Appendix G Contingency Plan

Contingency Plan Control Sheet This is copy

Numbered copies of this contingency plan for UVM's permitted hazardous waste treatment, storage, and disposal facility (TSDF) will be issued to the following organizations and companies to ensure they are familiar with operations and potential hazards associated with UVM's Environmental Safety Facility (ESF). The copies must be kept at the specified location. Only these copies will be updated, do not make unauthorized copies.

	UVM Environmental Safety Facility
1	667 Spear Street
	Burlington, VT 05405 *(Contained in ESF permit)
	UVM Police Services
2	284 East Avenue
	Burlington, VT 05405
	UVM Rescue
3	284 East Avenue
	Burlington, VT 05405
	Burlington Fire Department
4	Deputy Chief of Operations
4	136 South Winooski Avenue
	Burlington, VT 05401
	South Burlington Fire Department
5	575 Dorset Street
	South Burlington, VT 054035
	University of Vermont Medical Center, Risk Management
6	111 Colchester Avenue
	Burlington, VT 05401
	Vermont Statewide LEPC
	c/o Chief Patrick McLaughlin
7	Division of Fire Safety, Tier II, HAZMAT
	45 State Drive
	Waterbury, VT 05671
	NRC East Environmental Services, Inc.
8	280 Commerce Street
	Williston, VT 05495
	Absolute Spill Response, LLC
9	PO Box 309, 21 Metro Way Suite #7
	Barre, VT 05641

Contingency Plan

Introduction

This plan describes the actions to be taken by University of Vermont and State Agricultural College (UVM) personnel in the event of an incident involving hazardous waste materials at the Environmental Safety Facility (ESF). The plan will be implemented as soon as possible should any of the following conditions exist at the facility: fire; explosion; or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment. The contingency plan will be reviewed and, if necessary, amended whenever the facility's permit is revised, the plan fails in an emergency, changes in the facility's operations alter the plan, or changes occur in the list of emergency coordinators or emergency equipment. A copy of the plan is maintained in room 100 of the ESF.

The Quick Reference Guide, per VHWMR 7-308(b)(14)(ii), is included as Attachment G-1 - Quick Reference Guide.

Coordination Agreements

A critical event at the ESF may require resources beyond the capacity of ESF staff. Therefore, emergency preparedness planning and awareness within local response agencies is necessary. This planning takes place at several levels: formal response plans and training, informal tours, routine interactions, and activities coordinated through the Vermont Statewide Local Emergency Planning Committee (LEPC). Each agency is provided a copy of UVM's contingency plan (see Contingency Plan Control Sheet); however, the potential response is continuously improved by regular interaction with the agencies involved.

Vermont Statewide Local Emergency Planning Committee (LEPC)

On July 1, 2021, Vermont consolidated 13 separate Local Emergency Planning Committees (LEPCs) to one statewide LEPC to carry out the requirements of the Emergency Planning and Community Right-To-Know Act (EPCRA). The statewide LEPC will focus on identification of hazardous materials that pose a risk and evaluating the available resources for preparing and responding to a potential natural or manmade disaster that could result in the release of hazardous chemicals.

UVM ESF staff have been active participants in the Chittenden County LEPC since its inception in 1988 and will continue to be involved with the statewide LEPC.

ESF staff submits the annual Tier II chemical inventory, as well as all updated hazardous waste contingency plans to the LEPC. UVM participates in LEPC exercises, regular meetings, and routine communications. The LEPC provides a forum to plan, become familiar with and to coordinate activities with Burlington Fire Department, South Burlington Fire Department, University of Vermont Medical Center, Vermont Emergency Management, Vermont State Hazardous Materials team, District 3 EMS, Vermont Health Department, Vermont's Homeland Security office, Vermont State Police and other emergency response and planning organizations in Chittenden County and the State.

UVM Police Services

UVM's police officers and dispatchers monitor fire and intrusion alarms at the ESF. UVM Police are likely to be the first response personnel on scene to an off-hour emergency at the ESF. Each police officer receives training to become familiar with the layout of the ESF and the locations where hazardous materials are stored.

UVM Police are expected to respond no further than the closest point where the emergency is recognized or the front door of the ESF whichever is farthest from the hazard.

UVM police roles at an ESF emergency may include law enforcement activities, notification of additional responders, evacuating area personnel, site security, mobile communications, and participation in unified command structure.

Burlington Fire Department - primary emergency response

Burlington Fire Department (BFD) has the primary responsibility for fire alarms at the ESF. ESF staff and firefighters from Station 3, located on Mansfield Avenue, prepare trainings for all shifts of BFD firefighters; these have included planned tours of the building as well as presentations with photographs of the ESF. Additionally, BFD crews make impromptu visits to the ESF for tours.

Burlington Fire Department has primary responsibility for uncontrolled releases of hazardous materials at the ESF. As the ESF building is designed to contain most releases, BFD would only need to assume this responsibility in the event of fire, explosion, injury, death, or excessive water release (such as fire suppression sprinklers) in the waste handling area of the building.

Burlington Fire Department also has the training, equipment, and capability to decontaminate patients that have been exposed to hazardous materials. Burlington Fire Department's Emergency Medical Responders are trained to respond to hazardous materials emergencies. UVM Rescue acts as the primary medical responders for the ESF.

South Burlington Fire Department - secondary emergency response

South Burlington Fire Department (SBFD) will back-up BFD, as necessary, in responding to fire alarms at the ESF. Training for SBFD has comprised of tours of the ESF and exercises and trainings coordinated through the LEPC.

<u>Vermont Hazardous Materials Response Team</u> – Hazmat support to fire departments is organized under the State Emergency Response Commission (SERC) and operated through Vermont Emergency Management, the State HAZMAT Team. This support is available to any fire department in Vermont responding to hazardous materials emergencies. The team is equipped for response into environments that require Level A, B, C or D personal protective equipment. The team is also equipped to identify and evaluate hazardous materials emergencies.

The State HAZMAT team will respond in an offensive mode to contain a spill and stop the source. They will function under the incident command of the local fire department to assure the safety of personnel and the environment. UVM, not the State HAZMAT team, is responsible for the cleanup of material spilled at the ESF.

The team is supported by any of several fire departments that are trained and equipped to provide decontamination services at hazardous materials scenes. These decontamination lines can be used to decontaminate emergency responders or victims. Rinse water from the decontamination line would be containerized and become the responsibility of UVM for hazardous waste determination and management.

Once the emergency is over (there is no threat of fire or to life) the scene will be handed back over to UVM for clean-up and remediation, as needed.

UVM Rescue – primary medical response

ESF personnel will provide potential exposure information by chemical or chemical type, based on current waste stored at the facility to the responding personnel. UVM Rescue HAZMAT medical response procedures are listed by general chemical categories.

UVM Rescue is dispatched through UVM Police Dispatch.

UVM Rescue, like most Vermont EMS units, has a policy of receiving HAZMAT contaminated patients only after they have been decontaminated on-scene. Burlington Fire Department's emergency medical response team is prepared to backup UVM Rescue, if necessary. Additional support can be provided by UVM Rescue, if needed, by paging additional providers.

<u>University of Vermont Medical Center (UVMMC)</u> – **emergency and long-term medical care** UVMMC has a policy of receiving HAZMAT contaminated patients only after they have been decontaminated on-scene. However, the emergency department (ED) operates a decontamination room in the emergency room to allow UVMMC to better support a HAZMAT incident. ESF personnel will provide potential exposure information by chemical or chemical type, based on current waste stored at the facility to the responding personnel and to UVMMC. This information is either provided via the ambulance team's communications to the ED or, for direct transport, the emergency coordinator can relay information through UVMMC's Provider Access System (PAS) to the ED.

