Rensselaer Polytechnic Institute

Hazardous Materials Contingency Plan

Revised July 2014

1.0 Introduction

Rensselaer Polytechnic Institute is committed to protecting the environment and providing a safe and healthy workplace for all employees. This document outlines Rensselaer's contingency plan for emergency response and prevention procedures related to hazardous materials and hazardous wastes. The procedures described have been designed to minimize risks to public health, safety and the environment from major spills, explosions, fire, and the release of hazardous materials/wastes. The plan was designed in accordance with all Federal and State laws related to emergency preparedness and prevention of emergency events, including the Environmental Protection Agency requirements contained in 40 CFR 264 subpart D, 40 CFR 265 subpart D, 40 CFR 279.52, (SPCC) 40 CFR 112, and the New York State Department of Environmental Conservation requirements contained in 6 NYCRR parts 370 – 376.

2.0 Identification of Hazardous Materials and Hazardous Wastes

Any incident involving a spill/release of chemicals, mixtures of chemicals, chemical wastes, and solvent based cleaning solutions, fuel/oil, paint, or other toxic material is considered a hazardous materials incident and should be handled appropriately by Rensselaer personnel. If you observe an incident and question whether the material spilled/released is hazardous in nature, proceed to a safe location and contact the Office of Public Safety at (518) 276-6611 or extension 6611 for guidance. The recommended course of action is to treat any incident that involves the spill/release of a chemical substance as if it were hazardous in nature until the appropriate personnel have been consulted. This not only protects the area surrounding the incident from further contamination, but also all personnel, should the material prove to be a hazard.

Hazardous waste may be generated from laboratory operations, facilities operations and maintenance, construction and renovation activities, photo processing, and a variety of other activities. Hazardous waste is a particular class of "solid" waste (which includes solid, liquid, or gaseous material) that, if improperly managed, poses a substantial threat or potential hazard to human health and the environment. Typical hazardous wastes generated at Rensselaer include, but are not limited to, spent solvents, waste laboratory chemicals, waste paints and waste oil. Hazardous waste is subject to a complex regulatory scheme to ensure that uniform and consistent waste identification, storage and disposal procedures are followed by persons trained in the proper management of these waste substances.

3.0 Emergency Recognition

A distinction exists between incidental releases of hazardous substances and releases that require emergency response. Those which require the initiation of emergency response procedures are also required to be in compliance with the Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.120 (q) Emergency Response to hazardous substance releases.

Releases can be categorized in three distinct groups in terms of planning and response requirements:

(a) **Releases that are clearly incidental regardless of the circumstance;**

(b) **Releases that may be incidental or may require emergency response depending on the circumstance; and,**

(c) **Releases that clearly require emergency response regardless of circumstance.**

3.1 Releases that are clearly incidental regardless of the circumstance

An incidental release of a hazardous material is a release that does not pose a significant safety or health hazard to the people in the immediate vicinity or to the person cleaning it up, nor does it have the potential to become an emergency within a short period of time. Incidental releases are limited in quantity, exposure potential, and toxicity. If the hazardous substances that are in the area are always stored in very small quantities, such as in the laboratory setting, the risk of a release that escalates into an emergency is reduced.

It may be possible for the person who generated the spill to perform the clean up provided that **all** of following conditions are met:

- The spill is clearly incidental, based on the definitions contained in this plan,

- The individual is trained in the hazards and clean-up methods of the spilled materials,
- Adequate Personal Protective Equipment (PPE) and Spill Response Supplies are available and used,
- And, the individual is certain that there is no level of personal danger to themselves or anyone else on campus.

If a release involves a hazardous substance of extreme toxicity, regardless of the quantity released, the situation will always warrant an immediate emergency response. If there is any risk of injury to any campus personnel including the person who generated the spill, or if available PPE is in any way inadequate, or if the number or qualifications of on-site personnel is in any way inadequate, outside resources must be requested immediately by dialing (518) 276-6611 or extension 6611. Do not allow anyone to enter the hazard area until emergency response personnel arrive.

3.2 Releases that may be incidental or may require emergency response depending on the circumstance

The properties of a hazardous substance (toxicity, volatility, flammability, explosiveness, corrosiveness, etc.), as well as the specific circumstances of the release (quantity, confined space considerations, ventilation, etc.), and the level of training of the personnel involved, may result in a spill that requires emergency response. If any doubt exists on the part of the personnel who first became aware of the spill, the spill must be handled as an emergency in accordance with the requirements of this plan. Outside resources must be requested immediately by dialing (518) 276-6611 or extension 6611 or activating the evacuation alarm if evacuation of the building is deemed best. Do not allow anyone to enter the area until emergency response personnel arrive.

