

Phase (check one)	Type (check one)
<input type="checkbox"/> Initial Site Investigation <input type="checkbox"/> Corrective Action Feasibility Investigation <input type="checkbox"/> Corrective Action Plan <input type="checkbox"/> Corrective Action Summary Report <input type="checkbox"/> Operations & Monitoring Report	<input type="checkbox"/> Work Scope <input type="checkbox"/> Technical Report <input type="checkbox"/> PCF Reimbursement Request <input type="checkbox"/> General Correspondence

INITIAL SITE INVESTIGATION

Portland Glass
 Route 7
 Rutland, Vermont 03302

SMS Site # 94-1592
 UST Facility # Not Applicable
 Latitude: 43° 35'
 Longitude: 72° 58'

PROJECT NO. 94-1592
 DATE: AUG 10 10 41 AM '94

AUG 10 10 41 AM '94

Prepared for:

Paul Hood, Owner
 10 Woodstock Ave.
 Rutland, Vermont 05701
 (802) 775-4710

Prepared by:

THE JOHNSON COMPANY, INC.
 100 State Street, Suite 600
 Montpelier, Vermont 05602
 (802) 229-4600

THE JOHNSON COMPANY, INC.

Environmental Sciences and Engineering

August 9, 1994

Mr. Charles Schwer, Supervisor
Hazardous Materials Management Division
Sites Management Section
103 South Main Street
Waterbury, Vermont 05671-0404

Re: Report of a Site Investigation at Portland Glass
Rutland, Vermont
Vermont Site #94-1592

JCO #1-1654-1

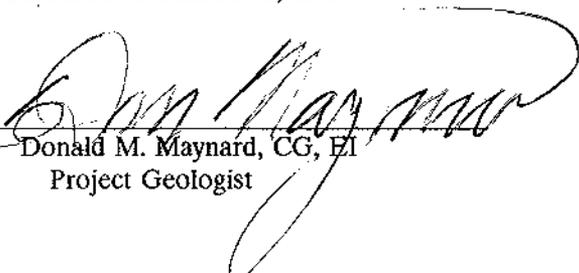
Dear Chuck:

We are pleased to present the following Report of a Site Investigation of petroleum releases at Portland Glass in Rutland, Vermont. If you have any questions or comments regarding this letter or the enclosed documents, please do not hesitate to call either me, or Jim Bowes at (802)229-4600.

Sincerely,

THE JOHNSON COMPANY, INC.

By:


Donald M. Maynard, CG, EI
Project Geologist

Enclosure

cc: Paul Hood

I:\projects\1-1654-1\report.doc DMM/JRB

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EXECUTIVE SUMMARY

Portland Glass is located on Route 7 in Rutland, Vermont. The single building on the approximately one acre parcel has been used for automobile window repair since circa 1984. The building was previously used by H. P. Welch as a trucking terminal between circa 1946 and 1984.

The building has a municipal water supply. The sewage disposal system for the building is currently a septic tank and dry well. Paul Hood, owner of the parcel, plans to connect the building to the municipal sewer system in the near future. This will be accomplished at the same time that the neighboring, new Red Lobster restaurant is connected.

The building was built circa 1946 and is heated by a fuel oil furnace. Fuel oil for the furnace is currently stored in two above-ground tanks. Prior to 1994 two 550 gallon underground storage tanks (UST) were used for fuel oil storage. During the winter of 1993-4 the fill pipe for the northern fuel oil UST was broken off by a snow plow. In March, 1994 fuel oil was released from the UST during the spring snow melt. This surface release spread over about 3,000 square feet. The ground was still frozen at the time of the release. Lee's Oil Service of Bath, New Hampshire performed the emergency response to the release.

On April 5, 1993 the fuel oil USTs were closed and removed under the supervision of Chris Kilburn (Precision Industrial Maintenance, Inc. of Williston, Vermont). Three additional 2,000 gallon USTs, reported to be previously used for diesel fuel, were discovered and removed during the closure. One of the diesel tanks was also used for waste oil storage. Screening of the soils was performed using a photoionization detector (PID) during the tank closure. The peak PID headspace reading in the soils was 89 parts per million (ppm). A groundwater monitoring well was installed in the excavation by Mr. Kilburn.

During the spring of 1994 Paul Hood, owner of the property, installed a two foot deep gravel filled trench west and north of the tank removal excavation. This trench will act as a collection swale and infiltration gallery for surface water and snow-melt. The practical effect of this infiltration will be to create a hydraulic mound downgradient of the observed soil contamination. This is likely to attenuate the off-site migration of contaminated groundwater.

Based on the test borings and nearby water supply well logs, there is more than 65 feet of surficial materials over bedrock at the Site. The soils encountered in the test borings were primarily medium sands over an undulating silt horizon at 6-10 feet below ground surface. A saturated fine sand aquifer exists below the silt aquitard. The sediments are probably fill overlying fluvial (river) channel, point bar, and oxbow lake deposits. Groundwater was encountered between 6-7 feet below ground surface and flows westward at a gradient of 1%.

On July 6, 1994 The Johnson Company performed an initial site investigation during which time five soil borings were drilled and two monitoring wells were installed.

Four of the boring locations investigated by The Johnson Company did not contain any soils with PID headspace readings registered above 10 parts per million (ppm). Two of these borings were located as close as possible to the south (SB3) and west (SB2) edges of the tank removal excavation. The third "clean" boring was located at the low point in a swale near the northwest corner of the property (SB1). The fourth was located on the property line, west of the northern end of the tank removal excavation (MW-5). There was no odor, visual evidence of contamination, or PID measurements which indicated any contamination of the soils in the third or fourth boring (SB-1 and MW-5).

One additional boring (MW-4) was located at the north edge of the tank removal excavation. Elevated PID headspace readings sustained up to 110 ppm were observed in some soils collected from this boring. The contamination in the soils was concentrated in the fill and a medium sand above a low-permeability fine sand and silt horizon. PID headspace readings of 6.4 were recorded in the underlying fine sand and silt horizon.

Monitoring wells were installed in two of the borings (MW-4 and MW-5). A petroleum sheen was noted in MW-4 on July 6, and again on July 11, 1994. Water samples were collected from these wells during July, 1994, and from the monitoring well previously installed during the UST closure (MW-1). These samples were analyzed by Scitest using EPA Method 8020. Volatile organic compounds including benzene, toluene, ethylbenzene, and xylenes were detected in monitoring well MW-4. Toluene was also detected in well MW-5, located on the property line. The concentrations of volatile organic compounds detected in groundwater were below the Vermont Groundwater Enforcement Standards.

The chemical analysis of the water samples indicates that petroleum has been released to the subsurface at the Site. The likely source of this petroleum is the diesel/waste oil UST. Based on field observations, the vertical migration of this gasoline has been limited by the presence of a fine grained aquitard. Based on chemical analysis of the groundwater, and on the geometry of the soil contamination observed in test borings, the probable source of the petroleum contamination discovered during the UST closure was the waste oil/diesel UST.

It does not appear that any sensitive surface water or atmospheric receptors are impacted or threatened by the observed subsurface petroleum contamination.

No water supplies currently in use were identified within 1,000 feet of the observed petroleum contaminated soils. Groundwater flow direction in bedrock is probably westward based on available water supply well logs and on the ground surface topography. Although 13 water supply wells have been identified within 1/2 mile of the Site, the majority of the wells are no longer in use. Approximately 10 years ago a 16" municipal water supply main was installed along Route 7. Most of the businesses currently use the municipal water supply, including the Holiday Inn, 1/4 mile south of the Site.

The potential receiving surface waters for the observed contamination at Portland Glass are two un-named tributaries to Otter Creek located over 1,000 feet west and southwest of any measured petroleum contamination in the groundwater or soils. Except for these tributaries and associated wetlands, no other sensitive environments were identified which may be receptors to the petroleum contamination.

No cellars were identified within 150 feet of the observed petroleum contamination. The PID headspace analysis of the soils indicated that elevated levels of volatile organic compound vapors are present only in a limited area near the north end of the tank excavation. Based on the available data, it is extremely unlikely that any sensitive atmospheric receptor is, or will be, measurably impacted by the observed petroleum contamination.

The groundwater quality data indicates that the surficial aquifer is not being polluted with volatile organic compounds from the on-site releases above enforcement standards at this time. The Johnson Company, Inc. recommends quarterly monitoring of the groundwater quality at the Site for one year.

1.0 INTRODUCTION

This document presents the results of a site investigation performed by The Johnson Company at the Portland Glass Site in Rutland, Vermont (Vermont Site #94-1592) under a contract with Paul Hood, property owner, dated June 3, 1994. The subject Site is located approximately 1,500 feet south of the Rutland City Corporate boundary on Vermont Route 7 (See Figure 1, Location Map).

On June 28, 1994 a Site Investigation Expressway Notification was sent by facsimile to Charles Schwer, Supervisor for the Vermont Sites Management Section (SMS). This report, and the work described here-in, were prepared and conducted under the May 1994 Site Investigation Guidance Document promulgated by the SMS.

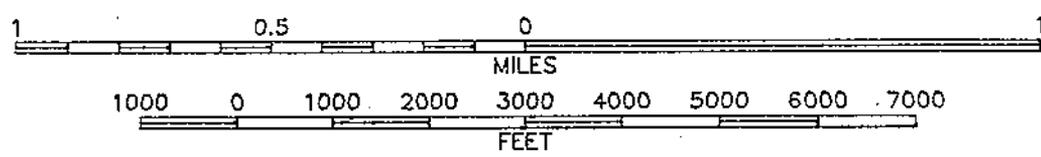
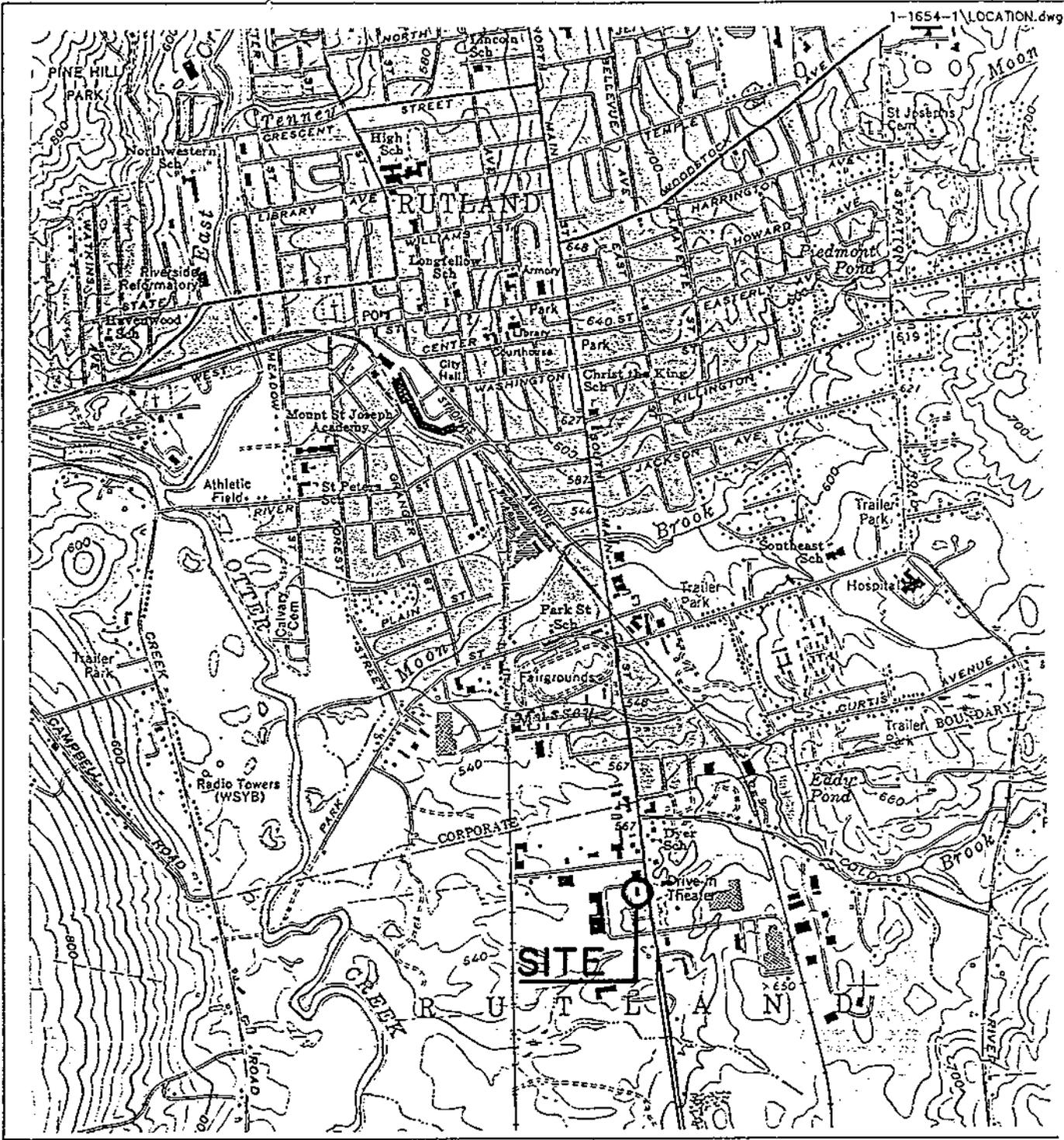
2.0 SITE HISTORY

The Portland Glass property occupies about one acre of land located on the west side of Route 7. The single building on the parcel has been used for automobile window repair since circa 1984. The building was previously used by H. P. Welch as a trucking depot and repair shop since it was built circa 1946. H. P. Welch went out of business in approximately 1984 (Johnson Company, 1994a see reference).

The building has a municipal water supply. The sewage disposal system for the building is currently a septic tank and dry well. Paul Hood, owner of the property plans to connect the building to the municipal sewer system in the near future. This will be accomplished at the same time that the neighboring, new Red Lobster restaurant is connected.

