SITE INVESTIGATION REPORT
GIBSON CHEMICAL AND OIL CORP. SITE
COMMACK, NEW YORK
NYSDEC SITE NO. 1-52-023

Environmental Resources Management

The ERM Group

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GIBSON CHEMICAL AND OIL CORP. SITE
COMMACK, NEW YORK
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FEBRUARY, 1992
REVISED: JULY, 1992

PREPARED FOR:

DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233

PREPARED BY:

ERM-NORTHEAST
175 FROEHLICH FARM BOULEVARD
WOODBURY, NEW YORK 11797

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HAZARDOUS WASTE REMEDIATION
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EXECUTIVE SUMMARY

ERM-Northeast conducted a Site Investigation at the Gibson Oil and Chemical Corp., site in Commack, NY (NYSDEC Site No. 1-52-023) between July and November, 1991 (NYSDEC Contract No. D002402). The results of the investigation determined that the soil and ground water is impacted by volatile organics and total petroleum hydrocarbons (TPH).

Over 20 Areas of Environmental Concern (AECs) were identified at the site based on regulatory agency file reviews, site reconnaissances, discussions with facility personnel and aerial photograph reviews. These AECs included: storm drain systems, former underground and aboveground storage tanks and tank fields, areas of spills, former drum storage areas, former soil stockpiles and area of ponded liquids.

The soil investigations consisted of 40 borings, and the collection of 45 soils samples. One worst-case sample from each boring, based on organic vapor screening and sensory inspection, was selected for analysis of the Target Compound List (TCL), and Target Analyte List (TAL).

The volatile organic impacts to the soils were generally found in the site's two storm drain systems and the former underground tank field. Chemicals detected in soil included primarily acetone and aromatics, with total volatile concentrations up to 1450 ppb. The source of these contaminants may be the past spillage and leakage events documented by Suffolk County Department of Health Services (SCDHS). TPH was elevated across most of the site with soil concentrations of up to 9,400 ppm. Detected analyte (TCL/TAL and TPH) concentrations were below initial NYSDEC target soil cleanup guidance concentrations.

Ground water impacts included chlorinated solvents (tetrachloroethene (PCE), 1,2-dichloroethene and, vinyl chloride) and aromatics (toluene and xylenes), all above their respective drinking water standard. The aromatics is a group of hydrocarbons, so named because many of its members have a strong or aromatic odor.

Product, a light green relatively viscous substance with an automotive antifreeze-like odor, was gauged at almost half a foot thick in well MW-2S at the downgradient fringe of former underground tank area.

PCE was detected at the highest multiple of its 5 ppb standard at 87 ppb in one well, MW-3S, downgradient of the former southern storm drain area. In well 5S, also downgradient of the former southern storm drain system, dichloroethene was detected at 22 ppb. Vinyl chloride was detected at 14 ppb in MW-5S, downgradient of the former underground tank field. The aromatics (toluene and xylenes) were detected at about twice their respective drinking water standard downgradient of the storm drainage system. Xylenes and toluene are associated with the materials stored or handled on-site, or detected in the soils at this site. The vinyl chloride may be associated with the trichloroethene (TCE), PCE or 1,2-DCE detected at the site since it is a breakdown product of them. These chlorinated organics are not reported to have been used at the site although TCE and 1,2 DCE have been detected in the soil at the Gibson site.

The ground water monitoring network installed at the site consisted of 14 wells installed in seven clustered pairs to monitor the water table and the zone 40 to 50 feet below it. The network was designed to monitor ground water quality downgradient of the AECs and leaving the site.

The soil and ground water contamination identified at the site does not appear to pose an immediate threat to public health because 1) the unpaved areas of the site are fenced with limited access, 2) most of the soil contamination found was at depth, and 3) the nearest directly downgradient public supply well field is located almost 3 miles from the site. An HRS II score for the site of 64.5 was developed as part of the Site Investigation Report. An HRS II score of over 28.5 establishes a site as a threat.

1.0 INTRODUCTION

The Gibson Chemical and Oil Corporation (Gibson), previously known as Therm-X, Future Chemical, Tiffany Chemical and Oil Corporation, is located at 74 Mall Drive in an old section of the Hauppauge Industrial Park, in Commack, Long Island. Gibson has been operating at this location since 1969. Operations continue today, chiefly the repackaging of automotive products from bulk supplies, with some product mixing and formulation.

The Gibson site is classified as a Class 2 Inactive Hazardous Waste Disposal Site by the New York State Department of Environmental Conservation (NYSDEC site No. 1-52-023). The site owners have been cited for numerous State Pollutant Discharge Elimination System (SPDES) violations for discharges of industrial wastewater to the ground water, Suffolk County Article 12 violations for mishandling of toxic and hazardous chemicals, and product leakages from aboveground and buried tanks.

ERM-Northeast was contracted by the NYSDEC (Contract No. D002402) to conduct a Site Investigation of the Gibson site. The documents submitted to date include the Work Plan, May, 1991; the Quality Assurance Project Plan (QAPP), July, 1991; and the Health and Safety Plan (HASP), April, 1991.

The primary objectives of ERM's Site Investigation were to 1) identify and characterize impacts to soil or ground water, 2) characterize the hydrogeology of the site to identify contaminant migration routes, and 3) identify potential or existing impacts and risks to the surrounding environment and public health.

To achieve the site investigation objectives the following tasks were conducted:

- a review of state and local files,

- a review of historic air photos,
- a surrounding land usage survey,
- development of site operations and history descriptions,
- development of historical regulatory record,
- determinations of previous site investigations,
- a test boring program that included approximately 40 borings,
- the installation of 14 on-site ground water monitoring wells,
- a test pit survey that included over 25 excavations,
- in-situ aquifer permeability tests,
- well survey of site vicinity,
- geologic literature search,
- development of an Hazardous Ranking System II (HRS II) score, and
- evaluation of soil and ground water quality including comparison to New York State Standards.

Report Format

The report is organized as follows:

Section	Description
2.0	provides the site background including site description, history, operations and surrounding land usage,
3.0	describes the investigative methods for all field activities,
4.0	describes the physiographic and hydrogeologic setting of the site and surrounding region,
5.0	presents the soil analytical results and discusses soil quality,

6.0	presents the ground water analytical results and discusses ground water quality,
7.0	explains how the HRS II score was calculated, and discusses the findings of the HRS II,
8.0	presents an evaluation of soil and ground water quality with respect to New York State Standards,
9.0	summarizes the project findings, and
10.0	presents ERM's conclusions of the site investigation findings and provides recommendations for further activities.

2.0 SITE BACKGROUND

2.1 Site Description

The Gibson site is located near the center of the Hauppauge Industrial Park in the southwestern portion of Smithtown Township, Long Island. Cover type by acreage for the 4.0 acre lot is:

- building - 1.2 acres;
- roads and paved surfaces - 1.3 acres;
- unvegetated - 0.9 acres;
- landscaped - 0.6 acres.

Existing site details and conditions determined from site maps and site reconnaissance visits are depicted on the Site Map, Figure 2-1 (in rear pocket). These site details are discussed below.

The property fronts Mall Drive for a length of 360 feet. It extends inward or eastward for approximately 560 feet. Although rectangular in shape for the first 300 feet, the remaining rear of the property narrows to a point, and approximates a triangle, adding 260 feet along its northern boundary (refer to Figure 2-1).

The one-story building at the site is situated near the front, or western edge of the property. The facility offices are located in the front of the building. A loading dock measuring 30 by 40 feet extends from about the midpoint of the building's southern face. An aboveground tank field abuts the building's southeast corner. The tank field measures approximately 50 by 80 feet and contains 12 tanks with a total storage capacity of 163,500 gallons. Overfill vaults are located at the northeastern and southeastern corners of the tank field. The tank field is situated on a concrete pad and is surrounded by a concrete curb berm.

The Gibson site is relatively flat with an average elevation of approximately 150 feet above Mean Sea Level (MSL). There are two prominent depressions where storm water accumulates at the site. One of the low areas is south of the building where an area of approximately 80 by 150 feet drains surface runoff to storm water drywells. The approximate maximum depth of this area is 3 feet below the surrounding grade. The second of the low areas is the truck loading area in the rear of the building. This area, measuring approximately 60 by 120 foot, was graded to approximately 5 feet below the surrounding grade to accommodate truck loading at the level of the building floor. The runoff from this area is drained by two storm drains.

The front of the building is grassed. The areas along the northern and southern sides of the building to the property lines and to within approximately 100 feet of the building's east wall are paved. Six storm drains are located in the asphalt around the building. Figure 2-1 shows the locations of these drains and existing surface drainage patterns. The rear storm drains are located in a depression and do not drain well, as indicated by the intermittent presence of ponded water during the past 2-year period. During this period, the pond occupied an area approximately 30 feet wide along the northern half of the eastern wall.

During the past two years a large area of ponded liquids was observed just east of the rear above-ground tank field. The pond measured approximately 50 feet by 25 feet and was less than a foot deep. Although the liquids forming the pond appeared to be from rain water accumulation (e.g., the pond was largest after a rainfall event) on one occasion during a site visit, a green fluid with an antifreeze- type odor was observed to be feeding the pond. The source of this fluid was a puddle adjacent to the northern overfill sump for the aboveground tank field. The liquids from the pond drained through a shallow trench to another pond in the northeastern corner of the property. This second pond was approximately 15 by 20 feet and 5 feet deep and is referred to as the "recharge pit" on the site plan (see Figure 2-1).

The unpaved rear of the property is largely unvegetated. The northern and eastern boundaries of this triangular area are bermed or mounded. Tank debris and piping, prior to the project implementation, littered this entire area.

2.2 Surrounding Property Usage

Adjoining

Nine parcels of land are adjacent or close to the Gibson site and are occupied by approximately 13 businesses. The locations of these businesses are depicted in Figure 2-1. A review of NYSDEC files has found that four of them, located to the north, east and southwest, handle chemicals or substances that could potentially affect either ground water or soil quality at the Gibson site. This information was derived from forms compiled by the Department of Environmental and Waterways of the Town of Smithtown.

Two electronics firms (Triangle Electronics and Computer Terminal Systems) occupy a parcel across Mall Drive's cul-de-sac to the southwest. Spillage or discharge of chemicals from this parcel could potentially impact the ground water under the Gibson site. Chemicals handled at this electronics building include: polymers, kerosene, solvents, paints and oils, ammonia, and mild acids.

To the north, adjacent to Gibson's rear yard, is America Inc. (SCI Equipment Corp.), a transfer station for garbage . Reported substances at this site include paints and oils.

Impacts to surface soils at the Gibson site by runoff from the America Inc., site is possible even though the boundary between the two is bermed.

East of Gibson's rear yard is Gasser and Sons Warehouse, a facility that handles raw metals and finished goods. Materials used at the site reportedly include solvents and oils. Because this site is downgradient of, and topographically lower than, the Gibson property, potential impacts from it have a low potential to affect the Gibson site.

Quarter-Mile Radius

The Gibson site is situated approximately at the center of the Hauppauge Industrial Park. Land usage within 1/4 mile north south and east of the site is industrial. Approximately 0.28 miles west of the site, land usage is residential. Sagtikos School is located within a residential area approximately 0.2 miles southwest of the site. Both the school and residential areas located west and southwest of the site are positioned upgradient from the Gibson facility.

2.3 Site Operations

An attempt was made by ERM to collect information (related to waste streams, facility operations,materials usage, etc.) directly from Mr. Roth, President of Gibson. This attempt was made via a questionnaire to clarify or complement information already obtained. A copy of this questionnaire was provided in Appendix C of the project Work Plan, dated May, 1991. Mr. Robert DelGadio, Esquire, representing Mr. Roth, stated that Gibson would not respond to a questionnaire.

Since its inception, Gibson's operations have included the mixing, formulating, and packaging of automotive chemicals from bulk supplies for retail distribution. Suffolk County

Department of Health Services (SCDHS) field inspection reports indicate that chemicals and products stored inside the building include motor oil and detergent, brake fluid, dry gas, transmission fluid, ethylene glycol-based antifreeze, engine coolant, power steering fluid, waste oil, degreasers, silicone spray, and methanol. Chemicals in raw form were stored in both aboveground and below-ground tanks located outside, and adjacent to, the building. (All underground tanks had reportedly been removed by 1988 according to NYSDEC Spill Response Form #88-00198 dated April 4, 1988). Methanol, ethylene glycol, brake fluid, and lubricating oil have been stored in aboveground tanks ranging in size from 4,500 gallons to 18,000 gallons. At least eight 10,000 gallon capacity underground tanks had been used for storage of lube oil, brake fluid, ethylene glycol, and windshield wiper fluid.

Prior to 1988, raw products were almost exclusively stored in underground tanks near the southwest corner of the building. In 1984, as reported by Gibson's engineer, Mr. Merritt H. Deutzman of Smithtown, New York, materials and tankage at the site included the following:

Material	Tankage Capacity (gallons)
windshield fluid	1 x 275
antifreeze and brake fluid	3 x 275
lubricating oil	1 x 11,000; 3 x 20,000; 4 x 5,000
lubricating oil additives	3 x 1,000
lube batching	4 x 275
lube batch	2 x 2,000; 1 x 4,000
ethylene glycol	1 x 20,000; 1 x 10,000

According to the Township of Smithtown's "Industrial Facilities Registry", quantities of toxic and hazardous materials presently stored at the site (1991) include:

Material	Quantity (gal.)	Storage
motor oil	50,000	tanks and drums near rear of building; small containers in warehouse
methanol	10,000	outside aboveground tanks; plastic containers in building
brake fluid	5,000	outside aboveground tanks; plastic containers in warehouse
ethylene glycol	30,000	outside tanks; blending tanks inside rear of building; plastic containers in warehouse

The mixing and packaging operations have always been conducted in the southern half of the Gibson building. In the past, holding and mixing tanks, and perhaps waste oil tanks, have been located along the southern interior building wall. Presently, holding and mixing tanks are located along the eastern wall. The northern portion of the building has historically been used as a warehouse.

2.4 Site History

The Gibson building was erected in 1968 and was one of the first developed properties in the industrial park. The following discussion of Gibson's site history was derived from several sources. These sources included: 1) thorough reviews of regulatory agency and consultant files (NYSDEC; SCDHS; Smithtown Planning Board and Department of Environment and Waterways; environmental consultant's site files); 2) discussions with regulatory agency personnel previously involved with the site; 3) aerial photographic interpretations; and 4) site reconnaissances. Details of the aerial photograph interpretation, including the database, photos reviewed, and preliminary findings, are provided in Appendix A.

Environmental and regulatory activities at the site are listed chronologically in Table 2-1. The table also provides tank, sampling, and inspection information, and the documenting party. A summary of violations up to 1988 is provided in Appendix B. These violations were determined from the analysis of samples collected by agency personnel since 1975. Product releases have been documented at the site throughout the 23 years that Gibson and its associated companies have occupied the site. These incidents involved spillage of chemicals handled at the site. Mechanisms of these releases include tank overfilling, discharge from floor drains and through the building walls, leaking drums at two outside storage areas, leaking below-ground and aboveground tanks, spills during material handling, and leakages from the dumpster. Potential contaminant sources are further discussed in Section 2.7.

A summary of site activities, based on agency files, other than product releases and violations is provided below:

- three aboveground tanks for storage of ethylene glycol and motor oil, were installed behind the building before October, 1978;
- four additional aboveground tanks were installed, for storage of the same materials as above, before October, 1982;
- holding tank to collect spillage was installed south of buried tank field before October, 1982;
- tank removal from near the southeast corner of building before July, 1986; excavated tanks were opened, crushed and buried in rear of property;
- CERCLA claim was filed by NYSDEC in September, 1987 for Gibson to conduct site investigation;

TABLE 2-1
CHRONOLOGY OF ENVIRONMENTAL AND REGULATORY ACTIVITIES

DATE	SOURCE	FILE	TANK INFORMATION	ENVIRONMENTAL OBSERVATIONS
07/20/79	SUFF. CO. DEPT. OF ENVIRO. CONTROL	SCDOHS	RETURN PIPING FROM INSIDE MIXING TANKS TO UNDERGROUND TANKS WAS NOTED	EVIDENCE OF SPILLAGE IN FILL AREA IN YARD
07/20/79	INDUST. WASTE & HAZ MAT'S SERVICES	SCDOHS	OIL SOAKED GRAVEL ADJACENT TO A PIPE LEADING FROM TANK ON E SIDE OF BLDG	LEAKAGE FROM A DRUM STORAGE AREA SOUTH OF BLDG; GROUND WITHIN DRUM STORAGE AREA IS OIL-SOAKED
01/18/80	SCDOHS	GALLI		FUTURE CHEMICAL AND OIL CORP, GIBSON AND TIFFANY CHEM FILE INCORP PAPERS IN NY
10/31/80	NYSDEC	SCDOHS		ORDER ON CONSENT-SENT TO GIBSON BUT NEVER SIGNED
02/10/81	ENVIRO. POLLUTION CONTROL	NYSDEC		OIL SPILLAGE FROM PACKAGING OPERAT. FLOWING THROUGH 2 HOLES IN WALL AND ONTO THE GROUND AT SO. LOADING DOCK
02/10/81	SCDOHS	SCDOHS		2 HOLES NOTICED AT FLOOR LEVEL THRU WHICH OIL SPILLED INSIDE RAN OUT AT SO. LOADING DOCK AREA; SPILLED WIND SHIELD WASHER FLUID SWEPT OUTSIDE THROUGH SOUTH ENTRANCE GARAGE DOOR; 25-60 GALS OF PRODUCT SPILLED IN LOADING DOCK AREA
02/25/81	SCDOHS	SCDOHS		NOV-PUDDLE BENEATH LOADING DOCK; Fe=14 mg/l; Pb=0.5mg/l
02/25/81	SCDOHS	SCDOHS		PUDDLE OF GREENISH-BLUE LIQUID NEAR SOUTH LOADING DOCK; SAMPLED
03/31/81	GALLI	GALLI	UNDERGROUND TANKS NOT TESTED AND SINGLE WALL	VIOLATION-PUDDLE @ LOADING DOCK; VIOLATION-STORAGE OF DRUMS; VIOLAT-NO BERM, NO IMPERV PAD
03/31/81	HAZMAT MANAGE-MENT	SCDOHS	LARGE HOLDING TANKS NOT ON IMPERV PADS AND NOT BERMED=ART XII VIOL	STORAGE OF SOLVENT DRUMS OUTDOORS IN A MANNER THAT CONSTITUTES A VIOL OF ART XII
04/30/81	SCDOHS	SCDOHS		N.O.V.-BASED ON SAMPLES COLLECTED 2/25/81

TABLE 2-1
CHRONOLOGY OF ENVIRONMENTAL AND REGULATORY ACTIVITIES

DATE	SOURCE	FILE	TANK INFORMATION	ENVIRONMENTAL OBSERVATIONS
10/16/81	SCDOHS	GALLI	6 ABOVE GROUND TANKS @ REAR, NO BERM, NO IMPERV PAD	SEEPAGE OF MATERIALS ON OUTSIDE WALL TO YARD FROM JOINT BETWEEN WALL & FLOOR-2" TROUGH CUT THROUGH FLOOR TO COLLECT OIL
10/16/81	GALLI	GALLI		VIOLATION-STORM DRAIN #1,2,4
10/22/81	SCDOHS	SCDOHS	VALVED PIPING TO MIXING TANKS NOTED AS SOURCE OF MINOR LEAKS & SPILLS; 6 ABOVE GROUND TANKS NO IN ART XII COMPLIANCE-SPILLAGE NOTED, NOT ON AN IMPERVIOUS SURFACE, NOT BERMED; 1 1600 GAL TANK, 2 1800 GAL TANKS, 1 4500 GAL TANK, 1 6000 GAL TANK AND 1 7500 GAL TANK (ABOVE GROUND)	SEEPAGE OF MATERIALS ON OUTSIDE WALL TO YARD FROM JT BETWEEN WALL AND FLOOR; BADLY CORRODED DRUM LABELED "AQUA AMMONIA"; OIL HAD PENETRATED DRIVEWAY SOIL TO @ LEAST 8"; LARGE ACCUM'S OF DEBRIS IN PIT; STORM DRAIN BY FUTURE CHEM @ REAR SAMPLED, SHEEN PRESENT
12/16/81	GALLI	GALLI		VIOLATION-STORM DRAIN #S 2,3,4
04/21/82	SCDOHS	SCDOHS		TWO DRUM STORAGE AREAS: 1 BY FENCED COMPOUND WITH 41 DRUMS; THE OTHER ON PAVEMENT AGAINST REAR FENCE LINE WITH 49 DRUMS
10/20/82	SCDOHS	NYSDEC		WARRANT OF ACCESS
10/20/82	GALLI	GALLI		NYSDEC APPLIES FOR WARRANT BUT LATER ACCESS ALLOWED ON 10/26/82
10/26/82	SCDOHS	NYSDEC	1 8M (METHANOL), 1 16M (MOTOR OIL), 2 18M (METHANOL AND ETHYL GLYCOL) HAD BEEN RECENTLY INSTALLED	OIL & CHEM SPILLAGE NOTED ON EAST & SOUTH SIDES OF PLANT; RED COLORED CHEM AND OILS LEAKING THROUGH SOUTH SIDE OF BUILDING ADJACENT TO MIXING ROOM; 93 DRUMS STORED OUTSIDE; SAMPLES 1-JG-10-26 THROUGH 8-JG-10-26 COLLECTED
10/26/82	SCDOHS	SCDOHS	UNDERGROUND HOLDING TANK CONNECTED TO DRAIN INSIDE FILL BOX INSTALLED TO THIS DATE	TWO DRUM STORAGE AREAS (SAME AS 4/21/82)
10/26/82	GALLI	GALLI		VIOLATION-WASTE DRUMS,STORM DRAINS, SOIL NEAR FILL BOX, EAST SIDE SOIL, SOUTH SIDE WALL
02/22/83	SCDOHS	NYSDEC		ORDER ON CONSENT ISSUED
04/22/83	SCDOHS	NYSDEC		EVIDENCE OF OIL SPILL ORIGINATING FROM UNDERGROUND FILL VAULT OVERFLOW TANK

TABLE 2-1
CHRONOLOGY OF ENVIRONMENTAL AND REGULATORY ACTIVITIES

DATE	SOURCE	FILE	TANK INFORMATION	ENVIRONMENTAL OBSERVATIONS
09/19/83	RECRA	SCDOHS		LAB RESULTS OF 6 SAMPLES TAKEN 7/7/83
10/31/83	RECRA	SCDOHS		EP-TOX TESTS OF 4 SAMPLES TAKEN 7/7/83 REPORTED
06/01/84	SCDOHS	SCDOHS		STIPULATION SETTLEMENT; $5000.00 FINE PAID BY GIBSON
05/07/85	SCDOHS	NYSDEC		SAMPLES COLLECTED ON THIS DATE USED FOR SEVERAL N.O.V.'S
05/07/86	SCDOHS	SCDOHS		N.O.V.'S-BASED ON 19 SAMPLES COLLECTED BY SCDOHS
05/14/86	GALLI	GALLI		VIOLATION-STORM DRAINS
06/03/86	GALLI	GALLI		SPDES VIOLAT-TRENCH AREA; SPDES VIOLAT-PUDDLE W/IN FENCE
06/04/86	GALLI	GALLI		VIOLATION-DISCHARGE TO SURFACE; SPDES VIOLAT-WASTE STORAGE AREA; SPDES VIOLAT-TANK OVERFLOW (SO.); SPDES VIOLAT-DISCHARGE TO SURF
07/02/86	SCDOHS	NYSDEC	TANK REMOVAL FROM BEHIND SE CORNER OF BLDG, ALONG W/UNDERLYING CONCRETE PAD, BY EAST FENCE (REAR OF BLDG); STAINED SOIL FROM BENEATH TANKS REMOVED AND STORED ON PLASTIC SHEET	
07/15/86	PEDNEAULT	NYSDEC		
09/10/86	SCDOHS	SCDOHS		WATER PIPE BURST IN MIXING AREA, 5 WASTE DRUMS GENERATED, SEEPAGE FROM WALL, DUMPSTERS HAVE SMALL AMOUNT OF OIL/ANTI-F PUDDLED @ BOTTOM; 39 DRUMS OF IUK/ANTI-FREEZE WASTE IN BACK

TABLE 2-1
CHRONOLOGY OF ENVIRONMENTAL AND REGULATORY ACTIVITIES

DATE	SOURCE	FILE	TANK INFORMATION	ENVIRONMENTAL OBSERVATIONS
09/23/86	SCDOHS	SCDOHS		RED-STAINED SOIL REMOVED FROM WALL SEEPAGE AREA
11/86	NYSDEC	SCDOHS	ORDER-ON-CONSENT ISSUED TO GIBSON	
06/04/87	SCDOHS	NYSDEC		LEAKAGE FROM DUMPSTER TO SURFACE OF GROUND; DUMPSTER CONTAINED WASTE LEAKER" CANS, SPEEDI DRY AND WASTE CARDBOARD SOAKED W/OIL AND ANTI-FR.
06/04/87	SCDOHS	SCDOHS	SOIL IN AREA OF TANK FIELD OIL SAT'D	DISPOSAL OF SPEEDI-DRY & OIL-SOAKED CARDBOARD IN DUMPSTER GENERATES RED AND GREEN LIQUID WHEN MIXED W/RAIN; WASTE "LEAKER" CANS NOT DRAINED PROPERLY BEFORE DISPOSAL IN DUMPSTERS
06/23/87	SCDOHS	NYSDEC		PUDDLES OF RED ATF & GREEN ANTI-FR NOTED AROUND DUMPSTER
06/23/87	SCDOHS	SCDOHS	OLD TANKS EXCAVATED IN BACK-HAD BEEN CRUSHED AND OPENED BEFORE BURYING	PUDDLES OF RED AND GREEN LIQUID AROUND DUMPSTER
09/21/87	NYSDEC	GALLI		CERCLA ACTION INITIATED
04/04/88	NYSDEC	NYSDEC	3 10M GAL TANKS REMOVED FROM SOUTH SIDE OF BLDG; CONTAM FOUND BUT NO APPARENT HOLES IN TANKS	
04/05/88	NYSDEC	NYSDEC	SOIL FROM '86 STOCKPILED OK'D FOR USE AS FILL IN UST EXCAVAT; SOILS IN THIS EXCAVAT HAVE GREENISH-YELLOW TINT W/CESSPOOL ODOR @NW CORNER OF EXCAVATION	CURRENT STOCKPILE SAMPLED BY PEDNEAULT ASSOCIATES
04/06/88	SCDOHS	SCDOHS		NOV-PERMIT FOR OUTDOOR STORAGE REVOKED
04/06/88	SCDOHS	NYSDEC		PERMIT FOR OUTDOOR STORAGE FACILITY REVOKED
04/06/88	NYSDEC	NYSDEC	1 10,000 GAL TANK REMOVED, HAD SOME PITTING & CORROSION, W/ GREENISH-YELLOW LIQUID; (1) 5,000 GAL TANK PULLED, PUNCTURED, FOUND BY ACCIDENT, GREEN AND PURPLE LIQUID SPILLED OUT	
04/07/88	PEDNEAULT	GALLI		REPORT OF ANALYSES OF SAMPLES COLLECTED 4/5/88

TABLE 2-1

CHRONOLOGY OF ENVIRONMENTAL AND REGULATORY ACTIVITIES

DATE	SOURCE	FILE	TANK INFORMATION	ENVIRONMENTAL OBSERVATIONS
04/08/88	GALLI	GALLI		VIOLATION-MW SAMPLES
04/08/88	PEDNEAULT	SCDOHS		CATCH BASIN AND WELL SAMPLES COLLECTED
04/11/88	NYSDEC	NYSDEC	ADD'L 275 GALLON TANK DISCOVERED: CONTAINED A PINK LIQUID	
04/11/88	SCDOHS	SCDOHS	REMOVAL OF OLD UNDERGROUND STORAGE TANKS; 5 LEACHING POOLS FOUND IN THE AREA, 1 WITH 8" OF OIL,2 HAD A CLEAR LIQUID W/ODOR OF ANIT-F; 12 10,000, 2 5000, 1 550 AND 1 250 GALLON TANKS EXCAVATED	ONE LEACHING POOL WAS COLLAPSED DURING EXCAVATION
04/12/88	NYSDEC	NYSDEC	275 GAL TANK SCHEDULED TO BE PULLED	
04/12/88	SCDOHS	SCDOHS	275 GAL WASTE TANK EXCAVATED; SOIL AROUND TANK WAS HEAVILY CONTAM'D; A 1.5' GREENISH-GREY CLAY LENS NOTED AS EXTENDING TO 2' BELOW GRADE, FOUL SMELLING	SOIL BENEATH COLLAPSED STORM DRAIN HEAVILY CONTAM'D TO 5' BENEATH RINGS (18')
04/14/88	SCDOHS	SCDOHS	FORMER TANK FIELD AND PARKING LOT NOW PAVED	1ST CONTAM'D S-DRAIN EXCAVATED TO ADD'L 8' (TO SAND THAT HAD NO OILY ODOR OR TEXTURE); CONTAM AT OTHER 3 S-DRAINS NOT AS DEEP; STOCKPILE SAMPLED
05/16/88	SCDOHS	NYSDEC	PILE OF CONTAM'D SOIL FROM TANK EXCAVATION STILL IN BACK & UNCOVERED	29 DRUMS FROM CLEANING OF EXCAV'D TANKS STILL IN BACK; LARGE RED PUDDLE AT REAR OF PROPERTY
05/16/88	SCDOHS	SUFF CO		EXCAVATION SITE HAS BEEN COMPACTED AND NEW DRAINAGE SYSTEM INSTALLED
06/06/88	GALLI	GALLI		VIOLATION-RED PUDDLE BEHIND BLDG. Pb=48mg/l
06/10/88	PEDNEAULT	GALLI		STOCKPILE SOILS COLLECTED: RESULTS REPORTED ON 6/28/88
06/28/88	DEL GADIO	NYSDEC		LIQUID PROD FROM 29 DRUMS HAS BEEN DRAINED AND RECYCLED

TABLE 2-1
CHRONOLOGY OF ENVIRONMENTAL AND REGULATORY ACTIVITIES

DATE	SOURCE	FILE	TANK INFORMATION	ENVIRONMENTAL OBSERVATIONS
09/05/74	DEPT. OF ENVIRO. CONTROL	SCDOHS		COMPLAINT FROM FAIRCHILD INDUSTRIAL PRODUCTS @ 75 MALL DR ABOUT AN OIL SPILL THAT HAD MIGRATED ONTO THEIR PROPERTY
10/11/74	S.C. DEPT. OF ENVIRO. CONTROL	SCDOHS		PRIOR CONNECTIONS TO DRY WELLS ARE BROKEN; OIL SOAKED SOIL EVIDENT
10/30/74	DEPT. OF ENVIRO. CONTROL	SCDOHS		2ND COMPLAINT FROM FAIRCHILD ABOUT AN OIL SPILL; OIL STAINS NOTED AT JUNCTURE OF 1ST LINE OF BRICKS & FOUNDATION AT THE S SIDE OF BLDG ADJACENT TO LOADING DOCK
11/15/74	DEPT. OF ENVIRO. CONTROL	SCDOHS	OIL TANK OR LINE RUPTURE RELEASING 150-200 GALLONS	
11/29/74	DEPT. OF ENVIRO. CONTROL	SCDOHS	SEAM SEPARATION OF UNDERGROUND OIL TANK (SHOWN IN PHOTO)	OIL ACCUM'S ON E SIDE OF EXCAVAT
12/09/74	DEPT. OF ENVIRO. CONTROL	SCDOHS	PARKING AREA RIPPED UP AND TANKS AND PIPES EXPOSED; 3'-4' TRENCH DUG AROUND FILLER PIPE GALLERY W/SMALL DEPOSITS OF TRANSMISSION OIL	
12/20/74	DEPT. OF ENVIRO. CONTROL	SCDOHS	INSPECTIONS OVER PAST 5 DAYS SHOWED NO CHANGES; SOME OIL IN TRENCHES	
12/26/74	SCDOHS	GALLI		THERM-X CHEM AND OIL CORP FILE INCORPORATION PAPERS
12/27/74	DEPT. OF ENVIRO. CONTROL	SCDOHS	NO CHANGES; PIPES STILL EXPOSED AND REPAIR TO DEFECTIVE TANK NOT DONE	
1/15/75	NYSDEC	SCDOHS	ORDER-ON-CONSENT SUBMITTED TO GIBSON	
02/24/75	SUFF. CO. DEPT. OF ENVIRO. CONTROL	SCDOHS		EXTERIOR COVERED WITH A RED OIL (SOUTH SIDE OF BLDG); SEEMS TO HAVE BEEN A RECENT SPILL; WASHED BY RAIN INTO STORM DRAIN
10/15/78	SUFF. CO. DEPT. OF ENVIRO. CONTROL	SCDOHS	(1) 20,000 GAL TANK-ETHYL GLYCOL; (1) 17,000 GAL TANK-METHANOL/OTHER; (1) 12,000 GAL TANK-MOTOR OIL; ALL 3 INSTALLED AS OF THIS DATE	

Table 2-1

CHRONOLOGY OF ENVIRONMENTAL AND REGULATORY ACTIVITIES

DATE	SOURCE	FILE	TANK INFORMATION	ENVIRONMENTAL OBSERVATIONS
07/12/88	SCDOHS	NYSDEC	LARGE STORAGE TANK FOUND LYING ON THE ROOF AND ON TOP OF ONE OF THE OTHER STORAGE TANKS	
08/15/88	PEDNEAULT	SCDOHS		STOCK PILED SOIL SAMPLES TAKEN
09/01/88	DEL GADIO	SCHOHS		DATE OF PEDNEAULT RESULTS FOR CONTAM'D STOCKPILE ('88 EXCAVAT)
09/14/88	NYSDEC	NYSDEC	CONTAM'D STOCKPILE RESULTS REVIEWED AND DETERMINED TO BE NON-HAZ; NO OBJECTION TO BACKFILLING MATERIAL	
09/20/88	DEL GADIO	NYSDEC	FALLEN STORAGE TANK REMOVED	
02/02/89	SCDOHS	NYSDEC		RECENT INSPECTION REVEALED CONTAM'D SOIL (M.O.,ANTI-F.,ALCOH.) STILL ON SITE
03/14/89	SCDOHS	NYSDEC		HOLE IN REAR FILLED WITH MATERIAL EXCAVATED FROM CONTAM'D TANKS AND LEACH POOLS; ROUGHLY 1/2 OF ORIG PILE USED
12/01/89	TOWN OF SMITHTOWN	DEW		DATE OF ISSUE OF TOWN OF SMITHTOWN PERMIT-FLAMMABLE #2R, HAZ #2R, PROPANE STORAGE #LP-0320R
03/09/90	SCDOHS	SCDOHS	GIBSON DIRECTED TO REMOVE FUEL OIL TANK THAT HASN'T BEEN USED IN SEVERAL YRS; SLAB FOR ABOVE GROUND TANKS HAS LARGE, WIDE CRACKS; U-TUBE FOR UG TANKS BROKEN	PILE OF OIL CONTAM'D DIRT ON OTHER SIDE OF CURB NEAR S-DRAINS ON SOUTH SIDE OF BLDG; PAVED AREA FLOODED
05/08/90	DEL GADIO	SCDOHS	U-TUBES FOR UG WASTE OIL TANK REPAIRED;CRACKS IN OUTDOOR CONTAINMENT AREA AROUND TANKS REPAIRED	OIL CONTAM'D SOIL(SEE SCDOHS LETTER OF 4/6/90) REMOVED AND BEING STORED IN 55 GAL DRUM;STORM DRAINS CLEANED ON S SIDE OF BLDG; PRECO EPOXY COAT APPLIED TO FLOOR IN INDOOR CONTAINMENT AREA
06/04/90	SCDOHS	SCDOHS	CRACKS IN OUTSIDE CONTAINMENT AREA; (1) 5000 GALLON OIL TANK REMOVED AS OF ONE WEEK AGO; 1 DRUM OF CONTAM'D SOIL GENERATED BY REMOVAL, STORED INSIDE	

SCDOHS - Suffolk County Department of Health Services
NYSDEC - New York State Department of Environmental Conservation
Del Gadio - Robert Del Gadio, Garden City, New York, Gibson Lawyer
DEW - Department of the Environment and Waterways
Galli - Richard Galli Engineering, Northport, NY
Pedneault - Pedneault Associates, Inc., Bohemia, NY

- underground tank field removed from south of building in April, 1988; soil from 1986 tank excavation used as backfill; soil from the April 1988 excavation was stockpiled in rear of property;
- four leaching pools south of building that drained tank field area were excavated in April, 1988;
- former tank field and parking areas paved before April, 1988;
- new drainage system south of building installed in May, 1988;
- stockpiled soils in rear of property approved for backfill in September, 1988; half of remaining stockpile was used to backfill holes in rear of property in March, 1989;
- Gibson directed to remove fuel oil tank in March, 1990 by the Town of Smithtown Building Department;
- cracks in outdoor tank field containment repaired in May, 1990.

2.5 Site Permits/Regulatory Actions

Agency personnel, primarily from SCDHS and NYSDEC, have visited the site frequently over the past 17 years. The purpose, data, and findings of such visits are detailed in Table 2-1. Many of these site visits were inspections that documented releases as described in the preceding section. Non-compliance regulatory issues other than releases are summarized below.

