



9 March 2007

Mr. Marc Roy
Department of Environmental Conservation
103 South Main Street – West Bldg.
Waterbury, VT 05671

RE: *Emergency Response and Receptor Survey – Gasoline AST Fuel Release
Fred's Plumbing and Heating Bulk Storage Facility – Derby, Vermont*

Dear Mr. Roy:

On 27 February 2007, Ross Environmental Associates (**R.E.A.**) received a phone call from Mr. Scott Oeschger regarding a gasoline release from a 10,000 gallon above ground storage tank (AST) at the Fred's Plumbing and Heating Bulk Storage Facility in Derby Vermont (**Figure 1**, Attachment A). Later the same day, and on 28 February and 1 March 2007, **R.E.A.** provided oversight for emergency response clean up of the spill. On 27 February 2007, **R.E.A.** notified the Vermont Department of Environmental Conservation (VT DEC) of the fuel spill. Initial response activities were implemented as outlined in the "Spill Prevention Control and Countermeasure (SPCC) Plan - Fred's Plumbing & Heating - 1683 US Route 5 Derby, VT" prepared by Tighe & Bond dated May 2004.

No direct release or impact to navigable waters occurred as a result of this spill. Also, immediate response by Fred's Plumbing and Heating personnel has minimized the potential impact to nearby sensitive receptors. Based available information, it appears that the spill was the result of snow falling off the top of the AST, which partially opened a gate-type valve located at the base of the tank. The volume of gasoline released into the secondary containment area is estimated to be approximately 5,000 gallons. To date, **R.E.A.** estimates that approximately 1,500 gallons of free product have been recovered (approximately 500 gallons in snow & soil and approximately 1,000 gallons from pumping the recovery well). Free product continues to be recovered daily and additional site characterization and remedial measures are underway. Photographs taken during the emergency response activities are included in Attachment B.

Summary of Findings

The findings of this site inspection are summarized below:

- The spill was the result of snow falling off the top of the AST, which partially opened a gate-type valve located at the base of the tank.
- Approximately 5,000 gallons of gasoline were released into the clay-lined secondary containment area and surrounding soils.
- The secondary containment area consisted of an approximately six-inch thick clay liner with a two foot high berm encompassing approximately 4,000 square feet. According to Mr. Scott Oeschger, the clay was resurfaced a few years ago.
- The drain for the secondary containment area, which is located in the northeast corner of the containment area, is connected to a 1,000-gallon oil-water separator. The oil-

water separator was found to be full of water with approximately an eighth inch of product on top. The outlet for the oil-water separator is controlled by a valve that was found to be closed.

- Approximately 30 cubic yards of gasoline contaminated snow were removed from the secondary containment area and placed into two 20 cubic yard roll-off dumpsters, lined with polyethylene.
- The bermed containment area consisted of one foot of gravel overlying approximately six inches of clay. The native soil beneath and adjacent to the clay liner consisted of brown medium sand, silt and gravel to a depth of approximately 12 feet bgs. Medium sand extended from approximately 12 feet bgs to 14 feet bgs marking the bottom of the excavation.
- PID readings on soils beneath the spill area ranged from 0.0 to 3,000 parts per million-volume (ppmv), which are above the VT DEC action level of 20 ppmv for gasoline contaminated soil. Petroleum contamination was observed beneath and outside of the secondary containment to the northeast of the containment berm.
- Approximately 140 cubic yards of gasoline contaminated soil were excavated from the area of the spill and poly-encapsulated on site.
- Approximately 500 gallons of free product is estimated to have been collected during the initial snow and soil removal
- Free phase gasoline was observed on the soil beneath the spill area at depths ranging between two and twelve 12 feet bgs.
- Groundwater was encountered during excavation at approximately 10 feet bgs. Free product was observed in direct contact with groundwater.
- A free product recovery well was installed at a depth 14 feet bgs within the excavation area.
- To date, approximately 1,000 gallons of gasoline have been recovered from the well using a vacuum truck. Free-product continues to be recovered daily using a vacuum trailer.
- The vertical and horizontal extent of contamination was not determined during the initial excavation activities.

