



TWIN STATE ENVIRONMENTAL CORP.

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March 1, 1995

Mr. Matt Moran
Agency of Natural Resources
103 South Main Street/West Office
Waterbury, VT 05671-0404

RE: Brown's ABC, Fairfield, VT
ISI Report
TSEC Project No. 94-153
SMS Site No. 94-1713

Dear Matt:

Attached please find one copy of the Initial Site Investigation Report for the above referenced site.

If you have any questions or require additional information, please call me at (802) 434-3350.

Thank-you

TWIN STATE ENVIRONMENTAL CORPORATION

Jennifer von Rohr
Project Manager

attachment

cc: Tim Vallee, R.L. Vallee, Inc.

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

INITIAL SITE INVESTIGATION

**Brown's ABC Market
Route 36
Fairfield, Vermont**

SMS Site #94-1713

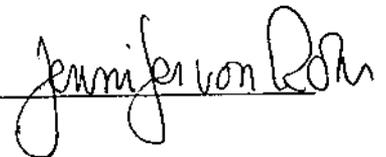
TSEC #94-153

February 28 , 1995

Prepared for:
R.L. Vallee, Inc.
P.O. Box 711
282 South Main Street
St. Albans, Vermont 05478
(802) 527-7755
Contact: Tim Vallee

Written By:

Jennifer von Rohr
Project Manager



Reviewed By:

John R. Diego
Vice President



1.0 Executive Summary

The following report has been prepared by Twin State Environmental Corporation (TSEC) to present the results of an Initial Site Investigation (ISI) conducted at the Brown's ABC Market (SITE) located on Route 36 in Fairfield, Vermont. This ISI was conducted at the request of the State of Vermont, Agency of Natural Resources, Sites Management Section (SMS), following the discovery of petroleum contamination in soils and groundwater underlying several former underground storage tanks (USTs). This contamination was encountered during the removal of six (6) USTs from the SITE on October 11, 1994. The site conditions which were encountered at the time of the UST removals were reported in a UST Closure Report to the SMS by TSEC on October 12, 1994.

The SITE consists of a retail hardware and convenience store which sells petroleum products, including gasoline, kerosene and diesel fuel. Additionally, a portion of this property is leased by the United States Government for the use of the Fairfield Post Office. USTs which currently exist at the SITE include one 12,000 tank consisting of three product compartments owned by the property owner and one 550 gallon tank which is owned by R.L. Vallee, Inc.

This site is located in a mixed land use area, with surrounding properties consisting of single and multi-family dwellings, agricultural land and a commercial property used for an automobile repair facility. The Fairfield River is located immediately east of this site.

The ISI project tasks include: the drilling and installation of four (4) overburden monitoring wells; screening of subsurface soils for contamination using a Photoionization Detector (PID) and visual and olfactory observations; sampling groundwater for data and analysis; identifying the potential for risk of contamination to impact nearby receptors; and the preparation of this ISI report.

As demonstrated throughout the presentation of this report, TSEC confirmed the presence of petroleum contamination in soil and groundwater associated with the SITE. Soils present in the investigated areas closest to each of the former tank locations were found to exhibit elevated levels of volatile organic vapors as determined by PID screening. Sampling and analysis of newly installed wells in these areas also revealed evidence of groundwater contamination. Based on the direction of groundwater flow determined by this investigation, and the monitoring and analysis of soils and groundwater in hydraulically downgradient areas of the site, it appears that gasoline related contamination may be migrating to the east.

As a result of the investigation for potential receptors, it was determined that the adjacent Fairfield River is likely to be the primary receptor of contamination migrating from this site. In addition, a potential for the vertical migration of contamination has been identified with regards to this SITE.

2.0 Introduction

This report has been prepared by TSEC to report the results of an ISI conducted at the SITE (Figure 1). This investigation was conducted at the request of the SMS, following the encounter of petroleum contamination in subsurface soil and groundwater at the SITE during October 1994 UST removal and replacement activities.

As reported to the SMS in TSEC's UST removal report for the SITE, six (6) USTs, including four (4) gasoline tanks, one (1) diesel fuel tank and one (1) kerosene tank, were removed from two separate areas of the SITE on October 11, 1994. All of the former tanks, which were owned and maintained by R.L. Vallee, Inc. (RLV) of St. Albans, Vermont, were removed by RLV as a company wide effort to minimize liabilities associated with USTs.

The approximate locations of the former USTs and Excavation no. 1 and Excavation no. 2 are illustrated on Figure 2. Excavation no. 1 includes the area of the four former gasoline tanks and Excavation no. 2 is the area which previously contained the kerosene and diesel tanks. Two replacement tanks, including: one 12,000 gallon, tri-compartment tank used for the storage of two grades of gasoline and diesel fuel; and one 550 gallon kerosene UST were installed in the area of Excavation no. 1.

Visual observations and PID screening of excavated soils revealed evidence of petroleum contamination in both of the excavated areas at the time of the UST removals. Evidence of contamination associated with Excavation no. 1 included PID readings ranging to a high of 398 parts per million (PPM); and, observations of black stained soil. Excavation no. 2 yielded considerably lower PID readings (as would be expected in the presence of kerosene or diesel fuel products vs. gasoline), generally less than 100 PPM. However, groundwater which was present in this excavation exhibited globules of free product on its surface. Due to these conditions, both excavations were backfilled with the previously excavated contaminated soils and the SMS was appraised of the situation.

The activities conducted for this ISI were proposed in TSEC's revised work plan dated December 23, 1994. Approval for reimbursement of the activities conducted under the Vermont Petroleum Clean-up Fund (PCF) was issued by the SMS in a letter dated January 10, 1995. Specific activities which were conducted for this project are summarized throughout Section 5.0 of this report.

3.0 Site Description

As illustrated by Figure 2 features of the SITE include the primary retail building, the Post Office building, two USTs and associated pumping/distribution systems, a driveway/parking area, a storm water drain, and an out of service, shallow water supply

well. Although the location of the storm water drain outfall was not visible at the time of field activities at the SITE, it is reported by Mr. Richard Brown, the property owner, that the underground storm drain line travels from the drain to the river approximately as shown on Figure 2.

Other features which are not illustrated include several storage buildings to the south of the retail building.

Most properties within the vicinity of the SITE are provided with municipal well water. The exact location of this municipal water source was not determined (as clearly it exists outside of a 0.5 mile radius of the SITE), however, based on information provided by representatives of the Vermont Agency of Natural Resources Water Supply Division (WSD), this well is believed to be located 1 or more miles to the north of the SITE. Municipal sewer services are not available to this area, therefore surrounding properties generally maintain on-site septic systems for the treatment of domestic wastes. The SITE, however, does not generate waste water and therefore does not contain an on-site septic system.

The SITE is located in a mixed land use area central to Fairfield town proper (Figure 1). Properties which surround the site include single and multi-family dwellings, agricultural land, and a commercial property which is the location of an automobile repair facility. Surrounding properties and corresponding current or former owners are summarized on Table 1.

The topography of the investigated portion of the site is relatively flat with a gradual slope towards the Fairfield River, which is located to the east of the site. Beginning from the area east of MW-1 and descending eastward to the river bank, however, a steep bank, with an approximate slope of 1:1, is present. The approximate location of the top of this bank is illustrated on Figure 2.

4.0 Site History

Based on information provided by the current owner (Mr. Richard Brown) and a review of records available through the Town of Fairfield, this site has been used for the storage and distribution of gasoline products since approximately the mid-1930's. Furthermore, according to the site owner, an automobile service station was present at this location as early as 1931. Table 2 details available information pertaining to the historical use and ownership of this site.

The USTs which were removed from the SITE in October 1994 are believed to have been approximately 10 years old, and each was functioning properly. One of the excavated tanks, however, had been taken out of service approximately one year prior to excavation due to the removal of the associated pump by an approaching vehicle. (According to

Richard Brown, the pump was switched off at the time of impact by the vehicle, and a release of product did not occur). No observed holes or significant deterioration was noted by TSEC of the excavated USTs, however, the product and vent piping associated with the former tank systems were not inspected by TSEC.

Including the episode referenced above which resulted in the removal of one product pump, the owners of Brown's ABC Market have no records or recollections of any spill/release episodes occurring at this location. A review of the Vermont Department of Environmental Conservation Spills Data Base Listing supports this information for the period of at least June 1975 through June 1994 (which is the extent of records available from this information source), as no reportable spills are documented for the SITE. Furthermore, this data base identifies only six reportable spills or releases which have occurred in the town of Fairfield for the period specified.

5.0 Summary of Project Activities

5.1 Drilling Program

In order to evaluate subsurface soils and groundwater associated with this site, TSEC conducted a drilling program which included the installation of four overburden monitoring wells. These wells, which are identified on Figure 2 as MW-1, MW-2, MW-3 and MW-4 were installed to approximate depths of 10 to 15 feet below grade.

