

# Colgate University Contingency Plan



**Colgate University**

**13 Oak Drive**

**Hamilton, New York 13346**

**Revised: March 2015**

Colgate University Department of Environmental Health and Safety  
Contingency Plan

# Contingency Plan

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## PROGRAM ADMINISTRATION

### Purpose and Scope

(A) In accordance with the Environmental Protection Agency (EPA) regulations set forth in 40 CFR Part 264 Subpart D Hazardous Waste Storage Facility Contingency Plan and Emergency Procedures and the New York State (NYS) Department of Environmental Conservation (DEC) regulations set forth in NYCRR Section 3 Subpart 373-2.4 Hazardous Waste Facility Contingency Plan and Emergency Procedures, this document provides a written plan of action for Colgate University in the event of a fire, explosion, or unplanned release of hazardous materials or hazardous waste which could pose a threat to human health and/or the environment (See Appendix U 40 CFR 264 Subpart D Hazardous Waste Facility Contingency Plan and Emergency Procedures and Appendix R NYCRR Chapter IV Subpart 373-2.4 Hazardous Waste Facility Contingency Plan and Emergency Procedures).

(B) Other documents including Colgate University's Spill Prevention Control and Countermeasures (SPCC) Plan, Emergency Response Plan (ERP), and Chemical Hygiene Plan (CHP) may be used as additional resources during a hazardous materials or hazardous waste incident (40 CFR 264.52 (b)). The guidelines provided in the SPCC, CHP, and Contingency Plan all serve to keep the university operating in such a way as to minimize the hazards to human health and/or the environment from a fire, explosion, or unplanned release of hazardous materials or hazardous waste (40 CFR 264.31).

(C) The Contingency Plan applies to the main campus and all satellite Colgate University properties that use or store hazardous materials and/or hazardous waste.

(D) This document will be reviewed annually by the Director of Environmental Health and Safety and must be amended in the event any of the following circumstances occur (40 CFR 264.54):

- The regulations are revised
- The plan or any part of the plan fails during an emergency
- The facility changes in a way that alters necessary response actions or increases the potential of a fire, explosion, or release
- The list of emergency coordinators changes
- The list of emergency equipment changes

See Appendix V Contingency Plan Annual Review and Amendments.

## Site Information

(A) Founded in 1819, Colgate University is a nationally ranked private liberal arts university with an average undergraduate enrollment of approximately 2850 students. Colgate University's 500+ acre campus is in the small, rural community of Hamilton located in central New York. Colgate University employs approximately 975 combined faculty and staff. Several university buildings house laboratories, trade shops, and studios where faculty, staff, and students use hazardous materials and generate hazardous waste. Hazardous waste is collected at points of generation and stored in satellite accumulation areas (SAAs). There is a SAA at every hazardous waste point of generation. Hazardous waste is stored in SAAs for up to 72 hours from the time the hazardous waste container becomes full or is no longer required. Colgate University has one main accumulation area (MAA) where hazardous waste is stored for up to 90 days at a time. Hazardous waste is also stored in designated storage containers adjacent the southwest corner of the Facilities building, the northeast corner of the Seven Oaks Golf Course maintenance building, the rear exit of Ryan Arts Studio, and Room 4 at Schupf Studio.

(B) Colgate University maintains an online material safety data sheet (MSDS) library and a master hardcopy MSDS library. Both libraries contain a MSDS for every chemical in the university's inventory. A MSDS contains valuable emergency response information specific to the chemical based on its properties. The online MSDS library (ChemWatch) can be found at the following website address:

<http://jr.chemwatch.net/chemwatch.web/account/autologinbyip>

Procedures for conducting an online MSDS search using ChemWatch are as follows:

1. Select Gold or Vendor under (M)SDS AND LABELS
2. Type in chemical name or CAS#
3. Click SEARCH or hit Enter key

The master hardcopy MSDS library is located in Ho Science Center Room B07 and is maintained by the Department of Environmental Health and Safety (EHS).

## **EMERGENCY COORDINATORS (40 CFR 264.55)**

Emergency Coordinators (ECs) are authorized to coordinate emergency response and deploy resources as necessary to respond to a fire, explosion, or hazardous waste release. The ECs must have a thorough understanding of the following:

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- Hazardous materials and hazardous waste safe storage requirements
- Hazardous materials and hazardous waste storage locations
- Hazardous Material (HAZMAT) / Hazardous Waste Operations Emergency Response (HAZWOPER) Procedures
- Colgate University Contingency Plan
- Colgate University SPCC Plan
- Colgate University ERP
- Colgate University CHP
- Colgate University Respiratory Protection Plan (RPP)
- Colgate University online MSDS library (ChemWatch)
- U.S. Department of Transportation (DOT) Hazardous Materials Safety Administration Emergency Response Guidebook (ERG)
- EPA Computer-Aided Management of Emergency Operations (CAMEO) software
- EPA Mapping Applications for Response, Planning, and Local Operational Tasks (MARPLOT) software
- EPA Areal Locations of Hazardous Atmospheres (ALOHA) software
- Colgate University weather tracking / warning system (Telvent DTN)
- University layout
- Emergency response equipment locations
- Proper use of emergency response equipment (spill kits, SCBAs, etc)
- Personal Protective Equipment (PPE) levels
- Hazardous materials and hazardous waste related emergency response procedures
- Local outside agency emergency response assets including Hamilton Fire Department (HFD), Hamilton Police Department (HPD), Southern Madison County Volunteer Ambulance Corps (SOMAC), Clean Harbors Environmental Services (CHES)
- National Incident Management System (NIMS)
- Incident Command System (ICS)
- State and federal hazardous materials / hazardous waste spill reporting requirements

ECs must be able to immediately and safely direct and/or execute emergency response procedures to prevent, control, or contain the source of the hazardous materials or hazardous waste incident (40 CFR 264.51(b)).

In the event of a hazardous materials or hazardous waste related fire, explosion, or release, Campus Safety will notify ALL personnel below (in order as written):

**Primary Emergency Coordinator**

1. Daniel Gough  
Director of Environmental Health and Safety

Address (Work): 13 Oak Drive, Hamilton NY 13346  
Phone (Work): 315-228-7994  
Phone (Cell): 315-825-8550  
E-mail: [dgough@colgate.edu](mailto:dgough@colgate.edu)

**Alternate Emergency Coordinator**

2. Mary Williams  
Environmental Health and Safety Manager

Address (Work): 13 Oak Drive, Hamilton NY 13346  
Phone (Work): 315-228-6411  
Phone (Cell): 315-525-6598  
E-mail: [mwilliams@colgate.edu](mailto:mwilliams@colgate.edu)

See Appendix F Laboratory Emergency Coordinator Contacts and Appendix G Colgate University, Local, State, and Federal Emergency Contacts.

**EMERGENCY PROCEDURES (40 CFR 264.56)**

**Emergency Communications**

(A) All students, staff, and faculty at Colgate University are instructed to call Campus Safety at 315-228-7333 in the event of any emergency. Upon receipt of the emergency communication, Campus Safety will notify the appropriate onsite emergency response staff (EHS, Campus Safety, Facilities, Health Services, etc.) and outside agencies (HFD, HPD, SOMAC, CMH, etc.) as necessary (See Appendix N – Q Agreement Letters). In the event of a hazardous materials related fire, explosion, or release, Campus

## EMERGENCY PROCEDURES (40 CFR 264.56)

### Emergency Communications

(A) All students, staff, and faculty at Colgate University are instructed to call Campus Safety at 315-228-7333 in the event of any emergency. Upon receipt of the emergency communication, Campus Safety will notify the appropriate onsite emergency response staff (EHS, Campus Safety, Facilities, Health Services, etc) and outside agencies (HFD, HPD, SOMAC, CMH, etc) as necessary (See Appendix N – Q Agreement Letters). In the event of a hazardous materials related fire, explosion, or release, Campus Safety will immediately notify the Primary Emergency Coordinator (or the alternate Emergency Coordinator in the Primary Emergency Coordinator’s absence). During business hours, Campus Safety will contact the Emergency Coordinator and Alternate Emergency Coordinators via 2-way radios, work phone, or cell phone. During non-business hours, Campus Safety will contact the Emergency Coordinator and Alternate Emergency Coordinators via their home phone or cell phone.

(B) Emergency communications to the general campus community will be made via Colgate Alert (Rave) and Informacast. These systems include emergency communications via text message, voicemail, and outdoor public address system, respectively. The ERP specifies the authorized individuals for each method of emergency communication.

### Incident Management – Hazardous Materials or Hazardous Waste General

Hazardous waste incidents can be separated into two categories—those in which the response can be coordinated and managed by lab personnel and those that require non-laboratory personnel response (EHS, HFD, CHES, HAZMAT Emergency Response Teams, etc). The first category of incidents is known as an “incidental spill” and the second category of incidents is known as “emergency response.”

#### (A) Incidental Spill

An incidental spill is defined by OSHA as a spill in which the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel...responses to releases of hazardous substances where there is no potential safety or health hazard (i.e. fire, explosion, or chemical exposure) (29 CFR 1910.120(a)(3)). For categorization as an incidental spill, all of the following criteria must be met:

- Less than or equal to one gallon of spilled material
- Not acutely toxic (P-listed); not releasing toxic gas

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- Did not cause a fire / explosion; not a fire / explosion hazard; not releasing flammable / explosive vapors
- Inside a building, away from floor drains, doors, etc

An incidental spill is able to be managed by lab personnel with limited experience and limited response equipment. Examples include small spills of salt and buffer solutions (potassium chloride, sodium acetate), latex paints, or culture media (agar). While these chemicals are relatively benign, it is imperative that they be cleaned up properly for both safety and compliance reasons.

See Appendix A for Incidental Spill Procedures.

### (B) Emergency Response

An emergency response is defined by OSHA in 29 CFR 1910.120(a)(3) as "...a response effort by employees from outside the immediate release area or by other designated responders (i.e. mutual aid groups, local fire departments, etc) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance."

A uniform method of initial response, called Universal Emergency Response Procedures, should be used by the person(s) who discovers the spill (see Appendix B Universal Emergency Response Procedures).

Once the universal emergency response procedures have been initiated, the EC will determine what further course of action is required. Based on the nature of the incident, the EC will decide whether to initiate a Level I, II, or III response, or downgrade the release to incidental spill management. Once the response has been initiated, it is the EC's responsibility to monitor the situation and upgrade or downgrade the response level as the situation warrants.

#### (1) Level I Emergency Response

A Level I emergency response consists of an entirely Colgate University based response, which may include but is not limited to, the EC and the departments of EHS, Campus Safety, and Facilities. A Level I spill response is initiated if ALL of the following criteria are met:

- No injuries occurred that would require outside medical attention
- No fires, explosions, or flammable / explosive vapors are released
- No DOT Division 2.3 Poisonous Gases or DOT Division 6.1 Poisonous Materials are involved in the spill / release

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- The spill may be handled using Level D PPE (see Appendix L Colgate University PPE Levels)
- The spill may be handled with the emergency response equipment available onsite (see Appendix H for a list of spill kits and locations)

See Appendix C for Level I Emergency Response Procedures.

### (2) Level II Emergency Response

A Level II emergency response consists of an emergency spill response contractor (CHES) based response, and may also include local emergency response agencies (HFD, HPD, SOMAC, etc), in addition to Colgate University departments (EHS, Campus Safety, Facilities). Activation of the Colgate University Emergency Management Team (EMT), Emergency Operation Center (EOC), and Executive Emergency Management Advisory Team (EEMAT) may be required. A Level II spill response is initiated if any of the following criteria are met:

- Minor injuries may have occurred that warrant outside medical attention
- The safety showers and/or eyewash station were activated
- Acute chemical exposure is suspected (although may still be asymptomatic)
- There was a fire, explosion, or flammable / explosive vapor release
- The spill / release involves a DOT Division 2.3 Poisonous Gas or DOT Division 6.1 Poisonous Material (any class)
- The spill must be handled using Level C or greater PPE (see Appendix L Colgate University PPE Levels)
- The spill response and clean-up requires equipment not available at Colgate University (See Appendix J CHES Spill Emergency Response Agreement [SERA] and Appendix K CHES Emergency Equipment List)

See Appendix D for Level II Emergency Response Procedures.

### (3) Level III Emergency Response

A Level III emergency response is initiated when the spilled material threatens the health and safety of either Colgate University as a whole or the local community. A Level III emergency response consists of university departments, an emergency spill response contractor (CHES), and local emergency response agencies (HFD, HPD, SOMAC, etc). In addition, state and federal emergency response agencies may be required (HAZMAT Emergency Response Team, NY State Police, etc) and/or must be notified (DEC,

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EPA, etc). Activation of the Colgate University EMT, EOC, EEMAT may be required. A Level III spill response is initiated if ANY of the following criteria are met:

- Significant injuries or fatalities occurred
- Significant chemical exposures have occurred requiring immediate medical attention at a hospital equipped to handle hazardous materials injuries
- There was a large fire, explosion, or flammable / explosive vapor release
- DOT Class 1 Explosives, DOT Class 3 Flammable and Combustible Liquids, DOT Division 4.2 Spontaneously Combustible Solids, DOT Division 4.3 Dangerous When Wet Solids, DOT Division 5.2 Organic Peroxides are present in the vicinity
- Significant amounts of acutely toxic materials have been released (including any P-listed materials, DOT Division 2.3 Poisonous Gas or DOT Division 6.1 Poisonous Material (any class)
- Spill materials have reacted to produce large quantities of toxic gases
- Part or all of the campus needs to be evacuated
- The surrounding community needs to be evacuated
- Incident is breaching outside Colgate University boundaries (including via the atmosphere, sewer, etc)
- The spill must be handled using Level C or greater PPE (see Appendix L Colgate University PPE Levels)
- The spill response and clean-up requires equipment not available at Colgate University (See Appendix J CHES Spill Emergency Response Agreement [SERA] and Appendix K CHES Emergency Equipment List)

See Appendix E for Level III Emergency Response Procedures.

### Incident Management – Hazardous Materials or Hazardous Waste Oil (40 CFR 264.52(b))

A hazardous materials or hazardous waste emergency response involving oil will be managed in accordance with the Colgate University SPCC Plan. A copy of the SPCC Plan is available at EHS and Facilities.

### Incident Management – Hazardous Materials or Hazardous Waste Fire

A hazardous materials or hazardous waste emergency response involving a fire will be managed in accordance with a Level II or Level III response based on the situation as a whole. The occurrence of a fire automatically excludes the incident from being managed as incidental or Level I.

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### Incident Management – Hazardous Materials or Hazardous Waste Explosion

A hazardous materials or hazardous waste emergency response involving an explosion will be managed in accordance with a Level II or Level III response based on the situation as a whole. The occurrence of an explosion automatically excludes the incident from being managed as incidental or Level I.

### HAZMAT / HAZWOPER Team

In accordance with OSHA 29 CFR 1910.120(q)(6), Colgate University maintains a fully certified HAZMAT / HAZWOPER Team that receives annual training to maintain proficiency at the Hazardous Materials Technician level (see Appendix S 40 CFR 1910.120 Hazardous Waste Operations and Emergency Response). Hazardous Materials Technicians are individuals who respond to releases or potential releases for the purposes of stopping the release. Hazardous Materials Technicians assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch, or otherwise stop the release of a hazardous substance. Hazardous Material Technicians have the following competencies above the Hazardous Material Operations level:

- Familiarity and expertise to implement the Colgate University ERP and Contingency Plan
- Knowledge and expertise in classification, identification, and verification of known and unknown materials using field survey instruments and equipment
- Ability to function within an assigned role in the ICS
- Ability to select and use proper specialized chemical PPE
- Knowledge of hazard and risk assessment techniques
- Ability to perform advanced control, containment, and/or confinement operations within the capabilities of the resources and PPE available at Colgate University
- Knowledge and ability to implement decontamination procedures
- Expertise in chemical and toxicological terminology and behavior

The Colgate University HAZMAT / HAZWOPER Team receives an initial 40 hour hazardous materials emergency response training and, thereafter, annual 8-hour refresher training. At a minimum, all EHS staff are members of the HAZMAT / HAZWOPER Team.

All members of the Colgate University HAZMAT / HAZWOPER Team are also members of the immediately dangerous to life and health (IDLH) atmosphere Rescue and Emergency Services Team (REST). Members of the REST are trained in IDLH atmosphere rescue operations as well as use of a self contained breathing apparatus (SCBAs). Colgate University maintains Scott ACSi SCBAs with 4500 psi 45 min carbon bottle cylinders for use by HAZMAT / HAZWOPER Team and REST members. SCBAs are kept in Ho Science Center Room 133 and the Facilities building conference room.

## Spill Modeling and Loss Predictions

In the event of a large scale hazardous materials or hazardous waste spill, the EC (or a designated representative with the same requisite skills) will perform computer aided modeling and loss predictions to assist in the most appropriate emergency response efforts. Modeling and loss predictions for a hazardous materials or hazardous waste spill will be analyzed using extended GIS based software programs including CAMEO database, ALOHA, and MARPLOT. Analysis will include source strength calculations, dispersion modeling, chemical release rates, impact distances, threshold levels, and footprint plots. Plume data will be combined with HAZUS-MH exposure profiles and demographic data to estimate the number of people and buildings / facilities affected by the chemical release. Loss predictions will be performed including (1) estimations of physical damage to buildings, their contents, utilities, and other types of infrastructure; and (2) assessments on how the university community might be affected by damage from associated fires and/or explosions. Loss estimates and assessments will include criteria such as casualties, emergency power requirements, rescue vehicle access routes, etc.

The Area Locations of Hazardous Atmospheres (ALOHA) software is a modeling program that estimates threat zones associated with hazardous chemical releases including toxic gas clouds, fires, and explosions. As defined by the National Oceanic and Atmospheric Administration (NOAA) Office of Emergency Response and Restoration and the Environmental Protection Agency (EPA), a threat zone is “an area within which the hazard level (such as toxicity, flammability, thermal radiation, or damaging overpressure) has exceeded a user-specified level of concern (LOC)” (NOAA, 2009). ALOHA is an extremely powerful hazardous chemical release modeling tool that can be used in either a planning mode or a response mode. It is important, however, to note the ALOHA software limitations:

1. The ALOHA model does not incorporate the effects of:
  - chemical reactions
  - particulates
  - chemical mixtures
  - terrain
  - hazardous fragments
  
2. Caution must be used when interpreting the model’s predictions under the following conditions:
  - very low wind speeds
  - very stable atmospheric conditions

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- wind shifts and terrain steering effects
- concentration patchiness, particularly near the source

### Post-Spill Reporting (40 CFR 264.56(h)(i))

Within 15 days of an incident requiring implementation of this contingency plan, the EC must submit a report to the EPA Regional Administrator detailing the following:

1. Name, address, and phone number of the owner or operator
2. Name, address, and phone number of the facility
3. Date, time, and type of incident (ex. fire, explosion)
4. Name and quantity of material(s) involved
5. The extent of injuries (if any)
6. An assessment of actual or potential hazard to human health or the environment
7. Estimated quantity and disposition of recovered material that resulted from the incident

## EMERGENCY EQUIPMENT (40 CFR 264.52)

### Facility Design and Risk Management (40 CFR 264.31)

Colgate University minimizes risks involving hazardous materials and hazardous waste by utilizing engineering controls, administrative practices, and PPE. Engineering controls include the use of flammable and corrosive storage cabinets for storing hazardous materials and the use of fume hoods when working with chemicals in the laboratory. Administrative practices include substituting less hazardous substances and practices whenever possible, standard labeling practices, posting safety signage, mandatory lab safety and hazardous waste management training, and chemical inventory minimization. The nature and type of PPE used depends on the specific hazards of the material being handled (See Appendix L for a list of available Colgate University PPE).

If the risks associated with hazardous materials or hazardous waste handling and/or storage exceeds the capabilities of the engineering controls, administrative practices, or available personal protective equipment, then it is the user's responsibility to secure the scene, evacuate the area, and call Campus Safety to initiate emergency response procedures.

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### Alarm Systems (40 CFR 264.32(a))

(A) All Colgate University buildings (including the buildings used for hazardous materials or hazardous waste operations and/or storage) are equipped with a fire alarm system that is monitored by Campus Safety Central Dispatch 24 hours per day / 7 days per week. Activation of a fire alarm system supervised detection device sends a signal to Campus Safety central dispatch alerting them of the condition. Upon receipt of fire alarm system activation, a Campus Safety officer is deployed to investigate the cause / nature of the alarm. Campus Safety immediately initiates universal emergency response procedures if it is determined that the fire alarm activation involves a hazardous materials or hazardous waste incident.

(B) The Colgate University laboratory fume hoods are equipped with alarms to signal when there is an inadequate exhaust condition (<100 cfm). Fume hood alarms are monitored by Facilities and activation of an alarm requires manual acknowledgment, which initiates an investigation by a PM Shop staff member. Fume hood alarms for inadequate exhaust can be caused by chemical saturation, mechanical failure, or improper fume hood sash operating height. Facilities staff immediately initiates universal emergency response procedures if it is determined that the fume hood activation involves a hazardous materials or hazardous waste incident.

### Communication Systems (40 CFR 264.32(b))

(A) When working with hazardous materials or hazardous waste in a laboratory, studio, or trade shop, personnel have two immediate methods of communication – telephone access and emergency aid stations (40 CFR 264.34(a)). All of the Colgate University laboratories, studios, and trade shops have immediate access to a landline telephone. Emergency contact information has been posted on the inside of every laboratory and studio door. Emergency contact signage includes telephone numbers for the primary and secondary ECs, Campus Safety, SERA service provider, fire department, and police department (see Appendix F for emergency contact signage). In addition, many of the Colgate University buildings have emergency aid stations outside of the laboratories. These emergency aid stations are outfitted with manually activated emergency notification buttons that, when depressed, alert Campus Safety of a laboratory emergency (and the location). Use of an emergency eye wash station or decontamination shower also alerts Campus Safety of a laboratory emergency (and the location).

(B) Once a hazardous materials or hazardous waste related incident has occurred, Colgate University has several emergency communication systems to alert the affected community members.

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- Fire Alarm System Activation: Activation of the fire alarm system via a manual pull station serves as the fastest method to alert building occupants of an emergency and evacuate the building.
- Colgate Alert (Rave): The Rave system sends a text message to all registered user cell phones (including faculty, staff, students, etc) to alert campus community members of an emergency.
- Informacast: The Informacast system sends a pre-recorded voicemail to all Colgate University network/IP phones (including offices, classrooms, laboratories, etc) to alert campus community members of an emergency.

(C) Colgate University emergency first responders (including the HAZMAT / HAZWOPER Team) use two-way handheld radios for emergency communications. EHS staff HAZMAT / HAZWOPER Team members are required to carry a two-way radio with direct access to Campus Safety (40 CFR 264.34(a-b)) during normal business hours (7:00 a.m. to 3:00 p.m.) and whenever working in the following spaces:

- Stock Chemical Storage (Ho Science Center Room B04)
- Chemical Receiving Room (Ho Science Center Room B07)
- Stock Chemical Solvent Storage Room (Ho Science Center Room B08)
- Stock Chemical Solvent Storage Room (Ho Science Center Room B09)
- Hazardous Waste Operation Room (McGregory Hall Room SB03)
- Hazardous Waste Main Accumulation Area (McGregory Hall Bunker No. 1 / 2)

Colgate University departments using two-way handheld radios for both daily operations and emergency communications include Campus Safety, EHS, and Facilities.

### Fire Extinguishers (40 CFR 264.32(c))

(A) All Colgate University buildings, including buildings where hazardous materials and hazardous waste are used and/or stored, are outfitted with fire extinguishers. Fire extinguisher training is conducted annually for all Campus Safety and EHS staff and by request for all other Colgate University departments.

### Spill Kits (40 CFR 264.32(c))

Spill Kits have been placed at various sites around campus. Spill kits are checked and stocked on a monthly basis by EHS. Spill control supplies on campus are located as follows:

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### Ho Science Center

- Chem Mobile Spill Kit – 3 3"x10' socks, 2 3"x46" socks, 2 5"x10' socks, 100 20"x15" mat pads, 7 17"x16" pillows, 2 5lb bags of pulp, 15 temporary disposal bags and ties, 6 tamper proof labels, 1 instruction manual
- Chem/Universal Response Cart – 2 3"x46" pink socks, 2 36"x46" blue socks, 1 3"x10" pink socks, 1 3"x10" blue socks, 20 8.5"x15" pink pads, 20 8.5"x15" universal pads, 6 8"x8" pink pillows, 5 10"x10" universal pillows, 1 pr. nitrile gloves, 1 pr. Safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.
- Chem Responder Bags (3): 10 pads, 4 repair putty sticks, 3 4"x6" patches, 2 response sticks, 1 drum wrench, 1 2"x8" wooden cone, 1 large wooden wedge, 1 large tapered peg, 1 small tapered peg, 1 large wooden cone, 1 small wooden cone, 1 rubber cone, 4 metal screws, 4 metal washers, 5 rubber washers, 1 dowel pin, 1 pk. lead wool, 4 wooden tees, 8 2"x7.5" lead tape pieces, 10 attention stickers, 1 1" looped cinch strap, pH paper, 1 roll duct tape, 1 6"x6" urethane patch, 1 rubber mallet, 1 full face respirator, nitrile gloves, boot covers, small mercury spill kit.

### Olin Hall

- Chem/Universal Response Cart – 2 3"x46" pink socks, 2 36"x46" blue socks, 1 3"x10" pink socks, 1 3"x10" blue socks, 20 8.5"x15" pink pads, 20 8.5"x15" universal pads, 6 8"x8" pink pillows, 5 10"x10" universal pillows, 1 pr. nitrile gloves, 1 pr. safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.

### McGregory Hall

- Chem 95 Gal Overpack Spill Kit - 12 3"x46" socks, 6 3"x10" socks, 2 5"x10' socks, 75 20"x15" pads, 7 16"x17" pillows, 10 temporary disposal bags and ties, 6 tamperproof labels, 1 instruction manual
- Chem/Universal Response Cart – 2 3"x46" pink socks, 2 36"x46" blue socks, 1 3"x10" pink socks, 1 3"x10" blue socks, 20 8.5"x15" pink pads, 20 8.5"x15" universal pads, 6 8"x8" pink pillows, 5 10"x10" universal pillows, 1 pr. nitrile gloves, 1 pr. Safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.

### Wynn Hall

- Chem/Universal Response Cart – 2 3"x46" pink socks, 2 36"x46" blue socks, 1 3"x10" pink socks, 1 3"x10" blue socks, 20 8.5"x15" pink pads, 20 8.5"x15" universal pads, 6 8"x8" pink pillows, 5 10"x10" universal pillows, 1 pr. nitrile gloves, 1 pr. safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.

### Ryan Art Studio

- Chem Response Tote – 7 3"x46" socks, 1 3"x10' sock, 50 15"x20" pads, 2 17"x16" pillows, 3 polyethylene disposal bags with ties, 1 7" multipurpose repair putty stick.

### Little Hall

- Chem Response Tote – 7 3"x46" socks, 1 3"x10' sock, 50 15"x20" pads, 2 17"x16" pillows, 3 polyethylene disposal bags with ties, 1 7" multipurpose repair putty stick.

### Facilities

- Universal 95 Gal Overpack Spill Kit – 16 3"x48" blue socks, 10 3"x10' blue socks, 60 15"x20" universal pads, 8 21"x17" pillows, 50 wipers, 10 disposable bags and ties, 6 tamperproof labels, 1 instruction manual.

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- Chem 20 Gal Overpack Spill Kit – 3 3"x46" socks, 36 20"x15" pads, 3 17"x16" pillows, 10 30"x18" caution disposal bags, 1 pr. chem. gloves, 1 pr. goggles, 1 apron, 1 2.5lb neutralizing powder, 6 tamper proof labels

### Seven Oaks

- Chem 20 Gal Overpack Spill Kit – 3 3"x46" socks, 36 20"x15" pads, 3 17"x16" pillows, 10 30"x18" caution disposal bags, 1 pr. chem. gloves, 1 pr. goggles, 1 apron, 1 2.5lb neutralizing powder, 6 tamper proof labels

### EHS Response Van

- Chem/Universal Stocked Supplies – 2 bags clay replacement absorbent, 1 bag oil absorbent, 1 15 gal carboy, 1 55 gal metal closed top drum, 1 box contractor bags, 20 universal pads, 20 pink pads, 5 pr. heavy gloves, 2 pr. boot covers, 1 small biological spill kit, 1 first aid kit, 2 pr. safety glasses, 2 boxes nitrile gloves, 1 mercury spill kit, 5 tyvec suits, 1 roll hazard caution tape, 2 pk. respirator combo cartridges, 2 heavy duty haz suits, 2 eyewash bottles, acid and base neutralizing powder, repair putty, ear plugs, 3 black asbestos bags, chemical resistant broom and shovel, small brush and dust pan, biological and chemical spill binder.

See Appendix H Colgate University Spill Kit and SCBA Locations.

### Sprinkler Systems (40 CFR 264.32(d))

Sprinkler systems provide an additional layer of protection in buildings where hazardous materials or hazardous waste are used and/or stored (see Appendix M Colgate University Building Sprinkler Systems).

### Testing and Maintenance of Emergency Equipment (40 CFR 264.33)

(A) Fume hoods inspection and testing is conducted on an annual basis in accordance with ANSI Z9.5 Standard / ASHRAE 110-1995 Method of Testing Performance of Laboratory Fume Hoods.

(B) Fire alarm system inspection and testing is conducted on a bi-annual basis in accordance with NFPA 72 National Fire Alarm and Signaling Code. Fire alarm inspection and testing is conducted by Davis-Ulmer Fire Protection Systems.

(C) The fire extinguishers on campus are inspected on monthly, annual, and 5-year cycles in accordance with NFPA 10 Standard for Portable Fire Extinguishers. The monthly fire extinguisher checks are visual inspections conducted by Campus Safety during routine tours. Annual inspections are performed by Firehouse Extinguishers LLC. The annual inspections are recorded on tags affixed to the extinguisher and complete records are stored at Campus Safety. Every five years, the extinguishers are re-pressurized and have a hydrostatic test completed.

(D) Sprinkler system inspection and testing is conducted on a quarterly basis in accordance with NFPA 25 Standard for Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

### REQUIRED AISLE SPACING (40 CFR 264.35)

Aisle space access to hazardous materials lockers and hazardous waste SAAs is maintained in laboratories and studio spaces through various administrative controls including the prudent practice of keeping bags, coats, and other personal effects outside of laboratories and egress routes. Administrative controls also include keeping all non-hazardous waste items (including stock chemicals) outside of SAAs by posting signage and demarcating the area with yellow and black striped safety tape. Lab and studio safety equipment, such as eyewash, safety shower, and spill kit locations, are also demarcated with yellow and black striped safety tape.

Aisle space access to the stock chemical storage rooms and hazardous waste MAA is also maintained through administrative controls. Aisle space is checked through weekly stock chemical storage and MAA inspections and corrected immediately if found to be inadequate.

### EVACUATION ROUTES (40 CFR 264.52(f))

The signal to evacuate a building due to a hazardous materials or hazardous waste related incident is initiated via the fire alarm system. In the event of a hazardous materials or hazardous waste related incident that requires the partial or entire evacuation of campus, evacuation instructions will be sent via the Colgate University emergency communication systems including Rave and Informacast. Evacuation routes from hazardous material and hazardous waste sites have been designed to minimize congestion and maximize traffic flow, thereby facilitating the safest and most expeditious large-scale departure from campus (see Appendix I Evacuation Routes Map).

### FACILITY SITE DIAGRAMS (40 CFR 264.52(e))

Facility site diagrams included in this plan show the locations of spill kits, emergency equipment, SAAs, and the MAA. The facility site diagrams illustrate that spill kits are evenly distributed across campus, are in close proximity to hazardous materials and hazardous waste storage and/or use locations, and outfitted according to the specific spill hazards for that immediate area (see Appendix H Colgate University Spill Kit and SCBA Locations Map and Appendix I Evacuation Routes Map).

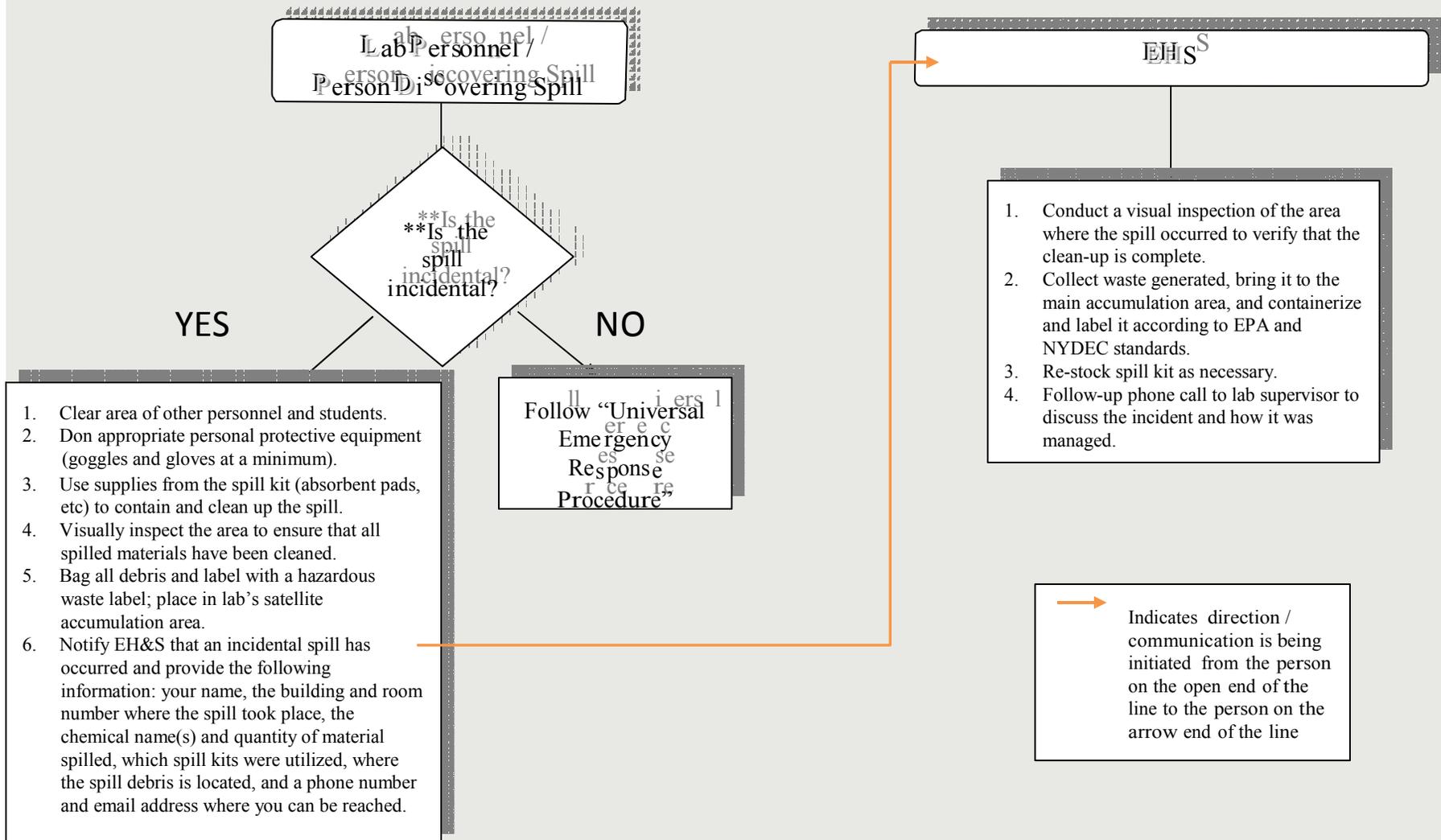
## Appendix A:

### Incidental Spill Procedures

# Appendix A - Incidental Spill Procedures

OSHA defines an incidental spill as one in which “there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure)” 29 CFR 1910.120 (a)(3)

\*\*An incidental spill meets ALL of these criteria: (a) less than or equal to one gallon spilled material, (b) not acutely toxic (P-listed) and not releasing toxic gas, (c) not a fire/explosion hazard and not releasing flammable/explosive vapors, and (d) inside, away from floor drains, doors, etc.

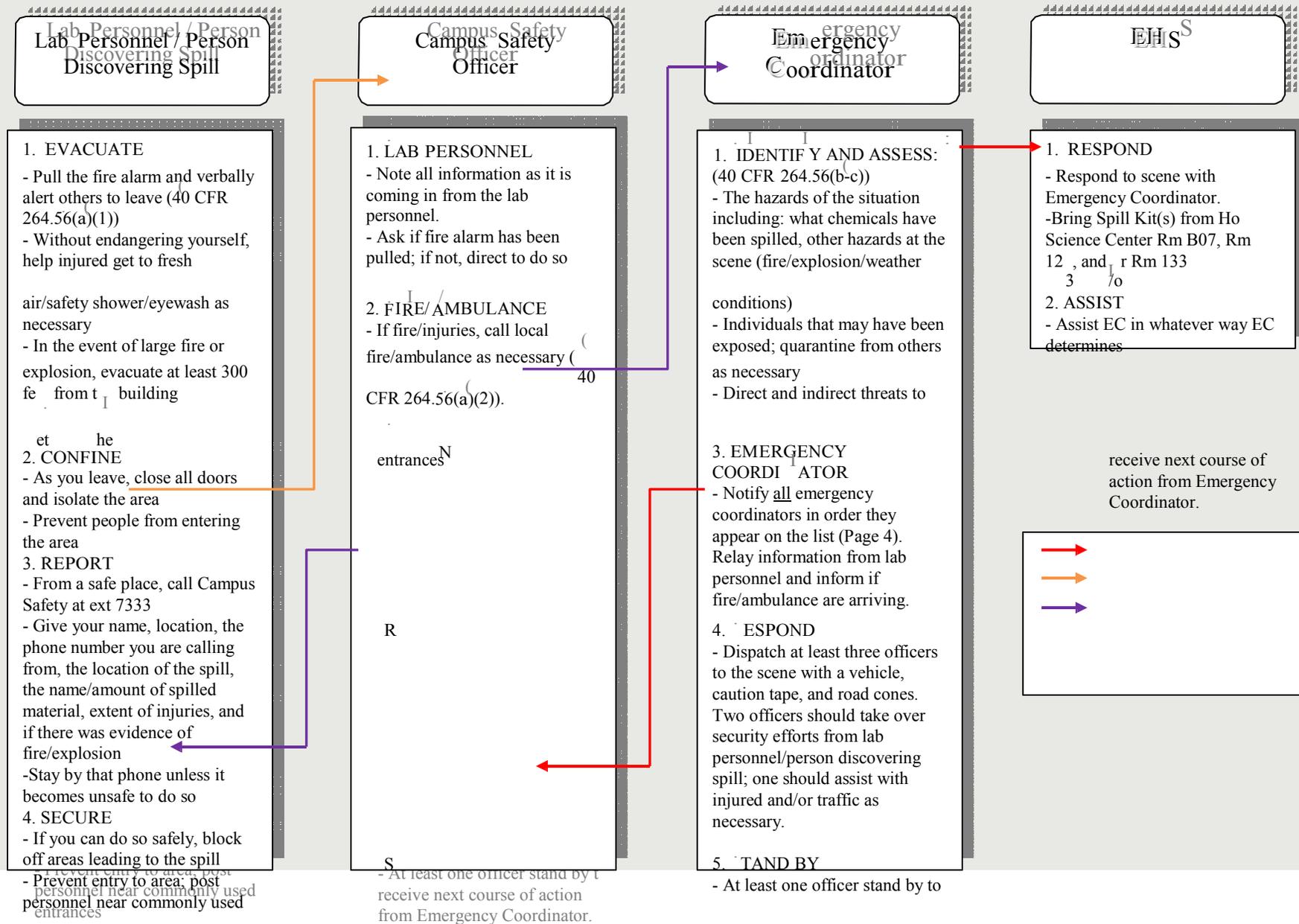


## Appendix B:

### Universal Emergency Response Procedures

# Appendix B - Universal Emergency Response Procedures

These procedures are to be initiated in the event of any hazardous waste emergency, including: non-incidentals spills, spills involving fires, and spills involving explosions.



human health and the environment

2. DETERMINE ACTION TO BE TAKEN (40 CFR 264.56(e-f))

- Confirm with Campus Safety that injured are being attended to and that help is on the way (fire/ambulance, etc)
- Halt any activities causing the release or hindering remediation efforts. (40 CFR 264.56(h)(1)). Any activities halted by EC that could result in leaks, pressure buildup, gas generation, or ruptures in valves, pipes, etc need to be monitored by the EC (40 CFR 264.56(f)). Other waste management activities must be halted until release response has been resolved (40 CFR 264.56(h)(1)).
- Determine if incident is Level I, II, III – initiate response.

Indicates direction / communication is being initiated from the person on the open end of the line to the person on the arrow end of the line

environment

40 CFR 4 6

- Confirm with Campus Safety that injured are being attended to and that help is on the way (fire/ambulance, etc)
- Halt any activities causing the release or hindering remediation efforts. Any activities halted by EC that could result in leaks, pressure buildup, gas generation, or ruptures in valves pipes, etc need to be monitored by the EC. Other waste management activities must be halted until release response has been resolved.
- Determine if incident is Level I, II III – initiate response

## Appendix C:

### Level I Emergency Response Procedures

# Appendix C - Level II Emergency Response

Campus Safety

Emergency Coordinator

EH&S

## 1. TRAFFIC CONTROL

- Keep areas free of foot and vehicle traffic by use of road cones, personnel, caution tape, etc as the situation warrants. Keep scene secured until the spill has been completely remediated.

## 2. NOTIFICATION

- If other agencies such as the fire department have already been summoned, notify them that the matter is being resolved by Colgate University staff. Act as a liaison between EC and other departments as necessary.

## 1. OVERSEE THE CLEAN-UP IN ITS ENTIRETY (40 CFR 264.56(g))

- Direct the clean-up efforts

## 2. NOTIFICATION

- Notify all involved departments (Campus Safety, Facilities, EH&S, department where spill occurred, etc) that spill is being managed, and again when spill has been resolved.

## 3. MONITOR

- Monitor the situation and upgrade to Level II or III as necessary.

## 4. RESTORE

- After the clean-up efforts are completed, restore any processes that were halted during the response (HVAC systems, waste management activities, etc)

## 5. AFTER ACTION REVIEW

- Conduct an after action review with all involved departments. Analyze the spill and the response to see what steps can be taken in the future to prevent spills, and what about the response was effective and what can be improved.

## 6. SUBMIT REPORT

- Submit report to Regional Administrator within 15 days as detailed in Section 3(f) of this contingency plan.

## 1. CLEAN-UP

- Complete the following containment and decontamination as directed by the EC:

- Select the proper PPE and clean-up tools (shovels, spill pads, etc).
- Contain and clean up the spilled material.
- Decontaminate the affected areas.
- Decontaminate the tools used during clean-up and restore emergency equipment to ready state. Collect all waste generated. Label should include date, contents, quantity and name(s) of chemical originally spilled.

(40 CFR 264.56(h)(2)).

accumulation area and label appropriately per EPA and NYDEC standards.

## 2. UPDATE

- Update the Contingency Plan as necessary after action review (40 CFR 265.54 (a-e)).

