid Waste Recycling (Section 4.5)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Disposal of Scrap Computers and Electronics

Scrap computers and electronics often contain hazardous constituents such as lead, mercury and chromium. In particular, spent cathode ray tubes (CRTs), including computer monitors, televisions and oscilloscopes and circuit boards must be managed as hazardous waste. Some states, including New Jersey, allow scrap computers to be managed as universal waste. In New York State, they may be recycled as scrap metal. To avoid having to manage these items as hazardous waste, a reuse program for computers and electronics should be implemented.

Information on proper management of scrap computers and electronics, including links to state programs, is available from the USEPA at http://www.epa.gov/ epaoswer/hazwaste/recycle/ecycling/index.htm.

See RCRA (Section 3.10)

See BMP Solid Waste Recycling (Section 4.5)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.3.10 Construction / Renovation

Construction and renovation projects undertaken to maintain the facility and to adapt to the changing needs of the school population.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Demolition Work/Waste Disposal	TSCA, RCRA	Indoor Air Quality, Solid Waste Recycling
Painting/Finishing	CAA	Indoor Air Quality
Asbestos Removal	CAA, AHERA	None
Excavation Work	CWA	Storm Water Management

Demolition Work / Waste Disposal

Large construction or renovation projects typically require district or outside engineering oversight to ensure compliance with federal and state regulations, as well as local ordinances. This work includes review of drawings and contract specifications prior to the start of the project, supervision of work ongoing during the project and final inspection of the project. Depending on the size and extent of the project, many regulatory program areas, as well as other health concerns such as radon and mold, may be applicable. ***The USEPA's website, Healthy School Environments Resources has links to many sources for information and can be found at http://cfpub.epa.gov/schools/index.cfm.***

The EPA document "Managing Your Environmental Responsibilities: A Planning Guide for Construction and Development" [EPA/305-B-04-003, April 2005], contains self-audit checklists by environmental regulatory program area and can be found at the new Construction Industry Compliance Assistance Center website (http://www.cicacenter.org). The Construction Industry Compliance Assistance Center's web pages on construction and demolition debris can be found at: http://www.cicacenter.org/solidregs.html and at http://www.fedcenter.gov/assistance/facilitytour/construction/.

The publication, "Radon Prevention in the Design and Construction of Schools and Other Large Buildings" [EPA 625-R-92-016, June 1994], which can be found at http://www.epa.gov/ORD/NRMRL/pubs/625r92016/625r92016.htm provides information on steps that can be taken to lower radon levels in school buildings.

The document, "Mold Remediation in Schools and Commercial Buildings," provides helpful information for conducting mold remediation projects and can be found at http://www.epa.gov/mold/mold_remediation.html.

See TSCA (Section 3.3)

See RCRA (Section 3.10)

See BMP Indoor Air Quality (Section 4.1)

See BMP Solid Waste Recycling (Section 4.5)

2.3.10 Construction / Renovation (continued)

Demolition Work / Waste Disposal (continued)

It is likely that state or local requirements may apply to renovations in school buildings involving removal of lead paint. ***More information on state requirements in New York and New Jersey can be found through the following websites:***

New York:
http://www.emsc.nysed.gov/facplan/articles/ClarificationOfLeadHazardsInSchools.html
http://www.emsc.nysed.gov/facplan/policy/8NYCRR155,5,15,00.html

New Jersey:
http://www.state.nj.us/health/eoh/leadasb/rrfinal.htm

Proper disposal of equipment and materials removed during demolition must also be considered. It is the school's responsibility to make a hazardous waste determination on all solid waste generated. During the planning stage of a project, environmental concerns should be investigated and proper removal and disposal options specified. These issues might include paint containing lead or mercury; lead piping; electrical equipment containing PCBs or mercury thermostats, switches, level gauges or relays; rubber flooring containing mercury used in gymnasiums, running tracks and playgrounds; asbestos-containing materials; contaminated soil; debris coated with lead paint or contaminated with other hazardous waste or asbestos, as well as potential arsenic and/or chromium contamination in playgrounds where chromated copper arsenate (CCA) wood may have been used.

In addition to the more widely known renovation or demolition concerns, such as asbestos and lead paint, is the recent discovery that PCBs were used in some caulking materials and elastic sealants from the 1960s until 1977. These materials were used to seal joints between masonry units and around windows, with the PCBs used as plasticizers in two-part polymer systems. Because this material is now nearly 30 years old, construction workers are now removing deteriorated PCB-containing caulking from many buildings. This removal has typically been performed without testing the caulking to determine its PCB content and without workers using protective equipment. They use manual and power tools to remove the material from building walls and the caulking is disposed of as general demolition waste.

2.3.10 Construction / Renovation (continued)

Demolition Work / Waste Disposal (continued)

Buildings that were constructed or last refurbished before 1977 may still contain caulking with elevated levels of PCBs. Where school personnel believe this may be the case at their school, the caulking should be sampled and analyzed for PCBs. If PCBs are found in the material, it should be removed by experts and, if it contains greater than 50 ppm, managed under TSCA requirements (and state RCRA requirements, in some states).

Environmental concerns discovered during the demolition stage of the project may require that work stop until acceptable management and disposal options can be identified.

Painting / Finishing

Preparation of the surface to be painted and application of paint or finish will impact indoor air quality at the school. Whenever possible, this impact should be minimized by performing the work while students are not using the buildings and by using trained personnel or contractors to perform the work. Choice of finishes and flooring also impacts indoor air quality and must be considered. It is important that at the completion of the project the area be thoroughly cleaned and filters on ventilation systems cleaned or replaced. Some spray painting operations may be regulated under the CAA.

See CAA (Section 3.5)

See BMP Indoor Air Quality (Section 4.1)

Asbestos Removal

Prior to undertaking a demolition project, the school's asbestos management plan must be consulted. If the plan is not up to date it must be revised. If the demolition project will involve removal of asbestos or asbestos-containing material, proper procedures to ensure that notification of the removal is submitted to regulatory authorities, that work is done in accordance with procedures to protect the health of the workers and others, and proper storage, transportation and disposal procedures are followed. Removal of asbestos is regulated by the USEPA if a certain threshold is exceeded.

Other federal and state agencies regulate removals of smaller quantities of asbestos and asbestos-containing material. ***Links to regional and state contacts can be found through the USEPA website at http://www.epa.gov/asbestos/pubs/regioncontact.html.***

See AHERA (Section 3.4)

See CAA (Section 3.5)

2.3.10 Construction / Renovation (continued)

Excavation Work

Construction projects must be authorized by a NPDES permit, or by a state permit if the state has a NPDES-approved program, if the following two conditions apply: (1) the construction activities disturb more than one acre of land or are part of a project or development that will disturb more than one acre of land, and (2) storm water runoff from the construction activity has the potential to be discharged to the waters of the United States. Construction projects disturbing less than one acre of land are not regulated, but schools should work with their construction contractors to minimize the impact of discharges from such activities.

See CWA (Section 3.6)

See BMP Storm Water Management (Section 4.2)

2.3.11 Cafeteria

Areas dedicated to the preparation, service and cleanup of meals and snacks for students, faculty and staff. Maintenance and repair of the appliances, ventilation system, refrigerators and freezers, and grease traps typically is the responsibility of Facility Operation and Maintenance personnel.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Cooking/Cleaning	EPCRA, RCRA	Indoor Air Quality; Chemical Purchasing/Management
Pesticide Application	FIFRA	Indoor Air Quality, Pollution Prevention/Waste Reduction
Grease Disposal	CWA, SDWA, OPA	Septic Tank/Cesspool Management, Solid Waste Recycling
Solid Waste Recycling	None	Solid Waste Recycling
Composting	None	Solid Waste Recycling

Cooking / Cleaning

Cooking operations generally do not fall under USEPA regulations; however, indoor air quality issues are of concern. It is important that ventilation systems are working properly for the health and well-being of both food service personnel and the school as a whole.

Cleaning operations may involve some regulatory compliance issues. An inventory of cleaning chemicals should be maintained to determine if EPCRA Community Right-to-Know reporting thresholds are exceeded. The use of some types of cleaners that contain chlorinated solvents may generate solvent-contaminated rags that must be managed and disposed of as hazardous waste regulated under RCRA regulations. If these cleaners are being used, the school should consider arranging for proper disposal of these cleaners and replacing them with less toxic substances.

See EPCRA (Section 3.2)

See RCRA (Section 3.10)

See BMP Indoor Air Quality (Section 4.1)

See BMP Chemical Purchasing / Management (Section 4.3)

2.3.11 Cafeteria (continued)

Use of Pesticides

Many schools are moving away from the use of pesticides on school grounds because of concerns about the effects of the chemicals on children's health. The use of preventative methods to control insects is the focus of The Integrated Pest Management (IPM) approach. The IPM method includes a decision making process that includes monitoring and record keeping to determine if and when treatments with pesticides are needed. IPM also employs a combination of strategies and tactics to keep pest numbers low enough to prevent unacceptable damage or annoyance. ***More information on IPM is available on the Internet at http://www.epa.gov/pesticides/ipm/schoolipm.***

The use of pesticides is regulated under FIFRA. In general, if school personnel apply pesticides, they must be certified applicators. Outside contractors must also be certified. Any pesticides used in the school must be registered by the USEPA and used and stored in accordance with label instructions. Records of applications must be maintained.

See FIFRA (Section 3.9)
See BMP Indoor Air Quality (Section 4.1)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Grease Disposal

Used oil and grease from cooking should be collected and stored in drums or containers for recycling. It should be noted that if the school is required to prepare a Spill Prevention Control and Countermeasure Plan under the CWA/OPA, this oil must be included if it is stored in drums or containers with a capacity of 55 gallons or more. Wastewater from a cafeteria that prepares food should be directed through a grease trap or interceptor prior to discharge to either a sanitary sewer system or septic tank system. The grease traps must be cleaned out regularly to ensure efficient removal of oil and grease.

See CWA (Section 3.6)
See SDWA (Section 3.7)
See OPA (Section 3.8)
See BMP Septic Tank / Cesspool Management (Section 4.4)
See BMP Solid Waste Recycling (Section 4.5)

Solid Waste Recycling

The cafeteria is a logical place to implement and publicize recycling programs because most of the school population will view it on a daily basis. Many food containers and utensils can be recycled. If possible, collection bins for other types of recycling (such as batteries) should be placed nearby as a reminder for everyone to collect and recycle those items.

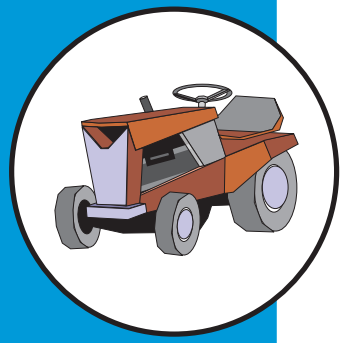
See BMP Solid Waste Recycling (Section 4.5)

2.3.11 Cafeteria (continued)

Composting

Composting food scraps along with landscaping waste may be a way for your school to reduce the amount of solid waste generated while providing opportunities for a host of educational programs and research projects for the students. **More information on composting is provided in Section 4.5 Solid Waste Recycling and at the following website: http://www.epa.gov/msw/compost.htm.**

See BMP Solid Waste Recycling (Section 4.5)



2.4 Grounds Maintenance

Grounds maintenance includes areas and activities related to maintenance of school property outside of the facility building. The following areas are included:

Pesticide Use

Fertilizer Use

De-Icer / Salt / Sand Management

Equipment Storage / Maintenance

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What Regulations or Best Management Practices Apply?

2.4.1 Pesticide Use

Chemicals utilized for maintenance of lawns, playing fields, landscaping and trees on the school property.

Activity/Material	Regulatory Program Area	Best Management Practices
Storage and Use of Pesticides	CERCLA, EPCRA, FIFRA	Indoor Air Quality, Chemical Purchasing/Management, Pollution Prevention/Waste Reduction
Disposal of Pesticides	RCRA	Pollution Prevention/Waste Reduction

Storage and Use of Pesticides

Many schools are moving away from the use of pesticides on school grounds because of concerns about the effect of the chemicals on indoor air quality and children's health. The use of preventative methods to control insects is the focus of The Integrated Pest Management (IPM) approach. The IPM method includes a decision-making process that includes monitoring and record keeping to determine if and when treatments of pesticides are needed. IPM also employs a combination of strategies and tactics to keep pest numbers low enough to prevent unacceptable damage or annoyance. ***More information on IPM is available on the Internet at http://www.epa.gov/pesticides/ipm/schoolipm.***

The use of pesticides is regulated under FIFRA. In general, if school personnel apply pesticides they must be certified technicians. Outside contractors must also be certified. Any pesticides used in the school must be registered and used and stored in accordance with the label instructions. Records of applications must be maintained.

Information on requirements for pesticides can be found at http://www.epa.gov/pesticides/local/index.htm.

CERCLA and EPCRA regulatory program areas potentially apply to the storage of pesticides. A determination must be made as to whether the chemicals stored are extremely hazardous substances (EHS) under EPCRA regulations and whether notification requirements are triggered. In the case of a spill, a determination must be made as to whether the reportable quantity threshold has been exceeded either under CERCLA or EPCRA regulations. In addition, the school must determine if the quantity of pesticides stored exceeds the threshold reporting quantity for Community Right-to-Know reporting requirements.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See FIFRA (Section 3.9)
See BMP Indoor Air Quality (Section 4.1)
See BMP Chemical Purchasing / Management (Section 4.3)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.4.1 Pesticide Use (continued)

Disposal of Pesticides

When a school must dispose of unused pesticides or cleanup from a spill of pesticides, a hazardous waste determination must be conducted. Some pesticides are either a listed or characteristic hazardous waste under RCRA regulations. Waste pesticides that meet the definition of hazardous waste must be managed and disposed of in accordance with RCRA regulations, except for certain suspended or cancelled pesticides that are part of a voluntary or mandatory recall that may be managed in accordance with the universal waste regulations.

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

What Regulations or Best Management Practices Apply?

2.4.2 Fertilizer Use

Chemicals used for maintenance of lawns, playing fields, landscaping and trees on the school property.

Activity/Material	Regulatory Program Area	Best Management Practices
Storage and Use of Fertilizers	CERCLA, EPCRA	Storm Water Management, Chemical Purchasing/Management, Solid Waste Recycling, Pollution Prevention/Waste Reduction

Storage and Use of Fertilizers

CERCLA and EPCRA regulatory program areas potentially apply to the storage of fertilizer. A determination must be made as to whether the chemicals stored are extremely hazardous substances (EHS) under EPCRA regulations and whether notification requirements are triggered. ***Schools storing EHSs in quantities exceeding 500 pounds or the threshold planning quantity (TPQ), whichever is lower, must submit a notification to the Local Emergency Planning Committee (LEPC), State Emergency Response Commission (SERC) and local fire department. A list of EHSs and TPQs is available at http://www.epa.gov/ceppo/pubs/title3.pdf.*** In the case of a spill, a determination must be made as to whether the reportable quantity threshold has been exceeded either under CERCLA or EPCRA regulations in which case the National Response Center must be notified. In addition, the school must determine if the quantity of fertilizer stored exceeds the threshold reporting quantity for Community Right-to-Know reporting requirements. See Sections 3.1 and 3.2 for more information.

Use of fertilizer to maintain athletic fields is essential because grass requires high levels of nitrogen to thrive. However, overuse of fertilizers or use of the wrong type, such as quick-release instead of slow-release may result in nitrogen compounds leaching into the groundwater or surface water. Implementation of a program to compost yard waste is one way for schools with enough space to enrich the soil without use of fertilizers.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See BMP Storm Water Management (Section 4.2)
See BMP Chemical Purchasing / Management (Section 4.3)
See BMP Solid Waste Recycling (Section 4.5)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.4.3 De-Icer / Salt / Sand Management

Chemicals used for de-icing walkways, driveways and parking lots during winter months in colder climates.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
De-Icer/Salt/Sand Storage and Management	EPCRA, CWA, SDWA	Storm Water Management, Chemical Purchasing/Management, Pollution Prevention/Waste Reduction

De-Icer / Salt / Sand Storage and Management

Salt in the form of sodium chloride is still the most common deicer in use; however, in environmentally sensitive areas, sand and chemical alternatives such as calcium magnesium acetate are used. Other alternatives to sodium chloride include calcium chloride and magnesium chloride. These compounds are usually stored dry either in bulk or in 55-lb. bags. They should be stored inside a covered, waterproof structure, such as a dome or shed. In some areas, before precipitation begins, the road surface is pretreated with a liquid chemical such as magnesium chloride to reduce the need for traditional deicers. Pre-wetting of the sand or de-icing chemical also helps to reduce the quantity used. An inventory of these chemical products must be maintained to determine if they are stored in quantities above the threshold for Community Right-to-Know reporting.

Schools that discharge storm water to municipal systems may be required to implement BMPs to reduce discharge of deicing materials to the storm drains. Schools that discharge storm water to dry wells or leaching fields must also take precautions to ensure no contaminants are discharged. Sweeping driveways and parking lots as soon as possible after the spring snow melt will reduce the quantity of residue entering surface and ground water.

See EPCRA (Section 3.2)
See CWA (Section 3.6)
See SDWA (Section 3.7)
See BMP Storm Water Management (Section 4.2)
See BMP Chemical Purchasing / Management (Section 4.3)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.4.4 Equipment Storage / Maintenance

Trucks and gasoline-powered equipment used for landscaping, plowing, and other maintenance activities.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Cleaning/Repair/Maintenance of Equipment	CWA, SDWA, RCRA	Storm Water Management, Septic Tank/Cesspool Management Pollution Prevention/Waste Reduction
Storage of Chemicals in Tanks/Containers	CERCLA, EPCRA, UST	Chemical Purchasing/Management
Storage of Oil or Petroleum in Tanks/Containers	EPCRA, CAA, CWA, OPA, UST	Chemical Purchasing/Management
Spill Reporting/Cleanup	CERCLA, EPCRA, CWA, OPA, RCRA	Pollution Prevention/Waste Reduction

Cleaning / Repair / Maintenance of Equipment

It is important that oil, engine fluids, cleaning solutions and associated debris generated as a result of cleaning, repair and maintenance of equipment is collected for proper disposal. Oil and oily water cannot be discharged to a sanitary or storm water sewer system or to a septic system. Special self-contained parts washers should be used to clean engine parts. Parts washers should be kept closed except when in use to minimize evaporation of solvents. Used oil and engine fluid should be stored in covered containers in a secure location before being transported off-site for recycling or disposal. Lead-acid batteries must be sent back to the retailer under a "take-back program" or sent for recycling under RCRA or universal waste regulations. Areas used to store trucks and other hydraulic equipment should be inspected on a regular basis for signs of leakage of oil.

See CWA (Section 3.6)
See SDWA (Section 3.7)
See RCRA (Section 3.10)
See BMP Storm Water Management (Section 4.2)
See BMP Septic Tank / Cesspool Management (Section 4.4)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.4.4 Equipment Storage / Maintenance (continued)

Storage of Chemicals in Tanks and Containers

Chemicals used by grounds maintenance personnel may be stored in portable containers, such as 55-gallon drums or 5-gallon or smaller pails or in tanks. Storage tanks might be utilized for storage of virgin product or waste engine fluids. CERCLA and EPCRA regulatory program areas potentially apply to the storage of chemicals in tanks and containers. A determination must be made as to whether the chemicals stored are extremely hazardous substances (EHS) under EPCRA regulations and whether notification requirements are triggered. Schools storing EHSs in quantities exceeding 500 pounds or the TPQ, whichever is lower, must submit a notification to the LEPC, SERC and local fire department. In the case of a spill, a determination must be made as to whether the reportable quantity threshold has been exceeded either under CERCLA or EPCRA regulations. In addition, the school must determine if the quantity stored exceeds the threshold reporting quantity for Community Right-to-Know reporting. If a chemical bulk storage tank is located underground, it may be subject to UST regulations.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See UST (Section 3.11)
See BMP Chemical Purchasing / Management (Section 4.3)

Some states and local governmental agencies also regulate chemical storage in tanks and containers. ***Links to state UST program contacts are available from the USEPA at http://www.epa.gov/ oust/states/statcon1.htm.***

Storage of Oil or Petroleum in Tanks and Containers

Grounds maintenance support activities will typically store quantities of oil and petroleum products. If petroleum storage is limited to drums or small containers, regulatory requirements would be limited to notification and clean up requirements in the case of a spill. If, on the other hand, oil or petroleum products are stored in tanks, additional regulatory requirements are potentially applicable. If the tank is located underground, it may be subject to UST regulations. If total storage capacity exceeds the threshold quantity of 42,000 gallons for underground tanks or 1,320 gallons for aboveground tanks, CWA/OPA regulations may apply, requiring the preparation of a spill prevention plan. State regulations may set lower thresholds. Air permits may be required in some states for petroleum storage tanks. EPCRA Community Right-to-Know reporting requirements may also apply, as well as notification and clean up requirements in the case of a spill.

See EPCRA (Section 3.2)
See CAA (Section 3.5)
See CWA (Section 3.6)
See OPA (Section 3.8)
See UST (Section 3.11)
See BMP Chemical Purchasing / Management (Section 4.3)

Some states and local governmental agencies also regulate petroleum storage in tanks. ***Links to state UST program contacts are available from the USEPA at http://www.epa.gov/oust/states/statcon1.htm. Information on aboveground storage tanks can be found at http://www.epa.gov/oilspill/spcccont.htm.***

2.4.4 Equipment Storage / Maintenance (continued)

Spill Reporting / Cleanup

Reporting of spills or releases of hazardous substances and extremely hazardous substances is regulated under CERCLA and EPCRA if the amount released exceeds the reportable quantity (RQ). Reporting of discharges of oil is also required under the CWA if the discharge impacts navigable waters or adjoining shorelines in "quantities that may be harmful."

Cleanup of any spill, release or discharge is the responsibility of the school. Spill cleanup debris may be a hazardous waste subject to RCRA regulations. It is the school's responsibility to conduct a hazardous waste determination on waste generated from spill cleanup to confirm whether or not the material meets the definition of hazardous waste and must be managed in accordance with RCRA regulations.

See CERCLA (Section 3.1)

See EPCRA (Section 3.2)

See CWA (Section 3.6)

See OPA (Section 3.8)

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

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2.5 Custodial

Custodial includes areas and activities related to the care and cleaning of the interior spaces of the school building.

Custodial Services

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2.5.1 Custodial Services

Personnel and support areas dedicated to cleaning and maintaining sanitary conditions in the school buildings.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Cleaning and Spill Cleanup Operations	CERCLA, EPCRA, RCRA	Indoor Air Quality Pollution Prevention/Waste Reduction
Storage/Use of Chemicals in Containers	CERCLA, EPCRA, RCRA	Indoor Air Quality, Chemical Purchasing/Management, Septic Tank/Cesspool Management, Pollution Prevention/Waste Reduction
Recycling	None	Solid Waste Recycling

Cleaning and Spill Cleanup Operations

Custodial personnel are responsible for providing a clean and healthy environment in the school buildings and play an important role in maintaining good indoor air quality. Day-to-day responsibilities include cleaning of floors, vacuuming carpets, dusting, emptying trash cans, cleaning restrooms, gym showers and locker areas. Custodial personnel are typically also called upon to clean up spills within school buildings. They need to receive training on how to respond to a spill of any hazardous or extremely hazardous substances that are stored in areas that they are responsible for cleaning. Some chemical spills should be addressed only by fully trained emergency responders.

Reporting of spills or releases of hazardous substances and extremely hazardous substances is regulated under CERCLA and EPCRA if the amount released exceeds the reportable quantity (RQ). Response and cleanup of any spill, release or discharge is the responsibility of the school. Spill cleanup debris, depending on the substance spilled, may be hazardous waste subject to RCRA regulations or it may be subject to state regulation. It is the school's responsibility to conduct a hazardous waste determination on waste generated from spill cleanup to confirm whether or not the material meets the definition of hazardous waste and must be managed in accordance with RCRA regulations.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

2.5.1 Custodial Services (continued)

Storage / Use of Chemicals in Containers

Small quantities of chemical products, including detergents, disinfectants, solvents, degreasers and waxes, are stored and used by custodial personnel. These chemicals must be stored in a safe manner. For example, liquids should not be stored on high shelves and incompatible products should be stored separately. Current MSDSs for each chemical product should be maintained along with an inventory of the quantity stored. Calculations should be conducted to determine if any of the chemical product formulations exceed the threshold, triggering reporting requirements under CERCLA or EPCRA.

Spent rags used to apply solvents may require management and disposal as hazardous waste regulated under RCRA regulations. Schools should consult the MSDS for each product, and if disposal of the product is regulated under RCRA, should consider replacing it with a less hazardous or toxic substitute. Substitutions of non-toxic/non-hazardous cleaners in schools are not only recommended, but also required by a growing number of state and local rules. New York State and New York City, for example, both passed laws in 2005 mandating the use of "green", or environmentally preferable, cleaning products in schools. ***Additional information on environmentally-friendly janitorial products as well as links to information on programs at the state level can be found at: http://www.ofee.gov/gp/greenjanitorial.html.***

Each product used should also be evaluated in terms of the effect it might have on indoor air quality. A number of steps can be taken to reduce the need for the use of hazardous chemicals, such as increasing ventilation or reducing moisture. Custodial staff employed at schools where wastewater is discharged to a septic system must receive training on what substances are prohibited from being discharged to the drain. In addition, they should be made aware of other factors, such as water conservation, that can help avoid surcharging the system.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)
See BMP Chemical Purchasing / Management (Section 4.3)
See BMP Septic Tank / Cesspool Management (Section 4.4)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Recycling

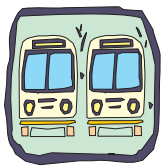
If custodial personnel are responsible for collecting recyclables and maintaining collection bins, they must receive training on how materials are to be stored. Areas must be monitored on a daily basis to prevent excess stockpiling of materials, as well as to keep the area clean and organized. ***Additional information is provided in Section 4.5 of this manual and at http://www.epa.gov/epaoswer/non-hw/muncpl/recycle.htm.***

See BMP Solid Waste Recycling (Section 4.5)

2.6 Transportation

Transportation includes areas and activities related to the operation, inspection, maintenance repair and storage of school buses, vans, trucks, driver's education vehicles and other vehicles.

Equipment Storage / Maintenance



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What Regulations or Best Management Practices Apply?

2.6.1 Equipment Storage / Maintenance

Areas used to store and maintain school buses, vans, trucks, driver's education vehicles and other vehicles.

Activity/Material	Regulatory Program Area	Best Management Practices
Cleaning/Repair/Maintenance of Equipment	CWA, SDWA, RCRA	Storm Water Management, Septic Tank/Cesspool Management, Solid Waste Recycling
Idling of School Buses	No Federal*	Pollution Prevention/Waste Reduction
Storage of Chemicals in Tanks/Containers	CERCLA, EPCRA. UST	Chemical Purchasing/Management
Storage of Petroleum in Tanks/Containers	EPCRA, CAA, CWA, OPA, UST	Chemical Purchasing Management
Spill Cleanup	CERCLA, EPCRA, CWA, OPA, RCRA	Pollution Prevention/Waste Reduction

*State and local regulations may apply.

Cleaning / Repair / Maintenance of Equipment

It is important that oil, engine fluids, cleaning solutions and associated debris generated as a result of cleaning, repair and maintenance of equipment is collected for proper disposal. Oil and oily water cannot be discharged to a sanitary or storm water sewer system or to a septic system. Special self-contained parts washers should be used to clean engine parts. Used oil and engine fluid should be stored in covered containers in a secure location before being transported off-site for recycling or disposal. Lead-acid batteries must be sent back to the retailer under a “take-back program” or sent off for recycling under RCRA or universal waste regulations. Areas used to store trucks and other hydraulic equipment should be inspected on a regular basis for signs of leakage of oil and other fluids (e.g., antifreeze, transmission fluid).

See CWA (Section 3.6)
See SDWA (Section 3.7)
See RCRA (Section 3.10)
See BMP Storm Water Management (Section 4.2)
See BMP Septic Tank / Cesspool Management (Section 4.4)
See BMP Solid Waste Recycling (Section 4.5)

2.6.1 Equipment Storage / Maintenance (continued)

Idling of School Buses

Buses should avoid excess idling while discharging and picking up students. Individual states, as well as some local governmental agencies, may have passed laws limiting the amount of time that buses may idle. For example, New Jersey, New York State and the City of New York all limit the amount of time that buses can idle. New York State limits bus idling time to a maximum of 5 consecutive minutes, while New Jersey and New York City each limit bus idling time to a maximum of 3 consecutive minutes. Each of the entities has an exception if the engine is powering an auxiliary function, such as loading or unloading (e.g., wheel chair lifts). ***Links to more information on state requirements are provided by the USEPA at http://www.epa.gov/cleanschoolbus/whereyoulive.htm.***

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Storage of Chemicals in Tanks and Containers

Chemicals used by transportation personnel may be stored in portable containers, such as 55-gallon drums or 5-gallon or smaller pails or in tanks. Storage tanks might be utilized for storage of virgin product or waste engine fluids. CERCLA and EPCRA regulatory program areas potentially apply to the storage of chemicals in tanks and containers. A determination must be made as to whether the chemicals stored are extremely hazardous substances (EHS) under EPCRA regulations and whether notification requirements are triggered. In the case of a spill, a determination must be made as to whether the reportable quantity threshold has been exceeded either under CERCLA or EPCRA regulations. If a chemical bulk storage tank is located underground, it may be subject to UST regulations.

Some states and local governmental agencies also regulate chemical storage in tanks and containers. ***Links to state UST program contacts are available from the USEPA at http://www.epa.gov/oust/states/statcon1.htm.***

See CERCLA (Section 3.1)

See EPCRA (Section 3.2)

See UST (Section 3.11)

See BMP Chemical Purchasing / Management (Section 4.3)

Storage of Oil or Petroleum in Tanks and Containers

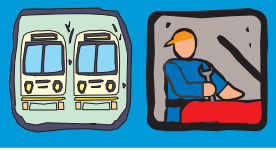
Areas designated to provide support to transportation functions will likely store some quantity of oil and petroleum products. If petroleum storage is limited to drums or small containers, regulatory requirements would be limited to notification and clean up requirements in the case of a spill. If, on the other hand, oil or petroleum products are stored in tanks, additional regulatory requirements are potentially applicable. If the tank is located underground, it may be subject to UST regulations. If total storage capacity exceeds a threshold quantity, CWA/OPA regulations may apply. Air permits may be required in some states for petroleum storage tanks. EPCRA Community Right-to-Know reporting requirements may also apply, as well as notification and clean up requirements in the case of a spill.

See EPCRA (Section 3.2)

See CAA (Section 3.5)

See CWA (Section 3.6)

See OPA (Section 3.8)



2.6.1 Equipment Storage / Maintenance (continued)

Storage of Oil or Petroleum in Tanks and Containers (continued)

Some states and local governmental agencies also regulate petroleum storage in tanks. ***Links to state UST program contacts are available from the USEPA at http://www.epa.gov/oust/states/statcon1.htm.***

See UST (Section 3.11)

See BMP Chemical Purchasing / Management (Section 4.3)

Spill Reporting / Cleanup

Reporting of spills or releases of hazardous substances and extremely hazardous substances is regulated under CERCLA and EPCRA if the amount released exceeds the reportable quantity (RQ). Reporting of discharges of oil is also required under the CWA if the discharge impacts navigable waters or adjoining shorelines in "quantities that may be harmful." The term "navigable waters" has been broadly interpreted and includes intrastate lakes, rivers, streams (including intermittent streams), natural ponds and wetlands.

