Site Suitability Review of the Grafton Landfill

by
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and
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Prepared by the
North Dakota State Water Commission
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ND Landfill Site Investigation No. 43

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TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

LIST OF FIGURES

INTRODUCTION

Purpose

The North Dakota State Engineer and the North Dakota State Geologist were instructed by the 52nd State Legislative Assembly to conduct site-suitability reviews of the solid waste landfills in the state of North Dakota. These reviews are to be completed by July 1, 1995 (North Dakota Century Code 23-29-07.7). The purpose of this program is to evaluate site suitability of each landfill for disposal of solid waste based on geologic and hydrologic characteristics. Reports will be provided to the North Dakota State Department of Health and Consolidated Laboratories (NDSDHCL) for use in site improvement, site remediation, or landfill closure. A one time ground-water sampling event was performed at each site, and additional studies may be necessary to meet the requirements of the NDSDHCL for continued operation of solid-waste landfills. The Grafton solid-waste landfill is one of the landfills being evaluated.

Location of the Grafton Landfill

The Grafton landfill is located about 3 miles southeast of the City of Grafton in Township 157 North, Range 52 West, SE 1/4, Section 29. The Grafton landfill encompasses about 40 acres.

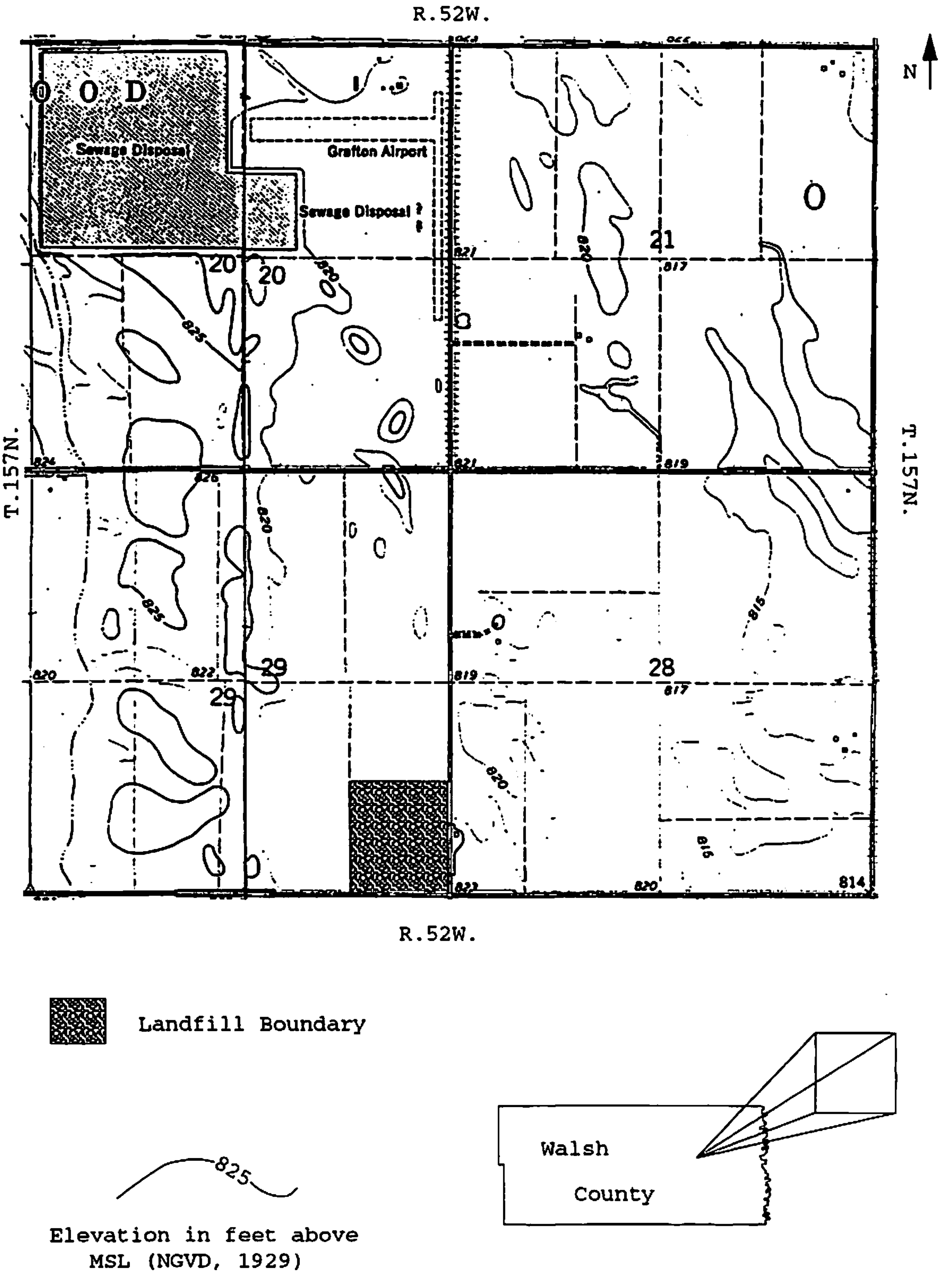

Figure 1. Location of the Grafton municial landfill in the SE 1/4, Section 29, T.157N., R.52W.

Previous Site Investigations

Two soil borings were drilled by Twin City Testing on March 26, 1985. These borings described the soil as Lake Agassiz deposits. The depth of both borings was 61 feet. A water level was measured at 24 feet below land surface in boring #2.

Methods of Investigation

The Grafton study was accomplished by means of: 1) drilling test holes; 2) constructing and developing monitoring wells; 3) collecting and analyzing water samples; and 4) measuring water levels.

Test-Drilling Procedure

The drilling method at the Grafton landfill was based on the site's geology and depth to ground water, as determined by the preliminary evaluation. A hollow-stem auger was used at the Grafton landfill because the sediments were poorly consolidated and because the depth to the water table was expected to be less than 70 feet. The lithologic descriptions were determined from the drill cuttings.

