

Upper Valley Lake Sunapee Regional Planning Commission

Household Hazardous Waste Facility Readiness and Programming Report



Special Waste Associates

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Introduction and Report Preparation Context

This report was prepared for the Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC) by Special Waste Associates (SWA). The purpose of the report is to assess the viability of using the existing household hazardous waste (HHW) collection building, located at the Town of Hartford, VT, Recycling and Waste Management Center, as a regional collection hub for household and small business hazardous waste generators in the region.

The existing collection facility in Hartford has not been routinely used for collection of HHW since it was constructed in the early 1990's. The facility provides a central location and valuable existing infrastructure for a potential regional collection program. This report will evaluate both the readiness of the existing facility to perform as a regional facility as well as general regional programming and regulatory considerations.

On May 18, 2017 SWA performed a site visit at the existing collection facility in Hartford and attended a meeting with UVLSRPC and local government representatives to discuss significant issues regarding a regional HHW collection facility. Ultimately it was decided that there is interest in finding regional solutions in providing increased levels of service for households and at some point commercial users that generate relatively small quantities of hazardous waste.

One significant challenge in programming this regional activity is to understand and address the different environmental regulatory laws of New Hampshire and Vermont. Research of the environmental rules and direct communications with both state environmental regulatory agencies was conducted to better understand the differences and potential operations that would satisfy both states.

An efficient and cost-effective collection program requires implementation of the regulatory, physical and programmatic needs into a comprehensive and safe operation. This report includes a broad ranging scope to include regulatory, physical and programmatic types of needs. However, this report is neither an operations plan nor a permit application to expand, build, or operate a HHW collection facility. The information included in this report provides analyses and recommendations that should assist the region in moving towards the development of an efficient and safe collection facility. The mechanisms by which capital and operating funding needs may be met are not part of this report nor are potential cost estimates.

The information and analyses that SWA provided should facilitate a more focused direction for developing a regional program. The next section of the report provides direction for how the region may consider transitioning from the current occasional HHW collection event system to a permanent regional facility. During this transition the level of service to the citizens in the region will gradually increase, as the availability of this collection service is expanded to a year-round program.

SWA is available to assist with any follow-up tasks as needed within our areas of expertise.

Transitioning from Collection Events to a Year-Round HHW Collection Facility

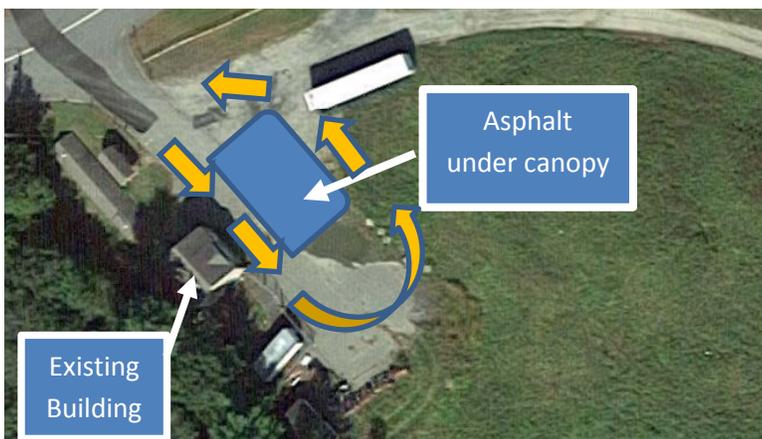
This section focuses on transitioning to a permanent solution for providing reasonable year-round HHW collection for the region. The region should begin generating the funds needed to make the capital improvements to the existing Hartford building and start transitioning to a locally-operated permanent solution. During the transition, experience can be developed locally by training municipal employees to operate the collection facility with expanded collection events in the region. This transition from total reliance on hired contractors a few times per year providing everything to a program run and staffed locally and open year-round will take time, but is a common path.

A first step in this transition could be to temporarily expand adjacent to the Hartford facility. Local staff would be trained over time to perform the work of the contractor as the frequency of collection activity increases at the Hartford facility. A phased program transition plan should be developed in conjunction with local agencies.

A temporary transitional expansion of the Hartford facility could be as simple as an asphalt pad with curbing inside a tent pole canopy system. This would reduce transportation costs, as only full truckloads would be shipped. The current Hartford building is not sufficiently sized to allow this. The curbing would provide secondary containment for waste stored under the canopies. Temporary space could also be made available for aggressive waste reuse to further reduce operating unit costs.

While the temporary transitional expansion area is in operation, financial capital could be accumulated for a permanent building and local staff could be identified and trained to eventually become the operators. To start the transition, it may be reasonable to start with the temporary facility open one day per month, increasing open days in a measured way as the region becomes aware of the expanded service level and local staff become more competent in the operations. The Chittenden Solid Waste Management District may provide an example of cost basis for local staffing while transitioning from the current model to permanent year-round operations.

A conceptual site diagram with traffic flow of how this might be implemented at the current Hartford transfer station is shown below. This configuration would take advantage of the current building while also allowing work on the permanent expansion to the southeast of the current building to occur simultaneously.



The table below outlines transition plans from the limited-service, more expensive contractor run collection event system, (Phase 1), to a system relying primarily on local trained staff, lower unit costs, and a higher-level of service to the region (Phases 2 through 4). Transitioning through Phases 2 and 3 increases service and can be accomplished relatively quickly. Phase 4 calls for building an expansion of the Hartford facility, which may require a longer timeframe to accomplish.

Phased Changes - Occasional Collection Events to Year-Round Regional Collection Center

Operating Modes/Features	Phase 1	Phase 2	Phase 3	Phase 4
Status quo collection events, <u>6 to 7 events per year</u> around region	✓			
Regional <u>monthly collection events</u> at Hartford with expanded pavement including curbing to contain spills and tent canopy to exclude precipitation. Use existing facility to store bulk supplies and some waste containers awaiting shipment. Additional space under canopy allows shipping truckload quantities.		✓		
Regional <u>monthly collection events</u> at Hartford facility as in phase 2. Add use of Hartford facility to stage <u>quarterly smaller events in outlying areas</u> and to bulk flammable liquids with existing ventilation system.			✓	
Regional <u>weekly or more often collection days year-round</u> at expanded Hartford facility and <u>quarterly smaller events in outlying areas</u> of the region.				✓
Divert good condition, useable products from wastes delivered to reuse by local residents (provides significant operating cost savings).		✓	✓	✓
Ship wastes in full semi-truck loads to reduce operating costs.		✓	✓	✓
Role of Contractor Staff				
Set up and operate all collection events.	✓	✓		
Provides baseline and annual OSHA/Hazwoper as wells as basic and advanced operations training for local staff.		✓	✓	✓
Leads operations in coordination with local staff.		✓	✓	
Supports operation by local staff. Provides specialized on-call operations expertise for waste management and waste identification.				✓
Transportation of wastes destined for out-of-region management.	✓	✓	✓	✓
Use of Hartford Facility				
Not used except for materials supply staging during a Hartford collection event (no changes to building).	✓			
Storage of supplies and some sealed containers, flammable bulking and storage occurs outside, under tent canopy (no building changes).		✓		
Storage of supplies and designation as an H-2 Occupancy to allow bulking and storage of flammable liquids. This will require working with local fire marshal to assure compliance with current code. Likely work will include bringing ventilation as well as monitor and alarm systems to normal operating condition by specialty vendors.			✓	
Expand Hartford building footprint with permanent structure to serve region as year-round hub for waste collection and provide adequate space for full truckload shipments of wastes managed outside of the region. This will be a significant investment in new construction and higher level of service to the region at lowest feasibly unit costs.				✓

Existing Facility Conditions, Design, and Site Constraints

Existing Facility Conditions

The existing facility located at the Town of Hartford's Recycling and Waste Management Center was built in 1992, but has not been routinely operated as intended; as an HHW collection, processing, storage and shipping facility. Examination of the interior of the building and equipment condition during the site visit on May 18, 2017 confirmed that the building is not currently used as intended, although there were a few drums of used oil stored in the building. Nonetheless, the building is in reasonable enough condition to be evaluated and considered as a good baseline asset to act as a regional hub for the collection of HHW in the near term and possibly for business wastes in the future.

The facility is constructed of a durable reinforced concrete floor, concrete masonry unit (CMU) block walls, with an asphalt composition roof. The interior has a high finished ceiling so the nature of the roof truss work was not visible. There are water stains on the north interior wall, so an evaluation of the condition of the roof, flashing and other points of water intrusion should be performed as well as any potential structural issues resulting from water in the building. These potential problems should be resolved through inspection by building and structural professionals.

Existing Facility Features

The existing HHW collection facility is centrally located in the region near the intersection of Interstates 89 and 91. The facility has many built-in safety features designed to meet building and fire code provisions as well as provide a safe work environment when consolidating flammable liquids and storing hazardous materials.