Response and cleanup of any spill, release or discharge is the responsibility of the facility. Spill cleanup debris, depending on the substance spilled, may be hazardous waste subject to RCRA regulations or it may be subject to state regulation. It is the school's responsibility to conduct a hazardous waste determination on waste generated from spill cleanup to confirm whether or not the material meets the definition of hazardous waste and must be managed in accordance with RCRA regulations.

See CERCLA (Section 3.1)

See EPCRA (Section 3.2)

See CWA (Section 3.6)

See OPA (Section 3.8)

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

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2.7 Nursing Station / Infection Control

Nursing station/infection control includes areas and activities related to health service programs.

Health Care Services

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2.7.1 Healthcare Services

Solid waste generated from diagnosis, treatment or immunization of human beings or animals.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Disposal Regulated Medical Waste	CAA, FIFRA	None
Use of Equipment Containing Mercury	RCRA	Pollution Prevention/Waste Reduction
Health Education/Record Keeping	None	Indoor Air Quality

Disposal of Regulated Medical Waste

Medical waste is generated from diagnosis, treatment or immunization of human beings or animals. It includes soiled or blood-soaked bandages; culture dishes; discarded surgical gloves; discarded surgical instruments; needles; cultures, stocks and swabs used to inoculate cultures and lancets. The USEPA does not directly regulate management and disposal of medical waste. It is, however, regulated at the state level. USEPA regulations governing medical waste are limited to those governing emissions from medical waste incinerators under CAA and regulations under FIFRA governing other treatment technologies for medical waste, both of which would not apply to schools. The USEPA has, however, been working with other agencies and private sector companies to evaluate and promote alternative disposal methods for used needles and sharps, such as needles used by diabetic students in the nurse's office. ***Information on this program, which may useful to many schools, is available from the USEPA at http://www.epa.gov/epaoswer/other/medical/sharps.htm.***

See CAA (Section 3.5)

See FIFRA (Section 3.9)

The management, transportation and disposal of medical waste is regulated by most states and by the following federal agencies:

- Department of Transportation
- Food and Drug Administration
- Nuclear Regulatory Commission
- Occupational Safety & Health Administration
- US Postal Service

Use of Equipment Containing Mercury

Mercury-free thermometers and manometers are readily available and if your school is not using mercury-free equipment, a schedule to purchase such equipment should be adopted. The retired equipment can be managed as a universal waste. Equipment removed from service should be stored in suitable, leakproof, airtight containers that are labeled and dated. Care must be taken to prevent breakage. Mercury conducts electricity, expands uniformly with temperature and easily forms alloys with other metals. For these reasons, it has been used in many products found in homes and schools, including thermometers, barometers, pressure-sensing devices, batteries, lamps and dental amalgam. Mercury does not degrade, is not destroyed by combustion and can cause health and ecological problems when released to the environment through human activities. Harm to human health may occur before symptoms become evident. ***More information is available at the following website: http://www.health.state.ny.us/nysdoh/environ/hsees/mercury_brochures/nurses.htm.***

See RCRA (Section 3.10)

See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Some states may have laws regarding use of mercury in schools. ***More information is available through the links provided by the USEPA at http://www.epa.gov/mercury/schools.htm.***

Health Education / Record Keeping

The maintenance of student health records is a key component of identifying indoor air quality (IAQ) problems, as children are more likely to develop health problems as a result of exposure to airborne contaminants. School environments also often place a large number of occupants within a relatively small space. This proximity leads to the potential for airborne contaminants resulting from germs, odors and personal products to cause IAQ problems. As a result, health and hygiene education is important in maintaining good IAQ. ***Information on managing asthma in schools is available in the publication entitled "Managing Asthma in School Settings," found at http://www.epa.gov/iaq/schools/asthma/ame-ame.htm.***

See BMP Indoor Air Quality (Section 4.1)

Information is also available in the position statement distributed by the National Association of School Nurses at http://nasn.org/Default.aspx?tabid=61.

Radon is another health concern for schools. If your school building has not been tested, work with the school administrator and facility manager to have testing conducted. ***Information is available in the document, "Radon in Schools (2nd Edition)" [EPA-402-F-94-009, October 1994], which can be found at http://www.epa.gov/radon/pubs/schoolrn.html.***

Information on a number of environmental health issues for schools can be found at the following websites: http://www.healthyschools.org and http://eohsi.rutgers.edu/ss/.

2.8 Printing Facility

The printing facility of the school includes areas and activities related to the operation and routine maintenance of various types of off-set printing, high-speed and color copying equipment and related services.

Equipment Operation / Maintenance

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2.8.1 Equipment Operation / Maintenance

Departments providing printing services, including black-and-white and color printing, offset printing, color copying and transparencies.

What Regulations or Best Management Practices Apply?

Activity/Material	Regulatory Program Area	Best Management Practices
Storage of Chemicals in Containers	CERCLA, EPCRA	Chemical Purchasing/ Management
Printing Operations	CWA, SDWA, RCRA	Indoor Air Quality, Septic Tank/Cesspool Management, Pollution Prevention/Waste Reduction
Disposal of Expired/Unused Chemicals/Inks	RCRA	Pollution Prevention/Waste Reduction
Disposal of Waste Paper and Printer Cartridges	None	Solid Waste Recycling
Equipment Cleaning and Maintenance	RCRA	Indoor Air Quality

Storage of Chemicals in Containers

Small quantities of chemicals, including inks, solvents and adhesives are stored and used by printing facility personnel. Current MSDSs for each chemical should be maintained along with an inventory of the quantity stored. Calculations should be conducted to determine if any of these chemicals exceed the threshold triggering reporting requirements under CERCLA or EPCRA.

See CERCLA (Section 3.1)
See EPCRA (Section 3.2)
See BMP Chemical Purchasing / Management (Section 4.3)

Printing Facility Operations

Photographic reproduction may be used as part of the printing processes. Management and disposal of photographic waste in containers would likely be regulated under RCRA hazardous waste regulations. The discharges from school sinks and drains that are connected to a publicly owned treatment works (POTW) are regulated under the CWA. Photographic developer/fixer solutions typically must either be passed through a silver recovery system before discharge to a POTW or must be collected and managed as a hazardous waste due to the soluble silver content. If the school discharges to a septic tank system, no photographic processing solutions should be discharged to the drain.

See CWA (Section 3.6)
See SDWA (Section 3.7)

2.8.1 Equipment Operation / Maintenance (continued)

Printing Facility Operations (continued)

Operation of photocopiers, spirit duplicating machines, mimeograph machines, blueprint machines, stencil makers and computer printers have the potential to impact indoor air quality. This equipment should be located in areas with adequate ventilation and should be regularly serviced and inspected.

Solvents may be used to clean printing equipment. Spent solvents and the rags used to apply solvents may require management and disposal as hazardous waste regulated under RCRA regulations. Consult the MSDS for each product, and if disposal of the product is regulated under RCRA, consider replacing it with a less hazardous or toxic substitute.

Due to its silver content, used photographic film should be collected and either managed as hazardous waste or managed in accordance with the requirements for precious metal recovery.

See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)
See BMP Septic Tank / Cesspool Management (Section 4.4)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Disposal of Expired / Unused Chemicals / Inks

Disposal of some of the chemicals and inks used in the printing facility may be regulated under RCRA regulations. The MSDS for each product should be consulted prior to disposal. If disposal of the product is regulated under RCRA, the school should consider replacing it with a less hazardous or toxic substitute in the future.

See RCRA (Section 3.10)
See BMP Pollution Prevention/Waste Reduction (Section 4.6)

Disposal of Waste Paper, Printer Cartridges

Schools should implement best management practices to recycle computer paper and printer cartridges to reduce the quantity of solid waste generated at the school.

See BMP Solid Waste Recycling (Section 4.5)

Equipment Cleaning and Maintenance

Spent rags used to apply solvents may require management and disposal as hazardous waste regulated under RCRA regulations. It is the school's responsibility to conduct a hazardous waste determination on waste generated from spill cleanup to confirm whether or not the material meets the definition of hazardous waste and must be managed in accordance with RCRA regulations. Consult the MSDS for each product, and if disposal of the product is regulated under RCRA, consider replacing it with a less hazardous or toxic substitute. Proper ventilation must be installed for application of adhesives or sprayed-on coatings.

See RCRA (Section 3.10)
See BMP Indoor Air Quality (Section 4.1)

3.0 REGULATORY PROGRAM AREAS

Overview

For each of the School Organizational Units, this manual identifies activities that may be performed or materials that may be handled in a typical K-12 school that would likely trigger compliance with one or more federal regulations. This guidance manual is designed to address the statutes or regulations that have been promulgated to implement the requirements of the major environmental legislation, namely:

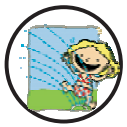
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

Emergency Planning and Community Right-to-Know Act (EPCRA)

Toxic Substances Control Act (TSCA)

Asbestos Hazard Emergency Response Act of 1986 (AHERA)

Clean Air Act (CAA)



Clean Water Act (CWA)

Safe Drinking Water Act (SDWA)

Oil Pollution Act of 1990 (OPA)

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Resource Conservation and Recovery Act (RCRA)

Hazardous and Solid Waste Amendments of 1984 - Underground Storage Tanks (USTs)

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3.1 Comprehensive Environmental Response, Compensation, and Liability Act

Overview

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) is commonly referred to as "Superfund." Enacted by Congress in 1980, CERCLA provided a mechanism to investigate and clean up hazardous waste sites.

CERCLA was amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). SARA made important changes to improve the implementation of the complex cleanup program, as well as to establish certain notification and reporting requirements to prevent and monitor the release of certain chemicals to the environment.

This guidance manual is designed to focus on the requirements of CERCLA and SARA that would likely be applicable to a school.

40 CFR Part 302

Designation, Reportable Quantities, and Notification (CERCLA)

Section 102(a) of CERCLA identifies hazardous substances and their associated reportable quantities (RQs) that require notification in the event of a release. ***A list of these hazardous substances is provided in the Title III Consolidated List of Lists at the USEPA website at http://www.epa.gov/ceppo/pubs/title3.pdf.***

Any release of a hazardous substance from a vessel or facility in a quantity equal to or exceeding the reportable quantity in any 24-hour period must be immediately reported to the National Response Center at (800) 424-8802.

> *Under CERCLA, "release" is defined as any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance, pollutant, or contaminant.*

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3.2 Emergency Planning & Community Right-to-Know Act (EPCRA)

Overview

As part of SARA, Congress also passed the Emergency Planning & Community Right-To-Know Act (EPCRA), also commonly referred to as "SARA Title III." The intent of this legislation was to increase public knowledge and access to information about the use and any release of toxic chemicals in communities, and to foster planning for emergency response to releases of such chemicals.

EPCRA requirements affect schools that use or store hazardous substances above a certain threshold. The reporting requirements described further on in this section would apply to many schools.

EPCRA has four major provisions:

- Emergency planning (Section 301-303),
- Emergency release notification (Section 304),
- Hazardous chemical storage reporting requirements (Sections 311-312), and
- Toxic chemical release inventory (Section 313).

40 CFR Part 355

Emergency Planning and Notification (EPCRA Sections 301-304)

The Governor of each state has designated a State Emergency Response Commission (SERC). Each SERC is responsible for implementing EPCRA provisions within its state. The SERCs, in turn, designated local emergency planning districts and appointed a Local Emergency Planning Committee (LEPC) for each district. The SERC supervises and coordinates the activities of the LEPC, establishes procedures for receiving and processing public requests for information collected under EPCRA, and reviews local emergency response plans.

The LEPC membership must include, at a minimum, local officials including police, fire, civil defense, public health, transportation, and environmental professionals, as well as representatives of facilities subject to the emergency planning requirements, community groups, and the media. Under EPCRA, an LEPC is the focal point for chemical emergency response planning and implementation in a community. The LEPC's key responsibilities are: assisting local governments in developing response plans for spills or other chemical emergencies; evaluating the community's need for resources to respond to hazardous materials emergencies; processing requests from the public for information on hazardous chemicals in the community; and, organizing exercises to prepare responders for emergencies. The LEPCs must develop an emergency response plan, review it at least annually, and provide information about chemicals in the community to citizens. As such, a representative from your facility, typically the designated emergency coordinator, will work with the LEPC to familiarize them with the chemicals used at your facility and their locations, either directly or through the local fire department.

Links to LEPC contacts are provided at the USEPA's website at http://yosemite.epa.gov/oswer/lepcdb.nsf/HomePage?openForm.

Under EPCRA Section 302, facilities that store any of the 356 Extremely Hazardous Substances (EHSs) at or above a threshold planning quantity (TPQ) must notify their LEPC and the SERC within 60 days after they first receive a shipment or produce the substance on-site. These EHSs, along with their associated RQs, are identified at 40 CFR 355 Appendices A and B and in the Title III Consolidated List of Lists. For example, some schools may store chlorine for use in swimming pools in quantities exceeding the TPQ. These facilities must also designate an emergency coordinator and inform the LEPC of any changes occurring at the facility that may affect emergency planning.

Because certain requirements are based on threshold planning quantities of certain chemicals stored on-site or spills of reportable quantities of certain chemicals, it is important that the designated emergency coordinator routinely compare the chemical inventory and new chemical purchases against those chemicals on the Title III List of Lists, advise staff using or storing those chemicals of the requirements, and be familiar with the areas in the which the chemicals are used or stored.

States may have more stringent notification requirements (e.g., lower reporting thresholds) than federal requirements. The LEPC and SERC should be able to identify any chemicals for which state and federal requirements are not the same.

Under EPCRA Section 304, facilities must immediately notify (by telephone, radio, or in person) their LEPC and SERC of any release into the environment of a hazardous substance that is equal to or exceeds the reportable quantities (RQs) set in the regulations. Under EPCRA, in addition to the hazardous substances and RQs identified under CERCLA, the additional 356 EHSs were added to the list of chemicals that must be reported in the event of a release.

Both EPCRA EHSs and the CERCLA hazardous substances and their respective reportable quantities are found in the Title III Consolidated List of Lists. ***This list is available at the USEPA website at http://www.epa.gov/ceppo/pubs/title3.pdf:***

A release notification must include the following information:

- The chemical name;
- An indication of whether the substance is extremely hazardous;
- An estimate of the quantity released into the environment;
- The time and duration of the release;
- Whether the release occurred into the air, water, and/or onto the land;
- Any known or anticipated acute or chronic health risks associated with the emergency, and where necessary, advice regarding medical attention for exposed individuals;

40 CFR Part 355 (continued)

- Proper precautions, such as evacuation or sheltering in place; and
- Name and telephone number of contact person.

In addition a written follow-up notice must also be submitted to the LEPC and SERC as soon as practicable after the release. The follow-up notice must include any updated information from the initial notice, a description of response actions taken and advice regarding recommended medical attention necessary for individuals exposed to the release.

40 CFR Part 370

Hazardous Chemical Reporting (EPCRA Sections 311 and 312)

Under EPCRA Section 311, facilities that store chemicals/products that are required to have an MSDS under the Occupational Safety and Health Administration (OSHA) regulations (approximately 500,000 products) above a threshold quantity, must submit either copies of the MSDSs for these chemicals/products or a list of the chemicals/products to their LEPC, SERC and local fire department. Reporting must be performed as soon as the quantity of that chemical/product stored on-site exceeds the applicable threshold. For EHSs, the threshold is 500 lbs or the TPQ, whichever is lower. For all other products, the threshold is 10,000 lbs. Exemptions for certain chemicals/products exist.

Under EPCRA Section 312, facilities must submit an annual inventory report for all chemicals/products on-site during the calendar year that exceeded their applicable threshold. This inventory report, either the "Tier I" or "Tier II" form, must be submitted to the LEPC, SERC and local fire department by March 1st of the following year. ***Schools that store fuel oil in storage tanks on-site in excess of 1,200 gallons would be required to submit these reports. Since other chemicals may also have to be reported, it is recommended that a complete chemical inventory be completed***.

Links to LEPC contacts are provided at the USEPA's website at http://yosemite.epa.gov/oswer/lepcdb.nsf/HomePage?openForm.

40 CFR Part 372

Toxic Chemical Release Reporting: Community Right-to-Know (EPCRA Section 313)

EPCRA Section 313, commonly referred to as the Toxic Release Inventory (TRI), requires certain facilities to prepare and submit a Toxic Chemical Release Inventory Form annually for specific chemicals exceeding certain thresholds. The TRI reporting requirements do not apply to schools since the Standard Industrial Classification (SIC) code for schools is not applicable.

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3.3 Toxic Substances Control Act (TSCA)

Overview

The Toxic Substances Control Act (TSCA) of 1976 was enacted by Congress to give the USEPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. In addition, the USEPA has mechanisms in place to track the thousands of new chemicals developed by industry each year with either unknown or dangerous characteristics. The USEPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. The USEPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

40 CFR Part 745

Lead-Based Paint Poisoning Prevention in Certain Residential Structures

This regulation identifies and establishes standards for lead paint hazards that apply to specific types of residential structures and child-occupied facilities. Lead abatement professionals, firms providing training services in lead-based paint activities and owners and operators of target housing and child-occupied facilities must comply with these requirements. “Child-occupied facilities” refer to buildings constructed prior to 1978 that are regularly visited by children aged six or younger. The child must visit the building at least twice a week or at least three hours each visit. Preschool and kindergarten classrooms in older school buildings must comply with these regulations, which require that lead paint inspection risk assessment and abatement be performed by an individual certified through a USEPA-approved training program. Best Management Practices to reduce lead hazards are included in Section 4.1 of this manual.

40 CFR Part 761

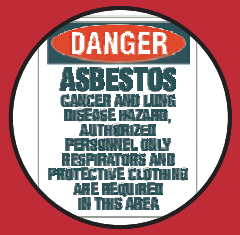
Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions

Concern over the toxicity and persistence of polychlorinated biphenyls (PCBs) is addressed in this regulation in that it includes prohibitions on the manufacture, processing, and distribution in commerce of PCBs, including fluorescent light ballasts containing PCBs. PCBs are mixtures of synthetic organic chemicals with the same basic chemical structure and similar physical properties ranging from oily liquids to waxy solids. Due to their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics and rubber products; in pigments, dyes and carbonless copy paper and many other applications. More than 1.5 billion pounds of PCBs were manufactured in the United States prior to cessation of production in 1977.

The most common type of PCB-containing waste that may be found in schools is fluorescent light ballasts manufactured prior to 1979. Almost all fluorescent light fixtures produced before July 1979 have an electrical component, known as a ballast, that contains small amounts of highly concentrated PCBs. Light ballasts should be marked with either a date of manufacture or a marking by the manufacturer stating "No PCBs." If neither is found, the ballast must be assumed to contain PCBs.

Although most aspects of PCB manufacture, use, and disposal are regulated, the USEPA does not require disposal of *non-leaking* PCB small capacitors, including those contained in PCB ballasts, in a licensed PCB-disposal incinerator or chemical waste landfill. The PCB regulations state that non-leaking PCB small capacitors may be disposed of as municipal solid waste (unless disposal is by the manufacturer of the small capacitors or by a company which included the small capacitors in its products). However, all light ballasts can be recycled and disposal of PCB ballasts may be restricted under state regulations. If PCB ballasts are leaking, they must be placed in a secure container marked with an "M_L" or "M_S" mark (PCB label) and have an accompanying manifest to track its disposal. The waste must be transported by an authorized transporter to a licensed PCB disposal facility.

If a school does own an oil-filled electrical transformer, the school must determine if the equipment was manufactured before July 1, 1978, and if so, if it contains PCBs, through testing if necessary. ***Information on the requirements for PCB transformers can be found through the USEPA website at http://www.epa.gov/pcb. Interpretive guidance is provided at http://www.epa.gov/oppt/pcb/pubs/qacombined.pdf.***



3.4 Asbestos Hazard Emergency Response Act of 1986 (AHERA)

Overview

In 1986, the Asbestos Hazard Emergency Response Act (commonly referred to as AHERA) was signed into law. AHERA requires local educational agencies for public and private non-profit primary and secondary schools to inspect for asbestos-containing building material (ACBM) in each building that the local education agency leases, owns or otherwise uses as a school building; to develop and maintain an up-to-date Asbestos Management Plan; and to safely manage ACBM.

40 CFR Part 763

Asbestos

The U.S. EPA has published regulations that require local educational agencies for schools subject to AHERA to perform certain activities, including the following:

- Conduct an initial inspection and, thereafter, a re-inspection at least every 3 years of the ACBM;
- Develop and update an asbestos management plan (even if the school is asbestos-free) and maintain an updated copy at both the school's administrative office and the local education agency's administrative office;
- Provide yearly notification to parent, teacher, and employee organizations regarding the availability of the school's asbestos management plan and any asbestos-related activities taken or planned in the school, including inspections, re-inspections, response actions and periodic surveillance;
- Designate a contact person and provide training to this “Designated Person” (even if the school is asbestos-free) to ensure that the responsibilities of the local educational agency are properly implemented. The regulations specify the required asbestos training topics but not the number of hours of training;
- Perform periodic surveillance of known or suspected asbestos-containing building materials at least every 6 months;
- Provide at least 2 hours of asbestos awareness training to maintenance and custodial staff who may work in buildings that contain ACBM and an additional 14 hours of training to maintenance and custodial staff who conduct any activities that will result in the disturbance of ACBM;
- Ensure that short-term workers who may come in contact with asbestos (e.g., utility repair workers) are informed of the location of ACBM and suspected ACBM, a safeguard that is critical to avoid uncontrolled fiber releases;
- Ensure that properly accredited professionals perform inspections (initial and triennial), design and conduct response actions, and prepare management plans. Periodic surveillance can be conducted by a person other than an accredited professional, such as a custodian or maintenance staff member who has received asbestos training.

40 CFR Part 763 (continued)

An asbestos management plan must include the location of ACBM within the school and any action performed to repair or remove the material. Other information required in the plan includes, but is not limited to, the following:

- The name and address of each school building, whether ACBM is present and the type of ACBM (if applicable);
- The date of the original inspection for ACBM;
- The plan for re-inspection, periodic surveillance and operation and maintenance activities;
- A blueprint, diagram or written description that clearly identifies the location of the ACBM;
- A description of any response action or preventative measures performed to reduce asbestos exposure;
- A copy of the analysis of any building material and the name and address of any laboratory that sampled the material;
- The name, address and telephone number of the person designated to carry out the plan, as well as training taken to carry out AHERA responsibilities; and
- A description of steps taken to annually inform workers, teachers and students (or their legal guardians) about inspections, re-inspections, response actions and periodic surveillance activities undertaken or planned.

The plan must be updated to include any new information regarding periodic surveillance conducted at least every 6 months, re-inspections conducted at least every 3 years, each response action performed, training records and records of annual notifications to parent, teacher and employee organizations concerning the availability of the asbestos management plan and the asbestos-related activities taken or planned.

Information is available at the USEPA's website at www.epa.gov/asbestos/pubs/asbestos_in_schools.html or through the EPA's TSCA Hotline at (202) 554-1404 or the USEPA Asbestos Ombudsman at (800) 368-5888.

Information is also available at the USEPA Region 2 website at http://www.epa.gov/region02/ahera and includes the following guidance documents:

- ***"AHERA Asbestos Management Plan Self-Audit Checklist for Designated Persons," which will help schools determine if their Asbestos Management Plan is compliant and up-to-date.***
- ***"AHERA Asbestos Management Plan Guide for Local Educational Agencies," which contains templates and step-by-step instruction for local education agencies to successfully complete a plan.***
- ***"How to Manage Asbestos in School Buildings: AHERA Designated Person's Self-Study Guide," which provides an overview of USEPA asbestos requirements, including the roles and responsibilities of asbestos personnel.***

Links to regional and state contacts are available through the USEPA website found at http://www.epa.gov/asbestos/pubs/regioncontact.html.

3.5 Clean Air Act (CAA)

Overview

The Clean Air Act (CAA) is the comprehensive federal law that regulates air emissions from area, stationary and mobile sources. This law authorizes the USEPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment.

The goal of the CAA was to establish and achieve NAAQS in every state by 1975. The setting of maximum pollutant standards was coupled with directing the states to develop state implementation plans (SIPs) applicable to appropriate industrial sources in the state.

The CAA was amended in 1977 primarily to set new goals (dates) for achieving attainment of NAAQS since many areas of the country had failed to meet the deadlines. The 1990 amendments to the CAA in large part were intended to address issues such as acid rain, ground-level ozone, stratospheric ozone depletion and air toxics.

40 CFR Part 52

Approval and Promulgation of Implementation Plans

Section 21 - Prevention of Significant Deterioration of Air Quality

Applies to construction of any new major stationary source or any project at an existing major stationary source in an area that is designated as attainment or unclassifiable.

40 CFR Part 52

40 CFR Part 60 - Standards of Performance for New Stationary Sources

Subpart Dc - Standards of Performance for Small Industrial - Commercial - Institutional Steam Generating Units applies to boilers constructed, modified, or reconstructed after June 9, 1989 with a maximum design heat input capacity greater than 10 million Btu/hr and less than or equal to 100 million Btu/hr.

- *Notification requirements*
- *Performance testing*
- *Emission monitoring*
- *Record keeping and reporting*

40 CFR Part 61

National Emission Standards for Hazardous Air Pollutants

Subpart M - National Emission Standard for Asbestos

Sets standards for asbestos in reference to operations and disposal with respect to asbestos mills, roadways, manufacturing, demolition and renovation, spraying, fabricating and insulation materials.

These regulations would apply to any demolition and renovation project undertaken at any school.

Standards for Demolition and Renovation

For a facility being demolished, this regulation would apply when the combined amount of regulated asbestos-containing material (RACM) is at least 260 linear feet on pipes, or at least 160 square feet on other facility components, or at least 35 cubic feet of facility components where the length or area could not be measured previously.

Notification Requirements

Each owner or operator undertaking a demolition or renovation activity to which this section applies shall provide the Administrator with written notice of intention to demolish or renovate; provide an update notice, as necessary, including when the amount of asbestos affected changes by at least 20 percent; and postmark or deliver the notice at least 10 working days before asbestos stripping, removal work, demolition or any other activity begins.

Links to regional contacts for information on submittal of notification of asbestos removals are available from the USEPA at http://www.epa.gov/asbestos/regioncontact.html.

40 CFR Part 70

State Operating Permit Program

Provides for the establishment of comprehensive state air quality permitting systems consistent with the requirements of Title V of the Clean Air Act.

40 CFR Part 82

Protection of Stratospheric Ozone

Under these regulations the USEPA has set standards with the goal of maximizing recycling of ozone-depleting compounds that contain chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) during the servicing and disposal of air-conditioning and refrigeration equipment. If school personnel service equipment that contains CFCs and HCFCs, these personnel must be certified through a USEPA-approved training program. In addition the schools must submit a Refrigerant Recovery or Recycling Device Certification Form to the USEPA if the school purchases equipment for recycling or recovery of

CFCs or HCFCs. ***More information on technician certification and other requirements can be found at the USEPA website at http://www.epa.gov/ozone/title6/608/608fact.html.***

If a school operates air-conditioning or refrigeration equipment with a charge of greater than 50 pounds of refrigerant, maintenance records, which include the weight of any refrigerant added, must be maintained for each piece of equipment and leakage rates must be calculated. If a piece of equipment has a leakage rate of 15 percent or more, the equipment must be repaired within 30 days or a written plan developed to retrofit or retire the equipment within one year. If refrigerants removed from equipment are not reclaimed or recycled, the school must conduct a hazardous waste determination to establish if they must be managed in accordance with RCRA regulations.

Under the CAA, National Ambient Air Quality Standards (NAAQS) have been developed to identify primary and secondary standards for the following pollutants:

- Oxides of sulfur
- Particulate matter
- Carbon monoxide
- Ozone
- Nitrogen dioxide
- Lead

Using the NAAQS, "attainment" and "non-attainment" areas have been designated for the pollutants listed above. Geographic locations that meet the NAAQS for a specific pollutant are designated as "attainment" for that pollutant while locations that don't meet the NAAQS are designated as "non-attainment." The NAAQS can be found at 40 CFR Part 50. In accordance with 40 CFR Part 51, each state must prepare a State Implementation Plan (SIP), which provides a plan to meet the NAAQS. As part of the SIP, states must implement air pollution control regulations. These regulations can be more stringent than the federal requirements. It should be noted that state regulations are beyond the scope of this guidance document.

In 1990, the CAA was amended. Title V of the amendments provided requirements for operating permits for certain facilities. The following facilities are required to obtain Title V permits:

- Facilities designated as a Major Stationary Source, which is defined as:
  - Any facility with a potential to emit (PTE) 10 tons per year (TPY) or more of an individual hazardous air pollutant (HAP) as defined by Section 112 of the CAA, or 25 TPY or more of all HAPs combined.
  - Any facility with a PTE of 100 TPY or more of any other regulated air pollutant.
  - In non-attainment areas, any facility with the potential to lead to ozone formation, or the PTE carbon monoxide or particulate matter in quantities greater than regulatory thresholds. For example, in some states, lower PTE thresholds may apply in non-attainment areas for ozone regarding oxides of nitrogen emissions.

- Facilities subject to New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAP). Facilities that are subject to these requirements but are not defined as major stationary sources fall under state jurisdiction with regards to Title V applicability. Other state only requirements may be applicable.
- Facilities subject to Acid Rain Provisions. Facilities that are subject to these requirements but are not defined as major stationary sources fall under state jurisdiction with regards to Title V applicability. Other state only requirements may be applicable.
- Facilities subject to a pre-construction review permit under the Prevention of Significant Deterioration (PSD) or New Source Review (NSR) programs. These facilities are usually also defined as major stationary sources. States may implement programs for facilities not defined as major stationary sources.

Title V permits contain conditions regarding applicable monitoring and testing requirements, record keeping requirements and reporting requirements.

NSPS, which can be found at 40 CFR Part 60, address new or modified stationary sources. The following pieces of equipment are examples of NSPS sources that may be operated at schools:

- Small Industrial-Commercial-Institutional Steam Generating Units, which includes boilers, with a maximum design heat input between 10 million Btu/hr and 100 million Btu/hr and constructed, modified or reconstructed after June 9, 1989, must comply with 40 CFR Part 60 Subpart Dc.
- Stationary Gas Turbines, which includes any stationary gas turbine with a heat input at peak load equal to or greater than 10 million Btu/hr that was constructed, modified or reconstructed after October 3, 1977, must comply with 40 CFR Part 60 Subpart GG.