Emergency Response Contractors – **24-hour HAZMAT emergency response and remediation** (NRC East Environmental Services, Inc., and Absolute Spill Response, LLC)

ESF routinely contracts 2 emergency response vendors for additional labor in handling waste, cleaning up spills, removing fuel tanks, and other projects. ESF staff maintains open budgets with each contractor for spill response. The contractors have 24-hour emergency response phone lines to request immediate response. Each contractor plans to be able to provide a two-hour response to ESF emergencies. The contractors are familiar with the layout and operations of the ESF.

UVM Physical Plant – facilities and mechanical systems management

UVM's Physical Plant Department (PPD) staff maintain and repair building electrical, plumbing, air handling and other systems at the ESF. ESF personnel escort PPD personnel if their work will bring them into the waste handling areas.

Hazardous Materials Emergency Coordinator

UVM hazardous materials emergency coordinators are available 24 hours a day to respond to and coordinate hazardous materials emergency response measures at the ESF. The emergency coordinators are familiar with the contingency plan, the facility layout and operations, locations and characteristics of the wastes handled, and the location of hazardous waste records within the facility. The emergency coordinator has the authority to commit the resources needed to carry out the contingency plan.

In case of a fire, explosion, or chemical release involving hazardous waste, UVM police dispatch or UVM Physical Plant SOS (dispatch) will notify the emergency coordinator. SOS can send out mass communication via email and text to all emergency coordinators.

If the dispatcher is unable to reach the primary emergency coordinator, the dispatcher will contact one of the alternate emergency coordinators. The emergency coordinator or alternate emergency coordinator will be accessible by phone. The primary emergency coordinator or one alternate emergency coordinator will always be available on-site, or on call. A UVM Police Services Shift Supervisor is always on-site at the UVM campus and available to respond to nearby noncontiguous sites, including the ESF.

The ranking, on-duty Police Services Shift Supervisor will secure the site in the event of a spill or release until chemical handling and emergency response staff arrive on the scene. The UVM Police Services Shift Supervisor is authorized to contact a hazardous material response contractor in the unlikely event that none of the emergency coordinators can be reached.

The Contingency Plan will be reviewed with UVM Police Services' Supervisors at least annually.

The emergency coordinator will be prepared to provide the following:

- 1. Emergency coordinator's name and telephone number
- 2. Facility name and address
- 3. Time and type of incident
- 4. Name and quantity of material(s) involved to the extent known
- 5. Extent of any injuries
- 6. Possible hazards to human health and the environment outside the facility

Emergency Coordinator List

June 2023

Primary Emergency Coordinator

Dorian Evans, MS, REM, CHMM *Environmental Compliance Manager* Emergency Contact #: **214-563-4955**

Work: 802-656-0767 Home: 214-563-4955 34 Overlook Lane Richmond, VT 05477

Alternate Emergency Coordinators

(1) **Brian Medor**

Environmental Safety Technician
Emergency Contact #: **802-228-6729**

Work: 802-656-5408 Home: 802-868-3727 53 Pine Street Swanton, VT 05488

(2) Brian Hodge

Environmental Safety Technician Emergency Contact #: **802-777-9183**

Work: 802-656-5408 Home: 802-434-3171 8368 Main Road Huntington, VT 05462

(3) Francis Churchill

Director, Environmental Health & Safety Emergency Contact #: **802-316-9566**

Work: 802-656-5405 Home/Cell: 802-316-9566 20 Wheeler Lane

20 Wheeler Lane Richmond, VT 05477

Emergency Notification Procedures

The following procedures are integrated into the University of Vermont's Emergency Operations Plan and, if necessary, the Emergency Operations Group will assemble in accordance with that plan. Should any conditions exist at the facility that could threaten human health or the environment, the emergency coordinator will immediately implement the following emergency notification procedures:

- 1. Activate the internal alarm or communication system by pulling fire alarm pull boxes or using facility intercom or telephone if necessary.
- 2. The internal alarm system will notify a UVM Police Services dispatcher that an emergency exists at the facility; alternatively, Police Services can be called directly. Police Services will notify the Environmental, Health, and Safety department if an alarm occurs outside of normal operating hours.
- 3. The emergency coordinator will notify the Burlington Fire Department through the UVM Police Services' dispatcher or directly if via mobile phone, if the incident involves fire or explosion, or if there is a potential need to evacuate areas outside of the facility.
- 4. The emergency coordinator will notify a hazmat spill response contractor if facility personnel cannot contain the release of hazardous waste.
- 5. The emergency coordinator will notify the Vermont HAZMAT Hotline <u>immediately</u> (as the response allows) upon determining that a reportable release has occurred.
- 6. The emergency coordinator will notify the US Coast Guard if the incident threatens surface waters.
- 7. The emergency coordinator will notify the National Response Center if it is determined that the facility has had a fire, explosion, or release that could threaten human health or the environment outside of the facility.
- 8. The emergency coordinator will notify the University of Vermont Office of Emergency Management. This activates, if necessary, UVM's Emergency Operations Center and Emergency Operations Group, including financial, public relations, police, and physical plant services.

Emergency Telephone Numbers

UVM Police / Rescue - Emergency (on campus)	911
UVM Police - Non-emergency	
UVM Rescue - Non-emergency	802-656-4287
Burlington Fire Department	911
UVMMC Provider Access System (PAS)	
HAZMAT Contractor: NRC East Environmental Services, Inc.	800-899-4672
HAZMAT Contractor: Absolute Spill Response, LLC	877-947-7455
Vermont HAZMAT Hotline	1-800-641-5005
Vermont DEC (business hours)	802-828-1138
National Response Center	1-800-424-8802
US Coast Guard	802-951-6792
UVM Physical Plant (Facilities)	802-656-2560

Evacuation Plan

The fire alarm is the signal to initiate an evacuation of the facility. Upon hearing the fire alarm, facility personnel will proceed to the nearest emergency exit. All emergency exits have an illuminated EXIT light.

- Facility personnel's normal work activities occur mostly in the offices and laboratory portion of the building. Personnel would exit from these areas through the main ESF entrance (East side) or through the laboratory in room 108 (West side).
- Routine waste activities occur in the workroom (109). There are two exits from this room that allow access to the exits at the West stair, East stair, or laboratory. Personnel would doff PPE, as necessary once they achieve a safe distance from the emergency.
- Emergency exiting from the waste storage rooms (110 120) will primarily happen through any of the 11 doors that exit directly to the outside (North side). If the situation requires alternative exits, personnel will exit the rooms into the main facility hallway and then proceed to the nearest, accessible stairwell exit.

All facility personnel will meet outside of the upwind (Northeast or Southeast) gate of the facility, at a safe distance, and will report to the emergency coordinator. The emergency coordinator will meet emergency responders at the gate. If there is a fire or excess release/fumes, the emergency coordinator will meet emergency responders at the entrance to the BioResearch Center at Spear Street.

The evacuation plan will be reviewed with all facility personnel on an annual basis. A copy of the building plan with emergency exits marked can be found in Attachment G-2 – *Site Plan and Floor Plan*.

Identification of Hazardous Waste Materials

Should a fire, explosion, or release occur at the facility, the emergency coordinator must immediately identify the character, source, amount, and extent of any released materials by observation, record review, or if necessary, chemical analysis.

The facility maintains a drum report identifying the DOT shipping name, quantity and locations of all bulk and lab-packed wastes stored at the facility. The inventory is updated whenever there is a change and posted in the front foyer of the ESF. This information can also be viewed remotely online. See Attachment G-3 – *Properties of Hazardous Waste* for a listing of hazardous properties associated with common wastes stored at the ESF.

Assessment of Risk to Community, Health & Environment

Whenever there is a release to the environment, fire, or explosion at the ESF, the emergency coordinator will assess the known hazards to human health and the environment, considering all direct and indirect effects. The assessment will include source, identity, amount, and extent of a release; the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions, wind direction, and containment.