Flammable Liquid Consolidation When flammable liquids such as gasoline, oil-based paint and stains, liquid fuels, and flammable solvents arrive at HHW collection sites their contents are typically transferred into a 55-gallon drum with a funnel or into a 200+ gallon intermediate-bulk container, IBC. This consolidation of flammable liquids allows customers to retain their reusable fuel cans and saves operating costs by minimizing packaging materials, on-site storage space, and off-site shipping costs.



Interior Staining on North Wall

When flammable liquids are consolidated into larger containers, flammable vapors are generated and need to be controlled to avoid the accumulation of concentrations high enough to ignite or explode. This is accomplished through mechanical ventilation, as close as practical to the funnel, where the flammable liquids are transferred to the larger container. The Hartford facility has ventilation hoods already built-in which can remove flammable vapors close to the point of generation. In addition, there is the potential to create static discharge if the containers are not electrically bonded together and grounded. During the site visit SWA did not observe any built-in bonding and grounding equipment, however, this is an inexpensive retrofit. Finally, where flammable liquid transfers occur, the fire code requires that electrical equipment not create sparks or that the equipment contains any possible ignition within special housings.¹ The existing building is equipped with the necessary equipment that avoids or



Explosion Proof Control Switches, typical in H-2 occupancies

contains spark generation within special housings.



South Wall Ventilation Hoods

The existing ventilation and heating equipment appears to be designed for use in areas where flammable vapors are present, but this should be verified by the local fire or building officials. It is recommended at Phase 3 of the collection system transition process, a flammable liquid bulking station be established on the south wall of the building where there appears to be appropriate ventilation hoods already installed.

An additional safety feature already installed is a combustible gas sensor, monitor, and alarms. The sensor is located near the ceiling on the east wall, the monitor is located outside the north wall and the alarms are on the inside of the north wall. This combustible gas monitoring system provides warning through visual, flashing lights, and aural, sound alarms, if the concentration of flammable vapors approaches dangerous levels.

To be most effective it is common practice to locate the sensor close the point where flammable vapors are created. In this case that would be on the south wall

¹ These areas are usually considered to be “H-2” occupancies by local fire code enforcement officials.



Combustible Gas Sensor



Light and Sound Alarms



Gas Monitor

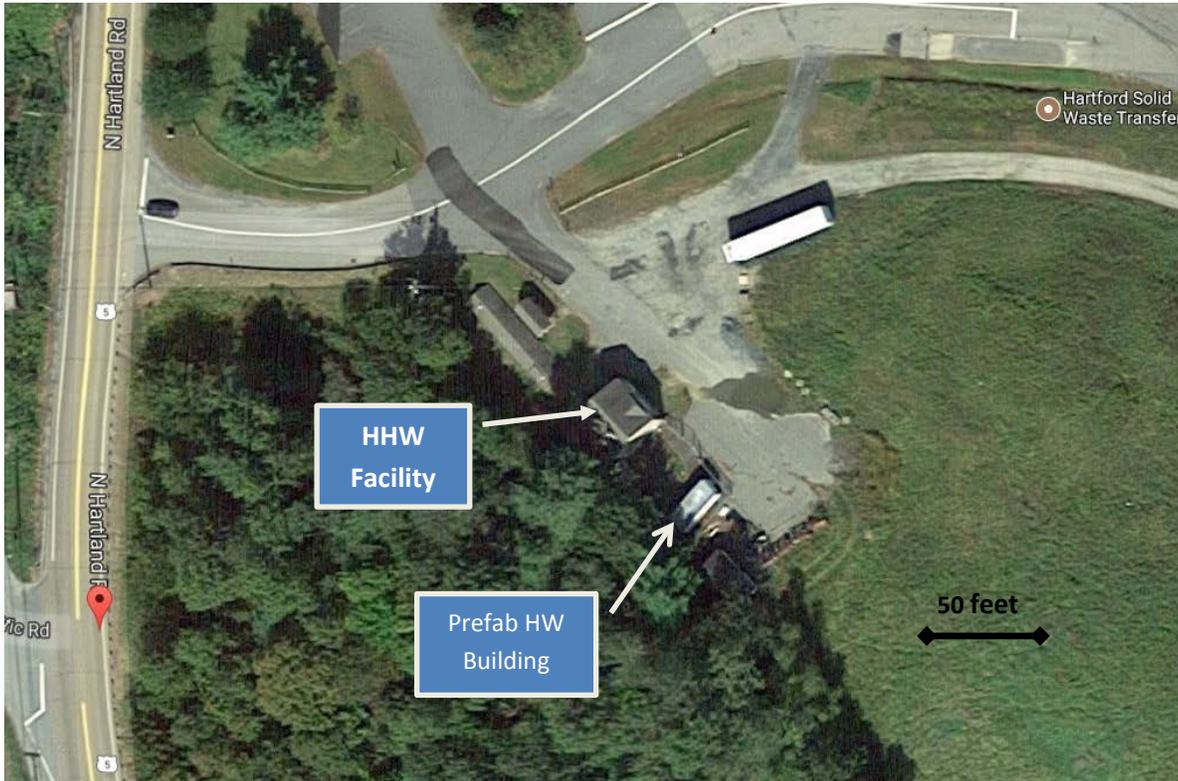
below the ventilation hoods. Many flammable liquid vapors are heavier than air and accumulate in lower areas of structures. The sensors are usually located no more than 12 inches above floor level. Relocating the combustible gas sensor at the Hartford facility to this location would improve the usefulness of this safety feature. Pond Technical Sales in Connecticut appears to be the vendor that installed the current system, as shown on the monitor maintenance tag. It appears that the sensor has not been recalibrated since 2011, so it is likely overdue to be recalibrated and should also have a replacement catalytic bead installed, if it is of that sensor type.

If the single-sensor gas monitor panel needs to be replaced, it is recommended to install a monitoring panel that can accommodate three sensors. The configuration would be to add a new combustible gas sensor paired with an oxygen sensor below the flammable liquids bulking ventilation hood within 12 inches of the floor and relocate the existing combustible gas monitor slightly above the expected pouring level of the flammable liquids on the same wall. Most combustible gas sensors require oxygen in the air to register accurate levels of combustible gas vapors. If there is insufficient oxygen in the building for the combustible gas sensor to function properly, the oxygen sensor will detect low oxygen levels and trigger the alarm. Similarly, if any other gas, toxic or otherwise, displaces the normal levels of oxygen in that area, the oxygen sensor will activate the alarm.

Additional Building Features In addition to the lack of electrical bonding and grounding for pouring of flammable liquids previously mentioned, two additional features that are often required but are not present at the existing facility are a standby power supply and a fire suppression sprinkler system. Standby power is usually required to automatically supply generator power when the utility energy supply is lost or interrupted. SWA recommends that the standby power be capable of running at least the lights, ventilation, exit signs, and the alarm system. Water-based fire suppression sprinklers are a common requirement where there is available water volume and pressure. Local fire and building officials should be consulted to confirm the need and functionality of the two additional building features and other possible additional features to operate the facility in Phases 3 and 4. Assuming that the building will likely be expanded to serve as a regional collection hub, a new building and fire permitting process will likely be triggered by Phase 4.