Site Information

The spill occurred at the bulk storage facility operated by Fred's Plumbing and Heating located at 1683 US Route 5 in Derby, Vermont. The coordinates for the spill area are 44° 58' 24.5"N and 72° 07' 2.0"W. The secondary containment area is located on the northwest corner of the property. Six above ground storage tanks are located within the clay-lined containment area; Tank 1A (12,000-gallon #2 fuel oil), Tank 1B (12,000-gallon diesel), Tank 2A (12,000-gallon #2 fuel oil), Tank 2B (12,000-gallon kerosene), Tank 3A (10,000-gallon high-octane gasoline) and Tank 3B (15,000-gallon unleaded gasoline). An unnamed tributary to the Johns River is located approximately 200 feet northwest of the spill area. During the initial response, four drinking water supply wells were identified within 1,500 feet of the spill area; three off-site wells and one on-site well. The on-site drinking water supply is a shallow spring that is located approximately 200 feet upgradient to the southeast of the spill area. The nearest downgradient supply well is located approximately 550 feet to the north-northwest. No other receptors were identified within close proximity to the spill. Potential receptors and significant site features are shown on **Figure 2** in Attachment A.

Environmental Observations

Between 27 February and 1 March 2007, *R.E.A.* assisted Fred's Plumbing and Heating with emergency spill response to determine the extent of gasoline contamination resulting from a gasoline AST spill at the Fred's Plumbing and Heating Bulk Storage Facility in Derby, Vermont. Soil in the area of the fuel spill consisted of approximately 12 inches of gravel overlying six inches of clay. The native soil beneath the clay liner consisted of brown medium sand, silt and gravel to a depth of approximately 12 feet bgs. Medium sand extended from approximately 12 feet bgs to 14 feet bgs marking the bottom of the excavation. PID readings on soil samples collected during the excavation ranged from 0.0 to 3,000 ppmv, with the highest PID readings detected at ground surface within the immediate spill area. A majority of the PID readings were above 100 ppmv, which exceed the VT DEC action level of 20 ppmv for gasoline contaminated soil.

The secondary containment area consisted of a six-inch thick clay liner with two foot high berm encompassing approximately 4,000 square feet. During excavation, the construction of the secondary containment area was found to contain inconsistent thicknesses of clay horizontally and almost no clay extending up the berm walls. According to Mr. Scott Oeschger, the concrete saddles that hold the six ASTs extend through the clay layer to a sub-clay concrete footer.

Approximately 30 cubic yards of gasoline contaminated snow were excavated and placed in two poly-lined roll-off dumpsters and 1,000 gallons of contaminated water were pumped from the 1,000-gallon oil-water separation UST into a temporary holding tank. Once weather permits, the gasoline contaminated melt-water and contaminated water from the oil-water separator will be treated or disposed of in accordance with VT DEC guidelines. Approximately 144 cubic yards of petroleum contaminated soil (PCS) were excavated from the spill area and poly-encapsulated onsite. The excavation was backfilled with clean soil. Free phase gasoline was observed on soils and groundwater within the excavation, which was encountered at approximately 10 feet bgs. A free product recovery well was installed in the excavation and approximately 1,000 gallons of gasoline have been recovered using a vacuum trailer to date. A summary of the PID readings and approximate sample locations are shown on **Table 1** of Attachment A, and photographs of the polyencapsulated soil are included in Attachment B.

Soils in the vicinity of the gasoline fuel release were screened for the possible presence of volatile organic compounds (VOCs) with a Photovac PE 2020 Pro Plus, photo-ionization detector (PID). The PID was calibrated on the day of the emergency response with isobutylene gas to a benzene reference. Soil samples were placed in a resealable bag, which were then sealed and agitated. Headspace in the bag was then screened for the possible presence of VOCs with the PID.

