Final RI Report

Remedial Investigation/Feasibility Study

Korkay Inc.

Village Of Broadalbin, New York

Site Number 5-18-014
Work Assignment #D002925-3

Prepared for:

New York State
Department Of Environmental Conservation
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April 1994

KORKAY, INC. SITE
PHASE I REMEDIAL INVESTIGATION
TABLE OF CONTENTS

CONTENTS
(continued)

CONTENTS
(continued)

LIST OF APPENDICES

LIST OF TABLES

LIST OF TABLES
(continued)

LIST OF FIGURES

X

EXECUTIVE SUMMARY

INTRODUCTION

This Phase I Remedial Investigation (Phase I RI) has been conducted pursuant to requirements set forth by the New York State Department of Environmental Conservation (NYSDEC). The purpose of this Phase I RI is to provide an initial determination regarding the nature and extent of soil and groundwater contamination resulting form past activities conducted at the site and to define migration pathways and exposed populations, as well as to assess whether the identified contaminants pose a current or potential risk to human health.

The Korkay Inc. site is a one acre parcel of land located at 70 West Main Street, in the Village of Broadalbin, Fulton County, New York. The area is a mix of residential and commercial properties.

From 1887 to 1964, the property was owned by the Crosley Glove Company, which was a "skin mill" or leather manufacturer. Following this period, Korkay Inc. (also referred to as Perma Glaze by NYSDEC) operated as a chemical supply company which bought and stored bulk chemicals from other major chemical companies and blended these chemicals (detergents, solvents, etc.) into products such as car waxes, spray cleaners, and hand cleaners. It appears that the Korkay/Perma Glaze operations at the site ceased sometime in 1988.

Korkay obtained used barrels in which some of their final products were packaged. The used barrels were stored on-site between 1969 and 1980. Korkay washed and relined the used barrels on site. The barrel washwater, together with washwater from spill cleanups and vat cleaning, were discharged to the septic system on site. The previous contents of the used barrels used by Korkay were never determined. Some of the barrels are suspected to have contained acetone, isopropyl alcohol, degreasers, perfumes, and other chemicals.

HISTORICAL INVESTIGATIONS

In August 1979, personnel from the New York State Department of Health (NYSDOH) and the NYSDEC regional offices performed a site inspection at the Korkay site. This inspection was in response to a complaint by the neighbor located north of the site, who complained that trees and vegetation on his property were dead or dying due to chemical run-off from the Korkay barrel washing area. This neighbor also indicated that the run-off also affected the resident's garden located to the west of the site.

During the 1979 inspection, roughly 100 to 200 barrels were observed to be stored outdoors. Liquids, described as red or pink and white color, from the stored barrels was observed to be leaking onto the ground creating puddles of unknown chemicals.

In August 1983, NYSDEC initiated a Preliminary Site Assessment. Several reports were prepared for NYSDEC during the Preliminary Site Assessment (hazard ranking) phase EA Science and Technology (EA).

The Phase II study field work was conducted by EA and commenced in November 1985. Except for groundwater monitoring data, there was no other information available on the environmental media at the site. Analysis of groundwater samples included "inorganic parameters and organic compounds of the Hazardous Substance List." Due to exceedances of holding times for the three on-site monitoring well samples in 1985, re-sampling was performed in April 1987 and analysis included 'base neutral/acid extractable organics and pesticides of the Hazardous Substance List."

A summary of the analysis of groundwater monitoring well samples collected in 1985 and 1987 by EA from on-site monitoring wells detected several organic compounds (parts per billion or ppb) in the groundwater, including:

	Well K-2	Well K-3	Well K-1
Acetone (ppb)	150	16	17
1,1,1-Trichloroethane (ppb)	780	--	--
Tetrachloroethane (ppb)	--	49	--
O- & P-Xylene (ppb)	94	--	--
Trichloroethylene (ppb)	130	--	--
Chlordane (ppb)	7.6	--	--
Iron (ppm)	6.6	7.4	2.0
Manganese (ppm)	0.66	0.53	0.11

Well K-1 no longer exists and could not be found in 1987 possibly having been destroyed or damaged below the ground surface.

PHASE I REMEDIAL INVESTIGATION

The Phase I RI for the Korkay, Inc. site consisted of two major field activities. These activities included soil sampling and groundwater monitoring well installation and sampling. A third major field activity consisting of building reconnaissance including sampling of known underground storage tanks and underground was temporarily postponed by DEC.

The major objectives of this first phase RI included characterizing the nature of the contaminants present at the site and determining the need for further investigative actions. This first phase RI characterized those areas of the site that do not require additional study and those areas of the site that require further study under subsequent investigative phases. The data obtained from this first phase RI investigation will be used to develop appropriate remedial alternatives, and to determine the risks to public health posed by contaminants from this site.

To characterize the nature, degree, and extent of soil contamination, surficial and subsurface soil samples were collected at on-site and off-site locations, including potential migration to the adjacent property located to the west of the site. The sampling plan was prepared in consideration of available site information which described observed leakage to the ground from stored drums and discharge to the on-site septic

system from varied sources such as barrel wash water, vat cleaning residuals and spill cleanups.

To characterize the nature, degree, and extent of contamination within the uppermost water bearing unit and the first water bearing unit encountered below the aquitard underlying the site, as well as characterize the site specific stratigraphy and probable hydraulic vertical gradient of the water bearing units within the study area, seven (7) new groundwater monitoring wells were installed. The seven newly installed wells, two existing wells, and an adjacent property owner's well (non-supply) were sampled for chemical analysis.

GEOLOGIC INVESTIGATION FINDINGS

The limited geologic information published for the Broadalbin, New York area suggests overburden material consists of the poorly sorted units of glacial origin, including fine to medium grained sand, silty clay, sand and gravel, and till. Drift till is poorly sorted while outwash Kame deposits are well sorted because they were deposited by water. These were present in the soil borings installed at the site.

More specifically, the shallower soil is characterized as a fine to medium-grained sand unit grading to a silty clay unit. An extensive silty clay unit interbedded with lenses of clayey silt, silt, and sand was encountered at depths ranging from approximately 9.5 feet to 42 feet. Underlying the silty clay unit is a thin sand and gravel unit that overlies a dense silt till unit. The dense silt till unit was initially encountered at depths ranging from approximately 34 to 54 feet below the surface grade. [A silt, trace gravel unit was encountered instead of the till unit in the area of MW-7D.] These glacial deposits are reported to be underlain by Dolomite bedrock of the Cambrian Age Little Falls Formation.

The uppermost water bearing unit was encountered in the unconsolidated overburden at a depth of 7.5 to 8 feet below the surface grade. The first water bearing unit below the aquitard (the silty clay), was encountered at depths ranging from 32 feet to 43 feet below the surface grade.

Based on one round of water levels obtained during groundwater sampling, contour gradient maps of the potentiometric surface were constructed for the two water bearing units. The flow direction of the uppermost water bearing unit is in the southerly direction. The hydraulic gradient in the first water bearing unit encountered below the aquitard is suggested to be in the east to southeasterly direction; however, this may not be illustrative of the actual site conditions because of the thin, possibly discontinuous sands that were monitored and existence of a significant vertical hydraulic gradient.

CONTAMINATION INVESTIGATION FINDINGS

SOILS

Surficial Soils: VOCs were detected in the surficial soils, but the levels detected were not above DEC TAGM criteria in the surficial soil samples collected.

No SVOCs were detected above TAGM criteria in surficial soil samples collected from Areas 3, 4, and 6. Levels ranging from 38 to 1,700 ppb or ug/kg of several SVOCs were detected above DEC TAGM criteria in the surficial soil samples collected in **Areas 1, 2, and 5**. The SVOCs and corresponding maximum concentration detected include:

		DEC TAGM Criteria
benzo(a)pyrene	@ 320 ug/kg	61 ug/kg
dibenzo(a,h)anthracene	@ 47 ug/kg	14 ug/kg
benzo(a)anthracene	@ 260 ug/kg	220 ug/kg
hexachlorobenzene	@ 1,700 ug/kg	410 ug/kg

No pesticides were detected above TAGM criteria in surficial soil samples collected from Areas 1, 3, 4, 5, and 6. Levels ranging from 81 to 8,900 ppb or ug/kg of several pesticides were detected above DEC TAGM criteria in

the surficial soil samples collected in Area 2 only. The pesticides and corresponding maximum concentration detected include:

		DEC TAGM Criteria
gamma-chlordane	@ 8,900 ug/kg	540 ug/kg
aldrin	@ 81 ug/kg	41 ug/kg
heptachlor epoxide	@ 170 ug/kg	20 ug/kg

The surficial soil samples had elevated detected metals concentrations of a variety of metals throughout the site. Heavy metals in the surface soils significantly exceeding the DEC TAGM soil cleanup criteria include beryllium, chromium, copper, lead, mercury, nickel, and zinc. The source of metals contamination is unknown but could be attributable to either historical site operations or Korkay's site activities. There is no established metals distribution pattern.

The absence of volatile organics in the surficial soils are likely a result of being diluted by weathering, where volatiles may have dissipated through volatilization into the air. However, the absence of volatile organics in the surficial soil samples does not eliminate the finding that a few volatile compounds have contributed to subsurface soil and groundwater contamination.

Characterization of surficial soil samples collected from the site revealed no VOCs detected above DEC TAGM soil cleanup criteria. When compared against DEC TAGM soil cleanup criteria, several PAHs, phthalates, pesticides, and inorganics exceeded the recommended cleanup objective. Based upon this data, the surficial soil through leaching of infiltrating rainwater in Areas 1, 2, and 3 are a potential source of groundwater contamination.

Subsurface Soils: No VOCs were detected above TAGM criteria in subsurface soil samples collected from Areas 3, 4, 5, and 6. Levels ranging from 2,600 to 12,000 ppb or ug/kg of several VOCs were detected above DEC TAGM

criteria in the subsurface soil samples collected in Area 1. The VOCs and corresponding maximum concentration detected include:

		DEC TAGM Criteria
trichloroethene	@ 2,600 ug/kg	700 ug/kg
xylenes	@12,000 ug/kg	1,200 ug/kg

In addition, acetone was detected at an estimated "J" value which is equivalent to the DEC TAGM criteria of 200 ppm in the soil sample collected inside of the storage shed in Area 2.

No SVOCs were detected above TAGM criteria in subsurface soil samples collected from Areas 3, 4 and 6. Levels ranging from 70 to 27,000 ppb or ug/kg of several SVOCs were detected above DEC TAGM criteria in the subsurface soil samples collected in Areas 1, 2, and 5. The SVOCs and corresponding maximum concentration detected include:

		DEC TAGM Criteria
di-n-butylphthalate	@27,000 ug/kg	8,100 ug/kg
benzo(a)pyrene	@ 200 ug/kg	61 ug/kg
2,4-dichlorophenol	@ 880 ug/kg	400 ug/kg
benzo(a)anthracene	@ 250 ug/kg	220 ug/kg

No pesticides were detected above TAGM criteria in subsurface soil samples collected from Areas 1, 4, 5, and 6. Levels ranging from 32 to 7,800 ppb or ug/kg of several pesticides were detected above DEC TAGM criteria in the surficial soil samples collected in Areas 2 and 3. The pesticides and corresponding maximum concentration detected include:

		DEC TAGM Criteria
gamma-chlordane	@ 7,800 ug/kg	540 ug/kg
aldrin	@ 51 ug/kg	41 ug/kg
heptachlor epoxide	@ 110 ug/kg	20 ug/kg

The subsurface soil samples had detected metals concentrations of a variety of metals throughout the site. In addition, all of the split spoon soil samples collected had detected metals concentrations of a variety of metals at all locations.

Characterization of subsurface soil samples collected from the site revealed levels of trichloroethene, xylenes, and acetone, the only volatile organic contaminants detected at or above DEC TAGM soil cleanup criteria. When compared against DEC TAGM soil cleanup criteria, several PAHs, phthalate, pesticides, and inorganics exceeded either the allowable soil concentration or the recommended cleanup objective. Based upon this data, the subsurface soils through leaching of infiltrating rainwater are also a potential source of groundwater contamination. For example, 12 ppm of xylenes, 2.6 ppm of TCE, 7.8 ppm of gamma-chlordane, and the other organic contaminants which exceed the DEC's soil cleanup criteria would theoretically contribute to the contamination found in the groundwater.

In Areas 1, 2, and 5, metals levels are generally higher in the surface soils than in the subsurface, while in Areas 3 and 4 the concentrations are generally more similar in both surface and subsurface soils. In the split spoon samples, elevated levels of inorganic metals are prevalent at split spoon sample depths, to at least 30 feet below grade (depth of deepest borehole sample) and in 3 of 4 cases, except for magnesium, at more elevated concentrations than surficial soils. The source of metal contamination surficially and at depth is not known.

GROUNDWATER

Analysis of groundwater samples collected from the shallow monitoring wells revealed impacted groundwater extending from the site to the south across West Main Street, following the direction of groundwater flow. Due to the impervious nature of the silty clay unit encountered, vertical migration of contamination would likely occur at a low rate. Analysis of groundwater samples collected from the deep monitoring wells revealed that the deep

water bearing zone has not been significantly impacted by the organic contamination found at the Korkay site.

Due to the preferred horizontal flow within the shallow water bearing zone in the study area, any impacted water will likely travel horizontally until it reaches an area of groundwater discharge off the site. Given the data findings obtained to date, it would appear that the drinking water supplies would not likely be impacted by the contaminated shallow water due to the fact that Kennyetto Creek bisects the area lying between the site and the southern drinking water supply well, which may be where the shallow water bearing unit may discharge.

Groundwater contamination by organics related to the site appears to be limited to Areas 1 and 2 on site, as well as towards well MW-6S located off site across West Main Street. Low levels of VOCs detected in wells K-2, MW-5S, and MW-6S above the DEC groundwater and DOH drinking water supply criteria include 1,2-dichloroethene, trichloroethene, toluene, ethylbenzene, xylenes. Organics contamination related to the site may extend beyond well MW-6S to the south of MW-6S where toluene and xylenes were detected. As DEC initially suspected, VOC contamination found in 1985 has migrated off site, as acetone and 1,1,1-trichloroethane are no longer detected in K-2 and only a trace amount of tetrachloroethene was detected. However, since K-2 is located in Area 1, where the soils had detected levels of VOCs, it would appear that Area 1 may be a source area of VOC contamination. It is note that xylenes at relatively higher concentration at the source area were detected off site, while TCE at relatively lower concentration at the source area was not detected off site to date.

SVOCs detected in wells K-2 and MW-6S above the DEC groundwater and DOH drinking water supply criteria include 2,4-dichlorophenol, naphthalene, 1,2-dichlorobenzene, and 2-methylphenol. The contaminant distribution seems to suggest that SVOCs have migrated off site. There is no former data to compare these SVOC findings. However, suspected source areas of SVOC contamination include Areas 1 and 2, based on the soil sample results.

Elevated levels of pesticides in wells MW-5S and K-2 above the DEC groundwater and DOH drinking water supply criteria include heptachlor epoxide, dieldrin, 4,4-DDE, gamma chlordane, beta-BHC, endrin, 4,4-DDD, and 4,4-DDT. Compared to the pesticide contamination found in the water in 1987, the level of chlordane in 1987 is much greater than the level of gamma-chlordane, a chlordane isomer, recently detected. However, it does not appear that the pesticide contamination has moved off site to date, as none were detected in well MW-6S. Since MW-5S is located in Area 2 , where the soils had elevated levels of pesticides, it would appear that Area 2 may be a source area of pesticide contamination.

Elevated levels of inorganics were detected in the groundwater including iron, manganese, and sodium. In addition, in well MW-4D chromium was also detected above the standard. Iron, manganese, and sodium are natural constituents of groundwater and elevated levels of these metals can also be related to varying soil composition or changes in water chemistry. The source of these metals and chromium contamination is not known.

Two private supply wells are located within a half-mile of the site located directly to the north on Cedar Lane in the Village of Broadalbin. In addition, there are private drinking supply wells in both the glacial deposits and the carbonate bedrock located within approximately 1,700 to 1,800 feet of the site located directly to the west in the adjacent Town of Mayfield. It is not known what zones these wells are screened in or whether or not there is hydraulic connection with these zones. However, the contaminated uppermost water bearing zone does not appear to be moving horizontally in the direction of these wells.

The two Village of Broadalbin drinking water supply wells are located within approximately 3,200 feet of the site located to the north and to the south, it is unlikely that these wells would be impacted by the shallow overburden contaminated water because of their distance from the site. The North Second Avenue well is reportedly completed in the carbonate bedrock. Although the South Second Avenue well is supposedly screened from 24-30 feet in unconsolidated sand and gravel, the Kennyetto Creek, which lies in between the Korkay site and this supply well, could be where the

contaminated shallow water bearing zone discharges, although this would need to be confirmed. It is not known whether or not there is hydraulic connection with these deeper zones. However, since discharge of the shallow water bearing unit is probably between the site and the South Second Avenue well, and the North Second Avenue well is up- or side-gradient of the site, the shallow water is unlikely to be influenced by any supply well pumping effects.

HUMAN HEALTH RISK ASSESSMENT FINDINGS

The baseline human health risk assessment addressed potential hazards to human health. Since the Korkay, Inc. site is located in a mixed residential area, the possible risks associated with potential future residential use of the site were evaluated in the risk assessment.

Three potential exposure routes were considered for the resident: inhalation, ingestion, and dermal absorption. The exposure media considered were the shallow and deep water bearing units, surficial soils, and subsurface soils. The conservative rationale for selection of contaminants of concern used in the risk assessment are based on EPA risk assessment guidance. The risk assessment identified non-carcenogenic hazard indices higher than unity and excess lifetime cancer risks higher than 1.0E-06 for the following exposure routes and associated contaminants of concern:

for ingestion - alpha chlordane, gamma chlordane, dieldrin, heptachlor epoxide, TCE, manganese for the shallow water bearing unit; manganese for the deeper water bearing unit; alpha chlordane, gamma chlordane and arsenic for the surface soil; and alpha chlordane, gamma chlordane and arsenic for the subsurface soil.

for inhalation and dermal adsorption - alpha chlordane, gamma chlordane, dieldrin, heptachlor epoxide for the shallow water bearing unit.

In addition, for lead in soil, although there are currently no quantitative toxicity criteria available for lead from EPA, EPA recommends a residential

soil lead action level of 500 mg/kg. This level is exceeded in three samples collected in Areas 1 and 5.

The highest risks are associated with the human consumption and household use of the water in the shallow aquifer; however, this is an unlikely scenario given that the Village of Broadalbin has a public water supply. Risks for ingestion, dermal contact, and inhalation of contaminants volatilized from shallow groundwater are above or within the target risk range recommended by EPA. Risks for ingestion for surface and subsurface soils are within the EPA target risk range.

3.0 STUDY AREA INVESTIGATIONS

3.1 INTRODUCTION

The Phase I RI for the Korkay, Inc. site consisted of two major field activities. These activities included:

- o Soil Sampling
- o Groundwater Monitoring Well Installation and Sampling

This section presents an overview of each of these activities. Discussion of soil sampling is provided in section 3.2, Soil Sampling. Discussion of site hydrogeology is provided in section 3.3, Groundwater Investigation. A detailed discussion of the laboratory analysis of collected samples is presented in section 4.0, Nature and Extent of Contamination.

A discussion of laboratory data validation and usability was provided by CDM under separate cover to DEC, and the report narrative has been included as Appendix D to this RI Report.

A third major field activity consisting of building reconnaissance including sampling of known underground storage tanks and underground septic tanks has been temporarily postponed by DEC. Remedial investigation related to this field activity will be reported separately from this RI Report as an addendum in the future following completion of this activity.

3.2 SOIL INVESTIGATION

In order to characterize the nature, degree, and extent of soil contamination, surficial (2 to 6") and subsurface (to 60" in depth) soil samples were collected by CDM at on-site and off-site locations, including potential migration to the adjacent Hayes property located to the west of the site. The sampling plan was prepared in consideration of available site information which described observed leakage to the ground from stored drums and discharge to the on-site septic system from varied sources such as barrel wash water, vat cleaning residuals and spill cleanups.

Because contamination in soil may directly impact groundwater quality due to percolation and infiltration, this investigative activity is important to the Phase I RI. Surface soil sampling results also provide information on the potential for dispersion of contaminants in fugitive dust created by on-site activities. The soil samples were collected by CDM personnel from September 13 through September 16, 1993. Table 3-1 summarizes the soil sample numbers and depths.

Sample organization was simplified by dividing the site area into six sections as shown on figure 3-1. The sections also served to rank the site by the expected levels of contamination. The ranking was based upon existing site information provided by DEC. Area 1 was expected to be the most contaminated and area 6, the "background" sample area, as the least.

To minimize the possibility of cross-contamination of the samples, a "clean to dirty" sample collection order was established to proceed from area 6 to area 1. Many of the sample locations were chosen with regard to their proximity to various potential environmental concerns, such as septic tanks, underground storage tanks, storm drain, drum handling and storage locations, and staining.

3.2.1 SAMPLE COLLECTION

Surficial soil samples collected for volatile organics analysis were transferred directly from a depth of 0 to 6" using disposable plastic trowels to laboratory provided sample containers. Stainless steel trowels were used on occasion when plastic trowels could not be used due to soil stiffness. The soils samples collected for non-volatile parameter analyses were thoroughly mixed in stainless steel bowls using stainless steel or plastic trowels prior to transferral to the laboratory provided sample containers.

Following surficial soil sample collection, subsurface soil samples were collected by means of stainless steel hand augers. Augering commenced at the base of the surficial sample location, with the exception of sample 4-1 which is further discussed in section 3.2.2 of this report. When the

TABLE 3-1

SOIL SAMPLE SUMMARY

Sample Number	Sample Depth	Sampling Method	Purpose
AREA 1: Southwest Quadrant of Site			
1-1A	0-6"	Trowel	Source area confirmation
1-1B	18-24"	Hand Auger/Trowel	of contamination.
1-2A	--	Not Collected	Dry well area confirmation of
1-2B	--	Not Collected	contamination; report states 4' trench depth.
1-3A	0-6"	Trowel	Dry well area confirmation of
1-3B	18-24"	Hand Auger/Trowel	contamination; report states 4' trench depth.
1-4A	0-6"	Trowel	Source area confirmation
1-4B	18-24"	Hand Auger/Trowel	of contamination.
1-5A	0-6"	Trowel	Source area, above ground
1-5B	18-24"	Hand Auger/Trowel	tank area, and old septic
1-5C	54-60"	Hand Auger/Trowel	area confirmation of contamination.
1-6A	--	Not Collected	Source area and old septic
1-6B	--	Not Collected	area confirmation of contamination.
1-7A	0-6"	Trowel	Source area and suspected
1-7B	42-48"	Hand Auger/Trowel	UST confirmation of contamination.
1-8A	0-6"	Trowel	Source area confirmation of
1-8B	18-24"	Hand Auger/Trowel	contamination.
1-9B	Duplicate Sample at 1-4B		

TABLE 3-1
(continued)

Sample Number	Sample Depth	Sampling Method	Purpose
AREA 2: Northwest Quadrant of Site			
2-1A	0-6"	Trowel	Storm drain trench area confirmation of contamination.
2-1B	42-48"	Hand Auger/Trowel	
2-2A	0-6"	Trowel	Storm drain trench area confirmation of contamination.
2-2B	--	Not Collected	
2-3A	0-6"	Trowel	Surface water run-off confirmation of contamination.
2-3B	18-24"	Hand Auger/Trowel	
2-4A	0-6"	Trowel	Drum storage area and storm drain trench area confirmation of contamination.
2-4B	42-48"	Hand Auger/Trowel	
2-5A	0-6"	Trowel	Drum storage area and storm drain trench area confirmation of contamination.
2-5B	42-48"	Hand Auger/Trowel	
2-6A	0-6"	Trowel	Confirmation of contamination inside shed on soil "floor."
2-6B	18-24"	Hand Auger/Trowel	
2-7A	0-6"	Trowel	Drum storage area and garage door confirmation of contamination.
2-7B	18-24"	Hand Auger/Trowel	
AREA 3: Northeast Quadrant of Site			
3-1A	0-6"	Trowel	Confirmation of contamination where staining was observed at garage door.
3-1B	18-24"	Hand Auger/Trowel	
3-2A	0-6"	Trowel	Dry well area confirmation of contamination; report states 4' trench depth.
3-2B	42-48"	Hand Auger/Trowel	
3-3A	0-6"	Trowel	Old septic area confirmation of contamination.
3-4A	0-6"	Trowel	Old septic area confirmation of contamination.
3-4B	54-60"	Hand Auger/Trowel	
3-5A	--	Not Collected	Loading dock area confirmation of contamination.
3-5B*	18-24"	Hand Auger/Trowel	
3-6A	Duplicate Sample at 3-3A		

(* Sample number is 3-5A)

TABLE 3-1
(continued)

Sample Number	Sample Depth	Sampling Method	Purpose
AREA 4: Southeast Quadrant of Site			
4-1A	0-6"	Trowel	Confirmation of contamination where staining was observed on wall.
4-1B	18-24"	Hand Auger/Trowel	
4-2A	0-6"	Not Collected	Confirmation of contamination in front of garage door.
4-2B	18-24"	Hand Auger/Trowel	
AREA 5: Hayes Property			
5-1A	0-6"	Trowel	Confirmation of contamination at property limit/fenceline.
5-1B	18-24"	Hand Auger/Trowel	
5-2A	0-6"	Trowel	Confirmation of contamination on Hayes property.
5-2B	18-24"	Hand Auger/Trowel	
5-3A	0-6"	Trowel	Confirmation of contamination on Hayes property.
5-3B	18-24"	Hand Auger/Trowel	
5-4A	0-6"	Trowel	Confirmation of contamination on Hayes property.
5-4B	18-24"	Hand Auger/Trowel	
5-5A	Duplicate Sample at 5-4A		
AREA 6: Background at Church			
6-1A	0-6"	Trowel	Background samples.
6-1B	18-24"	Hand Auger/Trowel	
6-2A	0-6"	Trowel	Background samples.
6-2B	18-24"	Hand Auger/Trowel	

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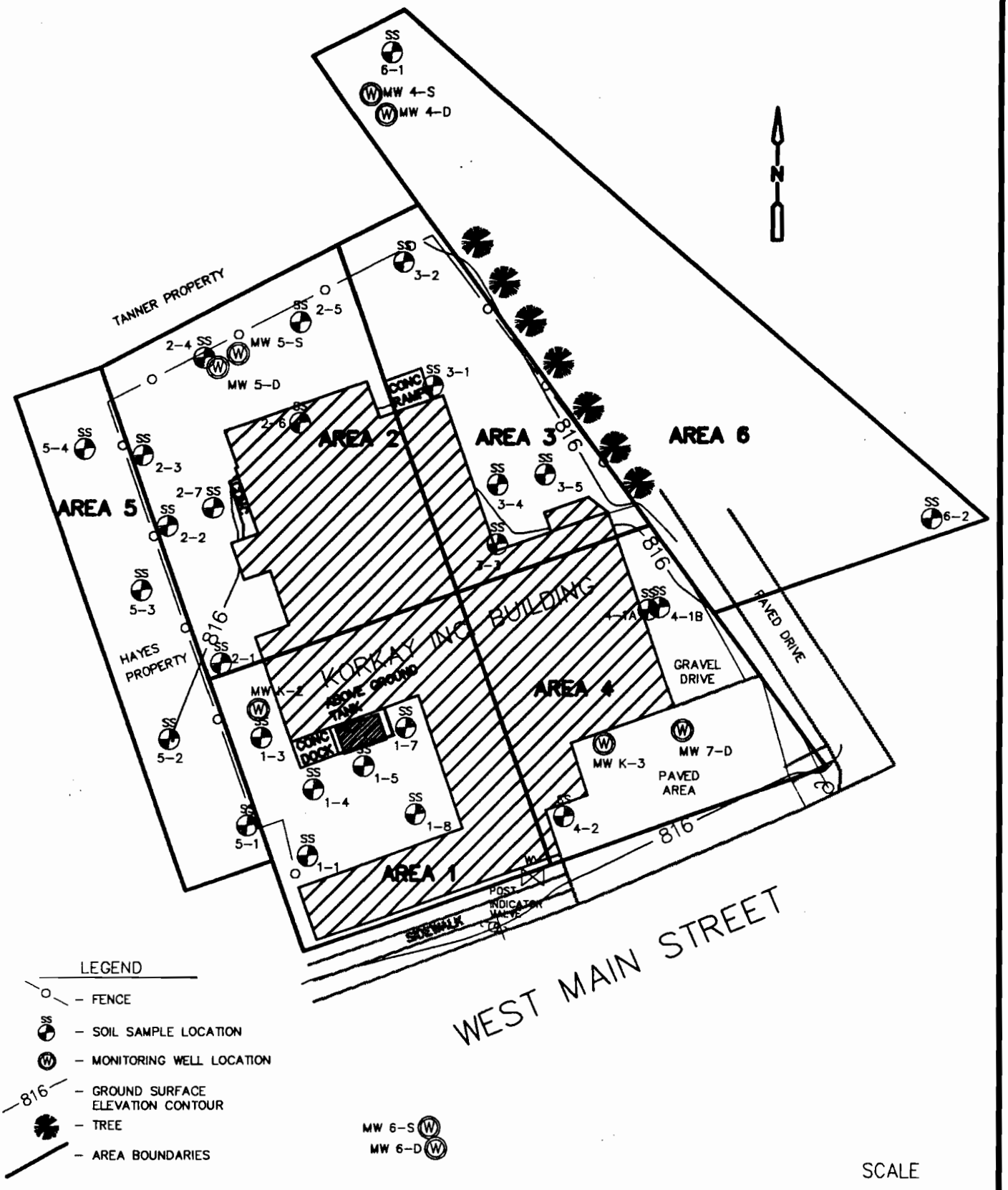


SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 3–1

SITE PLAN BY AREA

Korkay Inc. Site – Broadalbin, New York
NYSDEC Site #5–18–014

CDM
environmental engineers, scientists, planners, & management consultants

desired depth was reached, the samples that were to be analyzed for volatile organics were transferred from a decontaminated auger to the sample containers. Those collected for non-volatile parameter analyses were thoroughly mixed in stainless steel bowls with stainless steel or plastic trowels prior to transferral to the laboratory provided sample containers.

Upon completing the soil boring, each borehole was backfilled with the augered materials, hand tamped, staked and labeled. At DEC's request, the specific soil sample locations were incorporated into the site survey.

Each soil sample collected was capped, labeled, and placed on ice in a cooler directly upon collection. The collected soil samples were analyzed for the Target Compound List (TCL) organic parameters and Target Analyte List (TAL) metals by Energy & Environmental Engineering Inc. (E3I). Field blank, matrix spike, and matrix spike duplicate samples were collected for the same analysis.

During sample collection, CDM visually observed soil composition and recorded the classification descriptions of the soil samples. Continuous monitoring for volatile organic vapors in and around the sampling locations was performed with the use of a volatile organics meter (OVM). Each sampling area was screened for percentages of oxygen and lower explosive limits using a combustible gas indicator to ensure employee health and safety.

The results of the field monitoring were recorded in the Korkay field logbook. Daily background values of volatile organic vapors and airborne particulates were recorded from readings collected with the OVM and "Mini-Ram" dust monitor, respectively.

The DEC approved the location of the decontamination area by the garage in Area 3. No decontamination was required for the individually wrapped and factory cleaned dipsoable plastic trowels that were approved for use by the DEC. Equipment decontamination procedures were performed in accordance with the approved SOP/QAPP for this site.

3.2.2 DEVIATION FROM SOP/QAPP

Soil sampling objectives as discussed in the DEC-approved SOP/QAPP were achieved with the exception of several changes that were requested by the DEC in the field. A discussion of the rationale behind these deviations from the SOP/QAPP follows:

1) DEC decided to forgo the surficial sample collection at location 4-2A because of insufficient soil volume resulting from a six inch layer of gravel beneath a two inch layer of asphalt.

2) The subsurface soil sample 4-1B was relocated from the area of surficial sample 4-1A to a location about five feet east because a structural foundation impeded augering at depth.

3) Surficial gravel caused the exclusion of sample collection for the surficial sample 3-5A. However, the subsurface sample was collected at 18 to 24 inches and was numbered 3-5A instead of 3-5B.

4) Gravel at a depth of 42 to 48 inches caused the exclusion of subsurface sample 2-2B.

5) Samples 1-2A/B and 1-6A/B were excluded from collection because of their proximity to sample location 1-4.

6) Sample 1-3B was collected at a depth of 18 to 24 inches instead of 42 to 48 inches.

3.2.3 SOIL INVESTIGATION FINDINGS

Visual observation of soil composition at each sample location was performed by CDM. This information was recorded in the field logbook for each soil sample collected, and has been used to prepare the following generalized soil description by sample area. Aberrations in soil compositions and site monitoring equipment recordings are also discussed.

Lower explosive limit percentage readings were 0.0 at all sample locations. Readings for percent oxygen were within the normal range at all sample locations. OVM readings at several sample locations were above background levels, as described below:

Area 6 soil composition is described as brown silty-sand with trace organics.

Area 5 surface soil is described generally as brown medium sand and silt. Area 5 subsurface soil is described as tan-to-orange medium sand.

Area 4 soil composition is described as dark-brown silty-sand.

Area 3 soil composition is described generally as orange-to-brown medium sand, moderately pebbly, trace silt. Sample location 3-2B, however, is described as homogeneous tan sand or clean fill material (perhaps part of storm drain or dry well system). An OVM reading of 1.8 ppm was also recorded at this location. An OVM reading of 3.1 was recorded at sample location 3-2A.

The general soil description for Area 2 is medium brown sand and silt, pebbly. A yellow-orange-to-tan sand was found in sample location 2-1B. OVM readings were recorded for sample locations 2-4A, 2-3B, and 2-7B at 0.1 ppm, 22.7 ppm, and 100.0 ppm, respectively.

Area 1 soil composition description is described generally as medium brown silty sand, pebbly. An aberration from this description was found at sample location 1-3B which is described as medium yellow-tan sand. An OVM reading of 1.0 ppm was recorded at sample location 1-3B. Other OVM recordings in this area include location 1-1A at 0.1 ppm and 1-1B at 1.0 ppm. OVM readings of 20.0 ppm and 54.0 ppm were recorded at sample locations 1-5B and 1-5C, respectively. The highest OVM reading was recorded at sample location 1-4B, at 545.0 ppm.

3.3 GROUNDWATER INVESTIGATION

A major objective of the Phase I RI was to characterize the nature, degree, and extent of contamination within the uppermost water bearing unit and the first water bearing unit encountered below the aquitard underlying the site, as well as characterize the site specific stratigraphy and probable hydraulic vertical gradient of the water bearing units within the study area. As discussed in section 1.4, groundwater contamination had been identified by previous investigation in the uppermost water bearing unit; however, the vertical and horizontal extent of the known contamination was not determined.

In order to (1) assess the extent of the known groundwater contamination, (2) further delineate the chemical nature of the contamination, and (3) characterize the stratigraphy within the study area, CDM completed installation of seven (7) new groundwater monitoring wells. Seven newly installed wells and two existing wells, located both on-site and off-site, in addition to the Tanner well, were sampled for chemical analysis on one occasion. Water elevations were measured in order to determine horizontal and vertical gradients in the two water bearing units.

Hydraulic characteristics of these geologic units were not characterized as part of this Phase I RI study.

3.3.1 MONITORING WELL INSTALLATION

On September 27, 1993, CDM initiated the mobilization of SJB Services, Inc. (SJB) of Buffalo, New York to complete the installation of the seven (7) new groundwater monitoring wells. The locations of the seven new monitoring wells, as well as the two existing monitoring wells, are also shown in figure 3-1. The newly installed groundwater monitoring wells were completed using the hollow stem auger technique. CDM monitored each drilling location on a daily basis with health and safety equipment including a PID to monitor the breathing zone of the work area. Drill cuttings and drilling fluids generated during the drilling were drummed.

Boring logs maintained by CDM's geologist during the well installation program and well completion records are provided in appendix A. Table 3-2 summarizes monitoring well specifications for the seven new wells in addition to the existing wells.

3.3.1.1 Hollow Stem Auger Method

The soil borings for the installation of seven new monitoring wells (identified as wells MW-4S, MW-4D, MW-5S, MW-5D, MW-6S, MW-6D, MW-7D) were drilled using a CME 75 drill rig. Soil borings were advanced using either 4.25-inch or 6.25-inch inside diameter (ID) hollow stem augers with continuous split spoon sampling.

Split spoon sampling was performed in accordance with American Society for Testing and Materials (ASTM) D1586(4.08) procedures. Split spoons used were of 2-inch and 3-inch diameter steel construction, and two feet in length. Soil boring samples were collected from these split spoons. Split spoons were advanced at two 2-foot intervals followed by the advancement of the augers at 2-foot intervals to the final depth.

Split spoon samples were examined by CDM's geologist. The soil in each split spoon was scanned for volatile organics content using a photoionization detector (PID). CDM's geologist recorded the PID readings, geologic description of the soil, and geotechnical information in the Korkay field notebook.

In accordance with the approved SOP/QAPP, split-spoons were collected only from the deep borings/wells. Split-spoon soil samples were collected above the uppermost water bearing unit or from an interval with significant PID readings (i.e., well MW-6D) from each of the four deep borings/wells. Split-spoon soil samples were also collected above the first water bearing unit encountered below the aquitard in the upper portion of the silty clay unit at three of the deep series borings/wells, including MW-4D, MW-5D, and MW-6D. At DEC request, no "deep" split-spoon sample was submitted for laboratory analysis from MW-7D.

TABLE 3-2

MONITORING WELL SPECIFICATIONS

Well Number	Top of PVC Casing Elevation (ft msl)	Total Depth (ft)	Well ID Diameter (in)	Screen Length (ft)	Screened Interval (ft msl)	Water Elevation 10/26/93 (ft msl)	Water Bearing Unit Screened
Existing wells installed by others							
K-2	818.72	14.5	2	--	--	809.26	shallow
K-3	817.73	14	2	--	--	809.09	shallow
New wells installed by CDM							
MW-4D	817.65	46	2	10	~772 to 782	787.49	deep
MW-4S	817.95	10	2	5	~808 to 813	810.06	shallow
MW-5D	817.87	40	2	10	~778 to 788	789.95	deep
MW-5S	817.74	10	2	5	~808 to 813	809.89	shallow
MW-6D	815.16	55	2	10	~760 to 770	787.60	deep
MW-6S	815.19	11	2	5	~804 to 809	808.29	shallow
MW-7D	819.04	55	2	10	~764 to 774	787.67	deep

-- = no information available

In accordance with the approved SOP/QAPP, split-spoon soil samples were collected into plastic bags and immediately placed on ice inside a cooler. Seven split-spoon soil samples plus one duplicate sample were submitted for laboratory analysis. The soil samples for laboratory analysis were transferred into laboratory provided containers by means of a decontaminated stainless steel trowel following sampling. Samples for non-volatile parameter analyses were homogenized in a decontaminated stainless steel bowl before transfer into laboratory containers. Laboratory samples were prepared following completion of each borehole and were kept on ice inside a cooler. Table 3-3 summarizes the split spoon sample numbers and depths.

TABLE 3-3

SPLIT SPOON SOIL SAMPLE SUMMARY

SEPTEMBER through OCTOBER 1993

Soil Boring Sample ID	Monitoring Well	Depth (ft)	Analysis
897-SS-MW4D-1	MW-4D	6-8	TCL organics and TAL metals
897-SS-MW4D-2	MW-4D	28-30	TCL organics and TAL metals
897-SS-MW5D-1	MW-5D	6-8	TCL organics and TAL metals
897-SS-MW5D-2	MW-5D	20-22	TCL organics and TAL metals
897-SS-MW6D-1	MW-6D	8-10	TCL organics and TAL metals
897-SS-MW6D-2	MW-6D	22-24	TCL organics and TAL metals
897-SS-MW7D-1	MW-7D	6-8	TCL organics and TAL metals
897-SS-DUP	MW-7D	6-8	TCL organics and TAL metals

3.3.1.2 Deviation from SOP/QAPP

The deep wells at the site were originally planned to be placed into bedrock. However, bedrock was not encountered at the expected depth. Based on this finding, DEC requested that, in lieu of bedrock wells, the "deep" wells were installed in the first water bearing unit encountered below the aquitard, as further described below.

Bedrock was expected to be encountered at a depth of approximately 35 feet based on existing site information. The initial MW-4D soil boring was drilled using 6.25-inch diameter hollow stem augers to a depth of 60 feet without encountering bedrock. The borehole was closed with cement grout from the final depth of the borehole up to the surface grade, at DEC

request. To confirm that the depth of bedrock was greater than 35 feet, DEC directed that the MW-7D borehole be drilled next. The MW-7D borehole was drilled using 6.25-inch diameter augers to a depth of 58 feet without encountering bedrock. Based on these findings, DEC requested that 2-inch diameter PVC "deep" wells, screened above the dense till and below the clayey unit encountered, be installed, instead of bedrock wells. Based on this modification, the required auger size was changed from 6.25-inch to 4.25-inch diameter.

DEC directed that seven split-spoon soil samples be submitted for laboratory analysis, instead of eight, as outlined in the approved SOP/QAPP.

3.3.1.3 Well Construction

Following the final advancement of the augers, a 2-inch diameter, schedule 40, flush-threaded, PVC well screen and riser was placed into the borehole annulus through the augers to the desired depth.

Shallow wells were constructed with 5-foot length well screens and deep wells were constructed with 10-foot length well screens. Well screens have 10-slot screen openings and screw-cap bottoms. The top of the well screen was placed approximately two feet above the water table for shallow wells and beneath the silty clay unit for the deep wells. A Morie #0 sand filter pack was placed in the borehole annulus from the final depth to at least one foot above the top of the well screen. A one to two-foot plug of bentonite pellets was placed slowly by gravity-feed into the borehole annulus above the sand pack. The augers were slowly raised while adding the sand and bentonite, then removed from the borehole. Portland Type I cement/ bentonite powder/water grout was placed into the borehole annulus via tremie pipe above the bentonite pellets up to approximately two feet below the surface grade. Stickup type protective steel casing was installed around the well and cement grout was placed in the borehole annulus from a depth of two feet up to the surface grade to secure the casing. Concrete pads were installed around the stick-up type wells. All wells were secured with PVC well caps and locks.

At DEC's request, an existing on-site well, K-3, was repaired by placing a new 6-inch diameter, approximately 4.5-foot length, steel protective casing over the well. The steel protective casing was grouted in place at a depth of 2 feet below grade. A concrete pad was installed around the well at the surface.

The drill rig, augers, tools, and tremie pipe were steam cleaned at the designated decontamination pad before drilling each borehole in accordance with the approved SOP/QAPP. Other field equipment was decontaminated in accordance with the approved SOP/QAPP. Rinsate and liquids were contained in 55-gallon steel drums. Drill cuttings and discarded soil samples were also contained and placed into 55-gallon steel drums.

Thirty-one drums (13 soil, 16 water, 1 disposable PPE gear, 1 decontamination pad) are staged on pallets at the site. Rinsate liquids of the methanol and nitric acid from decontamination procedures are contained in separate 5 gallon plastic buckets. An additional 8 drums of well development/purge water and trash are also staged on pallets. The drums were labeled with the monitoring well designation or source of origin, its contents, and the date. The containerized wastes will be disposed at a future date under the direction of DEC.

3.3.1.4 Well Development

The newly installed monitoring wells and existing wells were developed to restore the natural hydraulic conductivity of the formation and to remove silt from within the screen to ensure turbidity free groundwater samples. Development of the wells was accomplished by SJB on October 13 and 14, 1993. The wells were developed using a clean one-inch diameter, five-foot length, Teflon bailer. The bailer was also used to surge the wells. The general procedure was to purge the well and then, as needed, let the well recharge. A minimum of three well volumes of water was removed from each well. Water was purged from each well until the water became clear, as attainable. The purged water was contained in 55-gallon steel drums.

During well development, turbidity of the water was measured using a calibrated turbidity meter. Following development, due to the fine grained material of the overburden soil, the water in all of the wells, except for MW-5S, did not achieve turbidity less than 50 NTUs. Well development was discontinued.

The drilling contractor, SJB, was on-site on October 25, 1993 to perform additional work requested by DEC and to surge block and develop the wells with high turbidity. Monitoring wells MW-5D, MW-4D, MW-6D, and MW-7D were surge blocked and wells MW-5S, MW-4S, MW-6S, K-2, and K-3 were bailed. Wells MW-5D, MW-4D, MW-5S, and K-2 were developed until they went dry and wells MW-6D, MW-7D, MW-4S, MW-6S, and K-3 were developed until the water was clear. Other objectives achieved by SJB included replacing the stickups with flush-mounts at wells MW-6S and MW-6D, and the placement of a protective casing around well K-2, as requested by DEC.

