



September 16, 1994

SEP 19 10 52 AM '94

Mr. Robert Haslam
Hazardous Materials Management
Vermont Department of
Environmental Conservation
103 South Main Street
Waterbury, Vermont 05676

RE: Status Report, Stammersky Residence, Sherburne, Vermont (Site #94-1559)

Dear Mr. Haslam:

Lincoln Applied Geology, Inc. (LAG) has continued with vapor extraction system (VES) operations and bi-weekly site monitoring at the Stammersky Residence in Sherburne. As you are aware from our recent telephone conversation, free floating product has been identified within VP-3, our recently installed vapor point. The lower level of the residence also continues to be plagued with periodic vapors. Based on this information, we recently installed two hand auger wells outside and adjacent to the foundation. Results of this work indicate that elevated concentrations of fuel oil exists both in the soils and ground water in our newly installed monitor wells. LAG believes that additional work should be conducted to remediate the fuel oil vapors in the residence, to mitigate the free product accumulations, and further define the product migrating under the residence.

Recent site monitoring data is presented as **Tables 1** and **2**. **Charts 1** through **4** depict cumulative photoionization detector (PID) level trends and vapor extraction efforts to date. These summarized results indicate that the VES installed in February 1994 is effectively removing fuel oil vapors from the soils surrounding the former underground storage tank (UST) and that the additional vapor (VP-3) has increased the system's capabilities by allowing vapors to be removed from below part of the first floor. LAG estimates that an equivalent of 25 gallons of fuel oil has been cumulatively removed from the soils in vapor form through August 29, 1994.

On August 22, 1994 0.25 feet of free floating product was discovered in VP-3. As a result, two hand auger wells were installed outside the residence near the foundation wall to evaluate the soil and ground water conditions in that area. Elevated levels of fuel oil vapors were discovered in the soils at both locations and the ground water contained a minor sheen. **Figure 1** shows the

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location of the two newly installed wells (AH-1 and AH-2) as well as our vapor extraction and monitoring wells. These AH series wells were recently sampled for water quality analyses and the results will be presented in our next status report.

Chart 2 shows the PID assay results for the lower level of the residence. Olfactory and trace PID levels have persisted in the lower level living room and bedroom #2. Results of our July 25, 1994 soil vapor survey through the first level floor did not show that significant concentrations of fuel oil were present beneath the living room or bedroom #2. We do believe however, that because of the recent occurrence of free floating product it is possible that the fuel oil contamination has migrated under the living room and bedroom #2 and is causing the vapor problem. It is our opinion that contamination has now migrated beyond our VES system capabilities.

LAG believes that the following work is necessary to combat the free floating product and remove the vapor from the first level residence. A Soak Ease bailer regiment should be implemented on VP-3. One additional vapor extraction point should be installed in the closet between the living room and bedroom #2 (**Figure 2**) to a depth of 5 to 7 feet. The following additional work should be completed to define the extent and magnitude of contamination because the adjacent Roaring brook represents a potential sensitive receptor that must be protected. The other potential receptors that are threatened include the on-site disposal system and spring ground water seeps along the bank of the Roaring brook. We will also evaluate if contamination is utilizing the disposal system drain pipe as a preferential migration pathway. Three to five additional hand auger monitor wells should be installed to further define the extent and magnitude of contamination that has already migrated beyond the foundation. If significant accumulations of free floating product are discovered, then LAG would recommend that a passive recovery trench be installed to collect and recover free product by using adsorbent booms and periodic bailing. **Figure 2** shows the approximate location and dimensions of the trench proposed. A cost estimate is attached as **Appendix A**.

If you have any questions, comments, or concerns with regard to this matter please do not hesitate to call me or John Amadon, LAG Project Manager,



Lincoln Applied Geology, Inc.
Environmental Consultants

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at 453-4384. We await your concurrence with these recommendations and would appreciate hearing from you at your earliest convenience.