If the assessment indicates that evacuation of a surrounding area may be advisable, the emergency coordinator will advise the ranking on-scene Fire Department officer of the situation and provide University assistance as requested. The emergency coordinator will also notify the National Response Center if it is determined that the facility has had a fire, explosion, or release that could threaten human health or the environment outside of the facility.

Control and Containment Procedures for Hazardous Waste Releases

The following actions must be taken in the event of a release of hazardous waste to the environment:

- 1. If a danger of fire exists, contact the Burlington Fire Department through the UVM Police dispatcher. See the notification section for the information that must be provided.
- 2. If facility personnel cannot contain the release, contact a hazardous material response contractor.
- 3. Identify the source of the leak. The emergency coordinator will determine the appropriate level of personal protective equipment.
- 4. Stop the source of the leak if possible.
- 5. Contain any leaked fluid by diking, if necessary, with absorbent materials or by trenching.
- 6. If necessary, the emergency coordinator or designee will close the control structure at the end of the stormwater retention pond.

Emergency Procedures for Fire and/or Explosion

The following actions must be taken in the event of a fire or explosion at the facility:

- 1. Activate the fire alarm system.
- 2. Initiate evacuation procedures. Evacuation routes are posted throughout the facility. In addition, all facility personnel will be trained in the proper evacuation procedures.
- 3. Meet the first arriving fire company and inform the officer of the following:
 - a. Unaccounted facility personnel
 - b. Amount and types of hazardous wastes involved
 - c. Area of the facility involved
 - d. Any additional information, as needed.
- 4. If a release of hazardous waste has occurred, implement the emergency procedures for hazardous waste releases, as outlined above.
- 5. During the emergency, the emergency coordinator will act as liaison between the Fire Department, the emergency contractor, and University personnel.
- 6. Once the fire department has given the "all clear" signal, the emergency coordinator or the designated emergency contractor will inspect the facility to determine if it is safe for others to enter the facility.

Prevention of Recurrence or Spread of Fires, Explosions, or Releases

- 1. Take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other areas at the facility. These measures will include, as applicable:
 - a. Stopping processes and operations
 - b. Collecting and containing released waste
 - c. Removing or isolating containers
- 2. If the facility stops operations in response to a fire, explosion, or chemical release, the emergency coordinator or the designated emergency contractor will monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

Cleanup Procedures

Clean up and repair activities shall be initiated within 24 hours of discovering a spill or leak, once the scene has been handed back over to ESF personnel.

- 1. Personnel involved in cleanup activities will wear appropriate personal protective equipment. The emergency coordinator or the designated emergency contractor will evaluate the hazards present and recommend the appropriate level of protection.
- 2. All contaminated soil, vegetation, and absorbent material will be collected and placed in suitable DOT approved containers, which will be properly labeled for future disposal. decon materials will continue to be stored separately.
- 3. Any runoff water held within the storm water retention pond will be analyzed in accordance with appropriate test methods to determine if it meets the definition of hazardous waste. If it is determined to be hazardous, the run-off will be pumped out and transported to a permitted TSDF and remediation efforts will be implemented for contaminated soil. If the run-off is determined to be free of contamination, the control structure will be opened, and the pond will be drained in accordance with the laws and regulations enforced by the DEC Watershed Management Division.
- 4. Any freestanding liquid hazardous waste will be pumped into compatible, properly labeled, DOT approved containers. The drums will then be stored in the appropriate storage area until transported for final disposal.
- 5. The contents of any leaking drum will be transferred into a compatible structurally sound drum, or the leaking drum will be overpacked into a DOT approved drum.
- 6. All emergency equipment utilized during the emergency will be cleaned and returned to duty after the emergency. Any equipment determined to be unfit will be replaced.
- 7. The facility will not accept any waste for storage until the released material has been cleaned up.

Post-emergency Procedures

After the Emergency Coordinator has evaluated the situation and determined that the emergency is over and an adequate cleanup of the affected areas is complete, they must:

- 1. Notify the Secretary of Natural Resources that the facility is in compliance with Section 7-308(b)(14)(E)(ix) of the Vermont Hazardous Waste Regulations before operations are resumed in the affected areas of the facility.
- 2. Maintain on file with the contingency plan; the time, date, and details of any incident that requires implementing the contingency plan; and
- 3. Within 10 days after the incident, submit a written report on the incident to the Secretary of Natural Resources. Attachment G-4 *Spill Report Form*, from the Vermont Agency of Natural Resources, is an example form that would be used for reporting. The report must include:
 - Name, address, and telephone number of the owner or operator of the facility
 - Name, address, and telephone number of the facility
 - Date, time, and type of incident
 - Name and quantity of material(s) involved
 - Extent of any injuries
 - Assessment of actual or potential hazards to human health or the environment, where this is applicable
 - Estimated quantity and disposition of the recovered material that resulted from the incident

Emergency Equipment

Fire Protection Equipment

The facility is equipped with a temperature-activated fire suppression system. All water-reactive waste is stored in a separate outdoor storage building that is equipped with fire-resistant wallboard and a dry chemical extinguishing system.

Hand-held ABC rated fire extinguishers are located within the chemical storage and work areas of the facility. In addition, a Class D extinguisher is mounted in the general work area for use on flammable metal fires. Fire extinguishers are visually inspected monthly.

Communications Equipment

- Internal and external phone lines allow communication among personnel throughout the building; phone locations are shown on maps on pages 1 and 2 of Attachment G1.
- A fire alarm system capable of summoning emergency assistance, including detection and pull stations, has been installed throughout the facility in accordance with local fire codes. Fire alarm pull box locations are shown on maps on pages G1-1 and G1-2.
- All ESF staff members carry cell phones.

First Aid

First Aid and emergency medical treatment is available through UVM rescue. The waste storage area is equipped with three safety shower and eyewash stations, and the work area is equipped with one safety shower eyewash station.

Respiratory Protective Equipment

All responding facility personnel will be provided with respiratory protection, respirator training, and annual quantitative fit testing. Responding personnel will complete an occupational physical including a pulmonary function test (PFT) according to UVM's respiratory protection program.

Spill Response Equipment

Spill response equipment, sufficient for any spill which would be contained by facility personnel without the aid of an outside emergency contractor, is maintained and kept accessible to the general work area. In the event of an emergency involving more than minimal spill equipment, the 24-hour emergency response contractor will be called to respond.

The following equipment is reserved at the ESF for emergency spills and maintained at positions indicated on the facility site plan:

2	Chemical splash goggles	2	Rubber gloves (pairs)
2	Rubber aprons	2	Pails
10	Sponges	1	Container of pH paper
10	Sample vials	10	Tychem suits
2	Level "B" suits	2	Dust pans
2	Brooms	20	Poly bags
2	Squeegees	1	Sodium bicarbonate
10	Bags Speedi-Dry	1	85-gallon overpack drum
2	Hand pumps	2	55-gallon steel closed head drums
2	55-gallon open head steel drum	2	30-gallon poly closed head drums
2	55-gallon poly closed head drums	2	15-gallon poly closed head drums
2	16-gallon poly open head drums		

Any spill containment equipment utilized during a spill will be decontaminated or properly disposed of and replaced. The decontamination process will be relative to the materials contaminated and may produce additional waste, which will be collected and managed accordingly.

Locations of emergency equipment and personal protective equipment are indicated on the floor plan included in this contingency plan (Attachment G-2, page 1).

Procedures and equipment used to mitigate the effects of equipment failure or power outage

The ESF has an emergency generator located outside the building capable of powering phones, ventilation, exhaust fans, heat, fire alarms, security alarms, interior emergency lighting, and exterior site lighting. In the case of a power outage, the emergency generator powers critical ESF equipment. The physical plant department is responsible for maintaining the onsite generator. Routine testing by physical plant occurs monthly, and planned maintenance by on outside contractor occurs every 6 months. The location of the emergency generator is shown on page 3 of Attachment G1.