Soil Sampling and Analysis

Two soil samples were collected from the encapsulated PCS pile for waste characterization purposes. Both samples were submitted for laboratory analysis for the possible presence of total petroleum hydrocarbons and lead in accordance with U.S. EPA Methods 8015 GRO and 6010, respectively. The samples were also analyzed for ignitability. The encapsulated PCS will remain onsite until laboratory results for the two soil samples are reported and trucking can be arranged to an appropriate disposal facility. The samples were transported under chain-of-custody in an ice filled cooler to Endyne, Inc. of Williston, Vermont for laboratory analysis.

Please call me if you have any questions or concerns regarding the enclosed results or recommendations.

Sincerely,

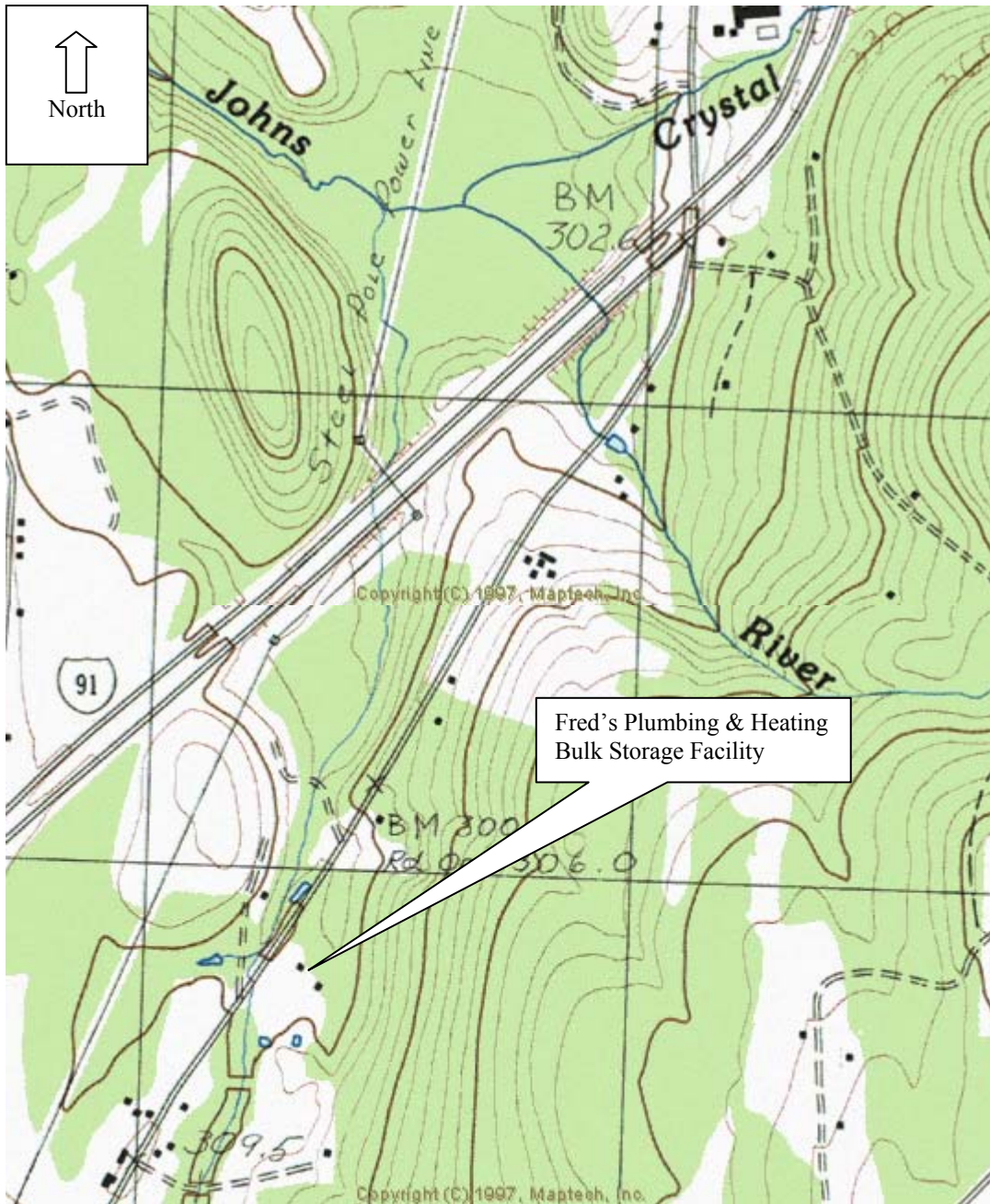
Ross Environmental Associates, Inc.