Sincerely yours,

Richard S. Vandenberg

Richard S. Vandenberg
Hydrogeologist

RSV/smk
enclosure
cc: George Wilson, Allstate Insurance
Mr. and Mrs. Stammersky



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Photoionization Results (PID - ppm)

Data Point	6-7-94	6-20-94	7-8-94	8-1-94	8-17-94	8-22-94	8-29-94
UPPER LEVEL							
Entrance	BG	BG	BG	BG	BG	BG	BG
Living Room	BG	BG	BG	BG	BG	BG	BG
Kitchen	BG	BG	BG	BG	BG	BG	BG
Bathroom	BG	BG	BG	BG	BG	BG	BG
Bedroom #1	BG	BG	BG	BG	BG	BG	BG
Bedroom #2	BG	BG	BG	BG	BG	BG	BG
LOWER LEVEL							
Living Room	0.8	0.4	BG	BG	1.0	0.2	0.2
Kitchen	0.2	BG	BG	BG	BG	0.2	BG
Furnance Room	BG	BG	BG	BG	BG	BG	BG
Bathroom	BG	BG	BG	BG	BG	0.2	0.2
Bedroom #1	BG	0.2	BG	BG	2.2	0.2	0.4
Bedroom #2	BG	0.2	BG	BG	BG	0.2	0.2
TREATMENT SYS							
VP-1 Influent		8.0	4.0	BG	12.0	3.0	6.0
VP-2 Influent		6.2	3.6	BG	1.2	2	
VP-3 Influent					8.8	28	SL
Combined Influent	12.0	12.2	8.2	BG	22	13	1.6
After Rotron	12.0	12.0	8.0	8.2	20.0	13	12.4
MID Treatment	2.0	4.0	8.0	7	10.0	3	11.6
Effluent	BG	BG	BG	BG	0.2	2	9.1
VMP-1		0.6	BG	3.2	BG	BG	BG
VMP-2		1.2	0.2	22	1.2	20	0.4

NOTES:

BG - Background

SL - Saturated Lamp

* - PID measurements taken with system off

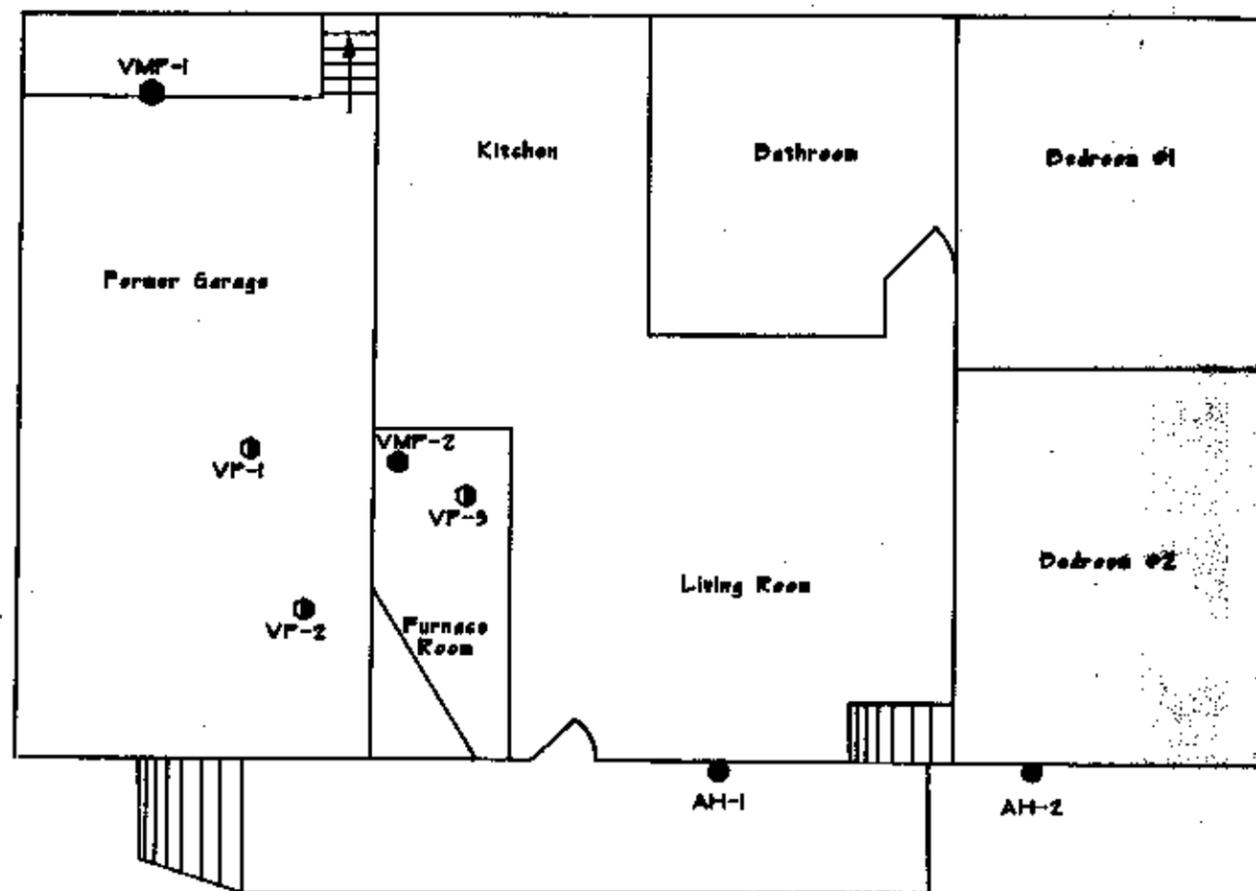
LIGHT GREY-Not Measured

Vapor Extraction System Data

Data Point	6-20-94	7/8/94	8/1/94	8/17/94	8/22/94	8/29/94
VACUUM (inches of H2O)						
VP-1 Influent	11.5	12.5	12.0	28.0	20.0	26.0
VP-2 Influent	12.0	12..5	12.0	OFF	OFF	OFF
VP-3 Influent				28.00	18.00	24.00
Combined Influent	13.5	14.0	14.0	28.0	21.0	26.0
VMP-1	0.00	0.00		0.00	0.00	0.00
VMP-2	0.00	0.00		0.00	0.00	0.20
PITOT TUBE (inches of H2O)						
VP-1 Influent	0.26	0.36	0.28	1.20	0.52	0.68
VP-2 Influent	0.44	0.56	0.30	0.00	0.00	0.00
VP-3 Influent				0.72	0.42	0.40
Combined Influent	0.80	0.84	0.58	0.62	0.84	0.68
After Rotron	0.52	0.50	0.72	0.48	0.62	0.46
FLOW (CFM)						
VP-1	42.2	52.8	46.8	96.3	62.7	72.2
VP-2	58.0	65.6	48.0	0.0	0.0	
VP-3				76.56	56.76	56
COMBINED FLOW	63.3	80.3	69.1	69.1	80.5	72.2
FLOW AFTER ROTRON	78.7	61.6	74.4	49.7	69.1	59.4