Critical ESF systems are monitored 24 hours a day by UVM's Physical Plant Department. Should a critical piece of equipment fail during off-hours, both ESF staff and physical plant personnel are on-call to address the situation.

Contingency Plan for the Reactives Storage Building at the Environmental Safety Facility

Prevention

In order to minimize the chance of a reaction, all reactive chemicals will be stored in the laboratory bottles in which they were shipped. To protect against a release, all bottles will be placed in secondary containers. Containers of reactive waste will be stored in the Reactives Storage Building. During periods of extreme hot or cold weather, some materials may be stored in the main ESF building when the temperature poses a safety concern. Packaging or repacking of containers of reactive chemicals is done in room 109 of the main ESF building.

Building Specifications

The Reactives Storage Building is used to store water reactive, air reactive, spontaneously combustible, poly-nitrated compounds, and other reactive material. This building is a commercially manufactured product with the following safety features:

- Fire resistant wallboard and steel construction
- Corrosion protected steel
- Pressure release panel on rear wall, safety chained to wall
- 6" deep secondary containment sump lined with 20 mils HDPE
- Dry chemical fire suppression system, with fusible-link, automatic activation, and manual pull station activation
- Exterior audible fire alarm
- Class 1, Groups C & D, Division 1 lighting, fan & electrical outlet
- Static grounding system

Response to a release of hazardous materials

In case of a release that does not result in an energetic reaction, the material will be stabilized only if the exact contents are known. For instance, sodium metal would be covered in mineral oil. The material would then be cleaned up using the emergency spill equipment located within the East Stairwell of the main ESF building which includes static-proof brooms, shovels, and water absorbing towels.

Small reactions or fires can be controlled with the Class D fire extinguisher, located outside of room 109 in the loading area of the ESF (see map on page G1-1). This extinguisher is approximately 120 feet from the reactive storage building and 30 feet from room 109.

Response to explosion, fire, or other energetic release

ESF personnel WILL NOT attempt to control a large, energetic reaction, explosion, or fire. ESF personnel will attempt to control the resulting release using absorbents, diking, and trenching methods; and the pond valve will be closed. Emergency response personnel will be called as specified in the notification portion of the contingency plan.

In all instances

- The emergency coordinator will choose the proper PPE.
- Clean-up personnel will follow decontamination procedures.
- Emergency coordinator will follow Emergency Notification Procedures.

Contingency Plan for Transporting Hazardous Wastes

For operators of UVM vehicles that transport hazardous materials

Prevention

Wastes are packaged in sealed DOT-approved containers and transported to the ESF only in properly permitted, vehicles that are placarded in accordance with DOT regulations. The waste containers are unloaded at the loading dock inside the truck bay. DOT-required shipping documents are within arm's reach of the driver or on the driver's seat if the driver is not on the truck at all times.

Response to accident or release

1. Protect Yourself

Stay upwind and uphill of any accident involving suspected hazardous materials. Do not touch any spilled material; breathe any smoke, fumes, or vapors. Do not eat, drink, or smoke. Use Personal Protective Equipment! All vehicles carrying hazardous materials are equipped with the PPE necessary for dealing with discharges of those materials.

2. Call for Help

All ESF vehicles are equipped with a cellular telephone while transporting hazardous waste. UVM Police will notify appropriate fire department and / or EMS.

UVM Police Services / Rescue	911
Burlington Fire Department	911
South Burlington Fire Department	911

Relay all pertinent information including:

- Location of accident
- Injuries
- Chemical involved
- Size of spill
- Danger to public and environment
- Potential impacts to waterways
- Assistance needed

ESF will notify spill contractors.

NRC East Environmental Services, Inc. 800-899-4672 Absolute Spill Response, LLC. 877-947-7455

3. Rescue the Injured

While considering all hazards, using appropriate safety equipment, recognizing your training limitations, and assessing the immediate danger to the victim and yourself, administer first aid and emergency response.

- For contamination, flush area with water for 15 minutes, remove contaminated clothing. Protect yourself.
- Do not move victim unless there is an immediate danger in that area.

- Administer First Aid, being aware that the victim may be contaminated with a hazardous material.
- Inform EMS, hospital, and any other responder of the nature of the hazardous exposure.
- Blankets can be used to prevent contamination of the ambulance interior.

4. Contain the Spill

Using proper PPE determined by the emergency coordinator, attempt to stop, slow, or contain the leak. Plugging holes, constructing dikes, or simply changing the position of the drum can accomplish this. All hazardous materials hauling vehicles should carry proper PPE.

If the discharge has reached the ground, use absorbent materials or trenching techniques to control the spread of the material. Prevent spilled material or firefighting runoff from entering sewers, drains, buildings, and water sources, by using absorbents, trenching, diking, or diverting the material. All hazardous materials hauling vehicles should also have proper spill containment equipment, such as absorbent materials, broom, shovel, and a salvage type drum.

Prevent the public from entering the area. Evacuate all unnecessary persons. Direct and reroute traffic. Consult North American Emergency Response Guidebook, table of Isolation & Evacuation Distances to determine if downwind evacuation or contamination zones need to be implemented.

5. Allow Trained Personnel to Perform Their Tasks

When the fire department arrives, inform them of the nature of the chemical, and allow them to work. Assist spill response personnel with information but allow them to lead the cleanup efforts.

Attachment G-1 Quick Reference Guide

Emergency Coordinator List

Primary Emergency Coordinator

Dorian Evans, MS, REM, CHMM *Environmental Compliance Manager* Emergency Contact #: **214-563-4955**

Work: 802-656-0767 Home: 214-563-4955 34 Overlook Lane Richmond, VT 05477

Alternate Emergency Coordinators

(1) Brian Medor

Environmental Safety Technician Emergency Contact #: **802-228-6729**

Work: 802-656-5408 Home: 802-868-3727 53 Pine Street

Swanton, VT 05488

(2) Brian Hodge

Environmental Safety Technician Emergency Contact #: **802-777-9183**

Work: 802-656-5408 Home: 802-434-3171 8368 Main Road Huntington, VT 05462

(3) Francis Churchill

Interim Director of Risk Management Emergency Contact #: 802-316-9566

Work: 802-656-5405 Home/Cell: 802-316-9566

20 Wheeler Lane Richmond, VT 05477

Waste Storage Information

ROOM	Hazardous Waste Types	Hazards	Max. Volume (gallons)
109	Temporary storage, all types	Varies	Varies
110	Flammables, Poisons	Ignitable, Toxic ² , Reactive with Acids ³	1,100
111	Flammables, Poisons	Ignitable, Toxic ² , Reactive with Acids ³	1,100
112	Flammables, Poisons, Corrosives	Ignitable, Toxic ² , Corrosive ⁴	1,100
113	Flammables, Poisons	Ignitable, Toxic ²	1,100
116	Flammables, Poisons, Organic acids, Organic peroxides, Other regulated material	Ignitable, Corrosive, Toxic, Reactive/Intensify Fire	1,100
118	Inorganic acids, Oxidizers	Corrosive ⁴ , Toxic ² , Reactive/Intensify Fire	1,100
119	Alkaline/Bases, Mercury, PCBs	Corrosive, Toxic ⁵	1,100
120	Ballasts, Fluorescent lamps, Mercury, PCBs	Toxic ⁵	1,100
RSB ¹	Reactive wastes	Pyrophoric, water-reactive, self-reactive	440

- 1. Reactives Storage Building
- 2. Exposure to cyanide containing materials and vapors will require specialized medical treatment.
- 3. Cyanide bearing waste may form potential inhalation hazards on contact with acids.
- 4. Exposure to acids, including hydrofluoric acid solution and vapors, could require specialized medical treatment.
- 5. Exposure to heavy metal bearing wastes may require specialized medical treatment.