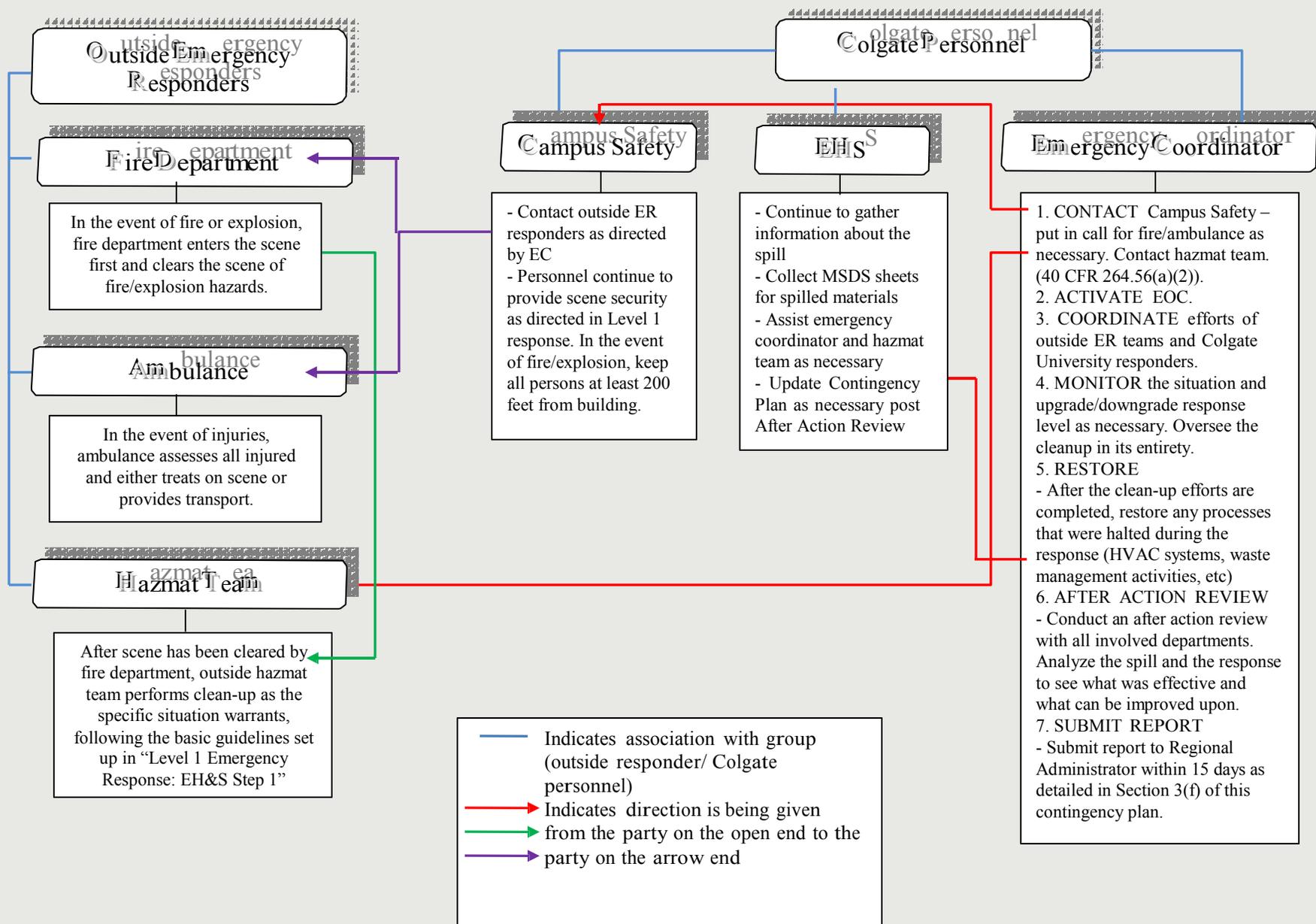


Indicates direction is being given from the party on the open end to the party on the arrow end

## Appendix 0:

### Level II Emergency Response Procedures

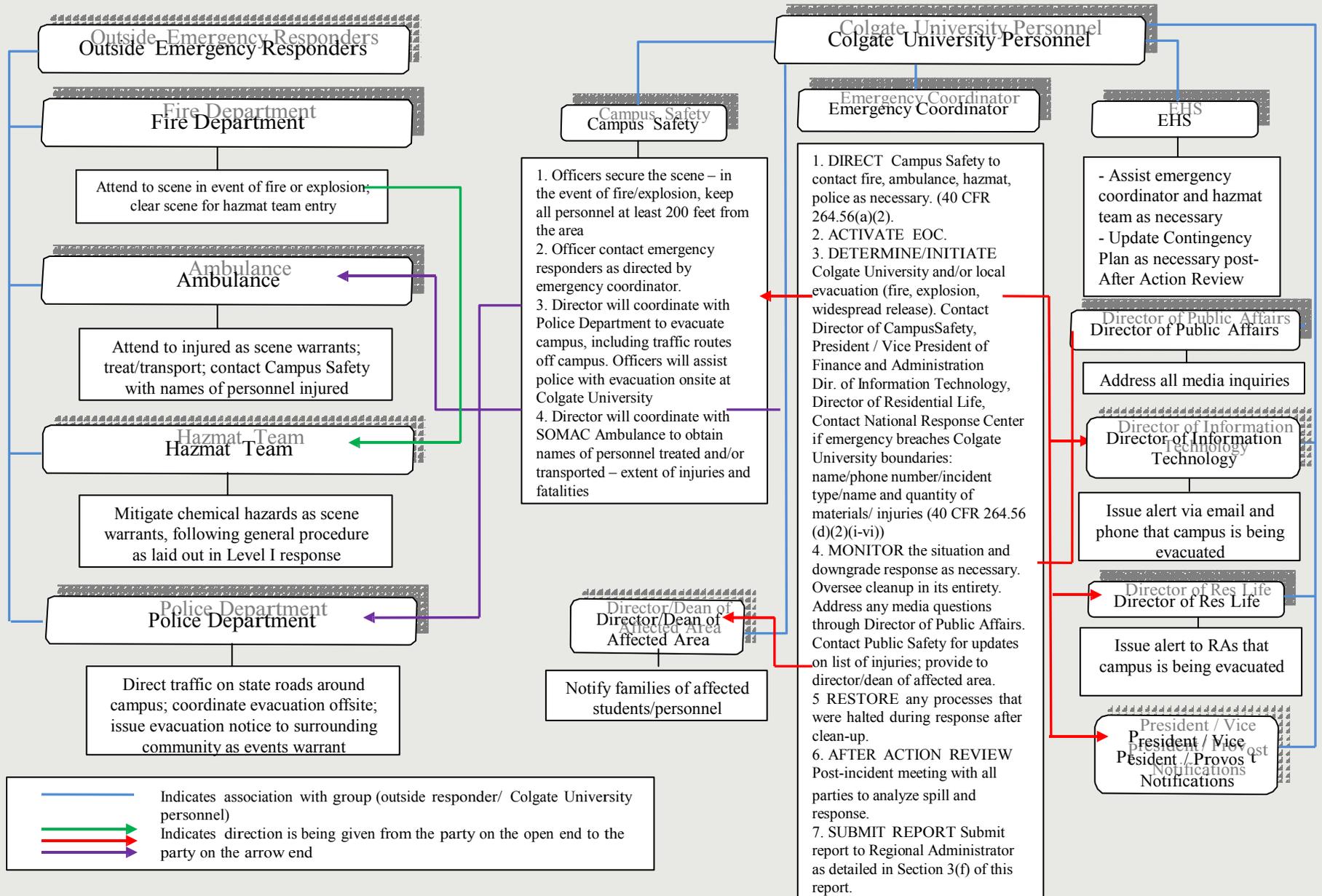
# Appendix D - Level III Emergency Response



## Appendix E:

### Level III Emergency Response Procedures

# Appendix E - Level III Emergency Response



## Appendix F:

Laboratory Coordinator Emergency Contacts



# LABORATORY EMERGENCY COORDINATOR CONTACTS



**Emergency Coordinator:**

**DANIEL GOUGH**

*Director of EHS*

**Campus Phone: x7994**

**Cell Phone: (315) 825-8550**

**Secondary Coordinator:**

**MARY WILLIAMS**

*EHS Specialist*

**Campus Phone: x6411**

**Cell Phone: (315) 525-6598**

*Colgate University Campus Safety*

*Emergency*

*Hamilton Police Department*

*Hamilton Fire Department*

*x7911*

*911*

*(315) 824-3311*

*(315) 824-2460*

## Appendix G:

Colgate University, Local State, and Federal Emergency  
Contacts

## APPENDIX G

### Colgate University, Local, State, and Federal Emergency Contacts

#### Colgate University Contacts:

##### Primary Emergency Coordinator

1. Daniel Gough  
Director of Environmental Health and Safety

Address (Work): 13 Oak Drive, Hamilton NY 13346  
Address (Home): 5601 East Lake Road, Hamilton NY 13346  
Phone (Work): 315-228-7994  
Phone (Cell): 315-825-8550  
Phone (Home): 315-825-8550  
E-mail: [dgough@colgate.edu](mailto:dgough@colgate.edu)

##### Alternate Emergency Coordinators (in order they will assume responsibility)

2. Michelle Butzgy  
Environmental Health and Safety Manager

Address (Work): 13 Oak Drive, Hamilton NY 13346  
Phone (Work): 315-228-6099  
Phone (Cell): 315-825-5997  
E-mail: [mbutzgy@colgate.edu](mailto:mbutzgy@colgate.edu)

3. Mary Williams  
Environmental Health and Safety Specialist

Address (Work): 13 Oak Drive, Hamilton NY 13346  
Phone (Work): 315-228-6411  
Phone (Cell): 315-525-6598  
E-mail: [mwilliams@colgate.edu](mailto:mwilliams@colgate.edu)

#### Non-Colgate University Emergency Contacts:

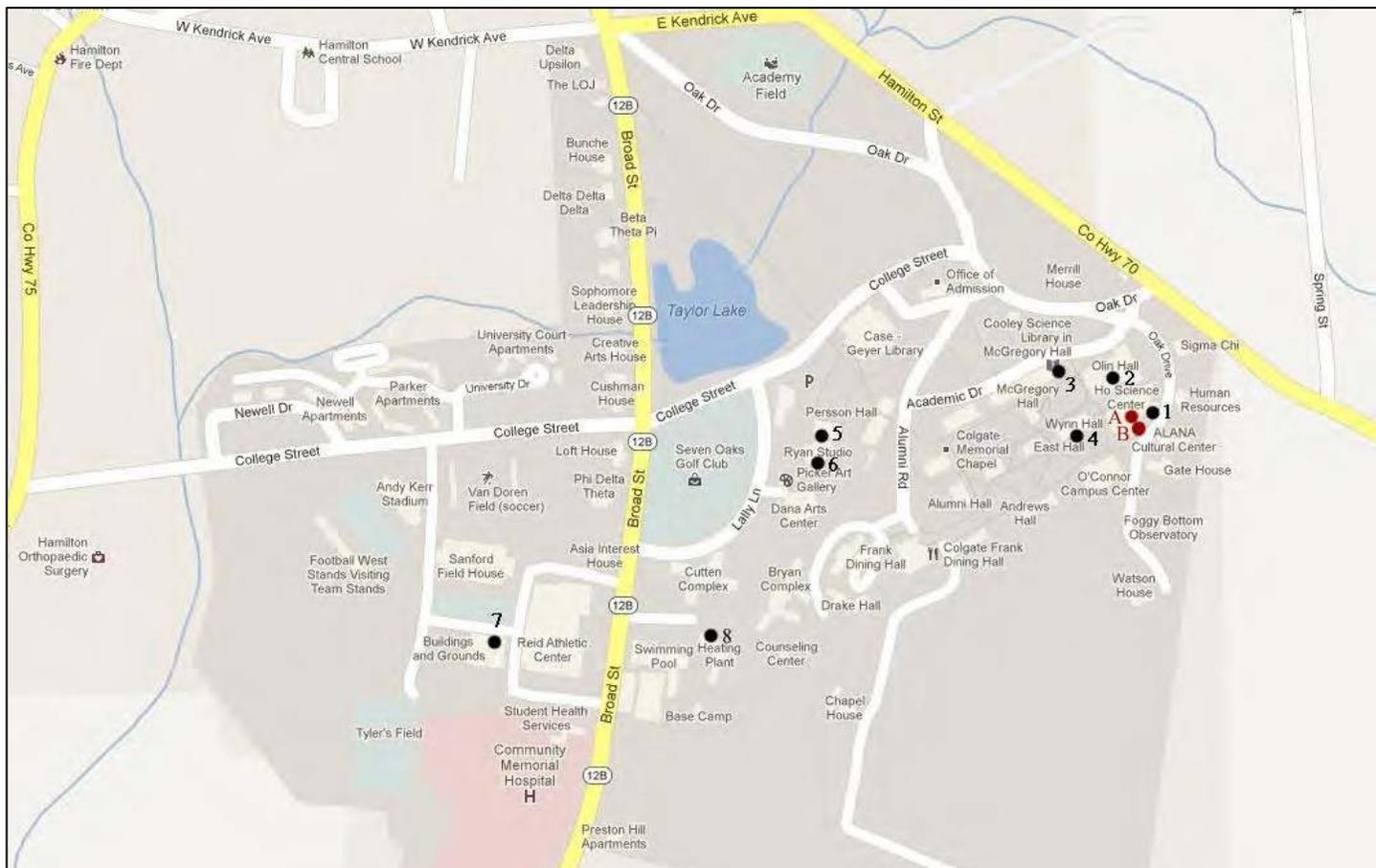
Hamilton Fire Department	315-824-2460
Hamilton Police Department	315-824-3311
Southern Madison County Ambulance Corps	315-824-6867
Community Memorial Hospital	315-824-1100
Clean Harbors Environmental Services	800-645-8265
New York State Department of Environmental Conservation	518-402-8792 (Business Hours) 800-457-7362 (24-Hour Spill Hotline)
National Response Hotline	800-424-8802 (24-Hour Spill Hotline)
United States Environmental Protection Agency	212-637-4040 (Region 2 Spill Reporting)

## Appendix H:

### Spill Kit and SCBA Locations Map

# Colgate University

## Campus Spill Kit & SCBA Locations



### Spill Kits

#### 1. Ho Science Center

- a. **Chem Mobile Spill Kit** – 3 3”x10’ socks, 2 3”x46” socks, 2 5”x10’ socks, 100 20”x15” mat pads, 7 17”x16” pillows, 2 5lb bags of pulp, 15 temporary disposal bags and ties, 6 tamper proof labels, 1 instruction manual
- b. **Chem/Universal Response Cart** – 2 3”x46” pink socks, 2 36”x46” blue socks, 1 3”x10” pink socks, 1 3”x10” blue socks, 20 8.5”x15” pink pads, 20 8.5”x15” universal pads, 6 8”x8” pink pillows, 5 10”x10” universal pillows, 1 pr. nitrile gloves, 1 pr. Safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.
- c. **Chem Responder Bags (3):** 10 pads, 4 repair putty sticks, 3 4”x6” patches, 2 response sticks, 1 drum wrench, 1 2”x8” wooden cone, 1 large wooden wedge, 1 large tapered peg, 1 small tapered peg, 1 large wooden cone, 1 small wooden cone, 1 rubber cone, 4 metal screws, 4 metal washers, 5 rubber washers, 1 dowel pin, 1 pk. lead wool, 4 wooden tees, 8 2”x7.5” lead tape pieces, 10 attention stickers, 1 1” looped cinch strap, pH paper, 1 roll duct tape, 1 6”x6” urethane patch, 1 rubber mallet, 1 full face respirator, nitrile gloves, boot covers, small mercury spill kit.

#### 2. Olin Hall

- a. **Chem/Universal Response Cart** – 2 3”x46” pink socks, 2 36”x46” blue socks, 1 3”x10” pink socks, 1 3”x10” blue socks, 20 8.5”x15” pink pads, 20 8.5”x15” universal pads, 6 8”x8” pink pillows, 5 10”x10” universal pillows, 1 pr. nitrile gloves, 1 pr. safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.

### 3. **McGregory Hall**

- a. **Chem 95 Gal Overpack Spill Kit** - 12 3"x46" socks, 6 3"x10" socks, 2 5"x10' socks, 75 20"x15" pads, 7 16"x17" pillows, 10 temporary disposal bags and ties, 6 tamperproof labels, 1 instruction manual
- b. **Chem/Universal Response Cart** – 2 3"x46" pink socks, 2 36"x46" blue socks, 1 3"x10" pink socks, 1 3"x10" blue socks, 20 8.5"x15" pink pads, 20 8.5"x15" universal pads, 6 8"x8" pink pillows, 5 10"x10" universal pillows, 1 pr. nitrile gloves, 1 pr. Safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.

### 4. **Wynn Hall**

- a. **Chem/Universal Response Cart** – 2 3"x46" pink socks, 2 36"x46" blue socks, 1 3"x10" pink socks, 1 3"x10" blue socks, 20 8.5"x15" pink pads, 20 8.5"x15" universal pads, 6 8"x8" pink pillows, 5 10"x10" universal pillows, 1 pr. nitrile gloves, 1 pr. safety goggles, 1 pr. disposable boots, 25 wipers, 2 repair putty sticks, 5 temporary disposal bags and ties.

### 5. **Ryan Art Studio**

- a. **Chem Response Tote** – 7 3"x46" socks, 1 3"x10' sock, 50 15"x20" pads, 2 17"x16" pillows, 3 polyethylene disposal bags with ties, 1 7" multipurpose repair putty stick.

### 6. **Little Hall**

- a. **Chem Response Tote** – 7 3"x46" socks, 1 3"x10' sock, 50 15"x20" pads, 2 17"x16" pillows, 3 polyethylene disposal bags with ties, 1 7" multipurpose repair putty stick.

### 7. **Facilities**

- a. **Universal 95 Gal Overpack Spill Kit** – 16 3"x48" blue socks, 10 3"x10' blue socks, 60 15"x20" universal pads, 8 21"x17" pillows, 50 wipers, 10 disposable bags and ties, 6 tamperproof labels, 1 instruction manual.
- b. **Chem 20 Gal Overpack Spill Kit** – 3 3"x46" socks, 36 20"x15" pads, 3 17"x16" pillows, 10 30"x18" caution disposal bags, 1 pr. chem. gloves, 1 pr. goggles, 1 apron, 1 2.5lb neutralizing powder, 6 tamper proof labels.

### 8. **Heating Plant**

- a. **Oil-Only Spill Kit in 30-Gallon Overpack Salvage Drum** - 3" x 10' oil-only booms, 4 sump skimmers, 25 bags of absorbent, 5 temporary disposal bags and ties, 6 tamperproof labels.

### 9. **Seven Oaks (not shown on map)**

- a. **Chem 20 Gal Overpack Spill Kit** – 3 3"x46" socks, 36 20"x15" pads, 3 17"x16" pillows, 10 30"x18" caution disposal bags, 1 pr. chem. gloves, 1 pr. goggles, 1 apron, 1 2.5lb neutralizing powder, 6 tamper proof labels.

### 10. **EHS Response Van (not shown on map)**

- a. **Chem/Universal Stocked Supplies** – 2 bags clay replacement absorbent, 1 bag oil absorbent, 1 15 gal carboy, 1 55 gal metal closed top drum, 1 box contractor bags, 20 universal pads, 20 pink pads, 5 pr. heavy gloves, 2 pr. boot covers, 1 small biological spill kit, 1 first aid kit, 2 pr. safety glasses, 2 boxes nitrile gloves, 1 mercury spill kit, 5 tyvec suits, 1 roll hazard caution tape, 2 pk. respirator combo cartridges, 2 heavy duty haz suits, 2 eyewash bottles, acid and base neutralizing powder, repair putty, ear plugs, 3 black asbestos bags, chemical resistant broom and shovel, small brush and dust pan, biological and chemical spill binder.

## **SCBA Locations**

A. **Ho Science Center** – Room 133

B. **Ho Science Center** – Room 123

Appendix 1:

Evacuation Routes Map

# Colgate University Contingency Plan Evacuation Plan



## Evacuation Routes:

### Blue

- Wynn Hall – 16 satellite accumulation areas
- Ho Science Center – 16 satellite accumulation areas

### Red

- Olin Hall – 24 satellite accumulation areas
- McGregory Hall – 1 satellite accumulation area, 1 main accumulation area

### Orange

- Ryan Studio – 2 satellite accumulation areas
- Little Hall – 2 satellite accumulation areas

### Green

- Facilities – 1 satellite accumulation area

### Off-Campus Facilities

- Schupf Art Studio – 1 satellite accumulation area
- Seven Oaks Maintenance Shop – 1 satellite accumulation area

## Appendix J:

Clean Harbors Environmental Services Standby Emergency  
Response Agreement



## STANDBYEMERGENCYRESPONSE AGREEMENT

This Agreement is made this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, by and between Clean Harbors Environmental Services, Inc., and affiliates, a Massachusetts corporation, with offices located at 42 Longwater Drive, P.O. Box 9149, Norwell, MA 02061-9149, ("Contractor") and \_\_\_\_\_, incorporated in \_\_\_\_\_, with its principal place of business at \_\_\_\_\_ ("Customer").

WHEREAS, Contractor is engaged in the business of providing Emergency Response Services ("Services") to respond to discharges of oil or other hazardous substances; and

WHEREAS, Customer desires to engage Contractor to provide such Services; and

WHEREAS, Customer and Contractor desire to establish the terms and conditions pursuant to which such Services will be provided.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and for other good and valuable consideration, the sufficiency and receipt of which are hereby acknowledged, the parties, intending to be legally bound, agree as follows:

### ARTICLE 1. Purpose

- 1.1 This Agreement establishes the terms and conditions pursuant to which Contractor may furnish Customer with certain Services in connection with response to discharges of oil or other hazardous substances.
- 1.2 This Agreement shall not obligate Customer to purchase Services from Contractor, nor shall it obligate Contractor to provide Services, but shall govern all orders for Services issued by Customer and which are accepted by Contractor. Contractor will use best efforts to respond to requests by Customer for Services.

### ARTICLE 2. ScopeofServices

- 2.1 The Services contemplated in connection with the response to discharges of oil or other hazardous substances may include, but not be limited to, the following:
  - o Containment, recovery, repackaging and removal of materials;
  - o Site evaluation, decontamination and restoration;
  - o Transportation, storage, treatment or disposal of wastes;

- o Technical services, including sampling, laboratory analysis, and other related services;
- o Standby of personnel and equipment in anticipation of imminent activation;
- o Training and mock spill drill deployments.

ARTICLE 3. Contractor's Warranties

- 3.1 Contractor shall provide supervision, labor, materials, tools, equipment and subcontracted items for the performance of the Services.
- 3.2 Contractor shall take necessary precautions for the safety of its employees, and shall comply with applicable provisions of the Occupational Safety and Health Act. It is understood and agreed, however, that Contractor shall not be responsible for the elimination or abatement of safety hazards created by or otherwise resulting from work being performed by Customer's employees, its other contractors or agents.
- 3.3 Contractor represents that it holds the permits and licenses required for the performance of Services.

ARTICLE 4. Customer's Warranties

- 4.1 Customer shall provide full and complete information regarding its requirements for the Services.
- 4.2 Customer shall designate a representative ("Customer's Representative") who shall be fully acquainted with the Services to be provided hereunder and who shall be authorized to approve changes in the Services; render decisions promptly; authorize commitments and expenditures on behalf of Customer; approve Contractor's daily worksheets and to accept, verify and approve Contractor's invoices.
- 4.3 Customer shall be responsible for repairs to all private property, roadways, structures and rights-of-way resulting from Contractor's reasonable use thereof.
- 4.4 Customer represents and warrants that it shall provide payment to Contractor for the services provided by Contractor as set forth in Article 5..
- 4.5 Customer shall communicate to Contractor all special hazards or risks known to or learned by the Customer during the term hereof which are related to the performance of Services pursuant to this Agreement.

ARTICLE 5. Compensation

- 5.1 The payment terms set forth herein are contingent upon the approval of Contractor's Credit Department. In the event of a change in Customer's financial condition, Contractor reserves the right to alter, change, or modify payment terms, and to immediately stop work. The failure of Contractor to exercise its rights under this article at any time shall not constitute a waiver of Contractor's continuing right to do so.
- 5.2 Customer agrees to pay Contractor for Services in accordance with Contractor's Rate Schedule for emergency response work ("Rates") in effect at the time Services are rendered. Customer hereby assigns to Contractor all rights to any insurance payments that Customer may be entitled to receive to pay for the Services provided under this Agreement and hereby authorizes its insurance company or agent to pay Contractor directly. Customer's obligation to pay amounts due pursuant to this Agreement shall not be conditioned upon or limited by the types, amounts or availability of insurance coverage.
- 5.3 Contractor will present its first invoice to Customer as soon as possible following commencement of Services provided hereunder, and may issue subsequent invoices every five (5) days thereafter. Customer agrees to pay the full amount of each invoice amount within fifteen (15) business days of the date of receipt of said invoice by Customer's Representative.
- 5.4 Customer agrees that interest shall accrue and will be paid to Contractor on any unpaid balance of any invoice after fifteen (15) business days of receipt of invoice by Customer at the rate of one and one half percent (1.5%) per month or the maximum amount allowed by law.
- 5.5 In the event that legal or other action is required to collect unpaid balances of invoices due Contractor, Customer agrees to pay all costs of collection, litigation or settlement incurred by Contractor, including reasonable attorneys fees. "Legal or other action" as used above shall include bankruptcy and insolvency proceedings.
- 5.6 In the event that work is suspended or terminated for any reason prior to the completion of the Services, Customer agrees to pay for labor, equipment, materials, disposal and other costs incurred by Contractor at the Rates and for reasonable demobilization costs.
- 5.7 Customer agrees to pay Contractor in accordance with the Rates for any litigation support or testimony provided by Contractor in connection with, or arising out of, the work performed by Contractor hereunder.

ARTICLE 6. Changes in Work

- 6.1 Customer agrees to pay Contractor at the Rates for any costs incurred or delays resulting from Contractor's response to any emergency condition which threatens safety of persons or property during the performance of the Services.
- 6.2 If any change occurs during the term of this Agreement with respect to any laws, rules, regulations or ordinances which affect the rights or obligations of Customer or Contractor under this Agreement, or the applicability of any taxes or fees, or the cost of handling waste materials, Customer and Contractor shall negotiate in good faith to bring this Agreement into conformance with such change or changes. In the event that such agreement cannot be reached, Customer or Contractor shall have the right to terminate this Agreement immediately upon written notice to the other party.

ARTICLE 7. Insurance

- 7.1 Contractor shall keep in effect during the term of this Agreement the following insurance coverages:

COVERAGE	LIMITS
Worker's Compensation	Statutory
Auto Liability	\$1 million per occurrence \$1 million aggregate
Comprehensive General Liability	\$1 million per occurrence \$3 million aggregate

- 7.2 Contractor shall provide Customer with a certificate of insurance upon written request.

ARTICLE 8. Indemnification

- 8.1 Contractor shall indemnify, defend and hold harmless Customer, its parent and affiliated companies and their respective directors, officers, employees and agents from and against any and all costs, liabilities, claims, demands and causes of action including, without limitation, bodily injury to or death of any person or destruction of or damage to any property, except natural resource and other damages as provided in Section 8.3, which Customer may suffer, incur, or pay out, to the extent such are caused by the negligence or willful misconduct of Contractor, its agents or employees during the performance of this Agreement, or Contractor's failure to comply with any laws, regulations or lawful authority, or failure to comply with its obligations under this Agreement; except to the extent such liabilities, claims, demands and causes of action result from Customer's failure to comply with any laws, regulations or other lawful

authority, or Customer's failure to comply with its obligations under this Agreement or result from the negligence or willful misconduct of Customer, its employees or agents.

8.2 Customer shall indemnify, defend and hold harmless Contractor, its parent and affiliated companies and their respective directors, officers, employees and agents from and against any and all costs, liabilities, claims, demands and causes of action including, without limitation, any bodily injury to or death of any person or destruction of or damage to property which Contractor may suffer, incur, or pay out, to the extent such are caused by the negligence or willful misconduct of Customer, its employees or agents or the failure of Customer to comply with any laws, regulations or other lawful authority or the failure of Customer to comply with its duties or obligations under this Agreement; except to the extent such liabilities, claims, demands and causes of action result from Contractor's failure to comply with any laws, regulations or lawful authority, or Contractor's failure to comply with its obligations under this Agreement or result from the negligence or willful misconduct of Contractor, its employees or agents.

8.3 Notwithstanding the foregoing, Customer shall indemnify, defend and hold harmless Contractor, its parent and affiliated companies and their respective directors, officers, employees, agents and subcontractors from and against any and all costs, liabilities, claims, demands and causes of action for pollution damages; contamination or adverse effects on the environment; destruction of, damage to, or loss of, whether actual or alleged, any property or natural resources, including the cost of assessing the damage; injury to or economic losses resulting from destruction of real or personal property; damages for loss of subsistence use of natural resources; damages equal to the loss of profits or impairment of earning capacity due to the injury, destruction or loss of real property, personal property or natural resources; damages for net costs of providing increased or additional public services; removal costs; and any other costs assessable under the Oil Pollution Act of 1990, the Comprehensive Environmental Response, Compensation and Liability Act or other local, state or Federal law or lawful authority applicable to discharges or releases of oil or hazardous substances which Contractor, individually or collectively, may suffer, incur, or pay out in connection with, or arising out of, the release of oil or hazardous substances by Customer; provided, however, that the foregoing indemnity shall not apply to any claims, liabilities or causes of action caused by the transportation or disposal of waste materials by Contractor.

#### ARTICLE 9. Excuse of Performance

The performance of this Agreement, except for the payment of money for Services already rendered, may be suspended by either party in the event performance of this Agreement is prevented by a cause or causes beyond the reasonable control of such party. Such causes shall include but not be limited to: acts of God, acts of war, riot, fire, explosion, accidents, inclement weather, or sabotage; lack of adequate fuel, power, raw materials, labor or transportation facilities; changes in government laws, regulations, orders, or defense requirements; restraining orders, labor dispute, strike, lock-out or injunction (provided that neither party shall be required to settle a labor

dispute against its own best judgements). The party which is prevented from performing by a cause beyond its reasonable control shall use its best efforts to eliminate such cause or event.

ARTICLE 10. Termination

This Agreement may be terminated by either party upon forty-eight (48) hours prior notice to the other party.

ARTICLE 11. Notice

Any notice to be given under this Agreement shall be in writing and delivered to the address listed below:

Customer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Contractor: Clean Harbors Environmental Services, Inc.  
42 Longwater Drive,  
P.O. Box 9149  
Norwell, MA 02061-9149  
Attn: General Counsel (Urgent Contract Matter)

ARTICLE 12. Additional Provisions

- 12.1 Limitation of Liability - Customer agrees that Contractor shall not be responsible for pre-existing contamination at the job location, natural resource damage, or for indirect, incidental, consequential or special damages, including loss of use or lost profits, resulting from or arising out of the performance of the Scope of Work by Contractor, its employees, agents and/or subcontractors.
- 12.2 Waiver - Any waiver by either party of any provision or condition of this Agreement shall not be construed or deemed to be a waiver of any other provision or condition of this Agreement, nor a waiver of a subsequent breach of the same provision or condition.
- 12.3 Severability - If any section, subsection, sentence or clause of this Agreement shall be deemed to be illegal, invalid or unenforceable for any reason, such illegality, invalidity or unenforceability shall not affect the legality, validity or enforceability of this Agreement or other sections of this Agreement.

- 12.4 Entire Agreement - This Agreement and any Exhibits to this Agreement represent the entire understanding and agreement between Customer and Contractor and supersedes any and all prior agreements, whether written or oral, that may exist between the parties regarding same. Modifications to this Agreement shall be in writing and shall be signed by the Customer and Contractor. Additional, conflicting or different terms on any Purchase Order or other preprinted document issued by Customer shall be void and are hereby expressly rejected by Contractor.
  
- 12.5 Survival - The provisions contained in Articles 3, 4, 5, 8 and 12 shall survive and remain in effect following the termination of this Agreement.
  
- 12.6 Applicable Law - This Agreement shall be interpreted and enforced according to the Laws of the Commonwealth of Massachusetts and the parties agree to submit to the jurisdiction of the courts of the Commonwealth of Massachusetts for any disputes arising under this Agreement.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

CUSTOMER

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.

\_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

PRINT NAME

PRINT NAME

Title: \_\_\_\_\_

Title: \_\_\_\_\_

## Appendix K:

### Clean Harbors Emergency Equipment List



Environmental Services, Inc

42 Longwater Drive

Norwell, MA 02061-9149

Tel (781) 792-5000

## **Schedule of Emergency Response Labor, Equipment and Material Rates for the Northeast Region**

Connecticut, Maine, Massachusetts, New Hampshire,  
New Jersey, New York, Rhode Island, Vermont

**Mr. Daniel Gough**

*-People and Technology Protecting and Restoring America's Environment"*



Field Personnel

Field Technician  
Senior Technician  
Foreman  
Equipment Operator  
Supervisor  
Project Manager  
Chemist  
Lead Chemist  
Site Safety Officer

Technical Personnel

Associate Engineer  
Designer  
Drafter  
Electrician  
Field Engineer/Scientist/Geologist  
Field Inspector  
Licensed Plumber  
Mechanic  
Professional Engineer/I.SP  
Senior Engineer/Scientist/Geologist  
Senior Mechanical Technician  
Sr. Mechanic  
Sr. Welder  
Wastewater Treatment Operator  
Welder

Administrative/Managerial Personnel

Commercial Trainer  
Coordinator  
General Manager  
On Site Administration/Accounting Clerk

Major Event "Strike Team"

Adjunct Staff/Coordinator  
Logistics/Procurement  
Strike Team Leader  
Zone/Operations Manager

Per Diem (per person per day)



#### Earth Moving Equipment

Backhoe Loader - 1 Yard Bucket  
Backhoe Loader - 1 Yard Bucket  
Bobcat Backhoe Attachment  
Bobcat Forklift Attachment  
Bobcat Hydraulic Shears Attachment  
Bobcat Loader  
Bobcat Loader  
Bobcat Sweeper Attachment  
8-13 ton Bulldozer  
Excavator - Track  
Excavator - Track  
Excavator - Link Belt with Mixer Attachment  
Loader - 3 Yard Bucket  
Loader - 3 Yard Bucket

#### Electric Power Tools

112" Drill  
318" Drill  
6011 Jackhammer  
Circular Saw  
Mercury Vacuum  
Reciprocating Saw  
Rivet Gun  
Shop (Wet) Vac

#### Field Analytical

4 Gas Meter  
Bailer & Sampling Equipment  
Conductivity Meter  
Draeger Air Monitor Pump  
Explosion/Oxygen Meter  
Geiger Counter  
Geoprobe  
Hydrogen Gas Meter  
Hydrogen Sulfide (H<sub>2</sub>S) Meter  
Hydrostatic Tester  
Infrared Probe  
Lumex RA915+ Mercury Vapor Analyzer  
Mercury Vapor Analyzer  
Noise Dosimeter  
Organic Vapor Analyzer (OVA)



Particulate Meter. MiniRam or Equivalent  
PeJWnat Air Pump  
pH Meter  
PIOMete{  
Ultrasound Meter  
Unk.nown Tesing Kit  
Wellpurging/Sampling Pomp

#### Gas Powered Tools

Air Mover Flex Hose 4" (100ft Roll)  
Air Mover flex Hose 6" (100ft Roll)  
Brush Cutter  
Chain Saw  
Cutoff Saw  
High Velocity Leaf Blower

#### Heavy Duty Trucks

Box Truck (10Wheel) Box  
Truck (6 Wheel) Heavy  
Duty liftgate Truck Heavy  
Duty Uft.gate Truck Dump  
Truck 10 Wheel  
Dump Truck, 10 Wheel  
Tractor - No Trailer  
Tractor W/Box Van  
Tractor W/flatbed/Lowbed  
Tractor W/Built HopPer  
Tractor W/Dump Trailer  
Tractor W/Roll-Off Trailer  
Trailer Mounted High Powered Vac Utilit  
Air Mover/Tractor  
High Power Vacuum Truck/Cusco  
High Power Vacuum Truck/Gusco W/tiquid Ring  
Skid Mount Vacuum System  
Tractor W/Liquid Transporter  
Vacator W/Cyclone  
Vacator WtHEPA  
Vacator W/High R.all  
Vacuum Tractor Trailer  
Vacuum Truck Straight  
Vacator Flex Hose 4" (100ft Roll)  
Vacator Flex Hose 6" (100ft Roll)  
- - Decontamination of Vacuum Trucks, Vactors, Cusl  
Some may require personnel entry. some may be de-



#### Hoses/Pipe

2" Cross Link Poly-Chem Hose (25')  
2" Lay Flat Hose (25')  
2" Oil Suction Hose (25')  
3" Cross Link Poly Chem Hose (2-5')  
3" Oil Suction Hose (25')  
3" Lay Flat Hose (25')  
3/4" Air compressor hose/foot  
4" Lay Flat Hose (25')  
4" Cross Link Poly Chem Hose (25')  
4" Oil Suction Hose (25')  
4" HOPE Pipe w/ Quick Disconnects (40ft)  
6" Lay Flat Hose (25')  
6" Oil Suction Hose (25')  
6" HOPE Pipe w/ Quick Disconnects ( )ft)  
Wash Hose (50')

#### Light Duty Truck/Response Equipment

2112 Ton Utility Vehicle  
Emergency Response Van  
Pickup Van/Car/Crew Cab  
Spill Trailer  
Stake Body Utility Truck  
Utility Boom Trailer  
Welding Van

#### Marine Response Equipment

10" Containment Boom  
18" Containment Boom  
24" Containment Boom  
36" Containment Boom  
48" Containment Boom  
Boom Anchor System  
Boom Light  
Containment Boom Tow Bridle  
Global Positioning System  
Hydraulic Power Pack  
Inflatable Buoys  
Oil Corraling Spray Bar  
PFO Dec. (Suit)  
PFD Life Vest  
Air Boat  
Jon Boat  
20' Fast Response Vessel w/o use of Storage  
20' Fast Response Vessel with use of Storage (30 bbl)  
Marco Harbor 28' Fast Response Recovery Vessel



#### Power Vessels (12'-141

- Power Workboat (15'-17')
- Power Workboat (18'-22')
- Power Boat (23'-30')
- Power Boat (23'-30') Twin Engine
- Power Barge Boat (26'-30') Twin Engine
- Power Boat (>.30')
- 1" Belt Skimmer
- Drum Skimmer Unit
- Duck Bill Skimmer
- Marco Skimmer Bolt Drive
- Marco Skimmer bell-light oil pads (Set of 4)
- Skim Pad<
- Weir Disc Skimmer Unit

- Rigid Hull Inflatable (RIB) (18ft-22ft)
- landing Craft (LCM) (26in-28in) Twin Engine
- Underwater ROV
- Drum Skimmer (24in-36in)

- Cost of Decontamination of Marine Response Equipment not included.
- Replacement Skimming Belts will be priced on request as needed.

#### Materials Processing Equipment

- Centrifuge
- Roating Dredge (10' depth)
- Floating Dredge (20' depth)
- Mobile Belt filter press
- Mobile Plate and Frame filter press
- Robotic Manway Cannon
- Vapor Recovery Unit (Double Column)

#### Pneumatic Power Tools

- 112M Drive Drill
- 314" Rotary Hammer Drill
- 318•Drive DriU
- Jackhammer 40 Lb.
- Jackhammer 60 Lb
- Jackhammer 90 Lb.
- Pallet Jack
- Pneumatic Chipping Gun
- Reciprocating Saw
- Setaping Gun, Air Driven
- SteeNibbler



### Pressure Washing Equipment

- 1000 PSI Pressure Washer
- 2000 PSI Pressure Washer
- 2500 PSI Hot Pressure Washer
- 2500 PSI Pressure Washer
- 3000 PSI Hot Pressure Washer
- 3500 PSI Hot Pressure Washer
- 301 Automated Nozzle for Wafer Blaster
- Water Blaster, 10,000 PSI
- Water Blaster, 20,000 PSI
- Water Blaster, 40,000 PSI

### Pumps and Transferring Pumps

- 1" Double Diaphragm Pump
- 1" Centrifugal Pump
- 2" Chemical Diaphragm Pump
- 2" Double Diaphragm Pump
- 2" Electric Submersible Pump
- 2" Hale Pump/Trash Pump
- 2" Peristaltic Pump
- 3" Centrifugal Pump
- 3" Chemical Diaphragm Pump
- 3" Diesel Lister Pump
- 3" Double Diaphragm Pump
- 3" Electric Submersible Pump
- 3" Hale Pump/Trash Pump
- 4" Centrifugal Pump
- 4" Double Diaphragm Pump
- 4" Electric Submersible Pump
- 4" Hale Pump/Trash Pump
- 4" Hydraulic Transfer Pump
- 6" Hydraulic Sludge Pump with Power Pack
- 6" Hydraulic Transfer Pump
- 8" Hydraulic Transfer Pump
- Drum Loader
- Electric Drum Pump
- Hand Pump
- Pneumatic Drum Vac - Venturi

### Respiratory Protection

- 2 Man Breathing System
- 1 Man Breathing System
- 1 Man Breathing System
- Breathing Air Hose/100FT
- Negative Air Machine
- Positive Air Machine
- Respirator, Full Face
- Self Contained Breathing Apparatus

Site Support

- 150,000 BTU Portable Heater
- 2,000 Gal Poly Storage Tank
- 20,000 Gal. Double walled Frac Tank
- 20,000 Gal. Frac Tank
- 3,000 Gal Steel Storage Tank
- 3,000 Gal Steel Storage Tank
- 300 - 500 gal Poly Storage Tank
- 300 - 500 gal Poly Storage Tank
- 300 - 500 gal Poly Storage Tank
- 4,000 Gall Poly Storage Tank
- 4000 Watt Generator
- Air Compressor 8110 CFM
- Air Compressor 175 CFM
- Air Compressor 375 CFM
- AN 4x4 or 4x6
- Carbon Filter - Vapor Phase, Small
- Carbon Filter - Skid Mounted, Liquid Phase, 10GPM
- Carbon Filter - Skid Mounted, Liquid Phase, 10GPM
- Carbon Filter - Skid Mounted, Liquid Phase, 10GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 100/200GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 100/200GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 100/200GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 300GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 300GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 300GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 50-85GPM
- Carbon Filter Trailer Mounted, Liquid Phase 50-35GPM
- Carbon Filter - Trailer Mounted, Liquid Phase 50-85GPM
- Carbon Filter - Van mounted, Liquid Phase, 150GPM
- Carbon Filter - Van mounted, Liquid Phase, 150GPM
- Carbon Filter - Van mounted, Liquid Phase, 150GPM
- Carbon Filter - Van Mounted, Low Profile Air Stripper 100GPM, 1200CFM
- Carbon Filter - Van Mounted, Low Profile Air Stripper
- 1200CFM, 1200CFM Carbon Filter - Van Mounted, Low Profile Air
- Stripper 100GPM, 1200CFM Carbon Filter System - 5Sgal
- Camatec Bags, SeaSiugs - 100 barrel
- Camatec Bags, SeaSiugs - 200-500 gal
- Chains & Binders
- Construction Debris Box, Non Haz Only
- Decon Pool 10' x 10'
- Decon Pool 20' x 100'
- Decon Pool 25' x 50'
- Decontamination Trailer
- Decontamination box
- Drum Scale (Portable)
- Dump Trailer, No Tractor (For on-site Storage Only)
- Eyewash Station

Generator (5K)  
 Generator(8K)  
 Generator (12K)  
 15 GalHEPA Fitter  
 Hand toolpack<age Incident  
 Cor(lmand Unit  
 IntermodelContaine-r  
 Intrinsically Safe Drop Ugh!  
 Intrinsically Safe ToolKit  
 Light Stand  
 Light Tower wiGenerator  
 Office Trailer  
 PersonnelSiaging Tent 20' x 30'  
 Portable Bo:er Unit  
 Portable BoJ1er Unit  
 RoU-Qff Container  
 Secondary Conta nment  
 SpoUight. Halogen  
 Tank Trailer, No iractor (For On-site Storage Only)  
 Truck Scale (Portable)  
 Vacuum Box with FiltrationUnit. Watertight  
 Vacuum Box. Watertight  
 Van Trailer. No Tractor (For On-site Storage Only)  
 Wleel Barrow

..Spotbng fee, liners, aearing of Urut not included.