The general provisions applicable to all NSPS sources, which are designated “affected sources,” can be found at 40 CFR Part 60 Subpart A and are summarized below:

- Provide the USEPA or authorized representative (such as a state agency) with the following information:
  - Date of construction of an affected facility (within 30 days)
  - Date of initial startup of an affected facility (within 15 days)
  - Detailed description of physical or operational changes to an existing facility that may increase the emission rate of any air pollutant to which the standard applies (within 60 days or as soon as practicable before the change is commenced)
  - Date on which demonstration of a continuous monitoring system (CMS) performance commences, if required (not less than 30 days prior)
  - Anticipated date for conducting opacity observations, if required, and a request for a visible emissions reader (not less than 30 days prior)

- Any intent to use a CMS for opacity monitoring rather than a visible emissions reader (not less than 30 days prior to the performance test)

- Keep records regarding the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility, any malfunction in air pollution control equipment or any malfunction in a CMS.
- For the installation of a CMS, excess emissions and monitoring systems performance reports must be submitted semiannually.
- Keep records of all measurements, including CMS, monitoring device and performance testing, CMS performance evaluations, CMS or monitoring device calibration checks, documentation of adjustments and maintenance performed on a CMS or other monitoring device and all other information required by NSPS. Documents must be made available upon inspection and retained for 2 years.

NSPS also specifies more stringent requirements for specific sources. These requirements can be found at 40 CFR Part 60.

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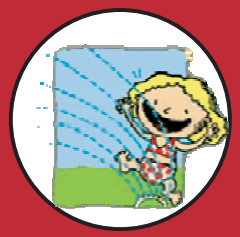

3.6 Clean Water Act (CWA)

Overview

The Clean Water Act, a 1977 amendment to the Federal Water Pollution Control Act Amendments of 1972, established the basic structure for regulating discharges of pollutants into the waters of the United States and gave the USEPA the authority to implement pollution control programs, such as setting wastewater discharge standards for industry. The CWA also continued to set water quality standards for all contaminants in surface waters and made it unlawful for any person to discharge any pollutant from a point source (e.g., pipe, channel) into a surface water body unless a permit was obtained. It also funded the construction of sewage treatment plants and recognized the need for planning to address the critical problems posed by nonpoint source pollution (e.g., fertilizer-contaminated runoff), which occurs when rainfall, snow melt or irrigation runs over the land or through the ground and transports pollution into rivers, lakes, coastal waters or groundwater.

Unless your facility operates its own wastewater treatment plant, which is unlikely and would add requirements beyond the scope of this manual , your school may be regulated in one of several ways under the CWA: pretreatment requirements that limit what may be released to a sewer system or publicly owned treatment works (POTW), commonly known as a sewage treatment plant; non-point source control program, in which controls may be needed to prevent runoff from certain areas of your facility carrying pollutants into surface water bodies; or the filling of "wetlands."

40 CFR Part 403

General Pretreatment Regulations for Existing and New Sources of Pollution

National Pretreatment Standards prohibit the discharge of certain pollutants to a sewer system or Publicly Owned Treatment Works (POTW). Facilities are prohibited from diluting discharges with additional water to meet the standards. The pretreatment standards are listed under 40 CFR 403.5 and include the following:

- Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21.
- Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the treatment facility is specifically designed to accommodate such discharges.
- Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference.
- Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW.
- Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds 40 °C (104 °F) unless the federal or state regulatory agency, upon request of the POTW, approves alternate temperature limits.

40 CFR Part 403 (continued)

- Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.
- Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.

Many authorized state programs as well as local POTWs establish their own discharge limits that are more stringent than the National Pretreatment Standards. Schools that discharge to a POTW must comply with both the federal pretreatment standards and any state or local requirements. It should be noted that cities and other municipalities may have their own local sewer use regulations that address what may or may not be placed down the drain. For example local regulations may require traps to catch cooking grease, limit silver from photography operations or establish notification requirements for accidental discharges to sewers, such as from a spill. It is important to ensure that your local wastewater treatment plant knows what you are considering putting down the drain so they can tell you whether or not it can be properly treated. ***More information is available at the USEPA's Office of Wastewater Management website at http://cfpub.epa.gov/npdes/pretreatment/ pstandards.cfm#prohibited.***

40 CFR Part 122

USEPA Administered Permit Programs: The National Pollutant Discharge Elimination System

Schools that are located in areas that do not have municipal sanitary or storm sewers likely discharge wastewater to an on-site septic system or to surface water, or both. Discharges to surface water are regulated under the CWA as discussed in this section. Discharges to on-site septic systems would potentially impact groundwater, which is not regulated under this program, unless there is a hydrological connection to nearby surface water. However, discharges to groundwater may be regulated under more stringent State-administered programs under the CWA. Discharges to on-site septic systems are also discussed under the Safe Drinking Water Act in Section 3.7 of this document.

Through provisions of the CWA, the National Pollutant Discharge Elimination System (NPDES) requires permits for point sources (storm water and non-storm water), including any construction activities that disturb more than one acre of land, that discharge pollutants into waters of the United States. The terms “pollutant,” “point source” and “waters of the United States” are defined under §122.2 of the CWA as follows:

> ***Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.***
>
> ***Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.***

40 CFR Part 122 (continued)

Waters of the United States means:

- All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters, including interstate "wetlands;"
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  - Which are or could be used by interstate or foreign travelers for recreational or other purposes;
  - From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - Which are used or could be used for industrial purposes by industries in interstate commerce;
- All impoundments of waters otherwise defined as waters of the United States under this definition;
- Tributaries of waters identified above;
- The territorial sea; and
- "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified above.

Many states are authorized by the USEPA to implement the NPDES program at the state level. NPDES permits establish effluent limitations and applicable water quality standards. The permits establish performance levels that facilities must meet and specify monitoring and reporting requirements and other actions necessary to achieve compliance. In schools, discharges, particularly from laboratory sinks or drains, must be strictly monitored to comply with the permit requirements of the local POTW. ***More information on this program can be found at the USEPA's Office of Wastewater Management website at http://cfpub.epa.gov/npdes/index.cfm. Information on requirements for storm water discharges from construction sites can be found at http://cfpub.epa.gov/npdes/stormwater/cgp.cfm.***

Non-point source pollution comes from any diffuse sources and is caused by rainfall or snowmelt that carries natural and human-made pollutants. These pollutants are deposited into lakes, rivers, wetlands, coastal waters and even underground sources of drinking water. Discharges from non-point sources fall under a "general permit," in which the facility must meet certain conditions and take measures to reduce or control runoff to surface water.

One aspect of the Clean Water Act that schools are likely to encounter is regulation of storm water runoff from construction activities. Schools may need a permit, which is aimed primarily at controlling erosion and sediment transport, if the following conditions apply:

- If a school performs construction that disturbs one acre of land, or less than 1 acre at a time if the activity is part of a common plan exceeding 1 acre in total size;

- Storm water runoff from the construction activity will be discharged off your site or to the waters of the United States; and,
- Construction and construction-related activities include actual earth disturbing construction activities (clearing, grading, excavation, and stockpiling activities that will result in the disturbance of the land area) and those activities supporting the construction project, such as construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck washout, fueling), measures used to control the quality for stormwater associated with construction activity, or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants). It does not refer to construction activities unrelated to earth disturbing activities, such as interior remodeling, completion of interiors of structures, etc.

If the construction meets the criteria above, the project must be authorized by a NPDES permit or by a state permit if the state has a NPDES-approved program. The permit requires operators to plan and implement appropriate pollution prevention and control practices for storm water runoff during the construction period. These Best Management Practices (BMPs) are aimed primarily at controlling erosion and sediment transport, but also include controls, including good housekeeping practices, aimed at other pollutants such as construction chemicals and solid waste (e.g., litter).

Under this program, construction site operators need to submit an application called a Notice of Intent (NOI) to be covered under EPA's Construction General Permit. The Notice of Intent (NOI) form lets EPA know that you are filing for permit coverage. It is also your certification that you have read, understood, and implemented the requirements of EPA's permit. ***The fastest and easiest way to obtain permit coverage is through EPA's new online permit application system (cfpub.epa.gov/npdes/stormwater/enoi.cfm).***

The steps include the following:

- You will need a copy of the permit language to determine if you are eligible for the permit. The text of the permit explains, for example, what must be included in your pollution prevention plan and what you need to do in order to comply with the permit.
- You need to determine if you are eligible to use the permit. You will need to document how you determined your eligibility with regards to protection of endangered species, total maximum daily loads, etc.
- You will need to prepare your Stormwater Pollution Prevention Plan. You will also need to include a copy of the permit language and documentation on your eligibility determination(s) in your Plan.
- Fill out the NOI form and submit it to EPA at least seven days before you start construction (so you can be covered in the event it rains the day you break ground).

Clean Water Act Section 404

This section of the Act regulates discharges to waters of the United States, including wetlands. Regulated activities include filling, soil movement, and the placement of certain pilings in wetlands. Section 404 also establishes a permit program to ensure that such discharges comply with environmental requirements. Discharges of dredged or fill material are regulated for all waters and wetlands regardless of size. Pre-approved general or nationwide permits may be available for specific minor activities in wetlands. Compensatory mitigation is only accepted for unavoidable losses under the federal program. The U.S. Army Corps of Engineers (Corps) administers the federal permit program. The USEPA has developed environmental guidelines by which permit applications must be evaluated and reviews proposed permits. The USEPA may prohibit discharges with unacceptable adverse impacts, establishes jurisdictional scope of waters of the United States, and interprets Section 404 exemptions. The USEPA and the Corps share enforcement authority.

The basic premise of the program is that no discharge of dredged or fill material may be permitted if there is a practicable alternative and if the waters of the United States would be significantly degraded. When applying for a permit you must show that you have taken steps to avoid or minimize potential impacts and have provided compensation for unavoidable impacts. Individual permits are required for projects with potentially significant impacts, while general permits are issued for particular categories of activities that only have minimal adverse effects.

More information is available at the following websites: www.epa.gov/owow/wetlands/regs/sec404.html, www.usace.army.mil/inet/functions/cw/cecwo/reg and http://www.epa.gov/r02earth/water/wetlands/dryfact.pdf.

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3.7 Safe Drinking Water Act (SDWA)

Overview

The Safe Drinking Water Act (SDWA), which was originally passed by Congress in 1974, is the main federal law that ensures the quality of America's drinking water. Under the SDWA, the USEPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The law was amended in 1986 and 1996 to include additional safeguards to protect drinking water and its sources including rivers, lakes, reservoirs, springs, and groundwater wells. The SDWA authorizes the USEPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. The USEPA, states, and water supply systems must work together to make sure that these standards are met.

Originally, the SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach ensures the quality of drinking water by protecting it from source to tap. The SDWA applies to every public water system in the United States.

The USEPA sets national standards for drinking water based on sound science to protect against health risks, considering available technology and costs. These National Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants in drinking water or required ways to treat water to remove contaminants. Each standard also includes requirements for water systems to test for contaminants in the water to ensure that standards are achieved. In addition to setting these standards, the USEPA provides guidance, assistance, and public information about drinking water, collects drinking water data, and oversees state drinking water programs. Typically, schools receive drinking water from either private water company or municipal supply system. In such a case, the water supply entity is responsible for complying with the testing and reporting requirements. However, the USEPA encourages all schools to assess their risk for having elevated levels of lead in drinking water and to conduct water testing if the potential for having elevated levels exists. ***More information is available in Section 4.6 of this guidance manual and from the USEPA at http://www.epa.gov/safewater/lead/schoolanddccs.htm.***

A school with its own water supply system would be considered a “Non-Transient Non-Community Water System” and is required to comply with these standards and requirements for reporting and operator certification.

More information on technical assistance is available at the USEPA's Office of Ground Water and Drinking Water website at http://www.epa.gov/safewater/index.html.

Underground Injection Control (UIC) Program

The USEPA is authorized by the SDWA to establish minimum federal requirements for state and tribal Underground Injection Control (UIC) Programs to protect underground sources of drinking water from contamination caused by underground injection activities. Protection includes the oversight of construction, operation, and closure of injection wells. The UIC regulations found at 40 CFR Part 144 establish two methods for authorization to site, construct, operate, monitor and close an injection well, authorization by rule or by permit. Wells authorized by rule are subject to the specific requirements set by the regulations, but the operator is not subject to the procedures that are necessary to obtain a permit.

Schools would be regulated under the UIC Program due to the presence of septic systems or storm water drainage wells that meet the definition of a Class V injection well at the facility.

A well is defined in the federal regulations as "a bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system." The underground injection well definition applies to any subsurface drainfield that releases fluids underground.

Common injection wells at schools that are considered Class V wells and, as such, are regulated by UIC requirements include cesspools and septic systems that receive only sanitary waste and serve 20 or more people, septic systems receiving non-sanitary waste regardless of capacity and drywells receiving any fluids, including storm water, fluids from interior sinks, floor drains, etc.

The broad definition of a Class V injection well also covers a variety of storm water drainage configurations, including tile drains, infiltration sumps, percolation areas with vertical drainage, dry wells, bored wells, infiltration galleries, and improved sinkholes designed for storm water management; the latter includes natural karst depressions or open fractures that have been intentionally altered to accept and drain storm water runoff.

Examples of structures that are not considered injection wells include surface impoundments and infiltration trenches open at the surface (which are not deeper than their largest surface dimension), unless they include subsurface fluid distribution systems.

Schools with Class V UIC structures must meet the following minimum federal requirements:

- Comply with the "non-endangerment" performance standard prohibiting injection that allows the movement of fluids containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation or adversely affect public health; and,
- Provide inventory information (including facility name and location, legal contact name and address, ownership information, nature and type of injection wells, sources of all fluids entering injection wells, and operating status of the injection wells).

EPA will review the inventory information submitted and will respond in writing, generally in one of the following ways:

- Request additional information, including sampling, to further evaluate the fluids being discharged;
- Authorize the discharge by rule (generally for storm water injection wells not located near potential sources of contamination and properly functioning septic systems receiving only sanitary waste), possibly including changes in best management practices, periodic monitoring and/or other requirements;
- Require that the school apply for a permit (generally for injection wells receiving fluids that contain, or may contain contaminants that may violate the non-endangerment requirements); or,
- Require that an injection well be remediated and permanently closed.

Septic systems receiving only sanitary waste (from bathrooms, kitchens, etc.) and storm water drains not near sources of contamination are generally authorized by rule with no monitoring or reporting requirements.

Cesspools (sanitary waste discharge to an injection wells with septic tank) designed to serve 20 or more persons have been banned by EPA, so clean out and closure of such a well will be required.

Injection wells receiving or potentially receiving non-sanitary wastes are a greater concern that may result in EPA requiring permitting, cessation of discharge or well closure. School-related examples include:

- Chemicals discharged or potentially discharged from laboratories, darkrooms, metal shops, vehicle repair/maintenance facilities, art rooms, etc.
- Drains located in/near where chemicals are stored or handled, such as storm drains near loading docks where chemicals are delivered or near fuel dispensers, floor drains where chemicals, oils and/or pesticides are stored, etc.

Any discharges other than sanitary waste to the septic system must be strictly monitored for compliance with these requirements.

Authorization is not necessarily a one-time event. Injection wells that receive authorization by rule or permit from EPA will be authorized to receive specific fluids only. Injection well owners or operators are required to notify EPA and receive approval in advance if they intend to start injecting other fluids for which authorization has not been granted, the injectate composition changes, they plan to stop using or close the injection well, or they intend to inject cooling water greater than 98 degrees Fahrenheit. Additionally, any accidental spills into a well should be reported to EPA within 24 hours.

More information on this program is available at the USEPA's Office of Ground Water and Drinking Water website at: http://www.epa.gov/safewater/uic/classv.html.

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3.8 Oil Pollution Act of 1990 (OPA)

Overview

Section 311 of the CWA specifically prohibits discharges of oil or hazardous substances into or upon the navigable waters or adjoining shorelines of the United States, or the waters of the contiguous zone. The responsibility to enforce this mandate is shared between the USEPA, United States Coast Guard and United States Department of Transportation. The USEPA is charged with regulating non-transportation-related onshore and offshore facilities.

The Oil Pollution Act of 1990 (OPA) was signed into law largely in response to rising public concern following the Exxon Valdez incident. OPA improved the nation's ability to prevent and respond to oil spills by establishing provisions that expand the federal government's ability to respond to oil spills by providing the necessary money and resources.

40 CFR Part 110

Discharge of Oil

Key provisions of this regulation prohibit discharges of oil in such quantities determined to be harmful to the public health or welfare or the environment of the United States. This definition includes discharges of oil that:

- Violate applicable water quality standards; or
- Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

The addition of any dispersants or emulsifiers to the oil to be discharged is prohibited.

Any person with knowledge of any discharge of oil meeting this definition must immediately notify the National Response Center (NRC) at (800) 424-8802. If direct reporting to the NRC is not practicable, reports may be made to the Coast Guard or USEPA pre-designated On-Scene Coordinator (OSC) for the geographic area where the discharge occurs.

40 CFR Part 112

Oil Pollution Prevention

In July 2002, USEPA published a final Spill Prevention, Control and Countermeasure (SPCC) rule at 40 CFR 112, incorporating the revisions proposed in 1991, 1993, and 1997. This rule became effective on August 16, 2002.

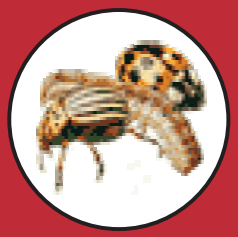
The SPCC regulations require a non-transportation-related facility storing oil in quantities above a threshold volume and located such that it could reasonably be expected to discharge oil in harmful quantities into or upon waters of the United States or adjoining shorelines, to develop and implement an SPCC Plan. The oil storage volume threshold is either 1,320 gallons of oil in aboveground storage capacity or 42,000 gallons of oil in underground storage capacity. Excluded from

threshold calculations are containers holding less than 55 gallons, permanently closed tanks, and completely buried storage tanks subject to requirements for underground storage tanks of 40 CFR Part 280 or approved state programs.

SPCC Plan requirements include the following:

- Preparation of a facility diagram;
- Facility-wide containment or diversionary structures;
- Inspections and record keeping requirements;
- Personnel training requirements; and
- Facility-wide security measures.

More information on SPCC Plans can be found at the USEPA's Oil Program website at http://www.epa.gov/oilspill/index.htm.



3.9 Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Overview

The primary focus of FIFRA was to provide federal control of pesticide distribution, sale, and use. USEPA was authorized under FIFRA to not only study the consequences of pesticide usage but to also require users (e.g., farmers, utility companies) to register when purchasing pesticides.

Through later amendments to the law, applicators of pesticides must pass an examination for certification. All pesticides used in the United States must be registered (licensed) with the USEPA. Registration assures that pesticides are properly labeled and, if used in accordance with the specifications, will not cause unreasonable harm to the environment.

The regulations listed below have been promulgated under FIFRA.

40 CFR Part 152

Pesticide Registration and Classification Procedures

These regulations establish procedures, requirements, and criteria governing the registration and reregistration of pesticide products under FIFRA.

40 CFR Part 156

Labeling Requirements for Pesticides and Devices

These regulations set standards for labels and hazard precautionary statements.

40 CFR Part 167

Registration of Pesticides and Active Ingredient Producing Establishments, Submission of Pesticide Reports

These regulations establish procedures for registration and record keeping and reporting requirements for establishments where a pesticide product is produced.

40 CFR Part 170

Worker Protection Standard

These regulations are applicable to any pesticide product used on an agricultural establishment engaged in the production of agricultural plants.

Certification of Pesticide Applicators

These regulations set standards for certification of applicators of restricted-use pesticides.

More information on these regulations can be found at the USEPA website at http://www.epa.gov/pesticides/regulating/index.htm.

As a commercial establishment, it is important that schools utilize Certified Pesticide Applicators whenever pesticides are applied. Schools must also comply with state regulations pertaining to the application of regulated pesticides. A state may be delegated primary enforcement responsibility for pesticide use violations under the federal regulations and may also have their own more stringent requirements.

3.10 Resource Conservation and Recovery Act (RCRA)

Overview

The Resource Conservation and Recovery Act (RCRA) was enacted by Congress in 1976 as an amendment to the Solid Waste Disposal Act of 1965 (SWDA). The goals of the legislation included protection of human health and the environment, conservation of resources and reduction or elimination of the generation of hazardous waste. RCRA so transformed the SWDA that the legislation has come to be known as just RCRA. RCRA has also been amended several times, most significantly by the Hazardous and Solid Waste Amendments (HSWA) of 1984.

RCRA covers management of both hazardous and non-hazardous solid waste, under Subtitles C and D, respectively. Under Subtitle C, a strategy of controlling the entire life cycle of hazardous waste, often referred to as "cradle-to-grave" management, is an important element of the regulatory program. The level of regulation and extent of the requirements is based on the quantity of hazardous waste that a facility generates on a monthly basis. A facility or "site" may include multiple buildings on a parcel of land. In addition, much of the RCRA enforcement and regulation takes place at the state level, as states are encouraged to take primary authority and adopt programs at least as stringent as the federal program. The federal regulations found at 40 CFR Parts 260-279 are discussed in this section.

The following is a link to a website to determine if a state is authorized to administer this program: http://www.epa.gov/epaoswer/hazwaste/state/stats/stats_bystate.htm.

In addition, the following is a website that provides links to state agencies authorized to implement the hazardous waste program: http://www.epa.gov/epaoswer/osw/stateweb.htm. Regulations promulgated by states must be at least as stringent as the federal regulations and may include additional requirements not included in this guidance manual.

40 CFR Part 261

Identification and Listing of Hazardous Waste

The EPA has established three categories for hazardous waste generators based on the quantity of hazardous waste generated per month. To determine what regulations apply to your school, you must first determine if your school generates hazardous waste and, if so, how much. The regulations found at 40 CFR Part 261 identify what wastes are subject to RCRA regulations. These include waste materials that are characteristically hazardous (i.e., ignitable, corrosive, reactive or toxic) or waste chemicals or waste from processes that are listed by the USEPA. This section provides details on how to determine if your waste is RCRA hazardous.

A hazardous waste is a subset of solid waste that is not excluded from regulation and meets certain criteria.

What is a solid waste?

A material is a solid waste if it is discarded, which includes materials that are:

- Abandoned
  - Disposed of;
  - Burned or incinerated; or
  - Accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned or incinerated.
- Recycled
  - Used in a manner constituting disposal;
    - Applied to or placed on the land in a manner that constitutes disposal;
  - Burned for energy recovery;
  - Reclaimed; or
  - Accumulated speculatively;
    - If 75% by weight is not recycled within the calendar year.
- Inherently waste-like; and
- Military munitions.

What waste that might be generated by a school is excluded from the definition of solid waste?

- Domestic sewage (meaning untreated sanitary waste that pass through a sewer system) and any mixture of domestic sewage and other waste that pass through a sewer system to a publicly owned treatment works (POTW).
- Excluded scrap metal (processed scrap metal, unprocessed home scrap metal and unprocessed “prompt” scrap metal) being recycled.

What solid waste that might be generated by a school is excluded from regulation as hazardous waste?

- Household waste means any waste material (including garbage, trash and sanitary waste in septic tanks) derived from households (including single and multiple residences, school dormitories, staff and caretakers residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas).
- Solid waste, which consists of discarded arsenical-treated wood or wood products when these wood products were used for the materials' intended end use.

40 CFR Part 261 (continued)

- Used oil filters that have been gravity hot-drained to remove used oil.
- The accepted methods of gravity hot-draining used oil filters should be specified. They are as follows: puncturing the filter anti-drain back valve or the filter dome end and hot-draining; hot-draining and crushing; dismantling and hot-draining; or, any other equivalent hot-draining method that will remove used oil. Hot draining involves removal of the oil filter after the engine has been warmed to near engine operating temperature, with the filter drained for a recommended a minimum of 12 hours.
- A sample of solid waste or of water, soil or air, which is collected for testing to determine its characteristics or composition when being transported to or back from a laboratory for the purpose of testing or being stored either by the sample collector or laboratory. If the sample is determined to be a hazardous waste, it must be disposed of in accordance with RCRA regulations.
- Residues of hazardous waste, other than acute hazardous waste, remaining in an empty container are not regulated as hazardous waste. A container is considered to be empty if all of the waste has been removed using commonly employed methods, such as pouring, pumping, aspirating, etc. The remaining residue in the bottom of the container cannot exceed 1 inch or no more than 3 percent by weight of the total capacity of the container if the container size is equal to or less than 110 gallons. If the container capacity exceeds 110 gallons, no more than 0.3 percent by weight may remain. For acute hazardous waste, the container must be triple-rinsed or cleaned by another method to achieve removal of waste.
- For acute hazardous waste, it is important to note that the rinseate from container cleaning must be managed as a hazardous waste. Alternatively, the “empty” container may be managed as hazardous waste in lieu of triple-rinsing, which is often simpler, less expensive and safer than attempting to clean it.

Characteristics of Hazardous Waste

What criteria are used to determine if a solid waste is hazardous?

A solid waste can be determined to be hazardous if it exhibits a **characteristic identified as hazardous or if it is listed as a hazardous waste.**

A solid waste that is not excluded by regulation from being a hazardous waste is a hazardous waste if it exhibits any of the following characteristics:

Characteristic of Ignitability (D001)

A waste would meet the characteristic of ignitability if it is:

- A liquid and has a flash point of less than 60 degrees Celsius (140 degrees F) as determined by an analytical method known as a closed cup test.

- The flash point is commonly listed on a product's MSDS or other manufacturer information. As such, testing is often not necessary if a determination of the flash point is otherwise available. Note, however, materials that have been used or otherwise contaminated with other materials may have a higher or lower flashpoint from that of the uncontaminated product.
- It is not a liquid and is capable of catching fire through friction or absorption of moisture under normal handling conditions and can burn so vigorously that it creates a hazard.
- It is an ignitable compressed gas.
- It is an oxidizer as defined by the Department of Transportation.

All ignitable materials, solid, liquid, gas or oxidizer receive the EPA characteristic code number D001.

Characteristic of Corrosivity (D002)

A waste would meet the characteristic of corrosivity if it is:

- an aqueous waste solution having a pH less than or equal to 2 or greater than 12.5 using a pH meter.
- if it is not aqueous but is a liquid that will corrode steel at a rate greater 0.25 inches per year.

A solid waste that exhibits one or more of the above characteristics receives the EPA code D002.

Characteristic of Reactivity (D003)

The category of reactivity is used for waste that can cause an uncontrolled chemical reaction directly or indirectly. This includes reactions in which the waste spontaneously decomposes under normal temperatures, pressures and mechanical shocks, reacts violently with water, generates toxic gases when exposed to water or corrosive materials, or is capable of detonation or explosion when exposed to heat or a flame.

- The first description is that a material is normally unstable and readily undergoes violent change without detonating.
- The second reactivity description is that it is a material that reacts violently with water, forms potentially explosive mixtures with water or, when mixed with water, generates toxic gases, vapors or fumes in enough quantity to pose a threat to human health or the environment.
- The third characteristic of reactivity is that it is a cyanide or sulfide-based waste, which when exposed to pH between 2 and 12.5, can generate toxic vapors, gas or fumes.
- The fourth definition of reactivity is that it is a material that it is readily capable of detonation or explosive reaction, or is a Department of Transportation Class A or Class B explosive.

A solid waste that exhibits one or more of the above characteristics receives the EPA code D003.

Characteristics of Hazardous Waste (continued)

Characteristic of Toxicity (D004-D043)

A solid waste exhibits the characteristic of toxicity if using the Toxicity Characteristic Leaching Procedure (TCLP), Test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, the extract from a representative sample of the waste contains any of the contaminants listed in Table 3- 1 in concentrations equal to or exceeding that listed on the table.

Typical waste streams that may be characteristically hazardous include some oil-based paints, paint thinners and solvents, artist supplies, laboratory chemicals, old gasoline and diesel fuel, corrosive cleaners, alcohol and mercury. Waste streams typically generated in specific areas are discussed in Section 2 of this manual.

States may identify certain "state-specific" hazardous waste. For example, New York State and Vermont regulate PCB waste containing greater than 50 ppm as "state-only" hazardous waste, except for small fluorescent lamp ballasts. Rhode Island regulates waste oil-based paint with a flashpoint of 200 degrees Fahrenheit or less as state waste. ***Links to state agencies responsible for managing hazardous waste are provided at the following website: http://www.epa.gov/epaoswer/osw/stateweb.htm.***

Listed Waste

The USEPA has divided listed wastes into four different categories. These four categories are discussed below:

F-coded Waste: Hazardous waste from non-specific sources

This list includes specific waste generated from certain common industrial or manufacturing processes. Generally only the waste codes F001-F005 in this category would apply to waste generated at a school. These are waste streams generated from the use of certain common organic solvents used for its solvent properties at a specified concentration as listed below. It should be noted that not all use of these solvents will generate F-coded waste. For example, F005 would apply to a waste generated from cleaning paintbrushes with toluene but would not apply to paint that contained toluene that was being discarded. However, waste paint may meet one of the characteristics discussed earlier in this section.

F001: The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F002: The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Table 3-1

MAXIMUM CONCENTRATION OF CONTAMINANTS FOR THE TOXICITY CHARACTERISTIC

EPA HW No.	Contaminant	CAS No.	Regulatory Level (mg/l)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0
D024	m-Cresol	108-39-4	200.0
D025	p-Cresol	106-44-5	200.0
D026	Cresol		200.0
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008

Table 3-1 (continued)

MAXIMUM CONCENTRATION OF CONTAMINANTS FOR THE TOXICITY CHARACTERISTIC

EPA HW No.	Contaminant	CAS No.	Regulatory Level (mg/l)
D032	Hexachlorobenzene	118-74-1	0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentrachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

F003: The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F004: The following spent non-halogenated solvents: cresols and cresylic acid and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F005: The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

K-coded Waste: Hazardous waste from specific sources

K-coded waste is generated from specific industrial processes. As a result, these waste codes would not apply to waste generated by schools.

U- and P-coded Waste: Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof.

U- and P-coded wastes are commercial chemical products, container residues and spill residues thereof. These codes apply only when the materials or items are discarded or intended to be discarded. In addition, commercial chemical product refers to the commercially pure grade of the chemical, technical grades and formulations where the chemical is the sole active ingredient. It does not refer to the process waste generated from use of these products. For example, acetone is assigned the code U002. If a school had a container of unused acetone that was to be discarded, that waste would be assigned U002. If, however, acetone is used during a science experiment and then collected for disposal, the U002 code would no longer apply. The school would still have to determine if other hazardous waste codes, such as D001 or F003, would apply.

P-codes are assigned to acute hazardous waste. If a school generates more than one kilogram (2.2 lbs.) of acute hazardous waste in a calendar month, or stores more than one kilogram onsite at any time, the school is considered to be a large quantity generator and is subject to full regulation under the hazardous waste regulations. It is important that schools determine if they have the potential to generate acute hazardous waste and, if so, take the necessary steps to properly manage this waste.

A complete list of U- and P-coded waste is provided as Appendix A to this manual.

Standards Applicable to Generators of Hazardous Waste

What actions must schools take?

Hazardous Waste Determination (40 CFR 262.11)

All generators of solid waste must determine if their waste is a hazardous waste regulated by RCRA. The generator first determines if the waste is excluded and, if not, if the waste is a listed waste. Finally, by either testing the waste or through knowledge of the process used to generate the waste, the generator must determine if it is a characteristic waste.

A hazardous waste generator is defined as "any person, by site, whose act or process produces hazardous waste identified or listed in Part 261 or whose act first causes a hazardous waste to become subject to regulation." The phrase, "by site," is important because each facility is issued a unique hazardous waste identification number by the USEPA that is used on manifests for shipments of all hazardous waste. Each school, unless situated on a contiguous parcel of land with another school, is considered to be a separate generator and must make separate hazardous waste determinations to determine the rate of generation of hazardous waste at each site.