In the early to mid 1980's the facility was cited by SCDHS for alleged illegal outside storage of drums and aboveground tanks. Approximately 100 drums were stored directly on soil in two areas in the rear of the property. The aboveground tanks along the east facility wall were not constructed on an impervious base and the area was not bermed.

Consent Orders were sent to Gibson by NYSDEC in: April, 1975, October, 1980; and November, 1986. No documentation was found to show that these Consent Orders were signed. A Warrant of Access was applied for by the SCDHS/NYSDEC in 1982. An Order on Consent, dated February 22, 1983, was issued to Gibson by SCDHS to correct the environmental problems at the site as of that date. On June 1, 1984, a Stipulation Settlement was reached between Gibson and NYSDEC, and Gibson paid a $5,000 fine.

In 1988, the SCDHS attempted to rescind the facility's outdoor storage permit because of Gibson's failure to address deficiency items. Gibson's response was that the Division of Environmental Health Services had no authority to revoke the permit. In 1989, the Township of Smithtown issued the following permits: Flammable Permit No. 2R; Hazardous Permit No. 2R; and Propane Storage Permit No. LP-0320R. The specific materials were not listed on the permit.

2.6 Previous Site Investigations

According to agency files, no formal comprehensive investigative programs have been conducted at the Gibson site. A site assessment of a property approximately 700 feet from Gibson, conducted by Roy F. Weston, Inc. of Westchester, PA, involved the review of SCDHS files concerning the Gibson site. In the late 1980's, Gibson performed a review of regulatory agency records to identify all previous violations. These findings are summarized in Appendix B.

2.7 Areas of Environmental Concerns

During the 23 years that Gibson has operated at 74 Mall Drive, its owners have been cited for numerous SPDES, Suffolk County Article 12, and other violations for poor "housekeeping" and operational activities. As discussed in the previous sections, these infractions have involved product spillage, tank leakage, tank overfills, leaking drums and other discharges. The releases potentially impacted soils and ground water in the open areas south and east of the building. These potential impact areas were identified through in depth reviews of regulatory agency files, discussions with agency personnel familiar with the site, site reconnaissance visits and aerial photo interpretation. The findings of these tasks were described in the previous sections.

The identified Areas of Environmental Concern (AECs) include stained surficial soils, the former underground tank fields, storm drains, areas of ponded liquids, outdoor drum storage areas, former aboveground tank storage areas, former trenches, and former stockpiled soils areas. The locations of the AECs are shown in Figure 2-2. Details of each of these AECs are described in Section 4.0 along with the investigative scope of each area.

3.0 FIELD INVESTIGATIVE METHODS

3.1 Investigative Scope

The Gibson Oil facility was investigated over a four month period through the installation of test pits and trenches, soil test borings, and ground water monitoring wells. Characterization of the site involved the investigation of over 25 Areas of Environmental Concern (AECs) (previously defined in section 2.7). Soil quality was quantitatively determined via the laboratory analysis of 44 soil samples. To identify potential impacts to the ground water under the site, a monitoring well network was designed to determine ground water quality at the AECs and along the downgradient property boundaries. Water samples from 14 on-site and two off-site wells were obtained in an attempt to characterize the ground water quality both under, and immediately downgradient of, the Gibson facility. All sampling and analytical protocols, as originally described in the Work Plan, QAPP, and HASP were adhered to. The methodologies used in collecting both the soil and ground water samples are reviewed in the following sections.

3.2 Soil Borings

The types of soil borings conducted at the site are described below. Actual sample logging, description and collection are described in Section 3.6.

Test Borings

Soil test borings were used to investigate the majority of the AECs at the site. The borings were installed using the hollow stem auger drilling method. A total of 41 test borings were drilled, maximum boring depth was approximately 30 feet below grade.

Soil samples were collected either continuously or at standard 5-foot intervals by driving a two foot split-barrel sampler in advance of the augers. As described in the QAPP, a standard penetration test (ASTM D1586) was utilized when driving spoons. This method involved recording the effort (blow counts) required to drive the sampler each of the four successive 6-inch intervals. The sampler was driven by a 140-pound hammer falling freely for 30 inches.

Dry Wells

Of particular concern at the Gibson facility was the direct pathway to subsurface soils created by two storm drain systems (consisting of 4 present dry wells and 4 abandoned ones). To gauge the potential environmental impacts to the surrounding soils, a total of eight test borings were installed. Three of the four samples associated with the current storm drain system were obtained directly through the center of the dry wells and were comprised of the sludge located at the bottom of each of the dry wells. A latex glove was placed on the split-spoon to prevent any of the standing water from entering the spoon. The remaining borings were installed off-center to intercept any contamination as it worked its way through the soil in a radial pattern from its point source.

Cesspool

The cesspool located at the southwest corner of the building was investigated in a similar manner as the dry wells. Three spoons (each with a latex glove at the end) were driven through the center of the cesspool to a total depth of six feet below the bottom.

Off-site Recharge Basin

The off-site recharge basin located to the southwest of the Gibson site receives run-off from around the area. As such, one soil sample was collected from the basin, at a distance of five feet from the culvert. A shovel was used to dig down to the proper depth (1-2' below the surface), and then stainless steel spoons and bowls were used in collecting the sample. Both the shovel and the stainless steel utensils had been steam cleaned prior to use.

3.3 Magnetometer Survey

A magnetometer survey was conducted to investigate the potential existence of buried drums or underground storage tanks in the unpaved area, east of the building. Initially, all visible metal objects such as piping were removed from the surface. A grid with a node spacing of 20' was staked out over the area. Using the Schonstedt Fluxgate Magnetometer (Model MAC-51B), survey lines were run every 10 feet by sweeping the instrument from side to side to ensure maximum coverage. The location of any target , or magnetic anomaly detected, was marked on the ground with a wooden stake. Each target was then precisely located, as follows:

1. the instrument was held vertically and moved slowly over the target previously located;
2. the peak signal occurred directly over a vertical object and at the edges of a horizontal object.

3.4 Test Pits

In order to examine the subsurface in areas of potential targets, or magnetic anomalies detected with the magnetometer survey, a series of twenty-two trenches and four test pits were excavated. Two samples were actually collected from the trenches for laboratory analysis.

Test pits and trenches were excavated using a backhoe. Excavated soils were stockpiled near the trench. Stockpiled soils were returned to the excavation at the conclusion of trenching activities. Photographs were taken of each trench or pit. Sampling was conducted using a stainless steel trowel at the end of a conduit. A trowel was used to scrape off 1 to 2 inches of material from the sidewall. Trench details and photos are provided in Appendix C.

3.5 Decontamination

Drilling equipment and split-barrel samplers were decontaminated between soil borings and sample intervals, in order to prevent cross-contamination of samples. For collection of soil samples for analyses, decontamination was achieved by high pressure steam cleaning, and the top one inch of all split-spoon samples was discarded. As agreed upon by the NYSDEC, all borings were backfilled with the associated cuttings and capped with cement if the boring had been installed through asphalt.

3.6 Soil Sample Procurement

The procedures used to collect the aforementioned soil samples were provided in Appendix F- Quality Assurance Project Plan (Section 5.0) of the Work Plan, dated May, 1991. All protocols described therein were strictly adhered to.

In summary, upon retrieval of the split-spoon sample, it was opened and immediately screened with an OVA. The sample was then inspected, characterized and logged in the fieldbook. The sample was collected into laboratory supplied containers using a stainless steel spoon. Volatile organic samples were collected first. The sample handler wore latex gloves and did not come in contact with the sample. Based on the OVA results and sensory inspection, one worst-case sample was selected for analysis from each test soil boring.

3.7 Ground Water Monitoring Wells

Installation

A total of fourteen 2-inch diameter wells were installed as paired clusters across the site using the hollow stem auger method of drilling. Each cluster consisted of one shallow and one deep well located within 10 feet of each other. The shallow wells were about 100 feet deep, and were constructed of 20 feet of PVC screen (0.010 foot-slots) set from approximately 10 feet above to 10 feet below the water table (about 80 to 100 feet below ground). Split-spoon samples were collected at five-foot intervals from 5 feet to approximately 100 feet.

A gravel pack consisting of #1 Morie sand was emplaced to approximately two feet above the top of the screen. A one to two foot buffer-zone (choke) of fine sand (#0) was added on top of the gravel pack. Above the gravel pack, a two-foot bentonite pellet seal was then emplaced. The remaining annular space was pressure grouted through a tremie pipe with a cement/bentonite grout (6:1 ratio). Locking, outer protective casings (five clusters with flush-mounted curb boxes, two with stick-ups) were installed over each of the monitoring wells to secure them and finish them at grade.

The deep wells were about 140 feet deep, with a 10-foot section of 0.010 foot slot PVC screen set from 130 to 140 feet below grade. Split-spoon samples were obtained at five-foot intervals to a depth of 120 feet. In three of the borings (MW-3D, 7D, and 8D), the frequency of sampling was increased to every other two feet below 120 feet to ensure the detection of any significant clay layers, a potentially important hydrogeological feature as discussed in section 4.0.

Deep well construction was similar to the shallow wells. Several feet of #1 sand was used to form a gravel pack, which was then capped with one to two feet of fine sand (#0) as a choke. To ensure that a proper seal was achieved, a bentonite slurry (Volclay) was tremied down the annular space, from the top of the choke to the water table. Cement/bentonite grout was then pressure grouted to the surface. Locking, outer protective casings were then used to finish off the wells at the surface.

So that ground water flow direction could be verified before the installation of all the wells, three of the shallow wells (MW-1S, MW-3S, MW-8S) were initially installed in a triangular pattern across the site. After these wells had been surveyed relative to one another, it was determined that the shallow ground water flow was eastward. This was determined by constructing a water table map from calculated water table elevations in three wells. Flow is approximately perpendicular to the water table elevation contour lines. Both NYSDEC and ERM-NE personnel were on site to finalize the locations of the remaining wells. Well location criteria is discussed in Section 6.0. Well construction data is provided in Table 3-1.

Development

Well development was accomplished using the Geoguard pneumatic pump or the Grundfos Redi-flow II submersible pump. In either case, well development was continued

TABLE 3-1 WELL CONSTRUCTION DETAILS
GIBSON CHEMICAL & OIL
COMMACK, NY

WELL NUMBER	DATE INSTALLED	BOTTOM OF BORING*	DEPTH OF WELL	SCREEN ZONE(1)	GRAVEL PACK(2)	BENTONITE SEAL(3)	GROUT	SURFACE CEMENT	FINISH AT GRADE
SHALLOW									
1S	8/22-23/91	101	100	80-100	76-100	73.5-76	2-73.5	0-2	CURB BOX
2S	8/28/91	96	98	78-98	75-98	73-75	2-73	0-2	CURB BOX
3S	8/21/91	91	100	80-100	76-100	74-76	2-74	0-2	CURB BOX
5S	8/29/91	96	98	78-98	75.5-98	73.5-75.5	2-73.5	0-2	CURB BOX
6S	8/27/91	101	100	80-100	76.5-100	74.5-76.5	2.5-74.5	0-2.5	CURB BOX
7S	8/26/91	101	100	80-100	73.5-100	71.5-73.5	1.5-71.5	0-1.5	STAND PIPE
8S	8/20/91	91	102	82-102	80-102	78-80'	2-78	0-2	STAND PIPE
AC-3**									CURB BOX
AC-5	10/29/90	95	95	75-95					CURB BOX
AC-6	10/25/90	97	97	77-97					CURB BOX
AC-7	10/25/90	103	103	83-103					CURB BOX
DEEP									
1D	9/25/91	142	140	130-140	120-140	89-120	2-89	0-2	CURB BOX
2D	9/23-24/91	142	140	130-140	124-140	87-124	2-87	0-2	CURB BOX
3D	10/2-3/91	142	140	130-140	122-140	87-122	2-87	0-2	CURB BOX
5D	9/18-19/91	142	140	130-140	123-140	86-123	2-86	0-2	CURB BOX
6D	9/18/91	141	140	130-140	121-140	88-121	2-88	0-2	CURB BOX
7D	9/16-17/91	140	140	130-140	121-140	90-121	2-90	0-2	STAND PIPE
8D	9/12-13/91	142	140	130-140	122-140	90-122	2-90	0-2	STAND PIPE

NOTES:

(1) ALL SCREEN SLOT SIZES WERE 0.010 FEET.

(2) GRAVEL PACK MEASUREMENTS INCLUDE A 1-2' CHOKE OF FINE (#0) SAND.

(3) BENTONITE SEAL COMPRISED OF PELLETS FOR SHALLOW WELLS, "VOLCLAY" SLURRY FOR DEEP WELLS.

*ALL MEASUREMENTS ARE IN FEET BELOW GRADE; INFORMATION PRESENTED HEREIN DERIVED FROM WELL LOGS.

**AC WELL CONSTRUCTION DETAILS PROVIDED BY FANNING, PHILLIPS AND MOLNAR.

until the discharge water had become clear and sediment free, and turbidity levels were 50 NTUs (Nephelometric Turbidity Units) or less. During development of MW-8S, the Geoguard pump (Model 5612) got stuck and was irretrievable from the base of the well. According to the manufacturer (America Sigma of Middleport, New York) the pump contains relatively inert materials (stainless steel #316, Teflon Viton and polypropylene) and would have no adverse affect on the well water quality. NYSDEC was provided this information and was in agreement with this conclusion.

Surveyance

After all the wells were installed, measuring points and ground surface elevations at each well were accurately measured by a licensed surveying contractor, STV of Plainview, NY. The monitoring wells were surveyed for elevation by correlation to an established USGS Geodetic datum. The benchmark located approximately 1/2 mile southeast of the site near the intersection of the Long Island Expressway and Wicks Road was used for this purpose. Top of well casing and ground surface elevations for each well were determined to the nearest hundredth of a foot, and the point of surveying (measuring point) was marked on the PVC casing. The wells were located using third order work, Class II Specification, and were accurately plotted on a site map, relative to the building, property boundaries, and other pertinent features. The surveyor's report is provided in Appendix D.

Sampling

The 14 on-site wells and the two off-site wells were sampled during the period of October 9 to October 24, 1991. A minimum of three casing volumes of water were removed from each well using either a decontaminated pneumatic or submersible pump. The decontamination procedures involved an alconox wash followed by a tap water rinse. A sample of the tap water at the Gibson facility was collected and analyzed for the complete

TCL/TAL list plus TPH and other parameters. The analysis of the tap water sample did not show any organic constitutents and a few metals analyses orders of magnitude below background levels. No solvents of any kind were used. The purge water was allowed to drain back into the aquifer near the well. The sampling of the on-site wells was overseen by Gibson's environmental consultant, Environmental Planning & Management (EPM), Inc. ERM also split all samples with EPM.

Once purging had been completed, a clean, disposable, polyethylene bailer was lowered down the well using dedicated nylon rope. The bailer was then retrieved, and the bottles used for volatile organic analysis were filled first to minimize agitation of the well water. Bottles for the remaining parameters (semi-volatiles, pesticides/PCBs, metals, chloride,nitrate, sulfate, total phenol, pH, total dissolved solids, TPH, and cyanide) were then filled. All sample jars were placed into an iced cooler immediately after collection for delivery to the laboratory, Adirondack Environmental Services, Inc. of Albany, NY.

Water Levels

Water level measurements in the wells were collected with an optical interface probe or a water level indicator. In either case, the instrument had been decontaminated in an alconox wash and tap water rinse prior to use and between wells. Water levels were measured from the surveyed measuring points on the casings to an accuracy of 0.01 feet. Complete rounds of synoptic measurements were collected on November 5, 1991 and January 30, 1992.

3.8 In-Situ Aquifer Permeability Testing

Slug tests were performed in order to determine the hydraulic conductivity of aquifer materials surrounding the well screens. Slug tests were performed on all of the 14 on-site wells with the exception of MW-2S (contained product), MW-5D (Slug unable to fit down well) and MW-8S (because insufficient volume of water above stuck Geoguard pump). The least contaminated wells were tested first, and the slug and measuring equipment were decontaminated (alconox wash and tap rinse) between each test.

Before the slug was either introduced into or extracted from the well, the static water level was measured. The slug was then instantaneously lowered into or extracted from the ground water, and the recovery of the water level monitored using an electronic data logger. For each test, two probes were used so that water levels could be obtained in both the well containing the slug and the remaining well in that cluster. Both injection and withdrawal head tests were performed in this manner.

Calculations of hydraulic conductivities from the field test data were made using the methods developed by Bouwer and Rice (1976) and revised June, 1989. The graphs and assumptions used are provided in Appendix H.

3.9 Air Monitoring

Organic vapor concentrations in the breathing space were monitored routinely with a Foxboro OVA (Model 128), and for explosive atmospheres using an explosimeter (MSA, Model 255). These devices were utilized at the work site during the installation of soil borings and monitoring wells. In addition to this "localized" air monitoring, organic vapor and particulate monitoring (using a MIE MiniRam PDM-3) was expanded to address potential off-site exposures to the community at large.

Downwind and upwind monitoring stations were set up along the perimeter of the site for this purpose as depicted in Figure 5-1. Initially, frequent monitoring (once per hour) at these perimeter stations was conducted to ensure that field activities were not creating potentially hazardous atmosphere leaving the property. Based on the generally inconsequential perimeter readings, the frequency of this monitoring was decreased to three times a day. Although there were a few elevated readings during the course of the field investigation, they were not attributable to the actual site activities or conditions. Instead, off-site activities (i.e., automotive exhaust) or instrument malfunction was deemed responsible. All associated readings are provided in Appendix F.

4.0 HYDROGEOLOGIC SETTING

4.1 Physiographic Setting

The Gibson site is located in the mid-island area of western Suffolk County, on the southern slope of a long sinuous hill that runs the length of the island. This ridge, is a geologic feature called the Ronkonkoma Moraine, which was formed by glacial activities (see Section 4.4 for details). The moraine is the dominant topographic feature in the site area, constituting the topographic highs within a mile of site. The ridge trends east-west approximately 3/4 of a mile to the north (refer to Figure 4-1). The ridge elevation peaks at approximately 230 feet above Mean Sea Level (MSL).

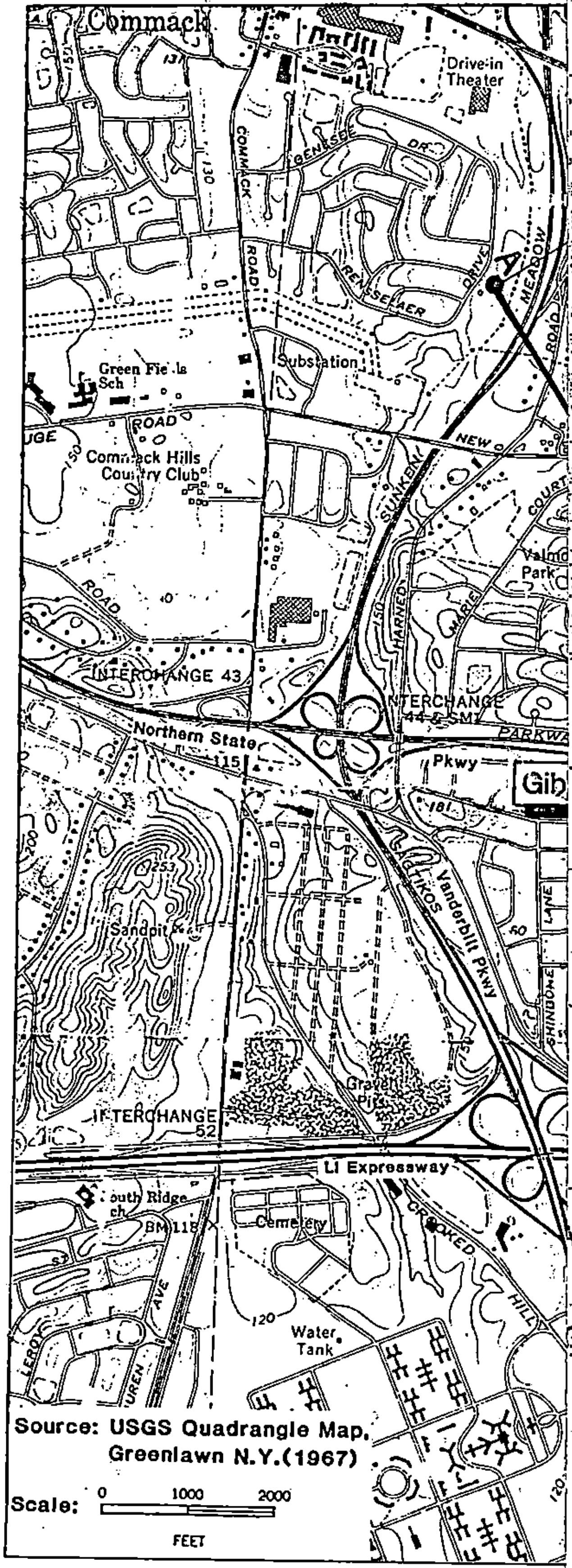
Since the site is situated on the southward slope of the Ronkonkoma Moraine, the land surface slopes away from the site to the south, southwest, and southeast. The slope within a 1/2 mile of the site is generally southward, with a relatively constant gradient of 0.015 ft/ft. The only significant change in topography between a 1/2 and a 1 mile radius of the site is to the west where the slope is westward with a steeper gradient of 0.38 ft/ft. The topography on site is discussed in Section 2.1.

4.2 Surface Water Bodies/Wetlands

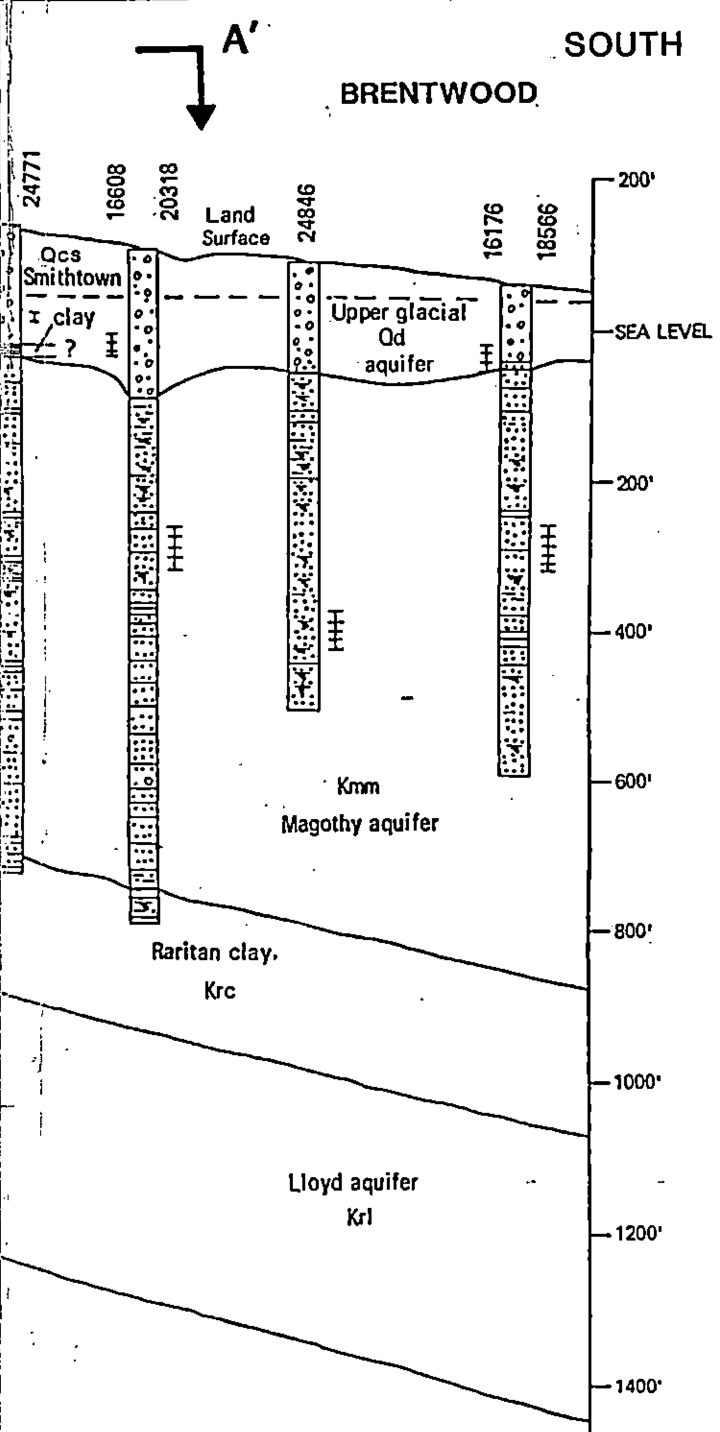
The only surface water body within 3 miles of the site is the Nissequoque River, located between 2 1/2 and 3 miles east-northeast of the site. The headwaters of the Nissequoque River are situated approximately 2.5 miles due east of the site.

According to NYSDEC files, no significant wetlands exist within two miles of the site. Two small ponds with associated wetlands (designated G-4 and G-5 on the Greenlawn Quadrangle Map by NYSDEC, presented in Appendix F) exist approximately 3/4 of a mile

SITE LOCATIOI



Source: USGS Quadrangle Map, Greenlawn N.Y.(1967)



Source: (After Soren, USGS/SCWA, 1971)

TIGRAPHIC SECTION

GEND

- ▲ boulders
- ⁘ sand and gravel
- ∴ sand
- ┆ silt, silty clay, and silty or clayey sand
- ▤ clay
- ▨ lignite or lignitic silt
- ▥ bedrock

ERM-Northeast

Fig. 4-1

north, upgrade, of the Gibson site. The total wetland area for these two sites covers less than approximately one acre.

4.3 Climate

Climatological data was obtained from the National Oceanographic Atmosphere Administration (NOAA) for the Patchogue, NY Station #306441 (Appendix F). The data is averaged over the period from 1950 to 1980. The annual average temperature for the area is 54°F. Average annual precipitation on Long Island is between 42 and 45 inches per year. The precipitation is fairly evenly distributed throughout the year.

4.4 Geology

4.4.1 Regional

Regionally, Long Island consists of coastal plain type geology, with a thick sequence of seaward (south) dipping sediments overlying crystalline bedrock at great depth (approximately 1,500 feet below sea level). The sedimentary sequence is capped with a veneer of glacial deposits which range in lithology from coarse gravels to clays. The underlying unconsolidated deposits are Cretaceous in age, and are similar in lithology to the glacial deposits. From youngest (shallowest) to oldest (deepest), these Cretaceous units are the Magothy Formation and the Raritan Clay and the Lloyd Sand Members of the Raritan Formation.

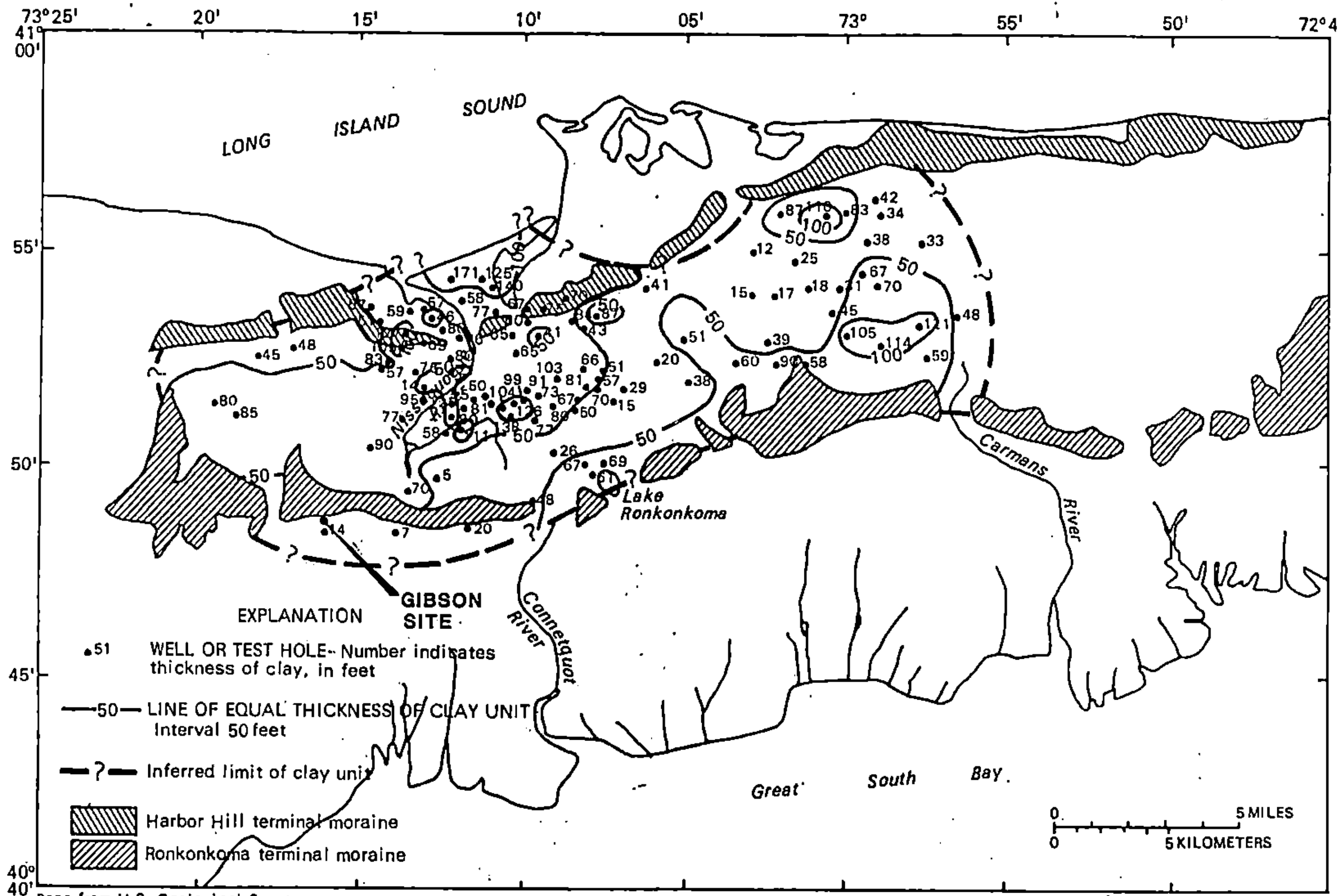
A 3-mile north-south stratigraphic section through the Gibson site is provided in Figure 4-1. A discussion of each of the geologic units under the Gibson site is provided below.

The glacial deposits under the Gibson site are approximately 200 feet thick. The top of the Magothy Formation and thus, bottom of the glacial deposits in the site vicinity has been determined to be approximately -25 feet MSL, which corresponds to a depth of approximately 175 feet below grade (Krulikas et. al., 1983). The two basic lithologies of the glacial deposits are outwash deposits of stratified medium to coarse sand and gravel, and terminal moraine deposits of till and ice-contact deposits. The Ronkonkoma Terminal Moraine, north of the site, represents the furthest advance of an ice sheet during the Wisconsin glaciation. The site is situated within the outwash deposits formed by melt-waters deposited by the glaciers.

As discussed in depth in Section 4.5.1 - Regional Hydrogeology, a regional clay unit, referred to as the Smithtown Clay, lies within outwash areas. The area of deposition of the clay is believed to be a large post glacial lake in the intermorainal area in a partly filled depression of the surface of the underlying Magothy Formation (Krulikas et al, 1983). The Gibson site lies near the southwestern fringe of this clay, as shown in Figure 4-2. In USGS test well S24769, located approximately a mile southwest of the site, seven feet of a medium to dark gray clay was logged at an elevation of between 158 and 172 feet (Soren, 1971).

The underlying Magothy Formation in the vicinity of the site is approximately 600 feet thick. The formation consists mostly of nonfossiliferous gray and white fine quartz sand, clayey and silty sand, and clay (Pluhowski, 1964). Medium to coarse grained sand occurs in lenses irregularly throughout the formation, especially in the upper and lower zones.

The Clay Member of the Raritan Formation is approximately 200 feet thick under the site. It consists of gray, blue, black, red and white clay, silt and some fine to very fine sand.



Base from U.S. Geological Survey State base map, 1974

SOURCE: KRULIKAS ET AL, 1983

TITLE

EXTENT AND THICKNESS OF SMITHTOWN CLAY

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SCALE Noted

DATE Feb.1992

FIGURE 4-2

The Lloyd Sand Member of the Raritan directly overlies the bedrock on Long Island. Under the site the Lloyd is approximately 400 feet thick. It is generally comprised of light-colored sand and gravel and lenses of clay and silty clay.

The basement rock under Long Island is schist and gneiss and contains some granitic intrusions. It is Precambrian and early Paleozoic in age.

4.4.2 Site

The upper 140 feet of sediments at the site, has been determined from deep well borings and shallow soil test borings. As described in the Investigation Methods - Section 3.0, seven well borings across the entire site were drilled to approximately 100 feet. Three of these borings were extended to a depth of 140 feet. In addition to these deep borings, approximately 30 shallow soil test borings were drilled up to 30 feet deep across most of the site.

The Soil Survey of Suffolk County (SS), New York (1975), reports that the surficial site soils are all categorized HVA or Haven loam, 0 to 2% slopes (sheet No. 62). The Haven soil series are characterized as deep, well drained, medium textured soil that formed over stratified outwash plain sand and gravel (SS, 1976, pg. 71). The upper few feet of the site is believed to have been reworked. The substrate of this unit, to a depth of 55 inches, is a yellow-brown to brownish yellow loose sand and gravel. The Haven soil series lithology is generally consistent with the upper 5 feet of soils at the Gibson site. According to the Soil Survey, the Haven soils have high to moderate available moisture capacity. Permeability increases with depth and is described as very rapid (greater than 2 inches per hour).

Site lithology, based on interpretative correlation of the site's seven well clusters is shown in two geologic cross sections on Figure 4-3. Soil borings and well logs are presented in Appendix G. Cross Section A-A in Figure 4-3 transverses the front, southwest, corner of the property eastward along the longitudinal axis of the rear yard. Cross Section B-B' transverses the northwestern corner, front of the building, southward through the building and then across the south asphalt area to the southern property boundary.

The cross sections of Figure 4-3 show that the upper 100 to 140 feet of sediments under the Gibson site are generally comprised of two basic units: a fine to medium grained sand (FM) unit and fine to coarse grained sand (FC) unit. The FM unit was generally moderately sorted while the FC unit was generally poorly sorted.

Under the western portion of the site the upper 80 feet is comprised of the FM unit. At the northwestern property corner, at Well Cluster #1, the fine to medium grained sand alternates with thin layers of fine to coarse grained sand in layers 10 to 30 feet thick. Below the FM unit in this portion of the site, the FC unit is present at least down to a depth of 100 feet. The elevation of the top of the FC unit appears to be fairly uniform in three well clusters (Clusters 1, 2 and 5) across the western half of the site. Several layers less than 10 feet thick of FM, FC sand, and fine sand and silt were encountered in the upper 30 feet of soils at Cluster #2. This material is believed to be fill related to backfill of the former underground tanks in this area.

The geology under the eastern portion of the site changes and is more varied (Figure 4-3). At Cluster #3, approximately in the middle of the southern property boundary,the sediments encountered were primarily FC sand with an occasional layer of FM sand. The dominant FC unit at Cluster #3 unit can be traced to the eastern property boundary at Cluster #7. The FM unit at #7, however, is interlayered by thicker coarser grained layers up to 30 feet thick in the upper 100 feet of sediments.

At the northern property line in the rear yard (Cluster #8), the geology was different than most of the site. The dominant lithology present was the FM unit. However, two varied units were also present at this location. At 80 to 85 feet FM sand and gravel was encountered. At approximately 120 feet, fine sand and silt was present to the base of the well boring at 140 feet. This unit was not extensive as it was not found in Cluster #7, approximately 90 feet to the east.

4.5 Hydrogeology

4.5.1 Regional

The sands and gravels of the coastal plain sediments of Long Island are transmissive to water, and serve as aquifers, while several laterally extensive clays, (i.e, the Smithtown Clay, the Manorville Clay, the "20-foot" clay) function as aquitards. Where present, the aquitards isolate the water table aquifer from deeper ground water zones. Collectively, these hydrogeologic units constitute Long Island's "Sole Source Aquifer".

The topographic elevation of the land surface at the area of the site is relatively high for Long Island (150 feet MSL) and therefore the ground water is quite deep (approximately 100 feet below ground). The site is located slightly north of Long Island's well known ground water divide in the major recharge zone for Long Island. If no mitigating factors were present, ground water would flow northward from the site. However, the ground water regime in the entire Smithtown-Commack region is disrupted by the Nissequoque River located east of the site, which creates a regional pattern of dominant eastward flow. This regional eastward flow provides a shallow ground water flow in the area to the east-southeast within a few hundred feet below the water table. The component of horizontal flow direction is similar to the water table aquifer as the potentiometric surface of the Magothy is eastward (Donaldson, 1983).

Permeability values for outwash deposits of the water table aquifer are fairly consistent based on data from many water supply wells within the area. Pluhowski (1964) notes ranges of between 700 to 1,200 gallons per day per square foot (gpd/ft^2) with a medium value of 1,200 gpd/ft^2. These permeability values are high and reflect the relatively permeable nature of the sand deposits. Considering a maximum thickness of the Upper Glacial Aquifer to be about 400 feet, Franke (1972) estimates an average horizontal hydraulic conductivity of 270 and a vertical conductivity of 27 feet per day (ft/day).