Light Grey- Not Measured
 CFM- Cubic Feet per Minute

Stambersky
Residence



—+—

LEGEND

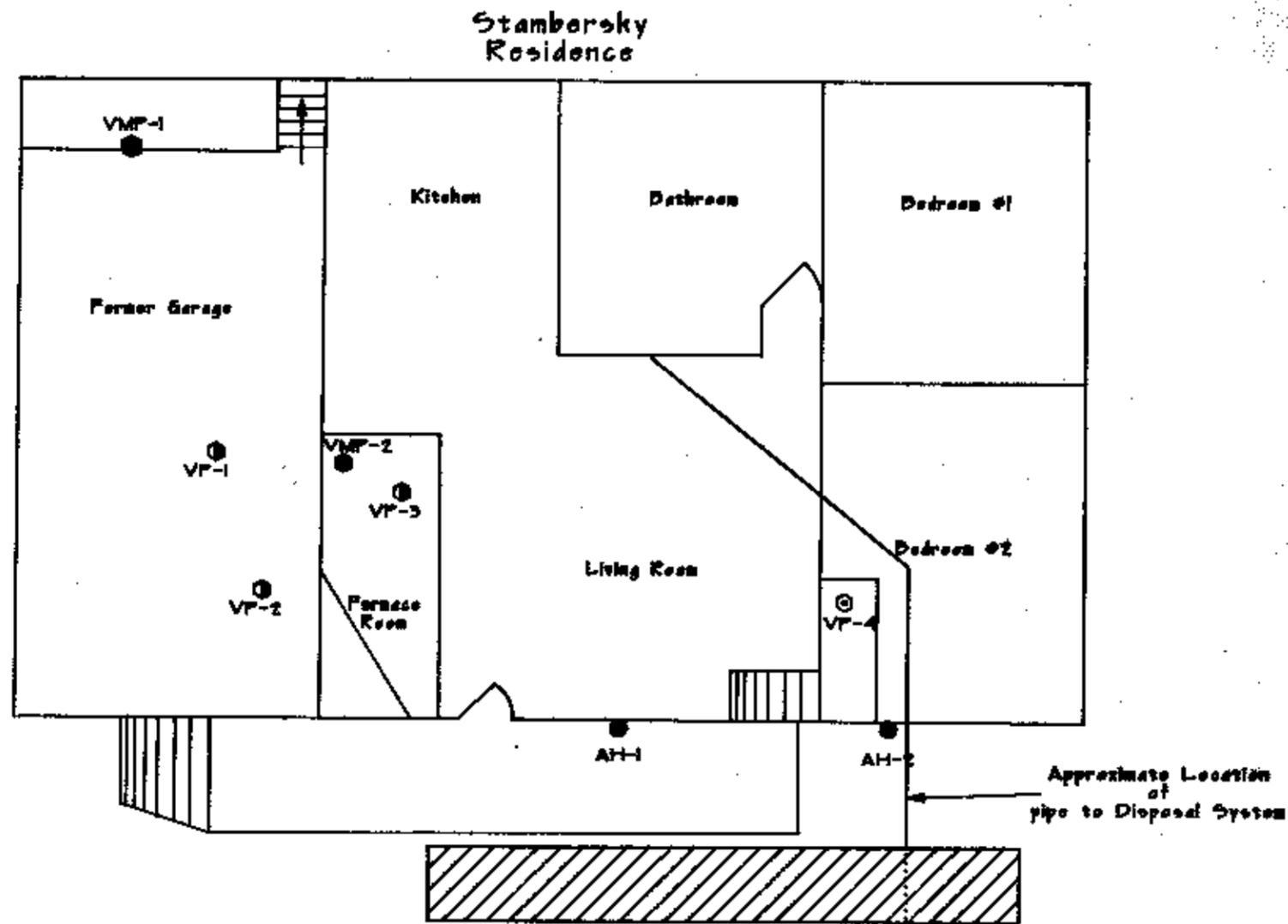
- ⊙ Vapor Extraction Point
- Vapor Monitoring Point
- Hand Auger Monitor Well



Figure 1

Stambersky Residence	
<small>Location:</small> Sherburne, Vermont	<small>Scale:</small> 1" = 10'
Detailed Site Map	
<small>Date:</small> Aug 1994	<small>Job Type:</small> Petroleum Contamination





LEGEND	
	Vapor Extraction Point
	Vapor Monitoring Point
	Hand Auger Monitor Well
	Proposed Vapor Extraction Point
	Proposed Recovery Trench