For example, a high school, middle school and district administrative office on a single parcel of land would generally constitute a single "site" or "facility" for purposes of RCRA regulations. Alternatively, if a school district has a high school's sports field and maintenance facility on a parcel of land that is not adjacent to the land containing the school, the former would constitute a separate facility and would determine its waste generation rate and corresponding level of requirements based solely on wastes generated on that property; similarly, the high school would not count wastes from the remote site in its generation rate.

Based on monthly hazardous waste generation throughout the facility, hazardous waste generators fall into one of three categories (conditionally exempt, small quantity and large quantity generators) that have graduated regulatory requirements. All hazardous waste must be totaled on a monthly basis when determining generation rates except for the following:

- hazardous waste that is exempt from regulation;
- hazardous waste that is managed immediately upon generation in on-site elementary neutralization units;
- hazardous waste that is recycled without prior storage or accumulation;
- Used oil managed in accordance with 40 CFR Part 279;
- Spent lead-acid batteries managed in accordance with 40 CFR Part 266 (examples include state mandated recycling programs, retailer/wholesaler "take-back" programs or deposit programs); or
- Universal waste managed in accordance with 40 CFR Part 273 (federal and state only universal waste managed as universal waste from generation through shipment).

Conditionally Exempt Small Quantity Generator Requirements

Generators of hazardous waste generating the smallest amount of waste and having the fewest regulatory requirements are called conditionally exempt small quantity generators (CESQG). A hazardous waste generator is a CESQG if no more than 100 kilograms (220 lbs.) of hazardous waste and no more than one kilogram (2.2 lbs.) of acute hazardous waste are generated in a calendar month. In addition, a CESQG can only store 1,000 kilograms (2,200 lbs.) of hazardous waste but no more that one kilogram (2.2 lbs.) of acute hazardous waste or 100 kilograms (220 lbs.) of acute hazardous waste residue or contaminated soil from a spill at any one time. The CESQG must complete a hazardous waste determination on all solid waste generated, must comply with storage limits and must ensure that hazardous waste is properly transported off-site to a treatment, storage and disposal facility (TSDF) permitted to accept hazardous waste or recycler or permitted municipal or industrial landfill. A CESQG is not required to comply with the other regulations applicable to generators of hazardous waste, although a CESQG may choose to handle spent batteries, pesticides, mercury thermostats and spent fluorescent bulbs as universal waste, which is discussed later in this section. If a CESQG exceeds prescribed limits for generation or storage, they move to a higher generation category.

Also, some states have additional and more stringent requirements for CESQGs. State-specific regulations can be found through the links at the following website: http://www.epa.gov/epaoswer/osw/stateweb.htm.

Small Quantity Generator Requirements

Small quantity generators (SQGs), who generate between 100 and 1,000 kilograms (220 and 2,200 lbs.) of hazardous waste per calendar month, and no more than one kilogram (2.2 lbs.) of acute hazardous waste, must comply with additional regulatory requirements. SQGs can store up to 6,000 kilograms of hazardous waste but are still restricted to storage of no more than one kilogram of acute hazardous waste. Most schools qualify for classification as CESQGs or SQGs. If an SQG exceeds prescribed limits for generation or storage, they move to a higher generation category.

Large Quantity Generators

Large quantity generators (LQGs) generate over 1,000 kilograms (2,200 lbs.) of hazardous waste or over one kilogram (2.2 lbs.) of acute hazardous waste per calendar month and have the greatest regulatory burden. ***Most schools with proper hazardous waste management procedures would qualify as either CESQGs or SQGs. As a result, the following discussion is limited to the requirements for these two categories of hazadous waste generators.***

If a school does exceed the threshold quantity for LQG status, additional requirements include shipping waste offsite for disposal within 90 days, submitting biennial reports to the USEPA on hazardous waste generation and preparation of a hazardous waste contingency plan. ***Additional information on the requirements for LQGs can be found at http://www.epa.gov/epaoswer/osw/gen_trans/lqg_resources.htm.***

EPA Identification Numbers (40 CFR 262.12)

SQGs must submit a "Notification of Regulated Waste Activity" form and obtain a unique EPA identification number.

Hazardous Waste Manifest (40 CFR subsections 262.20 - 262.27)

SQGs must prepare a Uniform Hazardous Waste Manifest (EPA Form 8700) for all off-site shipments of hazardous waste. The manifest is a multiple-copy tracking document that provides a chain of custody for the waste from the point when it leaves the generator's site to final disposition at a hazardous waste Treatment, Storage and Disposal Facility (TSDF) or a recycling facility. The generator, each hazardous waste transporter and the final TSDF sign the manifest and retain a copy. The final copy, signed by the receiving TSDF or recycling facility is returned to the generator. If an SQG does not receive this copy within 60 days of the date when the waste was shipped off-site, a copy of the manifest, with an indication that the generator has not received confirmation of delivery, must be submitted to the regional office of the USEPA and/or the authorized state.

Many states require use of state-specific hazardous waste manifests. These forms often have state-specific requirements that may include sending copies of the manifests to the designated state agency that administers the hazardous waste program. However, in an effort to modernize and improve the interstate hazardous waste tracking system, the USEPA issued new regulations in March 2005 requiring use of a new standardized form starting on September 6, 2006. This new uniform hazardous waste manifest (EPA Form 8700-22 and 22a) will be available from a number of approved printers who have registered with the USEPA, or hazardous waste generators can register to print their own hazardous waste manifests. ***More information is available at the following website: http://www.epa.gov/epaoswer/hazwaste/gener/manifest/mods.htm.***

SQGs are not required to use a hazardous waste manifest for shipments of hazardous waste being reclaimed under a contractual or "tolling" agreement if the following conditions apply:

- The type of waste and frequency of shipments are specified in the agreement; and
- The vehicle used to transport the waste is owned and operated by the reclaimer of the waste.

SQGs must maintain copies of the reclamation agreement for at least three years and must also keep records to demonstrate that recyclable materials are not accumulated speculatively. At least 75% of the recyclable materials accumulated must be recycled within a calendar year. It must be emphasized that if at least 75% of the recyclable materials (by weight or volume) are not recycled in a calendar year, the material is referred to as being speculatively accumulated, and as such, becomes fully regulated as a hazardous waste, rather than continuing under the less stringent recycling requirements. It is the generator's responsibility to assume and document that these requirements are met.

With respect to "tolling agreements," the waste must be reclaimed on a set schedule under the agreement and must be an ongoing one-for-one material swap, rather than a one-time removal of waste. This type of agreement is typically used for maintenance of solvents in parts washers and solvent sinks, including those used for paint gun cleaning. Tolling agreements may be appropriate for waste generated in vocational school engine repair and body shops, vehicle maintenance shops or facility operations maintenance shops.

Pre-Transport Requirements (40 CFR Subsections 262.30 262.34)

Generators of hazardous waste must adhere to certain management requirements based on their generator category. These requirements include the amount of waste that can be stored in different areas, labeling of containers and other simple but important waste management procedures that are intended to ensure that facilities know what they generate, manage it safely and provide sufficient information for an appropriate response to spill or other release by on-site emergency personnel, the fire department or other responders. The following table presents the quantity of waste and length of time that waste can be accumulated on-site for each category. If these time limits are exceeded, the facility is considered to be a TSDF and a permit is required.

Generator Status	On-site Accumulation Time Limit	On-site Quantity Limit	
		Hazardous Waste	Acute Hazardous Waste
CESQG	No limit	1,000 kg (2,200 lb.)	1 kg (2.2 lb.) 100 kg (220 lb.) residue or contaminated soil from spill cleanup
SQG	180 days (270 days if shipped 200 miles or more)	6,000 kg (13,200 lb.)	1 kg (2.2 lb.)

Generators are allowed to accumulate waste in satellite accumulation areas that are located at or near the point of generation and are under the control of the person generating the waste. Up to 55 gallons of hazardous waste or 1 quart of acute hazardous waste can be accumulated at a satellite accumulation area. There is no time limit for these accumulation areas; however, the waste must be included in the calculation to determine the total quantity of waste on-site. Hazardous waste in satellite accumulation areas must be managed as follows:

- Containers must be in good condition and compatible with the waste stored;
- Containers must be labeled with the words, “Hazardous Waste” and other words specifically describing the waste; however, the specific chemical names must be used to describe the waste not “organic waste” or “acid waste;”
- Containers must be in good condition and compatible with the waste stored;
- Containers must be kept closed except when adding or removing waste from the container; and
- When the quantity of waste reaches 55 gallons or 1 quart of acute hazardous waste, the container must be dated and moved within three days to the designated hazardous waste storage area.

Designated 180-day hazardous waste storage areas must be managed in accordance with the following requirements:

- Containers must be in good condition and compatible with the waste being stored;
- Containers must be kept closed;

- Containers must be labeled with the words, "Hazardous Waste," and other words specifically describing the waste, along with the date that the waste was generated (the date when the container was full and scheduled to be moved from the satellite accumulation area);
- Incompatible hazardous waste streams must be kept segregated;
- Secondary containment must be provided for hazardous waste containing liquids;
- Storage areas must be inspected on a weekly basis and records documenting the inspection maintained on-site for at least three years; and
- Emergency response information must be posted, as described below.

If a generator accumulates hazardous waste in tanks, special requirements that include daily and weekly inspections apply. These requirements can be found at 40 CFR 265.201.

Preparedness and Prevention (40 CFR 262.34(d)(5); 40 CFR Subsections 265.30 265.37)

As part of Preparedness and Prevention, SQGs must comply with the following requirements:

- Designate an emergency coordinator to coordinate all response efforts in the case of a fire, spill, release or explosion. The emergency coordinator must be an employee who is either on the premises or available on-call to respond to an emergency in a short period of time.
- Post the following information next to the phone:
  - The name and telephone number of the emergency coordinator;
  - Location of fire extinguishers, spill control equipment and, if present, fire alarm; and
  - Telephone number of the fire department, unless the facility has a direct alarm.
- Ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures relevant to their responsibilities during normal facility operations and emergencies.
- The emergency coordinator or designee must respond to any emergencies that arise as follows.
  - In the event of a fire, call the fire department or attempt to extinguish the fire using a fire extinguisher;
  - In the event of a spill, contain the flow of hazardous waste to the extent possible, and, as soon as practicable, clean up the hazardous waste and any contaminated materials or soil; and
  - In the event of a fire, explosion or other release which could threaten human health outside the facility, or when the generator has knowledge that a spill has reached surface water, immediately notify the National Response Center at the 24-hour telephone number 1-800-424-8802. The report must include the following information:
    - The name, address and U.S. EPA Identification Number of the generator;
    - Date, time and type of incident (e.g. spill or fire);
    - Quantity and type of hazardous waste involved in the incident;

- Extent of injuries, if any; and
- Estimated quantity and disposition of recovered materials, if any.

- SQGs must equip their storage areas with the following unless none of the hazards posed by the waste handled at the facility could require that a particular kind of equipment:
  - Internal communications or alarm system;
  - Telephone or two-way radio capable of summoning emergency assistance from local police department, fire department and emergency response teams;
  - Portable fire extinguishers, fire control equipment, spill control equipment and decontamination equipment; and
  - Water at adequate volume and pressure to supply water hose streams, foam producing equipment or automatic sprinklers.

This equipment must be tested and maintained to ensure proper operation.

- Personnel must have immediate access to an alarm system or communication device, either directly or through visual or voice contact with another person, whenever hazardous waste is handled. If only one person is present, that person must have access to a telephone or two-way radio to summon emergency assistance.
- Aisle space must be maintained to allow unobstructed movement of personnel and emergency equipment and direct observation of each container and its label.
- Arrangements must be made with local authorities as follows:
  - Arrangements to familiarize police, fire departments and emergency response teams with the following:
    - Layout of the facility;
    - Properties of hazardous waste handled and associated hazardous;
    - Places where facility personnel would normally be working;
    - Entrances to facility; and
    - Possible evacuation routes.
  - Where more than one police and fire department might respond, agreements designating primary authority;
    - Agreements with state emergency response teams, emergency response contractors and equipment suppliers; and
    - Arrangements with local hospitals to familiarize each with the properties of the hazardous waste handled and the types of injuries or illnesses that could result from fires, explosions or releases.
- Where state or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operation record.

Small Quantity Generator Requirements (continued)

Recordkeeping and Reporting (40 CFR Subsections 262.40 262.44)

An SQG must keep copies of the following for at least three years:

- Each signed manifest, including the signed copy returned from the designated facility receiving the waste;
- Exception reports;
- Test results, waste analyses or other documentation of hazardous waste determination; and
- Contractual agreements for hazardous waste sent for reclamation.

As noted under the section discussing use of Uniform Hazardous Waste Manifests, SQGs must submit an exception report to the USEPA Regional Administrator if a copy of a manifest, signed by the designated facility receiving the waste, is not returned to the generator within 60 days. The Administrator may also require SGQs to furnish additional reports concerning the quantities and disposition of hazardous waste.

It should be stressed again that States may have additional requirements that are more stringent than the federal regulations. Schools must check regulations issued by their authorized state agencies. ***Links to these agencies are provided at the following website: http://www.epa.gov/epaoswer/osw/stateweb.htm.***

40 CFR Part 266.70

Recyclable Materials Utilized for Precious Metal Recovery

Recyclable materials that are reclaimed to recover economically-significant amounts of gold, silver, platinum, paladium, irridium, osmium, rhodium, ruthenium, or any combination of these metals are subject to less stringent hazardous waste regulations. A generator of these wastes must submit notification of hazardous waste activity to the USEPA to obtain an EPA identification number (if this notification has not been submitted), must follow the requirements for use of a hazardous waste manifest for off-site shipments and must keep certain records. The “silver flake” contained in the sludge that is generated from a silver recovery unit used to treat photo processing wastewater is not subject to RCRA regulations when sent for reclamation. This material would otherwise be classified as a hazardous waste, if not reclaimed, due to the toxicity characteristic .

Persons who store recycled materials that will be utilized for precious metal recovery must keep the following records to document that they are not accumulating these materials speculatively:

- Records showing the volume of the materials stored at the beginning of the calendar year;
- The amount of the materials generated or received during the calendar year; and
- The amount of materials remaining at the end of the calendar year.

Recyclable materials that are accumulated speculatively--that is, if 75% by weight of the recyclable materials stored on-site are not reclaimed within one calendar year--they would then be fully regulated under RCRA regulations.

40 CFR Part 266.80

Spent Lead-Acid Batteries being Reclaimed

Spent lead-acid batteries can generally be either managed under these regulations or as a universal waste managed in accordance with regulations found at 40 CFR Part 273, which are discussed later in this section. If managed in accordance with these regulations, the generator must submit a hazardous waste activity notification to the USEPA (if this notification has not been submitted) and must complete a hazardous waste determination on the spent batteries. However, a hazardous waste manifest is not required for off-site shipments of batteries and the batteries do not have to be counted toward the total quantity of waste stored on-site. The generator must, however, keep records to verify that the batteries are not accumulated speculatively, which means that at least 75% by weight of the recyclable material stored on-site must be reclaimed within one calendar year.

40 CFR Part 268

Land Disposal Restrictions

The Land Disposal Restriction (LDR) program establishes treatment standards for hazardous waste that must be met before the waste can be disposed of on the land. Each hazardous waste code has been assigned a treatment standard consisting of either a specified treatment technology that must be applied to the waste or a concentration level for hazardous constituents in the waste that must be met. These requirements are applicable to SQGs of hazardous waste other than universal waste.

A consolidated table of treatment standards is provided at 40 CFR 268.40 that includes constituent concentrations in mg/kg of the waste, constituent concentrations in an extract of the waste expressed in mg/l and treatment standards as specified technologies represented by a five-letter code.

As required under 40 CFR 268.7, a generator of hazardous waste must determine if the waste meets treatment standards, or if it must be treated before it can be land disposed. This determination can be made in either of two ways:

- testing the waste or
- applying generator knowledge of the waste.

Hazardous waste that requires treatment by a particular treatment method before it can be disposed of on the land does not need to be tested. Generators of waste must confirm that the TSDF accepting their waste can treat it and meet corresponding LDR standards. LDR forms are typically provided by TSDF to the generator.

If the hazardous waste does not meet the treatment standard, the generator must send a one-time written notice to each treatment or storage facility receiving the waste and keep a copy in its file. The notice must identify all applicable waste codes, as well as constituents of concern for F001-F005 and F039 waste and any underlying hazardous constituents for characteristic waste present in concentration levels greater than the treatment standards. A list of underlying hazardous constituents is provided at 40 CFR 268.48. If all constituents are treated and monitored, there is no need to put them all on the LDR notice.

Shipments of contaminated soil and lab packs may require that a signed certification be included with the notification. The wording required for these certifications are found at 40 CFR Sections 268.7. Alternative treatment standards for contaminated soil and hazardous debris are found at 40 CFR subsections 268.49 and 268.45, respectively.

Standards For Universal Waste Management

The universal waste regulations streamline the collection requirements for certain hazardous waste with the goal of easing regulatory burdens on businesses while promoting proper recycling, treatment or disposal. While the universal waste system is designed to simplify collection, storage and shipping, it does not reduce the need for the wastes to eventually be properly dealt with.

- The wastes must be recycled, treated or disposed of in a manner that would otherwise be required of the hazardous waste.
- Universal wastes can only be shipped from a handler to persons within the universal waste system.
- If a receiving facility rejects a shipment, the handler must follow specific procedures.
- The guiding principle for transportation of universal waste is that no manifests are required but transporters must follow DOT regulations that would apply if the material were being transported as a new product.

These regulations potentially apply to all hazardous waste generator categories. However, CESQG's may choose to manage these waste streams as hazardous waste; provided however, that all the hazardous waste streams generated (including universal waste) do not exceed 100 kg (220 lb) per month.

Universal waste includes:

- Batteries, including all batteries that meet the definition of a hazardous waste except for lead-acid batteries managed under the regulations found at 40 CFR 266.80. Battery recycling/disposal options are presented on Table 3-2 ;
- Pesticides that have been recalled, cancelled or suspended under FIFRA or under a state pesticide collection program. Pesticides regularly become waste due to obsolescence, damage (e.g., exposed to temperature extremes), or changes in usage patterns. Accordingly, state agricultural agencies often conduct collection programs. The Universal Waste Rule allows such pesticide users to ship their waste pesticides to such a collection program to encourage cost effective and safe disposal by the agencies. Pesticides not meeting the universal waste requirements may still be subject to other RCRA regulation;
- Mercury-filled equipment and
- Lamps that meet the definition of a hazardous waste. These include some fluorescent lights, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. These include bulbs found in gymnasiums, auditoriums/theaters and parking lots in addition to fluorescent bulbs found throughout the school.

Table 3-2

BATTERY RECYCLING/DISPOSAL OPTIONS

Type	Common Use	Main Hazard	Recycling/Disposal Option
Non-Rechargeable (Disposable)			
Carbon Zinc	Household	*	Regular Trash
Alkaline	Household	*	Regular Trash
Mercuric Oxide (Button)	Medical Equipment	Mercury	Recycling Program
Silver Oxide (Button)	Calculators, Watches, Cameras	Silver	Recycling Program
Zinc-Air (Button)	Hearing Aids, Pagers, Cameras	Mercury	Recycling Program
Lithium	Computers, Cameras	Lithium	Recycling Program
Rechargeable (Reuseable)			
Small Sealed Lead-Acid	Tools, Camcorders	Lead	Recycling Program
Alkaline	Household	**	Regular Trash
Nickel-Cadmium	Smoke Alarms, Tools, Household	Cadmium	Recycling Program

* Since 1993, domestically produced alkaline and carbon zinc batteries contain no added mercury and are essentially mercury-free.

** Since early 1995, rechargeable alkaline batteries contain no added mercury and are essentially mercury-free.

From the NYSDEC website at: http://www.dec.state.ny.us/website/dshm/redrecy/battery.htm.

Standards for marking of green-tipped bulbs are provided in the following Position Statement by the National Electrical Manufacturers Association (NEMA) dated May 24, 1999, Revised May 2002.

Lamps with Green Markings

Green markings, including green lamp etches or green component materials used in lamps, indicated that the marked lamps consistently pass the U.S. Federal EPA Toxicity Characteristic Leaching Procedure (TCLP) test for all substances that were regulated at the time of lamp manufacture. Green lamp markings are not to be used on lamps for any other purpose. The primary purpose for green lamp markings is to facilitate easy identification and separation at the time of disposal.

Manufacturers may include some markings in addition to the green marking to emphasize the TCLP-passing status of the lamp.

Lamps without Green Markings

Lamps without green markings may or may not pass the U.S. Federal EPA TCLP test. NEMA recommends that TCLP testing be performed on lamps without green markings in accordance with the applicable NEMA LL series of standards for lamp TCLP testing. ***The NEMA LL TCLP standards are available at http://www.nema.org.***

Lamp Disposal Regulations

Lamps that pass the U.S. Federal EPA TCLP test are considered non-hazardous waste in most states. However, state regulations vary and some state waste management regulations are more stringent than federal EPA regulations. Waste generators are responsible for complying with the disposal requirements that are applicable in their State or locality. ***Spent lamp disposal information can be found at http://lamprecycle.org.***

In addition, authorized states may include additional waste streams that can be managed as universal waste. ***The following website provides links to state-specific universal waste programs: http://www.epa.gov/epaoswer/hazwaste/id/univwast/statespf.htm. For further information relating to requirements for fluorescent lamps in New York State, refer to Section 2.3.7 on page 2-38.***

It should be noted that shipment of state-specific universal waste through another state may require use of a hazardous waste manifest. This determination can typically be made by the transporter and/or destination facility.

Most schools generate some universal waste and will fall into the category of Small Quantity Handlers of universal waste because no more than 5,000 kg of universal waste is accumulated on-site at any one time. Universal waste can be stored on-site for up to one year with documentation to demonstrate that the waste has been stored for less than one year, and use of a hazardous waste manifest is not required for shipments offsite for recycling or disposal. Employees who handle or manage universal waste must be informed of proper handling and emergency response procedures. Universal waste must be managed in a manner that avoids releases to the environment. Releases of universal waste must be immediately contained,

40 CFR Part 273 (continued)

and a hazardous waste determination conducted on any resulting waste. If the resulting waste meets the definition of a hazardous waste, it must be managed in accordance with the requirements for other hazardous waste (e.g., labels, shorter storage time limits, hazardous waste manifests, etc.) as described in 40 CFR Part 262.

One of the advantages of the universal waste rule is that it allows commingling of regulated and non-regulated wastes. While this would subject the non-regulated waste to the universal waste requirements, they are not burdensome, especially if the waste is recycled. For example, it would allow schools to collect all fluorescent lamps for recycling, regardless of whether they are green-tipped, or to collect all types of batteries for recycling.

The requirements for management of each category of universal waste are outlined below.

Batteries

Each battery or each container of batteries must be labeled with the words "Universal Waste - Battery(ies)," or "Waste Battery(ies)," or "Used Battery(ies)" and the date. Containers of batteries must be dated when the first battery is placed in the container. Batteries must be managed to prevent releases of hazardous constituents to the environment by placing batteries that are leaking, or have the potential to leak, in a compatible, closed container. Batteries may be sorted by type or mixed in one container. The generator may also discharge batteries, disassemble battery packs, remove batteries from consumer products or remove electrolyte from batteries prior to disposal if it does not require cracking of the battery case. However, the facility must then determine if the electrolyte is a hazardous waste.

Pesticides

Each container of pesticides must be labeled with the original label that accompanied the product as sold or distributed, if legible, and the words, "Universal Waste-Pesticide(s)" or "Waste-Pesticide(s)" and the date. Universal waste pesticides must be managed in a way to prevent releases to the environment. The container holding the pesticide must be closed, structurally sound, compatible with the pesticide, and lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions. Containers that are in poor condition must be overpacked and relabeled.

Mercury-filled Equipment

Each piece of mercury-filled equipment or each container in which the mercury-filled equipment is contained, must be labeled with the words, "Universal Waste - Mercury" or "Waste Mercury" and the date. Containers must be marked with the date when the first thermostat is placed in the container. Universal waste must be managed in a way to prevent any release to the environment. Equipment that shows evidence of leakage, spillage or damage that could cause leakage must be placed in a closed, structurally sound, compatible container. Mercury-containing ampules may be removed from universal waste, provided the handler removes the ampules in a manner designed to prevent breakage of the ampules, provides secondary containment for the ampules during the removal process and has a mercury spill cleanup system in place.

Lamps

Each container or package of lamps must be labeled with the words, "Universal Waste Lamp(s)," "Waste Lamp(s)," or "Used Lamp(s)" and the date when the first lamp is placed in the container. Universal waste lamps must be managed in a way that prevents releases to the environment by storing lamps in containers or packages that are structurally sound, adequate to prevent breakage and compatible with the contents of the lamps. Containers and packages must remain closed and must not

Lamps (continued)

show evidence of leakage, spillage or damage. Broken lamps must immediately be cleaned up and placed in a closed, compatible container. The generator must determine if the broken lamps meet the definition of hazardous waste and, if so, manage them in accordance with the requirements for other hazardous waste (e.g., labels, shorter storage time limits, hazardous waste manifests, etc.) as described in 40 CFR Part 262.

40 CFR Part 279

Standards for the Management of Used Oil

"Used oil" is defined under these regulations as any oil that was refined from crude oil or any synthetic oil, and that is used and, as a result of such use, is contaminated by physical or chemical impurities. Used oil may be either disposed of or recycled. Used oil is a solid waste when disposed of and is also a hazardous waste if it exhibits any of the characteristics of ignitability, reactivity, corrosivity or toxicity. When recycled by being burned for energy recovery or by being re-refined, used oil is subject to a reduced set of regulatory requirements.

When used oil is to be recycled by being burned for energy recovery, the generator must first determine whether the used oil contains more than 1,000 parts per million total halogens. If it does, the used oil is presumed to be a hazardous waste, unless proven otherwise to EPA by the generator, and must be managed accordingly. However, metalworking oils/fluids containing chlorinated paraffins that are processed through a tolling arrangement, and used oils contaminated with chlorofluorocarbons (CFCs) that are removed from refrigeration units where the CFCs are destined for reclamation, are not considered to be hazardous waste.

Under certain circumstances, used oil may be mixed with hazardous waste and still be managed as used oil. The allowable mixtures include: (1) used oil that is mixed with characteristic hazardous waste (and/or mixed with hazardous waste listed solely because of exhibiting a characteristic), provided that the resulting mixture does not exhibit a hazardous characteristic; and, (2) mixtures of used oil and hazardous waste from conditionally exempt small quantity generators, whether the resulting mixture exhibits a characteristic or not. Under all other circumstances, mixtures of listed hazardous waste and used oil must be managed as hazardous waste.

Used oil may be mixed with diesel fuel by the school for use in school-owned or school-operated (e.g., leased) vehicles. Such mixtures are considered products and do not have to be managed as used oil. However, this practice is prohibited under the Clean Air Act for model year 2007 and later diesel motor vehicles (unless the vehicle has received a Certificate of Conformity under 40 CFR Part 86), and is discouraged for older vehicles, as well, because it increases particulate matter and polyaromatic hydrocarbon pollution in the vehicle exhaust.

Used oil may be burned in oil-fired space heaters, provided that the used oil has been generated by the owner or operator (or received from household do-it-yourself used oil generators), the heater is rated with a maximum capacity of 0.5 million BTU/hour and the combustion gases are vented to the ambient air.

Used oil must be stored in containers or tanks that are in good condition and are not leaking. Containers and aboveground tanks, as well as the fill pipes used to transfer used oil into underground tanks, must be labeled or marked clearly with the words “Used Oil.”

If a release of used oil to the environment is detected, the generator must take immediate steps to stop the release, contain the released used oil, clean up and properly manage the released used oil, and repair or replace any leaking storage containers or tanks before returning them to service.

Used oil sent for recycling must be shipped only by transporters that have received an EPA identification number. However, generators of used oil may transport their own used oil (as well as used oil collected from household do-it-yourself used oil generators) without an EPA identification number, provided that the generator uses its own (or its employee's) vehicle, that each used oil shipment is less than 55 gallons, and that the used oil is brought to a municipal-, county-, or state-authorized collection center.

3.11 Hazardous and Solid Waste Amendments of 1984 Underground Storage Tanks (USTs)

Overview

An underground storage tank system (UST) is defined as a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. 40 CFR Part 280 UST regulations apply only to underground tanks and piping storing either petroleum or hazardous substances identified under CERCLA. These regulations addressed concern over the threat to groundwater posed by leaking USTs. Congress added Subtitle I to RCRA in 1984, and directed the USEPA to develop a comprehensive regulatory program for USTs that required owners and operators of new tanks and tanks already in the ground to prevent, detect, and clean up releases. At the same time, Congress banned the installation of unprotected steel tanks and piping beginning in 1985. In 1986, Congress amended Subtitle I of RCRA and created the Leaking Underground Storage Tank Trust Fund, which is used to oversee cleanups by responsible parties and to pay for cleanups at sites where the owner or operator is unknown, unwilling, or unable to respond, or which require emergency action. The 1986 amendments also established financial responsibility requirements that ensure that UST owners and operators demonstrate they are financially capable of cleaning up releases and compensating third parties for resulting damages.

40 CFR Part 280

Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (USTs)

These requirements apply to most underground storage tanks (USTs) used to store petroleum or hazardous substances other than regulated hazardous waste. The following tanks are exempt from these regulations:

- Farm or residential tanks with a capacity of 1,100 gallons or less storing motor fuel for noncommercial purposes;
- Tanks storing heating fuel for use on the premises where stored;
- Septic tanks;
- Storm water or waste water collection systems;
- Tanks on or above the floor of underground areas; and
- Tanks with a capacity of 110 gallons or less.

Notification Requirements

Any owner or operator who closes or brings an UST into use after May 8, 1986, must notify the designated state or local agency of the existence of the tank system within 30 days of bringing the tank into use.

Performance and Operating Standards

These regulations apply to new tanks systems but also require that existing tanks (those installed prior to December 22,1988) be upgraded to the same or similar standards within 10 years or be removed from service. Owners or operators must ensure that tank systems in service maintain compliance with these regulations.

- **Proper installation** - Install new systems in accordance with the manufacturer's instructions and with practices developed by a nationally recognized association, such as the American Petroleum Institute.
- **Corrosion protection** - Utilize tanks and piping that are constructed of noncorrosive materials, provided with a thick layer of noncorrodible material or provided with both a corrosion-resistant coating and cathodic protection. Periodic inspections of the corrosion protection system are required.
- **Spill and overfill protection**:
  - Implement industry standard practices for tank filling, such as ensuring that there is sufficient capacity remaining in the tank to receive a delivery before the delivery is made and watching the entire delivery to prevent spilling or overfilling.
  - Install and maintain overfill protection devices that automatically shut off delivery once the product has reached a certain level in the tank, restrict flow into the tank when the tank is almost full or sound an alarm or flash a visual alarm that notifies the drive that the tank is almost full.
  - Install catchment basins, also known as “spill buckets,” that are sealed around the fillpipe and are large enough to contain what may spill when the delivery hose is uncoupled from the fillpipe.
- **Leak detection** - Tank systems must be monitored for releases at least every 30 days using one of the following methods:
  - External release detection, which involves monitoring nearby soil or groundwater for the presence of vapors or liquids;
  - Internal release detection, which involves measuring a tank's product level directly, either manually or with electronic gauging systems; or
  - Interstitial monitoring, which involves electronic monitoring of the space between the primary and secondary containment of the UST.