Monitoring Well Construction and Development

Four test holes were drilled at the Grafton landfill, and monitoring wells were installed in all of them. The number of wells installed at the Grafton landfill was based on the geologic and topographic characteristics of the site. The depth and intake interval of each well was selected to monitor the water level at the top of the uppermost aquifer. The wells were located within boundaries of the landfill.

Wells were constructed following a standard design (Fig. 2) intended to comply with the construction regulations of the NDSDHCL and the North Dakota Board of Water Well Contractors (North Dakota Department of Health, 1986). The wells were constructed using a 2-inch diameter, SDR21, polyvinyl chloride (PVC) well casing and a PVC screen, either 5 or 10 feet long, with a slot-opening size of 0.012 or 0.013 inches. The screen was fastened to the casing with stainless steel screws (no solvent weld cement was used). After the casing and screen were installed into the drill hole, the annulus around the screen was filled with No. 10 (grain-size diameter) silica sand to a height of two feet above the top of the screen. A two to three-foot bentonite plug was placed above the sand pack using medium-size bentonite chips. High-solids bentonite grout and/or neat cement was placed above the bentonite plug to seal the annulus to approximately five feet below land surface. The remaining annulus was filled with drill cuttings. The permanent wells were secured with a

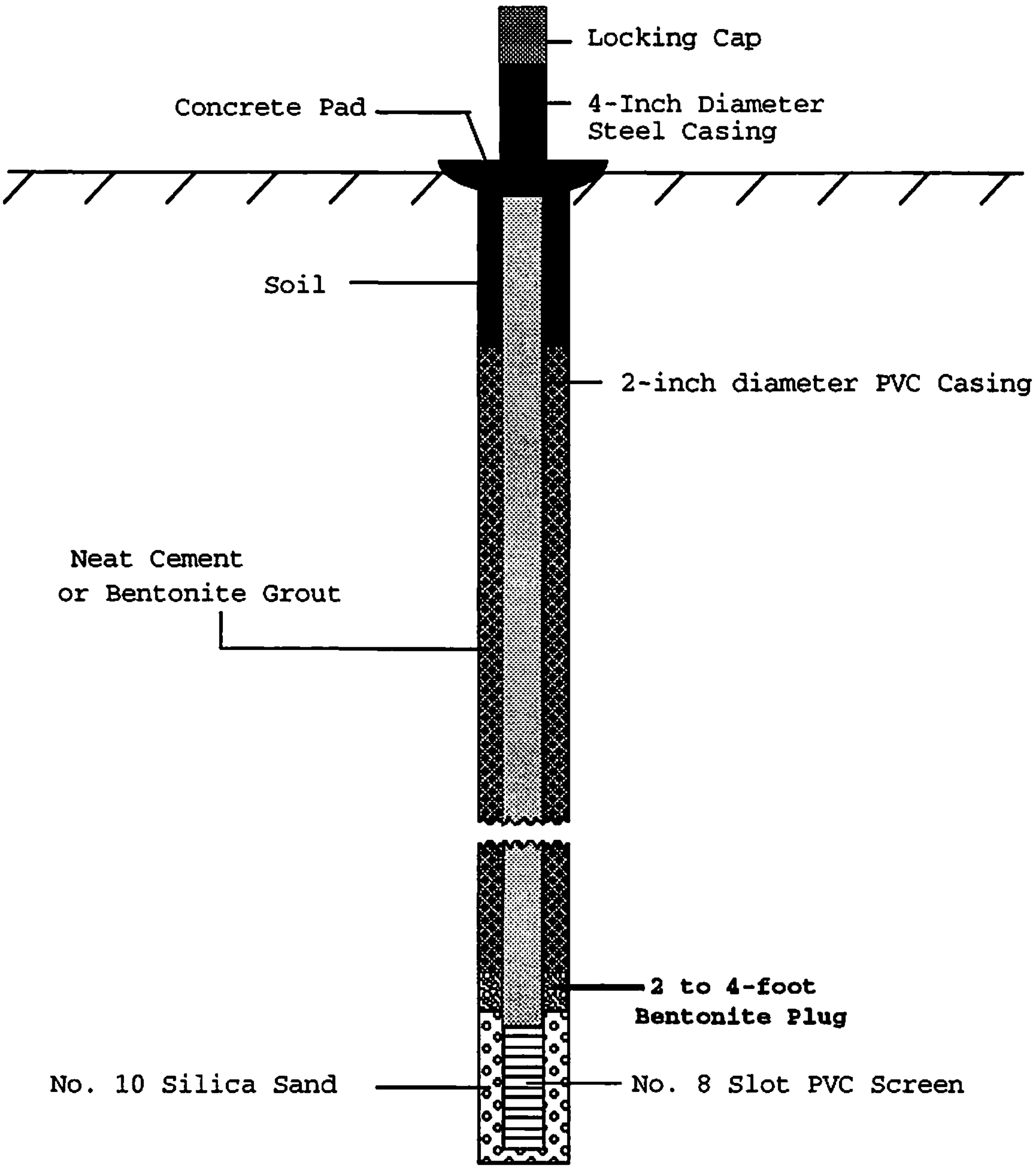

Figure 2. Construction design used for monitoring wells installed at the Grafton landfill.

protective steel casing and a locking cover protected by a two-foot-square concrete pad.

All monitoring wells were developed using a stainless steel bladder pump or a teflon bailer. Any drilling fluid and fine materials present near the well were removed to insure movement of formation water through the screen.

The Mean Sea Level (MSL) elevation was established for each well by differential leveling to Third Order accuracy. The surveys established the MSL elevation at the top of the casing and the elevation of the land surface next to each well.

Collecting and Analyzing Water Samples

Water-quality analyses were used to determine if leachate is migrating from the landfill into the underlying ground-water system. Selected field parameters, major ions, and trace elements were measured for each water sample. These field parameters and analytes are listed in Appendix A with their Maximum Contaminant Levels (MCL). MCLs are enforceable drinking water standards that represent the maximum permissible level of a contaminant as stipulated by the U.S. Environmental Protection Agency (EPA).