3.3.2 GROUNDWATER SAMPLING

Groundwater samples were collected by CDM from the seven newly installed wells, two pre-existing wells K-2 and K-3, and one well located on the adjacent Tanner property located directly to the north, during the sampling event conducted on October 26 and 27, 1993. Table 3-4 summarizes the groundwater well samples collected.

To minimize the possibility of cross contamination a "clean to dirty" sample collection order, based upon expected site conditions, was established. Depth to water readings and purging and sampling of the wells were completed in the following order: MW-4D, MW-4S, MW-7D, MW-6D, MW-5D, K-3, MW-6S, MW-5S, and K-2.

The Tanner well was purged last and sampled directly after purging.

Purging of the wells was performed using dedicated, pre-cleaned, disposable Teflon bailers. A meter for monitoring pH, temperature and specific conductance was calibrated daily and used during well purging to determine

TABLE 3-4

GROUNDWATER MONITORING WELL SAMPLE SUMMARY

Sample Number	Sample Depth	Location
K-2 (existing)	Shallow Overburden	On-Site
K-3 (existing)	Shallow Overburden	On-Site
MW-4S (new)	Shallow Overburden	Off-Site (church property)
MW-4D (new)	Deep Overburden	Off-site (church property)
MW-5S (new)	Shallow Overburden	On-Site
MW-5D (new)	Deep Overburden	On-Site
MW-6S (new)	Shallow Overburden	Off-Site (across street)
MW-6D (new)	Deep Overburden	Off-Site (across street)
MW-7D (new)	Shallow Overburden	On-Site
Tanner's Well (existing)	Unknown	Off-Site
MW-8S (duplicate sample) (CH4123)		

stabilization of parameter readings. Readings for each parameter were recorded in the logbook for each of the three well volumes purged. The purged water was containerized in drums which were sealed and staged beside the garage in Area 3 as designated by the DEC. The drums were clearly marked with the well numbers associated with their contents.

Groundwater sample collection was performed within two hours of the completion of the purging process. Dedicated, pre-cleaned, disposable Teflon bailers were used to transfer the monitoring well samples to laboratory provided sample containers. Each sample was capped, labeled, and placed on ice in a cooler.

The water in the wells was clear following development. Based on this, DEC elected not to have metals samples field filtered or turbidity measurements taken.

Sampling of the Tanner well was performed without the use of a bailer, since it was fitted with a pitcher pump. The pitcher pump was hand pumped for ten minutes prior to sample collection. No well records or information were made available to CDM upon request of both DEC and the owner.

All groundwater monitoring well samples were analyzed for TCL organic parameters and TAL metals.

3.3.3 STATIC WATER LEVEL MEASUREMENTS

Prior to monitoring well purging, a round of synoptic water level measurements were collected from all of the wells using an electric water level indicator. Measurements were read from the top of the inner well casing (PVC). The data was noted in the Korkay field logbook and used in the calculations of purge volumes.

Continuous volatile organic vapor monitoring with the use of an OVM was performed by CDM during all phases of groundwater sampling.

3.3.4 SURVEYING OF MONITORING WELLS AND SITE FEATURES

Concurrent to the groundwater sample collection activities, surveying of the site was performed by Modi Associates (Modi). Modi collected data for the preparation of baseline topographic site conditions. The map product will be at a 1"= 50' scale and will include significant site features, as well as survey data of the groundwater monitoring wells at the site. Modi was requested by DEC to also include the soil sample locations to their survey.

3.3.5 GROUNDWATER INVESTIGATION FINDINGS

CDM has developed two geologic cross-sections of the study area, based on the stratigraphic information obtained during the installation of monitoring wells. The geologic cross-sections are presented as follows: figures 3-2 and corresponding 3-2A illustrate the identified geologic features in the A-A' direction, and figures 3-3 and 3-3A illustrate the same geologic features in the B-B' direction.

As indicated in the limited geologic information for the Broadalbin, New York area, the overburden material at the site consists of the poorly sorted units of glacial origin, including fine to medium grained sand, silty clay, sand and gravel, and till. Drift till is poorly sorted while outwash Kame deposits are well sorted because they were deposited by water. These were present in the soil borings installed at the site.

More specifically, the shallower soil is characterized as a fine to medium-grained sand unit grading to a silty clay unit. An extensive silty clay unit interbedded with lenses of clayey silt, silt, and sand is encountered at depths ranging from approximately 9.5 feet to 42 feet. Underlying the silty clay unit is a thin sand and gravel unit that overlies a dense silt till unit. The dense silt till unit is initially encountered at depths

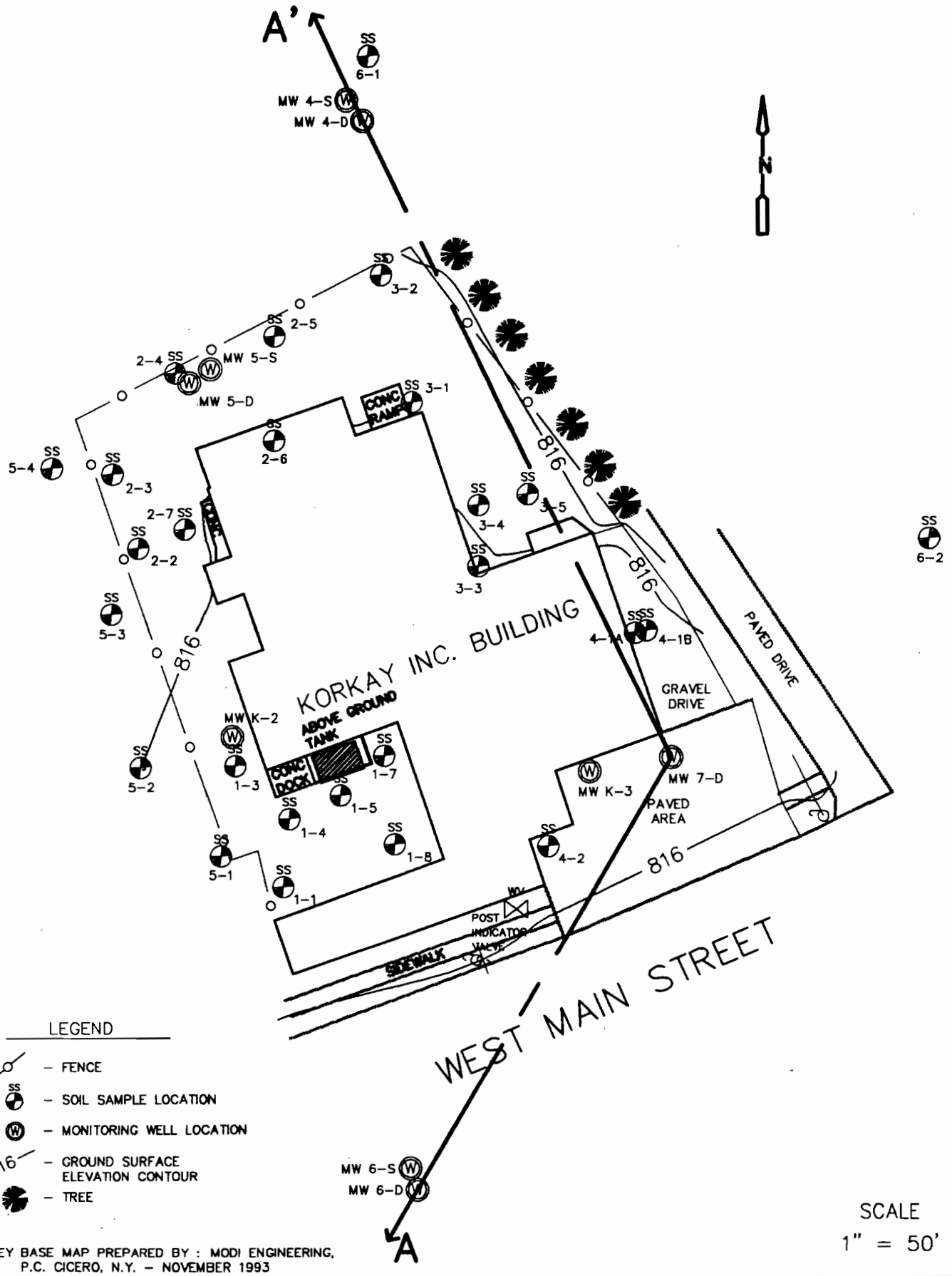
ranging from approximately 34 to 54 feet below the surface grade. [A silt, trace gravel unit was encountered instead of the till unit in the area of MW-7D.] These glacial deposits are reported to be underlain by Dolomite bedrock of the Cambrian Age Little Falls Formation.

The uppermost water bearing unit was encountered in the unconsolidated overburden at a depth of 7.5 to 8 feet below the surface grade. The first water bearing unit below the aquitard (the silty clay), was encountered at depths ranging from 32 feet to 43 feet below the surface grade.

At MW-5D/S and MW-6D/S, during drilling a musty sewage-like odor was detected in the soil at depths ranging from 5 feet to 11.5 feet below the surface grade.

Based on one round of water levels obtained during groundwater sampling, contour gradient maps of the potentiometric surface were constructed for the two water bearing units. Table 3-5 summarizes monitoring well casing elevations and water level measurements.

Figure 3-4 is constructed using depth to water data collected on October 26, 1993 from the shallow wells. As discussed in the SOP/QAPP, based on the fact that the surface water body, Kennyetto Creek, is located 600 feet south of the site, it was suspected that the uppermost water may potentially move in the direction of the creek, or in the southerly direction. Based on the one round of water level measurements collected by CDM, it appears that the flow direction of the uppermost water bearing unit is in the southerly direction, as shown in figure 3-4.



SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C. CICERO, N.Y. – NOVEMBER 1993

Figure 3–2

CROSS SECTION A–A' LOCATION MAP

Korkay Inc. Site – Broadalbin, New York
NYSDEC Site #5–18–014

CDM
environmental engineers, scientists, planners, & management consultants

Table 4-4 (continued)

AREA 6
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS II

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ACENAPHTHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
2,4-DINITROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
4-NITROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
DIBENZOFURAN	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	6200	6200
2,4-DINITROTOLUENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
DIETHYLPHTHALATE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	7100	7100
4-CHLOROPHENYL-PHENYLETHER	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
FLUORENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
4-NITROANILINE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4,6-DINITRO-2-METHYLPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
N-NITROSODIPHENYLAMINE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-BROMOPHENYL-PHENYLETHER	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
HEXACHLOROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	410	410
PENTACHLOROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
PHENANTHRENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
ANTHRACENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
CARBAZOLE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
DI-N-BUTYLPHTHALATE	4	2 / 2	0 / 2	85	370	2 / 2	0 / 2	110	170	ug/kg	8100	8100
FLUORANTHENE	4	1 / 2	0 / 2	59	59	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
PYRENE	4	1 / 2	0 / 2	48	48	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
BUTYLBENZYLPHTHALATE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
3,3-DICHLOROBENZIDINE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BENZO(A)ANTHRACENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	220	220
CHRYSENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	400	400
BIS(2-ETHYLHEXYL)PHTHALATE	4	2 / 2	0 / 2	40	260	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
DI-N-OCTYL PHTHALATE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
BENZO(B)FLUORANTHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1100	1100
BENZO(K)FLUORANTHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1100	1100
BENZO(A)PYRENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	61	61
INDENO(1,2,3-CD)PYRENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	3200	3200
DIBENZO(A,H)ANTHRACENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	14	14
BENZO(G,H,I)PERYLENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000

AREA 6
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS I

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
PHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	30	30
BIS(2-CHLOROETHYL)ETHER	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2-CHLOROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	800	800
1,3-DICHLOROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1600	1600
1,4-DICHLOROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	8500	8500
1,2-DICHLOROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	7900	7900
2-METHYLPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
BIS(2-CHLOROISOPROPYL)ETHER	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-METHYLPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	900	900
N-NITROSO-DI-N-PROPYLAMINE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
HEXACHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
NITROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
ISOPHORONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2-NITROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	330	330
2,4-DIMETHYLPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BIS(2-CHLOROETHOXY)METHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2,4-DICHLOROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	400	400
1,2,4-TRICHLOROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	3400	3400
NAPHTHALENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	13000	13000
4-CHLOROANILINE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	220	220
HEXACHLOROBUTADIENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-CHLORO-3-METHYLPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	240	240
2-METHYLNAPHTHALENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	36400	36400
HEXACHLOROCYCLOPENTADIENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2,4,6-TRICHLOROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2,4,5-TRICHLOROPHENOL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
2-CHLORONAPHTHALENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2-NITROANILINE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	430	430
DIMETHYL PHTHALATE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	2000	2000
ACENAPHTHYLENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	41000	41000
2,6-DINITROTOLUENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
3-NITROANILINE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	500	500

Table 4-4

AREA 6
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
VOLATILE ORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
CHLOROMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BROMOMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
VINYL CHLORIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
CHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1900	1900
METHYLENE CHLORIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
ACETONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
CARBON DISULFIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	2700	2700
1,1-DICHLOROETHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	400	400
1,1-DICHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
1,2-DICHLOROETHENE(TOTAL)	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
CHLOROFORM	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
1,2-DICHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
2-BUTANONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
1,1,1-TRICHLOROETHANE	4	1 / 2	0 / 2	3	3	0 / 2	0 / 2	ND	ND	ug/kg	800	800
CARBON TETRACHLORIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	600	600
BROMODICHLOROMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
1,2-DICHLOROPROPANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
cis-1,3-DICHLOROPROPYLENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
TRICHLOROETHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	700	700
DIBROMOCHLOROMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
1,1,2-TRICHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	60	60
Trans-1,3-DICHLOROPROPYLENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BROMOFORM	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-METHYL-2-PENTANONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
2-HEXANONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
TETRACHLOROETHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1400	1400
1,1,2,2-TETRACHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	600	600
TOLUENE	4	1 / 2	0 / 2	4	4	2 / 2	0 / 2	2	7	ug/kg	1500	1500
CHLOROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1700	1700
ETHYLBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	5500	5500
STYRENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
XYLENE(TOTAL)	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1200	1200

INORGANIC DATA QUALIFIERS

B - Indicates analyte result is between Instrument Detection Limit (IDL) and CRDL.

E - Reported value is estimated because of the presence of interference.

J - Reported value is estimated due to variance from quality control limits.

NA- Not Analyzed.

R - Reported value is unusable and rejected due to variance from quality control limits.

U - Indicates analyte was not detected at or below the Contract Required Detection Limit (CRDL), or the compound is not detected due to qualification through the method or field blank.

UJ - The element was analyzed for, but not detected. The sample quantitation limit is an estimate due to variance in quality control limits.

ORGANIC DATA QUALIFIERS

A - Aldol condensation product.

B - Indicates that the compound was also detected in the laboratory blank.

C - Applies to pesticide results where the identification has been confirmed by GC/MS.

D - Reported result taken from diluted sample analysis.

E - Reported value is estimated due to quantitation above the calibration range.

J - The associated numerical value is an estimated quantity.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search.

NA - Not Analyzed.

NJ - Tentatively identified with approximated concentrations.

P - This flag is used for a pesticide/Arochlor target analyte when there is greater than 25% difference for detected concentrations between two GC columns. The lower of the two values is reported.

R - Reported value is unusable and rejected due to variance from quality control limits.

SB - Soil Background

U - Indicates that the compound was analyzed for but not detected at or above the Contract Required Quantitation Limit (CRQL), or the compound is not detected due to qualification through the method or field blank.

UJ - The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance in quality control limits.

W - Post-digestion spike for Furnace AA analysis is out of control limits (85%-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis is not within control limits.

Table 4-3 (continued)

Summary of Background Split Spoon Soil Sample Results

PESTICIDES AND PCBs IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
Pesticides (soils)					
HEPTACHLOR EPOXIDE	ug/kg	20.00	1.95	--	--
4,4'-DDT	ug/kg	2,100.00	0.80	--	--
METHOXYCHLOR	ug/kg	10,000.00	3.10	--	--
ALPHA-CHLORDANE	ug/kg	----	1.95	--	--
GAMMA-CHLORDANE	ug/kg	540.00	1.95	--	0.27 J

INORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
Inorganics (soils)					
Al	mg/kg	SB	8,970.00	3,540.00	8,530.00
As	mg/kg	7.50	1.30	--	2.10 J2
Ba	mg/kg	300.00	31.70	13.00 B	44.60 B2
Be	mg/kg	0.14	0.24	--	0.19 B1
Ca	mg/kg	SB	1,895.00	1,280.00	28,000.00 2
Cr	mg/kg	10.00	5.25	3.50	10.30 3
Co	mg/kg	30.00	2.00	2.50 B2	7.00 B2
Cu	mg/kg	25.00	3.70	3.90 B2	8.60 2
Fe	mg/kg	SB	10,150.00	7,900.00	18,100.00 2
Pb	mg/kg	SB	35.25	1.30	2.40 J
Mg	mg/kg	SB	990.00	1,090.00 B2	12,300.00 2
Mn	mg/kg	SB	115.00	94.90 J	350.00 J2
Hg	mg/kg	0.10	0.10	--	0.15 3
Ni	mg/kg	13.00	3.50	4.90 B2	8.70 B2
K	mg/kg	4,000.00	225.50	394.00 B2	1,500.00 2
Na	mg/kg	3,000.00	14.10	--	191.00 B2
V	mg/kg	150.00	12.85	10.90 B	28.30 J2
Zn	mg/kg	SB	85.00	13.50 J	34.50 J

NOTES:
- NA Parameter not analyzed
- 1 Sample value exceeds NYSDEC soil criteria
- 2 Sample value exceeds background value
- 3 Sample value exceeds both NYSDEC criteria and background value
- -- Not detected above the method detection limit
- ---- Not available

Table 4-3

Summary of Background Split Spoon Soil Sample Results

VOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
Volatile Organics (soils)					
METHYLENE CHLORIDE	ug/kg	100.0	11.5	--	--
ACETONE	ug/kg	200.0	11.5	--	--
2-BUTANONE	ug/kg	300.0	11.5	--	--
4-METHYL-2-PENTANONE	ug/kg	1,000.0	11.5	--	--
2-HEXANONE	ug/kg	----	11.5	--	--
TOLUENE	ug/kg	1,500.0	4.5	--	2.0 J
ETHYLBENZENE	ug/kg	5,500.0	11.5	--	--
XYLENE(TOTAL)	ug/kg	1,200.0	11.5	--	--

SEMIVOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
SemiVolatile Organics (soils)					
BIS(2-ETHYLHEXYL)PHTHALATE	ug/kg	50,000	390	170 J	--

Table 4-2 (continued)

Summary of Background Subsurface Soil Sample Results

INORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
Inorganics (soils)					
Al	mg/kg	SB	8,970.00	9,920.00 2	8,020.00
As	mg/kg	7.50	1.30	1.20 B	1.40 B2
Ba	mg/kg	300.00	31.70	10.40 J	53.00 J2
Be	mg/kg	0.14	0.24	0.24 B1	0.24 B1
Cd	mg/kg	1.00	0.80	--	--
Ca	mg/kg	SB	1,895.00	2,330.00 2	1,460.00
Cr	mg/kg	10.00	5.25	6.00 2	4.50
Co	mg/kg	30.00	2.00	2.20 B2	1.80 B
Cu	mg/kg	25.00	3.70	3.10 B	4.30 B2
Fe	mg/kg	SB	10,150.00	10,100.00	10,200.00 2
Pb	mg/kg	SB	35.25	3.20 J	67.30 2
Mg	mg/kg	SB	990.00	1,310.00 2	670.00 B
Mn	mg/kg	SB	115.00	54.00	176.00 2
Hg	mg/kg	0.10	0.10	--	--
Ni	mg/kg	13.00	3.50	4.20 B2	2.80 B
K	mg/kg	4,000.00	225.50	241.00 B2	210.00 B
Se	mg/kg	2.00	0.34	--	0.37 B2
Ag	mg/kg	200.00	0.70	--	--
Na	mg/kg	3,000.00	14.10	21.40 B2	--
Tl	mg/kg	20.00	0.42	0.44 B2	--
V	mg/kg	150.00	12.85	12.30	13.40 2
Zn	mg/kg	SB	85.00	23.00	147.00 2

NOTES:
- NA Parameter not analyzed
- 1 Sample value exceeds NYSDEC soil criteria
- 2 Sample value exceeds background value
- 3 Sample value exceeds both NYSDEC criteria and background value
- -- Not detected above the method detection limit
- ---- Not available

Table 4-2 (continued)

Summary of Background Subsurface Soil Sample Results

PESTICIDES AND PCBs IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
Pesticides (soils)					
ALPHA-BHC	ug/kg	110.00	1.95	--	--
BETA-BHC	ug/kg	200.00	1.95	--	--
DELTA-BHC	ug/kg	300.00	1.95	--	--
GAMMA-BHC (LINDANE)	ug/kg	60.00	1.95	--	--
HEPTACHLOR	ug/kg	100.00	1.95	--	--
ALDRIN	ug/kg	41.00	1.95	--	--
HEPTACHLOR EPOXIDE	ug/kg	20.00	1.95	--	--
DIELDRIN	ug/kg	44.00	3.90	--	--
4,4'-DDE	ug/kg	2,100.00	0.70	0.52 J	0.87 J2
ENDRIN, TOTAL	ug/kg	100.00	3.90	--	--
ENDOSULFAN II	ug/kg	900.00	3.90	--	--
4,4'-DDD	ug/kg	2,900.00	3.90	--	--
ENDOSULFAN SULFATE	ug/kg	1,000.00	3.90	--	--
4,4'-DDT	ug/kg	2,100.00	0.80	0.85 J2	0.74 J
METHOXYCHLOR	ug/kg	10,000.00	3.10	3.90 J2	2.30 J
ENDRIN KETONE	ug/kg	----	3.90	--	--
ENDRIN ALDEHYDE	ug/kg	----	0.67	0.75 J2	0.59 J
ALPHA-CHLORDANE	ug/kg	----	1.95	--	--
GAMMA-CHLORDANE	ug/kg	540.00	1.95	--	--
PCBs (Total)	ug/kg	10,000.00	77.50	--	--

Table

Summary of Background Subsurface Soil Sample Results

VOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
Volatile Organics (soils)					
ACETONE	ug/kg	200.0	11.5	--	--
2-BUTANONE	ug/kg	300.0	11.5	--	--
1,1,1-TRICHLOROETHANE	ug/kg	800.0	11.5	--	--
TRICHLOROETHENE	ug/kg	700.0	11.5	--	--
TETRACHLOROETHENE	ug/kg	1,400.0	11.5	--	--
TOLUENE	ug/kg	1,500.0	4.5	2.0 J	7.0 J2
ETHYLBENZENE	ug/kg	5,500.0	11.5	--	--
XYLENE(TOTAL)	ug/kg	1,200.0	11.5	--	--

SEMIVOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
SemiVolatile Organics (soils)					
2,4-DICHLOROPHENOL	ug/kg	400	390	--	--
NAPHTHALENE	ug/kg	13,000	390	--	--
2-METHYLNAPHTHALENE	ug/kg	36,400	390	--	--
ACENAPHTHYLENE	ug/kg	41,000	390	--	--
HEXACHLOROBENZENE	ug/kg	410	390	--	--
PHENANTHRENE	ug/kg	50,000	390	--	--
ANTHRACENE	ug/kg	50,000	390	--	--
DI-N-BUTYLPHTHALATE	ug/kg	8,100	140	110 J	170 J2
FLUORANTHENE	ug/kg	50,000	390	--	--
PYRENE	ug/kg	50,000	390	--	--
BENZO(A)ANTHRACENE	ug/kg	220	390	--	--
CHRYSENE	ug/kg	400	390	--	--
BIS(2-ETHYLHEXYL)PHTHALATE	ug/kg	50,000	390	--	--
BENZO(B)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(K)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(A)PYRENE	ug/kg	61	390	--	--
INDENO(1,2,3-CD)PYRENE	ug/kg	3,200	390	--	--
BENZO(G,H,I)PERYLENE	ug/kg	50,000	390	--	--

Table 4-1 (continued)

Summary of Background Surface Soil Sample Results

INORGANICS IN SURFACE SOILS

		UPPER LIMIT					
LOCATION ID ----->				SS-6-1		SS-6-2	
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SURF	SS-6-1A		SS-6-2A	
SAMPLE DATE ----->				09/13/93		09/13/93	
SAMPLE DEPTH ----->				00.00-00.50'		00.00-00.50'	
Inorganics (soils)							
Al	mg/kg	SB	5,775.00	2,660.00		8,890.00	2
As	mg/kg	7.50	3.65	3.50		3.80	2
Ba	mg/kg	300.00	28.75	38.00	J2	19.50	J
Be	mg/kg	0.14	0.20	0.19	B1	0.20	B3
Cd	mg/kg	1.00	0.85	--		--	
Ca	mg/kg	SB	22,395.00	43,400.00	2	1,390.00	
Cr	mg/kg	10.00	4.70	3.80		5.60	2
Co	mg/kg	30.00	2.30	3.30	B2	--	
Cu	mg/kg	25.00	5.15	5.30		6.30	2
Fe	mg/kg	SB	8,345.00	7,820.00		8,870.00	2
Pb	mg/kg	SB	22.80	4.10	J	41.50	J2
Mg	mg/kg	SB	10,431.00	20,000.00	2	862.00	B
Mn	mg/kg	SB	107.00	131.00	2	83.00	
Hg	mg/kg	0.10	0.10	--		--	
Nf	mg/kg	13.00	3.65	4.50	B2	--	
K	mg/kg	4,000.00	356.50	511.00	B2	202.00	B
Se	mg/kg	2.00	0.30	--		--	
Ag	mg/kg	200.00	0.75	--		--	
Na	mg/kg	3,000.00	24.05	40.50	B2	--	
Tl	mg/kg	20.00	0.40	--		--	
V	mg/kg	150.00	12.70	8.70	B	16.70	2
Zn	mg/kg	SB	63.65	72.70	2	54.60	

NOTES:
- NA Parameter not analyzed
- 1 Sample value exceeds NYSDEC soil criteria
- 2 Sample value exceeds background value
- 3 Sample value exceeds both NYSDEC criteria and background value
- -- Not detected above the method detection limit
- ---- Not available

Table 4-1 (continued)

Summary of Background Surface Soil Sample Results

PESTICIDES AND PCBs IN SURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SURF	SS-6-1A	SS-6-2A
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				00.00-00.50'	00.00-00.50'
Pesticides (soils)					
ALPHA-BHC	ug/kg	110.00	1.95	--	--
GAMMA-BHC (LINDANE)	ug/kg	60.00	0.72	--	0.72 J
HEPTACHLOR	ug/kg	100.00	1.95	--	--
ALDRIN	ug/kg	41.00	1.95	--	--
HEPTACHLOR EPOXIDE	ug/kg	20.00	0.41	--	0.41 J
DIELDRIN	ug/kg	44.00	0.43	--	0.43 J
4,4'-DDE	ug/kg	2,100.00	9.60	--	9.60 J
ENDRIN, TOTAL	ug/kg	100.00	3.90	--	--
ENDOSULFAN II	ug/kg	900.00	3.90	--	--
4,4'-DDD	ug/kg	2,900.00	2.30	--	2.30 J
ENDOSULFAN SULFATE	ug/kg	1,000.00	3.90	--	--
4,4'-DDT	ug/kg	2,100.00	6.73	0.46 J	13.00 2
METHOXYCHLOR	ug/kg	10,000.00	19.50	--	--
ENDRIN KETONE	ug/kg	----	3.90	--	--
ENDRIN ALDEHYDE	ug/kg	----	0.68	--	0.68 J
ALPHA-CHLORDANE	ug/kg	----	0.36	--	0.36 J
GAMMA-CHLORDANE	ug/kg	540.00	1.95	--	--
PCBs (Total)	ug/kg	1,000.00	77.50	--	--

Summary of Background Surface Soil Sample Results

VOLATILE ORGANICS IN SURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SURF	SS-6-1A	SS-6-2A
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				00.00-00.50'	00.00-00.50'
Volatile Organics (soils)					
1,1,1-TRICHLOROETHANE	ug/kg	800.0	3.0	--	3.0 J
TRICHLOROETHENE	ug/kg	700.0	11.5	--	--
TETRACHLOROETHENE	ug/kg	1,400.0	11.5	--	--
TOLUENE	ug/kg	1,500.0	4.0	--	4.0 J

SEMIVOLATILE ORGANICS IN SURFACE SOILS

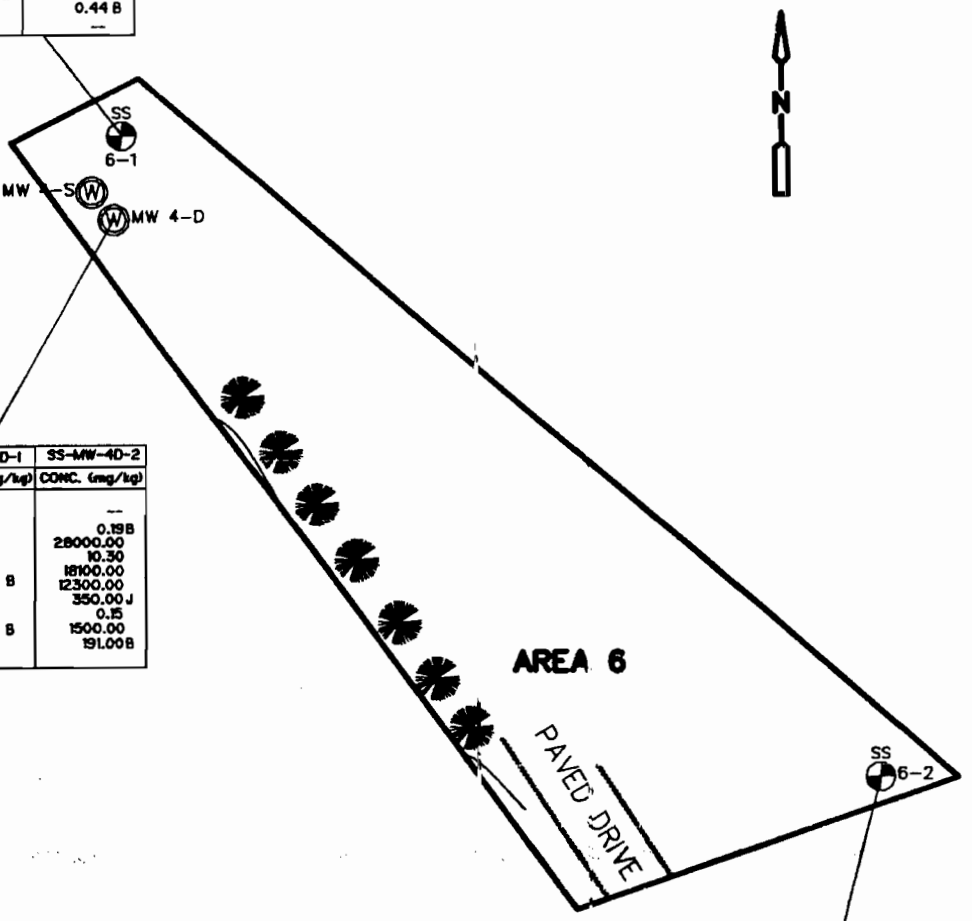
		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SURF	SS-6-1A	SS-6-2A
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				00.00-00.50'	00.00-00.50'
SemiVolatile Organics (soils)					
ACENAPHTHYLENE	ug/kg	41,000	390	--	--
HEXACHLOROBENZENE	ug/kg	410	390	--	--
PHENANTHRENE	ug/kg	50,000	390	--	--
ANTHRACENE	ug/kg	50,000	390	--	--
CARBAZOLE	ug/kg	----	390	--	--
DI-N-BUTYLPHTHALATE	ug/kg	8,100	228	85 J	370 J2
FLUORANTHENE	ug/kg	50,000	59	--	59 J
PYRENE	ug/kg	50,000	48	--	48 J
BUTYLBENZYLPHTHALATE	ug/kg	50,000	390	--	--
BENZO(A)ANTHRACENE	ug/kg	220	390	--	--
CHRYSENE	ug/kg	400	390	--	--
BIS(2-ETHYLHEXYL)PHTHALATE	ug/kg	50,000	150	40 J	260 J2
DI-N-OCTYL PHTHALATE	ug/kg	50,000	390	--	--
BENZO(B)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(K)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(A)PYRENE	ug/kg	61	390	--	--
INDENO(1,2,3-CD)PYRENE	ug/kg	3,200	390	--	--
DIBENZO(A,H)ANTHRACENE	ug/kg	14	390	--	--
BENZO(G,H,I)PERYLENE	ug/kg	50,000	390	--	--

NOTE : SAMPLING RESULTS EXCEEDING DEC TAGM SOIL CLEANUP CRITERIA ARE REPORTED IN THIS FIGURE.

	SS-6-1A	SS-6-1B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	--	9920.00
Beryllium(Be)	0.19 B	0.24 B
Calcium(Ca)	43400.00	2330.00
Magnesium	20000.00	1310.00
Manganese	131.00	--
Potassium(K)	511.00 B	241.00 B
Sodium(Na)	40.50 B	21.40 B
Thallium(Tl)	--	0.44 B
Zinc(Zn)	72.70	--

	SS-MW-4D-1	SS-MW-4D-2
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Magnesium	--	--
Beryllium(Be)	--	0.19 B
Calcium(Ca)	--	28000.00
Chromium(Cr)	--	10.30
Iron(Fe)	--	18100.00
Magnesium	1090.00 B	12300.00
Manganese	--	350.00 J
Mercury(Hg)	--	0.15
Potassium(K)	394.00 B	1500.00
Sodium(Na)	--	191.00 B

	SS-6-2A	SS-6-2B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	8890.00	--
Beryllium(Be)	0.20 B	0.24 B
Iron(Fe)	8870.00	10200.00
Lead(Pb)	41.50 J	67.30
Manganese	--	176.00
Zinc(Zn)	--	147.00



LEGEND

- FENCE
- -- NOT DETECTED ABOVE CRITERIA
- SS SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- TREE
- AREA BOUNDARIES

SCALE
1" = 50'

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 4–1

AREA 6: Background (Church Property) Soil Sample Results

Korkay Inc. Site – Broadalbin, New York

NYSDEC Site #5–18–014

CDM
environmental engineers, scientists, planners, & management consultants

4.1.1 Background Soil Data

The church property was designated as site background for the remedial investigation. This background area was designated as Area 6.

Two soil sample locations numbered 6-1 and 6-2 were sampled at the surface and subsurface. A total of four samples was collected in Area 6, including:

- two "A" series samples collected at 0-0.5'; and
- two "B" series samples collected at 1.5-2.0'.

Actual background sample locations were determined by DEC in the field, and are shown in figure 4-1. A summary of the detected compounds in the Area 6 soil samples is presented in tables 4-1 and 4-2.

In addition, at well location MW-4D two split spoon soil samples were collected, including MW-4D-1 (depth of 6.0-8.0') and MW-4D-2 (depth of 28.0-30.0'). These sample locations are also shown in figure 4-1. A summary of the detected compounds in the Area 6 soil samples is presented in table 4-3.

Organic Compounds

As shown in table 4-1, 4-2, and 4-3, levels of VOCs, SVOCs, and pesticides were detected in the background samples, both at the surface and in the subsurface at depths of 1.5-2.0', 6.0-8.0', and 28.0-30.0'. It is observed that surface sample 6-2A shows higher levels of organics contamination than sample 6-1A. However, both of the subsurface samples, 6-1B and 6-2B, have similar levels of organics contamination. Except for gamma-chlordane, the levels of the three organics found at the 6.0-8.0' and 28.0-30.0' depths are similar to those found in the shallower samples, but at lower concentrations.

A summary of the number of detections, number of samples exceeding limits, and range of organic compounds detected is presented in table 4-4.

For purposes of this RI report, as a point of reference in the evaluations by area for the organic parameters, levels detected were compared to the DEC TAGM recommended soil cleanup criteria.

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 INTRODUCTION

This section presents the results of analytical data collected during the Remedial Investigation (RI). This data, along with relevant historical data, is used to identify whether contamination may be present, the types of contaminants present, the possible source(s) of contamination, and the extent to which contamination may have migrated from the source(s).

The RI program was developed to evaluate the release of contaminants from the Korkay, Inc. site and to identify the potential sources of soil and groundwater contamination. Samples were collected from locations throughout the site, and also off-site, to identify the type and concentration of contaminants present in the environmental media. The investigation findings are also used to determine if contaminants present are attributable to past site operations.

The assessment of the presence of contamination was performed by comparing the sample results to concentrations of constituents typically observed in the media of concern (e.g., surface soils and groundwater), and to applicable regulatory standards. Since currently applicable or relevant and appropriate requirements (ARARs) have not been formalized, the data has only been compared to standards selected and provided by DEC, including:

- **Soil:**
  NY State DEC, Division of Hazardous Waste Management, Technical and Administrative Guidance Memorandum (TAGM)/ Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046), dated January 24, 1994;

- **Groundwater:**
  NY State DEC, Division of Water, Technical and Operational Guidance Series (TOGS 1.1.1)/ Ambient Water Quality Standards and Guidance Values, dated October 22, 1993; and NY State DOH drinking water supply maximum contaminant levels (MCLs), issued January 5, 1993.

An exceedance for a given contaminant may not necessarily indicate a significant difference in contaminant distribution. Slight variations in concentrations may be due to analytical variation or spatial variability and background concentrations (particularly for inorganic metals).

Table 4-4
(continued)

AREA 6

SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
INORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
Al	4	2 / 2	1 / 2	2660	8890	2 / 2	1 / 2	8020	9920	mg/kg	5775	8970
Sb	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	mg/kg	8.95	8.7
As	4	2 / 2	0 / 2	3.5	3.8	2 / 2	0 / 2	1.2	1.4	mg/kg	7.5	7.5
Ba	4	2 / 2	0 / 2	19.5	38	2 / 2	0 / 2	10.4	53	mg/kg	300	300
Be	4	2 / 2	2 / 2	0.19	0.2	2 / 2	2 / 2	0.24	0.24	mg/kg	0.16	0.16
Cd	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	mg/kg	1	1
Ca	4	2 / 2	1 / 2	1390	43400	2 / 2	1 / 2	1460	2330	mg/kg	22395	1895
Cr	4	2 / 2	0 / 2	3.8	5.6	2 / 2	0 / 2	4.5	6	mg/kg	10	10
Co	4	1 / 2	0 / 2	3.3	3.3	2 / 2	0 / 2	1.8	2.2	mg/kg	30	30
Cu	4	2 / 2	0 / 2	6	6.3	2 / 2	0 / 2	3.1	4.3	mg/kg	25	25
Fe	4	2 / 2	1 / 2	7820	8870	2 / 2	1 / 2	10100	10200	mg/kg	8345	10150
Pb	4	2 / 2	1 / 2	4.1	41.5	2 / 2	1 / 2	3.2	67.3	mg/kg	22.8	35.25
Mg	4	2 / 2	1 / 2	862	20000	2 / 2	1 / 2	670	1310	mg/kg	10431	990
Mn	4	2 / 2	1 / 2	83	131	2 / 2	1 / 2	54	176	mg/kg	107	115
Hg	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	mg/kg	0.1	0.1
Ni	4	1 / 2	0 / 2	4.5	4.5	2 / 2	0 / 2	2.8	4.2	mg/kg	13	13
K	4	2 / 2	1 / 2	202	511	2 / 2	1 / 2	210	241	mg/kg	356.5	225.5
Se	4	0 / 2	0 / 2	ND	ND	1 / 2	0 / 2	0.37	0.37	mg/kg	2	2
Ag	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	mg/kg	0.75	0.7
Na	4	1 / 2	1 / 2	40.5	40.5	1 / 2	1 / 2	21.4	21.4	mg/kg	24.05	14.1
Tl	4	0 / 2	0 / 2	ND	ND	1 / 2	1 / 2	0.44	0.44	mg/kg	0.4	0.42
V	4	2 / 2	0 / 2	8.7	16.7	2 / 2	0 / 2	12.3	13.4	mg/kg	150	150
Zn	4	2 / 2	1 / 2	54.6	72.7	2 / 2	1 / 2	23	147	mg/kg	63.65	85

AREA 6
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
PESTICIDES/PCBs

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ALPHA-BHC	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	110	110
BETA-BHC	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
DELTA-BHC	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
GAMMA-BHC (LINDANE)	4	1 / 2	0 / 2	0.72	0.72	0 / 2	0 / 2	ND	ND	ug/kg	60	60
HEPTACHLOR	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
ALDRIN	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	41	41
HEPTACHLOR EPOXIDE	4	1 / 2	0 / 2	0.41	0.41	0 / 2	0 / 2	ND	ND	ug/kg	20	20
ENDOSULFAN I	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	900	900
DIELDRIN	4	1 / 2	0 / 2	0.43	0.43	0 / 2	0 / 2	ND	ND	ug/kg	44	44
4,4'-DDE	4	1 / 2	0 / 2	9.6	9.6	2 / 2	0 / 2	0.52	0.87	ug/kg	2100	2100
ENDRIN, TOTAL	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
ENDOSULFAN II	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	900	900
4,4'-DDD	4	1 / 2	0 / 2	2.3	2.3	0 / 2	0 / 2	ND	ND	ug/kg	2900	2900
ENDOSULFAN SULFATE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
4,4'-DDT	4	2 / 2	0 / 2	0.46	13	2 / 2	0 / 2	0.74	0.85	ug/kg	2100	2100
METHOXYCHLOR	4	0 / 2	0 / 2	ND	ND	2 / 2	0 / 2	2.3	3.9	ug/kg	10000	10000
ENDRIN KETONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
ENDRIN ALDEHYDE	4	1 / 2	0 / 2	0.68	0.68	2 / 2	0 / 2	0.59	0.75	ug/kg	----	----
ALPHA-CHLORDANE	4	1 / 2	0 / 2	0.36	0.36	0 / 2	0 / 2	ND	ND	ug/kg	----	----
GAMMA-CHLORDANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	540	540
TOXAPHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
PCBs (Total)	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	10000

