WAGNER, HEINDEL, and NOYES, Inc.

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

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WILLISTON TOWN GARAGE
James Brown Drive
Williston, Vermont

SUBSURFACE SITE INVESTIGATION

Prepared for:
Town of Williston

Prepared by:

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Principal

September 30, 1993

WILLISTON TOWN GARAGE
James Brown Drive
Williston, Vermont

SUBSURFACE SITE INVESTIGATION

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SUMMARY

The Williston Town garage is located on James Brown Drive, Williston, Vermont. The town stores its road salt in a covered storage garage on the western portion of the maintenance facility. A consultant retained by a neighboring land owner has alleged that high concentrations of salt in the groundwater, caused the exchange of lead (adsorbed on the soil) with ions in the salt solution, resulting in contaminated groundwater.

Analysis of soil and groundwater downgradient of the storage garage indicated that lead (and other metals) exists in the soil, but not in groundwater. An ion exchange experiment was conducted using soil from the site and various road salt solutions to simulate a variety of possible conditions. Results of this experiment showed no sign of ion exchange of lead with ions found in road salt.

Based upon both laboratory and field testing, we find no evidence to suggest that the town storage shed has caused lead or other heavy metals to be released onto the neighboring property.

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SUBSURFACE SITE INVESTIGATION

1.0 INTRODUCTION

In May (1993), Wagner, Heindel, and Noyes (WH&N) was contracted by the Town of Williston to perform a subsurface site investigation at the Town's maintenance facility, located on James Brown Drive. The investigation and research was designed to determine if road salt dissolved in groundwater could mobilize naturally occurring lead in the unsaturated soil profile and aquifer skeleton from salt stored on the Town's property.

The subsurface investigation included installation of four monitor wells, three surrounding the salt storage garage, and one to the north of the garage, near a mound wastewater disposal system servicing the adjoining property. Soils were logged and collected for laboratory analysis at various depths in three of the installed wells. Following standard WH&N protocols, groundwater samples were collected and analyzed for metals and salt concentration.

The investigation also included a batch reactor experiment used to analyze the salt/lead exchange capacity of the soil with various concentrations of road salt solution. The batch reactors tested salt concentrations above those extent at the time of the study and were designed to simulate the broadest range of town site use. The soil used in the experiment was collected from the upgradient well, and the salt solution consisted of road salt and rain water. Rain water (low pH) was used to better imitate leaching conditions which would occur in the unsaturated zone.

2.0 SITE LOCATION AND PHYSIOGRAPHY

The Williston Town Garage is located on James Brown Drive, Williston, Vermont. A map depicting the site location is given in Appendix 1, page 1. The western portion of the site is the location of the salt storage garage (shown in Appendix 1, page 3).

The site is terraced and slopes slightly toward the west. Based on the results of a site assessment conducted by the Johnson Company[1] on a neighboring property groundwater flow is toward the west.

3.0 SITE INVESTIGATION

To the east of the salt storage garage, the adjoining property (formerly New England Marine) uses a mound septic system which services that property and several nearby properties and businesses. These businesses include ServiceMaster, Northeast Industries, and Cedar Ridge Sprinkler Corporation. The adjoining property formerly served the now defunct New England Marine Contractors facility, a hazardous waste management company and subsequent to their use, Jet-Line Services, Inc., a corporation offering similar services.

Structurally, the salt storage garage consists of a concrete floor, concrete side walls up to approximately three feet, a metal roof, and metal exterior walls connecting the concrete walls with the roof. Salt is loaded using a front loader, small amounts of this material adheres to the tires of maintenance vehicles and is transported from the storage building into the driveway. North of the storage garage is the winter sand storage pile which is a sand/salt mixture. Road salt is added to the sand pile to keep the sand from freezing during winter operations. Because the pile is open to the atmosphere, it also contributes sodium and chloride to groundwater.

The town of Williston has no Underground Storage Tanks (USTs) or septic systems in the area of concern.

---

[1] The Johnson Company, January 1991. Environmental Site Assessment, Level I and II, New England Marine Contractors, Montpelier, Vermont.

4.0 SUBSURFACE INVESTIGATION

On June 10, 1993, four groundwater monitor wells were installed around the salt storage garage (see Appendix 1, page 3 for location of wells). The wells were installed by Adams Engineering and soils logged by WH&N. A detailed soils log for the wells is given in Appendix 2, page 1. Soil samples were collected for laboratory analysis at three of the wells. Soils were analyzed for arsenic, cadmium, and lead. Wells were approximately 10 feet deep, and depths to groundwater varied from 2 to 5 feet below ground surface (bgs). The groundwater was also sampled and analyzed for metals, sodium, and chloride.

4.1 Monitor Well Installation

Monitor Well 1: Monitor well 1 is located upgradient of the salt storage garage on a raised plateau. The town uses this area to store trucks and heavy equipment. The top two feet of soil in this location are sandy fill. The characteristic dark brown native sandy soils begin at approximately two feet bgs, and extend to a clay layer seven feet bgs. The water table at the time of drilling was 5.5 feet bgs.

Soil samples were collected at 3.0 to 3.5 feet bgs, and at 4.0 to 4.5 feet bgs for lab analysis. Soils were analyzed for three metals: lead, arsenic, and cadmium. Extra soil was collected from this well for use in the batch reactor experiment discussed later in the report.

Monitor Well 2: Monitor well 2 is located to the north of the salt storage garage across the access road from the mound wastewater disposal system serving the adjoining property. This well was installed to determine whether contaminants from the wastewater mound system are migrating onto Williston Town property. An existing well was discovered in the same area which was assumed to be installed by the Johnson Company during their site assessment of the neighboring property. Based on documents in our possession, we can not determine if the Johnson Company received authorization to drill on the town property.

The soils in this location are fine brown sands with some gravel and silt, to approximately 8 feet below ground surface (bgs). A grey clay layer begins at 8 feet bgs. Soil samples were collected at 2.5 feet bgs, and at 5.0 feet bgs for lab analysis. Water table at this well is approximately 3.5 bgs.

Monitor Well 3: Monitor well 3 is located downslope of the entrance to the salt storage garage. High concentrations of road salt are expected in this area, as surface water runoff would dissolve the spilled salt by the entrance and carry it to this location.

The soils here consist of fill for the first foot, and fine brown sand with some silt, below the fill layer. A grey clay layer begins at approximately 7.0 feet bgs. Groundwater table is approximately 2.0 feet bgs at this location. Three soil samples were collected for lab analysis. These were taken at depths of 1.5 through 2.0 feet, 3.0 feet, and 5.0 to 5.5 feet.

Monitor Well 4: Monitor well 4 is located at the south-west corner of the salt storage garage. There is 3 to 5 feet of fill at this location which supports the western building foundation. This well was installed to detect salt solution seeping from other locations of the storage garage. Soils were not logged for this well and no soils were collected for laboratory analysis. The clay layer is approximately 10 feet bgs, and the water table approximately 5.0 feet bgs.

4.2 Sampling Results

Soil samples were collected from wells 1, 2, and 3. Groundwater samples were collected from all four newly installed wells, as well as from the existing monitor well located near WH&N's MW-2. This existing well is referred to as Johnson Company (JC) MW-2. The laboratory reports for soils are given in Appendix 3, pages 1 to 9 and water reports are given in Appendix 3, pages 10 to 31. Results of the soils analysis are shown on a map in Appendix 4, page 1. Water quality results are given in Table 1. These results are discussed in detail below.

Table 1
Water Quality Results 8/10/93 samples 1993

Test	Water Quality Standard	MW-1 (ppm)	MW-2 (ppm)	JC MW-2 (ppm)	MW-3 (ppm)	MW-4 (ppm)
Metals:						
Arsenic	50 ppb	<0.005	<0.005	<0.005	0.034	NT
Cadmium	5 ppb	<0.005	<0.005	<0.005	<0.005	NT
Lead	20 ppb	<0.002	<0.002	<0.002	<0.002	NT
Organics EPA 8010/8020	Toluene 2.42 ppm E. Benzene 680 ppb Xylenes 400 ppb	ND	ND	NT	Toluene 3.5 ppb E. Benzene 1.1 ppb Xylenes 8.3 ppb	NT
Inorganics						
Sodium	10 ppm	123	127	147	940	198
Calcium	25 ppm	67.3	31.2	20.9	118	70.6
Magnesium	25 ppm	18.2	6.8	3.81	23.3	NT
Chloride	250 ppm	246	207	222	1740	376
Nitrates	10 ppm	NT	0.5	0.04	1.1	NT

NT - Not Tested
ND - Non Detect

Monitor Well 1: The soil analysis shows that cadmium and lead concentrations are fairly consistent throughout the well. Cadmium concentrations are approximately 0.36 mg/kg, and lead ranges from 2.12 to 2.48 mg/kg. Arsenic concentrations are higher than the other metals, ranging from 8.8 to 14.0 mg/kg, but within the expected range for background conditions.[2]

Groundwater analysis for MW-1 show that the metals are below the groundwater quality standards. Water analysis for organic compounds using EPA method 8240, shows no volatile compounds present in the water. Sodium, calcium, magnesium, and chloride were tested for, as the major constituents of road salt. Chloride is

[2] Bartlett, R.J. 1982. Background Levels of Metals in Vermont Soils. Vermont Agricultural Exp. Sta. RR 29, Burlington, Vermont.

present at 246 ppm. Sodium and calcium levels are reported at concentrations of 10 and 25 ppm, respectively. This would indicate that a small amount of road salt is present in this well.

Monitor Well 2: Concentrations of the three metals in MW-2 soils were similar to those of MW-1. Cadmium was below 0.4 mg/kg, lead ranged from 2.09 at the bottom of the well to 3.16 mg/kg in the upper soil layer, and arsenic ranged from 12 to 15 mg/kg. Inorganic concentrations show some signs of salt contamination, as was evident in MW-1.

Monitor Well 3: Monitor well 3 is in the direct path of surface water runoff from the storage garage driveway. Elevated concentrations of salt-related elements are expected in the groundwater at this location. Three soil samples were analyzed from this well.