Water samples were collected using a bladder pump constructed of stainless steel with a teflon bladder. A teflon bailer was used in monitoring wells with limited transmitting capacity. Before sample collection, three to four well volumes were extracted to insure that unadulterated formation water was sampled. Four samples from each well were collected in high-density polyethylene plastic bottles as follows:

1) Raw (500 ml)
2) Filtered (500 ml)
3) Filtered and acidified (500 ml)
4) Filtered and double acidified (500 ml)

The following parameters were determined for each sample: Specific conductance, pH, bicarbonate, and carbonate were analyzed using the raw sample. Sulfate, chloride, nitrate*, and dissolved solids were analyzed using the filtered sample. Calcium, magnesium, sodium, potassium, iron, and manganese were analyzed from the filtered, acidified sample. Cadmium, lead, arsenic, and mercury were analyzed using the filtered double-acidified samples.

One well was sampled for Volatile Organic Compounds (VOC) analysis. This sample was collected at a different time than the standard water-quality sample. The procedure used for collecting the VOC sample is described in Appendix B. Each sample was collected with a plastic throw-away bailer and kept chilled. These samples were analyzed within the permitted 14-day holding period. The standard water-quality analyses were performed at the North Dakota State

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* No special preservative techniques were applied to nitrate samples and as a result reported nitrate concentrations may be lower than actual.

Water Commission (NDSWC) Laboratory and VOC analyses were performed by the NDSDHCL.

Water-Level Measurements

Water-level measurements were taken at least three times at a minimum of two-week intervals. The measurements were taken using a chalked-steel tape or an electronic (Solnist 10078) water-level indicator. These measurements were used to determine the shape and configuration of the water table.

Location-Numbering System

The system for denoting the location of a test hole or observation well is based on the federal system of rectangular surveys of public land. The first and second numbers indicate Township north and Range west of the 5th Principle Meridian and baseline (Fig. 3). The third number indicates the section. The letters A, B, C, and D designate, respectively, the northeast, northwest, southwest, and southeast quarter section (160-acre tract), quarter-quarter section (40-acre tract), and quarter-quarter-quarter section (10-acre tract). Therefore, a well denoted by 157-052-29DAC would be located in the SW1/4, NE1/4, SE1/4, Section 29, Township 157 North, Range 52 West. Consecutive numbers are added following the three letters if more than one well is

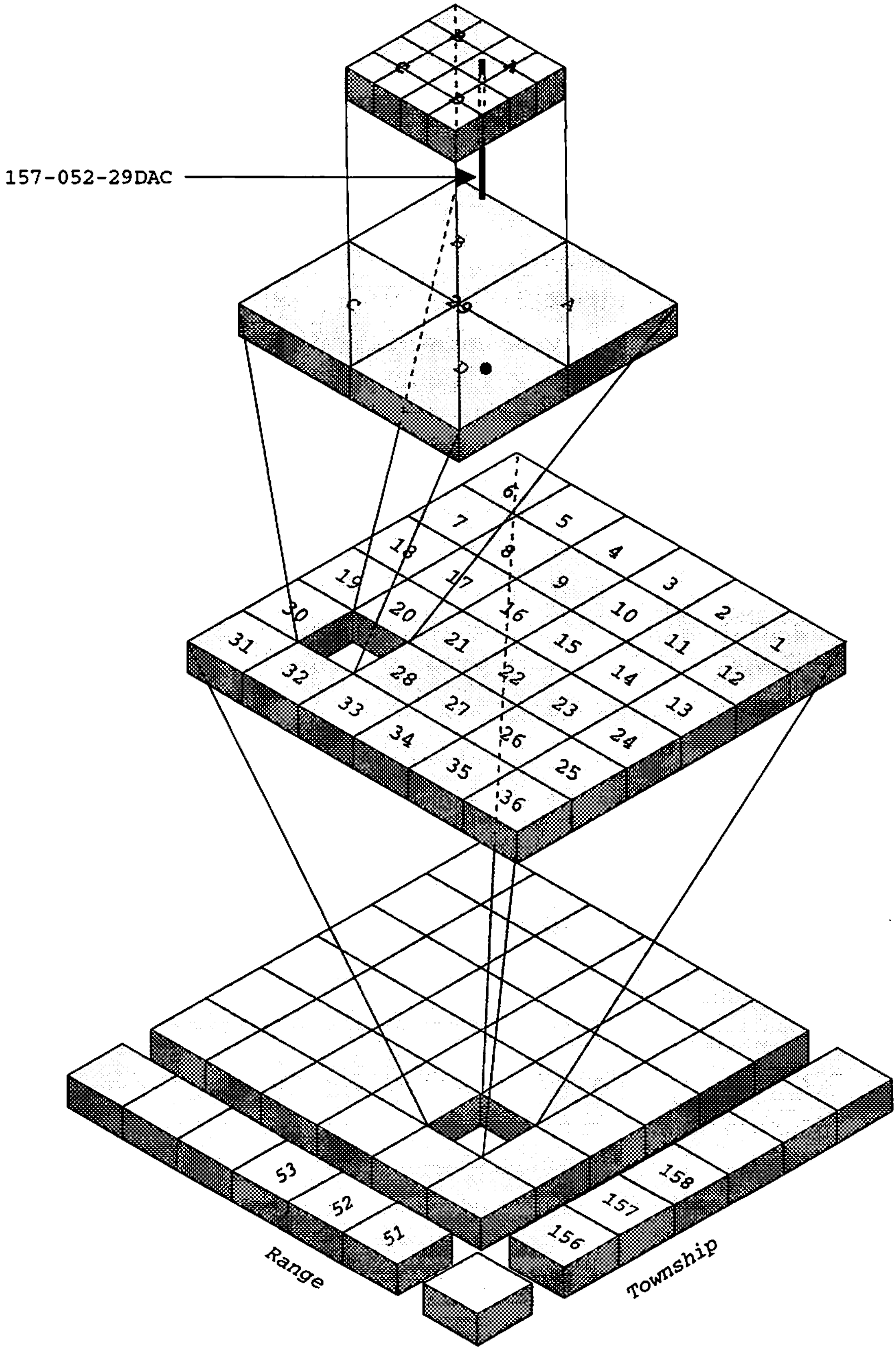

Figure 3. Location-numbering system.

located in a 10-acre tract, e.g. 157-052-29DAC1 and 157-052-29DAC2.