2.1 CONFIRMED SURFACE OIL RELEASE

The building is heated by a fuel oil furnace. Fuel oil for the furnace is currently stored in two above-ground tanks. Prior to 1994 two 550 gallon underground storage tanks (USTs) were used for fuel oil storage. During the winter of 1993-94 the fill pipe for the northern fuel oil UST was broken off by a snow plow. In March, 1994 fuel oil was released from the UST during the spring snow melt. This surface release spread over about 3,000 square feet. The approximate aerial extent of the surface release is shown on Figure 2, Site Sketch. The ground was still frozen at the time of the release. Lee's Oil Service of Bath, New Hampshire performed the emergency response to the release.



CONTOUR INTERVAL 20 FEET



MAP LOCATION

BASE MAP: USGS 7.5 Minute Topographic Quadrangle RUTLAND, VT. 1988

FIGURE 1 : Site Location Map
PORTLAND GLASS PROPERTY
RUTLAND, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
 100 STATE STREET MONTPELIER, VT 05602

2.2 CONFIRMED SUBSURFACE RELEASE

On April 5, 1993 the fuel oil USTs were closed and removed under the supervision of Chris Kilburn (Precision Industrial Maintenance, Inc. of Williston, Vermont). Three additional USTs, reported to be previously used for diesel fuel (and one for waste oil as well), were discovered and removed during the closure. Screening of the soils was performed using a photoionization detector (PID) during the tank closure. The peak PID headspace reading in the soils was 89 parts per million (PPM). A groundwater monitoring well was installed in the excavation by Mr. Kilburn (Kilburn, 4/4 and 4/7/94). The contaminated soils were replaced in the excavation (See Appendix A for copies of the tank removal forms and report).

2.3 VT SMS SITE # 94-1592

On the basis of the April 4 and 7, 1994 tank removal report, the Site was assigned a number by the Vermont Sites Management Section (SMS). In a May 19, 1994 letter to Paul Hood, the SMS requested Mr. Hood to hire a qualified consultant to perform an initial site investigation of the petroleum release confirmed during the UST removal. In response to this letter, on June 28, 1994 a Site Investigation Expressway Form was sent to the Sites Management Section (SMS). A site investigation was performed by The Johnson Company during July, 1994. The documents described in the paragraph above are included with this report in Appendix A.

3.0 SITE INVESTIGATIONS

The soils investigation portion of this investigation was performed by Donald M. Maynard, CG, EI, Project Geologist for The Johnson Company, Inc. Adams Engineering of Underhill, Vermont performed as the drilling subcontractor for this investigation. The tasks performed during July, 1994 included the collection of soils samples from five soils borings, the installation of two monitoring wells, vapor monitoring via PID headspace analysis of 25 soil samples, and the collection of five groundwater samples for laboratory analysis. Laboratory analysis of the water samples was performed by Scitest of Randolph, Vermont (Appendix B). The locations of the soil borings and monitoring wells are shown on the Site Sketch (Figure 2). Well completion logs are included in Appendix C. Field inspections were conducted to ascertain the relative potential risk to sensitive receptors.

3.1 GEOLOGY AND HYDROGEOLOGY

The ground surface elevation at the Site is approximately 570 feet above sea level based on the 1988 photo-revised United States Geological Survey (USGS) topographic map of the Rutland, Vermont quadrangle. The Site is located near the center of the north/south trending Otter Creek Valley.

Based on water supply well logs, the depth to bedrock in the vicinity of the Site is over 65 feet. The bedrock in the vicinity of the Site is primarily Cambrian and Ordovician carbonate rocks of the Dunham Dolomite Formation. The bedding, schistosity, and major faulting trend north/south. Joints and fractures in the bedrock have been observed striking both in the north/south and the east/west direction (Willey & Butterfield, 1983).

The upper ten feet of surficial materials are composed of fill and fluvial (river) deposits based on the soil borings (boring logs are included in Appendix C). The deposits include a generally fining upward sequence of sand in the upper 6-10 feet. These soils have been interpreted as coarse grained river channel lag deposits overlain by point bar sands. An undulating silt horizon up to two feet thick was observed between 6-10 feet below ground surface (fbgs). This horizon was probably deposited in either a flood plain, or in an oxbow lake.

The nearby presence of several water supply wells completed in the surficial aquifer indicate the likelihood of coarse grained deposits at depth. Based on an August 8, 1994 telephone conversation with Paul Hood, the water supply wells along Route 7 were abandoned about 10 years ago when municipal water became available.

3.2 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples were collected from the on-site monitoring wells during two separate sampling events. Samples were collected from wells MW-1 and MW-4 on July 6, 1994. No volatile organic compounds were detected in these samples when analyzed by EPA Method 8020 (See Table 1 below, and Appendix B).

The second round of groundwater sampling was performed on July 11, 1991. Samples were collected from all three monitoring wells on-site. The results of the EPA Method 8020 analysis are summarized in Table 1. Low concentrations of petroleum products were detected in wells SB-4 and SB-5. One compound detected in SB-4 was methyl-tert-butyl-ether (MTBE), an additive to unleaded gasoline. MTBE did not come into common use in gasoline until the late 1970's.

Three isomers of dichlorobenzene were detected in the groundwater samples. Dichlorobenzene is primarily used as a solvent, and as an insecticide. Chlorobenzene was also detected in one water sample, and is also used for a pesticide and as a solvent.

No groundwater enforcement standards were exceeded as indicated by the concentrations of petroleum constituents observed in the samples. The presence of solvents in the groundwater may be due to a release of waste oil from UST #1 (See UST Removal Assessment Form in Appendix A for tank locations). The detection of MTBE in the groundwater sample may also be due to a release of waste oil.

TABLE 1
LABORATORY REPORTED RESULTS FROM THE ANALYSIS OF WATER SAMPLES
Analyzed by EPA Method 8020 -- All results in parts per billion (ppb)

Well ID	Compound	Enforcement Standard or (Vermont Health Advisory)	Laboratory Results
MW-1 and MW-1 duplicate	MTBE	(40)	<1
	1,4-Dichlorobenzene	75	<1 3
	Benzene	5	<1
	Toluene	2,420	<1
	Ethylbenzene	680	<1
	Xylenes	400	<1
SB-4 (No compounds were detected in a duplicate SB-4 sample above the 10 ppb practical quantitation limit)	MTBE	(40)	2
	1,4-Dichlorobenzene	75	3
	Benzene	5	1
	Toluene	2,420	5
	Ethylbenzene	680	2
	Xylenes	400	4
	Chlorobenzene	100	3
	1,3-Dichlorobenzene	620	2
SB-5	MTBE	(40)	<1
	1,4-Dichlorobenzene	75	4
	Benzene	5	<1
	Toluene	2,420	7
	Ethylbenzene	680	<1
	Xylenes	400	<1
	Chlorobenzene	100	6
	1,2-Dichlorobenzene	620	3

3.3 SOIL SCREENING

The five soil borings conducted during this investigation were advanced using vibratory drill rig equipped with five foot long split spoon sampler. Soil samples were obtained from the split spoon sampler for screening in the field with a calibrated PID. The soil samples to be screened were placed into a re-closeable plastic bag, massaged for approximately one minute, and allowed to equilibrate for at least 15 minutes. The samples were then massaged again for approximately one minute, and the headspace in the bag was then assayed using the PID, and the highest sustained reading was recorded. The soil horizons were logged from the split spoons. Detailed descriptions of the soils using the modified Burmeister classification method and the PID readings obtained are included on the drilling logs in Appendix C.

Table 2, below, summarizes the PID headspace readings performed on July 6, 1994. A Thermo Environmental Organic Vapor Meter (OVM) PID was used to measure volatile organic compound (VOC) vapors. Background atmospheric VOC concentrations were below 2 ppm. The OVM PID was calibrated on-site using 100 ppm isobutylene gas.

**TABLE 2
SUMMARY OF PID HEADSPACE READINGS IN SOILS**

Sample Location ID	Sample Depth in Feet Below Ground Surface (fbgs)	Sustained Maximum PID Reading in Parts Per Million (ppm)
SB1	0-1.0	0.0
	1.7-2.2	0.0
	4.0-5.0	0.0
	5.0-6.0	0.0
	8.0-9.0	0.0
SB2	1.0-1.4	0.0
	3.5-4.0	0.0
	4.0-4.5	4.0
	6.0-7.0	1.2
	7.0-9.0	2.4
	9.0-10.0	0.9
SB3	1.0-2.5	0.0
	7.0-8.5	1.5
	8.5-10.0	0.0
MW-4	1.4-2.2	1.8
	3.0-3.8	0.9
	3.8-4.2	110. (180 peak reading)
	6.8-7.8	105. (202 peak reading)
	8.0-8.5	131. (280 peak reading)
	8.6-9.8	6.4
MW-5	5.0-6.0	0.3
	6.0-7.5	0.0
	7.5-10.0	0.3

4.0 FINDINGS

4.1 SURFACE FUEL OIL RELEASE

The soil boring (SB1) was advanced in a swale in the northwest corner of the Site (see Figure 2 for location). Based on conversations with Paul Hood, SB1 was located in an area covered by the surface release of fuel oil. The PID headspace analysis of soils collected from SB1 did not indicate any readings above background levels. This location was about 10 feet from the property line. No odors of petroleum origin were detected, and no visual signs of contaminant migration were observed.

Soil Boring SB4 was located within 10 feet of the former position of the fuel oil UST #4 from which the surface release originated. PID analysis of soils from SB4 which were less than 3.5 feet below ground surface indicated minor concentrations of VOC. A slight fuel oil odor was noticed in these shallow soils, and the PID headspace readings were below 2 ppm. A decrease in the PID headspace readings to less than 1 ppm between 3-3.8 fbs suggests that the vertical migration of petroleum from the surface release was limited to this upper interval. Based on this data, and on the described frozen nature of the ground during the documented surface release, it is unlikely that fuel oil from the March, 1994 release impacted to the groundwater table.

4.2 SUBSURFACE PETROLEUM RELEASE

A total of four soil borings were advanced in order to determine the degree and extent of contamination resulting from the confirmed release of VOCs from the underground storage tanks. See the attached Site Sketch for locations (Figure 2).

Field screening with a PID of soil samples from these borings indicated that petroleum is still present in soils and groundwater in the vicinity of the UST removal excavation. One boring (MW-4) was located at the north edge of the tank removal excavation. Elevated PID headspace readings sustained up to 110 ppm were observed in some soils collected from this boring. The contamination in the soils was concentrated in the fill and in a medium sand above a low-permeability fine sand and silt horizon. PID headspace readings of 6.4 were recorded in the underlying fine sand and silt horizon. This fine grained soil apparently acted as a "bathtub" attenuating most of the petroleum contamination migration (Precision Industrial Maintenance, 4/7/94).

During the spring of 1994, after the removal of the USTs, the property owner, Paul Hood, installed a gravel filled swale west and north of the former UST locations. The gravel extends to approximately 2 fbs and is about 12 feet wide (See Figure 2, Site Sketch). The ground surface has been graded to guide snow melt and run-off to the swale. The practical effect of this construction is the

formation of a groundwater mound between the contaminated soils and the property lines during periods of high recharge, when soil contaminants are likely to be mobilized.

4.3 SURVEY OF RECEPTORS

No sensitive receptor was identified that is in immediate risk from the documented releases of petroleum products from either the fuel oil tank or the other USTs. Based upon sampling, and observation, it appears unlikely that the petroleum contamination has migrated beyond the property line in the subsurface in concentrations above Vermont Enforcement Standards. On the basis of these investigations the observed petroleum contamination currently presents little, if any, risk to any potential receptor.

4.3.1 Water Supplies

There are at least 13 water supply wells within 1/2 mile of the Site (Precision Industrial Maintenance, 4/5/94; Willey & Butterfield, 1983). Most of these wells are no longer in use due to the availability of municipal water. In particular, the Lindholm Motors (now Kinney Motors) well which formerly served the Site is now abandoned, as are wells formerly used by the Howard Johnson's and the Holiday Inn, about 1/4 mile south of the Site.

No water supplies currently in use were identified within 1,000 feet of the observed petroleum contaminated soils. Two bedrock and two gravel water supply wells were identified about 1,000-1,500 feet west-northwest of the Site. These wells on Randbury Street are, or were owned by: Shepard Supply, Quinn Freight, Todd Transportation Company, and Suburban Propane respectively. The Rutland City Engineer's office reports that the municipal water system has not been extended to Randbury Street, so it is likely that these wells are still in use. Groundwater flow in the bedrock aquifer is primarily towards the west, and Otter Creek, based on recorded static water level measurements in water supply wells (Willey & Butterfield, 1983, in Appendix A) and on the ground surface topography. Groundwater flow in the surficial aquifer is also westward, based on the observations in on-site monitoring wells.

The groundwater samples at the Site indicate that petroleum contamination is not migrating beyond the property line at concentrations above the Vermont Enforcement Standards. The four wells on Randbury Street described above may be downgradient of the Site and potentially could be receptors of petroleum contamination in the groundwater. However, based on the limited extent and concentration of observed groundwater contamination it is highly unlikely that the water supply wells are, or will be impacted by the petroleum contamination on-site.

4.3.2 Surface Waters and Wetlands

The potential receiving waters for the observed contamination at the Site are two un-named tributaries to Otter Creek. The tributaries and their associated wetlands are over 1,000 feet from any measured petroleum contamination in the soils. Except for the tributary and wetlands described above, no other sensitive environments were identified within 1,000 feet of the observed petroleum contamination.

Because of the limited extent of the observed contamination, no potential surface water or wetlands receptors of the observed soil and groundwater contamination on-site have been identified.

4.3.3 Atmospheric Receptors

During the site investigation, some potential receptors of atmospheric contamination were identified and evaluated. This included measurement of VOCs with a PID in and near the building.

No elevated levels of VOCs were detected in the atmosphere on the Site except during the drilling of the test boreholes. The Portland Glass building does not have a cellar. No potential atmospheric receptors of the observed contamination have been identified.

5.0 CONCLUSIONS

The previously documented surface release from the fuel oil tank (now closed and removed) has not migrated any appreciable distance into the subsurface as indicated by soils sampled at SB-1 and SB-4. Surface contamination of soils appears to have been remediated in a timely manner.