Drilling was conducted on January 24, 1995 by Tri State Drilling and Boring of East Burke, Vermont under the observation of a TSEC geologist. A hollow stem auger drilling rig equipped with "split spoon" samplers was used to conduct the drilling and boring activities.

With the exception of MW-4, each well was developed following installation in order to remove drilling fluids or other materials which may have entered the well during the process of drilling and construction. Well development was conducted for a period of approximately 30 minutes at each location with the use of a peristaltic pump, and development water was discharged directly to the ground surface. Based on conditions encountered during the drilling of MW-4, TSEC believed it was likely that this well contained free product. The development of this well, therefore was delayed until it could be assessed for the presence of free product.

5.1.1 Soils Results

Soils encountered throughout each borehole were classified by TSEC as consisting primarily of fine to coarse brown SAND and SILT over gray

weathered ROCK. Screening of the soils encountered throughout each borehole was also conducted by TSEC to identify the presence of petroleum contamination. With the use of a PID calibrated to isobutylene, and through the collection of visual and olfactory observations, evidence of contamination was detected in soils encountered during the drilling of MW-3 and MW-4. No evidence of petroleum contamination was identified in soils encountered during the drilling of MW-1 or MW-2. The Monitoring Well/Soil Boring Logs for these wells are provided in Attachment 1 and the results of screening are summarized on Table 3.

Soils encountered during the drilling of MW-3 located adjacent to the former and current gasoline USTs, yielded ambient PID readings of 62 PPM at a depth of 5-7 feet and 273 PPM at a depth of 10-12 feet. Screening conducted during the installation of MW-4, adjacent to the former kerosene and diesel UST locations, revealed ambient PID readings of 38.6 PPM at 5-7 feet and 4.7 PPM at 10-12 feet. In addition, soils encountered throughout MW-4 in the depth interval of approximately 3 feet to 12 feet below grade were found to exhibit a petroleum odor, and evidence of free product in the form of globules on water rising from the borehole around the drilling augers, was also reported for this well.

Each well is constructed of 2 inch diameter 0.010 slot Schedule 40 PVC screen, and Schedule 40 PVC riser, and protected by a flush mounted steel guard. The screen in each well was placed in the subsurface interval extending from approximately 2'-3' to approximately 10'-13' below the ground surface. In order to generate accurate groundwater contour data for the SITE, each monitoring well and other significant site features was surveyed for location and elevation data. This data was used to generate Figure Numbers 2 and 3 of this report.

5.2 Groundwater Sampling

TSEC conducted groundwater sampling activities at the SITE on February 1, 1995 for the collection of data and samples for analysis. Wells which were sampled include MW-1, MW-2, MW-3 and MW-4, and, the out of service shallow water supply well located on the SITE.

Sampling of each monitoring well was conducted in accordance with TSEC's standard operating procedures for well sampling. These procedures include the collection of water elevation data, purging a minimum of three well volumes from each well, and collecting samples for analysis with the use of a dedicated, disposable Teflon bailer. All purge water removed from these wells were

discharged directly to the ground surface. Prior to purging MW-4, however, this well was investigated for the presence of free product with the use of a dedicated clear bailer. This revealed a sheen but no measurable free product on the surface of water removed from the well. Purging and sampling of MW-4, therefore proceeded using standard procedures.

The out of service water supply was sampled by collecting a grab sample for analysis with the use of a dedicated, disposable Teflon bailer. Note that this well was not sampled for depth to water data or purged prior to sampling.

5.2.2 Groundwater Sampling Results

As a result of data collected from this groundwater sampling episode, it was determined that the depth from the surveyed top of casing (TOC) elevations to the overburden water table ranged from approximately 3 feet in the vicinity of MW-4 (i.e. in the northwest portion of the site), to approximately 8.5 feet in the vicinity of MW-1, located on the northeast portion of the site. Groundwater flow direction based on these data is from west to east towards the Fairfield River, with a hydraulic gradient of 0.07 ft/ft. An interpretation of the groundwater elevation data is presented as a groundwater contour map on Figure 3, and the water level data is summarized on Table 4.

Samples from each well were submitted to ChemServe Environmental Analysts of Milford, New Hampshire for the analysis of Total Petroleum Hydrocarbons as Fuel Oil (TPHFO) by USEPA Method 8015 and Total Petroleum Hydrocarbons as Gasoline (TPHG) by USEPA Method 8100. Note that these parameters differ slightly from the originally proposed analytical methods, in that USEPA Method 8015 was substituted for USEPA Method 8020 (Volatile Aromatic Compounds). The decision to modify the proposed analyses was instituted at the approval of the SMS in order to distinguish the diesel/kerosene contamination from the gasoline contamination.

In addition to samples collected from each of the monitoring wells and the out of service water supply well, quality assurance/quality control (QA/QC) samples, including one duplicate sample from MW-3 (identified as MW-3D) and a trip blank, were also collected for analysis. The duplicate sample was analyzed for both TPHG and TPHFO, whereas the trip blank was analyzed only for TPHG.

The analytical results from this groundwater sampling effort are summarized on Table 5 of this report, and a copy of the laboratory report is

provided as Attachment 2. As indicated, well numbers MW-1, MW-2 and MW-3 were found to exhibit TPHG in levels which exceed the method detection limit of 0.1 mg/l. TPHG levels reported for these wells range from 1 mg/l in MW-2 to 12 mg/l in MW-1. Both the original and duplicate samples collected from MW-3 were reported to contain 10 mg/l TPHG. These data have been used to generate the isocontour drawing provided as Figure 4.

Table 5 also indicates that a TPHFO concentration of 6 mg/l was detected in MW-4. This parameter was not reported as present above the method detection limit of 0.1 mg/l in any other well analyzed.

The out of service shallow well on-site was found by analysis to exhibit no evidence of TPHG or TPHFO contamination above method detection limits.

5.3 Potential Receptor Survey

In order to consider the significance of the contamination which has been identified as a result of this ISI, TSEC conducted an evaluation to identify sensitive receptors within the vicinity of the SITE. As proposed, this task included the review of available pertinent maps, well records for the surrounding area, sampling of the out of service water supply well, and the identification and evaluation of basements in the area surrounding the Brown's ABC site. Due to limitations caused by snow and ice cover and the steep decline leading to the Fairfield River, this potential receptor could not be evaluated for the presence of visible contamination as proposed.

As a result of these tasks, potential receptors including: the Fairfield River; the underlying bedrock aquifer; 8 drinking water supply wells; and, one basement associated with an adjacent residence, have been identified within the vicinity of the SITE. These potential receptors are discussed below in terms of risk of impact from contamination originating at the SITE.

5.3.1 Fairfield River

The Fairfield River, which lies adjacent to the east site of the SITE, is situated approximately 200 feet from the former gasoline USTs (Excavation No. 1). A steep slope is present between the former gasoline USTs and the river, and, soils in this area are expected to consist primarily of silt and clay over rock (see Monitoring Well/Soil Boring Logs for MW-1, MW-2 in Attachment 1). The area of Excavation No. 1 and the

locations of MW-1, MW-2 and MW-3 exhibited the depth to rock to range between 9 and 15 feet below grade.

Given these geologic and hydrogeologic conditions; the west to east direction of groundwater flow in the overburden; the hydraulic gradient; and, the proximity of the river to the site, the river is considered to be a boundary for contamination migrating from the SITE via groundwater. Consequently, the river is considered to be at risk of receiving contamination migrating from the SITE. As noted above, TSEC was not able to access the river bank at the time of field activities, therefore, no visual assessment was conducted for the possible identification of contamination seeps along this area.

5.3.2 The Bedrock Aquifer

According to published geologic information provided by the Vermont Geologic Society in their report entitled "Geology for Environmental Planning in the Milton-St. Albans Region, Vermont" (Stewart, 1974), the depth to bedrock in this region is generally shallow, and exposed bedrock is present throughout the region. This information is consistent with site conditions which were encountered in Excavation No. 1 during the October 1994 UST removal/replacement activities. This excavation revealed gray rock at a relatively shallow depth of 9-12 feet below grade, which later prompted the blasting of rock to accommodate the replacement tanks.

This investigation did not attempt to establish a correlation between the overburden and bedrock aquifers underlying this site. Due, however to: the presence of contamination at the overburden/bedrock interface (as demonstrated by PID readings collected from the October 1994 UST excavations and from the 10-12 foot depth interval of MW-3); the weathered surface of the bedrock; and, the intrusive nature of activities conducted at this interface (i.e. blasting of rock to accommodate the replacement USTs), TSEC believes it is possible that contamination originating at the SITE may pose a threat to the bedrock aquifer if a downward, vertical component exists in the bedrock aquifer.

