

Consulting

MAR 14 1996

◆ HOFFER & ASSOCIATES ◆

Environmental
and Hydrogeologic
Services

Hydrogeologists

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March 13, 1996

Receptor survey +
indoor air should be considered
definitely not just screening,
min screening, & possibly
more sampling

Carl Ruprecht, UST Manager
S.B. Collins, Inc.
54 Lower Welden Street
St. Albans, Vermont 05478

Re: Preliminary Site Investigation, Sylvester's Store, Montgomery, VT
SMS Site # 94-1689

Dear Carl:

This letter presents the results of our preliminary site assessment for Sylvester's Store in Montgomery Center, Vermont. This assessment was undertaken at your request in response to the March 1, 1996, Notice of Alleged Violation letter from P. Howard Flanders of the Vermont Waste Management Division. The preliminary assessment was conducted according to guidelines specified in UST Regulation V.S.A. 8-604 (2). Our efforts included a review of the Sites Management Section's (SMS) file on Sylvester's Store, a review of the Vermont Water Supply Division's water well database for the vicinity, and a site visit on March 6, 1996. During the site visit, a photoionization detector (PID) was used to measure organic vapor concentrations in the site monitoring wells and vapor monitoring points, as well as to screen indoor air quality in Sylvester's Store and adjacent buildings. Groundwater samples were also collected from the two site monitoring wells. During the site visit, S.B. Collins personnel were present at the site and were excavating to the top of the two existing gasoline underground storage tanks (USTs) in order to conduct tank tightness testing. Soils removed from the top of the USTs were also screened with the PID.

5070

BACKGROUND INFORMATION

Sylvester's store, a grocery/convenience store and filling station, is located on the northern corner of the intersection of Vermont Routes 118 and 242, in Montgomery Center, Vermont. A site location map is shown on Figure 1, and Figure 2 presents a site sketch illustrating relevant features. The surrounding properties are primarily residential and light commercial. Across Route 118 from the site are the Slovakia Inn (a restaurant/hotel), and the Montgomery Fire Department. Immediately south of these properties, located approximately 200 feet from the site, is the Trout River, which flows to the west. No other surface water bodies are present within a 500-foot radius of the site.

Soils in the vicinity of the site are mapped by Wright (1974) as lacustrine sands and gravels and recent alluvium. These units are generally consistent with observations made during my site visit when excavation activities were occurring. Bedrock at the site has been mapped as the Underhill Formation, which consists of Cambrian, silver-gray to green, carbonaceous and non-carbonaceous schists (Doll, 1961). Although bedrock was not observed during this initial site investigation, available soil boring logs indicate that bedrock may be present at depths from eight to thirteen feet.

Currently, there are two gasoline USTs in use at the site, located between the store and Route 118, as indicated on Figure 2. These USTs and the pumps are owned and maintained by S.B. Collins, of St. Albans, Vermont. Two other USTs, a 550-gallon kerosene and a 1,000-gallon fuel-oil UST were located along the western wall of the store prior to their removal. The former locations of these USTs are shown on Figure 2. The kerosene UST was removed in October 1994, under the supervision of Lincoln Applied Geology, of Bristol, Vermont, and the fuel-oil UST was removed in January 1995 under the supervision of K-D Associates, Inc. (KDAI), of South Burlington, Vermont. Both of these tanks were owned by Ray Sylvester, the previous owner of the property. During the removals of these USTs, petroleum contamination was noted in the soils surrounding the tanks and, as a result, an on-going site investigation was undertaken by KDAI. As part of that investigation, three soil borings were drilled at the site in February 1995. Monitoring wells were constructed in two of the three borings, MW-1 and MW-3. A file review indicated that during the initial monitoring event in February 1995, and a subsequent event in October 1995, both of the monitoring wells were dry. However, photoionization detector (PID) measurements obtained from the well headspaces on both occasions suggested the presence of petroleum contamination in soils surrounding the wells. A site visit by SMS employees in February 1996 confirmed the presence of elevated vapor levels in the monitoring well headspaces.

The site is currently owned by Mr. Alan Cennamo, who took ownership in May, 1995.