Jeffery Simone
Sr. Environmental Scientist

Attachments

cc: Mr. Scott Oeschger – Fred's Plumbing and Heating
Mr. Edwin Camp - Royer-Camp Insurance, Inc.
Mr. Cliff Ambrose - Ambrose Environmental
Mr. Matt Moran - VT DEC - Sites Management Section

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Approximate Scale: 1 inch = 1,200 feet

Site Coordinates: 44° 58' 24.5" N, 72° 07' 2.0" W

Source: USGS 1986. West Charleston Quadrangle, VT
 Topographic map, (7.5 minute series)
 Provisional Edition, 1986. Maptech, Inc. 1998
 R.E.A. Project No. 27-013

Figure 1
 Site Location Map
 FP & H Bulk Storage Facility
 Derby Line, Vermont



Fred's Heating Oil Bulk Facility

Figure 2
Fred's Plumbing & Heating Bulk Facility
1683 US Route 5
Derby, VT

Legend

- 50-Foot Contour
- e-911 Roads
- Surface Water

Map Source:
Orthophotograph # 4407208
USDA. Photo Date. 2003

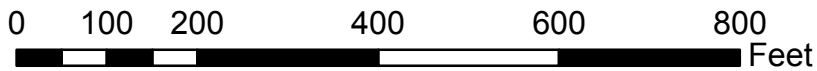


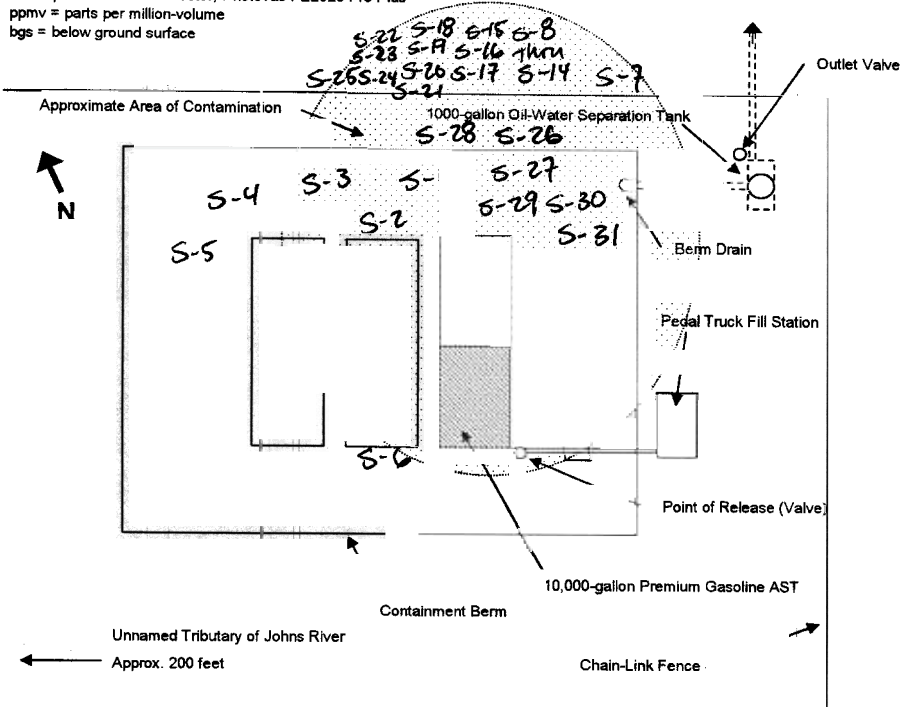
TABLE 1

Summary of PID Readings
 FP&H Bulk Storage Facility Spill
 Derby, Vermont

Monitoring Dates: 28 February and 1 March 2007

Sample ID	Depth (Feet,bgs)	PID Reading (ppmv)	Location/comments
S-1	0.0	2,000	Ground Surface in Containment Berm
S-2	0.0	2,000	Ground Surface in Containment Berm
S-3	0.0	2,000	Ground Surface in Containment Berm
S-4	0.0	80	Ground Surface in Containment Berm
S-5	0.0	0.0	Ground Surface in Containment Berm
S-6	0.0	400	Ground Surface in Containment Berm
S-7	0.0	1,500	Ground Surface to North of chain-link fence
S-8	4.0	900	North of chain-link fence
S-9	3.0	0.1	North of chain-link fence
S-10	3.5	5.4	North of chain-link fence
S-11	3.5	7.3	North of chain-link fence
S-12	4.0	4.2	North of chain-link fence
S-13	4.0	3,000	North of chain-link fence
S-14	4.0	547	North of chain-link fence
S-15	3.5	300	North of chain-link fence Heading West
S-16	4.0	2,000	North of chain-link fence
S-17	2.5	1,500	North of chain-link fence
S-18	2.5	690	North of chain-link fence
S-19	3.0	50	North of chain-link fence
S-20	3.0	300	North of chain-link fence
S-21	2.5	0.0	North of chain-link fence
S-22	5.5	12.7	North of chain-link fence
S-23	5.5	1,200	North of chain-link fence
S-24	5.5	400	North of chain-link fence
S-25	5.5	130	North of chain-link fence
S-26	4.5	124	Excavation in northern Berm area
S-27	5.0	23.5	Excavation in northern Berm area
S-28	8.5	1,000	Excavation in northern Berm area
S-29	10.0	680	Excavation in northern Berm area
S-30	10.0	900	Excavation in northern Berm area
S-31	9.0	1,000	Excavation in northern Berm area
AVERAGE		734.0	

PID = photoionization detector, Photovac PE2020 Pro Plus
 ppmv = parts per million-volume
 bgs = below ground surface



Map not to scale. All locations are approximate.