More information on the UST program is available from the USEPA's Office of Solid Waste and Emergency Response website at http://www.epa.gov/swerust1/index.htm. In addition to the website link, school officials should refer to the guidance document entitled, “Musts for USTs: A Summary of Federal Regulations for Underground Storage Tank Systems” which offers a simple, yet comprehensive, introduction to UST systems and is available for free download, along with a number of other helpful UST-related guides at: http://www.epa.gov/oust/pubs/.

Schools may also have to comply with state and local regulations regarding the construction and operation of USTs. ***Contact information for all states, commonwealths and territories can be found at http://www.epa.gov/oust/states/.***

4.0 BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are also provided to address potential environmental concerns that are not specifically addressed by the regulatory program areas. The following BMPs are provided:

Indoor Air Quality

Septic Tank/Cesspool Management

Storm Water Management

Solid Waste Recycling

Chemical Purchasing/Management

Pollution Prevention/Waste Reduction

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4.1.1 Purpose

Maintaining healthy Indoor Air Quality (IAQ) within school buildings ensures a healthy environment for students and staff. Many activities conducted within a school can generate IAQ problems that, in turn, can cause serious health problems for its occupants. The BMPs outlined in this document are intended to assist schools in maintaining adequate IAQ. ***For more detailed information regarding IAQ, consult the United States Environmental Protection Agency's (USEPA's) IAQ Tools for Schools program which can be found at the following web site: http://www.epa.gov/iaq/schools/tools4s2.html.*** The IAQ Tools for Schools includes checklists and step-by-step guides designed to assist schools in solving IAQ problems.

4.1.2 Applicability

These Best Management Practices (BMPs) are applicable to all occupants of every school. Efforts to maintain proper IAQ range from emptying garbage cans once per day to specific maintenance procedures for ventilation systems. As a result, each occupant of the school plays an important role in maintaining proper IAQ.

4.1.3 General BMPs

General BMPs apply to all personnel not directly involved in the operation and maintenance of the building and may include teachers, teachers' aides, coaches and administrative staff.

General Cleanliness

- Immediately contact the custodial staff in response to spills of any type. Spills and leaks on carpets and other porous items, including ceiling tiles, must be cleaned and dried within 24 hours to prevent mold growth. Once mold has started to grow, the item will have to be removed and replaced. Spills that enter a ventilation unit within a building must also be immediately cleaned up.
- Dust and vacuum all rooms regularly.
- Trash should be removed from local collection areas daily.
- Food stored in room must be sealed and/or properly stored in a refrigerator.
- Inspect rooms for signs of pests, including dead insects, rodents or vermin feces. If any of these signs are detected, identify and remove the source, if possible.
- Do not use scented cleaners or air fresheners. If these are necessary to remove odors, there is likely a source of air pollutants that should be identified and removed.
- Keep classrooms and offices free of clutter so that custodial staff can clean efficiently and thoroughly.

Excess Moisture

- Dry moisture on windows, windowsills, window frames, cold water pipes and indoor surfaces of exterior walls with towels when necessary.
- Inspect and fix leaking water pipes, roofs or plumbing fixtures.

Excess Moisture (continued)	➤ Report areas discovered to routinely accumulate moisture to facilities operations and maintenance staff. ➤ Leaks from sewage lines require prompt and thorough cleanup and repair by personnel trained in proper techniques to deal with the health hazard.
Ventilation	➤ Consult the facilities operation and maintenance staff if any odors are detected and a source cannot be identified and removed. Also, report any problems that are noted with unit ventilators, including over or under ventilation or noisy operation. ➤ Routinely check airflow from air supply and return vents by holding a piece of tissue paper close to the vent and observing the direction of movement of the tissue paper. ➤ Books, papers, furniture or other obstacles should not block vents or air intakes. Do not place anything on unit ventilators or tamper with operation of unit. ➤ If natural ventilation is provided, ensure that windows and doorways are working properly and are not blocked.

4.1.4 BMPs for Academic/Vocational

Animal Care	➤ Keep animals in cages, except when they are removed from the cage for a purpose. ➤ Store animal food in sealed containers. ➤ Clean cages regularly. Do not allow animal waste to accumulate and produce odors. ➤ Ensure that animals remain healthy. If necessary, take animals to a veterinarian on a regular basis. ➤ Clean up any animal hair or waste after bringing the animal out of the cage. ➤ Keep animals and animal cages away from air supply and return vents, and sensitive students. ➤ Consult the school nurse and parents about student allergies or sensitivities prior to bringing animals into contact with students. ➤ ***Consult with USEPA document, "IAQ Tools for Schools," found at: http://www.epa.gov/iaq/schools/tools4s2.html and information from the National Association of School Nurses found at http://www.nasn.org/Default.aspx?tabid=61.***
Drain Traps	➤ Drain traps can cause IAQ problems when the water in the trap evaporates due to infrequent use and sewer gases are allowed to enter the room. Pour approximately one quart of water down floor drains and approximately two cups of water down sinks at least once per week. ➤ Flush all toilets at least once per week. ➤ Provide a fume hood for activities generating strong odors, involving chemical reactions or using combustion sources, such as science experiments, spray painting, welding/soldering and the use of adhesives.

Local Exhaust Fans and Fume Hoods	➤ Routinely inspect fume hoods, checking for airflow when the fan is operating using tissue paper to observe airflow. Make sure that fume hoods are not cracked, broken or pulling away from the ceiling or wall. ➤ When using fume hoods, check adjacent rooms, halls or work areas for odors. Lower the protective shield on fume hoods to the greatest extent practicable during use. ➤ Train students and other individuals to conduct all pollutant generating activities in the fume hood. ➤ Minimize the storage of materials in the fume hood. Clutter in a fume hood can result in spills or other mishaps.
Locker Rooms	➤ Regularly clean the locker room areas and showers. Limit the use of chemical cleaners and disinfectants when areas are occupied. ➤ Maximize the use of exhaust fans, especially when areas are occupied and during and after times when areas are cleaned. ➤ Do not allow wet towels, soiled uniforms or other clothing to remain in the locker room for long periods of time. ➤ ***Consult the USEPA document, "Mold Remediation in Schools and Commercial Buildings," which is available at http://www.epa.gov/iaq/molds/mold_remediation.html.***

4.1.5 BMPs for Facilities Operation and Maintenance

Boilers / Combustion Appliances	➤ Combustion appliances should be located in well-ventilated areas and emissions from combustion appliances should be emitted to the atmosphere. ➤ Combustion appliances should only be "running" when in use. Do not allow combustion appliances to idle. ➤ Gas odors detected when first entering a location are a sign of an IAQ problem and must be investigated immediately. ➤ Flue components should be well maintained and free from leaks, disconnections, deterioration, corrosion and soot. ➤ Do not allow combustion appliances to backdraft.
HVAC	➤ Check outdoor air intakes regularly, remove any obstructions and install corrective devices to prevent future obstructions. ➤ Prevent air pollutants from entering the building through outdoor air intakes. ➤ Regularly check air intakes using chemical smoke or tissue paper to observe the direction of air flow. ➤ Inspect air filters on ventilation units regularly and replace when necessary. Vacuum the area surrounding the air filter prior to installation. When installing air filters, make sure to install in the proper direction of airflow and shut-off the ventilation system fans to prevent contaminated air from blowing downstream. ➤ Install drain pans under units to remove water. Water should not collect and accumulate in the drain pan.

- Heating and cooling coils, handling units and duct interiors should be kept clean.
- Mechanical rooms should be free from trash and should not be used to store chemicals. Ensure that other equipment stored in mechanical rooms, such as emergency generators, do not vent air pollutants into the area.
- Areas that may be sources of fumes or dust, such as shops, art studios or photo labs, should be kept negatively pressurized relative to neighboring spaces through proper ventilation design and control, as well as through the use of local exhaust.
- Fans should operate continuously while the building is occupied. If the fan shuts off when the thermostat is satisfied, change the control cycle to prevent underventilation.
- Dampers on outdoor air supplies should always be kept at least partially open while the building is occupied.
- Maintain files containing air supply controls specifications, as-built mechanical drawings and operations manuals. Obtain copies of missing pertinent documents from installation contractor.
- Regularly check the clocks, timers and seasonal switches to confirm that summer-winter switches are in the right position, clocks read the correct time and time clock settings fit the actual schedule of the building use.
- Check to see whether room layout designs have been altered by replacing operable windows with windows that do not open, or installing barriers, that could block air movement or vents.
- Verify that every occupied space is supplied with outdoor air.
- Confirm that supply vents and return vents are open and unblocked.
- Confirm that the system, including any exhaust fans, is operating on the occupied cycle.
- If outdoor contamination sources have been identified, use chemical smoke to determine whether the air flows out of the building through leaks in nearby windows, doors or other cracks and holes in exterior walls.
- Use chemical smoke to determine whether air flows into the building through below-grade cracks and holes.
- Confirm that exhaust fans are operating with chemical smoke and inspect ductwork for obstructions or leaks.
- Measure the quantity of outdoor air supplied either to or from each ventilation unit. ***For more information on measuring quantities of air, consult the Ventilation Checklist and Log at http://www.epa.gov/iaq/schools/tfs/ventilat.html.***
- During maintenance of the building, inspect areas for mold and check cold surfaces for condensation. Check for signs of water damage in areas of known roof or wall leaks, floors and ceilings near plumbing fixtures, duct interiors near humidifiers, cooling coils and outdoor air intakes.
- Leaks should be repaired as quickly as possible. Porous, absorbent building materials or furnishings, such as ceiling tiles, wall boards, floor coverings and curtains/drapes, must be thoroughly cleaned and dried as quickly as possible.

HVAC (continued)

- The following practices can be employed to prevent moisture condensation:
  - Raise indoor air temperature
  - Improve air circulation in the problem area
  - Decrease the amount of water vapor in the air (dehumidifier)
  - Supply more outdoor air to the area if outdoor air has a low relative humidity
  - Increase the capacity or operating schedule of the existing exhaust fans
  - Add local exhaust fans to the area

Carpentry / Paint Shop

- Read all chemical and product labels and MSDSs. MSDSs should be kept in a binder on-site. Identify and follow any precautions and recommendations for storage, handling, proper use and disposal.
- Develop a procedure to promptly contain, clean and dry spills.
- All containers should be sealed when the product is not in use and the storage area should be well ventilated.
- All chemical storage areas should be exhausted to the outside environment.
- Where possible, schedule work to be conducted during hours when the building is not occupied.
- Always keep work areas well ventilated when using products that could potentially create air contaminants.

Painting

- When sanding or stripping old paint, take adequate precautions to prevent the generation of airborne dust and lead.
- Both water-based and solvent-based paints emit volatile organic compounds (VOCs). Water-based paints generally emit less VOCs, but do so over a longer period of time. When selecting paints, consider durability of the paint as well as the VOC content. Low VOC emitting paints may require frequent re-application, which may result in a greater impact on IAQ.
- Check painting records and old paint cans for lead content. Conduct an initial screen using a trained lead inspector. If the existing paint contains lead, contact a certified lead-based paint contractor (i.e., certified through a USEPA-approved training program) to remove the paint.
- Evaluate the existing stock of paint. Properly dispose of paints containing lead, mercury or a high VOC content.
- Schedule exterior and interior painting when the building is unoccupied. Keep all nearby windows and doors closed during painting. Keep area well-ventilated and under negative pressure relative to occupied spaces. Allow adequate time for odors to dissipate before occupants are allowed to return to the area or adjacent areas.
- Use supply and exhaust fans to remove contaminants generated during painting activities. Fans should be operated continuously during painting activities and several days after the completion of painting at the highest possible outdoor air supply setting.
- Seal containers when not in use and store paint in a designated area provided with ventilation.
- Many water based paints have used mercury as a fungicide. Do not use mercury-containing paint indoors.

Painting (continued)	➤ Do not paint over moldy ceiling tiles or other moldy areas to attempt to mask a moisture problem. Moldy tiles must be removed and replaced, and moisture problems must be properly corrected.
Solid Waste Management	➤ Food waste or food-contaminated papers and plastics should be contained securely to discourage flies and other vermin from occupying the area. ➤ Recycling bins should be clearly labeled to prevent other types of trash from being placed into the bins. Regularly inspect recycling bins to ensure that they are being properly utilized. ➤ Locate dumpsters away from outdoor air intakes, doors and windows. ➤ Empty and clean waste containers on a regular schedule. ➤ Use plastic liners in containers to minimize the necessity to clean soiled containers. ➤ Do not store waste containers in rooms which have HVAC equipment.
Construction and Renovation	➤ Establish policies to notify all occupants of the school, as well as parents, of major renovation and repair projects undertaken at the school. During longer projects, updates regarding the status of the project should be provided. ➤ One individual should be responsible for responding to concerns regarding the renovation and repair project. ➤ Isolate students, staff and other occupants of the building from dust or fumes generated during the project. If possible, conduct work when the school is unoccupied. ➤ Keep work areas clean and revise housekeeping schedules to maintain general cleanliness. ➤ "Walk off mats," also called soil control mats or floor mats, are removable carpet pieces placed at the entrance and/or exit of an area to trap dirt, dust and debris, thereby preventing its spread beyond the work area. Walk off mats should be placed at the entry and exit point of all work areas and should be cleaned frequently. ➤ Encourage workers to wear removable coveralls and remove them prior to leaving the work area. ➤ All equipment should be wiped to remove excess dust and other contaminants prior to leaving the work area. ➤ Schools that still have asbestos-containing materials must have an Asbestos Management Plan on file at the school. Consult the plan whenever renovations or repairs are planned and, if any areas with asbestos-containing materials will be disturbed, contract with a properly qualified contractor to perform the work. ➤ Follow the BMPs provided under "Painting." Any paint to be removed should be tested to determine if it contains lead. If lead paint is to be removed, utilize a lead-based paint contractor to conduct the work. ➤ If water damage is to be repaired, consult an environmental professional about protective measures. ➤ Choose low emissions products for new furnishings. Allow adequate time for off-gassing before re-occupying the area and ventilate the area during and after installation. Vacuum new carpet to remove loose matter and particles. ➤ Seal entire surface of joints of hard surfaces near water sources to prevent microbial growth. Do not install carpet in these areas.

Construction and Renovation (continued)

- Establish IAQ criteria that must be met at the completion of any renovation or repair project and incorporate into the contract specifications for the project.
- Conduct general cleaning at the completion of the project. Surfaces should be wiped clean with wet towels or rags. High efficiency vacuuming utilizing a HEPA filter should be conducted to remove fine or potentially toxic dusts such as asbestos or lead.
- The building system components, such as the ventilation system, that have been contaminated during the work should also be cleaned. Contaminated air filters should be properly disposed and replaced.
- The ventilation system should be balanced and tested. If the physical structure or planned occupancy of areas of the building has been modified as a result of the project, the adequacy of the ventilation system should be evaluated.
- Waste generated during the project should be periodically sent off-site and not allowed to accumulate on-site until project completion.
- ***Consult the USEPA IAQ Tools for Schools located at http://www.epa.gov/iaq/schools/tools4s2.html for more information regarding renovations and repairs.***

Radon

Radon is an odorless, colorless radioactive gas that is found naturally in the ground and rocks in many areas of the country. Exposure to radon has been linked to lung cancer and high levels of radon have been found in many schools. The EPA recommends that all schools test for radon and if the short-term radon level in your school exceeds 4pCi/L (picoCuries per liter) take action to reduce that level. Generally, radon flows into a building from the ground through cracks and openings when the air pressure inside the school is lower than the air pressure outside. A number of steps can be taken when planning new construction or renovations to an existing school to lower radon levels including the following:

- Install 4 inches of ½ to 1 inch clean aggregate and a vapor barrier under all slab areas.
- Install one centrally located sump pit per 100,000 square feet of earth-contact floor area.
- Install a 6 inch PVC vent pipe from the sump pit to the roof.
- Install a 120 VAC, 15A weatherproof junction box on the roof next to the 6 inch vent pipe, to permit installation of a fan to vent soil gas if post-construction testing finds elevated radon levels.
- Seal all major slab openings, cracks, or penetrations with polyurethane sealant.

More information for schools on radon testing and prevention is available through the following:

- ***Radon in Schools (2nd Ed.) [EPA-402-F-94-009, October 1994], which can be found at http://www.epa.gov/radon/pubs/schoolrn.html.***
- ***Radon Measurement in Schools (Revised Edition) [EPA 402-R-92-014, July 1993], which can be ordered from the IAQ Information Clearinghouse at 1-800-438-4318.***

Radon (continued)

- ***Radon Prevention in the Design and Construction of Schools and Other Large Buildings [EPA 625-R-92-016, June 1994], which can be found at http://www.epa.gov/ORD/NRMRL/pubs/625r92016/625r92016.htm.***

- ***Links to state contacts for more information on radon and radon prevention in your area are provided at the USEPA website at http://www.epa.gov/iaq/whereyoulive.html.***

Cafeteria

- Regularly confirm that local exhaust fans are properly operating by holding a piece of tissue paper under the fan and observing movement of the tissue paper in the direction of air flow.
- Ensure that local exhaust fans are used whenever cooking, food preparation, dish washing and cleaning activities are conducted.
- Routinely check for cooking odors or smoke in areas adjacent to cooking, food preparation and eating areas.
- Regularly check for gas odors or headaches when gas appliances are in use.
- Routinely inspect the kitchen for signs of microbiological growth, such as moldy odors, slime, and algae. Make sure that hard-to-reach places such as the upper walls and ceilings are inspected. Immediately clean and dry any suspect areas. When it is necessary to clean areas using biocides, use only products that are registered by the USEPA. Strictly follow the manufacturer's recommendations for proper use and disposal.
- Monitor for dead insects or rodents and vermin feces. Utilize a licensed pesticide applicator if extermination services are required.
- Review food handling and storage practices. Containers should be sealed when not in use with no traces of food left on the outside surfaces of the containers.
- Properly dispose of food scraps and remove crumbs in a timely manner.
- Wipe counters clean after use with soap and water or a disinfectant, sweep and mop floors to remove food and clean stoves and ovens after use.
- Separate food waste and food-contaminated items in closed containers away from other wastes.
- Locate dumpsters away from air intake vents, operable windows and food service doors.
- Post a sign prohibiting vehicles from idling their engines in the receiving area.
- Keep doors or air barriers closed between receiving area and kitchen.

4.1.6 BMPs for Grounds Maintenance

Pesticide Use

- Do not rely on widespread, indiscriminate use of pesticides for pest control. Use Integrated Pest Management (IPM) methods. ***Please find more information regarding IPM at http://www.epa.gov/pesticides/ipm.***
- Pesticides that are utilized within and surrounding the building should be applied, when possible, when the building is unoccupied. Areas where pesticides are applied should be ventilated during and after use.
- Do not apply pesticides near air intakes for the building's ventilation system.

4.1.7 BMPs for Custodial Services

- Barrier floor mats should be placed at each entrance to the building. They should be long enough to allow five full steps before making contact with the floor surface.
- Each barrier mat should be vacuumed daily using a beater brush or beater bar vacuum in two directions. Micro-filtration vacuum bags should be used in vacuums to retain dust and particles 3 microns in size or smaller.
- Regularly dust all areas of the school. Ensure that dust that has been collected remains on the wipe by using a wiping motion with a folded wipe rather than a flicking motion with a crumpled-up wipe.
- Wrap hand-held feather type dusters with a dust cloth and use a wiping rather than flicking or sweeping motion.
- Vacuum grilles and vents using a soft bristle attachment. Vacuum the ceiling and wall surfaces adjacent to the grilles and vents to remove visible dust.
- Vacuum daily and as needed to remove accumulated soil.
- Do not allow water to accumulate in mop buckets overnight.
- Periodically clean and/or replace mops and other devices used to clean floors.
- Use periodic extraction cleaning (wet or dry) and ensure complete removal of all moisture and cleaning agents for the maintenance of carpets.

4.1.8 BMPs for Nursing Station/Infection Control

Maintain Student Health Records

- Keep student health records up to date and include information about known allergies and other medically documented conditions such as asthma and sensitivities to chemicals. This information should be revealed to teachers in order to minimize the affect of classroom activities on sensitive students. However, student privacy issues must be considered when revealing any student information to teachers.
- Keep a log of health complaints, including a record of symptoms, location and time of symptom onset and exposure to pollutant sources.
- Reconcile data in the log to determine trends in health complaints, timing and location of complaints.
- If complaints are associated with particular times of the day or week, if other occupants in the same area experience similar problems or if the problem abates or ceases, either immediately or gradually when an occupant leaves the building, but returns upon re-entry, IAQ may be the cause.
- Attempt to determine the cause of complaints that are potentially the result of IAQ. Building renovations, use of new or different materials or equipment, introduction of new cleaning or pesticide product, nearby smoking, or introduction of an animal in the classroom are common causes.
- Regularly communicate with teachers and administrators regarding trends in complaints to facilitate the identification and correction of IAQ problems.
- ***Consult USEPA document entitled, "Managing Asthma in the School Setting," which can be found at http://www.epa.gov/iaq/schools/asthma/ame-ame.htm, and a related policy by the National Association of School Nurses found at http://www.nasn.org/Default.aspx?tabid=61.***
- Work with the school administration and facility manager to ensure that your school is tested for radon. If the short-term radon level in your school exceeds 4pCi/L (picoCuries per liter) action should be taken to reduce that level. ***More information is provided in the document, "Radon in Schools" (2nd Ed.) [EPA-402-F-94-009, October 1994], which can be found at http://www.epa.gov/radon/pubs/schoolrn.html.***

Links to state contacts for more information on radon and radon prevention in your area are provided at the USEPA website at http://www.epa.gov/iaq/whereyoulive.html.

Health and Hygiene Education

- Provide written materials to students on good hygiene to prevent the spread of odors and germs at the school.
- Where necessary, provide individual instruction and counseling.
- Coordinate with teachers to develop activities that reduce exposure to indoor air pollutants for students with IAQ sensitivities.
- Collaborate with parent/teacher groups to offer family IAQ education.
- Conduct workshops for teachers on health issues including programs to quit smoking.

4.1.9 BMPs for Printing Facility

- Regularly inspect equipment to ensure that it is operating properly.
- Confirm that no odors are being generated by equipment during use.
- Have equipment serviced regularly by a technician to ensure proper operation.
- Locate equipment in a ventilated area.
- Spirit duplicating machines and diazo dyline machines should always be located in a separate room with a local exhaust fan that vents to the environment.
- Any chemical or product containers should be sealed, as appropriate, to prevent evaporation.
- Equipment should only be operated during use. Do not allow equipment to idle.

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4.2.1 Purpose

This section presents BMPs intended to reduce the quantity of storm water runoff or eliminate, as much as possible, the discharge of pollutants from school facilities to the waters of the United States.

4.2.2 Applicability

Discharge of storm water from schools, other than from construction projects involving one acre or more of land, is generally not regulated under federal Phase II National Pollutant Discharge Elimination System (NPDES) storm water regulations. However, many activities occur at schools that do have the potential to impact water quality and many areas of the school, as well as the community that utilizes the school grounds, can become involved in the implementation of BMPs to reduce or prevent water contamination.

4.2.3 General BMPs

The following BMPs apply to faculty, staff, students, parent and the community that might use the school property for recreational or educational purposes.

Many links to sources of information are available at the following web site: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/edu_1.cfm.

Education is a key element in the successful implementation of storm water BMPs.

- Conduct training for the school administration, faculty and staff on storm water management to enable them to pass information on to others. Guidance manuals, workshops and presentations can help to provide the background information needed.
- Provide specialized training for personnel responsible for controlling and cleaning up outdoor spills.
- Classroom instruction for students should also play an important part of the storm water program. Whether your school wants to provide a single presentation for students or incorporate training into existing curriculum, many resources, which include readymade classroom materials, videos and presentations, are available.
- Consider involving students, parents and the community in activities such as the following:
  - **Marking of Storm Drains** - This involves working with the municipality to mark storm drains with signs or labels with wording similar to “No Dumping. Drains to Water Source.” The activity increases public awareness that drains lead to public waterways.
  - **Stream Clean-up** - A school can sponsor a one-day stream clean-up. Results of the clean up can be recorded and tracked for future events.

- **Adopt-a-stream** - A school may also sponsor an adopt-a-stream program to clean up, maintain and ensure that it does not become polluted.
- **Tree Planting** - A school can host a tree planting day to reforest an area with appropriate native species to provide a natural buffer to reduce run off to storm drains and waterways.

4.2.4 BMPs for Facilities Operation and Maintenance

Facilities Operation and Maintenance personnel along with Grounds Maintenance and Transportation personnel are the first line of defense in preventing storm water pollution. The following are BMPs that particularly apply to these school areas:

- Attempt to map all storm water discharge and outfall locations and identify what is being discharged;
- Illicit discharges are a major contributor to storm water pollution. Illicit connections defined as "illegal and/or improper connections to storm drainage systems and receiving waters," should be eliminated. Some examples of sources of illicit discharges include:
  - sanitary wastewater,
  - effluent from septic tanks,
  - vehicle wash wastewater,
  - improper oil disposal,
  - radiator flushing disposal,
  - spills from accidents, and
  - improper disposal of auto fluids and other toxics.
- Conduct visual inspections of discharge points on a regular basis, particularly during dry periods, and maintain records of observations.

Construction and Renovation Site Storm Water Runoff

Many schools undergo construction projects to expand and update their facilities. Under the federal Phase II NPDES storm water regulations, if a school performs a construction project of an area one acre or greater where storm water runoff from the construction activity will be discharged to the waters of the United States, the project must be authorized by a NPDES permit or by a state permit if the state has a NPDES-approved program (See Section 3.6). Construction projects disturbing less than one acre of land are not regulated, but schools should work with their construction contractors to minimize the impact of discharges from such activities. The following BMPs are recommended:

- Control runoff by minimizing the area to be cleared and stabilizing drainage ways on the construction site, using methods such as:
  - check dams,
  - filter berms,

- grass-lined channels, and
- riprap.

- Provide erosion control by stabilizing exposed soil, protecting steep slopes and protecting water courses. Methods may include:
  - chemical stabilization,
  - mulching,
  - permanent seeding,
  - sodding,
  - use of geotextiles,
  - temporary slope drains,
  - temporary stream crossings,
  - installing vegetated buffers, and
  - sequencing construction activity.
- Implement sediment controls by using sediment trapping devices and storm drain inlet protection devices such as the following:
  - diversion dikes,
  - wind and/or sand fences,
  - bush barriers,
  - silt fences,
  - sedimentation basins, and
  - sediment filters/chambers/traps.
- Utilize good housekeeping measures addressing waste management at the construction site such as the following:
  - spill prevention and control,
  - construction debris,
  - garbage,
  - sanitary waste, and
  - designated areas for vehicle maintenance and washing.

Post-Construction Activities

Post-construction storm water management in areas undergoing renovation or expansion is necessary because runoff from these areas has been shown to significantly affect receiving water bodies.

- Implement post-construction storm water management by incorporating structural controls into plans for new construction projects. Some examples of structural controls include the following:
  - dry extended detention ponds,
  - wet ponds,
  - bioretention, and
  - grass filter strips.
- Implement nonstructural controls where storm water management has not been incorporated into the project. Some examples of non-structural controls are:
  - buffer zones,
  - urban forestry,
  - green parking, and
  - alternative pavers.

Pollution Prevention / Good Housekeeping

Pollution prevention/good housekeeping BMPs are operational and maintenance procedures that can dramatically reduce the amount of contaminants entering the storm water system on a daily basis.

- Perform an evaluation of the potential pollution prevention/good housekeeping BMPs including the cost to implement them and the benefits derived.
- Select and prioritize BMPS. Many pollution prevention/good housekeeping BMPs can be implemented at a minimal cost and can have a big impact on water quality.
- Pollution prevention/good housekeeping BMPs include the following:
  - Spill response and prevention training,
  - Storm drain cleaning,
  - Parking lot cleaning,
  - Vehicle maintenance and inspection,
  - Oil and battery recycling,
  - Parking lot cleaning,
  - Storage of sand/salt in a covered area,
  - Reduced use of fertilizer and pesticides,
  - Illegal dumping control, and
  - Pest control.

4.3.1 Purpose

The BMPs provided in this section are designed to present a method of managing and purchasing chemicals that can be used throughout the school to promote compliance with environmental regulations, while emphasizing safety and waste reduction.

4.3.2 Applicability

These BMPs apply to a wide range of personnel from almost every program area in the typical school who are involved in the purchasing or managing of "chemicals. For the purposes of preparing this BMP, "chemicals" may include the following:

- Chemicals used or stored in science laboratories and preparation areas;
- Art supplies including paints, stains, inks, glazes and photoprocessing chemicals;
- Cleaning products utilized by custodial, cafeteria and maintenance staff;
- Pesticides, fertilizers and de-icers/salts/sands used for grounds maintenance;
- Paints, solvents and paint removers;
- Degreasers, lubricants and anti-static compound;
- Chemicals used in the operation and maintenance of the building power plant and utilities;
- Chemicals used to maintain and repair equipment and vehicles;
- Office supply chemicals;
- Inks, solvents and adhesives used for printing;
- Chemicals used to treat water associated with drinking water and swimming pool; and
- Any substance for which a Material Safety Data Sheet (MSDS) has been prepared.

4.3.3 General BMPs

These BMPs have been written to apply to most program areas in the school and are broken down into the steps to be taken by personnel responsible for purchasing or managing chemicals.

Inventory control is a key element to an effective chemical purchasing and management program. It is important to have a current working inventory of all chemical products maintained on-site. A local inventory should be maintained at each storage area within the school. This information is important to have readily available in the case of an emergency.

- Conduct an inventory of chemical products in each program area including the following information:
  - Storage location,
  - Employee responsible for management of the substance,
  - Full name of the substance,
  - Chemical Abstract Service (CAS) number(s) for the substance(s) stored,
  - Manufacturer's name,
  - Size of the container,
  - Type and color of the container,
  - Amount of the substance stored,
  - Expiration date of substance, if applicable,
  - Date chemical was received, and
  - Date chemical was opened, if subject to deterioration with exposure to air (such as ether).
- Identify products that are either outdated or no longer used, too hazardous or toxic for use in a school environment or cannot be identified because no labels exist. Thoroughly characterize these substances and arrange for proper disposal.
- Outdated and expired chemical products may pose a danger to those handling them, due to leaking or otherwise compromised containers or because of a chemical reaction that has occurred over time, rendering the material sensitive to shock or moisture. For example, picric acid that is no longer submerged in water can undergo crystallization. Crystallized picric acid is extremely explosive and can detonate from shock vibrations (i.e., being bumped). Other peroxide-forming compounds, including ethers and aldehydes, can also be explosive. Even radioactive sources such as uranyl or thorium compounds, are sometimes found during laboratory clean-outs. If questionable items are discovered, do not attempt to move them without first consulting a chemist or trained hazardous waste specialist.
- Proper management of unused laboratory chemicals, including maintaining an inventory of chemicals in storage and keeping Material Safety Data Sheets (MSDSs) for each chemical, will help with this determination. ***MSDSs can be obtained from the chemical manufacturer or vendor. Many MSDSs are also available on the Vermont Safety Information Resources, Inc. (SIRI) MSDS database at http://www.siri.org/msds/.*** Unused chemicals should be segregated by chemical class. They should not be simply stored alphabetically, as that can lead to commingling of incompatible materials.
- Waste solvents must not be allowed to evaporate in fume hoods. This process is considered to be illegal treatment of hazardous waste. Also, solvent vapors may end up being redistributed into the school via roof top air handling systems.
- Radioactive materials may be discovered during the inventory process. Some of these materials may have been acquired many years ago, as unregulated items and schools may not have information on safety and proper disposal. These materials may be present in physics and chemistry labs, offices and storerooms, hazardous waste storage

Inventory Control (continued)

rooms, and ceramics work areas and classrooms. If a school finds a radiation source with which they are not familiar or that concerns them, they should contact their state radiation control agency for guidance. **State contacts can be found through the following website: *http://www.crcpd.org/Map/map.asp*.**

- Update the inventory whenever new chemical products are added to or removed from the existing inventory and when chemical products are used or disposed of. These inventories should be updated each time a chemical product is removed from storage. The main inventory for the school should be regularly updated with the information contained on local inventories (i.e., monthly or weekly).