The documented subsurface release from the underground storage tanks (now closed and removed) has not caused soil contamination above Vermont Interim Soil Guideline Levels any appreciable distance beyond the edge of the excavated area. Groundwater contamination has been indicated on-site due to residual petroleum contamination in the soil. However, the observed concentrations do not exceed the Vermont Enforcement Standards or Vermont Health Advisories.

No sensitive or atmospheric receptors were identified which are or will be measurably impacted by the observed petroleum contamination. Four water supply wells approximately 1,000-1,500 feet from the Site were identified as potential receptors of groundwater contamination. However, based on the observed very low concentrations of contaminants in the groundwater on-site, it is unlikely that these wells will be measurably impacted by the petroleum contamination.

6.0 RECOMMENDATIONS

The Johnson Company, Inc. recommends that groundwater in the three monitoring wells on-site be sampled and analyzed by EPA Method 8240 on a quarterly basis for one year. If, at the end of one year, there have been no exceedences of enforcement standards, then the Site should be eligible for Site Management Activity Completed status (site closure).

Observed groundwater contamination on-site is not above enforcement standards or Vermont Health Risk Advisory levels. Sampling and analysis of nearby water supply wells is not warranted unless enforcement standards are exceeded on-site.

7.0 REFERENCES

The references are presented below in chronological order to facilitate an understanding of the Site history:

Bushey, Agency of Transportation, May 1968, Clarendon-Rutland Survey Map AP 019-3(8) Sheet 36 of 218.

Willey, R. E. and Butterfield, David, 1983, Groundwater Resources of the Rutland Area, USGS Water-Resources Investigations 82-4057.

Precision Industrial Maintenance Inc., Kilburn, Chris, April 5, 1994, Underground Storage Tank Removal Assessment Form.

Precision Industrial Maintenance, Inc., Kilburn, Chris, April 7, 1994, Underground Storage Tank Removal Assessment Letter Report.

Vermont Department of Environmental Conservation, Duckworth, Monique, April 19, 1994, Memorandum of Trip Report to Portland Glass.

Vermont Sites Management Section, Schwer, Charles, Supervisor, May 19, 1994, Letter to Paul Hood requesting initial site investigation.

The Johnson Company, 1994a, Telephone Conversation Interview with Don Maynard and Paul Hood, August 8, 1994.

The Johnson Company, Inc. 1994b, Bowes, J. B., June 28, 1994, Site Investigation Expressway Notification Form.

8.0 LIMITATIONS

The conclusions presented here are arrived at through consideration of the findings of this investigation as presented herein. Consideration was given to the information gathered during the site inspection and investigations, the field screening results of environmental samples, and through interpretation of laboratory analytical data. A diligent effort was made to identify areas of concern that may have been indicated from the conditions described above. While as much of the property as practical was assessed during this investigation, the paved area of the site leaves the possibility that some areas with visible signs of contamination may have been missed.

This investigation was based on sound scientific investigative techniques and experience with similar investigations. However, the conclusions of this investigation are limited by the sources of data, as stated above, and the conclusions and recommendations must be considered within this context. The status of the site may change, and additional information may become available in the future which will require modification or updating of the conclusions and recommendations presented here. If conditions are found to vary from those presented here, supplemental conclusions and recommendations may be warranted.

Appendix A
Background Data



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD/Voice
1-800-253-0195 Voice/TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 244-5141

SITE INVESTIGATION EXPRESSWAY NOTIFICATION

Site Owner: PAUL HOOD

Site Name, Town: PORTLAND GLASS; SITE # 94-1592

Yes, this site will participate in the Site Investigation Expressway Process.

No, this site will not participate in the Site Investigation Expressway Process.

If yes, please complete the checklist below:

Contamination present in soils above action levels Yes No

If yes, summarize levels:

89 parts per million in Tank Bed soils, as measured during an UST removal on 4/5/94

Free product observed Yes No

Groundwater contamination observed Yes No

Surface water contamination observed Yes No

Suspected release of hazardous substances Yes No

insufficient
in formation to
characterize

If yes, please explain:

Affected receptors Yes No

If yes, please identify receptors including names and addresses of third party receptors:

Please provide an estimated date of when you expect to submit Site Investigation Report: 9/2/94

MANIFEST



State of Vermont

Post-It™ brand fax transmittal memo 7671 # of pages 2

To: GREG JOHNSON	From: CHRIS KILBURN
Co: JOHNSON CO.	Co: PRECISION IND. MAINT.
Dept.	Phone: 802 747-4444
Fax: 802 229-5876	Fax: 802 887-2860

Department of Fish and Wildlife
 Department of Forests, Parks and Recreation
 Department of Environmental Conservation
 State Geologist
 Natural Resources Conservation Council
 RELAY SERVICE FOR THE HEARING IMPAIRED
 1-800-253-0191 TDD>Voice
 1-800-253-0195 Voice>TDD

103 South Main Street/West Office
 Waterbury, Vermont 05671-0404
 (802) 241-3888
 FAX (802) 244-5141

May 19, 1994

Paul Hood
 Portland Glass
 10 Woodstock Ave
 Rutland, VT 05701

RECEIVED
 JUN 1 1994
 THE JOHNSON CO., INC.
 MONTPELIER, VERMONT
 Jim Bowles
 GBJ

RE: Petroleum contamination at Portland Glass in Rutland
 (Site #94-1592)

Dear Mr. Hood:

The Sites Management Section (SMS) has received the April 7, 1994 report outlining the subsurface assessment for the above referenced site, conducted by Chris Kilburn of Precision Industrial Maintenance, Inc. This report summarizes the degree and extent of contamination encountered during the assessment on April 5, 1994.

Five underground storage tanks (USTs) owned by Portland Glass containing petroleum products were removed. During the tank pull, soils screened in the tank bed had peak concentrations of 89 ppm as measured by a photoionization detector (PID). Groundwater was encountered at approximately thirteen feet below the ground surface. One groundwater monitoring well was installed in the location of the former USTs. All soils were backfilled since excavation of all the contaminated soils was impractical. There are a number of private water supply wells in close proximity of the site, as well as the Otter Creek located approximately a one half mile away.

Based on the above information, the SMS has determined that additional work is necessary at the site in order to determine the severity of contamination present. Therefore, the SMS is requesting that Portland Glass retain the services of a qualified environmental consultant to perform the following:

1. Further define the degree and extent of contamination to the soil. This may be accomplished by obtaining soil borings, digging test pits, or performing a soil gas survey.
2. Determine the degree and extent of contamination, if any, to groundwater. This can be accomplished by collecting a groundwater sample from the previously installed monitoring well and have the sample analyzed for BTEX and MTBE compounds. Additional wells and/or soil borings may need to be installed if the extent of the contamination cannot be determined above.
3. Perform an assessment of the site to determine the potential for sensitive

receptors to be impacted by the contamination. This should include basements of adjacent buildings, nearby surface water, and any public or private drinking water wells which are located within the vicinity of the site. If any water supplies appear at risk from this contamination, they should be sampled and analyzed using EPA 8020.

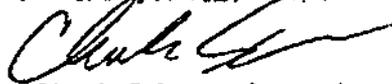
4. Determine the need for a long term treatment and/or monitoring plan which addresses the contamination present at the site. The need for such a plan should be based on the results of the above investigations.

5. Submit to the SMS a summary report which outlines the work performed as well as providing conclusions and recommendations. Included should be detailed well logs, analytical data, site map, area map, and a groundwater contour map.

Please have your consultant submit a preliminary work plan and cost estimate within fifteen days of your receipt of this letter so that it may be approved prior to the initiation of onsite work. Enclosed please find a list of consultants who perform this type of work in the area as well as the brochure "Selecting Your UST Cleanup Contractor", which will help you in choosing an environmental consultant.

The underground storage tanks at Portland Glass are covered by the Petroleum Cleanup Fund as set forth in 10 V.S.A. Section 1941. An owner or permittee of an underground storage tank, who is not in significant violation of his or her permit, is eligible for reimbursement from the fund. The owner or permittee must pay for the removal or repair of the failed tank and for the first \$10,000 of the cleanup; after that the fund will reimburse the tank owner or permittee for additional cleanup costs up to \$1 million. Attached please find the document titled "Reimbursement Package for the Petroleum Cleanup Fund" which further explains this program. Additionally, the Secretary of the Agency of Natural Resources reserves the right to seek cost recovery of fund monies spent at the Portland Glass site if the Secretary concludes that Portland Glass was in significant violation of the Vermont Underground Storage Tank statute (10 V.S.A., Chapter 59). If you have any questions, please feel free to call.

Sincerely,



Chuck Schwer, Supervisor
Sites Management Section

cc: Chris Kilburn, Precision Industrial Maintenance, Inc.
Rutland Selectboard
DEC Regional Office

1-1654-1

RECEIVED

MEMORANDUM

AUG - 4 1994

TO: THE JOHNSON CO., INC.
MONTPELIER, VERMONT

THRU: Ted Unkles, Acting UST Program Coordinator
Tim McNamara, UST Inspector

FROM: Monique Duckworth, DEC Technician

DATE: April 19, 1994

SUBJECT: Trip Report, Portland Glass, Route 7, Rutland, VT.

On April 14, 1994, Tim McNamara and I visited Portland Glass located at Route 7, Rutland, VT. We arrived at the location at 2:11pm and proceeded by introducing ourselves to Bill, the manager. This call was in response to several complaints lodged against the business by neighbors abutting this property. On April 5, 1994 five abandoned tanks dating from around WW II were removed from the ground at this location. This was done in response to a 3/10/94 spill call that the department received. It would appear that broken fill pipes in the vicinity of tank #4 resulted in water displacing residual fuel onto the ground.

When we arrived at the scene, the area where the tanks had been removed had been backfilled with the contaminated soils and additional soil that had been brought in. There was a monitoring well in the center of this area, which we took an HNu reading of the wells head space. The HNu reading was 3.5 ppm. We next tested the sandy soil that remained from the 5 yards of material used to backfill the area. This fill material had been used to contain the puddle of water, run off, and waste oil that encompassed the property when the tanks were pulled. The HNu readings for the three sites that we tested are as follows:

- Sample 1: 5-11 ppm.
- Sample 2: 70, 98, 101, 110 ppm.
- Sample 3: 10, 18, 20 ppm.

This soil was not covered or encapsulated in any manner. There were also signs of several vegetative kill zones associated with the sand pile and supposed run off of the contaminated water. We left the site at 3:00 pm after taking numerous pictures.

Precision Industrial Maintenance, Inc.

P.O. Box 1791
Rutland, VT 05701
802-747-4444

APR 11 10 16 AM '94

HAZARDOUS MATERIALS
MANAGEMENT DIVISION

April 7, 1994

Vermont Department of Environmental Conservation
Underground Storage Tank Program
103 South Main Street
Waterbury, Vermont 05671-0404

RECEIVED

AUG - 4 1994

THE JOHNSON CO., INC.
MONTPELLIER, VERMONT

Dear Sir / Madam,

On April 5, 1994 Precision Industrial Maintenance Inc. performed an underground tank closure at Portland Glass, located at 311 South Main Street, Rutland Vermont. There was a total of five tanks removed with only one replacement. The replacement was installed inside the building to be used as a #2 heating oil tank. The tank was cleaned by Precision Industrial Maintenance Inc. with the waste being transported by National Oil Corporation. Enclosed you will find a State of Vermont Tank pull form, and site diagram.

TANK REMOVAL

Precision Industrial Maintenance Inc. removed a total of five tanks (all single wall steel) from the property located at 311 South Main Street, Rutland Vermont. There was three 2,000 gallon Diesel tanks, two of the tanks (designated #2 & #3) contained a small amount of product (approx. 80 gallons total). The other (designated #1) contained a mixture of waste oil, and water (approx. 1,000 gallons). This tank was pumped out by Safety Kleen. Tank #4 was a #2 oil tank, also in fair condition, containing approx. 20-gallons. All four tanks were in fair condition with no visible holes. Tank #5 was a #2 oil tank, in very good condition.

From the surface of the ground to about eight feet below grade excavated soils were gravel, below that for about two feet the soil was clay. The next layer of soil was a loose silt with water. At this point we installed a monitoring well to the depth of about 130".

Soil samples were collected from the excavation, and screened with a Thermo Environmental PID. Background PID readings were at 0.0 ppm, the following is the screening results:

Sample #1 - 84.5 ppm (North end of tank #1)
Sample #2 - 89.7 ppm (Middle of tank #1)
Sample #3 - 78.3 ppm (South end of tank #1)
Sample #4 - 22.4 ppm (North end of tank #2)
Sample #5 - 30.3 ppm (Middle of tank #2)
Sample #6 - 28.2 ppm (South end of tank #2)
Sample #7 - 11.2 ppm (North end of tank #3)
Sample #8 - 12.4 ppm (Middle of tank #3)
Sample #9 - 16.9 ppm (South end of tank #3)
Sample #10 - 6.3 ppm (Middle of tank #4)

Precision Industrial Maintenance, Inc.

P.O. Box 1791
Rutland, VT 05701
802-747-4444

Screening results continued:

Sample #11 - 16.8 ppm (Around copper tubing leading to boiler, tank #4)
Sample #12 - 0.0 ppm (Middle of tank # 5)

Excavation of all the contaminated soils became impractical because of depth, and area. At this point the DEC was phoned, and we were instructed to backfill all of the soils. We also installed a monitoring well as deep as possible to about 130".

POTENTIAL RECEPTORS

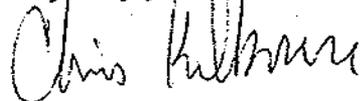
There are a number of private water wells within a half mile radius, and Otter Creek just beyond the radius. Most of the wells close to the site service commercial property, with some residences on the Cold River Road within the radius.

SUMMARY

The tanks of major concern are the three Diesel tanks. The tanks have been out of operation for about 14 years. The fill pipes were located directly above the tanks, with clay below the tanks making the likely source of contamination from the filling of the tanks. A monitoring well was installed to make further investigation at the site possible with little expense.