Properties of Hazardous Waste Stored at the ESF

Type of Waste

Hazardous properties, injury or illness that could result from exposure to chemicals involved in fires, explosions, or releases at ESF

Flammable Liquids and Gases

Flammable liquids and gases readily catch fire and burn in air. Containerized flammable liquids may boil or become pressurized in a fire and vent explosively with either a spout of flame or shrapnel from the container. These can cause serious tissue burns. Superheated vapors can be inhaled causing excessive burns to the respiratory system.

Flammable Solids

Flammable solids readily catch fire and burn in air, often with intense heat. These are often difficult to extinguish and can cause deep tissue burns.

Pyrophoric or Spontaneously Combustible Materials

Pyrophoric chemicals react with the air to catch fire, or release a toxic, flammable, or corrosive gas. These can cause temperature burns, corrosive burns, asphyxiation, or other toxic effects.

Water Reactive

Water reactive chemicals react with water (including excessive humidity in the air) to catch fire, or release a toxic, flammable or corrosive gas.

Oxidizing Agents

Oxidizing agents may react violently when they come into contact with reducing agents and sometimes with ordinary combustibles. The resulting fire or explosion can cause serious burns.

Corrosive Materials

Corrosive materials are acids (pH less than 2.0) and bases (pH>12.5). These can cause destruction of living tissue by chemical action at the site of contact and can be solids, liquids or gases. Corrosive effects can occur on the skin and in eyes, as well as in the respiratory or gastrointestinal tract. Corrosive effects can happen rapidly. Some materials, such as hydrofluoric acid, are specific to the materials they target, making emergency decontamination difficult. Many oxidizing agents also have corrosive effects.

Toxic – Irritants

Irritants are non-corrosive chemicals that cause reversible inflammatory effects.

Toxic - Allergen

Chemical allergies can result from low-level exposures to chemicals, following previous sensitization. Allergy-related symptoms can range from mild skin irritation to chemical pneumonitis and anaphylactic shock. Allergy symptoms can present soon after exposure or can be delayed.

Toxic – Asphyxiant

Asphyxiants prevent oxygen from getting into the body (simple asphyxiants) or prevent oxygen from getting to organs and tissue once inside the body (chemical asphyxiants).

Toxic - Carcinogens, Reproductive & Developmental toxins

Carcinogenic materials cause, or are suspected to cause, cancer or uncontrolled cell growth. Mutagens cause mutations in cell growth. Teratogens cause birth defects in the offspring of the exposed individual. Reproductive toxins may target the male or female reproductive systems resulting in adverse effects on fertility, gestation, lactation, or reproductive performance. Developmental toxins produce adverse effects on the development of an embryo or fetus.

Toxic - Neurotoxin

Neurotoxins target the central nervous system (brain, spinal cord, neurotransmission, cerebrospinal fluid) or the peripheral nervous system (nerves and neurons). Neurotoxic effects range from slurred speech and headaches to neuropathy, paralysis, and death.

Toxic – Toxins affecting specific organs or systems

Specific chemicals can target and disrupt the function of the kidneys, liver, blood formation system and other body systems and organs.

The general hazards described in the above table do not account for routes of exposure, duration or frequency of exposure, concentration of chemical, or the hazards of mixed chemicals. A chemical may be expected to have more than one hazard (i.e., flammable and toxic). Those factors, along with the acute and chronic effects of exposure, need to be considered in any hazard analysis.

Evacuation Procedure and Routes

The fire alarm is the signal to initiate an evacuation of the facility. Upon hearing the fire alarm, facility personnel will proceed to the nearest emergency exit. All emergency exits have an illuminated EXIT light.

- Facility personnel's normal work activities occur mostly in the offices and laboratory portion of the building. Personnel would exit from these areas through the main ESF entrance (East side) or through the laboratory in room 108 (West side).
- Routine waste activities occur in the workroom (109). There are two exits from this room that allow access to the exits at the West stair, East stair, or laboratory. Personnel would doff PPE, as necessary once they achieve a safe distance from the emergency.
- Emergency exiting from the waste storage rooms (110 120) will primarily happen through any of the 11 doors that exit directly to the outside (North side). If the situation requires alternative exits, personnel will exit the rooms into the main facility hallway and then proceed to the nearest, accessible stairwell exit.

All facility personnel will meet outside of the upwind (Northeast or Southeast) gate of the facility, at a safe distance, and will report to the emergency coordinator. The emergency coordinator will meet emergency responders at the gate. If there is a fire or excess release/fumes, the emergency coordinator will meet emergency responders at the entrance to the BioResearch Center at Spear Street.

The evacuation plan will be reviewed with all facility personnel on an annual basis. A copy of the building plan with emergency exits marked is attached and can also be found in Attachment G-2 – *Site Plan and Floor Plan*.

Maps and Diagrams

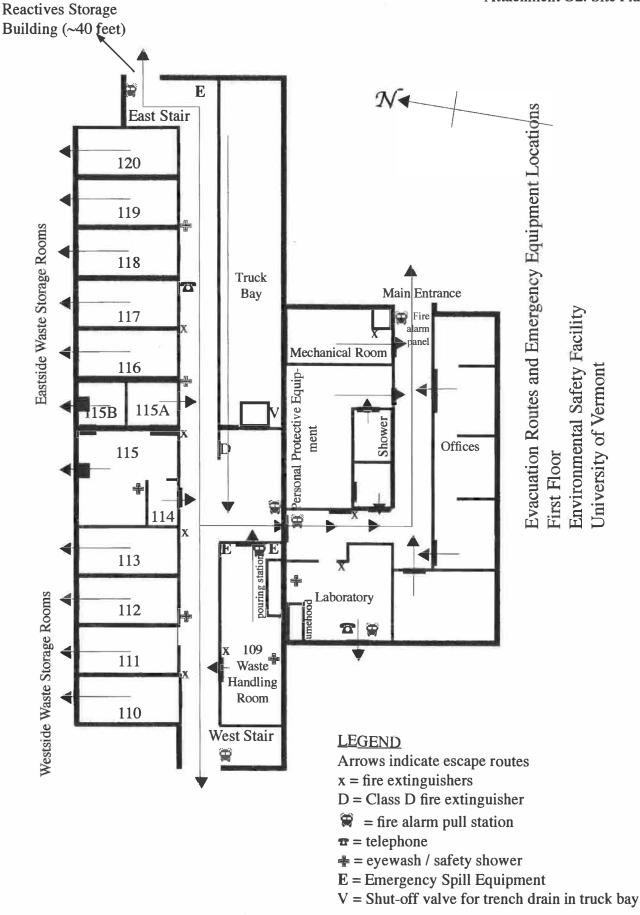
Site Plan – Attachment G-2

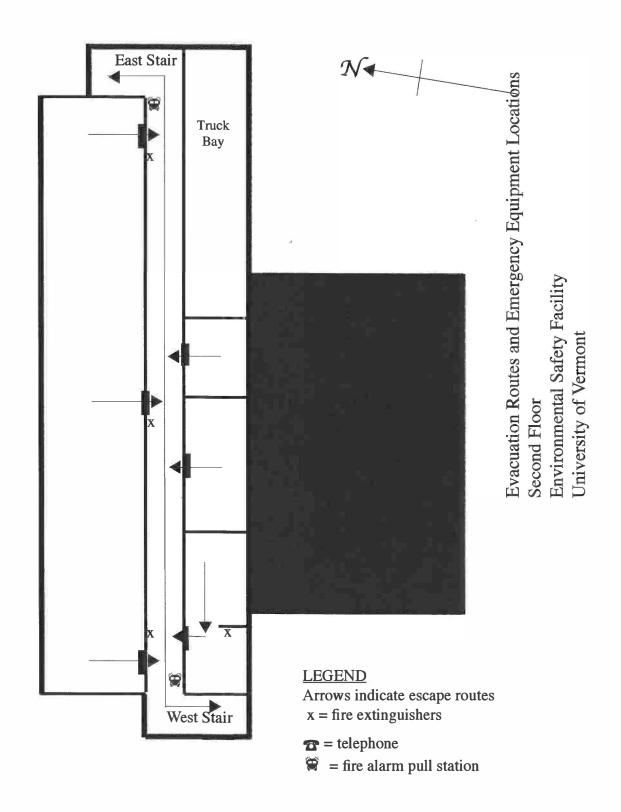
Page 1 includes where hazardous wastes are generated, accumulated, and treated. It also includes routes for accessing these wastes and the evacuation routes. Page 1 also shows the location on the fire alarm panel, located near the main entrance.