The soils analysis for metals showed a similar distribution of cadmium when compared to MW- 1 and MW-2. Lead concentrations are slightly higher, ranging from 3.5 to 6.3 mg/kg. Arsenic concentrations range from 12 to 15 mg/kg in the upper 4 feet of soil, but are 44.3 mg/kg at approximately 5 feet bgs.

Sodium, calcium, and chloride levels in the groundwater are much higher than the previous wells, which was expected. Of the metals, only arsenic appears in the groundwater, but below the standard allowable. Some volatile organics were detected in this well but these were also below the standard allowable.

Monitor Well 4: Well 4 was tested only for salt constituents in the water. Sodium, calcium, and chloride levels were all above the background readings of MW-1, but were far below those of MW-3, suggesting that the salt storage structure is preventing any significant movement of salt to groundwater.

Existing Monitor Well 2a: This well was sampled for metals and salt compounds. The range of values was similar to those found in WH&N's MW-2, located in the same area.

5.0 BATCH REACTOR EXPERIMENT

The objective of this experiment was to determine whether lead contained in the soil exchanged with any of the ions found in the road salt solution. The procedure for the experiment and results are discussed in detail below.

5.1 Reactor Procedure

Each reactor consists of a 250-ml plastic container, 5 grams of soil (collected from MW-1), and 100 ml of salt/rainwater solution. The concentration of the salt solution varied over a range of 0 g salt for 100 ml to 0.54 g salt per 100 ml of rainwater. Since the salt compound was not consistent, the concentrations could not be varied on a molecular weight basis. The salt concentrations in the reactors were intended to bracket the salt concentrations found in the well water. This was accomplished based on solution conductivity. The conductivity of the groundwater ranged from 690 μmhos in MW-2 to 4090 μmhos in MW-3. Conductivity of the batch reactor solutions ranged from 33 to 8000 μmhos.

A replicate set of reactors was set up for the rainwater/salt solution. A second set of reactors was set up using distilled water rather than rainwater. These reactors used a range of 0 g salt to 1.0 g salt per 100 ml D.I. water.

The reactors were then placed on a shaker table for approximately 24 hours. The solution (supernatant) was decanted and analyzed for total dissolved lead. The soil was digested and tested for total lead. The results of this experiment are shown in Table 2, below, laboratory reports are given in Appendix 3, pages 32 to 43.

Table 2
Williston Town Garage
Cation Exchange Reactor Experiment

				Results	
Rainwater Reactor #	Grams Salt per 100 ml Rainwater	Solution pH	Solution Conductivity (μ Mhos)	Total Dissolved Lead in Supernatant (mg/L)	Total Lead in Reactor Soil (mg/kg)
RR-1	0	4.06	33.80	< 0.002	3.49
RR-2	0.07	NT	1350	< 0.002	4.08
RR-3	0.34	NT	5660	< 0.002	4.47
RR-4	0.54	NT	8280	< 0.002	3.47

NT - Not Taken

5.2 Results

The results of the experiment show that lead adsorbed to the soil particles did not exchange with any of the ions found in the salt-rainwater solution, even at extremely high concentrations. The pH (4.06) of the solution was fairly acidic. Previous work by Hooghiemstra-Tielbeek et al. (1983)[3] suggests that pH must be reduced to 2.5-3.0 before any leaching would occur. This would require highly acidic groundwater, which is not characteristic of groundwater found at this site. At each low pH, the mobilization of lead is not occurring as an exchange, but rather as a release due to the breaking down of the soils organic matter.

6.0 RESULTS AND CONCLUSIONS

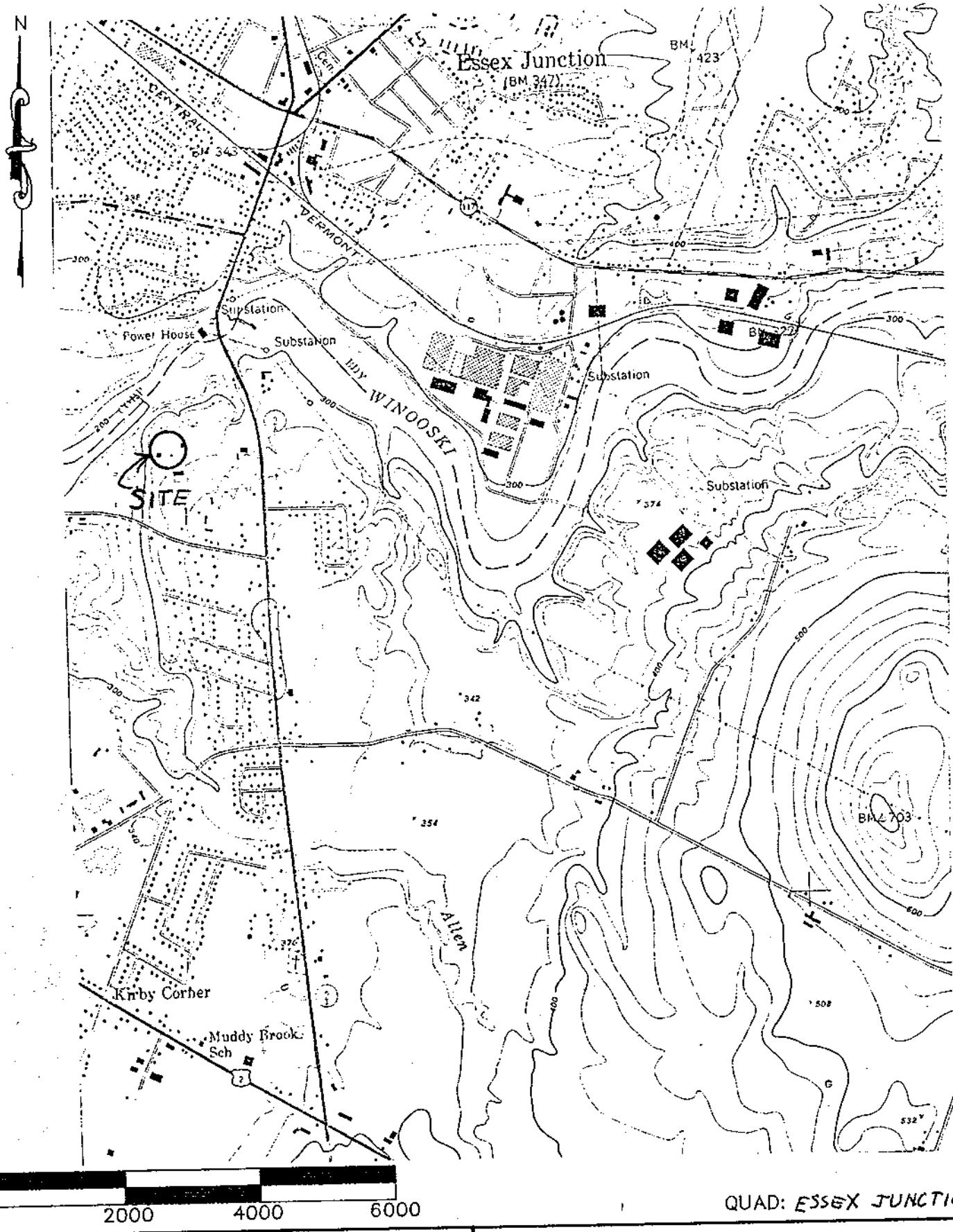
Cadmium, lead, and arsenic are present in the soils in all wells tested. Lab results however, show no lead in any of the groundwater monitor wells, even though sodium, calcium, and chloride concentrations generally exceed the Groundwater Standards. Concentrations of metals found in the soils are fairly consistent from well to well, and within the range of concentrations found in Vermont soils, except for a high concentration of arsenic (44.3 mg/kg) at the bottom of MW-3.

Hooghienstra-Tielbeek et al. 1983. Neth J. of Agric. Sci. Volume 31, pages 189-199.

Based on the reactor experiment results, lead does not appear to exchange with ions found in road salt. Concentrations of salt used in the experiment exceeded those found in the groundwater, yet no exchange was observed. The pH of the experiment solution was also slightly lower than the groundwater, which would further encourage exchange and lead mobility.

It would appear that the lead found in the neighboring property's groundwater is not caused from lead exchange, but from another source or an anomaly in laboratory data. Lead is a common contaminant in old water pipes, leaded gasoline, and batteries. The lead found in the well could have come from one of these sources, or from products inadvertently disposed of in the wastewater mound system located nearby.

[RPT-WILLISTON/DD 1-1-93]



QUAD: ESSEX JUNCTION

Wagner, Heindel, and Noyes

CONSULTING SCIENTISTS AND ENGINEERS

• Hydrogeology • Ecology •

• Environmental Engineering •

BURLINGTON, VERMONT

SITE LOCATION MAP.