Please feel free to call anytime regarding this assessment.

Very truly yours,



Chris Kilburn

HAZARDOUS MATERIALS
 HENRY HART DIVISION

Date of Removal: 4/05/94

Date of Assessment: 4/6/94

Person & Company Doing Assessment:
 CHRIS KILBURN
 PRECISION INDUSTRIAL MAINTENANCE INC

Telephone Number: (802) 747-4444

RECEIVED

Business Name Where Tank(s) Located: PORTLAND GLASS

Number of Employees: 0
 Street Address & Town/City: RUTLAND, VT.

AUG - 4 1994

Owner of Tank(s): MR PAUL HOOD
 Address: 10 WOODSTOCK AVE
 Town/City: RUTLAND,

Contact Person: PAUL HOOD, INC.
 Phone Number: (802) 775-4710

UST Facility ID Number:

Tank #	Product	Size	Condition
1	DIESEL + WASTE OIL	2000 GALLON	FAIR (NO VISIBLE HOLES)
2	DIESEL	2000 GALLON	FAIR (NO VISIBLE HOLES)
3	DIESEL	2000 GALLON	FAIR (NO VISIBLE HOLES)
4	#2 FUEL OIL	550 GALLON	FAIR (NO VISIBLE HOLES)
5	#2 FUEL OIL	550 GALLON	VERY GOOD

Reason for Tank Removal (check one): abandoned routine replacement?? tank or piping leaking liability

Replacement Tank(s)? yes no Number of Replacement Tanks: _____
 DEC UST Permit(s) Obtained? yes no

DEC-Permitted Tank(s) Still On-Site? yes no Number of Tanks: _____

Out of Service Tank(s) On-Site? yes no Number of Tanks: _____

Heating Oil Tank(s) On-Site? yes no No. of Tanks: _____ Size(s): _____

Any Waste Pumpage? yes no Estimated Volume: 150 GALLONS
 Transported By: NATIONAL OIL SERVICE

Size of Excavation (ft³): 320 Depth: 24" Soil Type: GRAVEL + CLAY
 Concentrations Detected with PID: Peak = 89.7 PPM Average = 45 PPM

Type of PID: THERMO ENVIRONMENTAL
 Number of Readings (please put locations on attached drawing): 11
 Calibration Info. (date, time, type of gas): 4/4/94 4:30 PM 100 PPM ISOBUTYLENE

Free Phase Product Encountered? yes no Approx. Amount: _____
 Cont. Soils Stockpiled? yes no Amount (yd³): _____
 Cont. Soils Backfilled? yes no Amount (yd³): 3 yd³

Groundwater Encountered? yes no Depth to Groundwater: 130"
 Monitoring Wells Installed? yes no Number: 1 Screen Depth: 70" to 120"

On-Site Drinking Well? yes no (if yes: rock gravel spring)

Public Water Supply Well(s) Within 1/4 Mile? yes no
 Distance to nearest: 6 MILES

Private Water Supply Well(s) Within 1/4 Mile? yes no How Many? 13+

Samples Collected for Laboratory Analysis? yes no How Many? 3
 (check all that apply: soil groundwater drinking water)

Receptors Affected (check all that apply):
 soil residential; # of houses/people: _____
 groundwater surface water; name/type of water body: _____

Signature of Owner or Authorized Representative: Paul Hood
 Date: 4/7/94

Signature of Person Performing Site Assessment: Chris Kilburn
 Date: 4/7/94

*** ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE ***

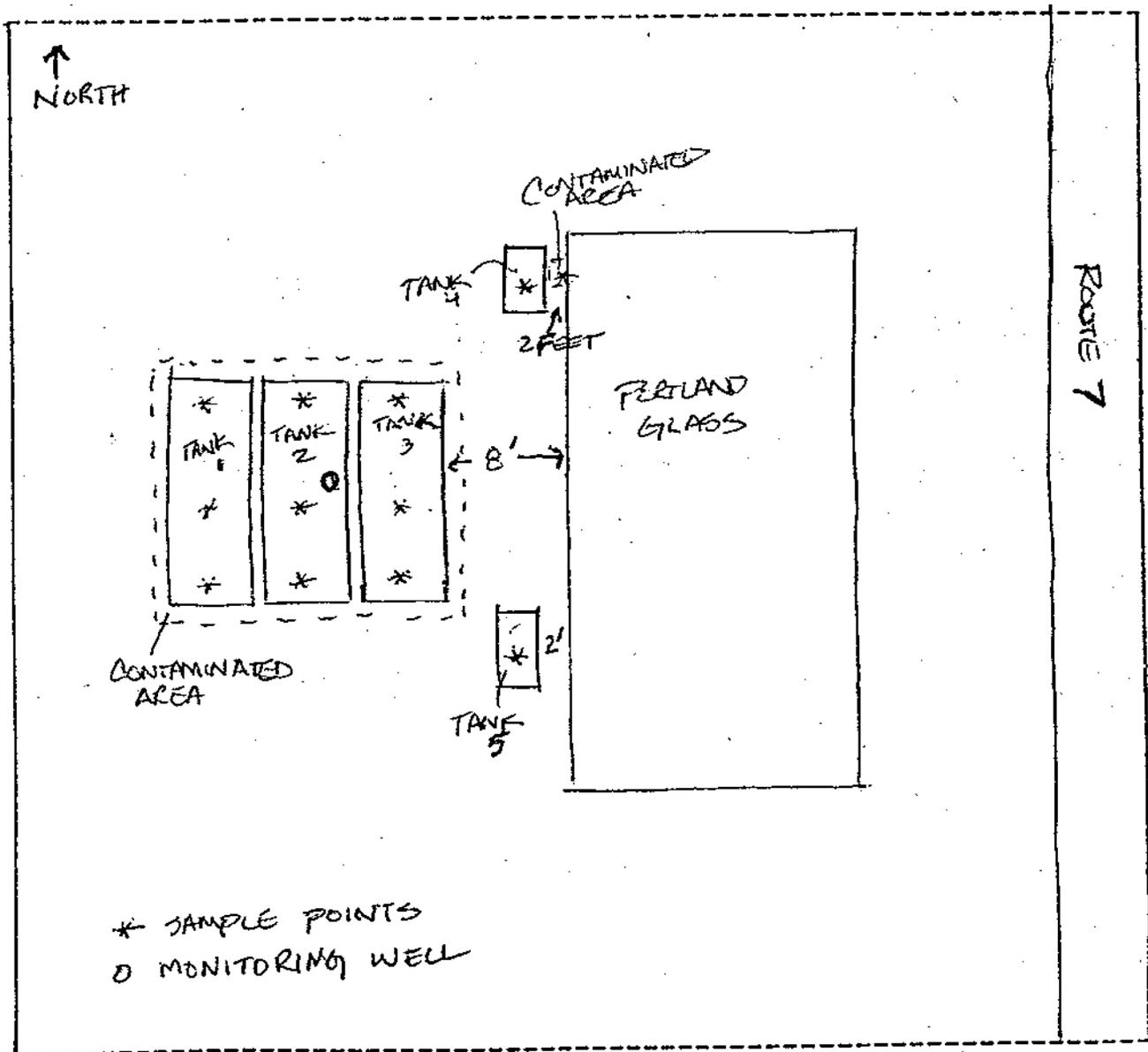
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
UNDERGROUND STORAGE TANK PROGRAM
TANK PULL FORM

TODAY'S DATE: 4/5/94
DATE OF REMOVAL: 4/05/94

APR 11 10 16 AM '94
INSPECTOR: KILBURN
HAZARDOUS MATERIALS MANAGEMENT DIVISION
BUSINESS NAME: PORTLAND GLASS
RUTLAND, VT.

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination and any pertinent site information. Indicate North arrow and major street names or route number.



1-165T-1

GROUND-WATER RESOURCES OF THE RUTLAND AREA, VERMONT

By Richard E. Willey

U.S Geological Survey

and

David Butterfield

State of Vermont

Agency of Environmental Conservation

Department of Water Resources and
Environmental Engineering

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AUG - 4 1994

THE JOHNSON CO., INC.
MONTPELIER, VERMONT.

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 82-4057

Prepared in cooperation with the

STATE OF VERMONT

AGENCY OF ENVIRONMENTAL CONSERVATION

DEPARTMENT OF WATER RESOURCES AND
ENVIRONMENTAL ENGINEERING

1983



TABLE 6.--DESCRIPTION OF SELECTED WELLS, TEST WELLS, AND BORINGS

LOCAL WELL NUMBER: LETTER PREFIX INDICATES--A, U.S. GEOLOGICAL SURVEY AUGER BORING; B, BRIDGE BORING; R, ROADWAY BORING; W, WELL OR TEST WELL (THE "W" IS OMITTED FROM PLATE 1 TO CONSERVE SPACE); X, MISCELLANEOUS TEST BORING.

LATITUDE-LONGITUDE: NUMBER FOLLOWING DECIMAL POINT IS A SEQUENTIAL NUMBER FOR WELLS OR BORINGS IN A 1-SECOND GRID.

ALTITUDE OF LAND-SURFACE DATUM: ALTITUDES ARE EXPRESSED IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM OF 1929; THOSE PRECEDED BY A MINUS SIGN ARE BELOW NATIONAL GEODETIC VERTICAL DATUM OF 1929.

METHOD DRILLED: A, AIR-ROTARY; B, BORED OR AUGERED; C, CABLE TOOL; D, DUG; H, HYDRAULIC-ROTARY; J, JETTED; P, AIR-PERCUSSION; R, REVERSE-ROTARY; T, TRENCHED; V, DRIVEN; W, DRIVE-WASH.

WELL FINISH: C, POROUS CONCRETE; F, GRAVEL WALL WITH PERFORATED OR SLOTTED CASING; G, GRAVEL WALL WITH COMMERCIAL SCREEN; H, HORIZONTAL GALLERY OR COLLECTOR; O, OPEN END; P, PERFORATED OR SLOTTED CASING; S, SCREEN; T, SAND POINT; W, WALLED OR SHORED; X, OPEN HOLE IN AQUIFER (GENERALLY CASED TO AQUIFER).

WELL DEPTH: DEPTH OF FINISHED WELL, IN FEET BELOW LAND SURFACE.

WELL USE: A, ANODE; D, DRAINAGE; G, SEISMIC HOLE; H, HEAT RESERVOIR; O, OBSERVATION; P, OIL OR GAS; R, RECHARGE; T, TEST; U, UNUSED; W, WATER WITHDRAWAL; X, WASTE DISPOSAL; Z, DESTROYED.

WATER-BEARING MATERIAL: PRINCIPAL WATER-BEARING ZONE.

ADJECTIVE (FIRST CHARACTER)	LITHOLOGY (SECOND CHARACTER)
1 VERY FINE GRAINED	A ALLUVIUM
2 FINE GRAINED	B SEDIMENTARY ROCK, UNCLASSIFIED
3 MEDIUM GRAINED	C CONGLOMERATE
4 COARSE GRAINED	D DOLOMITE
5 VERY COARSE GRAINED	E GYPSUM OR ANHYDRITE
6 CLAYEY	F SHALE
7 SILTY	G GRAVEL
8 SANDY	H IGNEOUS, GRANULAR (GABBRO, GRANITE, ETC.)
9 GRAVELLY	I IGNEOUS, APHANITIC OR GLASSY (BASALT, ETC.)
0 CAVERNOUS	J IGNEOUS, UNCONSOLIDATED (TUFF, VOLCANIC ASH)
A ARGILLACEOUS	K SAPROLITE
B BOULDERY	L LIMESTONE
C CALCAREOUS	M MARL OR SHELL MARL
D DENSE	N METAMORPHIC, COARSE GRAINED (GNEISS, MARBLE, QUARTZITE)
E CONCRETIONARY	O METAMORPHIC, FINE GRAINED (SCHIST, SLATE)
F IRONSTAINED OR IRON CEMENTED	P CLAY
G GRANULAR	Q SILT OR LOESS
H HARD	R SAND AND GRAVEL
I INTERBEDDED	S SAND
J JOINTED OR FRACTURED	T TILL
K COLUMNAR	U UNCONSOLIDATED SEDIMENT
L LAMINATED OR BANDED	V SANDSTONE
M MASSIVE	W SILTSTONE
N NONCALCAREOUS	X SILTY SAND
O ORGANIC	Y CLAYEY GRAVEL
P POORLY SORTED	Z OTHER
Q CHERTY OR SILICEOUS	
R REDBED	
S SOFT	
T "SALT AND PEPPER"	
U UNCONSOLIDATED	
V SEMICONSOLIDATED	
W WELL SORTED	
X CROSS BEDDED	
Y SHALY OR SLATY	
Z WEATHERED	

WATER LEVEL: LEVELS ARE GIVEN IN FEET BELOW LAND SURFACE; "*" INDICATES WATER LEVEL ABOVE LAND SURFACE; "F" INDICATES FLOWING WELL.

WATER USE: A, AIR CONDITIONING; B, BOTTLING; C, COMMERCIAL; D, DEWATERING; E, POWER GENERATION; F, FIRE PROTECTION; H, DOMESTIC; I, IRRIGATION; M, MEDICINAL; N, INDUSTRIAL (INCLUDES MINING); P, PUBLIC SUPPLY; R, RECREATION; S, STOCK; T, INSTITUTIONAL; U, UNUSED; V, REPRESSURIZATION; W, RECHARGE; X, DESALINATION--PUBLIC SUPPLIES; Y, DESALINATION--OTHER SUPPLIES.

PUMPAGE/YIELD: IN GALLONS PER MINUTE (GAL/MIN).

PUMPAGE/DRAWDOWN: THE DIFFERENCE BETWEEN STATIC WATER LEVEL AND PUMPING LEVEL.

PUMPAGE/TIME: THE FOLLOWING CODES ARE USED FOR PUMPING PERIODS OF LESS THAN 1 HOUR: A, THROUGH 15 MINUTES; B, 16 TO 30 MINUTES; C, 31 TO 45 MINUTES; D, 46 TO 59 MINUTES.