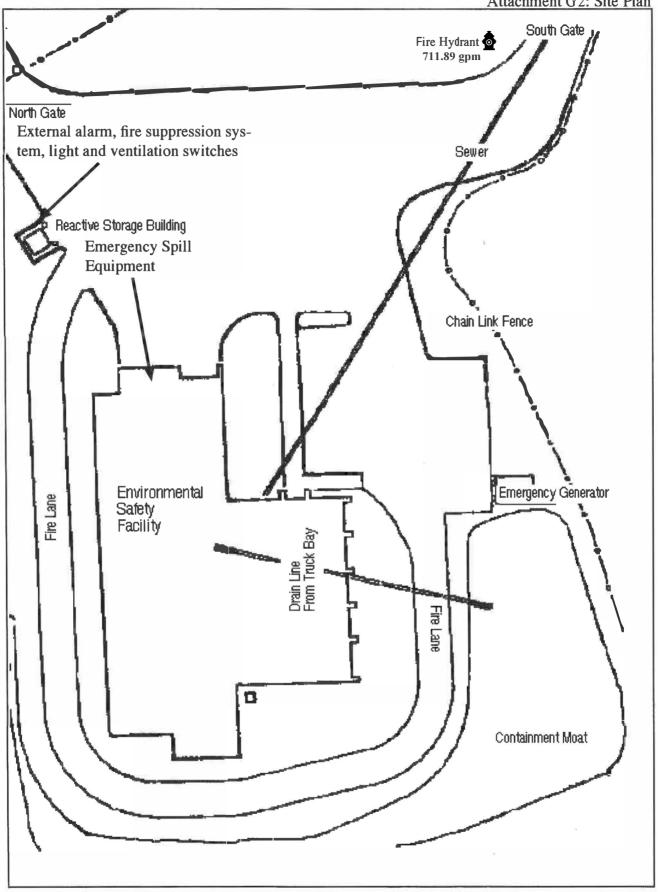
Page 3 shows the Reactives Storage Building, where additional hazardous wastes are stored. Also shown on Page 3 is the fire hydrant, fencing around the property, and containment moat. The fire hydrant available to service the ESF has a flow rate of 711.89 gallons per minute.

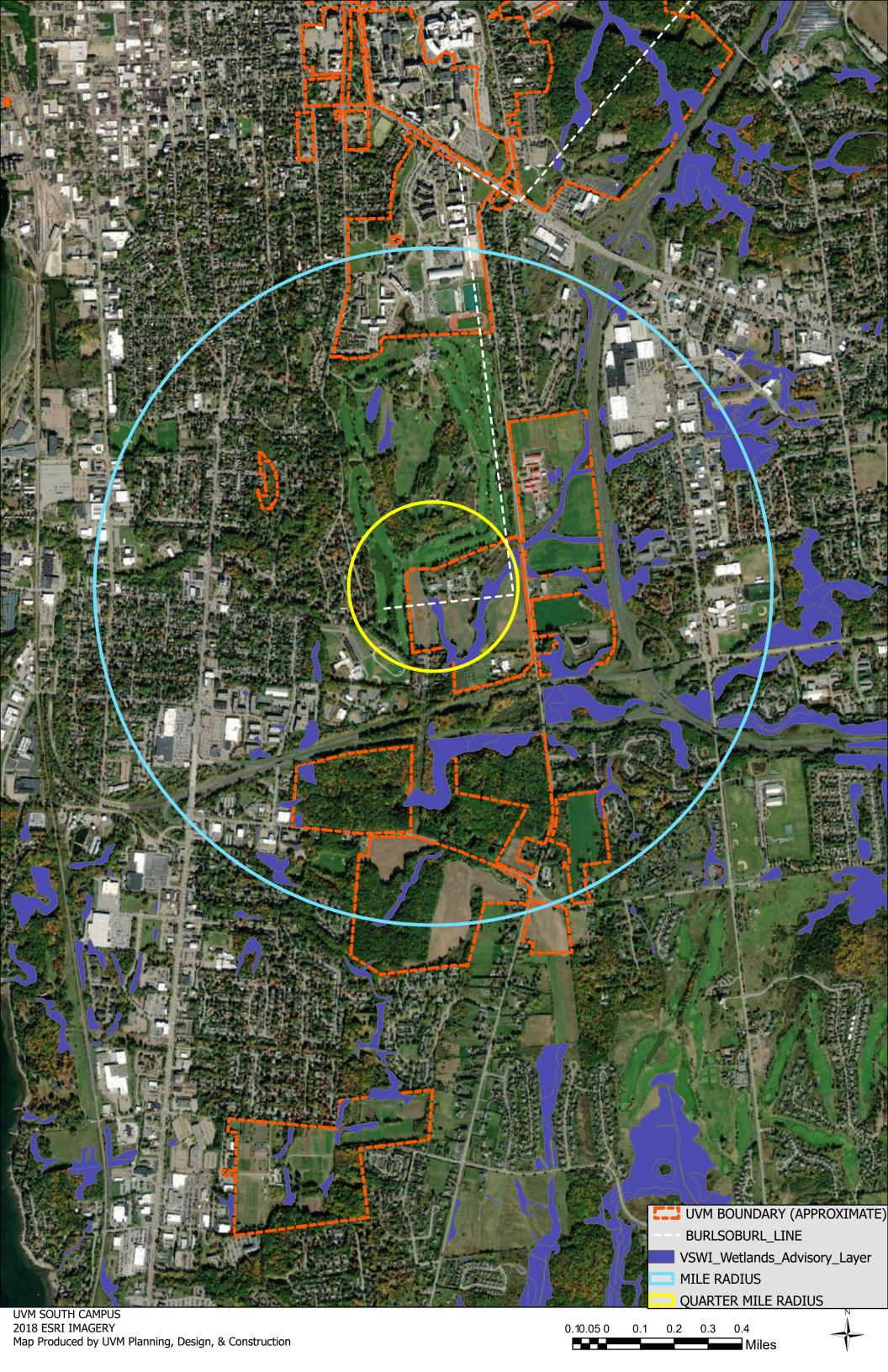
Surrounding Properties

The ESF is located approximately one mile South of UVM's athletic facilities within the UVM BioResearch Complex (BRC) on the West side of Spear Street. The Burlington Country Club golf course forms the North and West boundaries of the site, approximately 300 feet from the ESF. The Meadowbrook Condominium Association's multi-family housing, and the Roman Catholic Diocese's Rice High School, are located approximately 1000 feet to the South, and southwest respectively. of the ESF on the other side of a field cultivated by the UVM's Miller Research Farm. The following Ortho map provides an aerial view of the ESF and surrounding properties.