USGS TOPOGRAPHIC MAP

DATE: 7/19/93	SCALE: 1:24000	DRN:	APPD: DJO

COUNTY: CHITTENDEN

Wagner, Heindel, and Noyes

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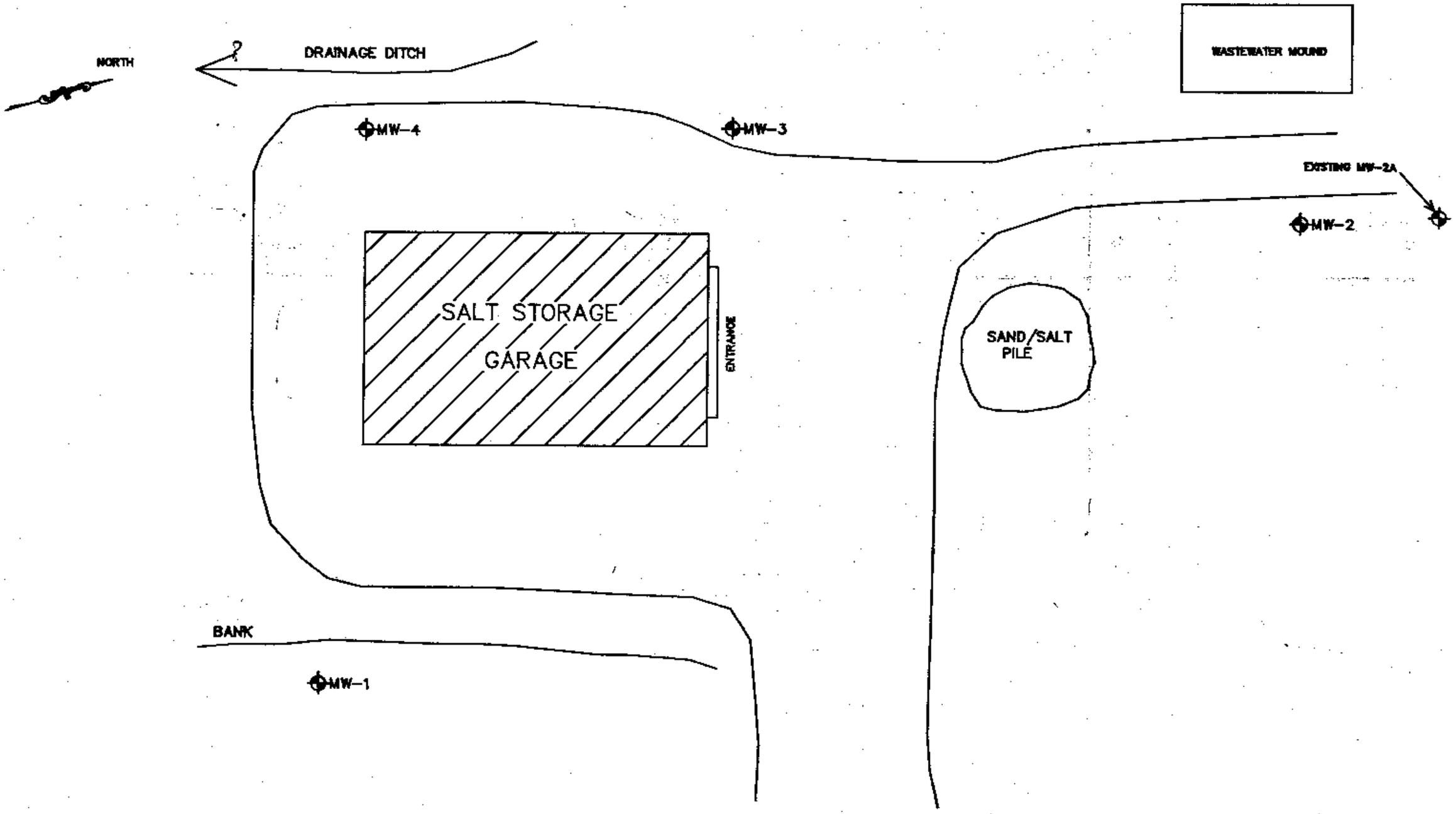
BURLINGTON, VERMONT

SOILS MAP.

SOIL CONSERVATION SERVICE

SOILS MAP

DATE: 7/19/93	SCALE: 1:20000	DRN:	APPD: DTD



Wagner, Heindel, and Noyes
CONSULTING SCIENTISTS AND ENGINEERS
• Hydrogeology • Ecology •
• Environmental Engineering •
BURLINGTON, VERMONT

TOWN OF WILLISTON MAINT. GARAGE

WILLISTON, VERMONT

WELL LOCATION MAP

DATE: 7/29/93	SCALE: NTS	DRN: MRL	APPD: DJD

C:\WILLISTN\TWNMAINT.DWG

WELL LOGS
Williston Town Garage
Williston, Vermont

June 10, 1993

Well Site Engineer: Dave DiDomenico, Wagner, Heindel, and Noyes, Inc.
Driller: Gerry Adams, Adams Engineering
Weather: Partly sunny day, dry, 65°F

MW-1
Located upgradient (east) of the salt storage garage

0' - 2'	Dark brown, medium grain, sandy fill
2' - 4'	Dark brown, medium grain, sandy native material. Lab sample at 3' - 3.5'
4' - 7'	Brown silty/sandy/clay loam, very tight material. Water table approximately 5.5'. Lab sample at 4' - 4.5'
7' - 8.3'	Grey clay
	Well screen: from 3.9' to 8.8' below ground surface

MW-2
Location - Upgradient of wastewater treatment mound, north of salt storage garage

0' - 2.5'	Brown, silty fine sand, with some pea gravel
2.'5 - 3'	Dark brown, gravelly sand, large, medium to coarse grain size. Lab sample at 2.5'
3' - 8'	Brown, fine sand. Water table at approximately 3.25' Lab sample at 5'
8'	Grey clay
	Well screen: from 3.1' to 8.0' below ground surface.

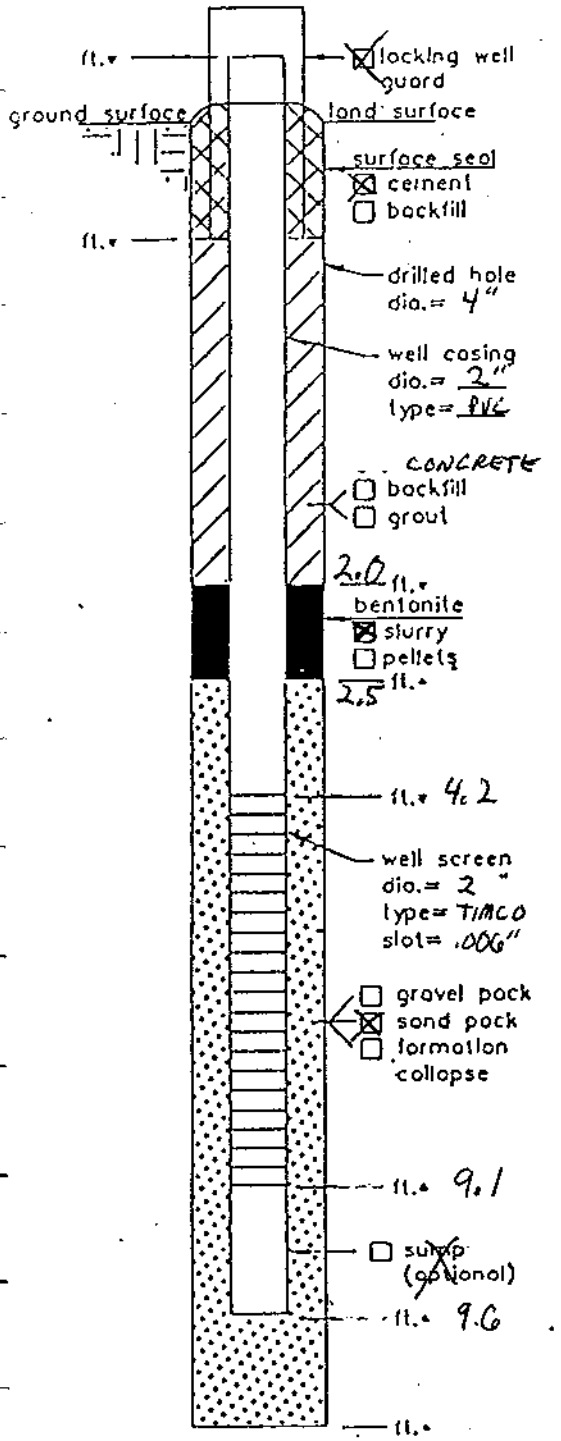
MW-3
Location - at north west corner of salt storage garage

0' - 1'	Gravelly, sandy fill with section of old pavement at 0.5'
1' - 5.5'	Brown, fine sand, water table at approximately 2.0'; lab sample at 1.5' - 2'; lab sample at 3'
5.5' - 7.0'	Brown, silty, sandy loam, moist. Lab sample at 5.5'
7.0' - 8.0'	Grey clay
	Well screen: from 3' to 7.9' below ground surface.

MW-4
Location - back corner of salt storage garage

	No soils sampled nor logged for this well
0' - 10.5'	Generally soils were brown, sand to approximately 10'; at 10' hit grey clay. Water table at approximately 5.0'
	Well screen: from 5.6' to 10.5' below ground surface

WELL CONSTRUCTION LOG



measuring point is top of well casing unless otherwise noted.

▾depth below ground surface

client WILLISTON TOWN

project TOWN GARAGE well MW-1

job no. - - ( )

town/city WILLISTON

county CHITTENDEN state VT

land surface elevation and datum _____ ft. ☐ surveyed ☐ estimated

installation date(s) 6-10-93

drilling method AUGAR

drilling fluid type _____ volume _____

drilling contractor GARARD ADAMS

development technique(s)	date(s)	volume of fluid ☐ removed ☐ added
PARISTALTIC PUMP (DEDICATED TUBING)	6/10/93	~1 HR.

static depth to water _____ ft. below ground surface

well purpose MONITOR WELL

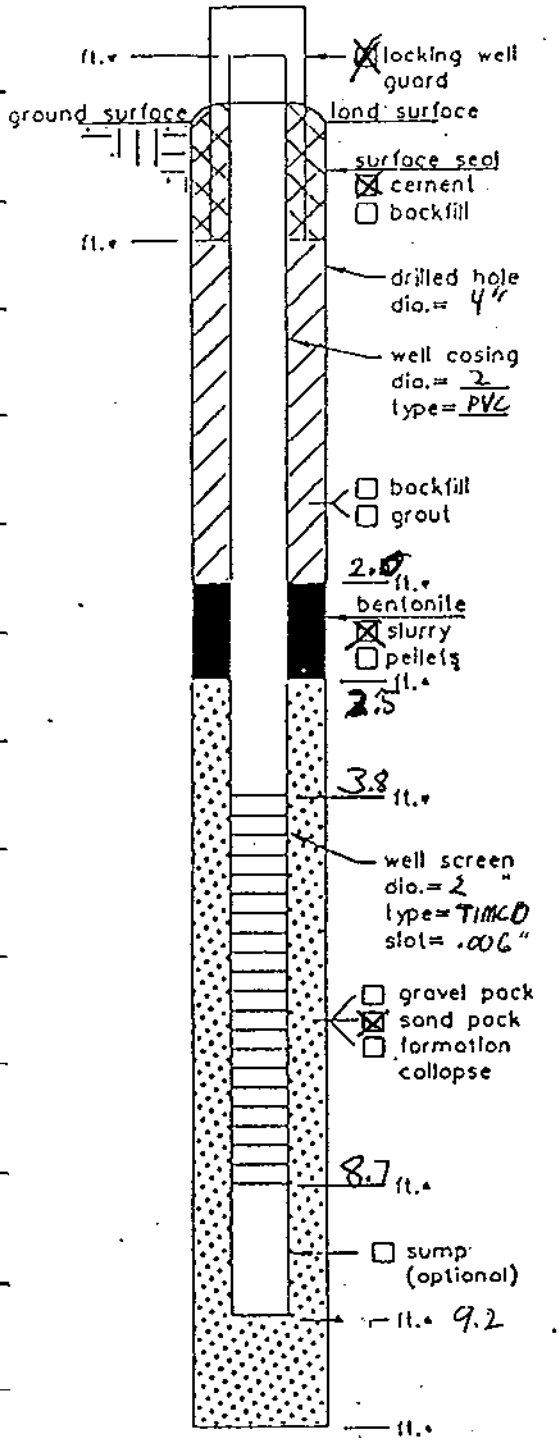
remarks

WATER TABLE ~ 5.5'

prepared by DAVID DiDOMENICO

date 6/14/93

WELL CONSTRUCTION LOG



measuring point is top of well casing unless otherwise noted.