LOG: D, DRILLER'S LOG; G, GEOLOGIST'S LOG AVAILABLE IN TABLE 5.

QW: TYPE OF CHEMICAL ANALYSIS AVAILABLE IN TABLE 7. C, COMPLETE; J, CONDUCTANCE AND CHLORIDE; K, CONDUCTANCE; L, CHLORIDE; M, MULTIPLE (INCLUDES ONE COMPLETE AND ONE OR MORE PARTIAL); P, PARTIAL.

TABLE 6.--DESCRIPTION OF SELECTED WELLS, TEST WELLS, AND BORINGS -- CONTINUED

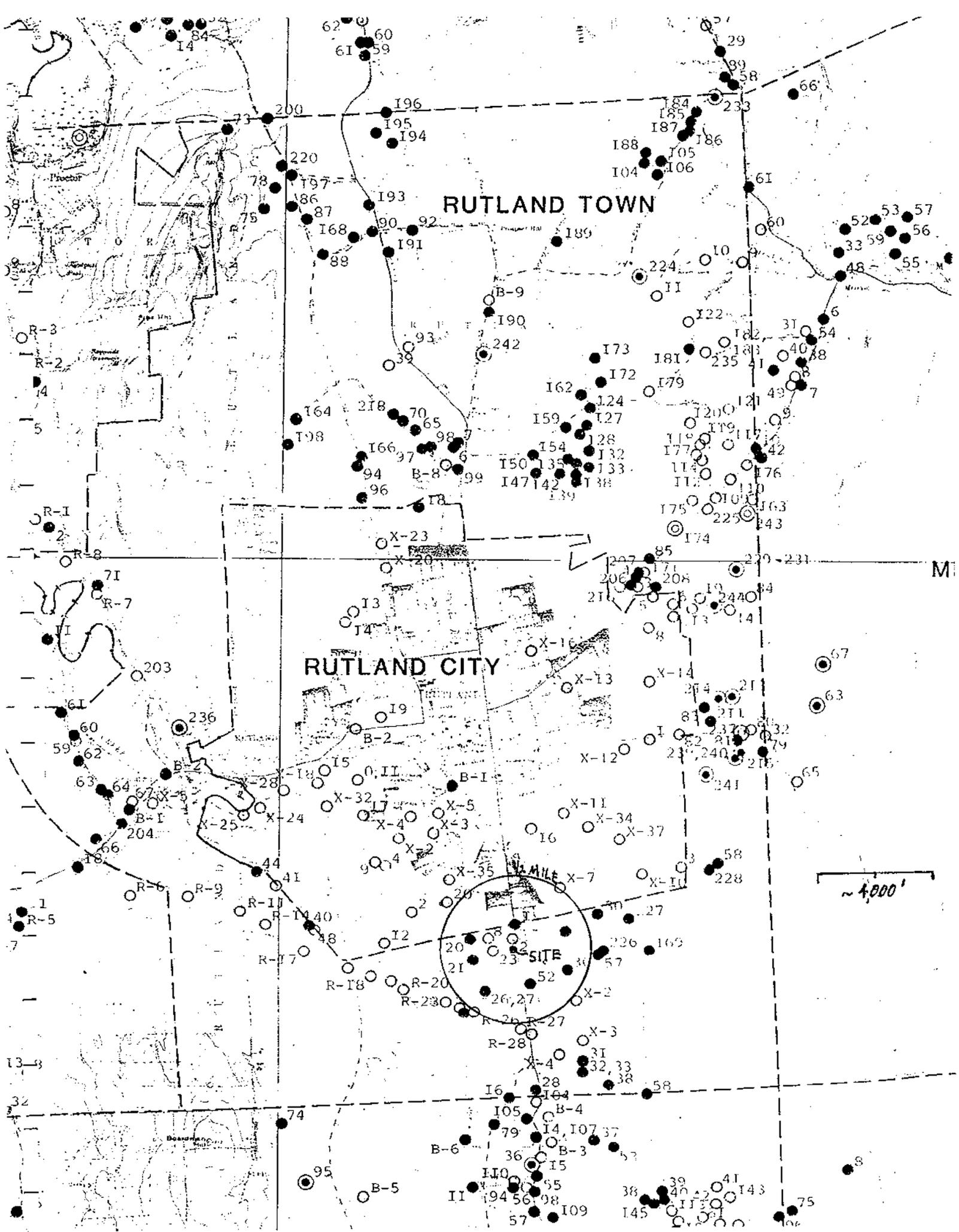
LOCAL WELL NUMBER	LATITUDE-LONGITUDE	ALTI-TUDE OF LSD (FT)	OWNER OR USER	YEAR/METHOD DRILLED	WELL			FEET TO BED-ROCK	WATER-BEARING MATERIAL	WATER LEVEL DATE USE		PUMPAGE			LOG OR				
					DIAM-ETER (IN)	FIN-ISH (FT)	DEPTH (FT)			LEVEL (FT)	DATE USE	YIELD (GPM)	DD (FT)	TIME (HR)					
PITTSFORD --CONTINUED																			
W 37	434250N0730217.1	460	BASSO,HENRY U	1953	C	6	X	200	W	100	0	80	12-53	H	20	--	--	--	--
W 39	434031N0730109.1	460	TEMPLE,JAMES	1972	P	6	X	130	W	7	2N	--	--	H	15	--	2	0	--
W 40	433959N0730456.1	670	HILLS,ALLEN	1975	C	6	X	205	W	53	0	25	7-75	H	1	--	5	0	--
W 41	434235N0730415.1	415	VERMONT MARBLE	1977	W	2	S	70	T	--	9S	+	9-77	U	35	--	--	0	--
W 42	434122N0725918.1	700	PULLIN,B R	1967	P	8	X	150	W	80	0	--	--	H	3	--	--	0	--
W 43	434117N0725833.1	1150	DEFORGE,OLIN	1948	C	6	X	125	W	--	N	--	--	H	40	--	--	--	--
W 44	434128N0725826.1	1245	CAMP BETSY COX	--	--	6	X	240	W	--	N	--	--	H	3	--	--	--	P
W 45	434142N0725812.1	1295	CAMP SANGAMON	--	--	6	X	70	W	--	N	--	--	H	--	--	--	--	P
W 46	434120N0725810.1	1270	JENKINS,P H	1967	P	6	X	150	W	44	N	30	12-67	H	1.5	--	1	0	--
W 47	434123N0725739.1	1160	KING,H C	1962	P	6	X	68	W	--	N	--	--	H	2	--	--	--	--
W 50	434111N0725735.1	1030	HAXHAM,CARL H	1957	C	6	X	135	W	72	N	10	2-57	H	4	--	--	--	--
W 52	434107N0725735.1	1040	WIGGINS,STANLEY	1973	P	6	X	247	W	80	N	20	1-73	H	1.5	--	1	0	--
W 54	434109N0725737.1	1070	FLANDERS,R F JR	1952	C	6	S	85	W	--	U	20	11-52	H	10	40	--	--	--
W 56	434109N0725742.1	1110	DION,ROBERT	1976	P	6	X	230	W	75	N	25	11-76	H	1	--	2	0	--
W 57	434031N0725642.1	1020	BRUSH,NINA Y	1960	H	6	O	67	W	--	U	--	--	H	6	--	--	--	--
W 58	434011N0725627.1	1000	LEMAY,LED	1964	P	6	X	100	W	--	N	--	--	H	1	--	--	--	--
W 59	434021N0725924.1	690	DUDA,STANLEY	1974	P	6	X	372	W	110	50	20	8-74	H	2	--	4	0	--
W 60	434025N0725922.1	700	BURDITT,T A	1973	P	6	X	247	W	75	10	30	9-73	H	1	--	2	0	--
W 61	434025N0725925.1	695	MOODIE,E J	1974	P	6	X	173	W	94	1N	30	7-74	H	12	--	5	0	--
W 62	434033N0725931.1	700	ALTRUI,PETER	1967	P	6	X	365	W	152	0	30	7-67	H	25	--	8	0	--
W 63	434235N0725959.1	745	HARNISH,ROBERT	1971	P	6	X	622	W	5	--	31	8-71	H	10	--	4	0	--
W 64	434217N0725940.1	610	GILBERT,SIDNEY	1974	C	6	X	245	W	--	0	30	7-74	H	30	120	4	0	--
W 65	434207N0725854.1	960	HOLMES,DR EDGAR	1972	P	6	X	247	W	8	10	45	5-72	H	5	--	4	0	--
W 66	434201N0725831.1	1050	GROSENBECK,E	1970	P	6	X	225	W	70	N	70	7-70	H	6	--	--	0	--
W 67	434307N0725937.1	750	CADY,PETER A	1972	A	6	O	110	W	--	PU	F	4-72	H	9	--	3	0	--
W 68	434343N0725922.1	930	BARNARD,DR H	1948	C	6	X	188	W	--	N	44	-48	H	2	--	--	--	--
W 69	434317N0730001.1	560	LA FRANCIS	1962	P	6	X	112	W	--	D	--	--	H	3	--	--	--	--
W 70	434310N0730059.1	610	WHITTEMORE,E H	1952	C	6	X	150	W	62	0	25	10-52	H	1	--	--	--	--
W 71	434356N0730213.1	570	NOSTER,EDWARD	1969	P	6	X	336	W	180	N	80	10-69	H	0.5	--	--	0	--
W 72	434404N0730227.1	500	MEYERS,SOL	1951	C	6	X	133	W	--	N	F	-51	H	10	--	--	--	--
W 73	434445N0730253.1	420	CURTIS,KENNETH	1977	P	6	X	255	W	150	2N	12	3-77	H	6	--	4	0	--
W 74	434449N0730250.1	460	GLASGOW,JAMES	1972	P	6	X	100	W	70	N	25	6-72	H	2	--	1	0	--
W 75	434508N0730237.1	580	MILLER,L E	1977	C	6	X	62	W	5	L	15	8-77	H	4	--	--	0	--
W 76	434428N0730346.1	400	GIDDINGS,C G	1977	A	6	O	80	W	--	8G	30	4-77	H	10	--	5	0	--
W 77	434457N0730406.1	380	SCHAFFER,EARL	1969	P	6	X	420	W	100	L	30	7-69	H	20	--	1	0	--
W 79	434242N0730404.1	430	HIER,ELWIN	1970	P	6	X	173	W	22	CN	0	6-70	H	0.8	--	1	0	--
W 80	434111N0730431.1	660	CLEMONS,REGINA	1976	P	6	X	130	W	39	--	--	--	H	2	--	1	0	--
W 81	434231N0730534.1	745	MORTENSON,H E	--	D	--	O	9	W	--	U	--	--	H	--	--	--	--	P
W 82	434257N0730440.1	490	LANSING,ALBERT	1974	P	6	X	165	W	12	0	20	12-74	H	15	--	2	0	--
W 83	434220N0730257.1	365	KALDY,JOHN SR	1962	P	6	X	296	W	--	D	--	--	H	4	--	--	--	--
W 84	434030N0730046.1	585	MERRILL,DENNIS	1970	P	6	X	170	W	80	D	50	7-70	H	20	--	--	0	P
W 86	434123N0730022.1	610	DUNN,BRIGGS	1972	P	6	X	300	W	50	L	50	6-72	H	40	--	--	0	--
W 88	434303N0735947.1	650	ALORICH,W E	1971	A	6	O	37	W	--	8X	20	4-71	H	20	--	--	0	--
W 89	434013N0725631.1	1025	BOYNTON,DONALD	1972	P	6	X	190	W	75	N	--	--	H	6	--	2	0	--
W 90	434216N0730012.1	570	HUDSON,K D	--	--	6	X	260	W	5	CN	--	--	H	20	--	--	--	--
W 91	434147N0725984.1	745	BASHAW	--	--	6	O	110	W	--	U	--	--	H	6	--	--	--	--
W 92	434128N0725853.1	1180	ALTWATER,R	1973	P	6	X	223	W	18	N	--	--	H	1.5	--	2	0	--
W 93	434032N0725924.1	705	BREEZY MAPLE CT	--	--	6	O	200	W	--	G	F	--	C	20	--	--	--	--
X 1	434210N0730100.1	396	PITTSFORD TOWN	1965	W	2	O	25	T	--	--	8	-65	U	--	--	--	0	--
PROCTOR																			
H 1	434000N0730218.1	580	VT HWY DEPT	1974	W	2	O	20	T	--	--	--	--	U	--	--	--	0	--
R 1	483742N0730155.1	478	VT HWY DEPT	--	B	--	X	30	T	--	--	--	--	U	--	--	--	0	--
H 2	433832N0730158.1	476	VT HWY DEPT	--	B	--	X	30	T	--	--	--	--	U	--	--	--	0	--
R 3	433844N0730202.1	506	VT HWY DEPT	--	B	--	X	34	T	--	--	--	--	U	--	--	--	0	--
R 1	433953N0730131.1	380	PROCTOR VILLAGE	1960	C	8	S	126	W	--	4G	+6	6-60	P	273	8	24	0	--
W 2	433740N0730148.1	500	HANSON,CONNIE	1973	P	6	X	400	W	9	D	10	6-73	H	0.5	--	1	0	P
W 3	433944N0730252.1	680	GARTENSTEIN,H	1976	P	6	X	375	W	12	O	60	3-76	H	1.5	--	2	0	P
W 4	433829N0730155.1	520	LOSO,CHARLES J	1966	P	6	X	152	W	15	D	12	10-66	H	12	--	2	0	--
W 5	433810N0730200.1	530	PALMERINI,RENZO	1973	P	6	X	135	W	21	D	25	7-73	H	5	--	1	0	--
W 6	433748N0730221.1	495	LABABOUCHE,W	1948	C	6	X	125	W	--	O	6	-48	H	4	--	--	--	--
W 7	433839N0730234.1	490	MCCULLOUGH,H M	1948	C	6	X	229	W	--	O	5	-48	H	1.5	--	--	--	--
W 8	433927N0730210.1	490	PROCTOR VILLAGE	1960	--	--	O	63	T	62	--	--	--	U	--	--	--	--	--
W 9	433908N0730210.1	475	PROCTOR VILLAGE	1960	--	--	O	148	T	--	--	--	--	U	--	--	--	--	--
W 10	433906N0730237.1	490	PROCTOR VILLAGE	1960	--	--	O	116	T	--	--	--	--	U	--	--	--	--	--
W 11	433700N0730149.1	510	ALAN,PERRY	1965	P	6	X	398	W	--	0	--	--	H	1	--	--	--	--
W 12	434123N0730253.1	510	STAGG,DR C H	1969	P	6	X	298	W	8	L	.11	9-69	H	3	--	1	0	--
RUTLAND CITY																			
H 1	433611N0725840.1	555	VT HWY DEPT	--	W	2	X	42	T	32	--	--	--	U	--	--	--	0	--
H 2	433631N0725923.1	534	CORPS OF ENG	1950	W	--	O	60	T	--	--	--	--	U	--	--	--	0	--
W 1	433628N0725705.1	670	RUTLAND CITY	1948	--	--	O	26	T	--	--	0	10-48	U	--	--	--	0	--
W 2	433529N0725858.1	538	RUTLAND CITY	1948	--	--	O	51	T	--	--	0	10-48	U	--	--	--	0	--
W 3	433543N0725649.1	662	RUTLAND CITY	1948	W	2	O	38	T	--	--	0	11-48	U	10	--	--	0	--
W 4	433544N072590																		