## Spclcialty Equipment

AcetyleneCutting Torch  
 Auger - Electric  
 Auger - Heated  
 Auger- Manual  
 Sell Press  
 Chem1calCleaning Unit  
 Compacter  
 Concrete Sol!w - Walk Behind  
 Concrete Saw -Walk Behind  
 Concrete Saw -Walk Behind  
 Confined Spaco En!ty Ge< r  
 OB/Rog!ss Tripod  
**D Camera**  
 Drum Crusrer •Portable  
 Drum Crushe• Portable  
 Drum Dolly  
 Drum Grabter, Mechanical  
 Drum Tilter, Mecthanicai  
 Electric Blower  
 Fiber Optic C3111era  
 Faber Optic Camera  
 Fiber Op!C Camera Trudt

# r111 rh

ENVIRONMENTAL SERVICES

Forklift W/Drum Grabber  
Forklift W/Drum Tilter  
Forklift (2000 Lb. Capacity)  
Hydraulic Shears  
Jet Air Blower  
Plasma Cutting Torch  
Pneumatic Fan Blower  
Pneumatic Rammed Drum Opener (penetration)  
Sandblast F& Hose  
Soil Vent Blower  
Traffic Cones/Barricade  
Traffic Sign - Arrow Board  
Traffic Sign - Other  
Traffic Sign  
WeU Development Rig



SitG

Units of

Personal Protective Equipment (Per person per change out)

- Level A Intrinsically Safe, Hands Free Communications **Pa**
- Level A with RESPONDER Plus Suit
- Level A with RESPONDER Suit
- Level B with CPF 2 or Poly Tyvek
- Level B with CPF 3 or Saranex Suit
- Level B with CPF 4 or Barricade Suit
- Level C with CPF 1, CPF 2, or Poly Tyvek Suit
- Level C with CPF 4 or Barricade
- Level C with CPF 3 or Saranex
- Level D with Tyvek, Booi.S.Gloves

Chemical Protective Garments

- Kappler CPF1 Apron
- Kappler CPF1 Suit (Blue)
- Kappler CPF2 Suit (Grey)
- Kappler CPF2 Suit w/Stripped Seams (Grey)
- Kappler CPF3 Suit w/Hood & Boots (Tan)
- Kappler CPF3 Suit w/Hood & Strapped Seams (Tan)
- Kappler CPF4 Suit w/Hood & Boots (Green)
- Kappler CPF5 Responder Level A Suit (Blue)
- Kappler CPF5 Responder Plus Level A Suit (Orange)

- Barricade Suit Chemret
- Sort Level B Chemret Suit
- Level C Chemtuff
- Suit, Level B Chemtuff Suit
- Level C Polycoated Rain
- Gear, 22mil Tyvek, Polycoat
- HOIST Tyvek, Saranex
- Tyvek, White

Hand Protection

- 12in PVC Gloves
- 14in Neoprene Gloves
- 14in Nitrils Gloves
- 18in PVC Gloves
- Cotton Winter Glove Liners
- Cut Resistant Gloves
- Latex Gloves
- leather Gloves
- Puncture Resistant Gloves
- Silver Shield Gloves

Respiratory Protection

Acid Cartridges  
Ammonia Cartridges  
Asbestos Cartridges  
Chlorine Cartridges  
Mercury Cartridges  
MSA Chemical Cartridge  
Organic Vapor Cartridges (No Dust)  
Organic Vapor/Dust Combination Cartridges  
Pesticide Cartridges

Foot Protection

17in Over/Slush Boots- Rental  
Disposable Boot Covers (Chicken Boots)  
Non Steel Toe Chest Waders - Purchased  
Steel Toe Knee Boots - Rental

Head / Facial Protection

16oz Eyewash  
Chemical Resistant Hoods  
Cold Weather Hard Hat Liners  
Earplugs  
Face/Splash Shield  
First Aid Kit, 25 Person

DOT Shipping Containers

1 Cubic Yard Flexbin 11GIY2022/1122  
1 Cubic Yard Supersac 13H21Y116  
10 Gal/ 40 Litre Fiber Drum  
110 Gal Steel Drum, New 1A21Y400S  
110 Gal Steel Drum, Reconditioned 1A2/Y400S  
15 Gal/60 Litre Poly Drum 1H1/Y1.81100  
16 Gal/ 70 L Closed Poly Drum  
16 Gal / 70 L Poly Drum 1H2/Y56/S  
16 ea; Fiber Drum  
18x18x24 inch Nonhazardous Pathological Waste Box  
20 Gal/ 80 Litre Fiber Drum  
20 Gal/80 Litre Poly Drum (1HVY561S)  
30 Gal / 120 Litre Closed Poly Drum 1H1/Y1.81100  
30 Gal/ 120 Litre Closed Steel Drum, New 1A2/Y1.6f200  
30 Gal/ 120 litre Closed Steel Drum, Reconditioned 1A1/Y1.4/100  
30 Gal f 120 Litre Fiber Drum 1GIX56/S  
30 Gal f 120 Litre Poly Drum 1H21Y141fs  
30 Gal f 120 litre Steel Drum, New 1A2/Y1.4/100  
30 Gal 20 litre Steel Drum, Reconditioned 1A21Y1.21100  
4ft Fluorescent Tube Box 4G/Y275



5 Gal/20 Litre Closed Poly Drum 1H1/Y1.81170  
5 Gal /20 Litre Closed SteelDrum 1A11/T 1. 81300  
5 Gal/20 Litre Poly Drum 1H2/Y1.51S0  
5 Gal/20 litre SteelDrum 1A2/Y1.8/100  
5.5 Gal/ 20 L SteelDrum 1A2/Y231S  
55 G /205 L Closed SteelDrum. Recon 1A1/Y1.4f100 (17-E)  
55 G /205 L SteelDrum.Reconditioned 1A21Y1.2!100 (17-H)  
55 Gal/205 L Stainless SteelDrum.Re1:ondt!ioned  
55 Gal/205 Litre Closed Poly D!lm 1H1/Y1.8f150  
55 Gal/205l.fua Closed Poly Drum 1H1/Y1.8f150,Recycled  
55 Gal/205 Litre Closed SteelDrum, NIW1A1/Y1.61300  
65 Gal/205 Litre Fiber Drum 1GIY19M>  
55 Gal/ 205 Litre Poly Drum 1H21Y237/S  
55 Gal/205litre SteelD!vm **Heavy**1A211.51100 (17-C)  
55 Gal / 205 Litre SteelDrum. New 1A21Y1.5/100  
55 GalV205 Litre SteelDrum Poly Line 6HA11X1.51280 (S0/37M)  
85 Gal/320 Litre SteelDrum,New 1A2IX400/S  
85 Gal/ 320 Litre SteelD!vm, Recycled 1A21.X400/S  
6ft Auorescent Tube Box 4GJY275  
95 GalPoly Drum 1H2/Y318/S (Overpad )  
Asbestcs Bag  
Cubic Yard Box for Non-Haz waste  
Drum Uoe!S  
D!lm RJngsJBolts!Gaskets  
Dump Trailer Poly Liner  
Filter/Uner }of Filler Box  
Flexbin/Cubic Yard Box Liner  
Fluo!llscen!Bulb Tub96.8f1100 bulb a1padty  
Fluorescent Bulb Tubes.8ft 125 bulb capacity  
PathologicalWaste Bag  
Poly Sheet 6mil 20ft x 100ft  
RoUoff Poly liner  
Oversi4e<i heavy duty biohaz bag  
Poly Bags, Smil,per Roll  
Waste Wrangler

#### Absorbent Materials

Absorbent Boom.31n x4ft  
Absorbent Boom,Sin x 1 Oil x 4/Bale  
Absorbent Bcom,Sin x 10ft x 4/Bale  
Absorbent Pad (101 Grade} 100!bale  
Absotbent Pillow, 14in x 25in  
Absorbent Pillow, 14in x25m x 10/BalE!  
Abs0(1)ent Ro11, 38n x 144ft  
AbsorbentRug.36in x 300ft  
Ab ntSweep,17inx 100ft



U

Activated Carbon for Water treatment systems  
Com Cob Absorbent  
Com Cob Absorbent 40lb / 18 kg bag  
HGX Absorbent (Mercury absorbent)  
HGX Absorbent (Mercury Absorbent) 5 lbs container  
Oil Snare, Loose in Bag  
Oil Snare, on a Line, 50ft  
Poly Absorbent 20 lb / 23 kg  
Rags, 50 lb / 23 kg  
Saw Dust, 20 lb / 9 kg  
Speed Dry  
SP Solidification Particulate (Oil Bond)  
SP Waterbond  
Vermiculite 4 cuft / 3 cubic meter

#### Degreasers & Neutralizing Agents

142 Solvent  
Antifreeze Concentrate  
Capsur  
Citric Acid Solution, 15%  
Citrus Cleaner Degreaser  
Diesel Fuel Used as a Gleaner  
Hydrated Lime, 50 lb / 23 kg  
Hydrochloric Acid  
Liquid Alive  
No Flash  
Penetone Degreaser  
PES 51 Cleaner  
Pink Stuff Degreaser  
Sanimat 9 Degreaser  
Sea Clean Degreaser, 5 Gal / 20 Ulife  
Simple Green Degreaser  
Soda Ash, 100 lb / 45 kg  
Sodium Sulfate 50 lb / 23 kg  
Sodium Hypochlorite, 15% (Bleach)  
Spray Gel  
Trichloroethane

#### Sampling And Lab Supplies

5oz Sample Jars  
12oz Sample Jar w/Cover  
16oz Sample Jar w/Cover  
32oz Sample Jar w/Cover  
CHLOR-O-TECT 4000 Test Kit (Halogens)



CHLOR-N-OIL Test Kit 0-50ppm PCB  
CHLOR-N-OIL Test Kit 50-500ppm (PCB)  
Draeger Tube  
Hanby Soil Reagent/Sample  
pH Paper, H41 Roll  
Sample Tube

#### Buna Nitrile Materials

2in Flange/Ring Gasket  
3in Flange/Ring Gasket  
4in Flange/Ring Gasket  
6in Flange/Ring Gasket  
8in Flange/Ring Gasket  
10in Flange/Ring Gasket  
12in Flange/Ring Gasket  
14in Flange/Ring Gasket  
16in Flange/Ring Gasket  
24 - 36in Manhole Gasket

#### Marine Equipment

1/2in Galvanized Shackles/Screwpin  
1/2in Galvanized Swivel/Eye&Eye  
10in Inflatable Buoy  
13in Inflatable Buoy  
19in Inflatable Buoy  
24in Safety Throw Ring  
5in Pickup Buoy  
318in Unguarded Galvanized Chain  
Anchor, 18lb  
Anchor, 22lb  
Anchor, 25lb  
Anchor, 40lb  
Anchor, 43lb  
PFD Deck Suit  
PFD Safety Vest  
PFD Survival Suit  
PFD Work Vest  
S1900 Horn  
1/2in Nylon Rope  
1/2in Poly Rope  
1 1/8in Poly Rope  
12" Masonry Cutting Wheel  
12" Metal Cutting Wheel  
12in Masonry Cutting Wheel Blade  
12in Metal Cutting Wheel Blade



### Hand Tool/Construction Accessories

16in Street Broom  
24in Floor Broom  
3 Gal Pump Spray Bottle  
3/Bin Marine Rope  
3/Bin Marine Rope Coil. 600ft  
3in Long Handmade Scraper  
3in Scraper  
Bow Rake  
Carbide Blade  
Caution Tape/Roll  
Chemical Tape/Roll  
Com Broom  
Ded/Scrub Brush  
Disposal Hand Pump/Siphon Pump  
Duct Tape/Roll  
Extension Cord. 50ft  
Fence Stakes  
Fence. Slit 100ft  
Flat Shovel  
Garden Hoe  
Garden Rake  
Pitch Fork  
Plastic Shovel  
Saw 1:all Blade  
Shrink Wrap  
Small Steege Hammer  
Snow Fence Safety Fence. 50ft  
Spaded Shovel  
Squeegee

### Safety Plans And OPA-90 Documentation

Etiological Infectious Media EIR (single site) & Site Walk  
Additional Site Coverage (each site)  
Annual Site Walk and Response Plan Listing - Regulatory  
Annual Site Walk and Response Plan Listing - In-House  
Additional Site Walk (w/in 50 miles of CHES)  
Multi-State Multi-Site Response Plan Listing & Site Walk  
Minimum Charge for ER or BioHaz Jobs  
OPA-90 PREP Documentation Fee  
FRP Listing (Secondary) Coverage, (single-site) & Site Walk  
Additional Site Walk (w/in 50 miles of CHES)  
Multi-State/Multi-Site FRP Listing (supplementary) & Site Walk  
OPA-90 FRP Primary OSRO Listing - Single Site  
OPA-90 FRP Primary Listing - Additional Sites  
Action Report  
Safety Plan - Standard



### Organic Analyses

Acid Extractables • EPA method 625181170  
Aromatic Volatile Organics – EPA method 60218020  
Base/Neutral & Acid Extractables-EPJ method 62518270  
Base/Neutral Extractables – EPA method 62518270  
Chlorinated Herbicides  
Extractable Petroleum Hydrocarbon, Deluxe • MA OEP 6PH  
Extractable Petroleum Hydrocarbon, Standard MA DEP EPH  
Halogenated Volatile Organics - EPA method 60118010  
Hydrocarbon Identification & Quantification- EPA method 8100  
Library Search GC/MS  
    BNA (20 substances of greatest apparent concentration)  
    VOA (10 substances of greatest apparent concentration)  
Organochlorine Pesticides - EPA method 60818080  
Organochlorine Pesticides & PCBs - EPA method 60818080  
Organophosphorous Pesticides • EPA method 8140  
PCBs, Oil- EPA method 60014-814SS  
PCBs, Water or Soil- EPA method 60014-814SS  
PCBs, Air - EPA method 8080  
Polychlorinated Dioxins/Furans – EPA method 8280  
Polynuclear Aromatic Hydrocarbons by HPLC - EPA method 8310  
Total Petroleum Hydrocarbons as Oil - EPA method 8015  
Total Petroleum Hydrocarbons as Gasoline- EPA method 8015  
Volatile Organics – EPA method 624/8260  
Volatile Petroleum Hydrocarbon, Deluxe- MA DEP YPH  
Volatile Petroleum Hydrocarbon, Standard – MA OEP VPH

### Trace Metals Analysis

Individual Metals By:  
Chromium Hexavalent - EPA method 8000  
Direct Aspiration (Flame (AA) or ICP) – EPA Series 2007/7000  
Graphite Furnace - EPA Series 2007/7000  
Mercury Cold Vapor- EPA Methods 245.1/7470/7471

### Inorganic Analyses

Acidity • EPA method 305.1  
Alkalinity EPA method 310.1  
Ash Content – ASTM 0482-80  
Biochemical Oxygen Demand • EPA method 405.1  
Bromide- EPA method 320.1  
BTU (Heating Value)- ASTM 0240:76  
Chemical Oxygen Demand- EPA method 410  
Chloride EPA method 325.3  
Chlorine, Residual • SM 4500 ClG  
Chlorine, Total- EPA method 330.5  
Cyanide, Amenable to Chlorination - EPA methods 335.1/9010  
Cyanide, Reactive - EPA method 7.3.3.2  
Cyanide, Total- EPA methods 335.2/9010  
Flashpoint - EPA method 1010/AS1M 0131<->-84



## Site Service

Fluoride - EPA method 340.1  
Halogens, Total - ASTM Methods 0801/11D512  
Hardness - EPA method 130.2  
Nitrogen, Ammonia - EPA method 350.2  
Nitrogen, Kjeldahl - EPA method 351.3  
Nitrogen, Nitrate - EPA method 352.1  
Nitrogen, Nitrate & Nitrite - EPA method 353.2/352.1/354.1  
Nitrogen, Nitrite - EPA method 354.1  
Nitrogen, Organic - EPA methods 351.3/350.2  
Oil & Grease, Gravimetric, Total - EPA methods 413.1/0070  
Oil & Grease, Gravimetric, Petroleum Hydrocarbon - SM 5520F  
Oil & Grease, Infrared (IR), Total - SM 5520F  
Oil & Grease, Infrared (IR), Total & Petroleum Hydrocarbon - SM 5520F  
Oil & Grease, Infrared (IR), Total Petroleum Hydrocarbon - EPA Method 418.2  
Pant Filter Test - EPA method 9095  
pH - EPA methods 150.1/904019045  
Phenols, Total - EPA methods 420.1/9065  
Phosphorous, Orthophosphate - EPA method 3652  
Phosphorous, Total - EPA method 365.2  
Sieve Test - ASTM 0422-63  
Solids, Settleable - EPA method 160.5  
Solids, Total - EPA method 160.3/SM 2540G  
Solids, Total Dissolved - EPA method 160.1  
Solids, Total Suspended - EPA method 160.2  
Solids, Total Volatile - EPA method 160.4  
Specific Conductance - EPA method 110.1  
Specific Gravity - ASTM 01429-76  
Sulfate - EPA method 375.4/9030  
Sulfide, Reactive - EPA method 73.42  
Sulfide, Total - EPA method 376.11/9030  
Sulfite - EPA method 377.1  
Sulfur - ASTM 0129-04  
Surfactants - EPA method 1425.1  
Total Organic Carbon - EPA methods 415.1/9060  
Turbidity - EPA method 180.1  
Viscosity - ASTM 0455-88

### Environmental Packages

#### Toxicity Characteristic Leaching Procedure

Base/Neutral & Acid Extractable Organics - EPA method 8270  
Chlorinated Herbicides - EPA method 8150  
Extraction for Metals, Base/Neutral & Acid Extractable, Pesticides and Herbicides - EPA method 1311  
Full TCLP Analysis  
Metals - EPA 7000 Series  
Organochlorine Pesticides - EPA method 8080  
Volatile Organics - EPA method 8260  
Zero Headspace Extraction - EPA method 1311



Si1

#### Appendix IX Analyses

Base/Neutral & Acid Extractable Organics - EPA method 8270  
Chlorinated Hydrocarbons - EPA method 8150  
Cyanide - EPA method 9010  
Metals - EPA 7000 Series  
Organochlorine Pesticides - EPA method 8080  
Organophosphorous Pesticides - EPA method 8140  
Polychlorinated Dioxins/Furans - EPA method 8280  
Sulfide - EPA method 9030  
Volatile Organics - EPA method 8260

#### Surcharge Schedule

Surcharge for expedited turnaround, data within 24hrs - 100%  
Surcharge for expedited turnaround, data within 48hrs - 75%  
Surcharge for expedited turnaround, data within 72hrs - 50%  
Surcharge for expedited turnaround, data within 96hrs - 35%

#### Waste Material Approval

Profile Approval Fee (no sample required per permit)  
Profile Approval Fee & Sample Fingerprinting  
Profile Approval Fee & Sample Treatability

"Plus Shipping



1. All labor, equipment, materials and services outlined in this Schedule of Rates will be invoiced at the rates listed, regardless of Clean Harbors' method of acquisition. Any items not described in this Schedule of Rates which are acquired by Clean Harbors shall be invoiced at Clean Harbors' cost plus a markup of thirty percent (30%). (Unless otherwise specified, these rates are not valid for response to Infectious Agents/Biohazards.)
2. Lodging and subsistence for Clean Harbors personnel and our subcontractors in the field are included in a per diem charge per person per day when working more than 30 miles from our closest operations center. The rate is outlined in the labor section of this document.
3. At its sole discretion, Clean Harbors will determine the level of protection required for each project. Levels A, B, C or O personal protection and safety packages will be invoiced at the rates shown in the Schedule of Rates.
4. The Schedule of Rates includes the cost of Clean Harbors basic medical monitoring program. Any special medical monitoring required by client or the nature of the work will be added to the project scope and the client will be invoiced at cost plus a markup of thirty percent (30%).
5. Clean Harbors' personnel and equipment will be charged for mobilization and demobilization (included). Services provided prior to and/or subsequent to actual project site activities will also be charged at the Hourly Rate. This includes, but is not limited to, time taken by personnel to decontaminate and don protective clothing and equipment that is billed as part of the project.
6. Clean Harbors' non-employee workday is 7:00 am to 3:30 pm, Monday through Friday. Other hours must be agreed to in writing in advance. No more than eight (8) hours of straight time will be billed for one person for one day. All time will be based upon a 24-hour day.
7. Hours worked in excess of eight (8) hours in the normal workday, as described above, as well as all hours worked all day Saturday are considered overtime and will be billed at 1.5 times the applicable straight time rate for all billable personnel.
8. Sunday and Holidays are considered premium time and will be billed at 2.0 times the applicable straight time rate for all billable personnel. Holidays are the legally observed United States Federal Holidays plus the day after Thanksgiving. When local laws or regulations recognize additional holidays or when local laws or regulations define premium hours in excess of this definition, Clean Harbors will invoice in accordance with local laws or regulations.
9. All emergency call-outs (i.e. less than 24-hour notice) will be subject to a minimum four (4) hour response charge or \$2000.00 minimum charge, whichever is greater. Minimum charges do not apply to Transportation and Disposal.
10. A mobile communication charge of \$50 per day will apply for each foreman and all supervisor personnel for all emergency response.
11. Charges for Safety Plans are assessed on all Emergency Response projects, or those involving OSHA regulated substances. Site Specific Health & Safety Plans prepared for the customer, or as required by applicable regulations, will be quoted on an incremental basis.
12. A variable Energy and Security Recovery Fee (that includes the DOE national average diesel price) will be applied to the total invoice excluding sales tax.
13. For the purposes of determining proper wages to be paid on prevailing wage projects, Field Technician and Senior Field Technician shall be defined as equivalent to the "laborer" job description from the wage determination. Other Clean Harbors job titles should be consistent with existing prevailing wage categories.
14. For equipment with both an Hourly Rate and a Daily Rate, Hourly Rates will apply up to 6 hours; then the Daily Rate will apply up to 12 hours. After 12 hours and up to 18 hours the Hourly Rate will apply. After 18 hours two Daily Rate charges will be applied. No more than 2 Daily Rates will apply per calendar day.  
For equipment with only Daily Rates, a day will be charged up to 12 hours.  
After 12 hours and up to 18 hours, an Hourly Rate will apply calculated as the Daily Rate divided by 8 hours.  
After 18 hours two Daily Rates will apply. No more than 2 Daily Rates will apply per calendar day.  
For boats and other marine equipment, Daily Rates will apply regardless of the hours used per day. Only one Daily Rate will apply for each calendar day.  
A day consists of a one calendar day. A new day begins at midnight and charges begin to accumulate at midnight for the next day.
15. For equipment identified in this Schedule of Rates that includes a Weekly Rate, a Week is defined as not more than seven (7) Daily Rate charges in a seven (7) day period, Monday through Sunday. The equipment will be subject to additional days or hours in excess of seven Daily Rate charges in a week, not to exceed two weekly charges in a single 7 day week, Monday through Sunday.
16. All waste disposal from project and/or response activities will be charged in addition to the rates listed herein. A Waste Management Preparation Fee of \$125 per day will apply to any work generating waste. The fee includes labels, manifests/bills of lading and Profiles.
17. Standby charges will be negotiated on a case-by-case basis.

## Appendix L:

### Colgate University Personal Protective Equipment Levels

## APPENDIX L

### Colgate University Personal Protective Equipment (PPE) Levels

There are four levels of personal protective equipment at Colgate University. Level A provides the highest level of protection and Level D provides the lowest level of protection. Hazardous material or hazardous waste related incidents requiring Level C or greater PPE requires a Level II or Level III Emergency Response and must be handled by the HAZMAT / HAZWOPER Team.

#### LEVEL A

- Level B protection plus a fully encapsulating chemical suit
- Two-way handheld radios

#### LEVEL B

- Level D protection
- Self contained breathing apparatus (SCBA) or in-line supplied air (Cascade)
- Semi-encapsulating chemical protective suit or Tyvek suit (based on chemical hazards present )
- Two-way handheld radios

#### LEVEL C

- Level D protection
- Air purifying respirator (full-face or half-face) with appropriate cartridges based on chemical hazards present)
- Two-way handheld radios

#### LEVEL D

- Regular work clothes
- Sturdy, non-permeable, closed toe and heel shoes
- Gloves (nitrile, puncture proof, and/or butyl as appropriate)
- Safety glasses / goggles
- Face shield (if necessary based on nature of hazard)
- Chemical apron / Tyvek suit (if necessary based on nature of hazard)
- Shoe / boot covers (if necessary based on nature of hazard)
- Reflective safety vest (if necessary based on nature of hazard)
- Hard hat (if necessary based on nature of hazard)
- Hearing protection (if necessary based on nature of hazard)

## Appendix M:

### Colgate University Building Sprinkler Systems

# C00000Colgate University Building Sprinkler Systems

Colgate University Systems				
Location	Wet	Dry	Backflow	Other
40 Broad St.	1	0	2	
49 Broad St.	1	0	1	
52 Broad St.	1	0	1	
66 Broad St.	1	0	0	
70 Broad St.	0	1	1	
72 Broad St.	1	0	0	
80 Broad St.	1	1	1	
84 Broad St.	1	0	0	
88 Broad St.	1	0	1	1 Anti-freeze Loop
92 Broad St.	1	0	0	
94 Broad St.	1	0	0	
100 Broad St.	1	0	0	
102 Broad St.	0	1	0	
104 Broad St.	1	0	0	
110 Broad St.	1	1	1	
114 Broad St.	1	0	0	
118 Broad St.	1	1	0	
Alumni Hall	0	1	1	
Andrews Hall	1	1	1	
Bookstore	1	0	0	
Bryant Hall	2	1	1	
Case Library	1	0	2	3 Pre-Action System
Chiller Plant	1	0	0	
Curtis Hall	1	1	0	
Cutten Complex	1	0	0	
Dana Arts	1	0	0	
Drake Hall	1	2	0	
East Hall	1	0	0	
Frank Dining	1	0	0	
French House	1	0	0	
Gate House	0	0	1	1 Anti-freeze Loop
Heating Plant	0	1	1	
Ho Science	1	1	1	
Lathrop Hall	2	0	1	
Latino (Spanish) House	1	0	0	
Lawrence Hall	3	1	0	
Little Hall	1	0	0	
McGregory Hall	1	0	0	
Merrill House	0	1	1	
Newell #1	1	1	0	
Newell #2	1	1	0	
Newell #3	1	1	0	
Newell #4	1	1	0	
O'Connor Hall	1	1	0	
Parker 101-111	1	0	0	
Parker 112-121	1	0	0	
Parker 201-216	1	0	0	
Parker 301-308	1	0	0	
Parker Commons	0	1	0	

## C00000Colgate University Building Sprinkler Systems

Perrson's	1	0	1	
Service Building	1	0	0	
Seven Oaks	1	0	0	
Sigma Chi	1	0	0	
Stillman Hall	1	0	1	
Town House #1	1	0	1	
Town House #2	1	0	1	
Town House #3	1	0	1	
Town House #4	1	0	1	
Town House #5	1	0	1	
Town House #6	1	0	1	
Town House #7	1	0	1	
Town House #8	1	0	1	
Town House #9	1	0	1	
Trudy Fitness Center	1	0	1	
University Center #1	1	0	0	
University Center #2	1	0	0	
University Center #3	1	0	0	
University Center #4	1	0	0	
University Center #5, #6, #7	1	0	0	
University Center #8	1	0	0	
University Center #9	1	0	0	
University Center #10	1	0	0	
West Hall	1	0	0	
Wynn Hall	1	0	0	
<b>Totals</b>	<b>71</b>	<b>21</b>	<b>30</b>	<b>2 AFL &amp; 3 Pre-Action</b>

Appendix N:

Hamilton Fire Department Agreement Letter

Colgate University  
13 Oak Drive  
Hamilton, NY 13346  
June 1, 2012

Fire Chief Richard Holcomb  
Hamilton Fire Department  
121 Lebanon Street  
Hamilton, New York 13346

Re: Contingency Plan Coordination Agreement

Dear Chief Holcomb:

State and federal regulations, as included in the enclosed document, require Colgate University to maintain an up-to-date Contingency Plan. The Contingency Plan is a formal written document detailing the site specific procedures to be followed at Colgate University in the event of an incident leading to a hazardous materials or hazardous waste release, explosion, or fire. These same regulations require Colgate University to have a Coordination Agreement with local and state public safety agencies that may be involved in a response to a hazardous materials or hazardous waste incident on campus.

During a hazardous material or hazardous waste incident on campus, your Department may be called on by Colgate University to provide primary rescue, fire fighting, and medical emergency services. Colgate University respectfully requests your agreement to provide these services by signing the attached copy and returning it to me. In accordance with 40 CFR 264.37, I will include your signed agreement letter in the Contingency Plan. In accordance with 40 CFR 264.53, the enclosed copy of the Contingency Plan is for your Department to keep on record for reference.

Thank you very much for your continued great service to our community. If you have any questions regarding the Contingency Plan or Coordination Agreement, please do not hesitate to contact me by phone at 315-228-7994 or via e-mail to [dgough@colgate.edu](mailto:dgough@colgate.edu).

Sincerely,

Daniel B. Gough  
Dept. of Environmental Health and Safety  
Colgate University

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Hamilton Fire Chief Richard Holcomb

Appendix O:

Hamilton Police Department Agreement Letter

Colgate University  
13 Oak Drive  
Hamilton, NY 13346  
June 1, 2012

Police Chief Rick Gifford  
Hamilton Police Department  
3 Broad Street  
Hamilton, New York 13346

Re: Contingency Plan Coordination Agreement

Dear Chief Gifford:

State and federal regulations, as included in the enclosed document, require Colgate University to maintain an up-to-date Contingency Plan. The Contingency Plan is a formal written document detailing the site specific procedures to be followed at Colgate University in the event of an incident leading to a hazardous materials or hazardous waste release, explosion, or fire. These same regulations require Colgate University to have a Coordination Agreement with local and state public safety agencies that may be involved in a response to a hazardous materials or hazardous waste incident on campus.

During a hazardous material or hazardous waste incident on campus, your Department may be called on by Colgate University to provide primary assistance in evacuation of affected areas, crowd control, and on-scene security. Colgate University respectfully requests your agreement to provide these services by signing the attached copy and returning it to me. In accordance with 40 CFR 264.37, I will include your signed agreement letter in the Contingency Plan. In accordance with 40 CFR 264.53, the enclosed copy of the Contingency Plan is for your Department to keep on record for reference.

Thank you very much for your continued great service to our community. If you have any questions regarding the Contingency Plan or Coordination Agreement, please do not hesitate to contact me by phone at 315-228-7994 or via e-mail to [dgough@colgate.edu](mailto:dgough@colgate.edu).

Sincerely,

Daniel B. Gough  
Dept. of Environmental Health and Safety  
Colgate University

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Hamilton Police Chief Rick Gifford

Appendix P:

Southern Madison County Volunteer Ambulance Corps Agreement  
Letter

Colgate University  
13 Oak Drive  
Hamilton, NY 13346  
June 1, 2012

Steve Johnson  
Chief of Operations  
Southern Madison County Ambulance Corps  
88 Lebanon Street  
Hamilton, New York 13346

Re: Contingency Plan Coordination Agreement

Dear Mr. Johnson:

State and federal regulations, as included in the enclosed document, require Colgate University to maintain an up-to-date Contingency Plan. The Contingency Plan is a formal written document detailing the site specific procedures to be followed at Colgate University in the event of an incident leading to a hazardous materials or hazardous waste release, explosion, or fire. These same regulations require Colgate University to have a Coordination Agreement with local and state public safety agencies that may be involved in a response to a hazardous materials or hazardous waste incident on campus.

During a hazardous material or hazardous waste incident on campus, Colgate University may need Southern Madison County Volunteer Ambulance Corps (SOMAC) to provide emergency medical services to university staff and students affected by the incident. Colgate University respectfully requests your agreement to provide these services by signing the attached copy and returning it to me. In accordance with 40 CFR 264.37, I will include your signed agreement letter in the Contingency Plan. In accordance with 40 CFR 264.53, the enclosed copy of the Contingency Plan is for your Department to keep on record as a reference.

Thank you very much for your continued great service to our community. If you have any questions regarding the Contingency Plan or Coordination Agreement, please do not hesitate to contact me by phone at 315-228-7994 or via e-mail to [dgough@colgate.edu](mailto:dgough@colgate.edu).

Sincerely,

Daniel B. Gough  
Dept. of Environmental Health and Safety  
Colgate University

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Steve Johnson, SOMAC Chief of Operations

Appendix Q:

Community Memorial Hospital Agreement Letter

Colgate University  
13 Oak Drive  
Hamilton, NY 13346  
June 1, 2012

Dr. Michael Jastremski  
Vice President of Medical Affairs  
Community Memorial Hospital  
150 Broad Street  
Hamilton, New York 13346

Re: Contingency Plan Coordination Agreement

Dear Dr. Jastremski:

State and federal regulations, as included in the enclosed document, require Colgate University to maintain an up-to-date Contingency Plan. The Contingency Plan is a formal written document detailing the site specific procedures to be followed at Colgate University in the event of an incident leading to a hazardous materials or hazardous waste release, explosion, or fire. These same regulations require Colgate University to have a Coordination Agreement with local and state public safety agencies that may be involved in a response to a hazardous materials or hazardous waste incident on campus.

During a hazardous material or hazardous waste incident on campus, Colgate University may need Community Memorial Hospital to provide emergency medical services to university staff and students affected by the incident. In the event of an incident of this nature, the request for emergency medical services would most likely come from either the Hamilton Fire Department (HFD) or the Southern Madison County Volunteer Ambulance Corps (SOMAC). Colgate University respectfully requests your agreement to provide these services by signing the attached copy and returning it to me. In accordance with 40 CFR 264.37, I will include your signed agreement letter in the Contingency Plan. In accordance with 40 CFR 264.53, the enclosed copy of the Contingency Plan is for your Department to keep on record as reference.

Thank you very much for your continued great service to our community. If you have any questions regarding the Contingency Plan or Coordination Agreement, please do not hesitate to contact me by phone at 315-228-7994 or via e-mail to [dgough@colgate.edu](mailto:dgough@colgate.edu).

Sincerely,

Daniel B. Gough  
Dept. of Environmental Health and Safety  
Colgate University

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Dr. Michael Jastremski, Vice President for Medical Affairs

## Appendix R:

NYCRR Chapter IV Subpart 373-2.4 Hazardous Waste  
Facility Contingency Plan and Emergency Procedures



NEW YORK STATE  
DEPARTMENT OF  
**ENVIRONMENTAL CONSERVATION**

# Subpart 373-2: Final Status Standards For Owners and Operators Of Hazardous Waste Treatment, Storage and Disposal Facilities - Page 1

(Statutory Authority: Environmental Conservation Law Section 27-0900 et seq)

*[Effective September 6, 2006]*

[page 1 of 7]

Pages in this Part:

Sections 1 to Section 7

Section 8(a)-(i)

Section 8 U)

Sections 9 to Section 13

Sections 14 to Section 27

Sections 28 to Section 29

Sections 30 to Appendix 33

## Contents:

### Sec.

373-2.1 - General

373-2.2- General Facility Standards

373-2.3- Preparedness and Prevention

373-2.4 - Contingency Plan and Emergency Procedures

373-2.5- Manifest System, Recordkeeping and Reporting

373-2.6 - Releases from Solid Waste Management Units

373-2.7 - Closure and Post-Closure

## §373-2.1 - General

### (a) Purpose, Scope and Applicability.

(1) The purpose of this Subpart is to establish minimum State standards which define the acceptable management of hazardous waste.

(2) The standards in this Subpart apply to owners and operators of all facilities which treat, store, or dispose of hazardous waste, except as specifically provided otherwise in this Part or Part 371 of this Title.

(3) The requirements of this Subpart apply to a person disposing of hazardous waste by means of ocean disposal subject to a permit issued under the Marine Protection, Research, and Sanctuaries Act (see section 370.1(e) of this Title) only to the extent they are required by the exemption granted to such

a person under 373-1.1(d) of this Part.

(Note: These Subpart 373-2 regulations do apply to the treatment or storage of hazardous waste before it is loaded onto an ocean vessel for incineration or disposal at sea.)

(4) The requirements of this Subpart apply to a person disposing of hazardous waste by means of underground injection subject to a permit issued under an Underground Injection Control (UIC) program approved or promulgated under the Safe Drinking Water Act only to the extent they are required by the exemption granted to such a person under section 373-1.1(d) of this Part (see section 370.1(e) of this Title).

(Note: These Subpart 373-2 regulations do apply to the above-ground treatment or storage of hazardous waste before it is injected underground.)

(5) The requirements of this Subpart apply to the owner or operator of a Publicly Owned Treatment Works which treats, stores, or disposes of hazardous waste only to the extent they are required by the exemption granted to such person under 373-1.1(d) of this Part).

(6) The requirements of this Subpart apply to those portions of a facility managing recyclable materials described in subparagraphs 371.1(g)(1)(ii) and (iv) of this Title only to the extent that the requirements of this Subpart are referred to in sections 374-1.3, 374-1.6, 374-1.7 or 374-1.8 or Subpart 374-2 of this Title.

(7) Universal waste handlers and transporters (as defined in subdivision 370.2(b) of this Title) are subject to regulation under Subpart 374-3, when handling the below listed universal wastes.

- (i) Batteries as described in subdivision 374-3.1(b) of this Title;
- (ii) Pesticides as described in subdivision 374-3.1 (c) of this Title;
- (iii) Thermostats as described in subdivision 374-3.1(d) of this Title; and
- (iv) Lamps as described in subdivision 374-3.1(e) of this Title.

(8) Subdivision 374-1.13(f) of this Title identifies when the requirements of this Subpart apply to the storage of military munitions classified as solid waste under subdivision 374-1.13(c) of this Title. The treatment and disposal of hazardous waste military munitions are subject to the applicable permitting, procedural, and technical standards in Parts 370 through 374 and 376 of this Title.

(9) The requirements of sections 373-2.2, 373-2.3, and 373-2.4 of this Subpart and subdivision 373-2.6(1) do not apply to remediation waste management sites. (However, some remediation waste management sites may be a part of a facility that is subject to a traditional RCRA permit because the facility is also treating, storing or disposing of hazardous wastes that are not remediation wastes. In these cases, sections 373-2.2, 373-2.3, and 373-2.4 of this Subpart, and subdivision 373-2.6(1) do apply to the facility subject to the traditional RCRA permit.) Instead of the requirements of sections 373-2.2, 373-2.3, and 373-2.4 of this Subpart, owners or operators of remediation waste management sites must:

- (i) Obtain an EPA identification number by applying to the USEPA Region II Administrator using EPA Form 8700-12;
- (ii) Obtain a detailed chemical and physical analysis of a representative sample of the hazardous remediation wastes to be managed at the site. At a minimum, the analysis must contain all of the



information which must be known to treat, store or dispose of the waste according to this Subpart and Part 376 of this Title, and must be kept accurate and up to date;

(iii) Prevent people who are unaware of the danger from entering, and minimize the possibility for unauthorized people or livestock to enter onto the active portion of the remediation waste management site, unless the owner or operator can demonstrate to the Department that:

('a') Physical contact with the waste, structures, or equipment within the active portion of the remediation waste management site will not injure people or livestock who may enter the active portion of the remediation waste management site; and

('b') Disturbance of the waste or equipment by people or livestock who enter onto the active portion of the remediation waste management site, will not cause a violation of the requirements of this Subpart;

(iv) Inspect the remediation waste management site for malfunctions, deterioration, operator errors, and discharges that may be causing, or may lead to, a release of hazardous waste constituents to the environment, or a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment, and must remedy the problem before it leads to a human health or environmental hazard. Where a hazard is imminent or has already occurred, the owner/operator must take remedial action immediately;

(v) Provide personnel with classroom or on-the-job training on how to perform their duties in a way that ensures the remediation waste management site complies with the requirements of this part, and on how to respond effectively to emergencies;

(vi) Take precautions to prevent accidental ignition or reaction of ignitable or reactive waste, and prevent threats to human health and the environment from ignitable, reactive and incompatible waste;

(vii) For remediation waste management sites subject to regulation under sections 373-2.9 through 373-2.15 and section 373-2.24 of this Subpart, the owner/operator must design, construct, operate, and maintain a unit within a 100-year floodplain to prevent washout of any hazardous waste by a 100-year flood, unless the owner/operator can meet the demonstration of paragraph 373-2.20(1);

(viii) Not place any non-containerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine or cave;

(ix) Develop and maintain a construction quality assurance program for all surface impoundments, waste piles and landfill units that are required to comply with paragraphs 373-2.11(b)(3) and (4), 373-2.12(b)(3) and (4), and paragraph 373-2.14(c)(3) and (4) at the remediation waste management site: according to the requirements of subdivision 373-2.2(k) of Subpart;

(x) Develop and maintain procedures to prevent accidents and a contingency and emergency plan to control accidents that occur. These procedures must address proper design, construction, maintenance, and operation of remediation waste management units at the site. The goal of the plan must be to minimize the possibility of, and the hazards from a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water that could threaten human health or the environment. The plan must explain specifically how to treat, store and dispose of the hazardous remediation waste in question, and must be implemented immediately whenever a fire, explosion, or release of hazardous waste or

hazardous waste constituents which could threaten human health or the environment;

(xi) Designate at least one employee, either on the facility premises or on call (that is, available to respond to an emergency by reaching the facility quickly), to coordinate all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan;

(xii) Develop, maintain and implement a plan to meet the requirements in subparagraphs (9)(ii) through (9)(vi) and (9)(ix) through (9)(x) of this subdivision; and

(xiii) Maintain records documenting compliance with subparagraphs (9)(i) through (9)(xii) of this subdivision.

**(b) Relationship to interim status standards.** A facility owner or operator who has fully complied with the requirements for interim status, as defined in section 373-1.3 of this Part, must comply with the regulations specified in Subpart 373-3 of this Part, in lieu of the regulations in this Subpart, until final administrative disposition of the permit application is made, except as provided under section 373-2.19 of this Subpart.

**(c) Imminent hazard action.** Notwithstanding any other provisions of these regulations, enforcement actions may be brought pursuant to section 71-0301 of the ECL or section 7003 of RCRA (see 370.1(e) of this Title).

## §373-2.2 - General Facility Standards

### (a) Applicability.

(1) The regulations in this section apply to owners and operators of all hazardous waste facilities, except as provided in section 373-2.1 of this Subpart and in paragraph (2) of this subdivision.

(2) Paragraph U)(1) of this section applies only to facilities subject to regulations under sections 373-2.9 through 373-2.15 and 373-2.24 of this Subpart.

### (b) Facility ownership transfer.

(1) The ownership or operation of a facility during its operating life or a disposal facility during the period of post-closure care shall be transferable only upon prior written approval of the department.

(2) Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the post-closure care period, the owner or operator must notify the new owner or operator in writing of the requirements of this Subpart and Subpart 373-1 of this Part.

**(c) Identification Number.** Every facility owner or operator must apply to EPA for an EPA identification number in accordance with the EPA notification procedures (45 FR 12746 et seq) (see section 370.1(e) of this Title).

### (d) Required Notices.

(1) The owner or operator of a facility that has arranged to receive hazardous waste from a source outside of the United States must notify the Department in writing at least four (4) weeks in advance of the date on which the first shipment of a given waste is expected to arrive at the facility. The owner or

operator of a facility that has arranged to receive hazardous waste from an OECD country, as defined in paragraph 372.5(h)(1) of this Title must also notify the EPA Regional Administrator in writing at least four (4) weeks in advance of the date on which the first shipment of a given waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.

(2) The owner or operator of a facility that receives hazardous waste from an off-site source (except where the owner or operator is also the generator) must inform the generator in writing that he or she has the appropriate permit(s) for, and will accept, the waste the generator is shipping. The owner or operator must keep a copy of this written notice as Part of the operating record.

**(e) General Waste Analysis.**

(1) (i) Before an owner or operator treats, stores, or disposes of any hazardous wastes, or non-hazardous wastes if applicable under 373-2.7(d)(4), a detailed chemical and physical analysis of a representative sample of the wastes must be obtained. At a minimum, this analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with the requirements of this Subpart and Part 376 of this Title.

(ii) The analysis may include data developed under Part 371 of this Title, and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes.