Site Traffic Flow

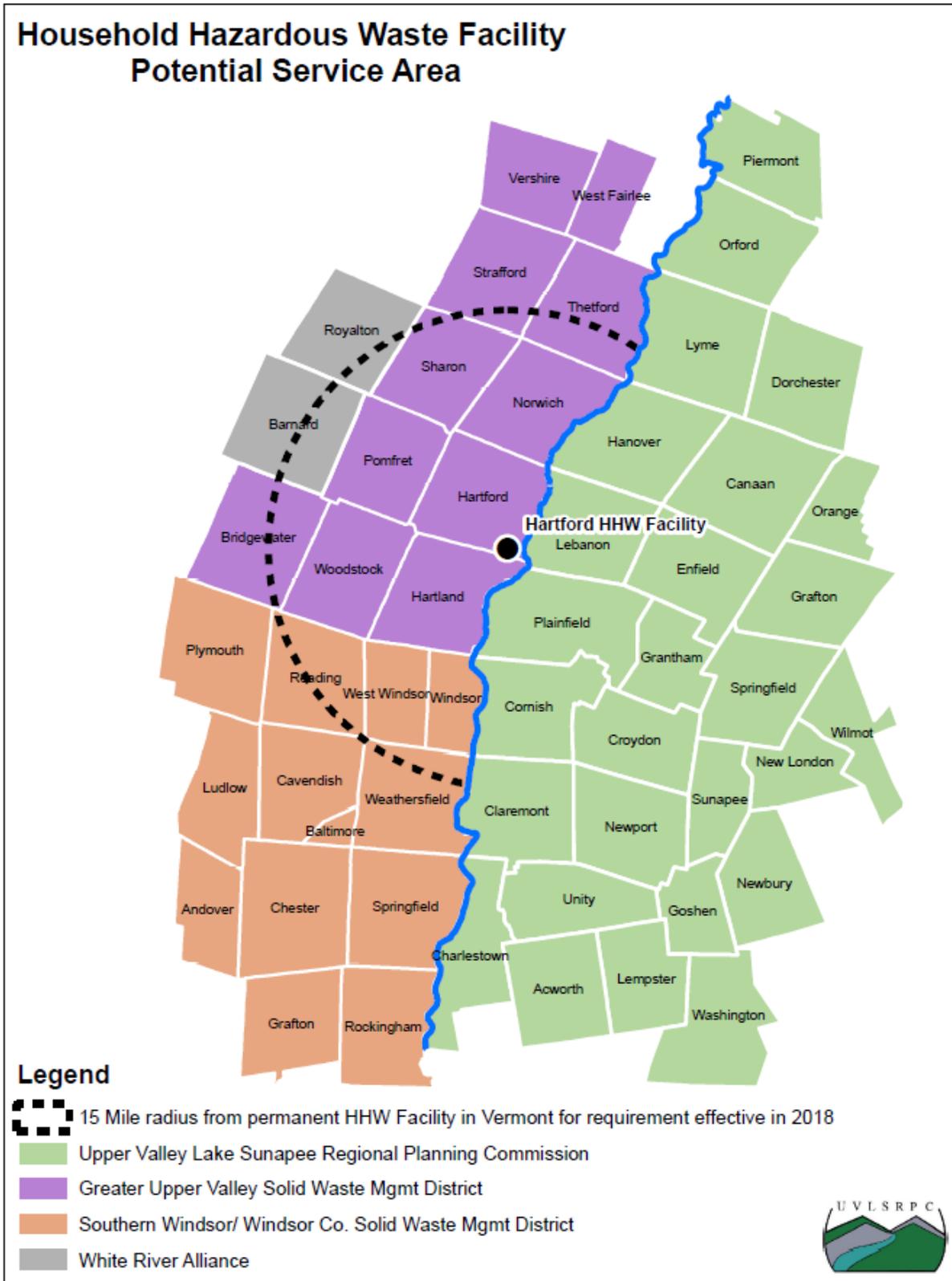
The Hartford HHW site has good access from VT Route 5 and sufficient queuing space in front of the building to allow a short line of customers to form and exit back to VT Route 5. This can be seen on the map below. The Hartford staff indicated that the area in front of the facility could be paved as needed.



Existing site access with queue space

Customer Service Areas and Projected Participation Levels

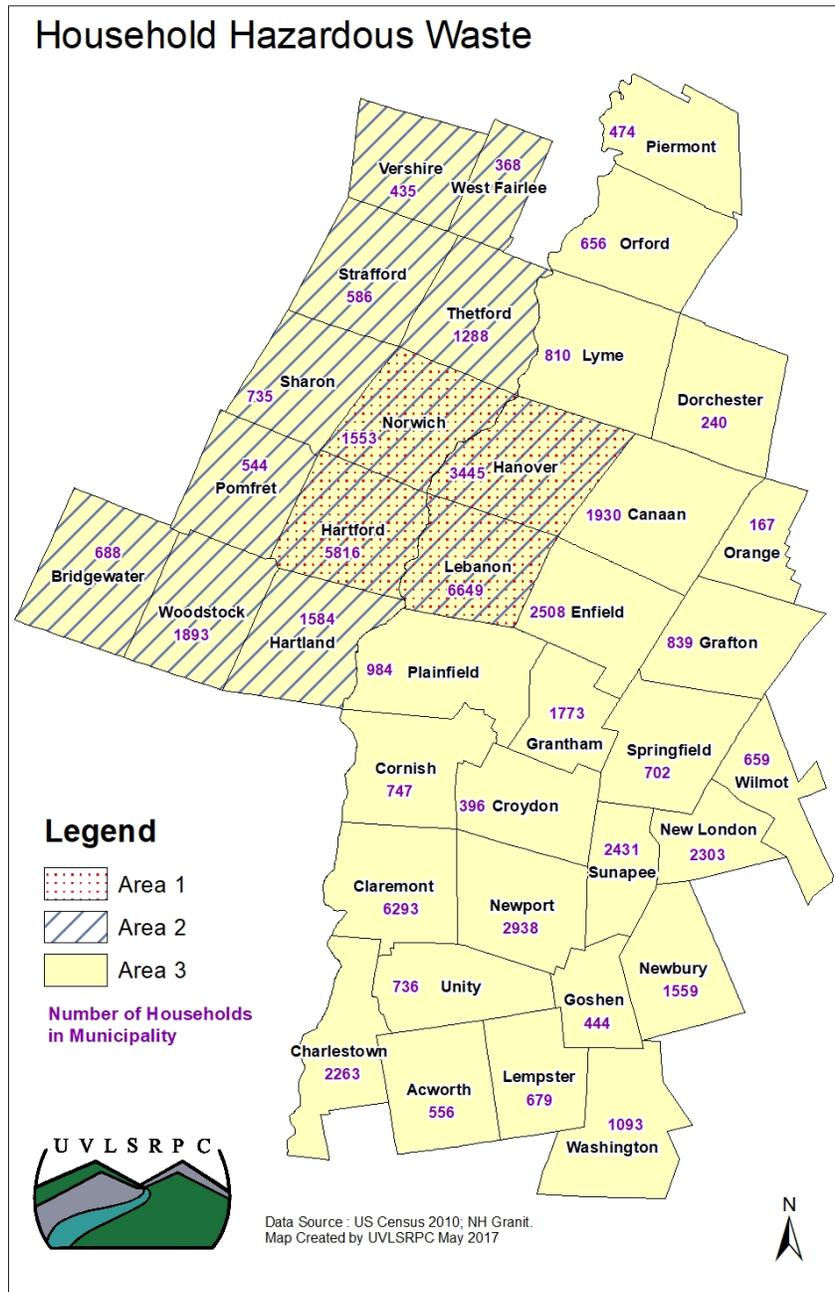
To understand the area that might be potentially served by a regional HHW collection facility, the following map shows the counties in all of the surrounding solid waste districts in Vermont and the UVLSRPC.



Note: The 15-mile radius shown on the map refers to a 2018 Vermont requirement (2014 VT Materials Management Plan) that every town must have access to a HHW facility within 15 miles or have access to at least one event within 15 miles annually.

The map shows a few combinations of communities mapped into three hypothetical service areas, 1, 2 and 3 and the number of households in each area were tallied. These include:

Total Households in Areas 1, 2, and 3 = 59,764	
Area 1 is :	The four municipalities most closely surrounding the Hartford HHW facility
Area 2 is:	The Greater Upper Valley Solid Waste Management District plus Lebanon, Hartford and Hanover
Area 3 is:	The Upper Valley Lake Sunapee Region, Greater Upper Valley SWMD plus Hartford



The numbers of households by municipality in the three service areas are provided below.

Municipality	Service Area, Households		
	1	2	3
Norwich	1553	1553	1553
Hanover	3445	3445	3445
Hartford	5816	5816	5816
Lebanon	6649	6649	6649
Vershire		435	435
West Fairlee		368	368
Strafford		586	586
Thetford		1288	1288
Sharon		735	735
Pomfret		544	544
Bridgewater		688	688
Woodstock		1893	1893
Hartland		1584	1584
Piermont			474
Orford			656
Lyme			810
Dorchester			240
Canaan			1930
Orange			167
Enfield			2508
Grafton			839
Plainfield			984
Grantham			1773
Springfield			702
Wilmot			659
Cornish			747
Croydon			396
Sunapee			2431
New London			2303
Claremont			6293
Newport			2938
Charleston			2263
Unity			736
Goshen			444
Newbury			1559
Acworth			556
Lempster			679
Washington			1093
Area Number of Households	17,463	25,584	59,764

Some of the more densely populated municipalities are centered in Area 1 which includes Norwich and Hartford, Vermont together with Hanover and Lebanon, New Hampshire. The municipalities surrounding

Area 1 have less dense populations but generally contain larger numbers of households to the south. Parts of Barnard and Royalton are within 15 miles of the Harford VT HHW facility, but are not part of the Greater Upper Valley Solid Waste Management District (GUVSWMD). The four most northeasterly municipalities of the Southern Windsor/Windsor County Solid Waste Management District are also within 15 miles of Hartford.

SWA typically recommends planning for approximately 10% participation per year by all households in the service territory. With the three hypothetical service areas shown above, this would require planning for a facility to manage, in round numbers, between 1,700 and 6,000 households per year.

	Service Area, Households		
	1	2	3
Area Number of Households	17,463	25,584	59,764
10% of Area Households	1,746	2,558	5,976

This can be compared to the last few years of collection event participation in this region shown below for the GUVSWMD in VT and the UVLSRPC in NH.