At the request of the SMS, bedrock monitoring wells were not incorporated into this ISI. No statements, therefore, can be made at this time regarding the conditions present in the bedrock aquifer underlying the SITE.

5.3.3 Adjacent Residential Basement

A survey of surrounding properties indicated only one adjacent residence, located to the west (and hydraulically upgradient) of the site, contained a basement. This basement was evaluated for petroleum vapors and visual evidence of contamination through PID screening and visual observations. As a result of these activities, no indication of petroleum contamination was encountered.

5.3.4 Surrounding Drinking Water Supplies

Surrounding drinking water supplies within a 0.5 mile radius of the SITE include the out of service water supply well referenced throughout this report, and 7 bedrock wells.

As discussed in Section 5.2 above, the out of service water supply well was evaluated for impact from site contamination through laboratory analysis. The results of this sampling indicate no TPHG or THPFO contamination was detected above respective method detection limits in this well. This out of service water supply therefore, does not appear to be impacted by contamination associated with the SITE.

Table 6 summarizes information pertaining to each of the surrounding bedrock wells was obtained through the Water Supply Division of the Vermont Agency of Natural Resources (WSD), and Figure 5 illustrates the approximate location of each in relation to the SITE. All of the identified wells are reported to have extremely low yields, in the range of 0-0.5 gallons per minute, and, with one exception, the total depth of each well is considerably more than 300 feet. Furthermore, all but one well (WSD well no. 17) are situated 0.5 miles hydraulically up or cross gradient (based on the flow of the overburden groundwater in the vicinity of the SITE) from the SITE.

WSD well no. 17, although the closest of the surrounding bedrock wells to the SITE, is situated on the opposite side of the Fairfield River from the SITE. And, as indicated above, the Fairfield River is expected to be the boundary for contamination migrating off-site via groundwater.

Due to the positioning of the surrounding bedrock wells in relation to the site, none are believed to be at risk of impact from contamination migrating in the overburden aquifer. Conversely, if contamination of the bedrock

aquifer underlying the SITE has occurred, as a result of either historical or recent site activities, it is possible that one or more of the nearby wells has or will become impacted. Based, however on the apparently limited nature of the soil contamination identified by this ISI (i.e. no evidence of soil contamination was detected during the drilling of MW-1 and MW-2), and the levels of groundwater contamination detected, this scenario is not considered likely.

6.0 Summary and Recommendations

As demonstrated throughout this report, TSEC has evaluated the Brown's ABC Market and surrounding area for a determination of what impact, if any, has been imposed as a result of two or more sources of petroleum contamination which were previously associated with the Brown's ABC site. Although removed from the SITE in October 1994, the sources of site contamination apparently at a minimum include: one former diesel and/or kerosene UST (both of which were previously located to the west of the site retail building); and, one or more gasoline UST previously situated in the area east of the retail building. As a result of the activities conducted for this site investigation, a number of conclusions have been generated. These conclusions are summarized as follows:

Available site history indicates this location has been used at least in part for the subsurface storage of petroleum products since approximately the mid 1930's. Furthermore, an automobile service station is believed to have been in operation at this location from approximately 1937 until 1967.

Due to this long history as a property associated with the storage and likely use of petroleum products, a significant potential exists that historical petroleum contamination is associated with this site. However, no documentation has been found to support this possibility.

Subsurface soils associated with this site are thought to consist primarily of SAND and SILT over gray, weathered ROCK. Based on conditions encountered during the drilling activities, it appears that a subsurface rock layer which underlies the site slopes from west to east, towards the adjacent Fairfield River.

Evidence of soil contamination was encountered in several subsurface areas of this site. The most significant evidence of contamination was revealed through PID readings and visual observations in the investigated areas closest to the former sources of contamination. Screening of soils in the two most downgradient areas of investigation (i.e. MW-1 and MW-2), however, revealed no PID or visual evidence of petroleum contamination.

As a result of sampling the overburden aquifer underlying this site for data, it has been determined that the depth to groundwater ranges from approximately 3 feet below grade on the north western portion of the site to approximately 8.5 feet below grade on the north eastern portion of the site. Thus as a result, it has been determined that in the vicinity of this site, the overburden aquifer flows from west to east towards the Fairfield River at a hydraulic gradient of 0.07 ft/ft..

Gasoline related groundwater contamination has been detected in all on-site wells which are situated downgradient from the apparent source of gasoline contamination (i.e. Excavation no. 1). Well no. MW-4, which is situated

hydraulically upgradient from the location of Excavation no. 1, revealed no evidence of gasoline related contamination.

The farthest, most downgradient well (MW-1) was found to contain the highest level of gasoline related contamination of any of the wells on-site. Groundwater collected from this well is reported to contain 12 mg/l TPHG. It appears, based on this data, that gasoline contamination in groundwater may be migrating off-site in an easterly direction.

TPHFO was detected only in the monitoring well closest to the former source of diesel fuel/kerosene contamination (i.e. MW-4). Groundwater sampling of this well revealed a TPHFO concentration of 6 mg/l. Evidence of fuel oil related contamination was not detected in any of the downgradient wells.

Potential receptors of contamination which have been identified within a 0.5 mile radius of the SITE include the Fairfield River, the underlying bedrock aquifer and 8 surrounding water supply wells. Of these, the Fairfield River appears to be at greatest risk of contamination due to its orientation and proximity to the SITE.

The potential for contamination originating at the SITE to impact the underlying bedrock aquifer was not specifically investigated as part of this ISI. However, due to the presence of contamination at the interface of overburden and bedrock materials, and blasting of rock within the area of Excavation No. 1 which was conducted to accommodate the replacement USTs, it is possible that contamination from the site has or will migrate in a vertical direction.

Due to a number of factors determined by this ISI, including: the levels and extent of contamination associated with the SITE; the direction of groundwater flow in the overburden; and the proximity of surrounding water supply wells, none of the nearby water supply wells are believed to be at a significant risk of impact from contamination originating from the SITE.

As a result of these conclusions, TSEC believes the primary issues of concern regarding this site lies in the potential for petroleum contamination originating from this site to impact the adjacent Fairfield River and the underlying bedrock aquifer. In order to further evaluate this possibility, TSEC proposes to conduct a second round of groundwater sampling for specific compounds of concern (including at a minimum Benzene, Toluene, Ethylbenzene, total Xylenes and MTBE) coupled with an evaluation of the riverbank, and the storm drain outfall, if accessible. Following receipt of results from this proposed sampling, recommendations may be made to expand the area of investigation through additional drilling activities and the installation of additional monitoring wells. It is however noted that drilling in areas further downgradient from the existing monitoring wells may be limited due to the steep slope which is present in this area.

TABLE 1

Summary of Surrounding Properties
Brown's ABC Market,
Route 36, Fairfield, Vermont

CURRENT OR FORMER OWNER	CURRENT PROPERTY USE	PHONE NUMBER	ORIENTATION TO SITE
Brown's of Fairfield	Hardware/convenience store; gasoline station; post office	827-3248	----
Town of Fairfield	Roadway (Route 36)	827-3261	North of Site
Chester Aurthur Associates	Multi-family Residential Dwelling	Not Available	North of Site, across Route 36
Rick and Sharon Brown	Single family Residential Dwelling	827-3248	West and South of Site
-----	Fairfield River	-----	East of Site
Richard Ohliger	Automobile Repairs	827-3898	East of Fairfield River

Note: All information reported above obtained from records available through the Town of Fairfield.

TABLE 2

Summary of Site History
Brown's ABC Market
Route 36, Fairfield, Vermont

OWNER	PERIOD OF OWNERSHIP	USE
Browns of Fairfield	Current	Retail Hardware/ Convenience Store/Gasoline Station/ Post Office
Hector and Yvonne Brown	August 1967- ?	Retail Hardware/ Convenience Store/Gasoline Station/ Post Office
Jean Burnor	February 1967-August 1967	Gasoline Station/Service Station
John and Shirley Brooks	November 1960-February 1967	Gasoline Station/Service Station
Henry Burnor	December 1952-November 1960	Gasoline Station/Service Station
H.N. Spooner	September 1937-December 1952	Service Station
Patsy Wallace	Prior to September 1937	Unknown

Note: All information reported above obtained from records available through the Town of Fairfield.