SITE ASSESSMENT ACTIVITIES

I arrived at the site on March 6 to perform a site reconnaissance and a combined well headspace PID monitoring/groundwater sampling event. A Photovac MicroTIP HL-2000 was utilized for the headspace monitoring event. Prior to use, the PID was calibrated with and set to respond to isobutylene. The reported readings are in parts per million (ppm) equivalent to isobutylene.

Monitoring Well Headspace Vapor Survey

Immediately after opening the monitoring well or vapor monitoring point, the tip of the PID was inserted in the well headspace, and a vapor measurement obtained. The PID was allowed to equilibrate after insertion of the probe tip, and the maximum reading was recorded. The results are presented below:

<u>Monitoring Point</u>	<u>PID Reading (ppm)</u>
MW-1	2500
MW-3	385
VW-1	126
VW-2	2.7
VW-3	1418

As indicated by the data, the highest PID readings were obtained in the vicinity of MW-1 and VW-3, located southwest of the USTs and pump island.

Groundwater Sampling

Of the five monitoring points located on-site (two wells and three vapor monitoring points), only the two monitoring wells contained sufficient water for sampling. Vapor monitoring points VW-1 and VW-2 were dry. The third vapor monitoring point had a monitoring probe that was frozen in place and a water level probe could not be inserted in this point. Depths to water and total depths measurements are presented below:

<u>Monitoring Point</u>	<u>Depth to Water (feet)</u>	<u>Total Depth (feet)</u>
MW-1	9.68	12.5
MW-3	10.26	13.8
VW-1	dry	9.86
VW-2	dry	8.98
VW-3	not measured	not measured

Prior to sampling, an estimated three volumes of water were removed from the MW-1 and MW-3. New polyethylene bailers were used for purging and sampling of each well. At the conclusion of purging, a sample was obtained by pouring water directly from the bailer into two vials which contained hydrochloric acid for sample preservation. The samples were placed on ice in a cooler for storage and transport, and were delivered to Scitest Analytical Services, of Randolph, Vermont, for benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl-tert-butyl ether (MTBE) analysis by EPA Method 8020. Analytical results are given below in ug/L:

<u>Well ID</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylenes</u>	<u>MTBE</u>
MW-1	2850	37300	3480	22400	1480
MW-3	331	278	652	1840	<50
VT GES*	5	2420	680	400	40**

*VT GES = Vermont Groundwater Enforcement Standard
**Vermont Health Advisory level

The regulatory thresholds for benzene and xylenes were exceeded in both wells, and for all of the BTEX constituents and MTBE in MW-1. The absence of MTBE in the sample from MW-3 and its presence in MW-1 may suggest that more than one source of petroleum exists at the site. 5/10

UST Soils Screening

As mentioned previously, SBC personnel were on-site removing soils from above the gasoline USTs in order to conduct UST tightness testing during the site visit on March 6, 1996. Soil samples were obtained for PID headspace screening from around the fill pipes of both USTs, and from soil above the southernmost UST (at the time of soil screening, the northern UST was still largely beneath pavement, and these soils could not be sampled). Soil samples were placed in plastic zip-lock bags, which were then sealed and the PID tip inserted into the headspace above the sample. The maximum PID reading was recorded.

The highest soil reading (2365 ppm) was obtained from soils located on top of the southern UST (from a depth of approximately 3.5 feet), at the midpoint of the UST. The remaining readings ranged from 263 to 2068 ppm. In addition, there were olfactory indications of petroleum contamination noted in soils overlying the tank.

Soils (fill) observed within the UST excavation were largely light brown to brown, dry to slightly moist sandy silts, and medium to large cobbles and boulders, many over a foot in diameter.

Indoor Air Quality Survey

A vapor survey of basement spaces and work areas in the buildings immediately surrounding the facility was also conducted during the initial site visit. Accessible buildings included the Sylvester's store building, the Slovakia Inn, and the Livery Hardware building. No one was available in any of the remaining buildings adjacent to the Sylvester's property.

In both the Sylvester's and the Livery Hardware buildings, I was told there were no basements. Readings obtained from within the buildings did not vary significantly (less than 1 ppm) from background.

The Slovakia Inn basement is located beneath the eastern end of the Inn, beneath the kitchen area. Readings from within the basement ranged from 40 to 110 ppm above background, although no gasoline or petroleum odor was noted. PID screening performed at points of possible vapor entry into the basement (floor drains and openings in walls and floors for subsurface piping) indicated that these were not the source of the high readings. Employees present at the Slovakia Inn during the screening event indicated that they have not smelled any petroleum odors in the structure or basement. Gasoline is identifiable by odor at a concentration of 50 ppm in air (Johnson, 1985).