Households Served with Recent HHW Collection Events

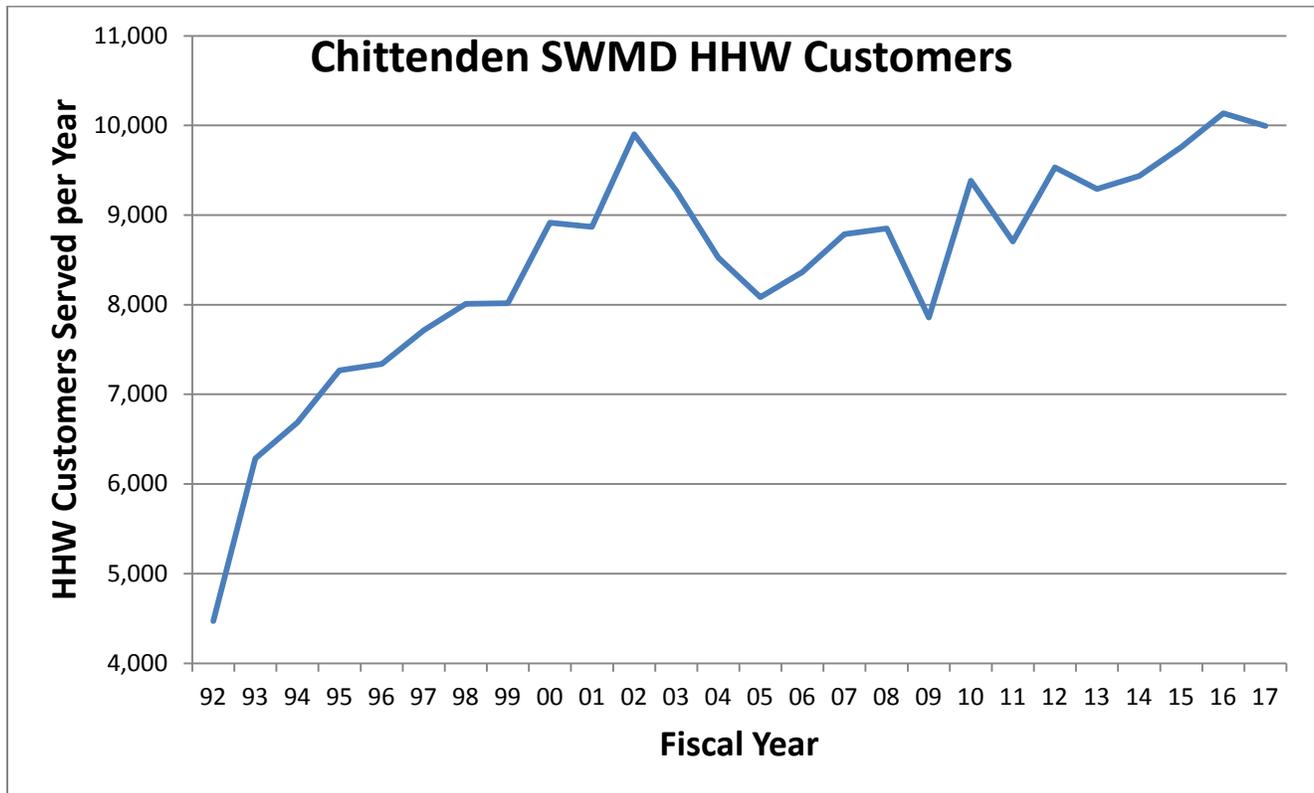
Year	VT	VT Events	NH	NH Events	Total HH	VT %	NH %
2016	324	2	959	4	1,283	25%	75%
2015	308	2	1,058	4	1,366	23%	77%
2014	438	2	884	5	1,322	33%	67%
2013	309	2	731	5	1,040	30%	70%
Averages					1,253	28%	72%

The table above shows that UVLSRPC in NH has had more overall participation within the service area 3, by nearly an average of 2.6 to 1 ratio over the past four years. However, UVLSRPC has also had four or five events per year compared to only two events per year at GUVSWMD sites. All else being equal, if GUVSWMD had as many events per year as UVLSRPC, the participation levels might be expected to be similar.

These recent levels of participation indicate a significant level of continuing interest in HHW collection activity, although considerably below the ten percent planning level estimate for a permanent collection facility estimate of more than 1,700 customers per year. Chittenden Solid Waste Management District (CSWMD) routinely serves over 14% of their households per year at their HHW collection facility. Chittenden County contains about 64,000 households and last year 9,995 customers brought HHW to either their permanent facility in Burlington or at collection events. This amounts to a 15.6% annual household participation rate. Last year only 7.5% of the 9,995 households served by CSWMD were through collection events and the remainder delivered their waste directly to the collection facility.

SWA performed analysis for Sonoma County, California and found that the preponderance of households, over 90%, bring their waste to the permanent collection facility instead of to satellite collection events.

The graph below shows the growth of household participation at CSWMD in the early years and a leveling off of participation between 8,000 to 10,000 households served per year.² This kind of early growth then leveling off of participation at a higher level is typical when going from occasional collection events to a permanent year-round collection facility. It is generally thought that around a 14% annual household participation rate is a very effective level of service because HHW are estimated to have a generation cycle of about 7.4 years.



Regardless of the levels of local participation, in order to efficiently manage a permanent year-round HHW collection facility there should be room to, store, and ship semi-truckload quantities of waste. The current Hartford facility is not sized and configured to accommodate this level of throughput. This topic will be discussed in more detail in the following section. Designing a permanent collection facility to efficiently store and ship full truckload quantities should be a fundamental design goal.

² Data supplied by Jen Holliday, Chittenden SWMD.

Expanded Facility for Efficient Waste Management

Suitability of Current Facility and Site

As mentioned above, with a few exceptions, the existing building facility at Hartford is well suited to manage the large proportions of flammable liquids typically brought to HHW collection centers. However, there is not sufficient space to retain enough containers of HHW to fill a full semi-truck which provides the best economy of scale. Fortunately, the area to the south of the existing building is available and on visual inspection appears to be suitable to expand the facility footprint to accommodate shipping of full truckloads of HHW. The suitability of that site should be verified by geotechnical experts due to the steep slopes to the west and by landfill gas migration experts due to the historic landfilling to the east.

Some of the land area in the vicinity of the existing building contains buried solid waste and it is not suitable for direct structural support of permanent structures. A subsurface investigation must be undertaken to assess the load bearing and stability of the soils to the south of the existing facility. If there is waste below the expansion area, geotechnical engineering will need to be part of the design of the expansion area. During the site meeting with local government representatives it was believed that the existing facility was built on pilings due to the presence of such sub-surface solid waste. In such cases the pilings extend through the waste layers to competent load-bearing geological formations.

Whether there is waste under potential expansion areas or not, there is confirmed buried waste nearby. In such cases the design should include construction that accounts for and mitigates the potential for landfill gas from entering the existing or newly expanded areas of the building.³ No as-build engineering record drawings were available to review to determine if any landfill gas mitigation measures were built into the existing facility. Building design and construction methods such as plastic vapor barriers below the floor, ventilation trenches at the perimeter, and other combinations of methods and techniques are currently used to mitigate landfill gas intrusion hazards. Assessment of landfill gas migration potential and appropriate mitigation solutions requires specialized expertise. A landfill gas expert must be part of the building design team unless sufficient knowledge and data exists demonstrating that there is no landfill gas migration hazard at the building site.

³ Closed landfill gases include about half carbon dioxide and half methane. Intrusion of landfill gas methane has occurred at buildings near landfills resulting in dangerous levels of methane which can explode given the proper concentration in air and an ignition source. In addition, carbon dioxide can act as an asphyxiant when it displaces air inside a building.

Existing Building Size

The existing building is approximately 24' x 24'. In order to provide sufficient economy of scale in transporting wastes to hazardous waste treatment, storage and disposal facilities (TSDFs), the ability to ship full semi-truck loads of wastes is desirable. In Vermont there are TSDFs in Barre and Williston, both a considerable distance north of Hartford. In New Hampshire there are two facilities that can accept HHW and SQG wastes and other TSDFs in neighboring states.

Anticipated Waste Proportions

Summary spreadsheets were provided to SWA for collection events held in recent years. Table 1 below shows the proportion of wastes by waste description, the typical packaging and storage method used to ship HHW offsite from all six GUVSWMD collection events over the years 2013 through 2016.⁴ The values shaded in yellow are flammable HHW that would typically be stored in an 'H' building code occupancy. These wastes could be packaged for shipment and stored in the existing building with some improvements described above, and if approved by the local fire marshal. The blue shaded values are for wastes typically stored in hazardous materials storage cabinets. The last column estimates the quantity of full containers needed in storage to ship in full truckloads. A typical semi-truck can hold about 84, 55-gallon drums. To allow for partially full drums and flexibility in operations, planning proportional space for the equivalent of 100-drum equivalent is prudent for a full truckload.