TABLE 3**SUMMARY OF SOIL SCREENING RESULTS**

Browns ABC Market
Route 36, Fairfield, VT

Screening Location	Depth Interval in feet	Ambient PID Reading (PPM)	Observations	Notes
MW-1	0-5	0.0	None	From drill cuttings
	5-7	0.0	None	None
	10-12	0.0	None	None
	15-17	0.0	None	None
MW-2	5-7	0.0	None	None
	10-12	0.0	None	None
	15-17	0.0	None	None
MW-3	0-5	0.0	None	Located adjacent to former & current gasoline USTS
	5-7	62	None	
	10-12	273	None	
MW-4	0-5	0	Petroleum odor & free product around augers	Located adjacent to former kerosene & diesel USTS
	5-7	38.6	Petroleum odor	
	10-12	4.7	Petroleum odor	

NOTES: PID readings collected by TSEC with the use of a Thermo Instruments 580 B OVM calibrated to Isobutylene.
All data reported above collected on January 24, 1995.

TABLE 4

Summary of Water Elevation Data
Brown's ABC Market
Route 36, Fairfield, Vermont

February 1, 1995

Well Identification	TOC Elevation (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Notes
MW-1	97.72	8.59	89.13	No Sheen Present
MW-2	98.11	8.67	89.44	---
MW-3	98.82	6.66	92.16	Possible Sheen on Purge Water
MW-4	102.07	2.80	99.27	Sheen to Globules of Free Product Present on Purge Water, Not Measurable.

NOTES:

Well locations are identified on Figures 2 and 3.

This data has been used to generate the groundwater contour map provided as Figure 3.

All water elevation and survey data collected by TSEC on February 1, 1995.

All measurements reported above are in feet relative to a temporary benchmark established on-site.

TOC - Indicates Top of PVC well casing.

TABLE 5

Summary of Analytical Results
Groundwater Samples

Brown's ABC Market
Route 36
Fairfield, Vermont

February 1, 1995

Sample ID	TPHG (mg/l)	Detection Limit (mg/l)	TPHFO (mg/l)	Detection Limit (mg/l)
MW-1	12	0.1	ND	0.1
MW-2	1	0.1	ND	0.1
MW-3	10	0.1	ND	0.1
MW-3(D)	10	0.1	ND	0.1
MW-4	ND	0.1	6	0.1
Dug Well	ND	0.1	ND	0.1
Trip Blank	ND	0.1	NA	0.1

Peak
PID's

ND
ND

273 ppm at table
38.6 @ 5-7' bgs
below 10 ppm @
water table

Notes:

TPHG - Represents Total Petroleum Hydrocarbons as gasoline determined by USEPA Method 8015.

TPHFO - Represents Total Petroleum Hydrocarbons as Fuel Oil determined by USEPA Method 8100.

ND - Indicates compound was not detected above method detection limit.

NA - Indicates sample was not analyzed for specified compound.

Dug

Well - Represents the out of service water supply well on site.

All analysis conducted by ChemServe.

Where applicable, sample numbers correspond to well locations identified on Figure 2.

The analytical report for the results summarized above is provided as Attachment 2 to this report.

All samples collected by TSEC on February 1, 1995.

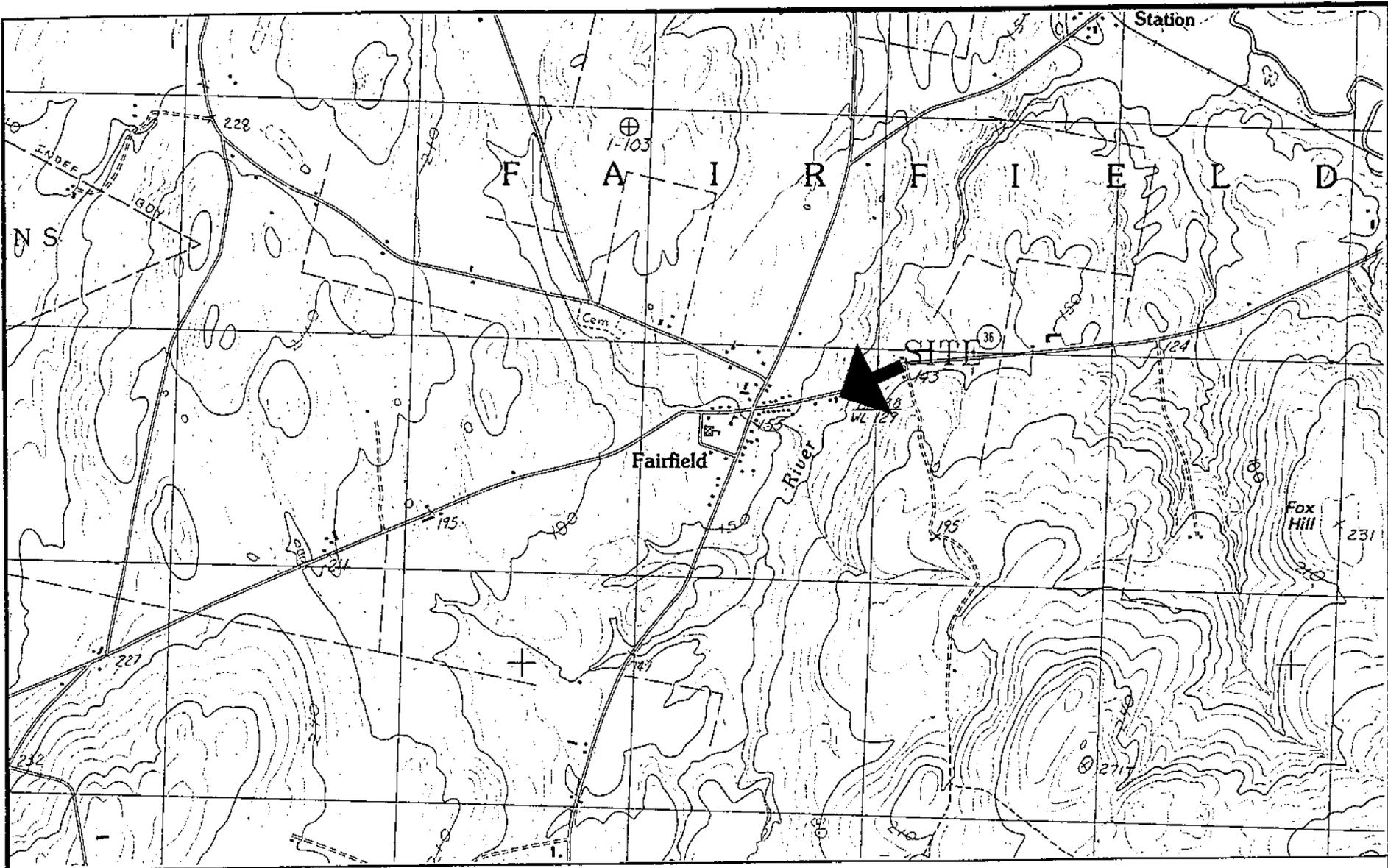
TABLE 6**SUMMARY OF SURROUNDING DRINKING WATER WELLS**

Brown's ABC Market
Route 36, Fairfield, Vermont

Well No	Current/Former Owner	Type/Use	Installation Date	Yield (GPM)	Total Depth/Depth to Bedrock (FT)	Proximity to Brown's ABC Market
17	Michael King	Bedrock/Domestic	May 1976	0.5	597 / 19	East of Fairfield River
28	George Burnor	Bedrock/Domestic	April 1979	0	349 / 10	0.5 mile North of Site
49	Fairfield School	Bedrock/Municipal Use	January 1981	0	399 / 16	0.5 mile West of Site
78	Fairfield School	Bedrock/Municipal Use	November 1985	0	642 / ?	0.5 mile West of Site
80	Scott Bapp	Bedrock/Domestic	1985	0	697 / 7	0.5 mile North East of Site
81	Scott Bapp	Bedrock/Domestic	1985	0	547 / 7	0.5 mile North East of Site
82	Scott Bapp	Bedrock/Domestic	1985	0	197 / 7	0.5 mile North East of Site

NOTES:

Data summarized above was obtained from Vermont Department of Water Supply (VDWS) well records. Well No. corresponds to VDWS well identification number. The approximate location of each well identified above is illustrated on Figure 5.