(Note: For example, the facility's records of analyses performed on the waste before the effective date of these regulations, or studies conducted on hazardous waste generated from processes similar to that which generated the waste to be managed at the facility, may be included in the data base required to comply with subparagraph (i) of this paragraph. The owner or operator of an off-site facility may arrange for the generator of the hazardous waste to supply part of the information required by subparagraph (i) of this paragraph, except as otherwise specified in paragraphs 376.1(g)(2) and (3). If the generator does not supply the information, and the owner or operator chooses to accept a hazardous waste, the owner or operator is responsible for obtaining the information required to comply with this section.)

(ii) The analysis must be repeated as necessary to ensure that it is accurate and up to date. At a minimum, the analysis must be repeated:

('a') when the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous wastes, or non-hazardous wastes if applicable under 373-2.7(d)(4), has changed; and

('b') for off-site facilities, when the results of the inspection required in subparagraph (iv) of this paragraph indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

(iv) The owner or operator of an off-site facility must inspect and, if necessary, analyze each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

(2) The owner or operator must develop and follow a written waste analysis plan which describes the procedures which will be carried out to comply with paragraph (1) of this subdivision. This plan must be kept at the facility. At a minimum, the plan must specify:

(i) the parameters for which each hazardous waste, or non-hazardous waste if applicable under

373-2.7(d)(4), will be analyzed and the rationale for the selection of these parameters (i.e., how an analysis of these parameters will provide sufficient information on the waste's properties to comply with paragraph (1) of this subdivision);

(ii) the test methods which will be used to test for these parameters;

(iii) the sampling method which will be used to obtain a representative sample of the waste to be analyzed. A representative sample may be obtained using either:

(a) one of the sampling methods described in Appendix 19 of this Title; or

(b) an equivalent sampling method;

(iv) the frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date;

(v) for off-site facilities, the waste analyses that hazardous waste generators have agreed to supply;

(vi) where applicable, the methods that will be used to meet the additional waste analysis requirements for specific waste management methods as specified in subdivisions 373-2.2(i), 373-2.140), and 373-2.15(b), paragraphs 373-2.27(e)(4) and 373-2.28(n)(4), subdivision 373-2.29(d) of this Subpart, and subdivision 376.1(g) of this Title;

(vii) for surface impoundments exempted from land disposal restrictions under paragraph 376.1(d)(1), the procedures and schedules for:

(a) the sampling of impoundment contents;

(b) the analysis of test data; and

(c) the annual removal of residues which are not delisted under subdivision 370.3(c) of this Title and do exhibit a characteristic of hazardous waste, and which do not meet the treatment standards of section 376.4 of this Title.

(viii) For owners and operators seeking an exemption to the air emission standards of section 373-2.29 of this Subpart in accordance with subdivision 373-2.29(c) of this Subpart:

(a) If direct measurement is used for the waste determination, the procedures and schedules for waste sampling and analysis, and the results of the analysis of the test data to verify the exemption.

(b) If knowledge of the waste is used for the waste determination, any information prepared by the facility owner or operator or by the generator of the hazardous waste, if the waste is received from off-site, that is used as the basis for knowledge of the waste.

(3) For off-site facilities, the waste analysis plan required in paragraph (2) of this subdivision must also specify the procedures which will be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan must describe:

(i) the procedures which will be used to determine the identity of each movement of waste managed at the facility;

(ii) the sampling method which will be used to obtain a representative sample of the waste to be identified, if the identification method includes sampling; and

(iii) the procedures that the owner or operator of an off-site landfill receiving containerized hazardous waste will use to determine whether a hazardous waste generator or treater has added a biodegradable sorbent to the waste in the container.

**(f) Security.**

(1) The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the facility, unless the owner or operator can demonstrate to the commissioner that:

(i) physical contact with the waste, structures, or equipment within the active portion of the facility will not inure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and

(ii) disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of this Part.

(2) Unless the owner or operator has made a successful demonstration under subparagraphs (1)(i) and (1)(ii) of this subdivision, a facility must have:

(i) a 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the active portion of the facility; or

(ii) (a) an artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and

{b} a means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility).

(3) Unless the owner or operator has made a successful demonstration under subparagraphs (1)(i) and (1)(ii) of this subdivision, a sign with the legend "Danger-Unauthorized Personnel Keep Out", must be posted at each entrance of the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and written in French in counties bordering the Canadian province of Quebec. The legend must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger-Unauthorized Personnel Keep Out: may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

**(g) General inspection requirements.**

(1) The owner or operator must inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to:

(i) release of hazardous waste constituents to the environment; or

(ii) a threat to human health. The owner or operator must conduct these inspections often enough or identify problems in time to correct them before they harm human health or the environment.

(2) (i) The owner or operator must develop and follow a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding

to environmental or human health hazards.

(ii) This schedule must be kept at the facility.

(iii) The schedule must identify the types of problems (e.g., malfunctions or deterioration) which are to be looked for during the inspection (e.g., inoperative sump pump, leaking fitting, eroding dike, etc.)

(iv) The frequency of inspection may vary for the items on the schedule. However, the frequency should be based on the rate of deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection schedule must include the items and frequencies called for in subdivisions 373-2.9(e), 373-2.10(d) and (f), 373-2.11(d), 373-2.12(e), 373-2.13(f), 373-2.14(e), 373-2.15(g), 373-2.24(c), 373-2.27 (d), 373-2.28(c), (d) and (i), and 373-2.29(d) through (j) of this Subpart, where applicable.

(3) The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.

(4) The owner or operator must record inspections in an inspection log or summary. These records must be kept for at least three years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

#### **(h) Personnel training.**

(1) (i) Facility personnel must successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this Part. The owner or operator must ensure that this program includes all the elements described in the document required under subparagraph (4)(iii) of this subdivision.

(ii) This program must be directed by a person trained in hazardous waste management procedures, and must include instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed.

(iii) At a minimum, the training program must be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including where applicable:

('a') procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

('b') key parameters for automatic waste feed cut-off systems;

('c') communication or alarm systems;

('d') response to fires or explosions;

('e') response to groundwater contamination incidents; and

('f') shutdown of operations.

(2) Facility personnel must successfully complete the program required in subdivision (a) of this section within six months after the effective date of these regulations or six months after the date of their employment or an assignment to a facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements of paragraph (1) of this subdivision.

(3) Facility personnel must take part in an annual review of the initial training required in paragraph (1) of this subdivision.

(4) The owner or operation must maintain the following documents and records at the facility:

(i) the job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job;

(ii) a written job description for each position listed under subparagraph (i) of this paragraph. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education or other qualifications, and duties of employees assigned to each position;

(iii) a written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed under subparagraph (i) of this paragraph; and

(iv) records that document that the training or job experience required under paragraphs (1), (2), and (3) of this subdivision has been given to, and completed by, facility personnel.

(5) Training records on current personnel must be kept until closure of the facility; training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

(Note: Owners and operators are required to submit with the permit application, an outline of the training program used (or to be used) at the facility and brief description of how the training program is designed to meet actual job tasks).

**(i) General requirements for ignitable, reactive, or incompatible wastes.**

(1) The owner or operator must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction including, but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator must confine smoking and open flame to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

(2) Where specifically required by other sections of this Part, the owner or operator of a facility that treats, stores or disposes of ignitable or reactive waste, or mixes incompatible wastes or incompatible wastes and other materials, must take precautions to prevent reactions which:

(i) generate extreme heat or pressure, fire or explosions, or violent reactions;

(ii) produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

(iii) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or

explosions;

(iv) damage the structural integrity of the device or facility; or

(v) through other like means threaten human health or the environment.

(3) When required to comply with paragraphs (1) or (2) of this subdivision, the owner or operator must document that compliance. This documentation may be based on references to published scientific or engineering waste analyses (as specified in subdivision (e) of this section), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

**(j) Location standards.**

(1) (i) Floodplains. A facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood, unless the owner or operator can demonstrate to the commissioner's satisfaction that:

('a') procedures are in effect which will cause the waste to be removed safely, before flood waters can reach the facility, to a location where the wastes will not be vulnerable to flood waters; or

('b') for existing surface impoundments, waste piles, land treatment units, landfills, and miscellaneous units, no adverse effects on human health or the environment will result if washout occurs, considering:

('1') the volume and physical and chemical characteristics of the waste in the facility;

('2') the concentration of hazardous constituents that would potentially affect surface waters as a result of washout;

('3') the impact of such concentrations on the current or potential uses of and water quality standards established for the affected surface waters; and

('4') the impact of hazardous constituents on the sediments of affected surface waters or the soils of the 100-year floodplain that could result from washout.

(Comment: The location where wastes are moved must be a facility which is either permitted by EPA under 40 CFR Part 270, authorized to manage hazardous waste by the State under 6 NYCRR Part 373, authorized to manage hazardous waste by another state with a hazardous waste management program authorized under 40 CFR Part 271, or in interim status under 40 CFR Parts 270 and 265 (see section 370.1(e) of this Title)).

(ii) As used in subparagraph (1)(i) of this subdivision on:

('a') "**100-year floodplain**" means any land area which is subject to a one percent or greater chance of flooding in any given year from any source.

('b') "**Washout**" means the movement of hazardous waste from the active portion of the facility as a result of flooding.

('c') "**100-year flood**" means a flood that has a one percent chance of being equaled or exceeded in any given year.

(2) Salt dome formations, salt bed formations, underground mines, and caves. The placement of any non-containerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation,

underground mine or cave is prohibited.

**(k) Construction quality assurance program.**

(1) CQA program.

(i) A construction quality assurance (CQA) program is required for all surface impoundment, waste pile, and landfill units that are required to comply with paragraphs 373-2.11(b)(3) and (4), 373-2.12(b)(3) and (4), and 373-2.14(c)(3) and (4). The program must ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program must be developed and implemented under the direction of a CQA officer who is a professional engineer registered in New York State.

(ii) The CQA program must address the following physical components, where applicable:

('a') foundations;

('b') dikes;

('c') low-permeability soil liners;

('d') geomembranes (flexible membrane liners);

('e') leachate collection and removal systems and leak detection systems; and

('f') final cover systems.

(2) Written CQA plan. The owner or operator of units subject to the CQA program under paragraph (1) of this subdivision must develop and implement a written CQA plan. The plan must identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan must include:

(i) Identification of applicable units, and a description of how they will be constructed.

(ii) Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.

(iii) A description of inspection and sampling activities for all unit components identified in subparagraph (1)(ii) of this subdivision, including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description must cover: sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded and retained in the operating record under subdivision 373-2.5(c).

(3) Contents of program.

(i) The CQA program must include observations, inspections, tests, and measurements sufficient to ensure:

('a') Structural stability and integrity of all components of the unit identified in subparagraph (1)(ii) of this subdivision;

('b') Proper construction of all components of the liners, leachate collection and removal system, leak detection system, and final cover system, according to permit specifications and good

engineering practices, and proper installation of all components (e.g., pipes) according to design specifications;

('c') Conformity of all materials used with design and other materials specifications under subdivisions 373-2.11(b), 373-2.12(b), and 373-2.14(c).

(ii) The CQA program shall include test fills for compacted soil liners, using the same compaction methods as in the full scale unit, to ensure that the liners are constructed to meet the hydraulic conductivity requirements of subclauses 373-2.11(b)(3)(i)(a)(2), 373-2.12(b)(3)(i)(a)(2), and 373-2.14(c)(3)(i)(a)(2) in the field. Compliance with the hydraulic conductivity requirements must be verified by using in-situ testing on the constructed test fill. The Commissioner may accept an alternative demonstration, in lieu of a test fill, where data are sufficient to show that a constructed soil liner will meet the hydraulic conductivity requirements of subclauses 373-2.11(b)(3)(i)(a)(2), 373-2.12(b)(3)(i)(a)(2), and 373-2.14(c)(3)(i)(a)(2) in the field.

(4) Certification. Waste shall not be received in a unit subject to subdivision 373-2.2(k) until the owner or operator has submitted to the Commissioner by certified mail or hand delivery a certification signed by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of paragraphs 373-2.11(b)(3) or (4), 373-2.12(b)(3) or (4), or 373-2.14(c)(3) or (4); and the procedure in clause 373-1.6(a)(12)(ii)(b) of this Title has been completed. Documentation supporting the CQA officer's certification must be furnished to the Commissioner upon request.

### §373-2.3 - Preparedness and Prevention

**(a) Applicability.** The regulations in this section apply to owners and operators of all hazardous waste facilities, except as section 373-2.1(a) of this Subpart provides otherwise.

**(b) Design and operation of facility.** Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

**(c) Required equipment.** All facilities must be equipped with the following, unless it can be demonstrated to the commissioner that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:

- (1) an internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel;
- (2) a device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams;
- (3) portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and
- (4) water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems.

(Note: Subpart 373-1 of this Part requires that an owner or operator who wishes to make the demonstration referred to above must do so with the permit application.)



**(d) Testing and maintenance of equipment.** All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.

**(e) Access to communications or alarm system.**

(1) Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device either directly or through visual or voice contact with another employee, unless the commissioner has ruled that such a device is not required under subdivision (c) of this section.

(2) If there is ever just one employee on the premises while the facility is operating, the employee must have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance, unless the commissioner has ruled that such a device is not required under subdivision (c) of this section.

**(f) Required aisle space.** The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency unless it can be demonstrated to the commissioner that aisle space is not needed for any of these purposes.

(Comment: Subpart 373-1 of this Part requires that an owner or operator who wishes to make the demonstration referred to above must do so with the permit application.)

**(g) Arrangements with local authorities.**

(1) The owner or operator must attempt to make the following arrangements as appropriate for the type of waste handled at the facility and the potential need for the services of these organizations:

(i) arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes;

(ii) where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;

(iii) agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and

(iv) arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

(2) Where local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

## §373-2.4 - Contingency Plan and Emergency Procedures

**(a) Applicability.** The regulations in this section apply to owners and operators of all hazardous waste facilities, except as section 373-2.1(a) of this Subpart provides otherwise.

**(b) Purpose and implementation of contingency plan.**

- (1) Each owner or operator must have a contingency plan for this facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.
- (2) The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

**(c) Content of contingency plan.**

- (1) The contingency plan must describe the actions facility personnel must take to comply with subdivision (b) and (g) of this section in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.
- (2) If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan as defined in section 610.20) of this Title and 40 CFR Part 300, or some other emergency or contingency plan, that plan need only be amended to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this Subpart (see section 370.1(e) of this Title).
- (3) The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, pursuant to section 373-2.3(g) of this Subpart.
- (4) The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see subdivision (f) of this section) and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be in the order in which they will assume responsibility as alternates. For new facilities, this information must be supplied to the commissioner at the time of certification, rather than at the time of permit application.
- (5) The plan must include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.
- (6) The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of hazardous waste or fires).

**(d) Copies of contingency plan.** A copy of the contingency plan and all revisions to the plan must be:

- (1) maintained at the facility; and
- (2) submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.

(Note: The contingency plan must be submitted to the commissioner with the permit application and, after modification or approval, will become a condition of any permit issued.)

(e) **Amendment of contingency plan.** All amendments to the contingency plans must be approved by the commissioner in accordance with section 373-1.7 of this Part (permit modifications). The contingency plan must be reviewed, and immediately amended, if necessary, whenever:

- (1) the facility permit is revised;
- (2) the plan fails in an emergency;
- (3) the facility changes - in its design, construction, operation, maintenance, or other circumstances - in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;
- (4) the list of emergency coordinators changes; or
- (5) the list of emergency equipment changes.

(Note: A change in the lists of facility emergency coordinators or equipment in the contingency plan constitutes a minor modification to the facility permit to which the plan is a condition.)

(f) **Emergency coordinator.** At all times, there must be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.

(Note: The emergency coordinator's responsibilities are more fully spelled out in subdivision (g) of this section. Applicable responsibilities for the Emergency coordinator vary, depending on factors such as type and variety of waste(s) handled by the facility, and type and complexity of the facility.)

**(g) Emergency Procedures.**

(1) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or the emergency coordinator's designee when the emergency coordinator is on call) must immediately:

- (i) activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and
- (ii) notify appropriate State or local agencies with designated response roles if their help is needed.

(2) Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount and aerial extent of any released materials. The emergency coordinator may do this by observation or review of facility records or manifests and, if necessary, by chemical analysis.

(3) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

(4) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health or the environment outside the facility, the findings must be reported as follows:

(i) If the emergency coordinator's assessment indicates that evacuation of local areas may be advisable, appropriate local authorities must be immediately notified. The emergency coordinator must be available to help appropriate officials decide whether local areas should be evacuated.

(ii) The emergency coordinator must immediately notify both the department (using the New York State 24-hour oil and hazardous material spill notification number (518) 457-7362) and either the government official designated as the on-scene coordinator for that geographical area (in the applicable regional contingency plan under 40 CFR Part 300 (see 6 NYCRR 370.1(e)), or the National Response Center (using their 24-hour toll free number 800/424-8802). The report must include:

('a') name and telephone number of reporter;

('b') name and address of facility;

('c') time and type of incident (e.g., release, fire);

('d') name and quantity of material(s) involved, to the extent known;

('e') the extent of injuries, if any; and

('f') the possible hazards to human health, or the environment, outside the facility.

(5) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

(6) If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

(7) Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

(Comment: Unless the owner or operator can demonstrate, in accordance with section 371.1(d)(3) or (4) of this Title, that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Part 372 of this Title and this Subpart).

(8) The emergency coordinator must ensure that, in the affected area(s) of the facility:

(i) no waste that may be incompatible with the released material is treated; stored; or disposed of until cleanup procedures are completed; and

(ii) all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

(9) The owner or operator must notify the commissioner, and appropriate State and local authorities,

that the facility is in compliance with paragraph (8) of this subdivision before operations are resumed in the affected area(s) of the facility.

(10) The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, the owner or operator must submit a written report on the incident to the commissioner. The report must include:

- (i) name, address, and telephone number of the owner or operator;
- (ii) name, address, and telephone number of the facility;
- (iii) date, time, and type of incident (e.g., fire, explosion);
- (iv) name and quantity of material(s) involved;
- (v) the extent of injuries, if any;
- (vi) an assessment of actual or potential hazards to human health or the environment, where this is applicable; and
- (vii) estimated quantity and disposition of recovered material that resulted from the incident.

## §373-2.5 - Manifest System, Recordkeeping and Reporting

**(a) Applicability.** The regulations in this section apply to owners and operators of both on-site and off-site facilities, except as subdivision 373-2:1(a) of this Subpart provides otherwise. Subdivisions (b) and (f) of this section do not apply to owners and operators of on-site facilities that do not receive any hazardous waste from off-site sources. Subparagraph 373-2.5(c)(2)(ix) only applies to permittees of facilities that treat, store, or dispose of hazardous waste on-site where such wastes are generated.

**(b) Manifest requirements.** A treatment, storage or disposal facility shipping hazardous wastes off-site or offering hazardous wastes for shipment off-site must comply with all generator standards as specified in section 372.2 of this Title. If a facility receives hazardous waste accompanied by a manifest, the owner or operator, or his or her agent, must comply with the requirements of this subdivision.

(1) Use of manifest system.

(i) ('a') If a facility receives hazardous waste accompanied by a manifest, the owner, operator or his/her agent must:

('1') complete line 19 of the manifest, Hazardous Waste Report Management Method Codes, for each waste received and accepted, using the codes established in the annual report instructions and forms referenced in subdivision 373-2.5(e) of this section; and

('2') sign and date the manifest as indicated in clause (i)('b') of this subparagraph to certify that the hazardous waste covered by the manifest was received, that the hazardous waste was received except as noted in the discrepancy space of the manifest, or that the hazardous waste was rejected as noted in the manifest discrepancy space.

('b') If a facility receives a hazardous waste shipment accompanied by a manifest, the owner, operator or his/her agent must:

('1') determine that all portions of the manifest, except that portion filled out by the owner or operator of the facility, have been completed. For example, if the facility is not providing a

hazardous waste management code in item 19 that reflects the ultimate disposal method for the hazardous waste. The manifest must be completed by the generator, the transporter, and the receiving facility. A completed form includes signatures and all certifications required from the generator and the initial and delivering transporters. In those cases where the owner or operator completes any of the generator's portions of the manifest (items 1-14), the owner or operator assumes joint responsibility with the generator for the accuracy and completeness of those portions he or she completed;

('2') Sign and date, by hand, each copy of the manifest;

('3') Note any discrepancies (as defined in clause ('d') of this subparagraph) on each copy of the manifest;

('4') immediately give the transporter at least one copy of the manifest;

('5') within 10 calendar days of delivery, mail a copy of the manifest to the generator, the generator State and the destination State (if different from the generator State), making legible photocopies as necessary. Mail the Department copy to: New York State Department of Environmental Conservation, Division of Solid & Hazardous Materials, Manifest Section, 625 Broadway, Albany, New York 12233-7252. Facilities do not need to distribute manifest copies to states other than New York, if those states do not require such a copy be submitted to them; and

('6') retain at the facility a copy of each manifest for at least three years from the date of delivery.

('c') If a facility receives hazardous waste imported from a foreign source, the receiving facility must also mail a copy of the manifest to the following address within 30 days of delivery:

International Compliance Assurance Division  
 OFAIOECA (2254A), U.S. Environmental Protection Agency  
 Ariel Rios Building  
 1200 Pennsylvania Avenue, NW, Washington, DC 20460

('d') Manifest discrepancies are:

('1') significant differences between the quantity (as defined by clause ('e') of this subparagraph) or type (as defined by clause ('f') of this subparagraph) of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste a facility actually receives;

('2') rejected wastes, which may be a full or partial shipment of hazardous waste that the facility cannot accept; or

('3') container residues, which are residues that exceed the quantity limits for "empty" containers set forth in paragraph 371.1(h)(2) of this Title.

('e') Significant differences in quantity are:

('1') for bulk waste, variations greater than 10 percent in weight, and

('2') for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload.

- (f) Significant differences in type are obvious differences which can be discovered by inspections or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.
- (ii) The facility owner or operator must perform or obtain an analysis of a representative sample of each hazardous waste shipment as specified in the waste analysis plan required by paragraph 373-2.2(e)(2) of this Subpart. The purpose of this analysis is to identify discrepancies between the actual composition of the waste and its description on the manifest.
- (iii) Upon discovering a significant difference in quantity or type, the owner or operator of the facility must attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, the owner or operators must immediately submit a letter to the generator state and the disposer state describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.
- (iv) (a) Upon rejecting waste or identifying a container residue that exceeds the quantity limits for "empty" containers set forth in paragraph 371.1(h)(2) of this Title, the facility must consult with the generator prior to forwarding the waste to another facility that can manage the waste. If it is impossible to locate an alternative facility that can receive the waste, the facility may return the rejected waste or residue to the generator. The facility must send the waste to the alternative facility or to the generator within 60 days of the rejection or the container residue identification.
- (b) While the facility is making arrangements for forwarding rejected wastes or residues to another facility under this subparagraph, it must ensure that either the delivering transporter retains custody of the waste, or, the facility must provide for secure, temporary custody of the waste, pending delivery of the waste to the first transporter designated on the manifest prepared under subparagraph (v) or (vi) of this paragraph.
- (v) Except as provided in clause (g) of this subparagraph, for full or partial load rejections and residues that are to be sent off-site to an alternate facility, the facility is required to prepare a new manifest in accordance with subdivision 372.2(b) of this Title and the following instructions:
- (a) Write the generator's U.S. EPA ID number in Item 1 of the new manifest. Write the generator's name and mailing address in Item 5 of the new manifest. If the mailing address is different from the generator's site address, then write the generator's site address in the designated space for Item 5.
- (b) Write the name of the alternate designated facility and the facility's U.S. EPA ID number in the designated facility block (Item 8) of the new manifest.
- (c) Copy the manifest tracking number found in Item 4 of the old manifest to the Special Handling and Additional Information Block of the new manifest (Item 14), and indicate that the shipment is a residue or rejected waste from the previous shipment.
- (d) Copy the manifest tracking number found in Item 4 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 18a).
- (e) Write the DOT description for the rejected load or the residue in Item 9 (U.S. DOT Description) of the new manifest and write the container types, quantity and volume(s) of waste.
- (f) Sign the Generator's/Offerrer's Certification to certify, as the offeror of the shipment, that the

waste has been properly packaged, marked and labeled and is in proper condition for

transportation.

('g') For full load rejections that are made while the transporter remains present at the facility, the facility may forward the rejected shipment to the alternate facility by completing Item 18b of the original manifest and supplying the information on the next destination facility in the Alternate Facility space. The facility must retain a copy of this manifest for its records, and then give the remaining copies of the manifest to the transporter to accompany the shipment. If the original manifest is not used, then the facility must use a new manifest and comply with clauses ('a'), ('b'), ('c'), ('d'), ('e'), and ('f') of this subparagraph.

(vi) Except as provided in clause ('g') of this subparagraph, for rejected wastes and residues that must be sent back to the generator, the facility is required to prepare a new manifest in accordance with subdivision 372.2(b) of this Title and the following instructions:

('a') Write the facility's U.S. EPA ID number in Item 1 of the new manifest. Write the generator's name and mailing address in Item 5 of the new manifest. If the mailing address is different from the generator's site address, then write the generator's site address in the designated space for Item 5.

('b') Write the name of the initial generator and the generator's U.S. EPA ID number in the designated facility block (Item 8) of the new manifest.

('c') Copy the manifest tracking number found in Item 4 of the old manifest to the Special Handling and Additional Information Block of the new manifest (Item 14), and indicate that the shipment is a residue or rejected waste from the previous shipment.

('d') Copy the manifest tracking number found in Item 4 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 18a).

('e') Write the DOT description for the rejected load or the residue in Item 9 (U.S. DOT Description) of the new manifest and write the container types, quantity and volume(s) of waste.

('f') Sign the Generator's/Officer's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

('g') For full load rejections that are made while the transporter remains at the facility, the facility may return the shipment to the generator with the original manifest by completing Item 18a and 18b of the manifest and supplying the generator's information in the Alternate Facility space. The facility must retain a copy for its records and then give the remaining copies of the manifest to the transporter to accompany the shipment. If the original manifest is not used, then the facility must use a new manifest and comply with clauses ('a'), ('b'), ('c'), ('d'), ('e'), and ('f') of this subparagraph.

(vii) If a facility rejects a waste or identifies a container residue that exceeds the quantity limits for "empty" containers set forth in paragraph 371.1(h)(2) of this Title after it has signed, dated, and returned a copy of the manifest to the delivering transporter, the generator, the generator state, or the destination state, the facility must amend its copy of the manifest to indicate the rejected wastes or residues in the discrepancy space of the amended manifest. The facility must also copy the manifest tracking number from Item 4 of the new manifest to the Discrepancy space (Item 18a) of the amended manifest, and must re-sign and date the manifest to certify to the information as amended. The facility must retain the amended manifest for at least three years from the date of

amendment, and must within 10 calendar days, send a copy of the amended manifest to the transporter, generator, generator state and destination state that received copies prior to their being amended. The facility must retain a copy of the new manifest for at least three years from the date of shipment, and must within 10 calendar days, send a copy of the new manifest to their state, the generator, generator state and destination state.

(viii) The requirements of this subdivision do not apply to hazardous waste produced by generators of greater than 100 kilograms but less than 1000 kilograms in a calendar month where:

(a) the waste is being transported pursuant to a reclamation agreement as provided in paragraph 372.2(b)(7) of this Title provided that:

('1') the owner or operator records the following for each shipment:

('i') the name, address and U.S.E.P.A Identification Number of the generator of the waste;

('ii') the hazardous waste number and quantity of waste accepted; and

('iii') the date the waste is accepted;

('2') the owner or operator retains these records for a period of at least three years after termination or expiration of the agreement; and

('3') quarterly summaries (unless otherwise specified by the department) of these records must be submitted to the department. These summaries must include the waste types and quantities received from each generator.

(ix) A facility must determine whether the consignment state for a shipment regulates any additional wastes (beyond those regulated Federally) as hazardous wastes under its state hazardous waste program. Facilities must also determine whether the consignment state or generator state requires the facility to submit any copies of the manifest to these states.

(2) Unmanifested shipments. Upon receipt of an unmanifested shipment of hazardous waste, the owner or operator of the facility must:

(i) where possible determine the reason why the shipment is not accompanied by a manifest (e.g., small generator exemption, rail transportation).

(ii) accept the waste for treatment, storage or disposal if:

('a') the reason the shipment is unmanifested is that it originated from a conditionally exempt small quantity generator (see subdivision:371.1(f)); or

('b') the shipment is transported in whole or in part by a rail or water (bulk) transporter and the requirements of section 372.7 of this Title are satisfied.

(iii) ('a') accept the waste for treatment, storage and disposal and file an unmanifested waste report with the Department in accordance with subparagraph (3)(ii) of this subdivision within fifteen (15) calendar days of receipt of the shipment if the shipment was transported in whole or in part by a rail or water (bulk) transporter and the manifest is not received by the facility within fifteen (15) calendar days of receipt of the shipment; or

('b') accept the waste for treatment, storage and disposal and file an unmanifested waste report with the Department in accordance with subparagraph (3)(ii) of this subdivision within ten (10)

calendar days of receipt of the shipment if the situation is not specifically set forth in subparagraph (ii) of this subdivision. met.

(iv) reject the shipment of hazardous waste, and instruct the transporter to return the hazardous waste to the generator, and file an unmanifested waste report in accordance with subparagraph (3)(ii) of this subdivision.

(3) Recordkeeping and reporting requirements.

(i) Manifest discrepancy reports. The facility owner or operator must report to the disposer state and generator state concerning any manifest discrepancies in accordance with subparagraph (1)(iii) of this subdivision.

(ii) Unmanifested waste report. In those situations requiring submission of an unmanifested waste report, as identified in paragraph (2) of this subdivision, the report must include the following information:

(a) the EPA identification number, name, and address of the facility;

(b) the date the facility received the waste;

(c) the EPA identification number, name, and address of the generator and of the transporter, if available;

(d) the transporter's license plate number;

(e) the transporter's Part 364 permtt number if available;

(f) a description of and the quantity of each unmanifested hazardous waste the facility received, including EPA waste type;

(g) the method of treatment, storage, or disposal for each hazardous waste (if accepted);

(h) a brief explanation of why the waste was unmanifested, if known; and

(i) certification signed by the owner or operator of the facility or his/her authorized representative.

(iii) Availability, retention and disposition of records.

(a) Reports and records required by this subdivision must be retained for a period of three years from the date of submittal.

(b) All records required under this subdivision must be furnished to the Department upon request and must be postmarked within five (5) business days of receipt of a written request. These records must be made available at all reasonable times for inspection by any officer, employee, or representative of the Department who is duly designated by the Commissioner.

(c) The three year retention period for all records required under this subdivision is extended automatically for the duration of any unresolved enforcement action regarding the facility, or as requested by the Commissioner.

(4) Special conditions. Rail and water (bulk) shipments. Facilities which receive shipments of hazardous waste transported in whole or in part by rail or water (bulk) must comply with the treatment, storage, or disposal facility requirements in section 372.7 of this Title.

**(5) Prohibitions.** No facility shall:

- (i) accept a particular hazardous waste unless it is authorized to accept such waste; or
- (ii) accept a hazardous waste for which it does not have adequate treatment, storage or disposal capacity available.

**(c) Operating record.**

(1) The owner or operator must keep a written operating record at the facility.

(2) The following information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility:

- (i) a description and the quantity of each hazardous waste received, and the method(s) and date(s) of its treatment, storage, or disposal at the facility as required by Appendix 25 of this Title;
- (ii) the location of each hazardous waste within the facility and the quantity at each location. For disposal facilities, the location and quantity of each hazardous waste must be recorded on a map or diagram of each cell or disposal area. For all facilities, this information must include cross-references to specific manifest document numbers, if the waste was accompanied by a manifest.
- (iii) records and results of waste analyses and waste determinations performed as specified in subdivisions 373-2.2(e) and (i), 373-2.140), 373-2.15(b), 373-2.27(e), 373-2.28(n) and 373-2.29(d) of this Subpart, and paragraph 376.1(d)(1) and subdivision 376.1(g) of this Title;
- (iv) summary reports and details of all incidents that require implementing the contingency plan as specified in section 373-2.4(g)(10) of this Subpart;
- (v) records and results of inspections as required by section 373-2.2(g)(4) of this Subpart (except these data need be kept only three years);
- (vi) monitoring, testing, or analytical data, and corrective action where required by section 373-2.6, subdivisions 373-2.2(k), 373-2.10(b), (d) and (f), 373-2.11(d), (U), and (k), 373-2.12(e), (l) and (k), 373-2.13(e), (f) and (h), 373-2.14(e), (f), (n), and (o), 373-2.15(g) and 373-2.24(c), paragraphs 373-2.27(e)(3) through (e)(6), subdivision 373-2.27(f), paragraphs 373-2.28(n)(4) through (n)(9), and subdivisions 373-2.28(o) and 373-2.21(c) through (k) of this Subpart;
- (vii) for off-site facilities, notices to generators as specified in section 373-2.2(d)(2) of this Subpart;
- (viii) all closure cost estimates under section 373-2.8(c) of this Subpart and, for disposal facilities, all post-closure cost estimates under section 373-2.8(e); and
- (ix) certification by the permittee, no less often than annually, that a program is in place to reduce the volume and toxicity of hazardous waste that is generated to the degree determined by the permittee to be economically practicable; and certification that the proposed method of treatment, storage or disposal is the most practicable method currently available to the permittee which minimizes the present and future threat to human health and the environment.
- (x) records of the quantities (and date of placement) for each shipment of hazardous waste placed in land disposal units under an extension to the effective date of any land disposal restriction granted pursuant to subdivision 376.1(e), a petition pursuant to subdivision 376.1(f), and the applicable notice required by a generator under paragraph 376.1(g)(1);

(xi) for an off-site treatment facility, copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under subdivision 376.1(g);

(xii) for an on-site treatment facility, the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator under subdivision 376.1(g);

(xiii) for an off-site land disposal facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator of a treatment facility under subdivision 376.1(g);

(xiv) for an on-site land disposal facility, the information contained in the notice required by the generator or owner or operator of a treatment facility under subdivision 376.1(g);

(xv) for an off-site storage facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator under subdivision 376.1(g); and

(xvi) for an on-site storage facility, the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator under subdivision 376.1(g).

(xvii) Any records required under subparagraph 373-2.1(9)(xiii) of this Subpart.

**(d) Availability, retention, and disposition of records.**

(1) All records, including plans, required under this Part must be kept at the facility and furnished upon request, and made available at all reasonable times for inspection by any officer, employee, or representative of the department who is duly designated by the commissioner.

(2) The retention period for all records required under this Part is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the commissioner.

(3) A copy of the records of waste disposal locations and quantities under subparagraph (c)(2)(ii) of this section must be submitted to the commissioner upon closure of the facility.

**(e) Annual report.** The owner or operator must prepare and submit one copy of an annual report to the commissioner by March 1 of each year. The report forms and instructions as designated by the commissioner must be used for this report. The report must cover facility activities during the previous calendar year and must include, at a minimum, the following information:

(1) the EPA identification number, name, and address of the facility;

(2) the calendar year covered by the report;

(3) for off-site facilities, the EPA identification number of each hazardous waste generator from which the facility received a hazardous waste during the year; for imported shipments, the report must give the name and address of the foreign donor;

(4) a description and the quantity of each hazardous waste the facility received during the year. For off-site facilities, this information must be listed by EPA identification number of each generator;

(5) the method of treatment, storage, or disposal for each hazardous waste;



(6) monitoring data as required by sections 373-2.6 and 373-3.6 of this Title;

(7) the most recent closure cost estimate under section 373-2.8(c) of this Subpart, and, for disposal facilities, the most recent post-closure cost estimate under section 373-2.8(e); and

(8) for generators who treat, store, or dispose of hazardous waste on-site, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;

(9) for generators who treat, store, or dispose of hazardous waste on-site, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and

(10) the certification signed by the owner or operator of the facility or an authorized representative.

**(f) Unmanifested waste report.** The facility must comply with the requirements for unmanifested wastes specified in paragraphs 373-2.5(b)(2) and (3) of this Subpart.

**(g) Additional reports.** In addition to submitting the annual report described in subdivision (e) of this section, the owner or operator must also report to the commissioner:

(1) releases, fires, and explosions as specified in section 373-2.4(g)(10) of this Subpart;

(2) facility closures specified in section 373-2.?(f); and

(3) as otherwise required by sections 373-2.6, 373-2.11 through 373-2.14, 373-2.27, 373-2.28 and 373-2.29 of this Subpart.

## §373-2.6 - Releases from Solid Waste Management Units

### (a) Applicability.

(1) (i) Except as provided in paragraph (2) of this subdivision, the regulations in this section apply to owners and operators of facilities that treat, store, or dispose of hazardous waste. The owner or operator must satisfy the requirements identified in subparagraph (a)(1)(ii) of this section for all wastes (or constituents thereof) contained in solid waste management units at the facility regardless of the time the waste was placed in such units.

(ii) All solid waste management units must comply with the requirements in subdivision (l) of this section. A surface impoundment, waste pile, land treatment unit or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a "regulated unit") must comply with the requirements of subdivisions (b) through (k) in lieu of subdivision (l) for purposes of detecting, characterizing and responding to releases to the uppermost aquifer. The financial responsibility requirements of subdivision (l) of this section apply to regulated units.

(2) The owner or operator is not subject to regulations under this section if:

(i) the owner or operator is exempted under section 373-2.1(a) of this Subpart;

(ii) the owner or operator designs and operates a pile in compliance with section 373-2.12(a)(3) of this Subpart;

(iii) the commissioner finds, pursuant to section 373-2.13(h)(4) of this Subpart, that the treatment zone of a land treatment unit that qualifies as a regulated unit does not contain levels of hazardous constituents that are above background levels of those constituents by an amount that is statistically

significant, and if an unsaturated zone monitoring program meeting the requirements of section 373-1.4(f) or the groundwater monitoring program meeting the requirements of section 373-1.4(g) is installed and maintained below the treatment zone during the operating life of the unit. An exemption under this paragraph can only relieve an owner or operator of responsibility to meet the requirements of this section during the post-closure care period;

(iv) the commissioner finds that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the post-closure care period specified under section 373-2.7(g) of this Subpart. This demonstration must be certified by a qualified geologist or geotechnical engineer. In order to provide an adequate margin of safety in the prediction of potential migration of liquid, the owner or operator must base any predictions made under this paragraph on assumptions that maximize the rate of liquid migration; or

(v) the commissioner finds that the unit:

('a') is a structure designed by a professional engineer registered in New York State;

('b') does not receive or contain liquid waste or waste containing free liquids;

('c') is designed and operated to exclude liquid, precipitation, and other run-on and run-off;

('d') has both inner and outer layers of containment enclosing the waste;

('e') has a leak detection system built into each containment layer;

('f') has a program which will provide continuing operation and maintenance of these leak detection systems during the active life of the unit and the closure and post-closure care periods; and

('g') to a reasonable degree of certainty, will not allow hazardous constituents to migrate beyond the outer containment layer prior to the end of the post-closure care period.

(3) The regulations under this section apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, the regulations in this section:

(i) do not apply if all waste, waste residues, contaminated containment system components, and contaminated soils are removed or decontaminated at closure;

(ii) apply during the post-closure care period under section 373-2.7(g) of this Subpart, if the owner or operator is conducting a detection monitoring program under subdivision (i) of this section; or

(iii) apply during the compliance period under subdivision (g) of this section if the owner or operator is conducting a compliance monitoring program under subdivision (U) or a corrective action program under subdivision (k).

(4) Regulations in this Subpart may apply to miscellaneous units when necessary to comply with subdivisions 373-2.24(b), (c) and (d) of this Subpart.

(5) The regulations of this section apply to all owners and operators subject to the requirements of paragraph 373-1.2(e)(3) of this Title, when the Department issues either a post-closure permit or an enforceable document (as defined in paragraph 373-1.2(e)(3) of this Title), at the facility. When the Department issues an enforceable document, references in this section to in the permit mean in the enforceable document.

(6) The Department may replace all or part of the requirements of subdivisions 373-2.6(b) through (k) applying to a regulated unit with alternative requirements for groundwater monitoring and corrective action for releases to groundwater set out in the permit (or in an enforceable document) (as defined in paragraph 373-1.2(e)(3) of this Title) where the Department determines that:

(i) The regulated unit is situated among solid waste management units (or areas of concern), a release has occurred, and both the regulated unit and one or more solid waste management unit(s) (or areas of concern) are likely to have contributed to the release; and

(ii) It is not necessary to apply the groundwater monitoring and corrective action requirements of subdivisions 373-2.6(b) through 373-2.6(k) because alternative requirements will protect human health and the environment.

**(b) Required programs.**

(1) Owners and operators subject to this section must conduct a monitoring and response program as follows:

(i) Whenever hazardous constituents under subdivision (d) of this section from a regulated unit are detected at the compliance point under subdivision (f), the owner or operator must institute a compliance monitoring program under subdivision (j). Detected is defined as statistically significant evidence of contamination as described in paragraph (i)(7) of this section.

(ii) Whenever the groundwater protection standard under subdivision (c) of this section is exceeded, the owner or operator must institute a corrective action program under subdivision (k). Exceeded is defined as statistically significant evidence of increased contamination as described in paragraph (j)(8) of this section.

(iii) Whenever hazardous constituents under subdivision (d) of this section from a regulated unit exceed concentration limits under subdivision (e) in groundwater between the compliance point under subdivision (f) and the downgradient facility property boundary, the owner or operator must institute a corrective action program under subdivision (k).

(iv) In all other cases, the owner or operator must institute a detection monitoring program under subdivision (i) of this section.

(2) The commissioner will specify in the facility permit the specific elements of the monitoring and response program. The commissioner may include one or more of the programs identified in paragraph (1) of this subdivision in the facility permit as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. In deciding whether to require the owner or operator to be prepared to institute a particular program, the commissioner will consider the potential adverse effects on human health and the environment that might occur before final administrative action on a permit modification application to incorporate such a program could be taken.

(c) **Groundwater protection standard.** The owner or operator must comply with conditions specified in the facility permit that are designed to ensure that hazardous constituents under subdivision (d) of this section detected in the groundwater from a regulated unit do not exceed the concentration limits under subdivision (e) in the uppermost aquifer underlying the waste management area beyond the point of compliance under subdivision (f) during the compliance period under subdivision (g). The commissioner will establish this groundwater protection standard in the facility permit when hazardous constituents have been detected in the groundwater.

**(d) Hazardous constituents.**

(1) The commissioner will specify in the facility permit the hazardous constituents to which the groundwater protection standard of subdivision (c) of this section applies. Hazardous constituents are constituents identified in Appendix 23 of this Title that have been detected in groundwater in the uppermost aquifer underlying a regulated unit and that are reasonably expected to be in or derived from waste contained in a regulated unit, unless the commissioner has excluded them under paragraph (2) of this subdivision.

(2) The commissioner will exclude an Appendix 23 constituent from the list of hazardous constituents specified in the facility permit if the commissioner finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to grant an exemption, the commissioner will consider the following:

(i) potential adverse effects on groundwater quality, considering:

('a') the physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

('b') the hydrogeological characteristics of the facility and surrounding land;

('c') the quantity of groundwater and the direction of groundwater flow;

('d') the proximity and withdrawal rates of groundwater users;

('e') the current and future uses of groundwater in the area and any quality standards established for those groundwaters;

('f') the existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

('g') the potential for health risks caused by human exposure to waste constituents;

('h') the potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

('i') the persistence and permanence of the potential adverse effects; and

(ii) potential adverse effects on hydraulically-connected surface water quality, considering:

('a') the volume and physical and chemical characteristics of the waste in the regulated unit;

('b') the hydrogeological characteristics of the facility and surrounding land;

('c') the quantity and quality of groundwater, and the direction of groundwater flow;

('d') the patterns of rainfall in the region;

('e') the proximity of the regulated unit to surface waters;

('f') the current and future uses of surface waters in the areas and any water quality standards established for those surface waters;

('g') the existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

- (h) the potential for health risks caused by human exposure to waste constituents;
- (i) the potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents; and
- (j) the persistence and permanence of the potential adverse effects.