3.3 Releases that clearly require emergency response regardless of circumstance

Releases of hazardous substances that pose a significant threat to public health, safety, or welfare or the environment from fires, explosions, spills or any unplanned sudden or non-sudden release of hazardous material/waste or hazardous material/waste to air, soil, surface water, or ground water, by their very nature, require an emergency response regardless of the circumstances surrounding the release or the mitigating factors. Additionally, a release of hazardous material/waste that occurs in excess of reportable quantities identified under 40 CFR 355 shall also be designated as an emergency. This available from the Office of Environmental Health and Safety. Reportable quantities range from 1 to 10,000 pounds depending on hazard of the chemical. Outside resources must be requested immediately by dialing (518) 276-6611 or extension 6611 or activating the evacuation alarm if evacuation of the building is deemed best. Do not allow anyone to enter the area until emergency response personnel arrive.

3.4 Non-emergency

If no emergency is identified, and no reportable quantity release occurs, the hazardous material/waste incident will be handled using appropriate sections of this Contingency Plan, and/or the Rensselaer Chemical Hygiene Plan. Laboratory or other small spills should be evaluated using the above criteria in determining whether an actual emergency exists.

4.0 Emergency Response Organization

The following personnel will have responsibilities in the event of a hazardous materials emergency:

4.1 Emergency Response Coordinator

The emergency response coordinator for the Rensselaer campus is:

Annette Chism, Director of Environmental Health & Safety

518-276-6114 (campus) or 518-390-0181 (cell)

The emergency response coordinator is responsible for:

- declaring a hazardous materials emergency
- recognizing and identifying hazardous materials involved
- contacting the appropriate emergency response organizations using the Office of Public Safety as an emergency liaison
- performing a hazard risk assessment of the incident
- Operating field survey equipment (i.e. flammable/combustible meters, detector tubes).
- Performing limited containment and control (absorption) procedures on hazardous materials releases within the resources and equipment provided
- determining if emergency evacuation is required, and insuring that the evacuation procedures have been put into effect
- Notifying the appropriate regulatory agencies in the event of a release of a reportable quantity.

4.2 Alternate Emergency Response Coordinator:

The Alternate Emergency Response Coordinator will assume all of the responsibilities of the Emergency Response Coordinator when the primary Emergency Response Coordinator is unavailable or unable to perform these duties.

The Alternate Emergency Response Coordinator is:

Judy Corbett, Safety Specialist

(518) 276-2281 (campus) or (518) 526-3461 (cell phone) or (802) 581-8316 (home phone)

4.3 Office of Public Safety:

The Office of Public Safety will be responsible for the following actions:

- dispatching the emergency coordinator defined in this plan whenever a hazardous material spill or release is brought to their attention,
- dispatching the Troy Fire Department at the direction of the Emergency Response Coordinator or in the event of a suspected or confirmed emergency, as defined above,
- dispatching emergency response organizations such as ambulance and/or contracted haz mat teams at the direction of the Emergency Response Coordinator or in the event of a suspected or confirmed emergency requiring these emergency response organizations
- dispatching Public Safety Personnel to the scene to ensure the safety of others and to secure the scene until the Troy Fire Department arrives on the site.

Dial (518) 276-6611 or extension 6611 to reach Public Safety in an emergency, or (518) 276-6656 or extension 6656 for non-emergency calls.

4.4 Troy Fire Department

The Troy Fire Department has been designated as the City of Troy's Hazardous Materials Response Team. The senior fire department official at the scene is in charge of the containment and assists in the clean-up operation. Institute personnel will follow his directions when asked to assist with crowd control, directing traffic and other requests.

To contact the Troy Fire Department, dial (518) 276-6611 or extension 611 and Rensselaer's Office of Public Safety will complete the dispatch.

4.5 Samaritan Hospital

In the event that injuries related to a hazardous materials incident require medical attention, the individual will be transported to Samaritan Hospital via ambulance.

To contact Samaritan Hospital or to call for an ambulance, dial (518) 276-6611 or extension and Rensselaer's Office of Public Safety will complete the dispatch.

4.6 Designated Hazardous Materials Response Contractor:

In the event of an emergency requiring off-site emergency response, the following Designated Emergency Response Contractor will be called to the site:

Clean Harbors
(518) 434-0149 (24-hour service)
32 Bask Road
Glenmont, NY 12077

The designated emergency response contractor will be responsible for conducting emergency haz mat response and spill clean-up activities, at the request of the emergency coordinator.