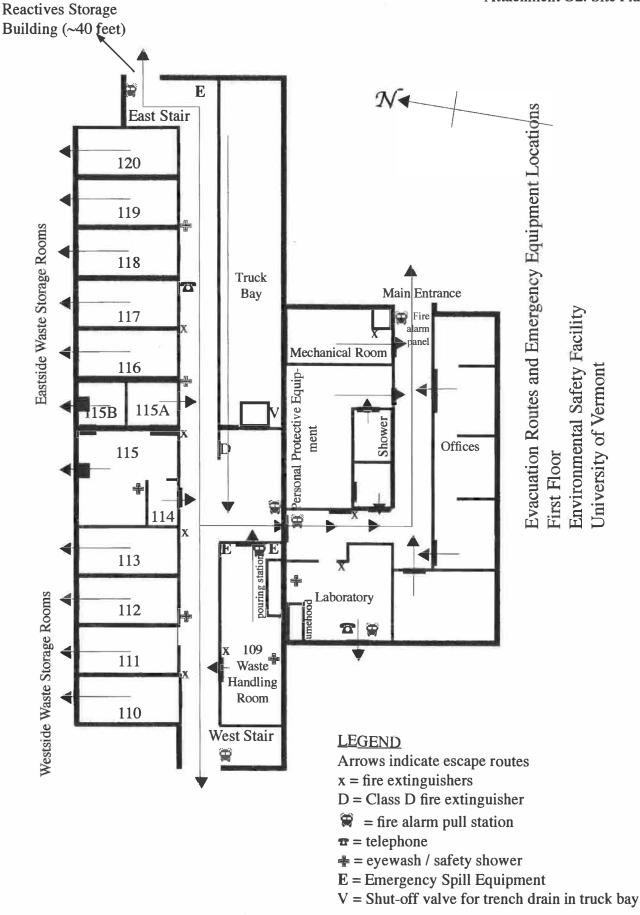


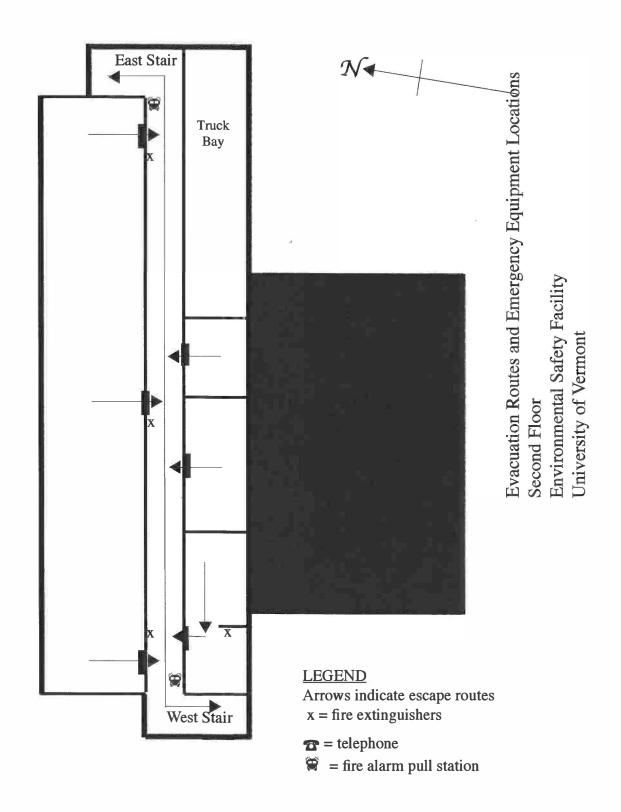


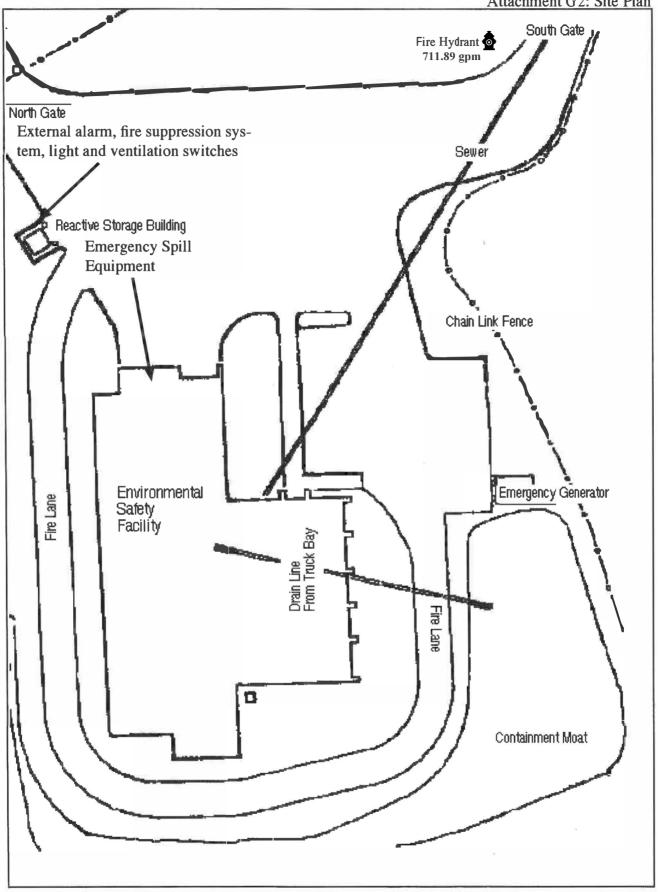


Attachment G-2

Site Plan & Floor Plans







Attachment G-3

Properties of Hazardous Waste Stored at the ESF

Properties of Hazardous Waste Stored at the ESF

The ESF receives waste chemicals from all of UVM's laboratories. At any point, the ESF will store waste from between 1,000 and 5,000 chemicals. Most of these are in laboratory amounts (less than 1 gallon, less than 1 pound). The following table, extracted from <u>Prudent Practices in the Laboratory</u> summarizes the types of waste, along with the associated hazards and types of injuries or illnesses that could result from fires, explosions, or releases at the facility.

Type of Waste	Hazardous properties, injury or illness that could result from exposure to chemicals involved in fires, explosions, or releases at ESF
Flammable Liquids and Gases	Flammable liquids and gases readily catch fire and burn in air. Containerized flammable liquids may boil or become pressurized in a fire and vent explosively with either a spout of flame or shrapnel from the container. These can cause serious tissue burns. Superheated vapors can be inhaled causing excessive burns to the respiratory system.
Flammable Solids	Flammable solids readily catch fire and burn in air, often with intense heat. These are often difficult to extinguish and can cause deep tissue burns.
Pyrophoric or Spontaneously Combustible Materials	Pyrophoric chemicals react with the air to catch fire, or release a toxic, flammable or corrosive gas. These can cause temperature burns, corrosive burns, asphyxiation or other toxic effects.
Water Reactive	Water reactive chemicals react with water (including excessive humidity in the air) to catch fire, or release a toxic, flammable or corrosive gas.
Oxidizing Agents	Oxidizing agents may react violently when they come into contact with reducing agents and sometimes with ordinary combustibles. The resulting fire or explosion can cause serious burns.
Corrosive Materials	Corrosive materials are acids (pH less than 2.0) and bases (pH>12.5). These can cause destruction of living tissue by chemical action at the site of contact and can be solids, liquids or gases. Corrosive effects can occur on the skin and in eyes, as well as in the respiratory or gastrointestinal tract. Corrosive effects can happen rapidly. Some materials, such as hydrofluoric acid, are specific to the materials they target, making emergency decontamination difficult. Many oxidizing agents also have corrosive effects.
Toxic – Irritants	Irritants are non-corrosive chemicals that cause reversible inflammatory effects.