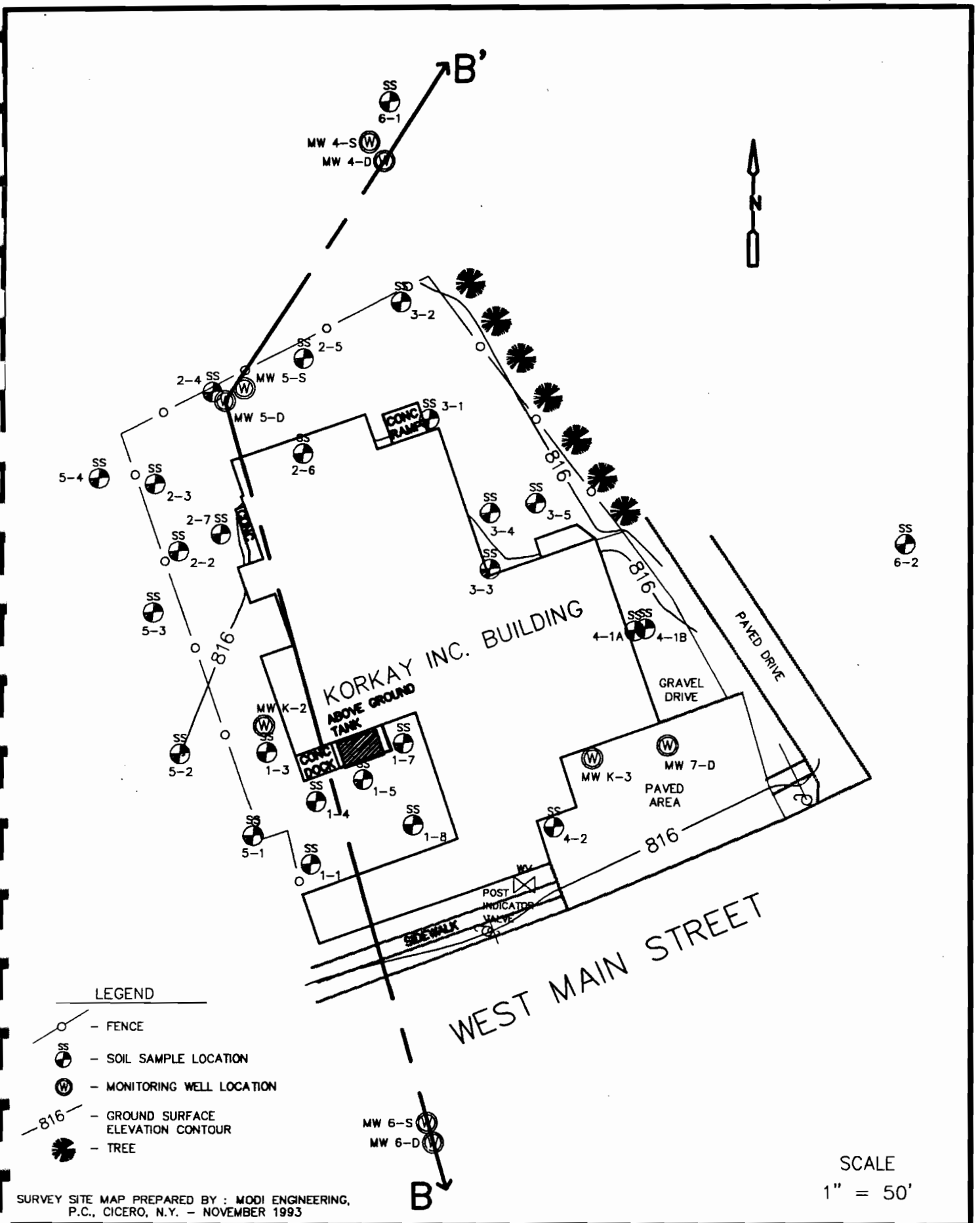


Figure 3-3

CROSS SECTION B-B' LOCATION MAP

Korkay Inc. Site – Broadalbin, New York

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TABLE 3-5

MONITORING WELL AND WATER LEVEL
ELEVATION DATA
October 26, 1993

ID Well Number	Top of PVC Well Casing Elevation (ft msl)	Top of Outer Protective Casing (ft msl)	Ground Elevation (ft msl)	Depth to Water (ft)	Water Level Elevation (ft msl)
K-2	818.72	818.98	816.6	9.46	809.26
K-3	817.73	818.11	816.55	8.64	809.09
MW-4D	817.65	817.76	815.3	30.16	787.49
MW-4S	817.95	818.05	815.4	7.89	810.06
MW-5D	817.87	817.88	815.5	27.92	789.95
MW-5S	817.74	817.93	815.3	7.84	809.90
MW-6D	815.16	815.47	815.5	27.56	787.60
MW-6S	815.19	815.45	815.4	6.90	808.29
MW-7D	819.04	819.06	816.52	31.37	787.67

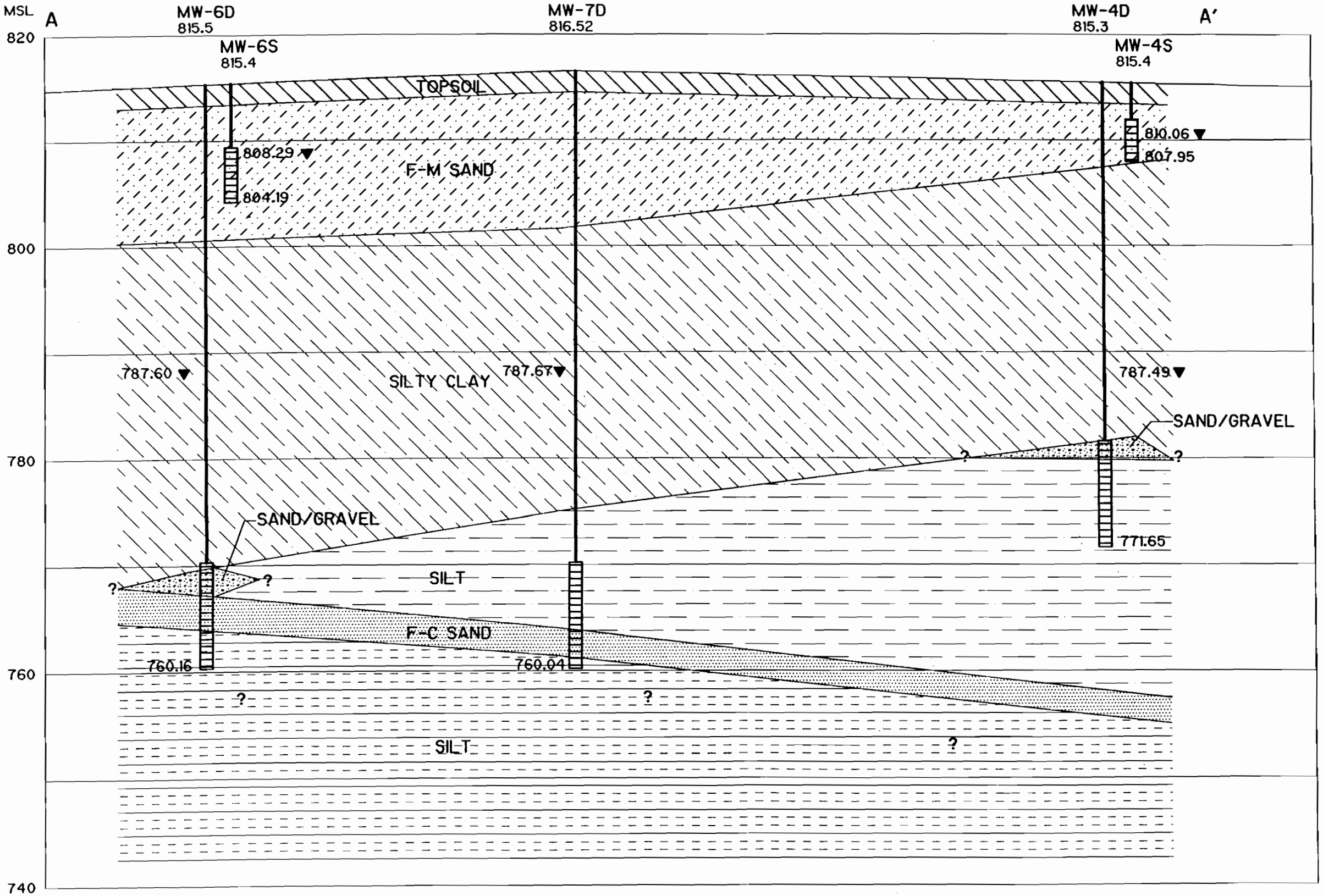

Figure 3–2A

Geologic Cross Section A-A'

Korkay Inc. Site - Broadalbin, New York
NYSDEC Site #5-18-014

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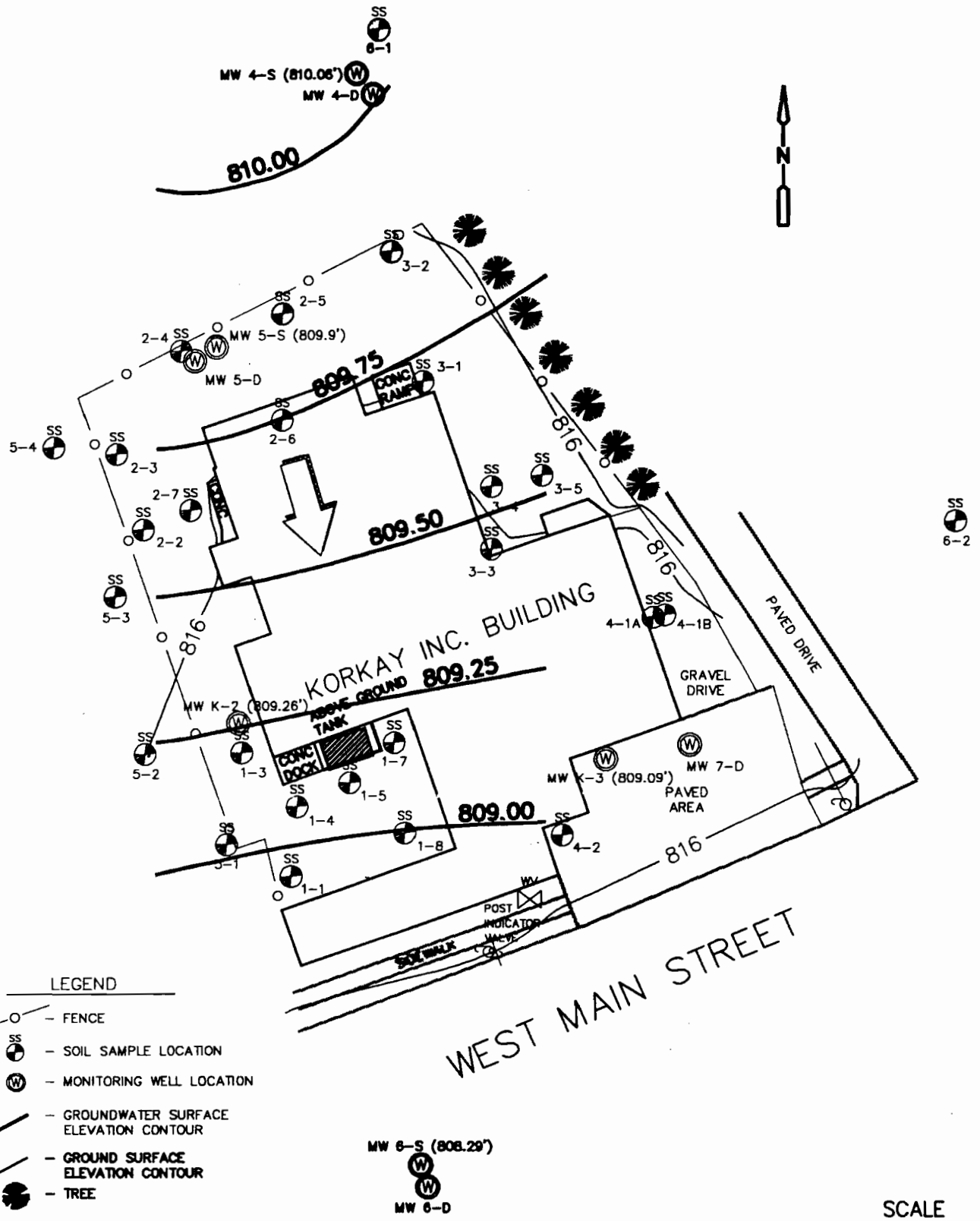

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 3-4

GENERALIZED FLOW OF SHALLOW WATER-BEARING UNIT

Korkay Inc. Site – Broadalbin, New York

NYSDEC Site #5-18-014

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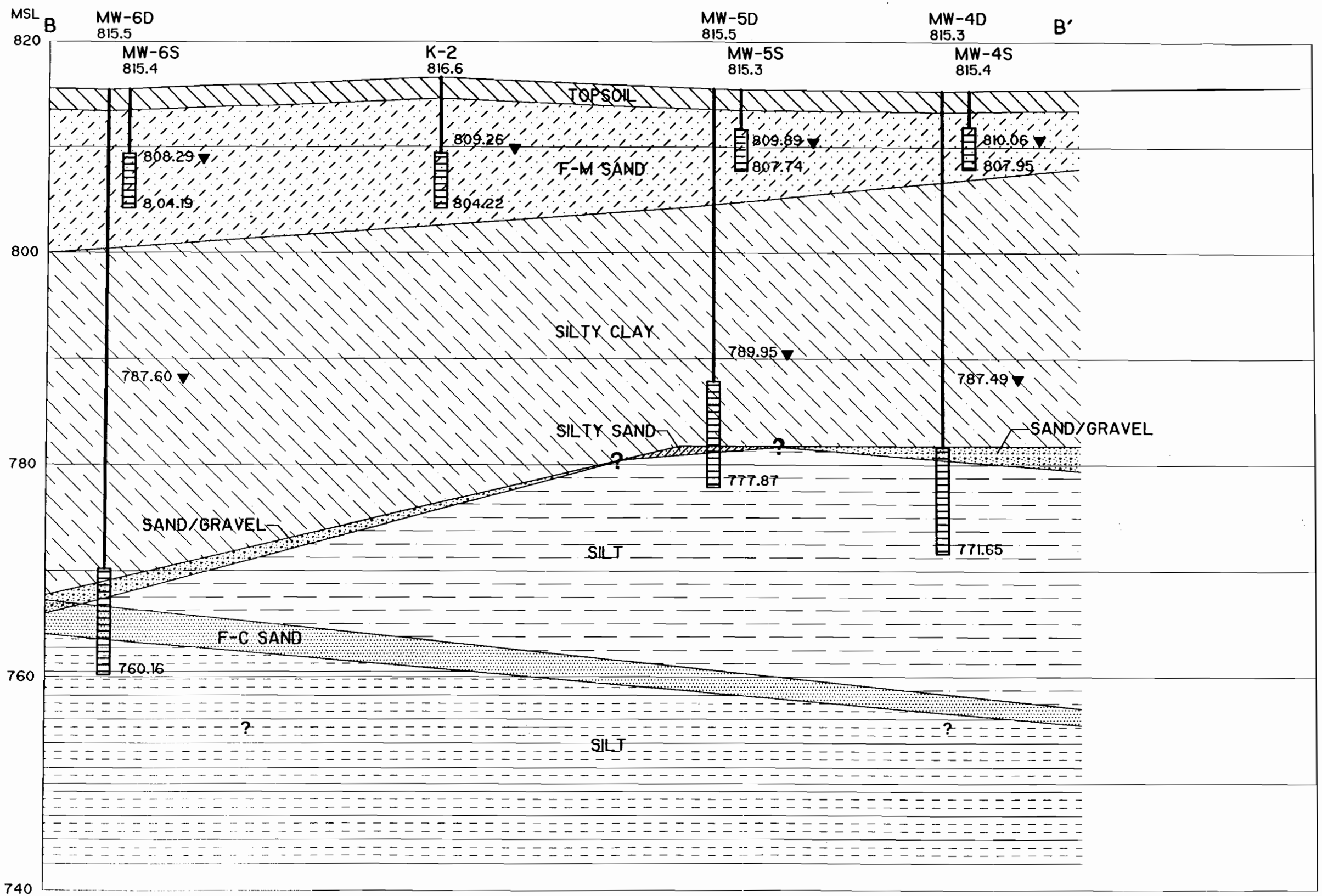

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Figure 3-3A

Geologic Cross Section B-B'

Korkay Inc. Site - Broadalbin, New York
NYSDEC Site #5-18-014

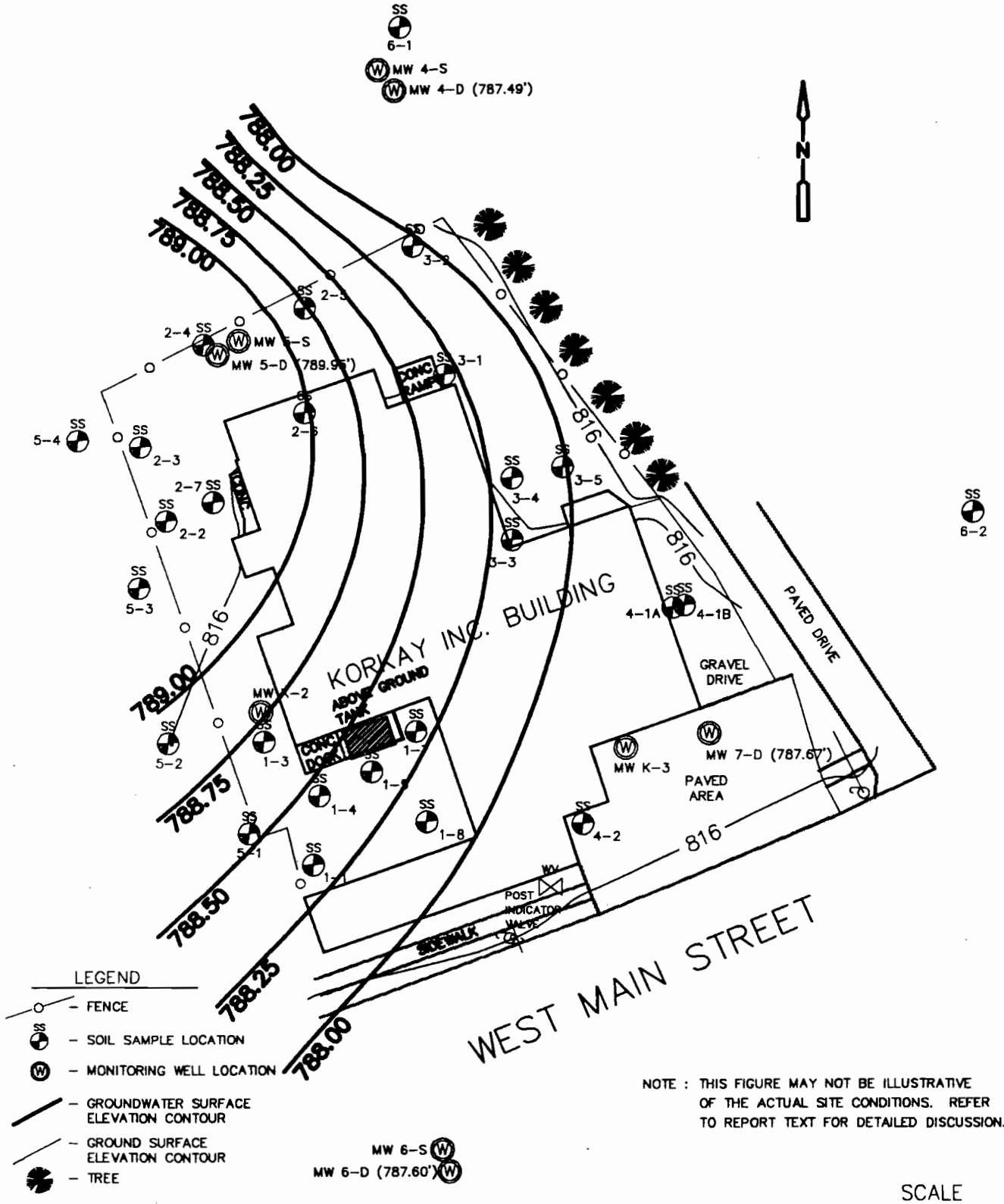
Figure 3-5 is constructed using depth to water data collected on October 26, 1993. Based on the fact that no prior information exists regarding the gradient of the deep zone at the site, it was unknown as to which direction water flow would be. An initial assumption was made that the flow could also be in the southerly direction, similar to the uppermost unit.

Figure 3-5 suggests that hydraulic gradient in the first water bearing unit encountered below the aquitard is in the east to southeasterly direction. However, this figure may not be illustrative of the actual site conditions. In fact, there are serious reservations about the direction of the gradient in this deeper water bearing unit as suggested because of the thin, possibly discontinuous sands that were monitored and existence of a significant vertical hydraulic gradient. It is not clear that these sands are even hydraulically connected or continuous throughout the site.

It is plausible that the water in the deep unit actually goes in a direction opposite to that shown. Since the deep wells were screened above a dense till and below a clayey unit to encounter the first water bearing zone, it appears that two of the deep wells (MW-4D and MW-5D) are screened above a "F-C sand" unit and the other two deep wells (MW-6D and MW-7D) are screened in a "F-C sand" unit. It is suspected that perhaps the water level in wells MW-4D and MW-5D may be affected differently from potential vertical hydraulic influences than the water level in wells MW-6D and MW-7D, and thus are not comparable. For this reason, the gradient map for the deep wells as shown is inconclusive. Perhaps the "F-C sand" unit is tilting from south to north towards the Sacandaga Reservoir (see the geologic cross-sections).

3.4 LABORATORY ANALYSIS, DATA VALIDATION, AND DATA USABILITY

Energy & Environmental Engineering Inc. (E3I) completed the chemical analysis of samples collected as part of the Phase I RI. Analysis of samples was conducted in accordance with the DEC Analytical Services Protocol (ASP) for the Contract Laboratory Program (CLP) issued in 1991.



SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 3-5

GENERALIZED FLOW OF DEEP WATER-BEARING UNIT

Korkay Inc. Site – Broadalbin, New York
NYSDEC Site #5-18-014

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Appendix B includes the tables summarizing the chemical analysis conducted on all soil and groundwater samples collected during the Phase I RI and the corresonding method quantitation limits.

Data validation was completed under subcontract by Chemworld Environmental Inc. (Chemworld) to determine and document analytical data quality in accordance with DEC CLP requirements. The analytical and validation processes were conducted in conformance with the CLP and are based on the United States Environmental Protection Agency's (EPA) Contract Laboratory Protocol "Statement of Work" documents and the associated "CLP Functional Guidelines for Data Validation" documents. Chemworld provided CDM with three (3) Data Validation Summary Reports explaining their findings.

A discussion of laboratory data usability was provided by CDM under separate cover to DEC, and the report narrative has been included as Appendix D to this RI Report. The data generated during this investigation were generally within acceptable Quality Control specifications. All critical data are usable. Data are complete (over 90% usable) and satisfactorily meet the data quality objectives established for this project.

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 INTRODUCTION

This section presents the results of analytical data collected during the Remedial Investigation (RI). This data, along with relevant historical data, is used to identify whether contamination may be present, the types of contaminants present, the possible source(s) of contamination, and the extent to which contamination may have migrated from the source(s).

The RI program was developed to evaluate the release of contaminants from the Korkay, Inc. site and to identify the potential sources of soil and groundwater contamination. Samples were collected from locations throughout the site, and also off-site, to identify the type and concentration of contaminants present in the environmental media. The investigation findings are also used to determine if contaminants present are attributable to past site operations.

The assessment of the presence of contamination was performed by comparing the sample results to concentrations of constituents typically observed in the media of concern (e.g., surface soils and groundwater), and to applicable regulatory standards. Since currently applicable or relevant and appropriate requirements (ARARs) have not been formalized, the data has only been compared to standards selected and provided by DEC, including:

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- **Groundwater:**
  NY State DEC, Division of Water, Technical and Operational Guidance Series (TOGS 1.1.1)/ Ambient Water Quality Standards and Guidance Values, dated October 22, 1993; and NY State DOH drinking water supply maximum contaminant levels (MCLs), issued January 5, 1993.

An exceedance for a given contaminant may not necessarily indicate a significant difference in contaminant distribution. Slight variations in concentrations may be due to analytical variation or spatial variability and background concentrations (particularly for inorganic metals).

4.1.1 Background Soil Data

The church property was designated as site background for the remedial investigation. This background area was designated as Area 6.

Two soil sample locations numbered 6-1 and 6-2 were sampled at the surface and subsurface. A total of four samples was collected in Area 6, including:

- two "A" series samples collected at 0-0.5'; and
- two "B" series samples collected at 1.5-2.0'.

Actual background sample locations were determined by DEC in the field, and are shown in figure 4-1. A summary of the detected compounds in the Area 6 soil samples is presented in tables 4-1 and 4-2.

In addition, at well location MW-4D two split spoon soil samples were collected, including MW-4D-1 (depth of 6.0-8.0') and MW-4D-2 (depth of 28.0-30.0'). These sample locations are also shown in figure 4-1. A summary of the detected compounds in the Area 6 soil samples is presented in table 4-3.

Organic Compounds

As shown in table 4-1, 4-2, and 4-3, levels of VOCs, SVOCs, and pesticides were detected in the background samples, both at the surface and in the subsurface at depths of 1.5-2.0', 6.0-8.0', and 28.0-30.0'. It is observed that surface sample 6-2A shows higher levels of organics contamination than sample 6-1A. However, both of the subsurface samples, 6-1B and 6-2B, have similar levels of organics contamination. Except for gamma-chlordane, the levels of the three organics found at the 6.0-8.0' and 28.0-30.0' depths are similar to those found in the shallower samples, but at lower concentrations.

A summary of the number of detections, number of samples exceeding limits, and range of organic compounds detected is presented in table 4-4.

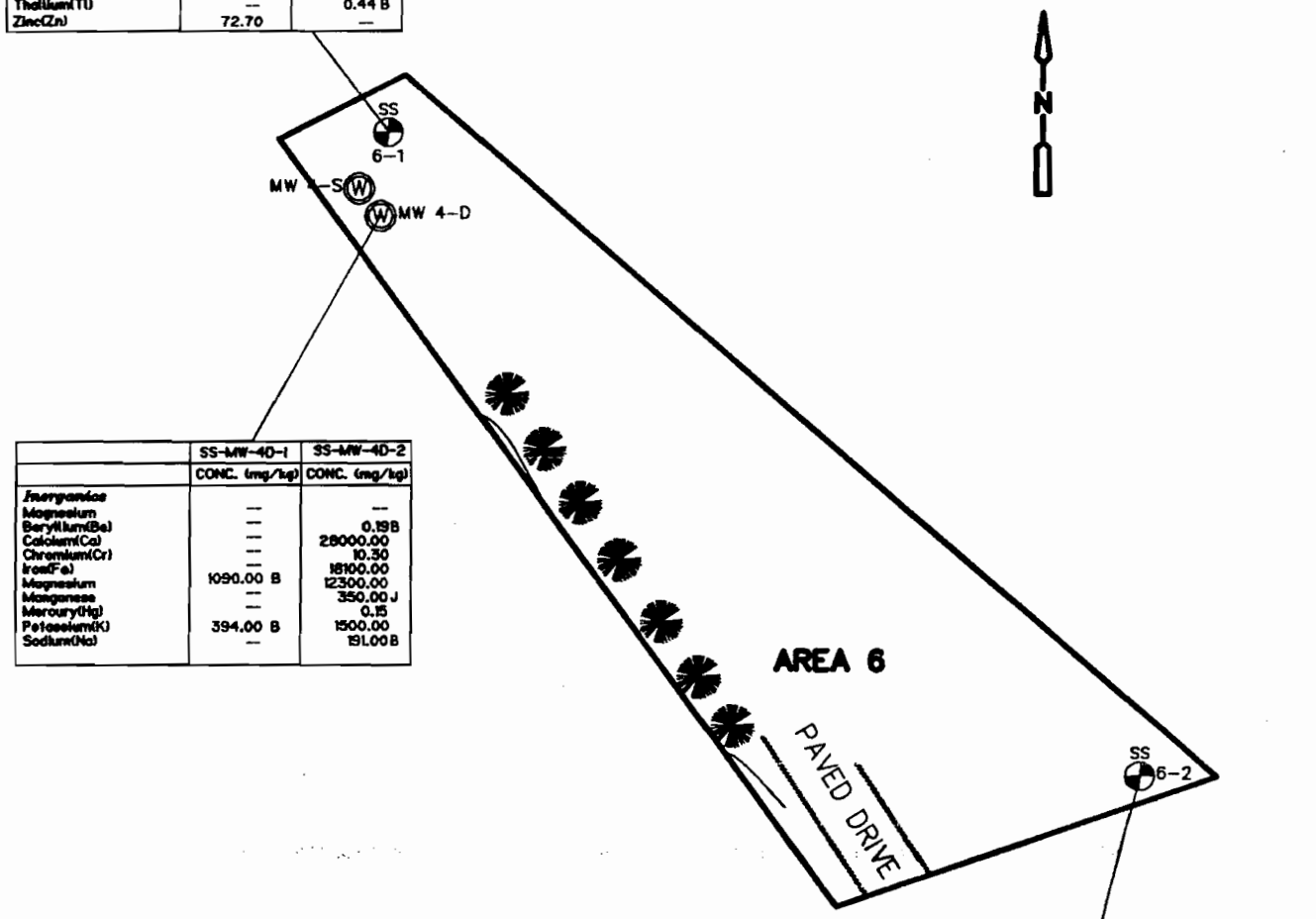
For purposes of this RI report, as a point of reference in the evaluations by area for the organic parameters, levels detected were compared to the DEC TAGM recommended soil cleanup criteria.

NOTE : SAMPLING RESULTS EXCEEDING DEC TAGM SOIL CLEANUP CRITERIA ARE REPORTED IN THIS FIGURE.

	SS-6-1A	SS-6-1B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	--	9920.00
Beryllium(Be)	0.19 B	0.24 B
Calcium(Ca)	43400.00	2330.00
Magnesium	20000.00	1310.00
Manganese	131.00	--
Potassium(K)	511.00 B	241.00 B
Sodium(Na)	40.50 B	21.40 B
Thallium(Tl)	--	0.44 B
Zinc(Zn)	72.70	--

	SS-MW-4D-1	SS-MW-4D-2
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Magnesium	--	--
Beryllium(Be)	--	0.19B
Calcium(Ca)	--	28000.00
Chromium(Cr)	--	10.30
Iron(Fe)	--	18100.00
Magnesium	1090.00 B	12300.00
Manganese	--	350.00 J
Mercury(Hg)	--	0.15
Potassium(K)	394.00 B	1500.00
Sodium(Na)	--	191.00B

	SS-6-2A	SS-6-2B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	8890.00	--
Beryllium(Be)	0.20 B	0.24 B
Iron(Fe)	8870.00	10200.00
Lead(Pb)	41.50 J	67.30
Manganese	--	176.00
Zinc(Zn)	--	147.00



LEGEND

- FENCE
- -- NOT DETECTED ABOVE CRITERIA
- SS SOIL SAMPLE LOCATION
- W MONITORING WELL LOCATION
- TREE
- AREA BOUNDARIES

SCALE
1" = 50'

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 4–1
AREA 6: Background (Church Property) Soil Sample Results
Korkay Inc. Site – Broadalbin, New York
NYSDEC Site #5–18–014

CDM
environmental engineers, scientists, planners, & management consultants

Table 4-1

Summary of Background Surface Soil Sample Results

VOLATILE ORGANICS IN SURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SURF	SS-6-1A	SS-6-2A
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				00.00-00.50'	00.00-00.50'
Volatile Organics (soils)					
1,1,1-TRICHLOROETHANE	ug/kg	800.0	3.0	--	3.0 J
TRICHLOROETHENE	ug/kg	700.0	11.5	--	--
TETRACHLOROETHENE	ug/kg	1,400.0	11.5	--	--
TOLUENE	ug/kg	1,500.0	4.0	--	4.0 J

SEMIVOLATILE ORGANICS IN SURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SURF	SS-6-1A	SS-6-2A
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				00.00-00.50'	00.00-00.50'
SemiVolatile Organics (soils)					
ACENAPHTHYLENE	ug/kg	41,000	390	--	--
HEXACHLOROBENZENE	ug/kg	410	390	--	--
PHENANTHRENE	ug/kg	50,000	390	--	--
ANTHRACENE	ug/kg	50,000	390	--	--
CARBAZOLE	ug/kg	----	390	--	--
DI-N-BUTYLPHTHALATE	ug/kg	8,100	228	85 J	370 J2
FLUORANTHENE	ug/kg	50,000	59	--	59 J
PYRENE	ug/kg	50,000	48	--	48 J
BUTYLBENZYLPHTHALATE	ug/kg	50,000	390	--	--
BENZO(A)ANTHRACENE	ug/kg	220	390	--	--
CHRYSENE	ug/kg	400	390	--	--
BIS(2-ETHYLHEXYL)PHTHALATE	ug/kg	50,000	150	40 J	260 J2
DI-N-OCTYL PHTHALATE	ug/kg	50,000	390	--	--
BENZO(B)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(K)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(A)PYRENE	ug/kg	61	390	--	--
INDENO(1,2,3-CD)PYRENE	ug/kg	3,200	390	--	--
DIBENZO(A,H)ANTHRACENE	ug/kg	14	390	--	--
BENZO(G,H,I)PERYLENE	ug/kg	50,000	390	--	--

Table 4-1 (continued)

Summary of Background Surface Soil Sample Results

PESTICIDES AND PCBs IN SURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SURF	SS-6-1A	SS-6-2A
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				00.00-00.50'	00.00-00.50'
Pesticides (soils)					
ALPHA-BHC	ug/kg	110.00	1.95	--	--
GAMMA-BHC (LINDANE)	ug/kg	60.00	0.72	--	0.72 J
HEPTACHLOR	ug/kg	100.00	1.95	--	--
ALDRIN	ug/kg	41.00	1.95	--	--
HEPTACHLOR EPOXIDE	ug/kg	20.00	0.41	--	0.41 J
DIELDRIN	ug/kg	44.00	0.43	--	0.43 J
4,4'-DDE	ug/kg	2,100.00	9.60	--	9.60 J
ENDRIN, TOTAL	ug/kg	100.00	3.90	--	--
ENDOSULFAN II	ug/kg	900.00	3.90	--	--
4,4'-DDD	ug/kg	2,900.00	2.30	--	2.30 J
ENDOSULFAN SULFATE	ug/kg	1,000.00	3.90	--	--
4,4'-DDT	ug/kg	2,100.00	6.73	0.46 J	13.00 2
METHOXYCHLOR	ug/kg	10,000.00	19.50	--	--
ENDRIN KETONE	ug/kg	----	3.90	--	--
ENDRIN ALDEHYDE	ug/kg	----	0.68	--	0.68 J
ALPHA-CHLORDANE	ug/kg	----	0.36	--	0.36 J
GAMMA-CHLORDANE	ug/kg	540.00	1.95	--	--
PCBs (Total)	ug/kg	1,000.00	77.50	--	--

Table 4-1 (continued)

Summary of Background Surface Soil Sample Results

INORGANICS IN SURFACE SOILS

		UPPER LIMIT					
LOCATION ID ----->				SS-6-1		SS-6-2	
SAMPLE ID ----->		NYSDEC CRITERIA		BCKGRND-SURF	SS-6-1A		SS-6-2A
SAMPLE DATE ----->					09/13/93		09/13/93
SAMPLE DEPTH ----->					00.00-00.50'		00.00-00.50'
Inorganics (soils)							
Al	mg/kg		SB	5,775.00	2,660.00		8,890.00 2
As	mg/kg	7.50		3.65	3.50		3.80 2
Ba	mg/kg	300.00		28.75	38.00	J2	19.50 J
Be	mg/kg	0.14		0.20	0.19	B1	0.20 B3
Cd	mg/kg	1.00		0.85	--		--
Ca	mg/kg		SB	22,395.00	43,400.00	2	1,390.00
Cr	mg/kg	10.00		4.70	3.80		5.60 2
Co	mg/kg	30.00		2.30	3.30	B2	--
Cu	mg/kg	25.00		6.15	6.00		6.30 2
Fe	mg/kg		SB	8,345.00	7,820.00		8,870.00 2
Pb	mg/kg		SB	22.80	4.10	J	41.50 J2
Mg	mg/kg		SB	10,431.00	20,000.00	2	862.00 B
Mn	mg/kg		SB	107.00	131.00	2	83.00
Hg	mg/kg	0.10		0.10	--		--
Ni	mg/kg	13.00		3.65	4.50	B2	--
K	mg/kg	4,000.00		356.50	511.00	B2	202.00 B
Se	mg/kg	2.00		0.30	--		--
Ag	mg/kg	200.00		0.75	--		--
Na	mg/kg	3,000.00		24.05	40.50	B2	--
Tl	mg/kg	20.00		0.40	--		--
V	mg/kg	150.00		12.70	8.70	B	16.70 2
Zn	mg/kg		SB	63.65	72.70	2	54.60

NOTES:
- NA Parameter not analyzed
- 1 Sample value exceeds NYSDEC soil criteria
- 2 Sample value exceeds background value
- 3 Sample value exceeds both NYSDEC criteria and background value
- -- Not detected above the method detection limit
- ---- Not available

Table 4-2

Summary of Background Subsurface Soil Sample Results

VOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
Volatile Organics (soils)					
ACETONE	ug/kg	200.0	11.5	--	--
2-BUTANONE	ug/kg	300.0	11.5	--	--
1,1,1-TRICHLOROETHANE	ug/kg	800.0	11.5	--	--
TRICHLOROETHENE	ug/kg	700.0	11.5	--	--
TETRACHLOROETHENE	ug/kg	1,400.0	11.5	--	--
TOLUENE	ug/kg	1,500.0	4.5	2.0 J	7.0 J2
ETHYLBENZENE	ug/kg	5,500.0	11.5	--	--
XYLENE(TOTAL)	ug/kg	1,200.0	11.5	--	--

SEMIVOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
SemiVolatile Organics (soils)					
2,4-DICHLOROPHENOL	ug/kg	400	390	--	--
NAPHTHALENE	ug/kg	13,000	390	--	--
2-METHYLNAPHTHALENE	ug/kg	36,400	390	--	--
ACENAPHTHYLENE	ug/kg	41,000	390	--	--
HEXACHLOROBENZENE	ug/kg	410	390	--	--
PHENANTHRENE	ug/kg	50,000	390	--	--
ANTHRACENE	ug/kg	50,000	390	--	--
DI-N-BUTYLPHTHALATE	ug/kg	8,100	140	110 J	170 J2
FLUORANTHENE	ug/kg	50,000	390	--	--
PYRENE	ug/kg	50,000	390	--	--
BENZO(A)ANTHRACENE	ug/kg	220	390	--	--
CHRYSENE	ug/kg	400	390	--	--
BIS(2-ETHYLHEXYL)PHTHALATE	ug/kg	50,000	390	--	--
BENZO(B)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(K)FLUORANTHENE	ug/kg	1,100	390	--	--
BENZO(A)PYRENE	ug/kg	61	390	--	--
INDENO(1,2,3-CD)PYRENE	ug/kg	3,200	390	--	--
BENZO(G,H,I)PERYLENE	ug/kg	50,000	390	--	--

Table 4-2 (continued)

Summary of Background Subsurface Soil Sample Results

PESTICIDES AND PCBs IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
Pesticides (soils)					
ALPHA-BHC	ug/kg	110.00	1.95	--	--
BETA-BHC	ug/kg	200.00	1.95	--	--
DELTA-BHC	ug/kg	300.00	1.95	--	--
GAMMA-BHC (LINDANE)	ug/kg	60.00	1.95	--	--
HEPTACHLOR	ug/kg	100.00	1.95	--	--
ALDRIN	ug/kg	41.00	1.95	--	--
HEPTACHLOR EPOXIDE	ug/kg	20.00	1.95	--	--
DIELDRIN	ug/kg	44.00	3.90	--	--
4,4'-DDE	ug/kg	2,100.00	0.70	0.52 J	0.87 J2
ENDRIN, TOTAL	ug/kg	100.00	3.90	--	--
ENDOSULFAN II	ug/kg	900.00	3.90	--	--
4,4'-DDD	ug/kg	2,900.00	3.90	--	--
ENDOSULFAN SULFATE	ug/kg	1,000.00	3.90	--	--
4,4'-DDT	ug/kg	2,100.00	0.80	0.85 J2	0.74 J
METHOXYCHLOR	ug/kg	10,000.00	3.10	3.90 J2	2.30 J
ENDRIN KETONE	ug/kg	----	3.90	--	--
ENDRIN ALDEHYDE	ug/kg	----	0.67	0.75 J2	0.59 J
ALPHA-CHLORDANE	ug/kg	----	1.95	--	--
GAMMA-CHLORDANE	ug/kg	540.00	1.95	--	--
PCBs (Total)	ug/kg	10,000.00	77.50	--	--

Table 4-2 (continued)

Summary of Background Subsurface Soil Sample Results

INORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				SS-6-1	SS-6-2
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-6-1B	SS-6-2B
SAMPLE DATE ----->				09/13/93	09/13/93
SAMPLE DEPTH ----->				01.50-02.00'	01.50-02.00'
Inorganics (soils)					
Al	mg/kg	SB	8,970.00	9,920.00 2	8,020.00
As	mg/kg	7.50	1.30	1.20 B	1.40 B2
Ba	mg/kg	300.00	31.70	10.40 J	53.00 J2
Be	mg/kg	0.14	0.24	0.24 B1	0.24 B1
Cd	mg/kg	1.00	0.80	--	--
Ca	mg/kg	SB	1,895.00	2,330.00 2	1,460.00
Cr	mg/kg	10.00	5.25	6.00 2	4.50
Co	mg/kg	30.00	2.00	2.20 B2	1.80 B
Cu	mg/kg	25.00	3.70	3.10 B	4.30 B2
Fe	mg/kg	SB	10,150.00	10,100.00	10,200.00 2
Pb	mg/kg	SB	35.25	3.20 J	67.30 2
Mg	mg/kg	SB	990.00	1,310.00 2	670.00 B
Mn	mg/kg	SB	115.00	54.00	176.00 2
Hg	mg/kg	0.10	0.10	--	--
Ni	mg/kg	13.00	3.50	4.20 B2	2.80 B
K	mg/kg	4,000.00	225.50	241.00 B2	210.00 B
Se	mg/kg	2.00	0.34	--	0.37 B2
Ag	mg/kg	200.00	0.70	--	--
Na	mg/kg	3,000.00	14.10	21.40 B2	--
Tl	mg/kg	20.00	0.42	0.44 B2	--
V	mg/kg	150.00	12.85	12.30	13.40 2
Zn	mg/kg	SB	85.00	23.00	147.00 2

NOTES:
- NA Parameter not analyzed
- 1 Sample value exceeds NYSDEC soil criteria
- 2 Sample value exceeds background value
- 3 Sample value exceeds both NYSDEC criteria and background value
- -- Not detected above the method detection limit
- ---- Not available

Table 4-3
Summary of Background Split Spoon Soil Sample Results

VOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
Volatile Organics (soils)					
METHYLENE CHLORIDE	ug/kg	100.0	11.5	--	--
ACETONE	ug/kg	200.0	11.5	--	--
2-BUTANONE	ug/kg	300.0	11.5	--	--
4-METHYL-2-PENTANONE	ug/kg	1,000.0	11.5	--	--
2-HEXANONE	ug/kg	----	11.5	--	--
TOLUENE	ug/kg	1,500.0	4.5	--	2.0 J
ETHYLBENZENE	ug/kg	5,500.0	11.5	--	--
XYLENE(TOTAL)	ug/kg	1,200.0	11.5	--	--

SEMIVOLATILE ORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
SemiVolatile Organics (soils)					
BIS(2-ETHYLHEXYL)PHTHALATE	ug/kg	50,000	390	170 J	--

Table 4-3 (continued)

Summary of Background Split Spoon Soil Sample Results

PESTICIDES AND PCBs IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
Pesticides (soils)					
HEPTACHLOR EPOXIDE	ug/kg	20.00	1.95	--	--
4,4'-DDT	ug/kg	2,100.00	0.80	--	--
METHOXYCHLOR	ug/kg	10,000.00	3.10	--	--
ALPHA-CHLORDANE	ug/kg	----	1.95	--	--
GAMMA-CHLORDANE	ug/kg	540.00	1.95	--	0.27 J

INORGANICS IN SUBSURFACE SOILS

		UPPER LIMIT			
LOCATION ID ----->				MW-4-D	MW-4-D
SAMPLE ID ----->		NYSDEC CRITERIA	BCKGRND-SUBSRF	SS-MW-4D-1	SS-MW-4D-2
SAMPLE DATE ----->				09/28/93	09/28/93
SAMPLE DEPTH ----->				06.00-08.00'	28.00-30.00'
Inorganics (soils)					
Al	mg/kg	SB	8,970.00	3,540.00	8,530.00
As	mg/kg	7.50	1.30	--	2.10 J2
Ba	mg/kg	300.00	31.70	13.00 B	44.60 B2
Be	mg/kg	0.14	0.24	--	0.19 B1
Ca	mg/kg	SB	1,895.00	1,280.00	28,000.00 2
Cr	mg/kg	10.00	5.25	3.50	10.30 3
Co	mg/kg	30.00	2.00	2.50 B2	7.00 B2
Cu	mg/kg	25.00	3.70	3.90 B2	8.60 2
Fe	mg/kg	SB	10,150.00	7,900.00	18,100.00 2
Pb	mg/kg	SB	35.25	1.30	2.40 J
Mg	mg/kg	SB	990.00	1,090.00 B2	12,300.00 2
Mn	mg/kg	SB	115.00	94.90 J	350.00 J2
Hg	mg/kg	0.10	0.10	--	0.15 3
Ni	mg/kg	13.00	3.50	4.90 B2	8.70 B2
K	mg/kg	4,000.00	225.50	394.00 B2	1,500.00 2
Na	mg/kg	3,000.00	14.10	--	191.00 B2
V	mg/kg	150.00	12.85	10.90 B	28.30 J2
Zn	mg/kg	SB	85.00	13.50 J	34.50 J

NOTES:
- NA Parameter not analyzed
- 1 Sample value exceeds NYSDEC soil criteria
- 2 Sample value exceeds background value
- 3 Sample value exceeds both NYSDEC criteria and background value
- -- Not detected above the method detection limit
- ---- Not available

INORGANIC DATA QUALIFIERS

B - Indicates analyte result is between Instrument Detection Limit (IDL) and CRDL.

E - Reported value is estimated because of the presence of interference.

J - Reported value is estimated due to variance from quality control limits.

NA- Not Analyzed.

R - Reported value is unusable and rejected due to variance from quality control limits.

U - Indicates analyte was not detected at or below the Contract Required Detection Limit (CRDL), or the compound is not detected due to qualification through the method or field blank.