5.0 Notification of Spill and/or Releases

All incidents which involve the spill or release of hazardous materials must be reported to the Office of Public Safety by the individual responsible for the event, or his/her designated supervisor.

The Office of Public Safety will notify the Emergency Coordinator in the Office of Environmental Health and Safety of all hazardous materials events that are brought to their attention.

5.1 Reportable Quantity Releases

Report the release of a reportable quantity of a hazardous substance, or, if any of the following conditions exist, the release of a lesser quantity of a hazardous substance:

(i) such release results, or may reasonably be expected to result, in a fire with potential off-site impacts;

All reports of releases must be made to the DEC hotline (800- 457-7362; outside New York State: 518-457-7362) within two hours of the release, and the **National Response Center at (800) 424-8802**

The verbal report must include-

- **the name and telephone number of the caller**
- **the name and address of the facility**

- **the time and type of incident**
- **the name and quantity of materials involved**
- **any possible hazards to human health or the environment.**

The Emergency Coordinator must also submit a written report to the NYSDEC Commissioner within 15 days of the incident. The written report must include the name, address and telephone number of the facility owner; the name address and telephone number of the facility; the date, time and type of incident; the name and quantity of materials involved; the extent of any injuries; an assessment of actual or potential hazards to human health or the environment; and the estimated quantity and disposition of recovered materials.

6.0 Emergency Equipment

The following section provides descriptions and locations of fire alarm and detection systems, spill clean-up supplies, and personal protective equipment related to hazardous materials management operations.

6.1 Fire Detection and Alarm Systems

All buildings in which hazardous materials are used or stored are equipped with fire alarm systems which report to a central reporting station. The central reporting station is manned by the Office of Public Safety, 24 hours per day, and 365 days per year. The fire alarm systems consist of combinations of smoke and heat detectors, alarm/strobes, pull stations, and in selected locations, duct detectors, and automatic sprinkler systems. Fire extinguishers are located within 75 feet of all areas where hazardous materials are used or stored.

The hazardous waste storage areas in Walker Labs and Blaw Knox 2 also include carbon dioxide extinguishing systems that are activated by heat and/or rate of rise detection, and report to the central reporting station.

6.2 Spill Response and Personal Protective Equipment

The following list of equipment is maintained at designated locations on the campus, to be used in the response of incidental spill management operations. Emergency level hazardous incidents will be controlled under the direction of, and using the response equipment provided by, the Troy Fire Department or their designee. In the event that the Troy Fire Department or their designee requires additional response personnel or equipment, the Designated Hazardous Materials Response Contractor shall provide the required personnel and equipment.

6.2.1 Additional Spill Response Equipment Location

Speedi Dry Absorbent Materials – 4 bags	Blaw Knox 2
Absorbent Pigs – Multi purpose 2' lengths - 1 case	Blaw Knox 2
Absorbent Pads – White Oil Absorbent – 1 bundle	Blaw Knox 2
Absorbent Pads – Multi Purpose – 1 bundle	Blaw Knox 2
5 gallon Steel Salvage Drum – 1 drum	Blaw Knox 2
10 Gallon Steel Salvage Drum – 1 drum	Blaw Knox 2
30 gallon Steel Salvage Drum – 1 drum	Blaw Knox 2
85 Gallon Steel Salvage Drum – 1 drum	Blaw Knox 2
Scott 3 M Respirator Full Face – 2 units	Blaw Knox 2
Vinyl Aprons – 10 units	Blaw Knox 2
Latex Gloves – 1 box	Blaw Knox 2
PVA Gloves – 3 Pairs	Blaw Knox 2
18" Push Broom – 1 unit	Blaw Knox 2
Shovel – 1 unit	Blaw Knox 2
Dust Pan – 1 unit	Blaw Knox 2

6.2.2 Spill Response Kits

Spill Response Kits are also located in each of the 4 Hazardous Waste Collection Rooms. The Hazardous Waste Collection Rooms are located in Walker Laboratory, Cogswell Laboratory, the Low Center for Industrial Innovation (CII), and Blaw Knox 2. Each Spill Response Kit contains the following:

6.5 Gallon Collection Pail
Speedi Dry Absorbent – 1 bag
Soda Ash Absorbent/Neutralizer – 2 pounds
Absorbent Pigs 2' lengths – 2 units
Absorbent Pads – White Oil Absorbent – 3 pads
Absorbent Pads – Multi Purpose – 2 pads
PVA Gloves – 1 pair
Broom – 1 unit
Dust Pan – 1 unit