⁴ Summary statistics were not used from NH collection events as it is anticipated that HHW from households in NH would be similar to those in VT households.

Table 1 - HHW Full Truckload Storage

Waste Descriptions	Six Event Waste Gallons	Waste Percentage	Typical Storage Container Type	"100, 55-gal drums" equivalent for a full truckload count	Typical Container Count
Acid	670	4.3%	55 gal drum	4	4
Aerosols	750	4.8%	Cubic Yd. Box	8	2
Alkaline (Bases)	485	3.1%	55 gal drum	3	3
Antifreeze	2475	15.9%	55 gal drum	16	16
Asbestos	190	1.2%	85 gal drum	1	1
Batteries	10	0.1%	5 gal pail	1	1
Caustic Lab Pack	20	0.1%	20 gal drum	1	1
Flammable Liquid	1995	12.8%	55 gal drum	13	13
Grease	55	0.4%	55 gal drum	1	1
Mercury Devices	115	0.7%	15 gal pail	1	1
Non-Haz Adhesives	1200	7.7%	Cubic Yd. Box	12	3
Oily Solids	55	0.4%	55 gal drum	1	1
Organic Acids	30	0.2%	30 gal drum	1	1
Organic Peroxide	25	0.2%	5 gal pail, in safety cabinet	1	1
Oxidizers	335	2.2%	55 gal drum	2	2
Paint Related Materials	600	3.9%	Cubic Yd. Box	6	2
PCB Ballasts	45	0.3%	30 gal drum	1	1
Pesticides , Solid	900	5.8%	Cubic Yd. Box	9	3
Pesticide, Liquid	1380	8.9%	55 gal drum	9	9
Propane, 15 gal.	225	1.4%	Outside cage	NA	Cage
Resins/Adhesives (Flam.)	3955	25.5%	Cubic Yd. Box	40	10
Road Flares	10	0.1%	5 gal pail, in safety cabinet	2	2
Water Reactives	5	0.0%	5 gal pail, in safety cabinet	1	1

Waste gallons, percentages, and typical storage container types derived from Appendix A
Cubic Yd. box \approx 4 55-gallon drums.

Expanded Facility Design Sketch and Integration of Waste Reuse

A conceptual sketch floorplan that expands the existing Hartford facility footprint and accommodates the storage needs for a full-truckload for efficient shipping is provided in Appendix D. Not shown on this sketch but highly recommended would be a small building on the opposite side of the receiving area to accommodate a waste reuse area. This reuse building could be installed along with the transitional collection paved area prior to the construction of an expanded Hartford facility. This reuse building could be a less expensive building, perhaps 400 sq. ft., to provide a retail type space with shelving to display products for use by community members. A converted 40-foot shipping container or a portable office type structure could be potential solutions. These building types do not require a typical subsurface foundation to remain functional. They are movable and self-supporting above ground and would not be structurally damaged with any future uneven ground settling.

Vermont Environmental Regulation of HHW Facilities at Transfer Stations

Because the Hartford facility is located in Vermont it will need to be permitted by the Vermont Department of Environmental Conservation (VT DEC) for use as a permanent collection facility. Permitting of the HHW facility at Hartford requires submitting a Facility Management Plan in accordance with VT Solid Waste Management Rules section 6-1202. Addison County Solid Waste Management District wrote their Hazwaste Center Facility Management Plan by attaching it to their Application for Re-Certification for their transfer station in 2013. This could provide a template for completing a similar application to VT DEC for Hartford. The VT DEC rules for solid wastes include requirements for transfer stations that collect and manage HHW. Certification of HHW facilities is limited to five years (VT DEC SW Rules 6-303(c)). The re-certification application process is found at VT DEC Rules 6-308.

The next section of this report details additional requirements for permitting the Hartford facility for HHW and small business generator hazardous wastes.

Regulation of HHW and Small Quantities of Hazardous Waste

Because the Hartford HHW facility is located in Vermont but is planned to serve customers on both sides of the Vermont-New Hampshire border, it is necessary to understand the relevant environmental regulations in both states. The two states regulate HHW and other hazardous wastes somewhat differently, including the terminology that they have chosen to use. This section summarizes direct communications with state regulatory agency staff and review of the regulations and guidance documents from both states as it relates to the use of the Hartford, VT HHW collection facility.

Terminology

Household Hazardous Waste (HHW), is a term used by both states. The states regulate the collection of those wastes somewhat differently. The differences will be described below.

Certain non-household generators of hazardous waste are allowed to deliver their hazardous waste to HHW collection facilities under certain conditions, but the terminology describing these non-household generators is different between VT and NH. The common thread is that these non-household generators must produce less than 100 kg (about 220 lbs.) of typical types of hazardous waste (toxic, corrosive, ignitable, etc) per month and accumulate no more than 1,000 kg (about 2,200 lbs.) of hazardous waste at any time on-site. These non-household generators are subject to less regulatory oversight conditioned upon their meeting certain waste management requirements. New Hampshire calls these Small Quantity Generators (SQGs) while Vermont calls these Conditionally Exempt Generators (CEGs). These terms are in contrast to the federal terminology Conditionally Exempt Small Quantity Generators (CESQGs). This report will rely on the CEG terminology, because Hartford is in Vermont.

Regulatory Context

NH HHW

New Hampshire considers HHW to be exempt from hazardous waste regulation until it is delivered to a collection event.⁵ This exemption applies even in the case when a NH household delivers directly to a VT permitted HHW collection event or facility. In NH, at the point when the household gives possession to the town or hazardous waste contractor at the collection event it becomes regulated hazardous waste and the collecting entity becomes the hazardous waste “generator” of that waste.⁶ Collection events typically collect much more than the 220 pounds, which is the SQG generation quantity limit, so in NH the HHW collection event town or contractor becomes a “full-quantity generator” when HHW is collected.⁷ Full-quantity hazardous waste generators in NH are only allowed to transport their waste on a hazardous waste manifest, using a licensed/registered hazardous waste transporter, to a permitted hazardous waste transfer, storage and disposal facility (TSDF) whether the TSDF is in NH, VT or elsewhere. Unless the Hartford HHW facility becomes a registered TSDF permitted to accept this waste in Vermont, a NH HHW

⁵ New Hampshire hazardous waste rules, [Env-Hw 401.03 Exemptions \(b\)\(1\)](#).

⁶ From Env-HW 501.01(b) “in Env-Hw 401.03(b)(1), the owner, operator, or person so designated in a contractual agreement shall be designated as the generator”

⁷ New Hampshire hazardous waste generator rules are at [Env-Hw 500](#).

collection event would not be allowed to deliver collected HHW to the Hartford facility under the usual conditions.

However, there is an exemption to this requirement in cases where a local government is transferring HHW to another local government. Under NH hazardous waste rules exemptions include the following,

“Env-Hw 501.02 Exemptions. ...

(b) Env-Hw 507.03(b), Env-Hw 510, and Env-Hw 511 shall not apply to government entities when transporting household hazardous wastes to a household hazardous waste collection project, a transfer facility, or a treatment, storage or disposal facility, provided the following conditions are met: (1) The government entity shall obtain prior approval from the household hazardous waste collection project, transfer facility, or treatment, storage or disposal facility receiving the waste; (2) All household hazardous waste shall be separated by DOT hazard class, as specified in 49 CFR...”

This exemption could allow a NH local town to collect HHW and transfer it to a town or transfer station in VT. Based on a discussion with Tod Leedberg, NH DES staff, this exemption was intended to apply between two towns located in New Hampshire. However the actual rule language does not restrict government entities in NH from delivering to an HHW collection project or transfer station in VT under a VT transfer station permit.

NH households that deliver their HHW directly to the Hartford facility are explicitly allowed and would only be restricted by the permit operating conditions from VT, listed below.

NH SQGs

NH SQGs are only allowed to deliver their hazardous wastes on a hazardous waste manifest, to a permitted TSDF, in New Hampshire or other states.⁸ Unless the NH town became a hazardous waste transporter, they would not be able to move SQG waste collected to VT. In addition, the Hartford facility would not be allowed to take SQG waste from NH unless the Hartford facility was permitted to do so as a TSDF in VT. Currently there are only two TSDFs in VT that can take SQG wastes from NH; Barre and Williston.⁹ Conversely, a NH SQG can deliver (self-transport) their hazardous waste themselves using a hazardous waste manifest directly to a TSDF in VT without using a hazardous waste transporter. Due to the high regulatory burden of becoming a TSDF, it is not recommended to explore the HW transporter or permitting requirements to accept NH SQG wastes at this early stage of program development.