UJ - The element was analyzed for, but not detected. The sample quantitation limit is an estimate due to variance in quality control limits.

ORGANIC DATA QUALIFIERS

A - Aldol condensation product.

B - Indicates that the compound was also detected in the laboratory blank.

C - Applies to pesticide results where the identification has been confirmed by GC/MS.

D - Reported result taken from diluted sample analysis.

E - Reported value is estimated due to quantitation above the calibration range.

J - The associated numerical value is an estimated quantity.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search.

NA - Not Analyzed.

NJ - Tentatively identified with approximated concentrations.

P - This flag is used for a pesticide/Arochlor target analyte when there is greater than 25% difference for detected concentrations between two GC columns. The lower of the two values is reported.

R - Reported value is unusable and rejected due to variance from quality control limits.

SB - Soil Background

U - Indicates that the compound was analyzed for but not detected at or above the Contract Required Quantitation Limit (CRQL), or the compound is not detected due to qualification through the method or field blank.

UJ - The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance in quality control limits.

W - Post-digestion spike for Furnace AA analysis is out of control limits (85%-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis is not within control limits.

Table 4-4

AREA 6
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
VOLATILE ORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
CHLOROMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BROMOMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
VINYL CHLORIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
CHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1900	1900
METHYLENE CHLORIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
ACETONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
CARBON DISULFIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	2700	2700
1,1-DICHLOROETHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	400	400
1,1-DICHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
1,2-DICHLOROETHENE(TOTAL)	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
CHLOROFORM	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
1,2-DICHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
2-BUTANONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
1,1,1-TRICHLOROETHANE	4	1 / 2	0 / 2	3	3	0 / 2	0 / 2	ND	ND	ug/kg	800	800
CARBON TETRACHLORIDE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	600	600
BROMODICHLOROMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
1,2-DICHLOROPROPANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
cis-1,3-DICHLOROPROPYLENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
TRICHLOROETHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	700	700
DIBROMOCHLOROMETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
1,1,2-TRICHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	60	60
Trans-1,3-DICHLOROPROPYLENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BROMOFORM	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-METHYL-2-PENTANONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
2-HEXANONE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
TETRACHLOROETHENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1400	1400
1,1,2,2-TETRACHLOROETHANE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	600	600
TOLUENE	4	1 / 2	0 / 2	4	4	2 / 2	0 / 2	2	7	ug/kg	1500	1500
CHLOROBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1700	1700
ETHYLBENZENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	5500	5500
STYRENE	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
XYLENE(TOTAL)	4	0 / 2	0 / 2	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1200	1200

Inorganic Metals

A summary of the detected compounds in the Area 6 soil samples is presented in tables 4-1, 4-2, and 4-3. A summary of the number of detections and number of samples exceeding limits is presented in table 4-4. Table 4-5 presents the arithmetically averaged analytical results from the surface and subsurface samples to establish average background conditions for "surface" and "subsurface" values, respectively.

The concentration of inorganic metals from the samples collected during the remedial investigation were compared to the average concentrations of the surface or subsurface background samples for metals in the DEC TAGM soil cleanup criteria designated with as "SB", defined as "site background". Where no "SB" designation is made, the DEC TAGM criteria value was used. In cases where an analyte was not detected, the method detection limit for that analyte was used for an average value for comparison. In the evaluations by area, the concentration of inorganic analytes detected in the samples is described in concentration relative to the average background and DEC TAGM.

It is important to note that many inorganic constituents are naturally occurring, with widely varying concentrations that reflect the geological setting and other physical/chemical properties of the subsurface environment. Accordingly, the presence of these constituents at elevated concentrations may not be indicative of contamination, but rather may reflect natural environmental conditions. As a point of reference for this evaluation, typical concentrations of inorganic constituents found in soils of the eastern United States are used (see table 4-2). This information underscores the variation in concentration for naturally occurring inorganics such as aluminum, calcium, iron, magnesium, manganese, potassium, and sodium. As a point of refernece, for the non-naturally occurring inorganic parameters levels exceeding 2 orders of magnitude of the background or DEC TAGM criteria have been noted as significant.

4.2 SOIL

The results of the RI are discussed by area for the following classes of compounds:

- TCL organic compounds including volatiles (VOCs), semi-volatiles (SVOCs), and pesticides/PCBs; and
- TAL inorganic metals.

Table 4-5

EASTERN UNITED STATES BACKGROUND LEVELS vs. SITE BACKGROUND OF INORGANIC METALS IN SOILS

CONTAMINANT	PROTECT WATER QUALITY	EASTERN USA BACKGROUND	CRDL * MG/KG OR PPM	REC. SOIL CLEANUP OBJECTIVE ppm or mg/kg	TAGM or sb *SURFACE* ppm or mg/kg	TAGM or sb *SUBSURFACE* ppm or mg/kg
Al	N/A	33000	2	sb	5775	8970
Sb	N/A	N/A	0.6	sb	8.95	8.7
As	N/A	3–12	0.1	7.5 or sb	7.5	7.5
Ba	N/A	15–600	2	300 or sb	300	300
Be	N/A	0–1.75	0.05	0.16 or sb	0.16	0.16
Cd	N/A	0.1–1	0.05	1 or sb	1	1
Ca	N/A	130–35000	50	sb	22395	1895
Cr	N/A	1.5–40	0.1	10 or sb	10	10
Co	N/A	2.5–60	0.5	30 or sb	30	30
Cu	N/A	1–50	0.25	25 or sb	25	25
Fe	N/A	2000–550000	1	2000 or sb	8345	10150
Pb	N/A	4–61	0.03	sb	22.8	35.25
Mg	N/A	100–5000	50	sb	10431	990
Mn	N/A	50–5000	0.15	sb	107	115
Hg	N/A	.001–.2	0.002	0.1	0.1	0.1
Ni	N/A	.5–25	0.4	13 or sb	13	13
K	N/A	8500–43000	50	sb	356.5	225.5
Se	N/A	0.1–3.9	0.05	2 or sb	2	2
Ag	N/A	N/A	0.1	sb	0.75	0.7
Na	N/A	6000–8000	50	sb	24.05	14.1
Tl	N/A	N/A	0.1	sb	0.4	0.42
V	N/A	1–300	0.5	150 or sb	150	150
Zn	N/A	9–50	0.2	20 or sb	63.65	85

* Source: TAGM. 1994. Technical and Adminsitrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels (HWR–94–4046). Prepared by Division of Hazardous Waste Remediation of NYSDEC. January 24.

* CRDL for soil is approx. 10 times the CRDL for water
sb is site background
N/A is not available

The raw analytical data for groundwater samples, including laboratory method detection limits, has been summarized and is included in the tables contained in Appendix B. For ease of review of this report, a summary of the detected compounds for the soil samples collected is presented in tables contained in Appendix C (table C-1 through C-12). As an aid in interpreting the data, a summary of the number of detections, number of samples exceeding the criteria, and range of detected values is presented for each area.

The evaluation of organic data begins with a discussion of the distribution of organic compounds for surface and subsurface soils, by area. The evaluation of inorganic data begins with a discussion of the distribution of the inorganic metals in the soil samples in terms of frequency of detection and concentrations relative to background. A discussion is then presented to provide an overview of the nature and extent of organic contamination and possible sources of contamination within each area.

Soil was sampled at both on-site and off-site locations. The site was divided into six separate sections for ease of identification as follows:

Area 1: Southwest Quadrant of Site
Area 2: Northwest Quadrant of Site
Area 3: Northeast Quadrant of Site
Area 4: Southeast Quadrant of Site
Area 5: Hayes Property (Off-Site)
Area 6: Background (Church Property)

The soil sample location numbers are related to the areas numbered 1 through 6. In addition, the subsurface split spoon soil samples collected are numbered according to the corresponding well number.

4.2.1 Area 1: Southwest Quadrant of Site

Six soil sample locations numbered 1-1, 1-3, 1-4, 1-5, 1-7, and 1-8 were sampled at the surface and subsurface. A total of thirteen samples was collected in Area 1, including:

- six "A" series samples collected at 0-0.5';
- five "B" series samples collected at 1.5-2.0';
- one "B" series samples collected at 3.5-4.0'; and
- one "C" series sample collected at 4.5-5.0'.

Quality assurance samples collected in Area 1 include one field blank and one field duplicate sample (1-9B). The soil sample locations were biased towards various potential environmental concerns (see section 3.0 for further description) and are shown in figure 4-2.

At monitoring well MW-6D, located off-site across the street from the Korkay site, two split spoon soil samples were collected, including MW-6D-1 (depth of 8.0-10.0)' and MW-6D-2 (depth of 22.0-24.0'). These sample locations are also shown in figure 4-2.

Volatile Organic Compounds

Analytical results from soil samples collected in Area 1 indicate that the VOCs detected include:

- o 1,1,1-trichloroethane;
- o trichloroethene;
- o tetrachloroethene;
- o toluene;
- o ethylbenzene; and
- o xylene (total)

A summary of the detected VOC compounds in the Area 1 soil samples is presented in Appendix C, tables C-1 and C-2. A summary of the number of detections and number of samples exceeding limits is presented in table 4-6.

The levels detected in surface soils are below DEC TAGM soil cleanup criteria.

However, in the subsurface soils, VOC levels detected above DEC TAGM criteria are in two samples located near the concrete dock presumably used for loading and unloading operations and the 4,000-gallon holding tank, shown as the aboveground tank in figure 4-2, used to contain vat cleaning and spill cleanup washwater. The following VOC's were detected in 1.5-2.0' subsurface soil sample: **1-4B**: trichloroethene at 2,600J ppb and total xylene at 12,000 ppb. Total xylenes were detected in the duplicate sample **1-9B** at 11,000 ppb. Total xylenes were detected in sample **1-5C** at 11,000 ppb at 4.5-5.0' depth.

As shown in Appendix C, table C-9, the four VOCs detected in the MW-6D-1 and MW-6D-2 soil samples collected across the street at depths of 8.0-10.0' and 22.0-24.0', respectively, include 4-methyl-2-pentanone, toluene, ethylbenzene, and xylene (total).

NOTE : SAMPLING RESULTS EXCEEDING DEC TAGM SOIL CLEANUP CRITERIA ARE REPORTED IN THIS FIGURE.

	SS-1-5A	SS-1-5B	SS-1-5C
	CONC. (ug/kg)	CONC. (ug/kg)	CONC. (ug/kg)
VOCs			
Xylene(total)	--	--	11000.0
SVOCs			
Di-N-Butylphthalate	--	--	8400
Benzo(a)pyrene	--	70 J	--
	CONC. (mg/kg)	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics			
Beryllium(Be)	0.23 B	--	0.26 B
Calcium(Ca)	--	1980.00	2650.00
Chromium(Cr)	--	41.40	28.30
Iron(Fe)	8710.00	--	--
Lead(Pb)	--	97.90	78.10
Magnesium	--	1320.00	1140.00
Manganese	127.00	--	0.16
Mercury(Hg)	--	0.45	--
Potassium(K)	391.00 B	302.00 B	438.00 B
Sodium(Na)	24.20 B	--	25.70 B

	SS-1-3A	SS-1-3B
	CONC. (ug/kg)	CONC. (ug/kg)
SVOCs--Detected		
Benzo(a)pyrene	320 J	--
Dibenzo(a,h)anthracene	38 J	--
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Chromium (Cr)	29.40	--
Iron (Fe)	9910.00	--
Lead (Pb)	116.00	--
Magnesium (Mg)	--	1270.00
Manganese (Mn)	117.00	--
Mercury (Hg)	0.14	--
Potassium(K)	357.00 B	305.00 B
Sodium(Na)	35.90 B	17.80 B
Zinc (Zn)	75.00	--

	SS-1-7A	SS-1-7B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	0.25 B	0.17 B
Calcium(Ca)	--	2310.00
Chromium(Cr)	39.20	35.40
Iron(Fe)	9870.00	--
Lead(Pb)	82.10	152.00
Magnesium	--	1500.00
Mercury(Hg)	0.20	0.39
Potassium(K)	441.00 B	423.00 B
Sodium(Na)	26.60 B	45.30 B
Zinc(Zn)	--	94.90

	SS-1-4A	SS-1-4B
	CONC. (ug/kg)	CONC. (ug/kg)
VOCs		
Trichloroethene	--	2600.0 J
Xylenes(total)	--	12000.0
SVOCs		
Di-N-Butylphthalate	--	27000
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium (Be)	0.17 B	0.17 B
Cadmium (Cd)	--	1.20
Chromium (Cr)	21.00	22.60
Lead (Pb)	60.90	59.30
Mercury (Hg)	0.13	0.12
Potassium(K)	--	325.00 B
Sodium(Na)	36.30 B	41.30 B

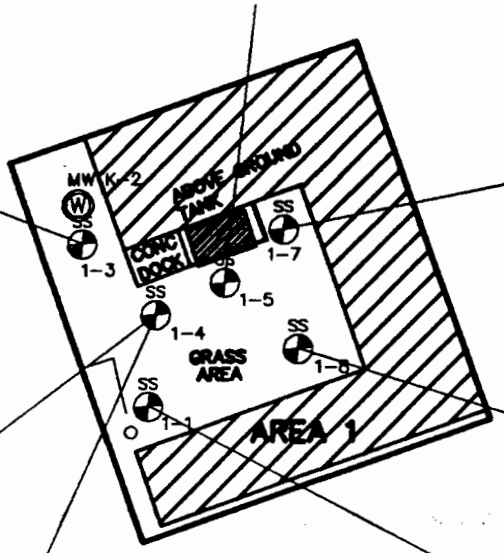
	SS-1-8A	SS-1-8B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	0.17 B	0.23 B
Chromium(Cr)	24.00	--
Iron(Fe)	9670.00	--
Lead(Pb)	96.50	--
Magnesium	--	1090.00
Manganese	113.00	157.00
Mercury(Hg)	0.46	0.14
Potassium(K)	444.00 B	256.00 B
Zinc(Zn)	69.30	--

	SS-1-1A	SS-1-1B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium (Be)	0.28 B	0.17 B
Calcium (Ca)	--	8410.00
Chromium (Cr)	25.00	22.40
Copper (Cu)	29.00	--
Iron (Fe)	10700.00	--
Lead (Pb)	92.80	81.40
Magnesium (Mg)	--	1670.00
Manganese (Mn)	--	--
Mercury (Hg)	0.19	0.24
Potassium(K)	--	359.00 B
Sodium(Na)	--	44.00 B
Zinc (Zn)	79.00	--

	SS-1-9B(DUP)
	CONC. (ug/kg)
VOCs	
Xylene(total)	11000.0
SVOCs	
Di-N-Butylphthalate	27000
	CONC. (mg/kg)
Inorganics	
Beryllium(Be)	0.20 B
Chromium(Cr)	25.00
Lead(Pb)	63.10
Magnesium	1160.00
Mercury(Hg)	0.11
Potassium(K)	488.00 B

	SS-MW-6D-1
	CONC. (mg/kg)
Inorganics	
Mercury(Hg)	1.10
Potassium(K)	307.00 B

	SS-MW-6D-2
	CONC. (mg/kg)
Inorganics	
Aluminum(Al)	11900.00
Beryllium(Be)	0.40 B
Calcium(Ca)	8810.00
Chromium(Cr)	12.90
Iron(Fe)	21900.00
Magnesium	7180.00
Manganese	293.00
Mercury(Hg)	0.68
Nickel(Ni)	14.80
Potassium(K)	2300.00
Sodium(Na)	251.00 B



LEGEND

- FENCE
-- – NOT DETECTED ABOVE CRITERIA
SS – SOIL SAMPLE LOCATION
MW – MONITORING WELL LOCATION
– AREA BOUNDARIES

SCALE
1" = 50'

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 4–2
AREA 1: Southwest Quadrant
Soil Sample Results

Korkay Inc. Site – Broodolbin, New York
NYSDEC Site #5–18–014

CDM
environmental engineers, scientists, planners, & management consultants

AREA 1
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
VOLATILE ORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
CHLOROMETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
BROMOMETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
VINYL CHLORIDE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	200	200
CHLOROETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	1900	1900
METHYLENE CHLORIDE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	100	100
ACETONE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	200	200
CARBON DISULFIDE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	2700	2700
1,1-DICHLOROETHENE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	400	400
1,1-DICHLOROETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	200	200
1,2-DICHLOROETHENE(TOTAL)	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
CHLOROFORM	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	300	300
1,2-DICHLOROETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	100	100
2-BUTANONE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	300	300
1,1,1-TRICHLOROETHANE	14	2 / 6	0 / 6	2	2	2 / 8	0 / 8	2	3	ug/kg	800	800
CARBON TETRACHLORIDE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	600	600
BROMODICHLOROMETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
1,2-DICHLOROPROPANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
cis-1,3-DICHLOROPROPYLENE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
TRICHLOROETHENE	14	6 / 6	0 / 6	1	21	7 / 8	1 / 8	4	2600	ug/kg	700	700
DIBROMOCHLOROMETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
1,1,2-TRICHLOROETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
BENZENE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	60	60
Trans-1,3-DICHLOROPROPYLENE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
BROMOFORM	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
4-METHYL-2-PENTANONE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	1000	1000
2-HEXANONE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
TETRACHLOROETHENE	14	1 / 6	0 / 6	3	3	1 / 8	0 / 8	6	6	ug/kg	1400	1400
1,1,2,2-TETRACHLOROETHANE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	600	600
TOLUENE	14	4 / 6	0 / 6	2	3	7 / 8	0 / 8	2	840	ug/kg	1500	1500
CHLOROBENZENE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	1700	1700
ETHYLBENZENE	14	0 / 6	0 / 6	ND	ND	3 / 8	0 / 8	1400	1600	ug/kg	5500	5500
STYRENE	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
XYLENE(TOTAL)	14	0 / 6	0 / 6	ND	ND	4 / 8	3 / 8	86	12000	ug/kg	1200	1200

Semi-Volatile Organic Compounds

Analytical results from soil samples collected in Area 1 indicate that SVOCs were detected. A summary of the detected compounds in the Area 1 soil samples is presented in Appendix C, tables C-3 and C-4. A summary of the number of detections and number of samples exceeding limits is presented in table 4-7.

Several SVOCs were detected above DEC TAGM criteria in one surface soil sample. In the subsurface soils, SVOC levels above DEC TAGM criteria were detected in three samples. The compounds detected include:

- o di-n-butylphthalate,
- o benzo(a)pyrene, and
- o dibenzo(a,h)anthracene.

The following SVOCs were detected in 0-0.5' surface soil sample **1-3A**: benzo(a)pyrene at 300J ppb and dibenzo(a,h)anthracene at 47J ppb.

The following SVOC was detected in 1.5-2.0' subsurface soil sample: **1-4B**: di-n-butylphthalate at 27,000 ppb. The duplicate sample collected at sample location 1-4B, numbered **1-9B**: di-n-butylphthalate at 27,000 ppb. Subsurface soil sample **1-5B**: benzo(a)pyrene at 70J ppb.

The following SVOC was detected in 4.5-5.0' subsurface soil sample: **1-5C**: di-n-butylphthalate at 8,400 ppb.

As shown in Appendix C, table C-10, the SVOC detected in the MW-6D-1 soil sample collected across the street at a depth of 8.0-10.0' was bis(2-ethylhexyl)phthalate.

Pesticides/PCBs

Analytical results from soil samples collected in Area 1 indicate that pesticides/PCBs were detected. A summary of the detected compounds in the Area 1 soil samples is presented in Appendix C, table C-5 and C-6. A summary of the number of detections and number of samples exceeding limits is presented in table 4-8.

None of the results from soil samples collected in Area 1 indicate that the pesticides/PCBs were detected above DEC TAGM criteria in surface or subsurface soils.

AREA 1
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS I

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
PHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	30	30
BIS(2-CHLOROETHYL)ETHER	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
2-CHLOROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	800	800
1,3-DICHLOROBENZENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	1600	1600
1,4-DICHLOROBENZENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	8500	8500
1,2-DICHLOROBENZENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	7900	7900
2-METHYLPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	100	100
BIS(2-CHLOROISOPROPYL)ETHER	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
4-METHYLPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	900	900
N-NITROSO-DI-N-PROPYLAMINE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
HEXACHLOROETHANE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
NITROBENZENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	200	200
ISOPHORONE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
2-NITROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	330	330
2,4-DIMETHYLPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
BIS(2-CHLOROETHOXY)METHANE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
2,4-DICHLOROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	400	400
1,2,4-TRICHLOROBENZENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	3400	3400
NAPHTHALENE	15	0 / 7	0 / 7	ND	ND	4 / 8	0 / 8	1300	3100	ug/kg	13000	13000
4-CHLOROANILINE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	220	220
HEXACHLOROBUTADIENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
4-CHLORO-3-METHYLPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	240	240
2-METHYLNAPHTHALENE	15	0 / 7	0 / 7	ND	ND	4 / 8	0 / 8	650	990	ug/kg	36400	36400
HEXACHLOROCYCLOPENTADIENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
2,4,6-TRICHLOROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
2,4,5-TRICHLOROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	100	100
2-CHLORONAPHTHALENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
2-NITROANILINE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	430	430
DIMETHYL PHTHALATE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	2000	2000
ACENAPHTHYLENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	41000	41000
2,6-DINITROTOLUENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	1000	1000
3-NITROANILINE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	500	500

Table 4-7 (continued)

AREA 1
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS II

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ACENAPHTHENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	50000	50000
2,4-DINITROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	200	200
4-NITROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	100	100
DIBENZOFURAN	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	6200	6200
2,4-DINITROTOLUENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
DIETHYLPHTHALATE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	7100	7100
4-CHLOROPHENYL-PHENYLETHER	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
FLUORENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	50000	50000
4-NITROANILINE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
4,6-DINITRO-2-METHYLPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
N-NITROSODIPHENYLAMINE	15	6 / 7	6 / 7	46	46	6 / 6	6 / 6	46	46	ug/kg	----	----
4-BROMOPHENYL-PHENYLETHER	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
HEXACHLOROBENZENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	410	410
PENTACHLOROPHENOL	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	1000	1000
PHENANTHRENE	15	1 / 7	0 / 7	60	60	2 / 6	0 / 6	52	75	ug/kg	50000	50000
ANTHRACENE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	50000	50000
CARBAZOLE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
DI-N-BUTYLPHTHALATE	15	0 / 7	0 / 7	ND	ND	3 / 8	3 / 8	8400	27000	ug/kg	8100	8100
FLUORANTHENE	15	2 / 7	0 / 7	58	160	3 / 8	0 / 8	100	140	ug/kg	50000	50000
PYRENE	15	4 / 7	0 / 7	53	120	3 / 8	0 / 8	100	110	ug/kg	50000	50000
BUTYLBENZYLPHTHALATE	15	1 / 7	0 / 7	61	61	0 / 8	0 / 8	ND	ND	ug/kg	50000	50000
3,3-DICHLOROBENZIDINE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	----	----
BENZO(A)ANTHRACENE	15	3 / 7	0 / 7	66	130	3 / 8	0 / 8	54	100	ug/kg	220	220
CHRYSENE	15	4 / 7	0 / 7	46	270	3 / 8	0 / 8	67	81	ug/kg	400	400
BIS(2-ETHYLHEXYL)PHTHALATE	15	7 / 7	0 / 7	34	520	6 / 8	0 / 8	100	1100	ug/kg	50000	50000
DI-N-OCTYL PHTHALATE	15	0 / 7	0 / 7	ND	ND	0 / 8	0 / 8	ND	ND	ug/kg	50000	50000
BENZO(B)FLUORANTHENE	15	4 / 7	0 / 7	41	250	3 / 8	0 / 8	52	110	ug/kg	1100	1100
BENZO(K)FLUORANTHENE	15	3 / 7	0 / 7	75	210	3 / 8	0 / 8	73	100	ug/kg	1100	1100
BENZO(A)PYRENE	15	4 / 7	2 / 7	36	320	3 / 8	1 / 8	54	70	ug/kg	61	61
INDENO(1,2,3-CD)PYRENE	15	3 / 7	0 / 7	54	71	3 / 8	0 / 8	41	53	ug/kg	3200	3200
DIBENZO(A,H)ANTHRACENE	15	2 / 7	2 / 7	38	47	0 / 8	0 / 8	ND	ND	ug/kg	14	14
BENZO(G,H,I)PERYLENE	15	3 / 7	0 / 7	50	220	1 / 8	0 / 8	48	48	ug/kg	50000	50000

AREA 1
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
PESTICIDES/PCBs

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ALPHA-BHC	14	1 / 6	0 / 6	1.8	1.8	0 / 8	0 / 8	ND	ND	ug/kg	110	110
BETA-BHC	14	1 / 6	0 / 6	1.8	1.8	0 / 8	0 / 8	ND	ND	ug/kg	200	200
DELTA-BHC	14	1 / 6	0 / 6	1.8	1.8	0 / 8	0 / 8	ND	ND	ug/kg	300	300
GAMMA-BHC (LINDANE)	14	1 / 6	0 / 6	1.8	1.8	0 / 8	0 / 8	ND	ND	ug/kg	60	60
HEPTACHLOR	14	1 / 6	0 / 6	0.85	0.85	0 / 8	0 / 8	ND	ND	ug/kg	100	100
ALDRIN	14	1 / 6	0 / 6	1.8	1.8	0 / 8	0 / 8	ND	ND	ug/kg	41	41
HEPTACHLOR EPOXIDE	14	3 / 6	0 / 6	0.2	0.9	4 / 8	0 / 8	0.29	0.78	ug/kg	20	20
ENDOSULFAN I	14	1 / 6	0 / 6	1.8	1.8	0 / 8	0 / 8	ND	ND	ug/kg	900	900
DIELDRIN	14	2 / 6	0 / 6	0.38	3.5	1 / 8	0 / 8	0.45	0.45	ug/kg	44	44
4,4'-DDE	14	4 / 6	0 / 6	0.36	1.4	5 / 8	0 / 8	0.93	3.3	ug/kg	2100	2100
ENDRIN, TOTAL	14	1 / 6	0 / 6	3.5	3.5	1 / 8	0 / 8	0.81	0.81	ug/kg	100	100
ENDOSULFAN II	14	5 / 6	0 / 6	0.56	2.1	7 / 8	0 / 8	0.37	0.89	ug/kg	900	900
4,4'-DDD	14	2 / 6	0 / 6	0.4	3.5	4 / 8	0 / 8	2.2	5.3	ug/kg	2900	2900
ENDOSULFAN SULFATE	14	5 / 6	0 / 6	0.52	3.5	4 / 8	0 / 8	0.54	1.3	ug/kg	1000	1000
4,4'-DDT	14	4 / 6	0 / 6	3.2	29	6 / 8	0 / 8	1.5	7.1	ug/kg	2100	2100
METHOXYCHLOR	14	1 / 6	0 / 6	18	18	0 / 8	0 / 8	ND	ND	ug/kg	10000	10000
ENDRIN KETONE	14	3 / 6	0 / 6	1.2	11	4 / 8	0 / 8	0.49	1.7	ug/kg	----	----
ENDRIN ALDEHYDE	14	2 / 6	0 / 6	0.37	0.74	2 / 8	0 / 8	0.15	1	ug/kg	----	----
ALPHA-CHLORDANE	14	2 / 6	0 / 6	7.3	20	6 / 8	0 / 8	1.7	27	ug/kg	----	----
GAMMA-CHLORDANE	14	5 / 6	0 / 6	1.3	24	7 / 8	0 / 8	1.6	36	ug/kg	540	540
TOXAPHENE	14	1 / 6	0 / 6	180	180	0 / 8	0 / 8	ND	ND	ug/kg	----	----
PCBs (Total)	14	2 / 6	0 / 6	23	71	3 / 8	0 / 8	33	41	ug/kg	1000	10000

As shown in Appendix C, table C-11, the pesticides detected in the MW-6D-1 soil sample collected across the street at a depth of 8.0-10.0' were heptachlor epoxide, 4,4-DDT, methoxychlor, alpha chlordane, and gamma chlordane.

Inorganic Metals

A summary of the detected inorganic metal compounds in the Area 1 soil samples is presented in Appendix C, tables C-7 and C-8. A summary of the number of detections and number of samples exceeding criteria is presented in table 4-9.

Results indicate that there were inorganic metals detected above the site background (or DEC TAGM soil cleanup criteria) in the surface and subsurface soils. Metals significantly exceeding criteria in surface soils include beryllium, chromium, lead, mercury. Metals significantly exceeding criteria in subsurface soils include calcium, chromium, lead, mercury.

A summary of the detected metals data in the MW-6D split spoon samples collected across the street at depths of 8.0-10.0', and 22.0-24.0' is presented in Appendix C, table C-12. Metals significantly exceeding criteria include beryllium, calcium, iron, magnesium, manganese, mercury.

Nature and Extent

Past site operations such as discharge of drum wash water or leaking drums onto or into the ground is evidenced from the concentration of organic analytes and inorganic metals in Area 1. Higher concentrations and a wider range of VOCs were found in the subsurface soils relative to surface soils. SVOCs compounds found in the surface soils were different than the SVOCs compounds found in the subsurface soils. However, the SVOC contamination generally is present in the same samples as the VOC contaminated samples, which were concentrated in and around the loading dock and aboveground tank. No pesticides or PCBs exceeding DEC TAGM criteria were present in Area 1. The inorganic concentrations in the surface and subsurface soils were similar.

Area 1 can be characterized as a source area of VOC, SVOC and inorganic metals contamination.

4.2.2 Area 2: Northwest Quadrant of Site

Seven soil sample locations numbered 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7 were

Table 4-9

AREA 1

SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
INORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
Al	14	6 / 6	0 / 6	4120	5650	8 / 8	0 / 8	3230	7130	mg/kg	5775	8970
Sb	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	mg/kg	8.95	8.7
As	14	6 / 6	0 / 6	1.2	4	8 / 8	0 / 8	0.93	4.2	mg/kg	7.5	7.5
Ba	14	6 / 6	0 / 6	15	43.6	8 / 8	0 / 8	9.6	64.4	mg/kg	300	300
Be	14	6 / 6	5 / 6	0.14	0.28	8 / 8	6 / 8	0.15	0.26	mg/kg	0.16	0.16
Cd	14	0 / 6	0 / 6	ND	ND	2 / 8	1 / 8	0.81	1.2	mg/kg	1	1
Ca	14	6 / 6	0 / 6	2320	7590	8 / 8	4 / 8	1040	8410	mg/kg	22395	1895
Cr	14	6 / 6	5 / 6	6	39.2	8 / 8	6 / 8	4	41.4	mg/kg	10	10
Co	14	6 / 6	0 / 6	1.7	3.6	6 / 8	0 / 8	1.5	3.1	mg/kg	30	30
Cu	14	6 / 6	1 / 6	5.1	29	8 / 8	0 / 8	3.6	22.8	mg/kg	25	25
Fe	14	6 / 6	5 / 6	7840	10700	8 / 8	0 / 8	6840	9720	mg/kg	8345	10150
Pb	14	6 / 6	5 / 6	8.3	116	8 / 8	6 / 8	5.7	152	mg/kg	22:8	35.25
Mg	14	6 / 6	0 / 6	1280	2160	8 / 8	7 / 8	936	1670	mg/kg	10431	990
Mn	14	6 / 6	3 / 6	59.6	127	8 / 8	1 / 8	38.1	157	mg/kg	107	115
Hg	14	5 / 6	5 / 6	0.13	0.46	7 / 8	7 / 8	0.11	0.45	mg/kg	0.1	0.1
Ni	14	5 / 6	0 / 6	2.6	4.6	5 / 8	0 / 8	3	4.6	mg/kg	13	13
K	14	6 / 6	4 / 6	321	444	8 / 8	8 / 8	256	488	mg/kg	356.5	225.5
Se	14	1 / 6	0 / 6	0.43	0.43	1 / 8	0 / 8	0.38	0.38	mg/kg	2	2
Ag	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	mg/kg	0.75	0.7
Na	14	6 / 6	4 / 6	11.3	36.3	6 / 8	5 / 8	10	45.3	mg/kg	24.05	14.1
Tl	14	0 / 6	0 / 6	ND	ND	0 / 8	0 / 8	ND	ND	mg/kg	0.4	0.42
V	14	6 / 6	0 / 6	7.4	13.1	8 / 8	0 / 8	8.4	13.1	mg/kg	150	150
Zn	14	6 / 6	3 / 6	16.1	79	8 / 8	1 / 8	16.7	94.9	mg/kg	63.65	85

sampled at the surface and subsurface. A total of thirteen samples was collected in Area 2, including:

- seven "A" series samples collected at 0-0.5';
- three "B" series samples collected at 1.5-2.0'; and
- three "B" series samples collected at 3.5-4.0'.

Quality assurance samples collected in Area 2 include one field blank sample. The soil sample locations were biased towards various potential environmental concerns (see section 3.0 for further description) and are shown on figure 4-3.

At monitoring well MW-5D, located in Area 2, two split spoon soil samples were collected, including MW-5D-1 (depth of 6.0-8.0)' and MW-5D-2 (depth of 20.0-22.0'). These sample locations are also shown in figure 4-3.

Volatile Organic Compounds

Analytical results from soil samples collected in Area 2 indicate that the VOCs detected include:

- o acetone;
- o 2-butanone;
- o 1,1,1-trichloroethane;
- o trichloroethene;
- o tetrachloroethene;
- o toluene;
- o ethylbenzene; and
- o xylene (total)

A summary of the detected compounds in the Area 2 soil samples is presented in Appendix C, tables C-1 and C-2. A summary of the number of detections and number of samples exceeding limits is presented in table 4-10.

The VOC levels detected in surface and subsurface soils are below DEC TAGM soil cleanup criteria. However, acetone was detected in one subsurface sample at an estimated value equal to the DEC TAGM criteria (200J ppb). The sample (**2-6B**) was collected from inside the storage shed at 1.5-2.0 feet.

As shown in Appendix C, table C-9, the three VOCs detected in the MW-5D-1 soil sample collected at a depth of 6.0-8.0' were acetone, 2-butanone, and 2-hexanone.

NOTE : SAMPLING RESULTS EXCEEDING DEC TAGM SOIL CLEANUP CRITERIA ARE REPORTED IN THIS FIGURE.

	SS-2-4A	SS-2-4B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	6100.00	--
Beryllium(Be)	0.24 B	--
Cadmium(Cd)	1.00 J	--
Chromium(Cr)	39.40	--
Iron(Fe)	10500.00	--
Lead(Pb)	202.00	--
Magnesium	--	1210.00
Manganese	115.00 J	--
Mercury(Hg)	--	0.10 •
Nickel(Ni)	26.30	--
Potassium(K)	510.00 B	296.00 B
Sodium(Na)	24.50 B	80.20 B
Zinc(Zn)	412.00	--

	SS-MW-5D-1	SS-MW-5D-2
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	--	22000.00
Beryllium(Be)	--	0.84 B
Calcium(Ca)	2190.00	12000.00
Chromium(Cr)	--	24.30
Iron(Fe)	--	41500.00
Magnesium	110.00	11600.00
Manganese	--	532.00
Mercury(Hg)	0.15	--
Nickel(Ni)	--	28.20
Potassium(K)	370.00 B	4020.00
Sodium(Na)	22.40 B	410.00 B
Zinc(Zn)	--	92.00

	SS-2-5A	SS-2-5B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	0.24 B	0.16 B
Chromium(Cr)	12.70	--
Iron(Fe)	9710.00	--
Lead(Pb)	75.40	--
Magnesium	--	1440.00
Manganese	--	147.00 J
Potassium(K)	556.00 B	299.00 B
Zinc(Zn)	112.00	--

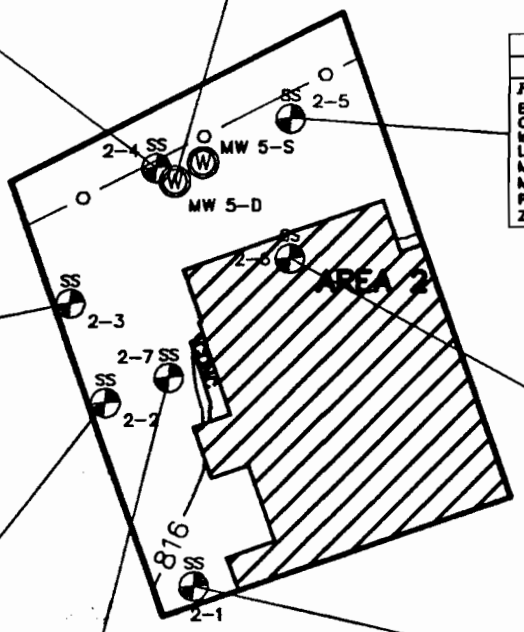
	SS-2-3A	SS-2-3B
	CONC. (ug/kg)	CONC. (ug/kg)
Pesticides		
Aldrin	81.00 P	5L00 J
Heptachlorepoxide	170.00 P	110.00 JD
Gamma-Chlordane	8900.00 EC	4600.00 CD
	CONC. (mg/kg)	CONC. (mg/kg)
	SS-2-3A	SS-2-3B
Inorganics		
Beryllium(Be)	0.28 B	0.19 B
Calcium(Ca)	--	27700.00
Chromium(Cr)	22.80	32.20
Iron(Fe)	8420.00	--
Lead(Pb)	119.00	109.00
Magnesium	10800.00	7780.00
Manganese	--	162.00 J
Mercury(Hg)	0.25	0.10
Potassium(K)	451.00 B	509.00 B
Sodium(Na)	30.40 B	54.30 B
Zinc(Zn)	121.00	88.60

	SS-2-6A	SS-2-6B
	CONC. (ug/kg)	CONC. (ug/kg)
VOCs		
Acetone	--	200.0 J
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	0.25 B	0.21 B
Chromium(Cr)	--	12.80
Iron(Fe)	9240.00	--
Manganese	127.00 J	--
Mercury(Hg)	--	0.11 B
Potassium(K)	596.00 B	262.00 B

PARAMETER	SS-2-2A
	CONC. (mg/kg)
Inorganics	
Arsenic(As)	9.20
Beryllium(Be)	0.67 B
Calcium(Ca)	104000.00
Chromium(Cr)	24.00
Iron(Fe)	11000.00
Lead(Pb)	81.40
Magnesium	48100.00
Manganese	175.00 J
Potassium(K)	895.00 B
Sodium(Na)	74.50 B
Zinc(Zn)	130.00

	SS-2-7A	SS-2-7B
	CONC. (ug/kg)	CONC. (ug/kg)
SVOCs		
Hexachlorobenzene	1700	--
2,4-Dichlorophenol	--	880
	CONC. (ug/kg)	CONC. (ug/kg)
Pesticides/PCBs		
Heptachlorepoxide	--	37.00 EJ
Gamma-Chlordane	1800.00 DJ	1600.00 DJ
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	0.16 B	0.24 B
Calcium(Ca)	--	3780.00
Chromium(Cr)	496.00	47.30
Copper(Cu)	47.00	--
Iron(Fe)	14100.00	--
Lead(Pb)	2340.00	125.00
Magnesium	--	1900.00
Manganese	130.00 J	--
Mercury(Hg)	--	0.12
Potassium(K)	484.00 B	364.00 B
Zinc(Zn)	155.00	--

	SS-2-1A-DL	SS-2-1B-DL
	CONC. (ug/kg)	CONC. (ug/kg)
Pesticides		
Heptachlorepoxide	--	47.00 JD
Gamma-Chlordane	920.00 D	2400.00 CDJ
	CONC. (mg/kg)	CONC. (mg/kg)
	SS-2-1A	SS-2-1B
Inorganics		
Barium(Ba)	437.00 J	--
Beryllium(Be)	0.25 B	0.17 B
Cadmium(Cd)	1.20 J	--
Chromium(Cr)	48.30	--
Copper(Cu)	29.60	--
Iron(Fe)	10800.00	--
Lead(Pb)	275.00	--
Magnesium	--	1300.00
Manganese	133.00 J	--
Mercury(Hg)	0.26	0.12
Potassium(K)	--	413.00 B
Sodium(Na)	49.90 B	30.60 B
Zinc(Zn)	197.00	--



LEGEND

- FENCE
- -- NOT DETECTED ABOVE CRITERIA
- SS SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- AREA BOUNDARIES

SCALE

1" = 50'

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 4–3

AREA 2: Northwest Quadrant Soil Sample Results

Korkay Inc. Site – Broadalbin, New York

NYSDEC Site #5–18–014

CDM

environmental engineers, scientists, planners, & management consultants

X

AREA 2
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
VOLATILE ORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
CHLOROMETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
BROMOMETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
VINYL CHLORIDE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	200	200
CHLOROETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	1900	1900
METHYLENE CHLORIDE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	100	100
ACETONE	14	0 / 8	0 / 8	ND	ND	1 / 6	1 / 6	200	200	ug/kg	200	200
CARBON DISULFIDE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	2700	2700
1,1-DICHLOROETHENE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	400	400
1,1-DICHLOROETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	200	200
1,2-DICHLOROETHENE(TOTAL)	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
CHLOROFORM	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	300	300
1,2-DICHLOROETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	100	100
2-BUTANONE	14	0 / 8	0 / 8	ND	ND	2 / 6	0 / 6	15	27	ug/kg	300	300
1,1,1-TRICHLOROETHANE	14	4 / 8	0 / 8	2	5	0 / 6	0 / 6	ND	ND	ug/kg	800	800
CARBON TETRACHLORIDE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	600	600
BROMODICHLOROMETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
1,2-DICHLOROPROPANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
cis-1,3-DICHLOROPROPYLENE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
TRICHLOROETHENE	14	7 / 8	0 / 8	2	9	3 / 6	0 / 6	2	11	ug/kg	700	700
DIBROMOCHLOROMETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
1,1,2-TRICHLOROETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
BENZENE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	60	60
Trans-1,3-DICHLOROPROPYLENE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
BROMOFORM	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
4-METHYL-2-PENTANONE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	1000	1000
2-HEXANONE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
TETRACHLOROETHENE	14	3 / 8	0 / 8	2	5	2 / 6	0 / 6	17	40	ug/kg	1400	1400
1,1,2,2-TETRACHLOROETHANE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	600	600
TOLUENE	14	7 / 8	0 / 8	1	8	5 / 6	0 / 6	1	28	ug/kg	1500	1500
CHLOROBENZENE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	1700	1700
ETHYLBENZENE	14	0 / 8	0 / 8	ND	ND	2 / 6	0 / 6	12	46	ug/kg	5500	5500
STYRENE	14	0 / 8	0 / 8	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
XYLENE(TOTAL)	14	0 / 8	0 / 8	ND	ND	2 / 6	0 / 6	170	1100	ug/kg	1200	1200

Semi-Volatile Organic Compounds

Analytical results from soil samples collected in Area 2 indicate that SVOCs were detected in the soils. A summary of the detected compounds in the Area 2 soil samples is presented in Appendix C, tables C-3 and C-4. A summary of the number of detections and number of samples exceeding limits is presented in table 4-11.

In Area 2, one SVOC was detected above DEC TAGM criteria in one surface sample and one SVOC above DEC TAGM criteria was detected in one subsurface sample. These compounds include:

- o 2,4-dichlorophenol and
- o hexachlorobenzene.

The following SVOC was detected in 0-0.5' surface soil sample **2-7A:** hexachlorobenzene at 1,700 ppb. The following SVOC was detected in 1.5-2.0' subsurface soil sample **2-7B:** 2,4-dichlorophenol at 880 ppb.

As shown in Appendix C, table C-10, the one SVOC detected in the MW-5D-1 soil sample collected at a depth of 6.0-8.0' includes bis(2-ethylhexyl)phthalate.

Pesticides/PCBs

Analytical results from soil samples collected in Area 2 indicate that pesticides were detected. A summary of the detected compounds in the Area 2 soil samples is presented in Appendix C, table C-5 and C-6. A summary of the number of detections and number of samples exceeding limits is presented in table 4-12.

The pesticides detected in Area 2 above DEC TAGM criteria in both the surface and subsurface soil samples, include:

- o gamma-chlordane,
- o aldrin, and
- o heptachlor epoxide.