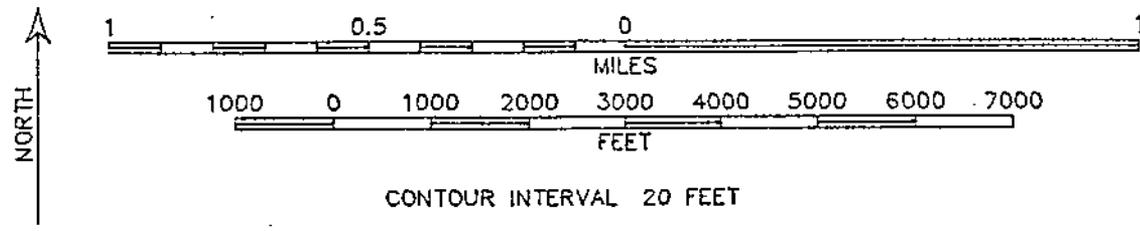
TABLE 6.--DESCRIPTION OF SELECTED WELLS, TEST WELLS, AND BORINGS -- CONTINUED

LOCAL WELL NUMBER	LATITUDE-LONGITUDE	ALTI-TUDE OF LSD (FT)	OWNER OR USER	YEAR/METHOD DRILLED	WELL			FEET TO BEU-ROCK	WATER-BEARING MATERIAL	WATER LEVEL DATE USE		PUMPAGE		LOG ON					
					DIAM-ETER (IN)	DEPTH (FT)	USE			LEVEL (FT)	DATE USE (M-EAS-1)	YIELD (GPM)	DD (FT)		TIME (HR)				
RUTLAND CITY --CONTINUED																			
W 9	433545N0725914.1	530	US GEOL SURVEY	1976	W	1	T	54	T	--	95	12	6-76	U	8	--	2	G	C
W 10	433612N0725924.1	525	US GEOL SURVEY	1976	W	2	O	58	T	--	--	4	6-76	U	--	--	--	G	--
W 11	433612N0725924.2	525	US GEOL SURVEY	1976	W	1	T	51	T	--	35	6	6-76	U	0.9	--	A	G	--
W 12	433516N0725910.1	520	US GEOL SURVEY	1976	W	2	O	87	T	--	--	--	--	U	--	--	G	--	
W 13	433710N0725924.1	550	US GEOL SURVEY	1976	W	4	O	24	T	--	--	4	7-76	U	--	--	G	--	
W 14	433707N0725929.1	550	US GEOL SURVEY	1976	W	4	O	20	T	--	--	2	7-76	U	--	--	G	--	
W 15	433616N0725938.1	550	US GEOL SURVEY	1976	B	4	O	36	T	--	--	10	7-76	U	--	--	G	--	
W 16	433557N0725802.1	545	US GEOL SURVEY	1976	B	6	O	27	T	--	--	2	7-76	U	--	--	G	--	
W 17	433600N0725920.1	540	US GEOL SURVEY	1976	B	6	O	32	T	--	--	--	--	U	--	--	G	--	
W 18	433747N0725855.1	620	RUCKLIN, LLOYD G	1970	P	6	X	75	W	8	D	10	5-70	H	100	--	--	G	--
W 19	433634N0725912.1	538	FOLEY'S LAUNDRY	--	A	6	O	100	U	--	G	--	--	C	R0	--	--	G	--
W 20	433532N0725840.1	542	TAMPAX CO, INC.	1954	W	2	O	127	T	--	--	23	9-54	U	--	--	G	--	
X 2	433553N0725902.1	542	RUTLAND CITY	1974	H	--	X	19	T	--	--	--	--	U	--	--	G	--	
X 3	433555N0725847.1	543	RUTLAND CITY	1974	B	--	X	19	T	--	--	--	--	U	--	--	G	--	
X 4	433601N0725856.1	546	RUTLAND CITY	1974	B	--	X	19	T	--	--	--	--	U	--	--	G	--	
X 5	433602N0725844.1	546	RUTLAND CITY	1974	B	--	X	19	T	--	--	--	--	U	--	--	G	--	
X 7	433537N0725747.1	575	RUTLAND CITY	1974	B	--	X	8	T	--	--	--	--	U	--	--	G	--	
X 10	433541N0725708.1	655	RUTLAND CITY	1974	B	--	X	9	T	--	--	--	--	U	--	--	G	--	
X 11	433602N0725746.1	582	RUTLAND CITY	1974	B	--	X	7	T	--	--	--	--	U	--	--	G	--	
X 12	433624N0725717.1	635	RUTLAND CITY	1974	B	--	X	9	T	--	--	--	--	U	--	--	G	--	
X 13	433645N0725744.1	690	RUTLAND CITY	1974	B	--	X	9	T	--	--	--	--	U	--	--	G	--	
X 14	433648N0725706.1	660	RUTLAND CITY	1974	B	--	X	8	T	--	--	--	--	U	--	--	G	--	
X 16	433658N0725802.1	695	RUTLAND CITY	1974	B	--	X	9	T	--	--	--	--	U	--	--	G	--	
X 18	433612N0725941.1	558	RUTLAND CITY	1960	W	2	O	26	T	--	--	--	--	U	--	--	G	--	
X 20	433726N0725910.1	605	RUTLAND CITY	1970	W	2	O	23	T	--	--	--	--	U	--	--	G	--	
X 23	433735N0725913.1	604	RUTLAND CITY	1970	W	2	O	17	T	--	--	--	--	U	--	--	G	--	
X 24	433603N0730010.1	519	RUTLAND CITY	1973	B	2	X	27	T	--	--	3	7-73	U	--	--	G	--	
X 25	433601N0730016.1	519	RUTLAND CITY	1973	B	2	X	8	T	--	--	--	--	U	--	--	G	--	
X 28	433609N0725956.1	522	RUTLAND CITY	1973	B	2	X	8	T	--	--	7	7-73	U	--	--	G	--	
X 32	433603N0725937.1	520	RUTLAND CITY	1973	B	2	X	8	T	--	--	--	--	U	--	--	G	--	
X 34	433557N0725733.1	629	SOUTHEAST SCH.	1958	T	--	X	14	T	--	--	--	--	U	--	--	G	--	
X 35	433540N0725839.1	542	VT ACHIEVMENT C	--	W	1	O	26	T	--	--	--	--	U	--	--	G	--	
X 37	433553N0725719.1	650	RUTLAND HOSP.	1968	W	2	O	40	T	36	--	3	12-68	U	--	--	G	--	
RUTLAND TOWN																			
B 1	433602N0730109.1	478	VT HWY DEPT	1957	W	2	X	38	T	36	--	--	--	U	--	--	G	--	
B 2	433614N0730055.1	475	VT HWY DEPT	1957	W	2	O	18	T	--	--	--	--	U	--	--	G	--	
B 4	433507N0725926.1	556	VT HWY DEPT	1971	W	2	O	36	T	--	--	--	--	U	--	--	G	--	
B 6	433502N0725906.1	526	VT HWY DEPT	1971	W	2	O	126	T	--	--	--	--	U	--	--	G	--	
B 7	433453N0725833.1	533	VT HWY DEPT	1971	W	2	X	87	T	76	--	--	--	U	--	--	G	--	
B 8	433801N0725841.1	602	VT HWY DEPT	1972	W	2	O	32	T	--	--	--	--	U	--	--	G	--	
B 9	433858N0725824.1	678	VT HWY DEPT	1969	W	--	O	21	T	--	--	--	--	U	--	--	G	--	
R 7	433716N0730126.1	503	VT HWY DEPT	--	B	--	X	30	T	--	--	--	--	U	--	--	G	--	
R 8	433727N0730140.1	480	VT HWY DEPT	--	B	--	X	35	T	--	--	--	--	U	--	--	G	--	
R 9	433533N0730042.1	720	VT HWY DEPT	1971	B	--	X	21	T	--	--	--	--	U	--	--	G	--	
R 11	433528N0730017.1	775	VT HWY DEPT	1971	W	2	O	62	T	--	--	--	--	U	--	--	G	--	
R 14	433523N0730006.1	790	VT HWY DEPT	1971	B	--	X	79	T	--	--	--	--	U	--	--	G	--	
R 17	433513N0725946.1	724	VT HWY DEPT	1970	W	2	O	49	T	--	--	--	--	U	--	--	G	--	
R 20	433500N0725901.1	527	VT HWY DEPT	1971	W	2	O	65	T	--	--	--	--	U	--	--	G	--	
K 23	433456N0725842.1	536	VT HWY DEPT	1971	W	2	O	103	T	--	--	--	--	U	--	--	G	--	
K 25	433454N0725834.1	532	VT HWY DEPT	1971	W	2	O	94	T	--	--	--	--	U	--	--	G	--	
K 26	433453N0725829.1	532	VT HWY DEPT	1972	W	2	O	97	T	--	--	--	--	U	--	--	G	--	
R 27	433446N0725805.1	588	VT HWY DEPT	1971	W	2	O	60	T	--	--	--	--	U	--	--	G	--	
K 28	433445N0725801.1	602	VT HWY DEPT	1971	B	--	X	44	T	--	--	--	--	U	--	--	G	--	
W 28	433523N0725808.1	567	BERKSHIRE TRCTR	1950	C	6	X	135	W	--	L	20	-50	C	6	--	--	G	--
W 2	433518N0725810.1	565	LINDHOLM MOTORS	1952	C	6	O	65	W	--	R	20	-52	C	15	5	4	G	--
W 3	433720N0725711.1	670	WAND BAKING CO	--	C	6	O	122	W	--	H	7	--	N	10	--	--	G	--
W 4	433719N0725714.1	670	CASELLA-EDWARD	1974	P	6	X	90	W	74	D	--	--	H	4	--	2	G	P
W 6	433807N0725841.1	618	STATE POLICE	1969	P	6	X	490	W	85	L	7	3-69	H	2	--	2	G	P
W 7	433809N0725839.1	620	VT HWY DEPT	1969	P	6	X	340	W	7	L	F	12-69	H	150	--	4	G	P
W 8	433517N0725822.1	565	QUINN FREIGHT	1967	A	6	O	80	W	--	R	--	--	C	100	--	--	G	--
W 9	433911N0725622.1	870	RUTLAND CITY	1948	-	--	O	8	T	--	--	--	--	U	--	--	G	--	
W 10	433911N0725640.1	835	RUTLAND CITY	1948	-	--	O	32	T	--	--	10	9-48	U	--	--	G	--	
W 11	433900N0725703.1	788	RUTLAND CITY	1948	-	--	O	60	T	--	--	7	10-48	U	--	--	G	--	
W 13	433711N0725646.1	725	GUYETTE, GARTH	1971	C	6	O	57	W	--	R	F	2-71	H	6	--	12	G	--
W 14	433712N0725627.1	785	LAFOUNTAIN, JOHN	1973	C	6	O	107	W	--	BR	35	11-73	H	7	--	6	G	P
W 18	433715N0725646.1	750	SANTWIRE, WAYNE	1972	C	6	O	68	W	--	G	4	6-72	H	10	--	4	G	P
W 19	433717N0725640.1	750	CROSSMAN, ROBERT	1970	A	6	O	72	W	--	BR	25	12-70	H	4	--	4	G	P
W 20	433517N0725831.1	550	TODD TRANS. CO.	1969	-	6	X	365	W	130	L	20	9-69	H	2	--	2	G	P
W 21	433513N0725828.1	560	SUBURS. PROPANE	1969	P	6	X	203	W	166	O	--	--	H	10	--	4	G	P
W 23	433514N0725821.1	560	SHEPARD SUPPLY	1974	A	6	O	103	W	--	DG	--	--	H	7	--	1	G	P
W 26	433500N0725821.1	560	HOLIDAY INN	1970	P	6	X	285	W	90	L	15	6-70	C	50	--	4	G	P
W 27	433500N0725821.2	560	HOLIDAY INN	1972	P	6	X	520	W	92	L	65	4-72	C	30	--	--	G	P
W 28	433425N0725758.1	640	SEWARD'S SALES	1973	C	6	X	210	W	112	L	50	4-73	H	10	--	2	G	P
W 30	433528N0725729.1	680	HOLM, RONALD	1970	P	6	X	740	W	150	L	30	7-70	H	3	--	3	G	P