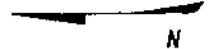
QUADRANGLE LOCATIONS

Source: USGS Fairfield and St. Abans, Vermont Quadrangles.

ces:\project\94-153\location.skd

Project No: 94-153	Designed By:	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 718 Richmond, Vermont (802) 434-3350	FIGURE 1 SITE LOCATION MAP Brown's ABC Market Fairfield, Vermont
	Checked By: jvr		
	Approved By: jvr		
	Drawn By: mcd		
	Scale: 1 : 24,000		
Date: 2/8/95			

To Fairfield River (Approx 200')
Bank (Approx 1:1 Slope)



MW1

MW2

Approx Edge of Pavement

(P)

Approx Location
of Storm Drain
to River

Excavation No. 1
Approx Location of
Former Gasoline, Diesel,
& Kero USTs

MW3

Post Office

TBM - Dispenser

East
Route 36
West

Catch Basin

Approx Location
Former Dispenser

Brown's ABC Market Building

Excavation No. 2
Approx Location
Former Diesel
& Kero USTs

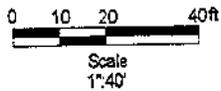
MW4

Shallow Water
Supply Well

LEGEND

Monitoring Well

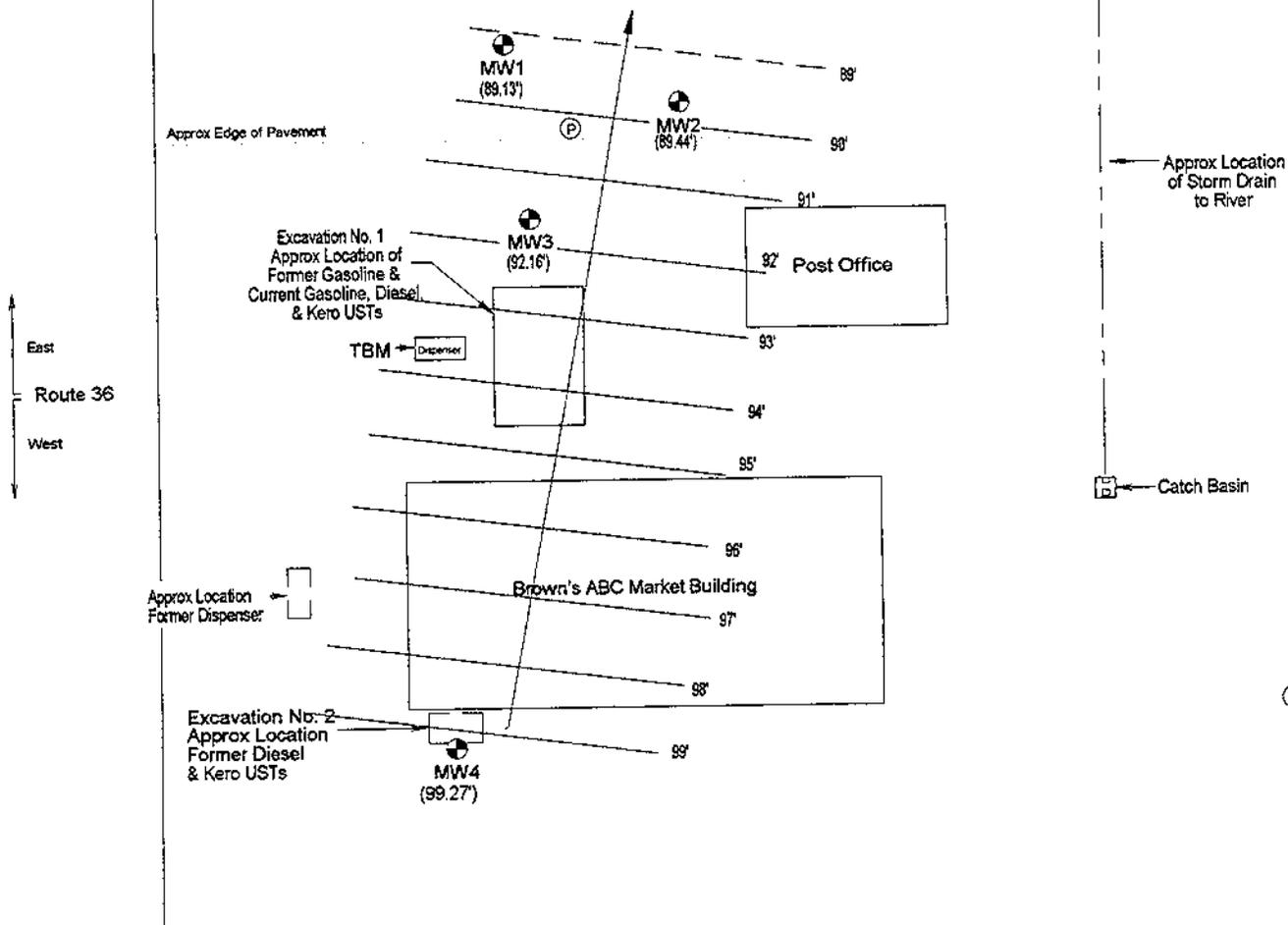
Telephone Pole



cas:\project\94-153\plan.skd

Project No: 94-153	Designed By: mcd	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 2 SITE PLAN Brown's ABC Market Fairfield, Vermont
	Checked By: jvr		
	Approved By: jvr		
	Drawn By: mcd		
	Scale: 1" = 40'		
	Date: 2/23/95 (revised)		

To Fairfield River (Approx 200')
Bank (Approx 1:1 Slope)

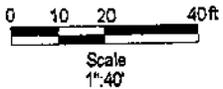


East
Route 36
West

LEGEND

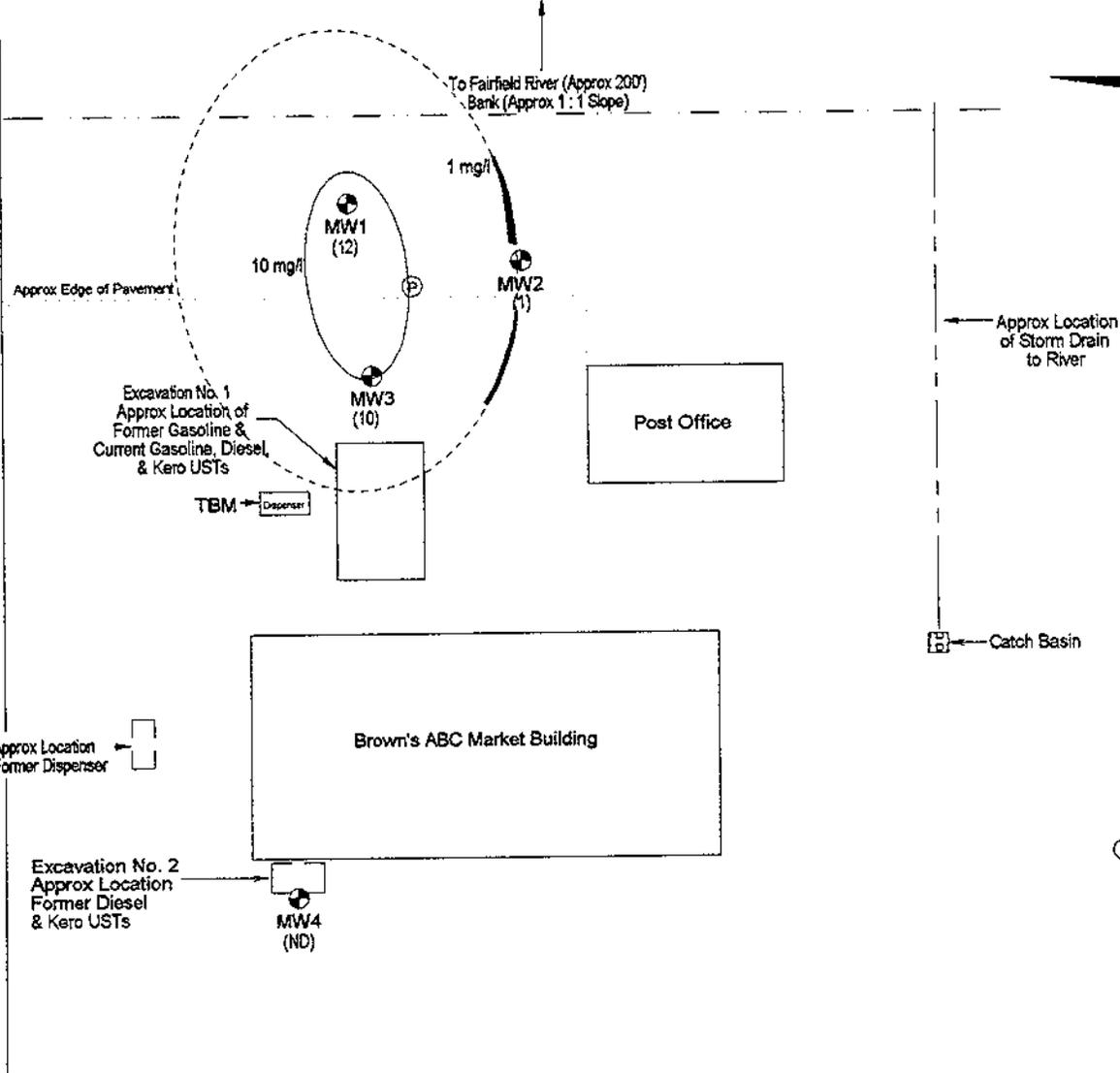
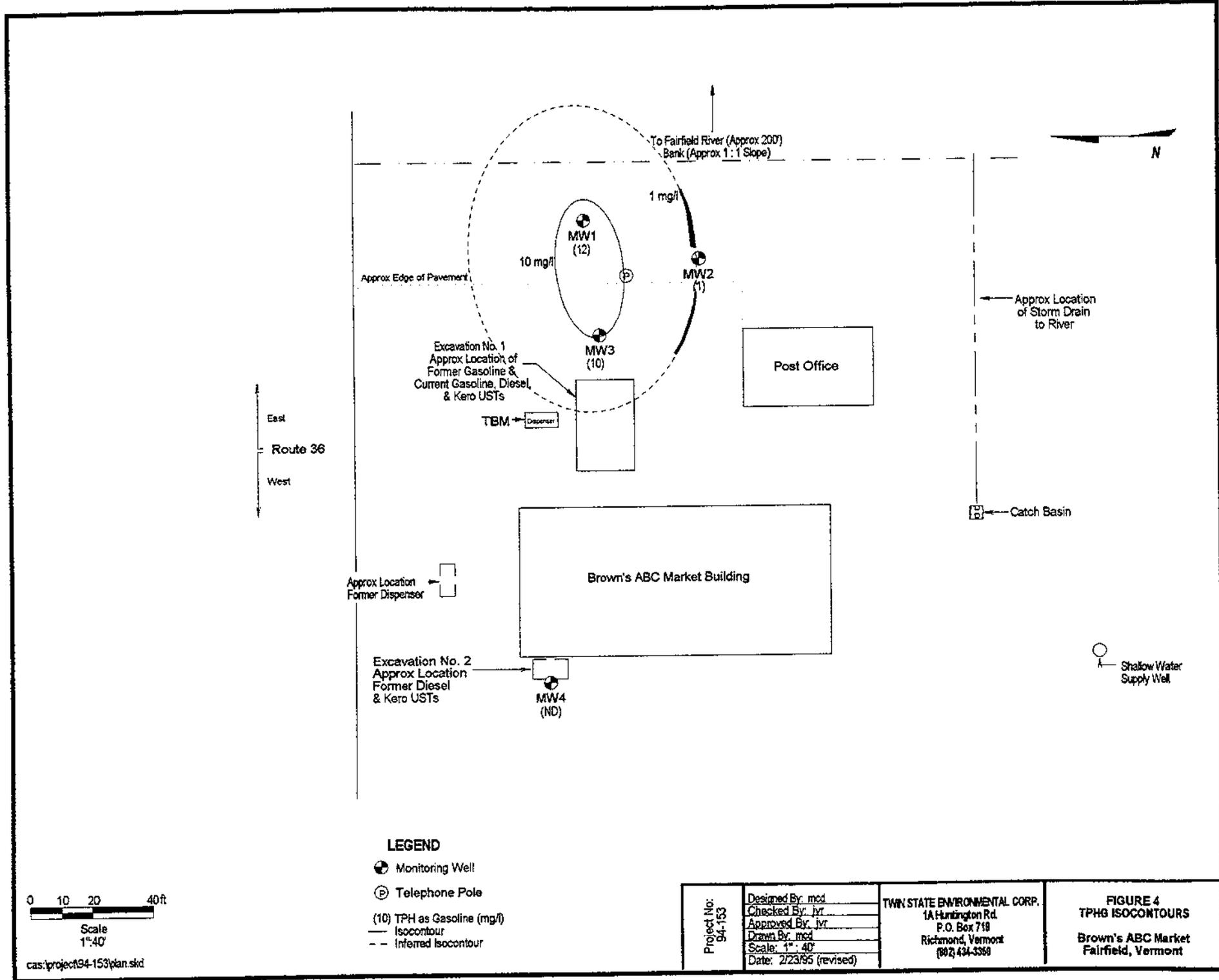
- Monitoring Well
- Telephone Pole