(3) In making any determination under paragraph (2) of this subdivision about the use of groundwater in the area around the facility, the commissioner will consider any identification of underground sources of drinking water and exempted aquifers made under 40 CFR 144.8 (see section 370.1(e) of this Title).

**(e) Concentration limits.**

(1) The commissioner will specify in the facility permit concentration limits in the groundwater for hazardous constituents established under subdivision (d) of this section. The concentration of a hazardous constituent:

- (i) must not exceed the background level of that constituent in the groundwater at the time that limit is specified in the permit; or
- (ii) for any of the constituents listed in Table 1, must not exceed the respective value given in that Table if the background level of the constituent is below the value given in Table 1; or
- (iii) must not exceed an alternate limit established by the commissioner under paragraph (2) of this subdivision.

**TABLE 1: MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUNDWATER PROTECTION**

Constituent	Maximum Concentration (mg/l)
Arsenic	0.025
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.025
Mercury	0.002
Selenium	0.01
Silicic acid	0.05
Endrin (1,2,3,4,10,10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,9a-octahydro-1,4-endo,endo-5,8-dimethano naphthalene)	Not detectable*
Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	Not detectable*
Methoxychlor (1,1,1-Trichloro-2,2-bis(p-methoxyphenylethane)	0.035
Toxaphene (C10H10C6, Technical chlorinated camphene, 67-69 percent chlorine)	Not detectable"
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.0044
2,4,5-TP (2,4,5 Trichlorophenoxypropionic acid)	0.00026

\* Note: "Not detectable" means any test or analytical determination referenced in section 703.4 of this Title.

(2) The commissioner will establish an alternate concentration limit for a hazardous constituent if the commissioner finds that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the commissioner will consider the following factors:

(i) potential adverse effects on groundwater quality, considering:

('a') the physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

('b') the hydrogeological characteristics of the facility and surrounding land;

('c') the quantity of groundwater and the direction of groundwater flow;

('d') the proximity and withdrawal rates of groundwater users;

('e') the current and future uses of groundwater in the area and any quality standards established for those groundwaters;

('f') the existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

('g') the potential for health risks caused by human exposure to waste constituents;

('h') the potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

('i') the persistence and permanence of the potential adverse effects; and

(ii) potential adverse effects on hydraulically-connected surface water quality, considering:

('a') the volume and physical and chemical characteristics of the waste in the regulated unit;

('b') the hydrogeological characteristics of the facility and surrounding land;

('c') the quantity and quality of groundwater, and the direction of groundwater flow;

('d') the patterns of rainfall in the region;

('e') the proximity of the regulated unit to surface waters;

('f') the current and future uses of surface waters in the areas and any water quality standards established for those surface waters;

('g') the existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

('h') the potential for health risks caused by human exposure to waste constituents;

('i') the potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents; and

('j') the persistence and permanence of the potential adverse effects.

(3) In making any determination under paragraph (2) of this section about the use of groundwater in the area around the facility, the commissioner will consider any identification of underground sources of drinking water and exempted aquifers made under 40 CFR 144.8 (see section 370.1(e) of this Title).

**(f) Point of compliance.**

(1) The commissioner will specify in the facility permit the point of compliance at which the groundwater protection standard of subdivision (c) of this section applies and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units.

(2) The waste management area is the limit projected in the horizontal plane of the area on which waste will be placed during the active life of a regulated unit.

(i) The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.

(ii) If the facility contains more than one regulated unit, the waste management area is described by an imaginary line circumscribing the several regulated units.

**(g) Compliance period.**

(1) The commissioner will specify in the facility permit the compliance period during which the groundwater protection standard of subdivision (c) of this section applies. The compliance period is the number of years equal to the active life of the waste management area (including any waste management activity prior to permitting) and the closure period.

(2) The compliance period begins when the owner or operator initiates a compliance monitoring program meeting the requirements of subdivision (U) of this section.

(3) If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in paragraph (1) of this subdivision, the compliance period is extended until the owner or operator can demonstrate that the groundwater protection standard of subdivision (c) of this section has not been exceeded for a period of three consecutive years.

**(h) General groundwater monitoring requirements.** The owner or operator must comply with the following requirements for any groundwater monitoring program developed to satisfy subdivisions (i), (j), or (k) of this section.

(1) The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that:

(i) represent the quality of background water that has not been affected by leakage from a regulated unit;

(a) a determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

(1) hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; and

(2) sampling at other wells will provide an indication of background groundwater quality that is representative or more representative than that provided by the upgradient wells; and

(ii) represent the quality of groundwater passing the point of compliance; and

(iii) allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the uppermost aquifer.

(2) If a facility contains more than one regulated unit, separate groundwater monitoring systems are not required for each regulated unit provided that provisions for sampling the groundwater in the uppermost aquifer will enable detection and measurement at the compliance point of hazardous constituents from the regulated units that have entered the groundwater in the uppermost aquifer. The commissioner may require separate monitoring systems for separate waste management components.

(3) All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

(4) The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of groundwater quality below the waste management area. At a minimum, the program must include procedures and techniques for:

- (i) sample collection;
- (ii) sample preservation and shipment;
- (iii) analytical procedures; and
- (iv) chain of custody control.

(5) The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents in groundwater samples.

(6) The groundwater monitoring program must include a determination of the groundwater surface elevation each time groundwater is sampled.

(7) In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit will be collected from background wells and wells at the compliance point(s). The number and kinds of samples collected to establish background shall be appropriate for the form of statistical test employed, following generally accepted statistical principles. The sample size shall be as large as necessary to ensure with reasonable confidence that a contaminant release to groundwater from a facility will be detected. The owner or operator will determine an appropriate sampling procedure and interval for each hazardous constituent listed in the facility permit which shall be specified in the unit permit upon approval by the Commissioner. This sampling procedure shall be:

- (i) A sequence of at least four samples, taken at an interval that assures, to the greatest extent technically feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, and hydraulic gradient, and the fate and transport characteristics of the potential contaminants; or
- (ii) an alternate sampling procedure proposed by the owner or operator and approved by the

## Commissioner.

(iii) In developing the data base used to determine a background value for each parameter or constituent, the owner or operator must take a minimum of one sample from each well and a minimum of four samples from the entire system used to determine background groundwater quality, each time the system is sampled.

(8) The owner or operator will specify one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent which, upon approval by the Commissioner, will be specified in the unit permit. The statistical test chosen shall be conducted separately for each hazardous constituent in each well. Where practical, quantification limits (pql's) are used in any of the following statistical procedures to comply with subparagraph (9)(v) of this subdivision, the pql must be proposed by the owner or operator and approved by the Commissioner. Use of any of the following statistical methods must be protective of human health and the environment and must comply with the performance standards outlined in paragraph (9) of this subdivision.

(i) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(ii) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(iii) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(iv) A control chart approach that gives control limits for each constituent.

(v) Another statistical test method submitted by the owner or operator and approved by the Commissioner.

(9) Any statistical method chosen under paragraph (8) of this subdivision for specification in the unit permit shall comply with the following performance standards, as appropriate:

(i) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(ii) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experimentwise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals or control charts.

(iii) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be proposed by the owner or operator and approved by the Commissioner if he or she finds it to be protective of human health and the environment.

(iv) If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be proposed by the owner or operator and approved by the Commissioner if he or she finds these parameters to be protective of human health and the environment. These parameters will be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(v) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantification limit (PQL) approved by the Commissioner under paragraph (8) of this subdivision that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(vi) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(10) Groundwater monitoring data collected in accordance with paragraph (7) of this subdivision including actual levels of constituents must be maintained in the facility operating record. The Commissioner will specify in the permit when the data must be submitted for review.

(i) **Detection monitoring program.** An owner or operator required to establish a detection monitoring program under this section must, at a minimum, discharge the following responsibilities:

(1) The owner or operator must monitor for indicator parameters (e.g. specific conductance, total organic carbon, or total organic halogen, waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in groundwater. The commissioner will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:

(i) the types, quantities, and concentrations of constituents in wastes managed at the regulated unit;

(ii) the mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area;

(iii) the detectability of indicator parameters, waste constituents, and reaction products in groundwater; and

(iv) the concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the groundwater background.

(2) The owner or operator must install a groundwater monitoring system at the compliance point as specified under subdivision (f) of this section. The groundwater monitoring system must comply with subparagraph (h)(1)(ii), and paragraphs (h)(2) and (3) of this section.

(3) The owner or operator must conduct a groundwater monitoring program for each chemical

parameter and hazardous constituent specified in the permit pursuant to paragraph (1) of this subdivision in accordance with paragraph (h)(7) of this section. The owner or operator must maintain a record of groundwater analytical data as measured and in a form necessary for the determination of statistical significance under paragraph (h)(8) of this section.

(4) The Commissioner will specify the frequencies for collecting samples and conducting statistical tests to determine whether there is statistically significant evidence of contamination for any parameter or hazardous constituent specified in the permit under paragraph (1) of this subdivision in accordance with paragraph (h)(7) of this section. A sequence of at least four samples from each well (background and compliance wells) must be collected at least semi-annually during detection monitoring.

(5) The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

(6) The owner or operator must use procedures and methods for sampling and analysis that meet the requirements of paragraphs (h)(4) and (5) of this section.

(7) The owner or operator must determine whether there is statistically significant evidence of contamination for any chemical parameter or hazardous constituent specified in the permit pursuant to paragraph (1) of this subdivision at a frequency specified under paragraph (4) of this subdivision.

(i) In determining whether statistically significant evidence of contamination exists, the owner or operator must use the method(s) specified in the permit under paragraph (h)(8) of this section. These method(s) must compare data collected at the compliance point(s) to the background groundwater quality data.

(ii) The owner or operator must determine whether there is statistically significant evidence of contamination at each monitoring well at the compliance point within a reasonable time period after completion of sampling. The commissioner will specify that time period in the facility permit, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples.

(8) If the owner or operator determines, pursuant to paragraph (7) of this subdivision, that there is statistically significant evidence of contamination for chemical parameters or hazardous constituents specified pursuant to paragraph (1) of this subdivision at any monitoring well at the compliance point, he or she must:

(i) notify the commissioner of this finding in writing within seven days. The notification must indicate what chemical parameters or hazardous constituents have shown statistically significant evidence of contamination;

(ii) immediately sample the groundwater in all monitoring wells and determine whether constituents identified in Appendix 33 of this Title are present and, if so, at what concentration;

(iii) For any Appendix 33 compounds found in the analysis pursuant to subparagraph (8)(ii) of this subdivision, the owner or operator may resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the owner or operator does not resample for the compounds found pursuant to subparagraph (8)(ii) of this subdivision, the hazardous constituents found during this initial Appendix 33 analysis will form the basis for compliance monitoring.

(iv) within 90 days, submit to the commissioner an application for a permit modification to establish a compliance monitoring program meeting the requirements of subdivision (G) of this section. The application must include the following information:

('a') an identification of the concentration of any Appendix 33 constituent detected in the groundwater at each monitoring well at the compliance point;

('b') any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of subdivision (I) of this section;

('c') any proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at the facility necessary to meet the requirements of subdivision (I) of this section;

('d') for each hazardous constituent detected at the compliance point, a proposed concentration limit under subparagraph (e)(1)(i) or (ii) of this section, or a notice of intent to seek an alternate concentration limit under paragraph (e)(2) of this section; and

(v) within 180 days, submit to the commissioner:

('a') all data necessary to justify an alternate concentration limit sought under paragraph (e)(2) of this section; and

('b') an engineering feasibility plan for a corrective action program necessary to meet the requirements of subdivision (k) of this section, unless:

('1') all hazardous constituents identified under subparagraph (ii) of this paragraph are listed in Table 1 in subdivision (e) of this section and their concentrations do not exceed the respective values given in that Table; or

('2') the owner or operator has sought an alternate concentration limit under paragraph (e)(2) of this section for every hazardous constituent identified under subparagraph (i) of this paragraph.

(9) If the owner or operator determines, pursuant to paragraph (7) of this subdivision, that there is a statistically significant difference for chemical parameters or hazardous constituents specified pursuant to paragraph (1) of this subdivision at any monitoring well at the compliance point, he or she may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the groundwater. While the owner or operator may make a demonstration under this paragraph in addition to, or in lieu of, submitting a permit modification application under subparagraph (8)(iv) of this subdivision, the owner or operator is not relieved of the requirement to submit a permit modification application within the time specified in subparagraph (8)(iv) of this subdivision unless the demonstration made under this paragraph successfully shows that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. In making a demonstration under this paragraph, the owner or operator must:

(i) notify the commissioner, in writing, within seven days of the first sampling event, if the owner or operator has evidence of contamination at the compliance point, that he or she intends to make a demonstration under this paragraph;

(ii) within 90 days, submit a report to the commissioner which demonstrates that a source other than a regulated unit caused the contamination or that the contamination resulted from error in

sampling, analysis, or evaluation;

(iii) within 90 days, submit to the commissioner an application for a permit modification to make any appropriate changes to the detection monitoring program facility; and

(iv) continue to monitor in accordance with the detection monitoring program established under this section.

(10) If the owner or operator determines that the detection monitoring program no longer satisfies the requirements of this section, he or she must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

**(j) Compliance monitoring program.** An owner or operator required to establish a compliance monitoring program under this section must, at a minimum, discharge the following responsibilities:

(1) The owner or operator must monitor the groundwater to determine whether regulated units are in compliance with the groundwater protection standard under subdivision (c) of this section. The commissioner will specify the groundwater protection standard in the facility permit, including:

- (i) a list of the hazardous constituents identified under subdivision (d) of this section;
- (ii) concentration limits under subdivision (e) for each of those hazardous constituents;
- (iii) the compliance point under subdivision (f); and
- (iv) the compliance period under subdivision (g).

(2) The owner or operator must install a groundwater monitoring system at the compliance point as specified under subdivision (f) of this section. The groundwater monitoring system must comply with subparagraph (h)(1)(ii) and paragraphs (h)(2) and (3) of this section.

(3) The Commissioner will specify the sampling procedures and statistical methods appropriate for the constituents and the facility, consistent with 373-2.6(h)(7) and (8) of this section.

(i) The owner or operator must conduct a sampling program for each chemical parameter or hazardous constituent in accordance with paragraph (h)(?) of this section.

(ii) The owner or operator must record groundwater analytical data as measured and in the form necessary for the determination of statistical significance under paragraph (h)(8) of this section for the compliance period of the facility.

(4) The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

(5) The Commissioner will specify the frequencies for collecting samples and conducting statistical tests to determine statistically significant evidence of increased contamination in accordance with paragraph (h)(?) of this section. A sequence of at least four samples from each well (background and compliance wells) must be collected at least semi-annually during the compliance period of the facility.

(6) The owner or operator must analyze samples from all monitoring wells at the compliance point for all constituents contained in Appendix 33 of this Title at least annually to determine whether additional Appendix 33 constituents are present in the uppermost aquifer and, if so, at what concentration pursuant to procedures in paragraph (i)(i') of this section. If the owner or operator finds constituents from Appendix 33 in the groundwater that are not already identified in the permit as monitoring

constituents, the owner or operator may resample within one month and repeat the Appendix 33 analysis. If the owner or operator chooses to resample, the owner or operator must report the concentration of these additional constituents to the commissioner within seven days after completion of the second analysis and add them to the monitoring list. If the owner or operator chooses not to resample, then he or she must report the concentrations of these additional constituents to the Commissioner within seven days after completion of the initial analysis and add them to the monitoring list.

(7) The owner or operator must use procedures and methods for sampling and analysis that meet the requirements of paragraphs (h)(4) and (5) of this section.

(8) The owner or operator must determine whether there is statistically significant evidence of increased contamination for any chemical parameter or hazardous constituent specified in the permit, pursuant to paragraph (1) of this subdivision, at a frequency specified under paragraph (5) of this subdivision.

(i) In determining whether statistically significant evidence of increased contamination exists, the owner or operator must use the method(s) specified in the permit under paragraph (h)(8) of this section. The method(s) must compare data collected at the compliance point(s) to the concentration limit for that constituent developed in accordance with subdivision (e) of this section.

(ii) The owner or operator must determine whether there is statistically significant evidence of increased contamination at each monitoring well at the compliance point, within a reasonable time period after completion of sampling. The commissioner will specify that time period in the facility permit, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples.

(9) If the owner or operator determines, pursuant to paragraph (8) of this subdivision, that any concentration limits under subdivision (e) of this section are being exceeded at any monitoring well at the point of compliance, he or she must:

(i) notify the commissioner of this finding in writing within seven days. The notification must indicate what concentration limits have been exceeded; and

(ii) submit to the commissioner an application for a permit modification to establish a corrective action program meeting the requirements of subdivision (k) of this section within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to the commissioner under subparagraph (i)(8)(v) of this section. The application must at a minimum include the following information:

('a') a detailed description of corrective actions that will achieve compliance with the groundwater protection standard specified in the permit under paragraph (1) of this subdivision; and

('b') A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a compliance monitoring program as defined in this section.

(10) If the owner or operator determines, pursuant to paragraph (8) of this subdivision, that the groundwater concentration limits under this section are being exceeded at any monitoring well at the point of compliance, he or she may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis or statistical evaluation or natural variation in the groundwater. In making a demonstration under this paragraph, the

owner or operator must:

- (i) notify the commissioner, in writing, within seven days, that he or she intends to make a demonstration under this paragraph;
- (ii) within 90 days, submit a report to the commissioner which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation;
- (iii) within 90 days, submit to the commissioner an application for a permit modification to make any appropriate changes to the compliance monitoring program at the facility; and
- (iv) continue to monitor in accordance with the compliance monitoring program established under this section.

(11) If the owner or operator determines that the compliance monitoring program no longer satisfies the requirements of this section, the owner or operator must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

**(k) Corrective action program** An owner or operator required to establish a corrective action program under this section must, at a minimum, do the following:

(1) The owner or operator must take corrective action to ensure that regulated units are in compliance with the groundwater protection standard under subdivision (c) of this section. The commissioner will specify the groundwater protection standard in the facility permit, including:

- (i) a list of the hazardous constituents identified under subdivision (d) of this section;
- (ii) concentration limits under subdivision (e) for each of those hazardous constituents;
- (iii) the compliance point under subdivision (f); and
- (iv) the compliance period under subdivision (g).

(2) The owner or operator must implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place. The permit will specify the specific measures that will be taken.

(3) The owner or operator must begin corrective action within a reasonable time period after the groundwater protection standard is exceeded. The commissioner will specify that time period in the facility permit. If a facility permit includes a corrective action program in addition to a compliance monitoring program, the permit will specify when the corrective action will begin and such a requirement will operate in lieu of subparagraph (9)(ii) of this section.

(4) In conjunction with a corrective action program, the owner or operator must establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Such a monitoring program may be based on the requirements for a compliance monitoring program under subdivision (9) of this section and must be as effective as the program in determining compliance with the groundwater protection standard under subdivision (c) and in determining the success of a corrective action program under paragraph (5) of this subdivision, where appropriate.

(5) In addition to the other requirements of this subdivision, the owner or operator must conduct a corrective action program to remove or treat in place any hazardous constituents under subdivision (d)

of this section that exceed concentration limits under subdivision (e) of this section in groundwater:

(i) between the compliance point under subdivision (f) of this section and the downgradient facility property boundary; and

(ii) beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the Commissioner that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. The owner or operator is not relieved of responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. The permit will specify the measures to be taken.

(iii) Corrective action measures under this paragraph must be initiated and completed within a reasonable period of time considering the extent of contamination.

(iv) Corrective action measures under this paragraph may be terminated once the concentration of hazardous constituents under subdivision (d) of this section is reduced to levels below their respective concentration limits under subdivision (e) of this section.

(6) The owner or operator must continue corrective action measures during the compliance period to the extent necessary to ensure that the groundwater protection standard is not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period, that corrective action must be continued for as long as necessary to achieve compliance with the groundwater protection standard. The owner or operator may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period) if the owner or operator can demonstrate, based on data from the groundwater monitoring program under paragraph (4) of this subdivision, that the groundwater protection standard of subdivision (c) of this section has not been exceeded for a period of three consecutive years.

(7) The owner or operator must report in writing to the commissioner on the effectiveness of the corrective action program. The owner or operator must submit these reports semi-annually.

(8) If the owner or operator determines that the corrective action program no longer satisfies the requirements of this section, the owner or operator must within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

**(l) Corrective action for solid waste management units.**

(1) The owner or operator of a facility seeking a permit for the treatment, storage or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time the waste was placed in such unit.

(2) Corrective action will be specified in the permit in accordance with this subdivision and section 373-2.19 of this Subpart. The permit will contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action.

(3) The owner or operator must implement corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the Commissioner that, despite the owner's or operator's best

efforts, the owner or operator was unable to obtain the necessary permission to undertake such actions. The owner or operator is not relieved of responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for such corrective action must be provided.

(4) This subdivision 373-2.6(1) of this section does not apply to remediation waste management sites unless they are part of a facility subject to a permit for treating, storing or disposing of hazardous wastes that are not remediation wastes.

## §373-2.7 • Closure and Post-Closure

**(a) Applicability.** Except as section 373-2.1(a) of this Part provides otherwise:

(1) subdivision (b) through paragraph (f)(1) of this section (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

(2) paragraph (f)(2) through subdivision U) of this section (which concern post-closure care) apply to the owners and operators of:

(i) all hazardous waste disposal facilities;

(ii) waste piles and surface impoundments from which the owner or operator intends to remove the wastes at closure to the extent that these sections are made applicable to such facilities in sections 373-2.11(f) and 373-2.12(h) of this Subpart;

(iii) tank systems that are required under section 373-2.10(h) of this Subpart to meet the requirements for landfills; and

(iv) containment buildings that are required under subdivision 373-2.30(c) of this Subpart to meet the requirement for landfills.

(3) The Department may replace all or part of the requirements of this Subpart (and the unit-specific standards referenced in paragraph 373-2.7(b)(3) applying to a regulated unit), with alternative requirements set out in a permit or in an enforceable document (as defined in paragraph 373-1.2(e)(3)), where the Department determines that:

(i) The regulated unit is situated among solid waste management units (or areas of concern), a release has occurred, and both the regulated unit and one or more solid waste management unit(s) (or areas of concern) are likely to have contributed to the release; and

(ii) It is not necessary to apply the closure requirements of this section (and those referenced herein) because the alternative requirements will protect human health and the environment and will satisfy the closure performance standard of paragraphs 373-2.7(b)(1) and (2).

**(b) Closure performance standard.** The owner or operator must close the facility in a manner that:

(1) minimizes the need for further maintenance;

(2) controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and

(3) complies with the closure requirements of this Subpart, including but not limited to, the 27"2... of\ "27"2... lftb' "27"2... "27"2... t'ltb\ 27"2... -1"2/h\ 2.14(g), 373-2.15(h), 373-2.24(b), (c) and (d), and 373-2.30(c) of this Subpart.

**(c) Closure plan; amendment to plan.**

**(1) Written plan.**

(i) The owner or operator of a hazardous waste management facility must have a written closure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the hazardous waste at partial or final closure are required by section 373-2.11(f) and 373-2.12(h) of this Subpart to have contingent closure plans. The plans must be submitted with the permit application, in accordance with section 373-1.5(a)(2)(xiii) of this Part, and approved by the commissioner as part of the permit issuance procedures under Part 621 of this Title. In accordance with section 373-1.6(c) of this Part, the approved closure plan will become a condition of any Part 373 permit.

(ii) The commissioner's approval of the plan must ensure that the approved closure plan is consistent with subdivisions (b) through (f) of this section and the applicable requirements of section 373-2.6, and subdivisions 373-2.9(i), 373-2.10(h), 373-2.11(f), 373-2.12(h), 373-2.13(h), 373-2.14(g), 373-2.15(h), 373-2.24(b) and 373-2.30(c) of this Subpart. Until final closure is completed and certified in accordance with paragraph (f)(1) of this section, a copy of the approved plan and all approved revisions must be furnished to the commissioner upon request, including requests by mail.

(2) Content of plan. The plan must identify steps necessary to perform partial and/or final closure of the facility at any point during its active life. The closure plan must include, at least:

(i) a description of how each hazardous waste management unit at the facility will be closed in accordance with subdivision (b) of this section;

(ii) a description of how final closure of the facility will be conducted in accordance with subdivision (b) of this section. The description must identify the maximum extent of the operation which will be unclosed during the active life of the facility;

(iii) an estimate of the maximum inventory of hazardous wastes ever on-site over the active life of the facility and a detailed description of the methods to be used during partial closures and final closure, including but not limited to, methods for removing, transporting, treating, storing, or disposing of all hazardous wastes, and identification of the types of the off-site hazardous waste management units to be used, if applicable;

(iv) a detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for

(v) a detailed description of other activities necessary during the closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including but not limited to, a groundwater monitoring, leachate collection, and run-on and runoff control;

(vi) a schedule for closure of each hazardous waste management unit and for final closure of the

facility. The schedule must include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover must be included.); and

(vii) for facilities that use trust funds to establish financial assurance under section 373-2.8(d) or (f) of this Subpart and that are expected to close prior to the expiration of the permit, an estimate of the expected year of final closure.

(viii) For facilities where the Department has applied alternative requirements at a regulated unit under paragraphs 373-2.6(a)(6), 373-2.7(a)(3), and/or 373-2.8(a)(4), either the alternative requirements applying to the regulated unit, or a reference to the enforceable document containing those alternative requirements.

(3) Amendment of plan. The owner or operator must submit a written request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the procedures in Subpart 373-1 of this Part and Part 621 of this Title. The written request must include a copy of the amended closure plan for approval by the commissioner.

(i) The owner or operator may submit a written request to the commissioner for a permit modification to amend the closure plan at any time prior to the notification of partial or final closure of the facility.

(ii) The owner or operator must submit a written request for a permit modification to authorize a change in the approved closure plan whenever:

('a') changes in operating plans or facility design affect the closure plan;

('b') there is a change in the expected year of closure, if applicable; or

('c') in conducting partial or final closure activities, unexpected events require a modification of the approved closure plan.

('d') The owner or operator requests the Department to apply alternative requirements to a regulated unit under 373-2.6(a)(6), 373-2.7(a)(3) and/or 373-2.8(a)(4).

(iii) The owner or operator must submit a written request for a permit modification including a copy of the amended closure plan for approval at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner or operator must request a permit modification no later than 30 days after the unexpected event. An owner or operator of a surface impoundment or waste pile who intends to remove all hazardous waste at closure and is not otherwise required to prepare a contingent closure plan under section 373-2.11(f) or 373-2.12(h) of this Subpart must submit an amended closure plan to the commissioner no later than 60 days from the date that the owner or operator or commissioner determines that the hazardous waste management unit must be closed as a landfill subject to the requirements of section 373-2.14(g) of this Subpart, or no later than 30 days from that date if the determination is made during partial or final closure. The commissioner will approve, disapprove or modify this amended plan in accordance with the procedures in Subpart 373-1 of this Part and Part 621 of this Title. In accordance with section 373-1.6 of this Part, the approved closure plan will become a condition of any Part 373 permit issued.

(iv) The commissioner may request modification to the plan under the conditions described in subparagraph (ii) of this paragraph. The owner or operator must submit the modified plan within 60 days of the commissioner's request, or within 30 days if the change in facility conditions occurs during partial or final closure. All modifications requested by the commissioner will be approved in accordance with the procedures in Subpart 373-1 of this Part and Part 621 of this Title.

**(4) Notification of partial closure and final closure.**

(i) The owner or operator must notify the commissioner in writing at least 60 days prior to the date on which the owner or operator expects to begin closure of a surface impoundment, waste pile, land treatment or landfill unit, or final closure of a facility with such a unit. The owner or operator must notify the commissioner in writing at least 45 days prior to the date on which the owner or operator expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed. The owner or operator must notify the commissioner in writing at least 45 days prior to the date on which the owner or operator expects to begin partial or final closure of a boiler or industrial furnace, whichever is earlier.

(ii) The date when the owner or operator "expects to begin closure" must be either:

('a') no later than 30 days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous wastes. If the owner or operator of a hazardous waste management unit can demonstrate to the commissioner that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and the owner or operator has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the commissioner may approve an extension to this one-year limit; or

('b') for units meeting the requirements of 373-2.7(d)(4), no later than 30 days after the date on which the hazardous waste management unit receives the known final volume of non-hazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional non-hazardous wastes, no later than one year after the date on which the unit received the most recent volume of non-hazardous wastes. If the owner or operator of a hazardous waste management unit can demonstrate to the Commissioner that the hazardous waste management unit or facility has the capacity to receive additional non-hazardous wastes and the owner or operator has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Commissioner may approve an extension to this one-year limit.

(iii) If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or final order under Article 71 of ECL, to cease receiving hazardous wastes or to close, then the requirements of this paragraph do not apply. However, the owner or operator must close the facility in accordance with the deadlines established in subdivision (d) of this section.

**(5) Removal of wastes and decontamination or dismantling of equipment.** Nothing in this subdivision shall preclude the owner or operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure.

**(d) Closure; time allowed for closure.**

(1) Within 90 days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if the owner or operator complies with all applicable requirements in paragraphs (4) and (5) of this subdivision, at a hazardous waste management unit or facility, the owner or operator must treat, remove from the unit or facility, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan. The commissioner may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that:

(i) ('a) the activities required to comply with this subdivision will, of necessity, take longer than 90 days to complete; or

('b') ('1') the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the owner or operator complies with paragraphs (4) and (5) of this subdivision; and

('2') there is a reasonable likelihood that the owner or operator or a person other than the owner or operator will recommence operation of the hazardous waste management unit or the facility within one year; and

('3') closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

(ii) The owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements.

(2) The owner or operator must complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes, or the final volume of nonhazardous wastes if the owner or operator complies with all applicable requirements in paragraphs (4) and (5) of this subdivision, at the hazardous waste management unit or facility. The commissioner may approve an extension to the closure period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that:

(i) ('a) the partial or final closure activities will, of necessity, take longer than 180 days to complete; or

('b') ('1') the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the owner or operator complies with paragraphs (4) and (5) of this subdivision; and

('2') there is a reasonable likelihood that the owner or operator or a person other than the owner or operator will recommence operation of the hazardous waste management unit or the facility within one year; and

('3') closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

(ii) The owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but not operating hazardous waste management unit or facility, including compliance with all applicable permit requirements.

(3) The demonstration referred to in subparagraphs (1)(i) and (2)(i) of this subdivision must be made

as follows:

(i) The demonstrations in subparagraph (1)(i) of this subdivision must be made at least 30 days prior to the expiration of the 90-day period in paragraph (1) of this subdivision; and

(ii) the demonstration in subparagraph (2)(i) of this subdivision must be made at least 30 days prior to the expiration of the 180-day period in paragraph (2) of this subdivision, unless the owner or operator is otherwise subject to the deadlines in paragraph (4) of this subdivision.

(4) The Commissioner may allow an owner or operator to receive only non-hazardous wastes in a landfill, land treatment unit, or surface impoundment unit after the final receipt of hazardous wastes at that unit if:

(i) The owner or operator requests a permit modification in compliance with all applicable requirements in Subpart 373-1 and Part 621 of this Title and in the permit modification request demonstrates that:

('a') the unit has the existing design capacity as indicated on the Part 373 application to receive non-hazardous wastes; and

('b') there is a reasonable likelihood that the owner or operator or another person will receive non-hazardous wastes in the unit within one year after the final receipt of hazardous wastes; and

('c') the non-hazardous wastes will not be incompatible with any remaining wastes in the unit, or with the facility design and operating requirements of the unit or facility under this Part; and

('d') closure of the hazardous waste management unit would be incompatible with continued operation of the unit or facility; and

('e') the owner or operator is operating and will continue to operate in compliance with all applicable permit requirements; and

(ii) The request to modify the permit includes an amended waste analysis plan, groundwater monitoring and response program, human exposure assessment required under subdivisions 373-1.5(d) and (h), and closure and post-closure plans, and updated cost estimates and demonstrations of financial assurance for closure and post-closure care as necessary and appropriate, to reflect any changes due to the presence of hazardous constituents in the non-hazardous wastes, and changes in closure activities, including the expected year of closure if applicable under subparagraph 373-2.7(c)(2)(vii), as a result of the receipt of non-hazardous wastes following the final receipt of hazardous wastes; and

(iii) The request to modify the permit includes revisions, as necessary and appropriate, to affected conditions of the permit to account for the receipt of non-hazardous wastes following receipt of the final volume of hazardous wastes; and

(iv) The request to modify the permit and the demonstrations referred to in subparagraphs (i) and (ii) of this paragraph are submitted to the Commissioner no later than 120 days prior to the date on which the owner or operator of the facility receives the known final volume of hazardous wastes at the unit, or no later than 90 days after the effective date of this rule, whichever is later.

(5) In addition to the requirements in paragraph (4) of this subdivision, an owner or operator of a hazardous waste surface impoundment that is not in compliance with the liner and leachate collection system requirements in sections 373-2.11 and 373-2.14, or 373-3.11 or 373-3.14 must:

(i) Submit with the request to modify the permit:

('a') a contingent corrective measures plan, unless a corrective action plan has already been submitted under 373-2.60) of this Part; and

{'b') a plan for removing hazardous wastes in compliance with subparagraph (5)(ii) of this subdivision; and

(ii) Remove all hazardous wastes from the unit by removing all hazardous liquids, and removing all hazardous sludges to the extent practicable without impairing the integrity of the liner(s), if any.

(iii) Removal of hazardous wastes must be completed no later than 90 days after the final receipt of hazardous wastes. The Commissioner may approve an extension to this deadline if the owner or operator demonstrates that the *removal* of hazardous wastes will, of necessity, take longer than the allotted period to complete and that an extension will not pose a threat to human health and the environment.

(iv) If a release that is a statistically significant increase (or decrease in the case of pH) over background values for detection monitoring parameters or constituents specified in the permit or that exceeds the facility's groundwater protection standard at the point of compliance, if applicable, is detected in accordance with the requirements in section 373-2.6 of this Subpart, the owner or operator of the unit

('a') must implement corrective measures in accordance with the approved contingent corrective measures plan required by subparagraph (i) of this paragraph no later than one year after detection of the release, or approval of the contingent corrective measures plan, whichever is later;

('b') may continue to receive wastes at the unit following detection of the release only if the approved corrective measures plan includes a demonstration that continued receipt of wastes will not impede corrective action; and

('c') may be required by the Commissioner to implement corrective measures in less than one year or to cease the receipt of wastes until corrective measures have been implemented if necessary to protect human health and the environment.

(v) During the period of corrective action, the owner or operator shall provide semi-annual reports to the Commissioner that describe the progress of the corrective action program, compile all groundwater monitoring data, and evaluate the effect of the continued receipt of non-hazardous wastes on the effectiveness of the corrective action.

(vi) The Commissioner may require the owner or operator to commence closure of the unit if the owner or operator fails to implement corrective action measures in accordance with the approved contingent corrective measures plan within one year as required in subparagraph (iv) of this paragraph, or fails to make substantial progress in implementing corrective action and achieving the facility's groundwater protection standard or background levels if the facility has not yet established a groundwater protection standard.

(vii) If the owner or operator fails to implement corrective measures as required in subparagraph (iv) of this paragraph, or if the Commissioner determines that substantial progress has not been made pursuant to subparagraph (vi) of this paragraph, the Commissioner shall:

('a') notify the owner or operator in writing that the Department is initiating a modification to the Permit, pursuant to Part 62i, to require the initiation of closure in accordance with the deadlines in paragraphs (1) and (2) of this subdivision and provide a detailed statement of reasons for this determination.

(e) Disposal or decontamination of equipment, structures and soils. During the partial and final closure periods, all contaminated equipment, structures and soils must be properly disposed of or decontaminated unless otherwise specified in subdivisions 373-2.10(h), 373-2.11(f), 373-2.12(h), 373-2.13(h), or 373-2.14(g), or under the authority of subdivisions 373-2.24(b) and (d) of this Subpart. By removing any hazardous waste or hazardous constituents during partial and final closure, the owner or operator may become a generator of hazardous waste and must handle that waste in accordance with all applicable requirements of Part 372 of this Title.

(f) Certification of closure and survey plat.

(1) Certification of closure. Within 60 days of completion of final closure of a facility or within 60 days of partial closure of any hazardous waste management unit, the owner or operator must submit to the commissioner, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent professional engineer registered in New York. Documentation supporting the independent registered professional engineer's certification must be furnished to the commissioner upon request until the owner or operator is released from the financial assurance requirements for closure under section 373-2.8(d)(8) of this Subpart.

(2) Survey plat. No later than the submission of the certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the county clerk in the county in which the facility is located, and to the commissioner, a survey plat indicating the location and dimensions of landfill cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor registered in New York. The plat filed with the local zoning authority, or the authority with jurisdiction over local land use, and with the county clerk in the county in which the facility is located must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the hazardous waste disposal unit in accordance with the applicable regulations of this section.

(g) Post-closure care and use of property.

(1) (i) Post-closure care for each hazardous waste management unit subject to the requirements of subdivisions (g) through U) of this section must begin after completion of closure of the unit and continue for 30 years after that date, and must consist of at least the following:

('a') monitoring and reporting in accordance with the requirements of sections 373-2.6, 373-2.11, 373-2.12, 373-2.13, 373-2.14 and 373-2.24 of this Subpart; and

('b') maintenance and monitoring of waste containment systems in accordance with the requirements of sections 373-2.6, 373-2.11, 373-2.12, 373-2.13, 373-2.14 and 373-2.24 of this Subpart.

(ii) Any time preceding partial closure of a hazardous waste management unit subject to post-closure care requirements or final closure, or any time during the post-closure period for a particular

unit, the commissioner may, in accordance with the permit modification procedures in Subpart 373-1 of this Part and Part 621 of this Title:

('a') shorten the post-closure care period applicable to the hazardous waste management unit or facility (if all disposal units have been closed) if the commissioner finds that the reduced period is sufficient to protect human health and the environment (e.g., leachate or groundwater monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment or re-use techniques indicate that the hazardous waste management unit or facility is secure); or

('b') extend the post-closure care period applicable to the hazardous waste management unit or facility if the commissioner finds that the extended period is necessary to protect human health and the environment (e.g., leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment).

(2) The commissioner may require, at partial and final closure, continuation of any of the security requirements of section 373-2.2(f) of this Subpart during part or all of the post-closure period when:

- (i) hazardous wastes may remain exposed after completion of partial or final closure; or
- (ii) access by the public or domestic livestock may pose a hazard to human health.

(3) Post-closure use of property on or in which hazardous wastes remain after partial or final closure must never be allowed to disturb the integrity of the final cover, liners, or any other components of the containment system, or the function of the facility's monitoring systems, unless the commissioner finds that the disturbance:

- (i) is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or
- (ii) is necessary to reduce a threat to human health or the environment.

(4) All post-closure care activities must be in accordance with the provisions of the approved post-closure plan as specified in subdivision (h) of this section.

**(h) Post-closure plan; amendment of plan.**

(1) Written Plan. The owner or operator of a hazardous waste disposal unit must have a written post-closure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the hazardous wastes at partial or final closure are required by section 373-2.11(f) and 373-2.12(h) of this Subpart to have contingent post-closure plans. Owners or operators of surface impoundments and waste piles not otherwise required to prepare contingent post-closure plans under sections 373-2.11(f) and 373-2.12(h) must submit a post-closure plan to the commissioner within 90 days from the date that the owner or operator or commissioner determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of subdivisions (g), (h), (i) and (j) of this section. The plan must be submitted with the permit application, in accordance with section 373-1.5(a)(2)(xiii) of this Part, and approved by the commissioner as part of the permit issuance procedures under Part 621 of this Title. In accordance with section 373-1.6(c) of this Part, the approved post-closure plan will become a condition of any Part 373 permit issued.

(2) For each hazardous waste management unit subject to the requirements of this subdivision, the post-closure plan must identify the activities that will be carried on after closure of each disposal unit and the frequency of these activities, and include at least:

(i) a description of the planned monitoring activities and frequencies at which they will be performed to comply with sections 373-2.6, 373-2.11, 373-2.12, 373-2.13, 373-2.14 and 373-2.24 of this Subpart during the post-closure care period;

(ii) a description of the planned maintenance activities, and frequencies at which they will be performed, to ensure:

('a') the integrity of the cap and final cover or other containment systems in accordance with the requirements of sections 373-2.6, 373-2.11, 373-2.12, 373-2.13, 373-2.14 and 373-2.24 of this Subpart; and

('b') the function of the monitoring equipment in accordance with the requirements of sections 373-2.6, 373-2.11, 373-2.12, 373-2.13, 373-2.14 and 373-2.24 of this Subpart; and

(iii) the name, address, and phone number of the person or office to contact about the hazardous waste disposal unit or facility during the post-closure care period.

(iv) For facilities where the Department has applied alternative requirements at a regulated unit under paragraphs 373-2.6(a)(6), 373-2.7(a)(3), and/or 373-2.8(a)(4), either the alternative requirements that apply to the regulated unit, or a reference to the enforceable document containing those requirements.

(3) Until final closure of the facility, a copy of the approved post-closure plan must be furnished to the commissioner upon request, including a request by mail. After final closure has been certified, the person or office specified in subparagraph (2)(iii) of this subdivision must keep the approved post-closure plan during the remainder of the post-closure period.

(4) Amendment of plan. The owner or operator must request a permit modification to authorize a change in the approved post-closure plan in accordance with the applicable requirements of Subpart 373-1 of this Part and Part 621 of this Title. The written request must include a copy of the amended post-closure plan for approval by the commissioner.

(i) The owner or operator may submit a written request to the commissioner for a permit modification to amend the post-closure plan at any time during the active life of the facility or during the post-closure care period.

(ii) The owner or operator must submit a written request for a permit modification to authorize a change in the approved post-closure plan whenever:

('a') changes in operating plans or facility design affect the approved post-closure plan;

('b') there is a change in the expected year of the final closure, if applicable; or

('c') events which occur during the active life of the facility, including partial and final closures, affect the approved post-closure plan.

('d') The owner or operator requests the Department to apply alternative requirements to a regulated unit under 373-2.6(a)(6), 373-2.7(a)(3) and/or 373-2.8(a)(4).

(iii) The owner or operator must submit a written request for a permit modification at least 60 days

prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the post-closure plan. An owner or operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to submit a contingent post-closure plan under sections 373-2.11(f) and 373-2.12(h) of this Subpart must submit a post-closure plan to the commissioner no later than 90 days after the date that the owner or operator or commissioner determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of section 373-2.14(g) of this Subpart. The commissioner will approve, disapprove or modify this plan in accordance with the procedures in Subpart 373-1 of this Part and Part 621 of this Title. In accordance with section 373-1.6 of this Part, the approved post-closure plan will become a permit condition.

(iv) The commissioner may request modifications to the plan under the conditions described in subparagraph (ii) of this paragraph. The owner or operator must submit the modified plan no later than 60 days after the commissioner's request, or no later than 90 days if the unit is a surface impoundment or waste pile not previously required to prepare a contingent post-closure plan. Any modifications requested by the commissioner will be approved, disapproved, or modified in accordance with the procedures in Subpart 373-1 of this Part and Part 621 of this Title.

**(i) Post-closure notices.**

(1) No later than 60 days after certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the county clerk in the county in which the facility is located, and to the commissioner, a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the owner or operator must identify the type, location, and quantity of the hazardous wastes to the best of his or her knowledge and in accordance with any records the owner or operator has kept.

(2) Within 60 days of certification of closure of the first hazardous waste disposal unit and within 60 days of certification of closure of the last hazardous waste disposal unit, the owner or operator must:

(i) record with the county clerk in the county in which the facility is located a notation on the deed to the facility property--or on some other instrument which is normally examined during title search--that will in perpetuity notify any potential purchaser of the property that:

('a') the land has been used to manage hazardous wastes;

('b') its use is restricted under 6 NYCRR 373-2.7; and

('c') the survey plat and record of this type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility required by this subdivision and subdivision (f) of this section have been filed with the local zoning authority, or the authority with jurisdiction over local land use, and with the county clerk in the county in which the facility is located, and with the commissioner; and

(ii) submit a certification, signed by the owner or operator, that the notation specified in subparagraph (i) of this paragraph has been recorded, including a copy of the document in which the notation has been placed, to the commissioner.