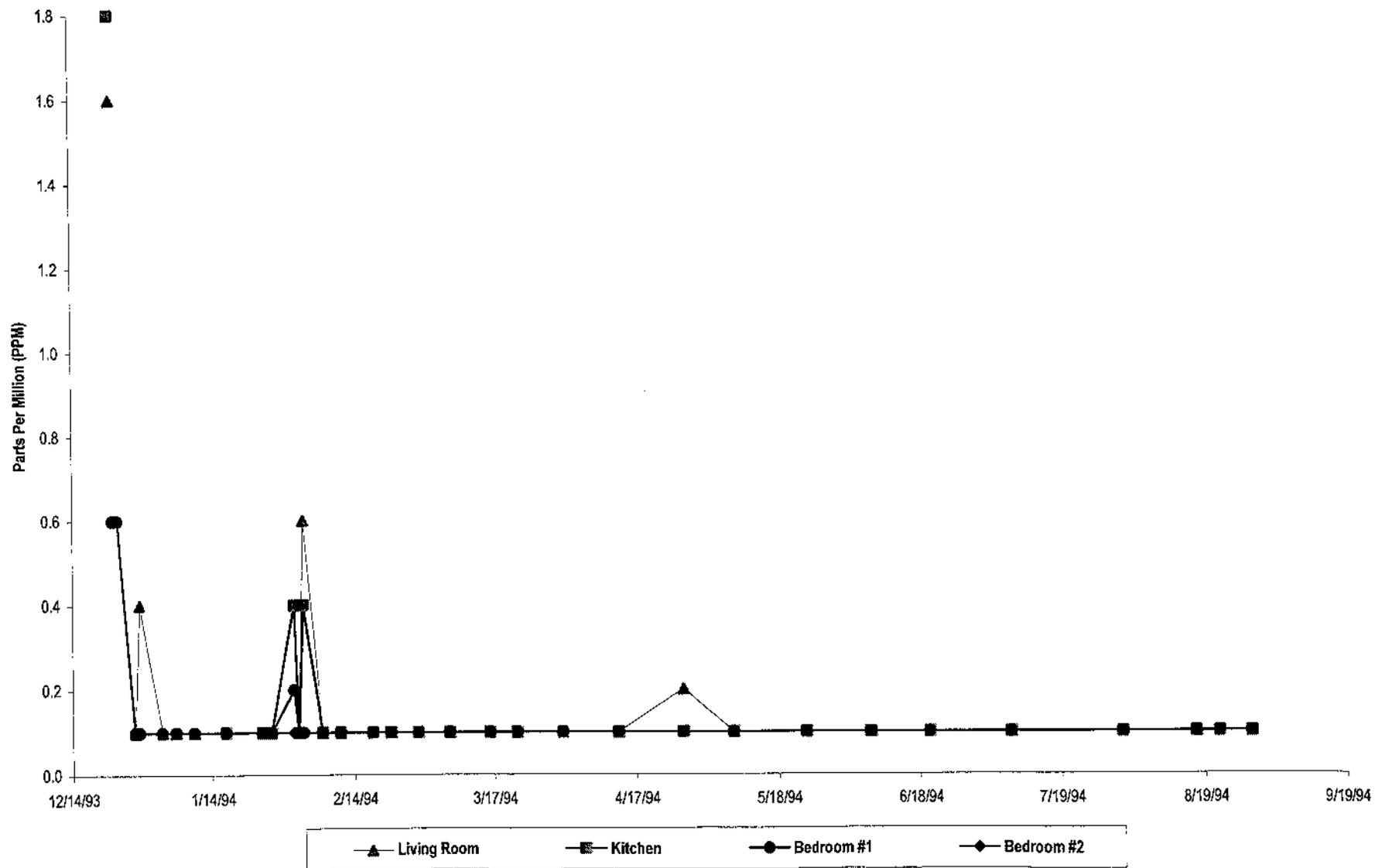
Figure 2

Stambersky Residence	
Location	Scale
Shelburne, Vermont	1" = 10'
Proposed Vapor Extraction Well and Passive Trench Location Map	
Date	Job Type
Aug 1994	Petroleum Contamination