- (89.12) Groundwater Elevation
- 99' Groundwater Contour
- - - 89' Inferred Groundwater Contour
- Groundwater Flow Direction



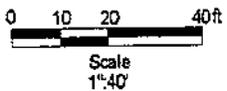
cas:\project\94-153\plan.skd

Project No: 94-153	Designed By: mod	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 718 Richmond, Vermont (802) 434-3350	FIGURE 3 GROUNDWATER CONTOUR MAP Brown's ABC Market Fairfield, Vermont
	Checked By: jvr		
	Approved By: jvr		
	Drawn By: mod		
	Scale: 1" = 40'		
Date: 2/23/95 (revised)			



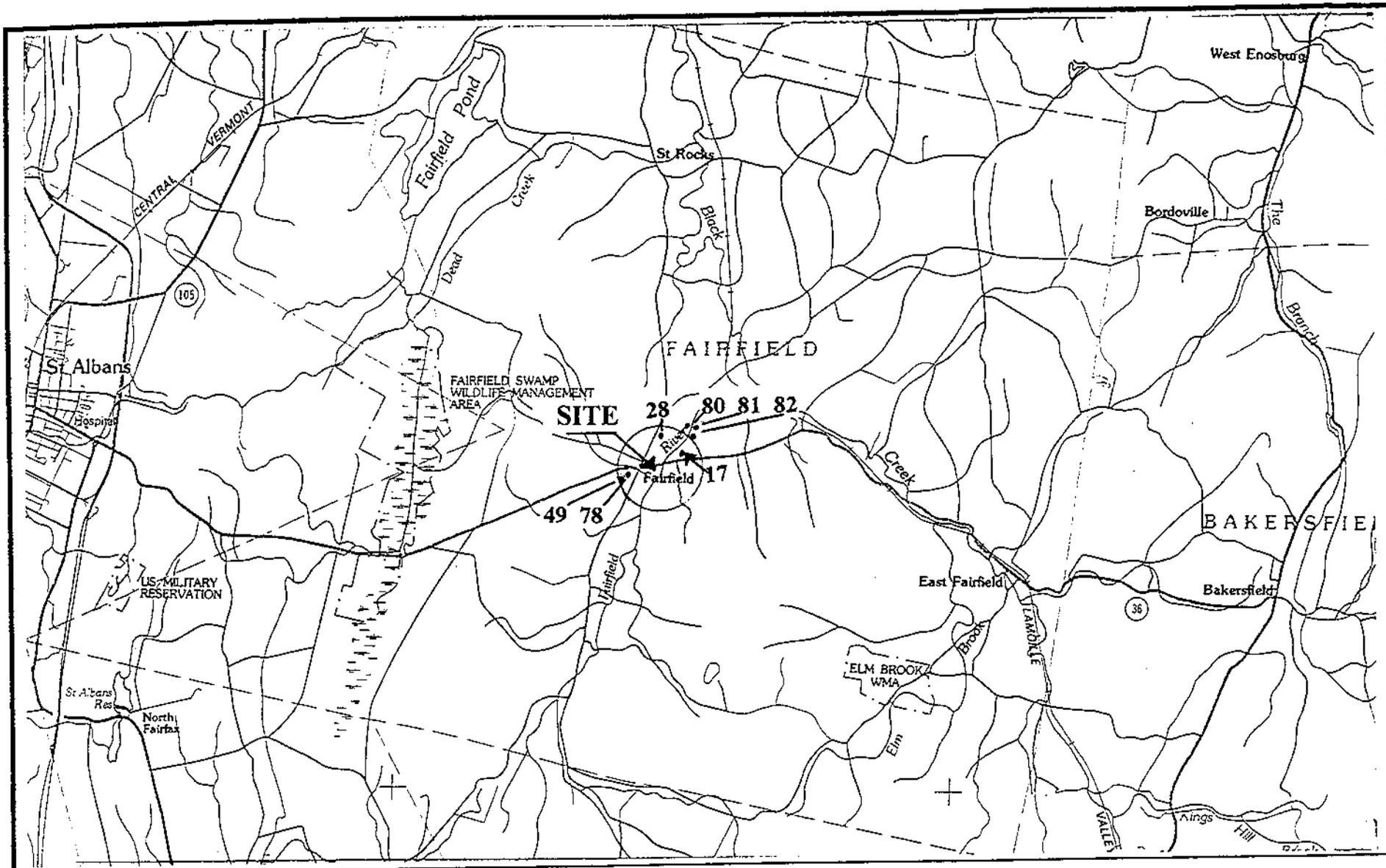
LEGEND

- Monitoring Well
- ⊕ Telephone Pole
- (10) TPH as Gasoline (mg/l)
- Isocontour
- - - Inferred Isocontour



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Project No: 94-153	Designed By: mod	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 718 Richmond, Vermont (802) 434-3368	FIGURE 4 TPHG ISOCONTOURS Brown's ABC Market Fairfield, Vermont
	Checked By: jvr		
	Approved By: jvr		
	Drawn By: mod		
	Date: 2/23/95 (revised)		