TABLE 6.--DESCRIPTION OF SELECTED WELLS, TEST WELLS, AND BORINGS -- CONTINUED

LOCAL WELL NUMBER	LATITUDE-LONGITUDE	ALTI-TUDE OF LSO (FT)	OWNER OR USER	YEAR/METHOD DRILLED	WELL			FEET TO REU-ROCK	WATER-BEARING MATERIAL	WATER		PUMPAGE			LOG DW		
					DIAMETER (IN)	FINISH (IN)	DEPTH (FT)			LEVEL (FT)	RATE (GPM)	USF (GPM)	YIELD (GPM)	DD (FT)		TIME (HR)	
RUTLAND TOWN --CONTINUED																	
31	433435N0725737.1	645	GEN. ELECTR. CO.	1975 P	6	X	350	W	75	L	20	3-75	N	60	--	8	0
32	433435N0725737.2	645	GEN. ELECTR. CO.	1975 P	6	X	365	U	50	L	--	--	U	2	--	--	--
33	433435N0725737.3	645	GEN. ELECTR. CO.	1975 P	6	X	440	W	90	L	--	--	N	20	--	10	0
36	433509N0725745.2	620	MOORE BUS. FORMS	1974 P	6	X	1000	W	12	N	36	10-74	N	25	--	8	0
38	433427N0725723.1	670	3M CO.	1974 P	6	X	270	W	11	D	--	--	N	100	--	4	0
39	433835N0725911.1	635	ROSEN, DAVID	1970 A	6	O	55	W	--	G	2	10-70	H	60	--	3	0
40	433523N0725945.1	660	CORSONES, GEORGE	1969 P	6	X	182	W	121	N	55	9-69	H	8	--	2	0
41	433537N0730001.1	690	SCHILLINGER, R E	1959 H	6	O	80	W	--	G	--	--	H	10	--	--	--
44	433542N0730008.1	675	GRAZIANO, A	1968 P	6	X	155	W	135	N	30	3-68	H	10	--	3	0
48	433521N0725943.1	650	KEENAN, EUGENE	1955 C	6	S	131	W	--	U	40	10-55	H	5	--	--	--
52	433502N0725802.1	580	HOWARD JOHNSON	--	6	X	485	N	--	N	--	--	C	--	--	--	--
57	433512N0725729.1	620	MOUTON, WILLARD	1952 P	6	X	192	N	--	D	24	-52	H	0.2	--	--	--
58	433545N0725633.1	690	FUSCO, A E	1960 P	6	X	102	N	--	D	F	5-60	H	10	--	--	--
59	433625N0730135.1	522	ROBERTS, LLOYD	1943 C	4	O	42	W	--	G	--	--	H	1	--	--	--
60	433627N0730136.1	525	LEONARD, R L JR.	1975 P	6	X	280	W	100	CN	35	4-75	H	5	--	1	0
61	433635N0730142.1	565	FLODY, ANTHONY	1970 P	6	X	263	W	110	CN	20	9-70	H	25	--	1	0
62	433619N0730133.1	505	GILL, JOHN S	1965 P	6	X	203	W	--	D	--	--	H	10	--	--	--
63	433608N0730123.1	525	JOHNSON, C	1969 P	6	X	202	W	105	D	--	--	H	4	--	1	0
64	433607N0730119.1	495	STANLEY, MELVIN	1965 P	6	X	98	W	--	D	--	--	H	75	--	--	--
65	433612N0725658.1	660	OLE'S, FRANK	1969 A	6	O	91	W	62	JL	30	9-69	H	50	--	4	0
66	433552N0730124.1	515	TANNOVSKI, J	1963 P	6	X	68	W	--	D	--	--	H	3	--	--	--
67	433604N0730108.1	480	FLODY, JOHN	1961 H	6	O	37	W	--	U	--	--	H	8	--	--	--
70	433816N0725944.1	650	OLE'S, FRANK	1968 P	6	X	295	W	2	CN	35	11-68	H	75	--	2	0
71	433749N0730125.1	490	SPAULDING, W E	1963 P	6	X	96	W	--	O	--	--	H	1	--	--	--
73	433958N0730031.1	820	LAPLANTE, K A	1970 P	6	X	203	W	10	O	10	7-70	H	1	--	1	0
75	433930N0730007.1	730	MIDDLETON, JOHN	1966 P	6	X	150	N	8	L	7	7-66	H	5	--	1	0
78	433936N0730004.1	705	VALENTE, CARMINF	1967 P	6	X	145	W	37	L	--	--	H	9	--	1	0
79	433623N0725611.1	660	NOVEMBRINO, D A	1969 P	6	X	245	W	210	CN	145	6-69	H	5	--	4	0
80	433630N0725616.1	690	GOODKIN, A R	1961 C	6	S	217	W	--	U	123	8-61	H	3	--	--	--
81	433627N0725623.1	640	SILVA, JOSEPH J	1966 P	6	X	232	W	150	D	--	--	H	45	--	2	0
82	433629N0725651.1	765	NYLIE, HENRY	1953 C	6	S	100	N	--	U	35	7-53	H	5	--	--	--
83	433638N0725640.1	835	SPENCER, LAVERN F	1973 P	6	X	235	W	192	D	--	--	H	5	--	1	0
84	433716N0725617.1	820	LOHD, THOMAS G	1959 H	6	S	150	W	--	U	--	--	H	2	--	--	--
85	433729N0725706.1	660	SWEET, H A	1974 P	6	X	140	W	70	CN	30	8-74	H	8	--	2	0
86	433932N0725957.1	720	SEAGER, GUY E	1966 P	6	X	140	W	5	N	35	10-66	H	3	--	1	0
87	433926N0725949.1	740	CHRISTENSON, W L	--	P	6	X	165	W	--	K	--	--	H	--	--	--
88	433913N0725940.1	690	FITZGERALD, H M	1967 P	6	X	127	W	24	D	--	--	H	6	--	1	0
90	433921N0725916.1	680	FENTON, EDWARD C	1966 P	6	X	128	W	45	D	4	12-66	H	5	--	2	0
92	433922N0725859.1	750	GIOFFI, ERNEST M	1975 P	6	X	472	W	0	IL	60	11-75	H	1	--	4	0
93	433841N0725901.1	700	MERRILL, MAX H	1972 C	6	X	255	W	1	CN	50	12-72	H	3	--	2	0
94	433602N0725925.1	670	BEFBE, MRS. M J	1964 P	6	X	178	W	--	N	--	--	H	20	--	--	--
96	433750N0725922.1	630	JENSON, L N	1967 P	6	X	202	W	15	O	10	6-67	H	3	--	1	0
97	433806N0725854.1	635	HATCH, STEARNS S	1968 P	6	X	275	W	35	CN	25	9-68	H	1.5	--	--	--
98	433807N0725851.1	620	FIRE STATION #1	1967 P	6	X	300	W	25	O	20	10-67	H	1	--	1	0
99	433800N0725638.1	615	COLBURN, L S	--	P	6	X	--	W	--	D	--	--	H	--	--	--
104	433944N0725709.1	980	JOHNSON, OLIVER	1956 C	6	X	163	W	--	D	F	12-55	H	10	--	--	--
105	433945N0725701.1	990	MANNEY, FRANK H	1968 P	6	X	111	W	25	N	5	4-68	H	6	--	1	0
106	433941N0725703.1	955	WALLACE, EMEUSON	1977 P	6	X	170	W	23	N	15	2-77	H	7	--	1	0
109	433751N0725634.1	825	GOODRICH, E C	1973 C	6	O	156	W	--	KR	60	1-73	H	5	--	70	0
110	433757N0725627.1	845	RAYMOND, ELSIE	1967 C	6	O	150	W	--	RG	--	--	H	15	--	2	0
112	433759N0725639.1	830	SMITH, WESLEY G	1972 C	6	O	209	W	--	K	35	2-72	H	4	--	48	0
114	433804N0725641.1	800	THOMSON, G F	1949 A	6	O	185	W	--	95	50	9-69	H	25	130	4	0
117	433809N0725629.1	865	BLOSSER, GEORGE	1973 C	6	O	155	W	--	K	41	5-73	H	4	--	8	0
118	433809N0725641.1	800	WOODS, F E	1950 C	6	O	143	W	--	K	14	-50	H	1	--	--	--
119	433810N0725640.1	815	SWANN, JOHN A	--	D	--	14	W	--	U	--	--	H	--	--	--	--
120	433815N0725646.1	820	MORSE, C JOHN	1970 A	6	O	215	W	--	G	50	9-70	H	12	--	--	--
121	433821N0725630.1	865	SENECAL, HENRY A	1970 C	6	O	70	W	--	46	26	1-70	H	5	24	48	0
122	433850N0725648.1	910	HEPETA, THOMAS	1973 C	6	O	165	W	--	H	75	10-73	H	3	--	5	0
124	433821N0725735.1	765	GOODRICH, DARNEL	1965 P	6	X	277	W	--	D	--	--	H	3	--	--	--
127	433815N0725737.1	750	MONDELLA, P F	1967 P	6	X	187	W	155	D	45	4-67	H	55	--	1	0
128	433812N0725740.1	740	KELSEY, L R	1968 P	6	X	344	W	95	O	25	5-68	H	20	--	1	0
132	433805N0725735.1	680	OBIDKO, MARGARET	1971 P	6	X	128	W	84	O	--	--	H	20	--	1	0
133	433801N0725736.1	670	A L H REALTY	1972 P	6	X	158	W	135	D	20	5-72	H	100	--	1	0
135	433802N0725742.1	695	ARMSTRONG, F	1971 P	6	X	163	W	110	O	--	--	H	3	--	1	0
138	433758N0725742.1	685	CRAGIN, JOHN J	1968 P	6	X	403	W	210	O	25	4-68	H	2	--	1	0
139	433756N0725742.1	650	SEWARD, DAVID L	1972 P	6	X	195	W	175	D	5	10-72	H	140	--	1	0
142	433800N0725750.1	670	HAYES, C F JR	1970 P	6	X	155	W	125	O	40	3-70	H	15	--	2	0
147	433759N0725802.1	695	HARRIS, DALE A	1971 P	6	X	278	W	30	O	40	4-71	H	10	--	1	0
150	433805N0725802.1	655	ENGLISH, JAMES	1973 P	6	X	158	W	44	O	10	4-73	H	100	--	1	0
154	433802N0725745.1	685	BOYD, RALPH F	1970 P	6	X	215	W	194	D	45	5-70	H	100	--	1	0
159	433814N0725747.1	750	A L H REALTY	1970 P	6	X	193	W	178	D	45	5-70	H	100	--	2	0
162	433824N0725739.1	775	SENECAL, NOLL E	1960 P	6	X	157	W	10	L	--	--	H	2	--	--	--
163	433750N0725616.1	650	PRITCHARD, A	1966 A	6	O	99	W	--	36	60	9-66	H	25	30	2	0
164	433817N0725953.1	850	LAMAR, N M	--	6	X	110	W	--	N	--	--	H	--	--	--	--
166	493803N0725622.1	675	CRAWLEY, P T	1953 P	6	X	136	W	12	O	--	--	H	10	--	--</	





BASE MAP: USGS 7.5 Minute Topographic Quadrangle RUTLAND, VT. 1985

~~WATER SUPPLY WELL~~
FIGURE 1: Site Location Map
 PORTLAND GLASS PROPERTY
 RUTLAND, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
 100 STATE STREET MONTPELIER, VT 05602

Appendix B
Analytical Results

RECEIVED

1-1654-1



AUG - 4 1994
THE JOHNSON CO., INC.
MONTPELIER, VERMONT.

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313
(802) 728-6044 (FAX)

LABORATORY REPORT

CLIENT: Portland Glass
ADDRESS: 10 Woodstock Ave.
Rutland, VT 05701

LABORATORY NO: 4-1454
PROJECT NO: 78611

SITE: Portland Glass
ATTENTION: Paul Hood
MATRIX: Groundwater

DATE OF SAMPLE: 7/11/94
DATE OF RECEIPT: 7/11/94
DATE OF ANALYSIS: 7/19+20/94
DATE OF REPORT: 8/3/94

Results

(Results expressed in micrograms per liter (ug/L))

PARAMETER	MW-1	SB-5	SB-4	Trip Blank	ES	VHA
Methyl Tertiary Butyl Ether	BPQL	BPQL	2	BPQL	-	40
Benzene	BPQL	BPQL	1	BPQL	5	1
Toluene	BPQL	7	5	BPQL	2,420	-
Ethylbenzene	BPQL	BPQL	2	BPQL	680	-
Total Xylenes	BPQL	BPQL	4	BPQL	400	-
BTEX	BPQL	7	12	BPQL	-	-
Chlorobenzene	BPQL	6	3	BPQL	100	-
<i>meta</i> 1,2-Dichlorobenzene	BPQL	3	BPQL	BPQL	620	600
<i>ortho</i> 1,3-Dichlorobenzene	BPQL	BPQL	2	BPQL	620	-
<i>para</i> 1,4-Dichlorobenzene	3	4	3	BPQL	75	-
Surrogate % Recovery	101%	98%	109%	95%		

EPA Method 8020.
BPQL = Below Practical Quantitation Limit; 1 ppb.
Note many late eluting peaks following SB-4
c: Jim Bowes/ The Johnson Company
100 State Street
Montpelier, VT 05062

Respectfully submitted,

SCITEST, INC.

Roderick J. Lamothe
Roderick J. Lamothe
Laboratory Director

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AUG - 4 1994

THE JOHNSON CO., INC.
MONTPELIER, VERMONT



P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313
(802) 728-6044 (FAX)

LABORATORY REPORT

CLIENT: Portland Glass
ADDRESS: 10 Woodstock Ave.
Rutland, VT 05701

LABORATORY NO: 4-1415
PROJECT NO: 78611

ATTENTION Paul Hood
MATRIX: Water

DATE OF SAMPLE: 7/6/94
DATE OF RECEIPT: 7/7/94
DATE OF ANALYSIS: 7/8+19/94
DATE OF REPORT: 8/3/94

Groundwater Results

Parameter	MW-1	SB46W
Benzene	BPQL	< 10
Toluene	BPQL	< 10
Chlorobenzene	BPQL	< 10
Ethylbenzene	BPQL	< 10
1,3-Dichlorobenzene	BPQL	< 10
1,2-Dichlorobenzene	BPQL	< 10
1,4-Dichlorobenzene	BPQL	< 10
Xylenes	BPQL	< 10
Surrogate % Recovery	92	95

EPA Method 8020, Results reported as ug/L or ppb
BPQL=Below Practical Quantitation Limits; 1 ppb
Note SB46W was run as a dilution due to foaming while purging.