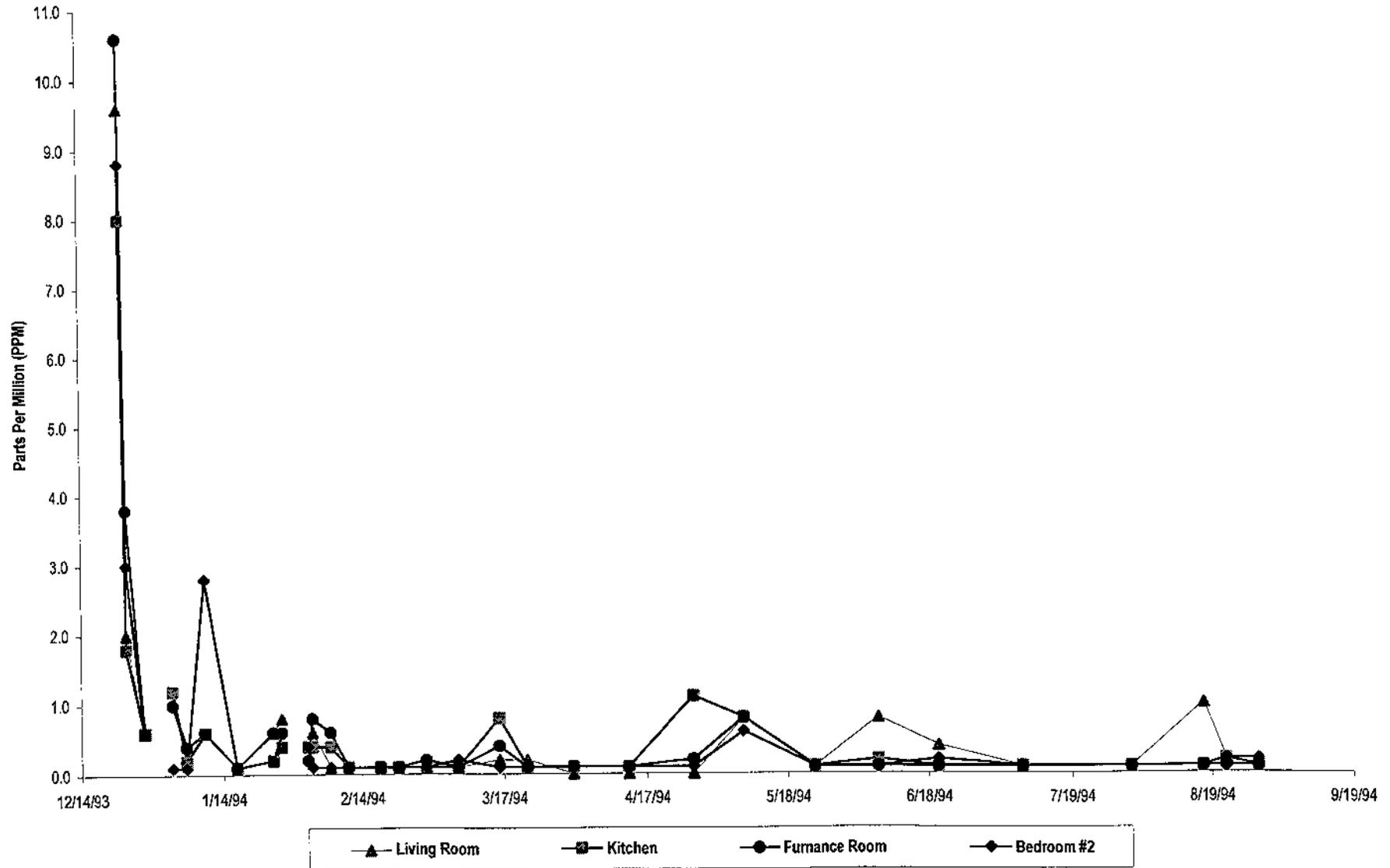
Stambersky Residence
Sherburne, Vermont
VDEC SITE #94-1559