The following pesticides/PCBs were detected in 0-0.5' surface soil samples **2-1A (diluted):** gamma-chlordane at 920 ppb; **2-3A:** aldrin at 81 ppb, heptachlor epoxide at 170 ppb, gamma-chlordane at 8,900 ppb; **2-7A:** gamma-chlordane at 4,600 ppb. The following pesticides/PCBs were detected in 3.5-4.0' subsurface

Table 4-11

AREA 2
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS I

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
PHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	30	30
BIS(2-CHLOROETHYL)ETHER	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
2-CHLOROPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	800	800
1,3-DICHLOROBENZENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	1600	1600
1,4-DICHLOROBENZENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	8500	8500
1,2-DICHLOROBENZENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	7900	7900
2-METHYLPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	100	100
BIS(2-CHLOROISOPROPYL)ETHER	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
4-METHYLPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	900	900
N-NITROSO-DI-N-PROPYLAMINE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
HEXACHLOROETHANE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
NITROBENZENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	200	200
ISOPHORONE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
2-NITROPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	330	330
2,4-DIMETHYLPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
BIS(2-CHLOROETHOXY)METHANE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
2,4-DICHLOROPHENOL	13	0 / 7	0 / 7	ND	ND	1 / 6	1 / 6	880	880	ug/kg	400	400
1,2,4-TRICHLOROBENZENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	3400	3400
NAPHTHALENE	13	0 / 7	0 / 7	ND	ND	1 / 6	0 / 6	100	100	ug/kg	13000	13000
4-CHLOROANILINE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	220	220
HEXACHLOROBUTADIENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
4-CHLORO-3-METHYLPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	240	240
2-METHYLNAPHTHALENE	13	0 / 7	0 / 7	ND	ND	1 / 6	0 / 6	59	59	ug/kg	36400	36400
HEXACHLOROCYCLOPENTADIENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
2,4,6-TRICHLOROPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
2,4,5-TRICHLOROPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	100	100
2-CHLORONAPHTHALENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
2-NITROANILINE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	430	430
DIMETHYL PHTHALATE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	2000	2000
ACENAPHTHYLENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	41000	41000
2,6-DINITROTOLUENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	1000	1000
3-NITROANILINE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	500	500

Table 4-11

AREA 2
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS II

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ACENAPHTHENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
2,4-DINITROPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	200	200
4-NITROPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	100	100
DIBENZOFURAN	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	6200	6200
2,4-DINITROTOLUENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
DIETHYLPHTHALATE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	7100	7100
4-CHLOROPHENYL-PHENYLETHER	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
FLUORENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
4-NITROANILINE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
4,6-DINITRO-2-METHYLPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
N-NITROSODIPHENYLAMINE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
4-BROMOPHENYL-PHENYLETHER	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
HEXACHLOROBENZENE	13	1 / 7	1 / 7	1700	1700	1 / 6	0 / 6	360	360	ug/kg	410	410
PENTACHLOROPHENOL	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	1000	1000
PHENANTHRENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
ANTHRACENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
CARBAZOLE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
DI-N-BUTYLPHTHALATE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	8100	8100
FLUORANTHENE	13	1 / 7	0 / 7	37	37	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
PYRENE	13	3 / 7	0 / 7	42	50	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
BUTYLBENZYLPHTHALATE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
3,3-DICHLOROBENZIDINE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	----	----
BENZO(A)ANTHRACENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	220	220
CHRYSENE	13	1 / 7	0 / 7	36	36	0 / 6	0 / 6	ND	ND	ug/kg	400	400
BIS(2-ETHYLHEXYL)PHTHALATE	13	6 / 7	0 / 7	51	520	4 / 6	0 / 6	37	270	ug/kg	50000	50000
DI-N-OCTYL PHTHALATE	13	1 / 7	0 / 7	70	70	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000
BENZO(B)FLUORANTHENE	13	2 / 7	0 / 7	42	50	0 / 6	0 / 6	ND	ND	ug/kg	1100	1100
BENZO(K)FLUORANTHENE	13	1 / 7	0 / 7	44	44	0 / 6	0 / 6	ND	ND	ug/kg	1100	1100
BENZO(A)PYRENE	13	1 / 7	0 / 7	54	54	0 / 6	0 / 6	ND	ND	ug/kg	61	61
INDENO(1,2,3-CD)PYRENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	3200	3200
DIBENZO(A,H)ANTHRACENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	14	14
BENZO(G,H,I)PERYLENE	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	ug/kg	50000	50000

AREA 2
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
PESTICIDES/PCBs

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
BETA-BHC	26	0 / 14	0 / 14	ND	ND	0 / 12	0 / 12	ND	ND	ug/kg	200	200
DELTA-BHC	26	0 / 14	0 / 14	ND	ND	1 / 12	0 / 12	2.2	2.2	ug/kg	300	300
GAMMA-BHC (LINDANE)	26	2 / 14	0 / 14	5.1	19	2 / 12	0 / 12	0.52	4.5	ug/kg	60	60
HEPTACHLOR	26	8 / 14	0 / 14	1	20	3 / 12	0 / 12	0.24	20	ug/kg	100	100
ALDRIN	26	1 / 14	1 / 14	81	81	3 / 12	1 / 12	6.8	51	ug/kg	41	41
HEPTACHLOR EPOXIDE	26	3 / 14	2 / 14	1.9	170	3 / 12	3 / 12	37	110	ug/kg	20	20
ENDOSULFAN I	26	0 / 14	0 / 14	ND	ND	0 / 12	0 / 12	ND	ND	ug/kg	900	900
DIELDRIN	26	2 / 14	0 / 14	1.7	2.5	0 / 12	0 / 12	ND	ND	ug/kg	44	44
4,4'-DDE	26	8 / 14	0 / 14	1.8	29	3 / 12	0 / 12	0.17	560	ug/kg	2100	2100
ENDRIN, TOTAL	26	1 / 14	0 / 14	9.5	9.5	1 / 12	0 / 12	2.6	2.6	ug/kg	100	100
ENDOSULFAN II	26	0 / 14	0 / 14	ND	ND	1 / 12	0 / 12	0.93	0.93	ug/kg	900	900
4,4'-DDD	26	4 / 14	0 / 14	28	560	2 / 12	0 / 12	4	6.1	ug/kg	2900	2900
ENDOSULFAN SULFATE	26	2 / 14	0 / 14	6.4	21	5 / 12	0 / 12	0.34	34	ug/kg	1000	1000
4,4'-DDT	26	6 / 14	0 / 14	2.2	150	3 / 12	0 / 12	2.1	18	ug/kg	2100	2100
METHOXYCHLOR	26	2 / 14	0 / 14	3	8	3 / 12	0 / 12	1.2	5.7	ug/kg	10000	10000
ENDRIN KETONE	26	0 / 14	0 / 14	ND	ND	0 / 12	0 / 12	ND	ND	ug/kg	----	----
ENDRIN ALDEHYDE	26	4 / 14	0 / 14	0.34	16	2 / 12	0 / 12	0.67	13	ug/kg	----	----
ALPHA-CHLORDANE	26	13 / 14	0 / 14	22	6800	10 / 12	0 / 12	47	5000	ug/kg	----	----
GAMMA-CHLORDANE	26	13 / 14	5 / 14	25	8900	12 / 12	5 / 12	52	7800	ug/kg	540	540
TOXAPHENE	26	0 / 14	0 / 14	ND	ND	0 / 12	0 / 12	ND	ND	ug/kg	----	----
PCBs (Total)	26	0 / 14	0 / 14	ND	ND	0 / 12	0 / 12	ND	ND	ug/kg	1000	10000

soil sample **2-1B (diluted)**: heptachlor epoxide at 47 ppb.

The following pesticides/PCBs were detected in 1.5-2.0' subsurface soil samples **2-3B**: aldrin at 51 ppb, heptachlor epoxide at 110 ppb [in the diluted sample], gamma-chlordane at 7,800 ppb; **2-7B**: heptachlor epoxide at 37 ppb and gamma-chlordane at 1,600 ppb [in the diluted sample].

As shown in Appendix C, table C-11, the pesticides detected in the MW-5D-1 and MW-5D-2 soil samples collected at depths of 6.0-8.0' and 20.0-22.0', respectively, includes heptachlor epoxide, alpha chlordane, and gamma chlordane.

Inorganic Metals

A summary of the detected compounds in the Area 2 soil samples is presented in Appendix C, tables C-7 and C-8. A summary of the number of detections and number of samples exceeding criteria is presented in table 4-13.

Results indicate that there were inorganic metals detected above the site background (or DEC TAGM soil cleanup criteria) in the surface and subsurface soils. Metals significantly exceeding criteria in surface soils include beryllium, calcium, chromium, lead, magnesium, mercury, nickel, zinc. Metals significantly exceeding criteria in subsurface soils include calcium, chromium, lead, magnesium.

A summary of the detected metals data in the MW-5D-1 and MW-5D-2 soil samples collected at depths of 6.0-8.0' and 20.0-22.0', respectively, is presented in Appendix C, table C-12. Metals significantly exceeding criteria include aluminum, beryllium, calcium, chromium, iron, magnesium, manganese, mercury, nickel.

Nature and Extent

Past site operations such as leaking drums onto or into the ground or conveyance of drum wash water through the storm drain is evidenced from the concentration of organic analytes and inorganic metals in Area 2. Higher concentrations and a wider range of VOCs were found in several of the subsurface soil samples relative to surface soils. SVOCs were detected more frequently in the surface soil samples. The subsurface soil contamination generally is present in the same samples as the VOC contaminated samples, which were concentrated along the fence where a former drum storage area was identified, as well as the storm drain. Significant levels of pesticides were present throughout Area 2, with generally higher concentrations in surface samples than in subsurface samples. Although past site history did not

Table 4-13

AREA 2

SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
INORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
Al	13	7 / 7	1 / 7	3320	6100	6 / 6	0 / 6	3470	7650	mg/kg	5775	8970
Sb	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	mg/kg	8.95	8.7
As	13	7 / 7	1 / 7	1	9.2	5 / 6	0 / 6	0.66	3.3	mg/kg	7.5	7.5
Ba	13	7 / 7	1 / 7	16	437	6 / 6	0 / 6	7.1	34	mg/kg	300	300
Be	13	7 / 7	7 / 7	0.16	0.67	6 / 6	5 / 6	0.1	0.24	mg/kg	0.16	0.16
Cd	13	2 / 7	2 / 7	1	1.2	0 / 6	0 / 6	ND	ND	mg/kg	1	1
Ca	13	7 / 7	1 / 7	5730	104000	6 / 6	2 / 6	543	27700	mg/kg	22395	1895
Cr	13	7 / 7	6 / 7	6.6	496	6 / 6	3 / 6	3.6	47.3	mg/kg	10	10
Co	13	7 / 7	0 / 7	1.5	5.3	5 / 6	0 / 6	1.4	2.6	mg/kg	30	30
Cu	13	7 / 7	2 / 7	5.4	47	6 / 6	0 / 6	3.7	21.1	mg/kg	25	25
Fe	13	7 / 7	7 / 7	8420	14100	6 / 6	0 / 6	6220	8650	mg/kg	8345	10150
Pb	13	7 / 7	6 / 7	6.4	2340	6 / 6	2 / 6	3.3	125	mg/kg	22.8	35.25
Mg	13	7 / 7	2 / 7	2500	48100	6 / 6	5 / 6	883	7780	mg/kg	10431	990
Mn	13	7 / 7	5 / 7	103	175	6 / 6	2 / 6	35.9	162	mg/kg	107	115
Hg	13	2 / 7	2 / 7	0.25	0.26	5 / 6	5 / 6	0.1	0.12	mg/kg	0.1	0.1
Ni	13	7 / 7	1 / 7	4.4	26.3	4 / 6	0 / 6	2.6	3.8	mg/kg	13	13
K	13	7 / 7	6 / 7	352	895	6 / 6	6 / 6	262	509	mg/kg	356.5	225.5
Se	13	3 / 7	0 / 7	0.37	0.53	3 / 6	0 / 6	0.4	0.64	mg/kg	2	2
Ag	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	mg/kg	0.75	0.7
Na	13	7 / 7	4 / 7	9.1	74.5	3 / 6	3 / 6	30.6	80.2	mg/kg	24.05	14.1
Tl	13	0 / 7	0 / 7	ND	ND	0 / 6	0 / 6	ND	ND	mg/kg	0.4	0.42
V	13	7 / 7	0 / 7	9.1	13.9	6 / 6	0 / 6	7.9	13.5	mg/kg	150	150
Zn	13	7 / 7	6 / 7	24.9	412	6 / 6	1 / 6	16.1	88.6	mg/kg	63.65	85

indicate handling of pesticides, prevalence of these in Area 2 are indicative of contamination by site operations. The inorganic levels in the surface soils is generally higher than the concentrations in the subsurface soils.

Area 2 can be characterized as a source area of VOC, SVOC, pesticides and inorganic metals contamination.

4.2.3 Area 3: Northeast Quadrant of Site

Five soil sample locations numbered 3-1, 3-2, 3-3, 3-4, and 3-5 were sampled at the surface and subsurface. A total of eight samples was collected in Area 3, including:

- four "A" series samples collected at 0-0.5';
- one "A" series sample collected at 1.0-1.5';
- one "B" series sample collected at 1.5-2.0';
- one "B" series samples collected at 3.5-4.0'; and
- one "B" series sample collected at 4.5-5.0'.

Quality assurance samples collected in Area 3 include one field blank and one field duplicate sample (3-6A). The soil sample locations were biased towards various potential environmental concerns (see section 3.0 for further description) and are shown on figure 4-4.

Volatile Organic Compounds

Analytical results from soil samples collected in Area 3 indicate that the VOCs detected include:

- o acetone

A summary of the detected compounds in the Area 3 soil samples is presented in Appendix C, tables C-1 and C-2. A summary of the number of detections and number of samples exceeding limits is presented in table 4-14.

The acetone level detected in Area 3 is below DEC TAGM soil cleanup criteria.

Semi-Volatile Organic Compounds

Analytical results from soil samples collected in Area 2 indicate that several SVOCs were detected in the soils. A summary of the detected compounds in the

NOTE : SAMPLING RESULTS EXCEEDING DEC TAGM SOIL CLEANUP CRITERIA ARE REPORTED IN THIS FIGURE.

	SS-3-2A	SS-3-2B-DL
PARAMETER	CONC. (ug/kg)	CONC. (ug/kg)
Pesticides		
Heptachlorepoxide	--	32.00 JD
Gamma-Chlordane	--	1000.00 D
PARAMETER	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	5960.00	--
Beryllium(Be)	0.30 B	--
Calcium(Ca)	25000.00 J	--
Chromium(Cr)	14.50 J	--
Iron(Fe)	13000.00	--
Lead(Pb)	167.00 J	--
Manganese	184.00	--
Potassium(K)	644.00 B	275.00 B
Silver(Ag)	0.84 J	--
Sodium(Na)	72.00 B	26.90 B
Zinc(Zn)	174.00	--

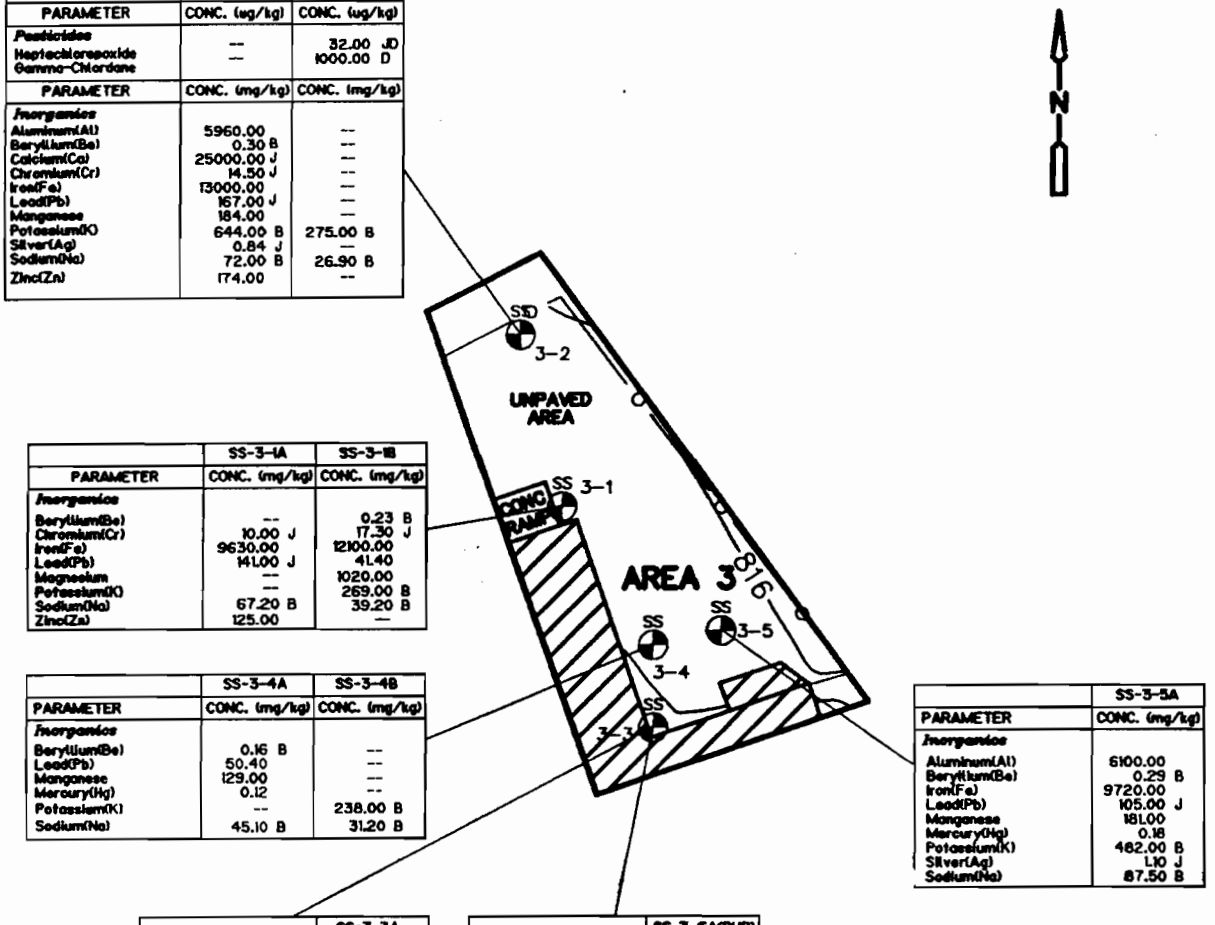
	SS-3-1A	SS-3-1B
PARAMETER	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	--	0.23 B
Chromium(Cr)	10.00 J	17.30 J
Iron(Fe)	9630.00	12100.00
Lead(Pb)	141.00 J	41.40
Magnesium	--	1020.00
Potassium(K)	--	269.00 B
Sodium(Na)	67.20 B	39.20 B
Zinc(Zn)	125.00	--

	SS-3-4A	SS-3-4B
PARAMETER	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	0.16 B	--
Lead(Pb)	50.40	--
Manganese	129.00	--
Mercury(Hg)	0.12	--
Potassium(K)	--	238.00 B
Sodium(Na)	45.10 B	31.20 B

	SS-3-5A
PARAMETER	CONC. (mg/kg)
Inorganics	
Aluminum(Al)	6100.00
Beryllium(Be)	0.29 B
Iron(Fe)	9720.00
Lead(Pb)	105.00 J
Manganese	181.00
Mercury(Hg)	0.18
Potassium(K)	462.00 B
Silver(Ag)	1.10 J
Sodium(Na)	87.50 B

	SS-3-3A
PARAMETER	CONC. (mg/kg)
Inorganics	
Beryllium(Be)	0.17 B
Chromium(Cr)	19.30 J
Iron(Fe)	11600.00
Lead(Pb)	34.70
Manganese	133.00
Sodium(Na)	36.10 B
Zinc(Zn)	122.00

	SS-3-6A(DUP)
PARAMETER	CONC. (mg/kg)
Inorganics	
Chromium(Cr)	14.00 J
Iron(Fe)	8710.00
Lead(Pb)	31.50
Manganese	127.00
Sodium(Na)	29.20 B
Zinc(Zn)	115.00



LEGEND

- FENCE
- -- - NOT DETECTED ABOVE CRITERIA
- SS - SOIL SAMPLE LOCATION
- W - MONITORING WELL LOCATION
- AREA BOUNDARIES

SCALE
1" = 50'

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 4–4

AREA 3: Northeast Quadrant Soil Sample Results

Korkay Inc. Site – Braadalbin, New York

NYSDEC Site #5–18–014

CDM
environmental engineers, scientists, planners, & management consultants

AREA 3
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
VOLATILE ORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
CHLOROMETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
BROMOMETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
VINYL CHLORIDE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	200	200
CHLOROETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1900	1900
METHYLENE CHLORIDE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	100	100
ACETONE	9	0 / 6	0 / 6	ND	ND	1 / 3	0 / 3	190	190	ug/kg	200	200
CARBON DISULFIDE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	2700	2700
1,1-DICHLOROETHENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	400	400
1,1-DICHLOROETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	200	200
1,2-DICHLOROETHENE(TOTAL)	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
CHLOROFORM	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	300	300
1,2-DICHLOROETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	100	100
2-BUTANONE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	300	300
1,1,1-TRICHLOROETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	800	800
CARBON TETRACHLORIDE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	600	600
BROMODICHLOROMETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
1,2-DICHLOROPROPANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
cis-1,3-DICHLOROPROPYLENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
TRICHLOROETHENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	700	700
DIBROMOCHLOROMETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
1,1,2-TRICHLOROETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
BENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	60	60
Trans-1,3-DICHLOROPROPYLENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
BROMOFORM	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
4-METHYL-2-PENTANONE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1000	1000
2-HEXANONE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
TETRACHLOROETHENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1400	1400
1,1,2,2-TETRACHLOROETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	600	600
TOLUENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1500	1500
CHLOROBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1700	1700
ETHYLBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	5500	5500
STYRENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
XYLENE(TOTAL)	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1200	1200

Area 3 soil samples is presented in Appendix C, tables C-3 and C-4. A summary of the number of detections and number of samples exceeding limits is presented in table 4-15.

None of the results from soil samples collected in Area 3 indicate that the SVOCs were detected above DEC TAGM criteria in surface or subsurface soils.

Pesticides/PCBs

A summary of the detected compounds in the Area 3 soil samples is presented in Appendix C, tables C-5 and C-6. A summary of the number of detections and number of samples exceeding limits is presented in table 4-16.

Soil samples collected in Area 3 indicate that no pesticides were detected above DEC TAGM criteria in the surface soils. However, the pesticides detected in Area 3 above DEC TAGM criteria in one subsurface soil samples include:

- o gamma-chlordane and
- o heptachlor epoxide.

The following pesticides/PCBs were detected in 3.5-4.0' subsurface soil sample **3-2B (diluted)**: gamma-chlordane at 1,000 ppb and heptachlor epoxide at 32 ppb.

Inorganic Metals

Analytical results from soil samples collected in Area 3 indicate that inorganic metals were detected in the soils. A summary of the detected compounds in the Area 3 soil samples is presented in Appendix C, tables C-7 and C-8. A summary of the number of detections and number of samples exceeding criteria is presented in table 4-17.

Results indicate that there were inorganic metals detected above the site background (or DEC TAGM soil cleanup criteria) in the surface and subsurface soils. Metals significantly exceeding criteria in surface soils include beryllium, lead, zinc. No metals significantly exceeding criteria in subsurface soils was present.

AREA 3
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS I

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
PHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	30	30
BIS(2-CHLOROETHYL)ETHER	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
2-CHLOROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	800	800
1,3-DICHLOROBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1600	1600
1,4-DICHLOROBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	8500	8500
1,2-DICHLOROBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	7900	7900
2-METHYLPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	100	100
BIS(2-CHLOROISOPROPYL)ETHER	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
4-METHYLPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	900	900
N-NITROSO-DI-N-PROPYLAMINE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
HEXACHLOROETHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
NITROBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	200	200
ISOPHORONE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
2-NITROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	330	330
2,4-DIMETHYLPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
BIS(2-CHLOROETHOXY)METHANE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
2,4-DICHLOROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	400	400
1,2,4-TRICHLOROBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	3400	3400
NAPHTHALENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	13000	13000
4-CHLOROANILINE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	220	220
HEXACHLOROBUTADIENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
4-CHLORO-3-METHYLPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	240	240
2-METHYLNAPHTHALENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	36400	36400
HEXACHLOROCYCLOPENTADIENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
2,4,6-TRICHLOROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
2,4,5-TRICHLOROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	100	100
2-CHLORONAPHTHALENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
2-NITROANILINE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	430	430
DIMETHYL PHTHALATE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	2000	2000
ACENAPHTHYLENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	41000	41000
2,6-DINITROTOLUENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1000	1000
3-NITROANILINE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	500	500

Table 4-15 (

AREA 3
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS II

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ACENAPHTHENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
2,4-DINITROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	200	200
4-NITROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	100	100
DIBENZOFURAN	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	6200	6200
2,4-DINITROTOLUENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
DIETHYLPHTHALATE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	7100	7100
4-CHLOROPHENYL-PHENYLETHER	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
FLUORENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
4-NITROANILINE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
4,6-DINITRO-2-METHYLPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
N-NITROSODIPHENYLAMINE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
4-BROMOPHENYL-PHENYLETHER	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
HEXACHLOROBENZENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	410	410
PENTACHLOROPHENOL	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	1000	1000
PHENANTHRENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
ANTHRACENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
CARBAZOLE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
DI-N-BUTYLPHTHALATE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	8100	8100
FLUORANTHENE	9	3 / 6	0 / 6	38	88	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
PYRENE	9	2 / 6	0 / 6	53	66	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
BUTYLBENZYLPHTHALATE	9	1 / 6	0 / 6	49	49	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
3,3-DICHLOROBENZIDINE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	----	----
BENZO(A)ANTHRACENE	9	1 / 6	0 / 6	49	49	0 / 3	0 / 3	ND	ND	ug/kg	220	220
CHRYSENE	9	1 / 6	0 / 6	56	56	0 / 3	0 / 3	ND	ND	ug/kg	400	400
BIS(2-ETHYLHEXYL)PHTHALATE	9	4 / 6	0 / 6	110	260	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
DI-N-OCTYL PHTHALATE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000
BENZO(B)FLUORANTHENE	9	1 / 6	0 / 6	51	51	0 / 3	0 / 3	ND	ND	ug/kg	1100	1100
BENZO(K)FLUORANTHENE	9	1 / 6	0 / 6	38	38	0 / 3	0 / 3	ND	ND	ug/kg	1100	1100
BENZO(A)PYRENE	9	1 / 6	0 / 6	38	38	0 / 3	0 / 3	ND	ND	ug/kg	61	61
INDENO(1,2,3-CD)PYRENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	3200	3200
DIBENZO(A,H)ANTHRACENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	14	14
BENZO(G,H,I)PERYLENE	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	ug/kg	50000	50000

AREA 3
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
PESTICIDES/PCBs

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ALPHA-BHC	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	110	110
BETA-BHC	10	0 / 6	0 / 6	ND	ND	1 / 4	0 / 4	1.4	1.4	ug/kg	200	200
DELTA-BHC	10	0 / 6	0 / 6	ND	ND	1 / 4	0 / 4	20	20	ug/kg	300	300
GAMMA-BHC (LINDANE)	10	3 / 6	0 / 6	0.98	1.2	3 / 4	0 / 4	0.3	1.6	ug/kg	60	60
HEPTACHLOR	10	1 / 6	0 / 6	2	2	1 / 4	0 / 4	2.3	2.3	ug/kg	100	100
ALDRIN	10	0 / 6	0 / 6	ND	ND	1 / 4	0 / 4	4.3	4.3	ug/kg	41	41
HEPTACHLOR EPOXIDE	10	2 / 6	0 / 6	0.22	0.55	1 / 4	1 / 4	32	32	ug/kg	20	20
ENDOSULFAN I	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	900	900
DIELDRIN	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	44	44
4,4'-DDE	10	3 / 6	0 / 6	0.36	1.3	1 / 4	0 / 4	1.2	1.2	ug/kg	2100	2100
ENDRIN, TOTAL	10	5 / 6	0 / 6	0.38	4.6	0 / 4	0 / 4	ND	ND	ug/kg	100	100
ENDOSULFAN II	10	5 / 6	0 / 6	0.38	3.7	0 / 4	0 / 4	ND	ND	ug/kg	900	900
4,4'-DDD	10	5 / 6	0 / 6	2.2	4.9	1 / 4	0 / 4	76	76	ug/kg	2900	2900
ENDOSULFAN SULFATE	10	3 / 6	0 / 6	0.65	3.4	1 / 4	0 / 4	4.7	4.7	ug/kg	1000	1000
4,4'-DDT	10	6 / 6	0 / 6	2.8	13	1 / 4	0 / 4	1.5	1.5	ug/kg	2100	2100
METHOXYCHLOR	10	0 / 6	0 / 6	ND	ND	1 / 4	0 / 4	5	5	ug/kg	10000	10000
ENDRIN KETONE	10	4 / 6	0 / 6	0.61	0.72	0 / 4	0 / 4	ND	ND	ug/kg	----	----
ENDRIN ALDEHYDE	10	5 / 6	0 / 6	0.43	1.3	0 / 4	0 / 4	ND	ND	ug/kg	----	----
ALPHA-CHLORDANE	10	5 / 6	0 / 6	1.2	23	3 / 4	0 / 4	36	1100	ug/kg	----	----
GAMMA-CHLORDANE	10	5 / 6	0 / 6	0.66	23	4 / 4	1 / 4	0.34	1000	ug/kg	540	540
TOXAPHENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
PCBs (Total)	10	5 / 6	0 / 6	21	110	0 / 4	0 / 4	ND	ND	ug/kg	1000	10000

Table 4-17

AREA 3

SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
INORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
Al	9	6 / 6	2 / 6	2200	6100	3 / 3	0 / 3	3160	7800	mg/kg	5775	8970
Sb	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	mg/kg	8.95	8.7
As	9	6 / 6	0 / 6	0.6	3.4	3 / 3	0 / 3	0.55	2.1	mg/kg	7.5	7.5
Ba	9	6 / 6	0 / 6	18.1	58.5	3 / 3	0 / 3	4.9	20.9	mg/kg	300	300
Be	9	6 / 6	4 / 6	0.14	0.3	3 / 3	1 / 3	0.12	0.23	mg/kg	0.16	0.16
Cd	9	1 / 6	0 / 6	0.98	0.98	0 / 3	0 / 3	ND	ND	mg/kg	1	1
Ca	9	6 / 6	1 / 6	935	25000	3 / 3	0 / 3	589	1760	mg/kg	22395	1895
Cr	9	6 / 6	4 / 6	8.3	19.3	3 / 3	1 / 3	4.2	17.3	mg/kg	10	10
Co	9	5 / 6	0 / 6	1.2	2.7	0 / 3	0 / 3	ND	ND	mg/kg	30	30
Cu	9	6 / 6	0 / 6	11.2	20.1	3 / 3	0 / 3	3.5	8.9	mg/kg	25	25
Fe	9	6 / 6	5 / 6	7920	13000	3 / 3	1 / 3	4720	12100	mg/kg	8345	10150
Pb	9	6 / 6	6 / 6	31.5	167	3 / 3	1 / 3	1.7	41.4	mg/kg	22.8	35.25
Mg	9	6 / 6	0 / 6	967	10000	3 / 3	1 / 3	862	1020	mg/kg	10431	990
Mn	9	6 / 6	5 / 6	68.1	184	3 / 3	0 / 3	23.3	70.7	mg/kg	107	115
Hg	9	2 / 6	2 / 6	0.12	0.18	0 / 3	0 / 3	ND	ND	mg/kg	0.1	0.1
Ni	9	5 / 6	0 / 6	3.5	7.7	1 / 3	0 / 3	4.2	4.2	mg/kg	13	13
K	9	6 / 6	2 / 6	284	644	3 / 3	3 / 3	238	275	mg/kg	356.5	225.5
Se	9	2 / 6	0 / 6	0.4	0.4	0 / 3	0 / 3	ND	ND	mg/kg	2	2
Ag	9	2 / 6	2 / 6	0.84	1.1	0 / 3	0 / 3	ND	ND	mg/kg	0.75	0.7
Na	9	6 / 6	6 / 6	29.2	87.5	3 / 3	3 / 3	26.9	39.2	mg/kg	24.05	14.1
Tl	9	0 / 6	0 / 6	ND	ND	0 / 3	0 / 3	ND	ND	mg/kg	0.4	0.42
V	9	6 / 6	0 / 6	12.3	18.1	3 / 3	0 / 3	7.6	13.1	mg/kg	150	150
Zn	9	6 / 6	4 / 6	48.9	174	3 / 3	0 / 3	9.7	36.2	mg/kg	63.65	85

Nature and Extent

Area 3 is adjacent to Area 2. Past site operations such as leaking drums onto or into the ground, conveyance of drum wash water through the storm drain, and loading/unloading operations is evidenced from the concentration of organic analytes and inorganic metals in Area 3. No VOC levels exceeding DEC TAGM criteria were found in the soil samples. The acetone detected is next to a loading/unloading dock. SVOCs were detected in the surface soil samples below DEC TAGM criteria, while none were detected in subsurface soils. Detected levels of pesticides were present in Area 3, with generally higher concentrations in the subsurface samples. The SVOCs detected in the soil samples are typically attributable to oils. PCBs were detected below DEC TAGM criteria in the surface soils but not detected in the subsurface soils, and may be attributable to use of oils. Although past site history did not indicate handling of pesticides or PCBs, prevalence of these in Area 3 are indicative of contamination by site operations. The inorganic levels in the surface soils is similar to or greater than the concentrations in the subsurface soils.

Area 3 can be characterized as a source area of pesticides/PCBs and inorganic metals contamination.

4.2.4 Area 4: Southeast Quadrant of Site

Two soil sample locations numbered 4-1 and 4-2 were sampled at the surface and subsurface. A total of three samples was collected in Area 4, including:

- one "A" series sample collected at 0-0.5'; and
- two "B" series samples collected at 1.5-2.0'.

The soil sample locations were biased towards various potential environmental concerns (see section 3.0 for further description) and are shown on figure 4-5.

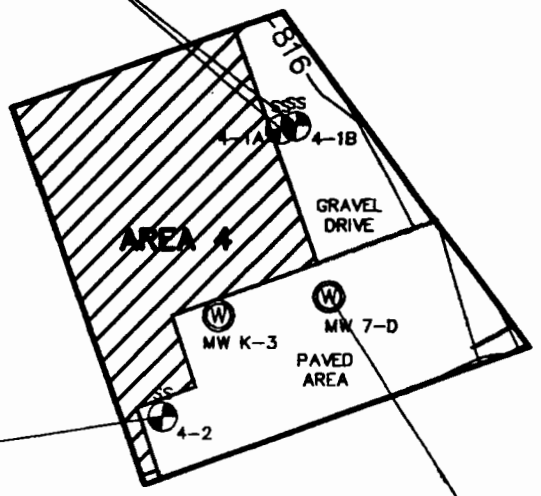
Volatile Organic Compounds

Analytical results from soil samples collected in Area 4 indicate that the VOCs detected include:

- o tetrachloroethene and
- o toluene

NOTE : SAMPLING RESULTS EXCEEDING DEC TAGM SOIL CLEANUP CRITERIA ARE REPORTED IN THIS FIGURE.

	SS-4-1A	SS-4-1B
	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	0.26 B	0.17 B
Calcium(Ca)	--	5690.00
Iron(Fe)	10200.00	11600.00
Lead(Pb)	218.00 J	--
Magnesium	--	1100.00
Manganese	173.00	132.00
Mercury(Hg)	0.41	0.56
Potassium(K)	482.00 B	265.00 B
Silver(Ag)	0.78 J	--
Sodium(Na)	75.60 B	54.70 B
Zinc(Zn)	119.00	--



	SS-4-2B
PARAMETER	CONC. (mg/kg)
Inorganics	
Beryllium(Be)	0.20 B
Calcium(Ca)	2430.00 J
Lead(Pb)	56.20
Magnesium	1540.00
Potassium(K)	280.00 B
Sodium(Na)	70.70 B

	SS-MW-7D-1
PARAMETER	CONC. (mg/kg)
Inorganics	
Calcium(Ca)	3010.00
Magnesium	2110.00
Mercury(Hg)	0.13
Potassium(K)	301.00 B

LEGEND

- FENCE
- -- NOT DETECTED ABOVE CRITERIA
- SS SOIL SAMPLE LOCATION
- W MONITORING WELL LOCATION
- AREA BOUNDARIES

SCALE
1" = 50'

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 4-5

AREA 4: Southeast Quadrant Soil Sample Results

Korkay Inc. Site – Broadalbin, New York

NYSDEC Site #5-18-014

CDM
environmental engineers, scientists, planners, & management consultants

A summary of the detected compounds in the Area 4 soil samples is presented in Appendix C, tables C-1 and C-2. A summary of the number of detections and number of samples exceeding limits is presented in table 4-18.

The VOC levels detected in Area 4 are below DEC TAGM soil cleanup criteria.

As shown in Appendix C, table C-9, the VOC detected in the MW-7D-1 soil sample collected at a depth of 6.0-8.0' was methylene chloride (14 ppb).

Semi-Volatile Organic Compounds

Analytical results from soil samples collected in Area 4 indicate that several SVOCs were detected in the soils. A summary of the detected compounds in the Area 4 soil samples is presented in Appendix C, tables C-3 and C-4. A summary of the number of detections and number of samples exceeding limits is presented in table 4-19.

None of the results from soil samples collected in Area 4 indicate that the SVOCs were detected above DEC TAGM criteria in surface or subsurface soils.

As shown in Appendix C, table C-10, no SVOCs were detected in the MW-7D-1 soil sample collected at a depth of 6.0-8.0.

Pesticides/PCBs

Analytical results from soil samples collected in Area 4 indicate that pesticides were detected in the soils. A summary of the detected compounds in the Area 4 soil samples is presented in Appendix C, tables C-5 and C-6. A summary of the number of detections and number of samples exceeding limits is presented in table 4-20.

Soil samples collected in Area 4 indicate that no pesticides were detected above DEC TAGM criteria in the surface or subsurface soils.

As shown in Appendix C, table C-11, no pesticides were detected in the MW-7D-1 soil sample collected at a depth of 6.0-8.0.

Inorganic Metals

A summary of the detected compounds in the Area 4 soil samples is presented in Appendix C, tables C-7 and C-8. A summary of the number of detections and

Table 4-18

AREA 4
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
VOLATILE ORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
CHLOROMETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BROMOMETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
VINYL CHLORIDE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
CHLOROETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1900	1900
METHYLENE CHLORIDE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
ACETONE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
CARBON DISULFIDE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	2700	2700
1,1-DICHLOROETHENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	400	400
1,1-DICHLOROETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
1,2-DICHLOROETHENE(TOTAL)	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
CHLOROFORM	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
1,2-DICHLOROETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
2-BUTANONE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
1,1,1-TRICHLOROETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	800	800
CARBON TETRACHLORIDE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	600	600
BROMODICHLOROMETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
1,2-DICHLOROPROPANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
cis-1,3-DICHLOROPROPYLENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
TRICHLOROETHENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	700	700
DIBROMOCHLOROMETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
1,1,2-TRICHLOROETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	60	60
Trans-1,3-DICHLOROPROPYLENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BROMOFORM	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-METHYL-2-PENTANONE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
2-HEXANONE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
TETRACHLOROETHENE	3	0 / 1	0 / 1	ND	ND	2 / 2	0 / 2	3	47	ug/kg	1400	1400
1,1,2,2-TETRACHLOROETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	600	600
TOLUENE	3	1 / 1	0 / 1	2	2	2 / 2	0 / 2	1	14	ug/kg	1500	1500
CHLOROBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1700	1700
ETHYLBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	5500	5500
STYRENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
XYLENE(TOTAL)	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1200	1200

AREA 4
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS I

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
PHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	30	30
BIS(2-CHLOROETHYL)ETHER	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2-CHLOROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	800	800
1,3-DICHLOROBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1600	1600
1,4-DICHLOROBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	8500	8500
1,2-DICHLOROBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	7900	7900
2-METHYLPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
BIS(2-CHLOROISOPROPYL)ETHER	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-METHYLPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	900	900
N-NITROSO-DI-N-PROPYLAMINE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
HEXACHLOROETHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
NITROBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
ISOPHORONE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2-NITROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	330	330
2,4-DIMETHYLPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BIS(2-CHLOROETHOXY)METHANE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2,4-DICHLOROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	400	400
1,2,4-TRICHLOROBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	3400	3400
NAPHTHALENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	13000	13000
4-CHLOROANILINE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	220	220
HEXACHLOROBUTADIENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4-CHLORO-3-METHYLPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	240	240
2-METHYLNAPHTHALENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	36400	36400
HEXACHLOROCYCLOPENTADIENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2,4,6-TRICHLOROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2,4,5-TRICHLOROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
2-CHLORONAPHTHALENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
2-NITROANILINE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	430	430
DIMETHYL PHTHALATE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	2000	2000
ACENAPHTHYLENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	41000	41000
2,6-DINITROTOLUENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
3-NITROANILINE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	500	500

Table 4-19 (continued)
AREA 4
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS II

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ACENAPHTHENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
2,4-DINITROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
4-NITROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
DIBENZOFURAN	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	6200	6200
2,4-DINITROTOLUENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
DIETHYLPHTHALATE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	7100	7100
4-CHLOROPHENYL-PHENYLETHER	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
FLUORENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
4-NITROANILINE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
4,6-DINITRO-2-METHYLPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
N-NITROSODIPHENYLAMINE	2	0 / 1	0 / 1	NS	NS	0 / 2	0 / 2	NS	NS	ug/kg	----	----
4-BROMOPHENYL-PHENYLETHER	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
HEXACHLOROBENZENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	410	410
PENTACHLOROPHENOL	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
PHENANTHRENE	2	1 / 1	0 / 1	46	46	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
ANTHRACENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
CARBAZOLE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
DI-N-BUTYLPHTHALATE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	8100	8100
FLUORANTHENE	3	1 / 1	0 / 1	88	88	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
PYRENE	3	1 / 1	0 / 1	73	73	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
BUTYLBENZYLPHTHALATE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
3,3-DICHLOROBENZIDINE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
BENZO(A)ANTHRACENE	3	1 / 1	0 / 1	41	41	0 / 2	0 / 2	ND	ND	ug/kg	220	220
CHRYSENE	3	1 / 1	0 / 1	60	60	0 / 2	0 / 2	ND	ND	ug/kg	400	400
BIS(2-ETHYLHEXYL)PHTHALATE	3	1 / 1	0 / 1	140	140	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
DI-N-OCTYL PHTHALATE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000
BENZO(B)FLUORANTHENE	3	1 / 1	0 / 1	43	43	0 / 2	0 / 2	ND	ND	ug/kg	1100	1100
BENZO(K)FLUORANTHENE	3	1 / 1	0 / 1	42	42	0 / 2	0 / 2	ND	ND	ug/kg	1100	1100
BENZO(A)PYRENE	3	1 / 1	0 / 1	40	40	0 / 2	0 / 2	ND	ND	ug/kg	61	61
INDENO(1,2,3-CD)PYRENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	3200	3200
DIBENZO(A,H)ANTHRACENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	14	14
BENZO(G,H,I)PERYLENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	50000	50000

AREA 4
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
PESTICIDES/PCBs

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ALPHA-BHC	3	1 / 1	0 / 1	0.61	0.61	0 / 2	0 / 2	ND	ND	ug/kg	110	110
BETA-BHC	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	200	200
DELTA-BHC	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	300	300
GAMMA-BHC (LINDANE)	3	1 / 1	0 / 1	0.88	0.88	0 / 2	0 / 2	ND	ND	ug/kg	60	60
HEPTACHLOR	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	100	100
ALDRIN	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	41	41
HEPTACHLOR EPOXIDE	3	1 / 1	0 / 1	0.37	0.37	0 / 2	0 / 2	ND	ND	ug/kg	20	20
ENDOSULFAN I	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	900	900
DIELDRIN	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	44	44
4,4'-DDE	3	1 / 1	0 / 1	2.6	2.6	1 / 2	0 / 2	1.1	1.1	ug/kg	2100	2100
ENDRIN, TOTAL	3	1 / 1	0 / 1	0.49	0.49	0 / 2	0 / 2	ND	ND	ug/kg	100	100
ENDOSULFAN II	3	1 / 1	0 / 1	0.53	0.53	0 / 2	0 / 2	ND	ND	ug/kg	900	900
4,4'-DDD	3	1 / 1	0 / 1	3	3	2 / 2	0 / 2	1.3	1.6	ug/kg	2900	2900
ENDOSULFAN SULFATE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	1000	1000
4,4'-DDT	3	1 / 1	0 / 1	7.4	7.4	2 / 2	0 / 2	0.42	5.1	ug/kg	2100	2100
METHOXYCHLOR	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	10000	10000
ENDRIN KETONE	3	1 / 1	0 / 1	1.2	1.2	0 / 2	0 / 2	ND	ND	ug/kg	----	----
ENDRIN ALDEHYDE	3	1 / 1	0 / 1	0.72	0.72	2 / 2	0 / 2	0.86	1.4	ug/kg	----	----
ALPHA-CHLORDANE	3	1 / 1	0 / 1	1.9	1.9	0 / 2	0 / 2	ND	ND	ug/kg	----	----
GAMMA-CHLORDANE	3	0 / 1	0 / 1	ND	ND	2 / 2	0 / 2	0.21	0.53	ug/kg	540	540
TOXAPHENE	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	ug/kg	----	----
PCBs (Total)	3	1 / 1	0 / 1	20	20	0 / 2	0 / 2	ND	ND	ug/kg	1000	10000

number of samples exceeding criteria is presented in table 4-21.