GEOLOGY

The Grafton landfill lies within the Red River Valley physiographic region, a flat plain that was formerly the basin of glacial Lake Agassiz. Surficial deposits in the region consist mainly of offshore and near-shore lake deposits. The offshore deposits are composed of clay and silt, while the near-shore deposits are typically composed of silt and sand. The floodplain of the Park River near the City of Grafton is underlain by alluvium.

Deep test holes drilled near the landfill for the County Ground-Water Study (Downey, 1971, 156-53-1BAA, 157-52-11CCC, 157-52-28AAA) indicate that the lake deposits are more than 100 feet thick in this area. The lake deposits are underlain by 50 to 100 feet of glacial till. In all three of these test holes the uppermost bedrock unit is reddish brown, Jurassic shale. The Dakota Group is therefore absent in the vicinity of the landfill, although it is apparently present in most areas to the west, south, and east of the landfill (Downey, 1973, Bluemle, 1983).

The Burnside beach ridge occurs about one-quarter mile west of the landfill. This beach ridge is lower and less continuous than ridges further to the west. It apparently represents a short-lived shoreline facies (Bluemle, 1973).

The landfill is located in a relatively flat area (Fig. 4). Drainage ditches have been dug around the landfill with one ditch extending north-south through the middle of the landfill.

Logs from two test borings drilled at the landfill by Twin City Testing (1985) reported clay with a few layers and lenses of silt from the surface to a depth of 61 feet. The four test holes drilled for the present study all encountered clay and silty clay to depth (Fig. 5, lithologic logs in Appendix C).

HYDROLOGY

Surface-Water Hydrology

Intermittent streams and drainage ditches comprise the surface-water hydrology near the Grafton landfill. The closest intermittent stream near the Grafton landfill is located about 0.75 miles west of the landfill (Fig. 1). This stream should not be susceptible to contaminant migration because of its distance up-gradient from the landfill. There are two drainage ditches located within the landfill boundaries. One drainage ditch is located along the western edge and the other is located near the center of the landfill. Both drainage ditches appear to be adjacent to the buried refuse. Water in these drainage ditches flows to the north and appears to divert surface runoff from the landfill.

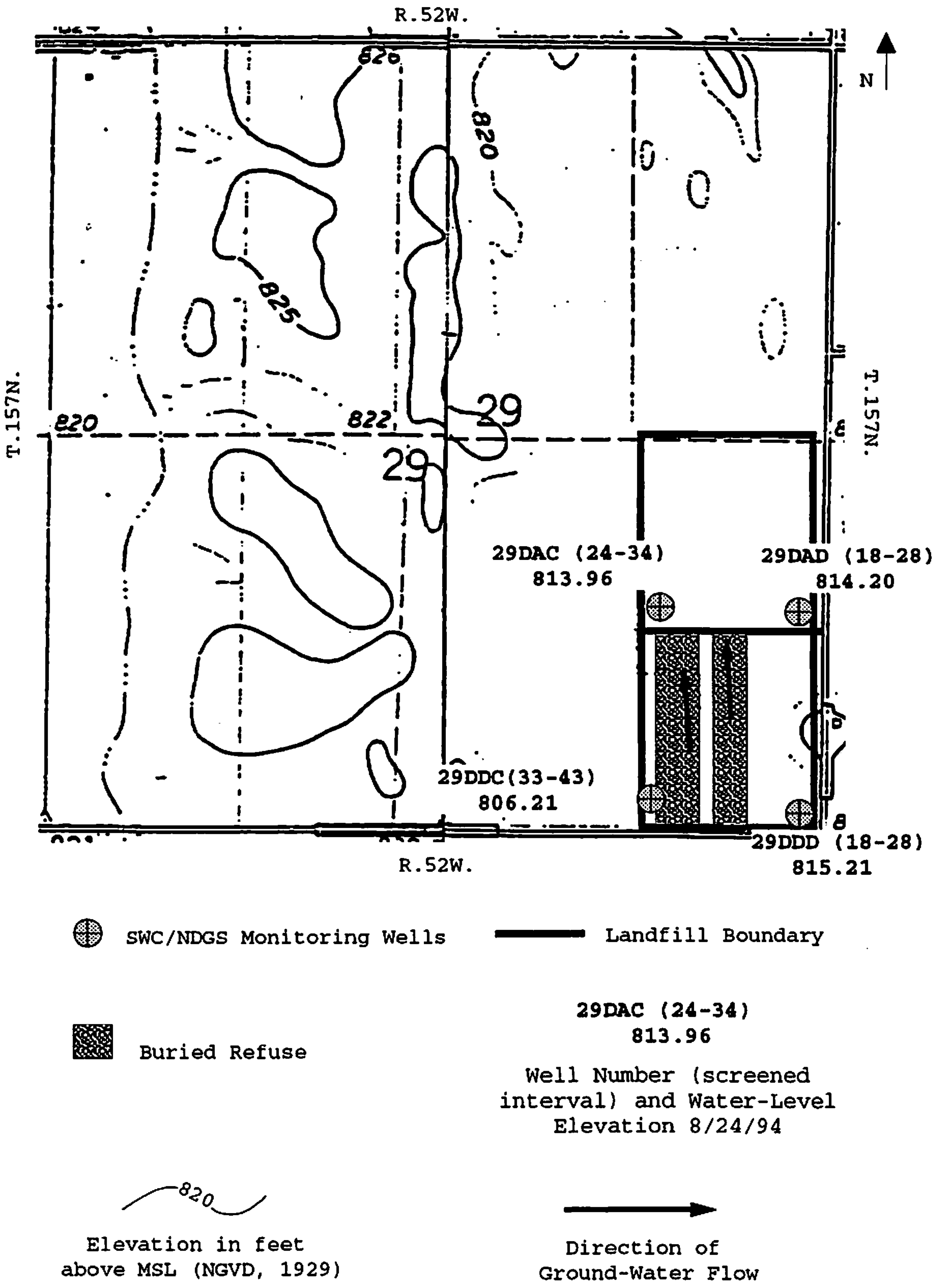

Figure 4. Location of monitoring wells and the direction of ground-water flow.