PID vs. Date
UPPER LEVEL OF RESIDENCE



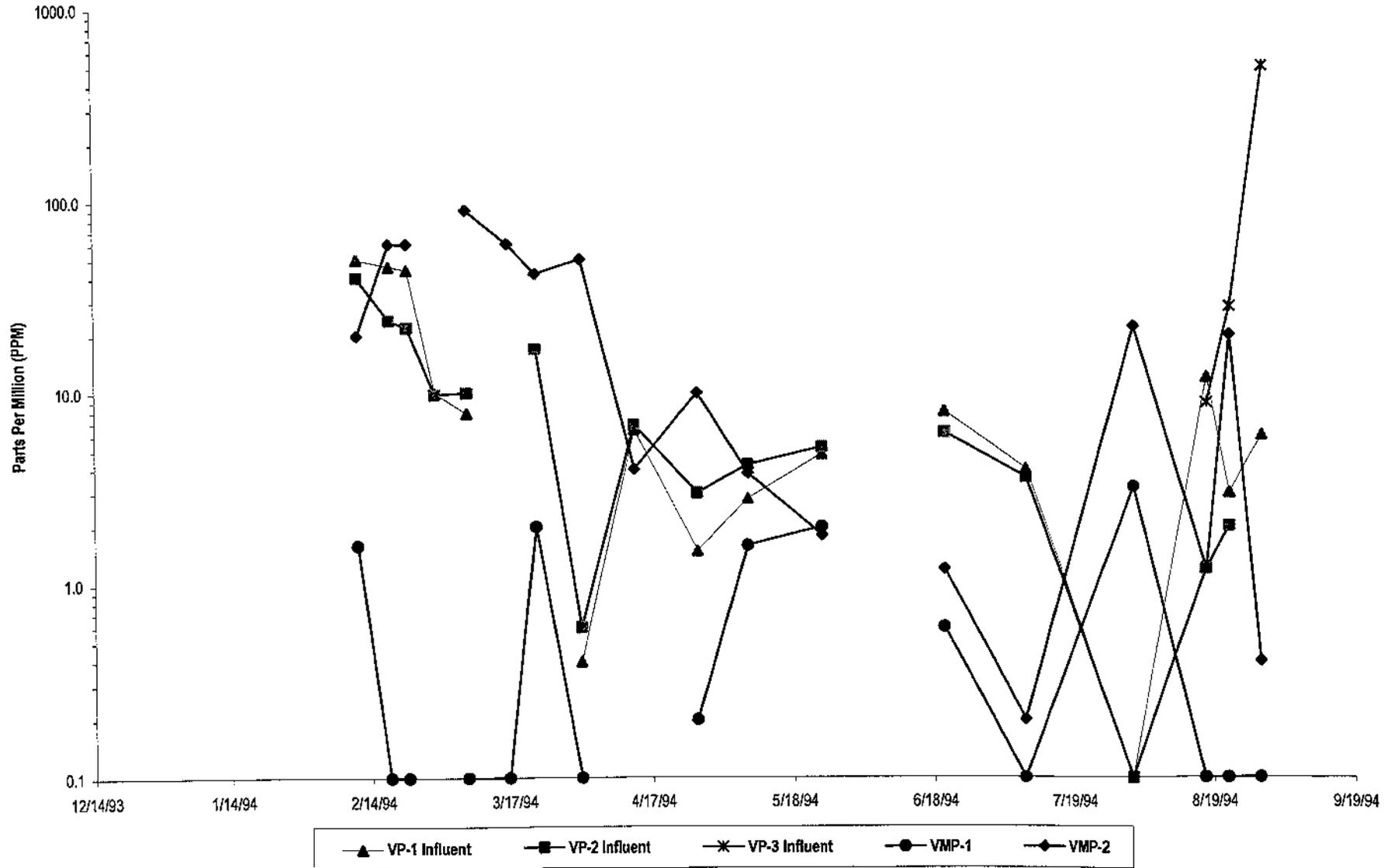
Stambersky Residence
Sherburne, Vermont
VDEC SITE #94-1559