7.0 Evacuation Procedures

In the event of a hazardous materials incident that requires complete building evacuation, the building fire and alarm systems will be activated. The determination for evacuation may be made by persons with knowledge of the incident, the hazardous materials involved, and/or the characteristics of the building. Alternatively, the decision to evacuate may be made by the emergency coordinator. In the event that a partial evacuation is adequate to provide for the health and safety of all personnel, verbal instructions shall be given in the immediate area of the spill or release. The following evacuation procedures will be used to ensure safe evacuation in the event of a building evacuation:

7.1 Building Evacuation Procedures

7.1.1 All building evacuations will occur when an alarm sounds (e.g., fire alarm) and/or upon verbal notification by Public Safety or other responsible parties.

7.1.2 When the building evacuation alarm is activated or verbal notification is provided, occupants are to leave by the nearest marked exit. If the nearest exit is smoke filled, or blocked by another hazard, proceed to an alternate exit and alert others to do the same. Directions may be given as to the location of a safe assembly area. However, if no directions are conveyed, proceed to the outside of the building.

7.1.3 Once outside, occupants should proceed to a clear area that is at least 100 feet away from the affected building. Keep streets, fire lanes, hydrant areas and walkways clear for emergency vehicles and personnel. During periods of inclement weather, relocate to an alternate building, which will be determined at the time of the crisis and conveyed to all persons affected.

7.1.4 Occupants will not be permitted to return to an evacuated building unless told to do so by the Troy Fire Department or other responding agency.

7.1.5 Elevators should never be used in cases of fire or earthquakes.

7.2 Emergency Procedures - General Guidelines

7.2.1 Remain calm.
7.2.2 Treat every alarm as an actual emergency.
7.2.3 In a fire emergency, the first choice is evacuation.
7.2.4 Leave all material in room/class to avoid wasting time.
7.2.5 Follow signs to exits.
7.2.6 Avoid smoke filled stairwells.
7.2.7 If you are injured and volunteers are not able to assist you safely, wait in a safe location for emergency personnel.
7.2.8 Never re-enter a building until permitted by emergency personnel.

7.3 Assisting Disabled Evacuation

7.3.1 Assisting the user of a wheelchair

7.3.1.1. Wheelchairs are not designed to handle the stress of lifting. Never carry someone while in a wheelchair. A manual chair can be used to assist the evacuation process.

7.3.1.2. Consult the individual regarding the best way to evacuate (the number of people needed, how to use manual chair, ways to lift, etc.). If the person is unable to speak clearly, look for a sign on the chair with printed instructions.

7.3.1.3. If the individual cannot be safely carried up/down stairs, do not attempt to do so. Position the person in the safest place possible according to the emergency.

7.3.1.4. Alert emergency personnel to the person's location.

7.3.2 Assisting the Visually Impaired

7.3.2.1. Offer to assist the visually impaired to a safe location.
7.3.2.2. Have the person take your elbow, and walk slowly but directly to the nearest unobstructed exit.

7.3.3 Assisting the Hearing Impaired

7.3.3.1. Alert the hearing impaired that an emergency exists.
7.3.3.2. Use gestures/notes to indicate type of emergency.

7.3.4 Assisting the Mobility Impaired

7.3.4.1. Offer assistance.
7.3.4.2. If help is requested, assist as directed to a safe location.

8.0 Chemical Container Management

The Office of Environmental Health & Safety will manage the collection, transportation and off-campus disposal of hazardous waste generated at Rensselaer. However, assistance from the academic community is needed during the first, and often the most critical, step of the process - the generation phase.

RCRA Regulations as adopted and promulgated by the New York State Department of Environmental Conservation, require specific methods of collecting and storing the waste at the point of generation. The following is a listing of policy guidelines that need to be complied with in all academic and research laboratories.

8.1 Chemical Waste Handling Guidelines

8.1.1 All waste must be in compatible, sealed containers in good condition, i.e., glass or plastic bottles. The container must have a threaded cap. Corks or ground glass stoppers should not be used. The container must be secured with a threaded lid to prevent a release in the event that the container is tipped on its side.
NOTE: Do not add experimental material to a waste container until it has gone through its complete reaction. If reacting material is added to a waste jar, pressure build-up can result.

8.1.2 The waste container must be kept closed at all times except when waste is being added to the container. This is true even when the waste is stored in a hood. Keeping containers closed prevents fugitive vapors from being released to the atmosphere, and reduces the amount of chemical exposure to personnel. It also helps prevent the waste from being released in the event that the container tips on its side at any point.