Results indicate that there were inorganic metals detected above the site background and DEC TAGM soil cleanup criteria in the surface and subsurface soils. Metals significantly exceeding criteria in surface soils include lead and mercury. Metals significantly exceeding criteria in subsurface soils include calcium and mercury.

A summary of the detected metals in the MW-7D-1 soil sample collected at a depth of 6.0-8.0' is presented in Appendix C, table C-12. Metals significantly exceeding criteria include magnesium.

Nature and Extent

The soil samples in Area 4 were collected at visually stained areas along the building wall. Past site operations are attributable to the staining. However, relative to Areas 1, 2, and 3, the levels of organics are low in Area 4. The same VOCs as those found throughout the site were found in the soil samples from Area 4. The SVOCs detected in the soil samples are typically attributable to oils, which are evidenced by the staining. Detected levels of pesticides are also present in Area 4, with generally higher concentrations in the subsurface samples. PCBs were detected in the surface soils but not in the subsurface soils. Although past site history did not indicate handling of pesticides or PCBs, prevalence of these in Area 4 are indicative of contamination by site operations. In general, the inorganic levels in the surface soils is similar to or greater than the levels found in the subsurface soils.

The stained areas in Area 4 can be characterized as a source area of inorganic metals (calcium, lead, mercury) contamination.

4.2.5 Area 5: Hayes Property (Off-Site)

Four soil sample locations numbered 5-1, 5-2, 5-3, and 5-4 were sampled at the surface and subsurface. A total of eight samples was collected in Area 5, including:

- four "A" series samples collected at 0-0.5'; and
- four "B" series samples collected at 1.5-2.0'.

Quality assurance samples collected in Area 5 include one field blank and one field duplicate sample (5-5A). The sample locations were biased towards

Table 4-21

AREA 4

SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
INORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
Al	3	1 / 1	0 / 1	5080	5080	2 / 2	0 / 2	5630	8640	mg/kg	5775	8970
Sb	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	mg/kg	8.95	8.7
As	3	1 / 1	0 / 1	3.8	3.8	2 / 2	0 / 2	0.8	1.5	mg/kg	7.5	7.5
Ba	3	1 / 1	0 / 1	55.3	55.3	2 / 2	0 / 2	18.6	29	mg/kg	300	300
Be	3	1 / 1	1 / 1	0.26	0.26	2 / 2	2 / 2	0.17	0.2	mg/kg	0.16	0.16
Cd	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	mg/kg	1	1
Ca	3	1 / 1	0 / 1	10400	10400	2 / 2	2 / 2	2430	5690	mg/kg	22395	1895
Cr	3	1 / 1	0 / 1	9.6	9.6	2 / 2	0 / 2	5.1	5.6	mg/kg	10	10
Co	3	1 / 1	0 / 1	2	2	0 / 2	0 / 2	ND	ND	mg/kg	30	30
Cu	3	1 / 1	0 / 1	14.4	14.4	2 / 2	0 / 2	4.3	4.4	mg/kg	25	25
Fe	3	1 / 1	1 / 1	10200	10200	2 / 2	1 / 2	9250	11600	mg/kg	8345	10150
Pb	3	1 / 1	1 / 1	218	218	2 / 2	1 / 2	25.3	56.2	mg/kg	22:8	35.25
Mg	3	1 / 1	0 / 1	3600	3600	2 / 2	2 / 2	1100	1540	mg/kg	10431	990
Mn	3	1 / 1	1 / 1	173	173	2 / 2	1 / 2	103	132	mg/kg	107	115
Hg	3	1 / 1	1 / 1	0.41	0.41	1 / 2	1 / 2	0.56	0.56	mg/kg	0.1	0.1
Ni	3	1 / 1	0 / 1	4.5	4.5	0 / 2	0 / 2	ND	ND	mg/kg	13	13
K	3	1 / 1	1 / 1	482	482	2 / 2	2 / 2	265	280	mg/kg	356.5	225.5
Se	3	1 / 1	0 / 1	0.4	0.4	1 / 2	0 / 2	0.42	0.42	mg/kg	2	2
Ag	3	1 / 1	1 / 1	0.78	0.78	0 / 2	0 / 2	ND	ND	mg/kg	0.75	0.7
Na	3	1 / 1	1 / 1	75.6	75.6	2 / 2	2 / 2	54.7	70.7	mg/kg	24.05	14.1
Tl	3	0 / 1	0 / 1	ND	ND	0 / 2	0 / 2	ND	ND	mg/kg	0.4	0.42
V	3	1 / 1	0 / 1	13.7	13.7	2 / 2	0 / 2	12.6	17.1	mg/kg	150	150
Zn	3	1 / 1	1 / 1	119	119	2 / 2	0 / 2	26.3	27	mg/kg	63.65	85

various potential environmental concerns (see section 3.0 for further description) and are shown on figure 4-6.

Volatile Organic Compounds

Analytical results from soil samples collected in Area 5 indicate that the VOCs detected include:

- o 1,1,1-trichloroethane;
- o trichloroethene;
- o tetrachloroethene; and
- o toluene

A summary of the detected compounds in the Area 5 soil samples is presented in Appendix C, tables C-1 and C-2. A summary of the number of detections and number of samples exceeding limits is presented in table 4-22.

The VOC levels detected in Area 5 soils are below DEC TAGM soil cleanup criteria.

Semi-Volatile Organic Compounds

Analytical results from soil samples collected in Area 5 indicate that there were SVOCs detected in the soils, as summarized in Appendix C, tables C-3 and C-4. A summary of the number of detections and number of samples exceeding limits is presented in table 4-23.

Several SVOCs were detected above DEC TAGM criteria in the surface soil samples. In the subsurface soils, SVOC levels above DEC TAGM criteria were detected in one of four samples. The compounds detected include:

- o benzo(a)anthracene,
- o benzo(a)pyrene, and
- o dibenzo(a,h,)anthracene.

The following SVOCs were detected in 0-0.5' surface soil sample **5-2A**: benzo(a)anthracene at 260J ppb and benzo(a)pyrene at 200J ppb; sample **5-3A**: benzo(a)pyrene at 110J ppb and dibenzo(a,h)anthracene at 370J ppb; and sample **5-4A**: benzo(a)pyrene at 150J ppb. The following SVOC was detected in 1.5-2.0' subsurface soil sample: **5-2B**: benzo(a)anthracene at 250J ppb and benzo(a)pyrene at 200J ppb.

NOTE : SAMPLING RESULTS EXCEEDING DEC TAGM SOIL CLEANUP CRITERIA ARE REPORTED IN THIS FIGURE.

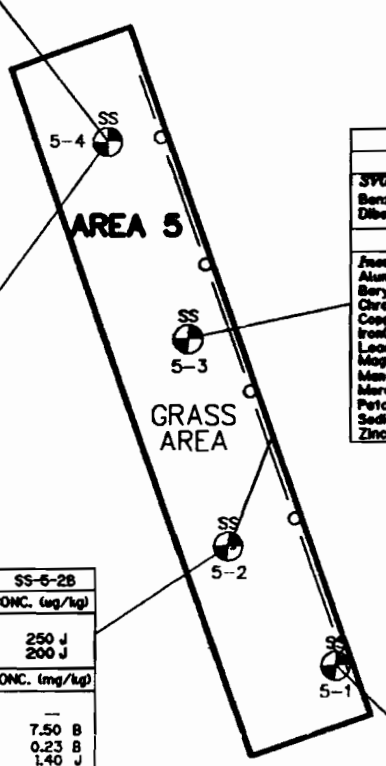
	SS-5-4A	SS-5-4B
PARAMETER	CONC. (ug/kg)	CONC. (ug/kg)
SVOCs		
Benzo(a)pyrene	150 J	--
PARAMETER	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	8430.00	--
Beryllium(Be)	0.26 B	0.18 B
Chromium(Cr)	16.80	--
Copper(Cu)	29.80	--
Iron(Fe)	10800.00	--
Lead(Pb)	259.00	--
Magnesium	--	1410.00
Manganese	181.00	--
Mercury(Hg)	0.39	--
Potassium(K)	419.00 B	287.00 B
Zinc(Zn)	233.00	--

	SS-5-6A(DUP)
PARAMETER	CONC. (ug/kg)
SVOCs	
Benzo(a)pyrene	95 J
PARAMETER	CONC. (mg/kg)
Inorganics	
Aluminum(Al)	8630.00
Beryllium(Be)	0.16 B
Chromium(Cr)	16.50
Copper(Cu)	26.70
Iron(Fe)	10200.00
Lead(Pb)	263.00
Manganese	186.00
Mercury(Hg)	0.31
Thallium(Tl)	0.62 B
Zinc(Zn)	236.00

	SS-5-3A	SS-5-3B
PARAMETER	CONC. (ug/kg)	CONC. (ug/kg)
SVOCs		
Benzo(a)pyrene	140 J	--
Dibenzo(a,h)anthracene	39 J	--
PARAMETER	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	7800.00	--
Beryllium(Be)	0.17 B	0.17 B
Chromium(Cr)	44.90	--
Copper(Cu)	56.60	--
Iron(Fe)	14300.00	--
Lead(Pb)	596.00	--
Magnesium	--	1110.00
Manganese	298.00	--
Mercury(Hg)	0.23	--
Potassium(K)	481.00 B	337.00 B
Sodium(Na)	50.00 B	--
Zinc(Zn)	480.00	--

	SS-5-2A	SS-5-2B
PARAMETER	CONC. (ug/kg)	CONC. (ug/kg)
SVOCs		
Benzo(a)anthracene	260 J	250 J
Benzo(a)pyrene	200 J	200 J
PARAMETER	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Aluminum(Al)	6520.00	--
Arsenic(As)	--	7.50 B
Beryllium(Be)	0.21 B	0.23 B
Cadmium(Cd)	--	1.40 J
Calcium(Ca)	--	2230.00
Chromium(Cr)	19.40	27.20
Copper(Cu)	41.90	67.70
Iron(Fe)	10600.00	15500.00
Lead(Pb)	520.00	516.00
Manganese	181.00	307.00
Mercury(Hg)	0.35	1.20
Potassium(K)	470.00 B	386.00 B
Silver(Ag)	--	1.00 J
Sodium(Na)	49.30 B	47.90 B
Zinc(Zn)	374.00	512.00

	SS-5-1A	SS-5-1B
PARAMETER	CONC. (mg/kg)	CONC. (mg/kg)
Inorganics		
Beryllium(Be)	--	0.20 B
Cadmium(Cd)	1.50 J	--
Chromium(Cr)	13.70	--
Copper(Cu)	87.80	--
Iron(Fe)	9910.00	--
Lead(Pb)	1440.00	56.70
Magnesium	--	1010.00
Manganese	121.00	--
Mercury(Hg)	0.28	--
Potassium(K)	389.00 B	267.00 B
Sodium(Na)	43.10 B	29.00 B
Zinc(Zn)	394.00	--



LEGEND

- FENCE
-- - NOT DETECTED ABOVE CRITERIA
SS - SOIL SAMPLE LOCATION
W - MONITORING WELL LOCATION
- AREA BOUNDARIES

SCALE
1" = 50'

SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

Figure 4–6
AREA 5: Hayes Property
Soil Sample Results
Korkay Inc. Site – Broadalbin, New York
NYSDEC Site #5–18–014

CDM
environmental engineers, scientists,
planners, & management consultants

AREA 5
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
VOLATILE ORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
CHLOROMETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
BROMOMETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
VINYL CHLORIDE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	200	200
CHLOROETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	1900	1900
METHYLENE CHLORIDE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	100	100
ACETONE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	200	200
CARBON DISULFIDE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	2700	2700
1,1-DICHLOROETHENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	400	400
1,1-DICHLOROETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	200	200
1,2-DICHLOROETHENE(TOTAL)	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
CHLOROFORM	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	300	300
1,2-DICHLOROETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	100	100
2-BUTANONE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	300	300
1,1,1-TRICHLOROETHANE	10	5 / 6	0 / 6	2	5	1 / 4	0 / 4	3	3	ug/kg	800	800
CARBON TETRACHLORIDE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	600	600
BROMODICHLOROMETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
1,2-DICHLOROPROPANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
cis-1,3-DICHLOROPROPYLENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
TRICHLOROETHENE	10	3 / 6	0 / 6	5	11	2 / 4	0 / 4	1	10	ug/kg	700	700
DIBROMOCHLOROMETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
1,1,2-TRICHLOROETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
BENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	60	60
Trans-1,3-DICHLOROPROPYLENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
BROMOFORM	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
4-METHYL-2-PENTANONE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	1000	1000
2-HEXANONE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
TETRACHLOROETHENE	10	1 / 6	0 / 6	2	2	1 / 4	0 / 4	2	2	ug/kg	1400	1400
1,1,2,2-TETRACHLOROETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	600	600
TOLUENE	10	3 / 6	0 / 6	1	5	2 / 4	0 / 4	2	4	ug/kg	1500	1500
CHLOROBENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	1700	1700
ETHYLBENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	5500	5500
STYRENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
XYLENE(TOTAL)	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	1200	1200

Table 4-23

AREA 5
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS I

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
PHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	30	30
BIS(2-CHLOROETHYL)ETHER	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
2-CHLOROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	800	800
1,3-DICHLOROBENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	1600	1600
1,4-DICHLOROBENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	8500	8500
1,2-DICHLOROBENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	7900	7900
2-METHYLPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	100	100
BIS(2-CHLOROISOPROPYL)ETHER	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
4-METHYLPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	900	900
N-NITROSO-DI-N-PROPYLAMINE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
HEXACHLOROETHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	****	****
NITROBENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	200	200
ISOPHORONE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
2-NITROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	330	330
2,4-DIMETHYLPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
BIS(2-CHLOROETHOXY)METHANE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
2,4-DICHLOROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	400	400
1,2,4-TRICHLOROBENZENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	3400	3400
NAPHTHALENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	13000	13000
4-CHLOROANILINE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	220	220
HEXACHLOROBUTADIENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
4-CHLORO-3-METHYLPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	240	240
2-METHYLNAPHTHALENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	36400	36400
HEXACHLOROCYCLOPENTADIENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
2,4,6-TRICHLOROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
2,4,5-TRICHLOROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	100	100
2-CHLORONAPHTHALENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
2-NITROANILINE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	430	430
DIMETHYL PHTHALATE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	2000	2000
ACENAPHTHYLENE	10	1 / 6	0 / 6	41	41	1 / 4	0 / 4	41	41	ug/kg	41000	41000
2,6-DINITROTOLUENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	1000	1000
3-NITROANILINE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	500	500
ACENAPHTHENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	50000	50000

AREA 5
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
SEMIVOLATILE ORGANICS II

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	RANGE OF SURFACE RESULTS HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	RANGE OF SUBSURFACE RESULTS HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
2,4-DINITROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	200	200
4-NITROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	100	100
DIBENZOFURAN	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	6200	6200
2,4-DINITROTOLUENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
DIETHYLPHTHALATE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	7100	7100
4-CHLOROPHENYL-PHENYLETHER	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
FLUORENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	50000	50000
4-NITROANILINE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
4,6-DINITRO-2-METHYLPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
N-NITROSODIPHENYLAMINE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
4-BROMOPHENYL-PHENYLETHER	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
HEXACHLOROBENZENE	10	1 / 6	0 / 6	37	37	0 / 4	0 / 4	ND	ND	ug/kg	----	----
PENTACHLOROPHENOL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	410	410
PHENANTHRENE	10	5 / 6	0 / 6	140	360	1 / 4	0 / 4	190	190	ug/kg	1000	1000
ANTHRACENE	10	1 / 6	0 / 6	63	63	1 / 4	0 / 4	39	39	ug/kg	50000	50000
CARBAZOLE	10	3 / 6	0 / 6	46	63	0 / 4	0 / 4	ND	ND	ug/kg	50000	50000
DI-N-BUTYLPHTHALATE	10	6 / 6	0 / 6	53	260	2 / 4	0 / 4	50	120	ug/kg	----	----
FLUORANTHENE	10	6 / 6	0 / 6	54	570	1 / 4	0 / 4	430	430	ug/kg	8100	8100
PYRENE	10	6 / 6	0 / 6	58	430	1 / 4	0 / 4	370	370	ug/kg	50000	50000
BUTYLBENZYLPHTHALATE	10	2 / 6	0 / 6	90	360	0 / 4	0 / 4	ND	ND	ug/kg	50000	50000
3,3-DICHLOROBENZIDINE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	50000	50000
BENZO(A)ANTHRACENE	10	6 / 6	1 / 6	37	260	1 / 4	1 / 4	250	250	ug/kg	----	----
CHRYSENE	10	6 / 6	0 / 6	62	300	1 / 4	0 / 4	280	280	ug/kg	220	220
BIS(2-ETHYLHEXYL)PHTHALATE	10	6 / 6	0 / 6	160	1000	1 / 4	0 / 4	130	130	ug/kg	400	400
DI-N-OCTYL PHTHALATE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	50000	50000
BENZO(B)FLUORANTHENE	10	6 / 6	0 / 6	79	290	1 / 4	0 / 4	250	250	ug/kg	50000	50000
BENZO(K)FLUORANTHENE	10	6 / 6	0 / 6	69	200	1 / 4	0 / 4	250	250	ug/kg	1100	1100
BENZO(A)PYRENE	10	6 / 6	5 / 6	41	200	1 / 4	1 / 4	200	200	ug/kg	1100	1100
INDENO(1,2,3-CD)PYRENE	10	6 / 6	0 / 6	36	120	1 / 4	0 / 4	73	73	ug/kg	61	61
DIBENZO(A,H)ANTHRACENE	10	1 / 6	1 / 6	39	39	0 / 4	0 / 4	ND	ND	ug/kg	3200	3200
BENZO(G,H,I)PERYLENE	10	3 / 6	0 / 6	44	100	1 / 4	0 / 4	46	46	ug/kg	14	14

Pesticides/PCBs

Analytical results from soil samples collected in Area 5 indicate that pesticides were detected in the soils, as summarized in Appendix C, tables C-5 and C-6. A summary of the number of detections and number of samples exceeding limits is presented in table 4-24.

Soil samples collected in Area 5 indicate that no pesticides were detected above DEC TAGM criteria in the surface or subsurface soils.

Inorganic Metals

A summary of the detected compounds in the Area 5 soil samples is presented in Appendix C, tables C-7 and C-8. A summary of the number of detections and number of samples exceeding criteria is presented in table 4-25.

Results indicate that there were inorganic metals detected above the site background and DEC TAGM soil cleanup criteria in the surface and subsurface soils. Metals significantly exceeding criteria in surface soils include chromium, copper, lead, manganese, mercury, zinc. Metals significantly exceeding criteria in subsurface soils include chromium, copper, lead, manganese, mercury, zinc.

Nature and Extent

Area 5 is adjacent to Areas 1 and 2 of the site. Past site operations creating contaminated run off may have contributed to contamination found on the adjacent Hayes property.

Similar concentrations of VOCs were found in Area 5 as those in Areas 1 and 2.

The same VOCs were found in the subsurface soils in similar concentrations as those detected in surface soils. SVOCs found in the surface soils were at higher concentrations than the SVOCs found in the subsurface soils, but were similar in concentration at sample location 5-2A/B. Subsurface SVOC contamination is limited to sample 5-2B and 5-1B. Detected levels of pesticides were present in Area 5, with generally higher concentrations in the surface samples. PCBs were detected in the surface soils (samples 5-1A and 5-2A) but not in the subsurface soils. Prevalence of these organics in Area 5 are indicative of contamination by adjacent site operations. The inorganic levels in both the surface and subsurface soils likely reflect

AREA 5
SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
PESTICIDES/PCBs

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	NYSDEC LIMITS SUBSURFACE SOIL
ALPHA-BHC	10	2 / 6	0 / 6	0.25	0.32	1 / 4	0 / 4	0.4	0.4	ug/kg	110	110
BETA-BHC	10	0 / 6	0 / 6	ND	ND	1 / 4	0 / 4	0.3	0.3	ug/kg	200	200
DELTA-BHC	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	300	300
GAMMA-BHC (LINDANE)	10	3 / 6	0 / 6	0.39	1.2	2 / 4	0 / 4	0.4	0.78	ug/kg	60	60
HEPTACHLOR	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	100	100
ALDRIN	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	41	41
HEPTACHLOR EPOXIDE	10	4 / 6	0 / 6	0.25	1.9	1 / 4	0 / 4	0.34	0.34	ug/kg	20	20
ENDOSULFAN I	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	900	900
DIELDRIN	10	1 / 6	0 / 6	0.4	0.4	0 / 4	0 / 4	ND	ND	ug/kg	44	44
4,4'-DDE	10	6 / 6	0 / 6	2	98	3 / 4	0 / 4	0.59	3.4	ug/kg	2100	2100
ENDRIN, TOTAL	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	100	100
ENDOSULFAN II	10	4 / 6	0 / 6	0.42	1.3	0 / 4	0 / 4	ND	ND	ug/kg	900	900
4,4'-DDD	10	5 / 6	0 / 6	3.6	140	3 / 4	0 / 4	1.8	3.1	ug/kg	2900	2900
ENDOSULFAN SULFATE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	1000	1000
4,4'-DDT	10	6 / 6	0 / 6	14	800	4 / 4	0 / 4	0.79	12	ug/kg	2100	2100
METHOXYCHLOR	10	1 / 6	0 / 6	3.3	3.3	1 / 4	0 / 4	2.4	2.4	ug/kg	10000	10000
ENDRIN KETONE	10	4 / 6	0 / 6	1	2.8	1 / 4	0 / 4	3.2	3.2	ug/kg	----	----
ENDRIN ALDEHYDE	10	4 / 6	0 / 6	0.47	0.86	4 / 4	0 / 4	1.3	2.4	ug/kg	----	----
ALPHA-CHLORDANE	10	5 / 6	0 / 6	0.73	6.3	3 / 4	0 / 4	0.23	1.9	ug/kg	----	----
GAMMA-CHLORDANE	10	2 / 6	0 / 6	0.37	5.2	3 / 4	0 / 4	0.26	1.4	ug/kg	540	540
TOXAPHENE	10	0 / 6	0 / 6	ND	ND	0 / 4	0 / 4	ND	ND	ug/kg	----	----
PCBs (Total)	10	2 / 6	0 / 6	11	29	0 / 4	0 / 4	ND	ND	ug/kg	1000	10000

Table 4-25

AREA 5

SOIL SAMPLE COLLECTION
SUMMARY OF RESULTS
INORGANICS

Description	NUMBER OF RESULTS	NUMBER OF DETECTIONS SURFACE	NUMBER EXCEEDING LIMIT SURFACE	RANGE OF SURFACE RESULTS LOW	HIGH	NUMBER OF DETECTIONS SUBSURFACE	NUMBER EXCEEDING LIMIT SUBSURFACE	RANGE OF SUBSURFACE RESULTS LOW	HIGH	UNITS	NYSDEC LIMITS SURFACE SOIL	SUBSURFACE SOIL
Al	9	5 / 5	4 / 5	4970	8630	4 / 4	0 / 4	5080	7280	mg/kg	5775	8970
Sb	9	0 / 5	0 / 5	ND	ND	0 / 4	0 / 4	ND	ND	mg/kg	8.95	8.7
As	9	5 / 5	0 / 5	3.4	4.8	4 / 4	1 / 4	0.93	7.5	mg/kg	7.5	7.5
Ba	9	5 / 5	0 / 5	99.2	273	4 / 4	0 / 4	13.3	211	mg/kg	300	300
Be	9	5 / 5	4 / 5	0.15	0.26	4 / 4	4 / 4	0.17	0.23	mg/kg	0.16	0.16
Cd	9	2 / 5	1 / 5	0.86	1.5	1 / 4	1 / 4	1.4	1.4	mg/kg	1	1
Ca	9	5 / 5	0 / 5	1810	3980	4 / 4	1 / 4	813	2230	mg/kg	22395	1895
Cr	9	5 / 5	5 / 5	13.7	44.9	4 / 4	1 / 4	5.5	27.2	mg/kg	10	10
Co	9	5 / 5	0 / 5	1.2	2.8	4 / 4	0 / 4	1.8	3.7	mg/kg	30	30
Cu	9	5 / 5	5 / 5	26.7	87.8	4 / 4	1 / 4	5.1	67.7	mg/kg	25	25
Fe	9	5 / 5	5 / 5	9910	14300	4 / 4	1 / 4	8210	15500	mg/kg	8345	10150
Pb	9	5 / 5	5 / 5	259	1440	4 / 4	2 / 4	13.3	516	mg/kg	22.8	35.25
Mg	9	5 / 5	0 / 5	892	1410	4 / 4	3 / 4	840	1410	mg/kg	10431	990
Mn	9	5 / 5	5 / 5	121	298	4 / 4	1 / 4	73.9	307	mg/kg	107	115
Hg	9	5 / 5	5 / 5	0.23	0.39	1 / 4	1 / 4	1.2	1.2	mg/kg	0.1	0.1
Ni	9	3 / 5	0 / 5	4.2	5.6	4 / 4	0 / 4	3	7.1	mg/kg	13	13
K	9	5 / 5	4 / 5	332	481	4 / 4	4 / 4	267	386	mg/kg	356.5	225.5
Se	9	2 / 5	0 / 5	0.4	0.53	2 / 4	0 / 4	0.3	0.5	mg/kg	2	2
Ag	9	0 / 5	0 / 5	ND	ND	1 / 4	1 / 4	1	1	mg/kg	0.75	0.7
Na	9	4 / 5	3 / 5	12.2	50	2 / 4	2 / 4	29	47.9	mg/kg	24.05	14.1
Tl	9	1 / 5	1 / 5	0.62	0.62	0 / 4	0 / 4	ND	ND	mg/kg	0.4	0.42
V	9	5 / 5	0 / 5	12.5	15.9	4 / 4	0 / 4	7.7	13.8	mg/kg	150	150
Zn	9	5 / 5	5 / 5	233	480	4 / 4	1 / 4	29.5	512	mg/kg	63.65	85

evidence of adjacent site operations.

Area 5 can be characterized as a recipient of contaminants from the site.

4.3 GROUNDWATER

Groundwater contamination was evaluated by sampling a network of existing monitoring wells and new monitoring wells. The monitoring well locations are shown in figure 4-7.

A well located on the adjacent Tanner property was sampled at DEC's request to determine if contamination exists, but the data collected has not been integrated into the evaluation because it is unknown what zone of water this may intercept.

All well samples were analyzed for TCL organic parameters and TAL metals. The raw analytical data for groundwater samples, including laboratory method detection limits, has been summarized and is included in the tables in Appendix B. For ease of review, a summary of the detected compounds for the groundwater samples is presented in Appendix C, tables C-13 to C-16. To aid in interpretation of the data, a summary of the number of detections, number of samples exceeding limits, and detected range of values is presented in tables 4-26 to 4-33.

Quality assurance samples collected during well sampling include one trip blank sample and one field duplicate sample (MW-8S). No field blank was collected because pre-cleaned, dedicated, disposal bailers were used.

To assess potential contamination of groundwater by the Korkay, Inc. site versus natural water quality, the sample results are compared to selected standards and background water quality. For the uppermost water bearing unit, monitoring well MW-4S screened at ~808 to ~813 feet mean sea level (msl) was used to represent background water quality. However, for the deeper water bearing unit, there is no representative background well, as discussed in section 3 of this report.

TCL ORGANICS

All of the monitoring well water samples were analyzed for TCL volatiles, semi-volatiles, and pesticides/PCBs.

	MW-5-S	MW-8-S (dup)
PARAMETER	CONC. (ug/l)	CONC. (ug/l)
VOCs		
1,2-Dichloroethene	16.0	17.0
Trichloroethene	12.0	11.0
Xylene (Total)	7.0 J	6.0 J
Pesticides		
Beta-BHC	.05 J	---
Dieldrin	---	.08 J
4,4'-DDE	.10 J	---
Endrin, Total	---	.05 J
4,4'-DDD	---	.02 NJ
4,4'-DDT	---	.03 J
Gamma-Chlordane	.77	.25
Inorganics		
Iron (Fe)	60200.00	58000.00
Manganese (Mn)	1620.00	1880.00

MW-4-S	
PARAMETER	CONC. (ug/l)
Inorganics	
Iron (Fe)	4810.00
Sodium (Na)	78400.00

MW-4-D	
PARAMETER	CONC. (ug/l)
Inorganics	
Chromium (Cr)	77.40
Iron (Fe)	48100.00
Manganese (Mn)	749.00
Sodium (Na)	32200.00

MW-5-D	
PARAMETER	CONC. (ug/l)
Inorganics	
Iron (Fe)	26900.00
Manganese (Mn)	448.00

MW-7-D	
PARAMETER	CONC. (ug/l)
Inorganics	
Iron (Fe)	25800.00
Manganese (Mn)	401.00
Sodium (Na)	48000.00

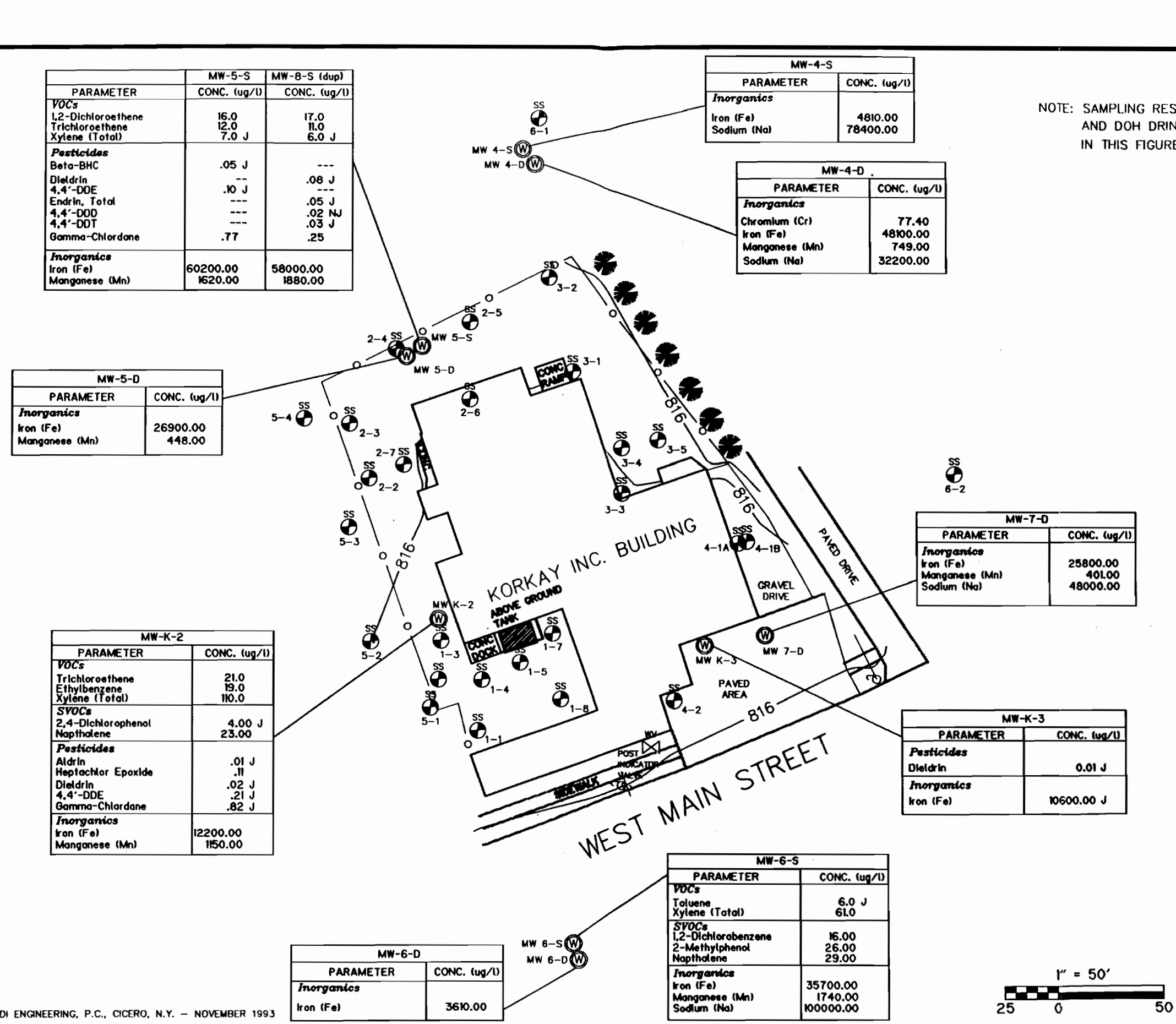
MW-K-2	
PARAMETER	CONC. (ug/l)
VOCs	
Trichloroethene	21.0
Ethylbenzene	19.0
Xylene (Total)	110.0
SVOCs	
2,4-Dichlorophenol	4.00 J
Napthalene	23.00
Pesticides	
Aldrin	.01 J
Heptachlor Epoxide	.11
Dieldrin	.02 J
4,4'-DDE	.21 J
Gamma-Chlordane	.82 J
Inorganics	
Iron (Fe)	12200.00
Manganese (Mn)	1150.00

MW-K-3	
PARAMETER	CONC. (ug/l)
Pesticides	
Dieldrin	0.01 J
Inorganics	
Iron (Fe)	10600.00 J

MW-6-D	
PARAMETER	CONC. (ug/l)
Inorganics	
Iron (Fe)	3610.00

MW-6-S	
PARAMETER	CONC. (ug/l)
VOCs	
Toluene	6.0 J
Xylene (Total)	61.0
SVOCs	
1,2-Dichlorobenzene	16.00
2-Methylphenol	26.00
Napthalene	29.00
Inorganics	
Iron (Fe)	35700.00
Manganese (Mn)	1740.00
Sodium (Na)	100000.00

NOTE: SAMPLING RESULTS EXCEEDING DEC GROUNDWATER AND DOH DRINKING WATER VALUES ARE REPORTED IN THIS FIGURE.



SURVEY BASE MAP PREPARED BY : MODI ENGINEERING, P.C., CICERO, N.Y. – NOVEMBER 1993

CDM
environmental engineers, scientists, planners, & management consultants

Figure 4–

Groundwater Results Summary

Korkay Inc. Site – Broadalbin, New York
NYSDEC Site #5-18-01

SUMMARY OF GROUNDWATER RESULTS
SHALLOW WELLS
VOLATILE ORGANICS

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
HLOROMETHANE	6	1 / 6	0 / 6	0 / 6	3	3	ug/l	5	5
ROMOMETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
VINYL CHLORIDE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	2	2
HLOROETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
ETHYLENE CHLORIDE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
ACETONE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
CARBON DISULFIDE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
1-DICHLOROETHENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
1-DICHLOROETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
1,2-DICHLOROETHENE(TOTAL)	6	3 / 6	2 / 6	2 / 6	4	17	ug/l	5	5
CHLOROFORM	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	7	50
2-DICHLOROETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
BUTANONE	6	2 / 6	0 / 6	0 / 6	7	14	ug/l	50	50
1,1,1-TRICHLOROETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
CARBON TETRACHLORIDE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
ROMODICHLOROMETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
2-DICHLOROPROPANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
cis-1,3-DICHLOROPROPYLENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
TRICHLOROETHENE	6	3 / 6	3 / 6	3 / 6	11	21	ug/l	5	5
BROMOCHLOROMETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
1,2-TRICHLOROETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
BENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.7	5
ans-1,3-DICHLOROPROPYLENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
ROMOFORM	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
-METHYL-2-PENTANONE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
2-HEXANONE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
TRACHLOROETHENE	6	3 / 6	0 / 6	0 / 6	2	3	ug/l	5	5
1,2,2-TETRACHLOROETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
TOLUENE	6	4 / 6	1 / 6	1 / 6	1	6	ug/l	5	5
CHLOROBENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
HYLBENZENE	6	1 / 6	1 / 6	1 / 6	19	19	ug/l	5	5
TYRENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
XYLENE(TOTAL)	6	4 / 6	4 / 6	4 / 6	6	110	ug/l	5	5

Table 4-27

SUMMARY OF GROUNDWATER RESULTS
SHALLOW WELLS
SEMIVOLATILE ORGANICS I

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
IENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	1	—
S(2-CHLOROETHYL)ETHER	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	1	50
2-CHLOROPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
3-DICHLOROBENZENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	5
-DICHLOROBENZENE	7	1 / 7	0 / 7	0 / 7	1	1	ug/l	4.7	5
-DICHLOROBENZENE	7	1 / 7	1 / 7	1 / 7	16	16	ug/l	4.7	5
2-METHYLPHENOL	7	1 / 7	1 / 7	0 / 7	26	26	ug/l	5	50
S(2-CHLOROISOPROPYL)ETHER	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
METHYLPHENOL	7	3 / 7	0 / 7	0 / 7	14	17	ug/l	50	50
N-NITROSO-DI-N-PROPYLAMINE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	—	—
HEXACHLOROETHANE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
ITROBENZENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
OPHORONE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
2-NITROPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
2,4-DIMETHYLPHENOL	7	2 / 7	0 / 7	0 / 7	4	36	ug/l	—	—
S(2-CHLOROETHOXY)METHANE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
-DICHLOROPHENOL	7	1 / 7	1 / 7	0 / 7	4	4	ug/l	1	—
1,2,4-TRICHLOROBENZENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	5
NAPHTHALENE	7	3 / 7	2 / 7	0 / 7	1	29	ug/l	10	50
HLOROANILINE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
XACHLOROBUTADIENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	5
4-CHLORO-3-METHYLPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	—
METHYLNAPHTHALENE	7	2 / 7	0 / 7	0 / 7	4	9	ug/l	50	—
XACHLOROCYCLOPENTADIENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
,6-TRICHLOROPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	—	—
2,4,5-TRICHLOROPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	1	—
CHLORONAPHTHALENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	10	50
ITROANILINE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
IMETHYL PHTHALATE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
ACENAPHTHYLENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	20	50
-DINITROTOLUENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
ITROANILINE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50

Table 4-27 (continued)

SUMMARY OF GROUNDWATER RESULTS
SHALLOW WELLS
SEMIVOLATILE ORGANICS II

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUNDWATER LIMIT	NYSDOH DRINKING WATER LIMIT
ACENAPHTHENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	20	50
2,4-DINITROPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	—
4-NITROPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	—
DIBENZOFURAN	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	—
2,4-DINITROTOLUENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
DIETHYLPHTHALATE	7	1 / 7	0 / 7	0 / 7	2	2	ug/l	50	50
4-CHLOROPHENYL-PHENYLETHER	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	—	—
FLUORENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	—
4-NITROANILINE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	—
4,6-DINITRO-2-METHYLPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	—	—
N-NITROSODIPHENYLAMINE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
4-BROMOPHENYL-PHENYLETHER	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	—	—
HEXACHLOROBENZENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	0.35	50
PENTACHLOROPHENOL	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	1	—
PHENANTHRENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
ANTHRACENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
CARBAZOLE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	—	—
DI-N-BUTYLPHTHALATE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
FLUORANTHENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
PYRENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
BUTYLBENZYLPHTHALATE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	50
3,3-DICHLOROBENZIDINE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	50
BENZO(A)ANTHRACENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	0.002	—
CHRYSENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	0.002	—
BIS(2-ETHYLHEXYL)PHTHALATE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	—
DI-N-OCTYL PHTHALATE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	—
BENZO(B)FLUORANTHENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	0.002	—
BENZO(K)FLUORANTHENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	0.002	—
BENZO(A)PYRENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	0.002	—
INDENO(1,2,3-CD)PYRENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	0.002	—
DIBENZO(A,H)ANTHRACENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	50	—
BENZO(G,H,I)PERYLENE	7	0 / 7	0 / 7	0 / 7	ND	ND	ug/l	5	—

Table 4-28

SUMMARY OF GROUNDWATER RESULTS
SHALLOW WELLS
PESTICIDES/PCBs

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
ALPHA-BHC	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.05	—
BETA-BHC	6	1 / 6	1 / 6	0 / 6	0.053	0.053	ug/l	0.05	—
DELTA-BHC	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.05	—
GAMMA-BHC (LINDANE)	6	2 / 6	0 / 6	0 / 6	0.017	0.034	ug/l	0.05	0.2
HEPTACHLOR	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.01	0.4
ALDRIN	6	2 / 6	1 / 6	0 / 6	0.009	0.011	ug/l	0.01	—
HEPTACHLOR EPOXIDE	6	2 / 6	1 / 6	0 / 6	0.0068	0.11	ug/l	0.01	0.2
ENDOSULFAN I	6	3 / 6	0 / 6	0 / 6	0.025	0.043	ug/l	0.1	—
DIELDRIN	6	3 / 6	3 / 6	0 / 6	0.012	0.076	ug/l	0.01	—
4,4'-DDE	6	2 / 6	2 / 6	0 / 6	0.096	0.21	ug/l	0.01	—
ENDRIN, TOTAL	6	1 / 6	1 / 6	0 / 6	0.053	0.053	ug/l	0.01	0.2
ENDOSULFAN II	6	1 / 6	0 / 6	0 / 6	0.045	0.045	ug/l	0.1	—
4,4'-DDD	6	1 / 6	1 / 6	0 / 6	0.019	0.019	ug/l	0.01	—
ENDOSULFAN SULFATE	6	1 / 6	0 / 6	0 / 6	0.028	0.028	ug/l	0.1	—
4,4'-DDT	6	1 / 6	1 / 6	0 / 6	0.031	0.031	ug/l	0.01	—
METHOXYCHLOR	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	35	40
ENDRIN KETONE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—
ENDRIN ALDEHYDE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—
ALPHA-CHLORDANE	6	3 / 6	0 / 6	0 / 6	0.27	0.9	ug/l	—	—
GAMMA-CHLORDANE	6	3 / 6	3 / 6	0 / 6	0.25	0.82	ug/l	0.1	—
TOXAPHENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	3
PCBs (Total)	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.1	0.5

Table 4-29

SUMMARY OF GROUNDWATER RESULTS
SHALLOW WELLS
INORGANICS

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
Al	6	6 / 6	0 / 6	0 / 6	244	11700	ug/l	—	—
Sb	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	3	—
As	6	4 / 6	0 / 6	0 / 6	2.5	4.3	ug/l	25	50
Ba	6	6 / 6	0 / 6	0 / 6	14	140	ug/l	1000	2000
Be	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	3	—
Cd	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	10	5
Ca	6	6 / 6	0 / 6	0 / 6	35200	75900	ug/l	—	—
Cr	6	1 / 6	0 / 6	0 / 6	5.6	5.6	ug/l	50	100
Co	6	1 / 6	0 / 6	0 / 6	14.7	14.7	ug/l	—	—
Cu	6	3 / 6	0 / 6	0 / 6	4.6	7.5	ug/l	200	—
Fe	6	6 / 6	6 / 6	6 / 6	4810	60200	ug/l	300	300
Pb	6	5 / 6	0 / 6	0 / 6	2	7.9	ug/l	25	—
Mg	6	6 / 6	0 / 6	0 / 6	4230	15700	ug/l	35000	—
Mn	6	6 / 6	4 / 6	4 / 6	157	1880	ug/l	300	300
Hg	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	2	2
Ni	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
K	6	6 / 6	0 / 6	0 / 6	2360	16300	ug/l	—	—
Se	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	10	10
Ag	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
Na	6	6 / 6	2 / 6	0 / 6	5380	100000	ug/l	20000	—
Tl	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	4	—
V	6	4 / 6	0 / 6	0 / 6	9.6	25.4	ug/l	—	—
Zn	6	6 / 6	0 / 6	0 / 6	10.3	37.4	ug/l	300	5000