NH does not allow mixing of SQG wastes with HHW.¹⁰ This is more stringent than the federal rules that allow this kind of mixing. The result is that separate containers must be separately maintained for both SQG and HHW wastes collected and prepared for shipment in NH. This would only become an issue at the Hartford facility if it was a TSDF authorized to take NH SQG wastes or an allowance was made for a VT facility that was approved to take SQG waste by VT DEC and was satisfactory to NH DES. If the

⁸ NH Rule Env-Hw 510.01

⁹ March 12, 2015 email from Susan Francesco, NH Department of Environmental Services, to Vickie Davis, Upper Lake Sunapee Regional Planning Commission, see full text in Appendix B.

¹⁰ Personal communications with Tod Leedberg, NH Department of Environmental Services, July 31, 2017.

Hartford facility was permitted to take NH SQG wastes, the size of the facility might need to be slightly larger to accommodate additional partial drum storage space for duplicate drums for segregating SQG vs HHW wastes.

It is worth considering asking for exceptions or exemptions to NH rules on a pilot or experimental basis with certain conditions attached to allow aggregated HHW to be transported to Hartford by a contractor and SQG wastes to be managed in VT without becoming a TSDF. Another avenue to explore would be to make a case of public benefit to the communities in the region that have few affordable options, and thereby be justified by economic necessity. However at the start of a new program it is advisable to first establish the baseline HHW collection year-round services for a few years within the existing regulator structure.

VT HHW

VT households and CEGs would be allowed to self-transport their hazardous waste directly to the Hartford facility assuming it is permitted to receive those wastes. Appendix C contains selected excerpts from the VT solid waste and hazardous waste rules that are useful understanding the design, operations, security and other permitted conditions. When followed, these conditions should enhance the operating efficiency, safety and environmental protection of the Hartford facility as it transitions to a permanent regional solution. Once permitted, HHW may be stored for up to 180 days at the Hartford facility before shipping.

As in federal law, HHW are exempted from the Vermont Hazardous Waste Management Regulations (VHWMR).¹¹ Consequently, there are no restrictions on the transportation of HHW from VT households to the Hartford facility.¹²

Paint, batteries, electronics, mercury thermostats and bulbs all have extended producer responsibility programs in VT provided by the manufacturers of these products which offer convenient options for recycling at hardware stores, paint retailers, and HHW events/facilities.¹³ Currently, there are no extended producer responsibility programs in NH to manage HHW. Therefore, products that are managed through manufacturers' extended producer responsibility programs for VT need to be kept and accounted for apart from those similar products delivered to the Hartford facility from NH households.

VT CEGs

Some small businesses may be eligible to use HHW collection facilities.¹⁴ Most state and federal hazardous waste regulations classify non-household hazardous waste generators into three categories based on the amount of hazardous waste generated each calendar month.

¹¹ See VHWMR subchapter 2 § 7-203 CONDITIONAL EXEMPTIONS (a) "Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (e.g., refuse-derived fuel) or reused."

¹² Appendix B, Question and Answer 1.

¹³ Accessed 7/24/2017 at <http://dec.vermont.gov/waste-management/solid/materials-mgmt/HHW>

¹⁴ *Id.*

In Vermont, these categories are called:

[Conditionally Exempt Generators \(CEGs\)](#)

[Small Quantity Generators \(SQGs\)](#)

[Large Quantity Generators \(LQGs\)](#)

Transporting Conditionally Exempt Generator Hazardous Waste

A VT CEG can self-transport their own hazardous waste to an appropriate off-site facility or household hazardous waste/CEG collection site authorized by the Waste Management and Prevention Division to accept CEG waste without using a hazardous waste manifest, and without meeting permitting requirements for hazardous waste transporters, if the following requirements are met:

- applicable (federal) Department of Transportation regulations;
- applicable regulations of other states through which the waste is transported or to which the waste is delivered;
- the waste is transported in a vehicle that is owned by the CEG or an employee of the CEG; and
- in the event of a discharge of hazardous waste to the environment during transportation, emergency action and reporting requirements apply.

A CEG may also hire a permitted hazardous waste transporter to transport its waste to an appropriate off-site facility. The list of permitted transporters is available on-line at:

<http://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/AllWasteTransportersList.pdf>¹⁵

In addition to HHW/CEG collection sites, VT CEGs are allowed to deliver the waste to a VT certified solid waste management facility permitted to accept such waste under the terms of its certification or deliver the waste to a facility which uses, reuses, recycles or reclaims the waste.¹⁶

VT adds some additional materials to the list of federal characteristics and listed hazardous wastes. These are designated with the Vermont specific VT waste code series. CEGs may be expected to deliver some of these VT hazardous wastes.

“VT-Listed” Hazardous Wastes include:

- **VT01** Waste containing PCBs in concentrations equal to or greater than 50 parts per million.
- **VT02** Waste containing greater than 5% by weight of petroleum distillates with melting points of less than 100o F, including but not limited to kerosene, fuel oil, hydraulic oils, lubricating oils, penetrating oils, tramp oils, quenching oils, and crankcase and automotive oils.
- **VT03** Waste water-miscible metal cutting and grinding fluid.
- **VT06** Pesticidal wastes and obsolete pesticide products not specifically listed in subchapter 2 (of the Regulations).
- **VT08** Waste ethylene glycol and solutions containing greater than 700 parts per million (ppm) of ethylene glycol (e.g., coolants, antifreeze).

¹⁵ http://dec.vermont.gov/sites/dec/files/wmp/HazWaste/Documents/ceg_hndbk.pdf, pages 12-13, accessed 7/24/2017.

¹⁶ *Id.*, page 13.

- **VT20** A solid material that when mixed with an equal weight of distilled water causes the liquid fraction of the mixture to exhibit the properties of the corrosivity characteristic as specified in § 7-206(a)(3) of the Regulations, sometimes referred to as a “solid corrosive hazardous waste” such as sodium hydroxide often found in strong basic cleaning products.
- **VT21** Liquid wastes containing perfluorooctanoic acid (PFOA) in concentrations equal to or greater than 20 parts per trillion.
- **VT22** Liquid wastes containing perfluorooctanesulfonic acid (PFOS) in concentrations equal to or greater than 20 parts per trillion.

The last two VT listed wastes are not commonly generated by small businesses. Appendix B of the VT CEG Handbook provides a list of common CEG generated wastes.

HHW collection facilities and events are not required to accept waste from non-household waste generators. However, the intent of the local group that met with SWA about this project was to eventually provide for the acceptance of CEG wastes at the Hartford, VT HHW collection facility.

For VT CEGs the Hartford collection facility should only allow businesses who provide their Vermont Waste Handler Site ID and verify with the DEC that they are CEGs before agreeing to accept their hazardous waste. Unless NH DES provides an exception for the Hartford facility to accept NH SQG waste or the Hartford facility becomes a hazardous waste TSDF, it will not be possible to accept NH SQG waste at the Hartford facility.¹⁷

Avoid Invoking the Universal Waste Regulations

Subchapter 9 of the VHWMR makes it optional to manage certain wastes under the universal waste provisions of the hazardous waste regulations. Specifically the regulations state at § 7-910 that HHW and CEG waste generators have the option to manage the wastes listed in the universal waste rules or under the usual hazardous waste rules for the same waste types. The universal waste rules were created to relieve larger generators of hazardous waste (larger than CEGs) of excessive regulatory burdens for common, easily managed hazardous wastes. Because HHW is already exempt from the hazardous waste regulations and CEG waste is exempt from most of those regulations, there is no advantage to opt for the streamlined universal waste management regulations intended for fully-regulated hazardous waste generators for either HHW or CEG wastes. Because co-mingling of universal with other wastes makes the entire mixture subject to the universal waste provisions, it is recommended that the facility only accept materials chosen by the generator to be managed as hazardous wastes outside of the universal waste rules in Subchapter 9 of the VHWMR.¹⁸ This can be done by CEGs signing a form that states their desire for their waste to be managed

¹⁷ Conditionally Exempt Generator Handbook – A VT handbook intended for use as a guidance document to the basic VHWMR requirements as they apply to CEG, which are specified under the VHWMR § 7-306, will be useful when it is time to consider expansion of the Hartford facility program to include acceptance of non-household wastes.