*depth below ground surface

client TOWN OF WILLISTON

project TOWN GARAGE well MW-2

job no. - - ( )

town/city WILLISTON

county CHITTENDEN state VT

land surface elevation and datum _____ ft. ☐ surveyed ☐ estimated

installation date(s) 6-10-93

drilling method AUGAR

drilling fluid type _____ volume _____

drilling contractor GERRY ADAMS

development technique(s)	date(s)	volume of fluid ☐ removed ☐ added
PARISTALTIC PUMP (dedicated Tubing)	6/10/93	~1 HR

static depth to water _____ ft. below ground surface

well purpose Monitor Well

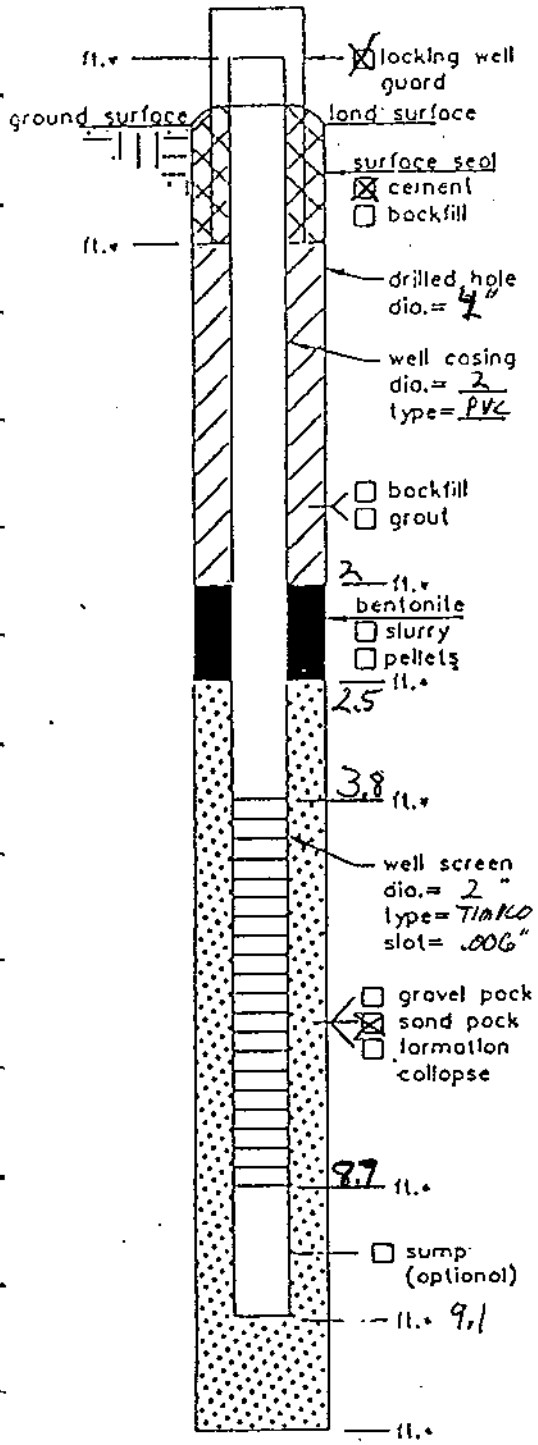
remarks

Water Table ~ 3.25' BGS.
Bentonite may have slid down slightly below screen level.

prepared by DAVE DiDOMENICO

date 6/10/93

WELL CONSTRUCTION LOG



measuring point is top of well casing unless otherwise noted.

*depth below ground surface

client TOWN OF WILLISTON

project TOWN GARAGE well MW-3

job no. - - ( )

town/city WILLISTON

county CHITTENDEN state VT

land surface elevation and datum _____ ft. ☐ surveyed ☐ estimated

installation date(s) 6/10/93

drilling method AUGAR

drilling fluid type _____ volume _____

drilling contractor GERRY ADAMS

development technique(s)	date(s)	volume of fluid ☐ removed ☐ added
PARISTALTIC PUMP (DEDICATED TUBING)		~ 1 HR.

static depth to water _____ ft. below ground surface

well purpose MONITOR WELL

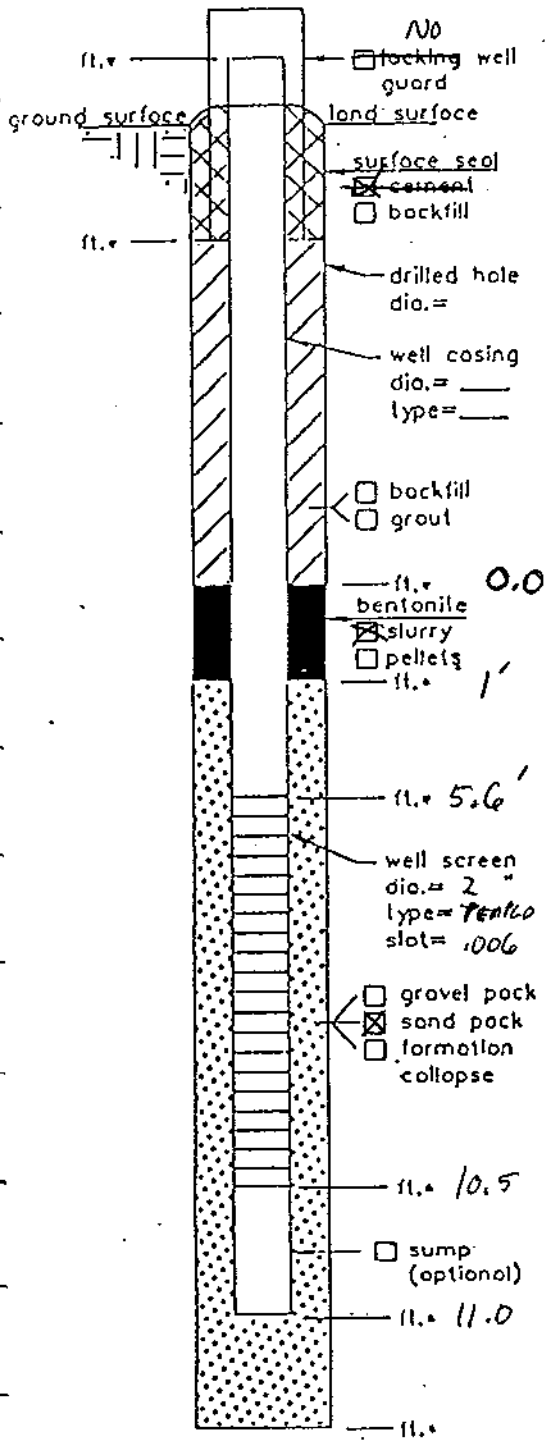
remarks

Water Level ≅ 2'

prepared by DAVE DiDOMENICO

date 6/14/93

WELL CONSTRUCTION LOG



measuring point is top of well casing unless otherwise noted.

▾depth below ground surface

client TOWN OF WILLISTON

project TOWN GARAGE well MW-4

job no. - - ( )

town/city WILLISTON

county CHITTENDEN state VT

land surface elevation and datum _____ ft. ☐ surveyed ☐ estimated

installation date(s) 6-10-93

drilling method AUGAR

drilling fluid type _____ volume _____

drilling contractor GERRY ADAMS

development technique(s)	date(s)	volume of fluid ☐ removed ☐ added
PARISTALTIC PUMP (DEDICATED TUBING)		~1 HR

static depth to water _____ ft. below ground surface

well purpose MONITOR WELL

remarks

Water Table ~ 5'

prepared by DAVE DiDOMENICO

date 6/14/93

Figure 5.—Corn on Adams and Windsor soils.

as representative for the respective series, except that the total thickness of the surface layer and subsoil is slightly less.

Included with these soils in mapping are areas of the Colton and Agawam soils. The Colton and Agawam soils normally are near the top of the slopes. In some included areas, the content of gravel, cobblestones, and stones, by volume, averages more than 15 percent between depths of 10 and 40 inches. In a few included areas the surface layer is sand or fine sand. In many areas this mapping unit is slightly acid or neutral throughout.

Woodland is the most extensive use for these soils. A few areas are idle.

Surface runoff is rapid. In areas not vegetated, these soils are very susceptible to soil blowing and the water erosion hazard is very severe. The use of logging equipment or farm machinery is difficult and hazardous. These soils have severe limitations for most nonfarm uses, especially those where steepness is a consideration. (Both soils, capability unit VIIs-2; Adams soil, woodland suitability group 4s3; Windsor soil, woodland suitability group 5s3)

Agawam Series

In the Agawam series are deep, friable, well-drained soils that consist of fine sandy loam over sandy material. These soils are nearly level to steep. The Agawam soils occur mainly along the Winooski and Lamoille Rivers just above the flood plain. The larger areas of these soils lie near the mouths of the streams. A few small areas are in the foothills of the Green Mountains. These soils formed in water- or wind-laid sand that was derived from quartz, schist, and phyllite.