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FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Site Overview – View Toward North-Northeast)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Point of Release (Valve) – View Toward Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Containment Berm covered with Gas contaminated snow – View toward North)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Removal of Gas contaminated snow – View Toward West)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Removal of Gas contaminated snow – View toward East)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Poly-lined dumpsters to contain contaminated snow – View Toward North)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Location of Berm drain pipe in NE corner of Berm)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Soil excavation to determine extent of contamination– View Toward West-Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Seepage of product during night of 28 Feb. – View Toward West-Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Seepage of product during night of 28 Feb.)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Excavating contaminated soil in berm area – View toward North)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Free product observed at 10' bgs in Berm area – View Toward West)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Area of temporary Soil containment – View toward Southeast)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Installation of “Excavation” Well in Berm area)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Berm area up to grade with clean fill – View toward Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Poly-encapsulated Soil Stockpile – View Toward South)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Site Overview – View Toward North-Northeast)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Point of Release (Valve) – View Toward Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Containment Berm covered with Gas contaminated snow – View toward North)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Removal of Gas contaminated snow – View Toward West)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Removal of Gas contaminated snow – View toward East)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Poly-lined dumpsters to contain contaminated snow – View Toward North)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Location of Berm drain pipe in NE corner of Berm)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Soil excavation to determine extent of contamination– View Toward West-Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Seepage of product during night of 28 Feb. – View Toward West-Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Seepage of product during night of 28 Feb.)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Excavating contaminated soil in berm area – View toward North)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Free product observed at 10' bgs in Berm area – View Toward West)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Area of temporary Soil containment – View toward Southeast)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Installation of “Excavation” Well in Berm area)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Berm area up to grade with clean fill – View toward Northwest)



FP&H BULK STORAGE FACILITY – DERBY, VERMONT
(Poly-encapsulated Soil Stockpile – View Toward South)