A critical feature of the site hydrogeology is whether a confining clay layer is present beneath the site. If present, such a confining layer might separate the potentially contaminated Upper Glacial Aquifer from the underlying Magothy aquifer, a significant potable water supply. Logs of U.S. Geological Survey wells, as shown in the cross section of Figure 4-1, show that the Smithtown Clay has been tentatively identified in several wells less than a half mile southeast of the site. The Smithtown Clay is a regionally important, though discontinuous, confining layer.

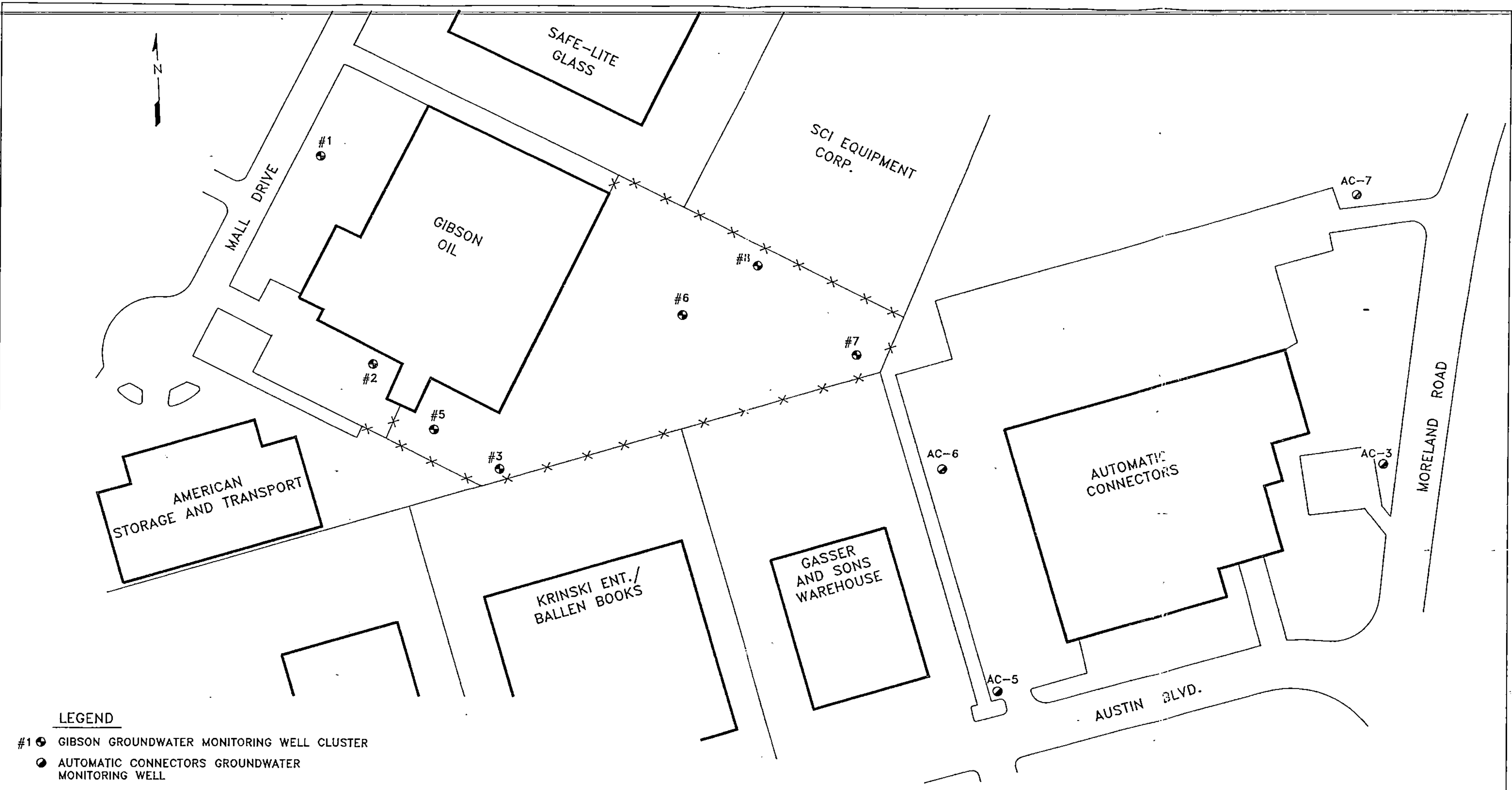
4.5.2 Site Hydrogeology

The site hydrogeology described in this section was determined by the installation of, and data collected from, 14 wells installed in seven clusters across the site. This data base was augmented by four existing off-site wells located on the property immediately to the east of Gibson. The locations of the wells are shown in Figure 4-4.

The Gibson wells were installed in two phases to optimize their monitoring capacities. Three wells (MW-1S, 3S and 8S) were initially installed in a triangular pattern at site boundaries in order to confirm an eastward regional ground water flow direction. Upon determination of the site specific ground water flow direction, the remaining site wells were optimally located to provide water quality and hydrologic data points across the entire site.

The water table under the site was approximately 90 feet below grade. The primary objectives of the ground water monitoring program were to: 1) monitor the water table zone 2) and monitor a deeper ground water zone approximately 40 to 50 feet below the water table or on top of the Smithtown Clay, if found in this zone. Since no confining clay layer, such as the Smithtown Clay, was encountered within 50 feet below the water table at the site, the deeper monitoring horizon for each cluster was set approximately 40 to 50 feet below the water table. The shallow well monitor the top 10 feet of the water table. The shallow wells at each of the seven clusters was designated with the suffix S, and D for the deeper wells.

Water levels in the 14 site wells were gauged throughout the course of the field program. In addition to the on-site wells, water levels were gauged in four off-site wells (AC3, 5, 6, and 7) on the property immediately downgradient of the Gibson site. The locations of all of the water level data wells are shown on Figure 4-4 (specific Gibson well locations are also shown on Figure 5-1). The off-site wells were located on property leased by Automatic Connectors, Inc., 400 Moreland Avenue. The screened intervals in these off-site wells are consistent with the screen settings



NOTE: FOR SPECIFIC WELL LOCATIONS REFER TO FIG. 5.1.

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LOCATIONS OF
ON AND OFF-SITE WELLS
GIBSON OIL

S.P./E.M.	2/5/92		
1"=100'	164.007.04	GIB-SITE	

4-4

in the water table wells installed at Gibson. Well logs for these AC wells are included in Appendix F, and well construction data is included in Table 3-1. The off-site well data was provided to ERM by Mr. Kevin Phillips, Principal Associate of Fanning, Phillips and Molnar of Ronkonkoma, NY.

Table 4-1 includes all the water level data collected from the on-site and off-site wells. The table also includes the measuring point elevation of each well and the calculated elevation for each water level measurement.

Water Table Zone

The water levels collected in the water table wells during the project course have been consistent within each gauging round (refer to Table 4-1). Between August, 1991 and February, 1992 the water levels in most of the wells decreased up to one foot.

A water table map for the site and the downgradient property has been developed for the complete round of gauging conducted on January 30, 1992. Depths to water (in feet) in each well was measured using a water level indicator from a measuring point (MPT) on the top of the PVC well casing. Subtracting these depths from the surveyed MPT elevations yielded water table elevations related to mean sea level. These elevations were then contoured to develop the water table map. Based on the water table contours of Figure 4-5, the water table aquifer flows slightly south of east under the site. The contours are fairly evenly spaced reflecting a generally constant hydraulic gradient.

TABLE 4-1
WATER LEVEL DATA
GIBSON CHEMICAL & OIL
COMMACK, NY

WELL ID	MPE	DATE	DTW	DTP	ELEVATION
MW-1S	152.17	8/23/91	89.46	-	62.71
		8/26/91	89.35	-	62.82
		8/27/91	89.31	-	62.86
		9/18/91	89.68	-	62.49
		9/30/91	89.89	-	62.28
		10/9/91	90.16	-	62.01
		10/11/91	90.12	-	62.05
		11/1/91	90.37	-	61.80
		11/5/91	90.13	-	62.04
		1/29/92	91.74	-	60.43
		1/30/92	91.74	-	60.43
MW-1D	152.90	9/25/91	90.55	-	62.35
		9/30/91	90.63	-	62.27
		10/9/91	90.90	-	62.00
		10/11/91	90.87	-	62.03
		11/1/91	91.12	-	61.78
		11/5/91	90.38	-	62.52
		1/29/92	92.47	-	60.43
		1/30/92	92.48	-	60.42
MW-2S*	150.45	8/28/91	87.72	-	62.73
		10/22/91	88.57	-	61.88
		9/18/91	88.02	-	62.43
		9/30/91	88.35	-	62.10
		11/5/91	88.73	88.71	61.74
		1/29/92	90.55	90.08	60.28
		1/30/92	90.08	-	60.37
MW-2D	150.59	9/24/91	88.56	-	62.03
		9/30/91	88.70	-	61.89
		10/22/91	89.05	-	61.54
		11/1/91	89.18	-	61.41
		11/5/91	89.20	-	61.39
		1/29/92	90.55	-	60.04
		1/30/92	90.56	-	60.03
MW-3S	152.50	8/21/91	90.15	-	62.35
		8/23/91	89.90	-	62.60
		8/26/91	89.81	-	62.69
		8/27/91	89.77	-	62.73
		9/18/91	90.19	-	62.31
		9/30/91	90.40	-	62.10
		10/10/91	90.65	-	61.85
		10/11/91	90.62	-	61.88
		11/1/91	90.90	-	61.60
		11/5/91	90.92	-	61.58
		1/29/92	92.30	-	60.20
		1/30/92	92.30	-	60.20
MW-3D	151.90	9/12/91	89.34	-	62.56
		9/30/91	87.44	-	64.46
		10/3/91	89.84	-	62.06
		10/9/91	90.12	-	61.78
		11/1/91	90.37	-	61.53
		11/5/91	90.37	-	61.53
		1/29/92	91.75	-	60.15
		1/30/92	91.76	-	60.14
MW-5S	149.84	9/30/91	87.64	-	62.20
		11/5/91	88.15	-	61.69
		10/15/91	88.00	-	61.84
		8/29/91	87.02	-	62.82
		11/1/91	88.15	-	61.69
		9/18/91	87.42	-	62.42
		10/10/91	87.90	-	61.94
		1/29/92	89.54	-	60.30
		1/30/92	89.53	-	60.31
MW-5D	150.10	9/19/91	87.69	-	62.41
		9/30/91	87.88	-	62.22
		10/10/91	88.14	-	61.96
		10/21/91	88.24	-	61.86
		11/1/91	88.40	-	61.70
		11/5/91	88.39	-	61.71
		1/29/92	89.78	-	60.32
		1/30/92	89.76	-	60.34
MW-6S	152.96	8/27/91	90.44	-	62.52
		9/18/91	90.72	-	62.24
		9/30/91	90.97	-	61.99
		10/18/91	91.33	-	61.63
		11/1/91	91.44	-	61.52
		11/5/91	91.44	-	61.52
		1/29/92	92.83	-	60.13
		1/30/92	92.83	-	60.13
MW-6D	152.82	9/19/91	90.63	-	62.19
		9/30/91	90.80	-	62.02
		10/18/91	91.18	-	61.64
		10/21/91	91.20	-	61.62
		11/1/91	91.29	-	61.53
		11/5/91	91.30	-	61.52
		1/29/92	92.66	-	60.16
		1/30/92	92.68	-	60.14
MW-7S	154.52	8/26/91	92.12	-	62.40
		8/27/91	92.01	-	62.51
		9/18/91	92.36	-	62.16
		9/30/91	92.61	-	61.91
		10/10/91	92.84	-	61.68
		11/1/91	93.07	-	61.45
		11/5/91	93.08	-	61.44
		1/29/92	94.46	-	60.06
		1/30/92	94.47	-	60.05
MW-7D	154.00	9/18/91	91.87	-	62.13
		9/30/91	92.08	-	61.92
		10/10/91	92.30	-	61.70
		10/15/91	92.46	-	61.54
		11/1/91	92.54	-	61.46
		11/5/91	92.56	-	61.44
		1/29/92	93.94	-	60.06
		1/30/92	93.95	-	60.05

NOTES:

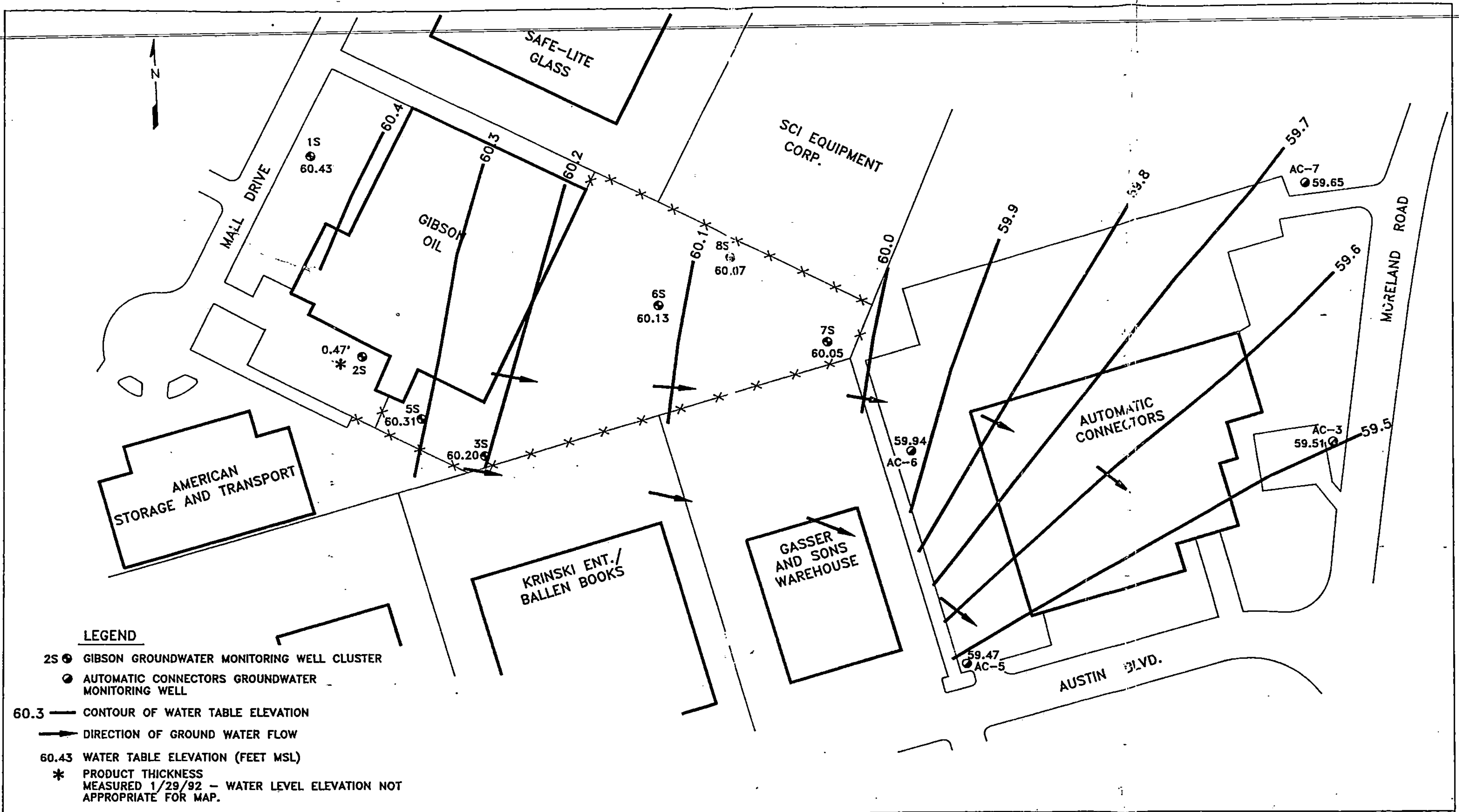
MPE=measuring point elevation in feet.
DTW=depth to water in feet.
DTP=depth to product in feet.
ELEVATION=water level elevation in feet.
*Since well installation, product always observed on probe/bailer upon retrieval from well; thicknesses gauged with an interface probe.

TABLE 4-1 WATER LEVEL DATA
GIBSON CHEMICAL & OIL
COMMACK, NY

WELL ID	MPE	DATE	DTW	DTP	ELEVATION
MW-8S	156.26	8/20/91	94.30	-	61.96
		8/23/91	94.00	-	62.26
		8/26/91	93.82	-	62.44
		8/27/91	93.75	-	62.51
		9/18/91	94.11	-	62.15
		9/30/91	94.34	-	61.92
		10/16/91	94.69	-	61.57
		10/24/91	94.73	-	61.53
		11/5/91	94.81	-	61.45
		1/29/92	96.18	-	60.08
		1/30/92	96.19	-	60.07
MW-8D	155.13	9/18/91	92.93	-	62.20
		9/30/91	93.15	-	61.98
		10/16/91	93.53	-	61.60
		11/1/91	93.62	-	61.51
		11/5/91	93.64	-	61.49
		1/29/92	95.00	-	60.13
		1/30/92	95.01	-	60.12
AC-3	150.74	11/5/91	89.83	-	60.91
		1/30/92	91.23	-	59.51
AC-5	145.59	10/14/91	84.54	-	61.05
		11/5/91	84.71	-	60.88
		1/30/92	86.12	-	59.47
AC-6	149.63	10/14/91	88.1	-	61.53
		11/5/91	88.29	-	61.34
		1/30/92	89.69	-	59.94
AC-7	152.98	11/5/91	91.95	-	61.03
		1/30/92	93.33	-	59.65

NOTES:

MPE=measuring point elevation in feet.
DTW=depth to water in feet.
DTP=depth to product in feet.
ELEVATION=water level elevation in feet.



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WATER TABLE MAP
JANUARY 30, 1992
GIBSON OIL

E.M./R.H.
5/22/92
1"=100'
164.007.04
FIG4-5

4-5

Using the measured water table elevation difference of approximately 0.40 feet and the 600 foot distance across the site, the hydraulic gradient under the site is 0.0006 ft/ft. This represents a very gentle water table gradient. Based on the water table map (Figure 4-5) flow from the Gibson property proceeds to the southeast across the Automatic Connector's (AC) facility. Downgradient of Gibson, on the Automatic Connector's site, the contours trend more to the east indicating a more southerly flow.

Downgradient of the Gibson site no hydraulic conditions were identified to account for the change in ground water flow direction to the southeast or the gradient change by twofold. Since the downgradient contour changes hinged on AC well #5, the surveyed data for this well relative to the other AC wells was re-examined. The surveyed measuring point elevations obtained by STV for the Gibson and AC wells and the referenced elevations revealed no differences. However, survey data for the AC wells provided by telecom by Fanning, Phillips and Molnar Engineer's (AC's consultant), revealed a relative higher measuring point elevation for AC-5 of 0.52 feet. This measuring point elevation would give AC-5 a water table elevation of 145.99 feet for the January 30 water table and would provide a consistent easterly water table flow from the Gibson site across AC property. Additionally, the resultant contours would have the same gradient as under the Gibson site.

Reported permeabilities for the water table aquifer in the Gibson area, as noted, rang from 700 to 1200 gpd/ft^2. An average horizontal hydraulic conductivity for the water table aquifer has been estimated at 270 ft/day (Franke, 1972). Site specific hydraulic conductivities were estimated in th esite wells using slug test data derived from both in situ permeability slug tests (methods discussed in Section 3) and from laboratory tests conducted by Emprie Soils of Middleport, New York. The

TABLE 4-2
ESTIMATED HYDRAULIC CONDUCTIVITY VALUES
GIBSON OIL
COMMACK, NY

		FIELD SLUG TESTS FT/DAY			LABORATORY TESTS FT/DAY
WELL	UNIT SCREENED	SLUG IN	SLUG OUT	AVERAGE	
1S	FC	---	355	---	7.7
1D		---	---	---	---
2S	FC	---	---	---	9.3
2D		19	21	20	---
3S	FC/FM	---	250	---	---
3D	FC	14	18	16	6.2
5S	FC	---	95	---	---
5D		---	---	---	---
6S	FM	---	129	---	---
6D		12	18	15	---
7S	FC	---	147	---	5.4
7D	FC	21	28	25	9.2
8S	FM/GRAVEL				9.0
8D	F SAND	31	15	23	---

FC- Fine to Coarse Grained Sand
FM- Fine to Medium Grained Sand

16400182.wk1

laboratory tests were conducted on selected split spoon samples collected from the well borings. Six samples selected to represent the varying lithologies were made by reviewing the cross sections of Figure 4-3. Table 4-2 summarizes the field and laboratory derived permeability (k) and hydraulic conductivity values for the different units on site. A summary of the test parameters and field data is provided in Table 4-2. The laboratory report and field test calculations are provided in Appendix H.

The hydraulic conductivities from the slug injection derived for the shallow wells are not included in Table 4-2 because these tests are not appropriate for wells in which screens bridge the water table. These wells were tested by withdrawing the slug. The values derived from the field slug tests varied between 12 and 355 ft/day. The laboratory derived K values ranged between 5.4 and 9.3 ft/day. The small range and the low values are believed to reflect the inherent limits of the tests and the effect of reconstitution of the samples. The hydraulic conductivity values are fairly consistent with the lithology encountered at the Gibson site and are representative of typical values for the sediment types (Freeze and Cherry, 1979).

Ground water flow velocity under the site can be calculated using values for hydraulic conductivity, hydraulic gradient and effective porosity. Given the range of hydraulic conductivities for the wells, as described above, an average hydraulic conductivity of the water table aquifer under the site is 50 ft/day. A hydraulic gradient of 0.0006 ft/ft exists based on a head difference of 0.4 feet across the 600 site length.

An effective porosity for the subsurface sand at the site is estimated at 0.30 percent. Based on these values, an approximate horizontal rate of flow for the water table zone is 0.1 ft/day using the following formula, after Wenzel, 1992:

$$V = \frac{KI}{n}$$

Where: V = velocity (ft/day)
K = hydraulic conductivity (ft/day)
I = hydraulic gradient (ft/ft)
n = effective porosity (%)

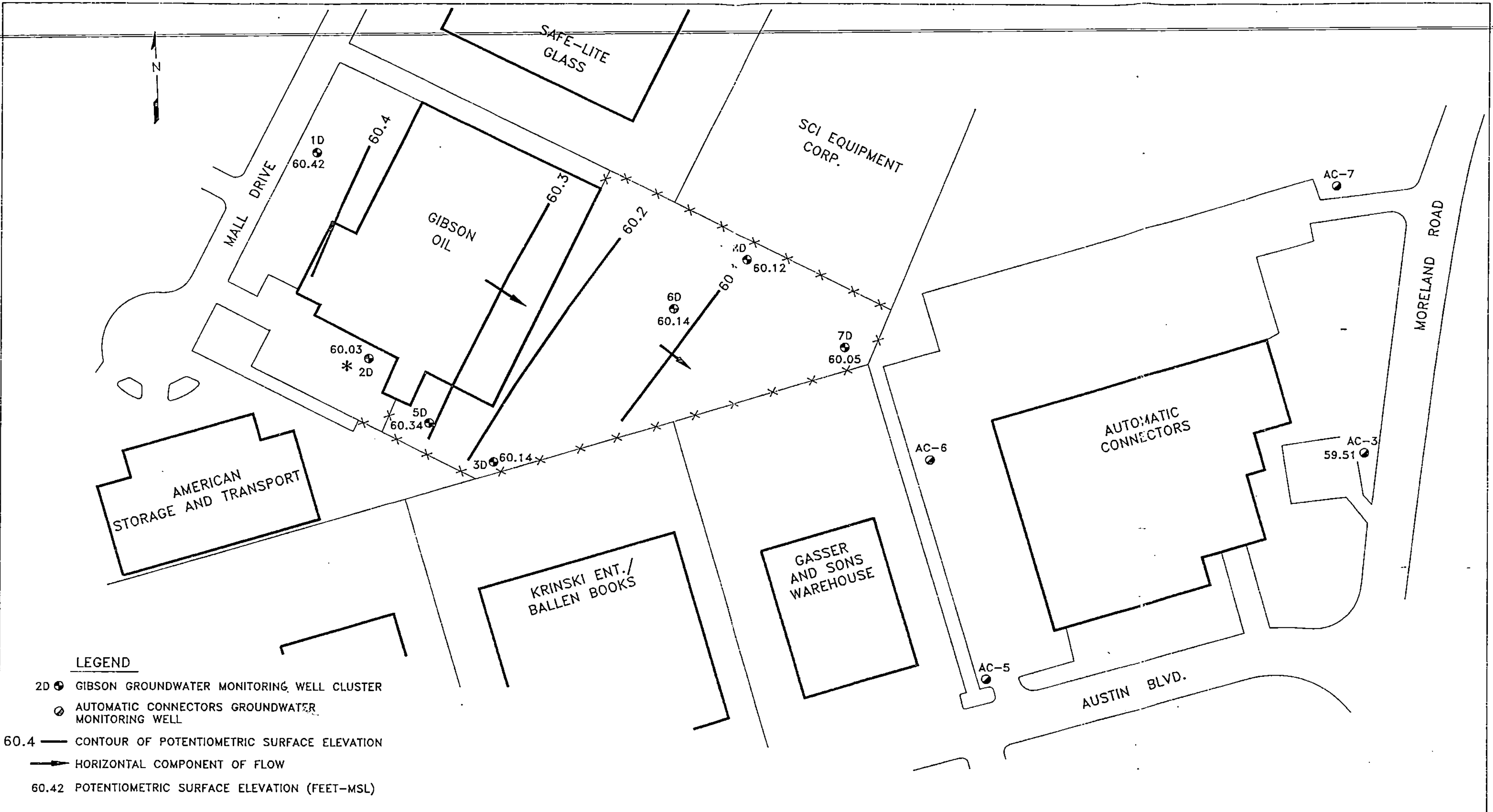
$$V = \frac{(50)(.0006)}{(0.30)} = 0.1 \text{ ft/day}$$

The calculated flow rate of 0.1 ft/day is consistent with flow rates for the glacial aquifer on Long Island. For practical purposes, dissolved contaminants within the ground water can be assumed to flow at the same velocity as the ground water although retardation factors will generally slow their flow rate.

Deeper Ground Water Monitoring Zone

The water level data base (Table 4-1) shows that there is a slight constant downward vertical flow between the shallow water table wells and the deeper wells. The hydraulic head differences were generally on the magnitude of a few hundredths of feet on several gauging dates. The lower water level elevations in the deeper wells of the clustered pairs is consistent with the site being within the recharge zone located just south of Long Island's ground water flow divide.

The potentiometric surface of the deeper monitoring zone mimics the water table flow with a similar hydraulic gradient and flow direction. The potentiometric surface map for the site on January 30, 1992 is shown in Figure 4-6.



LEGEND

2D ⊕	GIBSON GROUNDWATER MONITORING WELL CLUSTER
⊘	AUTOMATIC CONNECTORS GROUNDWATER MONITORING WELL
60.4 ——	CONTOUR OF POTENTIOMETRIC SURFACE ELEVATION
——➤	HORIZONTAL COMPONENT OF FLOW
60.42	POTENTIOMETRIC SURFACE ELEVATION (FEET-MSL)

NOTE: * ELEVATION FOR MW-2D NOT USED FOR POTENTIOMETRIC SURFACE BECAUSE OF INCONSISTENCY.

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POTENTIOMETRIC SURFACE
DEEPER MONITORING ZONE
JANUARY 30, 1992
GIBSON OIL

DRAWN E. MIKUCKI	DATE 2/27/92	CLIENT APPROVAL	DRAWING NO. 4-6
SCALE 1"=100'	W.O. NO. 164.007.04	ISSUED FOR FIG4-6	SHEET

4.6 Water Well Supply Survey

No domestic wells are active within the Town of Commack according to SCDHS. Information was obtained on public supply wells within a three mile radius of the Gibson site. Data regarding well locations and depths, screened intervals, and well use were provided by the United States Geological Survey's (USGS) Syosset, NY office through a computer search. The original printout of this search is provided in Appendix J.

The USGS printout revealed approximately 29 public supply wells within a three mile radius of the site. Several test, observation and withdrawal wells were also determined to exist within a one mile radius. Information on all of these wells is provided in Table 4-3, and their locations have been plotted on Figure 4-7.

The nearest well field directly downgradient of the site is the Commercial Boulevard Field located almost 3 miles east of the site (see Figure 4-7). The three wells of this field (S-30234, S-31624 and S-37141) are all approximately the same depth (440 feet) and screen the Magothy Aquifer between approximately 350 to 440 feet below grade.

The nearest public supply wells are approximately one mile north of the site at Suffolk County Water Authority's Wick's Road well field. The three wells at this location (S-22471, S-23832, and S-36976) all penetrate the Magothy aquifer. S-22471 is screened from 312-381 feet; S-23832 is screened from 318-402 feet, and; S-36976 is screened from 331 to 418 feet below grade.

The Capitol Court & Autumn Drive well field, located about 0.75 miles northeast of the site, represents the nearest lateral public supply wells, with respect to ground water flow. The Suffolk County Water Authority maintains two wells at this location. Both are screened

TABLE 4-3
WATER SUPPLY WELLS
3 MILE RADIUS*
GIBSON CHEMICAL & OIL
COMMACK, NY

WELL #	AQUIFER	DEPTH (FT)	SCREEN TOP (FT)	SCREEN BOTTOM (FT)	USE	WELL FIELD/PURVEYOR**
24769	MGTHY	810	800	810	OBS	
24770	MGTHY	434	424	434	OBS	
24771	UG	127	117	127	OBS	
64314	UG	60	55	60	OBS	
66142	MGTHY	203	172	182	OBS	
68967	UG	-	-	-	OBS	
42	-	1008	-	-	TEST	
57008	MGTHY	635	529	632	TEST	EMJAY BLVD
7935	UG	146	141	145	WD	
10766	UG	137	132	137	WD	
13642	UG	95	79	95	WD	
61	-	194	-	-	PS	
62	-	200	-	-	PS	
9771	UG	147	126	146	PS	
14326	MGTHY	225	141	225	PS	FALCON DRIVE/SCWA
16608	UG	140	110	140	PS	MORRIS ST/BRENTWOOD WD
20318	MGTHY	436	370	430	PS	MORRIS ST/BRENTWOOD WD
20369	MGTHY	312	260	310	PS	CAPITOL CT & AUTUMN DR/SCWA
21006	UG	376	310	372	PS	CARL ST. PATH/DIX HILLS WD
22362	UG	315	243	311	PS	
22471	MGTHY	383	312	381	PS	WICK'S ROAD/SCWA
22548	MGTHY	415	347	403	PS	
23445	MGTHY	610	541	605	PS	EMJAY BLVD.
23522	UG	424	358	420	PS	CARL ST. PATH/DIX HILLS WD
23715	UG	340	238	310	PS	
23832	MGTHY	405	318	402	PS	WICK'S ROAD/SCWA
24846	MGTHY	597	461	517	PS	
30234	UG	153	114	153	PS	COMMERCIAL BLVD/SCWA
31104	MGTHY	658	592	655	PS	EMJAY BLVD.
31624	MGTHY	439	364	434	PS	COMMERCIAL BLVD/SCWA
32412	-	900	-	-	PS	MORRIS ST/BRENTWOOD WD
34032	UG	441	369	436	PS	CARL ST. PATH/DIX HILLS WD
36791	MGTHY	674	534	670	PS	
36976	MGTHY	418	331	418	PS	WICK'S ROAD/SCWA
37141	MGTHY	429	351	426	PS	COMMERCIAL BLVD/SCWA
41344	MGTHY	693	-	-	PS	
44774	UG	294	199	290	PS	FALCON DRIVE/SCWA
45935	UG	605	539	599	PS	COLBY CT/DIX HILLS WD
53360	MGTHY	703	551	667	PS	
58708	MGTHY	423	329	389	PS	CAPITOL CT & AUTUMN DR/SCWA

NOTES

MGTHY = magothy aquifer.
UG = upper glacial aquifer.
OBS = observation well.
PS = public supply.
WD = withdrawal well.
*Public supply wells are within a 3 mile radius of site; all others are within a one mile radius.
**Pertains only to those wells with corresponding quality data in Table 4-4.