Purchasing

The use and disposal of many products can have an adverse impact on the environment and on the health of those individuals that come into contact with the product. Thus, the determination to purchase a product should not be based solely upon need for the product and cost. An evaluation of the environmental impact of purchasing and using certain products needs to be conducted.

- Designate one employee or department with the responsibility of purchasing chemicals. Personnel responsible for making chemical purchases should be qualified and properly trained to perform the duties outlined in this section of the BMP. At a minimum, a knowledge of basic chemistry, applicable environmental regulations and the school's wastemanagement procedures is required for personnel responsible for chemical purchasing.
- Establish a procedure for personnel, such as a teacher, to submit a request to purchase a chemical to the designated person or department responsible for chemical purchasing.
- Conduct a screening procedure incorporating the steps below before making the purchase or accepting a donation of a chemical:
  - Consult the most recent chemical inventory to ensure that a need to purchase the chemical does indeed exist.
  - Contact the user of the substance to determine if there is another method of performing the activity without the use of the product.
  - Determine the approximate usage rate of the chemical from the intended user. If the substance has a shelf-life, ensure that the amount to be purchased will be used within the shelf-life of the product. Also limit the amount to be purchased or accepted to the quantity that will be needed in a given school year to avoid excess chemicals due to changes in curriculum.
  - Conduct an MSDS review of the substance, including a consideration of the following regulatory requirements (see Section 3.0 of this guidance manual for more information on Regulatory Program Areas):
    - Resource Conservation and Recovery Act (RCRA) - Determine if waste generated by use of the chemical must be managed as hazardous waste.
    - Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) - Determine if waste from use of the product can be disposed of down the drain.
    - Oil Pollution Act (OPA) - If the substance purchased is oil and is stored in a container exceeding 55-gallons, determine whether the purchase of the material will affect the school's status with regard to Spill Prevention, Control and Countermeasure regulations under OPA

- Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) - Determine if the substance is classified as an insecticide, herbicide, fungicide, rodenticide or any other material regulated by FIFRA and if so ensure the proper use and application of the material. It should be noted that a wide range of products could potentially be regulated by FIFRA, including chemicals used in the treatment of boiler water and pool water.
- Hazardous and Solid Waste Amendments (HSWA) - If the material to be purchased is to be stored in an underground tank, ensure that the facility complies with applicable underground storage tank regulations under HSWA. If the state is authorized to implement the underground storage tank program, consult the state's regulations.
- Clean Air Act (CAA) - Determine whether the substance contains any hazardous air pollutants (HAPs) or volatile organic compounds (VOCs) in accordance with 40 CFR Part 61 and 40 CFR Part 51.100(s), respectively. In addition, applicable state air pollution control regulations should be consulted when determining whether a product contains any HAPs or VOCs. If the product contains HAPs or VOCs, an evaluation of the use of the product with regard to the school's compliance with applicable air pollution control regulations should be conducted. If fuel oil is being purchased for on-site combustion, ensure that the sulfur content of the fuel is below applicable thresholds and maintain all appropriate fuel oil delivery records.
- Superfund Amendments and Reauthorization Act (SARA)/Emergency Planning and Community Right-to-Know Act (EPCRA); Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) - Determine if the substance contains any Extremely Hazardous Substances (EHSs) or hazardous substances under EPCRA or CERCLA and, if so, whether threshold planning or reporting quantities will be exceeded.

- Local Regulations - State, county and local regulations may exist pertaining to the storage of chemicals. Additional release notification requirements may also be specified by local agencies. As a result, the MSDS should be evaluated with regard to the substances affect on the school's compliance with various local regulations.

- Determine the proper means of disposal of the chemical prior to purchase. Even if a chemical is not classified as a hazardous waste, it does not mean that the substance can always be disposed of in the regular trash. For example, cooking grease generated in the cafeteria is not classified as a hazardous waste, but it cannot be disposed of down the drain, and many landfills will not accept it for disposal. As a result, an appropriate waste disposal method for cooking grease, such as recycling by a rendering service or use in a biodiesel vehicle, must be found.
- Determine what safety precautions are required based on health hazards associated with the substance. If the product will pose an unnecessary danger to those that intend to use the chemical, try to identify less harmful products that can be substituted. If the product must be used, develop appropriate procedures for use of the product.
- Determine the environmental impact of the product, including the manufacture, use and disposal. Products that contain recycled materials might have less of an environmental impact than virgin products, for example. Attempt to purchase materials with a low overall environmental impact.
- Train or instruct intended users of the substance regarding the information obtained during the MSDS review. Prepare any plans, Standard Operating Procedures (SOPs) or guidelines necessary to ensure regulatory compliance.

4.3.4 BMPs for Academic/Vocational, Facilities Operation and Maintenance and Custodial Services

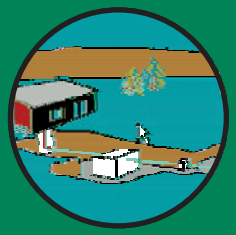
Chemical Storage

As previously discussed, the types of chemicals stored in a school can vary widely. To the greatest extent possible, storage areas should be consolidated and under the control of a few individuals, not be scattered throughout the school. In general, the following guidelines are applicable to chemical storage areas:

- Storage areas should be locked to prevent unauthorized personnel or students from entering.
- Storage areas should be under the control of the individual or department utilizing the materials stored.
- Storage areas should not have floor drains. Provide secondary containment for materials stored where possible.
- Separate incompatible materials by chemical class. Chemicals should never be simply stored alphabetically as this can lead to commingling or disposal of incompatible materials.
- Maintain an inventory of chemicals at each storage area. When materials are removed from the storage area for use or when new chemicals are added to the area, the inventory should be updated.
- Reconcile inventories for storage areas with the overall site inventory as described previously under Inventory Control. This should be conducted weekly or monthly, as appropriate.
- Chemicals should not be stored in classrooms or other areas and should only be removed from storage for use.
- Storage areas should be inspected weekly for leaking containers, improper segregation of incompatible materials and the presence and condition of emergency equipment.
- Storage areas should be constructed and permitted in accordance with all applicable local regulations, which may include state, county, town, fire marshal, etc. requirements. This may include the installation of secondary containment, fire suppression equipment or ventilation equipment.
- Containers should always be clearly labeled and sealed when in storage.
- Eye wash stands and spill control equipment should be provided near storage areas.
- Outdated and expired chemicals should be periodically removed from storage for proper characterization and disposal.

Guidelines pertaining to chemical use generally depend upon the type of chemical to be used and the purpose for which it is being used. However, provided below is a list of general guidelines relating to the use of chemicals:

- Consult the MSDS for the substance prior to initiating use. Follow all safety precautions contained in the MSDS.
- If necessary, utilize appropriate ventilation systems (fume hood, local exhaust fans).
- Only dispense the amount of substance required for use.
- In general, chemicals removed from storage bottles should not be placed back into the main supply after use.
- While using chemicals, bottles should remain capped unless dispensing.
- Provide adequate personal protection equipment and spill clean-up materials.
- Develop a spill clean-up and response procedure prior to initiating the use of chemicals.
- As described previously under Purchasing, prior to purchasing and using a chemical, develop a procedure for proper disposal of the chemical, any waste generated during use of the material and material generated from the clean-up of spills.
- All containers should be properly labeled. This includes bottles, jars, spray bottles or any other container used for chemicals.
- Where possible, microscale or miniscale procedures should be substituted for standard laboratory procedures. Microscale and miniscale chemistry procedures are environmentally safe pollution prevention methods of performing chemical processes using small quantities of chemicals without compromising the quality and standard of chemical applications in education and industry. ***More information is available at the following websites: http://www.microscale.org and from the USEPA at http://cfpub.epa.gov/schools/top_sub.cfm?t_id=361.***



4.4.1 Purpose

This BMP is designed to provide a series of practices to facilitate proper use of on-site sewage disposal systems such as septic tanks and cesspools with respect to the discharge of pollutants from various program areas within a typical school. Any issues related to compliance with environmental regulations are discussed in Section 3 of this guidance manual.

4.4.2 Applicability

Schools typically located in suburban or rural areas or in areas not provided with municipal sanitary sewer systems are likely provided with an on-site sewage disposal system. Design and construction of on-site sewage disposal systems vary widely. In general, however, the system is provided with an underground compartment to contain wastewater for solids accumulation and biological treatment. Treated wastewater is allowed to leach into the surrounding subsurface soil, while settleable solids accumulate in the compartment. Accumulated solids must be periodically removed for proper disposal.

This BMP applies to facilities that operate on-site sewage disposal systems. The following provides a list of incentives for proper use, inspection and maintenance of on-site sewage disposal systems:

- Failing on-site sewage disposal systems are costly to repair/replace.
- The misuse and/or failure of on-site sewage disposal systems can cause groundwater and private water supply contamination.
- The misuse and/or failure of on-site sewage disposal systems can cause unsanitary conditions, odors and the spread of disease.
- Failing or collapsing on-site sewage disposal systems can result in unsafe conditions for students and staff.

Additional information on inspection and maintenance of on-site sewage disposal systems can be found at the following website: http://www.state.ri.us/dem/pubs/regs/regs/ water/isdsbook.pdf.

4.4.3 General BMPs

These BMPs have been written to apply to most program areas in the school and are broken down into the steps to be taken by personnel responsible for the septic tank (cesspool) management.

Water Conservation

On-site sewage disposal systems are designed for a maximum wastewater load. As a result, any methods that can reduce the amount of wastewater discharged to the system will enhance performance and effluent quality. Employ the following water conservation techniques, where applicable:

Water Conservation (continued)

- Regularly check the school for leaking fixtures such as toilets and faucets. Repair leaking fixtures in a timely manner.
- Washing machines for clothing and dishes should only be operated with full loads, if possible.
- Install water saving devices in toilets and showers.
- Periodically distribute a memorandum around the school reminding teachers and students to conserve water and to report any leaks.
- Implement a water conservation program that will periodically identify new methods of conserving water.

System Additives

Many companies sell enzymes, bacteria and other chemicals designed with the purpose to maintain on-site sewage disposal systems. Periodically adding select bacteria or enzymes to the system may enhance the breakdown of waste materials. The addition of an appropriate enzyme once per month to the on-site sewage disposal system can enhance the operation of the on-site sewage disposal system. However, these products should be applied according to the manufacturer's recommendations. Chemical cleaners or caustics should not be used to clean an on-site sewage disposal system because the discharge of these materials may violate applicable environmental regulations, harm biota needed to break down waste and contaminate surrounding ground water.

Recordkeeping

Records of all maintenance, inspection and pump-out activities, including the following, should be kept on file and periodically reviewed to monitor performance of the system:

- Documenting the date, type and amount of enzyme added to the system. Keep records documenting all inspections, including the comprehensive initial inspection and all routine maintenance inspections. Keep records documenting the date and amount of material removed during periodic pump-outs. If problems related to the on-site sewage disposal system are detected, these records should be consulted to determine the date of the last inspection and/or pump-out prior to choosing and scheduling a corrective action.

4.5.1 Purpose

Implementation of a solid waste recycling program in schools not only reduces the quantity of waste that has to be transported off-site for disposal, it provides important educational opportunities for students. These BMPs provide an outline to assist schools in organizing and implementing such a program.

When possible schools should adhere to the pollution prevention hierarchy: Reduce, Reuse, Recycle:

- **Reduce** the amount and toxicity of trash you discard;
- **Reuse** containers and products; repair what is broken or give it to someone who can repair it; and
- **Recycle** as much as possible, which includes buying products with recycled content.

More information is available at the following website: http://www.epa.gov/garbage/reduce.htm.

4.5.2 Applicability

Under the Pollution Prevention Act of 1990, Congress established a national policy, a part of which states that pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible. The USEPA defines recycling as a series of activities that includes collecting recyclable materials that would otherwise be considered waste, sorting and processing recyclables into raw materials such as fibers, and manufacturing raw materials into new products. Items that can be recycled include paper, plastic, glass and metal. Other items that can be incorporated into a school's recycling program include spent printer cartridges and scrap electronic equipment.

Included as a part of recycling is composting. Composting is the controlled biological decomposition of organic matters, such as food and yard waste, into humus, a soil-like material. Composted materials can be used for landscaping purposes and can reduce the need for fertilizers and pesticides.

Recycling is not a required activity under any federal regulatory laws or regulations; however, an individual state, city or county may have their own recycling regulations that must be followed. These BMPs apply to most program areas in the school.

4.5.3 General BMPs

Solid waste recycling is a facility-wide operation that needs the input and cooperation of all teachers, students and staff. A recycling program is comprised of several components. The following BMPs outline methods to establish a program that, if run properly, can be both effective at reducing the schools total solid waste produced and profitable.

- Organize a team that includes students, teachers, facility personnel (custodians, groundskeepers, administrators, etc.) and parents. A project coordinator, most likely a teacher or parent, should be selected to lead the team, help create enthusiasm and make sure the program is successfully implemented. The project coordinator will also act as the recycling contact person for the program and will be responsible for dealing with outside markets that will be collecting the recycled materials. The team should work together and with the administration to create reasonable goals and objectives for the program.
- Conduct a facility audit of the school, both inside and outside, in order to assess the areas around the building that will generate recyclable materials. Based on current activities, it should be possible to estimate the total amount of materials that will be generated on a daily or weekly basis. These numbers will help to determine the scope of the recycling program that will need to be created.
- Conduct research to locate markets. Contact the local city or town recycling coordinator to find out what other businesses or schools in the area do for their recycling. The local recycling center will also be able to answer questions with regard to the types of materials that may be recycled for your area, as well as the prices you will be paid for the materials, if any. It may also be possible to work with the school's current waste hauler to provide pickup and possibly collection bins.
- Create a central storage location, either indoors or outdoors, to store the collected recyclable materials. This location should be clearly labeled and should also be compliant with all applicable building and fire codes for the area.
- Set up containers for recycling near locations where recyclables are generated in order to facilitate easy disposal. Each container should be lined with a clear bag so its contents are known once it is removed from the container. Any type of container can be used as long as it is properly labeled such that it can be differentiated from garbage containers. Signs should also be posted near each container so the proper materials are recycled.
- Publicize the program by designing and placing posters and signs throughout the school. A design contest can also be promoted to encourage school wide participation in the program. Flyers should be distributed to all students and staff in order to make them aware of the program. An annual awareness and education assembly should be planned for the entire school to educate student and staff on appropriate recycling procedures.
- The team should work with the custodial and maintenance staff of the school to coordinate weekly or daily pickups of recyclables from all areas. They should also make sure the custodial and maintenance staff is educated on the proper methods of storing recyclables until pickup.
- Monitor and maintain the program by publishing monthly and annual statistics to facilitate continued awareness and enthusiasm about the program. The amount of recycled materials should be related to a broader scope in order to encourage continued success. Examples include “The amount of paper recycled last month saved…” or “The amount of bottles and cans recycled last month generated enough revenue for the school to buy…” The team should also monitor the areas of recyclable materials generation to make sure proper recycling is being conducted. The team should also conduct biannual audits to identify any new areas for recycling.

4.5.4 BMPs for Administration/Business and Printing Facility

- Place paper and plastics recycling containers in all office and administrative areas. The containers should be properly labeled and a sign clearly indicating the types of recyclable materials allowed should be posted next to the containers. Staff should alert the custodial department if the containers fill up prior to the collection time.
- A container should be placed next to any printers and should be labeled "Used Printer Cartridges."
- Coordinate collection of old or unusable electronic equipment, including personal computers, laptops, printers, faxes, VCRs, TVs, calculators, computer peripherals, telephones and copying machines. Used electronic equipment can usually be sent to be recycled for parts and materials to either the original manufacturer or a certified recycler.
- If old or unwanted electronic equipment can be reused by another entity, redistribution of the materials can be managed without environmental regulatory concern. However, it must be noted here that some electronics may be considered hazardous waste, or universal waste in certain states, due to content of lead, mercury, cadmium and other materials (primarily in circuit boards and solder, aside from Cathode Ray Tube (CRT) screens in computer monitors and televisions.) While recycling in this manner is likely to save money when compared with disposal, as well as having a positive environmental benefit, it does not relieve the school of the burden of properly managing the equipment as hazardous waste.

4.5.5 BMPs for Academic/Vocational

- Place a paper recycling container in all computer labs, as close to the printer as possible. The container should be clearly labeled and a sign should be posted on the wall next to the container. Waste containers should be placed in another location to prevent potential contamination of recyclables.
- Place a second container for the collection of used print cartridges next to the printer as well. It should be clearly labeled "Used Printer Cartridges."
- Coordinate the collection of used electronics. If a computer or computer monitor becomes unusable, a custodian should be contacted to remove and recycle the item.
- If old or unwanted electronic equipment can be reused by another entity, redistribution of the materials can be managed without environmental regulatory concern. However, it must be noted here that some electronics may be considered hazardous waste, or universal waste in certain states, due to content of lead, mercury, cadmium and other materials (primarily in circuit boards and solder, aside from Cathode Ray Tube (CRT) screens in computer monitors and televisions). While recycling in this manner is likely to save money when compared with disposal, as well as having a positive environmental benefit, it does not relieve the school of the burden of properly managing the equipment as hazardous waste.
- Place a paper recycling container and a plastics recycling container in all other classrooms. The containers should be properly labeled and a sign clearly indicating the types of recyclable materials allowed should be posted next to the containers. Staff should alert the custodial department if the containers fill up prior to the collection time.
- Scrap metal generated as a result of activities conducted in shop programs, such as automotive repair, should be collected and sent for recycling.

4.5.6 BMPs for Facilities Operation/Maintenance

Electrical Shop

- Train maintenance personnel responsible for the repair and upkeep of electronic equipment on the proper disposal techniques for old and unrepairable equipment. Pickups of electronics should be coordinated with an appropriate recycler based on the estimated disposal rate and regulatory requirements. If equipment is managed as hazardous waste, pickups must be scheduled at least every 180 days, if the school is a SQG of hazardous waste.
- Determine if any equipment, components, such as thermostats, tilt switches, float switches or relays, contain mercury. If so, the equipment may either be handled as universal waste or if these mercury-containing parts can be removed from the equipment, stored in a tightly-covered container and shipped to a mercury recycler. Arrangements should be made to pickup mercury-filled equipment on at least an annual basis.

Construction/ Renovation

Old buildings to be remodeled or torn down can create a large quantity of solid waste. Because time is a critical element on many projects, the removal of a building is usually done as quickly as possible. The standard practice of demolition involves smashing a structure so the pieces can be quickly and easily taken to the landfill. Although this saves time, there are considerable costs in terms of pollution, wasted resources, and landfill space. Reusing existing buildings and materials reclaims resources and significantly cuts waste.

Deconstruction, the systematic dismantling of a structure, can be used in various degrees in order to salvage usable materials. This can range from reuse of an entire structure or foundation, to select assemblies and systems, to the careful removal of specific materials or items.

Things to Consider when Conducting Salvage Activities:

- Conduct an assessment to identify salvageable materials. A walkthrough with deconstruction, demolition, and general contractors can help to identify items that can be reused in any planned new structure or on other current jobs.
- Obtain “as-built” plans; these will help to identify structural members and other hidden features of a building that are not visible during a walkthrough.
- If time does not allow for extensive salvage, target the easy things. “Cherry-picking” can yield valuable appliances, light fixtures, hardware, architectural millwork, and other custom accessories.
- Consider materials not only for their utility, but also for their aesthetic value. Reclaimed materials, particularly old growth or rare woods, are very desirable as decorative and finish treatments.
- Advertise a deconstruction pre-sale where interested individuals can remove and purchase items before demolition begins.
- Although some materials can be reused, there are many that will need to be removed. Donating unused and salvaged building materials can be accomplished through material exchanges or nonprofit organizations.

More information is available at the following website: http://www.epa.gov/epaoswer/non-hw/debris-new/reuse.htm.

Kitchen

- If your school has a composting program, place a container next to the food preparation area to collect excess food scraps. The container should be properly labeled and a sign clearly indicating the types of food waste allowed should be posted next to the container.
  - Materials to Include:
    - Fruit and vegetable scraps
    - Egg shells
    - Coffee grounds with filters
    - Tea bags
  - Materials to Exclude
    - Meats
    - Dairy foods
    - Fats
    - Oils (including peanut butter and mayonnaise)
    - Grease
- If your school does not currently have a composting program consider establishing one. Small composting bins can be set up indoors using 20-gallon containers or even soda bottles. These projects can be carried out in the classroom providing opportunities to directly involve students. Larger composting bins can be set up outdoors and can include landscaping debris. **More information on composting is available at the following websites:**
  - **http://compost.css.cornell.edu/schools.html;**
  - **http://epa.gov/msw/compost.htm; and**
  - **http://epa.gov/epaoswer/education/teach_comp.htm.**
- Establish a collection area for cardboard boxes. All recyclable cardboard should be flattened prior to placing it in the storage area and then stacked.
- Set up a container for waste oil next to the fryer and/or other oil generating cooking equipment. The used oil should be placed in the containers and pick-ups with a local recycler should be coordinated.
- Place several plastics, paper and metal recycling containers throughout the kitchen area. These should be clearly labeled and signs indicating the types of recyclables allowed should be posted near the containers.

Cafeteria

- Place plastics and bottle recycling containers in all cafeteria rooms. They should be clearly labeled and signs indicating the types of recyclables allowed should be posted near the containers.
- Place another container labeled “Liquid Waste” next to the other containers. Any leftover liquids should be poured into this container for proper disposal.

4.5.7 BMPs for Grounds Maintenance

- Establish an area on the school grounds for composting of yard waste. Yard waste that is acceptable for composting includes grass clippings, leaves, flowers, house plants, annual weeds and twigs. The compost should be monitored on a regular basis in order to ensure proper decomposition of the waste. A composting program can also be set up in conjunction with the science programs at the school.
- Place several paper, plastics and metal recycling containers outside of the school building in areas where students and/or faculty sometimes congregate. They should be clearly labeled and signs indicating the types of recyclables allowed should be posted near the containers.

4.5.8 BMPs for Custodial

The recycling team should work with the Facility Directors to set up regular recycling pickups based on the estimated amount of recyclables collected.

- Establish daily pickups from all high-use recycling areas.
- Maintain the central storage location to make sure all recyclable materials are properly stored and that no cross contamination of materials occurs.
- If excessive buildup of recyclables is noted prior to the usual pickup date, the staff should arrange for additional pickups.

4.5.9 BMPs for Transportation

Maintenance Shops

If on-site maintenance of vehicles is performed, all fluids associated with automotive repair should be properly contained and recycled. Separate and labeled containers for all fluids should be kept near the location of the repairs. Regular pickups or drop-offs of the fluids should be conducted to prevent excessive buildup at the maintenance facility.

4.6.1 Purpose

The USEPA, through its ENERGY STAR® program, provides facilities with guidelines for superior energy management built on the practices of leading organizations. Top energy-performing schools use as little as one-third the energy of the least efficient schools. For typical schools, ENERGY STAR can help improve your district's energy efficiency and lower your energy bill 30% or more, resulting in both lower operating costs and improved student and staff comfort. Using these guidelines, you will also demonstrate your school district's environmental commitment by reducing pollution and the emissions that contribute to global warming. ***To go beyond BMPs outlined in this document, more information can be found at the Energy Star website found at http://www.energystar.gov/.*** Energy Star is a government/industry partnership that promotes programs to protect the environment through use of energy-efficient products. ***A special website devoted to providing information for K-12 school districts can be found at http://www.energystar.gov/ index.cfm?c=k12_schools.bus_schoolsk12.***

Some states also have similar programs, such as the New York State Energy Research and Development found at http://www.nyserda.org.

4.6.2 Applicability

Under the Pollution Prevention Act of 1990, Congress established a national policy that states the following:

- pollution should be prevented or reduced at the source whenever feasible;
- pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible;
- pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and
- disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Regulations found at 42 CFR 133 define “source reduction” as any practice which accomplishes the following objectives:

- reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and
- reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

The term includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training or inventory control. The term does not include any practice which alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service. All program areas have opportunities for Pollution Prevention and Waste Reduction.

4.6.3 General BMPs

The intent of this Pollution Prevention/Waste Reduction BMP is to eliminate or reduce to the maximum extent possible pollution and waste before they are generated. Virtually all program areas of a school can implement pollution prevention projects to some extent. Once a commitment toward pollution prevention is obtained from management and goals are set, it is important to get input from as many people as possible.

- Declare a "Pollution Prevention" week and run a contest to get ideas for pollution prevention projects for your school. Encourage participation from students, staff and faculty to examine how everyone can make a difference.
- Implement a program to replace existing lighting with energy-saving fixtures. The former Green Lights program, now part of Energy Star, is aimed at promoting energy efficiency through investment in energy-saving lighting. The program saves money for organizations and creates a cleaner environment by reducing pollutants released into the environment. Lighting accounts for 20 percent of all electricity sold in the United States. Too often, organizations treat the cost of lighting as overhead rather than as an opportunity for investment. By changing this mind set, participants realize average rates of return on their initial investment of 30 per cent or more. They reduce their lighting electricity bill by more than half while maintaining and often improving lighting quality.
- Select a task force to review information and prioritize projects. The task force should then inspect areas identified for pollution prevention projects and perform technical and economic evaluations. Based on the outcome of the evaluations, projects should be selected for implementation. Once implemented it is important to evaluate and document the performance.

4.6.4 BMPs for Administration/Business

Offices and Classrooms

- Reuse binders, clipboards, file folders, clip portfolios and presentation folders.
- Collect unused school supplies at the end of the year for reuse next year.
- Establish an office furniture exchange.
- Install energy efficient light bulbs. ***More information is available through the Green Lights program at the Energy Star website found at http://www.energystar.gov/.***
- Install energy efficient windows and doors.
- Implement a "green" purchasing program. ***More information is available at the following websites:***

- ***EPA's WasteWise program, a technical assistance resource for the development and implementation of organizational solid waste reduction programs: http://www.epa.gov/wastewise/;***
- ***In particular, the Waste Wise program's "Buy Recycled" links, provides information that will be useful in planning and implementing a green purchasing program: http://www.epa.gov/wastewise/wrr/br-links.htm; and***
- ***EPA's Resource Conservation Challenge: http://www.epa.gov/rcc.***

➤ Implement office recycling of paper, plastic, printer ribbons and toner cartridges (see BMP - Solid Waste Recycling [Section 4.5]).

4.6.5 BMPs for Academic/Vocational

Schools use chemicals in classrooms, science laboratories, vocational shops, as well as in engineering and facility operation spaces. Faculty and staff should receive training on the potential dangers posed by chemicals and alternatives available. Note that a Material Safety Data Sheet, commonly referred to by its initials, MSDS, as well as other product information, should be available for each chemical used or stored on-site. This will provide teachers, administrators and other staff the information needed to help analyze their inventory, make appropriate decisions regarding chemical usage and prepare for any emergencies or spills. Having a copy in the storage location or classroom of the teacher using the chemicals, as well as having a copy in a central repository, ensures that a copy is always available to those who may need it and that a copy is available in the event of an emergency. ***MSDSs can be obtained from the chemical manufacturer or vendor. Many MSDSs are also available on the Vermont Safety Information Resources, Inc. (SIRI) MSDS database at http://www.siri.org/msds/.*** BMPs for specific program areas are listed below:

Science Laboratories

➤ Use good operating practices.

➤ Reduce the scale of laboratory experiments by using only the amounts necessary to demonstrate the topic or by shifting to use of a microscale or miniscale chemistry program, if possible. ***More information is available at the following websites: http://www.microscale.org and from the USEPA at http://cfpub.epa.gov/schools/top_sub.cfm?t_id=361.***

➤ Substitute less toxic chemicals/supplies where possible.

➤ Increase use of instrumentation.

Laboratory Preparation / Storage Rooms	➤ Establish a centralized purchasing program (see BMP - Chemical Purchasing/Management [Section 4.3]). ➤ Order reagent chemicals in exact amounts needed. ➤ Establish a contract with a manufacturer to return expired chemicals. ➤ Establish an inventory control program. ➤ Implement "first in"/"first out" policy. ➤ Establish a chemical exchange program. If you find that you have excess usable chemicals, due to over-buying or change in usage, check with other departments at your school, other schools within your district or even another school district that needs the chemical you no longer need to see if they can use them. Both organizations can save money. While this should not be a frequent occurrence, consider setting up an internal surplus chemical exchange program, whereby users can check a central list of what might be available before purchasing new stock, or participating in an outside chemical/waste exchange program if one exists in your area. ➤ Establish a centralized waste management program.
Field Trips	➤ Restrict bus idle time. ➤ Encourage recycling of paper, cans and plastic.
Art / Photography / Fine Arts Labs	➤ Research and purchase less toxic art supplies. ➤ Utilize digital photography, whenever possible. ➤ If using traditional photographic processing techniques, recover silver from process baths and send for precious metals recovery along with spent film. ➤ Get students involved in art projects to promote and encourage pollution prevention projects.
Computer Labs	➤ Use paper containing a high post-consumer content. ➤ Recycle paper and ink cartridges. ➤ Reuse or recycle outdated computers. ➤ Teach students how to repair and upgrade computers. ➤ Lease computers or purchase with a "take-back" option. If unavailable, research options for reuse or recycling of computer components. ➤ Purchase energy-efficient models.
Swimming Pools	➤ Use calcium hypochlorite for disinfection. ➤ Use solar powered water heaters.

4.6.6 BMPs for Facilities Operation and Maintenance

Facilities operation and maintenance personnel have many opportunities to implement pollution prevention programs on a daily basis. BMPs for specific program area are listed below:

Boilers

- Install atomizing burners.
- Match the boilers in use to the steam or hot water load.
- Implement blow down procedures that minimize energy loss due to discharge of hot water from the system.
- Inspect and repair piping to minimize steam leakage.
- Optimize boiler size and boiler load.
- Implement a regular boiler maintenance program.
- Maintain accurate records to identify problems promptly.
- Remove soot and scale buildup from heat transfer surfaces.
- Cut down on excess air and minimize heat loss by optimizing the air-to-fuel ratio.
- Inspect and replace damaged, missing or wet insulation.