(3) If the owner or operator or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, the owner or operator must request a modification to the post-

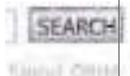
closure permit in accordance with the applicable requirements in Subpart 373-1 of this Part and Part 372 of this Title. The owner or operator must satisfy the criteria of paragraph (g)(3) of this section. By removing hazardous waste, the owner or operator may become a generator of hazardous waste and must manage it in accordance with all applicable requirements of Part 372 and 373 of this Title. If the owner or operator is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the commissioner approve either:

- (i) the removal of the notation on the deed to the facility property or other instrument normally examined during title search; or
- (ii) the addition of a notation to the deed or instrument indicating the removal of the hazardous waste.

**(j) Certification of completion of post-closure care.** No later than 60 days after completion of the established post-closure care period for each hazardous waste disposal unit, the owner or operator must submit to the commissioner, by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specification in the approved post-closure plan. The certification must be signed by the owner or operator and an independent professional engineer registered in New York. Documentation supporting the professional engineer's certification must be furnished to the commissioner upon request until the owner or operator is released from the financial assurance requirements for post-closure care under section 373-2.8(f)(8) of this Subpart.

## Appendix S:

OSHA 29 CFR 1910.120 Hazardous Waste Operations and  
Emergency Response



OSHA



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1910.120

Scope, application, and definitions.--

1910.120-1

Scope. This section covers *the* following operations, unless the employer can demonstrate that the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards:

1910.120-1.1

clean-up operations required by a governmental body, whether Federal, state, local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA's National Priority Site List (NPL), state priority site lists, sites recommended for the EPA INPL, and initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained);

Corrective actions involving clean-up operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901 et seq);

Voluntary clean-up operations at sites recognized by Federal, state, local or other governmental bodies as uncontrolled hazardous waste sites;

1910.120-1.2

Operations involving hazardous waste that are conducted at treatment, storage, disposal (TSD) facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA; or by agencies under agreement with U.S.E.P.A. to implement RCRA regulations; and

1910.120-1.3

Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

Application.

All requirements of Part 1910 and Part 1926 of Title 29 of the Code of Federal Regulations apply pursuant to their terms to hazardous waste and emergency response operations whether covered by this section or not. If there is a conflict or overlap, the provision more protective of employee safety and health shall apply without regard to 29 CFR 1910.5(c)(1).

Hazardous substance clean-up operations within the scope of paragraphs (a)(1)(i) through (a)(1)(iii) of this section must comply with all paragraphs of this section except paragraphs (p) and (q).

1910.120-1.4

Operations within the scope of paragraph (a)(1)(iv) of this section must comply only with the requirements of paragraph (p) of this section.

Notes and Exceptions:

All provisions of paragraph (p) of this section cover any treatment, storage or disposal (TSD) operation regulated by 40 CFR parts 264 and 265 or by state law authorized under RCRA, and required to have a permit or interim status from EPA pursuant to 40 CFR 270.10 or from a state agency pursuant to RCRA.

Employers who are not required to have a permit or interim status because they are conditionally exempt small quantity generators under 40 CFR 261.5 or are generators who qualify under 40 CFR 262.34 for exemptions from regulation under 40 CFR parts 264, 265 and 270 ("excepted employers") are not covered by paragraphs (p)(1) through (p)(7) of this section.

Excepted employers who are required by the EPA or state agency to have their employees engage in emergency response or who direct their employees to engage in emergency response are covered by paragraph (p)(S) of this section, and cannot be exempted by (p)(8)(i) of this section.

If an area is used primarily for treatment, storage or disposal, any emergency response operations in that area shall comply with paragraph (p) (8) of this section. In other areas not used primarily for treatment, storage, or disposal, any emergency response operations shall comply with paragraph (q) of this section. Compliance with the requirements of paragraph (q) of this section shall be deemed to be in compliance with the requirements of paragraph (p)(S) of this section.

#### 1910.120(a)(1)(I)(CM)

Emergency response operations for releases of, or substantial threats of releases of, hazardous substances which are not covered by paragraphs (a)(1)(i) through (a)(1)(iv) of this section must only comply with the requirements of paragraph (q) of this section.

#### 1910.120(a)(1)(I)

Definitions--

**Buddy system** means a system of organizing employees into work groups in such a manner that each employee of the work group is designated to be observed by at least one other employee in the work group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

**Cleanup operation** means an operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment.

**Decontamination** means the removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects.

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

**Facility** means (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located but does not include any consumer product in consumer use or any water-borne vessel.

**Hazardous materials response (HAZMAT) team** means an organized group of employees, designated by the employer, who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance. The team members perform responses to releases or potential releases of hazardous substances for the purpose of control or stabilization of the incident. A HAZMAT team is not a fire brigade nor is a typical fire brigade a HAZMAT team. A HAZMAT team, however, may be a separate component of a fire brigade or fire department.

**Hazardous substance** means any substance designated or listed under (A) through (D) of this definition, exposure to which results or may result in adverse effects on the health or safety of employees:

[A] Any substance defined under section 103(14) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (42 U.S.C. 9601).

[B] Any biologic agent and other disease causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such persons or their offspring.

[C] Any substance listed by the U.S. Department of Transportation as hazardous materials under 49 CFR 172.101 and appendices; and

[D] Hazardous waste as herein defined.

**Hazardous waste** means --

[A] A waste or combination of wastes as defined in 40 CFR 261.3, or

[B] Those substances defined as hazardous wastes in 49 CFR 171.8.

**Hazardous waste operation** means any operation conducted within the scope of this standard.

**Hazardous waste site or site** means any facility or location within the scope of this standard at which hazardous waste operations take place.

**Health hazard** means a chemical or a pathogen where acute or chronic health effects may occur in exposed employees. It also includes stress due to temperature extremes. The term health hazard includes chemicals that are classified in accordance with the Hazard Communication Standard, 29 CFR 1910.1200, as posing one of the following hazardous effects: Acute toxicity (fatal or toxic); skin corrosion or irritation; serious eye damage; or eye irritation; respiratory or skin

SP...nitillation; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration toxicity or simple asphyxiant. (See Appendix A to § 1910.120 - Health Hazard Criteria (Mandatory) for the criteria for determining whether a chemical is classified as a health hazard.)

IDLH or Immediately dangerous to life or health means an atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would interfere with an individual's ability to escape from a dangerous atmosphere.

Oxygen deficiency means that concentration of oxygen by volume below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where the percentage of oxygen by volume is less than 19.5 percent (O<sub>2</sub> < 19.5%).

Permissible exposure limit means the exposure, inhalation or dermal permissible exposure limit specified in 29 CFR Part 1910, Subparts G and Z.

Published exposure level means the exposure limits published in "NIOSH Recommendations for Occupational Health Standards" dated 1986, which is incorporated by reference as specified in § 1910.6, or if none is specified, the exposure limits published in the standards specified by the American Conference of Governmental Industrial Hygienists in their publication "Threshold Limit Values and Biological Exposure Indices for 1987-88" dated 1987, which is incorporated by reference as specified in § 1910.6.

Post emergency response means that portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and clean-up of the site has begun. If post emergency response is performed by an employer's own employees who were part of the initial emergency response it is considered to be part of the initial response and not post emergency response. However, if a group of an employer's own employees, separate from the group providing initial response, performs the clean-up operation, then the separate group of employees would be considered to be performing post-emergency response and subject to paragraph (c)(11) of this section.

Qualified person means a person with specific training, knowledge and experience in the area for which the person has the responsibility and the authority to control.

Site safety and health supervisor (or official) means the individual allocated on a hazardous waste site who is responsible to the employer and has the authority and knowledge necessary to implement the site safety and health plan and verify compliance with applicable safety and health requirements.

Small quantity generator means a generator of hazardous wastes who in any calendar month generates no more than 1,000 kilograms (2,205) pounds of hazardous waste in that month.

Uncontrolled hazardous waste site means an area identified as an uncontrolled hazardous waste site by a governmental body, whether Federal, state, local or other where an accumulation of hazardous substances creates a threat to the health and safety of individuals or the environment or both. Some sites are found on public lands such as those created by former municipal, county or state landfills where illegal or poorly managed waste disposal has taken place. Other sites are found on private property, often belonging to generators or former generators of hazardous substance wastes. Examples of such sites include, but are not limited to, surface impoundments, landfills, dumps, and tank or drum farms. Normal operations at TSD sites are not covered by this definition.

## 1910.120(b)

Safety and health program.

NOTE TO (b) - Safety and health programs developed and implemented to meet other federal, state, or local regulations are considered acceptable in meeting this requirement if they cover or are modified to cover the topics required in this paragraph. An additional or separate safety and health program is not required by this paragraph.

General.

Employers shall develop and implement a written safety and health program for their employees involved in hazardous waste operations. The program shall be designed to identify, evaluate, and control safety and health hazards, and provide for emergency response for hazardous waste operations.

The written safety and health program shall incorporate the following:

An organizational structure;

A comprehensive workplan;

A site-specific safety and health plan which need not repeat the employer's standard operating procedures required in paragraph (b)(1)(ii)(F) of this section;

The safety and health training program;

The medical surveillance program;

The employer's standard operating procedures for safety and health;and

Any necessary interface between general program and site specific activities.

Site excavation. Site excavations created during initial site preparation or during hazardous waste operations shall be shored or sloped as appropriate to prevent accidental collapse in accordance with Subpart P of 29 CFR Part 1926.

#### 1910.120(b)(1)(i)

Contractors and sub-contractors. An employer who retains contractor or sub-contractor services for work in hazardous waste operations shall inform those contractor, sub-contractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation that have been identified by the employer's information program.

#### 1910.120(b)(1)(ii)

Program availability. The written safety and health program shall be made available to any contractor or subcontractor or their representative who will be involved with the hazardous waste operation; to employees; to employee designated representatives; to OSHA personnel, and to personnel of other Federal, state, or local agencies with regulatory authority over the site.

Organizational structure part of the site program. --

The organizational structure part of the program shall establish the specific chain of command and specify the overall responsibilities of supervisors and employees. It shall include, at a minimum, the following elements:

A general supervisor who has the responsibility and authority to direct all hazardous waste operations.

A site safety and health supervisor who has the responsibility and authority to develop and implement the site safety and health plan and verify compliance.

All other personnel needed for hazardous waste site operations and emergency response and their general functions and responsibilities.

The lines of authority, responsibility, and communication.

The organizational structure shall be reviewed and updated as necessary to reflect the current status of waste site operations.

Comprehensive workplan part of the site program. The comprehensive workplan part of the program shall address the tasks and objectives of the site operations and the logistics and resources required to reach those tasks and objectives.

The comprehensive workplan shall address anticipated clean-up activities as well as normal operating procedures which need not repeat the employer's procedures available elsewhere.

The comprehensive workplan shall define work tasks and objectives and identify the methods for accomplishing those tasks and objectives.

The comprehensive workplan shall establish personnel requirements for implementing the plan.

The comprehensive workplan shall provide for the implementation of the training required in paragraph (e) of this section.

The comprehensive workplan shall provide for the implementation of the required informational programs required in paragraph (f) of this section.

The comprehensive workplan shall provide for the implementation of the medical surveillance program described in paragraph (f) of this section.

#### 1910.120(b)(1)(iii)

Site-specific safety and health plan part of the program. --

General. The site safety and health plan must be kept on site, show the address of the safety and health representative or employee phase of site operation and include the requirements and procedures for employee protection.

#### 1910.120(b)(4)(1)

Elements. The site safety and health plan, as a minimum, shall address the following:

A safety and health risk or hazard analysis for each site task and operation found in the workplan.

Employee training assignments to assure compliance with paragraph (e) of this section.

Personal protective equipment to be used by employees for each of the site tasks and operations being conducted as required by the personal protective equipment program in paragraph (g)(5) of this section.

Medical surveillance requirements in accordance with the program in paragraph (f) of this section.

Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used.

Site control measures in accordance with the site control program required in paragraph (d) of this section.

Decontamination procedures in accordance with paragraph (k) of this section.

An emergency response plan meeting the requirements of paragraph (l) of this section for safe and effective responses to emergencies, including the necessary PPE and other equipment.

Confined space entry procedures.

A spill containment program meeting the requirements of paragraph (j) of this section.

Pre-entry briefing. The site specific safety and health plan shall provide for pre-entry briefings to be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of the site safety and health plan and that this plan is being followed. The information and data obtained from site characterization and analysis work required in paragraph (c) of this section shall be used to prepare and update the site safety and health plan.

Effectiveness of site safety and health plan. Inspections shall be conducted by the site safety and health supervisor or, in the absence of that individual, another individual who is knowledgeable in occupational safety and health, acting on behalf of the employer as necessary to determine the effectiveness of the site safety and health plan. Any deficiencies in the effectiveness of the site safety and health plan shall be corrected by the employer.

#### 1910.120(c)

Site characterization and analysis --

General. Hazardous waste sites shall be evaluated in accordance with this paragraph to identify specific site hazards and to determine the appropriate safety and health control procedures needed to protect employees from the identified hazards.

Preliminary evaluation. A preliminary evaluation of a site's characteristics shall be performed prior to site entry by a qualified person in order to aid in the selection of appropriate employee protection methods prior to site entry. Immediately after initial site entry, a more detailed evaluation of the site's specific characteristics shall be performed by a qualified person in order to further identify existing site hazards and to further aid in the selection of the appropriate engineering controls and personal protective equipment for the tasks to be performed.

Hazard identification. All suspected conditions that may pose inhalation or skin absorption hazards that are immediately dangerous to life or health (IDLH) or other conditions that may cause death or serious harm shall be identified during the preliminary survey and evaluated during the detailed survey. Examples of such hazards include, but are not limited to, confined space entry, potentially explosive or flammable situations, visible vapor clouds, or areas where biological indicators such as dead animals or vegetation are located.

Required information. The following information to the extent available shall be obtained by the employer prior to allowing employees to enter a site:

location and approximate size of the site.

Description of the response activity and/or the job task to be performed.

Description of the planned employee activity.

Site topography and accessibility by air and roads.

Safety and health hazards expected at the site.

Pathways for hazardous substance dispersion.

Present status and capabilities of emergency response teams that would provide assistance to on-site employees at the time of an emergency.

Hazardous substances and health hazards involved or expected at the site and their chemical and physical properties.

Personal protective equipment. Personal protective equipment (PPE) shall be provided and used during initial site entry in accordance with the following requirements:

Based upon the results of the preliminary site evaluation, an ensemble of PPE shall be selected and used during initial site entry which will provide protection to a level of exposure below permissible exposure limits and published exposure levels for known or suspected hazardous substances and health hazards and which will provide protection against other known and suspected hazards identified during the preliminary site evaluation. If there is no permissible exposure limit or published exposure level, the employer may use other published studies and information as a guide to appropriate personal protective equipment.

If positive-pressure self-contained breathing apparatus is not used as part of the entry ensemble, and if respiratory protection is warranted by the potential hazards identified during the preliminary site evaluation, an escape self-contained breathing apparatus of at least five minute's duration shall be carried by employees during initial site entry.

If the preliminary site evaluation does not produce sufficient information to identify the hazards or suspected hazards of the site, an ensemble providing equivalent to Level B PPE shall be provided as minimum protection, and direct reading instruments shall be used as appropriate for identifying IDIH conditions. (See Appendix B for guidelines on Level B protective equipment)

Once the hazards of the site have been identified, the appropriate PPE shall be selected and used in accordance with paragraph (g) of this section.

Monitoring. The following monitoring shall be conducted during initial site entry when the site evaluation produces information which shows the potential for ionizing radiation or IDIH conditions, or when the site information is not sufficient reasonably to eliminate these possible conditions:

Monitoring with direct reading instruments for hazardous levels of ionizing radiation.

Monitoring the air with appropriate direct reading test equipment for (i.e., combustible gas meters, detector tubes) for IDIH and other conditions that may cause death or serious harm (combustible or explosive atmospheres, oxygen deficiency, toxic substances.)

Visually observing for signs of actual or potential IDIH or other dangerous conditions.

An ongoing air monitoring program in accordance with paragraph (n) of this section shall be implemented after site characterization has determined the site is safe for the start-up of operations.

#### J. Risk Identification

Risk identification. Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances shall be identified. Employees who will be working on the site shall be informed of any risks that have been identified. In situations covered by the Hazard Communication Standard, 29 CFR 1910.1200, training required by that standard need not be duplicated.

NOTE TO PARAGRAPH (c)(7). - Risks to consider include, but are not limited to:

[a] Exposures exceeding the permissible exposure limits and published exposure levels.

[b] IDLH Concentrations.

[c] Potential Skin Absorption and Irritation Sources.

[d] Potential Eye Irritation Sources.

[e] Explosion Sensitivity and Flammability Ranges.

[f] Oxygen deficiency.

Employee notification. Any information concerning the chemical, physical, and toxicologic properties of each substance known or expected to be present on site that is available to the employer and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. The employer may utilize information developed for the hazard communication standard for this purpose.

#### 1910.120(d)

Site control.--

General. Appropriate site control procedures shall be implemented to control employee exposure to hazardous substances before clean-up work begins.

Site control program. A site control program for protecting employees which is part of the employer's site safety and health program required in paragraph (b) of this section shall be developed during the planning stages of a hazardous waste clean-up operation and modified as necessary as new information becomes available.

Elements of the site control program. The site control program shall, as a minimum, include: A site map; site work zones; the use of a "buddy system"; site communications including alerting means for emergencies; the standard operating procedures or safe work practices; and, identification of the nearest medical assistance. Where these requirements are covered elsewhere they need not be repeated.

#### 1910.1101(c)

Training.--

#### 1910.101(h)&i

General.

All employees working on site (such as but not limited to equipment operators, general laborers, and others) exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site shall receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards, and they shall receive refresher training as specified in this paragraph.

Employees shall not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.

#### 1910.101(c)(3)

Elements to be covered. The training shall thoroughly cover the following:

#### 1910.101(c)(3)(i)

Names of personnel and alternates responsible for site safety and health;

Safety, health and other hazards present on the site;

Use of personal protective equipment;

Work practices by which the employee can minimize risks from hazards;

Safe use of engineering controls and equipment on the site;

Medical surveillance requirements including recognition of symptoms and signs which might indicate over exposure to hazards; and

The contents of paragraphs (G) through (J) of the site safety and health plan set forth in paragraph (b)(4)(ii) of this section.

#### 1910.101(c)(3)(ii)

Initial training.

#### 1910.101(c)(3)(iii)

General site workers (such as equipment operators, general laborers, and supervisory personnel) engaged in hazardous

substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor.

#### 1910.120(e)(3)(iii)

Workers on site only occasionally for a specific limited task (such as, but not limited to, ground water monitoring, and surveying, or geophysical surveying) and who are unlikely to be exposed over permissible exposure limits and published exposure limits shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

Workers regularly on site who work in areas which have been monitored and fully characterized indicating that exposures are under permissible exposure limits and published exposure limits where respirators are not necessary, and the characterization indicates that there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

Workers with 24 hours of training who are covered by paragraphs (e)(3)(ii) and (e)(3)(iii) of this section, and who become general site workers or who are required to wear respirators, shall have the additional 16 hours and two days of training necessary to total the training specified in paragraph (e)(3)(i).

#### 1910.120(e)(4)

Management and supervisor training. on-site management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations shall receive 40 hours initial training, and three days of supervised field experience (the training may be reduced to 24 hours and one day if the only area of their responsibility is employees covered by paragraphs (e)(3)(ii) and (e)(3)(iii)) and at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques.

#### 1910.120(f)

Qualifications for trainers. Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.

#### 1910.120(g)

Training certification. Employees and supervisors that have received and successfully completed the training and field experience specified in paragraphs (e)(1) through (e)(4) of this section shall be certified by their instructor or the head instructor and trained supervisor as having completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements of paragraph (e)(9) of this section shall be prohibited from engaging in hazardous waste operations.

Emergency response. Employees who are engaged in responding to hazardous emergency situations at hazardous waste clean-up sites that may expose them to hazardous substances shall be trained in how to respond to such expected emergencies.

#### 1910.120(h)

Refresher training. Employees specified in paragraph (e)(1) of this section, and managers and supervisors specified in paragraph (e)(4) of this section, shall receive eight hours of refresher training annually on the items specified in paragraph (e)(2) and/or (e)(4) of this section any critique of incidents that have occurred in the past year that can serve as training examples of related work, and other relevant topics.

#### 1910.120(i)

Equivalent training. Employees who can show by documentation or certification that an employee's work experience and/or training has resulted in training equivalent to that training required in paragraphs (e)(1) through (e)(4) of this section shall not be required to provide the initial training requirements of those paragraphs to such employees and shall provide a copy of the certification or documentation to the employee upon request. However, certified employees and employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site experience.

#### 1910.120(j)

Medical surveillance --

General. Employees engaged in operations specified in paragraphs (a)(1)(i) through (a)(1)(iv) of this section and not covered by (a)(2)(11) exceptions and employers of employees specified in paragraph (q)(9) shall institute a medical surveillance program in accordance with this paragraph.

Employees covered. The medical surveillance program shall be instituted by the employer for the following employees:

All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit above the published PEL levels for these substances, without regard to the use of respirators, for 30

days or more a year;

All employees who wear a respirator for 30 days or more a year or as required by 1910.134;

All employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation; and

Members of HAZMAT teams.

#### 1910.120(c)(2)(i)

Frequency of medical examinations and consultations. Medical examinations and consultations shall be made available by the employer to each employee covered under paragraph (f)(2) of this section on the following schedules:

For employees covered under paragraphs (f)(2)(i), (f)(2)(ii), and (f)(2)(1v);

Prior to assignment;

At least once every twelve months for each employee covered unless the attending physician believes a longer interval (not greater than biennially) is appropriate;

At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months.

As soon as possible upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limits or published exposure levels in an emergency situation;

At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.

For employees covered under paragraph (f)(2)(iii) and for all employees including of employers covered by paragraph (a)(1)(iv) who may have been injured, received a health impairment, developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or exposed during an emergency incident to hazardous substances at concentrations above the permissible exposure limits or the published exposure levels without the necessary personal protective equipment being used:

As soon as possible following the emergency incident or development of signs or symptoms;

At additional times, if the examining physician determines that follow-up examinations or consultations are medically necessary.

Content of medical examinations and consultations.

Medical examinations required by paragraph (f)(3) of this section shall include a medical and work history (or updated history if one is in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site.

The content of medical examinations or consultations made available to employees pursuant to paragraph (f) shall be determined by the attending physician. The guidelines in the Occupational Safety and Health Compliance Manual for Hazardous Waste Site Activities (See Appendix D, reference # 10) should be consulted.

#### 1910.120(c)(5)

Examination by a physician and costs. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and shall be provided without cost to the employee, without loss of pay, and at a reasonable time and place.

Information provided to the physician. The employer shall provide one copy of this standard and its appendices to the attending physician and in addition the following for each employee:

A description of the employee's duties as they relate to the employee's exposures,

The employee's exposure levels or anticipated exposure levels.

A description of any personal protective equipment used or to be used.

Information from previous medical examinations of the employee which is not readily available to the examining physician.

Information required by §1910.134.

Physician's written opinion.

The employer shall obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:

The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use.

The physician's recommended limitations upon the employees assigned work.

The results of the medical examination and tests if requested by the employee.

A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.

The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposure.

Recordkeeping.

An accurate record of the medical surveillance required by paragraph (f) of this section shall be retained. This record shall be retained for the period specified and meet the criteria of 29 CFR 1910.020.

The record required in paragraph (f)(B)(i) of this section shall include at least the following information:

The name and social security number of the employee;

Physicians' written opinions, recommended limitations and results of examinations and tests;

Any employee medical complaints related to exposure to hazardous substances;

A copy of the information provided to the examining physician by the employer, with the exception of the standard and its appendices.

Engineering controls, work practices, and personal protective equipment for employee protection. Engineering controls, work practices and PPE for substances regulated in Subpart Z. (i) Engineering controls, work practices, personal protective equipment, or a combination of these shall be implemented in accordance with this paragraph to protect employees from exposure to hazardous substances and safety and health hazards.

Engineering controls, work practices and PPE for substances regulated in Subparts G and Z.

Engineering controls and work practices shall be instituted to reduce and maintain employee exposure to or below the permissible exposure limits for substances regulated by 29 CFR Part 1910, to the extent required by Subpart Z, except to the extent that such controls and practices are not feasible.

**NOTE TO PARAGRAPH (c)(1)(ii):** Engineering controls which may be feasible include the use of recognized safe or control

booths on equipment, and/or the use of remotely operated material handling equipment. Work practices which may be feasible are removing all non-essential employees from potential exposure during opening of drums, wetting down dusty operations and locating employees upwind of possible hazards.

Whenever engineering controls and work practices are not feasible, or not required, any reasonable combination of engineering controls, work practices and PPE shall be used to reduce and maintain to or below the permissible exposure limits or dose limits for substances regulated by 29 CFR Part 1910, Subpart Z.

The employer shall not implement a schedule of employee rotation as a means of compliance with permissible exposure limits or dose limits except when there is no other feasible way of complying with the airborne or dermal dose limits for ionizing radiation.

The provisions of 29 CFR, subpart G, shall be followed.

Engineering controls, work practices, and PPE for substances not regulated in Subparts G and Z. An appropriate combination of engineering controls, work practices, and personal protective equipment shall be used to reduce and maintain employee exposure to or below published exposure levels for hazardous substances and health hazards not regulated by 29 CFR Part 1910, Subparts G and Z. The employer may use the published literature and MSDS as a guide in making the employer's determination as to what level of protection the employer believes is appropriate for hazardous substances and health hazards for which there is no permissible exposure limit or published exposure limit.

Personal protective equipment selection.

Personal protective equipment (PPE) shall be selected and used which will protect employees from the hazards and potential hazards they are likely to encounter as identified during the site characterization and analysis.

Personal protective equipment selection shall be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, the task-specific conditions and duration, and the hazards and potential hazards identified at the site.

Positive pressure self-contained breathing apparatus, or positive pressure air-line respirators equipped with an escape air supply shall be used when chemical exposure levels present will create a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.

Totally-encapsulating chemical protective suits (protection equivalent to level A protection as recommended in Appendix B) shall be used in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.

The level of protection provided by PPE selection shall be increased when additional information or site conditions show that increased protection is necessary to reduce employee exposure to below permissible exposure limits and published exposure levels for hazardous substances and health hazards. (See Appendix B for guidance on selecting PPE ensembles.)

NOTE TO PARAGRAPH (g)(3): The level of employee protection provided may be decreased when additional information or site conditions show that decreased protection will not result in hazardous exposures to employees.

Personal protective equipment shall be selected and used to meet the requirements of 29 CFR Part 1910, Subpart I, and additional requirements specified in this section.

Totally-encapsulating chemical protective suits.

Totally-encapsulating suits shall protect employees from the particular hazards which are identified during site characterization and analysis.

Totally-encapsulating suits shall be capable of maintaining positive air pressure. (See Appendix A for a test method which may be used to evaluate this requirement.)

Totally-encapsulating suits shall be capable of preventing inward test gas leakage of more than 0.5 percent. (See Appendix A for a test method which may be used to evaluate this requirement.)

Personal protective equipment (PPE) program. A personal protective equipment program, which is part of the employer's safety and health program required in paragraph (b) of this section or required in paragraph (p)(1) of this section and which is also a part of the site-specific safety and health plan shall be established. The PPE program shall address the elements

listed below. When elements, such as donning and doffing procedures, are provided by the manufacturer of a piece of equipment and are attached to the plan, they need not be rewritten into the plan as long as they adequately address the procedure or element.

PPE selection based upon site hazards,

PPE use and limitations of the equipment,

Work mission duration,

PPE maintenance and storage,

PPE decontamination and disposal,

PPE training and proper fitting,

PPE donning and doffing procedures,

PPE inspection procedures prior to, during, and after use,

Evaluation of the effectiveness of the PPE program, and

Limitations during temperature extremes, heat stress, and other appropriate medical considerations.

#### 1910.120(h)

Monitoring.

General.

Monitoring shall be performed in accordance with this paragraph where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

Air monitoring shall be used to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of employee protection needed on site.

Initial entry. Upon initial entry, representative air monitoring shall be conducted to identify any IDIH condition, exposure over permissible exposure limits or published exposure levels, exposure over a radioactive material's dose limits or other dangerous condition such as the presence of flammable atmospheres, oxygen-deficient environments.

Periodic monitoring. Periodic monitoring shall be conducted when the possibility of an IDIH condition or flammable atmosphere has developed or when there is indication that exposures may have risen over permissible exposure limits or published exposure levels since prior monitoring. Situations where it shall be considered whether the possibility that exposures have risen are as follows:

When work begins on a different portion of the site.

When contaminants other than those previously identified are being handled.

When a different type of operation is initiated (e.g., drum opening as opposed to exploratory well drilling.)

When employees are handling leaking drums or containers or working in areas with obvious liquid contamination (e.g., a spill or lagoon.)

Monitoring of high-risk employees. After the actual clean-up phase of any hazardous waste operation commences; for example, when soil, surface water or containers are moved or disturbed; the employer shall monitor those employees likely

to have the highest exposure limits or published exposure levels by using personal sampling frequently enough to characterize employee exposures. The employer may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated in the first sentence of this paragraph. If the employees likely to have the highest exposure are over permissible exposure limits or published exposure limits, then monitoring shall continue to determine all employees likely to be above those limits. The employer may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated above.

NOTE TO PARAPH (h): It is not required to monitor employees engaged in site characterization operations covered by paragraph (c) of this section.

## 1910.129(l)

Informational programs. Employers shall develop and implement a program which is part of the employer's safety and health program required in paragraph (b) of this section to inform employees, contractors, and subcontractors (or their representative) actually engaged in hazardous waste operations of the nature, level and degree of exposure likely as a result of participation in such hazardous waste operations. Employees, contractors and subcontractors working outside of the operations part of a site are not covered by this standard.

## 1910.UOC

Handling drums and containers --

## General

Hazardous substances and contaminated liquids and other residues shall be handled, transported, labeled, and disposed of in accordance with this paragraph.

Drums and containers used during the clean-up shall meet the appropriate DOT, OSHA, and EPA regulations for the wastes that they contain.

When practical, drums and containers shall be inspected and their integrity shall be assured prior to being moved. Drums or containers that cannot be inspected before being moved because of storage conditions (i.e., buried beneath the earth, stacked behind other drums, stacked several tiers high in a pile, etc.) shall be moved to an accessible location and inspected prior to further handling.

Unlabeled drums and containers shall be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled.

Site operations shall be organized to minimize the amount of drum or container movement

Prior to movement of drums or containers, all employees exposed to the transfer operation shall be warned of the potential hazards associated with the contents of the drums or containers.

U.S. Department of Transportation specified salvage drums or containers and suitable quantities of proper absorbent shall be kept available and used in areas where spills, leaks, or rupture may occur.

Where major spills may occur, a spill containment program, which is part of the employer's safety and health program required in paragraph (b) of this section, shall be implemented to contain and isolate the entire volume of the hazardous substance being transferred.

Drums and containers that cannot be moved without rupture, leakage, or spillage shall be emptied into a sound container using a device classified for the material being transferred.

A ground-penetrating system or other type of detection system or device shall be used to estimate the location and depth of buried drums or containers.

Spill or covering material shall be removed with caution to prevent drum or container rupture.

Fire extinguishing equipment meeting the requirements of 29 CFR Part 1910, Subpart L, shall be on hand and ready for use to control incipient fires.

Opening drums and containers. The following procedures shall be followed in areas where drums or containers are being opened:

Where an airline respirator system is used, connections to the source of air supply shall be protected from contamination and the entire system shall be protected from physical damage.

Employees not actually involved in opening drums or containers shall be kept a safe distance from the drums or containers being opened.

If employees must work near or adjacent to drums or containers being opened, a suitable shield that does not interfere with the work operation shall be placed between the employee and the drums or containers being opened to protect the employee

In case of accidental explosion.

Controls for drum or container opening equipment, monitoring equipment, and fire suppression equipment shall be located behind the explosion-resistant barrier.

When there is a reasonable possibility of flammable atmospheres being present, material handling equipment and hand tools shall be of the type to prevent sources of ignition.

Drums and containers shall be opened in such a manner that excess interior pressure will be safely relieved. If pressure cannot be relieved from a remote location, appropriate shielding shall be placed between the employee and the drums or containers to reduce the risk of employee injury.

Employees shall not stand upon or work from drums or containers.

Material handling equipment. Material handling equipment used to transfer drums and containers shall be selected, positioned and operated to minimize sources of ignition related to the equipment from igniting vapors released from ruptured drums or containers.

Radioactive wastes. Drums and containers containing radioactive wastes shall not be handled until such time as their hazard to employees is properly assessed.

Shock sensitive wastes. As a minimum, the following special precautions shall be taken when drums and containers containing or suspected of containing shock-sensitive wastes are handled:

All non-essential employees shall be evacuated from the area of transfer.

Material handling equipment shall be provided with explosive containment devices or protective shields to protect equipment operators from exploding containers.

An employee alarm system capable of being perceived above surrounding light and noise conditions shall be used to signal the commencement and completion of explosive waste handling activities.

Continuous communications (i.e., portable radios, hand signals, telephones, as appropriate) shall be maintained between the employee-in-charge of the immediate handling area and both the site safety and health supervisor and the command post until such time as the handling operation is completed. Communication equipment or methods that could cause shock sensitive materials to explode shall not be used.

Drums and containers under pressure, as evidenced by bulging or swelling, shall not be moved until such time as the cause for excess pressure is determined and appropriate containment procedures have been implemented to protect employees from explosive relief of the drum.

Drums and containers containing packaged laboratory wastes shall be considered to contain shock-sensitive or explosive materials until they have been characterized.

Caution: Shock sensitive wastes may be prohibited under U.S. Department of Transportation regulations. Employers and their shippers should refer to 49 CFR 173.21 and 173.50.

Laboratory waste packs. In addition to the requirements of paragraph (j)(5) of this section, the following precautions shall be taken, as a minimum, in handling laboratory waste packs (lab packs):

Lab packs shall be opened only when necessary and then only by an individual knowledgeable in the inspection, classification, and segregation of the containers within the pack according to the hazards of the wastes.

If crystalline materials are noted on any container, the contents shall be handled as a shock-sensitive waste until the contents are identified.

Sampling of drum and container contents. Sampling of containers and drums shall be done in accordance with a sampling procedure which is part of the site safety and health plan developed for and available to employees and others at the specific worksite.

#### Shipping and transport

Drums and containers shall be identified and classified prior to packaging for shipment

Drum or container staging areas shall be kept to the minimum number necessary to safely identify and classify materials and prepare them for transport

Staging areas shall be provided with adequate access and egress routes.

Bulking of hazardous wastes shall be permitted only after a thorough characterization of the materials has been completed.

#### Tank and vault procedures.

Tanks and vaults containing hazardous substances shall be handled in a manner similar to that for drums and containers, taking into consideration the size of the tank or vault

Appropriate tank or vault entry procedures as described in the employer's safety and health plan shall be followed whenever employees must enter a tank or vault.

#### 1910.120(h)

##### Decontamination

General. Procedures for all phases of decontamination shall be developed and implemented in accordance with this paragraph.

##### Decontamination procedures.

A decontamination procedure shall be developed, communicated to employees and implemented before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists.

Standard operating procedures shall be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances.

All employees leaving a contaminated area shall be appropriately decontaminated; all contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated.

Decontamination procedures shall be monitored by the site safety and health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.

Location. Decontamination shall be performed in geographical areas that will minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment

Equipment and solvents. All equipment and solvents used for decontamination shall be decontaminated or disposed of properly.

##### Personal protective clothing and equipment

Protective clothing and equipment shall be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness.

Employees whose non-Impermeable clothing becomes wetted with hazardous substances shall immediately remove that clothing and proceed to shower. The clothing shall be disposed of or decontaminated before it is removed from the work zone.

Unauthorized employees. Unauthorized employees shall not remove protective clothing or equipment from change rooms.

Commercial laundries or cleaning establishments. Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment shall be informed of the potentially harmful effects of exposures to hazardous substances.

Showers and change rooms. Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they shall be provided and meet the requirements of 29 CFR 1910.141. If temperature conditions prevent the effective use of water, then other effective means for decontaminating shall be provided and used.

1910.120(1)

Emergency response by employees at uncontrolled hazardous waste sites --

Emergency response plan.

An emergency response plan shall be developed and implemented by all employers within the scope of paragraphs (a)(1)(I) through (ii) of this section to handle anticipated emergencies prior to the commencement of hazardous waste operations. The plan shall be in writing and available for inspection and copying by employees, their representatives, OSHA personnel and other governmental agencies with relevant responsibilities.

Employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an emergency action plan complying with 29 CFR 1910.38.

Elements of an emergency response plan. The employer shall develop an emergency response plan for emergencies which shall address, as a minimum, the following:

Pre-emergency planning.

Personnel roles, lines of authority, training, and communication.

Emergency recognition and prevention.

Safe distances and places of refuge.

Site security and control.

Evacuation routes and procedures.

Decontamination procedures which are not covered by the site safety and health plan.

1910.120(1)(2)

Emergency medical treatment and first aid.

Emergency alerting and response procedures.

Critique of response and follow-up.

PPE and emergency equipment

Procedures for handling emergency incidents.

In addition to the elements for the emergency response plan required in paragraph (1)(2) of this section, the following

Site topography, layout, and prevailing weather conditions.

Procedures for reporting Incidents to local, state, and federal governmental agencies.

The emergency response plan shall be a separate section of the Site Safety and Health Plan.

The emergency response plan shall be compatible and integrated with the disaster, fire and/or emergency response plans of local, state, and federal agencies.

The emergency response plan shall be rehearsed regularly as part of the overall training program for site operations.

The emergency response plan shall be reviewed periodically and, as necessary, be amended to keep it current with new or changing site conditions or information.

An employee alarm system shall be installed in accordance with 29 CFR 1910.165 to notify employees of an emergency situation, to stop work activities if necessary, to lower background noise in order to speed communication, and to begin emergency procedures.

Based upon the information available at time of the emergency, the employer shall evaluate the incident and the site response capabilities and proceed with the appropriate steps to implement the site emergency response plan.

1910.120(m)

Illumination. Areas accessible to employees shall be lighted to not less than the minimum illumination intensities listed in the following Table 1-120.1 while any work is in progress:

TABLE H-120.1 -- MINIMUM ILLUMINATION INTENSITIES IN FOOT-CANDLES

Foot-candles	Area or operations
10	General site areas.
13	Excavation and waste areas, accessways, active storage areas, loading platforms, refueling, and field maintenance areas.
15	Indoors: warehouses, corridors, hallways, and exitways.
5	Tunnels, shafts, and general underground work areas; (Exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Mine Safety and Health Administration approved cap lights shall be acceptable for use in the tunnel heading.)
10	General shops (e.g., mechanical and electrical equipment rooms, active storerooms, barracks or living quarters, locker or dressing rooms, dining areas, and indoor toilets and workrooms).
30	First aid stations, infirmaries, and offices.

1910.120(n)

Sanitation at temporary workplaces --

Potable water.

An adequate supply of potable water shall be provided on the site.

Portable containers used to dispense drinking water shall be capable of being tightly closed, and equipped with a tap. Water shall not be dipped from containers.

Any container used to distribute drinking water shall be clearly marked as to the nature of its contents and not used for any other purpose.

Where single service cups (to be used but once) are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided.

Nonpotable water.

Outlets for nonpotable water, such as water for firefighting purposes shall be identified to indicate clearly that the water is unsafe and is not to be used for drinking, washing, or cooking purposes.

There shall be no cross-connection, open or potential, between a system furnishing potable water and a system furnishing nonpotable water.

Toilet facilities.

Toilets shall be provided for employees according to Table 1910.120.2.

TABLE 1910.2...TOILET FACILITIES

Number of employees	Minimum number of facilities
20 or fewer	1
More than 20, fewer than 200	One toilet seat and 1 urinal per 40 employees.
More than 200	One toilet seat and 1 urinal per 50

Under temporary conditions, provisions shall be made to assure not less than one toilet facility is available.

Hazardous waste sites, not provided with a sanitary sewer, shall be provided with the following toilet facilities unless prohibited by local codes:

**Chemical toilets;**

**Recirculating toilets;**

Combustion toilets; or

**Flush toilets.**

The requirements of this paragraph for sanitation facilities shall not apply to mobile crews having transport facilities readily available nearby toilet facilities.

Doors entering toilet facilities shall be provided with egress locks controlled from inside the facility.

Food handling. All food service facilities and operations for employees shall meet the applicable laws, ordinances, and regulations of the jurisdictions in which they are located.

Temporary living quarters. When temporary living quarters are provided, they shall be heated, ventilated, and lighted.

Washing facilities. The employer shall provide adequate washing facilities for employees engaged in operations where hazardous substances may be harmful to employees. Such facilities shall be in close proximity to the worksite, in areas where exposures are below permissible exposure limits and which are under the control of the employer; and shall be self-contained to enable employees to remove hazardous substances from themselves.

Showers and change rooms. When hazardous waste clean-up or removal operations commence on a site and the duration of the work will require six months or more to complete, the employer shall provide showers and change rooms for all employees exposed to hazardous substances and health hazards involved in hazardous waste clean-up or removal operations.

Showers shall be provided and shall meet the requirements of 29 CFR 1910.141(d)(3),

Change rooms shall be provided and shall meet the requirements of 29 CFR 1910.141(e). Change rooms shall consist of two separate change areas separated by a shower area required by paragraph (n)(7)(i) of this section. One change area, with an exit leading off the worksite, shall provide employees with a designated area where they can remove, store, and put on street clothing. The second area, with an exit to the worksite, shall provide employees with an area where they can put on, remove and store work clothing and personal protective equipment.

Showers and change rooms shall be located in areas where exposures are below the permissible exposure limits and published exposure levels. If this cannot be accomplished, then a ventilation system shall be provided that will supply air that is below the permissible exposure limits and published exposure levels.

Employers shall assure that employees shower at the end of their work shift and when leaving the hazardous waste site.

New technology programs.

The employer shall develop and implement procedures for the introduction of effective new technologies and equipment developed for the improved protection of employees working with hazardous waste clean-up operations, and the same shall be implemented as part of the site safety and health program to assure that employee protection is being maintained.

N... technologies, equi)ment or control measures available to the industry, such as the use of foam, absorbents, absorbers, neutralizers or other spill containment technologies, to prevent or control releases of hazardous materials while excavating the spill or for spill containment by employers or their representatives. Such an evaluation shall be done to determine the likelihood of release of hazardous materials or equipment before using on a large scale for emergency response. Information and data from manufacturers or suppliers be used as part of the evaluation effort. Such evaluation shall be made available to OSHA upon request.

Certain Operations Conducted Under the Resource Conservation and Recovery Act of 1976 (RCRA). Employers conducting operations at treatment storage and disposal (TSD) facilities specified in paragraph (a)(1)(iv) of this section shall provide the programs specified in this paragraph. See the "Notes and Exceptions" to paragraph (b)(2)(ii) of this section for employers not covered.

1910.120(e)(1)

Safety and health program. The employer shall develop and implement a written safety and health program for employees involved in hazardous waste operations that shall be available for inspection by employees, their representatives and OSHA personnel. The program shall be designed to identify, evaluate and control safety and health hazards in the facilities for the purpose of protecting, providing for emergency response and meeting the requirements of paragraph (p)(5) of this section and to address as appropriate, engineering controls, maximum exposure limits, hazardous waste handling procedures and uses of new technologies.

1910.120(f)

Hazard communication program. The employer shall implement a hazard communication program meeting the requirements of 29 CFR 1910.1200 as part of the employer's safety and health program.

NOTE TO §1910.120- The emphasis for hazardous waste provided in 1910.120(j) is applicable to this section.