TABLE 4-4
REGIONAL PUBLIC SUPPLY GROUND WATER QUALITY
3 MILE RADIUS
GIBSON CHEMICAL & OIL
COMMACK, NY

		COMPOUND NUMBER										
WELL #	DATE	1	2	3	4	5	6	7	8	9	10	11
14326	12/6/77	5	8	-	U	-	U	U	-	-	-	-
	7/31/79	4	U	-	U	-	U	U	-	U	U	-
	1/24/80	4	4	-	U	-	2	U	-	-	-	-
	6/1/80	4	4	-	U	-	U	-	U	U	U	U
	8/1/81	U	U	U	1	-	U	-	U	U	U	U
	3/29/83	3	U	U	U	U	U	U	U	U	U	U
	10/27/83	5	U	U	U	U	U	U	U	U	U	U
	1/5/84	4	U	U	U	U	U	U	U	U	U	U
	8/23/84	7	U	U	U	U	5	U	U	U	U	U
	6/6/85	6	U	U	U	U	6	U	U	U	U	U
	11/12/85	2	U	U	U	U	5	U	U	U	U	U
	5/27/86	4	U	1	U	U	5	1	U	U	U	U
	8/19/86	6	1	2	1	1	12	U	1	U	U	U
	10/30/86	5	U	U	U	U	5	2	U	U	U	U
	1/22/87	6	U	1	1	U	4	3	U	U	U	U
	5/1/87	U	4	-	U	-	2	-	U	U	U	U
16608	3/29/77	30	U	-	U	-	U	-	-	-	-	-
	6/7/77	50	6	-	U	-	U	-	-	-	-	-
	7/5/77	25	5	-	U	-	U	-	-	-	-	-
	6/15/78	19	U	-	U	-	U	U	-	-	-	-
	11/14/78	29	8	-	U	-	2	U	-	-	-	-
	11/28/80	28	7	-	U	-	U	U	-	U	U	-
	4/27/81	22	5	-	U	-	U	U	-	U	U	-
	5/20/81	21	4	10	U	-	U	-	-	U	U	U
	6/22/83	37	14	-	U	-	1	U	-	-	10	-
	7/10/84	39	22	17	U	2	U	U	U	U	U	U
	8/27/84	-	U	-	U	-	U	U	-	U	U	7.5
	9/20/84	41	24	23	U	4	U	U	3	U	U	U
	4/15/85	U	16	17	U	3	U	U	4	U	U	42
	8/20/85	35	31	17	U	3	2	U	2	U	U	U
	9/11/85	-	17.4	-	U	-	U	U	-	U	U	-
20318	9/11/85	2.4	2.5	-	8.9	-	U	U	-	U	U	-
	7/30/86	0.61	U	2.5	U	U	U	-	-	-	-	U
	4/27/87	1	1	1	U	U	U	U	U	U	U	U
20369	6/1/81	1	3	U	U	-	U	-	U	U	U	U
	3/22/84	U	3	U	U	U	U	U	U	U	U	U
	8/23/84	U	3	U	U	U	U	U	U	U	U	U
	11/20/84	U	3	U	U	U	U	U	U	U	U	U
	6/13/85	U	3	U	U	U	U	U	U	U	U	U
	1/2/86	U	3	U	U	U	U	U	U	U	U	U
	8/19/86	U	5	U	U	U	U	U	U	U	U	U
	2/19/87	U	4	U	U	U	U	U	U	U	U	U
	4/16/87	U	2	U	U	U	U	U	U	U	U	U
	8/20/87	U	5	U	U	U	U	U	U	U	U	U
	9/29/87	U	4	U	U	U	U	U	U	U	U	U
	11/12/87	U	4	U	U	U	U	U	U	U	U	U
	1/7/88	U	4	U	U	U	U	U	U	U	U	U

COMPOUNDS

1=1,1,1-TRICHLOROETHANE
2=TRICHLOROETHENE
3=1,1-DICHLOROETHANE
4=CHLOROFORM
5=1,1-DICHLOROETHENE
6=TETRACHLOROETHENE
7=FREON 113
8=CIS-DICHLOROETHENE
9=CHLORODIBROMOMETHANE
10=BROMOFORM
11=1,2-DICHLOROETHANE

TABLE 4-4
REGIONAL PUBLIC SUPPLY GROUND WATER QUALITY
3 MILE RADIUS
GIBSON CHEMICAL & OIL
COMMACK, NY

WELL #	DATE	COMPOUND NUMBER 1	2	3	4	5	6	7	8	9	10	11
22362	1/27/81	U	U	U	2	U	U	-	U	U	U	U
	8/9/81	U	U	U	1	-	U	-	U	U	U	U
	4/14/82	6	U	U	U	U	U	-	U	U	U	U
	9/16/82	2	U	U	U	U	U	U	U	U	U	U
	3/24/83	3	2	U	U	U	U	U	U	U	U	U
	11/15/83	8	2	3	U	U	U	U	U	U	U	U
	9/10/84	2	U	U	U	U	U	U	U	U	U	U
	11/12/85	U	U	U	U	U	U	U	U	2	U	U
	4/15/86	3	U	U	U	U	U	U	U	U	U	U
	8/28/86	2	U	1	U	U	U	U	U	U	U	U
	2/26/87	2	U	1	U	U	U	U	U	U	U	U
	4/16/87	3	U	U	U	U	U	U	U	U	U	U
	8/20/87	5	2	U	U	U	U	U	U	U	U	U
22471	5/27/86	1	U	U	U	U	U	U	U	U	U	U
	10/28/86	2	U	U	U	U	U	U	U	U	U	U
	4/9/87	U	U	U	U	U	U	U	U	1	2	U
	9/29/87	U	U	1	U	U	U	U	U	U	U	U
23715	2/21/78	3	U	-	U	-	U	U	-	-	-	-
	5/22/79	7	5	-	U	-	U	U	-	U	U	-
	6/26/79	5	4	-	U	-	U	U	-	-	-	-
	8/26/80	11	5	-	U	-	U	U	-	U	U	-
	8/1/81	8	3	3	U	-	U	-	U	U	U	U
	12/27/81	10	4	3	U	U	U	-	U	U	U	U
	5/27/82	3	U	U	U	U	U	U	U	U	U	U
	7/14/82	8	3	3	U	U	U	-	U	U	U	U
	9/16/82	18	5	5	U	U	U	U	U	U	U	U
	3/24/83	12	U	3	U	U	U	U	U	U	U	U
	11/15/83	12	3	4	U	U	U	U	U	U	U	U
	6/28/84	13	4	4	U	U	U	U	U	U	U	U
	9/10/84	23	7	8	U	U	U	U	U	U	U	U
	4/2/85	12	4	4	U	U	U	U	U	U	U	U
	4/15/86	9	4	4	U	U	U	U	U	U	U	U
	6/5/86	12	5	5	U	1	2	1	U	U	U	U
	9/25/86	12	6	4	U	U	1	U	U	U	U	U
	11/25/86	8	4	3	U	U	1	U	U	U	U	U
23832	4/9/87	1	U	U	U	U	U	U	U	U	1	U
	5/27/82	7	2	3	U	U	U	U	U	U	U	U
	9/29/87	2	U	2	U	U	U	U	U	U	U	U
30234	2/1/77	11	8	-	U	-	U	-	-	-	-	-
	7/25/78	5	8	-	U	-	U	U	-	-	-	-
	4/10/79	9	12	-	U	-	U	U	-	U	U	-
	12/20/79	8	17	-	U	-	U	U	-	U	U	-
	9/30/80	13	10	-	U	-	U	U	-	U	U	-
	10/1/80	15	11	-	U	-	U	-	U	U	U	U
	4/1/81	U	U	U	U	-	U	-	U	U	U	U

COMPOUNDS

1=1,1,1-TRICHLOROETHANE
2=TRICHLOROETHENE
3=1,1-DICHLOROETHANE
4=CHLOROFORM
5=1,1-DICHLOROETHENE
6=TETRACHLOROETHENE
7=FREON 113
8=CIS-DICHLOROETHENE
9=CHLORODIBROMOMETHANE
10=BROMOFORM
11=1,2-DICHLOROETHANE

TABLE 4-4
REGIONAL PUBLIC SUPPLY GROUND WATER QUALITY
3 MILE RADIUS
GIBSON CHEMICAL & OIL
COMMACK, NY

		COMPOUND NUMBER										
WELL #	DATE	1	2	3	4	5	6	7	8	9	10	11
30234	4/21/81	10	-	-	U	-	U	U	-	U	U	-
	6/1/81	7	14	U	U	-	U	-	U	U	U	U
	7/1/81	9	10	3	1	-	U	-	U	U	U	U
	12/13/81	10	20	4	U	U	U	-	U	U	U	U
	1/28/82	7	8	3	U	2	U	U	U	U	U	U
	4/18/82	U	U	U	U	U	U	-	U	U	U	U
	6/30/82	8	7	3	U	U	U	-	U	U	U	U
	2/15/83	U	U	U	U	U	U	U	U	U	U	U
	9/13/83	9	4	5	U	7	U	U	U	U	U	U
	9/13/83	9	5	4	U	5	U	U	U	U	U	U
	10/4/83	9	2	5	U	7	U	U	U	U	U	U
	3/21/85	8	2	5	U	9	U	U	U	U	U	U
	10/30/85	12	3	U	U	17	U	U	U	U	U	U
	12/10/85	U	U	U	U	U	3	U	U	U	U	U
	2/27/86	10	3	6	U	14	U	U	U	U	U	U
	6/19/86	10	4	6	U	18	U	U	U	U	U	U
	8/28/86	9	4	6	U	15	U	U	U	U	U	U
	11/25/86	6	3	5	U	12	U	U	U	U	U	U
31624	5/5/87	4	U	U	U	U	2	4	U	U	U	U
37141	12/6/77	2	U	-	U	-	U	U	-	-	-	-
44774	1/22/85	7	U	U	U	U	4	U	U	U	U	U
	8/19/86	4	1	U	U	U	U	2	U	U	U	U
	4/16/87	5	U	U	U	U	1	6	U	U	U	U
	8/20/87	4	U	U	U	U	2	5	U	U	U	U
	12/15/87	3	U	U	U	U	1	4	U	U	U	U
	2/18/88	3	U	U	U	U	2	4	U	U	U	U

COMPOUNDS

1=1,1,1-TRICHLOROETHANE
2=TRICHLOROETHENE
3=1,1-DICHLOROETHANE
4=CHLOROFORM
5=1,1-DICHLOROETHENE
6=TETRACHLOROETHENE
7=FREON 113
8=CIS-DICHLOROETHENE
9=CHLORODIBROMOMETHANE
10=BROMOFORM
11=1,2-DICHLOROETHANE

NOTES

Only those wells which contained any organic contamination are listed here.
Only those compounds detected are listed here.
Concentrations are in ppb.
A "-" indicates that the associated compound was not analyzed for.
A "U" indicates that the compound was analyzed for but not detected.
Data presented herein obtained from Suffolk County Department of Health.
Refer to Figure 4-7 for well locations.

within the Magothy aquifer: S-20369 is screened from 260 to 310 feet; S-58708 from 329 to 389 feet below grade.

4.7 Regional Ground Water Quality

Available water quality data over the period from 1978 to 1988 shows that 12 of the 29 municipal wells within a three mile radius of the Gibson site have been impacted by volatile organics. Analyses from the remaining seventeen wells do not indicate volatile contamination. The analytical results from those wells containing volatile impacts are summarized in Table 4-4. The two most prevalent compounds in the contaminated wells are 1,1,1-trichloroethane (TCEA) and trichloroethene. Overall, concentrations ranged from 0.61 to 50.0 ppb for TCEA, and from 1.0 to 31.0 ppb for trichloroethene (TCE). Additionally, tetrachloroethene was frequently found in samples from well #14326 (average concentration of 5.1 ppb), and 1,1-dichloroethane was common to water samples obtained from well #23715 (average concentration of 4.1 ppb).

Two of the wells in the nearest well field, Wick's Road Well Field, (S-22471 and S-23832) have shown some organic contamination. Analyses from the late 1980s revealed limited (average concentrations less than 5 ppb) levels of TCEA, 1,1-dichloroethane, and bromoform in samples from both of these wells. Additionally, chlorodibromomethane was found in S-22471 (1 ppb), and TCE was found in S-23832 (2 ppb). Chlorodibromomethane can be attributed to chlorination of the water supply.

Contamination also existed in the nearest downgradient Capital Court well field. Although no contamination was detected in S-58708, the other well in this field (S-20369) had very consistent TCE readings (average concentration of 11.2 ppb). This well had also been provided with GAC treatment as of January 29, 1991.

In the Commercial Boulevard well field 3 miles directly downgradient of the site, concentrations of TCEA and TCE have been detected. In wells S-31624 and S-37141 the compounds were detected at trace levels (less than 2 ppb). In S-30234, PCE was detected as high as 15 ppb.

Wells of the 3rd Ave field in Brentwood (S-00061 and S-00062) have been abandoned, as have S-11891 (Cornell Drive, Smithtown) and S-09771 (Blue Spruce Lane, Commack). An additional six wells have been fitted with GAC treatment as of January 29, 1991: S-14326; S-20369; S-22362; S-23715; S-30234, and; S-44774. No other wells within this area were being treated at this time.

5.0 SOIL/SEDIMENT QUALITY

As discussed in Section 2.7, over 20 Areas of Environmental Concern (AECs) were identified at the Gibson site. The AECs included stained surficial soils, former underground tank fields, storm drains, areas of ponded liquids, outdoor drum storage areas, former aboveground tank storage areas, former trenches, and former soil, stockpile areas. The locations of the AECs are shown in Figure 5-1. In the following text, the AECs are discussed according to their location relative to the main building (north, south, east or west).

Each AEC was sampled using the appropriate methods described in Section 3.0. Samples at soil boring locations were selected as "worst-case" based on sensory and organic vapor screening results. These field findings are included in the logs of Appendix G. All OVA screening responses have been synthesized in a table within the appendix. A discussion of the vertical distribution of the organic vapors within the samples from each boring or sampling area, where appropriate, in included within the specific AEC discussion.

The remainder of this section evaluates the analytical results, from a QA/QC and data validation perspective, followed by discussions of the soil quality at each AEC. These discussions include description, background and investigative scope of each AEC.

5.1 Analytical Results

All analytical work was done by Adirondack Environmental Services, Inc. of Albany, NY. All but two soil samples were analyzed for the Target Compound and Target Analyte Lists (TCL/TAL) in addition to Total Petroleum Hydrocarbons (TPH). The results of these analyses are provided in Tables 5-1 through 5-6 and are grouped by area. Page "A" of each table lists all organic constituents, and page "B" contains all inorganic parameters. The

TABLE 5-1A SOIL SAMPLING RESULTS: WESTE[illegible] ORINGS & RINSATE BLANKS

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID SAMPLE DEPTH (FT) SAMPLE DATE	DETECTION LIMITS (ug/kg)	BG (1-2) 7/31/91	W-FT (12-14) 8/6/91	W-SS (12-14) 7/30/91	DETECTION LIMITS (ug/l)**	RINSATE BLANK 1 7/25/91	RINSATE BLANK 2 8/14/91	RINSATE BLANK 3 8/20/91
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,2-DICHLOROETHENE	5	U	U	U	5	U	U	U
2-BUTANONE	10	11 U	U	11 U	10	U	U	R
4-METHYL-2-PENTANONE	10	11 U	U	11 U	10	U	U	U
ACETONE	10	11 U	U	11 U	10	U	U	U
CARBON DISULFIDE	5	U	U	U	5	U	U	U
CHLOROFORM	5	U	U	U	5	U	U	U
ETHYLBENZENE	5	U	U	U	5	U	U	U
ETHYLENE GLYCOL (ug/g)*	1	-	-	-	-	-	-	-
METHYLENE CHLORIDE	5	U	U	U	5	U	5 B J	8 B
TETRACHLOROETHENE	5	U	U	U	5	U	U	U
TOLUENE	5	U	U	U	5	U	U	U
XYLENES (TOTAL)	5	U	U	U	5	U	U	U
TOTAL VOs (not including TICs)	-	U	U	U	-	U	5	8
TOTAL TICs	-	U	U	U	-	U	6 J	U
SEMI-VOLATILES (ug/kg)								
2-METHYLNAPHTHALENE	320	340 U	340 U	350 U	10	U	U	U
ANTHRACENE	320	340 U	340 U	350 U	10	U	U	U
BENZO(a)ANTHRACENE	320	340 U	340 U	350 U	10	U	U	U
BENZO(a)PYRENE	320	340 U	340 U	350 U	10	U	U	U
BENZO(b)FLUORANTHENE	320	340 U	340 U	350 U	10	U	U	U
BENZO(k)FLUORANTHENE	320	340 U	340 U	350 U	10	U	U	U
BIS(2-ETHYLHEXYL)PHTHALATE	320	640 U	340 U	350 U	10	U	5 B J	U
CHRYSENE	320	340 U	340 U	350 U	10	U	U	U
FLUORANTHENE	320	340 U	340 U	350 U	10	U	U	U
PHENANTHRENE	320	340 U	340 U	350 U	10	U	U	U
PYRENE	320	340 U	340 U	350 U	10	U	U	U
TOTAL SVs (not including TICs)	-	U	U	U	-	U	5	U
TOTAL TICs	-	U	1000 J	400 J	-	U	U	U
PCB's AND PESTICIDES (ug/kg)								
4,4'-DDD	16	U	U	17 U	0.1	0.24 U	U	U
4,4'-DDE	16	U	U	17 U	0.1	0.24 U	U	U
4,4'-DDT	16	U	U	17 U	0.1	0.24 U	U	U
ALPHA CHLORDANE	80	U	U	85 U	0.5	1.2 U	U	U
DIELDRIN	16	U	U	17 U	0.1	0.24 U	U	U
GAMMA CHLORDANE	80	U	U	85 U	0.5	1.2 U	U	U
TPH (mg/kg)	10	26	39	19	1000	U	U	U

**All blank concentrations are in ug/l.

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soils.
B=compound also detected in reagent blank.
J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.
U=compound was analyzed for but not detected; if present with a number, the number reflects increased detection limits.
DF=dilution factor.
TIC=Tentatively Identified Compounds.
-=compound was not analyzed for.
*Ethylene glycol analysis performed by the New York State Department of Health Wadsworth Center for Laboratories and Research.
NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits where the compound/elemet was not detected in the background sample.

TABLE 5-1B SOIL SAMPLING RESULTS: WESTERN BORINGS & RINSATE BLANKS

GIBSON CHEMICAL & OIL

COMMACK, NY

**All blank concentrations are in ug/l.

SAMPLE ID	DETECTION LIMITS (mg/kg)	BG	W-FT	W-SS	DETECTION LIMITS (ug/l)**	RINSATE BLANK 1	RINSATE BLANK 2	RINSATE BLANK 3
SAMPLE DEPTH (FT)		(1-2)	(12-14)	(12-14)				
SAMPLE DATE		7/31/91	8/6/91	7/30/91		7/25/91	8/14/91	8/20/91
INORGANICS (mg/kg)								
ALUMINUM	NA	1250	418	296	200	U	U	U J E
ARSENIC	2.1	U	U	U	10	U	50 U	U
BARIUM	5.2	U	U	5.3 U	25	U	U	U
CADMIUM	0.21	U	U	0.27 B	1	U	2.0 B	U
CALCIUM	1030	U	U	1060 U	5000	U	U	U J
CHROMIUM	2.1	6.2	U	6.8	10	U	R	U J
COPPER	5.2	U	U	5.3 U	25	U	U J	U
IRON	NA	2030	1160	972 J E	50	U J E	U J	118 J E *
LEAD	1	2.3 J	U J	1.3 J	5	U	U	U J
MAGNESIUM	1030	U	U	1060 U	5000	U	U	U
MANGANESE	NA	74	37.7	7.7	15	U	U J	U
MERCURY	0.1	U	U	0.11 U	0.2	U	U	U
NICKEL	8.2	U	U	8.5 U	40	U	U	U
POTASSIUM	1030	U	U	1060 U	5000	U	U	U
SELENIUM	1	U J	U J	1.1 U J	5	U J	U J	U J
SODIUM	1030	U	U	1660	5000	U	U	176000
VANADIUM	10.3	U	U	10.6 U	50	U	U	U
ZINC	2.1	4.3	U	2.3 B	10	23.8	U J	U
CYANIDE (mg/kg)	1	U	U	1.1 U	10	U	U	U

INORGANIC QUALIFIERS AND NOTES

B=indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.

U=indicates element was analyzed for but not detected; if present with a number, the number reflects increased detection limits.

E=indicates a value estimated or not reported due to the presence of interference.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits
where the compound/element was not detected in the background sample.

TABLE 5-2A SOIL SAMPLING RESULTS: STORM DRAIN SYSTEM-SOUTH OF BUILDING

GIBSON CHEMICAL OIL

COMMACK, NY

SAMPLE ID SAMPLE DEPTH (FT) SAMPLE DATE	DETECTION LIMITS (ug/kg)	S-FSDS-1 (26-28) 7/24/91	S-FSDS-2 (28-30) 7/30/91	S-FSDS-3 (26-28) 7/30/91	S-FSDS-4 (28-30) 7/30/91	S-PSDS-1 (28-30) 7/25/91	S-PSDS-2C (3-4) 7/26/91
VOLATILE ORGANIC COMPOUNDS (ug/kg)							
1,2-DICHLOROETHENE	5	U	U	U	U	U	7 U
2-BUTANONE	10	U	11 U	U	11 U	11 U	13 U
4-METHYL-2-PENTANONE	10	U J	11 U	U	11 U	11 U	13 U J
ACETONE	10	U	31	U	9 J	51	13 U
CARBON DISULFIDE	5	U	U	U	U	U	7 U
CHLOROFORM	5	U	U	U	U	U	7 U
ETHYLBENZENE	5	U J	U	U	U	U	7 U J
ETHYLENE GLYCOL (ug/g)*	1	-	-	-	-	-	-
METHYLENE CHLORIDE	5	9 U	U	U	U	6 U	7 U
TETRACHLOROETHENE	5	U J	U	U	U	U	7 U J
TOLUENE	5	27 J	U	U	U	U	7 U J
XYLENES (TOTAL)	5	23 J	U	U	U	U	7 U J
TOTAL VOs (not including TICs)	-	50	31	U	9	51	U
TOTAL TICs	-	70 J	20 J	U	9 J	U	U
SEMI-VOLATILES (ug/kg)		DF=2					DF=3
2-METHYLNAPHTHALENE	320	79 J	350 U	330 U	350 U	350 U	940 J
ANTHRACENE	320	700 U J	350 U	330 U	350 U	350 U	1200 U
BENZO(a)ANTHRACENE	320	700 U J	350 U	330 U	350 U	350 U J	1200 U J
BENZO(a)PYRENE	320	700 U J	350 U	330 U	350 U	350 U J	1200 U J
BENZO(b)FLUORANTHENE	320	700 U J	350 U	330 U	350 U	350 U J	1200 U J
BENZO(k)FLUORANTHENE	320	700 U J	350 U	330 U	350 U	350 U J	1200 U J
BIS(2-ETHYLHEXYL)PHTHALATE	320	700 U J	350 U	330 U	350 U	350 U J	1200 U J
CHRYSENE	320	700 U J	350 U	330 U	350 U	350 U J	1200 U J
FLUORANTHENE	320	700 U J	350 U	330 U	350 U	350 U	1200 U
PHENANTHRENE	320	360 J	350 U	330 U	350 U	350 U	820 J
PYRENE	320	700 U J	350 U	330 U	350 U	350 U J	1200 U J
TOTAL SVs (not including TICs)	-	360	U	U	U	U	1760
TOTAL TICs	-	25400 J	U	400 J	U	5100 J	153000 J
PCB's AND PESTICIDES (ug/kg)							
4,4'-DDD	16	17 U	17 U	U	17 U	17 U	20 U
4,4'-DDE	16	17 U	17 U	U	17 U	17 U	20 U
4,4'-DDT	16	17 U	17 U	U	17 U	17 U	20 U
ALPHA CHLORDANE	80	84 U	83 U	U	83 U	83 U	12 J
DIELDRIN	16	17 U	17 U	U	17 U	17 U	20 U
GAMMA CHLORDANE	80	84 U	83 U	U	83 U	83 U	7.5 J
TPH (mg/kg)	10	36000	19	52	20	5250	17400

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soils.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

E=value reported exceeds the linear range of the instrument curve and should be considered estimated.

U=compound was analyzed for but not detected; if present with a number, the number reflects increased detection limits.

DF=dilution factor.

TIC=Tentatively Identified Compounds.

*Ethylene glycol analysis performed by the New York State Department of Health, Wadsworth Center for Laboratories and Research.

-=compound was not analyzed for.

NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits where the compound/element was not detected in the background sample.

TABLE 5-2B SOIL SAMPLING RESULTS: STORM DRAIN SYSTEM-SOUTH OF BUILDING
GIBSON CHEMICAL & OIL
COMMACK, NY

SAMPLE ID	DETECTION	S-FSDS-1	S-FSDS-2	S-FSDS-3	S-FSDS-4	S-PSDS-1	S-PSDS-2C
SAMPLE DEPTH (FT)	LIMITS	(26-28)	(28-30)	(26-28)	(28-30)	(28-30)	(3-4)
SAMPLE DATE	(mg/kg)	7/24/91	7/30/91	7/30/91	7/30/91	7/25/91	7/26/91
INORGANICS (mg/kg)							
ALUMINUM	NA	268	460	417	417	481	1950
ARSENIC	2.1	U	U	U	U	U	2.5 U
BARIUM	5.2	5.3 U	U	U	5.3 U	U	20.0 B
CADMIUM	0.21	U	U	U	U	U	0.96 B
CALCIUM	1030	1050 U	1040 U	U	1060 U	1040 U	4280
CHROMIUM	2.1	U	3.1	U	3.1	7.9	4.9
COPPER	5.2	5.3 U	U	U	6.6	5.7	17.1
IRON	NA	440 J E	1570 J E	1550 J E	1340 J E	1620 J E	3990 J E
LEAD	1	1.3 J	1.2 J	1.2 J	1.3 J	1.5 J	226 J
MAGNESIUM	1030	1050 U	1040 U	U	1060 U	1040 U	2620
MANGANESE	NA	5.9	23.9	9.8	28.9	8	47.7
MERCURY	0.1	0.52	U	0.21	0.11 U	U	0.13 U
NICKEL	8.2	8.4 U	8.3 U	U	8.5 U	8.3 U	10.2
POTASSIUM	1030	1050 U	1040 U	U	1060 U	1040 U	1270 U
SELENIUM	1	1.1 U J	U J	U J	1.1 U J	U J	1.3 U J
SODIUM	1030	1440	1510	1530	1470	1040 U	1810
VANADIUM	10.3	10.5 U	10.4 U	U	10.6 U	10.4 U	16.1
ZINC	2.1	U	3.2 B	4.2	U	2.6 B	68.1
CYANIDE (mg/kg)	1	U	U	U	U	U	1.3 U

INORGANIC QUALIFIERS AND NOTES

B=indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.
U=indicates element was analyzed for but not detected; if present with a number, the number reflects increased detection limits.
E=indicates a value estimated or not reported due to the presence of interference.
J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.
NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits
where the compound/element was not detected in the background sample.

TABLE 5-3A SOIL SAMPLING RESULTS: UNDERGROUND TANK FIELD & WALL DISCHARGE AREAS
GIBSON CHEMICAL & OIL
COMMACK, NY

SAMPLE ID	DETECTION	S-UTF-1	S-UTF-2	S-UTF-3	S-UTF-4	S-UTF-5	S-UTF-5	S-UTF-6	S-WD-1	S-WD-2
SAMPLE DEPTH (FT)	LIMITS	(27-29)	(27-29)	(19-21)	(28-30)	(10-12)	(20-22)	(27-29)	(0-2)	(4-6)
SAMPLE DATE	(ug/kg)	7/31/91	8/1/91	7/31/91	8/2/91	8/5/91	8/5/91	8/1/91	7/25/91	7/25/91
VOLATILE ORGANIC COMPOUNDS (ug/kg)										
1,2-DICHLOROETHENE	5	U	24 U	U	U	U	8 J	U	6 U	14 U
2-BUTANONE	10	11 U	48 U	U	11 U	11 U	15 J	U	11 U	28 U
4-METHYL-2-PENTANONE	10	11 U	48 U	U	11 U	11 U	38 J	U	11 U	28 U
ACETONE	10	11 U	250	120	11 U	11 U	52 U	U	11 U	2800
CARBON DISULFIDE	5	U	24 U	U	U	U	U J	U	6 U	14 U
CHLOROFORM	5	U	24 U	U	U	U	U J	U	6 U	14 U
ETHYLBENZENE	5	U	150	23	U	5 J	80 J	U	6 U	14 U
ETHYLENE GLYCOL (ug/g)*	1	-	87	-	-	-	-	U	-	-
METHYLENE CHLORIDE	5	U	17 J	U	U	13 U	4 J	U	6 U	15 U
TETRACHLOROETHENE	5	U	24 U	U	U	U	23 J	U	6 U	14 U
TOLUENE	5	U	71	U	U	U	210 D	U	6 U	14 U
XYLENES (TOTAL)	5	U	600	160	U	71	1300 D	U	22	33
TOTAL VOs (not including TICs)	-	U	1088	303	U	76	1468	U	22	2833
TOTAL TICs	-	U	110 J	277 J	U	7 J	1950 J	U	U	800 J
SEMI-VOLATILES (ug/kg)			DF=4				DF=4			
2-METHYLNAPHTHALENE	320	350 U	210 J	350 U	350 U	360 U	1400 U	340 U	370 U	350 U
ANTHRACENE	320	350 U	1400 U J	350 U	350 U	360 U	1400 U J	340 U	370 U	350 U
BENZO(a)ANTHRACENE	320	350 U	1400 U J	350 U	350 U	360 U	1400 U J	340 U	370 U J	350 U J
BENZO(a)PYRENE	320	350 U	1400 U J	350 U	350 U	360 U J	1400 U J	340 U	370 U J	350 U J
BENZO(b)FLUORANTHENE	320	350 U	1400 U J	350 U	350 U	360 U J	1400 U J	340 U	370 U J	350 U J
BENZO(k)FLUORANTHENE	320	350 U	1400 U J	350 U	350 U	360 U J	1400 U J	340 U	370 U J	350 U J
BIS(2-ETHYLHEXYL)PHTHALATE	320	350 U	1400 U J	350 U	660 U	360 U	1400 U J	340 U	370 U J	350 U J
CHRYSENE	320	350 U	1400 U J	350 U	350 U	360 U	1400 U J	340 U	370 U J	350 U J
FLUORANTHENE	320	350 U	1400 U J	350 U	350 U	360 U	1400 U J	340 U	370 U	350 U
NAPHTHALENE	320	350 U	150 J	350 U	350 U	360 U	1400 U J	340 U	370 U	350 U
PHENANTHRENE	320	350 U	350 J	350 U	350 U	360 U	1400 U J	340 U	370 U	350 U
PYRENE	320	350 U	1400 U J	350 U	350 U	360 U	1400 U J	340 U	370 U J	350 U
TOTA SVs (not including TICs)	-	U	500	U	U	U	U	U	U	U
TOTAL TICs	-	U	94000 J	30700 J	U	5200 J	47000 J	U	2300 J	12000 J
PCB's AND PESTICIDES (ug/kg)										
4,4'-DDD	16	17 U	17 U	17 U	17 U	7.8 J	U	U	18 U	17 U
4,4'-DDE	16	17 U	17 U	17 U	17 U	5.8 J	U	U	18 U	17 U
4,4'-DDT	16	17 U	17 U	17 U	17 U	18 U	U	U	18 U	17 U
ALPHA CHLORDANE	80	83 U	84 U	83 U	83 U	7.5 J	82 U	82 U	11 J	85 U
DIELDRIN	16	17 U	17 U	17 U	17 U	18 U	U	U	18 U	17 U
GAMMA CHLORDANE	80	83 U	84 U	83 U	83 U	4.3 J	82 U	82 U	5.7 J	85 U
TPH (mg/kg)	10	25	49470	343	34	4110	70100	23	456	1790

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soils.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

U=compound was analyzed for but not detected; if present with a number, the number reflects increased detection limit.

D=reported concentraton value reflects dilution.

DF=dilution factor.

TIC=Tentatively Identified Compounds.

-=compound not analyzed for.

*Ethylene glycol analysis performed by the New York State Department of Health, Wardsworth Center for Laboratories and Research.

NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits where the compound/element was not detected in the background sample.

TABLE 5-3B SOIL SAMPLING RESULTS: UNDERGROUND TANK FIELD & WALL DISCHARGE AREAS

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID	DETECTION	S-UTF-1	S-UTF-2	S-UTF-3	S-UTF-4	S-UTF-5	S-UTF-5	S-UTF-6	S-WD-1	S-WD-2
SAMPLE DEPTH (FT)	LIMITS	(27-29)	(27-29)	(19-21)	(28-30)	(10-12)	(20-22)	(27-29)	(0-2)	(4-6)
SAMPLE DATE	(mg/kg)	7/31/91	8/1/91	7/31/91	8/2/91	8/5/91	8/5/91	8/1/91	7/25/91	7/25/91
INORGANICS (mg/kg)										
ALUMINUM	NA	436	345	348	562	6710	300	257	6460	1480
ARSENIC	2.1	U	U	U	U	2.9	U	U	3.5	U
BARIUM	5.2	U	5.3 U	U	U	18.4 B	U	U	19.1 B	U
CADMIUM	0.21	U	U	U	U	0.22 U	U	U	0.22 U	U
CALCIUM	1030	1040 U	1050 U	1040 U	1040 U	5520	U	U	6840	2300
CHROMIUM	2.1	3	U	U	U	6.3	U	U	11.7	U
COPPER	5.2	U	5.3 U	U	U	6.1	U	U	11.6	U
IRON	NA	2180	1350	746	1480	8580	826	785	8290 J E	2980 J E
LEAD	1	U J	1.1 U J	U J	U J	45.6 J	U J	U J	103 J	18.4
MAGNESIUM	1030	1040 U	1050 U	1040 U	1040 U	1550	U	U	2080	1240
MANGANESE	NA	47.6	53.8	10.1	47.2	101	14.8	18.1	109	51.5
MERCURY	0.1	U	0.11 U	U	U	0.11 U	U	U	0.11 U	U
NICKEL	8.2	8.3 U	8.4 U	8.3 U	8.3 U	8.9 U	U	U	8.8 U	8.3 U
POTASSIUM	1030	1040 U	050 U	1040 U	1040 U	1110 U	U	U	1100 U	1040 U
SELENIUM	1	U J	1.1 U J	U J	U J	1.1 U J	U J	U J	1.1 U	U J
SODIUM	1030	1040 U	1050 U	1040 U	1040 U	1110 U	U	U	1700	1450
VANADIUM	10.3	10.4 U	10.5 U	10.4 U	10.4 U	12.4	U	U	15.7	10.4 U
ZINC	2.1	2.3 B	U	2.8 B	U	22.8	U	U	33.4	7.8
CYANIDE (mg/kg)	1	U	U	U	U	U	U	U	1.1 U	1.1 U

INORGANIC QUALIFIERS AND NOTES

B=Indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.
U=Indicates element was analyzed for but not detected; if present with a number, the number reflects increased detection limit.
E=Indicates a value estimated or not reported due to the presence of interference.
J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.
NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits
where the compound/element was not detected in the background sample.

TABLE 5-4A SOIL SAMPLING RESULTS: MIS LANEOUS BORINGS-SOUTH OF BUILDING

GIBS CHEMICAL & OIL

COMMACK, NY

SAMPLE ID SAMPLE DEPTH (FT) SAMPLE DATE	DETECTION LIMITS (ug/kg)	S-FWT-1 (9-11) 7/23/91	S-PWT-1 (24-26) 7/29/91	S-SL-1 (0-2) 7/24/91	S-SL-2 (0-2) 7/24/91	S-SL-3)0-2) 7/23/91	S-SL-4 (0-2) 7/24/91	S-SP (0-2) 7/26/91	S-RB (1-2) 8/14/91
VOLATILE ORGANIC COMPOUNDS (ug/kg)									
1,2-DICHLOROETHENE	5	U	U	U	-	6 U	-	U	6 U
2-BUTANONE	10	11 U	U	11 U	-	11 U	-	U	R
4-METHYL-2-PENTANONE	10	11 U	U	11 U	-	11 U	-	U	12 U
ACETONE	10	11 U	U	11U	-	11 U	-	U	12 u
CARBON DISULFIDE	5	U	U	U	-	6 U	-	U	6 U
CHLOROFORM	5	U	U	U	-	6 U	-	U	6 U
ETHYLBENZENE	5	U	U	U	-	6 U	-	U	6 U
ETHYLENE GLYCOL (ug/l)*	1	-	-	-	-	-	-	-	-
METHYLENE CHLORIDE	5	U	U	5 J	-	6 U	-	5	6 U
TETRACHLOROETHENE	5	U	U	3 J	-	6 U	-	7	6 U
TOLUENE	5	U	U	U	-	6 U	-	U	6 U
XYLENES (TOTAL)	5	U	U	U	-	6 U	-	U	6 U
TOTAL VOs (not including TICs)	-	U	U	8	-	U	-	12	U
TOTAL TICs	-	U	U	U	-	U	-	U	U
SEMI-VOLATILES (ug/kg)								DF=2	DF=3
2-METHYLNAPHTHALENE	320	350 U	340 U	350 U	-	350 U	-	680 U	1100 U
ANTHRACENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	470 J
BENZO(a)ANTHRACENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	950 J
BENZO(a)PYRENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	910 J
BENZO(b)FLUORANTHENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	1100 J
BENZO(k)FLUORANTHENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	790 J
BIS(2-ETHYLHEXYL)PHTHALATE	320	350 U	340 U	350 U	-	350 U	-	680 U J	1100 U J
CHRYSENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	1100 J
FLUORANTHENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	2400
PHENANTHRENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	1700
PYRENE	320	350 U	340 U	350 U	-	350 U	-	680 U J	3000 J
TOTAL SVs (not including TICs)	-	U	U	U	-	U	-	U	12420
TOTAL TICs	-	600 J	U	U	-	U	-	27900 J	2600 J
PCB's AND PESTICIDES (ug/kg)									
4,4'-DDD	16	17 U	U	17 U	-	U	-	17 U	18 U
4,4'-DDE	16	17 U	U	17 U	-	U	-	17 U	18 U
4,4'-DDT	16	17 U	U	17 U	-	U	-	17 U	18 U
ALPHA CHLORDANE	80	84 U	82 U	84 U	-	U	-	84 U	20 J
DIELDRIN	16	17 U	U	9.8 J	-	U	-	17 U	18 U
GAMMA CHLORDANE	80	84 U	82 U	84 U	-	U	-	84 U	12 J
TPH (mg/kg)	10	U	27	23	46	18	11 U	21800	221

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soils.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

E=value reported exceeds the linear range of the instrument curve and should be considered estimated.

U=compound was analyzed for but not detected; if present with a number, the number reflects increased detection limit.

DF=dilution factor.

TIC=Tentatively Identified Compounds.

-=compound not analyzed for.

*Ethylene glycol analysis performed by the New York State Department of Health, Wadsworth Center for Laboratories and Research.

NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits where the compound/element was not detected in the background sample.

R=value rejected due to contract required quality review.

TABLE 5-4B SOIL SAMPLING RESULTS: MISCELLANEOUS BORINGS-SOUTH OF BUILDING

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID	DETECTION	S-FWT-1	S-PWT-1	S-SL-1	S-SL-2	S-SL-3	S-SL-4	S-SP	S-RB
SAMPLE DEPTH (FT)	LIMITS	(9-11)	(24-26)	(0-2)	(0-2)	)0-2)	(0-2)	(0-2)	(1-2)
SAMPLE DATE	(mg/kg)	7/23/91	7/29/91	7/24/91	7/24/91	7/23/91	7/24/91	7/26/91	8/14/91
INORGANICS (mg/kg)									
ALUMINUM	NA	834	401	8760	-	2940	-	3720	1130
ARSENIC	2.1	U	U	3.2	-	U	-	U	2.2 U
BARIUM	5.2	5.3 U	U	15.6 B	-	7.4 B	-	7.8 B	5.6 U
CADMIUM	0.21	U	U	U	-	U	-	U	1.1 U
CALCIUM	1030	1050 U	U	1580	-	1060 U	-	1050 U	16900
CHROMIUM	2.1	3.1	U	4.8	-	4.9	-	7.5	57.7 J
COPPER	5.2	5.3 U	U	5.3 U	-	6.6	-	7.4	25.9 J
IRON	NA	1800 J E	1110 J E	11300 J E	-	5320 J E	-	7540 J E	8140 J
LEAD	1	1.3 J	1.4 J	15.9	-	8.8	-	47.9 J	164
MAGNESIUM	1030	1050 U	U	1430	-	1060 U	-	1050 U	9250
MANGANESE	NA	21.1	29.9	86.7	-	124	-	162	63.6 J
MERCURY	0.1	0.11 U	U	0.11 U	-	0.15	-	0.11 U	0.11 U
NICKEL	8.2	8.4 U	U	8.4 U	-	8.5 U	-	8.4 U	9.1
POTASSIUM	1030	1050 U	U	1050 U	-	1060 U	-	1050 U	1120 U
SELENIUM	1	1.1 U J	U J	1.1 U J	-	1.1 U J	-	1.1 U J	1.1 U
SODIUM	1030	1480	1500	1420	-	1640	-	1500	1120 U
VANADIUM	10.3	10.5 U	U	15.5	-	10.6 U	-	10.5 U	11.2 U
ZINC	2.1	2.5 B	U	16.9 J	-	7.5	-	13.4	69.3 J
CYANIDE (mg/kg)	1	U	U	U	-	1.1 U	-	U	U

INORGANIC QUALIFIERS AND NOTES

B=indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.

U=indicates element was analyzed for but not detected; if present with a number, the number reflects increased detection limit.

E=indicates a value estimated or not reported due to the presence of interference.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits where the compound/element was not detected in the background sample.