8.1.3 Labels must be clearly printed using indelible ink, (i.e. no pencils, markers, or cursive writing). Labels must be securely attached to the container.

8.1.4 Each label must contain a specific list of the chemical constituents and approximate percentage of each constituent, written in words. No generalizations (i.e. acids, organics, etc.), trade names (i.e. Clorox for sodium hypochlorite), or chemical formulas (i.e. NaOH for sodium hydroxide) may be used on the labels. Hazardous wastes must have the words 'hazardous waste' clearly noted on the container. Proper labeling aids in the correct determination of the waste hazards class, as well as, the final disposal method. Proper labels also provide vital information to emergency response personnel.

8.1.5 Once the container is filled, contact EH&S for disposal.

8.1.6 All wastes should be stored at or near the point of generation, in an appropriate, safe area in each lab. The waste should not leave the lab until it is directly transferred to the waste storage room at Cogswell, Walker Labs, CII, or Blaw Knox.

8.1.7 For questions concerning the proper labeling, handling, or storage of chemical waste, contact the Office of Environmental Health & Safety at (518) 276- 2281, (518) 276-2092, or (518) 276-6427.

9.0 Hazardous Waste Minimization

Rensselaer is committed to the protection of human health and the environment. To meet these commitments, Rensselaer strongly encourages its employees to utilize chemical

waste minimization (waste reduction) techniques to reduce the volume and toxicity of chemical wastes produced. An important benefit of waste minimization is that it helps reduce the escalating chemical disposal costs incurred by Rensselaer.

The following describes common waste minimization techniques:

9.1 **Purchasing**.

Purchase only the quantity of chemical required for specific projects. Find the minimum unit required for an experiment and order accordingly. Do not stockpile chemicals unnecessarily.

9.2 Product Substitution

Substitute non-hazardous or less toxic materials in your chemical processes and experiments. Some examples of this are:

a. The use of water based inks instead of solvent-based inks in printing operations.

b. Detergents and enzymatic cleaners can be substituted for sulfuric acid/potassium dichromate (chromerge) cleaning solutions and ethanol/potassium hydroxide cleaning solutions.

c. Avoid the use of known carcinogens, mutagens, or extremely hazardous chemicals where possible.

d. Solvents with inhibitors included to prevent peroxide formation.

9.3 Process Modification

To the extent that it does not compromise vital research, teaching, or service, laboratories are encouraged to modify experimental or standard processes to decrease the quantity of hazardous chemicals used and generated. When possible, micro and semi-micro techniques should be used to reduce the amount of waste generated. Examples include the use of digital photographic methods to replace conventional chemical-based photographic methods.

9.4 Segregation and Characterization

a. Do not mix hazardous wastes with non-hazardous waste.

b. Accurately label waste containers as to their exact content and approximate percentages. Segregation and characterization simplifies the waste stream, thus minimizing the cost of disposal.

9.5 Chemical Redistribution

Unopened or unused portions of chemicals may be redistributed within the Rensselaer campus. If you have a chemical you no longer want, but feel it is still in useable condition, contact the Environmental Health & Safety Office. A virtual stockroom is available which provides an electronic database of available chemicals. The virtual database will be available on the Rensselaer web page. Chemicals will be available on the site for up to 60 days before disposal is initiated.

9.6 Management

It is important to audit chemical supplies and use inventory control. Changes in personnel should be supervised to prevent the storage of chemicals that are no longer in use. In the event that faculty or student laboratory management changes, the department is responsible for promptly managing the chemical inventories left in the laboratories.

9.7 Training

The Office of Environmental Health & Safety will provide training in waste management and waste minimization methods at least annually. Training will include an explanation of the concepts described above and a discussion of how individual departments can implement specific waste minimization measures.

9.8 Other Waste Minimization Initiatives

The following waste minimization practices are recommended to prevent the unnecessary generation of hazardous waste materials:

- Accept raw materials only after inspection
- Conduct frequent inventory checks
- Ensure that inventory quantity does not go to waste
- Test outdated materials for effectiveness
- Verify shelf life expiration dates
- Return expired materials to supplier
- Ensure all containers are properly labeled
- Eliminate shelf life requirements for stable compounds
- Store containers in a way which facilitates visual inspection for corrosion and leaks
- Stack containers in a way to minimize the chance of tipping, puncturing, or breaking
- Maintain MSDS to correctly handle spill situations
- Store and handle materials according to manufacturer's instructions
- Empty containers thoroughly before disposing of them
- Reduce the number of different solvents used
- Use aqueous cleaners
- Prevent mixing of hazardous waste with non-hazardous waste