Tanks / Containers

- Provide training for employees on spill prevention and spill cleanup techniques.
- If you use absorbents, try to purchase absorbent material that can be reused if the spilled material is not a hazardous waste.
- Ensure that all tanks and drums used for storage have secondary containment.
- After wiping up a spill with absorbents or mop, drain excess liquids into the waste container.
- Use shop towels to wipe up small spills, then send your shop towels to be laundered.

Potable Water / Plumbing

Schools that obtain water from a community water system are not required to test for lead. However, the USEPA encourages all schools to assess the risk of having elevated levels of lead in the drinking water and to conduct water testing if the potential for lead exists. Questions to help make this assessment include:

- Does the water have a low pH?
- Do any outlets get green, orange or brown stains?
- Is there a metallic taste to the water?
- Is there lead solder in the building (common before 1991)?
- Is the service connector a lead pipe?

Potable Water / Plumbing (continued)

- Are any appliances or mechanical devices grounded to the water supply pipes?
- Has the water supplier reported any violations of the lead action level?
- Has the water supplier failed to treat the water for corrosion control?

If a school answers yes to any of these questions, there is a potential for having lead in the drinking water. Water with a low pH is corrosive and more likely to have higher levels of lead. Stains may be an indication of this. Electrical current from a grounding wire can contribute to the corrosion rate. The only way to tell is to test for lead at all faucets used to supply drinking water. ***More information on water sampling protocols can be found at the USEPA web site at http://www.epa.gov/safewater/lead/testing.htm.***

If elevated levels of lead are found, the following steps can be taken to fix the problem:

Routine Practices:

- Clean debris from faucet screen (aerators) frequently.
- Use only cold water for food and beverage preparation.

Short-term Measures:

- Flush the pipes by letting the water run before use in the morning.
- Provide bottled water that is confirmed to be lead-free.

Permanent Remedies (to be determined after obtaining a thorough understanding of the water supply and conditions in the facility):

- Install point-of-entry corrosion control devices.
- Install point-of-use devices that control lead at the tap.
- Find alternative grounding for electrical wires that are grounded to the water pipes.
- Replace lead service lines and other lead pipes.
- Replace faucets and piping with new, certified components where there is localized contamination.

Electrical Shop

- When electrical equipment is taken out of service, be aware that mercury can still be found in some electrical equipment, including thermostats, tilt switches, float switches and relays. Mercury-filled equipment must either be managed as a universal waste or a hazardous waste. Some equipment may also be able to be returned to the manufacturer.

Electrical Shop	➤ When purchasing new equipment, items should be screened to ensure that they are mercury-free. ➤ Batteries and fluorescent light bulbs should be collected for recycling, even if they are "green-tipped." ➤ Lead from solder should be collected for recycling.
Paint Shop	➤ If possible, use high volume, low-pressure spray guns when painting large areas. ➤ Where possible switch to water-based paints and primers. ➤ Implement procedures and provide training on proper brush and equipment cleaning. ➤ Begin with light colors and work toward dark colors to minimize the need for detailed spray gun cleaning, and corresponding solvent use, between steps.
Solid Waste Management	➤ Return pallets to vendor or arrange for some other use. ➤ Seal concrete floors where spills may occur. ➤ Collect used oil for recycling and do not mix with other waste liquid such as gasoline, solvents or antifreeze.
Cafeteria / Lunch Rooms	➤ Implement plastic/metal recycling programs. ➤ Investigate opportunities to compost food scraps. More information is provided in Section 4.5.6. ➤ Purchase less toxic and/or less flammable cleaners. ➤ Implement integrated pest management techniques to reduce use of pesticides.

4.6.7 BMPs for Grounds Maintenance

Pesticide Use

Implement an Integrated Pest Management (IPM) system to control pests while using the least toxic and smallest quantity of chemicals possible. ***More information can be found at the USEPA's web site at http://www.epa.gov/pesticides/ipm***. An IPM system utilizes elimination of pest attractions, prevention of pest entry into the buildings and use of simple removal or destruction techniques, such as the following:

- Keep vegetation, shrubs and wood mulch at least one foot away from structures.
- Fill or eliminate cracks and crevices in walls, floors and pavement.
- Require students to empty and thoroughly clean out lockers and desks at least twice yearly.
- Clean all food-contaminated dishes, utensils, surfaces by the end of each day.
- Clean garbage cans and dumpsters regularly.
- Collect and properly dispose of litter at least once a week.

- Identify the problem or pest before applying pesticides.
- If pesticides are necessary, use spot treatments rather than area-wide application.

Fertilizer Use

- Apply fertilizers in several applications throughout the year rather than one heavy application.
- Use slow-release fertilizers whenever possible.
- Water area lightly after application of fertilizers.

De-Icer / Salt / Sand Management

- Salt and sand piles should be covered or stored indoors.
- Consider use of salt substitutes, such as calcium or magnesium chloride.
- Sweep sand from parking lots, driveways and walkways and reuse the sand.

Equipment Storage / Maintenance

- Regularly inspect equipment for leaks.
- Establish a regular schedule for equipment maintenance.
- Store equipment indoors or under cover.

4.6.8 BMPs for Custodial

- Determine if any existing cleaners and solvents can be replaced with less toxic and/or flammable products.
- Purchase cleaners in bulk to reduce packaging.

4.6.9 BMPs for Transportation

- Establish policies to minimize or eliminate idling of buses. ***Take other steps to reduce air pollution from buses based on information provided from the USEPA at http://www.epa.gov/cleanschoolbus/basicinfo.htm.***
- Restrict vehicle washing and servicing to designated areas that are equipped with spill and runoff controls.
- Conduct detergent washing only in areas inside of buildings or in other areas where drainage is directed to a sanitary sewer system or to a holding tank. Floor drains in vehicle washing areas must not discharge to groundwater and if they discharge to surface waters a NPDES permit or, in states with a NPDES-approved program, a State Pollutant Discharge Elimination System (SPDES) permit is required.
- Install oil/water separators in vehicle service areas with floor drains that discharge to sanitary sewer systems.
- Install holding tanks if floor drains discharge to ground water and ensure that wastewater is pumped out for proper disposal by a licensed waste hauler.

- Regularly inspect oil/water separators for oil and solids buildup and arrange for clean out by a licensed waste hauler when necessary.
- Minimize all leaks and spills of petroleum products, antifreeze, grease and other vehicle fluids by conducting regular inspections of vehicles.
- Clean up spills and leaks as soon as they are discovered.
- Keep adequate quantities of absorbents, preferably reusable types, close at hand in all working areas.
- Do not dispose of fuels, solvents or engine fluids into a sink or floor drain or on the ground.
- Service or wash vehicles only in designated areas.
- Clearly mark all containers used for storage of used liquids with the contents.
- Drain all oil filters prior to disposal either by puncturing and hot-draining or hot-draining and crushing.
- Install self-contained parts washers.
- Store containers on sealed concrete floors or on spill containment pallets.

4.6.10 BMPs for Nursing Station/Infection Control

- Replace mercury thermometers with digital thermometers.
- Replace mercury blood pressure gauges with aneroid gauges.

4.6.11 BMPs for the Printing Facility

- Discontinue use of inks that contain heavy metal pigments.
- Use low VOC inks if solvent-based inks must be used.
- If possible, use vegetable-based inks.
- Use water-based adhesives to reduce VOC emissions.
- Purchase small amounts of infrequently used materials.
- Install a silver recovery system on wastewater from photographic processes.
- Recycle used photographic film and paper.
- Use less toxic cleaning solvents or detergent solutions.
- Various color waste inks should be mixed to form black for non-color-critical print runs.

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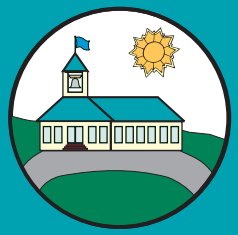

5.0 Overview of Environmental Management Systems

An Environmental Management System (EMS) goes a step beyond BMPs by providing a systematic method to help an organization or business improve their environmental performance. The Administration of a school or school district may choose to develop and implement an EMS as a commitment to environmental excellence. An EMS provides a set of processes and practices to achieve compliance with environmental regulations, an organizational structure to adapt to changes in personnel and operations to maintain such compliance, and a means for addressing non-regulated environmental impacts of the operation of the school. An EMS is based upon the "Plan, Do, Check, Act" model to ensure continual environmental improvement. While the goal of most EMSs is to achieve and maintain compliance with environmental regulations, the implementation of an EMS will often increase operational efficiency, reduce costs and decrease the overall environmental impact of the school. In other words, once the school achieves compliance with environmental laws and regulations, the goal of the EMS may shift to saving energy, pollution prevention or other non-regulated environmental issues.

The discussion provided below outlines the main components of a typical EMS. It should be noted that while this section identifies recommended program components for an EMS, the system should be specific to the school it serves. As a result, individual schools that choose to employ an EMS should consult all available resources to assist in the preparation of a site specific EMS that properly fits the operations and activities conducted at the school. ***Additional information regarding EMSs can be found at the USEPA's EMS website (http://www.epa.gov/ems/index.htm). This website has links to EMS initiatives supported by EPA across the country, including the October 2004 report "Evaluation of EPA New England's Environmental Management System Pilot Efforts for K-12 Schools," available at: http://epa.gov/region01/ems/projects.html#k.***

In addition, many state environmental agencies and private organizations provide information regarding EMSs. Links to websites for some of these programs may be found at http://www.sectorstar.org/taps/index.cfm and at the Public Entity EMS Resource Center website found at http://www.peercenter.net/.

Environmental Policy

An environmental policy should be developed as part of the EMS. The environmental policy should outline the school's commitment to environmental improvement and should list the general policies to be adopted as part of the EMS. General policies may include an employee training program, the development of standard operating procedures and the reporting of environmental incidents. The policy should state the intentions of the school with regard to its overall environmental performance and should provide a framework for action and for setting environmental objectives and targets.

Planning

- Identify environmental impacts of the activities conducted at the school. All impacts, both negative and beneficial, should be identified during this phase, including applicable environmental laws and regulations. The school's compliance with those laws and regulations should also be assessed. An initial multimedia compliance audit may be an appropriate tool in order to assess the school's compliance with environmental laws and regulations. Provision should be included to continually identify environmental impacts in the future that may result from changes in operations at the school, personnel or environmental laws.

Planning (continued)

- Prioritize the environmental impacts of the activities conducted at the school to identify those items that require immediate attention. An initial priority for a facility may be to achieve and maintain compliance with the requirements outlined by environmental laws and regulations. However, going forward, priorities may shift to a reduction in energy use, pollution prevention or other non-regulated environmental benefits once the facility has achieved compliance and established a system to maintain compliance.
- Establish environmental goals for the school or school district corresponding to the environmental policy and taking into account the priorities previously developed. Targets should be established for achieving the goals of the EMS.
- Develop an environmental management program to achieve the objectives and targets of the EMS. The program should be designed to outline the actions to be taken to achieve the outlined objectives and targets.
- Identify personnel responsible for performing the activities.
- Specify a schedule to complete the activities and identify any record keeping, reporting or follow-up requirements necessary to ensure proper implementation of the program.
- Develop Standard Operating Procedures (SOPs) presenting required activities.
- Develop provision to deal with changes in school personnel, products/materials used or the promulgation of new or modified environmental regulations that might affect the implementation of the EMS.

Implementation

- Outline the structure of the organization through the preparation of an organizational chart depicting the members of the organization with relevant titles. Designate specific employees with specific program responsibilities and ensure that the roles and responsibilities delegated correspond to the qualifications and job description of each individual. Emphasis should be placed on the value of top management support, cross-organizational team building, team training and ensuring that adequate resources are budgeted to support EMS activities.
- Train employees that are delegated specific roles and responsibilities by the EMS to be capable of carrying out their environmental responsibilities. The EMS should include a training program that outlines the type of training required for each employee at the school. Training levels might range from general environmental awareness to more advanced topics such as the Resource Conservation and Recovery Act (RCRA). Specific training should be conducted based upon the employees' roles and responsibilities regarding the EMS.
- Develop a process for conducting both internal and external communication regarding environmental issues. Each employee should be familiar with the chain-of-command regarding environmental issues. In addition, certain employees should be designated with the responsibility of contacting regulatory agencies, environmental consultants or other external organizations. Procedures for making this type of communication should be outlined in the EMS.
- Outline procedures for managing documents related to the EMS. It should outline how documents should be modified, where documents should be filed, and which personnel should receive modified documents. The procedures should ensure effective management of information, SOPs and other system documents.

- Outline procedures to manage operations and activities in a manner that corresponds to the environmental policy and EMS objectives and targets. Maintaining operational control may be linked closely with the environmental management program. Existing and new operations and procedures must be continually evaluated with regard to the objectives of the EMS.
- Develop emergency preparedness and response procedures to prevent avoidable emergencies, as well as to respond to emergencies should any occur. Coordination with emergency response agencies and evacuation plans should be developed. Any equipment necessary to respond to potential emergencies should be specified in the EMS, as well as procedures for maintaining such equipment.

Checking/ Corrective Action

- Specify how key activities will be monitored and how environmental performance will be measured and tracked. These procedures will facilitate the detection of environmental issues regarding ongoing activities at the school. In addition, qualitative and, if possible, quantitative methods for measuring environmental performance will allow the facility to track progress with regard to implementation of the EMS.
- Outline procedures both to prevent the occurrence of environmental problems, as well as to correct such problems should they occur. These procedures should take into account scenarios likely to occur in a school environment.
- Develop an audit program that includes a schedule for conducting audits as well as the designation of personnel that will be conducting the audits. The program may include both internal audits to be conducted by school personnel as well as external audits to be performed by an external organization such as an environmental consultant.
- Specify methods for keeping records regarding the monitoring and measuring of environmental performance, preventative and corrective actions and audit findings. Maintaining these records will allow the school quick access to information as well as the necessary resources to track performance and the implementation of the EMS.

Management Review

- Specify procedures for management personnel to review matters and documents related to the implementation and ongoing maintenance of the EMS. The management review process should incorporate an evaluation of audit findings and environmental performance, changes in activities conducted at the facility, changes in technology, concerns of interested parties and a review of facility objectives and goals related to the EMS.
- Provide for routine check for changes in environmental regulations.
- Periodically assess the suitability, adequacy and effectiveness of the EMS. Using information obtained during the management review process, responsible parties may need to revise the environmental policy, the objectives and targets of the EMS as well as other specific elements of the EMS.

HealthySEAT Software

The EPA has developed a software tool for school district personnel to help evaluate and manage all of a district's environmental, health and safety information in a single database. This tool, the Healthy School Environments Assessment Tool (HealthySEAT), is available to schools free of charge and is designed to:

- Identify and address potential environmental, health and safety problems before they arise;
- Track environmental health and safety conditions school by school;
- Generate customized checklists and internal reports;
- Produce compelling data on facility conditions and needed improvements;
- Find, with the click of a button, information on EPA regulatory requirements and voluntary recommendations for schools on dozens of issues.

The EPA has loaded the key elements of its programs for schools into a single checklist and fully customizable software that can be easily adapted to your district's policies and priorities. Districts can use HealthySEAT to track any facility conditions, including safety, security and occupational health requirements from other federal agencies, many of which are already included in HealthySEAT. HealthySEAT is self-contained; there is no need to purchase new software. An easy installation wizard will guide you through the set-up process.

Once downloaded from the EPA web site, HealthySEAT can be customized to meet the district's needs. The use of HealthySEAT is strictly voluntary. There are no reporting requirements and no obligation to use the checklist EPA has provided.

More information and a free copy of the HealthySEAT software can be found at www.epa.gov/schools. Additional checklists for science and visual arts are available at the New York State United Teachers' Health and Safety Resource Center at http://www.nysut.org/healthandsafety/.

6.0 Internet References Used in this Guidance Manual

Air Programs

Site Name	URL	Referenced In Sec.
Clean School Bus USA	http://www.epa.gov/cleanschoolbus/basicinfo.htm	4.6
Clean School Bus USA- Where You Live	http://www.epa.gov/cleanschoolbus/whereyoulive.htm	2.2.3; 2.6.1
Complying With The Section 608 Refrigerant Recycling Rule	http://www.epa.gov/ozone/title6/608/608fact.html	3.5
IAQ Tools for Schools	http://www.epa.gov/iaq/schools/tools4s2.html	2.1.1; 2.2.4; 2.7.1; 4.1.1; 4.1.4; 4.1.5
IAQ Tools for Schools: Managing Asthma in the School Environment	http://www.epa.gov/iaq/schools/asthma/10ways_asthma.pdf	2.2.2
IAQ Tools for Schools: Ventilation Checklist and Log	http://www.epa.gov/iaq/schools/tfs/ventilat.html	4.1.5
Indoor Air - Radon in Schools	http://www.epa.gov/radon/pubs/schoolrn.html	2.7.1; 4.1.5; 4.1.8
Indoor Air Quality - Where You Live	http://www.epa.gov/iaq/whereyoulive.html	4.1.5; 4.1.8
Managing Asthma in the School Environment	http://www.epa.gov/iaq/schools/asthma/ame-ame.htm	2.7.1; 4.1.8
Mold Remediation in Schools and Commercial Buildings	http://www.epa.gov/mold/mold_remediation.html	2.3.10; 4.1.4
National Association of School Nurses	http://www.nasn.org/Default.aspx?tabid=61	2.2.2; 2.7.1, 4.1.4; 4.1.8
Radon Prevention in the Design and Construction of Schools and Other Large Buildings	http://www.epa.gov/ORD/NRMRL/pubs/625r92016/625r92016.htm	2.3.10; 4.1.5
State and Local Air Permits	http://www.epa.gov/air/oaqps/permits/approval.html	2.2.1; 2.2.7; 2.3.1; 2.3.6

Chemical/Hazard Programs

Site Name	URL	Referenced In Sec.
Asbestos & Vermiculite in Schools	www.epa.gov/asbestos/pubs/asbestos_in_schools.html	3.4
Asbestos in Schools Region 2 Compliance	http://www.epa.gov/region02/ahera	3.4
Chemical Use and Management	http://cfpub.epa.gov/schools/top_sub.cfm?t_id=361	2.2.1; 4.3.4; 4.6.5
Clarification of Commissioner's Regulations for the Education of Lead Hazards in Schools	http://www.emsc.nysed.gov/facplan/articles/ClarificationOfLeadHazardsInSchools.html	2.3.10
Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-know Act (EPCRA)	http://www.epa.gov/ceppo/pubs/title3.pdf	2.2.1; 2.4.2; 3.1; 3.2
EPA Regional and State Asbestos Contacts	http://www.epa.gov/asbestos/pubs/regioncontact.html	2.3.10; 3.4; 3.5
Green Janitorial Products and Services	http://www.ofee.gov/gp/greenjanitorial.html	2.5.1
Local Emergency Planning Committee (LEPC) Database	http://yosemite.epa.gov/oswer/lepcd.nsf/HomePage?openForm	3.2
Mercury and Schools: School Nurses	http://www.health.state.ny.us/nysdoh/environ/hsees/mercury_brochures/nurses.htm	2.7.1
National Microscale Chemistry Center's Home Page	http://www.microscale.org	2.2.1; 4.3.4; 4.6.5
New Jersey Dept. of Health Lead Advisory Bulletin	http://state.nj.us/health/eoh/leadasb/rrfinal.htm	2.3.10
New York State Education Department Mercury Q&A for Schools	http://www.emsc.nysed.gov/facplan/Emergency/mercury_law_Q&A_101904.html	2.2.1
Polychlorinated Biphenyls (PCBs)	www.epa.gov/pcb	3.3
Revisions to the PCB Q&A Manual	http://www.epa.gov/oppt/pcb/pubs/qacombined.pdf	3.3
Schools and Mercury	http://www.epa.gov/mercury/schools.htm	2.3.7; 2.7.1
University of Wisconsin's "Mercury in Schools"	http://www.mercuryinschools.uwex.edu/	2.2.1
Vermont Safety Information Resources, Inc. (SIRI) MSDS Database	http://www.siri.org/msds/	2.2.1; 4.3; 4.6

Oil Programs

Site Name	URL	Referenced In Sec.
EPA's Oil Program	http://www.epa.gov/oilspill/index.htm	3.8
SPCC Program	http://www.epa.gov/oilspill/spcccont.htm	2.3.1; 2.4.4

Pesticide Programs

Site Name	URL	Referenced In Sec.
Integrated Pest Management (IPM) in Schools	http://www.epa.gov/pesticides/ipm	4.1.6; 4.6.7
Integrated Pest Management for Schools: A How-to Manual	http://www.epa.gov/pesticides/ipm/schoolipm	2.3.11; 2.4.1
Pesticides: Regions, States, & Tribes	http://www.epa.gov/pesticides/local/index.htm	2.3.3; 2.4.1
Pesticides: Regulating Pesticides	http://www.epa.gov/pesticides/regulating/index.htm	3.9

Underground Storage Tank Programs

Site Name	URL	Referenced In Sec.
Publications Related to UST	http://www.epa.gov/oust/pubs/	3.11
State and Territorial UST Program Directory	http://www.epa.gov/oust/states/statcon1.htm	2.2.7; 2.3.1; 2.4.4; 2.6.1
Underground Storage Tanks	http://www.epa.gov/swerust1/index.htm	3.11

Hazardous and Solid Waste Programs

Site Name	URL	Referenced In Sec.
Cornell Composting: Composting in Schools	http://compost/css/cornell.edu/schools.htm	4.5
Disposing of Medical Sharps	http://www.epa.gov/epaoswer/other/medical/sharps.htm	2.7.1
eCycling	http://www.epa.gov/epaoswer/hazwaste/recycle/ecycling/index.htm	2.1.1; 2.2.1; 2.3.9
Guidelines for Cleanup of Mercury Spills	www.health.state.ny.us/nysdoh/environ/hsees/mercury_brochures/docs/cleanup.pdf	2.2.1
Lamp Recycle Home Page	http://lamprecycle.org	3.10
Management of Used Antifreeze	http://www.epa.gov/garbage/antifreeze.htm	2.2.7
Modification of the Hazardous Waste Manifest System	http://www.epa.gov/epaoswer/hazwaste/gener/manifest/mods.htm	3.10
NEMA Home page	http://www.nema.org	3.10
NYSDEC Household Battery Fact Sheet	http://www.dec.state.ny.us/website/dshm/redrecy/battery.htm	3.10
RCRA State and Regional Authorization	http://www.epa.gov/epaoswer/hazwaste/state/stats/stats_bystate.htm	3.10
Recycling Composting	http://www.epa.gov/msw/compost.htm	2.5.1
Sate-Specific Universal Waste Regulations	http://www.epa.gov/epaoswer/hazwaste/id/univwast/statespf.htm	2.1.1; 2.3.7; 2.3.9; 3.10
USEPA: Buy Recycled Links	http://www.epa.gov/wastewise/wrr/br-links.htm	4.6.4
USEPA: Deconstruction and Reuse	http://www.epa.gov/epaowser/non-hw/debris-new/reuse.htm	4.5.6
USEPA: Municipal Solid Waste Recycling	http://www.epa.gov/epaoswer/non-hw/muncpl/recycle.htm	2.5.1
USEPA: Reduce, Reuse, and Recycle	http://www.epa.gov/garbage/reduce.htm	4.5.1
USEPA: Resource Conservation Challenge	http://www.epa.gov/rcc/	4.6.4
USEPA: Resources for Large Quantity Generators	http://www.epa.gov/epaoswer/osw/gen_trans/lqg_resources.htm	3.10
USEPA: Teachers: Composting & Recycling	http://www.epa.gov/epaoswer/education/teach_comp.htm	4.5
USEPA: Universal Waste	http://www.epa.gov/epaoswer/hazwaste/id/uniwast/	2.1.1; 2.3.7; 2.3.9
Waste Programs by State	http://www.epa.gov/epaoswer/osw/stateweb.htm	3.10

Water Programs

Site Name	URL	Referenced In Sec.
Building Near Wetlands: The Dry Facts	http://www.epa.gov/r02earth/water/wetlands/dryfact.pdf	3.6
Clean Water Act, Section 404	http://www.epa.gov/owow/wetlands/regs/sec404.html	3.6
EPA's Ground and Drinking Water Homepage	http://www.epa.gov/safewater/index.html	3.7
Lead in Drinking Water at Schools and Day Care Centers	http://www.epa.gov/safewater/lead/schoolanddccs.htm	3.7
Lead in Drinking Water in Schools and Non-Residential Buildings	http://www.epa.gov/safewater/consumer/leadinschools.html	2.3.4
NPDES Homepage	http://cfpub.epa.gov/npdes/index.cfm	3.6
NPDES: EPA Construction General Permit	http://cfpub2.epa.gov/npdes/stormwater/cgp.cfm	3.6
NPDES: EPA's Electronic Stormwater Notice of Intent (eNOI) Home Page	http://cfpub.epa.gov/npdes/stormwater/enoi.cfm	3.6
NPDES: Pretreatment Standards & Limits	http://cfpub.epa.gov/npdes/pretreatment/pstandards.cfm#prohibited	3.6
NPDES: Pretreatment State and Territory Links	http://cfpub.epa.gov/npdes/linkresult.cfm?program_id=3&link_category=2&view=link	2.2.8
NPDES: Public Education and Outreach on Storm Water Impacts Water	http://cfpub.epa.gov/npdes/stormwater/menuofbmps/edu_1.cfm	4.2.3
Septic System Checkup: The Rhode Island Handbook for Inspection	http://www.state.ri.us/dem/pubs/regs/regs/water/isdsbook.pdf	4.4
Testing Schools and Day Care Centers for Lead in the Drinking Water	http://www.epa.gov/safewater/lead/testing.htm	4.6.6
USEPA: Drinking Water in Schools and Child Care Facilities	http://www.epa.gov/safewater/schools/	2.3.5
USEPA: Underground Injection Control Program: Shallow Injection Wells (Class V)	http://www.epa.gov/safewater/uic/classv.html	3.7
U.S Army Corps of Engineers Regulatory Program	http://www.usace.army.mil/inet/functions/cw/cecwo/reg	3.6

Other Programs

Site Name	URL	Referenced In Sec.
Construction Industry Compliance Assistance Center	http://www.cicacenter.org	2.3.10
Conference of Radiation Control Program Directors	http://crcpd.org/map/map.asp	4.3.3
Energy Star for K-12 School Districts	http://www.energystar.gov/index.cfm?c=k12_schools.bus_schoolsk12	4.6
Energy Star Homepage	http://www.energystar.gov/	4.6
Environmental Management Systems (EMS)	http://www.epa.gov/ems/index.htm	5.0
Federal Facilities Environmental Stewardship and Compliance Assistance Center	http://www.fedcenter.gov/assistance/facilitytour/construction	2.3.10
Healthy School Environment Resources	http://cfpub.epa.gov/schools/index.cfm	2.1.1; 2.2.1; 2.3.10
Healthy School Environments	http://www.epa.gov/schools/	2.2.1
Healthy School Environments Assessment Tool (Healthy SEAT)	http://www.epa.gov/schools/healthyseat	2.1.1
Healthy Schools Network	http://www.healthyschools.org/	2.7.1
National Directory of EMS Technical Assistance Providers	http://www.sectorstar.org/taps/index.cfm	5.0
New York State Energy Research and Development Authority	http://www.nyserda.org	4.6.1
New York State United Teachers' Health and Safety Resource Center	http://www.nysut.org/healthandsafety/	5.0
Peer Center Home Page	http://www.peercenter.net/	5.0
Regulations of the Commissioner of Education Part 155: Educational Facilities	http://www.emsc.nysed.gov/facplan/policy/8NYCRR155,5,15,00.html	2.3.10
Rutgers University: Environmental and Occupational Health Sciences Institute's Safe Schools	http://eohsi.rutgers.edu/ss	2.7.1
United States Department of Labor Occupational Safety and Health Administration (OSHA)	http://www.osha.gov	2.2.1; 2.3.1
United States Department of Transportation (DOT)	http://www.dot.gov	2.2.1; 2.3.1
USEPA: Implementation and Research Projects	http://www.epa.gov/region01/ems/projects.html#R	5.0
WasteWise	http://www.epa.gov/wastewise/	4.6.4

Appendix A - "U" and "P" Code Hazardous Wastes

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
A2213	Ethanimidothioic acid, 2-(dimethylamino) -N-hydroxy-2-oxo-, methyl ester	30558-43-1	U394
Acetonitrile	Same	75-05-8	U003
Acetophenone	Ethanone, 1-phenyl-	98-86-2	U004
2-Acetylaminefluarone	Acetamide, N-9H-fluoren-2-yl-	53-96-3	U005
Acetyl chloride	Same	75-36-5	U006
1-Acetyl-2-thiourea	Acetamide, N-(aminothioxomethyl)-	591-08-2	P002
Acrolein	2-Propenal	107-02-8	P003
Acrylamide	2-Propenamide	79-06-1	U007
Acrylonitrile	2-Propenenitrile	107-13-1	U009
Aldicarb	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	116-06-3	P070
Aldicarb sulfone	Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino) carbonyl] oxime	1646-88-4	P203
Aldrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro, (1alpha,4alpha,4abeta,5alpha,8alpha, 8abeta)-	309-00-2	P004
Allyl alcohol	2-Propen-1-ol	107-18-6	P005
Aluminum phosphide	Same	20859-73-8	P006
5-(Aminomethyl)-3-isoxazolol	3(2H)-Isoxazolone, 5-(aminomethyl)-	2763-96-4	P007
4-Aminopyridine	4-Pyridinamine	504-24-5	P008
Amitrole	1H-1,2,4-Triazol-3-amine	61-82-5	U011
Ammonium vanadate	Vanadic acid, ammonium salt	7803-55-6	P119
Aniline	Benzenamine	62-53-3	U012
Arsenic acid	Arsenic acid H3 AsO4	7778-39-4	P010
Arsenic pentoxide	Arsenic oxide As2 O5	1303-28-2	P011
Arsenic trioxide	Arsenic oxide As2 O3	1327-53-3	P012
Auramine	Benzenamine, 4,4[prime]- carbonimidoylbis[N,N-dimethyl	492-80-8	U014
Azaserine	L-Serine, diazoacetate (ester)	115-02-6	U015
Barban	Carbamic acid, (3-chlorophenyl) -, 4-chloro-2-butynyl ester	101-27-9	U280
Barium cyanide	Same	542-62-1	P013
Bendiocarb	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate	22781-23-3	U278