TABLE 5-5A SOIL SAMPLING RESULTS: DRUM ST GE, TANK FIELD, AND STORM DRAIN SYSTEM AREAS
EAST C JILDING
GIBSON CHEMICAL & OIL
COMMACK, NY

SAMPLE ID	DETECTION LIMITS (ug/kg)	E-DS1-1	E-DS1-2	E-DS1-3	E-DS2-2	E-DS2-3	E-TF-1	E-TF-2	E-SDS-1	E-SDS-2
SAMPLE DEPTH (FT)		(0-2)	(2-4)	(2-4)	(0-2)	(0-2)	(25-27)	(0-2)	(15-17)	(15-17)
SAMPLE DATE		8/15/91	8/14/91	8/14/91	8/12/91	8/13/91	8/12/91	8/7/91	8/9/91	8/9/91
VOLATILE ORGANIC COMPOUNDS (ug/kg)										
1,2-DICHLOROETHENE	5	6 U	U	6 U	6 U	6 U	U	6 U	7 U	6 U
2-BUTANONE	10	12 U	11 U	11 U	12 U	11 U	U	11 U	14 U	13 U
4-METHYL-2-PENTANONE	10	12 U	11 U	11 U	12 U	11 U	U	11 U	14 U	13 U J
ACETONE	10	12 U	33	52	12 U	120	U	11 U	51	160
CARBON DISULFIDE	5	6 U	U	6 U	6 U	49	U	6 U	11	6 U
CHLOROFORM	5	6 U	U	6 U	6 U	6 U	1 J	6 U	3 J	3 J
ETHYLBENZENE	5	6 U	U	6 U	6 U	6 U	U	6 U	7 U	U J
ETHYLENE GLYCOL (ug/g)*	1	-	-	-	-	-	-	-	-	-
METHYLENE CHLORIDE	5	6 J	5 J	5 J	4 J	6 U	U	6 U	10 U	6 U
TETRACHLOROETHENE	5	6 U	U	6 U	6 U	6 U	U	6 U	7 U	6 U J
TOLUENE	5	6 U	U	6 U	6 U	6 U	U	6 U	5 J	6 U J
XYLENES (TOTAL)	5	6 U	U	6 U	6 U	6 U	U	6 U	7 U	6 U J
TOTAL VOs (not including TICs)	-	6	38	57	4	169	1	U	70	163
TOTAL TICs	-	U	U	U	U	U	U	U	U	U
SEMI-VOLATILES (ug/kg)					DF=2			DF=2	DF=2	DF=2
2-METHYLNAPHTHALENE	320	U	360 U	370 U	690 U	370 U	350 U	730 U	880 U	830 U
ANTHRACENE	320	U	360 U	370 U	690 U	370 U	350 U	730 U	880 U	830 U J
BENZO(a)ANTHRACENE	320	U	360 U	370 U	690 U	370 U	350 U	730 U	880 U J	830 U J
BENZO(a)PYRENE	320	U J	360 U	370 U	690 U J	370 U J	350 U	730 U J	880 U J	830 U J
BENZO(b)FLUORANTHENE	320	U J	360 U	370 U	690 U J	370 U J	350 U	730 U J	880 U J	830 U J
BENZO(k)FLUORANTHENE	320	U J	360 U	370 U	690 U J	370 U J	350 U	730 U J	880 U J	830 U J
BIS(2-ETHYLHEXYL)PHTHALATE	320	U	92 J	370 U	120 J	370 U	350 U	210 J	5500 J	5400 J
CHRYSENE	320	U	360 U	370 U	690 U	370 U	350 U	730 U	880 U J	830 U J
FLUORANTHENE	320	U	360 U	370 U	690 U	370 U	350 U	730 U	450 J	410 J
PHENANTHRENE	320	U	360 U	370 U	690 U	370 U	350 U	730 U	250 J	420 J
PYRENE	320	U	360 U	370 U	690 U	370 U	350 U	730 U	650 J	1000 J
TOTAL SVs (not including TICs)	-	U	92	U	120	U	U	210	6850	7230
TOTAL TICs	-	3300 J	2400 J	U	4600 J	16270 JN	U	4900 J	8400 J	26800 J
PCB's AND PESTICIDES (ug/kg)										
4,4'-DDD	16	19 U	17 U	18 U	19 U	18 U	17 U	18 U	21 U	20 U
4,4'-DDE	16	19 U	17 U	18 U	19 U	18 U	17 U	18 U	21 U	20 U
4,4'-DDT	16	19 U	17 U	18 U	19 U	18 U	17 U	18 U	21 U	20 U
ALPHA CHLORDANE	80	93 U	87 U	89 U	94 U	90 U	83 U	88 U	13 J	16 J
DIELDRIN	16	19 U	17 U	18 U	19 U	18 U	17 U	18 U	21 U	20 U
GAMMA CHLORDANE	80	93 U	87 U	89 U	94 U	90 U	83 U	88 U	6.0 J	9.3 J
TPH	10	71 J	56	20	190	674	U	934	163	1720

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soil.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

U=compound was analyzed for but not detected; if present with a number, the number reflects increased detection limits.

DF=dilution factor.

TIC=Tentatively Identified Compounds.

-=compound was not analyzed for.

*Ethylene glycol analysis performed by New York State Department of Health, Wadsworth Center for Laboratories and Research.

NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits where the compound/element was not detected in the background sample.

TABLE 5-5A SOIL SAMPLING RESULTS: DRUM STORAGE, TANK FIELD, AND STORM DRAIN SYSTEM AREAS
EAST OF BUILDING
GIBSON CHEMICAL & OIL
COMMACK, NY

SAMPLE ID	DETECTION LIMITS (mg/kg)	E-DS1-1	E-DS1-2	E-DS1-3	E-DS2-2	E-DS2-3	E-TF-1	E-TF-2	E-SDS-1	E-SDS-2
SAMPLE DEPTH (FT)		(0-2)	(2-4)	(2-4)	(0-2)	(0-2)	(25-27)	(0-2)	(15-17)	(15-17)
SAMPLE DATE		8/15/91	8/14/91	8/14/91	8/12/91	8/13/91	8/12/91	8/7/91	8/9/91	8/9/91
INORGANICS (mg/kg)										
ALUMINUM	NA	8270 J E	5750	5240	9760	10300	299	4780	3020	5170
ARSENIC	2.1	4	2.2 U	2.2 U	2.4 U	2.3	U	2.2 U	2.6 U	3.0 U J
BARIUM	5.2	14.2 B	10.6 B	9.2 B	27.8 B	14.2 B	U	13.7 B	12.0 B	40.3 B
CADMIUM	0.21	0.23 U	0.22 U	0.22 U	1.2 U	1.1 U	1.0 U	0.22 U	0.26 U	0.25 U
CALCIUM	1030	3550 J	1090 U	1110 U	17000	1120 U	1040 U	7470	21600	14200
CHROMIUM	2.1	11.8 J	6.8 J	4.9 J	15.7 J	15.7 J	4.1 J	7.3	8.1 J	26.8 J
COPPER	5.2	5.8 U	5.4 U J	5.6 U J	30 J	5.6 U J	U J	5.5 U	11.6 J	15.3 J
IRON	NA	10900 J E	8930 J E	8130 J E	13300 J E	13700 J E	1490 J E	6950	6950 J E	8990 J E
LEAD	1	7.2 J	2.8	7.3 J	8.9	11.9 J	U	7.9 J	9.2	83
MAGNESIUM	1030	2610	1090 U	1110 U	9720	1250	1040 U	4380	11600	6280
MANGANESE	NA	146 J	162 J	129 J	97.9 J	130 J	50.3 J	86.7	67.3 J	147 J
MERCURY	0.1	0.12 U	0.11 U	0.11 U	0.12 U J	0.11 U J	U J	0.14	0.13 U J	0.12 U J
NICKEL	8.2	9.3 U	8.7 U	8.9 U	9.4 U	9.3	8.3 U	8.8 U	10.5 U	10.0 U
POTASSIUM	1030	1160 U	1090 U	1110 U	1180 U	1120 U	1040 U	1100 U	1320 U	1250 U
SELENIUM	1	1.2 U J	1.1U J	1.1 U J	1.2 U J	1.1 U J	U J	1.1 U J	1.3 U J	1.2 U J
SODIUM	1030	1160 U	1090 U	1110 U	1180 U	1120 U	1040 U	1100 U	1320 U	1250 U
VANADIUM	10.3	17.1	11.4	11.1 U	21.2	20.2	10.4 U	11.0 U	17.8	26.5
ZINC	2.1	25.5	13.5 J	12.2 J	39.6 J	18.0 J	20.5 J	11.4	109 J	141 J
CYANIDE (mg/kg)	1	U	U	U	U	U	U	U	U	U

INORGANIC QUALIFIERS AND NOTES

B=indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.
U=indicates element was analyzed for but not detected; if present with a number, the number reflects increased detection limits.
E=indicates a value estimated or not reported due to the presence of interference.
J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.
NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits
where the compound/element was not detected in the background sample.

TABLE 5-6A SOIL SAMPLING RESULTS: MISCELLANEOUS BORINGS-EASTERN LOT

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID	DETECTION	E-SP-1	E-SP-2	E-P-1	E-P-2	E-RP	E-UL-1	E-TS-3	TRENCH 11	TRENCH 14
SAMPLE DEPTH (FT)	LIMITS	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(2-4)	(4-6)	-	-
SAMPLE DATE	(ug/kg)	8/15/91	8/20/91	8/9/91	8/9,13/91~	8/13/91	8/14/91	8/7/91	7/31/91	8/1/91
VOLATILE ORGANIC COMPOUNDS (ug/kg)										
1,2-DICHLOROETHENE	5	6 U	6 U	25 U	6 U	6 U	6 U	U	6 U	U
2-BUTANONE	10	11 U	R	50 U	12 U	12 U	11 U	U	11 U	11 U
4-METHYL-2-PENTANONE	10	11 U	12 U	50 U	12 U	12 U	11 U	U	11 U	11 U
ACETONE	10	170	12 U	260	29	39	11 U	U	76	33
CARBON DISULFIDE	5	6 U	6 U	25 U	6 U	6 U	6 U	U	6 U	U
CHLOROFORM	5	6 U	6 U	13 J	3 J	6 U	6 U	U	6 U	U
ETHYLBENZENE	5	6 U	6 U	270	6 U	6 U	6 U	U	6 U	U
ETHYLENE GLYCOL (ug/g)*	1	-	-	-	-	-	-	-	-	-
METHYLENE CHLORIDE	5	6 U	17 U	25 U	6 U	5 J	5 J	U	6 U	U
TETRACHLOROETHENE	5	6 U	6 U	25 U	6 U	6 U	6 U	U	6 U	U
TOLUENE	5	6 U	6 U	25 U	6 U	6 U	6 U	U	6 U	U
XYLENES (TOTAL)	5	6 U	6 U	530	6 U	6 U	6 U	U	6 U	16
TOTAL VOs (not including TICs)	-	170	U	1073	32	44	5	U	76	49
TOTAL TICs	-	U	U	50 J	U	U	U	U	U	U
SEMI-VOLATILES (ug/kg)						DF=2				DF=2
2-METHYLNAPHTHALENE	320	360 U	350 U	160 J	380 U	720 U	370 U	340 U	370 U	720 U
ANTHRACENE	320	360 U	350 U	370 U J	380 U	720 U	370 U	340 U	370 U	720 U
BENZO(a)ANTHRACENE	320	360 U	350 U	370 U J	380 U J	720 U J	370 U	340 U	370 U	720 U J
BENZO(a)PYRENE	320	360 U	350 U	370 U J	380 U J	720 U J	370 U	340 U	370 U	720 U J
BENZO(b)FLUORANTHENE	320	360 U	350 U	370 U J	380 U J	720 U J	370 U	340 U	370 U	720 U J
BENZO(k)FLUORANTHENE	320	360 U	350 U	370 U J	380 U J	720 U J	370 U	340 U	370 U	720 U J
BIS(2-ETHYLHEXYL)PHTHALATE	320	360 U	350 U	1000 J	380 U J	720 U J	370 U	110 J	610 U	720 U J
CHRYSENE	320	360 U	350 U	370 U J	380 U J	720 U J	370 U	340 U	370 U	720 U J
FLUORANTHENE	320	360 U	350 U	370 U J	380 U	720 U	370 U	340 U	370 U	720 U
PHENANTHRENE	320	360 U	350 U	160 J	380 U	720 U	370 U	340 U	370 U	720 U
PYRENE	320	360 U	350 U	370 U J	380 U J	720 U J	370 U	340 U	370 U	720 U J
TOTAL SV's (not including TICs)	-	U	U	1160	U	U	U	110	U	U
TOTAL TIC's	-	100 J	U	10900	700 J	9000 J	3900 J	U	2800 J	22800 J
PCB's AND PESTICIDES (ug/kg)										
4,4'-DDD	16	17 U	19 U	18 U	15 J	18 U	18 U	U	4.9 J	2.0 J
4,4'-DDE	16	17 U	19 U	18 U	7.4 J	18 U	18 U	U	1.9 J	17 U
4,4'-DDT	16	17 U	19 U	18 U	9.8 J	18 U	18 U	U	18 U	17 U
ALPHA CHLORDANE	80	87 U	93 U	88 U	13 J	89 U	88 U	U	3.3 J	86 U
DIELDRIN	16	17 U	19 U	18 U	18 U	18 U	18 U	U	18 U	17 U
GAMMA CHLORDANE	80	87 U	93 U	88 U	6.4 J	89 U	88 U	U	1.8 J	86 U
TPH (mg/kg)	10	138	44 J	1760	77	911	41	33	1290	13550

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soils.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

U=compound was analyzed for but not detected; if present with a number, the number reflects increased detection limits.

DF=dilution factor.

TIC=Tentatively Identified Compounds.

-=compound not analyzed for.

*Ethylene glycol analysis performed by New York State Department of Health, Wadsworth Center for Laboratories and Research.

NOTE: shading indicates concentrations greater than 3 X background or 5 X detection limits where the compound/element was not detected in the background sample.

R=value rejected due to contract required data review.

~=volatile sample collected on 8/9, all other parameters collected on 8/13.

TABLE 5-6B SOIL SAMPLING RESULTS: MISCELLANEOUS BORINGS-EASTERN LOT

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID	DETECTION LIMITS (mg/kg)	E-SP-1	E-SP-2	E-P-1	E-P-2	E-RP	E-UL-1	E-TS-3	TRENCH 11	TRENCH 14
SAMPLE DEPTH (FT)		(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(2-4)	(4-6)	-	-
SAMPLE DATE		8/15/91	8/20/91	8/9/91	8/9,13/91~	8/13/91	8/14/91	8/7/91	7/31/91	8/1/91
INORGANICS (mg/kg)										
ALUMINUM	NA	10400	13200 J E	5040	10400	4070	6700	695	8820	4320
ARSENIC	2.1	4.1	3.1	3.7 J	2.3 U J	2.7 J	2.6	U	2.6	2.2 U
BARIUM	5.2	16.9 B	26.6 B	11.3 B	19.0 B	8.8 B	13.0 B	U	15.0 B	11.8 B
CADMIUM	0.21	0.22 U	0.23 U	0.22 U	1.1 U	1.1 U	0.22 U	U	0.22 U	0.22 U
CALCIUM	1030	1090 U	1160 U J	2030	1500	4840	1100 U	U	3150	12800
CHROMIUM	2.1	13.5 J	16.6 J	17.0 J	13.4 J	9.7 J	9.6 J	2.7	10.8	8.5
COPPER	5.2	5.4 U J	6.1	7.1 J	5.7 U J	5.6 U J	5.7 J	U	8	5.4 U
IRON	NA	13100 J E	17000 J E	8480 J E	13100 J E	7590 J E	9910 J E	2540	9230	6780
LEAD	1	6.7	26.6 J	4.8	48.5 J	5.6	2.6	5.2 J	28.1 J	4.7 J
MAGNESIUM	1030	1410	2060	1100 U	1150 U	2850	1100 U	U	2220	7060
MANGANESE	NA	162 J	198 J	93.1 J	97.7 J	110 J	165 J	119	113	113
MERCURY	0.1	0.11 U	0.12 U	0.11 U J	0.12 J	0.11 U J	0.11 U	0.11	0.11 U	0.11 U
NICKEL	8.2	8.9	12.7	8.8 U	9.2 U	8.9 U	8.8 U	U	8.8 U	8.6 U
POTASSIUM	1030	1090 U	1160 U	1100 U	1150 U	1110 U	1100 U	U	1100 U	1080 U
SELENIUM	1	1.1 U J	1.2 U J	1.1 U J	1.1 U J	1.1 U J	1.1 U J	U J	1.1 U J	1.1 U J
SODIUM	1030	1090 U	1160 U	1100 U	1150 U	1110 U	1100 U	U	1100 U	1080 U
VANADIUM	10.3	18.7	27.6	14.5	23.9	11.1 U	13.5	U	12.4	11
ZINC	2.1	25.5 J	25.8	19.9 J	24.1 J	19.4 J	14.8 J	3.7 B	22	13.9
CYANIDE (mg/kg)	1	U	U	U	U	U	U	U	U	U

INORGANIC QUALIFIERS AND NOTES

B=Indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.
U=compound was analyzed for but not detected; if present with a number, the number reflects increased detection limits.
E=Indicates a value estimated or not reported due to the presence of interference.
J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.
NOTE: shading indicates concentrations greater than 3 X background or 5 X detectio limits
where the compound/element was not detected in the background sample.

concentrations for the analyses as discussed in this section are equal to those reported by the laboratory. All the results are discussed in parts per billion (ug/kg or ppb) except for metals and TPH which is in parts per million (mg/kg or ppm).

5.1.1 QA/QC Summary

As described in the QAPP, several Field Internal Quality Control Checks were utilized during the Gibson investigation to ensure the integrity of the field data. This included the collection or maintenance of QA/QC samples. Such samples included rinsate blanks, field duplicates, matrix test samples (MS and MSDs) and trip blanks. All of the QA/QC samples were collected in accordance with the QA/QC program set forth in the QAPP, dated July 11, 1991.

5.1.2 Data Validation

All analytical data generated during the investigation has undergone a rigorous review by the ERM QA/QC Coordinator to verify the qualitative and quantitative reliability of the data, as outlined in the QAPP. This review has been performed in accordance with general guidance documents "Functional Guidelines for Evaluating Organics Analysis", "Functional Guidelines for Evaluating Inorganics Analysis" and the NYSDEC 1989 ASP established (contractual) criteria.

5.1.3 Tentatively Identified Compounds

The analysis for the volatile and semi-volatile organic compounds resulted in some compounds being tentatively identified. Their chromatograms did not match known compound chromatographs. Using the NYSDEC 1989 ASP, the confirmed identifications of these compounds could not be made by the analyzing laboratory, Adirondack Environmental Services (AES) of Albany, New York.

The totals of the tentatively identified compounds (TICs) for each soil sample are included in Tables 5-1A through 5-6A. The TICs were generally associated with the semi-volatile analyses and included unknowns and hydrocarbon related compounds (alkanes and PAHs).

5.2 Background (W-BG) Soil Quality

Background

The area to the west of the Gibson building is referred to as the front lawn; this area was not viewed as one with any major potential environmental impacts. The nearest operations were administrative (in office space) and storage (in the warehouse). No packaging or storage has been conducted in this area of the site. Therefore, this area was used to obtain a sample for background soil quality.

Investigative Scope

To establish background soil quality, a soil sample was collected from the northwest corner of the front grass area (See Figure 5-1). The sample was collected from a depth of one to two feet below grade and analyzed for TCL/TAL and TPH.

Findings

Organic analysis (refer to Table 5-1A) revealed that no volatile or semi-volatile compounds were detected, and neither were pesticides or PCBs. TPH, however, was found at a relatively low level of 26 mg/kg.

Inorganic analysis (Table 5-1B) indicated that only five metals were found above detection limits: aluminum (1250 mg/kg); chromium (6.2 mg/kg); iron (2030 mg/kg); manganese (74 mg/kg), and; zinc (4.3 mg/kg). Cyanide was not detected.

Background Soil Concentrations As Site Inorganics Reference Point

Using the analytical results of the background sample (BG) as a reference point, inorganic results at the remaining AECs will be discussed only when they have surpassed "significant" levels, i.e., either three times background concentrations or five times detection limits. For a complete listing of all metals, refer to Tables 5-1B through 5-6B.

5.3 AECs West of Building

5.3.1 Sanitary Sewer System (W-SS)

Background

The sanitary sewer is located beneath the front lawn of the Gibson building.

The system minimally consists of a settling tank, cesspool and the connecting piping.

Investigative Scope

In order to examine whether soil quality had been impacted by discharges to the leaching cesspool, soil samples were collected at two-foot intervals to six feet below the base of the cesspool. One worst-case sample from the base of the pool, (W-SS from 12-14 feet down) based on sensory indications (appearance and odor) and organic vapor screening, was analyzed for TCL/TAL and TPH. The results for the W-SS sample are presented in Table 5-1A and 5-1B.

Findings

No volatile organic compounds, pesticides or PCBs were detected in sample W-SS. Tentatively identified semi-volatile compounds (TICs) were detected at a concentration of 400 ug/kg. TPH was also found in this sample but at a concentration less than that found in the background sample.

A total of eight metals were found above detection limits. Chromium, at 6.9 mg/kg, was marginally above three times the background level. Compared to levels encountered in sample BG, however, no significant levels of inorganics were detected. Cyanide was not detected.

5.3.2 Fuel Tank (W-FT)

Background

In a site reconnaissance on June 26, 1991, Mr. Roth, Gibson president, stated that the last of the site's underground tanks was a fuel oil tank located under the grass in the northwest corner of the property. The tank was reported by Mr. Roth to have been removed in 1990, and that there had been no evidence of any leakage. Mr. Roth also stated that the tank had not been used for the past 12 years.

Investigative Scope

One soil boring was advanced to 20 feet through the center of the former fuel tank location. Evidence of the former tank's location was seen as a sparsely vegetated low area. Continuous 2-foot split-spoon samples were collected. One sample (W-FT), based on staining, odor and organic vapor analysis, was selected for TCL/TAL and TPH analyses. The slightly elevated OVA reading was at the 12-14 foot horizon.

Findings

The organic analyses revealed that no volatiles, pesticides and PCB's were present, and only semi-volatile TICs were found at 1000 ug/kg (Table 5-1A). Similarly, insignificant levels of inorganic compounds (below background levels) were also detected (Table 5-1B). Aluminum, iron, and manganese were the only metals detected. Additionally, this sample had a low level of TPH (39 ug/kg), that is not considered significant.

5.4 South of Building

As described in the Work Plan, this area was comprised of 10 AECs (see Figure 5-1), each with its own investigative scope. The findings associated with each of these AECs are provided below.

5.4.1 Storm Drain System (S-F/PSDS)

Background

The former storm drain system (S-FSDS) consisted of five covered drains that could also be considered dry wells or leaching pools. They were located south of the loading dock and down gradient of the tank field fill port area. The primary function of the dry wells was to divert storm water runoff to the subsurface. However, evidence indicated that the drains received surface product releases from tank overfills, discharges through the building wall, and spillages at the loading dock. Only two of the five original drywells currently exist (S-PSDS). The other three drains were excavated in April, 1988, under the supervision of SCDHS personnel. During the removal, strong contamination was observed to five feet below the drain bases, or a total depth of 18 feet.

Investigative Scope

Five test borings were installed throughout this area, one at each of the three former and two present drain locations. Two-foot sample cores were collected at five-foot intervals to 17 feet and then continuously to 30 feet. One worst-case sample was selected from each boring, based on sensory and organic vapor screening, and analyzed for TCL/TAL and TPH. The highest OVA readings (between 74 and 118 ppm) were generally found at the 28-foot horizon. Additionally, a duplicate sample of S-FSDS-3 (labelled as S-FSDS-4) was collected as part of the project's quality assurance program. Hence, a total of six samples were collected for analysis. Most of the storm drain samples sent for analysis, as shown on Table 5-2A and 5-2B, were collected from depths of 25 to 30 feet below ground.

Findings

Organic analysis of these samples showed only limited levels of volatiles and semi-volatiles (Table 5-2A). Acetone was found in S-FSD-2, S-FSDS-4 and S-PSDS-1 at 31, 9J, and 51 ug/kg respectively. Toluene and xylenes (total) were found in S-FSDS-1 at 27J and 23J ug/kg. In both S-FSDS-1 and of S-FSDS-4 all results were amended with a "J" qualifier to show that the values had been estimated since they all were below the detection limits. With regards to the semi-volatile compounds, 2-methylnapthalene was detected at 79J ug/kg in S-FSDS-1, and at 940J ug/kg in S-PSDS-2C. (Note: these two samples had elevated detection limits due to dilution of the samples). Phenanthrene was also found in the same two samples, with a concentration of 360J ug/kg in the former and 820J ug/kg in the latter. Additionally, TIC's were also found in these two samples (25400J ug/kg and 153000J ug/kg, respectively) and in S-FSDS-3 and S-PSDS-1 at (400J and 5100J ug/kg), respectively. The TICs were primarily comprised of hydrocarbon related compounds (PAHs and alkanes). Again, all values were amended with the "J" qualifier.

TPH was detected in all the storm drain samples, ranging from 19 ug/kg in S-FSDS-2 to 36000 ug/kg in S-FSDS-1.

No pesticides or PCB's were detected in any of the six storm drain samples with the exception of S-PSDS-2C. Both alpha and gamma chlordane were found within this sample at 12J and 7.5J ug/kg respectively. These values, however, were estimated as they both fall below the detection limit.

Inorganic analysis of the six samples (Table 5-2B) revealed little of significance. Six metals were found in each of the samples (aluminum, iron, lead, mercury and zinc, manganese). Only mercury and zinc, however, were detected at significant levels. Mercury for example, was detected at 0.52 mg/kg in S-FSDS-1, and zinc AT 88.1 mg/kg in S-PSDS-2C.

5.4.2 Underground Tank Field (S-UTF)

Background

The underground tank field was located immediately south of the building wall, near the southwest corner of the building (See Figure 5-1). Prior to April, 1988, this area was unpaved. The tank field contained seventeen tanks with a total storage capacity of approximately 140,000 gallons. Windshield washer fluid, ethylene glycol, lubricating oil, and brake fluid were all stored in these tanks. The tanks were removed in April, 1988. This work was observed by NYSDEC and SCDHS personnel. Product leakage was apparent, as much of the soils were contaminated with oil and anti-freeze. In fact, SCDHS field notes indicated that free product was observed in some areas of the excavations.

Investigative Scope

A total of six soil borings were used to investigate the underground tank field. Two-foot sample cores were collected at the 5 and 10 foot horizons and then continuously to 30 feet. Based on sensory inspection and organic vapor screening results, one worst-case sample was collected from each boring and analyzed for TCL/TAL and TPH. The OVA readings (up to 1,000 ppm) generally increased with depth. In two of the six borings the highest response centered about the 20-foot depth.

Findings

Of all the borings in the former underground tank field, the samples from S-UTF-5 showed the greatest variety of chemicals, and generally the highest concentrations. Two of the seven samples, S-UTF-4 and S-UTF-6, had no volatile, semi-volatile, pesticide or PCB contamination (Table 5-3A). S-UTF-5 (20-22') had significant levels of several volatile organic compounds: 210 ug/kg of toluene, and 1300 ug/kg of xylenes (total). These compounds were also found in S-UTF-2 at 71 and 600 ug/kg respectively, and at even lower levels in the remainder of the samples. Acetone was also detected in appreciable amounts, with concentrations ranging from 120 to 250 ug/kg in two of the samples (S-UTF-2, and S-UTF-3, respectively). (Note: acetone was not used as a decontamination agent during the project). Several samples also contained elevated levels of volatile TICs, ranging from 7J to 1950J ug/kg, primarily comprised of hydrocarbon related compounds.

Semi-volatile TICs were detected in almost all samples, ranging from 5200 ug/kg in (S-UTF-5) (10-12') to 94000 ug/kg (S-UTF-2). The TICs included alkanes, unknown and alcohols. Only S-UTF-4 and S-UTF-6 did not contain any semi-volatiles. Additionally, 2-methylnaphthalene, naphthalene, and phenanthrene were detected at 210J, 150J, and 350J ug/kg, respectively, in sample S-UTF-2.

Pesticides were detected in only one of the samples. S-UTF-5 (10-12') contained 4,4'-DDD (7.8J ug/kg), 4,4'-DDE (5.8J ug/kg), alpha chlordane (7.5J ug/kg) and gamma chlordane (4.3J ug/kg). All values, however, were amended with a "J" qualifier to show that each value was estimated since it fell below the detection limit.

TPH was detected in all of the samples, with some at significantly high concentrations. Concentrations ranged from 23 mg/kg in S-UTF-6 to 70100 mg/kg in S-UTF-5.

Inorganic analysis indicated that four metals were present at levels either three times background or five times the detection limits in S-UTF-5 (10-12'): aluminum at 6710 mg/kg; calcium at 5520 mg/kg; iron at 8580 mg/kg, and; zinc at 22.8 mg/kg (see Table 5-3B). Although these and other metals were detected in the other UTF samples, none were found at significant levels

5.4.3 Wall Discharge Area (S-WD)

Background

The soils just to the north of the underground tank field and immediately adjacent to the building wall received product leakages through holes in the wall at the floor/wall juncture. These soils have frequently been noted to have been soaked with product. The western portion of this area was also used to stage a dumpster in the past. During several site visits spanning a period of several years, the dumpster was observed to leak product to the underlying soil.

Investigative Scope

Two soil borings were installed in the Wall Discharge area to a depth of six feet. Continuous split-spoon samples were collected in each boring, and one worst-case sample from each (0-2' and 4-6') was chosen for TCL/TAL and TPH analysis. The results for the SWD-1 and S-WD-2 samples are included in Tables 5-3A and 5-3B.

Findings

Total xylenes were detected in both wall discharge samples at 22 and 33 ug/kg, respectively. Acetone was also found at 2800 ug/kg in S-WD-2. Volatile TICs were 600 ug/kg in S-WD-2. Semi-volatile TICs were substantially higher: 2300 ug/kg in S-WD-1, and 12000 ug/kg in S-WD-2, comprised generally of oxygenated compounds. Although no pesticides were encountered above detection limits, 11J ug/kg of alpha and 5.7J ug/kg of gamma chlordanes were found in S-WD-1.

TPH levels in both of these samples were well above background levels. In S-WD-1, TPH was 456 mg/kg as compared to 26 mg/kg found in BG. S-WD-2 had an even greater concentration (1750 mg/kg).

A total of thirteen metals were detected between these two samples, although only three of them were at levels greater than in the background sample levels. All three of these metals were found in S-WD-1: aluminum at 6460 mg/kg; calcium at 6840 mg/kg; and zinc at 33.4 mg/kg.

5.4.4 Former Waste Oil Tank (S-FWT)

Background

According to SCDHS, a waste oil tank was located to the southwest of the loading dock, and reportedly had been removed prior to the investigation. There were several reports within the SCDHS file of this tank being overfilled while it was still in use. Gibson has stated, however, that a waste oil tank was never present in that location.

Investigative Scope

One soil boring was installed in the approximate center of the former tank location. Split-spoon samples were collected at 5-foot intervals to a depth of 22 feet. One worst-case sample from the boring was collected and analyzed for TCL/TAL and TPH. No OVA responses were highly elevated.

Findings

The analysis of S-FWT-1 did not show any significant contamination (Table 5-4A and 5-4B). No volatiles, semi-volatiles, pesticides or PCBs were detected, except for 600 ug/kg of semi-volatile TICs in S-FWT-1. Similarly, few inorganic constituents were detected. As with most of the other samples, aluminum, chromium, iron, lead, manganese and zinc were found in S-FWT-1. None of these metals, however, were detected at significant levels. Neither cyanide nor TPH were detected in S-FWT-1.

5.4.5 Overfill Tank (S-PWT)

Background

A tank purported by SCDHS to be a waste oil tank was located south of the tank field near the southeast corner of the building. As reported by Gibson, the tank is an active overflow tank for the aboveground tank field sump.

Investigative Scope

One soil boring was drilled adjacent to the present overflow tank. Split-spoon samples were collected at 5-foot intervals to a depth of 25 feet. No elevated OVA responses were detected. One sample was collected from the 24-26' horizon and analyzed for TCL/TAL and TPH.

Findings

No organic constituents (including volatiles, semi-volatiles, pesticides, PCBs and Cyanide) were detected in S-PWT, and only four metals were found. None of these, however, were detected near its background significant levels. Similarly, TPH was detected near its background level at 27 mg/kg.

5.4.6 Stained Lot (S-SL)

Background

Interpretation of several aerial photographs indicated that the entire parking lot south of the building was severely stained, with the intensity of such staining increasing in the western portion of the lot. The staining appeared to be primarily due to the spillages associated with the underground tank field and the loading dock.

Investigative Scope

Four soil test borings were installed, two in the western portion and two in the eastern portion of the lot (see Figure 5-1). The borings were advanced to four feet at each location. All four of the upper two-foot samples were analyzed for TPH, and the two worst-case samples (from surface horizon) based on sensory and organic vapor screenings, were also analyzed for TCL/TAL. Analytical results are included in Tables 5-4A and 5-4B.

Findings

The sample analysis showed practically no contamination from organic compounds. Only trace levels of methylene chloride (5 ug/kg) and tetrachloroethene (3 ug/kg) were found in S-SL-1. This sample also contained 9.8 ug/kg of the pesticide dieldrin, although this value was estimated as it fell below the detection limit. No semi-volatiles or PCBs were detected.

Although several metals were found in both samples, only aluminum and lead were detected at greater than background levels. S-SL-1 had 8780 mg/kg of aluminum and 15.9 mg/kg of lead. Of the four samples submitted for TPH analysis, one sample (S-SL-4) showed no TPH at all. The other three samples contained low levels of TPH: 23 ug/kg in S-SL-1; 46 ug/kg in S-SL-2, and; 18 ug/kg in S-SL-3. Cyanide was undetected in both of the samples submitted for full analysis.

5.4.7 Former Soil Stockpile (S-SP)

Background

During one site inspection by SCDHS, a stockpile of contaminated soil was observed on the grassy area south of the loading dock (see Figure 5-1). The source of this material was not identified.

Investigative Scope

One test boring was installed through this area. Samples were collected continuously to six feet. One worst-case (surface) sample, based on sensory and organic vapor analysis, was selected for TCL/TAL and TPH analysis.

Findings

Trace levels of organic contamination were found in sample S-SP. Methylene chloride and tetrachloroethene, for example, were detected at 5 and 7 ug/kg respectively (Table 5-4A), levels just above the detection limit of 5 ug/kg. Although no specific semi-volatile compounds were found, TICs were measured at 27900 ug/kg. Most of these TICs were in the alkane family, although one Polyaromatic Hydrocarbon (PAH) and one hydrocarbon compound were also noted. Although ten metals were detected in this sample (Table 5-4B), only the concentration of zinc was found to exceed background by 3 times (13.4 mg/kg compared to a background level of 4.3 mg/kg). TPH was also found at a relatively high level (21800 mg/kg compared to a background level of 26 mg/kg). Pesticides, PCBs, and cyanide were all undetected.

5.5 AECs East of Building

Ten AECs were investigated in the area east of the Gibson building. These areas included former drum storage areas, ponds, former stained areas, and storm drains, among others. The locations of the AEC's are shown in Figure 5-1. Each AEC is discussed below.

5.5.1 Drum Storage Area #1 (E-DS#1)

Background

One of the two drum storage areas was located near the center of the rear property (E-DS#1). During one inspection in April, 1982 by the SCDHS, as many as 60 drums were stored in this area. The area did not have an impermeable base or berm, and several drums were observed to be leaking. In May, 1977, two aboveground tanks were stored in this area. In addition, trenches to the east and south of this drum storage area reportedly existed. An apparently stained path also stretched from this area westward, toward the building.

Investigative Scope

The former drum storage and trench areas were investigated by seven trenches. Generally, the materials encountered in these two areas included a few feet of construction and demolition debris (e.g., bricks, strapping, concrete, etc.) underlain by tan poorly sorted fine to coarse grained sand. After this initial investigation two borings were drilled in Drum Storage Area #1. These borings were advanced to a depth of 20 feet. Both the 0-2 foot and 2-4 foot samples, and a duplicate the 2-4 foot sample were submitted to the laboratory and were analyzed for TAL/TCL and TPH. Maximum OVA readings decreased with depth from 18 ppm.

Findings

Organic analysis revealed very limited contamination (Table 5-5A). Acetone, for example, was found at 33 ug/kg in E-DS1-2, and at 52 ug/kg in its duplicate (E-

S1-3). Methylene chloride was also detected, at very low levels, in all three DS#1 samples, although all values were amended with a "J" qualifier. Semi-volatile TICs were detected in two of the samples. E-DS#1-1 had 3300 ug/kg and E-DS#1-2 had 2400 ug/kg. Only E-DS#1-2 contained any target semi-volatile compounds. Bis(2-ethylhexyl)phthalate was detected at 92J ug/kg in this sample. No pesticides or PCBs were detected in any of these samples.

Inorganic analysis of these three samples (E-DS#1-1, E-DS#1-2, and the duplicate sample E-DS#1-3) indicated that a total of eleven metals were present (Table 5-5B). When compared to background levels, however, only the concentrations of aluminum and zinc were found to be significant. E-DS#1-2 and E-DS#1-3 had 5750 and 5250 mg/kg of aluminum respectively, compared to 1250 in the BG sample; zinc was detected at 25.5 mg/kg in E-DS#1-1 compared to 4.3 in BG.