In a representative profile the surface layer in a plowed area is very dark grayish-brown fine sandy loam about 9 inches thick. The upper part of the subsoil is dark yellowish-brown, friable fine sandy loam about 2 inches thick. The lower part of the subsoil is olive-brown, friable fine sandy loam about 7 inches thick. The substratum is olive-brown loamy sand to a depth of about 32 inches and is gravelly loamy fine sand to a depth of 40 inches or more.

The bright color and lack of mottles in the subsoil indicate that these soils are well aerated. They have moderately rapid permeability in the moderately coarse textured upper part of the soil profile and rapid per-

meability in the coarse-textured lower part. Their available moisture capacity is medium. Water is available for plants only in layers above the sand and gravel. Natural fertility is low, but the soils are easily tilled and can be cultivated throughout a wide range of moisture content without crusting or puddling.

These soils warm faster in the spring than the more silty, more clayey, or wetter soils in the county. Although these soils are saturated during rainy periods in spring, the water disappears quickly after rains stop. They are filled to capacity with available moisture at the start of the growing season. As the growing season progresses, rain normally is not adequate to replenish the soil moisture used by plants. The crops therefore show signs of lack of moisture during extended dry periods. Since these soils dry out quickly, they are ready for planting earlier than many other soils in the county. Shrink-swell potential is low.

The Agawam soils are used mainly for corn, pasture, and hay on farms and for housing developments, industrial sites, and roads near villages and cities.

Representative profile of an Agawam fine sandy loam in a field in the town of Huntington, 1½ miles south of Huntington Center:

Ap—0 to 9 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; moderate, very fine, granular structure; friable; many roots; 5 percent gravel; medium acid; abrupt, smooth boundary.

B21ir—9 to 11 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, granular structure; friable; many roots; 5 percent gravel; medium acid; clear, smooth boundary.

B22—11 to 18 inches, olive-brown (2.5Y 4/4) fine sandy loam; weak, fine and medium, granular structure; friable; common roots; 5 percent gravel; medium acid; abrupt, wavy boundary.

IIC1—18 to 32 inches, olive-brown (2.5Y 4/4) loamy sand; single grain; loose; common roots; 10 percent gravel; medium acid; abrupt, wavy boundary.

IIC2—32 to 40 inches, olive-brown (2.5Y 4/4) gravelly loamy fine sand; weak, thin, platy structure; very friable; 25 percent gravel; slightly acid.

The solum of Agawam soils is 15 to 35 inches thick. In most places it coincides with depth to sandy material. The A1 and the Ap horizons have a hue of 2.5Y and 10YR, a value of 2 to 4, and a chroma of 1 to 4. In a few places where there is an A1 horizon, there is an A2 horizon that is about 1 to 2 inches thick and is dark grayish brown 10YR 4/2. In farmed areas the A horizons range from strongly acid to neutral.

The upper part of the B horizon is dark yellowish brown (10YR 4/4), dark brown (7.5YR 4/4), or yellowish brown (10YR 5/6). The B horizon is fine sandy loam or very fine sandy loam. The lower part of the B horizon has a hue of 10YR or 2.5Y, a value of 4 or 5, and a chroma of 4. The B horizon dominantly is fine sandy loam but, in places, is sandy loam, loamy fine sand, or loamy sand. The B horizon is medium acid in the upper part and medium acid or slightly acid in the lower part.

The C horizon has a hue of 10YR or 2.5Y, a value of 3 to 6, and a chroma of 2 to 4. The C horizon commonly is loamy sand or gravelly loamy fine sand but ranges from fine sandy loam to gravelly sand. The C horizon is medium acid to neutral.

Since the Agawam soils in this county typically have sandy material near the soil surface, they are more droughty than typical of the Agawam series.

The Agawam soils occur near Hartland, Adams, Windsor, Duane, Deerfield, and Au Gres soils. They have coarser sand throughout the soil profile than the Hartland soils. Agawam soils have finer texture in the upper part of the soil profile than the Adams and Windsor soils. The Agawam soils are better drained and are finer textured in the upper part of the soil profile than the Duane, Deerfield, and Au Gres soils.

Agawam fine sandy loam, 0 to 5 percent slopes (AgA).—This soil occupies irregularly shaped terraces above the flood plain of the streams. Areas are 2 to 80 acres in size. Slopes range from 100 to 400 feet in length. The profile of this soil is the one described as representative for the Agawam series.

Included with this soil in mapping are areas of Agawam fine sandy loam that have slopes of 5 to 12 percent. Also included are areas of Adams, Windsor, Hartland, and Deerfield soils, and of a moderately well drained, moderately coarse textured soil. The Adams, Windsor, and Hartland soils occupy the more nearly level areas or the slight rises. The slight rises normally have slopes of more than 5 percent and normally occur in the larger mapped areas. The rises are oriented in the same direction as the stream channel. The Deerfield soil and the moderately well drained, moderately coarse textured soil occupy depressions that are somewhat circular or long and narrow. The long, narrow depressions normally are in the larger mapped areas of this soil. They are oriented in the same direction as the stream channel. Also included are areas of soils on glacial till that have cobblestones and stones on the surface. In a few included areas, the surface layer is sandy loam or very fine sandy loam. Other inclusions are of soils that have neutral reaction in some part of, or throughout, the soil.

This soil is used for hay, pasture, and corn silage. It also is used for many nonfarm purposes.

Surface runoff is slow, but this soil is susceptible to soil blowing in areas not vegetated. The hazard of water erosion is slight in cultivated areas or where the soil is not vegetated. (Capability unit IIs–2; woodland suitability group 4o1)

Agawam fine sandy loam, 12 to 30 percent slopes (AgD).—This soil occupies irregularly shaped terrace edges that are 2 to 50 acres in size. Slopes range from 50 to 400 feet in length. The profile of this soil is similar to that described as representative for the series, but its surface layer is thinner in areas that have been cultivated.

Included with this soil in mapping are areas of Adams, Hartland, and Windsor soils. Gullies that cannot be crossed with farm machinery occur within some mapped areas of this soil. A few mapped areas have cobblestones and stones on the soil surface. These areas occur near soils derived from glacial till. In a few areas the surface layer is sandy loam or very fine sandy loam. Also included are soils that have neutral reaction in some part of, or throughout, the soil.

This soil is used mainly for trees, hay, and pasture. Where it is less sloping, it is used for cultivated crops. A few areas are idle.

Where this soil is not vegetated, it is susceptible to soil blowing. Surface runoff is medium. The hazard of water erosion is severe if cultivated crops are grown and the soil is not vegetated. This soil has limitations for most nonfarm uses, especially those uses where steepness is a consideration. (Capability unit IVe–2; woodland suitability group 4r1)

Agawam fine sandy loam, 30 to 60 percent slopes (AgE).—This soil occupies irregularly shaped terrace edges or the steep sides of gullies. Most of the gullies are in the

a hazard in unvegetated areas. This soil has limitations for many nonfarm uses, especially those for which steepness is a consideration. (Capability unit IVs–1; woodland suitability group 4s1)

Colton gravelly loamy sand, 12 to 20 percent slopes (CoC).—This soil occupies irregularly shaped areas 2 to 30 acres in size. Slopes are between 50 and 300 feet long. This soil is on hillsides, ridges, terraces, or terrace edges. The larger areas are in Jericho and Bolton; smaller areas are in most of the stream valleys of the county outside of the Champlain Valley.

The profile of the soil is similar to that described as representative for the series, except that the upper part of the subsoil is less brown.

Included with this soil in mapping are areas of the Duane soils that are mainly small wet spots near drainageways or springs. Also included are small areas of Agawam, Stetson, and Adams and Windsor soils. In a few areas the surface layer is loamy sand, sand, sandy loam, gravelly sand, or gravelly sandy loam.

Hay and pasture are the main uses for this soil. Many acres are woodland or are idle. A few of the less sloping areas are used for cemeteries or buildings. Gravel pits are numerous.

Surface runoff is medium, but the erosion hazard is severe where this soil is being prepared for seeding or where cultivated crops are grown. Trees and pasture plants that resist drought are better suited to this soil than row crops. Drought-resistant forage plants are better suited than other kinds of plants. Soil blowing is a hazard where this soil is unvegetated. This soil has severe limitations for many nonfarm uses, especially those uses for which steepness is a consideration. (Capability unit VIs–1; woodland suitability group 4s2)

Colton and Stetson soils, 20 to 30 percent slopes (CsD).—This is an undifferentiated group of Colton and Stetson soils. Any given area may consist of Colton soils, Stetson soils, or both. These soils occupy irregularly shaped areas 2 to 10 acres in size. Slopes are mainly 50 to 300 feet long. These soils are on knolls, hills, or terrace edges.

Included with these soils in mapping are areas of wetter soils that are mainly small wet spots near springs. Also included are areas of Agawam, Adams, Marlow, and Windsor soils. The Agawam, Adams, and Windsor soils are mainly terrace edges. The Marlow soils are in small areas where the glacial till and glacial outwash adjoin. In some of the areas, water erosion has cut deep gullies or stripped away the original surface layer. Other inclusions are of soils that have a less brown subsoil than is typical. Stony or very stony areas occur where the glacial till and the glacial outwash adjoin. In a few areas, the Colton soils have a loamy sand, sandy loam, sand, gravelly sandy loam, or gravelly sand surface layer. Also in a few areas, the Stetson soils have a sandy loam, loam, gravelly sandy loam, or gravelly loam surface layer.

Most areas of the soils in this mapping unit are used for woodland and pasture. Gravel pits are common.