Numbers denote Vermont Water Supply Division (VWSD) Well Numbers

Sources: Franklin County VT Map, US Geological Society

cas:\project\94-153\location.skd

Project No: 94-153	Designed By:	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 5 SURROUNDING WELL LOCATIONS Brown's ABC Market Fairfield, Vermont
	Checked By: jvr		
	Approved By: jvr		
	Drawn By: mcd		
	Scale: 1:100,000		
Date: 3/1/95			

ATTACHMENT 1

MONITORING WELL/SOIL BORING LOGS

TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: MW-1	DEPTH OF WELL: 15 ft	DEPTH OF BORING: 17 ft
PROJECT NAME: Brown's ABC Market	DEPTH TO WATER: 9.25 ft	
PROJECT NO.: 94-153	SCREEN DIA: 2 in.	DEPTH: 15-5 ft
INSTALL DATE: 1/24/95	SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot	
TSEC REP.: mcd	RISER TYPE: Sched 40 PVC	
DRILLING CO.: Tri-State Drilling	RISER DIA: 2 in.	DEPTH: 5 to 0.5 ft
DRILLING METHOD: Hollow Stem Augers	GUARD TYPE: Steel Flush-mount Curb Box	
SAMPLING METHOD: Split spoon	RISER CAP: Expansion Plug	

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND	
1		0 - 5	0.0	From Cuttings	Brown SILT & fine-coarse SAND, some fine-coarse gravel, trace clay, moist.		
2							
3							
4							
5		5 - 7	0.0	35, 25, 24, 28 (0.8')	Light Brown fine-coarse SAND, some silt, little coarse gravel, moist.		
6							
7							
8							
9							
10		10 - 12	0.0	5, 6, 10, 12 (1.3')	Light Brown/Gray SILT, some fine-med. sand, little fine-coarse gravel, trace clay, moist-wet.		
11							
12							
13							
14							
15		15 - 17	0.0	15, 39, 15, REF (0.9')	Gray SILT, some clay, little fine sand, weathered rock, saturated.		
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

GRANULAR SOILS BLOWS/FT DENSITY 0-4 V. LOOSE 4-10 LOOSE 10-30 M. DENSE 30-50 DENSE >50 V. DENSE		COHESIVE SOILS BLOWS/FT DENSITY <2 V. SOFT 2-4 SOFT 4-8 M. STIFF 8-15 STIFF 15-30 V. STIFF >30 HARD		PROPORTIONS USED TRACE 0-10% LITTLE 10-20% SOME 20-35% AND 35-50%	
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NOTES:
 Location: Northeast side of site on bank.

TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: MW-2	DEPTH OF WELL: 15 ft DEPTH OF BORING: 17 ft
PROJECT NAME: Brown's ABC Market	DEPTH TO WATER: 11.00 ft
PROJECT NO.: 94-153	SCREEN DIA.: 2 in. DEPTH: 15 - 5 ft
INSTALL DATE: 1/24/95	SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot
TSEC REP.: mcd	RISER TYPE: Sched 40 PVC
DRILLING CO.: Tri-State Drilling	RISER DIA.: 2 in. DEPTH: 5 to 0.5 ft
DRILLING METHOD: Hollow Stem Augers	GUARD TYPE: Steel Flush-mount Curb Box
SAMPLING METHOD: Split spoon	RISER CAP: Expansion Plug

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND
1		5-7	0.0	35, 3, 3, 3 (0.3')	Brown SILT, some fine-med. sand, little fine-coarse gravel, trace clay.	
2						
3	10-12	0.0	25, 20, 10, 6 (1.2')	Brown fine SAND & SILT, little fine-med. gravel, 3" rock fragment at 11', wet.		
4						
5	15-17	0.0	50, 60, 100, 0.5' (1.5')	Brown fine SAND, some silt with gray rock fragments/ flour.		
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

GRANULAR SOILS		COHESIVE SOILS		PROPORTIONS USED	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	TRACE	0-10%
0-4	V. LOOSE	<2	V. SOFT	LITTLE	10-20%
4-10	LOOSE	2-4	SOFT	SOME	20-35%
10-30	M. LOOSE	4-8	M. STIFF	AND	35-50%
30-50	DENSE	8-15	STIFF		
>50	V. DENSE	15-30	V. STIFF		
		>30	HARD		

NOTES:
Location: South of MW-1 on bank.

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TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: MW-3	DEPTH OF WELL: 13 ft	DEPTH OF BORING: 13 ft
PROJECT NAME: Brown's ABC Market	DEPTH TO WATER: 12.50 ft	
PROJECT NO.: 94-153	SCREEN DIA.: 2 in.	DEPTH: 13 - 3 ft
INSTALL DATE: 1/24/95	SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot	
TSEC REP.: mcd	RISER TYPE: Sched 40 PVC	
DRILLING CO.: Tri-State Drilling	RISER DIA.: 2 in.	DEPTH: 3 to 0.5 ft
DRILLING METHOD: Hollow Stem Augers	GUARD TYPE: Steel Flush-mount Curb Box	
SAMPLING METHOD: Split spoon	RISER CAP: Expansion Plug	

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND	
1		0 - 5	0.0	From Cuttings	Brown fine-coarse SAND, some fine-coarse gravel, little silt.	<ul style="list-style-type: none"> CEMENT GROUT NATIVE BACKFILL BENTONITE SEAL SAND PACK WELL SCREEN RISER PIPE HS HEAD SPACE WATER LEVEL (APPROX) 	
2							
3							
4							
5		5 - 7	62	4, 6, 6, 11 (1.6')	Brown SILT, little clay, trace fine gravel & coarse sand, moist.		
6							
7							
8							
9							
10		10 - 12	273	15, 19, 16, 16 (1.0')	Gray highly weathered rock, little brown silt, dry to moist, outside of spoon saturated.		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

GRANULAR SOILS		COHESIVE SOILS		PROPORTIONS USED	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	TRACE	0-10%
0-4	V.LOOSE	<2	V.SOFT	LITTLE	10-20%
4-10	LOOSE	2-4	SOFT	SOME	20-35%
10-30	M.DENSE	4-8	M.STIFF	AND	35-50%
30-50	DENSE	8-15	STIFF		
>50	V.DENSE	15-30	V.STIFF		
		>30	HARD		

NOTES:
Location: West of MW-1 & MW-2 adjacent to replacement tanks.

TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: MW-4	DEPTH OF WELL: 10 ft DEPTH OF BORING: 12 ft
PROJECT NAME: Brown's ABC Market	DEPTH TO WATER: 3 ft
PROJECT NO.: 94-153	SCREEN DIA.: 2 in. DEPTH: 10 - 2 ft
INSTALL DATE: 1/24/95	SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot
TSEC REP.: mcd	RISER TYPE: Sched 40 PVC
DRILLING CO.: Tri-State Drilling	RISER DIA.: 2 in. DEPTH: 2 to 0.5 ft
DRILLING METHOD: Hollow Stem Augers	GUARD TYPE: Steel Flush-mount Curb Box
SAMPLING METHOD: Split spoon	RISER CAP: Expansion Plug

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND	
1		0 - 5		From Cuttings	Brown fine-coarse SAND & fine-coarse GRAVEL, some silt, saturated @ 3', petroleum odor, globules of product on water coming up around augers.		
2							
3							
4							
5		5 - 7	38.6	4, 7, 7, 4 (0.5')	Gray coarse SAND, some silt, little fine-coarse gravel, saturated, petroleum odor.		
6							
7							
8							
9							
10		10 - 12	4.7	12, 35, 16, 20 (0.9')	Gray/Brown SILT, some fine-med. gravel, little very fine sand, trace coarse sand, dense, saturated, petroleum odor.		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

GRANULAR SOILS		COHESIVE SOILS		PROPORTIONS USED	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	TRACE	0-10%
0-4	V.LOOSE	<2	V.SOFT	LITTLE	10-20%
4-10	LOOSE	2-4	SOFT	SOME	20-35%
10-30	M.DENSE	4-8	M.STIFF	AND	35-50%
30-50	DENSE	8-15	STIFF		
>50	V.DENSE	15-30	V.STIFF		
		>30	HARD		

NOTES:
 Location: Northwest side of site in former kero/diesel UST cavity.