Although the TPH value for E-DS#1-1 was an estimated value, the two remaining samples had TPH levels that were comparable to those found in the background sample (56 and 20 mg/kg compared to 26 mg/kg in BG). Cyanide was not detected in any of the samples.

5.5.2 Drum Storage Area #2 (E-DS#2)

Background

The second drum storage area was located just outside the eastern facility wall north of the doorway and contained up to 40 drums at one time. Staining indicated that leakage had occurred in this area. A strip of disintegrating asphalt is present along the southern boundary of the area.

Investigative Scope

Four borings were drilled in the second drum storage area, two through the asphalt and two through the soil/asphalt strip. These borings were advanced to a depth of ten feet and continuous samples were collected in each. The shallowest samples had the highest OVA readings (up to 8 ppm) and were analyzed.

Findings

Organic contamination within the second drum storage area was similarly limited (see Table 5-5A and B). Acetone and carbon disulfide were the only target volatile compounds detected at 120 ug/kg and 49 ug/kg respectively. Targeted semi-volatile compounds were not found, although both of these samples did contain semi-volatile TICs: 4600 ug/kg in E-DS2-2 and 16270 ug/kg in E-DS2-3. Many of the TIC compounds were alkanes and PAHs. No PCB's or pesticides were found.

Five of the thirteen metals detected in both of these samples were found at significant levels. Aluminum, for example, was measured in both E-DS2-2 and E-DS2-3 at 9760 and 10300 mg/kg. Barium (27.8 mg/kg), calcium (17000 mg/kg), lead (8.9 mg/kg), and magnesium (9720 mg/kg) were also found in E-DS2-2. These concentrations all represent levels that are three times background or five times detection limits. TPH was also found in E-DS2-2 and E-DS2-3 at 190 and 674 mg/kg. No cyanides were found.

5.5.3 Tank Field (E-TF)

Background

Aboveground tanks are currently situated outside the southeast corner of the building. Tank overfilling was reportedly associated with the former tanks.

Investigative Scope

So that drilling operations would not compromise the integrity of the bermed tank field, and to avoid potentially hazardous conditions, soil test borings were not drilled within the tank field itself. Instead, two borings were installed outside the midpoints of the northern and southern berm walls. The borings were extended to 30 feet, with samples collected at five-foot intervals. One worst-case sample from each boring was analyzed for TCL/TAL and TPH. Sample E-TF-2 was collected from the surface layer (0-2 feet); sample E-TF-1 was collected at depth (25-27 feet where the OVA readings increased with depth).

Findings

Practically no contamination from organic compounds was found in either of these samples (see Table 5-5A and B). The only exceptions were 210 ug/kg of bis(2-ethylhexyl)phthalate and 4900 ug/kg of semi-volatile TICs, both in E-TF-2. An amended value (with a "J" qualifier) of 1 ug/kg for chloroform was also noted in E-TF-1. No metals were found at significant (three times background or five times detection limits) levels in sample E-TF-1. Three metals, however, were measured at significant levels in E-TF-2: aluminum at 4780 mg/kg; calcium at 7470 mg/kg, and; iron at 6950 mg/kg. TPH was found only in E-TF-2 at a concentration of 934 mg/kg. No cyanides, PCBs or pesticides were detected in either of the samples.

5.5.4 Eastern Storm Drainage System (E-SDS)

Background

The eastern storm drainage system is located within a large depression (approximately 50 feet wide, 120 feet long, and 5 feet deep) which borders the northern half of the eastern building wall. The system consists of two drains, or drywells. In the past, the area had reportedly been used for truck loading/unloading which serviced the building's warehouse space. During the course of the investigation, however, no such activities were ever observed. In an aerial photograph, however, the entire basin was observed to be unpaved and appeared stained. Any discharges at the drum storage area (E-DS#2) would have entered these drains.

Investigative Scope

One soil boring was installed through the center of each drywell. Two-foot continuous cores were collected to six feet below the drywell bases. One worst-case sample from each boring was selected for TCL/TAL and TPH analysis. Both samples analyzed (E-SDS-1 and E-SDS-2) were from the 15 to 17 foot horizon (see Table 5-5A and B for results) where OVA readings were up to 90 ppm.

Findings

Both of the E-SDS samples showed low to moderate levels of organic contamination within the volatile, semi-volatile, and pesticides (Table 5-5A). Acetone and chloroform, for example, were found in both samples; concentrations of the former were 51 and 160 ug/kg, and of the latter were both 3J ug/kg. Additionally, 11 ug/kg of carbon disulfide and 5J ug/kg of toluene were detected in E-SDS-1. The same four semi-volatile compounds were detected in both of these samples. E-SDS-1 had 5500J ug/kg of bis(2-ethylhexyl)phthalate, 450J ug/kg of fluoranthene, 250J ug/kg of phenanthrene, and 650J ug/kg of pyrene. The concentrations of the same four compounds in E-SDS-2 were 5400J, 410J, 420J, and 1000J ug/kg respectively. TICs were also fairly high in both samples: 8400 ug/kg in E-SDS-1 and 26800 ug/kg in E-SDS-2 and were comprised generally of unknowns and alkanes. Similarly, the same two pesticides were detected in both samples. Alpha and gamma chlordane were found at concentrations of 13J and 16J ug/kg, and 6J and 9.3J ug/kg, respectively.

The same eleven metals were detected in both samples, although only five of them were detected at significant levels (Table 5-5B). Aluminum, barium, calcium, lead, and magnesium were measured in E-SDS-2 at 5170, 40.3, 14200, 83, and 6280 mg/kg respectively. E-SDS-1, however, only contained three of these metals: calcium at 21600 mg/kg; lead at 9.2 mg/kg, and; magnesium at 11600 mg/kg. TPH was also higher in E-SDS-2 (1720 mg/kg vs 163 mg/kg). No cyanides were detected.

5.5.5 Contaminated Soil Stockpile and Backfill Area (E-SP)

Background

A soil stockpile was present in the rear of the property from 1988 to 1990, and was comprised of the soils that had been excavated from the southern underground tank field. The stockpile was spread out in two mounds that collectively measured approximately 40 feet by 60 feet by 12 feet high. The soils were reported to have been contaminated with lubricating oil, anti-freeze, and brake fluid. Although analyses were provided to SCDHS, and the soils were approved for backfill, the analyses were of limited scope. The area where these soils were used as backfill was reportedly located to the east of the former stockpile.

Investigative Scope

Initially, the area was investigated by several shallow trenches (less than five feet deep), traversing the areas. The trenches conducted in the western portion of this area encountered a 1 to 2 foot layer in the upper five foot of sediments of gray fine to coarse sand with an oily odor. Since the depth of this unit was determined but no sample was collected in the western portion of the area, one soil boring was installed to a total depth of 10 feet. Samples were collected at continuous 2-foot intervals. No elevated OVA responses were noted and the surface sample (E-SP-1 0-2 feet) was submitted to the laboratory for TAL/TCL and TPH analysis. Additionally, a duplicate sample (E-SP-2) was obtained as well.

Findings

Almost no organic compounds were detected in either E-SP-1 or its duplicate (Table 5-6A). Acetone and semi-volatile TICs were found in E-SP-1 at 170 and 100 ug/kg respectively. Inorganic analysis revealed several metals to be present in both the sample and its duplicate (Table 5-6B). Only two of them, however, were measured at significant levels (ie. three times background or five times the detection limit). Aluminum, for example, was detected at 10400 mg/kg in E-SP-1. Zinc was detected at 25.8 mg/kg in E-SP-2. TPH was detected at 138 mg/kg and at 44 mg/kg in the sample and its duplicate. No cyanides, PCBs or pesticides were detected in either of the two samples.

5.5.6 Pond (E-P)

Background

The pond, designated as Area 6 by SCDHS, was located east of the aboveground tank field along the southeastern property boundary. In a site reconnaissance on May 2, 1991, the pond was observed to be fed by a stream of what appeared to be a mixture of anti-freeze and water from a puddle located adjacent to the above ground tank farm fill port. The ponded liquid was observed to drain into an apparently man-made recharge pit in the rear of the property.

Investigative Scope

Two soil test holes were installed, one as close to the center of the pond as practical and one near the entering stream to the west (see Figure 5-1). Samples were collected to a maximum depth of two feet. The 18- to 24-inch sample was collected from each test hole, and analyzed for TCL/TAL and TPH (see Table 5-6A and B for results).

Findings

A total of four volatile organic compounds (refer to Table 5-6A) were detected in E-P-1, two of which were also found in E-P-2. The total concentration of these compounds was 1073 ug/kg in E-P-1 and 32 ug/kg in E-P-2. In E-P-1 these compounds primarily included acetone, ethylbenzene and xylenes. Volatile TICs were also noted in E-P-1, at a concentration of 50 ug/kg. 2-Methylnapthalene, bis(2-ethylhexyl)phthalate, and phenanthrene were the only positively identified semi-volatile compounds detected in E-P-1. These compounds had corresponding values of 160, 1000, and 160 ug/kg respectively. No such compounds were found in E-P-2. TICs, however, were detected in both samples at 10900 and 700 ug/kg and were generally constituted by alkanes. Although no pesticides/PCBs were detected in E-P-1, five were found in E-P-2. 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha chlordane, and gamma chlordane had concentrations ranging from 6.4 to 13 ug/kg, with an average concentration of 8.32 ug/kg. All of these values were amended with the "J" qualifier.

A total of twelve metals (Refer to Table 5-6B) were detected in both of these samples. Most of these, however, were at low concentrations or amended with the "J" qualifier. One exception, aluminum, was found at significant levels in both E-P-1 (5040 mg/kg) and E-P-2 (10400 mg/kg vs 1250 in BG). TPH was somewhat higher in E-P-1 than in E-P-2: 1750 mg/kg in the former vs. 77 mg/kg in the latter. Cyanide was undetected in either of these two samples.

5.5.7 Trenches (TR)

Background

In addition to the several delineated AECs that have been identified in the rear, undeveloped lot, it is believed that random discharges and/or drum and tank burials may also have occurred. Therefore, a metal detector was used to examine the area.

Investigative Scope

The rear lot was surveyed using a magnetometer to look for the presence of buried drums, tanks and piping. A series of trenches were then excavated at magnetic anomalies detected and at other areas of apparent disruption. A map showing the survey grid, anomalous areas, test pits, and the trenches is shown in Figure 5-2. Trench dimensions are provided in Appendix C. A total of two samples were obtained in this area (other than those associated with different AECs), directly from the trenches. Both samples were analyzed for TCL/TAL and TPH (see Table 5-6A and B for results). Neither the magnetometer or trenching revealed any areas of obvious contamination.

Findings

Overall, very few organic compounds were detected in either of these samples (see Table 5-6A). Trench 11 and Trench 14 both had low levels of acetone (76 and 33 ug/kg respectively). Xylenes were detected in Trench 14, as well, at 16 ug/kg. Although no targeted semi-volatile compounds were detected, both samples did contain moderate amounts of TICs. Trench 11, for example, had 2800 ug/kg, and

Trench 14 contained 22800 ug/kg. Although most of these TICs were of unknown origin, some alkanes and hydrocarbons were identified. Pesticides were detected in both trench samples. Trench 11 had levels of 4,4'-DDD, 4,4'-DDE, alpha chlordane, and gamma chlordane: total concentration of 11.9 ug/kg. Trench 14 only contained 4,4'-DDD, at a concentration of 2.0 ug/kg.

Inorganic analysis indicated a total of twelve metals in both of these samples (see Table 5-6B). In Trench 14, five metals were found at significant levels compared to background concentrations: aluminum at 4320 mg/kg; calcium at 12600 mg/kg; iron at 6780 mg/kg; magnesium at 7060 mg/kg, and; zinc at 13.9 mg/kg. Only three of these were found at notable levels in Trench 14, however: aluminum at 6280 mg/kg; iron at 9230 mg/kg, and; zinc at 22 mg/kg. TPH was also detected in both samples, although it was much higher in TR-14. Trench 11 contained TPH at 1290 mg/kg, whereas Trench 14 had 13550 mg/kg. Cyanide was not detected in either of these samples.

5.5.8 Undeveloped Lot (E-UL)

Background

In addition to the delineated AECs identified in the rear, undeveloped lot, random discharges and/or drum and tank burials may have occurred here. To comprehensively investigate the area, a magnetometer survey was performed.

Investigative Scope

Based on the findings of the magnetometer survey approximately 20 trenches and 10 test pits were conducted to investigate this area. No significant waste materials were encountered. The anomalies identified by the magnetometer survey were generally piping or sheet metal. Since the area was comprehensively investigated, one soil boring was drilled approximately in the middle of the lot. One sample from 2 to 4 foot horizon was collected from this six foot boring and analyzed for TAL/TCL and TPH (see Table 5-6A and B for results).

Findings

No volatile organic compounds were detected in this sample, with the exception of 5J ug/kg of methylene chloride (refer to Table 5-6A). This value, however, was estimated as it fell below the detection limit. Semi-volatile contamination was similarly limited. No target compounds were found, and only 3900 ug/kg of TICs were detected. No pesticides or PCBs were encountered.

Inorganic analysis (refer to Table 5-6B) revealed several metals at low levels (less than three times background or less than five times detection limits) or at estimated concentrations (i.e.. amended with a "J" qualifier), but only aluminum was detected at a significant level (6700 mg/kg). Cyanides were not detected, and the TPH concentration was near background, 41 mg/kg.

5.5.9 Recharge Pit (E-RP)

Background

A pit filled with liquid, approximately 25 feet in diameter, has been present in the eastern most property corner since at least 1990. The pit serves as the ultimate surface receptacle for discharges or runoff in the rear of the property. A ditch was observed leading from the pond (discussed in section 5.5.6) directly into this pit, thereby potentially introducing contamination into the pit. Once in the recharge pit, fluids percolate into the subsurface and, then potentially, down to the water table.

Investigative Scope

One soil sample was collected using a split-spoon from a depth of 0-2 feet below the ponded water. The sample was analyzed for TCL/TAL and TPH.

Findings

Of all the volatile organic compounds tested for, sample E-RP contained only acetone and methylene chloride; the former at a concentration of 39 ug/kg and the latter at a concentration of 5J ug/kg (Table 5-6A). No target semi-volatile compounds were detected. TICs, however, were noted at 9000 ug/kg; among them were aromatic compounds and alkanes. No pesticides or PCBs were detected.

Inorganic analysis (Table 5-6B) also showed that a total of ten metals were detected, although only aluminum was found at a significant level (4070 mg/kg (Table 5-6B). The TPH concentration was 911 mg/kg, and no cyanide was detected.

5.5.10 Aboveground Tank (E-TS)

Background

As determined by inspection of a 1977 aerial photograph, an aboveground tank was staged at the northern property boundary, along a former fence, at approximately the center of the rear yard. The use or contents of this tank has never been determined, and the tank is no longer present.

Investigative Scope

Three shallow borings were installed in the area. Samples were collected at continuous 2-foot intervals to a total depth of six feet. One worst-case sample from the area (E-TS-3), based on sensory and organic vapor inspections, was analyzed for TCL/TAL and TPH (see Table 5-6A and B for results).

Findings

The organic analysis (Table 5-6A) of this sample showed it to be virtually contaminant-free. No volatiles, pesticides or PCBs were detected, and only one semi-volatile was found (bis(2-ethylhexyl)phthalate at 110 ug/kg. No TICs were detected in either the volatile or the semi-volatile fractions. The inorganic analysis (Table 5-6B) of this sample indicated that none of the seven metals present were found at significant levels when compared to background concentrations. TPH was measured at 33 mg/kg, and cyanide was not detected.

5.6 Off-site Recharge Basin (S-RB)

Background

An off-site recharge basin is located approximately 300 feet southwest of the site, at the end of Mall Drive (see Figure 5-2). This basin receives the storm water runoff that is collected by the catch basins along this street. At the time of the investigation, the basin floor was covered with thick plant growth. The storm water runoff is channeled into the basin via a large diameter culvert (approximately 24-inches) located at the northeast corner of the basin.

Investigative Scope

In order to determine if soil quality in the basin had been impacted, potentially from the Gibson site, one soil sample was collected from the basin floor, at a distance of ten feet from the culvert. The sample was obtained at a depth of 1 to 2 feet below the bottom of the basin and analyzed for TCL/TAL and TPH.

Findings

Although no volatile organic compounds were detected, this sample did contain relatively high levels of several semi-volatile compounds, ranging in concentration from 470 ug/kg to 3000 ug/kg (see Table 5-4A). Similarly, semi-volatile TICs were also detected (at 2600 ug/kg), as were two pesticides (alpha chlordane at 20 ug/kg, and gamma chlordane 12 ug/kg).

A total of ten metals were detected in this sample (see Table 5-4B). Only three, however, were at significant levels when compared to background: calcium at 16900 mg/kg; lead at 164 mg/kg, and; magnesium at 9250 mg/kg. TPH was reported at a concentration of 221 ug/kg, and cyanide was undetected.

Overall, contaminant levels in this sample were only slightly higher than those found at the Gibson site. Several targeted semi-volatile compounds, for example, were found exclusively in this sample. TICs, however, were not markedly higher than the values associated with the on-site samples. The three metals found at significant levels in S-RB were also found in several of the Gibson samples at approximately the same levels. TPH, however, was measured at a slightly lower concentration in this sample than in many of the on-site samples.

5.7 Summary of Soil Quality

A total of forty-four soil samples, including duplicates, were submitted for laboratory analysis to characterize the overall soil quality at the Gibson site. Of the forty-two samples submitted for full TAL/TCL analysis, twenty-seven contained detectable levels of volatiles, thirty contained semi-volatiles, and pesticides were found in ten of the samples. All of the samples contained at least three or more metals above detection limits. Cyanide was undetected in all of the samples. Metal concentrations for the Gibson soils as discussed below, are considered significant and noted if detected either above three times background levels or five times the detection limits. TPH was found in forty-one of the forty-four samples analyzed for this parameter.

A summary of the soil quality at the three main areas investigated at the site (west, south and east of the building) is presented below.

West of Building

Samples collected to the west of the building showed almost no organic contamination. The only hits were the 1000 ug/kg of semi-volatile TICs (generally unknowns) and TPH concentrations: 26 mg/kg in BG and 39 mg/kg in W-FT. No pesticides or PCBs were detected. Inorganic analysis revealed similar levels of contamination. Only five metals (aluminum, chromium, iron, manganese, and zinc) were detected at levels above detection limits.

South of Building

Samples collected from soils located to the south of the building revealed elevated levels of volatile organics. Discounting all values amended with a "J" qualifier (ie. any value estimated below its detection limit), there were five compounds detected in samples associated with the property south of the building. Of these, only acetone and xylenes were found in more than two samples. The average acetone concentration was 650.4 ug/kg for the five samples containing this compound. The six samples that contained xylenes had an average concentration for that compound of 364.3 ug/kg. Ethylbenzene and toluene were each found in two of the samples; the average concentrations for these were 86.5 and 140.5 ug/kg, respectively. Additionally, eight samples contained TIC volatiles (generally comprised of unknowns and hydrocarbon related compounds) at an average per sample concentration of 405.4 ug/kg.

Semi-volatile contamination was even more limited than that of volatiles. Only the sample from the recharge basin (S-RB) contained any targeted compounds at quantitative levels (ie. without a "J" qualifier). Fluoranthene was detected at 2400 ug/kg, and phenanthrene at 1700 ug/kg. Fourteen samples did contain TICs, however, with an average per sample concentration of 29042.9 ug/kg.

Contamination from TPH was more widespread. Twenty-two of the twenty-four samples collected south of the building contained TPH ranging from 19 to 70100 mg/kg. The average concentration was 9422.1 mg/kg, with some of the highest concentrations located in the Underground Tank Field (UTF) and Storm Drain System (F/PSDS) areas.

Inorganic analysis showed low to moderate levels of several metals. A total of sixteen metals were detected, although six of these (aluminum, chromium, iron, lead, manganese, and zinc) were also found in the BG sample collected west of the building. A total of seven metals were found at significant levels: aluminum, calcium, iron, lead, mercury, magnesium, and zinc. Of these, only aluminum, lead and zinc were found in more than two samples. No single area had any significant concentrations.

East of Building

Four targeted organic compounds were detected in the eighteen samples collected east of the building. As with soils south of the building, acetone was by far the most prevalent compound with an average concentration of 93 ug/kg for the eleven samples in which it was found. (Note: acetone was not used as a decontamination agent during sampling). Sample E-P-1 from the pond also contained 530 ug/kg of xylenes and 270 ug/kg of ethylbenzene. Although xylenes were also detected in Trench #14 (at 16 ug/kg), ethylbenzene was found in no other sample.

Semi-volatile contamination was similarly limited. Although TICs were detected in fourteen of the eighteen samples, no target compounds were detected above detection limits. TIC concentrations ranged from 100 ug/kg (E-SP-1) to 26800 ug/kg (E-SDS-2) with an average concentration of 8347.9 ug/kg. Most of these TICs were alkanes, PAHs and hydrocarbons.

TPH detections were similar to semi-volatiles. A total of fifteen samples had quantifiable levels of this parameter. Additionally, two other samples had low levels (less than 100 mg/kg), with estimated values below the detection limits. Including these two samples, the average TPH concentration was 1276 mg/kg. Samples TR-14 and E-P-1 had the highest levels with 13550 and 1760 mg/kg, respectively.

Inorganic analysis of samples east of the building revealed slightly more widespread presence than observed south of the building. The seven metals detected at significant levels were each found in at least three samples. Aluminum, for example, was the most common metal, having been found in thirteen of the samples at an average concentration of 6826.9 mg/kg, vs 1250 in BG. The remaining six metals were found at the following average concentrations, with background levels (BG) shown in parentheses: barium at 31.6 mg/kg (vs. not detected), calcium at 14614 mg/kg (vs not detected), iron at 7646.7 mg/kg (vs 2030), lead at 33.7 mg/kg (vs 2.3J), magnesium at 9200 mg/kg (vs not detected), and, zinc at 87.2 mg/kg (vs 4.3).

5.8 Comparison to Past Site Analyses

During the past 10 years, SCDHS and to a lesser degree, NYSDEC have sampled areas of the Gibson site that resulted in primarily SPDES discharge. The sample analyses primarily included metals and volatiles and Article 12, NYCRR 1205(a) violations. The violations, including the analytical results, and sampling dates are provided in Appendix B. Although the exact locations of the sampling points are not known the general areas are.

Comparison of the recent and historical analyses show a consistency in the specific compounds detected. Associated with the volatiles, xylenes, ethyl benzene and toluene have been consistently detected in storage areas and storm drains. Similarly, detections of metals are consistent within the analytical database in the same areas. The metals included: chromium, iron, lead and zinc.

6.0 GROUND WATER QUALITY

6.1 Location Criteria

The ground water monitoring network installed at the Gibson site was designed to provide coverage across the entire site and to optimally monitor those areas where the potential for impacts was greatest, based on the findings of the soil investigation portion of the project (discussed in Section 5.0).

Based on these design criteria each cluster consists of two wells, a shallow well screened across the top of the water table (depth about 90 to 100), and a deep well screened about 130 to 140 feet below ground. The siting criteria used to locate the wells are discussed below and the actual locations are as shown in Figure 4-4:

WELL CLUSTER	LOCATION AND MONITORING CRITERIA
#1	site well upgradient of all site facilities to determine quality of ground water entering site,
#2	installed on downgradient boundary of former underground tank field where releases were determined to have occurred and soil impacts were found,
#3	one of the three initial ground water flow confirmation well locations; downgradient of former storm drain system and other AECs to monitor potential impacts,
#4 (AC 5 and (AC 6)	reserved for off-site use, but not needed or used because existing off-site downgradient wells (AC-5 and AC-6) were utilized instead,
#5	directly downgradient of former southern drywell system storm drains,

#6	installed downgradient of AECs along the rear wall of building and also downgradient of the former underground tank and storm drainage system areas,
#7	installed at furthest downgradient property location (as practical); downgradient edge of rear unpaved property,
#8	downgradient of northern most AEC (rear storm drain system) and along northern site boundary.

6.2 Analytical Results

6.2.1 QA/QC Sampling Summary

All field Quality Assurance/Quality Control (QA/QC) samples were collected in accordance with the Quality Assurance Project Plan (QAPP). These samples included: field blanks, duplicates, trip blanks and matrix test samples.

6.2.2 Data Validation

ERM's QA/QC Coordinator has conducted data validation on all of the ground water and QA/QC samples collected and analyzed during the Gibson Site Investigation. These procedures followed those described in the project QAPP, and were in accordance with the general guidance offered in the NYSDEC 1989 Analytical Services Protocol (ASP).

The samples associated with the first round of ground water sampling conducted in October, 1991 comprised two Sample Delivery Groups (SDGs): SDG No. Decon 1 and SDG No. AC 5. Validation criteria included: holding times, surrogate recoveries, MS/MSD and MSB recoveries, sample blank detections, the

GC/MS tuning and performance, internal standard and retention times, calibrations, and compound identification among others.

The laboratory data presented in the analytical tables (Tables 6-1 through 6-4, discussed in the subsequent Section) has already been modified and annotated on the basis of the data validation review. The laboratory results and the modifications developed from the validations are included in the Form #1 of the laboratory data reports in Appendix L. The complete CLP - Superfund reporting deliverable package is provided under separate cover in Appendix L1.

6.3 Ground Water Quality

The ground water analytical results are presented in Tables 6-1 through 6-4. The tables have been divided into A and B series. The "A" tables include the organic portion of the analyses (e.g., volatile and semi-volatile organics, pesticides and polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), and phenols). The "B" series tables include the inorganic parameters (metals, cyanide, chloride, sulfate and nitrate) and miscellaneous physical parameters (pH and TDS). Tables 6-1 through 6-2 include the monitoring well samples. Tables 6-3 and 6-4 include the QA/QC sample analyses. The concentrations that are highlighted are those that exceed current New York State ground water standards (discussed in Section 7.0). The tables also summarize parameter detection limits and quantitative notes derived from the laboratory and from ERM's data validation. All concentrations for ground water analyses are ug/l or parts per billion (ppb).

The ground water analyses are discussed from the following flow criteria and impact perspectives: 1) upgradient quality (Cluster #1) for ground water entering the site, 2) on site ground water quality (Cluster #'s 2, 3, 5, 6, 7 and 8) for the ground water under the site and

TABLE 6-1A GROL WATER SAMPLING RESULTS

GIBSON CHEMICAL & OIL

COMMACK, NY.

SAMPLE ID	DETECTION LIMITS (ug/l)	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D	MW-5S	MW-5D	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
SAMPLE DATE(S) ***		10/9/91	10/9/91	10/22/91	10/22/91	10/10/91	10/9/91	10/10/91	10/21/91	
		10/11/91	10/11/91			10/11/91		10/15/91		
						10/15/91				
VOLATILE ORGANIC COMPOUNDS (ug/l)										
1,2-DICHLOROETHENE (TOTAL)	5	U	U	4 J	U	U	U	22	U	5
1,1-DICHLOROETHANE	5	U	U	2 J	U	U	U	U	U	5
1,1,1-TRICHLOROETHANE	5	U	U	U	U	U	U	U	U	5
BENZENE	5	U	U	4 J	U	U	U	U	U	0.7
BROMOMETHANE	10	U	U	U	U	U	U	U	U	5
CARBON DISULFIDE	5	U	U	U	U	U	U	6	U	50
CHLOROFORM	5	2 J	U	U	U	U	U	U	U	7
ETHYLBENZENE	5	U	U	2 J	U	U	U	U	U	5
METHYLENE CHLORIDE	5	7 U	U	U	U	U	8 U	U	U	5
TETRACHLOROETHENE	5	U	U	U	U	87	U	U	U	5
TOLUENE	5	U	U	U	1 J	U	U	U	6	5
TRICHLOROETHENE	5	U	U	U	U	U	U	U	U	5
VINYL CHLORIDE	10	U	U	U	U	U	U	14	U	2
XYLENES (TOTAL)	5	U	U	U	U	U	U	10	11	5^
TOTAL VO's (not including TIC's)	-	2	U	12	U	87	U	52	17	-
TOTAL TIC's	-	U	U	56 J	U	29 J	U	29 J	U	-
SEMI-VOLATILES (ug/l)										
2-METHYLNAPHTHALENE	10	U	U	U	U	U	U	U	U	50
ANTHRACENE	10	U	U	U	U	U	U	U	U	50 (GV)
BENZO(a)ANTHRACENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
BENZO(a)PYRENE	10	U	U	U	U	U	U	U	U	ND
BENZO(b)FLUORANTHENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
BENZO(k)FLUORANTHENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
BIS(2-ETHYLHEXYL)PHTHALATE	10	U	U	U	U	U	U	U	29 U	50
CHRYSENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
FLUORANTHENE	10	U	U	U	U	U	U	U	U	50 (GV)
NAPHTHALENE	10	U	U	U	U	U	U	U	U	10 (GV)
PHENANTHRENE	10	U	U	U	U	U	U	U	U	50 (GV)
PYRENE	10	U	U	U	U	U	U	U	U	50 (GV)
TOTAL TIC's	-	10 J	2795 J	639 J	732 J	10 J	4080 J	140 J	2238 J	-
PCB's AND PESTICIDES (ug/l)										
4,4'-DDD	0.1	U	U	U	U	U	U	U	U	ND
4,4'-DDE	0.1	U	U	U	U	U	U	U	U	ND
4,4'-DDT	0.1	U	U	U	U	U	U	U	U	ND
ALPHA CHLORDANE	0.5	U	U	U	U	U	U	U	U	0.1~
DIELDRIN	0.1	U	U	U	U	U	U	U	U	ND
GAMMA CHLORDANE	0.5	U	U	U	U	U	U	U	U	0.1~
PHENOLS	2	U	2	U	U	U	U	8	4	1
TPH	1000	U	U	1,480,000 J	3200 J	U	3700	U	U	no standard

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soil or groundwater.

TIC=Tentatively Identified Compounds.

J=value is estimated since it falls below the detection limit. or did not meet all supporting analytical requirements.

U=compound was analyzed for but not detected; if present with a number, the number reflects an increased detection limit.

**=values are standards unless labelled as guidance values (GV).

***=when two dates are provided, the uppermost is the date the organic parameters were collected and the lower one is the date on which the inorganic parameters were collected; the third date (MW-3S) is when the TPH sample was collected.

~=standard provided is for Total Chlordane

^=applies to each isomer individually.

Shaded areas signify concentrations above standards.

TABLE 6-1B GROUND WATER SAMPLING RESULTS

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID	DETECTION LIMITS (ug/l)	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D	MW-5S	MW-5D	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
SAMPLE DATE(S) ***		10/9/91	10/9/91	10/22/91	10/22/91	10/10/91	10/9/91	10/10/91	10/21/91	
		10/11/91	10/11/91			10/11/91		10/15/91		
						10/15/91				
INORGANICS (ug/l)										
ALUMINUM	200	814 J *	490 J	13900	780	2000 J	288 J	1830 J	746	no standard
ARSENIC	10	U	U	12	U	U	U N W	U	U	25
BARIUM	25	55.5 B	65.3 B	249	U	98.9 B	U	83.9 B	36.6 B	1000
CADMIUM	1	10.4 J	U J	^2.0 B	1.0 B	U	U N	U	1.0 B	10
CALCIUM	5000	11500	18400	15800	7470	19700	7360	9360	12200	no standard
CHROMIUM	10	U	U	77.6 J	U	U	U	U	13.7 J	50
COPPER	25	U	U	65.5	U	U	U	U	U	200
IRON	50	2270 J *	589 J	101000 JE	1440 J E	7460 J	819 J	74400 J	1060 J E	300
LEAD	5	21.6	U	33.0 J	U	U	U W	U	U	25
MAGNESIUM	5000	5540	6620	7060	U	5320	U	U	U	35000 (gv)
MANGANESE	15	864	244	20600	104	1230	64.4	3800	86.5	300
MERCURY	0.2	0.41	U	U	U	U	U	U	U	2
NICKEL	40	U	U	53.7	U	U	U	U	U	no standard
POTASSIUM	5000	U	U	U	U	U	U	U	U	no standard
SELENIUM	5	U	U	25.0 U J	U J	U J N	U	U	U J	10
SODIUM	5000	6870	46000	22700	8650	16200	6310	U	78400	20000
VANADIUM	50	U	U	75.1	U	U	U	U	U	no standard
ZINC	10	19.1 B	43.5	247	56	24.8	50.6	30.1	199	300

CHLORIDE	1000	8900	75000	29000	3100	10550	2200	6700	5690	250000
NITRATE	NA	1500	3330	320	650	320	960	520	1940	10000
pH (standard units)	NA	5.5	6.2	6	6.8	5.8	7.2	6.2	9.4	6.5-8.5
SULFATE	2000	33800	15500	27000	16250	32000	25800	3500	20500	250000
CYANIDE	10	U	U	U	U	U	U	U	U	100
TDS	2000	76000	228000	204000	64000	128000	60000	156000	550000	500000

INORGANIC QUALIFIERS AND NOTES

B=Indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.

U=Indicates element was analyzed for but not detected.

E=Indicates a value estimated or not reported due to the presence of interference.

J=value is estimated since it falls below the detection limit or did not meet all supporting analytical requirements.

NOTE: a "U" qualifier accompanied by a numerical value indicates that the detection limit has been raised to that value.

NOTE: standards and guidance values obtained from NYSDEC "Water Quality Regulations for Surface Waters and Groundwaters," 6NYCRR, Parts 700-705, 9/1/91, and from the NYSDEC "Division of Water - Technical and Operational Guidance Series," 9/25/90.

NOTE: shading signifies concentrations above standards.

TABLE 6-2A GROI WATER SAMPLING RESULTS

GI _/N CHEMICAL & OIL

COMMACK, NY

SAMPLE ID SAMPLE DATE(S) ***	DETECTION LIMITS (ug/l)	MW-6S 10/18/91	MW-6D 10/21/91	MW-7S 10/10/91 10/15/91	MW-7D 10/16/91	MW-8S 10/24/91	MW-8D 10/16/91	AC-5 10/14/91	AC-6 10/14/91	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
VOLATILE ORGANIC COMPOUNDS (ug/l)										
1,2-DICHLOROETHENE (TOTAL)	5	U	U	4 J	U	U	U	U	U	5
1,1-DICHLOROETHANE	5	U	U	U	U	U	U	U	U	5
1,1,1-TRICHLOROETHANE	5	U	U	U	U	U	U	6	U	5
BENZENE	5	U	U	U	3 J	U	4 J	U	U	0.7
BROMOMETHANE	10	U	U	U J	U J	U	U J	10 U J	10 U J	5
CARBON DISULFIDE	5	U	U	U	U	U	U	U	U	50
CHLOROFORM	5	U	U	U	U	U	U	U	U	7
ETHYLBENZENE	5	U	U	U	U	U	U	U	U	5
METHYLENE CHLORIDE	5	U	U	U	U	U	U	U	U	5
TETRACHLOROETHENE	5	U	U	U	U	U	U	34	17	5
TOLUENE	5	U	U	U	5 J	U	6	U	U	5
TRICHLOROETHENE	5	U	U	U	U	U	U	34	10	5
VINYL CHLORIDE	10	U	U	U	U	U	U	U	U	2
XYLENES (TOTAL)	5	U	U	U	U	U	U	U	U	5^
TOTAL VO's (not including TIC's)	-	U	U	4	8	U	10	76	27	-
TOTAL TIC's	-	7 J	18 J	9 J	U	U	U	U	U	-
SEMI-VOLATILES (ug/l)										
2-METHYLNAPHTHALENE	10	U	U	U	U	U	U	U	U	50
ANTHRACENE	10	U	U	U	U	U	U	U	U	50 (GV)
BENZO(a)ANTHRACENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
BENZO(a)PYRENE	10	U	U	U	U	U	U	U	U	ND
BENZO(b)FLUORANTHENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
BENZO(k)FLUORANTHENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
BIS(2-ETHYLHEXYL)PHTHALATE	10	U	14 U	U	3 J	U	3 J	U	2 J	50
CHRYSENE	10	U	U	U	U	U	U	U	U	0.002 (GV)
FLUORANTHENE	10	U	U	U	U	U	U	U	U	50 (GV)
NAPHTHALENE	10	U	U	U	U	U	U	U	U	10 (GV)
PHENANTHRENE	10	U	U	U	U	U	U	U	U	50 (GV)
PYRENE	10	U	U	U	U	U	U	U	U	50 (GV)
TOTAL TIC's	-	58 J	2426 J	532 J	121 J	50 J	1154 J	U	55 J	-
PCB's AND PESTICIDES (ug/l)										
4,4'-DDD	0.1	U	U	U	U	U	U	U	U	ND
4,4'-DDE	0.1	U	U	U	U	U	U	U	U	ND
4,4'-DDT	0.1	U	U	U	U	U	U	U	U	ND
ALPHA CHLORDANE	0.5	U	U	U	U	U	U	U	U	0.1~
DIELDRIN	0.1	U	U	U	U	U	U	U	U	ND
GAMMA CHLORDANE	0.5	U	U	U	U	U	U	U	U	0.1~
PHENOLS	2	U	8	7	U	U	U	U	U	1
TPH	1000	U	U	U	1100	U	U	U	U	no standard

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soil or groundwater.
TIC=Tentatively Identified Compounds.
J=value is estimated since it falls below the detection limit. or did not meet all supporting analytical requirements.
U=compound was analyzed for but not detected; if present with number, the number reflects an increased detection limit.
**=values are standards unless labelled as guidance values (GV).