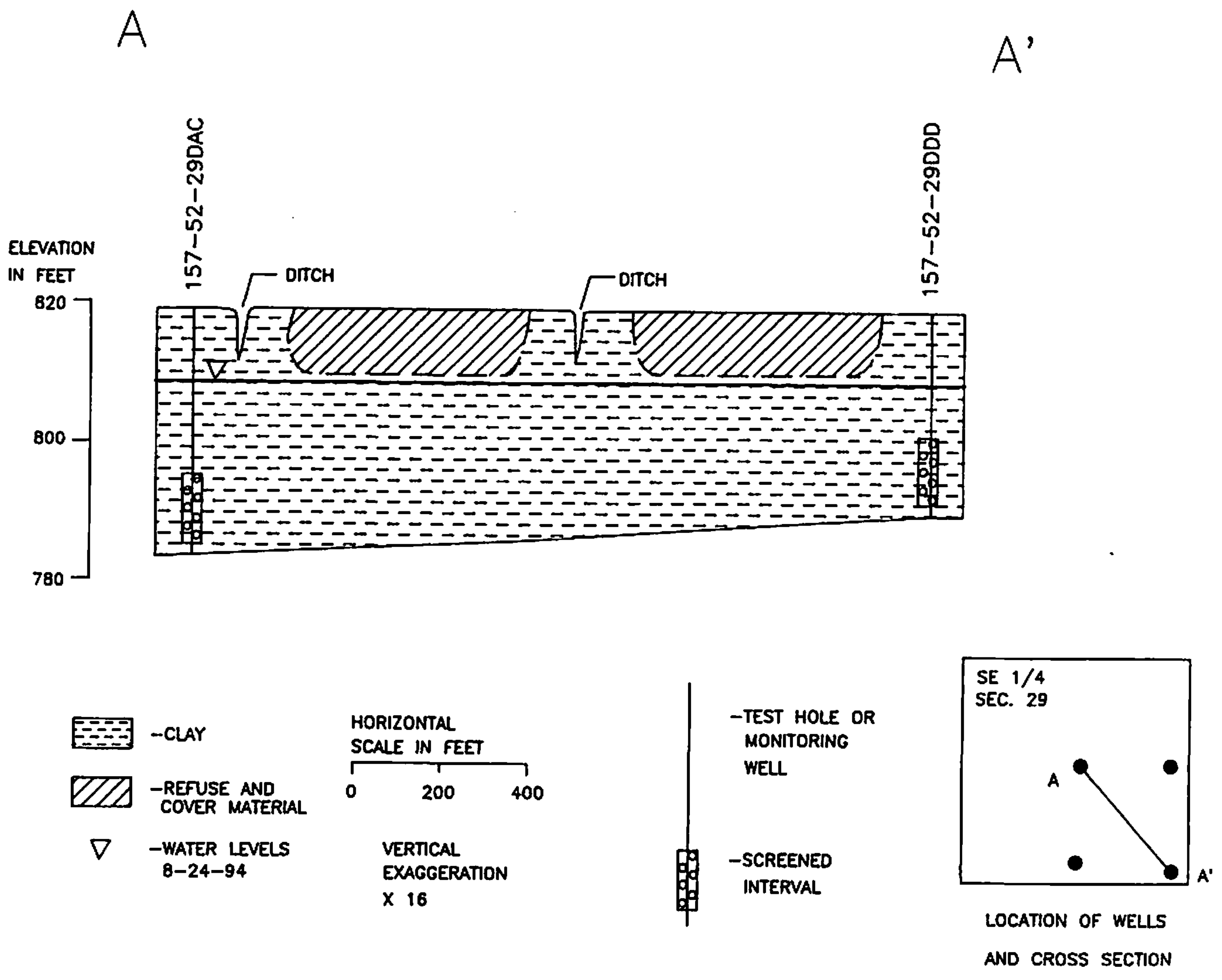

Figure 5. Geohydrologic section A–A' in the Grafton landfill.

These drainage ditches may be susceptible to contaminant migration.

The Park River is located about 2.5 miles north of the landfill. The City of Grafton obtains its municipal water supply from the Park River. The Park River should not be affected by contaminant migration due to its distance up-gradient from the landfill.

Regional Ground-Water Hydrology

Regional aquifers near the Grafton landfill consist of bedrock and glacial lithologies. The lower bedrock aquifers may be found in the Winnipeg, Red River, and Stony Mountain Formations (Downey, 1973). The upper most bedrock formation is located about 350 feet below land surface in Walsh County. There is little information on the hydrology of these formations and it is assumed that these formations contain limited quantities of water (Downey, 1973). The aquifers in these formations are characterized by a sodium-chloride brine type water. These aquifers should not be affected by contaminant migration from the landfill due to their depths and the occurrence of intervening clays characterized by low transmitting capacity.

The Dakota Formation overlies the Ordovician formations and is located about 200 feet below land surface near the Grafton landfill (Downey, 1973). The Dakota aquifer may flow in wells below an elevation of about 900 feet MSL (Downey, 1973). The Dakota aquifer is characterized by a sodium-chloride type water. This aquifer should not be susceptible to contaminant migration due to its depth and the occurrence of intervening clays characterized by low transmitting capacity.

The glacial aquifers near the Grafton landfill consist of undifferentiated sand and gravel deposits (Downey, 1973). These aquifers usually are not very extensive and as a result ground-water storage is limited. It is not known if any undifferentiated aquifers exist near the Grafton landfill.