Table 4-30

SUMMARY OF GROUNDWATER RESULTS
DEEP WELLS
VOLATILE ORGANICS

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
[illegible]HLOROMETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]BROMOMETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
VINYL CHLORIDE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	2	2
[illegible]HLOROETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]ETHYLENE CHLORIDE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
ACETONE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
CARBON DISULFIDE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
[illegible]-DICHLOROETHENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]-DICHLOROETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
1,2-DICHLOROETHENE(TOTAL)	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
CHLOROFORM	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	7	50
[illegible]-DICHLOROETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]BUTANONE	5	1 / 5	0 / 5	0 / 5	44	44	ug/l	50	50
1,1,1-TRICHLOROETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]ARBON TETRACHLORIDE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]OMODICHLOROMETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
[illegible]-DICHLOROPROPANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
cis-1,3-DICHLOROPROPYLENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]ICHLOROETHENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]BROMOCHLOROMETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
[illegible]1,1,2-TRICHLOROETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
BENZENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.7	5
[illegible]ns-1,3-DICHLOROPROPYLENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]OMOFORM	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
4-METHYL-2-PENTANONE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
2-HEXANONE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
[illegible]TRACHLOROETHENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible],2,2-TETRACHLOROETHANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
TOLUENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
CHLOROBENZENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]HYLBENZENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
[illegible]YRENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5
XYLENE(TOTAL)	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	5

Table 4-31

SUMMARY OF GROUNDWATER RESULTS
DEEP WELLS
SEMIVOLATILE ORGANICS I

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
PHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	1	—
BIS(2-CHLOROETHYL)ETHER	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	1	50
2-CHLOROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
1,3-DICHLOROBENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
1,4-DICHLOROBENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	4.7	5
1,2-DICHLOROBENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	4.7	5
2-METHYLPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
BIS(2-CHLOROISOPROPYL)ETHER	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
4-METHYLPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
N-NITROSO-DI-N-PROPYLAMINE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
HEXACHLOROETHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
NITROBENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
ISOPHORONE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
2-NITROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
2,4-DIMETHYLPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
BIS(2-CHLOROETHOXY)METHANE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
2,4-DICHLOROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	1	—
1,2,4-TRICHLOROBENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
NAPHTHALENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	10	50
4-CHLOROANILINE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
HEXACHLOROBUTADIENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	5
4-CHLORO-3-METHYLPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—
2-METHYLNAPHTHALENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	—
HEXACHLOROCYCLOPENTADIENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
2,4,6-TRICHLOROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
2,4,5-TRICHLOROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	1	—
2-CHLORONAPHTHALENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	10	50
2-NITROANILINE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
DIMETHYL PHTHALATE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
ACENAPHTHYLENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	20	50
2,6-DINITROTOLUENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
3-NITROANILINE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50

Table 4-31 (continued)

SUMMARY OF GROUNDWATER RESULTS
DEEP WELLS
SEMIVOLATILE ORGANICS II

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
ACENAPHTHENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	20	50
2,4-DINITROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—
4-NITROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—
DIBENZOFURAN	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—
2,6-DINITROTOLUENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
DIETHYLPHTHALATE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
4-CHLOROPHENYL-PHENYLETHER	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
FLUORENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	—
4-NITROANILINE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—
4,6-DINITRO-2-METHYLPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
N-NITROSODIPHENYLAMINE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
4-BROMOPHENYL-PHENYLETHER	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
HEXACHLOROBENZENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.35	50
PENTACHLOROPHENOL	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	1	—
PHENANTHRENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
ANTHRACENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
CARBAZOLE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	—	—
DI-N-BUTYLPHTHALATE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
FLUORANTHENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
PYRENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
BUTYLBENZYLPHTHALATE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	50
3,3-DICHLOROBENZIDINE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	50
BENZO(A)ANTHRACENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.002	—
CHRYSENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.002	—
BIS(2-ETHYLHEXYL)PHTHALATE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	—
DI-N-OCTYL PHTHALATE	6	1 / 6	0 / 6	0 / 6	3	3	ug/l	50	—
BENZO(B)FLUORANTHENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.002	—
BENZO(K)FLUORANTHENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.002	—
BENZO(A)PYRENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.002	—
INDENO(1,2,3-CD)PYRENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	0.002	—
DIBENZO(A,H)ANTHRACENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	50	—
BENZO(G,H,I)PERYLENE	6	0 / 6	0 / 6	0 / 6	ND	ND	ug/l	5	—

Table 4-32

SUMMARY OF GROUNDWATER RESULTS
DEEP WELLS
PESTICIDES/PCBs

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
ALPHA-BHC	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.05	—
BETA-BHC	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.05	—
DELTA-BHC	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.05	—
GAMMA-BHC (LINDANE)	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.05	0.2
HEPTACHLOR	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	0.4
ALDRIN	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	—
HEPTACHLOR EPOXIDE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	0.2
ENDOSULFAN I	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.1	—
DIELDRIN	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	—
4,4'-DDE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	—
ENDRIN, TOTAL	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	0.2
ENDOSULFAN II	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.1	—
4,4'-DDD	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	—
ENDOSULFAN SULFATE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.1	—
4,4'-DDT	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.01	—
METHOXYCHLOR	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	35	40
ENDRIN KETONE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	—
ENDRIN ALDEHYDE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	5	—
ALPHA-CHLORDANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	—	—
GAMMA-CHLORDANE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.1	—
TOXAPHENE	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	—	3
PCBs (Total)	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	0.1	0.5

Table 4-33

SUMMARY OF GROUNDWATER RESULTS
DEEP WELLS
INORGANICS

DESCRIPTION	NUMBER OF RESULTS	NUMBER OF DETECTIONS	NUMBER EXCEEDING NYSDEC GROUNDWATER LIMIT	NUMBER EXCEEDING NYSDEC DRINKING WATER LIMIT	RANGE OF RESULTS LOW	RANGE OF RESULTS HIGH	UNITS	NYSDEC GROUND-WATER LIMIT	NYSDOH DRINKING WATER LIMIT
	5	5 / 5	0 / 5	0 / 5	296	46000	ug/l	—	—
	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	3	—
As	5	3 / 5	1 / 5	1 / 5	4.3	78.2	ug/l	25	50
Ba	5	5 / 5	0 / 5	0 / 5	30	272	ug/l	1000	2000
	5	2 / 5	0 / 5	0 / 5	0.6	0.9	ug/l	3	—
	5	2 / 5	0 / 5	0 / 5	3.5	3.6	ug/l	10	5
Ca	5	5 / 5	0 / 5	0 / 5	20000	176000	ug/l	—	—
	5	4 / 5	1 / 5	0 / 5	5.7	77.4	ug/l	50	100
	5	3 / 5	0 / 5	0 / 5	11.2	22.5	ug/l	—	—
	5	4 / 5	0 / 5	0 / 5	8.7	19.3	ug/l	200	—
Fe	5	5 / 5	5 / 5	5 / 5	1530	48100	ug/l	300	300
	5	4 / 5	0 / 5	0 / 5	1.8	10.7	ug/l	25	—
	5	5 / 5	0 / 5	0 / 5	5120	23700	ug/l	35000	—
Mn	5	5 / 5	3 / 5	3 / 5	38.9	749	ug/l	300	300
Hg	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	2	2
	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	—	—
	5	5 / 5	0 / 5	0 / 5	2360	83900	ug/l	—	—
Se	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	10	10
Ag	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	50	50
	5	5 / 5	2 / 5	0 / 5	11800	48000	ug/l	20000	—
	5	0 / 5	0 / 5	0 / 5	ND	ND	ug/l	4	—
V	5	3 / 5	0 / 5	0 / 5	47.5	83.3	ug/l	—	—
Zn	5	5 / 5	0 / 5	0 / 5	13.2	281	ug/l	300	5000

Shallow Water Bearing Unit

VOCs: The VOCs detected in the groundwater samples collected from the uppermost water bearing unit were as follows:

Contaminant	Well(s)
Chloromethane	K-2
1,2-Dichloroethene(Total)	MW-5S, MW-6S
2-Butanone	K-2, MW-5S(duplicate)
Trichloroethene	K-2, MW-5S
Tetrachloroethene	K-3, MW-5S
Toluene	K-2, MW-5S, MW-6S
Ethylbenzene	K-2
Xylene(Total)	K-2, MW-5S, MW-6S

These wells are downgradient of well MW-4S. Many of these detected values listed do not exceed the New York State DEC groundwater criteria and/or the New York State DOH drinking water criteria, as shown in Appendix C, table C-13. A summary of the number of detections and number of samples exceeding limits is presented in table 4-26.

For **K-2**, values exceeding the standards include trichloroethene at 21 ppb, ethylbenzene at 19 ppb, and xylene (total) at 110 ppb.

For **MW-5S**, values exceeding the standards include 1,2-dichloroethene at 17 ppb, trichloroethene at 12 ppb, and xylene (total) at 7J ppb.

For **MW-6S**, values exceeding the standards include toluene at 6J ppb and xylene (total) at 61 ppb.

SVOCs: The SVOCs detected in the groundwater samples collected from the uppermost water bearing unit were as follows:

Contaminant	Well(s)
1,4-Dichlorobenzene	MW-6S
1,2-Dichlorobenzene	MW-6S
2-Methylphenol	MW-6S
4-Methylphenol	MW-6S, MW-5S(dupl.)
2,4-Dimethylphenol	K-2, MW-6S
2,4-Dichlorophenol	K-2
Naphthalene	K-2, MW-5S, MW-6S

2-Methylnaphthalene	K-2, MW-6S
Diethylphthalate	MW-6S

Many of the detected values listed do not exceed the New York State DEC groundwater criteria and/or the New York State DOH drinking water criteria, as shown in Appendix C, table C-14. A summary of the number of detections and number of samples exceeding limits is presented in table 4-27.

For **K-2**, values exceeding the standards include 2,4-dichlorophenol at 4J ppb and naphthalene at 23 ppb.

For **MW-6S**, values exceeding the standards include 1,2-dichlorobenzene at 16 ppb, 2-methylphenol at 26 ppb, and naphthalene at 29 ppb.

Pesticides/PCBs: The pesticides detected in the groundwater samples collected from the uppermost water bearing unit were as follows:

Contaminant	Well(s)
Beta-BHC	MW-5S
Gamma-BHC(lindane)	K-2, MW-5S(dupl.)
Aldrin	K-2, MW-5S(dupl.)
Heptachlor epoxide	K-2, MW-4S
Endosulfan I	K-2, MW-5S
Dieldrin	K-2, K-3, MW-5S(dupl.)
4,4 -DDE	K-2, MW-5S
Endrin(Total)	MW-5S(dupl.)
Endosulfan II	MW-5S(dupl.)
4,4 -DDD	MW-5S(dupl.)
Endosulfan sulfate	MW-5S(dupl.)
4,4 -DDT	MW-5S(dupl.)
Alpha chlordane	K-2, MW-5S
Gamma chlordane	K-2, MW-5S

Many of the detected values listed do not exceed the New York State DEC groundwater criteria and/or the New York State DOH drinking water criteria, as shown in Appendix C, table C-15. A summary of the number of detections and number of samples exceeding limits is presented in table 4-28.

For **K-2**, values exceeding the standards include aldrin at 0.01J ppb, heptachlor epoxide at 0.11 ppb, dieldrin at 0.02J ppb, 4,4-DDE at 0.21J ppb, and gamma chlordane at 0.82J ppb.

For **K-3**, dieldrin was detected but estimated at 0.01J ppb, which is the criteria limit.

For **MW-4S**, values exceeding the standards include heptachlor epoxide 0.01J ppb, which is the DEC criteria.

For **MW-5S**, values exceeding the standards include beta-BHC at 0.05J ppb, 4,4-DDE at 0.10J ppb, and gamma chlordane at 0.77J ppb.

For well **MW-5S (duplicate)**, values exceeding the standards include dieldrin at 0.08J ppb, endrin at 0.05J ppb, 4,4-DDD at 0.02J ppb, 4,4-DDT at 0.03J ppb, and gamma chlordane at 0.25 ppb.

TAL INORGANIC METALS

Inorganics are natural constituents of groundwater as a result of the water's interaction with the soil deposits. To assess potential contamination by inorganics requires that observed concentrations be compared to regional water quality or background data.

Of the 23 TAL metals, 15 were detected in the groundwater monitoring well samples, including Al, As, Ba, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, K, Na, V, and Zn. As shown in Appendix C, table C-16, many of the detected values listed do not exceed the New York State DEC groundwater criteria and/or the New York State DOH drinking water criteria. A summary of the number of detections and number of samples exceeding limits is presented in table 4-29.

For **MW-4S**, the uppermost water bearing unit "background" well, values exceeding the standards include iron at 4,810 ppb and sodium at 78,400 ppb.

For **K-2**, values exceeding the standards include iron at 12,200 ppb and manganese at 1,150 ppb.

For **K-3**, values exceeding the standards include iron at 10,600 ppb.

For **MW-5S**, values exceeding the standards include iron at 60,200 ppb and manganese at 1,620 ppb. For **MW-5S (duplicate)**, values exceeding the standards include iron at 58,000 ppb and manganese at 1,880 ppb.

For **MW-6S**, values exceeding the standards include iron at 35,700 ppb, manganese at 1,740 ppb, and sodium at 100,000 ppb.

Deeper Water Bearing Unit

VOCs: The VOCs detected in the groundwater samples collected from the deeper water bearing unit monitoring well samples were as follows:

Contaminant	Well(s)
2-Butanone	MW-5D

The detected value of 44 ppb does not exceed the New York State DEC groundwater criteria and/or the New York State DOH drinking water criteria, as shown in Appendix C, table C-13. A summary of the number of detections and number of samples exceeding limits is presented in table 4-30.

SVOCs: The SVOCs detected in the groundwater samples collected from the deeper water bearing unit were as follows:

Contaminant	Well(s)
Di-n-octylphthalate	MW-6D

The detected value at 3J ppb does not exceed the New York State DEC groundwater criteria and/or the New York State DOH drinking water criteria, as shown in Appendix C, table C-14. A summary of the number of detections and number of samples exceeding limits is presented in table 4-31.

Pesticides/PCBs: No pesticides/PCBs were found in the groundwater samples collected from the deeper water bearing unit. A summary of the number of detections and number of samples exceeding limits is presented in table 4-32.

TAL INORGANIC METALS

A summary of the number of detections and number of samples exceeding limits of the groundwater samples collected from the deeper water bearing unit is presented in table 4-33.

Of the 23 TAL metals, 17 were detected in the groundwater monitoring well samples, including Al, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, K, Na, V, and Zn. As shown in Appendix C, table C-16, in the deeper water bearing unit, for **MW-4D**, values exceeding the standards include chromium at 77.4 ppb, iron at 48,100 ppb, manganese at 749 ppb, and sodium at 32,200 ppb.

For **MW-5D**, values exceeding the standards include iron at 26,900 ppb and manganese at 448 ppb.

For **MW-6D**, values exceeding the standards include iron at 3,610 ppb.

For **MW-7D**, values exceeding the standards include iron at 25,800 ppb, manganese at 401 ppb, and sodium at 48,000 ppb.

Nature and Extent

The quality of the uppermost water bearing unit (wells K-2, MW-5S, and MW-6S) is characterized as contaminated with similar organics found in the soil samples.

As discussed in earlier report sections, almost all of the soil samples collected in Areas 1 and 2 detected levels of trichloroethene and toluene. At a lesser frequency, VOCs such as 1,1,1-trichloroethane, tetrachloroethene, ethylbenzene, xylene (total), and 2-butanone were detected in the soil samples collected in Areas 1 and 2. At a lesser frequency, SVOCs detected in the groundwater samples such as naphthalene and 2-methylnaphthalene, and in one sample 2,4-dichlorophenol, were also detected in the soil samples collected in Areas 1 and 2. Most of the soil samples collected in Area 1 had frequently detected levels of 4,4-DDE, endosulfan II, endosulfan sulfate, 4,4-DDT and gamma chlordane, and other pesticides with a lesser frequency. Most of the soil samples collected in Area 2 had frequently detected levels of heptachlor, 4,4-DDE, 4,4-DDT, alpha chlordane, and gamma chlordane, with other pesticides at a lesser frequency. Most of the soil samples collected in Area 3 had frequently detected levels of gamma-bhc, 4,4-DDE, 4,4-DDT, alpha chlordane, and gamma chlordane, with other pesticides at a lesser frequency. These organics were also found in the groundwater samples collected from the uppermost water bearing unit.

The soils in area 1 and 2 are source areas of organic (VOCs, SVOCs, pesticides) contamination, and the soils in area 3 are a source area of pesticide contamination. The contamination in the soil has migrated into the uppermost water bearing unit.

Well K-2 was shown to be contaminated during the previous investigations with acetone, 1,1,1-trichloroethane, o- and p-xylene, trichloroethylene, and chlordane. However, acetone and 1,1,1-TCA were not detected in the recent sample from well K-2, as these may have migrated away from the site or have been diluted to below the method detection limit.

MW-5S, which is located in a former drum storage area behind the building, is contaminated with organic compounds similar to those in K-2. Although MW-5S

is "upgradient" of K-2, possible explanations include contamination in the soils in Area 2 from the former drum storage area and conveyance of water in the storm drain system which originates at a dry well in located in Area 1 (refer to figure 1-2 of this report) and runs along the western and northern edges of the site and terminates at a dry well in the northeast corner of the site.

MW-6S, which is located off-site across West Main Street, is contaminated with similar VOC and SVOC contaminants found in K-2. However, no pesticides were detected.

Based on the historical information indicating "poor housekeeping" at the site, it is believed that surface spills, discharges, leaking drums, etc. onto or into the ground are the cause of the shallow water contamination. The source of pesticides is not known, although may be attributable to use of such compounds over the years. However, pesticides typically have very low solubilities and are typically detected less frequently in groundwater.

Based on the flow direction of the shallow zone, it appears that, as suspected by DEC, VOC and SVOC contamination has migrated off-site to well MW-6S located across West Main Street. Comparing concentrations in MW-6S to K-2, VOCs were generally lower off-site, while SVOCs were more prevalent off-site. Although pesticides were found in wells K-2 and MW-5S, pesticides were not detected in the off-site well MW-6S.

Two organic compounds were detected in the groundwater samples collected in the deeper water bearing unit. The silty clay materials present at the site may limit the rate at which contaminant migration occurs vertically. Based on the limited data collected in the deep overburden, it is not known if contaminants from the uppermost water could migrate vertically at some location off-site. Although vertical migration at a very low rate is possible due to a downward vertical hydraulic gradient, based on the chemical analysis collected, vertical contaminant migration through the aquitard of organic contamination is not apparent to date based on the wells installed.

Inorganic contamination at the site may also be a result of past site operations, including prior site use. The inorganic metals contaminants exceeding criteria in all of the shallow wells include iron and manganese, and in addition sodium in well MW-4S, which have medium to high mobility. The inorganic metals contaminants exceeding criteria in all of the deeper wells generally include iron, manganese, and sodium, and in addition chromium in well MW-4D, which also have medium to high mobility. The source of elevated

metals in the deeper wells and the chromium contamination in well MW-4D may or may not be attributable to historical site use. The metals, taken by themselves, may indicate contamination has reached the deeper unit; however, there were no significant organic contaminants found. If the deeper water bearing unit is actually tilted towards the north (i.e., towards MW-4D), then the site may be a contributory source.

In general, the elevated iron and manganese results appear to correlate with DEC's findings that high metals concentrations (such as iron, lead and calcium) were commonly encountered in glacial till water samples collected in and around the study area, and the Village water supply has, on occasion, historically elevated iron and manganese.

4.3.1 Tanner Well

As discussed in the SOP/QAPP, the Tanner well is not believed to be used as a drinking water source.

No organic compounds were detected in the Tanner well sample. Two inorganic metals were detected above New York State groundwater and drinking water criteria. These metals include arsenic at 78.2 ppb and iron at 1,530 ppb. It is not known what the source of these metals contaminants could be, although iron is probably a natural condition. The source of arsenic contamination is not known based on the limited amount of data.

SUMMARY OF NATURE AND EXTENT OF CONTAMINATION

SOILS

Sampling conducted to date characterizes the contamination at the site, as further described.

Surficial Soils: VOCs were detected in the surficial soils, but the levels detected were not above DEC TAGM criteria in the surficial soil samples collected.

No SVOCs were detected above TAGM criteria in surficial soil samples collected from Areas 3, 4, and 6. Levels ranging from 38 to 1,700 ppb or ug/kg of several SVOCs were detected above DEC TAGM criteria in the surficial soil samples collected in **Areas 1, 2, and 5**. The SVOCs and corresponding maximum concentration detected include:

SVOCs in Area 1	Concentration Detected	DEC TAGM Criteria
benzo(a)pyrene	320 ug/kg	61 ug/kg
dibenzo(a,h)anthracene	47 ug/kg	14 ug/kg
benzo(a)anthracene	130 ug/kg	220 ug/kg

SVOCs in Area 2	Concentration Detected	DEC TAGM Criteria
benzo(a)pyrene	54 ug/kg	61 ug/kg
hexachlorobenzene	1,700 ug/kg	410 ug/kg

SVOCs in Area 5	Concentration Detected	DEC TAGM Criteria
benzo(a)pyrene	200 ug/kg	61 ug/kg
dibenzo(a,h)anthracene	39 ug/kg	14 ug/kg
benzo(a)anthracene	260 ug/kg	220 ug/kg
hexachlorobenzene	37 ug/kg	410 ug/kg

No pesticides were detected above TAGM criteria in surficial soil samples collected from Areas 1, 3, 4, 5, and 6. Levels ranging from 81 to 8,900 ppb or ug/kg of several pesticides were detected above DEC TAGM criteria in the surficial soil samples collected in Area 2 only. The pesticides and corresponding maximum concentration detected include:

Pesticides in Area 2	Concentration Detected	DEC TAGM Criteria
gamma-chlordane	8,900 ug/kg	540 ug/kg
aldrin	81 ug/kg	41 ug/kg
heptachlor epoxide	170 ug/kg	20 ug/kg

The surficial soil samples had elevated concentrations of a variety of metals throughout the site. Heavy metals in the surface soils exceeding the DEC TAGM soil cleanup criteria include beryllium, chromium, copper, lead, mercury, nickel, and zinc. The source of metals contamination is unknown, but could be attributable to either historical site operations or Korkay's site activities. There is no established metals distribution pattern.

The absence of volatile organics in the surficial soils are likely a result of being diluted by weathering, where volatiles may have dissipated through volatilization into the air. However, the absence of volatile organics in the surficial soil samples does not eliminate the finding that a few volatile compounds have contributed to subsurface soil and groundwater contamination, further discussed below.

Characterization of surficial soil samples collected from the site revealed no VOCs detected above DEC TAGM soil cleanup criteria. When compared against DEC TAGM soil cleanup criteria, several PAHs, phthalates, pesticides, and inorganics exceeded the recommended cleanup objective. Based upon this data, the surficial soil through leaching of infiltrating rainwater in Areas 1, 2, and 3 is a potential source of groundwater contamination.

Subsurface Soils: No VOCs were detected above TAGM criteria in subsurface soil samples collected from Areas 3, 4, 5, and 6. Levels ranging from 2,600 to 12,000 ppb or ug/kg of several VOCs were detected above DEC TAGM criteria in the subsurface soil samples collected in **Area 1**. The VOCs and corresponding maximum concentration detected include:

VOAs in Area 1	Concentration Detected	DEC TAGM Criteria
trichloroethene	2,600 ug/kg	700 ug/kg
xylenes	12,000 ug/kg	1,200 ug/kg

In addition, acetone was detected at an estimated "J" value which is equivalent to the DEC TAGM criteria of 200 ppm in the soil sample collected inside of the storage shed in Area 2.

No SVOCs were detected above TAGM criteria in subsurface soil samples collected from Areas 3, 4 and 6. Levels ranging from 70 to 27,000 ppb or ug/kg of several SVOCs were detected above DEC TAGM criteria in the subsurface soil samples collected in **Areas 1, 2, and 5**. The SVOCs and corresponding maximum concentration detected include:

SVOCs in Area 1	Concentration Detected	DEC TAGM Criteria
di-n-butylphthalate	27,000 ug/kg	8,100 ug/kg
benzo(a)pyrene	70 ug/kg	61 ug/kg
benzo(a)anthracene	100 ug/kg	220 ug/kg

SVOCs in Area 2	Concentration Detected	DEC TAGM Criteria
2,4-dichlorophenol	880 ug/kg	400 ug/kg

	Concentration	DEC TAGM

SVOCs in Area 5	Detected	Criteria
di-n-butylphthalate	120 ug/kg	8,100 ug/kg
benzo(a)pyrene	200 ug/kg	61 ug/kg
benzo(a)anthracene	250 ug/kg	220 ug/kg

No pesticides were detected above TAGM criteria in subsurface soil samples collected from Areas 1, 4, 5, and 6. Levels ranging from 32 to 7,800 ppb or ug/kg of several pesticides were detected above DEC TAGM criteria in the surficial soil samples collected in **Areas 2 and 3**. The pesticides and corresponding maximum concentration detected include:

Pesticides in Area 2	Concentration Detected	DEC TAGM Criteria
gamma-chlordane	7,800 ug/kg	540 ug/kg
aldrin	51 ug/kg	41 ug/kg
heptachlor epoxide	110 ug/kg	20 ug/kg

Pesticides in Area 3	Concentration Detected	DEC TAGM Criteria
gamma-chlordane	1,000 ug/kg	540 ug/kg
aldrin	4.3 ug/kg	41 ug/kg
heptachlor epoxide	32 ug/kg	20 ug/kg

The subsurface soil samples had detected metals concentrations of a variety of metals throughout the site. In addition, all of the split spoon soil samples collected had detected metals concentrations of a variety of metals at all locations.

Characterization of subsurface soil samples collected from the site revealed levels of trichloroethene, xylenes, and acetone, the only volatile organic contaminants detected at or above DEC TAGM soil cleanup criteria. When compared against DEC TAGM soil cleanup criteria, several PAHs, phthalate, pesticides, and inorganics exceeded either the allowable soil

concentration or the recommended cleanup objective. Based upon this data, the subsurface soils through leaching of infiltrating rainwater are also a potential source of groundwater contamination. For example, 12 ppm of xylenes, 2.6 ppm of TCE, 7.8 ppm of gamma-chlordane, and the other organic contaminants which exceed the DEC soil cleanup criteria would theoretically contribute to the contamination found in the groundwater. In fact, the quality of the uppermost water bearing unit [in wells K-2 (Area 1), MW-5S (Area 2), and MW-6S (off-site; south)] is characterized as contaminated with organics similar to those found in the soil samples.

It is unknown if organic contamination has proceeded in depth beyond the uppermost water bearing zone, which is between approximately 5 to 7 feet below grade, in Areas 1, 2, and 3. Contamination by the dense non-aqueous phase liquids could have proceeded below the water table depth. In Area 5, although confirmation would be needed, it is not suspected that organic contamination has proceeded in depth beyond several feet since Area 5 is not a source area, but rather received potentially contaminated surface run-off from the Korkay site.

In Areas 1, 2, and 5, metals levels are generally higher in the surface soils than in the subsurface, while in Areas 3 and 4 the concentrations are generally more similar in both surface and subsurface soils. In the split spoon samples, elevated levels of inorganic metals are prevalent at split spoon sample depths, to at least 30 feet below grade (depth of deepest borehole sample) and in 3 of 4 cases, except for magnesium, at more elevated concentrations than surficial soils. The source of metal contamination surficially and at depth is not known.

GROUNDWATER

The groundwater investigation verifies an initial assumption that the uppermost or shallow water bearing zone is flowing in the southerly direction, towards the surface water body in the vicinity, Kennyetto Creek located approximately 600 feet south of the site.

Although the data collected to date suggests that hydraulic gradient in the

deeper water bearing unit is in the east to southeasterly direction, this may not be the case. In fact, there are serious reservations about the direction of the gradient in the deep water bearing zone as suggested because of the thin, possibly discontinuous, sands that were encountered and the existence of a significant vertical hydraulic gradient. It is not clear that there sands are even hydraulically connected or continuous throughout the site. Though there may be a downward vertical hydraulic gradient within the study area, the low permeability of the silty clay formation identified within the study area may potentially reduce the vertical flow rate of groundwater.

Analysis of groundwater samples collected from the shallow monitoring wells revealed impacted groundwater extending from the site to the south across West Main Street, following the direction of groundwater flow. Due to the impervious nature of the silty clay unit encountered, vertical migration of contamination would likely occur at a low rate. Analysis of groundwater samples collected from the deep monitoring wells revealed that the deep water bearing zone has not been significantly impacted by the organic contamination found at the Korkay site.

Due to the preferred horizontal flow within the shallow water bearing zone in the study area, water will likely travel horizontally until it reaches an area of groundwater discharge off the site. Given the low concentrations of contaminants, it is unlikely that these compounds would migrate extensively due to dilution of the contaminants as the water leaves the site, although this cannot be firmly concluded without further investigation.

Given the data findings obtained to date, it appears that the drinking water supplies would not likely be impacted by the contaminated shallow water due to the fact that Kennyetto Creek bisects the area lying between the site and the southern drinking water supply well, which may be where the shallow water bearing unit discharges.

Groundwater contamination by organics related to the site appears to be limited to Areas 1 and 2 on site, as well as towards well MW-6S located off

site across West Main Street. Low levels of VOCs detected in wells K-2, MW-5S, and MW-6S above the DEC groundwater and DOH drinking water supply criteria include 1,2-dichloroethene, trichloroethene, toluene, ethylbenzene, xylenes. Organics contamination related to the site may extend beyond well MW-6S to the south of MW-6S where toluene and xylenes were detected. As DEC initially suspected, VOC contamination found in 1985 has migrated off site, as acetone and 1,1,1-trichloroethane are no longer detected in K-2 and only a trace amount of tetrachloroethene was detected. However, since K-2 is located in Area 1, where the soils had detected levels of VOCs, it appears that Area 1 may be a source area of VOC contamination. It is noted that xylenes at relatively higher concentration at the source area were detected off site, while TCE at a relatively lower concentration in the source area was not detected off site to date.

SVOCs detected in wells K-2 and MW-6S above the DEC groundwater and DOH drinking water supply criteria include 2,4-dichlorophenol, naphthalene, 1,2-dichlorobenzene, and 2-methylphenol. The contaminant distribution seems to suggest that SVOCs have migrated off site. There is no former data to compare these SVOC findings. However, suspected source areas of SVOC contamination include Areas 1 and 2, based on the soil sample results.

Elevated levels of pesticides in wells MW-5S and K-2 above the DEC groundwater and DOH drinking water supply criteria include heptachlor epoxide, dieldrin, 4,4-DDE, gamma chlordane, beta-BHC, endrin, 4,4-DDD, and 4,4-DDT. Compared to the pesticide contamination found in the water in 1987, the level of chlordane in 1987 is much greater than the level of gamma-chlordane, a chlordane isomer, recently detected. However, it does not appear that the pesticide contamination has moved off site to date, as none were detected in well MW-6S. Since MW-5S is located in Area 2 , where the soils had elevated levels of pesticides, it would appear that Area 2 may be a source area of pesticide contamination.

Elevated levels of inorganics were detected in the groundwater including iron, manganese, and sodium. In addition, in well MW-4D chromium was also detected above the standard. It should be noted that iron, manganese, and sodium are natural constituents of groundwater and elevated levels of these

metals can also be related to varying soil composition or changes in water chemistry. The source of these metals and chromium contamination is not known.

Two private supply wells are located within a half-mile of the site located directly to the north on Cedar Lane in the Village of Broadalbin. In addition, there are private drinking supply wells in both the glacial deposits and the carbonate bedrock located within approximately 1,700 to 1,800 feet of the site located directly to the west in the adjacent Town of Mayfield. It is not known what zones these wells are screened in or whether or not there is hydraulic connection with these zones. However, the contaminated uppermost water bearing zone does not appear to be moving horizontally in the direction of these wells.

The two Village of Broadalbin drinking water supply wells are located within approximately 3,200 feet of the site located to the north and to the south, it is unlikely that these wells would be impacted by the shallow overburden contaminated water because of their distance from the site. The North Second Avenue well is reportedly completed in the carbonate bedrock. Although the South Second Avenue well is supposedly screened from 24-30 feet in unconsolidated sand and gravel, the Kennyetto Creek, which lies in between the Korkay site and this supply well, could be where the contaminated shallow water bearing zone discharges, although this would need to be confirmed. It is not known whether or not there is hydraulic connection with these deeper zones. However, since discharge of the shallow water bearing unit is probably between the site and the South Second Avenue well, and the North Second Avenue well is up- or side-gradient of the site, the shallow water is unlikely to be influenced by any supply well pumping effects.

6.0 CONCLUSIONS

This first phase RI confirms findings from the preliminary site assessment that site operations have resulted in contamination of the soils and underlying groundwater at the site.

A number of organic constituents were detected in the surface and subsurface soils. Volatile organic contaminant concentration increases with depth. Semi-volatile organic contaminant concentration somewhat decreases with depth. Pesticides/PCB contaminant concentration generally decreases with depth. However, only a few of the organic constituents detected exceeded DEC TAGM recommended guidelines for soils cleanup. Inorganic metals contamination is generally ubiquitous throughout the site both surficially and in the subsurface.

The organic constituents found in the soil have migrated into the uppermost water bearing zone, as was suspected from the preliminary site assessment data. However, the relatively impermeable nature of the aquitard encountered at the site will effectively minimize downward movement of these contaminants, as indicated by the absence of organic contaminants in the deeper water bearing unit. There is no pattern established with respect to inorganic metals contamination found in the soil compared with the uppermost water bearing zone. Although several heavy metals exceeded the DEC TAGM recommended guidelines for soils cleanup, these same heavy metals were generally <u>not</u> detected at concentrations exceeding New York State criteria in the groundwater well samples.

Specific chemicals of potential concern and detailed discussion about the nature and extent of contamination within each area of the site can be found in Section 4.0 of this report.

The following conclusions are summarized from the data collected during the first phase RI for the Korkay, Inc. site:

- Areas 1 and 2 (on site) comprise the areas with the most elevated levels of organic (VOC, SVOC, pesticide/PCB) and ubiquitous inorganic

metals soil contamination.

- Area 5 (Hayes property) soils contamination is evident with similar chemical compounds as those found on site in Areas 1 and 2.

- Area 3 soil contamination is limited to elevated levels of pesticides/PCBs and inorganic metals.

- Area 4 soil contamination is limited to elevated levels of inorganic metals.

- Recurring inorganic metals contamination in the soils significantly exceeding DEC TAGM criteria include beryllium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, zinc throughout the study area.

- The primary potential source of contamination in the uppermost water bearing zone are the contaminated soils in Areas 1 and 2, and what appears to be to a lesser degree, Area 3, of the site. VOC and SVOC contamination is evident off site at well MW-6S; although pesticide contamination has not been found off site.

- Organic contamination is not evident in the first water bearing unit encountered below the aquitard (in the deeper water bearing unit).

- Inorganic contamination at levels exceeding New York State criteria in both zones of water include iron, manganese, and less frequently, sodium. The source of elevated inorganic metals and specifically chromium concentration in well MW-4D is not known. Historical site use may be attributable to these findings.

The baseline human health risk assessment addressed potential hazards to human health. Since the Korkay, Inc. site is located in a mixed residential area, the possible risks associated with potential future residential use of the site were evaluated in the risk assessment.

The risk assessment findings can be found under separate cover in a report entitled "Human Health Risk Assessment for the Korkay, Inc. Site" prepared by Dynamac Corporation. In summary, three potential exposure routes were considered for the resident: inhalation, ingestion, and dermal adsorption. The exposure media considered were the shallow and deep water bearing units, surficial soils, and subsurface soils. The conservative rationale for selection of contaminants of concern used in the risk assessment are based on EPA risk assessment guidance. Based upon the RI data and applicable regulatory criteria, the potential chemicals of concern for ingestion were alpha chlordane, gamma chlordane, dieldrin, heptachlor epoxide, TCE, manganese for the shallow water bearing unit; manganese for the deeper water bearing unit; alpha chlordane, gamma chlordane and arsenic for the surface soil; and alpha chlordane, gamma chlordane and arsenic for the subsurface soil. In addition, for lead in soil, although there are currently no quantitative toxicity criteria available for lead from EPA, EPA recommends a residential soil lead action level of 500 mg/kg based on the results of a standard application of the biokinetic lead uptake model. This level is exceeded in three samples collected in Areas 1 and 5.

The highest risks are associated with the human consumption and household use of the water in the shallow aquifer; however, this is a highly unlikely scenario given that the Village of Broadalbin has a public water supply. Risks for ingestion, dermal contact, and inhalation of contaminants volatilized from shallow groundwater are above or within the target risk range recommended by EPA. Risks for ingestion for surface and subsurface soil are also within the EPA target risk range.

Based on the data obtained to date, preliminary remedial needs and remedial objectives may include removal of volatile organic compounds such as TCE from the soil, which may also serve to reduce the concentrations in the shallow groundwater. Should there be no effect on groundwater concentrations, another preliminary remedial need and objective may include, at a minimum, control or containment of the shallow contaminated water. Based on the concentrations of several inorganic contaminants (metals) and organic contaminants, another remedial need and objective may

include removal of surficial soils to minimize contact or exposure and possibly replacement with clean fill. Remedial action alternatives and associated technologies including alternative treatment technologies will be screened during later phases of the RI/FS to identify those that would be effective for the hazardous wastes and media of interest at the site.

7.0 RECOMMENDATIONS

The groundwater data from samples collected in the uppermost water bearing zone indicate elevated levels of organic as well as inorganic contamination. Based on the finding that organic contamination of water underlying the site is currently limited to the uppermost water bearing unit with no immediate potential receptor near the site, further studies to conclusively define the southern horizontal extent of the plume such as the installation of additional shallow monitoring wells may not be necessary. However, based on the risk assessment findings, it appears that remedial action of groundwater contamination may be warranted; thus further investigation as part of the second phase remedial investigation of the shallow water would be needed to address those contaminants of concern cited. Therefore, studies to define the southern horizontal extent of the plume in the uppermost water bearing unit are recommended to include installation of several additional shallow groundwater monitoring wells or, in lieu of permanent well installation, using a field screening method to collect groundwater samples such as "geoprobes", or a similar technique.

The deeper water bearing zone (beneath the aquitard) does not indicate an elevated organic contaminant condition and does not warrant further investigation as part of the second phase remedial investigation at this time. However, the deeper water bearing unit contains elevated levels of several inorganic metals. As part of the second phase remedial investigation, it is recommended that a second round of groundwater samples to confirm the findings of this first phase RI be collected form both the shallow and deep wells at the site. Water samples for both filtered and unfiltered metals is recommended to determine if the metals present are dissolved, and may aid in confirming the chromium contamination in well MW-4D.

It is recommended that the two Village of Broadalbin private water wells proximal to the site on Cedar Lane be inventoried by gathering information on the wells to aid in determining if the wells are at risk of being impacted by groundwater contamination at the Korkay site. The information collected would be used by the New York State DOH who may sample these

wells if warranted.

The Tanners should be notified of the water quality in their well, although it is not believed that the well is used as a supply well.

Due to the VOC, SVOC, pesticides, and inorganics concentrations detected in the soil that exceed DEC recommended guidelines for soil cleanup, CDM recommends that, at a minimum, some form of institutional controls for use of the property be instituted. Based on the risk assessment findings, it appears that future remedial action may be warranted, particularly on adjacent residential property. Further investigation of the extent of soil contamination would be needed in future phases of site work to address those contaminants of concern cited for purposes of determining the extent of soil remediation.

To evaluate the effectiveness of treating primarily the elevated volatile organic contamination found in the soil in Area 1, it is recommended that a treatability study for soil vapor extraction in the Area 1 vadose zone with possibly dual extraction of contaminated shallow groundwater be conducted during the second phase remedial investigation.

With respect to background samples, additional sample collection is recommended during the second phase remedial investigation. Since a true background sample should be free from the influences of any hazardous waste site or other sources of contaminants, additional background samples should be collected from a location further away from the site.

If the upcoming building reconnaissance activity should reveal any findings to alter those presented in this RI report, or the upcoming habitat assessment should reveal ecological receptors proximal to the site that are or potentially will be impacted, a scope of work would have to be determined and completed as a separate phase of the remedial investigation.

8.0 REFERENCES

The following references were used in preparing this report:

Arnow, T. 1951. The Ground-Water Resources of Fulton County, New York. U.S. Geological Survey in Cooperation with the Water Power and Control Commission. (Bulletin GW-24)

Bugliosi, E.F. 1987. "Availability of Ground Water in the Unconsolidated Aquifers in the Mid-Hudson River Basin, New York." U.S. Geological Survey, Department of the Interior in cooperation with the New York State Department of Environmental Conservation. (Report 87-4028)

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Reynolds, R.J. 1990. "Availability of Ground Water from Unconsolidated Deposits in the Mohawk River Basin, New York." U.S. Geological Survey, Department of the Interior in cooperation with the New York State Department of Environmental Conservation. (Report 88-4091)

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U.S. Department of Agriculture Soil Conservation Service in Cooperation with Fulton County Soil and Water Conservation District. March 1968. "Soils Association Map" and " General Soils Report - Soils Association and Characteristics: Fulton County, New York."

U.S. Geological Survey, Department of the Interior, 1991. "Water Fact Sheet: National Water-Quality Assessment Program - The Hudson River Basin." U.S. Government Printing Office.