***=when two dates are provided, the uppermost is the date the organic parameters were collected and the lower one is the date on which the inorganic parameters were collected.
~=standard provided is for Total Chlordane.
^=applies to each isomer individually.
Shaded areas signify concentrations above standards.

TABLE 6-2B GROUND WATER SAMPLING RESULTS
GIBSON CHEMICAL & OIL
COMMACK, NY

SAMPLE ID	DETECTION LIMITS (ug/l)	MW-6S	MW-6D	MW-7S	MW-7D	MW-8S	MW-8D	AC-5	AC-6	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
SAMPLE DATE(S) ***		10/18/91	10/21/91	10/10/91 10/15/91	10/16/91	10/24/91	10/16/91	10/14/91	10/14/91	
INORGANICS (ug/l)										
ALUMINUM	200	1720	915	4170 J	260 J	2120	731 J	2570 J	1640 J	no standard
ARSENIC	10	U	U	U	U	U	U	U	U	25
BARIUM	25	99.0 B	27.7 B	118 B	48.4 B	88.3 B	67.9 B	59.4 B	44.0 B	1000
CADMIUM	1	1.0 B	1.0 B	1.2 J B	U	1.0 B	U	U	U	10
CALCIUM	5000	11000	8680	34300	13400	38800	14100	11000	15400	no standard
CHROMIUM	10	13.6 J	13.8 J	19	U	U	13.7	U	U	50
COPPER	25	U	U	U	U	U	U	U	U	200
IRON	50	42700 J E	1900 J E	11900 J	25200 J	16100 J E	1990 J	5170 J	5180 J	300
LEAD	5	5.0 J	12.2 J	U	U	13.1 J	U	U	U	25
MAGNESIUM	5000	U	U	14000	5240	9140	U	5160	6160	35000 (gv)
MANGANESE	15	21500	178	24700	4650	3970	891	686	141	300
MERCURY	0.2	U	U	0.22	U	0.23	0.21	U	U	2
NICKEL	40	U	U	U	U	U	U	U	U	no standard
POTASSIUM	5000	U	U	U	U	U	U	U	U	no standard
SELENIUM	5	U J	U J	U	U	U J	U	U	U	10
SODIUM	5000	U	11700	7950	15800	9020	19100	9440	6580	20000
VANADIUM	50	U	U	U	U	U	U	U	U	no standard
ZINC	10	41	36.2	47.2	32.4	84.1	40.9	77.4	32.9	300
CHLORIDE	1000	6730	10900	10000	16100	12900	24400	15000	7800	250000
NITRATE	NA	730	1890	1270	680	1420	2720	2130	1390	10000
pH (standard units)	NA	5.8	6.4	6	6.2	5.5	7	5.2	5.2	6.5-8.5
SULFATE	2000	23500	15250	81600	19200	108750	17000	16500	34800	250000
CYANIDE	10	U	U	U	U	U	U	U	U	100
TDS	2000	13200	88000	256000	118000	256000	125000	86000	104000	500000

INORGANIC QUALIFIERS AND NOTES

B=Indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.

U=Indicates element was analyzed for but not detected; if present with a number, the number reflects an increased detection limit.

E=Indicates a value estimated or not reported due to the presence of interference.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

NOTE: standards and guidance values obtained from NYSDEC "Water Quality Regulations for Surface Waters and Groundwaters," 6NYCRR, Parts 700-705, 9/1/91, and from the NYSDEC "Division of Water - Technical and Operational Guidance Series," 9/25/90.

NOTE: shading signifies concentrations above standards.

TABLE 6-3A GRO WATER SAMPLING RESULTS

GI N CHEMICAL & OIL

COMMACK, NY

SAMPLE ID SAMPLE DATE	DETECTION LIMITS (ug/l)	MW-9S* 10/18/91	TAP** 10/22/91	FB-1 10/10/91	FB-2 10/24/91	TB-1 10/9/91	TB-2 10/10/91	TB-3 10/14/91	TB-4 10/16/91	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
VOLATILE ORGANIC COMPOUNDS (ug/l)										
1,2-DICHLOROETHENE (TOTAL)	5	U	U	U	U	U	U	U	U	5
1,1-DICHLOROETHANE	5	U	U	U	U	U	U	U	U	5
1,1,1-TRICHLOROETHANE	5	U	U	U	U	U	U	U	U	5
BENZENE	5	U	U	U	U	U	U	U	U	0.7
BROMOMETHANE	10	U	U	U J	U	U J	U J	U J	U J	5
CARBON DISULFIDE	5	U	U	U	U	U	U	U	U	50
CHLOROFORM	5	U	U	U	U	U	U	U	U	7
ETHYLBENZENE	5	U	U	U	U	U	U	U	U	5
METHYLENE CHLORIDE	5	U	U	U	U	5 B J	3 B J	4 BJ	5 B J	5
TETRACHLOROETHENE	5	U	U	U	U	U	U	U	U	5
TOLUENE	5	U	U	U	U	U	U	U	U	5
TRICHLOROETHENE	5	U	U	U	U	U	U	U	U	5
VINYL CHLORIDE	10	U	U	U	U	U	U	U	U	2
XYLENES (TOTAL)	5	U	U	U	U	U	U	U	U	5^
TOTAL VO's (not including TIC's)	-	U	U	U	U	5	5	4	5	-
TOTAL TIC's	-	7 J	U	U	U	U	U	U	U	-
SEMI-VOLATILES (ug/l)										
2-METHYLNAPHTHALENE	10	U	U	U	U	U	U	-	-	50
ANTHRACENE	10	U	U	U	U	U	U	-	-	50 (GV)
BENZO(a)ANTHRACENE	10	U	U	U	U	U	U	-	-	0.002 (GV)
BENZO(a)PYRENE	10	U	U	U	U	U	U	-	-	ND
BENZO(b)FLUORANTHENE	10	U	U	U	U	U	U	-	-	0.002 (GV)
BENZO(k)FLUORANTHENE	10	U	U	U	U	U	U	-	-	0.002 (GV)
BIS(2-ETHYLHEXYL)PHTHALATE	10	U	U	U	3 B J	U	U	-	-	50
CHRYSENE	10	U	U	U	U	U	U	-	-	0.002 (GV)
FLUORANTHENE	10	U	U	U	U	U	U	-	-	50 (GV)
NAPHTHALENE	10	U	U	U	U	U	U	-	-	10 (GV)
PHENANTHRENE	10	U	U	U	U	U	U	-	-	50 (GV)
PYRENE	10	U	U	U	U	U	U	-	-	50 (GV)
TOTAL TIC's	-	70 J	88 J	9 J	10 J	U	55 J	-	-	-
PCB's AND PESTICIDES (ug/l)										
4,4'-DDD	0.1	U	U	U	U	U	U	-	-	ND
4,4'-DDE	0.1	U	U	U	U	U	U	-	-	ND
4,4'-DDT	0.1	U	U	U	U	U	U	-	-	ND
ALPHA CHLORDANE	0.5	U	U	U	U	U	U	-	-	0.1~
DIELDRIN	0.1	U	U	U	U	U	U	-	-	ND
GAMMA CHLORDANE	0.5	U	U	U	U	U	U	-	-	0.1~
PHENOLS	2	U	U	4	-	-	-	-	-	1
TPH	1000	U	U	U	-	-	-	-	-	no standard

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soil or groundwater.
TIC=Tentatively Identified Compounds.
FB=field blank.
TB=trip blank.
B=compound also detected in reagent blank.
J=value is estimated since it falls below the detection limit,
or did not meet all supporting analytical requirements.
E=value is estimated as it has exceeded the linear range of instrument curve.

U=compound was analyzed for but not detected; if present with
number, the number reflects an increased detection limit.
**=values are standards unless labelled as guidance values (GV).
~=standard provided is for Total Chlordane.
^=applies to each isomer individually.
Shaded areas signify concentrations above standards.
*MW-9S is a duplicate of MW-6S.
**TAP=tap water sample.

TABLE 6-3B GROUND WATER SAMPLING RESULTS

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID	DETECTION LIMITS (ug/l)	MW-9S	TAP	FB-1	FB-2	TB-1	TB-2	TB-3	TB-4	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
SAMPLE DATE		10/18/91	10/22/91	10/10/91	10/24/91	10/9/91	10/10/91	10/14/91	10/16/91	
INORGANICS (ug/l)										
ALUMINUM	200	1750	915	U J	-	-	-	-	-	no standard
ARSENIC	10	U	U	U	-	-	-	-	-	25
BARIUM	25	101 B	U	U	-	-	-	-	-	1000
CADMIUM	1	U	U	U N	-	-	-	-	-	10
CALCIUM	5000	11500	29100	U	-	-	-	-	-	no standard
CHROMIUM	10	U	U	U	-	-	-	-	-	50
COPPER	25	U	U	U	-	-	-	-	-	200
IRON	50	46800 J E	118 J E	U J	-	-	-	-	-	300
LEAD	5	U	U	U	-	-	-	-	-	25
MAGNESIUM	5000	U	U	U	-	-	-	-	-	35000 (gv)
MANGANESE	15	21300	U	U	-	-	-	-	-	300
MERCURY	0.2	U	U	U	-	-	-	-	-	2
NICKEL	40	U	U	U	-	-	-	-	-	no standard
POTASSIUM	5000	U	U	U	-	-	-	-	-	no standard
SELENIUM	5	U J	U J	U	-	-	-	-	-	10
SODIUM	5000	U	10700	U	-	-	-	-	-	20000
VANADIUM	50	U	U	U	-	-	-	-	-	no standard
ZINC	10	44.8	U	U	-	-	-	-	-	300
CHLORIDE	1000	9320	14000	U	-	-	-	-	-	250000
NITRATE	NA	960	6200	60	-	-	-	-	-	10000
pH (standard units)	NA	5.9	7.6	4.7	-	-	-	-	-	6.5-8.5
SULFATE	2000	22250	9250	U	-	-	-	-	-	250000
CYANIDE	10	U	U	U	-	-	-	-	-	100
TDS	2000	150000	156000	U	-	-	-	-	-	500000

INORGANIC QUALIFIERS AND NOTES

B=indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.

U=indicates element was analyzed for but not detected; if present with a number, the number reflects an increased detection limit.

E=indicates a value estimated or not reported due to the presence of interference.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

NOTE: standards and guidance values obtained from NYSDEC "Water Quality Regulations for Surface Waters and Groundwaters," 6NYCRR, Parts 700-705, 9/1/91, and from the NYSDEC "Division of Water - Technical and Operational Guidance Series," 9/25/90.

NOTE: shading signifies concentrations above standards.

-=not analyzed for.

TABLE 6-4A GROUND WATER SAMPLING RESULTS
GIBSON CHEMICAL & OIL
COMMACK, NY

SAMPLE ID	DETECTION LIMITS (ug/l)	TB-5	TB-6	TB-7	TB-8	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
SAMPLE DATE(S) ***		10/18/91	10/21/91	10/22/91	10/24/91	
VOLATILE ORGANIC COMPOUNDS (ug/l)						
1,2-DICHLOROETHENE (TOTAL)	5	U	U	U	U	5
1,1-DICHLOROETHANE	5	U	U	U	U	5
1,1,1-TRICHLOROETHANE	5	U	U	U	U	5
BENZENE	5	U	U	U	U	0.7
BROMOMETHANE	10	U	U	U	U	5
CARBON DISULFIDE	5	U	U	U	U	50
CHLOROFORM	5	U	U	U	U	7
ETHYLBENZENE	5	U	U	U	U	5
METHYLENE CHLORIDE	5	5 B	5 B J	7 B	7 B	5
TETRACHLOROETHENE	5	U	U	U	U	5
TOLUENE	5	U	U	U	U	5
TRICHLOROETHENE	5	U	U	U	U	5
VINYL CHLORIDE	10	U	U	U	U	2
XYLENES (TOTAL)	5	U	U	U	U	5^
TOTAL VO's (not including TIC's)	-	U	U	U	U	-
TOTAL TIC's	-	U	U	U	U	-
SEMI-VOLATILES (ug/l)						
2-METHYLNAPHTHALENE	10	-	-	-	-	50
ANTHRACENE	10	-	-	-	-	50 (GV)
BENZO(a)ANTHRACENE	10	-	-	-	-	0.002 (GV)
BENZO(a)PYRENE	10	-	-	-	-	ND
BENZO(b)FLUORANTHENE	10	-	-	-	-	0.002 (GV)
BENZO(k)FLUORANTHENE	10	-	-	-	-	0.002 (GV)
BIS(2-ETHYLHEXYL)PHTHALATE	10	-	-	-	-	50
CHRYSENE	10	-	-	-	-	0.002 (GV)
FLUORANTHENE	10	-	-	-	-	50 (GV)
NAPHTHALENE	10	-	-	-	-	10 (GV)
PHENANTHRENE	10	-	-	-	-	50 (GV)
PYRENE	10	-	-	-	-	50 (GV)
TOTAL TIC's	-	-	-	-	-	-
PCB's AND PESTICIDES (ug/l)						
4,4'-DDD	0.1	-	-	-	-	ND
4,4'-DDE	0.1	-	-	-	-	ND
4,4'-DDT	0.1	-	-	-	-	ND
ALPHA CHLORDANE	0.5	-	-	-	-	0.1~
DIELDRIN	0.1	-	-	-	-	ND
GAMMA CHLORDANE	0.5	-	-	-	-	0.1~
PHENOLS	2	-	-	-	-	1
TPH	1000	-	-	-	-	no standard

ORGANIC QUALIFIERS AND NOTES

Table includes only those compounds that have been detected in soil or groundwater.
TIC=Tentatively Identified Compounds.
TB=trip blank.
B=compound also detected in reagent blank.
J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

U=compound was analyzed for but not detected; if present with number, the number reflects an increased detection limit.
**=values are standards unless labelled as guidance values (GV).
~=standard provided is for Total Chlordane.
^=applies to each isomer individually.
Shaded areas signify concentrations above standards.

TABLE 6-4B GROUND WATER SAMPLING RESULTS

GIBSON CHEMICAL & OIL

COMMACK, NY

SAMPLE ID SAMPLE DATE(S) ***	DETECTION LIMITS (ug/l)	TB-5 10/18/91	TB-6 10/21/91	TB-7 10/22/91	TB-8 10/24/91	NYSDEC STANDARDS & GUIDANCE VALUES (ug/l)**
INORGANICS (ug/l)						
ALUMINUM	200	-	-	-	-	no standard
ARSENIC	10	-	-	-	-	25
BARIUM	25	-	-	-	-	1000
CADMIUM	1	-	-	-	-	10
CALCIUM	5000	-	-	-	-	no standard
CHROMIUM	10	-	-	-	-	50
COPPER	25	-	-	-	-	200
IRON	50	-	-	-	-	300
LEAD	5	-	-	-	-	25
MAGNESIUM	5000	-	-	-	-	35000 (gv)
MANGANESE	15	-	-	-	-	300
MERCURY	0.2	-	-	-	-	2
NICKEL	40	-	-	-	-	no standard
POTASSIUM	5000	-	-	-	-	no standard
SELENIUM	5	-	-	-	-	10
SODIUM	5000	-	-	-	-	20000
VANADIUM	50	-	-	-	-	no standard
ZINC	10	-	-	-	-	300
CHLORIDE	1000	-	-	-	-	250000
NITRATE	NA	-	-	-	-	10000
pH (standard units)	NA	-	-	-	-	6.5-8.5
SULFATE	2000	-	-	-	-	250000
CYANIDE	10	-	-	-	-	100
TDS	2000	-	-	-	-	500000

INORGANIC QUALIFIERS AND NOTES

B=indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.

U=indicates element was analyzed for but not detected; if present with a number, the number reflects an increased detection limit.

E=indicates a value estimated or not reported due to the presence of interference.

J=value is estimated since it falls below the detection limit, or did not meet all supporting analytical requirements.

NOTE: standards and guidance values obtained from NYSDEC "Water Quality Regulations for Surface Waters and Groundwaters," 6NYCRR, Parts 700-705, 9/1/91, and from the NYSDEC "Division of Water - Technical and Operational Guidance Series," 9/25/90.

NOTE: shading signifies concentrations above standards.

-=not analyzed for.

3) downgradient quality (wells AC-5 and AC-6) for ground water that has already passed under the site and is now at a distance between 100 and 300 feet from the site. The analyses for each of the three ground water flow areas is discussed by parameter group, as warranted. The results are then summarized in Section 6.4.

6.3.1 Upgradient

No target volatiles, semi-volatiles, PCBs, pesticides or TPHs were detected above detection limits in the upgradient site wells of Cluster #1. Tentatively identified semi-volatile compounds were detected in MW 1D at 2795 ppb and were primarily related to hydrocarbons.

Since most of the inorganic parameters are naturally present at some concentration in ground water, individual parameter concentrations are noted only if above the respective New York State ground water quality standard. If no standard exists for the parameter, the constituent is discussed if the concentration is five times above its respective detection limit.

In Well 1S iron and manganese were detected at up to eight times their secondary ground water standard at a maximum concentration of 2270 ppb. Sodium was at a significantly elevated concentration of 46 ppm in 1D. Total dissolved solids (TDS) were detected at 76,000 ppb, well below the standard of 500,000 ppb.

In Well 1D, iron was detected at 589 ppb nearly twice its standard. Sodium was detected at 46,000 ppb, just over twice its standard. Phenols were detected at 2 ppb, just above its standard of 1 ppb, and TDS, similar to its shallow well counterpart, was below its standard at 228,000 ppb.

6.3.2 Site

Product

Product has been detected in MW-2S, under the former underground tank field, since the installation of the monitoring well in August, 1991. Preliminary gaugings were made with an acrylic bailer, but the product thicknesses could not be measured because the product adhered to the bailer walls, and did not leave a measurable thickness on the water column. Using an interface probe product thickness was first measured on November 5, 1991 when it was gauged at 0.02 feet. On January 29, 1992 the thickness of product was gauged at 0.48 feet.

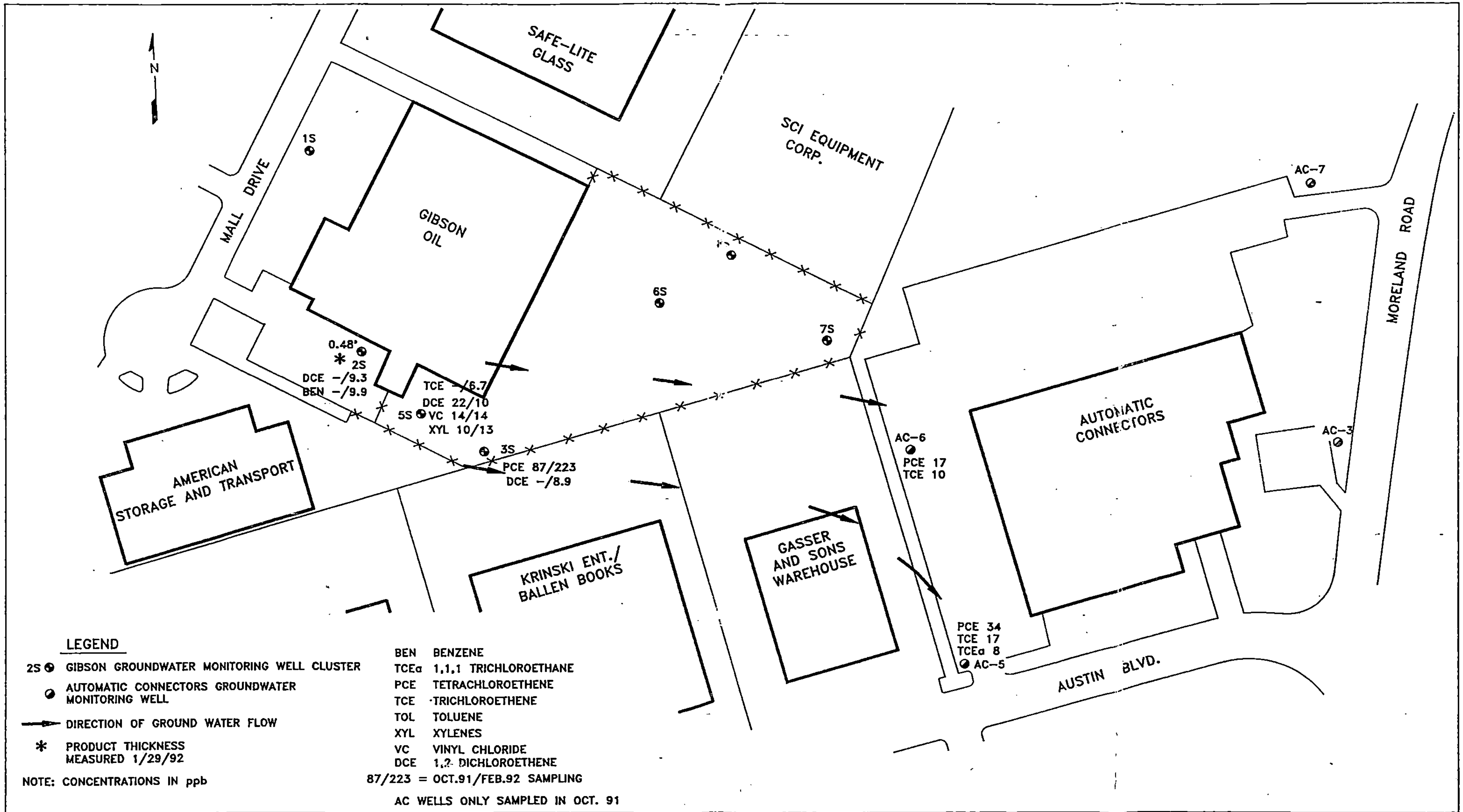
The product was light green in color with a relatively high gel-like viscosity. It exhibited an oily odor similar to motor fuels as well as automotive antifreeze.

A product sample has not yet been collected because of the limited volume of product within the 2-inch well, and because the product tends to adhere to the bailer, thus leaving an insufficient volume for analysis.

Volatiles

Four volatile organic compounds were detected in four of the on-site Gibson wells. These detections were the only volatile organic concentrations above their respective detection levels.

The distribution and concentrations of volatile organics in the shallow water table wells at the Gibson site is shown in Figure 6-1. The volatile organics included



LEGEND

- 2S ⊕ GIBSON GROUNDWATER MONITORING WELL CLUSTER
- ◒ AUTOMATIC CONNECTORS GROUNDWATER MONITORING WELL
- ⟶ DIRECTION OF GROUND WATER FLOW
- * PRODUCT THICKNESS MEASURED 1/29/92

NOTE: CONCENTRATIONS IN ppb

BEN	BENZENE
TCEa	1,1,1 TRICHLOROETHANE
PCE	TETRACHLOROETHENE
TCE	TRICHLOROETHENE
TOL	TOLUENE
XYL	XYLENES
VC	VINYL CHLORIDE
DCE	1,2 DICHLOROETHENE

87/223 = OCT.91/FEB.92 SAMPLING

AC WELLS ONLY SAMPLED IN OCT. 91

NYSDEC

ERM-Northeast
Environmental Resources Management

VOLATILE ORGANICS
IN SHALLOW (S) SERIES WELLS
GIBSON OIL

6-1

E.M./S.P.
6/30/92
1"=100'
164.007.04
FIG6-1

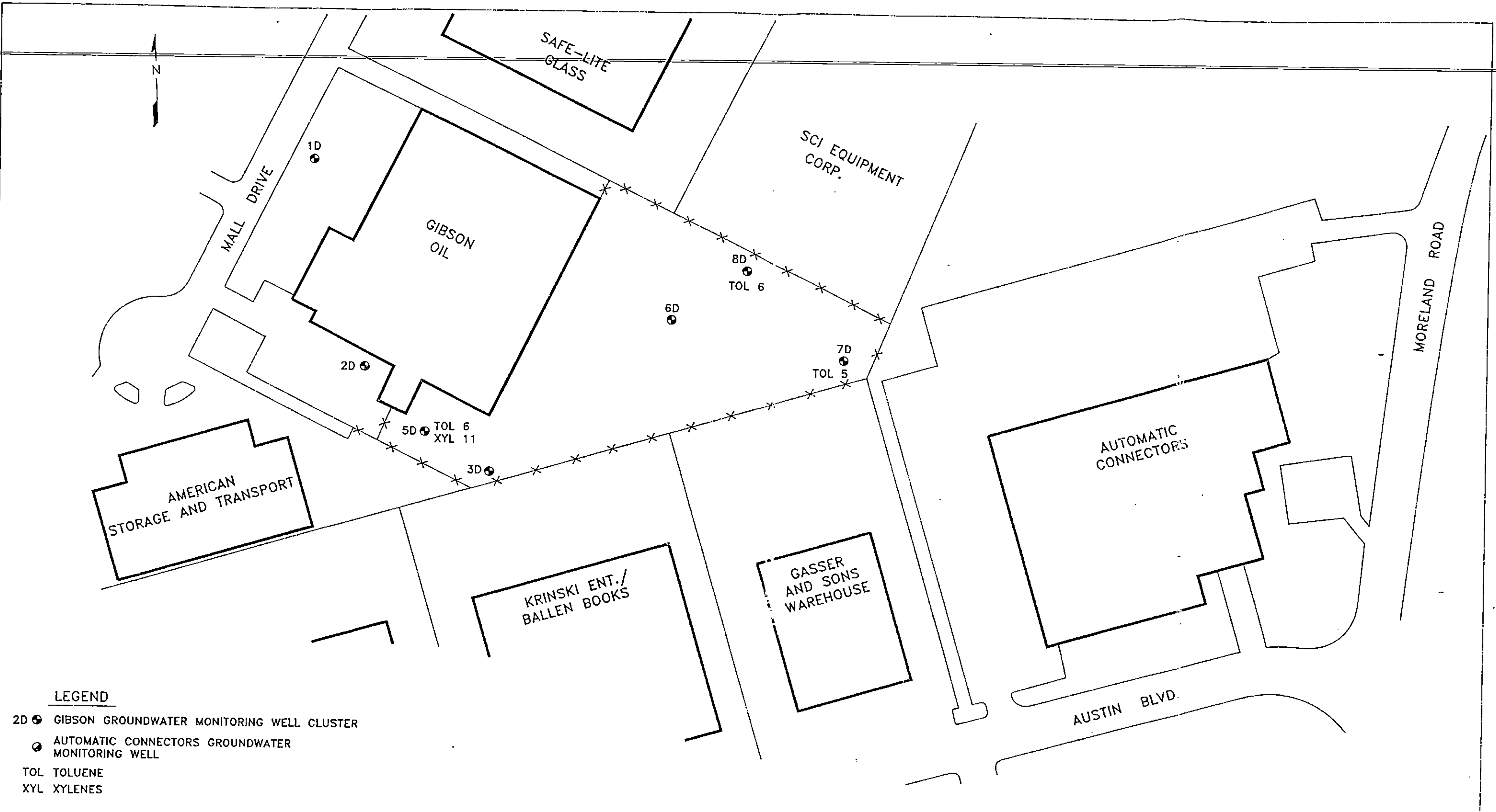
chlorinated compounds (tetrachloroethene or PCE) at 87 ppb in MW-3S, vinyl chloride at 14 ppb and 1,2 dichloroethene (DCE) at 22 ppb in MW-5S, and aromatic compounds (xylenes) at 10 ppb in MW-5S.

The distribution of volatiles in the deep wells is provided in Figure 6-2. Toluene was detected in 3 deep wells (MW-5D and MW-8D) at 6 ppb. Well MW-5D, downgradient of the former underground tank field and storm drain system, also had 11 ppb of xylene. Trace levels of benzene and bis(2-ethylhexyl phthalate) were detected in MW-7D and MW-8D.

The source of those chlorinated solvents detected (such as PCE) is not known, and these types of chemicals were reportedly never used or stored at the Gibson site. However, tetrachloroethene was detected in a storm drain, designated #4, in December 1981, constituting a SPDES violation (refer to Appendix B). Well MW-3S, in which the PCE was detected, is located downgradient of the former storm drain system (S-P/FSDS). A trace concentration of tetrachloroethene (7 ppb) was also detected in the former "Soil Stockpile" (S-SP) area directly upgradient of Cluster #3.

The source of the vinyl chloride is not known. However, vinyl chloride is one of the degradation products of tetrachloroethene. The primary process for this transformation is microbial degradation. The laboratory derived half-life for the transformation is less than two days (Parson et. al., 1982, 1983 and 1984).

The aromatic compounds detected are constituents of motor fuels, which are materials that are packaged at the Gibson site. Toluene and xylenes were detected in soil near the base of the former underground tank field (S-UTF) at maximum



LEGEND

2D ⊕ GIBSON GROUNDWATER MONITORING WELL CLUSTER

● AUTOMATIC CONNECTORS GROUNDWATER MONITORING WELL

TOL TOLUENE

XYL XYLENES

NOTE: CONCENTRATIONS IN ppb, SAMPLES COLLECTED OCTOBER 1991.

NYSDE:

ERM-Northeast
Environmental Resources Management

VOLATILE ORGANICS
IN DEEP (D) SERIES WELLS
GIBSON OIL

E. MIKUCKI
2/27/92
1"=100'
164.007.04
FIG6-2

6-2

concentration of 210 and 1300 ppb, respectively. Cluster #5, in which these compounds were detected, is located at the downgradient boundary of the UTF.

Semi-Volatiles

No semi-volatiles were found above detection levels in any site wells. Estimated values of the phthalate bis(2-ethylhexyl-phthalate) below detection limits were found in several deep wells. Tentatively identified compounds (TICs) for semi-volatiles were primarily found in the deeper wells. TIC semi-volatiles were detected in shallow wells up to 639 ppb with a median of 50 ppb, while concentrations in the deep wells ranged between 121 to 4008 ppb with a median of 2230 ppb. The majority of TICs were related to hydrocarbons.

Total petroleum hydrocarbons (TPH) were found in the ground water in three areas of the site. As expected, at Cluster #2, where free product was found, the ground water contained elevated TPH concentrations, with 1,480,000 and 3,200 ppb in MW-2S and MW-2D, respectively.

The specific compounds comprising these TPH concentrations have not yet been determined. The TPH parameter is a screening indicator. Its analytical methods provides the total quantity of hydrocarbons with no individual component analysis. Individual components can potentially be derived from organic analyses such as the volatile and semi-volatile fraction. This is not the case with the MW-2S and MW-2D TPH analyses. It is possible that a droplet of product in the TPH sample bottles could have produced these concentrations. The low levels of volatiles and semi-volatiles in the ground water samples, despite the presence of product, suggest that the compounds are either not very soluble or were not analyzed for (e.g. ethylene glycol).

TPH was present in wells 3D and 7D at 3700 and 1110 ppb, respectively. MW-3D is downgradient of the former storm drain system and several other AECs. The elevated semi-volatile TICs in MW-3D (4008 ppb) might be associated with the TPH concentration. The 1110 ppb of TPH in MW-7D, the furthest downgradient site monitoring well, cannot be explained by the analyses.

PCB/Pesticides

No PCBs or pesticides were detected in any of the site wells.

Metals

A few metals were detected at elevated concentrations, relative to background levels, in the site wells. Elevated concentrations, as presented below, are discussed if they exceeded five times their respective detection levels.

Calcium was detected at 34 and 38 ppb in MW-7S and MW-8S. Calcium had a detection limit of 5 ppb. Chromium was detected in one well, MW-2S, at 77.6 ppb, significantly above its detection level of 10 ppb.

Iron was detected consistently in all wells, with concentrations ranging from 589 to 101,000 ppb. Similarly, manganese was detected in all wells, with concentrations ranging up to 21 ppb, with higher levels generally detected in the shallow wells. Lead was detected at 33 ppb in well 2S. Sodium was detected in wells MW-1D, MW-2S and MW-5D.

Miscellaneous

Phenols were detected between 4 and 8 ppb in Cluster #5 and at 7 and 8 ppb at MWs 7S and 6D, respectively. TDS concentrations ranged between 64 and 550 ppm.

6.3.3 Off-site Downgradient

Volatiles

The two off-site shallow wells downgradient of the site, AC-5 and AC-6, contained a few volatile organic compounds and elevated metals. The distribution of volatile organics in the off-site downgradient wells is shown in Figure 6-1.

Tetrachlorethene (PCE) was found in both of the off-site downgradient wells at 17 ppb in AC-6 and 34 ppb at AC-5. Figure 6-1 shows that AC-5 and AC-6 are downgradient of Gibson on-site well 3S which contained PCE at 87 ppb. Wells AC-5 and AC-6 also contained trichloroethene (TCE) between 10 and 17 ppb in both wells and 1,1,1-trichloroethane (TCE-A) in AC-5 at 8 ppb.

TCE is a breakdown product of PCE and its presence may be related to the PCE in the area of Cluster #3. It has been reported that TCE can be formed from the microbial degradation of PCE within a half life period of less than 2 days (Bouwer, 1983).

The presence of tetrachloroethene (PCE) in the ground water at the Automatic Connectors (AC) site cannot be definitively established as emanating from the Gibson site. Two parcels of land exist between the southern portions of the

Gibson property (see Figure 6-1), where PCE was detected, and the AC site. The parcel adjacent to the AC site is occupied by Gasser and Sons Warehouse. This facility handles raw metals and finished goods (discussed in Section 2.2). Materials used at the site reportedly include solvents and oils.

Metals and Miscellaneous Parameters

Similar to the Gibson site wells, AC-5 and AC-6 contained elevated levels of iron and manganese at average concentrations of 5175 and 413 ppb, respectively. The pH of the AC wells (5.2) was even lower than the average pH (6.4) of the on-site wells.

6.4 Second Ground Water Sampling

On February 19, 1992 through February 21, 1992 a second round of ground water samples were obtained from all of the on-site wells at the Gibson facility. The samples were analyzed for volatiles and select metals (iron, lead and manganese). All of the laboratory and sampling protocols established and followed during the first episode of sampling were strictly adhered to. As such, a duplicate, matrix spike and matrix spike duplicate were collected, and Field and Trip Blanks were also obtained. Analytical results for the second round of ground water sampling are presented in Table 6-5.

Volatile Organics

Analytical results from the second round of ground water sampling generally confirmed the data associated with the initial (October, 1992) sampling episode. For the recent sampling, no volatile organic compounds were detected above New York State Drinking Water Standards in six of the fourteen wells (MW-1S/1D. MW-2D, MW-7S/D,

Table 6-5

GROUNDWATER SAMPLING RESULTS
FEBRUARY, 1992
GIBSON CHEMICAL & OIL
COMMACK, NY

SAMPLE I.D. #	MW - 1D	MW - 1S	MW - 2D	MW - 2S	MW - 3D	MW - 3S
SAMPLE DATE	2/19/92	2/19/92	2/20/92	2/20/92	2/20/92	2/20/92
VOLATILE ORANIC COMPOUNDS (all data is in ppb)						
Chloromethane	1.0	U	U	U	U	U
Bromomethane	U	U	U	U	U	U
Vinyl Chloride	U	U	U	U	U	U
Chloroethane	U	U	U	U	U	U
Methylene Chloride	0.9 B	1.2 B	0.6 B	1.4 B	0.8 B	1.2 B
Acetone	0.4 BJ	0.4 BJ	0.4 BJ	0.4 BJ	0.3 BJ	U
Carbon Disulfide	0.5 B	0.8 B	U	0.4 BJ	U	U
1,1-Dichloroethene	U	U	U	U	U	U
1,1-Dichloroethane	0.5	U	U	4.8	U	1.2
1,2-Dichloroethene (total)	U	U	U	9.3	U	8.9
Chloroform	0.4 BJ	U	U	U	U	0.8
1,2-Dichloroethane	U	U	U	U	U	U
2-Butanone	U	U	U	U	U	U
1,1,1-Trichloroethane	0.6	1.2	0.2 J	U	U	1.1
Carbon Tetrachloride	U	U	U	U	U	U
Vinyl Acetate	U	U	U	U	U	U
Bromodichloromethane	U	U	0.1 J	U	U	U
1,2-Dichloropropane	U	U	U	U	U	U
Cis-1,3-Dichloropropene	U	U	U	U	U	U
Trichloroethene	0.5	U	0.2 J	0.3 J	U	3.7
Dibromochloromethane	U	U	U	U	U	U
1,1,2 Trichloroethane	U	U	U	U	U	U
Benzene	0.3 J	U	0.4 J	9.9	U	U
Trans-1,3-Dichloropropene	U	U	U	U	U	U
Bromoform	U	U	U	U	U	U
2-Hexanone	U	U	U	U	U	U
4-Methyl-2-Pentanone	U	U	0.1 BJ	U	U	U
Tetrachloroethene	U	U	U	U	U	223 E
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U
Toluene	0.8 B	0.6 B	0.4 BJ	0.4 BJ	0.3 BJ	0.4 J
Chlorobenzene	U	U	0.2 BJ	U	0.1 J	U
Ethylbenzene	0.3 BJ	U	0.2 BJ	U	0.1 BJ	U
Styrene	U	0.1 BJ	0.5 B	0.1 BJ	0.3 BJ	0.1 BJ
Xylenes (total)	2.1 B	0.3BJ	1.0 B	0.8 B	0.5 B	0.5 B
TOTAL VOC's	2.6	1.2	U	24.0	U	238.7
TOTAL VOC TIC's	3.9 J	2.5	1.8 J	75.30 J	1.2 J	12.80 J
INORGANICS						
Iron	501.0	6210.0	1030.0	46200.0	958.0	18200
Lead	19.9	U	U	8.4 S	U	18.7 S
Manganese	34.4	1710 N	41.6 N	12400 N	67.9 N	2200 N

Table 6-5

GROUNDWATER SAMPLING RESULTS
FEBRUARY, 1992
GIBSON CHEMICAL & OIL
COMMACK, N.Y.