Local Ground-Water Hydrology

Four test holes were drilled around the boundaries of the landfill with monitoring wells installed at each site (Fig. 4). The well screens were placed at the top of the uppermost aquifer. Four water-level measurements were taken over an eight week period (Appendix D). Monitoring wells 29DAC, 29DAD, and 29DDD are screened within a shallow aquitard consisting of lacustrine clay and silt deposits. Well 29DDC is screened lower in an aquitard consisting of lacustrine clay deposits. Based on the water-level measurements, the direction of ground-water flow appears to be to the north-northwest. The lower water level at well 29DDC as compared to water levels measured at the other three piezometers probably reflects the lower elevation of the screened interval. Drainage ditches that intersect the landfill near the center and along the western boundary may locally influence the depth and direction of ground-water movement.

Water Quality

Chemical analyses of water samples are shown in Appendix E. Anomalously high chloride concentrations were detected in all four wells (Fig. 6). These concentrations exceed the SMCL (250 mg/L) set by the Environmental Protection Agency (EPA). The chloride concentrations may be attributed to the regional upward movement of ground water from bedrock aquifers (Downey, 1973).

The trace element analyses, from well 29DAC, detected an anomalously high molybdenum concentration (130 µg/L) that exceeded the MCL of 100 µg/L set by the Environmental Protection Agency (EPA). Well 29DDD, which is located up-gradient of the buried refuse, detected a molybdenum concentration of 16 µg/L. The source of this concentration may be attributed to contaminant migration from the buried refuse.

The results of the VOC analysis, from well 29DAD, are listed in Appendix F. The VOC analyses detected concentrations of chloroform (11.7 µg/L), bromodichloromethane (0.52 µg/L), and

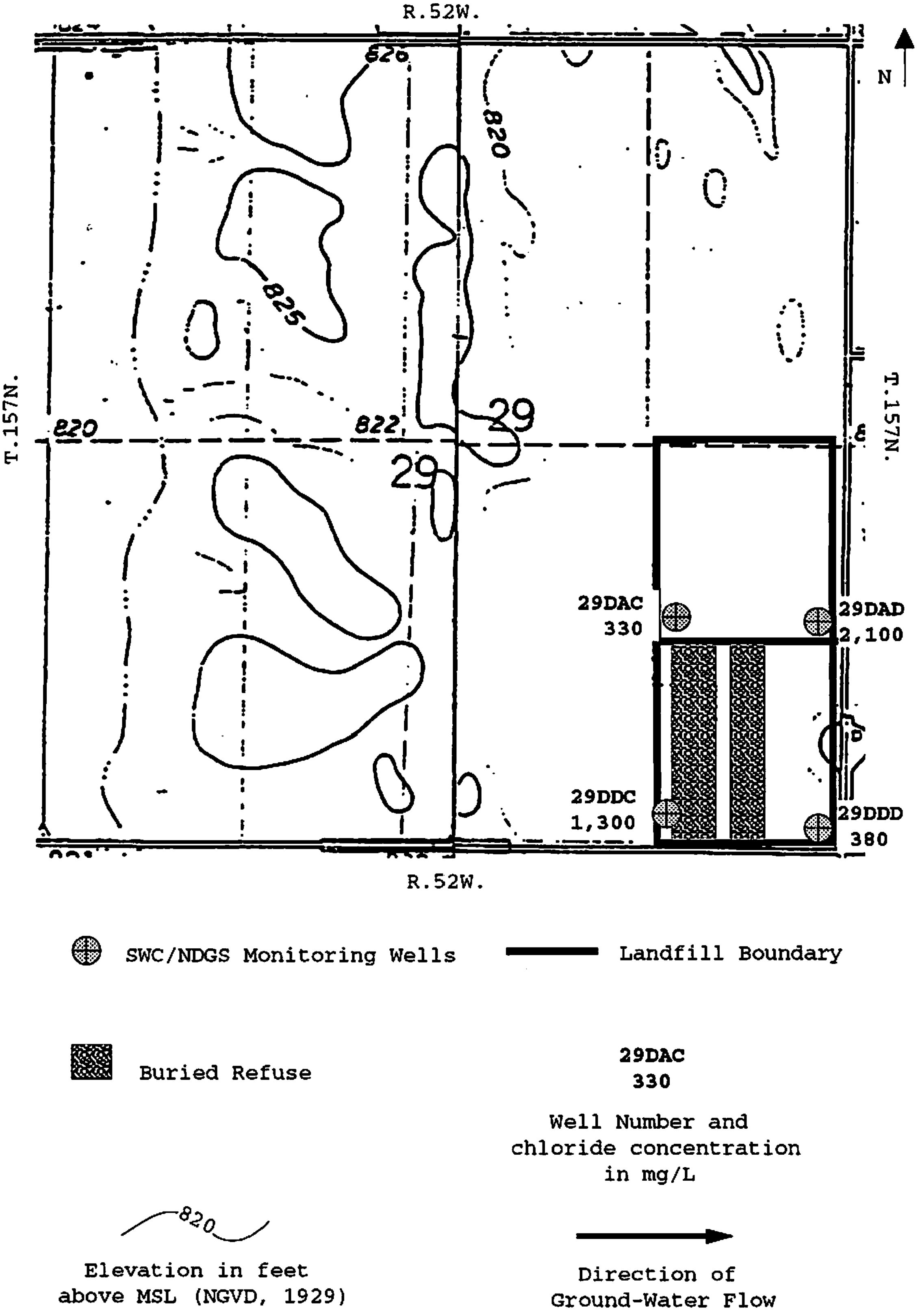

Figure 6. Location of monitoring wells and chloride concentrations.

dichloromethane (2.51 µg/L). It is inconclusive as to whether the source of this VOC compound is the result of laboratory contamination[†] or migration from the landfill.

CONCLUSIONS

The Grafton landfill is located in the Red River Valley physiographic region with surficial deposits consisting of offshore and near-shore lake deposits. Test holes indicate the lake deposits are more than 100 feet thick and underlain by 50 to 100 feet of till. The Jurassic Formation underlies the till in the area of the Grafton landfill. The Dakota Formation is absent in the area of the landfill but is present to the north, east and west.