At the time of the survey, high humidity was noted in the basement, as well as in the kitchen. There was also a natural-gas heater and a clothes dryer operating in the basement room, and a one-gallon plastic gasoline container reportedly used for kerosene storage present behind the basement stairs. Whether any of these were responsible for the high readings is uncertain. There were no elevated PID readings (above background) readings in the first floor rooms that do not have basement space beneath them.

POTENTIAL RECEPTORS

A review of the State water well database indicated that there are six wells within a one half mile radius of the site. The locations of these wells are included on Figure 1. Three of these wells are located to the north of the site, in the inferred upgradient direction, and are therefore not believed to be threatened by contamination at the site. The remaining three wells are located south of Trout River. Assuming the Trout River acts as a hydraulic barrier, the wells south of the river are also unlikely to be threatened by site contamination. All of the buildings located in the vicinity of the site are on municipal water and sewer.

The Trout River is located approximately 200 feet south of the site. During the site visit on March 6, the riverbank was visually examined. Obvious visual signs of petroleum contamination such as sheens were not observed.

CONCLUSIONS AND RECOMMENDATIONS

Evidence of subsurface petroleum contamination was detected at Sylvester's Store during this preliminary assessment. Elevated PID readings in soils overlying the gasoline USTs indicate the presence of petroleum contamination in the vicinity of the gasoline USTs. There has also been an impact to groundwater at the site, as indicated by the presence of petroleum-related compounds in MW-1 and MW-3. The absence of MTBE in the sample from MW-3 and its presence in MW-1 may suggest that more than one source of petroleum may exist at the site.

PID vapor surveys of Sylvester's Store and the Livery Hardware do not indicate that petroleum vapors associated with the contamination at the site have infiltrated these buildings. Elevated PID readings were obtained in the basement of the Slovakia Inn, however, there have been no reports of petroleum odors (or other unexplained odors) in the basement from any of the employees at the inn. The source of the elevated PID readings in the Slovakia Inn basement is uncertain.

Although the extent of contamination at the site has not been delineated, this preliminary assessment has not identified immediate threats to potential receptors. Further investigation activities are needed at the site and should include the installation of additional monitoring wells to determine groundwater flow direction and the extent of groundwater contamination, and a further assessment of the high PID readings in the Slovakia Inn.

Please do not hesitate to call if you have any questions regarding the results of the site assessment or these recommendations. After having reviewed this report and the results of the preliminary investigation, please advise us as to how you would like to proceed.