In addition, the following offices were contacted to obtain the information used in preparing this report:

Village of Broadalbin, Department of Public Works: Ron Loveless

Village of Broadalbin, Clerk: Sheila Bleyl

New York State Department of Environmental Conservation, Region 5, Citizen Participation: Elizabeth (Betsy) Lowe

County of Fulton, Planning Department: Sean Geraghty

Northeast Regional Climate Center at Cornell University: Jeffrey Shultz

New York State Department of Health

United States Geological Survey, Fulton County District, Water Resources Division: Catherine Harris

Fulton County Soil Conservation District, USDA: Cliff Hand

Fulton County Cooperative Extension: Elizabeth Miller

New York State Department of Environmental Conservation, Northville office: John English, Assistant Regional Forester

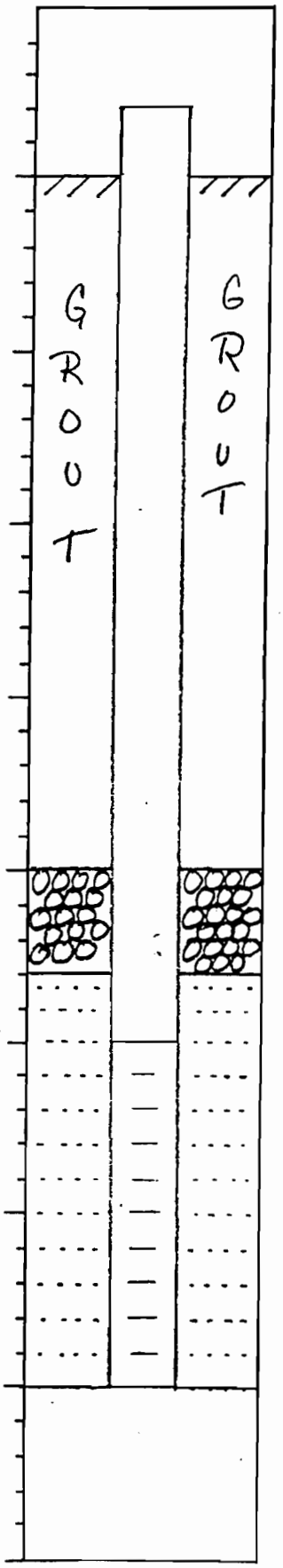
(CH4545)

YCDM

environmental engineers, scientists,
planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: KORKAY Client: NYSDEC Well No: MW-4S



DRILLING SUMMARY

Drilling Co: SJB Drillers: JIM LAMM
Drill Rig Make/Model: CME-75
Borehole Diameters: 8" Drilling Fluid: NONE
Bits/Depths: 4¼" ID HOLLOW STEM AUGERS (0-10')
Total Depth: 10 FT Depth to Water: 7.5 FT.
Supervisory Geologist: MIKE ELNOT

WELL DESIGN

Casing Material: PVC Diameter: 2" Length: 7.05 FT.
Screen Material: PVC Diameter: 2" Length: 5 FT.
Slot Size: 0.010" Setting: 4.5 - 9.5
Filter Material: MORIE #0 SAND Setting: 3.5' - 9.5'
Seals Material: BENTONITE PELLETS Setting: 2.5' - 3.5'
Grout: CEMENT/BENTONITE Setting: 0 - 2.5'
Surface Casing Material: STEEL Setting: +2.6' - 2.5' BGS

TIME LOG	Started	Completed
Drilling:	OCT. 5, 1993	OCT. 5, 1993
Installation:	OCT. 5, 1993	OCT. 5, 1993
Development:	OCT. 13, 1993	OCT. 13, 1993

WELL DEVELOPMENT

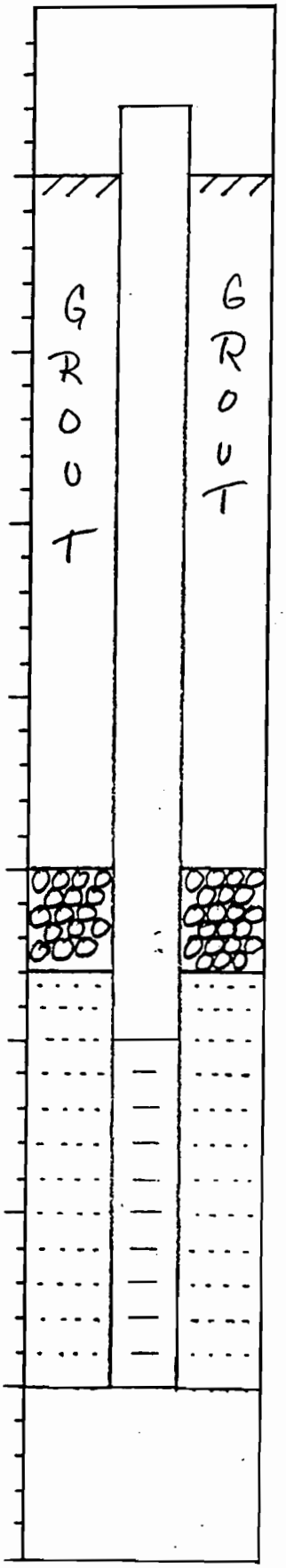
Method: 1" DIA. PVC BAILER (5 FT. LENGTH)
Static Depth to Water: 8.11 FT. (TOIC STICKUP)
Pumping Depth to Water: NA
Pumping Rate: NA Specific Capacity:
Volume Pumped: 15 GALLONS > 50 NTU
GOOD PRODUCER

CDM

environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: KORKAY Client: NYSDEC Well No: MW-4D



DRILLING SUMMARY

Drilling Co: SJB Drillers: JIMM LAMM
Drill Rig Make/Model: CME-75
Borehole Diameters: 8" Drilling Fluid: NONE
Bits/Depths: 4 1/4" ID HOLLOW STEM AUGERS (0-46')
Total Depth: 46 FT. Depth to Water: 32 FT.
Supervisory Geologist: MIKE EHNOT

WELL DESIGN

Casing Material: PVC Diameter: 2" Length: 38.4 FT
Screen Material: PVC Diameter: 2" Length: 10 FT.
Slot Size: 0.010" Setting: 36' - 46'
Filter Material: MORIE #0 SAND Setting: 33.9' - 46'
Seals Material: BENTONITE PELLETS Setting: 31.9' - 33.9'
Grout: CEMENT/BENTONITE Setting: 0 - 31.9'
Surface Casing Material: STEEL Setting: +2.5' - 2.5 BGS

TIME LOG

	Started	Completed
Drilling:	OCTOBER 4, 1993	OCTOBER 4, 1993
Installation:	OCTOBER 5, 1993	OCTOBER 5, 1993
Development:	OCTOBER 13, 1993	OCTOBER 13, 1993

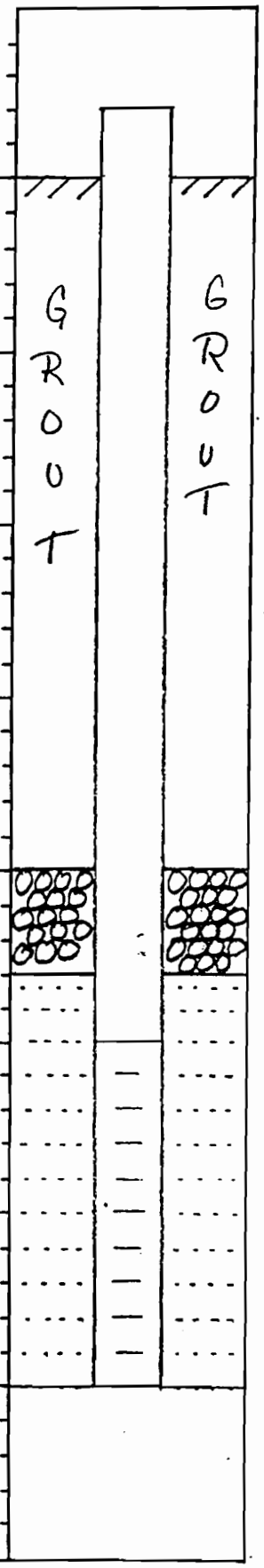
WELL DEVELOPMENT

Method: 1" DIA. PVC BAILER (5 FT. LENGTH)
Static Depth to Water: 30.11 FT (TOIC STICKUP)
Pumping Depth to Water: NA
Pumping Rate: NA Specific Capacity:
Volume Pumped: 10 GALLONS DRY >200 NTU
LOW PRODUCER

CDM
environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: KORKAY Client: NYSDEC Well No: MW-5S



DRILLING SUMMARY

Drilling Co: SJB Drillers: JIM CAMM
Drill Rig Make/Model: CME-75
Borehole Diameters: 8" Drilling Fluid: NONE
Bits/Depths: 4 1/4" ID HOLLOW STEM AUGERS
Total Depth: 10 FT. Depth to Water: 8 FT.
Supervisory Geologist: MIKE EHNOT

WELL DESIGN

Casing Material: PVC Diameter: 2" Length: 7.4 FT.
Screen Material: PVC Diameter: 2" Length: 5 FT.
Slot Size: 0.010" Setting: 5'-10'
Filter Material: MORIE #0 SAND Setting: 4'-10'
Seals Material: BENTONITE PELLETS Setting: 3'-4'
Grout: CEMENT/BENTONITE Setting: 0-3'
Surface Casing Material: STEEL Setting: +2.5'-2.5 FT BGS

TIME LOG	Started	Completed
Drilling:	OCTOBER 6, 1993	OCTOBER 6, 1993
Installation:	OCTOBER 6, 1993	OCTOBER 6, 1993
Development:	OCTOBER 13, 1993	OCTOBER 14 1993

WELL DEVELOPMENT

Method: 1" DIA. PVC BAILER (5 FT. LENGTH)
Static Depth to Water: 8.02 FT (TOIC STICKUP)
Pumping Depth to Water: NA
Pumping Rate: NA Specific Capacity:
Volume Pumped: 47 GALLONS
GOOD PRODUCER 43.6 NTU

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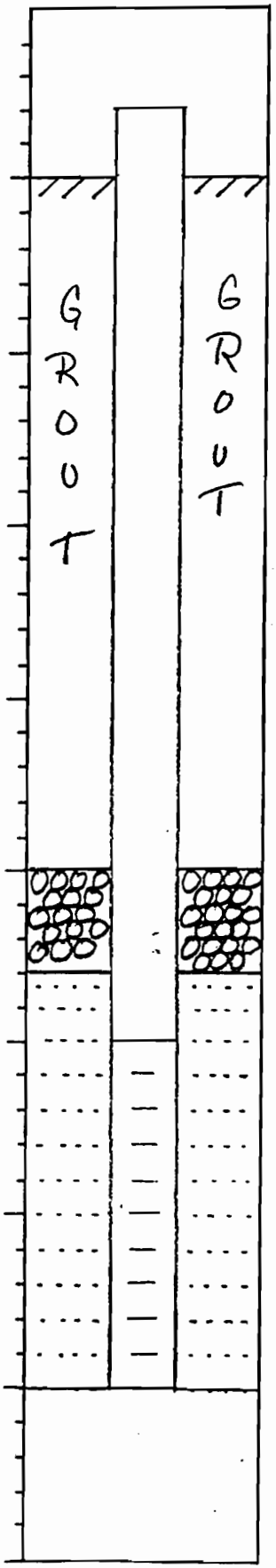
WELL CONSTRUCTION SUMMARY

Project: KORKAY Client: NYSDEC Well No: MW-5D



DRILLING SUMMARY

Drilling Co: SJB Drillers: JIM LAMM

Drill Rig Make/Model: CME-75

Borehole Diameters: 8" Drilling Fluid: NONE

Bits/Depths: 4 1/4" ID HOLLOW STEM AUGERS (0-40')

Total Depth: 40 Ft. Depth to Water: 33 Ft.

Supervisory Geologist: MIKE EHNOT

WELL DESIGN

Casing Material: PVC Diameter: 2" Length: 32.4 Ft.

Screen Material: PVC Diameter: 2" Length: 10 Ft.

Slot Size: 0.010" Setting: 30'-40'

Filter Material: MORIE #0 SAND Setting: 28'-40'

Seals Material: BENTONITE PELLETS Setting: 26'-28'

Grout: CEMENT/BENTONITE Setting: 0-26'

Surface Casing Material: STEEL Setting: +2.5'-2.5' BGS

TIME LOG	Started	Completed
Drilling:	OCTOBER 7, 1993	OCTOBER 7, 1993
Installation:	OCTOBER 7, 1993	OCTOBER 7, 1993
Development:	OCTOBER 14, 1993	OCTOBER 14, 1993

WELL DEVELOPMENT

Method: 1" DIA. PVC BAILER (5 FT. LENGTH)

Static Depth to Water: 28.11 FT. (TOIC STICKUP)

Pumping Depth to Water: NA

Pumping Rate: NA Specific Capacity:

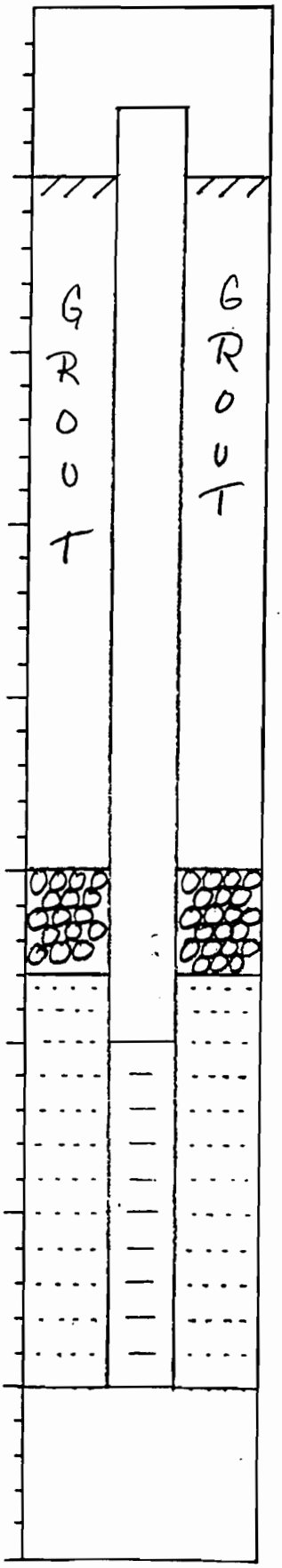
Volume Pumped: 20 GALLONS DRY AFTER 12 GALS; LET RECHARGE, DRY AFTER 20 GALLONS >200 NTU

LOW PRODUCER

CDM
environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: KORKAY Client: NYSDEC Well No: MW-6S



DRILLING SUMMARY

Drilling Co: SJB Drillers: JIM LAMM
Drill Rig Make/Model: CME 75
Borehole Diameters: 8" Drilling Fluid: NONE
Bits/Depths: 4 1/4" ID HOLLOW STEM AUGERS (0-11')
Total Depth: 11 Ft. Depth to Water: 8 Ft.
Supervisory Geologist: MIKE EHNOT

WELL DESIGN

Casing Material: PVC Diameter: 2" Length: 8.5
Screen Material: PVC Diameter: 2" Length: 5 Ft.
Slot Size: 0.010" Setting: 6'-11'
Filter Material: MORIE #0 SAND Setting: 4'-11'
Seals Material: BENTONITE PELLETS Setting: 2'-4'
Grout: CEMENT/BENTONITE Setting: 0-2'
Surface Casing Material: STEEL Setting: +2.5'-2.5' BGS

TIME LOG	Started	Completed
Drilling:	OCTOBER 8, 1993	OCTOBER 8, 1993
Installation:	OCTOBER 8, 1993	OCTOBER 8, 1993
Development:	OCTOBER 13, 1993	OCTOBER 13, 1993

WELL DEVELOPMENT

Method: 1" DIA. PVC BAILER (5 FT. LENGTH)
Static Depth to Water: 9.83 Ft. (TOIC STICKUP)
Pumping Depth to Water: NA
Pumping Rate: NA Specific Capacity:
Volume Pumped: 15 GALLONS
GOOD PRODUCER >200 NTU

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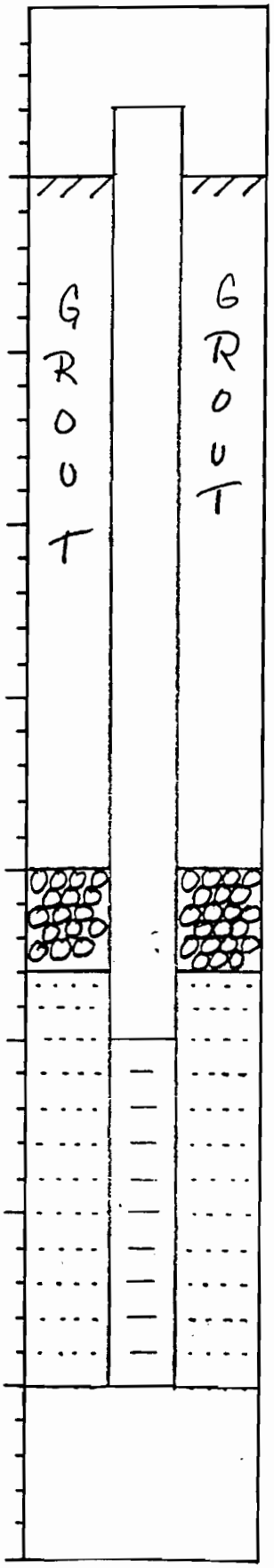
WELL CONSTRUCTION SUMMARY

Project: KORKAY Client: NYSDEC Well No: MW-60



DRILLING SUMMARY

Drilling Co: SJB Drillers: JIM LAMM

Drill Rig Make/Model: CME 75

Borehole Diameters: 8" Drilling Fluid: NONE

Bits/Depths: 4 1/4" ID HOLLOW STEM AUGERS (0-55')

Total Depth: 55 Ft. Depth to Water: 43 Ft.

Supervisory Geologist: MIKE EHNOT

WELL DESIGN

Casing Material: PVC Diameter: 2" Length: 47.75 Ft.

Screen Material: PVC Diameter: 2" Length: 10 Ft.

Slot Size: 0.010" Setting: 45'-55'

Filter Material: MORIE #0 SAND Setting: 43'-55'

Seals Material: BENTONITE PELLETS Setting: 41'-43'

Grout: CEMENT/BENTONITE Setting: 0-41'

Surface Casing Material: STEEL Setting: +2.8'-2.2 Ft. BGS

TIME LOG	Started	Completed
Drilling:	OCTOBER 11, 1993	OCTOBER 12, 1993
Installation:	OCTOBER 12, 1993	OCTOBER 12, 1993
Development:	OCTOBER 14, 1993	OCTOBER 14, 1993

WELL DEVELOPMENT

Method: 1" DIA. PVC BAILER (5 FT. LENGTH)

Static Depth to Water: 30.35 Ft. (TOC STICKUP)

Pumping Depth to Water: N/A

Pumping Rate: N/A Specific Capacity:

Volume Pumped: 40 GALLONS

LOW-AVERAGE PRODUCER > 200 NTU

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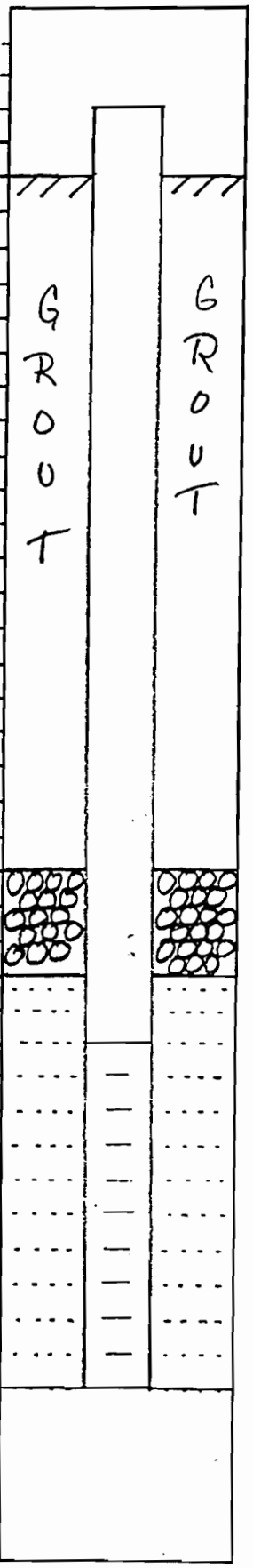
WELL CONSTRUCTION SUMMARY

Project: KORKAY Client: NYSDEC Well No: MW-7D



DRILLING SUMMARY

Drilling Co: SJB Drillers: JIM LAMM
Drill Rig Make/Model: CME 75
Borehole Diameters: 8" Drilling Fluid: NONE
Bits/Depths: 6 1/4" ID HOLLOW STEM AUGERS (0-55')
Total Depth: 55 FT Depth to Water: 43 FT.
Supervisory Geologist: MIKE EHNOT

WELL DESIGN

Casing Material: PVC Diameter: 2" Length: 45.51 FT.
Screen Material: PVC Diameter: 2" Length: 10 FT.
Slot Size: 0.010" Setting: 45'-55'
Filter Material: MORIE #0 SAND Setting: 43'-55'
Seals Material: BENTONITE PELLETS Setting: 40.8'-43'
Grout: CEMENT/BENTONITE Setting: 0-40.8'
Surface Casing Material: STEEL Setting: +2.6'-2.4' BGS

TIME LOG	Started	Completed
Drilling:	SEPTEMBER 30, 1993	OCTOBER 1, 1993
Installation:	OCTOBER 1, 1993	OCTOBER 1, 1993
Development:	OCTOBER 14, 1993	OCTOBER 14, 1993

WELL DEVELOPMENT

Method: 1" DIA. PVC BAILER (5 FT. LENGTH)
Static Depth to Water: 31.54 FT. (TOC STICKUP)
Pumping Depth to Water: NA
Pumping Rate: NA Specific Capacity:
Volume Pumped: 35 GALLONS
LOW PRODUCER >200 NTU

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BORING NUMBER: MW-4D

Log of Boring

Project KORKAY Location BROADALBIN, NY Job. No 897-21-GW-WELL
Date Drilled 9/28+29/93 Drilling Co. SJB SERVICES, INC.
Total Depth 60 FT. Method Used 6 1/4" HOLLOW STEM AUGERS
Inspector MIKE EHNOT Organic Vapor Instruments Used HNu Water Table Depth 7.5', 32'

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Remarks (Time of Day)
0	1	1/2/1/1	0-2'	1.1'/2.0'	0	DK. BROWN TOPSOIL: CLAY ORANGE BROWN F-M SAND AT 1.8-2.0 FT. DRY		
2	2	2/5/6/6	2'-4'	1.7'/2.0'	0	YELLOW BROWN F-M SAND, TRACE C SAND AT 3.9-4 FT. SLT. MOIST.		
4	3	2/3/5/8	4'-6'	2.0'/2.0'	0	(4-5) LT. BROWN F-M SAND, TRACE C SAND. SLT. MOIST. (5-5.7) LT. BROWN SILTY F SAND. V. MOIST. (5.7-6) LT. BROWN SILT. WET.		
6	4	4/6/4/6	6'-8'	2.0'/2.0'	0	(6-6.4) BROWN F-M SAND, TRACE C SAND, TRACE F-C GRAVEL, RD. WET (6.4-7.5) BROWN F-M SILTY SAND. WET. (7.5-8) BROWN SILT. SATURATED		WATER AT 7.5 FT. SAMPLE TO LAB
8	5	WR/WH/1/2	8'-10'	1.1'/2.0'	0	(8-8.9) NO RECOVERY (8.9-9.5) LT. BROWN GRAY SILT, TRACE CLAY, SOFT. WET. (9.5-10) LT. BROWN GRAY SILTY CLAY, STIFF. DRY.		
10	6	WH(12")/1/2	10'-12'	2.0'/2.0'	0	LT. BROWN GRAY CLAYEY SILT, SOFT (10'-11'); STIFF (11'-12') V. MOIST (10'-11.5')		SILTIER THAN ABOVE
12	7	WH/1/2/2	12'-14'	1.5'/2.0'	0	(12-12.5) NO RECOVERY (12.5-13.5) LT. BROWN SILTY CLAY, TRACE F SAND, TRACE ORGANICS, SLT. MOIST. (13.5-13.8) LT. BROWN SILTY CLAY, SOFT, STICKY. MOIST. (13.8-14) GRAY SILTY CLAY, SOFT,		
14								

NY-1

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BORING NUMBER: MW-4D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
14	8	WH(12")/ 1/1	14'-16'	2.0'/ 2.0'	0	GRAY SILTY CLAY, SOFT, STICKY. MOIST.		
16	9	WH(12")/ 1/2	16'-18'	2.0'/ 2.0'	0	GRAY SILTY CLAY, SOFT. STICKY. MOIST.		
18	10	WH(12")/ 2/3	18'-20'	1.5'/ 2.0'	0	(18-18.5) NO RECOVERY (18.5-20) GRAY CLAYEY SILT, SOFT, STICKY. MOIST.		
20	11	WH(6")/ 1/ 2/2	20'-22'	2.0'/ 2.0'	0	(20-21) GRAY CLAYEY SILT, STIFF. MOIST. (21-22) GRAY SILTY F SAND, TRACE CLAY. MOIST.		
22	12	1/2/ 4/5	22'-24'	2.0'/ 2.0'	0	GRAY SILTY CLAY, STIFF. SLT. MOIST.		
24	13	WH(12")/ 1/2	24'-26'	1.8'/ 2.0'	0	GRAY SILTY CLAY, STIFF, STICKY. MOIST.		
26	14	WH/1/ 2/2	26'-28'	2.0'/ 2.0'	0	GRAY SILTY CLAY, STIFF, STICKY. MOIST.		
28	15	WH(12")/ 1/1	28'-30'	0.9'/ 2.0'	0	(28-29.1) NO RECOVERY (29.1-30) GRAY SILT, TRACE CLAY, SOFT. V. MOIST.		SAMPLE TO LAB
30								

NY-2

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-45

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
30	16	WH(12")/ 4/6	30'-32'	0/2.0'	—	NO RECOVERY		
32	17	8/7/ 5/5	32'-34'	1.0'/2.0'	0	(32-33) NO RECOVERY (33-33.5) GRAY SILTY CLAY, SOFT. V. MOIST. (33.5-34) GRAY F-M SAND, F-C GRAVEL. WET.		WATER AT ~32 FT. (BELOW SILTY CLAY UNIT)
34	18	4/10/ 19/47	34'-36'	1.6'/2.0'	0	(34-34.4) NO RECOVERY (34.4-35) GRAY F-C GRAVEL, SD., LITTLE F SAND. WET. (35-36) TILL: GRAY SILT, TRACE F-C GRAVEL, DENSE TRACE COBBLE, RD., TRACE ROCK FRAGS. DRY.		
36	19	100(2")	36'-38'	0.2/2.0'	0	SLUMP: NO RECOVERY. WET.		
38	20	87/85/ 63/64	38'-40'	1.2'/2.0'	0	TILL: GRAY F SANDY SILT, DENSE, TRACE GRAVEL, TRACE ROCK FRAGS. DRY.		
40	21	100(3")	40'-42'	0.1'/2.0'	0	TILL: ORANGE BROWN ROCK FRAGS AT END OF SPOON		
42	22	28/88/ 66/100(3")	42'-44'	1.6'/2.0'	0	TILL: GRAY SILT, DENSE, TRACE GRAVEL, TRACE ROCK FRAGS. DRY.		
44	23	25/53/ 78/60	44'-46'	1.4'/2.0'	0	TILL: GRAY SILT, TRACE ROCK FRAGS, DENSE.		
46								

NY-2

XCDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-4D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
46	24	77/67/100(4")	46'-48'	1.4'/2.0'	0	TILL: GRAY SILT, DENSE, TRACE ROCK FRAGS.		
48	25	15/37/62/67	48'-50'	1.5'/2.0'	0	TILL: GRAY BROWN SILT, DENSE, TRACE BLACK GRAVEL, TRACE ROCK FRAGS. DRY.		
50	26	24/43/52/68	50'-52'	1.6'/2.0'	0	TILL: GRAY BROWN SILT, DENSE, TRACE GRAVEL SUBANG, TRACE ROCK FRAGS. DRY,		
52	27	38/58/58/60	52'-54'	1.0'/2.0'	0	TILL: GRAY BROWN SILT, DENSE, TRACE BLACK ROCK FRAGS, SUBANG. & RD., TRACE GRAVEL. DRY.		
54	28	10/14/14/16	54'-56'	1.6'/2.0'	0	GRAY BROWN SILT, TRACE GRAVEL. V. MOIST. LOOSE.		
56	29	20/25/28/60	56'-58'	2.0'/2.0'	0	(56-57.4) BROWN SILT, TRACE ROCK FRAGS, TRACE GRAVEL MOIST. LOOSE (57.4-58) BROWN F-C SAND. WET.		
58	30	12/25/50/80	58'-60'	2.0'/2.0'	0	(58-58.8) BROWN F-C SAND. WET. (58.8-60) BROWN SILTY F SAND. SATURATED.		
60						END OF BOREHOLE: 60 FT. NOTE: BOREHOLE WAS CLOSED W/ GROUT/BENTONITE MIXTURE. A "NEW" MW-4D WAS DRILLED FOR THE MW ON		* MW-4S WAS INSTALLED ADJACENT TO MW-4D.

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BORING NUMBER: MW-5D
Page 1 of 3

Log of Boring

Project KORKAY Location BROADALBIN, NY Job. No 897-21-GW-WELL
Date Drilled 10/7/93 Drilling Co. SJB SERVICES, INC.
Total Depth 44 Ft. Method Used 4 1/4" ID HOLLOW STEM AUGERS
Inspector MIKE EHNOT Organic Vapor Instruments Used HNu Water Table Depth 8 Ft. ; ~33 Ft

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Remarks (Time of Day)
0	1	3/4/3/3	0-2'	0.9'/2.0'	0	FILL: YELLOW BROWN F-M SAND, TRACE ROCK FRAGS, SLT. MOIST, UNDERLAIN BY BROWN SILTY CLAY, TRACE ROCK FRAGS. SLT. MOIST.		
2	2	3/3/2/3	2'-4'	0.9'/2.0'	0	BROWN F-M SAND, TRACE ORGANIC MATTER. SLT. MOIST.		
4	3	3/3/4/2	4'-6'	1.3'/2.0'	0 20	(4-4.7) NO RECOVERY (4.7-4.9) BROWN SILTY CLAY. MOIST. (4.9-6) GRAY F-M SAND. SLT. MOIST. ODOROUS.		
6	4	5/5/4/4	6'-8'	2.0'/2.0'	26	GRAY F-M SAND, TRACE SILT SLT. MOIST (TO MOIST) ODOROUS.		
8	5	4/3/2/2	8'-10'	2.0'/2.0'	4	(8-8.3) GRAY F-M SAND. BLACK STAINED. ODOROUS. WET. (8.3-10) BROWN F SANDY SILT. SATURATED.		WATER AT 8 Ft.
10	6	3/1/1/2	10'-12'	2.0'/2.0'	9 4 2	(10-10.5) BROWN F SANDY SILT, TRACE CLAY. SATURATED. (10.5-11.5) BROWN SILTY CLAY STICKY. MOIST. (11.5-12) GRAY SILTY CLAY, STICKY. SLT. MOIST.		
12	7	3/1/1/2	12'-14'	1.1'/2.0'	0	GRAY CLAYEY SILT, SOFT. MOIST.		
14								

NY-1

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-5D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
14	8	1/2/3/2	14'-16'	1.5'/2.0'	0	GRAY CLAYEY SILT. V. MOIST.		
16	9	1/2/1/2	16'-18'	1.6'/2.0'	0	GRAY SILT, TRACE TO SOME CLAY. V. MOIST.		
18	10	WH/1/2/1	18'-20'	2.0'/2.0'	0	GRAY SILTY CLAY, SOFT, STICKY. MOIST.		
20	11	2/2/3/4	20'-22'	2.0'/2.0'	0	(20-20.8) GRAY SILTY CLAY, TRACE F SAND. MOIST. (20.8-22) GRAY SILTY CLAY, STICKY. MOIST.		SAMPLE TO LAB
22	12	1/1/1/1	22'-24'	2.0'/2.0'	0	GRAY SILTY CLAY. STICKY. MOIST.		
24	13	WH(18")/1	24'-26'	2.0'/2.0'	0	GRAY SILTY CLAY, STICKY. MOIST.		
26	14	WH(12")/2/2	26'-28'	2.0'/2.0'	0	GRAY SILTY CLAY, STICKY. MOIST.		
28	15	WH/1/2/2	28'-30'	2.0'/2.0'	0	GRAY SILTY CLAY, SOFT, STICKY. MOIST.		
30								

NY-2

CDM

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BORING NUMBER: MW-5D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
30	16	2/2/ 2/2	30'-32'	2.0'/ 2.0'	0	GRAY CLAYEY SILT TO SILT, SOFT. V. MOIST.		
32	17	1/2/ 2/2	32'-34'	2.0'/ 2.0'	0	(32-33.6) GRAY BROWN CLAYEY SILT TO SILT, SOFT. V. MOIST. (33.6-34) GRAY BROWN F-M SILTY SAND, LITTLE F-C GRAVEL, RD., TRACE CLAY. WET.		WATER AT ~33 FT.
34	18	WH/22/ 42/42	34'-36'	1.6'/ 2.0'	0	TILL: GRAY BROWN SILT. DENSE, TRACE BLACK F-C GRAVEL, ANG., TRACE ROCK FRAGS. DRY.		
36	19	50/127/ 100(2")	36'-38'	1.0'/ 2.0'	0	TILL: GRAY BROWN SILT. DENSE. TRACE BLACK F-C GRAVEL, ANG., TRACE ROCK FRAGS. DRY.		
38	20	45/67/ 100(2")	38'-40'	1.0'/ 2.0'	0	TILL: GRAY BROWN SILT. DENSE. TRACE F-C GRAVEL AND ROCK FRAGS, ANG., RD, SUBRD.		AUGERS END ADVANCEMENT AT 40 FT.
40	21	45/35/ 94/50	40'-42'	1.6'/ 2.0'	0	TILL: BROWN SILT. DENSE. TRACE F-C GRAVEL AND ROCK FRAGS. SLT. MOIST.		
42	22	62/98/ 100(3")	42'-44'	0.9'/ 2.0'	0	TILL: BROWN SILT, DENSE. TRACE TO LITTLE F-C GRAVEL AND ROCK FRAGS. SLT. MOIST.		
44						END OF BOREHOLE: 44 FT. 2" DIA. PVC WELL INSTALLED IN BH.		MW-5S INSTALLED ADJACENT TO MW-5D.

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BORING NUMBER: MW-6D
Page 1 of 4

Log of Boring

Project KORKAY Location BROADALBIN, NY Job. No 897-21-GW-WELL
Date Drilled 10/11-12/93 Drilling Co. SJB SERVICES, INC.
Total Depth 58 FT. Method Used 4 1/4" ID HOLLOW STEM AUGERS
Inspector MIKE EHNOT Organic Vapor Instruments Used HNu Water Table Depth 8FT. ~43 ft

Depth (feet)	Samp No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Remarks (Time of Day)
0	1	1/1/1/2	0-2'	0.7'/2.0'	0	DK. BROWN F-M SANDY SILT, TRACE ORGANIC MATTER (TOPSOIL) SLT. MOIST.		
2	2	1/1/2/1	2'-4'	1.0'/2.0'	0	DK. BROWN F-M SANDY SILT. SLT. MOIST.		
4	3	1/2/3/5	4'-6'	1.2'/2.0'	0	DK. BROWN & ORANGE BROWN F-M SAND. SLT. MOIST.		
6	4	5/7/8/9	6'-8'	1.7'/2.0'	0	(6-6.3) NO RECOVERY (6.3-7) ORANGE BROWN F-M SAND, TRACE C SAND, TRACE F-C GRAVEL, RD. SLT. MOIST. (7-7.6) LT. BROWN SILT, TRACE CLAY. MOIST. (7.6-8) GRAY SILTY F-M SAND. WET.		
8	5	1/1/2/2	8'-10'	1.2'/2.0'	30	GRAY F-M SAND. ODOROUS. SATURATED		WATER AT 8 FT. SAMPLE TO LAB
10	6	1/1/1/1	10'-12'	2.0'/2.0'	19 0	(10-11.4) GRAY F-M SAND MOIST. SLT. ODOR. (11.4-12) BROWN CLAYEY SILT. SATURATED.		
12	7	WH(18")/2	12'-14'	1.6'/2.0'	0	BROWN SILTY CLAY, STICKY. SLT. MOIST.		
14								

NY-1

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-6S

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
14	8	1/2/2/2	14'-16'	2.0'/2.0'	0	(14-14.5) BROWN F-M SAND. SLT. MOIST. (14.5-15.6) GRAY SILTY CLAY. MOIST. (15.6-16) GRAY CLAYEY SILT. WET.		
16	9	2/4/4/4	16'-18'	1.8'/2.0'	0	GRAY BROWN SANDY SILT, TRACE CLAY. WET.		
18	10	WH/2/3/4	18'-20'	1.0'/2.0'	0	GRAY CLAYEY SILT. V. MOIST TO WET.		
20	11	WH/2/2/2	20'-22'	1.3'/2.0'	0	(20-20.7) NO RECOVERY (20.7-21.6) GRAY CLAYEY SILT. V. MOIST. (21.6-22) GRAY SILTY CLAY. MOIST.		
22	12	2/3/3/4	22'-24'	1.8'/2.0'	0	GRAY CLAYEY SILT W/ LENS OF SILTY CLAY, TRACE F SND IN CLAYEY SILT. V. MOIST.		SAMPLE TO LAB
24	13	WH(18")/1/1	24'-26'	1.8'/2.0'	0	GRAY SILTY CLAY. MOIST. STICKY.		
26	14	1/1/1/2	26'-28'	1.7'/2.0'	0	GRAY SILTY CLAY. MOIST.		
28	15	WH(12")/1/1	28'-30'	1.9'/2.0'	0	GRAY SILTY CLAY. MOIST.		
30								

NY-2

YEDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-6D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
30	16	WH(12")/ 1/2	30'-32'	2.0'/ 2.0'	0	GRAY SILTY CLAY. MOIST.		
32	17	WH(6")/1/ 2/3	32'-34'	1.6'/ 2.0'	0	GRAY SILTY CLAY. MOIST.		
34	18	WR/WH(12")/ 1	34'-36'	2.0'/ 2.0'	0	(34-35.7) GRAY SILTY CLAY. MOIST. (35.7-36) GRAY SILTY CLAY, TRACE F-C GRAVEL, SOFT. MOIST.		
36	19	WH(12")/ 1/1	36'-38'	1.8'/ 2.0'	0	GRAY SILTY CLAY. MOIST.		
38	20	WH(18")/ 2	38'-40'	2.0'/ 2.0'	0	GRAY SILTY CLAY, STICKY. MOIST.		
40	21	WH(12")/ 1/1	40'-42'	2.0'/ 2.0'	0	GRAY SILTY CLAY, TRACE F-C GRAVEL. MOIST.		
42	22	WH(12")/ 1/2	42'-44'	1.7'/ 2.0'	0	GRAY BROWN SILT, TRACE CLAY TO CLAYEY SILT. WET.		WATER AT ~ 43FT.
44	23	WH(12")/ 3/5	44'-46'	0.6'/ 2.0'	0	GRAY CLAYEY SILT TO SILTY CLAY, TRACE F-C GRAVEL. V. MOIST.		
46								

NY-2

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-6D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
46	24	2/2/3/2	46'-48'	1.5'/2.0'	0	GRAY BROWN F-C SAND AND F-C GRAVEL, RD. & SUBRD., TRACE SILT, TRACE F-C COBBLE, SUBRD., TRACE CLAY. SATURATED.		
48	25	1/2/3/2	48'-50'	0.7'/2.0'	0	GRAY BROWN F-C SAND, TRACE SILT (49.8'-50'). WET.		
50	26	3/9/16/20	50'-52'	1.2'/2.0'	0	(50-50.8) NO RECOVERY (50.8-51.1) GRAY BROWN F-C SAND. V. MOIST. (51.1-52) GRAY BROWN SILT, TRACE BOULDER, RD., TRACE F-C GRAVEL. LOOSE. MOIST.		
52	27	30/33/55/75	52'-54'	2.0'/2.0'	0	(52-52.4) GRAY BROWN SILT, TRACE BOULDERS, RD. (52.4-54) GRAY BROWN SILT, SLT. DENSE. SLT. MOIST.		ADVANCEMENT AUGERS ENDS AT 54 FT.
54	28	12/24/32/60	54'-56'	2.0'/2.0'	0	TILL: GRAY BROWN SILT. DENSE. MOIST.		
56	29	50/75/100(2")	56'-58'	0.8'/2.0'	0	TILL: GRAY BROWN SILT. DENSE. TRACE ROCK FRAGS. SLT. MOIST.		
58						END OF BOREHOLE: 58 FT. 2" DIA PVC WELL INSTALLED IN BH.		MW-6S INSTALLED ADJACENT TO MW-6D

NY-2

CDM
environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-7D
Page 1 of 4

Log of Boring

Project KORKAY Location BROADALBIN, NY Job. No 897-21-GW-WELL
Date Drilled 9/30 - 10/1 '93 Drilling Co. SJB SERVICES, INC.
Total Depth 58 FT. Method Used 6 1/4" ID HOLLOW STEM AUGERS (0-34')
Inspector MIKE EHNOT Organic Vapor Instruments Used HNU Water Table Depth 8 FT. ~42 FT.

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Remarks (Time of Day)
0	1	-/4/ 4/2	0.5-2'	1.0'/1.5'	0	ASPHALT 0-0.5 FT. (0.5-1) NO RECOVERY (1-1.7) FILL: BROWN F-M SAND & GRAVEL, TRACE CLAY. MOIST. (1.7-2) ORANGE BROWN F-M SANDS. MOIST.		
2	2	2/3/ 4/3	2-4'	1.7'/2.0'	0	(2-2.3) NO RECOVERY (2.3-3.3) DK. BROWN F SAND, TRACE SILT. MOIST. (3.3-4) ORANGE BROWN F-M SAND. MOIST.		
4	3	4/6/ 7/10	4-6'	1.6'/2.0'	0	YELLOW BROWN F-M SANDS. SLT. MOIST.		
6	4	10/11/ 12/13	6-8'	2.0'/2.0'	0	YELLOW BROWN F-M SAND. DRY.		SAMPLE TO LAB
8	5	2/3/ 2/3	8-10'	1.3'/2.0'	0	BROWN F SAND, LITTLE M SAND, TRACE F-C GRAVEL AT 8.7'-9.0' SATURATED.		WATER AT 8 FT.
10	6	1/3/ 4/5	10-12'	1.8'/2.0'	0	LT. BROWN F-M SAND, TRACE C SAND. WET.		
12	7	2/3/ 8/8	12-14'	2.0'/2.0'	0	(12-13.5) BROWN F-M SAND WET. (13.5-14) BROWN F SAND, LITTLE SILT. WET.		
14								

NY-1

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW-7S

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
14	8	WH/1/ 1/1	14'-16'	2.0'/ 2.0'	0	(14-14.5) BROWN F SAND, SOME SILT. V. MOIST. (14.5-15.3) BROWN CLAY, STICKY, TRACE SILT. MOIST. (15.3-16) GRAY CLAY, STIFF, STICKY, TRACE SILT. MOIST.		
16	9	1/2/ 2/3	16'-18'	2.0'/ 2.0'	0	(16-17.4) BROWN SILT, TRACE TO LITTLE CLAY, TRACE F SAND. MOIST. (17.4-18) GRAY SILTY CLAY, STIFF. MOIST.		
18	10	WH(18")/ 1	18'-20'	1.8'/ 2.0'	0	GRAY CLAYEY SILT MOIST.		
20	11	WH/2/ 2/2	20'-22'	1.1'/ 2.0'	0	GRAY SILT, TRACE CLAY. MOIST.		
22	12	2/2/ 2/2	22'-24'	1.5'/ 2.0'	0	(22-22.5) NO RECOVERY (22.5-23.5) GRAY SILT, TRACE CLAY. MOIST. (23.5-24) GRAY SILTY CLAY, STIFF. MOIST.		
24	13	WH(6")/ WH(12")/2	24'-26'	2.0'/ 2.0'	0	GRAY SILTY CLAY, SOFT. MOIST.		
26	14	1/1/ 3/2	26'-28'	1.6'/ 2.0'	0	(26-26.4) NO RECOVERY (26.4-27.4) GRAY F-M SAND, LITTLE SILT, TRACE CLAY. SATURATED. (27.4-28) GRAY CLAYEY SILT, TRACE F SAND. MOIST.		
28	15	WH(18")/ 1	28'-30'	1.7'/ 2.0'	0	GRAY SILTY CLAY, SOFT, STICKY. MOIST.		
30								

7-11

XCDM

environmental engineers, scientists,
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BORING NUMBER: MW-7D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
30	16	WH(18")/ 1	30'-32'	1.7'/ 2.0'	0	GRAY & BROWN SILTY CLAY, STICKY, MOIST.		
32	17	1/1/ 2/2	32'-34'	2.0'/ 2.0'	0	GRAY SILTY CLAY, STICKY, MOIST.		
34	18	WH(18")/ 1	34'-36'	1.9'/ 2.0'	0	GRAY SILTY CLAY, STICKY, MOIST.		
36	19	1/2/ 3/4	36'-38'	2.0'/ 2.0'	0	GRAY SILTY CLAY, STICKY, MOIST.		
38	20	WH(18")/ 1	38'-40'	2.0'/ 2.0'	0	GRAY SILTY CLAY, STICKY. MOIST.		
40	21	WH(18")/ 1	40'-42'	2.0'/ 2.0'	0	(40-40.9) GRAY SILTY CLAY, STICKY. MOIST. (40.9-42) GRAY BROWN SILT, TRACE CLAY. MOIST TO WET.		
42	22	2/2/ 3/4	42'-44'	2.0'/ 2.0'	0	(42-43.3) GRAY BROWN SILT, TRACE CLAY. SATURATED. (43.3-44) GRAY BROWN SILT, TRACE F-C GRAVEL & ROCK FRAGS. LOOSE. MOIST.		WATER AT ~42 FT.
44	23	1/2/ 2/1	44'-46'	0.4'/ 2.0'	0	GRAY BROWN SILT, LITTLE F-C GRAVEL & ROCK FRAGS. MOIST.		
46								

NY-2

CDM

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BORING NUMBER: MW-78

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
46	24	WH(12")/ 1/1	46'-48'	0/2.0'	0	NO RECOVERY		
48	25	WH(12")/ 2/3	48'-50'	0/2.0'	0	NO RECOVERY		
50	26	WR/WH(6") 1	50'-52'	0.1'/2.0'	0	BROWN SILT, TRACE CLAY, TRACE GRAVEL. LOOSE. MOIST.		
52	27	WR(12")/ 2/3	52'-54'	1.0'/2.0'	0	GRAY BROWN F-C SAND, LITTLE TO TRACE F-C GRAVEL AND SILT, TRACE ROCK FRAGS. WET.		
54	28	18/35/ 28/100(3")	54'-56'	1.8'/2.0'	0	(54'-54.8') BROWN F-M SAND, TRACE GRAVEL (54.8-56') BROWN SILT, LITTLE F SAND, TRACE GRAVEL. SLT. DENSE.		
56	29	100(2")	56'-58'	0/2.0'	0	SLUMP- NO RECOVERY PROBABLY ENCOUNTERING COBBLE OR GRAVEL.		
58						END OF BOREHOLE: 58 FT. AUGERS ADVANCED TO 54 FT. 2" PVC WELL INSTALLED IN BH.		TILL WAS NOT ENCOUNTERED AT THIS LOCATION.

NY-2