Medical surveillance program. The employer shall develop and implement a medical surveillance program meeting the requirements of paragraph (f) of this section.

Decontamination program. The employer shall develop and implement a decontamination procedure meeting the requirements of paragraph (k) of this section.

New technology program. The employer shall develop and implement procedures meeting the requirements of paragraph (o) of this section for introducing new and innovative equipment into the workplace.

Miscellaneous handling program. The employer shall develop and implement procedures meeting the requirements of paragraphs (v)(1) through (v)(3) and (x) of this section, as well as (j)(1) and (j)(5) of this section prior to starting this work.

1910.120(g)

Training program --

New employees. The employer shall develop and implement a training program which is part of the employer's safety and health program, for employees exposed to hazardous hazardous substances at TSD operations to ensure that employees perform their assigned duties and functions in a safe and healthful manner so as not to injure themselves or other employees. The initial training shall be for 24 hours and refresher training shall be for eight hours annually. Employees who have received the training required by this paragraph shall be given a written certification of training when they have successfully completed the necessary training.

Current employees. Employers who can show by an employee's previous work experience and/or training that the employee has had training equivalent to the initial training required by this paragraph, shall be considered as meeting the initial training requirements of this paragraph as to that employee. Equivalent training includes training that existing employees might have already received from actual work experience. Current employees shall receive eight hours of refresher training annually.

Trainers. Trainers who provide initial training shall have a satisfactory completion of a training course for the subjects they are expected to teach or they shall have the academic credentials and instruction experience necessary to demonstrate a good command of the subject matter of the courses and components of the training.

1910.120(h)

Emergency response program --

Emergency response plan. An emergency response plan shall be developed and implemented by all employers. Such plans need not duplicate any of the

subjects fully addressed in the employer's contingency planning required by permits, such as those issued by the U.S. Environmental Protection Agency, provided that the contingency plan is made part of the emergency response plan. The emergency response plan shall be written in part on the employer's safety and health program required in paragraph (p)(1) of this section. Employers who will operate the facility from the work site location when an emergency occurs and who do not provide any of their employees with assistance in handling the emergency are exempt from the requirements of paragraph (h) (PXSJ) if they provide an emergency action plan complying with 29 CFR 1910.38.

Elements of an emergency response plan. The employer shall develop an emergency response plan for emergencies which shall address, as a minimum, the following to the extent that they are not addressed in any specific program required in this paragraph:

Pre-emergency planning and coordination with outside parties.

Personnel roles, lines of authority, and communication.

Emergency recognition and prevention.

Safe distances and places of refuge.

Site security and control evaluation.

Routes and procedures.

Decontamination procedures.

**Emergency medical treatment and first aid.**

Emergency alerting and response procedures.

Continuation of response and follow-up.

PPE and emergency equipment

**TRAINING**

Training:

Training for emergency response employees shall be completed before they are called upon to perform in real emergencies. Such training shall include the elements of the emergency response plan, standard operating procedures, the employer has established for the job, the personal protective equipment to be worn and procedures for handling emergency incidents.

Exception #1: An employer need not train all employees to the degree specified in this section if the employer divides the workforce in a manner such that a sufficient number of employees who have responsibility for control of emergency situations have the training specified, and if other employees, who may first respond to an emergency incident, have sufficient awareness training to recognize that an emergency response situation exists and that they are instructed in how to summon the trained employees and not attempt control activities for which they are not trained.

Exception #2: An employer need not train all employees to the degree specified if arrangements have been made in advance for an outside fully trained emergency response team to respond to an emergency incident first, have sufficient awareness training to recognize that an emergency response situation exists and they have been instructed to call the designated outside fully trained emergency response team for assistance.

Employee members or TSO or other emergency response organizations shall be trained to a level of competence in the recognition of health and safety hazard and to protect themselves and other employees. This would include training on the methods used to minimize the risk from spills and leaks and the safe use of control equipment; in the selection and use of appropriate personal protective equipment; the safe operating procedures to be used at the incident; the techniques for coordination with other employees to minimize risks; in the appropriate response to overexposure to health hazards or injury to items saved and other employees; and in the recognition of situations which may result from overexposures.

The employer shall certify that each covered employee has attended and successfully completed the training required in paragraph (j)(ii) of this section, or shall certify if the employer's policy for certification of training shall be recorded and maintained by the employer.

Procedure for handling emergency incidents.

In addition to the elements for the emergency response plan required in paragraph (p)(S)(i) of this section, the following elements be included in the emergency response plan if they do not repeat any information already contained in the emergency response plan:

Site topography, layout, and prevailing weather conditions.

Procedures for reporting incidents to local, state, and federal governmental agencies.

The emergency response plan shall be compatible and integrated with the disaster, life and/or emergency response plans of local and other agencies.

The emergency response plan shall be rehearsed regularly as part of the overall training program for site operations.

The site emergency response plan shall be reviewed periodically and, as necessary, be amended to keep it current with new or changing site conditions or information.

An employee alarm system shall be installed in accordance with 29 CFR 1910.165 to notify employees of an emergency situation, to stop work activities of employees, and to lower background noise in order to speed communication; and to be used in emergency procedures.

Based upon the information available at the time of the emergency, the employer shall evaluate the incident and the response and proceed with the appropriate steps to meet the site emergency response plan.

**HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE**

Emergency response program for hazardous substance releases. This paragraph covers employers whose employees are engaged in emergency response no matter where it occurs except that it does not cover employees engaged in operations specified in paragraphs (o)(1)(i) through (a)(1)(iv) of this section. Those emergency response organizations who have developed and implemented programs equivalent to this paragraph for handling releases of hazardous substances pursuant to section 303 of the Superfund Amendments and Reauthorization Act of 1986 (EPA Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. 11003) shall be deemed to have met the requirements of this paragraph.

**HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE**

Emergency response plan. An emergency response plan shall be developed and implemented to handle anticipated emergencies prior to the commencement of emergency response operations. The plan shall be in writing and available for inspection and copying by employees, their representatives and OSHA personnel. Employees who will evacuate the employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an emergency action plan in accordance with 29 CFR 190.38.

Employer emergency response plan. The employer shall develop an emergency response plan for emergency situations. The minimum of the following areas to the extent that they are not addressed in any specific program required in this paragraph:

Pre-emergency planning and coordination with outside parties.

Personnel roles, lines of authority, training, and communication.

Emergency recognition and prevention.

Safe distances and places of refuge.

Site priority and control.

Evacuation routes and procedures.

Decontamination.

Emergency medical treatment.

Emergency alerting and notification procedures.

Critical response and follow-up.

PE and emergency equipment

Emergency response or actions must use the local emergency response plan or the site emergency response plan or other, as part of their emergency response plan to avoid duplication. Those items of the emergency response plan that are being properly addressed by the SMA Title UI plans must be listed into the emergency plan or otherwise kept together for the employer and employee's use.

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Procedures for handling emergency response.

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11. - ... emergency response official responding to an emergency shall be one of the individuals in charge of a site-specific incident Command System (ICS). All emergency responders, and their communication systems, shall be coordinated and controlled through the individual in charge of the ICS by the Site or official representative for each employer.

NOTE TO PARAGRAPH (q)(JX). The "Site official" at an emergency response is the most senior official on the site who has the responsibility for controlling the operations. The Site official is the senior officer on the fire department or other emergency apparatus to arrive on the incident scene. As more senior officers arrive (i.e., local fire chief, police, State law enforcement official, etc.), the position is passed up the line of authority which has been previously established.

The individual in charge of the ICS shall identify, to the extent possible, all hazardous substances or conditions present and shall address as appropriate site analysis, use of engineering controls, maximum exposure limits, hazardous substance handling procedures, and use of any new technologies.

Based on the hazardous substances and/or conditions present the individual in charge of the response shall implement appropriate emergency operations, and assure that the personal protective equipment worn is appropriate for the hazards to be encountered. In addition, the individual shall meet, at a minimum, the criteria contained in 29 CFR 1910.156(e) when working in the performance of fire fighting operations beyond the initial stage for any incident.

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Employees engaged in emergency response and exposed to hazardous substances presenting an inhalation hazard or pollution hazard shall wear positive pressure self-contained breathing apparatus when engaged in emergency response, unless such time that the individual in charge of the ICS determines that through the use of air monitoring that a decreased level of respiratory protection will not result in hazardous exposures to employees.

The individual in charge of the ICS shall limit the number of emergency response personnel in the emergency site, those areas of pollution or actual exposure to the hazard, to those who are actively performing emergency operations. However, operations in hazardous areas shall be performed using limited buddy systems in groups of two or more.

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Backup personnel shall be standing by with equipment ready to provide rescue or relief. Qualified basic life support personnel, as a minimum, shall be standing by with medical equipment and transportation capability.

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The individual in charge of the ICS shall designate a safety officer who is knowledgeable in the operation being implemented at the emergency response site. The safety officer shall identify and evaluate hazards and to provide direction with respect to the safety of operations for the emergency at hand.

When activated by the safety officer to avoid an imminent danger condition, the safety officer shall have the authority to alter, suspend, or terminate those activities. The safety officer shall immediately inform the individual in charge of the ICS of any actions needed to be taken to correct these hazards at the emergency scene.

After emergency operations have terminated, the individual in charge of the ICS shall implement appropriate decontamination procedures.

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When deemed necessary for meeting the tasks at hand approved self-contained compressed breathing apparatus may be used with approved cylinders from other approved self-contained compressed breathing apparatus provided that such cylinders are of the same capacity and pressure rating. A compressed air cylinder used with a self-contained breathing apparatus shall meet U.S. Department of Transportation Mandatory National Specification for Occupational Safety and Health criteria.

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Skilled support personnel. Personnel, not necessarily an employer's own employees, who are skilled in the operation of certain equipment such as mechanized earth moving or digging equipment or crane and hoisting equipment and who are trained to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer's own employees and who will be or may be exposed to the hazards at an emergency response scene are not required to meet the training required in this paragraph for the employer's regular employees. However, these personnel shall be given an initial briefing at the site prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, chemical hazards to be avoided, and what care is to be performed. All other appropriate safety and health precautions provided to the employer's own employees shall be used to assure the safety and health of these personnel.

Supervisors. Employees who, in the course of their regular job duties, work with and are trained in the use of specific hazardous substances, and who will be required to provide initial advice or instruction to a hazardous substance release incident to the individual in charge, shall receive training or demonstration of competency in the area of their specific function annually.

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Training shall be available on the duties and functions of the personnel in the emergency response organization; the skills in

knowledge level for first responders... shall be given training in accordance with the following paragraphs:

1910.120-11(a)

First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities or the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

An understanding of what hazardous substances are, and the risks associated with them in an incident

An understanding of the potential outcomes associated with an emergency created when hazardous substances are present

The ability to recognize the presence of hazardous substances in an emergency.

The ability to identify the hazardous substances, if possible.

An understanding of the role of the first responder awareness and dual role firefighter's emergency response plan including the security and control and the U.S. Department of Transportation's Emergency Response Guidebook.

The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.

1910.120-11(b)

First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from reacting and prevent exposures. First responders at the operations level shall have received at least 16 hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:

Knowledge of the basic hazard and risk techniques.

Know how to select and use proper personal protective equipment provided in the first responder operations level.

An understanding of basic hazardous materials terms.

Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit

Know how to implement basic decontamination procedures.

An understanding of the relevant standard operating procedures and termination procedures.

1910.120-11(c)

Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level. That they will approach the point of release, in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

Know how to implement the employer's emergency response plan.

Know the classification, identification and verification of known and unknown materials by using field survey instruments and equipment.

Be able to function within an assigned role in the Incident Command System.

1910.120-11(d)

Know how to select and use proper specified chemical personal protective equipment provided in the hazardous materials technician level.

Understand hazard and risk techniques.

Be able to perform advanced control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.

Understand and implement decontamination procedures.

Understand and implement termination procedures.

Understand the behavioral and psychological symptoms and behavior.

Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, State, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the employer shall so certify:

MOW nowtmPtement meIOCal emergncy res>onse p.

Under>ttt'd class!facion, idenli lbtion and vemeation of known and unlulowr materials by u\*>g o<lvaned suNey in\$ttments and equipment.

Know thestateemergoccy response plan.

Be able tD select a!d useproer SPecialized cherrkal >ersonal prote:tiVe equipment orovided to the ha:rrdous mate<ialsS!>CdaillSt

Unden!Md in-deptlt hazard and risk IEchniques.

Be able ID perform!i>ec lalled conO'ol, containment, and/or co"llOCOlett operations willn !he apabillses of :he resour.es illnd personal protective eallpment available.

Be able lX> determine and in!plement decontzmioaliOn procedures.

Have ille ability to develop a Sil2 taffJjf and controlplan.

Und...sta>d cher.ical, radolglcal and toxicological terrMology and bellavior.

**1910.120(a)(1)**

On scene incident commander. Incident commanders, who wiR assurMcontrol<f the incident sc"e beyond the first responder awareness level, shall receive a  
■ 24 hours of training equal to the first responder operations level and in addition have co1111>ellncy in ille folloWng al!!lls and the employer shaD so-certify:

Know and be able to l"npiemellt the err()loyer's incident command systllm.

Know !leW !b> impi<imett ille employer's emergency response plan.

J<now and understand the n mrd and risks assocllled with employees working in chemiCal proactive clottli:ig.

Know how to lmpemellt the local emergency response plan.

Know of lite state emergency response olan and of tile Federal Regional Res;>on, e Team.

l<now and <nderstand tte "1PO1!llnce of dco ntrrolation procedures.



Trainers. Trainers who teach MY of ille above tt;:ning subjects shall have satisfatory complellld a o-aining colfr9c for teaching tbe sub] tsllley are expec to illi'ch, such as Jhe courses offered by the U.S. Naonal Fire Academy, or illey ShaJ have the training and/or a<:ademic credenllals and instructional experience necessary to demonst racompetznt instructional skllls and a good command of the subject ma of the courses!!ley are ID !eich.

**1910.120(a)(2)**

**1910.120(a)(2)(i)**

Those employees wll to are trained n lltordanc wllt> paragraph (q)(6) of this section shall receive annual refre!lier training or sufficient content and duration to mah'ain their competencies, or stall demonst raE competency If ille ho" areas at least yearly .

A statement shaD be trlllde of the o-aiting or compewncy, and i b Slltment of compet!ncy IS mGde, tile employer s!>a keep a record of the methodology used to demonst rall competm\_cy .

**1910.120(a)(3)**

Medical surveillance and consubeton.

**1910.120(b)(1)**

Members of "" organized and ocsignated HAZMAT team and halal'dous materials specialist shall receive a base eJlySICalexamination and be provided with medicalsurveit,lnce as required In par raph (f) or illIS section.

Any emergency response employees who exhibit signs or sympto!T>S which have resulted from e.oosure to hazardous substmCCS\* during the cou!le of an eme-gency incident either llmedialBy or subsequently , shall be provided wcll; m<ldical consultation as required In paragraph (1)(3X1) of !his section.

Che<TJ C41 protective clothing. Chemical protective dolling and equ ?ment to l>e used by orgamzed ana deligr. 2!Ed HAZMAT illam members, or ID beused by Italarous, er. alsspec shall meet the requirements of p11f1!9raphs (gX3) through (5) of h: ssection.

**1910.120(c)(1)**

Post emergency response operations. Upon completion of the emergency response if it is de!l'rmined that it is necessary ID remove hmar dous substances, nooth hazards ood materials conroiTinatEd with them (such as contamnat<d so d or other elements of the nab.Jral environment) n'om the site of tbe incident, the employer conducting tile clean-up snail comply wllt lone of the fQlowlg \*

**1910.120(c)(2)**

Meet all the reQUIREments of paragraphs (b) tl through (o) of illIS section; or

**1910.120(c)(3)**

Where the dean-up ls done on p t property USing plant or workplace, employ. ... , sud employees shall ave comQleJld t: e cning requirements of ille tototowng: 29CFR 190.38, 191.0.1.34, 1910.1200 and of 11er approp"llle illiffett: d health training mad< necessary by the - illey 11re e>> e In p<llfurn sudl as pet\$Cnal prod:lctive ealupment and de<ontaminabon ptocedures.

APPENDICES TO §1910.120 • HAZ,t.RDOUS WASTE OPERAnONS ANDEMERGENCY RESPONSE

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## Occupational Safety & Health Administration We Can Help

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- Part Number: 1910
- Part title: Occupational Safety and Health Standards
- Subpart: H
- Subpart title: Hazardous Materials
- Standard Number: 1910.120 App A
- Title: Personal protective equipment test methods.

This appendix sets forth the non-mandatory examples of tests which may be used to evaluate compliance with paragraphs 1910.120(g)(4)(ii) and (iii). Other tests and other challenge agents may be used to evaluate compliance.

#### A. Totally-Encapsulating chemical protective suit pressure test

##### 1.0 - Scope

1.1 This practice measures the ability of a gas tight totally-encapsulating chemical protective suit material, seams, and closures to maintain a fixed positive pressure. The results of this practice allow the gas tight integrity of a total-encapsulating chemical protective suit to be evaluated.

1.2 Resistance of the suit materials to permeation, penetration, and degradation by specific hazardous substances is not determined by this test method.

##### 2.0 - Description of Terms

2.1 "Totally-encapsulated chemical protective suit (TECP suit)" means a full body garment which is constructed of protective clothing materials; covers the wearer's torso, head, arms, legs and respirator; may cover the wearer's hands and feet with tightly attached gloves and boots; completely encloses the wearer and respirator by itself or in combination with the wearer's gloves and boots.

2.2 "Protective clothing material" means any material or combination of materials used in an item of clothing for the purpose of isolating parts of the body from direct contact with a potentially hazardous liquid or gaseous chemicals.

2.3 "Gas tight" means, for the purpose of the test method, the limited flow of a gas under pressure from the inside of a TECP suit to atmosphere at a prescribed pressure and time interval.

##### 3.0 - Summary of test method

3.1 The TECP suit is visually inspected and modified for the test. The test apparatus is attached to the suit to permit inflation to the pre-test suit expansion pressure for removal of suit wrinkles and creases. The pressure is lowered to the test pressure and monitored for three minutes. If the pressure drop is excessive, the TECP suit fails the test and is removed from service. The test is repeated after leak location and repair.

##### 4.0 - Required Supplies

4.1 Source of compressed air.

4.2 Test apparatus for suit testing including a pressure measurement device with a sensitivity of at least 1/4-inch water gauge.

4.3 Vent valve closures or sealing tape.

4.4 Soapy water solution and soft brush.

4.5 Stop watch or appropriate timing device.

##### 5.0 - Safety Precautions

5.1 Care shall be taken to provide the correct pressure safety devices required for the source of compressed air used.

##### 6.0 - Test Procedure

6.1 Prior to each test, the tester shall perform a visual inspection of the suit. Check the suit for seam integrity by visually examining the seams and gently pulling on the seams. Ensure that all air supply lines, fittings, visor, zippers, and valves are secure and show no signs of deterioration.

6.1.1 Seal off the vent valves along with any other normal inlet or exhaust points (such as umbilical air line fittings or face piece opening) with tape or other appropriate means (caps, plugs, fixture, etc.). Care should be exercised in the sealing process not to damage any of the suit components.

6.1.2 Close all closure assemblies.

6.1.3 Prepare the suit for inflation by providing an improvised connection point on the suit for connecting an airline. Attach the pressure test apparatus to the suit to permit suit inflation from a remote source. Inflate the suit with nitrogen gas until the pressure inside the suit is equal to the pre-test expansion pressure (A). The ending suit pressure (C) shall be no less than 80 percent of the test pressure (B); i.e., the pressure drop shall not exceed 20 percent of the test pressure (B). If the ending suit pressure (C) is less than 80 percent of the test pressure (B), the suit shall be identified as failing the test. When possible, the specific leak location shall be identified in the test records. Retest pressure data shall be recorded as an additional test.

6.1.4 The pre-test expansion pressure (A) and the suit test pressure (B) shall be supplied by the suit manufacturer, but in no case shall they be less than; (A) = 3 inches water gauge and (B) = 2 inches water gauge. The ending suit pressure (C) shall be no less than 80 percent of the test pressure (B); i.e., the pressure drop shall not exceed 20 percent of the test pressure (B).

6.1.5 Inflate the suit until the pressure inside is equal to pressure (A), the pre-test expansion suit pressure. Allow at least one minute to fill out the wrinkles in the suit. Release sufficient air to reduce the suit pressure to pressure (B), the suit test pressure. Begin timing. At the end of three minutes, record the suit pressure as pressure (C), the ending suit pressure. The difference between the suit test pressure and the ending suit test pressure (B - C) shall be defined as the suit pressure drop.

6.1.6 If the suit pressure drop is more than 20 percent of the suit test pressure (B) during the three minute test period, the suit fails the test and shall be removed from service.

#### 7.0- Retest Procedure

7.1 If the suit fails the test check for leaks by inflating the suit to pressure (A) and brushing or wiping the entire suit (including seams, closures, lens gaskets, glove-to-sleeve joints, etc.) with a mild soap and water solution. Observe the suit for the formation of soap bubbles, which is an indication of a leak. Repair all identified leaks.

7.2 Retest the TECP suits as outlined in Test procedure 6.0.

#### 8.0- Report

8.1 Each TECP suit tested by this practice shall have the following information recorded.

8.1.1 Unique identification number, identifying brand name, date of purchase, material of construction, and unique fit features; e.g., special breathing apparatus.

8.1.2 The actual values for test pressures (A), (B), and (C) shall be recorded along with the specific observation times. If the ending pressure (C) is less than 80 percent of the test pressure (B), the suit shall be identified as failing the test. When possible, the specific leak location shall be identified in the test records. Retest pressure data shall be recorded as an additional test.

8.1.3 The source of the test apparatus used shall be identified and the sensitivity of the pressure gauge shall be recorded.

8.1.4 Records shall be kept for each pressure test even if repairs are being made at the test location.

#### caution

Visually inspect all parts of the suit to be sure they are positioned correctly and secured tightly before putting the suit back into service. Special care should be taken to examine each exhaust valve to make sure it is not blocked.

Care should also be exercised to assure that the inside and outside of the suit is completely dry before it is put into storage.

#### B. Totally-encapsulated chemical protective suit qualitative leak

#### test

##### 1.0- Scope

1.1 This practice semi-qualitatively tests gas tight totally-encapsulating chemical protective suit integrity by detecting inward leakage of ammonia vapor. Since no modifications are made to the suit to carry out this test, the results from this practice provide a realistic test for the integrity of the entire suit.

1.2 Resistance of the suit materials to permeation, penetration, and degradation is not determined by this test method. ASTM test methods are available to test suit materials for these characteristics and the tests are usually conducted by the manufacturers of the suits.

##### 2.0- Description of Terms

2.1 "Totally-encapsulated chemical protective suit (TECP suit)" means a full body garment which is constructed of protective clothing materials; covers the wearer's torso, head, arms, legs and respirator may cover the wearer's hands and feet with tightly attached gloves and boots; completely encloses the wearer and respirator by itself or in combination with the wearer's gloves, and boots.

2.2 "Protective dotting material" means any material or combination of materials used in an item of clothing for the purpose of isolating parts of the body from direct contact with a potentially hazardous liquid or gaseous chemicals.

2.3 "Gas tight" means, for the purpose of this practice the limited flow of a gas under pressure from the inside of a TECP suit to atmosphere at a prescribed pressure and time interval.

2.4 "Intrusion Coefficient" means a number expressing the level of protection provided by a gas tight totally-encapsulating chemical protective suit. The intrusion coefficient is calculated by dividing the test room challenge agent concentration by the concentration of challenge agent found inside the suit. The accuracy of the intrusion coefficient is dependent on the challenge agent monitoring methods. The larger the intrusion coefficient the greater the protection provided by the TECP suit.

##### 3.0- summary of recommended practice

3.1 The volume of concentrated aqueous ammonia solution (ammonia hydroxide,  $\text{NH}_4\text{OH}$ ) required to generate the test atmosphere is

determined using the directions outlined in 6.1. The suit is donned by a person wearing the appropriate respiratory equipment (either a self-contained breathing apparatus or a supplied air respirator) and worn inside the enclosed test room. The concentrated aqueous ammonia solution is taken by the suited individual into the test room and poured into an open plastic pan. A two-minute evaporation period is observed before the test room concentration is measured using a high range ammonia length of stain detector tube. When the ammonia vapor reaches a concentration of between 1000 and 1200 ppm, the suited individual starts a standardized exercise protocol. The stress and flex the suit. After this protocol is completed the test room concentration is measured again. The suited individual exits the test room and his stand-by person measures the ammonia concentration inside the suit using a low range ammonia length of stain detector tube or other more sensitive ammonia detector. A stand-by person is required to observe the test individual during the test procedure, aid the person in donning and doffing the TECP suit; and monitor the suit interior. The intrusion coefficient of the suit can be calculated by dividing the average test area concentration by the interior suit concentration. A colorimetric indicator strip of bromophenolblue is placed on the inside of the suit face piece lenses so that the suited individual is able to detect a color change and know if the suit has a significant leak. If a color change is observed the individual should leave the test room immediately.

#### 4.0 - Required supplies

4.1 A supply of concentrated aqueous ammonium hydroxide (58 percent by weight).

4.2 A supply of bromophenol/blue indicating paper, sensitive to 5-10 ppm ammonia or greater over a two-minute period of exposure. [pH 30 (yellow) to pH 4.6 (blue)]

4.3 A supply of high range (0.5- 10 volume percent) and low range (5 - 700 ppm) detector tubes for ammonia and the corresponding sampling pump. More sensitive ammonia detectors can be substituted for the low range detector tubes to improve the sensitivity of the practice.

4.4 A plastic pan (PVC) at least 12" x 14" x 1" and a half pint plastic container (PVC) with tightly closing lid.

4.5 A graduated cylinder or other volumetric measuring device of at least 50 milliliters in volume with an accuracy of at least + or - 1 milliliters.

#### 5.0- Safety precautions

5.1 Concentrated aqueous ammonium hydroxide, NH<sub>4</sub>OH, is a corrosive volatile liquid requiring eye, skin, and respiratory protection. The person conducting test shall review the MSDS for aqueous ammonia.

5.2 Since the established permissible exposure limit for ammonia is 35 ppm as a 15 minute STEL, only persons wearing a positive pressure self-contained breathing apparatus or a supplied air respirator shall be in the chamber. Normally only the person wearing the total encapsulating suit will be inside the chamber. A stand-by person shall have a positive pressure self-contained breathing apparatus, or a supplied air respirator, available to enter the test area should the suited individual need assistance.

5.3 A method to monitor the suited individual must be used during this test. Visual contact is the simplest but other methods using communication devices are acceptable.

5.4 The test room shall be large enough to allow the exercise protocol to be carried out and then to be ventilated to allow for easy exhaust of the ammonia test atmosphere after the test(s) are completed.

5.5 Individuals shall be medically screened for the use of respiratory protection and checked for allergies to ammonia before participating in this test procedure.

#### 5.0 - Test procedure

5.1.1 Measure the test area to the nearest foot and calculate its volume in cubic feet. Multiply the test area volume by 0.2 milliliters of concentrated aqueous ammonia solution per cubic foot of test area volume to determine the approximate volume of concentrated aqueous ammonia required to generate 1000 ppm in the test area.

5.1.2 Measure this volume from the supply of concentrated ammonia and place it into a dosed plastic container.

5.1.3 Place the container, several high range ammonia detector tubes, and the pump in the clean test pan and locate it near the test area entry door so that the suited individual has easy access to these supplies.

6.2.1 In a non-contaminated atmosphere, open a pre-sealed ammonia indicator strip and fasten one end of the strip to the inside of suit face shield lens where it can be seen by the wearer. Moisten the indicator strip with distilled water. Care shall be taken not to contaminate

the detector part of the indicator paper by touching it. A small piece of masking tape or equivalent should be used to attach the indicator strip to the interior of the suit face shield.

6.2.2 If problems are encountered with this method of attachment, the indicator strip can be attached to the outside of the respirator face piece being used during the test.

6.3 Don the respiratory protective device normally used with the suit, and then don the TECP suit to be tested. Check to be sure all openings which are intended to be sealed (zippers, gloves, etc.) are completely sealed. DO NOT, however, plug off any venting valves.

6.4 Step into the enclosed test room such as a closet, bathroom, or test booth, equipped with an exhaust fan. No air should be exhausted from the chamber during the test because this will dilute the ammonia challenge concentrations.

6.5 Open the container with the pre-measured volume of concentrated aqueous ammonia within the enclosed test room, and pour the liquid into the empty plastic test pan. Wait two minutes to allow for adequate volatilization of the concentrated aqueous ammonia. A small mixing fan can be used near the evaporation pan to increase the evaporation rate of ammonia solution.

6.6 After two minutes a determination of the ammonia concentration within the chamber should be made using the high range colorimetric detector tube. A concentration of 1000 ppm ammonia or greater shall be generated before the exercises are started.

6.7 To test the integrity of the suit the following four minute exercise protocol should be followed:

6.7.1 Raising the arms above the head with at least 15 raising motions complete in one minute,

6.7.2 Walking in place for one minute with at least 15 raising motions of each leg in a one-minute period.

6.7.3 Touching the toes with at least 10 complete motions of the arms from above the head to touching of the toes in a one-minute period.

6.7.4 Knee bends with at least 10 complete standing and squatting motions in a one-minute period.

6.8 If at any time during the test the colorimetric indicating paper should change colors, the test should be stopped and section 6.10 and 6.12 initiated (See 4.2).

6.9 After completion of the test exercise, the test area concentration should be measured again using the high range colorimetric detector tube.

6.10 Exit the test area.

6.11 The opening created by the suit zipper or other appropriate suit penetration should be used to determine the ammonia concentration in the suit with the low range length of stain detector tube or other ammonia monitor. The internal TECP suit air should be sampled far enough from the enclosed test area to prevent a false ammonia reading.

6.12 After completion of the measurement of the suit interior ammonia concentration the test is concluded and the suit is doffed and the respirator removed.

6.13 The ventilating fan for the test room should be turned on and allowed to run for enough time to remove the ammonia gas. The fan shall be vented to the outside of the building.

6.14 Any detectable ammonia in the suit interior (five ppm (NH<sub>3</sub>)) or more for the length of stain detector tube indicates the suit has failed the test. When other ammonia detectors are used a lower level of detection is possible, and it should be specified as the pass/fail criteria.

6.15 By following this test method, an intrusion coefficient of approximately 200 or more can be measured with the suit in a completely operational condition. If the coefficient is 200 or more, then the suit is suitable for emergency response and field use.

7.0 - Retest procedures

7.1 If the suit fails this test, check for leaks by following the pressure test in test A above.

7.2 Retest the TECP suit as outlined in the test procedure 6.0.

8.0 - Report

8.1 Each gas tight totally-encapsulating chemical protective suit tested by this practice shall have the following information recorded.

8.1.1 Unique identification number identifying brand name, date of purchase, material of construction, and unique suit features; e.g., special breathing apparatus.

8.1.2 General description of test room used for test

8.1.3 Brand name and purchase date of ammonia detector strip and color change date.

8.1.4 Brand name, sampling range, and expiration date of the length of stain ammonia detector tubes. The brand name and model of the sampling pump should also be recorded. If another type of ammonia detector is used, it should be identified along with its minimum detection limit for ammonia.

8.1.5 Actual test results shall list the two test area concentrations, their average, the interior suit concentration, and the calculated intrusion coefficient. Retest data shall be recorded as an additional test.

8.2 The evaluation of the data shall be specified as "suit passed" or "suit failed," and the date of the test. Any detectable ammonia (five ppm or greater for the length of stain detector tube) in the suit interior indicates the suit has failed this test. When other ammonia detectors are used, a lower level of detection is possible and it should be specified as the pass/fail criteria.

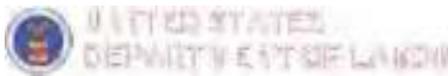
Caution

Visually inspect all parts of the suit to be sure they are positioned correctly and secured tightly before putting the suit back into service. Special care should be taken to examine each exhaust valve to make sure it is not blocked.

Care should also be exercised to assure that the inside and outside of the suit is completely dry before it is put into storage.

Next Standard (1910.120 App B)

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<b>Part number:</b>	1910
<b>Part Title:</b>	Occupational Safety and Health Standards
<b>Subpart:</b>	H
<b>Subpart Title:</b>	Hazardous Materials
<b>Standard Title:</b>	1910.120 App B
<b>Title:</b>	General description and discussion of the levels of protection and protective gear

This appendix sets forth information about personal protective equipment (PPE) protection levels which may be used to assist employers in complying with the PPE requirements of this section.

As required by the standard, PPE must be selected which will protect employees from the specific hazards which they are likely to encounter during their work on-site.

Selection of the appropriate PPE is a complex process which should take into consideration a variety of factors. Key factors involved in this process are identification of the hazards, or suspected hazards; their routes of potential hazard to employees (inhalation, skin absorption, ingestion, and eye or skin contact); and the performance of the PPE materials (and seams) in providing a barrier to these hazards. The amount of protection provided by PPE is material-hazard specific. That is, protective equipment materials will protect well against some hazardous substances and poorly, or not at all, against others. In many instances, protective equipment materials cannot be found which will provide continuous protection from the particular hazardous substance. In these cases the breakthrough time of the protective material should exceed the work durations. (end of sentence deleted- FR 1407-1 Apr 13, 1990)

Other factors in this selection process to be considered are matching the PPE to the employee's work requirements and task-specific conditions. The durability of PPE materials, such as tear strength and seam strength, should be considered in relation to the employee's tasks. The effects of PPE in relation to heat stress and task duration are a factor in selecting and using PPE. In some cases layers of PPE may be necessary to provide sufficient protection, or to protect expensive PPE inner garments, suits or equipment.

The more that is known about the hazards at the site, the easier the job of PPE selection becomes. As more information about the hazards and conditions at the site becomes available, the site supervisor can make decisions to upgrade or down-grade the level of PPE protection to match the tasks at hand.

The following are guidelines which an employer can use to begin the selection of the appropriate PPE. As noted above, the site information may suggest the use of combinations of PPE selected from the different protection levels (i.e., A, B, C, or D) as being more suitable to the hazards of the work. It should be cautioned that the listing below does not fully address the performance of the specific PPE material in relation to the specific hazards at the job site, and that PPE selection, valuation and re-selection is an ongoing process until sufficient information about the hazards and PPE performance is obtained.

Part A. Personal protective equipment is divided into four categories based on the degree of protection afforded. (See Part A of this appendix for further explanation of Levels A, B, C, and D hazards.)

I. Level A - To be selected when the greatest level of skin, respiratory, and eye protection is required.

The following constitute Level A equipment; it may be used as appropriate:

1. Positive pressure, full face-piece self-contained breathing apparatus (SCM), or positive pressure supplied air respirator with escape SCBA, approved by the National Institute for Occupational Safety and Health (NIOSH).
2. Totally-encapsulating chemical-protective suit
3. Coveralls (I)
4. Long underwear (I)
5. Goves, outer, chemical-resistant
6. Goves inner, chemical-resistant
7. Boots, chemical-resistant, steel toe and shank.
8. Hard hat (under suit) (I)
9. Disposable protective suit: gloves and boots (depending on suit construction, may be worn over totally-encapsulating suit).

Footnote (1) Optional, as applicable.

II. Level B • The highest level of respiratory protection is necessary but a lesser level of skin protection is needed.

The following constitute Level B equipment; it may be used as appropriate.

1. SCBA (NIOSH approved).
2. Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls).
3. Coveralls.(I)
4. Gloves, outer, chemical-resistant
5. Gloves, inner, chemical-resistant
6. Boots, outer, chemical-resistant steel toe and shank.
7. Boot-covers, outer, chemical-resistant (disposable).(I)
8. Hard hat(I)
9. [Reserved]
10. Face shield.(I)

Footnote(1) Optional, as applicable.

M. Level C- The concentration(s) and type(s) of airborne substance(s) is known and the criteria for using air purifying respirators are met

The following constitute Level C equipment; it may be used as appropriate,

1. Full-face or half-mask, air purifying respirators (NIOSH approved).
2. Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls).
3. Coveralls.(I)
4. Gloves, outer, chemical-resistant
5. Gloves, inner, chemical-resistant
6. Boots (outer), chemical-resistant steel toe and shank.(I)
7. Boot-covers, outer, chemical-resistant (disposable).(I)
8. Hard hat(I)
- 9- Escape mask.(I)
10. Face shield.(I)

Footnote(1) Optional, as applicable.

IV, Level O- A work uniform affording minimal protection: used for nuisance contamination only.

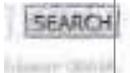
The following constitute Level O equipment; it may be used as appropriate:

1. Coveralls.
2. Gloves.(I)
3. Boots/shoes, chemical-resistant steel toe and shank.
4. Boots, outer, chemical-resistant (disposable).(I)
5. Safety glasses or chemical splash goggles.(1)
6. Hard hat(1)
7. Escape mask.(I)
8. Face shield.(1)

Footnote(1) Optional, as applicable.

Part B. The types of hazards for which levels A, B, C, and D protection are appropriate are described below:





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1. Occupational Safety and Health Program. Each hazardous waste site clean-up effort will require a site specific occupational safety and health program headed by the site coordinator or the employer's representative. The purpose of the program will be the protection of employees at the site and will be an extension of the employer's overall safety and health program work. The program will need to be developed before work begins on the site and implemented as work proceeds as stated in paragraph (b). The program is to facilitate coordination and communication of safety and health issues among personnel responsible for the various activities which will take place at the site. It will provide the overall means for planning and implementing the needed safety and health training and job orientation of employees who will be working at the site. The program will provide the means for identifying and controlling worksite hazards and the means for monitoring program effectiveness. The program will need to cover the responsibilities and authority of the site coordinator for the safety and health of employees at the site, and the relationships with contractors or support services as to what each employer's safety and health responsibilities are for their employees on the site. Each contractor on the site needs to have its own safety and health program so structured that it will smoothly interface with the program of the site coordinator or principal contractor.

Also those employers involved with treating, storing or disposal of hazardous waste as covered in paragraph (p) must have implemented a safety and health program for their employees. This program is to include the hazard communication program required in paragraph (p)(1) and the training required in paragraphs (p)(7) and (p)(S) as parts of the employers comprehensive overall safety and health program. This program is to be in writing.

Each site safety and health program will need to include the following: (1) Policy statements of the line of authority and accountability for implementing the program, the objectives of the program and the role of the site safety and health officer or manager and staff; (2) means or methods for the development of procedures for identifying and controlling workplace hazards at the site; (3) means or methods for the development and communication to employees of the various plans, work rules, standard operating procedures and practices that pertain to individual employees and supervisors; (4) means for the training of supervisors and employees to develop the needed skills and knowledge to perform their work in a safe and healthful manner; (5) means to anticipate and prepare for emergency situations and; (6) means for obtaining information feedback to aid in evaluating the program and for improving the effectiveness of the program. The management and employees should be trying continually to improve the effectiveness of the program thereby enhancing the protection being afforded those working on the site.

Accidents on the site or workplace should be investigated to provide information on how such occurrences can be avoided in the future. When injuries or illnesses occur on the site or workplace, they will need to be investigated to determine what needs to be done to prevent this incident from occurring again. Such information will need to be listed as feedback on the effectiveness of the program and the information turned into positive steps to prevent any recurrence. Receipt of employee suggestions or complaints relating to safety and health issues involved with site activities is also a feedback mechanism that can be used effectively to improve the program and may serve in part as an evaluative tool(s).

For the development and implementation of the program to be the most effective, professional safety and health personnel should be used.

Certified Safety Professionals, Board Certified Industrial Hygienists or Registered Professional Safety Engineers are good examples of professional stature for safety and health managers who will administer the employer's program.

2. Training. The training programs for employees subject to the requirements of paragraph (e) of this standard should address: the safety and health hazards employees should expect to find on hazardous waste clean-up sites; what control measures or techniques are effective for those hazards; what monitoring procedures are effective in characterizing exposure levels; what makes an effective employer's safety and health program; what a site safety and health plan should include; hands on training with personal protective equipment and clothing they may be expected to use; the contents of the OSHA standard relevant to the employee's duties and function; and employees responsibilities under OSHA and other regulations. Supervisors will need training in their responsibilities under the safety and health program and its subject areas such as the spill containment program, the personal protective equipment program, the medical surveillance program, the emergency response plan and other areas.

The training programs for employees subject to the requirements of paragraph (p) of this standard should address: the employer's safety and health program elements impacting employees; the hazard communication program; the hazards and the controls for such hazards that employees need to know for their job duties and functions. All require annual refresher training.

The training programs for employees covered by the requirements of paragraph (q) of this standard should address those responsibilities required for the various levels of response such as: the hazards associated with hazardous substances; hazard identification and awareness; notification of appropriate personnel; the need for and use of personal protective equipment including respirators; the decontamination procedures to be used; preplanning activities for hazardous substance incidents including the emergency response plan; company standard operating procedures for hazardous substance emergency responses; the use of the incident command system and other subjects. Hands-on training should be stressed whenever possible. Critiques done after an incident which include an evaluation of what worked and what did not and how could the incident be better handled the next time may be counted as training time.

For hazardous materials specialists (usually members of hazardous materials teams), the training should address the care, use and/or



esang oi cnem1ca1 prorecove aotn1ng 1naumng mtany encapst.Daang SUits,tne mernca1 surveillance program, tne s anoaro operaang procedures for the hazardous materials team including the use of plugging and patching equipment and other subject areas.

Officers and leaders who may be expected to be in charge at an incident should be fully knowledgeable of their company's incident command system. They should know where and how to obtain additional assistance and be familiar with the local district's emergency response plan and the state emergency response plan.

Specialist employees such as technical experts, medical experts or environmental experts that work with hazardous materials in their regular jobs, who may be sent to the incident scene by the shipper, manufacturer or governmental agency to advise and assist the person in charge of the incident should have training on an annual basis. Their training should include the care and use of personal protective equipment including respirators; knowledge of the incident command system and how they are to relate to it; and those areas needed to keep them current in their respective field as it relates to safety and health involving specific hazardous substances.

Those skilled support personnel, such as employees who work for public works departments or equipment operators who operate bulldozers, sand trucks, backhoes, etc., who may be called to the incident scene to provide emergency support assistance, should have at least a safety and health briefing before entering the area of potential or actual exposure. These skilled support personnel, who have not been a part of the emergency response plan and do not meet the training requirements, should be made aware of the hazards they face and should be provided all necessary protective clothing and equipment required for their tasks.

There are two National Fire Protection Association standards. NFPA 472 - "Standard for Professional Competence of Responders to Hazardous Material Incidents" and NFPA 471 - "Recommended Practice for Responding to Hazardous Material Incidents", which are excellent resource documents to aid fire departments and other emergency response organizations in developing their training program materials. NFPA 472 provides guidance on the skills and knowledge needed for first responder awareness level, first responder operations level, hazmat technicians, and hazmat specialist. It also offers guidance for the officer/corps who will be in charge of hazardous substance incidents.

3. Decontamination. Decontamination procedures should be tailored to the specific hazards of the site and will vary in complexity and number of steps, depending on the level of hazard and the employee's exposure to the hazard. Decontamination procedures and PPE decontamination methods will vary depending upon the specific substance, since one procedure or method will not work for all substances. Evaluation of decontamination methods and procedures should be performed, as necessary, to assure that employees are not exposed to hazards by reusing PPE. References in Appendix D may be used for guidance in establishing an effective decontamination program. In

addition, the U.S. Coast Guard's Manual, "Policy Guidance for Response to Hazardous Chemical Releases," U.S. Department of Transportation, Washington, DC (COMDTINST M16465.30) is a good reference for establishing an effective decontamination program.

4. Emergency response plans. States, along with designated districts within the states, will be developing or have developed emergency response plans. These state and district plans should be utilized in the emergency response plans called for in the standard. Each employer should assure that its emergency response plan is compatible with the local plan. The major reference being used to aid in developing the state and local district plans is the Hazardous Materials Emergency Planning Guide, NRT - 1. The current Emergency Response Guidebook from the U.S. Department of Transportation, CMA's CHEMTREC and the Fire Service Emergency Management Handbook may also be used as resources.