Sincerely,
HOFFER & ASSOCIATES



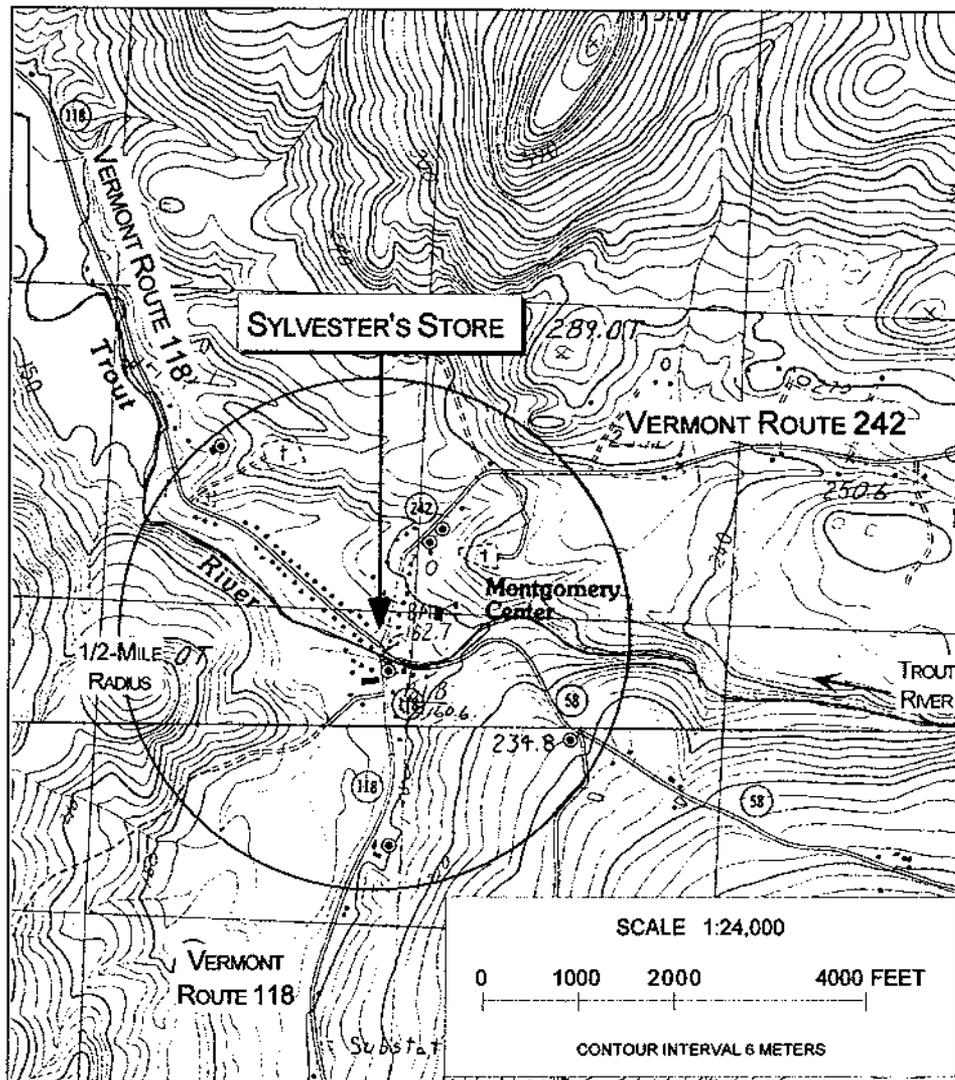
for

Timothy F. Schmalz
Project Geologist

enc.

REFERENCES

- Doll (Ed.), Charles D., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.
- Johnson, Roger, 1985, *Environmental Data for Hazardous Substances Found in Gasoline*, (letter w. attachments), State Water Resources Control Board, State of California.
- Wright, Frank M. III, 1974, *Geology for Environmental Planning in the Johnson-Hardwick Region, Vermont*, Vermont Geologic Survey, State of Vermont.



Base from U.S. Geological Survey, 1:24,000,
 Hazens Notch, Vermont, Provisional Edition, 1996
 and Jay Peak, Vermont, Provisional Edition, 1996

- ⊙ WATER WELL LOCATION FROM VERMONT
- ⊙ WATER SUPPLY DIVISION DATABASE FOR MONTGOMERY

FIGURE 1
 Site location map, Sylvester's Store, Montgomery, Vermont
 SMS Site #94-1689.