Three of the monitoring wells are screened in a shallow aquitard consisting of lacustrine clay and silt deposits. The fourth well is screened deeper in an aquitard consisting of lacustrine clay deposits. Water-level measurements indicate the direction of ground-water flow is to the north-northwest. Two drainage ditches present at the landfill appear to divert surface drainage from the landfill. These drainage ditches may locally influence the depth and direction of ground-water movement.

[†] Beginning in September, 1994 the NDSDHCL changed their analytical procedures that lowered detection limits for VOC concentrations by one to two orders of magnitude.

drainage ditches may locally influence the depth and direction of ground-water movement.

In all wells water quality analyses indicated anomalously high chloride concentrations that exceeded the SMCL set by the EPA. These concentrations may be attributed to the regional upward movement of ground water from bedrock aquifers.

The trace element analyses detected an anomalously high molybdenum concentration in well 29DAC that exceeded the MCL. This well is located down-gradient of the buried refuse. The source of the molybdenum may be caused by contaminant migration from the landfill.

The VOC analyses detected concentrations of chloroform, bromodichloromethane, and dichloromethane. It is inconclusive as to whether the source of this VOC compound is the result of laboratory contamination or migration from the landfill.

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APPENDIX A

WATER QUALITY STANDARDS
AND
CONTAMINANT LEVELS

Water Quality Standards
and
Contaminant Levels

Field Parameters	
appearance	color/odor
pH	6-9(optimum)
specific conductance	-----
temperature	-----

Constituent	**MCL (µg/L)**
Arsenic	50
Cadmium	10
Lead	50
Molybdenum	100
Mercury	2
Selenium	10
Strontium	*

*EPA has not set an MCL for strontium. The median concentration for most U.S. water supplies is 100 µg/L (Hem, 1989).

	SMCL (mg/L)
Chloride	250
Iron	>0.3
Nitrate	50
Sodium	20-170
Sulfate	300-1000
Total Dissolved Solids	>1000

	Recommended Concentration Limits (mg/L)
Bicarbonate	150-200
Calcium	25-50
Carbonate	150-200
Magnesium	25-50
Hardness	>121 (hard to very hard)

APPENDIX B

SAMPLING PROCEDURE FOR VOLATILE ORGANIC COMPOUNDS

SAMPLING PROCEDURE FOR 40ML AMBER BOTTLES

Sample Collection for Volatile Organic Compounds

by
North Dakota Department of Health
and Consolidated Laboratories

1. Three samples must be collected in the 40ml bottles that are provided by the lab. One is the sample and the others are duplicates.

2. A blank will be sent along. Do Not open this blank and turn it in with the other three samples.

3. Adjust the flow so that no air bubbles pass through the sample as the bottle is being filled. No air should be trapped in the sample when the bottle is sealed. Make sure that you do not wash the ascorbic acid out of the bottle when taking the sample.

4. The meniscus of the water is the curved upper surface of the liquid. The meniscus should be convex (as shown) so that when the cover to the bottle is put on, no air bubbles will be allowed in the sample.

5. Add the small vial of concentrated HCL to the bottle.

6. Screw the cover on with the white Teflon side down. Shake vigorously, turn the bottle upside down, and tap gently to check if air bubbles are in the sample.

7. If air bubbles are present, take the cover off the bottle and add more water. Continue this process until there are no air bubbles in the sample.

8. The sample must be iced after collection and delivered to the laboratory as soon as possible.

9. The 40 ml bottles contain ascorbic acid as a preservative and care must be taken not to wash it out of the bottles. The concentrated acid must be added after collection as an additional preservative.

APPENDIX C

LITHOLOGIC LOGS
OF WELLS AND TEST HOLES

157-052-29DAC

NDSWC

Date Completed:	6/8/94	Purpose:	Observation Well
L.S. Elevation (ft):	818.89	Well Type:	2" PVC
Depth Drilled (ft):	34	Aquifer:	Undefined
Screened Interval (ft):	24-34	Source:	
		Owner:	GRAFTON

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-2
CLAY	SILTY, YELLOWISH-BROWN	2-6
CLAY	YELLOWISH-BROWN WITH ORANGE MOTTLES, SILTY	6-10
CLAY	YELLOWISH-BROWN	10-14
CLAY	OLIVE-GRAY TOTAL DEPTH 35 FEET.	14-35

157-052-29DAD
NDSWC

Date Completed: 6/8/94
L.S. Elevation (ft): 817.95
Depth Drilled (ft): 29
Screened Interval (ft): 18-28

Purpose: Observation Well
Well Type: 2" PVC
Aquifer: Undefined
Source:
Owner: GRAFTON

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-2
CLAY	YELLOWISH-BROWN	2-6
CLAY	YELLOWISH-BROWN WITH ORANGE MOTTLES	6-14
CLAY	OLIVE-GRAY	14-23
CLAY	SILTY, GRAY TOTAL DEPTH 29 FEET.	23-29

157-052-29DDC
NDSWC

Date Completed:	6/8/94	Purpose:	Observation Well
L.S. Elevation (ft):	816.90	Well Type:	2" PVC
Depth Drilled (ft):	44	Aquifer:	Undefined
Screened Interval (ft):	33-43	Source:	
		Owner:	GRAFTON

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-2
CLAY	SILTY, YELLOWISH-BROWN	2-18
CLAY	MEDIUM GRAY TOTAL DEPTH 43 FEET.	18-43

157-052-29DDD
NDSWC

Date Completed:	6/8/94	Purpose:	Observation Well
L.S. Elevation (ft):	819.21	Well Type:	2" PVC
Depth Drilled (ft):	29	Aquifer:	Undefined
Screened Interval (ft):	18-28	Source:	
		Owner:	GRAFTON

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	SILTY, YELLOWISH-BROWN	1-4
CLAY	YELLOWISH-BROWN WITH ORANGE MOTTLING	4-14
CLAY	OLIVE-GRAY, SILTY TOTAL DEPTH 29FEET.	14-29