Respectfully submitted,

SCITEST, INC

Roderick J. Lamothe
Laboratory Director

c: The Johnson Company
Attn: Jim Bowes

CHAIN OF CUSTODY RECORD

Client/Project Name <i>Portland Glass</i>		Project Location <i>RUTLAND, VT</i>		ANALYSES			
Project No. <i>1-1654-1</i>		Field Logbook No. <i>8020 BTEX + MORE</i>					
Sampler: (Signature) <i>[Signature]</i>		Chain of Custody Tape No. <i>N/A</i>					
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	REMARKS		
<i>MW1</i>	<i>7-1-94</i>	<i>10:55</i>		<i>WATER - TWP WAYS</i>	<i>✓</i>		
<i>S1346W7-6-94</i>	<i>7-6-94</i>	<i>19:305</i>		<i>"</i>	<i>✓</i>		
<i>S83</i>		<i>11:25</i>		<i>1 SOIL 10Z</i>	<i>3 HOLD</i>		
<i>S82</i>		<i>10:45</i>		<i>1 SOIL 10Z</i>	<i>✓</i>		
<i>S84</i>		<i>13:25</i>		<i>4 SOILS 10Z</i>	<i>✓</i>		
<i>S85</i>		<i>14:50</i>		<i>2 SOILS 10Z</i>	<i>✓</i>		
Relinquished by: (Signature) <i>[Signature]</i>		Date	Time	Received by: (Signature)	Date	Time	
Relinquished by: (Signature)		<i>7/1/94</i>	<i>8 AM</i>				
Relinquished by: (Signature)		Date	Time	Received by: (Signature)	Date	Time	
Relinquished by: (Signature)				<i>[Signature]</i>	<i>7/1/94</i>	<i>8 AM</i>	
Sample Disposal Method:		Disposed of by: (Signature)				Date	Time
SAMPLE COLLECTOR		ANALYTICAL LABORATORY				<i>SCITEB</i>	
THE JOHNSON COMPANY, INC. 5 State Street Montpelier, VT 05602 (802) 229-4600 Fax: (802) 229-5876		INVOICE + RESULTS TO				<i>PAUL HOOD</i>	
		10 WOODSTOCK AVE					
		RUTLAND, VT 05701					
		CC - JIM BOWLES THE JOHNSON CO.					

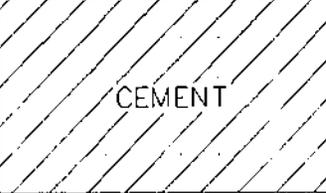
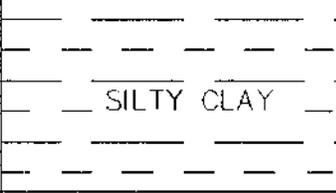
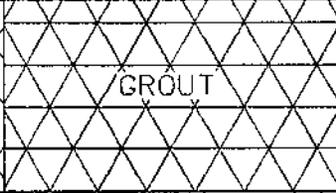
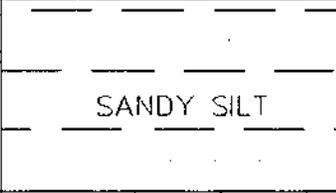
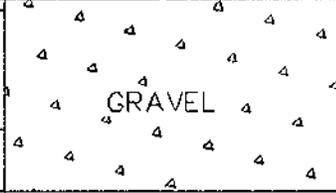
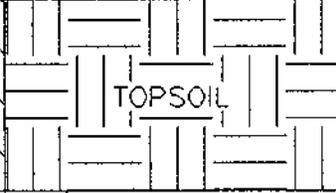
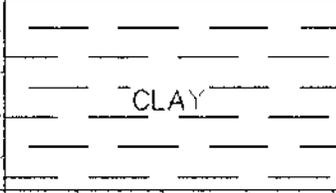
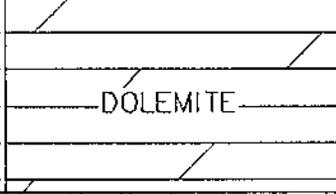
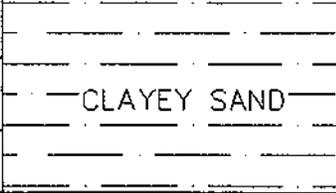
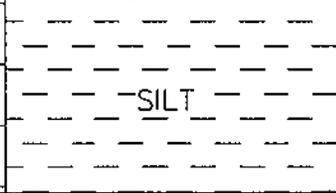
Jim B

Portland Glass - Rutland
1-1654-1 (042)
7-11-94 W. Davy

WELL	Time	Depth m Prod.	Depth to water	Notes
Trip	-	-	-	-
MW-1	12:00	-	6.62	10.45 - IP
SB5	12:30	-	6.79	8.88 - ICE
SB4	1:00	-	6.36	9.04 - ZOI - 6 latex - drop-bailer

no smell on sheen initially in SB-4

Appendix C
Soil Boring and Well Logs

 CEMENT	 ASPHALT	VERY FINE SAND	 SILTY CLAY	 GRAVELLY SAND
 BACKFILL	 GROUT	FINE SAND	 SANDY SILT	 GRAVEL
 BENTONITE	 TOPSOIL	MEDIUM SAND	 SANDY TILL	 CLAY
 SAND PACK	 DOLEMITE	COARSE SAND	 SILTY TILL	 TILL
 GRAVEL PACK	 BEDROCK	SILTY SAND	 CLAYEY SAND	 SILT

KEY TO GEOLOGY PATTERNS
 PORTLAND GLASS PROPERTY
 RUTLAND, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
 100 STATE STREET MONTPELIER, VT 05602

The Johnson Company, Inc.
 Environmental Sciences and Engineering
 100 State Street
 Montpelier, Vermont 05602

DRILLING LOG
 WELL # SB-1

Project: Portland Glass
 Location: Rutland, Vermont
 Job # 1-1654-1
 Logged By: DMM
 Date Drilled: 7/06/94
 Driller: Adams
 Drill Method: Vibratory Corer

Casing Type: N/A
 Casing Diameter:
 Casing Length:
 Screen Type: N/A
 Screen Diameter:
 Screen Length:
 Slot Size: 010

Total Pipe: 0.0 ft.
 Stick Up: 0.0 ft.
 Total Hole Depth: 10.0 ft.
 Well Guard Length: 0.0 ft.
 Initial Water Level: 6.5 ft.
 Surface Elevation: -
 T.O.C. Elevation: -

█ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					
0				0.0	Brown humid fine sand, little silt, subangular gravel. Massive.
1	█				
2	█			0.0	Brown humid fine sand, some subangular gravel, little silt.
3	█				
4	█			0.0	Tan moist, moderately dense, fine sand and silt, some subround gravel. Massive. Sharp horizontal contacts.
5	█	Backfill		0.0	
6	█				
7	█				
8	█			0.0	Tan grading to brown damp medium sand some gravel. Grades downward to coarse sand and subangular gravel. Massive. Sharp horizontal contacts.
9	█				
10	█				
11					Brown moist, iron stained coarse sand. Little subangular gravel, medium sand.
12					
13					Grey moist massive medium sand. Subangular pebble at base. Sharp horizontal contacts.
14					
15					Grey saturated fine sand. Few 1/16" thick orange bands at the base of finer textured layers. sharp contacts.
16					
17					

The Johnson Company, Inc.
 Environmental Sciences and Engineering
 100 State Street
 Montpelier, Vermont 05602

DRILLING LOG
 WELL # SB-2

Project: Portland Glass
 Location: Rutland, Vermont
 Job # 1-1654-1
 Logged By: DMM
 Date Drilled: 7/06/94
 Driller: Adams
 Drill Method: Vibratory Corer

Casing Type: N/A
 Casing Diameter:
 Casing Length:
 Screen Type: N/A
 Screen Diameter:
 Screen Length:
 Slot Size: 010

Total Pipe: 0.0 ft.
 Stick Up: 0.0 ft.
 Total Hole Depth: 10.0 ft.
 Well Guard Length: 0.0 ft.
 Initial Water Level: 5.5 ft.
 Surface Elevation: -
 T.O.C. Elevation: -

█ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	FID Reading	Description
5					
4					
3					
2					
1					
0					
1	Backfill			0.0	Grey dry massive fine sand, little silt, subangular gravel.
2					
3					
4	Bentonite			0.0	Black dry dense fine sand and silt, trace subangular gravel. Many fine distinct orange mottles.
5				4.0	Brown-orange dry fine sand little silt, subangular gravel. Sharp horizontal contacts.
6					
7				1.2	Brown dry fine sand and angular gravel and medium sand. Massive. Grades down to coarse sand and gravel and medium sand.
8	Backfill				
9				0.9-2.4	Grey dry coarse sand and gravel. Sharp contacts.
10					Dark grey dry coarse sand and gravel. Faint fuel oil odor.
11					
12					Grey saturated massive fine sand. Faint fuel oil odor.
13					Grey saturated laminated clay and silt. Forms 1/8" ribbon.
14					
15					Grey massive saturated fine sand
16					Grey saturated laminated clay and silt.
17					Grey saturated massive fine sand.

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 Environmental Sciences and Engineering
 100 State Street
 Montpelier, Vermont 05602

DRILLING LOG
 WELL # SB-3

Project: Portland Glass
 Location: Rutland, Vermont
 Job # 1-1654-1
 Logged By: DMM
 Date Drilled: 7/06/94
 Driller: Adams
 Drill Method: Vibrating Corer

Casing Type: N/A
 Casing Diameter:
 Casing Length:
 Screen Type: N/A
 Screen Diameter:
 Screen Length:
 Slot Size: 010

Total Pipe: 0.0 ft.
 Stick Up: 0.0 ft.
 Total Hole Depth: 10.0 ft.
 Well Guard Length: 0.0 ft.
 Initial Water Level: 6.5 ft.
 Surface Elevation: -
 T.O.C. Elevation: -

█ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					
0					
█ 0	█	Backfill		0	Light grey dry fine sand, little silt, angular gravel.
█ 1	█			0.0	Dark grey humid dense fine sand, and silt, little subangular gravel.
█ 2	█				
█ 3	█				
█ 4	█				
█ 5	█	Bentonite			Brown dry fine and medium sand grading down to medium and coarse sand, some gravel. Massive. Sharp horizontal contacts.
█ 6	█				
█ 7	█			1.5	Brown damp to saturated coarse sand and subangular gravel. Rough horizontal bedding. Iron stains in lower 0.25'. Sharp horizontal contacts.
█ 8	█	Backfill		0.0	
█ 9	█				
█ 10	█				Grey saturated medium and fine sand. Laminated in top 0.5'.
11					
12					
13					
14					
15					
16					
17					

The Johnson Company, Inc.
 Environmental Sciences and Engineering
 100 State Street
 Montpelier, Vermont 05602

DRILLING LOG
WELL # SB-4

Project: Portland Glass
 Location: Rutland, Vermont
 Job # 1-1654-1
 Logged By: DMM
 Date Drilled: 7/06/94
 Driller: Adams
 Drill Method: Vibratory Corer

Casing Type: PVC
 Casing Diameter: 2.0 in.
 Casing Length: 4.0 ft.
 Screen Type: PVC
 Screen Diameter: 2.0 in.
 Screen Length: 4.8 ft.
 Slot Size: 0.010"

Total Pipe: 9.1 ft.
 Stick Up: 0.0 ft.
 Total Hole Depth: 10.0 ft.
 Well Guard Length: 0.0 ft.
 Initial Water Level: 6.3 ft.
 Surface Elevation: -
 T.O.C. Elevation: -

█ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					Dry grey fine sand some silt, subangular gravel, glass.
0					Brown dry medium sand some fine sand, coarse sand.
1	Cement				
1	Bentonite			1.8	Black-grey damp dense fine sand some silt, wire. Slight fuel oil odor.
2					
3				0.9	
4				110	Brown humid massive fine sand some coarse sand, subangular gravel. Sharp horizontal contacts.
5	Backfill				
6					Grey dry massive medium sand and coarse sand and subangular gravel, pebbles.
7					
7	Screen			105-131	Brown damp coarse sand and gravel. Orange iron stains and fuel oil odor. Slightly cemented. Sharp horizontal contacts.
8					
9				6.4	
10					Brown damp massive medium and fine sand, some coarse sand, gravel, pebbles.
11					
12					
13					Grey grading down to black medium sand, little coarse, fine sand, gravel. Dry to saturated at 7.4 feet. Black and shiny with a fuel oil odor at 8-8.6'. Massive.
14					
15					
16					Grey massive saturated fine sand. Sharp horizontal contacts.
17					Orange massive fine sand and silt.

The Johnson Company, Inc.
 Environmental Sciences and Engineering
 100 State Street
 Montpelier, Vermont 05602

DRILLING LOG
WELL # SB-5

Project: Portland Glass
 Location: Rutland, Vermont
 Job # 1-1654-1
 Logged By: DMM
 Date Drilled: 7/06/94
 Driller: Adams
 Drill Method: Vibratory Corer

Casing Type: PVC
 Casing Diameter: 2.0 in.
 Casing Length: 3.8 ft.
 Screen Type: PVC
 Screen Diameter: 2.0 in.
 Screen Length: 4.8 ft.
 Slot Size: 0.010"

Total Pipe: 9.0 ft.
 Stick Up: 0.0 ft.
 Total Hole Depth: 10.0 ft.
 Well Guard Length: 0.0 ft.
 Initial Water Level: 6.7 ft.
 Surface Elevation: -
 T.O.C. Elevation: -

■ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					
0					
0	Cement				
1	Bentonite				
2					
3	Sand Pack				
4					
5					
6				0.0-0.3	Coarse and medium sand and subangular gravel. Sharp horizontal layers about 0.5' thick. Colors in layers vary from dark grey to orange. Individual layers exhibit coarsening downward sequences similar to channel
7					
8	Screen				
9	Backfill			0.3	Grey saturated massive fine sand some medium sand. 0.5" silt layers at 8.5 and 9.0 fbs. Sharp horizontal contacts.
10					
11					
12					
13					
14					
15					
16					
17					