Surface runoff is rapid, and the erosion hazard is severe in areas not vegetated. The steep slopes limit the use of modern farm machinery. Droughtiness is a limitation to farm use. These soils have severe limitations for most nonfarm uses, especially those for which steepness is a consideration. (Colton soils in capability unit VIIs–2 and woodland suitability group 4s2; Stetson soils capability unit VIe–1 and woodland suitability group 4r1)

Colton and Stetson soils, 30 to 60 percent slopes (CsE).—Any given area of this mapping unit consists of Colton soils, Stetson soils, or some of both. These soils occupy irregularly shaped areas 2 to 50 acres in size. They occur on terrace edges, knolls, or hills. Slopes are mainly 50 to 300 feet long.

Included with these soils in mapping are small areas of Adams, Windsor, and Marlow soils. The Adams and Windsor soils are mainly on terrace edges, and the Marlow soils are on valley slopes and hills. In some areas water erosion has cut deep gullies or stripped away the surface layer. Also in some areas, soils are included that have a subsoil less brown than is typical. In some areas included soils are stony or very stony where the glacial till and glacial outwash adjoin. In a few areas the surface layer in the Colton soils is loamy sand, sand, gravelly sand, or gravelly sandy loam. In a few areas of Stetson soils, the surface layer is sandy loam, loam, gravelly sandy loam, or gravelly loam.

These soils are used mainly for trees. A few areas are idle or in unimproved pasture. Gravel pits are common.

Surface runoff of water is rapid, and these soils tend to be droughty. Steep slopes make the use of modern farm machinery hazardous. The erosion hazard is very severe in unvegetated areas. These soils have severe limitations for nonfarm uses, especially those uses for which steepness is a consideration. (Colton soils capability unit VIIs–2, woodland suitability group 4s3; Stetson soils capability unit VIIe–2, woodland suitability group 4r2)

Covington Series

The Covington series consists of deep, poorly drained soils that are clayey throughout their profile. These soils are level or gently sloping. They formed in water-laid deposits of clay that is high in lime content. In Chittenden County the Covington soils occur throughout the Champlain Valley. The largest areas are in the town of Charlotte. Most areas have been cultivated.

A representative profile of a cultivated Covington soil has a very dark brown silty clay plow layer about 8 inches thick. The surface layer is hard and cloddy when dry and sticky when wet. The subsoil is very dark grayish-brown or gray clay that is mottled with yellowish brown. It is about 20 inches thick. This layer is very sticky and plastic when wet and hard when dry. It breaks into large chunks where dug. Under the subsoil is dark grayish-brown clay that is mottled with strong brown and is high in lime content. This layer is very sticky and plastic when wet and very hard when dry.

Covington soils have a moderately high available moisture capacity. Their natural fertility is very high. A normally high water table keeps these soils wet from early in fall to late in spring. The mottles indicate that these soils have a fluctuating water table. The water table is less than 12 inches below the soil surface during the wettest part of the year and is below 24 inches during the driest part. The very slowly permeable clay restricts

SOIL RESULTS

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
DATE REPORTED: July 2, 1993
DATE SAMPLED: June 10, 1993

PROJECT CODE: HNWT3914
REF. #: 47,444 - 47,450

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated the samples were not preserved.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

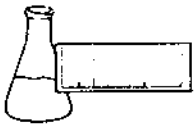
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



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Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

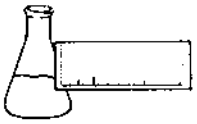
LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993
DATE RECEIVED: Not Indicated

PROJECT CODE: HNWT3914
REF.#: 47,444
STATION: MW 2 #1
TIME SAMPLED: 9:30 a.m.
SAMPLER: David DiDomenico

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Cadmium	<0.400	6010	6/28/93
Total Lead	3.16	7421	6/24/93
Total Arsenic	12.7	7060	6/30/93



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FAX 879-7103

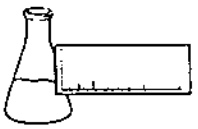
LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993
DATE RECEIVED: Not Indicated

PROJECT CODE: HNWT3914
REF.#: 47,445
STATION: MW 2 #2
TIME SAMPLED: 9:50 a.m.
SAMPLER: David DiDomenico

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Cadmium	<0.282	6010	6/28/93
Total Lead	2.09	7421	6/24/93
Total Arsenic	15.2	7060	6/30/93



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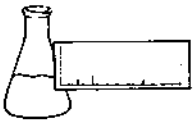
LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993
DATE RECEIVED: Not Indicated

PROJECT CODE: HNWT3914
REF.#: 47,446
STATION: MW 3 #1
TIME SAMPLED: 10:15 a.m.
SAMPLER: David DiDomenico

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Cadmium	0.325	6010	6/28/93
Total Lead	6.30	7421	6/24/93
Total Arsenic	15.5	7060	6/30/93



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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993
DATE RECEIVED: Not Indicated

PROJECT CODE: HNWT3914
REF.#: 47,447
STATION: MW 3 #2
TIME SAMPLED: 11:00 a.m.
SAMPLER: David DiDomenico

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Cadmium	<0.360	6010	6/28/93
Total Lead	3.53	7421	6/24/93
Total Arsenic	12.0	7060	6/30/93

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993
DATE RECEIVED: Not Indicated

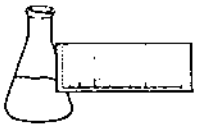
PROJECT CODE: HNWT3914
REF.#: 47,448
STATION: MW 3 #3
TIME SAMPLED: 11:05 a.m.
SAMPLER: David DiDomenico

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Cadmium	0.864	6010	6/28/93
Total Lead	4.58	7421	6/24/93
Total Arsenic	44.3	7060	6/30/93

Check this Results should be in mid mgt wk

7/12
Reran - is OK



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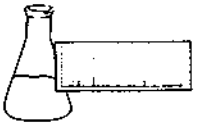
LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993
DATE RECEIVED: Not Indicated

PROJECT CODE: HNWT3914
REF.#: 47,449
STATION: MW 1 #1
TIME SAMPLED: 11:30 a.m.
SAMPLER: David DiDomenico

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Cadmium	0.259	6010	6/28/93
Total Lead	2.12	7421	6/24/93
Total Arsenic	8.84	7060	6/30/93



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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993
DATE RECEIVED: Not Indicated

PROJECT CODE: HNWT3914
REF.#: 47,450
STATION: MW 1 #2
TIME SAMPLED: 11:35 a.m.
SAMPLER: David DiDomenico

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Cadmium	0.283	6010	6/28/93
Total Lead	2.48	7421	6/24/93
Total Arsenic	14.0	7060	6/30/93

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LABORATORY REPORT

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 10, 1993

PROJECT CODE: HNWT3914

SPIKE QA/QC DATA:

Parameter	Ref.#	Sample(mg/L)	Target(mg/L)	% Recovery
Cadmium	47,445	<0.005	0.200	96.0
Lead	47,449	0.041	0.0125	85.2

DUPLICATE QA/QC DATA:

Parameter	Ref.#	Dup 1(mg/kg)	Dup 2(mg/kg)	Avg % Deviation
Cadmium	47,444	<0.400	0.372	ND[1]
Lead	47,444	3.28	3.04	4.
Arsenic	47,444	12.0	13.3	5.
Lead	47,445	2.20	1.97	6.
Lead	47,450	2.50	2.45	1.

Notes:

1 None Detected

WATER RESULTS

ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: June 29, 1993
DATE SAMPLED: June 15, 1993

PROJECT CODE: HNWL1956
REF.#: 47,615 - 47,619

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody.

Although EPA 601/602 analysis was requested, due to scheduling constraints the samples were analyzed by equivalent EPA method 8240.

Chain of custody indicated the samples were preserved with sodium azide.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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Laboratory Services

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
DATE REPORTED: July 2, 1993
DATE SAMPLED: June 15, 1993

PROJECT CODE: HNWL3958
REF. #: 47,626 - 47,631

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated the samples were preserved in the field with HNO_3.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

PROJECT CODE: HNWL3958
REF.#: 47,626
STATION: Field Blank
TIME SAMPLED: 1:00 p.m.
SAMPLER: C. Aldrich

Tested parameters are reported in milligrams per liter (ppm).

Parameter	Concentration	EPA Method	Analysis Date
Dissolved Lead	<0.002	7421	6/29/93
Dissolved Arsenic	<0.005	7060	6/30/93
Dissolved Cadmium	<0.005	6010	6/29/93
Dissolved Sodium	<0.200	6010	6/29/93
Dissolved Calcium	<0.100	6010	6/29/93
Dissolved Magnesium	<0.100	6010	6/29/93

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LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: June 29, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993
ANALYSIS DATE: June 28, 1993

PROJECT CODE: HNWL1956
REF.#: 47,615
STATION: Trip Blank
TIME SAMPLED: 10:00
SAMPLER: C. Aldrich

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Dichlorodifluoromethane	10	ND[1]
Chloromethane	10	ND
Vinyl Chloride	10	ND
Bromomethane	5	ND
Chloroethane	5	ND
Trichlorofluoromethane	2	ND
Acetone	50	71.4
1,1-Dichloroethene	2	ND
Methylene Chloride	20	ND
Carbon Disulfide	1	ND
MTBE	3	ND
trans-1,2-Dichloroethene	2	ND
1,1-Dichloroethane	2	ND
2-Butanone	20	39.8
Chloroform	10	ND
1,1,1-Trichloroethane	1	ND
Carbon Tetrachloride	1	ND
1,2-Dichloroethane	1	ND
Benzene	1	ND
Trichloroethene	1	ND
1,2-Dichloropropane	1	ND
Bromodichloromethane	1	ND

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REF.#: 47,615

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
4-Methyl-2-Pentanone	10	ND
cis-1,3-Dichloropropene	1	ND
Toluene	2	ND
trans-1,3-Dichloropropene	1	ND
1,1,2-Trichloroethane	2	ND
2-Hexanone	10	TBQ[2]
Tetrachloroethene	2	ND
Dibromochloromethane	2	ND
Chlorobenzene	2	ND
Ethyl Benzene	1	ND
Total Xylenes	3	ND
Styrene	1	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	1	ND
1,3 Dichlorobenzene	2	ND
1,4 Dichlorobenzene	2	ND
1,2 Dichlorobenzene	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

1,2-Dichloroethane-d4 : 106.%
Toluene-d8 : 102.%
4-Bromofluorobenzene : 103.%

NOTES:

1 None detected
2 Trace below quantitation limits

ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
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FAX 879-7103

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: June 29, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993
ANALYSIS DATE: June 28, 1993

PROJECT CODE: HNWL1956
REF.#: 47,616
STATION: Field Blank
TIME SAMPLED: 1:00
SAMPLER: C. Aldrich

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Dichlorodifluoromethane	10	ND[1]
Chloromethane	10	ND
Vinyl Chloride	10	ND
Bromomethane	5	ND
Chloroethane	5	ND
Trichlorofluoromethane	2	ND
Acetone	50	70.7
1,1-Dichloroethene	2	ND
Methylene Chloride	20	ND
Carbon Disulfide	1	ND
MTBE	3	ND
trans-1,2-Dichloroethene	2	ND
1,1-Dichloroethane	2	ND
2-Butanone	20	45.5
Chloroform	10	ND
1,1,1-Trichloroethane	1	ND
Carbon Tetrachloride	1	ND
1,2-Dichloroethane	1	ND
Benzene	1	ND
Trichloroethene	1	ND
1,2-Dichloropropane	1	ND
Bromodichloromethane	1	ND

ENDYNE, INC.