¹⁸ The relevant part of Subchapter 9 of the VT hazardous waste regulations allows household and CEG generators of wastes covered by the universal waste rules to “at their option, manage them under the requirements of this subchapter: (1) Household wastes that are exempt under § 7-203(a) and are also of the same type as the universal wastes described by §§ 7-902 through 7-908; and/or (2) Conditionally exempt generator wastes of the same type as the universal wastes described by §§ 7-902 through 7-908 (as allowed under § 7-306(c)(2)(F)). (b) Persons who commingle the wastes described in

as hazardous waste, not as universal waste. New Hampshire follows this federal universal waste regulatory program as well, and therefore it should be possible to design a CEG statement of waste management option form regardless of the CEG location, although NH law does not currently allow delivery to the Hartford facility for non-household generators.

subsections (a)(1) and (a)(2) of this section together with universal waste regulated under this subchapter must manage the commingled waste under the requirements of this subchapter.” Accessed 7/24/2017, Universal Waste Subchapter 9, § 7-910 Household and Conditionally Exempt Generator Waste, http://dec.vermont.gov/sites/dec/files/wmp/HazWaste/Documents/Regulations/VHWMR_Sub9.pdf

APPENDICES

Appendix A - VT 3-Yr. HHW Collection Waste Quantity Detail

Waste Descriptions	Gallon size	Container Type	Year			Total Gallons	Category Subtotals	Category Percentage
			2016	2015	2014			
Acid	30	DRUM	4			120	670	4.3%
Acid	55	DRUM	4	2	4	550		
Aerosols	30	DRUM			1	30	750	4.8%
Aerosols	55	DRUM		3	1	220		
Aerosols		CYBX		2	3	500		
Alkaline (Bases)	15	DRUM			1	15	485	3.1%
Alkaline (Bases)	30	DRUM			1	30		
Alkaline (Bases)	55	DRUM	3	3	2	440		
Antifreeze	55	DRUM	11	14	20	2475	2475	15.9%
Asbestos	5	Pail	1			5	190	1.2%
Asbestos	85	DRUM		1		85		
Asbestos		CYBX			1	100		
Batteries	5	PAIL	2			10	10	0.1%
Caustic Lab Pack	20	Drum	1			20	20	0.1%
Flammable Liquid	15	DRUM	1			15	1995	12.8%
Flammable Liquid	55	DRUM	10	14	12	1980		
Grease	55	DRUM			1	55	55	0.4%
Mercury Devices	5	PAIL	1	1	3	25	115	0.7%
Mercury Devices	15	PAIL	6			90		
Non-Haz Adhesives		CYBX	1	4	7	1200	1200	7.7%
Oily Solids	55	DRUM			1	55	55	0.4%
Organic Acids	30	DRUM			1	30	30	0.2%
Organic Peroxide	5	PAIL	2	2	1	25	25	0.2%
Oxidizers	15	DRUM		1	1	30	335	2.2%
Oxidizers	30	DRUM			1	30		
Oxidizers	55	DRUM	2	2	1	275		
Paint Related Materials		CYBX	6			600	600	3.9%
PCB Ballasts	15	DRUM		1		15	45	0.3%
PCB Ballasts	30	DRUM			1	30		
Pesticides , Solid		CYBX	2	2	5	900	900	5.8%
Pesticide, Liquid	30	DRUM		1	1	60	1380	8.9%
Pesticides, Liquid	55	DRUM	9	6	9	1320		
Propoane, 15 gal.	15	Each		15		225	225	1.4%
Resins/Adhesives (Flam.)	55	DRUM			1	55	3955	25.5%
Resins/Adhesives (Flam.)		CYBX	6	12	21	3900		
Road Flares	5	PAIL	1		1	10	10	0.1%
Water Reacitves	5	PAIL			1	5	5	0.0%

Grand Total Gallons 15,530

CYBX = Cubic Yard Box

Appendix B – March 12, 2015 E-mail Regarding HHW/CEG Facilities

From: Francesco, Susan
Sent: Thursday, March 12, 2015 2:56 PM
To: 'Vickie Davis'
Cc: 'Simoes, Steve'; 'Gauthier, Benjamin'; Roethlein, Mia; Leedberg, Tod; Faro, Christie; Yergeau, Sharon; Robinson, Dean; Duclos, John; D'Agostino, Stephanie
Subject: RE: HHW Collection with Vermont

Vickie – In RED is a copy of the original message you sent to Sharon Yergeau of DES via e-mail on 12/2/14 and after discussion with you, Vermont DEC staff, and in house – we have some answers for your questions. I know you are attending our training class on Wednesday and Tod and I would be pleased to meet with you between 8 and 8:30 before class OR for 10-15 minutes at lunch time to discuss these answers. We are also very happy to schedule a different time at a later date so as not to compromise your training class experience or time, and to be able to discuss your questions and our answers in more detail drawing in other staff, as needed. Thanks for your patience. Sue

The Upper Valley towns are picking up the idea of having a permanent HHW facility in Hartford, VT. They are moving ahead and I'd like to make sure we know all requirements related to transporting HHW from NH to VT. I can call VT about their issues, but who at NH DES would I talk to?

I'd like to know the following as far as NH DES is concerned (and perhaps NH DOT):

- 1. Can residents cross the river with their HHW to deliver to a VT facility?**
Yes, NH Residents can cross the border with their HHW and deliver to an approved HHW facility in VT. HOWEVER, according to Benjamin Gauthier of the Vermont DEC Solid Waste Management Program (in Green), there is this prohibition on some wastes: The VT facility may also accept Universal Wastes (only those designated as UW in Subchapter 9 of the VT Hazardous Waste Regulations) from NH residents/individuals/generators so long as the VT Facility is not participating in extended producer responsibility & product stewardship programs for those items (i.e. CRTs and electronics covered under VT E-cycles, batteries, paint, mercury containing thermostats and mercury containing lamps covered by EPR, or pesticide programs covered by the VT Agency of Agriculture and Food Markets, etc.). Additionally, the VT Facility may not use awarded State of VT grant/contract money to cover the collection, storage or transfer of any out-of-state HHW or SQG hazardous wastes.
- 2. Can SQG cross the river with their HHW to deliver to a VT facility?** NH SQGs can deliver their own Hazardous Waste (not HHW) to either of the two commercial TSDFs in Vt. (Barre facility run by Safety Kleen or Williston facility run by Enpro) according to Env-Hw 511.01(b). VT does not allow delivery of NHSQG waste to HHW collection events. Right now there are only two facilities in VT that can sign off on required NH SQG manifests – so unless a new facility's permit had that ability, NHSQGs would not be allowed to take their hazardous waste to that facility.

3. **Can towns collect their residents' HHW and cross the river to a VT facility?** NO. VT does not allow aggregation of HHW from households. Each resident would have to deliver their own.
4. **Can towns collect from SQGs (as we do now) and haul to a VT facility? (probably not?)** No, Towns cannot collect SQG Hazardous Waste –this requires a commercial registered HW Transporter. Currently this is what is allowed: If a NH Town sponsors a HHW collection project and they decide accept hazardous waste from NHSQG during this HHW event, then they need to follow very specific rules. The NHSQG is has to get permission from the town, they have to use manifests and deliver the hazardous waste directly to the NH transporter at the collection event. (Essentially the town is sponsoring the event but the hazardous waste transporter is accepting the waste.) See Env-Hw 511.01(f)(1-3).
5. **Can a private HHW hauler collect our HHW and deliver to a VT facility? (I'm pretty sure this is "yes," but since I'm asking for the others...)** Only if that private hauler is a registered Hazardous waste transporter and delivers the hazardous waste to a facility (TSDF) authorized by Vermont, per Env-Hw 511.01(b) .
6. **Are there any other scenarios that would concern NH DES?** Summary: There appears to be two major stumbling blocks to the transportation of HHW/SQG waste to Vermont.
 - a. HHW – ***ONLY residents can bring waste – it cannot be aggregated by a town.*** HHW from out of VT cannot be MSW, Recyclables or food scrap and
 - i. The VT facility may also accept Universal Wastes (only those designated as UW in Subchapter 9 of the VT Hazardous Waste Regulations) from NH residents/individuals/generators so long as the VT Facility is not participating in extended producer responsibility & product stewardship programs for those items (i.e. CRTs and electronics covered under VT E-cycles, batteries, paint, mercury containing thermostats and mercury containing lamps covered by EPR, or pesticide programs covered by the VT Agency of Agriculture and Food Markets, etc.). Additionally, the VT Facility may not use awarded State of VT grant/contract money to cover the collection, storage or transfer of any out-of-state HHW or SQG hazardous wastes.
 - b. There are only ***two current locations (TSDF) in Vermont that can accept NH SQG hazardous waste and subsequently sign the Hazardous Waste Manifest.*** (NH Hazardous Waste rules requires SQG Hazardous Waste to be on a Hazardous Waste Manifest, per Env-Hw 510.01).

Susan Francesco, HW Certification Supervisor

Hazardous Waste Certification Section

Hazardous Waste Management Bureau

Department of Environmental Services

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603-271-2967

Appendix C - Excerpt from VERMONT SOLID WASTE MANAGEMENT RULES

Notes in red are those of Special Waste Associates

Subchapter 12 - STORAGE, TRANSFER AND RECYCLING FACILITIES

6 - 1201 General

All solid waste recycling, storage and transfer facilities are subject to the requirements of this Subchapter and the requirements of Subchapters 3, 5, 9 and 10...