Toxic – Allergen	Chemical allergies can result from low-level exposures to
	chemicals, following previous sensitization. Allergy-related
	symptoms can range from mild skin irritation to chemical
	pneumonitis and anaphylactic shock. Allergy symptoms can
	present soon after exposure or can be delayed.
Toxic – Asphyxiant	Asphyxiants prevent oxygen from getting into the body (simple
	asphyxiants) or prevent oxygen from getting to organs and tissue once inside the body (chemical asphyxiants).
Toxic –	Carcinogenic materials cause, or are suspected to cause, cancer or
Carcinogens,	uncontrolled cell growth.
Reproductive &	Mutagens cause mutations in cell growth.
Developmental	Teratogens cause birth defects in the offspring of the exposed
toxins	individual.
	Reproductive toxins may target the male or female reproductive
	systems resulting in adverse effects on fertility, gestation, lactation or reproductive performance.
	Developmental toxins produce adverse effects on the development
	of an embryo or fetus.
Toxic – Neurotoxin	Neurotoxins target the central nervous system (brain, spinal cord,
	neurotransmission, cerebrospinal fluid) or the peripheral nervous
	system (nerves and neurons). Neurotoxic effects range from
	slurred speech and headaches to neuropathy, paralysis and death.
Toxic – Toxins	Specific chemicals can target and disrupt the function of the
affecting specific	kidneys, liver, blood formation system and other body systems and
organs or systems	organs.

<u>Prudent Practices in the Laboratory</u>, National Academy Press 1995, Chapter 3: Evaluating Hazards and Assessing Risks in the Laboratory

The general hazards described in the above table do not account for routes of exposure, duration or frequency of exposure, concentration of chemical, or the hazards of mixed chemicals. A chemical may be expected to have more than one hazard (i.e. flammable and toxic). Those factors, along with the acute and chronic affects of exposure, need to be considered in any hazard analysis.

Hazard information about a specific chemical involved in an event will have to be researched. Whenever possible, three sources of information should be consulted. These sources can include material safety data sheets, a chemical dictionary, The Merck Index, Prudent Practices in the Laboratory, and A Comprehensive Guide to Hazardous Properties of Chemical Substances (Patnaik).

Attachment G-4 Example Spill Report Form



Spill Report Form

Vermont Agency of Natural Resources Department of Environmental Conservation Waste Management & Prevention Division



DEC Spill Number:

Company Preparing Report:

Date of Release:

Company Contact:

company repaining heports.								
Release Location				Responsible Party				
Property Name:			Name:					
Street Address:				Mailing Address:				
Town:	Z	ip:		Town:			Zip:	
Contact	Person:			Contac	t Pers	on:		
Contact	Phone:			Contac	t Pho	ne:		
Contact	Email:			Contact Email:				
	R	elease Informa	tion (c	rheck a	ıll that	· annly)		
☐ Abov	eground Storage Tank			lential	iii ciia	. ирріу)	Product Type:	
	rground Storage Tank		Comr	mercial	/Indu	strial	☐ #2 Heating Fuel	
	ele Accident			ice Wat	•		☐ Kerosene	
	aulic Equipment		Indoo				☐ Diesel Fuel	
☐ Fire				Produc	:t		☐ Gasoline	
☐ Railw	av		Othe				☐ Waste Oil	
	oper Disposal/Poor Hou	sekeeping	_ circi.				☐ Hydraulic Oil	
	ed Quantity of product						☐ Other:	
	1	Recep	tor Inf	format	1			
YES N	10			YES	NO		()	
\vdash	Water Supply Well On-site					Drinking Water (DW) Impacted		
$\parallel \perp \parallel \parallel$	Municipal Water S					Indoor Air (IA) Impacted		
	Leachfield potenti					Surface Water Impacted		
	Surface Water Pro			$\sqcup \!\!\!\! \perp$		Groundwater (GW) Impacted		
	Groundwater Soul	rce Protection A	Area			Drainage imp	pacted	
☐ Othei	r:							
	Соннос	tivo Astions Da	- uf - um	ad /ab	اه ماد ما	+ - - - - - -		
□ Free	Corrective Actions Performed (check all that apply)							
,				Quantity Recovered (units): Absorbents (ongoing) Over/under dam				
			Quantity Excavated (units):					
				Stockpile Location:				
1 0			Disp	Disposal Location:				
□ Drums □ Truck			•	□Roll-off				
☐ Other Spill Waste: ☐ Shipped for disposal ☐ Onsite Awaiting Disposal								
☐ Vapor Abatement				☐ Surface Water Protection/Containment				
□Sub-slab vent □Indoor Air				☐Sorbent boom/pads ☐ Hard boom				
de			•					

^{*}Unless performed under emergency response, a Soil Management Plan is required per §35-804

Investigation Measures Performed (check all that apply)							
☐ Soil Borings Advanced: #	☐ MWs Ir	nstalled: #	☐ Test Pits: #				
☐ Soil Samples: #	☐ GW Sar	nples: #	☐ DW Samples: #				
☐ PID screening	☐ IA Scree	ening/Sampling	☐ Notes/other:				
Attachments (as applicable,							
☐ Site Plan(s) incl PCS location ☐ Laboratory Analytical Report(s) ☐ Field Screening Results							
	isposal Rec		☐ Boring/MW Log(s)				
	aily Work S	heet(s)					
☐ Other:							
Release Re	snonsa Sur	nmary and Conclus	sions				
Neiease Ne	sponse sur	illilary and Concius	SIOIIS				
Recommendations (Check all that apply)							
§35-505 Additional Site Investig	gation	록	soil excavation				
Vapor intrusion evaluation		Soil vapor extr	action				
Groundwater investigation		Spill Closure					
Drinking water sampling		Soil Disposal					
Disposal of drummed waste		Other (specify					

Spill Report Form Directions

This form and attachments may be submitted to the Vermont Agency of Natural Resources, Department of Environmental Conservation, Waste Management & Prevention Division, Spill Program to document initial and potentially follow-up response actions conducted to address releases of hazardous materials. When a response summary is required by §35-503 of the Investigation and Remediation of Contaminated Properties Rule or if response costs are eligible for reimbursement through the Petroleum Cleanup Fund, this form must be submitted to the Spill Program unless the consultant/contractor instead submits a proprietary report. Completed forms may also be submitted with a proprietary report.

<u>Release Location</u>: Enter the physical address where the release occurred. Contact information requested is for the on-site contact, which may not be the Responsible Party.

<u>Responsible Party</u>: Enter the name and contact information for the person or entity that is responsible for the release.

<u>Release Information</u>: Enter the general information that is applicable to the release; including source, setting, and type and quantity of material released.

Receptor Information: Enter the information pertaining to impacted sensitive receptors as known.

<u>Corrective Actions Performed</u>: Enter the information for corrective actions that were undertaken to address the release. Include waste disposal or treatment information.

<u>Investigation Measures</u>: Enter the information about investigation work performed, including field screening results, the collection of environmental media samples for laboratory analysis, and/or the advancement of soil borings and installation of monitoring wells.

Attachments: Include documentation that supports the information entered on the Spill Report Form. When the form is being submitted to document the Initial Release Investigation required by §35-503, tabulated analytical results (i.e. lab data, PID table, etc.) site plan, photos, laboratory report(s), and disposal receipts ARE REQUIRED. Additional details are provided below:

Analytical results: Tabulated analytical results with direct comparison to environmental media standards are required by §35-503(3). For other reporting efforts, attaching complete laboratory reports is acceptable.

Site plan(s): Should depict the location of the release (UST, AST, pipe, etc.), extents of buildings in the vicinity, soil stockpiles, and monitoring points or systems installed. Extents of soil excavation(s) should be included as well.

Waste disposal documentation: If still pending, indicate in Summary the anticipated date on which the documents will be provided to the Spill Program.

Release Response Summary and Conclusions: Provide a brief narrative description of the site, property history, release, response actions completed, and conclusions. If more space is needed, submit a separate narrative document along with the completed form.

<u>Recommendations</u>: If there is a recommendation for additional response or investigation and the options are not presented with a check box, include the recommendations in the summary narrative component of the form.