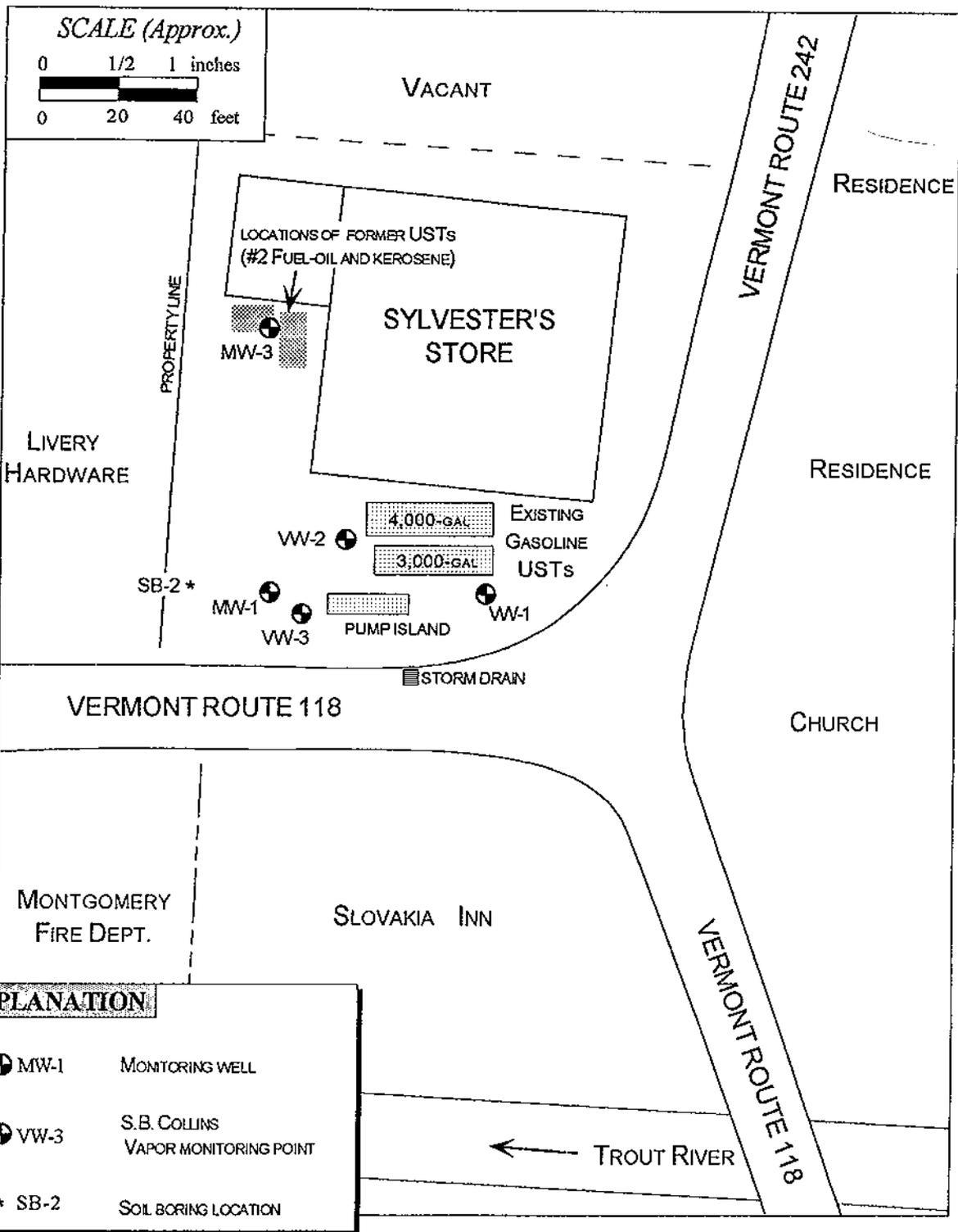


FIGURE 2
 Site map, Sylvester's Store, Montgomery, Vermont,
 SMS Site #94-1689.



ANALYTICAL REPORT

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

SB Collins, Inc.
54 Lower Welden Street
St. Albans, VT 05478

Carl Ruprecht

Work Order No.: 9603-00608

Project Name: Sylvester's Store
Customer Nos.: 090048

Date Received: 3/07/96
Date Reported: 3/08/96

Sample Desc.: Hoffer-MW 03

Sample Date: 3/06/96

Collection Time: 15:20

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	3/08/96
Methyl Tertiary Butyl Ether	EPA 8020	< 50	ug/L	JPM	3/08/96
Benzene	EPA 8020	331	ug/L	JPM	3/08/96
Toluene	EPA 8020	278	ug/L	JPM	3/08/96
Ethyl Benzene	EPA 8020	652	ug/L	JPM	3/08/96
Total Xylenes	EPA 8020	1840	ug/L	JPM	3/08/96
Chlorobenzene	EPA 8020	< 50	ug/L	JPM	3/08/96
1,2-Dichlorobenzene	EPA 8020	< 50	ug/L	JPM	3/08/96
1,3-Dichlorobenzene	EPA 8020	< 50	ug/L	JPM	3/08/96
1,4-Dichlorobenzene	EPA 8020	< 50	ug/L	JPM	3/08/96
Surrogate: 8020				JPM	3/08/96
***Bromofluorobenzene-8020		97	% Recovery	JPM	3/08/96