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FAX 879-7103

REF.#: 47,616

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
4-Methyl-2-Pentanone	10	ND
cis-1,3-Dichloropropene	1	ND
Toluene	2	ND
trans-1,3-Dichloropropene	1	ND
1,1,2-Trichloroethane	2	ND
2-Hexanone	10	TBQ[2]
Tetrachloroethene	2	ND
Dibromochloromethane	2	ND
Chlorobenzene	2	ND
Ethyl Benzene	1	ND
Total Xylenes	3	ND
Styrene	1	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	1	ND
1,3 Dichlorobenzene	2	ND
1,4 Dichlorobenzene	2	ND
1,2 Dichlorobenzene	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

1,2-Dichloroethane-d4 : 109.%
Toluene-d8 : 101.%
4-Bromofluorobenzene : 104.%

NOTES:

1 None detected
2 Trace below quantitation limits

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Laboratory Services

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

PROJECT CODE: HNWL3958
REF.#: 47,631
STATION: MW 1
TIME SAMPLED: 12:10 p.m.
SAMPLER: C. Aldrich

Tested parameters are reported in milligrams per liter (ppm).

Parameter	Concentration	EPA Method	Analysis Date
Dissolved Lead	<0.002	7421	6/29/93
Dissolved Arsenic	<0.005	7060	6/30/93
Dissolved Cadmium	<0.005	6010	6/29/93
Dissolved Sodium	123.	6010	6/29/93
Dissolved Calcium	67.3	6010	6/29/93
Dissolved Magnesium	18.2	6010	6/29/93

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LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: June 29, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993
ANALYSIS DATE: June 28, 1993

PROJECT CODE: HNWL1956
REF.#: 47,617
STATION: MW 2
TIME SAMPLED: 12:45
SAMPLER: C. Aldrich

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Dichlorodifluoromethane	10	ND[1]
Chloromethane	10	ND
Vinyl Chloride	10	ND
Bromomethane	5	ND
Chloroethane	5	ND
Trichlorofluoromethane	2	ND
Acetone	50	ND
1,1-Dichloroethene	2	ND
Methylene Chloride	20	ND
Carbon Disulfide	1	ND
MTBE	3	ND
trans-1,2-Dichloroethene	2	ND
1,1-Dichloroethane	2	ND
2-Butanone	20	ND
Chloroform	10	ND
1,1,1-Trichloroethane	1	ND
Carbon Tetrachloride	1	ND
1,2-Dichloroethane	1	ND
Benzene	1	ND
Trichloroethene	1	ND
1,2-Dichloropropane	1	ND
Bromodichloromethane	1	ND

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REF.#: 47,617

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
4-Methyl-2-Pentanone	10	ND
cis-1,3-Dichloropropene	1	ND
Toluene	2	ND
trans-1,3-Dichloropropene	1	ND
1,1,2-Trichloroethane	2	ND
2-Hexanone	10	ND
Tetrachloroethene	2	ND
Dibromochloromethane	2	ND
Chlorobenzene	2	ND
Ethyl Benzene	1	ND
Total Xylenes	3	ND
Styrene	1	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	1	ND
1,3 Dichlorobenzene	2	ND
1,4 Dichlorobenzene	2	ND
1,2 Dichlorobenzene	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

1,2-Dichloroethane-d4 : 107.%
Toluene-d8 : 102.%
4-Bromofluorobenzene : 103.%

NOTES:

1 None detected

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

PROJECT CODE: HNWL3958
REF.#: 47,627
STATION: MW 2
TIME SAMPLED: 12:45 p.m.
SAMPLER: C. Aldrich

Tested parameters are reported in milligrams per liter (ppm).

Parameter	Concentration	EPA Method	Analysis Date
Dissolved Lead	<0.002	7421	6/29/93
Dissolved Arsenic	<0.005	7060	6/30/93
Dissolved Cadmium	<0.005	6010	6/29/93
Dissolved Sodium	127.	6010	6/29/93
Dissolved Calcium	31.2	6010	6/29/93
Dissolved Magnesium	6.79	6010	6/29/93

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LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: June 29, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993
ANALYSIS DATE: June 28, 1993

PROJECT CODE: HNWL1956
REF.#: 47,619
STATION: MW 2A (existing)
TIME SAMPLED: 1:15
SAMPLER: C. Aldrich

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Dichlorodifluoromethane	10	ND[1]
Chloromethane	10	ND
Vinyl Chloride	10	ND
Bromomethane	5	ND
Chloroethane	5	ND
Trichlorofluoromethane	2	ND
Acetone	50	ND
1,1-Dichloroethene	2	ND
Methylene Chloride	20	ND
Carbon Disulfide	1	ND
MTBE	3	ND
trans-1,2-Dichloroethene	2	ND
1,1-Dichloroethane	2	ND
2-Butanone	20	ND
Chloroform	10	ND
1,1,1-Trichloroethane	1	ND
Carbon Tetrachloride	1	ND
1,2-Dichloroethane	1	ND
Benzene	1	ND
Trichloroethene	1	ND
1,2-Dichloropropane	1	ND
Bromodichloromethane	1	ND

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REF.#: 47,619

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
4-Methyl-2-Pentanone	10	ND
cis-1,3-Dichloropropene	1	ND
Toluene	2	ND
trans-1,3-Dichloropropene	1	ND
1,1,2-Trichloroethane	2	ND
2-Hexanone	10	ND
Tetrachloroethene	2	ND
Dibromochloromethane	2	ND
Chlorobenzene	2	ND
Ethyl Benzene	1	ND
Total Xylenes	3	ND
Styrene	1	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	1	ND
1,3 Dichlorobenzene	2	ND
1,4 Dichlorobenzene	2	ND
1,2 Dichlorobenzene	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

1,2-Dichloroethane-d4 : 111.%
Toluene-d8 : 100.%
4-Bromofluorobenzene : 104.%

NOTES:

1 None detected

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

PROJECT CODE: HNWL3958
REF.#: 47,629
STATION: MW 2A Existing
TIME SAMPLED: 1:15 p.m.
SAMPLER: C. Aldrich

Tested parameters are reported in milligrams per liter (ppm).

Parameter	Concentration	EPA Method	Analysis Date
Dissolved Lead	<0.002	7421	6/29/93
Dissolved Arsenic	<0.005	7060	6/30/93
Dissolved Cadmium	<0.005	6010	6/29/93
Dissolved Sodium	147.	6010	6/29/93
Dissolved Calcium	20.9	6010	6/29/93
Dissolved Magnesium	3.81	6010	6/29/93

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LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: June 29, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993
ANALYSIS DATE: June 28, 1993

PROJECT CODE: HNWL1956
REF.#: 47,618
STATION: MW 3
TIME SAMPLED: 11:40
SAMPLER: C. Aldrich

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Dichlorodifluoromethane	10	ND[1]
Chloromethane	10	ND
Vinyl Chloride	10	ND
Bromomethane	5	ND
Chloroethane	5	ND
Trichlorofluoromethane	2	ND
Acetone	50	ND
1,1-Dichloroethene	2	ND
Methylene Chloride	20	ND
Carbon Disulfide	1	ND
MTBE	3	ND
trans-1,2-Dichloroethene	2	ND
1,1-Dichloroethane	2	ND
2-Butanone	20	ND
Chloroform	10	ND
1,1,1-Trichloroethane	1	ND
Carbon Tetrachloride	1	ND
1,2-Dichloroethane	1	ND
Benzene	1	ND
Trichloroethene	1	ND
1,2-Dichloropropane	1	ND
Bromodichloromethane	1	ND

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REF.#: 47,618

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
4-Methyl-2-Pentanone	10	ND
cis-1,3-Dichloropropene	1	ND
Toluene	2	3.5
trans-1,3-Dichloropropene	1	ND
1,1,2-Trichloroethane	2	ND
2-Hexanone	10	ND
Tetrachloroethene	2	ND
Dibromochloromethane	2	ND
Chlorobenzene	2	ND
Ethyl Benzene	1	1.1
Total Xylenes	3	8.3
Styrene	1	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	1	ND
1,3 Dichlorobenzene	2	ND
1,4 Dichlorobenzene	2	ND
1,2 Dichlorobenzene	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 1

ANALYTICAL SURROGATE RECOVERY:

1,2-Dichloroethane-d4 : 106.%
Toluene-d8 : 102.%
4-Bromofluorobenzene : 103.%

NOTES:

1 None detected

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

PROJECT CODE: HNWL3958
REF.#: 47,628
STATION: MW 3
TIME SAMPLED: 11:40 a.m.
SAMPLER: C. Aldrich

Tested parameters are reported in milligrams per liter (ppm).