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Bendiocarb phenol	1,3-Benzodioxol-4-ol, 2,2-dimethyl-,	22961-82-6	U364
Benomyl	Carbamic acid, [1- [(butylamino) carbonyl]- 1H-benzimidazol-2-yl] -, methyl ester	17804-35-2	U271
Benz[c]acridine	Same	225-51-4	U016
Benz[a]anthracene	Same	56-55-3	U018
Benzal chloride	Benzene, (dichloromethyl)-	98-87-3	U017
Benzene	Same	71-43-2	U019
Benzidine	[1,1[prime]-Biphenyl]-4,4 \1\- diamine	92-87-5	U021
Benzo[a]pyrene	Same	50-32-8	U022
p-Benzoquinone	2,5-Cyclohexadiene-1,4-dione	106-51-4	U197
Benzotrichloride	Benzene, (trichloromethyl)-	98-07-7	U023
Benzyl chloride	Benzene, (chloromethyl)-	100-44-7	P028
Beryllium powder	Same	7440-41-7	P015
Bromoacetone	2-Propanone, 1-bromo-	598-31-2	P017
Bromoform	Methane, tribromo-	75-25-2	U225
4-Bromophenyl phenyl ether	Benzene, 1-bromo-4-phenoxy-	101-55-3	U030
Brucine	Strychnidin-10-one, 2,3-dimethoxy-	357-57-3	P018
Cacodylic acid	Arsinic acid, dimethyl-	75-60-5	U136
Calcium chromate	Chromic acid H2 CrO4, calcium salt	13765-19-0	U032
Calcium cyanide	Calcium cyanide Ca(CN)2	592-01-8	P021
Carbaryl	1-Naphthalenol, methylcarbamate	63-25-2	U279
Carbendazim	Carbamic acid, 1H-benzimidazol-2- yl, methyl ester	10605-21-7	U372
Carbofuran	7-Benzofuranol, 2,3-dihydro-2,2- dimethyl-, methylcarbamate	1563-66-2	P127
Carbofuran phenol	7-Benzofuranol, 2,3-dihydro-2,2- dimethyl-	1563-38-8	U367
Carbon disulfide	Same	75-15-0	P022
Carbon oxyfluoride	Carbonic difluoride	353-50-4	U033
Carbon tetrachloride	Methane, tetrachloro-	56-23-5	U211
Carbosulfan	Carbamic acid, [(dibutylamino) thio] methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester	55285-14-8	P189
Chloral	Acetaldehyde, trichloro-	75-87-6	U034
Chlorambucil	Benzenebutanoic acid, 4-[bis(2- chloroethyl) amino]-	305-03-3	U035
Chlordane	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	57-74-9	U036

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Chlordane (alpha and gamma isomers)			U036
Chlornaphazin	Naphthalenamine, N,N[prime]-bis(2- chloroethyl)-	494-03-1	U026
Chloroacetaldehyde	Acetaldehyde, chloro-	107-20-0	P023
p-Chloroaniline	Benzenamine, 4-chloro-	106-47-8	P024
Chlorobenzene	Benzene, chloro-	108-90-7	U037
Chlorobenzilate	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	510-15-6	U038
p-Chloro-m-cresol	Phenol, 4-chloro-3-methyl-	59-50-7	U039
2-Chloroethyl vinyl ether	Ethene, (2-chloroethoxy)-	110-75-8	U042
Chloroform	Methane, trichloro-	67-66-3	U044
Chloromethyl methyl ether	Methane, chloromethoxy-	107-30-2	U046
beta-Chloronaphthalene	Naphthalene, 2-chloro-	91-58-7	U047
o-Chlorophenol	Phenol, 2-chloro-	95-57-8	U048
1-(o-Chlorophenyl)thiourea	Thiourea, (2-chlorophenyl)-	5344-82-1	P026
3-Chloropropionitrile	Propanenitrile, 3-chloro-	542-76-7	P027
Chrysene	Same	218-01-9	U050
Copper cyanide	Copper cyanide CuCN	544-92-3	P029
Creosote	Same	8001-58-9	U051
Cresol (Cresylic acid)	Phenol, methyl-	1319-77-3	U052
Crotonaldehyde	2-Butenal	4170-30-3	U053
m-Cumenyl methylcarbamate	Phenol, 3-(methylethyl)-, methyl carbamate	64-00-6	P202
Cyanides (soluble salts and complexes) N.O.S. \1\			P030
Cyanogen	Ethanedinitrile	460-19-5	P031
Cyanogen bromide	Cyanogen bromide (CN)Br	506-68-3	U246
Cyanogen chloride	Cyanogen chloride (CN)Cl	506-77-4	P033
2-Cyclohexyl-4,6-dinitrophenol	Phenol, 2-cyclohexyl-4,6-dinitro-	131-89-5	P034
Cyclophosphamide	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-,2-oxide	50-18-0	U058
2,4-D	Acetic acid, (2,4-dichlorophenoxy)-	94-75-7	U240
2,4-D, salts, esters			U240
Daunomycin	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L- lyxo- hexopyranosyl)oxy]-7,8,9,10- tetrahydro-6,8,11-trihydroxy-1- methoxy-, (8S-cis)-	20830-81-3	U059

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
DDD	Benzene, 1,1[prime]-(2,2- dichloroethylidene)bis[4-chloro-	72-54-8	U060
DDT	Benzene, 1,1[prime]-(2,2,2- trichloroethylidene)bis[4-chloro-	50-29-3	U061
Diallate	Carbamothioic acid, bis(1- methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303-16-4	U062
Dibenz[a,h]anthracene	Same	53-70-3	U063
Dibenzo[a,i]pyrene	Benzo[rst]pentaphene	189-55-9	U064
1,2-Dibromo-3-chloropropane	Propane, 1,2-dibromo-3-chloro-	96-12-8	U066
Dibutyl phthalate	1,2-Benzenedicarboxylic acid, dibutyl ester	84-74-2	U069
o-Dichlorobenzene	Benzene, 1,2-dichloro-	95-50-1	U070
m-Dichlorobenzene	Benzene, 1,3-dichloro-	541-73-1	U071
p-Dichlorobenzene	Benzene, 1,4-dichloro-	106-46-7	U072
3,3[prime]-Dichlorobenzidine	[1,1[prime]-Biphenyl]-4,4[prime]- diamine, 3,3[prime]-dichloro-	91-94-1	U073
1,4-Dichloro-2-butene	2-Butene, 1,4-dichloro-	764-41-0	U074
Dichlorodifluoromethane	Methane, dichlorodifluoro-	75-71-8	U075
1,1-Dichloroethylene	Ethene, 1,1-dichloro-	75-35-4	U078
1,2-Dichloroethylene	Ethene, 1,2-dichlrol-, (E)-	156-60-5	U079
Dichloroethyl ether	Ethane, 1,1[prime]oxybis[2-chloro-	111-44-4	U025
Dichloroisopropyl ether	Propane, 2,2[prime]-oxybis[2-chloro-	108-60-1	U027
Dichloromethoxy ethane	Ethane, 1,1[prime]- [methylenebis(oxy)]bis[2-chloro-	111-91-1	U024
Dichloromethyl ether	Methane, oxybis[chloro-	542-88-1	P016
2,4-Dichlorophenol	Phenol, 2,4-dichloro-	120-83-2	U081
2,6-Dichlorophenol	Phenol, 2,6-dichloro-	87-65-0	U082
Dichlorophenylarsine	Arsonous dichloride, phenyl-	696-28-6	P036
1,3-Dichloropropene	1-Propene, 1,3-dichloro-	542-75-6	U084
Dieldrin	2,7:3,6-Dimethanonaphth[2,3- b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta, 6aalpha,7beta,7aalpha)-	60-57-1	P037
1,2:3,4-Diepoxybutane	2,2[prime]-Bioxirane	1464-53-5	U085
Diethylarsine	Arsine, diethyl-	692-42-2	P038
Diethylene glycol, dicarbamate	Ethanol, 2,2[prime]-oxybis-, dicarbamate	5952-26-1	U395
1,4-Diethyleneoxide	1,4-Dioxane	123-91-1	U108
Diethylhexyl phthalate	1,2-Benzenedicarboxylic acid, bis(2- ethylhexyl) ester	117-81-7	U028
N,N[prime]-Diethylhydrazine	Hydrazine, 1,2-diethyl-	1615-80-1	U086
O,O-Diethyl S-methyl dithiophosphate	Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288-58-2	U087

		Chemical Abstracts No.	Hazardous Waste No.
Diethyl-p-nitrophenyl phosphate	Phosphoric acid, diethyl 4- nitrophenyl ester	311-45-5	P041
Diethyl phthalate	1,2-Benzenedicarboxylic acid, diethyl ester	84-66-2	U088
O,O-Diethyl O-pyrazinyl phosphoro-thioate	Phosphorothioic acid, O,O-diethyl O- pyrazinyl ester	297-97-2	P040
Diethylstilbesterol	Phenol, 4,4[prime]-(1,2-diethyl-1,2- ethenediyl)bis-, (E)-	56-53-1	U089
Dihydrosafrole	1,3-Benzodioxole, 5-propyl-	94-58-6	U090
Diisopropylfluorophosphate (DFP)	Phosphorofluoridic acid, bis(1- methylethyl) ester	55-91-4	P043
Dimethoate	Phosphorodithioic acid, O,O- dimethyl S-[2-(methylamino)-2-oxoethyl] ester	60-51-5	P044
3,3[prime]-Dimethoxybenzidine	[1,1[prime]-Biphenyl]-4,4[prime]- diamine, 3,3[prime]-dimethoxy-	119-90-4	U091
p-Dimethylaminoazobenzene	Benzenamine, N,N-dimethyl-4-(phenylazo)-	60-11-7	U093
7,12-Dimethylbenz[a]anthracene	Benz[a]anthracene, 7,12-dimethyl-	57-97-6	U094
3,3[prime]-Dimethylbenzidine	[1,1[prime]-Biphenyl]-4,4[prime]-	119-93-7	U095
Dimethylcarbamoyl chloride	Carbamic chloride, dimethyl-	79-44-7	U097
1,1-Dimethylhydrazine	Hydrazine, 1,1-dimethyl-	57-14-7	U098
1,2-Dimethylhydrazine	Hydrazine, 1,2-dimethyl-	540-73-8	U099
alpha,alpha-Dimethylphenethylamine	Benzeneethanamine, alpha,alpha- dimethyl-	122-09-8	P046
2,4-Dimethylphenol	Phenol, 2,4-dimethyl-	105-67-9	U101
Dimethyl phthalate	1,2-Benzenedicarboxylic acid, dimethyl ester	131-11-3	U102
Dimethyl sulfate	Sulfuric acid, dimethyl ester	77-78-1	U103
Dimetilan	Carbamic acid, dimethyl-, 1-[(dimethylamino) carbonyl]-5-methyl-1H-pyrazol-3-yl ester	644-64-4	P191
4,6-Dinitro-o-cresol	Phenol, 2-methyl-4,6-dinitro-	534-52-1	P047
4,6-Dinitro-o-cresol salts			P047
2,4-Dinitrophenol	Phenol, 2,4-dinitro-	51-28-5	P048
2,4-Dinitrotoluene	Benzene, 1-methyl-2,4-dinitro-	121-14-2	U105
2,6-Dinitrotoluene	Benzene, 2-methyl-1,3-dinitro-	606-20-2	U106
Dinoseb	Phenol, 2-(1-methylpropyl)-4,6- dinitro-	88-85-7	P020
Di-n-octyl phthalate	1,2-Benzenedicarboxylic acid, dioctyl ester	117-84-0	U017
1,2-Diphenylhydrazine	Hydrazine, 1,2-diphenyl-	122-66-7	U109
Di-n-propylnitrosamine	1-Propanamine, N-nitroso-N-propyl-	621-64-7	U111

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Disulfoton	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	298-04-4	P039
Dithiobiuret	Thioimidodicarbonic diamide [(H2 N)C(S)]2 NH.	541-53-7	P049
Endosulfan	6,9-Methano-2,4,3- benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a- hexahydro-, 3-oxide	115-29-7	P050
Endothall	7-Oxabicyclo[2.2.1]heptane-2,3- dicarboxylic acid	145-73-3	P088
Endrin	2,7:3,6-Dimethanonaphth[2,3- b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octa-hydro-, (1aalpha,2beta,2abeta,3alpha,6alph a, 6abeta,7beta,7aalpha)-	72-20-8	P051
Endrin metabolites			P051
Epichlorohydrin	Oxirane, (chloromethyl)-	106-89-8	U041
Epinephrine	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-	51-43-4	P042
Ethyl carbamate (urethane)	Carbamic acid, ethyl ester	51-79-6	U238
Ethyl cyanide	Propanenitrile	107-12-0	P101
Ethylenebisdithiocarbamic acid	Carbamodithioic acid, 1,2- ethanediylbis-	111-54-6	U114
Ethylenebisdithiocarbamic acid, salts and esters.			U114
Ethylene dibromide	Ethane, 1,2-dibromo-	106-93-4	U067
Ethylene dichloride	Ethane, 1,2-dichloro-	107-06-2	U077
Ethylene glycol monoethyl ether	Ethanol, 2-ethoxy-	110-80-5	U359
Ethyleneimine	Aziridine	151-56-4	P054
Ethylene oxide	Oxirane	75-21-8	U115
Ethylenethiourea	2-Imidazolidinethione	96-45-7	U116
Ethylidene dichloride	Ethane, 1,1-dichloro-	75-34-3	U076
Ethyl methacrylate	2-Propenoic acid, 2-methyl-, ethyl ester	97-63-2	U118
Ethyl methanesulfonate	Methanesulfonic acid, ethyl ester	62-50-0	U119
Famphur	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester	52-85-7	P097
Fluoranthene	Same	206-44-0	U120
Fluorine	Same	7782-41-4	P056
Fluoroacetamide	Acetamide, 2-fluoro-	640-19-7	P057
Fluoroacetic acid, sodium salt	Acetic acid, fluoro-, sodium salt	62-74-8	P058
Formaldehyde	Same	50-00-0	U122

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Formetanate hydrochloride	Methanimidamide, N,N-dimethyl- N[prime]-[3-[[(methylamino) carbonyl]oxy]phenyl]-, monohydrochloride	23422-53-9	P198
Formic acid	Same	64-18-6	U123
Formparanate	Methanimidamide, N,N-dimethyl- N[prime]-[2-methyl-4-[[(methylamino) carbonyl]oxy]phenyl]-	17702-57-7	P197
Glycidylaldehyde	Oxiranecarboxyaldehyde	765-34-4	U126
Heptachlor	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	76-44-8	P059
Hexachlorobenzene	Benzene, hexachloro-	118-74-1	U127
Hexachlorobutadiene	1,3-Butadiene, 1,1,2,3,4,4- hexachloro-	87-68-3	U128
Hexachlorocyclopentadiene	1,3-Cyclopentadiene, 1,2,3,4,5,5- hexachloro-	77-47-4	U130
Hexachloroethane	Ethane, hexachloro-	67-72-1	U131
Hexachlorophene	Phenol, 2,2[prime]- methylenebis[3,4,6-trichloro-	70-30-4	U132
Hexachloropropene	1-Propene, 1,1,2,3,3,3-hexachloro-	1888-71-7	U243
Hexaethyl tetraphosphate	Tetraphosphoric acid, hexaethyl ester	757-58-4	P062
Hydrazine	Same	302-01-2	U133
Hydrogen cyanide	Hydrocyanic acid	74-90-8	P063
Hydrogen fluoride	Hydrofluoric acid	7664-39-3	U134
Hydrogen sulfide	Hydrogen sulfide H2 S	7783-06-4	U135
Indeno[1,2,3-cd]pyrene	Same	193-39-5	U137
Isobutyl alcohol	1-Propanol, 2-methyl-	78-83-1	U140
Isodrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta, 8beta,8abeta)-	465-73-6	P060
Isolan	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester	119-38-0	P192
Isosafrole	1,3-Benzodioxole, 5-(1-propenyl)-	120-58-1	U141
Kepone	1,3,4-Metheno-2H- cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6- decachlorooctahydro-	143-50-0	U142
Lasiocarpine	2-Butenoic acid, 2-methyl-,7-[[2,3- dihydroxy-2-(1-methoxyethyl)-3- methyl-1- oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-	303-34-1	4143

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Lead acetate	Acetic acid, lead(2+) salt	301-04-2	U144
Lead phosphate	Phosphoric acid, lead(2+) salt(2:3)	7446-27-7	U145
Lead subacetate	Lead, bis(acetato-O)tetrahydroxytri-	1335-32-6	U146
Lindane	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha, 5alpha,6beta)-	58-89-9	U129
Maleic anhydride	2,5-Furandione	108-31-6	U147
Maleic hydrazide	3,6-Pyridazinedione, 1,2-dihydro-	123-33-1	U148
Malononitrile	Propanedinitrile	109-77-3	U149
Manganese dimethyldithiocarbamate	Manganese, bis(dimethylcarbamodithioato- S,S[prime])-,	15339-36-3	P196
Melphalan	L-Phenylalanine, 4-[bis(2- chloroethyl)aminol]-	148-82-3	U150
Mercury	Same	7439-97-6	U151
Mercury fulminate	Fulminic acid, mercury(2+) salt	628-86-4	P065
Methacrylonitrile	2-Propenenitrile, 2-methyl-	126-98-7	U152
Methapyrilene	1,2-Ethanediamine, N,N-dimethyl- N[prime]-2-pyridinyl- N[prime]-(2- thienylmethyl)-	91-80-5	U155
Methiocarb	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate	2032-65-7	P199
Methomyl	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester	16752-77-5	P066
Methoxychlor	Benzene, 1,1[prime]-(2,2,2- trichloroethylidene)bis[4-methoxy-	72-43-5	U247
Methyl bromide	Methane, bromo-	74-83-9	U029
Methyl chloride	Methane, chloro-	74-87-3	U045
Methyl chlorocarbonate	Carbonochloridic acid, methyl ester	79-22-1	U156
Methyl chloroform	Ethane, 1,1,1-trichloro-	71-55-6	U226
3-Methylcholanthrene	Benz[j]aceanthrylene, 1,2-dihydro-3- methyl-	56-49-5	U157
4,4[prime]-Methylenebis(2-chloroaniline)	Benzenamine, 4,4[prime]- methylenebis[2-chloro-	101-14-4	U158
Methylene bromide	Methane, dibromo-	74-95-3	U068
Methylene chloride	Methane, dichloro-	75-09-2	U080
Methyl ethyl ketone (MEK)	2-Butanone	78-93-3	U159
Methyl ethyl ketone peroxide	2-Butanone, peroxide	1338-23-4	U160
Methyl hydrazine	Hydrazine, methyl-	60-34-4	P068
Methyl iodide	Methane, iodo-	74-88-4	U138
Methyl isocyanate	Methane, isocyanato-	624-83-9	P064
2-Methyllactonitrile	Propanenitrile, 2-hydroxy-2-methyl-	75-86-5	P069

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Methyl methacrylate	2-Propenoic acid, 2-methyl-, methyl ester	80-62-6	U162
Methyl parathion	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298-00-0	P071
Methylthiouracil	4(1H)-Pyrimidinone, 2,3-dihydro-6- methyl-2-thioxo-	56-04-2	U164
Metolcarb	Carbamic acid, methyl-, 3- methylphenyl ester	1129-41-5	P190
Mexacarbate	Phenol, 4-(dimethylamino)-3,5- dimethyl-, methylcarbamate (ester)	315-18-4	P128
Mitomycin C	Azirino[2[prime],3[prime]:3,4]pyrro lo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy]methyl]- 1,1a,2,8,8a,8b-hexahydro-8a- methoxy-5- methyl-, [1aS-(1aalpha,8beta,8aalpha,8balpha)]-	50-07-7	U010
MNNG	Guanidine, N-methyl-N[prime]-nitro- N-nitroso-	70-25-7	U163
Naphthalene	Same	91-20-3	U165
1,4-Naphthoquinone	1,4-Naphthalenedione	130-15-4	U166
alpha-Naphthylamine	1-Naphthalenamine	134-32-7	U167
beta-Naphthylamine	2-Naphthalenamine	91-59-8	U168
alpha-Naphthylthiourea	Thiourea, 1-naphthalenyl-	86-88-4	P072
Nickel carbonyl	Nickel carbonyl Ni(CO)4, (T-4)-	13463-39-3	P073
Nickel cyanide	Nickel cyanide Ni(CN)2	557-19-7	P074
Nicotine	Pyridine, 3-(1-methyl-2- pyrrolidinyl)-, (S)-	54-11-5	P075
Nicotine salts			P075
Nitric oxide	Nitrogen oxide NO	10102-43-9	P076
p-Nitroaniline	Benzenamine, 4-nitro-	100-01-6	P077
Nitrobenzene	Benzene, nitro-	98-95-3	U169
Nitrogen dioxide	Nitrogen oxide NO2	10102-44-0	P078
Nitroglycerin	1,2,3-Propanetriol, trinitrate	55-63-0	P081
p-Nitrophenol	Phenol, 4-nitro-	100-02-7	U170
2-Nitropropane	Propane, 2-nitro-	79-46-9	U171
N-Nitrosodi-n-butylamine	1-Butanamine, N-butyl-N-nitroso-	924-16-3	U172
N-Nitrosodiethanolamine	Ethanol, 2,2[prime]- (nitrosoimino)bis-	1116-54-7	U173
N-Nitrosodiethylamine	Ethanamine, N-ethyl-N-nitroso-	55-18-5	U174
N-Nitrosodimethylamine	Methanamine, N-methyl-N-nitroso-	62-75-9	P082
N-Nitroso-N-ethylurea	Urea, N-ethyl-N-nitroso-	759-73-9	U176
N-Nitroso-N-methylurea	Urea, N-methyl-N-nitroso-	684-93-5	U177

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
N-Nitroso-N-methylurethane	Carbamic acid, methylnitroso-, ethyl ester	615-53-2	U178
N-Nitrosomethylvinylamine	Vinylamine, N-methyl-N-nitroso-	4549-40-0	P084
N-Nitrosopiperidine	Piperidine, 1-nitroso-	100-75-4	U179
N-Nitrosopyrrolidine	Pyrrolidine, 1-nitroso-	930-55-2	U180
5-Nitro-o-toluidine	Benzenamine, 2-methyl-5-nitro-	99-55-8	U181
Octamethylpyrophosphoramide	Diphosphoramide, octamethyl-	152-16-9	P085
Osmium tetroxide	Osmium oxide OsO4, (T-4)-	20816-12-0	P087
Oxamyl	Ethanimidothioc acid, 2-(dimethylamino)-N-[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester	23135-22-0	P194
Paraldehyde	1,3,5-Trioxane, 2,4,6-trimethyl-	123-63-7	U182
Parathion	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56-38-2	P089
Pentachlorobenzene	Benzene, pentachloro-	608-93-5	U183
Pentachloroethane	Ethane, pentachloro-	76-01-7	U184
Pentachloronitrobenzene (PCNB)	Benzene, pentachloronitro-	82-68-8	U185
Pentachlorophenol	Phenol, pentachloro-	87-86-5	See F027
Phenacetin	Acetamide, N-(4-ethoxyphenyl)-	62-44-2	U187
Phenol	Same	108-95-2	U188
Phenylmercury acetate	Mercury, (acetato-O)phenyl-	62-38-4	P092
Phenylthiourea	Thiourea, phenyl-	103-85-5	P093
Phosgene	Carbonic dichloride	75-44-5	P095
Phosphine	Same	7803-51-2	P096
Phorate	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	298-02-2	P094
Phthalic anhydride	1,3-Isobenzofurandione	85-44-9	U190
Physostigmine	Pyrrolo[2,3-b]indol-5-01, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate(ester), (3aS-cis)-	57-47-6	P204
Physostigmine salicylate	Benzoic acid, 2-hydroxy-, compd with (3aS-cis) -1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo [2,3-b]indol-5-yl methylcarbamate ester (1:1)	57-64-7	P188
2-Picoline	Pyridine, 2-methyl-	109-06-8	U191
Potassium cyanide	Potassium cyanide K(CN)	151-50-8	P098
Potassium silver cyanide	Argentate(1-), bis(cyano-C)-, potassium	506-61-6	P099
Promecarb	Phenol, 3-methyl-5-(1-methylethyl)- , methyl carbamate	2631-37-0	P201
Pronamide	Benzamide, 3,5-dichloro-N-(1,1- dimethyl-2-propynyl)-	23950-58-5	U192

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
1,3-Propane sultone	1,2-Oxathiolane, 2,2-dioxide	1120-71-4	U193
n-Propylamine	1-Propanamine	107-10-8	U194
Propargyl alcohol	2-Propyn-1-ol	107-19-7	P102
Propham	Carbamic acid, phenyl-, 1- methylethyl ester	122-42-9	U373
Propoxur	Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	U411
Propylene dichloride	Propane, 1,2-dichloro-	78-87-5	U083
1,2-Propylenimine	Aziridine, 2-methyl-	75-55-8	P067
Prosulfocarb	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester	52888-80-9	U387
Pyridine	Same	110-86-1	U196
Reserpine	Yohimban-16-carboxylic acid, 11,17- dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-smethyl ester, (3beta,16beta,17alpha,18beta,20alpha)-	50-55-5	U200
Resorcinol	1,3-Benzenediol	108-46-3	U201
Saccharin	1,2-Benzisothiazol-3(2H)-one, 1,1- dioxide	81-07-2	U202
Saccharin salts			U202
Safrole	1,3-Benzodioxole, 5-(2-propenyl)-	94-59-7	U203
Selenium dioxide	Selenious acid	7783-00-8	U204
Selenium sulfide	Selenium sulfide SeS2	7488-56-4	U205
Selenourea	Same	630-10-4	P103
Silver cyanide	Silver cyanide Ag(CN)	506-64-9	P104
Silvex (2,4,5-TP)	Propanoic acid, 2-(2,4,5- trichlorophenoxy)-	93-72-1	See F027
Sodium cyanide	Sodium cyanide Na(CN)	143-33-9	P106
Streptozotocin	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)carbonyl]amino]-	18883-66-4	U206
Strychnine	Strychnidin-10-one	57-24-9	P108
Strychnine salts			P108
1,2,4,5-Tetrachlorobenzene	Benzene, 1,2,4,5-tetrachloro-	95-94-3	U207
1,1,1,2-Tetrachloroethane	Ethane, 1,1,1,2-tetrachloro-	630-20-6	U208
1,1,2,2-Tetrachloroethane	Ethane, 1,1,2,2-tetrachloro-	79-34-5	U209
Tetrachloroethylene	Ethene, tetrachloro-	127-18-4	U210
2,3,4,6-Tetrachlorophenol	Phenol, 2,3,4,6-tetrachloro-	58-90-2	See F027
Tetraethyldithiopyrophosphate	Thiodiphosphoric acid, tetraethyl ester	3689-24-5	P109
Tetraethyl lead	Plumbane, tetraethyl-	78-00-2	P110
Tetraethyl pyrophosphate	Diphosphoric acid, tetraethyl ester	107-49-3	P111

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Tetranitromethane	Methane, tetranitro-	509-14-8	P112
Thallic oxide	Thallium oxide Tl2 O3	1314-32-5	P113
Thallium(I) acetate	Acetic acid, thallium(1+) salt	563-68-8	U214
Thallium(I) carbonate	Carbonic acid, dithallium(1+) salt	6533-73-9	U215
Thallium(I) chloride	Thallium chloride TlCl	7791-12-0	U216
Thallium(I) nitrate	Nitric acid, thallium(1+) salt	10102-45-1	U217
Thallium selenite	Selenious acid, dithallium(1+) salt	12039-52-0	P114
Thallium(I) sulfate	Sulfuric acid, dithallium(1+) salt	7446-18-6	P115
Thioacetamide	Ethanethioamide	62-55-5	U218
Thiodicarb	Ethanimidothioic acid, N,N[prime]- [thiobis [(methylimino) carbonyloxy]] bis-, dimethyl ester	59669-26-0	U410
Thiofanox	2-Butanone, 3,3-dimethyl-1-(methylthio)-, 0-[(methylamino)carbonyl] oxime	39196-18-4	P045
Thiomethanol	Methanethiol	74-93-1	U153
Thiophanate-methyl	Carbamic acid, [1,2-phyenylenebis (iminocarbonothioyl)] bis-, dimethyl ester.	23564-05-8	U409
Thiophenol	Benzenethiol	108-98-5	P014
Thiosemicarbazide	Hydrazinecarbothioamide	79-19-6	P116
Thiourea	Same	62-56-6	U219
Thiram	Thioperoxydicarbonic diamide [(H2 N)C(S)]2 S2, tetramethyl-	137-26-8	U244
Tirpate	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino) carbonyl] oxime	26419-73-8	P185
Toluene	Benzene, methyl-	108-88-3	U220
Toluenediamine	Benzenediamine, ar-methyl-	25376-45-8	U221
Toluene diisocyanate	Benzene, 1,3-diisocyanatomethyl-	26471-62-5	U223
o-Toluidine	Benzenamine, 2-methyl-	95-53-4	U328
o-Toluidine hydrochloride	Benzenamine, 2-methyl-, hydrochloride	636-21-5	U222
p-Toluidine	Benzenamine, 4-methyl-	106-49-0	U353
Toxaphene	Same	8001-35-2	P123
Triallate	Carbamothioic acid, bis(1- methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester	2303-17-5	U389
1,1,2-Trichloroethane	Ethane, 1,1,2-trichloro-	79-00-5	U227
Trichloroethylene	Ethene, trichloro-	79-01-6	U228
Trichloromethanethiol	Methanethiol, trichloro-	75-70-7	P118

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Trichloromonofluoromethane	Methane, trichlorofluoro-	75-69-4	U121
2,4,5-Trichlorophenol	Phenol, 2,4,5-trichloro-	95-95-4	See F027
2,4,6-Trichlorophenol	Phenol, 2,4,6-trichloro-	88-06-2	See F027
2,4,5-T	Acetic acid, (2,4,5- trichlorophenoxy)-	93-76-5	See F027
Triethylamine	Ethanamine, N,N-diethyl-	121-44-8	U404
1,3,5-Trinitrobenzene	Benzene, 1,3,5-trinitro-	99-35-4	U234
Tris(2,3-dibromopropyl) phosphate	1-Propanol, 2,3-dibromo-, phosphate(3:1)	126-72-7	U235
Trypan blue	2,7-Naphthalenedisulfonic acid, 3,3[prime]-[(3,3[prime]-dimethyl[1,1[prime]-biphenyl]- 4,4[prime]-diyl)bis(azo)]- bis[5-amino-4-hydroxy-, tetrasodium salt	72-57-1	U236
Uracil mustard	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-.	66-75-1	U237
Vanadium pentoxide	Vanadium oxide V2 O5	1314-62-1	P120
Vinyl chloride	Ethene, chloro-	75-01-4	U043
Warfarin	2H-1-Benzopyran-2-one, 4-hydroxy-3- (3-oxo-1-phenylbutyl)-, when present at concentrations less than 0.3%	81-81-2	U248
Warfarin	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations greater than 0.3%	81-81-2	P001
Warfarin salts, when present at concentrations less than 0.3%			U248
Warfarin salts, when present at concentrations greater than 0.3%.			P001
Zinc cyanide	Zinc cyanide Zn(CN)2	557-21-1	P121
Zinc phosphide	Zinc phosphide Zn3 P2, when present at concentrations greater than 10%	1314-84-7	P122
Zinc phosphide	Zinc phosphide Zn3 P2, when present at concentrations of 10% or less	1314-84-7	U249
Ziram	ZInc, bis(dimethylcarbamodithioato- S,S[prime])-, (T-4)-	137-30-4	P205

\1\ The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.

[53 FR 13388, Apr. 22, 1988, as amended at 53 FR 43881, Oct. 31, 1988; 54 FR 50978, Dec. 11, 1989; 55 FR 50483, Dec. 6, 1990; 56 FR 7568, Feb. 25, 1991; 59 FR 468, Jan. 4, 1994; 59 FR 31551, June 20, 1994; 60 FR 7853, Feb. 9, 1995; 60 FR 19165, Apr. 17, 1995; 62 FR 32977, June 17, 1997; 63 FR 24625, May 4, 1998; 65 FR 14475, Mar. 17, 2000; 65 FR 67127, Nov. 8, 2000; 70 FR 9177, Feb. 24, 2005]

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