Employers involved with treatment, storage, and disposal facilities for hazardous waste, which have the required contingency plan called for by their permit, would not need to duplicate the same planning elements. Those items of the emergency response plan may be substituted into the emergency response plan required in 1910.120 or otherwise kept together for employer and employee use.

5. Personal protective equipment programs. The purpose of personal protective clothing and equipment (PPE) is to shield or isolate individuals from the chemical, physical, and biological hazards that may be encountered at a hazardous substance site.

As discussed in Appendix B, no single combination of protective equipment and clothing is capable of protecting against all hazards. Thus PPE should be used in conjunction with other protective methods and its effectiveness evaluated periodically.

The use of PPE can itself create significant worker hazards, such as heat stress, physical and psychological stress, and impaired vision, mobility and communication. For any given situation, equipment and clothing should be selected that provide an adequate level of protection. However, over-protection, as well as under-protection, can be hazardous and should be avoided where possible. Two basic objectives of any PPE program should be to protect the wearer from safety and health hazards, and to prevent injury to the wearer from incorrect use and/or malfunction of the PPE. To accomplish these goals, a comprehensive PPE program should include hazard identification, medical monitoring, environmental surveillance, selection, use, maintenance, and decontamination of PPE and its associated training.

The written PPE program should include policy statements, procedures, and guidelines. Copies should be made available to all employees, and a reference copy should be made available at the worksite. Technical data on equipment, maintenance manuals, relevant regulations, and other essential information should also be collected and maintained.

6. Incident command system (ICS). Paragraph 1910.120(q)(3)(ii) requires the implementation of an ICS. The ICS is an organized approach to effectively control and manage operations at an emergency incident. The individual in charge of the ICS is the senior official responding to the incident. The ICS is not much different than the "command post" approach used for many years by the fire service. During large complex fires involving several companies and many pieces of apparatus, a command post would be established. This enabled one individual to be in charge of managing the incident, rather than having several officers from different companies making separate, and sometimes conflicting, decisions. The individual in charge of the command post would delegate responsibility for performing various tasks to subordinate officers. Additionally, all communications were routed through the command post to reduce the number of radio transmissions and eliminate confusion. However, strategy, tactics, and all decisions were made by one individual.

**The ICS is a very similar system. Accept it is implemented for emergency response to all incidents, both large and small; that involve hazardous substances.**

For a small incident, the individual in charge of the ICS may perform many tasks of the ICS. There may not be any, or little, delegation of tasks to subordinates. For example, in response to a small incident, the individual in charge of the ICS, in addition to normal command activities, may become the safety officer and may designate only one employee (with proper equipment) as a backup to provide assistance if needed. OSHA does recommend, however, that at least two employees be designated as back-up personnel since the assistance needed may include rescue.

To illustrate the operation of the ICS, the following scenario might develop during a small incident, such as an overturned tank truck with a small spill of flammable liquid.

The first responding senior officer would implement and take command of the ICS. That person would set up the incident and determine if additional personnel and apparatus were necessary; would determine what actions to take to control the leak; and determine the proper level of personal protective equipment. If additional assistance is not needed, the individual in charge of the ICS would implement actions to stop and control the leak using the fewest number of personnel that can effectively accomplish the tasks. The individual in charge of the ICS

then would designate himself as the safety officer and two other employees as a back-up. In case rescue may become necessary. In this scenario, decontamination procedures would not be necessary.

A large complex incident may require many employees and difficult, time-consuming efforts to control. In these situations, the individual in charge of the ICS will want to delegate different tasks to subordinates in order to maintain a span of control that will keep the number of subordinates at a manageable level, that are reporting to a manageable level.

Delegation of task at large incidents may be by location, where the incident scene is divided into sectors, and subordinate officers coordinate activities within the sector that they have been assigned.

Delegation of tasks can also be by function. Some of the functions that the individual in charge of the ICS may want to delegate at a large incident are: medical services; evacuation; water supply; resources (equipment, apparatus); media relations; safety; and, site control (integrate activities with police for crowd and traffic control). Also for a large incident, the individual in charge of the ICS will designate several employees as back-up personnel; and a number of safety officers to monitor conditions and recommend safety precautions.

Therefore, no matter what size or complexity an incident may be, by implementing an ICS there will be one individual in charge who makes the decisions and gives directions; and all actions, and communications are coordinated through one central point of command. Such a system should reduce confusion, improve safety, organize and coordinate actions, and should facilitate effective management of the incident.

**7. Site Safety and Control Plans.** The safety and security of response personnel and others in the area of an emergency response incident site should be of primary concern to the incident commander. The use of a site safety and control plan could greatly assist those in charge of assuring the safety and health of employees on the site.

A comprehensive site safety and control plan should include the following: summary analysis of hazards on the site and a risk analysis of those hazards; site map or sketch; site work zones (clean zone, transition or decontamination zone, work or hot zone); use of the buddy system; site communications; command post or command center; standard operating procedures and safe work practices; medical assistance and triage area; hazard monitoring plan (air contamination monitoring, etc.); decontamination procedures and area; and other relevant areas. This plan should be a part of the employer's emergency response plan or an extension of it to the specific site.

**8. Medical surveillance programs.** Workers handling hazardous substances may be exposed to toxic chemicals, safety hazards, biologic hazards, and radiation. Therefore, a medical surveillance program is essential to assess and monitor workers' health and fitness for employment in hazardous waste operations and during the course of work; to provide emergency and other treatment as needed; and to keep accurate records for future reference.

The Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities developed by the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), the U.S. Coast Guard (USCG), and the Environmental Protection Agency (EPA); October 1985 provides an excellent example of the types of medical testing that should be done as part of a medical surveillance program.

**9. New Technology and Spill Containment Programs.** Where hazardous substances may be released by spilling from a container that will expose employees to the hazards of the materials, the employer will need to implement a program to contain and control the spilled material. Diking and ditching, as well as use of absorbents like diatomaceous earth, are traditional techniques which have proven to be effective over the years. However, in recent years new products have come into the marketplace, the use of which complement and increase the effectiveness of these traditional methods. These new products also provide emergency responders and others with additional tools or agents to use to reduce the hazards of spilled materials.

These agents can be rapidly applied over a large area and can be uniformly applied or otherwise can be used to build a small dam, thus improving the workers' ability to control spilled material. These application techniques enhance the intimate contact between the agent and the spilled material allowing for the quickest effect by the agent or quickest control of the spilled material. Agents are available to solidify liquid spilled materials, to suppress vapor generation from spilled materials, and to do both. Some special agents, which when applied as recommended by the manufacturer, will react in a controlled manner with the spilled material to neutralize acids or caustics, or greatly reduce the level of hazard of the spilled material.

There are several modern methods and devices for use by emergency response personnel involved with spill control efforts to safely apply special control agents to control spilled material hazards. These include portable pressurized applicators similar to hand-held portable fire extinguishing devices, and nozzle and hose systems similar to portable fire fighting foam systems which allow the operator to apply the agent without having to come into contact with the spilled material. The operator is able to apply the agent to the spilled material from a remote position.

The solidification of liquids provides for rapid containment and isolation of hazardous substance spills. By directing the agent at run-off points or at the edges of the spill, the reactant solid will automatically create a barrier to slow or stop the spread of the material. Clean-up of hazardous substances is greatly improved when solidifying agents, acid or caustic neutralizers, or activated carbon absorbents are used. properly applied, these agents can totally solidify liquid hazardous substances or neutralize or absorb them, which results in materials which are less hazardous and easier to handle, transport, and dispose of. The concept of spill treatment, to create less hazardous substances, will improve the safety and level of protection of employees working at spill clean-up operations or emergency response operations to spills of hazardous substances.

The use of vapor suppression agents for volatile hazardous substances, such as flammable liquids and those substances, such as flammable liquids and those substances which present an inhalation hazard, is important for protecting workers. The rapid and uniform distribution of the agent over the surface of the spilled material can provide quick vapor knockdown. There are temporary and long-term foam-type agents which are effective on vapors and dusts, and activated carbon adsorption agents which are effective for vapor control and soaking-up of the liquid. The proper use of hose lines or hand-held portable pressurized applicators provides good mobility and permits the worker to deliver the agent from a safe distance without having to step into the untreated spilled material. Some of these systems can be recharged in the field to provide coverage of larger spill areas. In the design of a single-charged applicator unit, some of the more

effective agents can solidify the liquid nammable hazardous substances and at the same time elevate the flashpoint above 140 degrees F so the resulting substance may be handled as a nonhazardous waste material if it meets the U.S. Environmental Protection Agency's 40 CFR part 251 requirements (See particularly 261.21).

All workers performing hazardous substance spill control work are expected to wear the proper protective clothing and equipment for the materials present and to follow the employer's established standard operating procedures for spill control. All involved workers need to be trained in the established operating procedures; in the use and care of spill control equipment; and in the associated hazards and control of such hazards of spill containment work.

These new tools and agents are the things that employers will want to evaluate as part of their new technology program. The treatment of spills of hazardous substances or wastes at an emergency incident as part of the immediate spill containment and control efforts is sometimes acceptable to EPA and a permit exception is described in 40 CFR 264.1(g)(8) and 265.1(c)(11).

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- Part Title: Occupational Safety and Health Standards
- Subpart: H
- Subpart title: Hazardous Materials
- Standard Identifier: 1910.120 App E
- Title: Training Curriculum Guidelines - (Non-mandatory)

The following nonmandatory general criteria may be used for assistance in developing site-specific training curriculum used to meet the training requirements of 29 CFR 1910.120(e); 29 CFR 1910.120(p)(7), (p)(S)(II); and 29 CFR 1910.120(q)(6), (q)(7), and (q)(S). These are generic guidelines and they are not presented as a complete training curriculum for any specific employer. Site-specific training programs must be developed on the basis of a needs assessment of the hazardous waste site, RCRA/TSD, or emergency response operation in accordance with 29 CFR 1910.120.

It is noted that the legal requirements are set forth in the regulatory text of § 1910.120. The guidance set forth here presents a highly effective program that in the areas covered would meet or exceed the regulatory requirements. In addition, other approaches could meet the regulatory requirements.

#### Suggested General Criteria

##### Definitions:

"Competent" means possessing the skills, knowledge, experience, and judgment to perform assigned tasks or activities satisfactorily as determined by the employer.

"Demonstration" means the showing by actual use of equipment or procedures.

"Hands-on training" means training in a simulated work environment that permits each student to have experience performing tasks, making decisions, or using equipment appropriate to the job assignment for which the training is being conducted.

"Initial training" means training required prior to beginning work.

"Lecture" means an interactive discourse with a class lead by an instructor.

"Proficient" means meeting a stated level of achievement.

"Site-specific" means individual training directed to the operations of a specific job site.

"Training hours" means the number of hours devoted to lecture, learning activities, small group work sessions, demonstration, evaluations, or hands-on experience.

##### Suggested core criteria:

1. Training facility. The training facility should have available sufficient resources, equipment, and site locations to perform didactic and hands-on training when appropriate. Training facilities should have sufficient organization, support staff, and services to conduct training in each of the courses offered.

2. Training Director. Each training program should be under the direction of a training director who is responsible for the program. The Training Director should have a minimum of two years of employee education experience.

3. Instructors. Instructors should be deemed competent on the basis of previous documented experience in their area of instruction, successful completion of a "train-the-trainer" program specific to the topics they will teach, and an evaluation of instructional competence by the Training Director.

Instructors should be required to maintain professional competency by participating in continuing education or professional development programs or by completing successfully an annual refresher course and having an annual review by the Training Director.

The annual review by the Training Director should include observation of an instructor's delivery, a review of those observations with the trainer, and an analysis of any instructor or class evaluations completed by the students during the previous year.

4. Course materials. The Training Director should approve all course materials to be used by the training provider. Course materials should be reviewed and updated at least annually. Materials and equipment should be in good working order and maintained properly.

All written and audio-visual materials in training curricula should be peer reviewed by technically competent outside reviewers or by a standing advisory committee.

Reviews should possess expertise in the following disciplines where applicable; occupational health, industrial hygiene and safety, chemical/environmental engineering, employee education, or emergency response. One or more of the peer reviewers should be an

employee experience in the workplace: a. Includes the following: 1. A written test or a skills demonstration.

5. Students. The program for accepting students should include:

a. Assurance that the student is or will be involved in work where chemical exposures are likely and that the student possesses the skills necessary to perform the work.

b. A policy on the necessary medical clearance.

6. Ratios. Student-instructor ratios should not exceed 30 students per instructor. Hands-on activity requiring the use of personal protective equipment should have the following student-instructor ratios. For level C or Level D personal protective equipment the ratio should be 10 students per instructor, For Level A or Level B personal protective equipment the ratio should be 5 students per instructor.

7. Proficiency assessment. Proficiency should be evaluated and documented by the use of a written assessment and a skill demonstration selected and developed by the Training Director and training staff. The assessment and demonstration should evaluate the knowledge and individual skills developed in the course of training. The level of minimum achievement necessary for proficiency shall be specified in writing by the Training Director.

If a written test is used, there should be a minimum of 50 questions. If a written test is used in combination with a skills demonstration, a minimum of 25 questions should be used. If a skills demonstration is used, the tasks chosen and the means to rate successful completion should be fully documented by the Training Director.

The content of the written test or of the skill demonstration shall be relevant to the objectives of the course. The written test and skill demonstration should be updated as necessary to reflect changes in the curriculum and any update should be approved by the Training Director.

The proficiency assessment methods, regardless of the approach or combination of approaches used, should be justified, documented and approved by the Training Director.

The proficiency of those taking the additional courses for supervisors should be evaluated and documented by using proficiency assessment methods acceptable to the Training Director. These proficiency assessment methods must reflect the additional responsibilities borne by supervisory personnel in hazardous waste operations or emergency response.

8. Course certificate. Written documentation should be provided to each student who satisfactorily completes the training course. The documentation should include:

a. Student's name.

b. Course title.

c. Course date.

d. Statement that the student has successfully completed the course.

e. Name and address of the training provider.

f. An individual identification number for the certificate.

g. List of the levels of personal protective equipment used by the student to complete the course.

This documentation may include a certificate and an appropriate wallet-sized laminated card with a photograph of the student and the above information. When such course certificate cards are used, the individual identification number for the training certificate should be shown on the card.

9. Recordkeeping. Training providers should maintain records listing the dates courses were presented, the names of the individual course attendees, the names of those students successfully completing each course, and the number of training certificates issued to each successful student. These records should be maintained for a minimum of five years after the date an individual participated in a training program offered by the training provider. These records should be available and provided upon the student's request or as mandated by law.

10. Program quality control. The Training Director should conduct or direct an annual written audit of the training program. Program modifications to address deficiencies, if any, should be documented, approved, and implemented by the training provider. The audit and the program modification documents should be maintained at the training facility.

#### Suggested Program Quality Control Criteria

Factors listed here are suggested criteria for determining the quality and appropriateness of employee health and safety training for hazardous waste operations and emergency response.

#### A. Training Plan.

A. Quality and appropriateness of training program's development, instruction, distribution of course materials: a. Direct student training should be considered, including:

1. The duration of training, course content; and course schedules/agendas;

2. The different training requirements of the various target populations, as specified in the appropriate generic training curriculum;

3. The process for the development of curriculum, which includes appropriate technical input, outside review, evaluation, program pretesting.

4. The adequate and appropriate inclusion of hands-on, demonstration, and instruction methods:

5. Adequate monitoring of student safety, progress, and performance during the training.

B. Program management, Training Director, staff, and consultants.

Adequacy and appropriateness of staff performance and delivering an effective training program should be considered, including:

1. Demonstration of the training director's leadership in assuring quality of health and safety training.
2. Demonstration of the competency of the staff to meet the demands of delivering high quality hazardous waste employee health and safety training.
3. Organization charts establishing clear lines of authority.
4. Clearly defined staff duties including the relationship of the training staff to the overall program.
5. Evidence that the training organizational structure suits the needs of the training program.
6. Appropriateness and adequacy of the training methods used by the instructors.
7. Sufficiency of the time committed by the training director and staff to the training program.
8. Adequacy of the ratio of training staff to students.
9. Availability and commitment of the training program of adequate human and equipment resources in the areas of:
  - a. Health effects,
  - b. Safety,
  - c. Personal protective equipment (PPE),
  - d. Operational procedures,
  - e. Employee protection practices/procedures.
10. Appropriateness of management controls.
11. Adequacy of the organization and appropriate resources assigned to assure appropriate training.
12. In the case of multiple-site training programs, adequacy of satellite centers management

C. Training facilities and resources.

Adequacy and appropriateness of the facilities and resources for supporting the training program should be considered, including:

1. Space and equipment to conduct the training.
2. Facilities for representative hands-on training.
3. In the case of multiple-site programs, equipment and facilities at the satellite centers.
4. Adequacy and appropriateness of the quality control and evaluation program to account for instructor performance.
5. Adequacy and appropriateness of the quality control and evaluation program to ensure appropriate course evaluation, feedback, updating and corrective action.
6. Adequacy and appropriateness of disciplines and expertise being used within the quality control and evaluation program.
7. Adequacy and appropriateness of the role of student evaluations to provide feedback for training program improvement.

D. Quality control and evaluation.

Adequacy and appropriateness of quality control and evaluation plans for training programs should be considered, including:

1. A balanced advisory committee and/or competent outside reviewers to give overall policy guidance;
2. Clear and adequate definition of the composition and active programmatic role of the advisory committee or outside reviewers.
3. Adequacy of the minutes or reports of the advisory committee or outside reviewers' meetings or written communication.
4. Adequacy and appropriateness of the quality control and evaluation program to account for instructor performance.
5. Adequacy and appropriateness of the quality control and evaluation program to ensure appropriate course evaluation, feedback, updating and corrective action.
6. Adequacy and appropriateness of disciplines and expertise being used within the quality control and evaluation program.
7. Adequacy and appropriateness of the role of student evaluations to provide feedback for training program improvement

#### E. Students

Adequacy and appropriateness of the program for accepting students should be considered, including:

1. Assurance that the student already possess the necessary skills for their job, including necessary documentation.
2. Appropriateness of methods the program uses to ensure that recruits are capable of satisfactorily completing training.
3. Review and compliance with any medical clearance policy.

#### F. Institutional Environment and Administrative Support

The adequacy and appropriateness of the institutional environment and administrative support system for the training program should be considered, including:

1. Adequacy of the institutional commitment to the employee training program.
2. Adequacy and appropriateness of the administrative structure and administrative support.

#### G. Summary of Evaluation Questions

Key questions for evaluating the quality and appropriateness of an overall training program should include the following:

1. Are the program objectives clearly stated?
2. Is the program accomplishing its objectives?
3. Are appropriate facilities and staff available?
4. Is there an appropriate mix of classroom, demonstration, and hands-on training?
5. Is the program providing quality employee health and safety training that fully meets the intent of regulatory requirements?
6. What are the program's main strengths?
7. What are the program's main weaknesses?
8. What is recommended to improve the program?
9. Are instructors instructing according to their training outlines?
10. Is the evaluation tool current and appropriate for the program content?
11. Is the course material current and relevant to the target group?

#### Suggested Training Curriculum Guidelines

The following training curriculum guidelines are for those operations specifically identified in 29 CFR 1910.120 as requiring training. Issues such as qualifications of instructors, training certification, and similar criteria appropriate to all categories of operations addressed in 1910.120 have been covered in the preceding section and are not re-addressed in each of the generic guidelines. Basic core requirements for training programs that are addressed include:

##### 1. General Hazardous Waste Operations

2. RCRA operations— Treatment, storage, and disposal facilities.
3. Emergency Response.

##### A. General Hazardous Waste Operations and Site-specific Training

1. Off-site training. Training course content for hazardous waste operations, required by 29 CFR 1910.120(e), should include the following topics or procedures:

##### a. Regulatory knowledge.

- (1) A review of 29 CFR 1910.120 and the core elements of an occupational safety and health program.
- (2) The content of a medical surveillance program as outlined in 29 CFR 1910.120(f).
- (3) The content of an effective site safety and health plan consistent with the requirements of 29 CFR 1910.120(b)(4)(11).
- (4) Emergency response plan and procedures as outlined in 29 CFR 1910.38 and 29 CFR 1910.120(j).

##### (5) Adequate Illumination.

##### (6) Sanitation recommendation and equipment

(7) Review and explanation of OSHA's hazard-communication standard (29 CFR 1910.1200) and lock-out-tag-out standard (29 CFR 1910.147).

(8) Review of other applicable standards including but not limited to those in the construction standards (29 CFR Part 1926).

(9) Rights and responsibilities of employers and employees under applicable OSHA and EPA laws.

b. Technical knowledge.

{1} Type of potential exposures to chemical, biological, and radiological hazards; types of human responses to these hazards and recognition of those responses; principles of toxicology and information about acute and chronic hazards; health and safety considerations of new technology.

(2) Fundamentals of chemical hazards including but not limited to vapor pressure, boiling points, flash points, pH, other physical and chemical properties.

{3} Fire and explosion hazards of chemicals.

(4) General safety hazards such as but not limited to electrical hazard, powered equipment hazards, motor vehicle hazards, walking-working surface hazards, excavation hazards, and hazards associated with working in hot and cold temperature extremes.

{5} Review and knowledge of confined space entry procedures in 29 CFR 1910.146.

(6) Work practices to minimize employee risk from site hazards.

{7} Safe use of engineering controls, equipment, and any new relevant safety technology or safety procedures.

(8) Review and demonstration of competency with air sampling and monitoring equipment that may be used in a site monitoring program.

(9) Container sampling procedures and safeguarding; general drum and container handling procedures including special requirements for laboratory waste packs, shock-sensitive wastes, and radioactive wastes.

(10) The elements of a spill control program.

(11) Proper use and limitations of material handling equipment

(12) Procedures for safe and healthful preparation of containers for shipping and transport

(13) Methods of communication including those used while wearing respiratory protection.

c. Technical skills.

(1) Selection, use, maintenance, and limitations of personal protective equipment including the components and procedures for carrying out a respirator program to comply with 29 CFR 1910.134.

{2} Instruction in decontamination programs including personnel, equipment, and hardware; hands-on training including level A, B, and C ensembles and appropriate decontamination lines; field activities including the donning and doffing of protective equipment to a level commensurate with the employee's anticipated job function and responsibility and to the degree required by potential hazards.

(3) Sources for additional hazard information; exercises using relevant manuals and hazard coding systems.

d. Additional suggested items.

(1) A laminated, dated card or certificate with photo, denoting limitations and level of protection for which the employee is trained should be issued to those students successfully completing a course.

(2) Attendance should be required at all training modules, with successful completion of exercises and a final written or oral examination with at least 50 questions.

(3) A minimum of one-third of the program should be devoted to hands-on exercises.

{4} A curriculum should be established for the 8-hour refresher training required by 29 CFR 1910.120(e)(8), with delivery of such courses directed toward those areas of previous training that need improvement or reemphasis.

(5) A curriculum should be established for the required 8-hour training for supervisors. Demonstrated competency in the skills and knowledge provided in a 40-hour course should be a prerequisite for supervisor training.

2. Refresher training.

The 8-hour annual refresher training required in 29 CFR 1910.120(e)(8) should be conducted by qualified training providers. Refresher training should include at a minimum the following topics and procedures:

(a) Review and retraining on relevant topics covered in the 40-hour program, as appropriate, using reports by the students on their work experiences.

(b) Update on developments with respect to material covered in the 40-hour course.

(c) Review of changes to pertinent provisions of EPA or OSHA standards or laws.

(d) Introduction of additional subject areas as appropriate.

(e) Hands-on review of new or altered PPE or decontamination equipment or procedures. Review of new developments in personal protective equipment

(f) Review of newly developed air and contaminant monitoring equipment.

### 13. On-site training.

a. The employer should provide employees engaged in hazardous waste site activities with information and training prior to initial assignment into their work area, as follows:

- (1) The requirements of the hazard communication program including the location and availability of the written program, required lists of hazardous chemicals, and material safety data sheets.
- (2) Act, titles and locations in their work area where hazardous substance may be present.
- (3) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearances, or other evidence (sight, sound or smell) of hazardous chemicals being released, and applicable alarms from monitoring devices that record chemical releases.
- (4) The physical and health hazards of substances known or potentially present in the work area.
- (5) The measures employees can take to help protect themselves from work-site hazards, including specific procedures the employer has implemented.
- (6) An explanation of the labeling system and material safety data sheets and how employees can obtain and use appropriate hazard information.
- (7) The elements of the confined space program including special PPE, permits, monitoring requirements, communication procedures, emergency response, and applicable lock-out procedures.

b. The employer should provide hazardous waste employees information and training and should provide a review and access to the site safety and plan as follows:

- (1) Names of personnel and alternate responsible for site safety and health.
- (2) Safety and health hazards present on the site.
- (3) Selection, use, maintenance, and limitations of personal protective equipment specific to the site.
- (4) Work practices by which the employee can minimize risks from hazards.
- (5) Safe use of engineering controls and equipment available on site.
- (6) Safe decontamination procedures established to minimize employee contact with hazardous substances, including:
  - (A) Employee decontamination,
  - (B) Clothing decontamination, and
  - (C) Equipment decontamination.
- (7) Elements of the site emergency response plan, including:
  - (A) Pre-emergency planning.
  - (B) Personnel roles and lines of authority and communication.
  - (C) Emergency recognition and prevention.
  - (D) Safe distances and places of refuge.
  - (E) Site security and control.
  - (F) Evacuation routes and procedures.
  - (G) Decontamination procedures not covered by the site safety and health plan.
  - (H) Emergency medical treatment and first aid.
  - (I) Emergency equipment and procedures for handling emergency incidents.

c. The employer should provide hazardous waste employees information and training on personal protective equipment used at the site, such as the following:

- (1) PPE to be used based upon known or anticipated site hazards.
- (2) PPE limitations of materials and construction; limitations during temperature extremes, heat stress, and other appropriate medical considerations; use and limitations of respirator equipment as well as documentation procedures as outlined in 29 CFR 1910.134.
- (3) PPE inspection procedures prior to, during, and after use.
- (4) PPE donning and doffing procedures.
- (5) PPE decontamination and disposal procedures.

(6) PPE maintenance and storage

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(7) Task duration as related to PPE limitations.

d. The employer should instruct the employee about the site medical surveillance program relative to the particular site, including:

- (1) Specific medical surveillance programs that have been adapted for the site.
- (2) Specific signs and symptoms related to exposure to hazardous materials on the site.
- (3) The frequency and extent of periodic medical examinations that will be used on the site.
- (4) Maintenance and availability of records.
- (5) Personnel to be contacted and procedures to be followed when signs and symptoms of exposures are recognized.

e. The employees will review and discuss the site safety plan as part of the training program. The location of the site safety plan and all written programs should be discussed with employees including a discussion of the mechanisms for access, review, and references described.

B. RCRA Operations Training for Treatment, Storage and Disposal Facilities.

1. As a minimum, the training course required in 29 CFR 1910.120 (p) should include the following topics:

- (a) Review of the applicable paragraphs of 29 CFR 1910.120 and the elements of the employer's occupational safety and health plan.
- (b) Review of relevant hazards such as, but not limited to, chemical, biological, and radiological exposures; fire and explosion hazards; thermal extremes; and physical hazards.
- (c) General safety hazards including those associated with electrical hazards, powered equipment hazards, lock-out-tag-out procedures, motor vehicle hazards and walking-working surface hazards.
- (d) Confined-space hazards and procedures.
- (e) Work practices to minimize employee risk from workplace hazards.
- (f) Emergency response plan and procedures including first aid meeting the requirements of paragraph (p)(5).
- (g) A review of procedures to minimize exposure to hazardous waste and various type of waste streams, including the materials handling program and spill containment program.
- (h) A review of hazard communication programs meeting the requirements of 29 CFR 1910.1200.
- (i) A review of medical surveillance programs meeting the requirements of 29 CFR 1910.120(p)(3) including the recognition of signs and symptoms of overexposure to hazardous substance including known synergistic interactions.
- (j) A review of decontamination programs and procedures meeting the requirements of 29 CFR 1910.120(p)(4).
- (k) A review of an employer's requirements to implement a training program and its elements.
- (l) A review of the criteria and programs for proper selection and use of personal protective equipment, including respirators.
- (m) A review of the applicable appendices to 29 CFR 1910.120.
- (n) Principles of toxicology and biological monitoring as they pertain to occupational health.
- (o) Rights and responsibilities of employees and employers under applicable OSHA and EPA laws.
- (p) Hands-on exercises and demonstrations of competency with equipment to illustrate the basic equipment principles that may be used during the performance of work duties, including the donning and doffing of PPE.
- (q) Sources of reference, efficient use of relevant manuals, and knowledge of hazard coding systems to include information contained in hazardous waste manifests.
- (r) At least 8 hours of hands-on training.
- (s) Training in the job skills required for an employee's job function and responsibility before they are permitted to participate in or supervise field activities.

2. The individual employer should provide hazardous waste employees with information and training prior to an employee's initial assignment into a work area. The training and information should cover the following topics:

- (a) The Emergency response plan and procedures including first aid.
- (b) A review of the employer's hazardous waste handling procedures including the materials handling program and elements of the spill containment program, location of spill response kits or equipment, and the names of those trained to respond to releases.
- (c) The hazardous communication program meeting the requirements of 29 CFR 1910.1200.
- (d) A review of the employer's medical surveillance program including the recognition of signs and symptoms of exposure to relevant hazardous substance including known synergistic interactions.

- (e) A review of the employer's decontamination program and procedures.
- (f) A review of the employer's training program and the parties responsible for that program.
- (g) A review of the employer's personal protective equipment program including the proper selection and use of PPE based upon specific site hazards.
- (h) All relevant site-specific procedures addressing potential safety and health hazards. This may include, as appropriate, biological and radiological exposures, fire and explosion hazards, thermal hazards, and physical hazards such as electrical hazards, powered equipment hazards, lock-out-tag-out hazards, motor vehicle hazards, and walking-working surface hazards.
- (i) Safe use engineering controls and equipment on site.
- (j) Names of personnel and alternates responsible for safety and health.

#### C. Emergency response training.

Federal OSHA standards in 29 CFR 1910.120(q) are directed toward private sector emergency responders. Therefore, the guidelines provided in this portion of the appendix are directed toward that employee population. However, they also impact indirectly through State OSHA or USEPA regulations some public sector emergency responders. Therefore, the guidelines provided in this portion of the appendix may be applied to both employee populations.

States with OSHA state plans must cover their employees with regulations at least as effective as the Federal OSHA standards. Public employees in states without approved state OSHA programs covering hazardous waste operations and emergency response are covered by the U.S. EPA under 40 CFR 311.1, a regulation virtually identical to § 1910.120.

Since this is a non-mandatory appendix and therefore not an enforceable standard, OSHA recommends that those employers, employees or volunteers in public sector emergency response organizations outside Federal OSHA jurisdiction consider the following criteria in developing their own training programs. A unified approach to training at the community level between emergency response organizations covered by Federal OSHA and those not covered directly by Federal OSHA can help ensure an effective community response to the release or potential release of hazardous substances in the community.

#### a. General considerations.

Emergency response organizations are required to consider the topics listed in § 1910.120(q)(6). Emergency response organizations may use some or all of the following topics to supplement those mandatory topics when developing their response training programs. Many of the topics would require an interaction between the response provider and the individuals responsible for the site where the response would be expected.

- (1) Hazard recognition, including:
  - (A) Nature of hazardous substances present,
  - (B) Practical applications of hazard recognition, including presentations on biology, chemistry, and physics.
- (2) Principles of toxicology, biological monitoring, and risk assessment
- (3) Safe work practices and general site safety.
- (4) Engineering controls and hazardous waste operations.
- (5) Site safety plans and standard operating procedures.
- (6) Decontamination procedures and practices.
- (7) Emergency procedures, first aid, and self-rescue.
- (8) Safe use of field equipment.
- (9) Storage, handling, use and transportation of hazardous substances.
- (10) Use, care, and limitations of personal protective equipment
- (11) Safe sampling techniques.
- (12) Rights and responsibilities of employees under OSHA and other related laws concerning right-to-know, safety and health, compensations and liability.
- (13) Medical monitoring requirements.
- (14) Community relations.

#### b. Suggested criteria for specific courses.

- (1) First responder awareness level.
  - (A) Review of and demonstration of competency in performing the applicable skills of 29 CFR 1910.120(q).
  - (B) Hands-on experience with the U.S. Department of Transportation's Emergency Response Guidebook (ERG) and familiarization with OSHA standard 29 CFR 1910.1201.

(C) Review of the principles and practices for analyzing an incident to determine both the hazardous substances present and the basic hazard and response information for each hazardous substance present

(D) Review of procedures for implementing actions consistent with the local emergency response plan, the organization's standard operating procedures, and the current edition of DOT's ERG including emergency notification procedures and follow-up communications.

(E) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.

(F) Awareness and knowledge of the competencies for the First Responder at the Awareness Level covered in the National Fire Protection Association's Standard No. 118, Professional Competence of Responders to Hazardous Materials Incidents.

(2) First responder operations level.

(A) Review of and demonstration of competency in performing the applicable skills of 29 CFR 1910.120(q).

(B) Hands-on experience with the U.S. Department of Transportation's Emergency Response Guidebook (ERG), manufacturer material safety data sheets, CHEMTREC/CANUTEC, shipper or manufacturer contacts, and other relevant sources of information addressing hazardous substance releases. Familiarization with OSHA standard 29 CFR 1910.1201.

(C) Review of the principles and practices for analyzing an incident to determine the hazardous substances present, the likely behavior of the hazardous substance and its container, the types of hazardous substance transportation containers and vehicles, the types and selection of the appropriate defensive strategy for containing the release.

(D) Review of procedures for implementing continuing response actions consistent with the local emergency response plan, the organization's standard operating procedures, and the current edition of DOT's ERG including extended emergency notification procedures and follow-up communications.

(E) Review of the principles and practice for proper selection and use of personal protective equipment

(F) Review of the principles and practice of personnel and equipment decontamination.

(G) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.

(H) Awareness and knowledge of the competencies for the First Responder at the Operations Level covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents-

(3) Hazardous materials technician.

(A) Review of and demonstration of competency in performing the applicable skills of 29 CFR 1910.120(q).

(B) Hands-on experience with written and electronic information relative to response decision making including but not limited to the U.S. Department of Transportation's Emergency Response Guidebook (ERG), manufacturer material safety data sheets, CHEMTREC/CANUTEC, shipper or manufacturer contacts, computer data bases and response models, and other relevant sources of information addressing hazardous substance releases. Familiarization with OSHA standard 29 CFR 1910.1201.

(C) Review of the principles and practices for analyzing an incident to determine the hazardous substances present, their physical and chemical properties, the likely behavior of the hazardous substance and its container, the types of hazardous substance transportation containers and vehicles involved in the release, the appropriate strategy for approaching release sites and containing the release.

(D) Review of procedures for implementing continuing response actions consistent with the local emergency response plan, the organization's standard operating procedures, and the current edition of DOT's ERG including extended emergency notification procedures and follow-up communications.

(E) Review of the principles and practice for proper selection and use of personal protective equipment

(F) Review of the principles and practices of establishing exposure zones, proper decontamination and medical surveillance stations and procedures.

(G) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.

(H) Awareness and knowledge of the competencies for the Hazardous Materials Technician covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents.

(4) Hazardous materials specialist

(A) Review of and demonstration of competency in performing the applicable skills of 29 CFR 1910.120(q).

(B) Hands-on experience with retrieval and use of written and electronic information relative to response decision making including but not limited to the U.S. Department of Transportation's Emergency Response Guidebook (ERG), manufacturer material safety data sheets, CHEMTREC/CANUTEC, shipper or manufacturer contacts, computer data bases and response models, and other relevant sources of information addressing hazardous substance releases. Familiarization with OSHA standard 29 CFR 1910.1201.

(C) Review of the principles and practices for analyzing an incident to determine the hazardous substances present, their physical and chemical properties, and the likely behavior of the hazardous substance and its container, vessel, or vehicle.

(D) Review of the principles and practices for identification of the types of hazardous substance transportation containers, vessels and vehicles involved in the release; select and using the various types of equipment available for plugging or patching transportation

containers, vessels or vehicles; organizing and directing the use of multiple teams of hazardous materials technicians; and selecting the appropriate strategy for approaching release sites and containing or stopping the release.

(E) Review of procedures for implementing continuing response actions consistent with the local emergency response plan, the organization's standard operating procedures, including knowledge of the available public and private response resources, establishment of an incident command post, direction of hazardous material technician teams, and extended emergency notification procedures and follow-up communications.

(F) Review of the principles and practice for proper selection and use of personal protective equipment.

(G) Review of the principles and practices of establishing exposure zones and proper decontamination, monitoring and medical surveillance stations and procedures.

(H) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.

(I) Awareness and knowledge of the competencies for the Off-site Specialist Employee covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents.

(5) Incident commander.

The incident commander is the individual who, at any one time, is responsible for and in control of the response effort. This individual is the person responsible for the direction and coordination of the response effort. An incident commander's position should be occupied by the most senior, appropriately trained individual present at the response site. Yet, as necessary and appropriate by the level of response provided, the position may be occupied by many individuals during a particular response as the need for greater authority, responsibility, or training increases. It is possible for the first responder at the awareness level to assume the duties of Incident commander until a more senior and appropriately trained individual arrives at the response site.

Therefore, any emergency responder expected to perform as an incident commander should be trained to fulfill the obligations of the position at the level of response they will be providing including the following:

(A) Ability to analyze a hazardous substance incident to determine the magnitude of the response problem.

(B) Ability to plan and implement an appropriate response plan within the capabilities of available personnel and equipment

(C) Ability to implement a response to favorably change the outcome of the incident in a manner consistent with the local emergency response plan and the organization's standard operating procedures.

(D) Ability to evaluate the progress of the emergency response to ensure that the response objectives are being met safely, effectively, and efficiently.

(E) Ability to adjust the response plan to the conditions of the response and to notify higher levels of response when required by the changes to the response plan.

[54 FR 9317, Mar. 6, 1989, as amended at 55 FR 14073, Apr. 13, 1990; 56 FR 15832, Apr. 18, 1991; 59 FR 43268, Aug. 22, 1994; 61 FR 9227, March 7, 1996]

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## Appendix T:

40 CFR 264 Subpart C Hazardous Waste Facility  
Preparedness and Prevention Requirements

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**e-CFR Data is current as of July 5, 2012**

**Title 40: Protection of Environment**

PART 264-STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

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Subpart C-Preparedness andPreleention

§ 264.30 Applicability.

The regulations in tim subpart apply to owners and operators of allhazardous waste facilities, except as §264.1 provides otherwise.

§ 264.31 Design and operation offacility.

Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any tmplarmed sudden or non-sudden release ofpha:mrdous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

§ 264.32 Required equipment.

All facilities must be equipped with the following, *unless* it can be demonstrated to the Regional Administrator that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:

- (a) An internal colnrmmications or alarm system capable of providing irmnediate emergency instruction (voice or signaQ to facility persone
- (b) A device, such as a telephone (irm:nediately available at the scene of operations) or a hand-held two-way radio, capable of surmnoning emergency assistance from local police departments, fire departments, or State or local emergency response teams;
- (c) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and
- (d) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or

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[ *Comment:* Part 270 of this chapter requires that an owner or operator who wishes to make the demonstration referred to above must do so with part B of the permit application .]

[45 FR33221, May 19, 1980, as amended at 48 FR 14294, Apr. 1, 1983]

§ 264.33 Testing and maintenance of equipment.

All facility equipment, including fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.

§ 264.34 Access to communications or alarm system.

(a) Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, *unless* the Regional Administrator has ruled that such a device is not required under §264.32.

(b) If there is ever just one employee on the premises while the facility is operating, he must have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance, *unless* the Regional Administrator has ruled that such a device is not required under §264.32.

§ 264.35 Required aisle space.

The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, *unless* it can be demonstrated to the Regional Administrator that aisle space is not needed for any of these purposes.

[ *Comment:* Part 270 of this chapter requires that an owner or operator who wishes to make the demonstration referred to above must do so with part B of the permit application.]

[45 FR33221, May 19, 1980, as amended at 48 FR 14294, Apr. 1, 1983]

§ 264.36 (Reserved)

§ 264.37 Arrangements with local authorities.

(a) The owner or operator must attempt to make the following arrangements, as appropriate for the type of waste handled at the facility:

- (1) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes;
- (2) Where more than one police and fire department might respond to an emergency, agreements designating

primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;

(3) Agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and

(4) Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

(b) Where State or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

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## Appendix U:

40 CFR 264 Subpart D Hazardous Waste Facility  
Contingency Plan and Emergency Procedures  
Requirements

# Electronic Code of Federal Regulations



**e-CFR Data is current as of July 5, 2012**

## Title 40: Protection of Environment

### PART 264-STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

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#### Subpart D-Contingency Plan and Emergency Procedures

#### § 264.50 Applicability.

The regulations in this subpart apply to owners and operators of all hazardous waste facilities, except as §264.1 provides otherwise.

#### § 264.51 Purpose and implementation of contingency plan.

(a) Each owner or operator must have a contingency plan for his facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

(b) The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

[45 FR 33221, May 19, 1980, as amended at 50 FR 4514, Jan. 31, 1985]

#### § 264.52 Content of contingency plan.

(a) The contingency plan must describe the actions facility personnel must take to comply with §§264.51 and 264.56 in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

(b) If the owner or operator has already prepared a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with part 112 of this chapter, or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this part. The owner or operator may develop one contingency plan which meets all regulatory requirements. EPA recommends that the plan be based on the National Response Team's Integrated Contingency Plan Guidance ("One Plan"). When modifications are made to non-RCRA provisions in an integrated contingency plan, the changes do



(d) The list of emergency coordinators changes; or

(e) The list of emergency equipment changes.

[45 FR33221, May 19, 1980, as amended at 50 FR4514, Jan. 31, 1985; 53 FR37935, Sept. 28, 1988]

§ 264.55 Emergency coordinator.

At all times, there must be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.

[Comment: The emergency coordinator's responsibilities are more fully spelled out in §264.56. Applicable responsibilities for the emergency coordinator vary, depending on factors such as type and variety of waste(s) handled by the facility, and type and complexity of the facility.]

§ 264.56 Emergency procedures.

(a) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately:

- (1) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel and
- (2) Notify appropriate State or local agencies with designated response roles if their help is needed.

(b) Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of any released materials. He may do this by observation or review of facility records or manifests, and, if necessary, by chemical analysis.

(c) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

(d) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, he must report his findings as follows:

- (1) If this assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and
- (2) He must immediately notify either the government official designated as the on-scene coordinator for that geographical area, or the National Response Center (using their 24-hour toll free number 800/428802). The

repon must mcruae:

(i) Name and telephone number of reporter;

(n) Name and address of facility;

(fu) Time and type of incident (e.g., release, fire);

(iv) Name and quantity of material(s) involved, to the extent known;

(v) The extent of injuries, if any; and

(VI) The possible hazards to human health, or the environment, outside the facility.

(e) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing release waste, and removing or isolating containers.

(f) If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

(g) Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

[*Comment:* Unless the owner or operator can demonstrate in accordance with §261.3(c) or (d) of this chapter, that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of parts 262, 263, and 264 of this chapter.]

(h) The emergency coordinator must ensure that, in the affected area(s) of the facility:

(1) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

(2) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

(i) The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the Regional Administrator. The report must include:

(1) Name, address, and telephone number of the owner or operator;

(2) Name, address, and telephone number of the facility;

(3) Date, time, and type of incident (e.g., fire, explosion);

(4) Name and quantity of material(s) involved;

- (5) The extent of injuries, if any;
- (6) An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
- (7) Estimated quantity and disposition of recovered material that resulted from the incident.

[45 FR33221, May 19, 1980, as amended at 50 FR4514, Jan 31, 1985; 71 FR 16903, Apr. 4, 2006; 75 FR 13005, Mar. 18, 2010]

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## Appendix V:

Contingency Plan, Annual Review and Amendments