APPENDIX D

WATER-LEVEL TABLES

Grafton Water Levels
7/26/94 to 9/8/94

157-052-29DAC MP Elev (msl,ft)=820.05
Undefined Aquifer SI (ft.)=24-34

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/26/94	10.41	809.64	08/24/94	6.09	813.96
08/11/94	6.11	813.94	09/08/94	6.05	814.00

157-052-29DAD MP Elev (msl,ft)=819.34
Undefined Aquifer SI (ft.)=18-28

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/26/94	5.07	814.27	08/24/94	5.14	814.20
08/11/94	5.23	814.11	09/08/94	4.95	814.39

157-052-29DDC MP Elev (msl,ft)=817.99
Undefined Aquifer SI (ft.)=33-43

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/26/94	24.88	793.11	08/24/94	11.78	806.21
08/11/94	15.64	802.35	09/08/94	8.96	809.03

157-052-29DDD MP Elev (msl,ft)=820.47
Undefined Aquifer SI (ft.)=18-28

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/26/94	9.80	810.67	08/24/94	5.26	815.21
08/11/94	5.25	815.22	09/08/94	5.39	815.08

APPENDIX E

MAJOR ION AND TRACE-ELEMENT CONCENTRATIONS

Grafton Landfill Water Quality
Major Ions

Location	Screened Interval (ft)	Date Sampled	SiO$_2$	Fe	Mn	Ca	Mg	Na	K	HCO$_3$	CO$_3$	SO$_4$	Cl	F	NO$_3$	B	TDS	Hardness as CaCO$_3$	NCH	% Na	SAR	Spec Cond (µmho)	Temp (°C)	pH
			(milligrams per liter)																					
157-052-29DAC	24-34	07/25/94	0.5	0.12	0.02	150	120	210	100	31	12	890	330	0.2	3.1	0.03	1830	870	820	31	3.1	3140	11	9.63
157-052-29DAD	18-28	07/20/94	20	0.25	6.4	700	500	350	13	359	0	1200	2100	0.2	0.3	0.28	5070	3800	3500	17	2.5	9460	8	
157-052-29DDC	33-43	07/19/94	15	0.08	1.7	590	170	150	19	469	0	320	1300	0.2	1.9	0.44	2800	2200	1800	13	1.4	5340	13	
157-052-29DDD	18-28	07/19/94	13	0.03	0.03	150	140	250	20	115	0	830	380	0.2	0.3	0.08	1840	950	860	36	3.5	3160		

Trace Element Analyses

Location	Date Sampled	Selenium	Lead	Cadmium	Mercury	Arsenic	Molybdenum	Strontium
		(micrograms per liter)						
157-052029DAC	7/25/94	1	0	0	0.6	2	130	1100
157-052029DAD	7/25/94	2	0	1	0.2	3	8	1200
157-052029DDC	7/25/94	4	0	0	0.2	3	5	1100
157-052029DDD	7/25/94	3	0	0	0	3	16	500

APPENDIX F

VOLATILE ORGANIC COMPOUNDS FOR WELL 157-052-29DAD

Volatile Organic Compounds
and
Minimum Concentrations

Concentrations are based only on detection limits. Anything over the detection limit indicates possible contamination.

Constituent	Chemical Analysis µg/L
Benzene	<0.5
Vinyl Chloride	<0.5
Carbon Tetrachloride	<0.5
1,2-Dichlorethane	<0.5
Trichloroethylene	<0.5
1,1-Dichloroethylene	<0.5
1,1,1-Trichloroethane	<0.5
para-Dichlorobenzene	<0.5
Acetone	<50
2-Butanone (MEK)	<50
2-Hexanone	<50
4-Methyl-2-pentanone	<50
Chloroform	11.7*
Bromodichloromethane	0.52*
Chlorodibromomethane	<0.5
Bromoform	<0.5
trans1,2-Dichloroethylene	<0.5
Chlorobenzene	<0.5
m-Dichlorobenzene	<0.5
Dichloromethane	2.51*
cis-1,2-Dichloroethylene	<0.5
o-Dichlorobenzene	<0.5
Dibromomethane	<0.5
1,1-Dichloropropene	<0.5
Tetrachlorethylene	<0.5
Toluene	<0.5
Xylene(s)	<0.5
1,1-Dichloroethane	<0.5
1,2-Dichloropropane	<0.5
1,1,2,2-Tetrachloroethane	<0.5
Ethyl Benzene	<0.5
1,3-Dichloropropane	<0.5
Styrene	<0.5
Chloromethane	<0.5
Bromomethane	<0.5
1,2,3-Trichloropropane	<0.5
1,1,1,2-Tetrachloroethane	<0.5
Chloroethane	<0.5
1,1,2-Trichloroethane	<0.5

* Constituent Detection

VOC Constituents cont.

2,2-Dichloropropane	<0.5
o-Chloroluene	<0.5
p-Chlorotoluene	<0.5
Bromobenzene	<0.5
1,3-Dichloropropene	<0.5
1,2,4-Trimethylbenzene	<0.5
1,2,4-Trichlorobenzene	<0.5
1,2,3-Trichlorobenzene	<0.5
n-Propylbenzene	<0.5
n-Butylbenzene	<0.5
Naphthalene	<0.5
Hexachlorobutadiene	<0.5
1,3,5-Trimethylbenzene	<0.5
p-Isopropyltoluene	<0.5
Isopropylbenzene	<0.5
Tert-butylbenzene	<0.5
Sec-butylbenzene	<0.5
Fluorotrichloromethane	<0.5
Dichlorodifluoromethane	<5
Bromochloromethane	<0.5
Allylchloride	<5
2,3-Dichloro-1-propane	<5
Tetrahydrofuran	<50
Pentachloroethane	<5
Trichlorotrifluoroethane	<5
Carbondisufide	<5
Ether	<5
trans-1,3-Dichloropropene	<0.5

* Constituent Detection