PID vs. Date
LOWER LEVEL OF RESIDENCE



Stambersky Residence
Sherburne, Vermont
VDEC SITE #94-1559

PID vs. Date
VAPOR EXTRACTION SYSTEM



Stambersky Residence
Sherburne, Vermont
VDEC SITE #94-1559

Total Gallons of Product vs. Date
VAPOR EXTRACTION SYSTEM

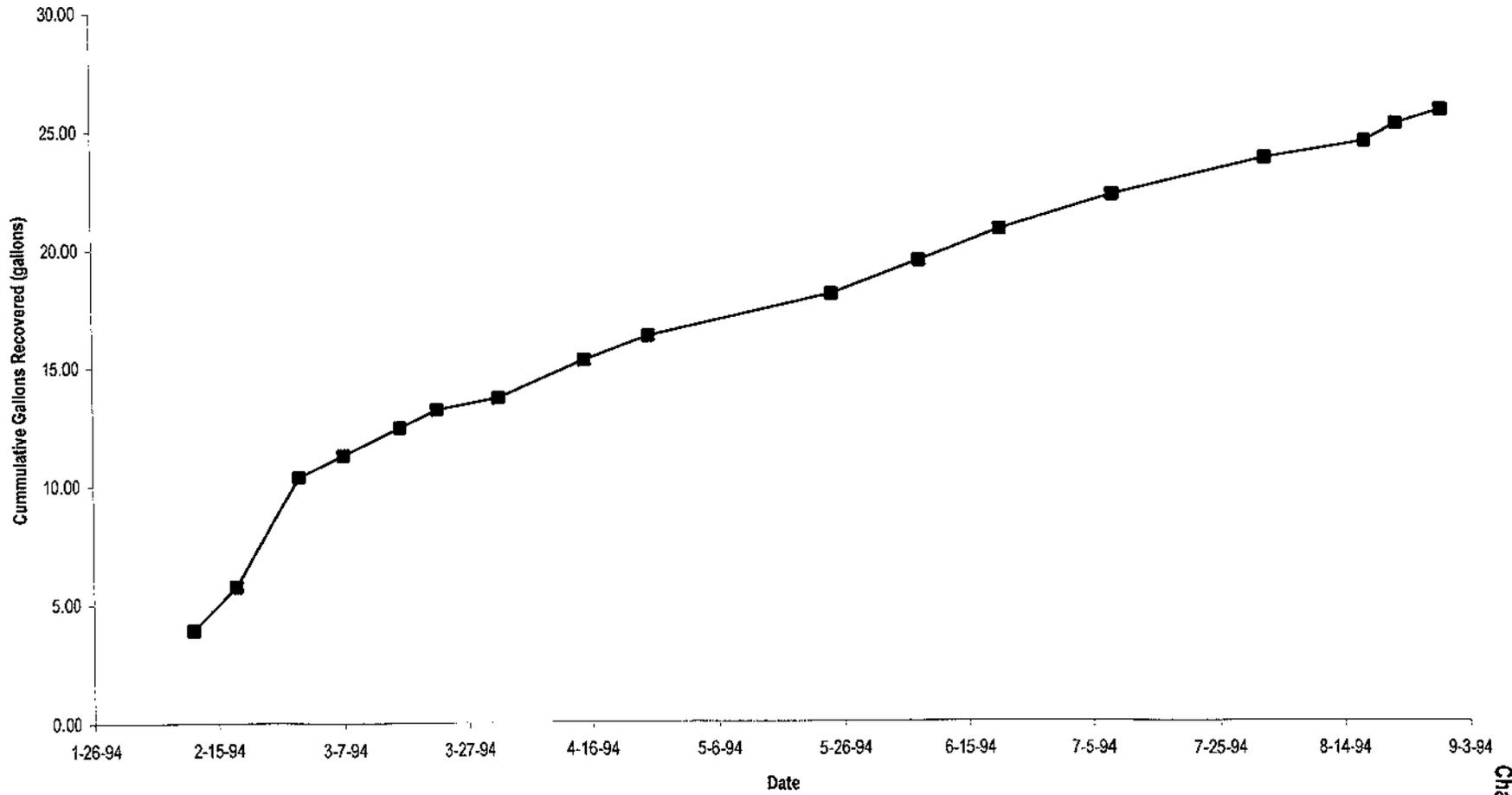


Chart 4

Appendix A
Cost Estimate

**Stambersky Residence
Sherburne, VT
(VDEC Site #94-1461)
Cost Estimate for Additional Work
Sep-94**

A. Installation of Additional Vapor Extraction Well and VES System Upgrade

Hydrogeologist/Site Manager -	16.0	hr(s) @	\$45.00	per hour	\$	720.00
Field Technician -	16.0	hr(s) @	\$30.00	per hour	\$	480.00
PID and Interface Probe -	2.0	day(s) @	\$100.00	per day	\$	200.00
PVC Materials-		@	\$700.00		\$	700.00
Jack Hammer & Bit Rental -					\$	115.00
Mileage -	300.0	mile(s) @	\$0.30	per mile	\$	90.00
Soakease -	1.0	@	\$6.20	each	\$	6.20

Subtotal A \$ 2,311.20

B. Installation of a Passive Recovery Trench

Hydrogeologist/Site Manager -	12.0	hr(s) @	\$45.00	per hour	\$	540.00
Excavator -	1.0	day(s) @	\$1,100.00	day	\$	1,100.00
Materials (well) -		@	\$400.00		\$	400.00
PID and Interface Probe -	1.5	day(s) @	\$100.00	day	\$	150.00
Mileage -	300.0	mile(s) @	\$0.30	per mile	\$	90.00

Subtotal B \$ 2,280.00

C. Installation of Additional Hand Auger Monitor Wells

Hydrogeologist -	12.0	hr(s) @	\$45.00	per hour	\$	540.00
Field Technician -	8.0	hr(s) @	\$30.00	per hour	\$	240.00
Field Technician O.T. -	4.0	hr(s) @	\$45.00	per hour	\$	180.00
Materials-		@	\$500.00		\$	500.00
PID and Interface Probe -	2.0	day(s) @	\$100.00	day	\$	200.00

Subtotal C \$ 1,660.00

Grand Total >>> \$ **6,251.20**



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