Parameter	Concentration	EPA Method	Analysis Date
Dissolved Lead	<0.002	7421	6/29/93
Dissolved Arsenic	0.034	7060	6/30/93
Dissolved Cadmium	<0.005	6010	6/29/93
Dissolved Sodium	940.	6010	6/29/93
Dissolved Calcium	118.	6010	6/29/93
Dissolved Magnesium	23.3	6010	6/29/93

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

PROJECT CODE: HNWL3958
REF.#: 47,630
STATION: MW 4
TIME SAMPLED: 11:00 a.m.
SAMPLER: C. Aldrich

Tested parameters are reported in milligrams per liter (ppm).

Parameter	Concentration	EPA Method	Analysis Date
Dissolved Sodium	198.	6010	6/29/93
Dissolved Calcium	70.6	6010	6/29/93

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EPA METHOD 601/602 COMPOUNDS BY EPA METHOD 8240

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: June 29, 1993
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993
ANALYSIS DATE: June 28, 1993

PROJECT CODE: HNWL1956
REF.#: 47,618
STATION: MW 3
TIME SAMPLED: 11:40
SAMPLER: C. Aldrich

Parameter	Sample(ug/L)	Spike(ug/L)	Dup 1 (ug/L)	Dup 2 (ug/L)	Average % Recovery
1,1 Dichloroethene	0.	50.	49.6	53.6	103.%
Benzene	0.	50.	53.0	51.8	105.%
Trichloroethene	0.	50.	44.9	45.1	90.%
Toluene	3.5	50.	53.3	51.7	98.%
Chlorobenzene	0.	50.	47.9	46.5	94.%

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

DATE: June 24, 1993
CLIENT: Wagner, Heindel and Noyes, Inc.
PROJECT: Williston Town Garage
PROJECT CODE: HNWL2957
COLLECTED BY: C. Aldrich
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

Tested parameters are reported in milligrams per liter (ppm), except as indicated below.

Parameter	Reference Number			
	47,620	47,621	47,622	47,623
	BLANK	MW 2	MW 3	MW 2A
pH[1] (Standard Units)	6.69	6.21	6.06	6.32
Chloride	0.633	207.	1,740.	222.
Nitrate	<0.010	0.489	1.11	0.037
Temperature[1] (Degrees C)	30.1	12.1	12.9	10.8
Conductivity[1] (Uhmos)	5.	690.	4,090.	690.

Sample ID:

47,620: Field Blank; 1:00 p.m.
47,621: MW 2; 12:45 p.m.
47,622: MW 3; 11:40 a.m.
47,623: MW 2A existing; 1:15 p.m.

Notes:

1 Field result as indicated on chain of custody

Reviewed by: _____

ENDYNE, INC.

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LABORATORY REPORT

DATE: June 24, 1993
CLIENT: Wagner, Heindel and Noyes, Inc.
PROJECT: Williston Town Garage
PROJECT CODE: HNWL2957
COLLECTED BY: C. Aldrich
DATE SAMPLED: June 15, 1993
DATE RECEIVED: June 15, 1993

Tested parameters are reported in milligrams per liter (ppm), except as indicated below.

Parameter	Reference Number	
	47,624	47,625
	MW 4	MW 1
pH[1] (standard Units)	6.05	6.07
Chloride	376.	246.
Temperature[1] (Degrees C)	10.9	12.1
Conductivity[1] (Uhmos)	1,995.	875.

Sample ID:

47,624: MW 4; 11:00 a.m.
47,625: MW 1; 12:10 p.m.

Notes:

1 Field result as indicated on chain of custody

Reviewed by: _____

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LABORATORY REPORT

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 2, 1993
DATE SAMPLED: June 15, 1993

PROJECT CODE: HNWL3958

SPIKE QA/QC DATA:

Parameter	Ref.#	Sample(mg/L)	Target(mg/L)	% Recovery
Cadmium	47,627	<0.005	0.200	106.
Sodium	47,627	127.	50.0	94.0
Calcium	47,627	31.2	20.0	98.0
Magnesium	47,627	6.79	2.50	90.0

DUPLICATE QA/QC DATA:

Parameter	Ref.#	Dup 1(mg/L)	Dup 2(mg/L)	Avg % Deviation
Arsenic	47,626	<0.005	<0.005	ND[1]
Cadmium	47,626	<0.005	<0.005	ND
Sodium	47,626	<0.200	<0.200	ND
Calcium	47,626	<0.100	<0.100	ND
Magnesium	47,626	<0.100	<0.100	ND

Notes:

1 None Detected

REACTOR RESULTS

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Laboratory Services

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LABORATORY REPORT

DATE: July 14, 1993
CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT: Williston Town Garage
PROJECT CODE: HNWT2091
COLLECTED BY: Dave DiDomenico
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

Tested parameters are reported in milligrams per liter (ppm), except as indicated below.

Parameter	Reference Number
	48,143
Chloride	1,320.
Conductivity (Umhos)	5,640.

Sample ID:

48,143 : Rain Water w/Road Salt

Reviewed by: _____

ENDYNE, INC.

Laboratory Services

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
DATE REPORTED: July 13, 1993
DATE SAMPLED: June 29, 1993

PROJECT CODE: HNWT3090
REF. #: 48,134 - 48,142

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated the water samples were preserved in the laboratory with HNO_3.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

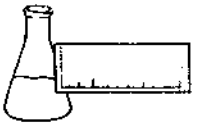
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



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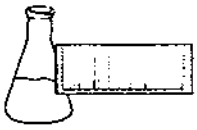
LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,134
STATION: RR-1 Supernatant 0g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per liter (ppm). Digestion was performed by EPA Method 3010/3020.

Parameter	Concentration	EPA Method	Analysis Date
Total Dissolved Lead	<0.002	7421	7/9/93



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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,135
STATION: RR-1 Soil 0g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Lead	3.49	7421	7/9/93

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Laboratory Services

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,136
STATION: RR-2 Supernatant .07g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per liter (ppm). Digestion was performed by EPA Method 3010/3020.

Parameter	Concentration	EPA Method	Analysis Date
Total Dissolved Lead	<0.002	7421	7/9/93

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,137
STATION: RR-2 Soil .07g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Lead	4.08	7421	7/9/93

ENDYNE, INC.

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,138
STATION: RR-3 Supernatant .34g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per liter (ppm). Digestion was performed by EPA Method 3010/3020.

Parameter	Concentration	EPA Method	Analysis Date
Total Dissolved Lead	<0.002	7421	7/9/93

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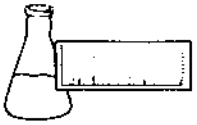
LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,139
STATION: RR-3 Soil .34g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Lead	4.47	7421	7/9/93



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,140
STATION: RR-4 Supernatant .54g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per liter (ppm). Digestion was performed by EPA Method 3010/3020.

Parameter	Concentration	EPA Method	Analysis Date
Total Dissolved Lead	<0.002	7421	7/9/93

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,141
STATION: RR-4 Soil .54g Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per kilogram (mg/kg), dry weight. Digestion was performed by EPA Method 3050.

Parameter	Concentration	EPA Method	Analysis Date
Total Lead	3.47	7421	7/9/93

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LABORATORY REPORT

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993
DATE RECEIVED: June 29, 1993

PROJECT CODE: HNWT3090
REF.#: 48,142
STATION: Rain Water with Road Salt
TIME SAMPLED: Not Indicated
SAMPLER: Dave DiDomenico

Tested parameter is reported in milligrams per liter (ppm). Digestion was performed by EPA Method 3010/3020.

Parameter	Concentration	EPA Method	Analysis Date
Total Dissolved Lead	<0.010	7421	7/9/93
Total Dissolved Cadmium	0.007	6010	7/12/93
Total Dissolved Arsenic	<0.005	7060	7/12/93
Total Dissolved Sodium	1,050.	6010	7/12/93
Total Dissolved Calcium	11.6	6010	7/12/93
Total Dissolved Magnesium	0.416	6010	7/12/93

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LABORATORY REPORT

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Williston Town Garage
REPORT DATE: July 13, 1993
DATE SAMPLED: June 29, 1993

PROJECT CODE: HNWT3090

SPIKE QA/QC DATA:

Parameter	Ref.#	Sample(mg/L)	Spike(mg/L)	% Recovery
Cadmium	48,142	0.007	0.200	101.
Sodium	48,142	1,050.	1,000.	97.0
Calcium	48,141	11.4	10.0	100.
Magnesium	48,142	0.415	5.00	103.

DUPLICATE QA/QC DATA:

Parameter	Ref.#	Dup 1(mg/L)	Dup 2(mg/L)	Avg % Deviation
Cadmium	48,142	0.007	0.007	2.
Arsenic	48,142	<0.005	<0.005	ND[1]
Sodium	48,142	1,050.	1,050.	0.
Calcium	48,142	11.4	11.7	1.
Magnesium	48,142	0.415	0.416	0.

Notes:

1 None Detected

NORTH

DRAINAGE DITCH

WASTEWATER MOUND

MW-4
NO SOIL SAMPLES TAKEN.

MW-3
.3 Cd
6.3 Pb
15.5 Ar

<.3 Cd
3.53 Pb
12.0 Ar

0.9 Cd
4.58 Pb
44.3 Ar

0.09/ppm

EXISTING MW-2A

MW-2
<0.4 Cd
3.16 Pb
12.7 Ar

<0.3 Cd
2.09 Pb
15.2 Ar

SALT STORAGE

GARAGE

ENTRANCE

SAND/SALT PILE

BANK

MW-1
.3 Cd
2.12 Pb
8.84 Ar

.3 Cd
2.48 Pb
14.0 Ar

NOTE: ALL RESULTS IN PPM.

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Wagner, Heindel, and Noyes
CONSULTING SCIENTISTS AND ENGINEERS
• Hydrogeology • Ecology •
• Environmental Engineering •
BURLINGTON, VERMONT

TOWN OF WILLISTON MAINT. GARAGE

WILLISTON, VERMONT

METALS ANALYSIS OF SOILS

DATE: 7/29/93	SCALE: NTS	DRN: MRL	APPD: DJD