Sample Desc.: Hoffer-MW 01

Sample Date: 3/06/96

Collection Time: 15:40

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	3/08/96
Methyl Tertiary Butyl Ether	EPA 8020	1480	ug/L	JPM	3/08/96
Benzene	EPA 8020	2850	ug/L	JPM	3/08/96
Toluene	EPA 8020	37300	ug/L	JPM	3/08/96
Ethyl Benzene	EPA 8020	3480	ug/L	JPM	3/08/96
Total Xylenes	EPA 8020	22400	ug/L	JPM	3/08/96
Chlorobenzene	EPA 8020	< 1000	ug/L	JPM	3/08/96
1,2-Dichlorobenzene	EPA 8020	< 1000	ug/L	JPM	3/08/96
1,3-Dichlorobenzene	EPA 8020	< 1000	ug/L	JPM	3/08/96
1,4-Dichlorobenzene	EPA 8020	< 1000	ug/L	JPM	3/08/96
Surrogate: 8020				JPM	3/08/96
***Bromofluorobenzene-8020		92	% Recovery	JPM	3/08/96

c: Hoffer & Associates

Scitest, Inc.

P.O. Box 339

Route 66 Professional Center, Randolph, VT 05060

Phone: (802)728-6313 Fax: (802)728-6044

Bill to: Carl Ruprecht
S.B. Collins, Inc
54 Lower Welden St.
St. Albans, VT 05478
cc results to: Hoffer & Assocs.

Client: Jeff Hoffer & Associates
Contact: Tim Schmalz

Address: P.O. Box 428
Waterbury, VT 05676

Project # 70249

Phone No:

Requested by: KED

Project Name: ~~Handy Dodge~~
SYLVESTER'S SUB

Date requested: 03/04/96

Date shipped: Client Will Pick up

Date scheduled:

RUSH Copy of C-OC with RESULTS

CHAIN OF CUSTODY RECORD		DATE	TIME	DATE	TIME
Sampled By:	<i>Immoltey</i>			Relinquished By:	<i>Immoltey</i>
Accepted By:	<i>Colin Lemke</i>	3/6/96	7:30 AM	Relinquished By:	
Accepted By:				Received by Scitest:	<i>Kathleen Dugan</i>

Item Nos	Client ID or Description	Sampling Date	Sampling Time	Matrix	Preservative or Label	Bottle Type <small>Plastic/Glass</small>	Container Volume	Bottles per Sample	Parameters and Expiration Time <small>>7days</small>
①	MW-03	3/6/96	1520	GW	HCl	Glass	40 mL	2	EPA 8020
②	MW-01		1540	GW	HCl	Glass	40 mL	2 *	EPA 8020
3	FB-01		1545	GW	HCl	Glass	40 mL	2	EPA 8020
4	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
5	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
6	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
7	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
8	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
9	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
10	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
11	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
12	*		*	GW	HCl	Glass	40 mL	2	EPA 8020
13	Trip Blank		1500	GW	HCl	Glass	40 mL	2	EPA 8020

Do not Run

Do not Run

w:\requests\hoffer\handydod.wb2

Report Reviewed By:	Preserve Check:	Project Nos	LABORATORY NUMBER:
Date:	sample cool	70249	9603-00608
			LOGIN: <i>KDugan</i>

Proj # 70249
Sub # 00608
KED
3/6/96

GROUNDWATER SAMPLING DATA SHEET

LOCATION: SILVESTER'S
 DATE: MARCH 6, 1996

SAMPLE METHOD: 3" Poly BAILERS
 SAMPLING TEAM: T. SCHMALZ

WELL ID	PID Head Space (ppm)	Depth to Water (ft)	Total Well Depth (ft)	Water Column (ft)	3 Well Volumes* (gals)	Total Purged (gals)	Sample Time	Sample Type	Chain-of-Custody		Remarks
									Number	Time	
MW-03	385	10.26	13.8	3.54	1.69	1.50	1520	S	MW-03	1520	BROWN, TURBID
MW-01	2500+	9.68	12.5	2.82	1.35	0.75	1540	S	MW-01	1540	SLIGHT SHEEN ON SAMPLE - BROWN, TURBID
VW-01	126	DRY	9.86	—	—	—	—	—	—	—	DRY - NOT SAMPLED
VW-02	2.7	DRY	8.98	—	—	—	—	—	—	—	" " "
VW-03	1418	NA	—	—	—	—	—	—	—	—	" " "

* (1.5" = 0.092 gals/ft, 2" = 0.16 gals/ft, 4" = 0.65 gals/ft, 6" = 1.5 gals/ft)

REMARKS _____