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ATTACHMENT 2
LABORATORY REPORT

February 16, 1995

Ms. Jennifer Von Rohr
Twin State Environmental
P O Box 719
Richmond VT 05477

FEB 21 1995

Job Name	: Brown's ABC	Laboratory #	: B02-95-03
Job #	: 94-153	Purchase Order #	: 94-153
Location	: Fairfield, VT	Control #	: 13047

Dear Ms. Von Rohr,

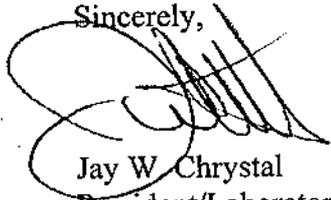
Enclosed please find the laboratory results for the above referenced samples which were received by the Chemserve sample custodian, under chain of custody control number 13047 on February 2, 1995. Samples were collected by Jennifer Von Rohr on February 1, 1995. Any abnormalities to the samples would be noted on the enclosed chain of custody document or laboratory report form. Chemserve follows protocols for analysis corresponding to the methods referenced unless a modification is noted. Unless otherwise stated, all holding times, preservation techniques and container types are analogous with those outlined by the U.S. EPA.

A formal quality assurance/quality control QA/QC program is maintained and updated by Chemserve on a routine basis. This QA/QC manual is available upon request.

This report is not valid without a completed Chemserve chain of custody with the corresponding control number, attached.

If you have questions or concerns regarding this analysis, please feel free to contact me.

Sincerely,


Jay W. Chrystal
President/Laboratory Director

Enclosures





TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8015

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-1

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/10/95

MATRIX: LIQUID

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

12

0.1

TOTAL PETROLEUM
HYDROCARBONS AS
GASOLINE CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: _____



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8100

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-1

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/07/95

DATE EXTRACTED: 2/06/95

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

BDL

0.1

TOTAL PETROLEUM
HYDROCARBONS AS
FUEL OIL CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: _____



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8100

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-2

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/07/95

DATE EXTRACTED: 2/06/95

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

BDL

0.1

TOTAL PETROLEUM
HYDROCARBONS AS
FUEL OIL CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: _____



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8015

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-3

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/10/95

MATRIX: LIQUID

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

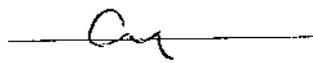
(MG/L) X 1

TOTAL PETROLEUM
HYDROCARBONS AS
GASOLINE CONSTITUENTS

10

0.1

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: 



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8100

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-3

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/07/95

DATE EXTRACTED: 2/06/95

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

BDL

0.1

TOTAL PETROLEUM
HYDROCARBONS AS
FUEL OIL CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: Ca



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8015

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: 802-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-4

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/10/95

MATRIX: LIQUID

COMPOUND

CONCENTRATION
(MG/L)
BDL

DETECTION LIMIT MULTIPLIER:
(MG/L) X 1
0.1

TOTAL PETROLEUM
HYDROCARBONS AS
GASOLINE CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: _____



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8100

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-4

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/07/95

DATE EXTRACTED: 2/06/95

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

TOTAL PETROLEUM
HYDROCARBONS AS
FUEL OIL CONSTITUENTS

6

0.1

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: _____



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8015

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-3D

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/10/95

MATRIX: LIQUID

COMPOUND

CONCENTRATION
(MG/L)
10

DETECTION LIMIT MULTIPLIER:
(MG/L) X 1
0.1

TOTAL PETROLEUM
HYDROCARBONS AS
GASOLINE CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: _____



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8100

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: MW-3D

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/07/95

DATE EXTRACTED: 2/06/95

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

BDL

0.1

TOTAL PETROLEUM
HYDROCARBONS AS
FUEL OIL CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: Ca



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8015

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: DUG WELL

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/10/95

MATRIX: LIQUID

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

TOTAL PETROLEUM
HYDROCARBONS AS
GASOLINE CONSTITUENTS

BDL

0.1

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: *Cu*



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8100

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: DUG WELL

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/07/95

DATE EXTRACTED: 2/06/95

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/L)

(MG/L) X 1

BDL

0.1

TOTAL PETROLEUM
HYDROCARBONS AS
FUEL OIL CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: _____



TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8015

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: B02-95-03

SAMPLE LOCATION: BROWN'S ABC FAIRFIELD, VT

JOB#: 94-153

SAMPLE IDENTITY: TB

CONTROL#: 13047

DATE SAMPLED: 2/01/95

DATE REC'D: 2/02/95

DATE ANALYZED: 2/10/95

MATRIX: LIQUID

COMPOUND

CONCENTRATION
(MG/L)
BDL

DETECTION LIMIT MULTIPLIER:
(MG/L) X 1
0.1

TOTAL PETROLEUM
HYDROCARBONS AS
GASOLINE CONSTITUENTS

BDL = BELOW DETECTION LIMIT

CERTIFIED BY:

Quality Control Data
Chain of Custody Record
Certification

Box-95-08 2/14/95
 CONTROL NO. 13047



CHAIN OF CUSTODY

317 Elm Street
 Milford, NH 03055
 (603) 673-5440
 FAX (603) 673-0366

A CUSTOMER INFORMATION

CUSTOMER: TEC
 ADDRESS: P.O. Box 719, Richmond, VT 05477
 TELEPHONE: 802-434-3350
 CONTACT PERSON: JENNIFER VON RONZ
 P.O. NUMBER: 9A-153

B PROJECT INFORMATION

JOB NAME: BROWN'S ABC
 JOB NUMBER: 9A-153
 LOCATION: Forestville, ME Fairfield, VT
 TELEPHONE: _____
 CONTACT PERSON: (PRINT) _____

C SAMPLE INFORMATION

TURNAROUND TIME: (CIRCLE ONE)
 STANDARD RUSH
 RUSH T.A.T. _____ (Check with lab)

STATION #	SAMPLE IDENTIFICATION & LOCATION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB COMP	MATRIX SOLID (S) LIQUID (L) COMBINED (C)	HAZARD (H)	# OF CONTAINERS	CONTAINER & PRESERVATIVE		ANALYSIS
								(2)	1	
	ANN-1	2-1-95	0905	X	L		3	X	X	8015 8100
	ANN-2	2-1-95	0925	X	L		3	X	X	8015 8100
	ANN-3	2-1-95	0845	X	L		3	X	X	8015 8100
	ANN-4	2-1-95	0945	X	L		3	X	X	8015 8100
	ANN-5D	2-1-95	0850	X	L		3	X	X	8015 8100
	Dogwell	2-1-95	0950	X	L		3	X	X	8015 8100
	TB	2-1-95	0840	X	L		2	X	X	8015

M CUSTODY

(PRINT NAME) SIGNATURE: _____ DATE: _____ MILITARY DATE/TIME: _____
 RECEIVED: _____ DATE/TIME: _____ MILITARY DATE/TIME: _____
 RELINQUISHED: _____ DATE/TIME: _____ MILITARY DATE/TIME: _____
 RECEIVED FOR LABORATORY: _____ DATE/TIME: _____ MILITARY DATE/TIME: _____

LAB USE ONLY

APCF

4-18-95 (1047)

The State of New Hampshire
Department of Environmental Services
CERTIFICATE OF APPROVAL
Drinking Water Analysis

Chambers, Inc.

Located at
Elm Street, Milford, NH

Under the provisions of the Regulations in Env.-C300

for the following analyses:

FULL CERTIFICATION: Total Coliform by Membrane Filtration, Fecal Coliform by Membrane Filtration, Coliform-MPN, Metals by Graphite Furnace, Metals by ICP, Mercury, Nitrate-N, Nitrite-N, Turbidity, Total Filterable Residue, Calcium, Alkalinity, Sodium, Sulfate, Total Cyanide, Trihalomethanes, Volatile Organics, Vinyl Chloride, and EDB.

PROVISIONAL CERTIFICATION: Fluoride, pH, Corrosivity, Insecticides (Compliance List), and DBCP.

CERTIFICATE NUMBER: 100894-A

DATE OF ISSUE: December 3, 1994

EXPIRATION DATE: December 2, 1995

Charles W. Wilcox
Certifying Officer

The State of New Hampshire
Department of Environmental Services
CERTIFICATE OF APPROVAL
Wastewater Analysis

Chambers, Inc.

Located at
Elm Street, Milford, NH

Under the provisions of the Regulations in Env.-C300

for the following analyses:

FULL CERTIFICATION: Total Coliform by Membrane Filtration, Fecal Coliform by Membrane Filtration, ICP Metals, Metals by Graphite Furnace, Mercury, pH, TDS, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Alkalinity, Chloride, Fluoride, Sulfate, Ammonia, Nitrate-N, Orthophosphate, TKN, Total Phosphorus, COD, BOD, Total Cyanide, Non-Filterable Residue, Total Phenolics, PCBs in Water, PCBs in Oil, Pesticides, and Volatile Organics.

PROVISIONAL CERTIFICATION: Oil & Grease.

CERTIFICATE NUMBER: 100894-B

DATE OF ISSUE: December 3, 1994

EXPIRATION DATE: December 2, 1995

Charles W. Wilcox
Certifying Officer