6 -1206 Standards For Specific Materials

(d) Household Hazardous Waste (HHW) and Conditionally Exempt Generator (CEG) Hazardous Waste

(1) Collection Events

(A) Collection events may take place only at certified solid waste facilities or at other locations specifically approved by the Secretary pursuant to §6-301(c). The facility management plan must address the wastes to be managed and the activities to be conducted during the event.

(B) If the event is held at a site which does not have appropriate safety, accident and contingency provisions in its existing facility management plan, the collection event organizer must submit a safety, accident and contingency plan to the Secretary for the specific site or sites where the collection event will take place.

(C) All wastes must be handled by personnel appropriately trained in accordance with all applicable federal and state statutes and regulations.

(D) At the end of an event, all CEG hazardous waste collected during the event must be packaged, labeled, and transported off-site by a permitted hazardous waste transporter in accordance with Vermont Hazardous Waste Management Regulations.

(E) At the end of an event, all HHW collected during the event must be removed from the site. The waste may be managed as a regulated hazardous waste as provided in subsection (d)(1)(D) of this section or may be transported to a certified HHW/CEG Hazardous Waste Collection Facility or a Semi-Permanent HHW/CEG Hazardous Waste Collection Unit (Note: this provision allows HHW collection event waste to be delivered to a certified HHW/CEG Collection facility.)

(2) Mobile HHW/CEG Hazardous Waste Collection Units Mobile HHW/CEG Hazardous Waste Collection Units must meet the requirements of §6-1206(d)(1) and the following requirements:

- (A) The operator of the mobile collection unit must be a permitted hazardous waste transporter when CEG hazardous wastes are collected;
- (B) The mobile collection unit must return to a solid waste facility certified to support it upon completion of each collection event; and
- (C) Collected HHW and CEG hazardous wastes may remain in the mobile unit while at the vehicles' support facility for no more than 10 days before it must be transferred to another permitted hazardous waste transporter, a certified hazardous waste treatment, storage or disposal facility, or to a HHW/CEG hazardous waste collection facility or a semi-permanent HHW/CEG hazardous waste collection unit. All transfers of collected HHW and CEG hazardous wastes to another permitted hazardous waste transporter must occur at a certified facility or a certified collection site.

(3) HHW/CEG Hazardous Waste Collection Facilities or Semi-Permanent HHW/CEG Hazardous Waste Collection Units.

These facilities or units must meet the requirements of §6-1206(d)(1) and the following requirements:

- (A) All wastes collected must be properly stored at the end of each operating day in accordance with the facility management plan; and
- (B) Facilities must comply with the generator short-term storage requirements of the Vermont Hazardous Waste Management Regulations.

The last sentence in the excerpt above requires design and operation of HHW/CEG facilities according to the requirements of the Vermont Hazardous Waste Management Rules, VHWMR, for short-term storage. Those requirements are contained primarily in §7-311 provided below:

VHWMR Excerpt from:

§7-311 SHORT-TERM STORAGE AREA STANDARDS FOR SMALL AND LARGE QUANTITY GENERATORS

(a) Short-Term Storage Area Design Standards

- (1) Generators must accumulate and store hazardous waste upon an impervious surface except for spill clean-up debris that is generated in response to an emergency action completed pursuant to § 7-105.
- (2) Hazardous waste containers may be placed out-of-doors only if they are within a structure that sheds rain and snow.
- (3) Hazardous wastes subject to freezing and expansion may not be stored in containers or aboveground tanks unless mechanical or physical means are employed to prevent freezing.
- (4) The spill and fire control equipment required under §§ 7-309(a)(1)(A) and (C) shall be available in the immediate vicinity of each short-term storage area.

(b) Short-Term Storage Area Operating Standards

- (1) Containers or tanks holding incompatible hazardous wastes must not be stored in the same enclosure, building or structure unless they are segregated in a manner that prevents the wastes from coming into contact with one another under any circumstances (such as spillage or simultaneous leakage).
- (2) Containers of hazardous waste must be stored such that the hazardous waste labeling is visible.
- (3) Aisle space between rows of containers must be sufficient to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation. In no circumstance shall the aisle space be less than twenty-four (24) inches wide.

Note: Some local, state, and federal fire and safety codes and/or regulations require up to 36" of aisle space for the storage of flammable and combustible liquids.

(c) Short-Term Storage Time Limit Extensions

Small and large quantity generators may be granted up to a thirty (30) day extension of the short-term storage limits specified in §§ 7-307(c)(2) and 7-308(b)(2) at the discretion of the Secretary due to unforeseen temporary and uncontrollable circumstances.

(d) Inventory and Inspection

- (1) Small and large quantity generators shall maintain, at a location apart from the short-term storage area, a list of all hazardous waste currently in storage. For generators storing hazardous waste in containers, the list shall identify each container being stored and the type of hazardous waste held by each container. Any waste being accumulated within a short-term storage area must be included on the list of hazardous waste in storage.

(2) Small and large quantity generators shall conduct daily inspections during regular business days of each short-term storage area. The inspections shall be recorded in a log that is kept at the facility for at least three years. The log shall contain a checklist of the items to be inspected which shall include:

- (A) Visual inspection of the short-term storage area for rusting, bulging, or leaking containers or tanks;
- (B) Inspection of all safety and emergency equipment required under § 7-311(a)(4);
- (C) Inspection of adequate aisle space (minimum of 24 inches as specified in § 7-311(b)(3)) between rows of containers;
- (D) Description of discrepancies or problem areas encountered in the inspection and the corrective actions taken; and
- (E) The signature or initials of the inspector and the date of the inspection.

Note: Regular business days are days when personnel are normally scheduled to be on site. Any facility where regular business days occur more than one week apart must still conduct inspections at least once per week.

(e) Security

(1) Small and large quantity generators must post a sign at each short-term hazardous waste storage area, which must be visible from at least 25 feet with the legend, "Danger-Hazardous Waste Storage Area-Authorized Personnel Only". The legend must be written in both English and French in facilities located in counties bordering the Canadian province of Quebec. Existing signs with a similar legend may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the storage area, and that entry into the storage area can be dangerous.

(2) Small and large quantity generators storing ignitable waste (flash point less than 140°F) must also post a sign at each short-term hazardous waste storage area, which must be visible from 25 feet with the legend, "No Smoking". The legend must be written in both English and French in facilities located in counties bordering the Canadian province of Quebec.

(f) Use and Management of Containers

(1) With the exception of satellite accumulation containers managed in accordance with § 7-310(a), containers, and packages used for the storage of hazardous wastes shall be clearly marked from the time they are first used to accumulate or store waste. Such marking shall include:

- (A) The generator's name, address, and EPA identification number;
- (B) The name and hazardous waste identification code(s) of the hazardous waste stored therein;

- (C) The date when the container was first used to accumulate or store hazardous waste; and
- (D) The following language, "Hazardous Waste-Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency."

Note: Containers used to store waste that is in the process of having a hazardous waste determination made, and for which the hazardous waste identification code(s) are not known, do not need to be marked to include the hazardous waste identification code(s). The hazardous waste identification code(s) must be marked on the container once the hazardous waste determination has been completed for the waste.

(2) Condition of containers

If a container holding hazardous waste is not in good condition, or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition, or manage the waste in some other way that complies with the requirements of this section.

(3) Compatibility of waste with container

The owner or operator must use a container made of or lined with materials that will not react with and are otherwise compatible with the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

(4) Management of containers

(A) A container holding hazardous waste must always be closed during storage except when it is necessary to add or remove waste;

(B) A container holding hazardous waste must not be opened, handled or stored in a manner that may rupture the container or cause it to leak;

(C) Incompatible wastes

(i) Incompatible wastes, or incompatible wastes and materials must not be placed in the same container. Examples of incompatible wastes are provided in Appendix VII.

(ii) Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material; and

(iii) A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

(5) Emissions from containers

A large quantity generator storing hazardous waste in containers must comply with 40 CFR Part 265 Subparts AA, BB, and CC.

(6) Containers holding ignitable or reactive waste

A large quantity generator accumulating or storing ignitable or reactive waste in containers must keep the containers at least fifty (50) feet from the property line.

(g) Use and Management of Tanks

(1) Tanks used for the storage of hazardous wastes shall be clearly marked with the words “Hazardous Waste” and to identify the name and hazardous waste identification code(s) of the hazardous waste stored therein.

(2) A large quantity generator storing hazardous wastes in tanks must comply with:

(A) All secondary containment, monitoring, tank testing and other requirements in 40 CFR §§ 265.190 through 265.199 except 265.197(c); and

(B) 40 CFR Part 265 Subparts AA, BB and CC.

(3) A small quantity generator storing hazardous wastes in tanks must comply with the standards of 40 CFR § 265.201...

Appendix D - Conceptual sketch floorplan expanding existing Hartford facility