SAMPLE I.D. #	MW - 5D	MW - 5S	MW - 6D	MW - 6S	MW7D	MW - 7S
SAMPLE DATE	2/20/92	2/20/92	2/20/92	2/20/92	2/20/92	2/20/92

VOLATILE ORANIC COMPOUNDS (all data is in ppb)

Chloromethane	U	U	U	U	2.1	U
Bromomethane	U	U	U	U	U	U
Vinyl Chloride	U	14.0	U	U	U	U
Chloroethane	U	U	U	U	U	U
Methylene Chloride	1.0 B	1.1 B	0.8 B	0.9 B	1.4 B	1.6 B
Acetone	1.2 B	0.6 B	0.4 BJ	0.5 B	1.4 B	0.5 BJ
Carbon Disulfide	U	0.8 B	U	0.7 B	0.6 B	0.6 B
1,1-Dichloroethene	U	U	U	U	U	U
1,1-Dichloroethane	1.9	0.7	U	0.4 J	U	1.3
1,2-Dichloroethene (total)	U	10.0	U	0.7	U	3.7
Chloroform	0.4 J	U	0.3 J	U	U	U
1,2-Dichloroethane	U	U	U	U	U	U
2-Butanone	U	U	U	U	U	U
1,1,1-Trichloroethane	0.6	U	0.4 J	U	U	0.9
Carbon Tetrachloride	U	U	U	U	U	U
Vinyl Acetate	U	U	U	U	U	U
Bromodichloromethane	0.3 J	U	U	U	U	U
1,2-Dichloropropane	U	U	U	U	U	U
Cis-1,3-Dichloropropene	U	U	U	U	U	U
Trichloroethene	U	6.7	U	U	U	1.4
Dibromocloromethane	0.4 J	U	U	U	U	U
1,1,2- Trichloroethane	U	U	U	U	U	U
Benzene	0.4 BJ	0.8 B	U	U	0.5	U
Trans-1,3-Dichloropropene	U	U	U	U	U	U
Bromoform	0.1 J	U	U	U	U	U
2-Hexanone	U	U	U	U	U	U
4-Methyl-2-Pentanone	U	U	U	U	U	U
Tetrachloroethene	U	U	U	U	1.6	2.4
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U
Toluene	2.0 B	0.4 BJ	5.0	U	1.0 B	0.5 BJ
Chlorobenzene	U	U	U	U	U	U
Ethylbenzene	3.2 B	4.1 B	0.1 BJ	U	0.2 BJ	U
Styrene	U	U	U	0.1 BJ	U	U
Xylenes (total)	21 B	13.0	1.0 B	0.3 BJ	2.1 B	0.3 BJ
TOTAL VOC's	2.5	56.1	0.5	0.7	4.2	9.7
TOTAL VOC TIC's	38.10 J	484.90 J	0.4 J	1.4 J	1.5 J	5.30 J

INORGANICS

Iron	820.0	129000.0	2120.0	48700.0	1300.0	2140
Lead	UW	9.0	U	6.7 +	U	UW
Manganese	48.8 N	4510 N	269 N	16400 N	1660 N	20000 N

Table 6-5

GROUNDWATER SAMPLING RESULTS
FEBRUARY, 1992
GIBSON CHEMICAL & OIL
COMMACK, N.Y.

SAMPLE I.D. #	MW - 8D	MW - 8S	MW - 9S *	Field Blank	Trip Blank
SAMPLE DATE	2/20/92	2/21/92	2/20/92	2/20/92	2/18/92

VOLATILE ORANIC COMPOUNDS (all data is in ppb)

Chloromethane	U	U	U	U	U
Bromomethane	U	U	U	U	U
Vinyl Chloride	U	U	U	U	U
Chloroethane	U	U	U	U	U
Methylene Chloride	1.5 B	U	1.1 B	3.9 B	3.1 B
Acetone	0.6 BJ	4.4 B	0.5 B	0.9 B	1.4 B
Carbon Disulfide	0.5 BJ	0.5 B	1.1 B	U	U
1,1-Dichloroethene	U	U	U	U	U
1,1-Dichloroethane	1.3	U	0.5	U	U
1,2-Dichloroethene (total)	U	U	0.7	U	U
Chloroform	0.7	U	U	0.6 B	0.7 B
1,2-Dichloroethane	U	U	U	U	U
2-Butanone	0.7 B	U	U	U	U
1,1,1-Trichloroethane	1.5	4.2	U	U	U
Carbon Tetrachloride	U	U	U	U	U
Vinyl Acetate	U	U	U	U	U
Bromodichloromethane	0.3 J	U	U	U	U
1,2-Dichloroprpene	U	U	U	U	U
Cis-1,3-Dichloropropene	U	U	U	U	U
Trichloroethene	0.3 J	U	U	U	U
Dibromomethane	U	U	U	U	U
1,1,2 Trichloroethane	U	U	U	U	U
Benzene	0.4 J	0.008 J	0.5 B	U	U
Trans-1,3-Dichloropropene	U	U	U	U	U
Bromoform	0.3 J	U	U	U	U
2-Hexanone	U	U	U	U	U
4-Methyl-2-Pentanone	U	U	U	0.3 BJ	0.4 BJ
Tetrachloroethene	7.1	2.4	1.8	U	U
1,1,2,2-Trtrachloroethane	U	U	U	U	U
Toluene	0.8 B	0.4 BJ	0.4 BJ	0.7 B	1.1 B
Chlorobenzene	U	U	U	U	0.1 BJ
Ethylbenzene	0.3 BJ	U	U	0.2 BJ	0.5 B
Styrene	U	0.1 BJ	0.2 BJ	0.1 BJ	0.3 BJ
Xylenes (total)	2.4 B	0.5 B	0.6 B	0.8 B	2.4 B
TOTAL VOC's	10.6	6.6	3.0	U	U
TOTAL VOC TIC's	13.80 J	4.2 BJ	1.9 J	3.6 J	3.90 J

INORGANICS

Iron	576.0	5880.0	42400.0	U	N/A
Lead	UW	UW	U	U	N/A
Manganese	661 N	3850 N	16800 N	UN	N/A

* MW-9S is a duplicate of MW-6S

and MW-8S). During the initial sampling, eight of the wells (MW-1S/D, MW-2D, MW-3D, MW-6S/D, MW-7S, and MW-8S) had concentrations of organic volatile compounds below these same Standards.

Similar compounds were found in both sets of data, with most of the concentrations from the second round of sampling being somewhat higher than those detected in the original samples. MW-3S, in particular, showed a considerable increase in tetrachloroethene concentration: 223 ppb from 87 ppb in October, 1991 (roughly a 250% increase). 1,2-Dichloroethene (total) was also detected in both MW-2S and MW-3S during the February, 1992 sampling as was tetrachloroethene in MW-8D (initially, neither of these compounds had been detected in these wells). Xylenes were measured at 21 ppb in MW-5D, and toluene at 5 ppb in MW-6D, although neither had been detected in the original samples. Round II benzene concentrations were also measured at higher levels (9.9 ppb vs. 4J ppb in MW-2S, and 0.8 ppb vs. undetected in MW-5S).

Source compounds were detected at, or slightly below, their initial concentrations. MW-5S, for example, had a lower level of 1,2-Dichloroethene (total) (10 ppb vs. 22 ppb).

Inorganics (Metals)

Five of the fourteen wells showed concentrations of lead, and all of these were below the New York State Drinking Water Standard of 25 ppb. Comparatively, the October, 1992 sampling showed that four wells contained detectable amounts of lead, and that MW-2S had a concentration over the aforementioned standard (at 33 ppb).

None of the iron or manganese concentrations were below their respective New York State Drinking Water Standard of 300 ppb. Overall, eight of the fourteen wells (MW-1D, MW-2S/D, MW-5D, MW-7S/7D, MW-8S/D) showed decreased levels of iron and manganese (except MW-1D which showed an increase in manganese of roughly 10 ppb). The remaining wells had slightly higher levels of these two metals as determined by the February, 1992 analyses. Particularly sharp increases were noted in MW-1S (from 2270 to 6210 ppb of iron, and from 864 to 1710 ppb manganese), MW-3S (from 7460 to 18200 ppb of iron), MW-5S (from 74400 to 129000 ppb iron), and in MW-6S (form 1500 to 16400 ppb manganese).

6.5 Summary of Ground Water Quality

The analytical results for the two rounds of ground water samples collected in October, 1991 and February 1992 were similar. These results have determined that localized areas of the Gibson site contained elevated concentrations of volatile organics (total VOCs to 239 ppb at one area), chromium, and lead. Ubiquitous in the sampled ground water were elevated levels of iron and manganese.

The volatile organics were detected in two areas of the site. Downgradient of the former storm drain system at Cluster #5, toluene, xylenes, TCE and vinyl chloride were detected between 6 and 15 ppb and DCE as high at 22 ppb. The toluene and xylenes detected may be associated with the petroleum handled and spilled in the area of the former storm drain. The vinyl chloride is potentially associated with contamination detected in a storm drain drywell sampled by SCDHS. Tetrachloroethene (PCE) was detected in storm drain No. 4 in 1981. In Well 3S PCE was detected at 239 ppb. PCE can biodegrade to vinyl chloride. At the second area of the site, the former underground tank field, DCE and benzene were detected up to 9.9 ppb in 2S.

Chromium and lead were detected at elevated levels in MW-2S at 77 and 33 ppb, respectively. These metals were detected at elevated levels in soil samples in the former drainage system and tank field located in the area of 2S.

Elevated levels of iron and manganese were present in most of the wells across the Gibson site. The same parameters and elevated concentrations were present in both the upgradient and off-site downgradient wells.

Volatile organics including tetrachloroethene (PCE) and associated compounds, trichloroethene and 1,1,1-trichloroethane, were detected in the off-site Automatic Connectors wells AC-5 and AC-6 at concentrations between 8 and 34 ppb. Although these constituents were either detected on the Gibson site or are breakdown products of the parent PCE, their direct relationship to the Gibson site have not been unequivocally determined. Automatic Connector's consultant has stated that their wells were installed at NYSDEC directive to investigate metals. The chlorinated solvents detected in their wells are reportedly not used at the facility. This facility is generally downgradient of the Gibson site. However, Gasser and Sons, Warehouse occupies the land parcel between the two sites and reportedly handles and uses solvents. Additional wells would be needed on the Gasser property to unequivocally determine the source of the chlorinated solvents on the Automatic Connector property.

6.6 Comparison of Quality to Previous Site Analyses

As discussed in Section 5.8, the SCDHS and NYSDEC have sampled numerous areas of the site during the past 10 years. Violations resulting from these analyses are included in Appendix B. The recent ground water analyses are generally consistent with past analyses. Elevated levels of chromium and lead found in the ground water in the vicinity of MW-2S were historically detected in elevated levels in the drainage systems and discharges in this area. In April 1988, analytical results of a former site ground water monitoring well included toluene, xylenes, 12-dichloroethene, and toluene. These compounds have been detected at elevated levels in the recent ground water analyses.

7.0 COMPARISON OF SOIL AND GROUND WATER QUALITY TO STATE STANDARDS

7.1 Soil

New York State does not presently have soil quality standards against which the Gibson soils can be evaluated. NYSDEC, however, has recently put forth a draft document entitled "Cleanup Policy and Guidelines" dated October, 1991 developed by the Cleanup Standards Task Force. This document is in its infancy, and will be developed through much discussion, research and feedback. The document includes a section on developing soil cleanup levels considering several exposure pathways. It also states that "for most sites, a site-specific risk assessment needs to be conducted to establish soil criteria". Within Appendix 3 of the document are NYSDEC target soil cleanup concentrations derived from EPA's Health Effects Assessment Summary Table (HEAST). These levels are considered very conservative in that they consider direct human ingestion of the soils. These soil guidelines are presented in this section to provide some degree of reference for evaluating the soil quality at the Gibson site.

In Table 7-1 the draft target soil cleanup concentrations (TSCGs) are compared with the maximum soil concentrations detected in the Gibson soils. No constituents of the TCL/TAL analysis conducted for the soils were above their respective TSCGs.

7.2 Ground Water

New York State standards for ground water quality were published in "Water Quality Regulations for Surface Waters and Ground Waters", 6NYCRR Parts 700-705, September

TABLE 7-1
INITIAL NYSDEC TARGET SOIL CLEANUP GUIDELINES

Constituents	Maximum Detected in Gibson Soils	Soil Guideline Concentration (mg/kg)
Volatiles (ug/kg)		
Acetone	2800	6000
Carbon disulfide	49	8000
Ethyl benzene	270	8000
Ethylene glycol	87	200000
Tetrachloroethene	7	14
Toluene	210	20000
Xylenes	1300	200000
Methylene Chloride	5	93
Semi Volatile (ug/kg)		
Fluoranthene	2400	3000
Phenanthrene	1700	NS
Inorganics (mg/kg)		
Aluminum	13200	NS
Arsenic	4	80
Barium	40.3	4000
Cadmium	0.96	80
Calcium	21600	NS
Chromium	57.7	400
Copper	11.6	NS
Iron	13700	NS
Lead	164	250
Magnesium	11600	NS
Manganese	162	20000
Mercury	0.52	20
Nickel	12.7	2000
Potassium	<1030	NS
Selenium	<1.1	NS
Sodium	1810	NS
Vanadium	27.6	600
Zinc	88.1	20000
Cyanide	<1.3	2000

*Guideline concentrations derived from EPA's Health Effects Summary Table; Appendix 3 "NYSDEC" Draft Cleanup Policies and Guidelines, October, 1991.
Notes: NS = No Standard

1, 1991 and Guidance values were published in "Division of Water-Technical and Operational Guidance Series", dated September 25, 1990. Guidance values exist.

The standards and guidance values are listed in the ground water quality tables of Section 6.0. Concentrations of any constituent above a standard or guidance level has been denoted within the tables by the use of shading. Table 7-2 has been prepared to incorporate the ground water standards and exceedences into one table. Exceedences of the water quality standards for the ground water sampled as part of the Gibson Site Investigation are discussed below by parameter group. Specific site locations and perspective sources were discussed in detail in Section 6.0.

7.2.1 Volatile Organics

Eight volatiles exceeded standards in the ground water sampled at the Gibson site. These compounds included: 1,2 DCE, benzene, TCE, TCEA, PCE, toluene, vinyl chloride and xylenes (see Table 7-2). The exceedances were fairly isolated, occurring for the most part, in only a few wells.

The PCE standard of 5 ppb was exceeded by the highest multiple, with concentrations between 87 ppb and 223 ppb. Benzene exceeded its standard of 0.7 ppb by 12 times. Vinyl chloride exceeded its standard of 2 ppb by seven times. The remaining volatiles were within approximately two times their standards of 5 ppb.

7.2.2 Semi-Volatiles, PCBs, Pesticides, and Phenols

No PCBs or pesticides were detected. One semi-volatile (bis(2-ethylhexyl) phthalate) was detected at trace levels in seven wells. No other semi-volatile

TA : 7 -2
GROUND WATER ANALYSES
ABOVE NEW YORK STATE STANDARDS

MONITORING WELL	NEW YORK STATE STANDARD	1S	1D	2S	2D	3S	3D	5S	5D	6S	6D	7S	7D	8S	8D	AC - 5	AC - 6
VOLATILE ORGANIC COMPOUNDS (UG/L)																	
1,2-DICHLOROETHENE	5	--	--	-- / 9.3	--	-- / 8.9	--	22 / 10	--	--	--	--	--	--	--	--	--
BENZENE	0.7	--	--	4J / 9.9	--	--	--	-- / 0.	--	--	--	--	3J / --	--	4J /7.1	--	--
TETRACHLOROETHENE	5	--	--	--	--	87 / 223	--	--	--	--	--	--	--	--	--	34	17
TOLUENE	5	--	--	--	--	--	--	--	6 / --	--	--	--	--	--	6 / --	--	--
VINYL CHLORIDE	2	--	--	--	--	--	--	-- / 14	14 / --	--	--	--	--	--	--	--	--
XYLENES	5	--	--	--	--	--	--	10 / 13	11 / 21	--	--	--	--	--	--	--	--
1,1,1-TRICHLOROETHANE	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8	--
TRICHLOROETHENE	5	--	--	--	--	--	--	-- / 6.	--	--	--	--	--	--	--	34	10
PCB'S / PESTICIDES (UG/L)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (UG/L)																	
CADMIUM	10	10.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM	50	--	--	77.6J	--	--	--	--	--	--	--	--	--	--	--	--	--
IRON	300	2270J	589J	101,000J	1,440J	7,460J	819	--	--	42,700J	1,900J	11,900J	25,200J	16,100J	1,990J	5,170	5,180
LEAD	5	--	--	33J	--	--	--	--	--	--	--	--	--	--	--	--	--
MANGANESE	15	864	--	20,600	--	1,230	--	3,600	--	--	--	--	--	--	--	--	--
SODIUM	5000	--	46,000	22,700	--	--	--	--	78,400	21,500	--	24,700	4,650	3,970	891	886	--
MISCELLANEOUS (UG/L)																	
PHENOLS	1	--	2	--	--	--	--	8	4	--	8	7	--	--	--	--	--
TDS	500,000	--	--	--	--	--	--	--	550,000	--	--	--	--	--	--	--	--

NOTES : J = Value is estimated since it did not meet all supporting analytical requirements.

-- / 9.3 = Oct '91/Feb '92 results (for volatiles only).

AC wells were not sampled in February,1992.

exceeded any of their respective standards or guidelines. Phenols exceeded its standard of 1 ppb in 3 wells, with values up to 8 ppb (see Table 6-1A).

7.2.3 Metals

Cadmium was detected just above its standard of 10 ppb in one well at 10.4 ppb. Similarly, chromium was detected at 77.6 ppb in one well above its standard of 50 ppb.

Iron and manganese were detected up to several orders of magnitude higher then their secondary standards of 300 ppb in virtually all wells. Manganese was below its standard in most of the deeper wells. Sodium exceeded its standard of 20 ppm in these wells by up to four-fold.

7.2.4 Miscellaneous Parameters

Chlorides, sulfate and nitrate values were within NYSDEC standards. The pH levels were occasionally below the 6.5 to 8.5 range, especially in the shallow wells, with pH of 5.5 in upgradient well MW-1S and off-site Well MW-8S. Cyanide was not detected.

7.3 Analytical Findings Relative to Site Stored Materials

As discussed in Section 2.3, SCDHS reports indicates several automotive products have been stored at the Gibson site. These materials included: motor oil and detergent, brake fluid, dry gas, transmission fluid, antifreeze, engine coolant, power steering fluid, waste oil, degreasers, silicone spray and methanol. Most of the volatile organics found at the site can be associated with these materials.

Motor oils and transmission fluid can contain up to 75% of mineral oils. Mineral oil is a liquid petroleum derivative, generally containing large percentages of xylenes and toluene. Motor oils can also contain hydrocarbon naphthalene condensation products found in the semi-volatile group. Motor cleaners can contain many of the chlorinated solvents found at the site. These include PCE, TCEa and TCE.

8.0 SITE HAZARD RANKING

8.1 Preliminary Assessment

A preliminary environmental assessment (PA) was conducted in 1983 by NUS Corporation under contract to USEPA. The findings of the assessment are reported in the "Potential Hazardous Waste Site Preliminary Assessment Form", provided in Appendix M. In summary, the assessment categorized the site as "medium" priority for further action and recommended a RCRA inspection and cleanup of Gibson's rear yard.

8.2 Hazard Ranking System

The U.S. EPA developed the Hazard Ranking System to evaluate and rank potential threats to human health and the environment from hazardous waste sites. The HRS is used to determine whether a site should be placed on the National Priorities List (NPL). As part of the 1986 Superfund Amendments and Reauthorization Act of 1986 (SARA), the U.S. EPA was required to amend the HRS. The U.S. EPA completed these amendments in December, 1990. The revised HRS is referred to as the HRS II. ERM scored the Gibson Site using U.S. EPA's final Hazard Ranking System, HRS II following the procedures described in 40 CFR 300 - Final Rule, dated December, 1990.

The HRS II includes a detailed evaluation of four pathways: ground water, surface water, soil and air. Three factors are evaluated for each pathway: likelihood of release, waste characteristics and targets. The score for each pathway is normalized to 100 points and then the scores are combined using a root-mean-square method. As was the case with the original HRS, a site receiving a score of 28.5 or greater is eligible for the NPL. A significant factor affecting the HRS II for the Gibson site is the impact likelihood of release to an aquifer. This issue is related to the value of an "observed" release versus that of a "potential to release". The appropriate usage of these choices for the Gibson site depends on whether the Smithtown Clay is actually present beneath the site. If it is present, it would help to confine contamination to the Upper Glacial Aquifer. If not present, the contamination in the deep wells may be considered an observable release. Considering the two scenarios above and the fact that the Smithtown Clay was not encountered in the 140-foot borings conducted at the site, but may be present at a deeper depth according to the literature, ERM has calculated the HRS II score considering both cases.

The HRS II score for the Gibson site is 64.5, consistent with the Smithtown Clay not present and with an observable release to the primary potable use aquifer, the Magothy. Assuming that the Smithtown Clay is present and there is potential release to the Magothy, the HRS II score is 25.8. The calculations for the final HRS II score, the individual pathway scores, and backup data and sources used to calculate these scores are found in Appendix M.

Three pathway scores were calculated for the Gibson Site: ground water, soil and air. According to HRS II guidance, the surface water pathway was not evaluated because the nearest surface water body is over two miles away and the site does not lie in a floodplain. Therefore, there is no potential for release to surface water. Scores for both the air migration pathway and the soil exposure pathway were relatively low, 2.18 and 0.34, respectively. The low scores are due in part to the fact that contaminated soil is the only material of concern (i.e., versus drums, lagoons etc.) and the site itself is relatively small in comparison to other hazardous waste sites. The ground water migration pathway received the highest score (51.5). Two factors, which are not unique to the Gibson Site, weighed heavily in the calculation of the ground water migration pathway score. These factors are 1) the use of ground water as the sole source of potable water supply Long Island, and 2) the relatively dense population in the area surrounding the site. Both of these factors would significantly affect the score of any site located on Long Island.

Two aquifers were identified which serve as sources of potable water within the site vicinity: the Upper Glacial Aquifer and the Magothy Aquifer. Ground water sampling at the site was limited to the Upper Glacial Aquifer. However, because the two aquifers may be hydraulically connected in this area, and both are used for potable water supplies, both had to be scored. The HRS II specifies that a four mile radius be adopted as the target distance to be evaluated. Within this radius are distance categories (0 to 1/4 mile, >1/2 to 1 mile, >1 to 2 miles, >2 to 3 miles and >3 to 4 miles). No municipal wells within the Upper Glacial or Magothy Aquifers are located within one-half mile of the site (see Section 4.6). Wells located within the Magothy Aquifer are found at distances ranging from one-half mile to four miles from the site. Wells located in the Upper Glacial Aquifer are found at distances ranging from one to three miles from the site (see Figure 4-7 for the location of these wells and Table A in Appendix M for the approximate distance and direction of each of these wells from the site).

The HRS II specifies that the population served by drinking water wells within the target distance limit be identified. Because water from various wells is mixed within the distribution system, it is not possible to quantify the actual number of people served per individual well. The number of people served by each well was estimated using the 1990 annual pumpage from each well and an estimated water use of 120 gallons per day per person (SCWA average, see Appendix N). It is important to note that the estimate of population served per well does not account for industrial users. (An accurate estimate of industrial water use is not possible without a survey). Therefore, the values obtained for number of people served per individual well in all likelihood exceeds the actual number served and is a conservative approach.

Ground water pathway migration scores were calculated for the Upper Glacial Aquifer and for the Magothy Aquifer. Because chemicals were detected in the Upper Glacial Aquifer both at concentrations above detection limits and above three times the concentrations detected in the background well, the maximum value for the "likelihood to release" category was used for the Upper Glacial Aquifer. Considering that the Magothy Aquifer has the potential to be assigned "potential to release" or "observed release", as previously explained, values for both were calculated for this aquifer using hydrological parameters and climatological data for the site vicinity. As described above, the number of persons using each aquifer was calculated. HRS II guidance specifies the inclusion of targets using water from the aquifer being evaluated plus the targets using water from all overlying aquifers. Therefore, the number of persons using wells in the Upper Glacial Aquifer was added to the number of persons using wells in the Magothy Aquifer to evaluate potential targets in the Magothy Aquifer. Estimates of the total population served by wells from each aquifer within each distance category are given in Appendix N. These estimates are used to obtain distance-weighted population values which are in turn used to calculate a ground water migration pathway score.

9.0 SUMMARY OF FINDINGS

The findings of the Gibson Site Investigation, conducted by ERM-Northeast between July 1991 and February, 1992, are summarized below.

HYDROGEOLOGY

- there are no wetlands within two miles downgrade or downgradient of the site
- no surface water bodies, larger than the 1 - acre sized ponds 3/4 miles to the north, are found within 2 1/2 miles of the site
- the upper 100 to 140 feet of the glacial deposits under the site are generally comprised of two basic lithologies: a fine to medium grained sand (FM) unit and a fine to coarse-grained sand (FC) unit
- ground water under the site is present approximately 90 feet below grade
- no significant aquitard, such as the Smithtown Clay, was encountered within the upper 50 feet (maximum depth of investigation) of the water table aquifer
- the shallow ground water flow at the site is easterly, then turns southeast downgradient (off-site) of Gibson
- hydraulic conductivities (based on field and laboratory tests) of the sand units within the phreatic zone under the site ranged from 5.4 to 355 ft/day

- the calculated rate of the shallow ground water flow under the site is 0.1 ft/day

- the deeper ground water zone monitored (40 to 50 feet below the water table) with the 14-well on-site monitoring network, has a slightly lower hydraulic head than the water table zone and potentiometric surface with a similar easterly flow direction

PUBLIC SUPPLY WELLS

- the nearest public supply well field from the site (Capital Court) is located less than 2 miles northeast of the site and is comprised of two wells (20369 and 58708) screened from approximately 325 to 410 feet within the Magothy Aquifer

- the nearest well field directly downgradient of the site is the Commercial Boulevard field, locate approximately 3 miles southeast of the site, which contains three wells screened in the Magothy (37141, 30234, 31624); these wells contained trace concentrations of TCE and PCE; these detections are not believed to be associated with the Gibson site: for the 22 year period that the Gibson facility has been in operation, using the calculated flow rate of 0.1 ft/day, the distance for contaminants to have travelled from the site is 800 feet.

SOIL QUALITY

- in comparison to background levels, soils at AECs south and east of the building contained elevated levels of a few volatiles, primarily acetone and aromatics, plus some elevated metals and TPH

Background

- the background soil sample generally contained no elevated concentrations of any of the TCL/TAC constituents

West of Building

- no organics were detected in the two AECs sampled; five metals (aluminum, chromium, iron, manganese and zinc) were detected

South of the Building

- volatiles (including acetone and aromatic compounds) were present up to 1,450 ppb in the former tank field; low levels were present in the drainage system and trace levels of PCE were present in the former soil stockpile AEC

- TPH was ubiquitous; highest TPH levels (up to 9,400 ppm) were found in the former tank field and storm drain areas

- several metals were present beyond three times background concentrations: aluminum, calcium, iron, lead, sodium, manganese and zinc

East of Building

- a few volatiles (acetone and carbon disulfide) were detected up to 260 ppb in the pond and rear yard; xylenes up to 530 ppb were found in the pond
- TPH levels at the drum storage areas; and recharge pit were as high as 13,335 ppb.
- several metals were found to be above three times background values across the entire area: aluminum, calcium, iron, lead and zinc

Off-Site Recharge Basin

- semi-volatiles, not detected at the Gibson site, were present at a total concentration of 5,000 ppb
- TPH was detected at 221 ppm
- metals were elevated similarly to site concentrations

GROUND WATER QUALITY

- product, light green in color with a relatively high viscosity, has been present in MW-2S up to 0.48 feet thick; MW-2S is located at the area of the former underground tank field
- the ground water at the site contained some volatile organic compounds and metals above New York State Ground Water Quality Standards

- seven volatile organics (tetrachloroethene (PCE), vinyl chloride, toluene, 1,2-dichloroethene, benzene, trichloroethene and xylenes) were detected in localized areas within the Gibson site; the volatiles were detected above New York State Ground Water Quality Standards

- PCE was detected in one well, MW-3S, at the highest multiple of its standard level (5 ppb) at 223 ppb; MW-3S is downgradient of the former storm drain system and other concern areas where the soils contained PCE

- vinyl chloride was detected in MW-5S and MW-5D at 14 ppb, seven times its standard of 2 ppb; this cluster is also downgradient of the former storm drain system, although vinyl chloride was not detected in the Gibson soils, it is a breakdown product of PCE and may have been derived from the PCE detected in the area

- toluene and xylenes (detected up to 11 ppb), may be associated with the petroleum products stored and spilled in the area of the former storm drain system

- cadmium and chromium were each detected above their standards (10 and 50 ppb, respectively) in well MW-1S at 10.4 and MW-2S at 77.6 ppb, respectively

- iron, manganese and sodium were detected several orders of magnitude above their respective standards in all but a few of the shallow wells

- ground water at the downgradient property (Automatic Connectors) contained PCE, TCE and TCEa

USEPA SITE HAZARD RANKING

- using the USEPA Hazard Ranking System, revised December, 1990, an HRS II score of 64.5 was calculated for the site, assuming that the Smithtown Clay is not present under the site.

10.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the Gibson Site Investigation, ERM has developed the following conclusions and recommendations.

10.1 Conclusions

- NYSDEC regulated wetlands are not impacted by site runoff since none are present within 2.5 miles downgrade of the site
- the high permeability sediments at the site would allow for the potential of liquids spilled or leaked near the surface to migrate to the water table
- contaminants identified in the water table wells can migrate downward with the downward flow component and may be limited by the Smithtown Clay which, according to the literature, may be present under the site within 50 feet of the base of the present site monitoring network of 140 feet
- the nearest downgradient public supply well field is the Commercial Boulevard well field, located 3 miles directly downgradient (southeast of the site); contaminants found in the Commercial Blvd. Well Field are not likely associated with the Gibson Site due to their 3 mile distance and ground water flow velocity
- the soil quality in localized areas south and east of the Gibson building is moderately impacted by volatile organics and significantly impacted by TPH

- the ground water quality at the Gibson site contained seven volatile organic compounds above ground water quality standards

- a significant volume of product had to have been spilled or leaked at the area of the former underground tank field in order to account for the almost 0.5 feet of product present on the water table in MW-2S, approximately 90 feet below grade

10.2 Recommendations

Based on the findings of the Gibson Site Investigation and ERM's conclusions above ERM recommends the following:

- collection of a product sample from MW-2S for analysis

- based on product analyses, evaluate the need for additional well installations in the area of the former underground tank field to delineate the free-phase product

- Evaluate the need for remediating the free-phase product on the water table

- additional containment be constructed to limit the migration of spills/overfills near the building rear door and north of the bermed tank field

- a drainage system be designed to address the standing water (ponds) in the rear yard

- Conduct at least one soil test boring to a maximum depth of approximately 200 feet to determine the absence or presence of the Smithtown Clay

- additional ground water monitoring wells be installed to determine ground water quality entering and leaving the Gibson site to help establish impact source

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ORIGINAL

APPENDIX A

AREAL PHOTOGRAPHIC INTERPRETATION

GIBSON OIL AND CHEMICAL
NYSDEC SITE INVESTIGATION

TASK 1: WORK PLAN DEVELOPMENT

ITEM 1: HISTORIC AIR PHOTO REVIEW

1. ERM contacted the United States Geological Survey (USGS) air photo information center and requested a search of the APSRS (Aerial Photography Summary Record System) in order to determine what coverage was available. The computerized search, based on the latitude and longitude, listed several dozen air photo flights over the site. All the large-scale coverage (1" = 2000' or bigger) had been flown by LKB (Lockwood, Kessler, Bartlett) a consulting engineering firm in Syosset, Long Island.

2. ERM contacted LKB and found that their coverage was somewhat different than, and in fact, more extensive than the flights listed in the APSRS records. LKB had a series of photos ranging back as far as 1955 and as recently as 1988. All air photos were black and white, with stereo coverage available. Scales ranged from 1" = 1000' to 1" 1600'.

3. An appointment was made to preview the photos in LKB's office to determine which photos, if any, would be useful to purchase for photo interpretation. Table I lists all the flight coverage available through LKB, plus the photo scales, and relevant flight lines and frame numbers.

4. The photos were inspected using either a stereoscope for stereoscopic viewing, or a magnifying glass, as appropriate. Some individual prints missing from LKB's reference collection had been "borrowed", but negatives were still available for prints

or enlargements). Seven dates of coverage were examined, from 1964 through 1988. Table II summarizes the key observations made.

TABLE 1

LKB AIR PHOTO COVERAGE
GIBSON CHEMICAL SITE
COMMACK, NEW YORK

YEAR	DATE	SCALE	FLIGHT LINE & FRAMES	COMMENTS
1988	3/8/88	1" = 1600'	28-460, 461	Viewed in stereo
1984	?	1" = 1600'	28-72, 73	Examined single print
1980	4/11/80	1" = 1000'	3557-1-94,95	prints of site missing
1977	4/11/77	1" = 1600'	28-120, 121	Examined single print
1972	4/30/72	1" = 1600'	2393-17-434, 435	Examined single print
1969	4/7/69	1" = 1600'	1724-17-574, 575	Examined single print
1964	3/27/64	1" = 1000'	137-67, 68	Viewed in stereo
1962	---	1" = 1000'	---	Pre-dates site
1955	---	1" = 1000'	---	Pre-dates site

TABLE 2

PRELIMINARY AIR PHOTO OBSERVATIONS
GIBSON CHEMICAL SITE
COMMACK, NEW YORK

YEAR	OBSERVATIONS
1964	Entire area was farmland. 1964 predates site development. (Gibson reportedly started in 1969.) In 1964 the land that is now the Hauppauge Industrial Park was divided up into plots much like the current land use pattern, but the area was strictly agricultural.
1969	Gibson building is one of the first 2 or 3 built. (It is the only building north of the row of buildings parallel to Austin.) The surrounding land is still agricultural. The Gibson property is all lite-toned dirt, no stains, driveway not paved yet.
1972	Gibson building is one of the first in the development. The property stands out because the entire site is much darker than any neighboring property. All property boundary lines can be seen due to this tonal difference - especially "out back" at the far east end of Gibson's property which is particularly dark. (The implication is that they were discharging materials, perhaps waste oil, on the ground). Several large above ground tanks (AGTs) were present adjacent to the building and out back. (Tank locations were sketched in on the site map.)

1977 Many more AGTs were present than in 1972, (77 locations were also marked on a site map). The relatively new AGT area immediately outside the back door was not yet in place. The ground in the loading dock area on the south side of the building was discolored, and stained darker than the surrounding driveway. The far east end of the yard was also noticeably dark.

1980 The applicable photos were missing from the files, but photos of an adjacent areas in the industrial park were examined. This series of photos is larger than any of the others, and had excellent resolution, high contrast, and showed a lot of details (i.e., stacks of drums could be seen at another site.)

1984 All but one former AGTs have been removed (exception: the tank near the floor drain discharge near the south east corner of the building) Most - if not all - of the new AGT's near the back door are in. The area immediately surrounding the building to the south (driveway) and east (backdoor side) appears to have been paved as it is uniformly very dark along the east side of the building). This includes the area that held ponded water alongside the unused loading door. The area in the far east end out back is not paved, and there appears to have been a lot of vehicular traffic back and forth as there are a lot of well-established tire tracks in the dirt.

1988 (These photos were available for viewing in stereo.) The entire back and south sides, and the neighboring properties of the Gibson property is covered with a very light material. (It looks like snow - but it cannot be snow because there is no snow in the trees, homes, or surrounding roofs.) (Hypotheses: fresh dirt cover, lime; or dust particulate fall-out.)

The tracks from vehicles going back and forth to the far east end of the property are still well developed.

There was a large pond blocking up catch basins and the delivery doors alongside the east side of the building that was observed by ERM during the November 1989 site visit. The deep hole was clearly visible. There was no water in it and the basin appeared very rectangular, as if it has been constructed deliberately, instead of being a "sinkhole" in the pavement, as implied.

There is a small dark ground stain in the main driveway on the southside of the building. The discoloration is localized around the 3 catch basins identified on Figure 3-2 (proposal). There is also a dark stain outside the backdoor.

At the back end of the Gibson property, the far east property line, there is something tall. As there were no trees there previously, it appears to be a tall pile of dirt.

Off-site, the three closest recharge basins (to the west, south and southeast are very noticeable).

APPENDIX B

SUMMARY OF VIOLATIONS

DATE	CONDITION	VIOLATION
6/6/88	Large red puddle behind building Iron-48 mg/l	NYCRR 1205 (a)
4/8/88	Gibson Monitoring Well Toluene-4.6 ug/l Xylene-107 ug/l Ethyl Benzene-2.7 ug/l 1,4 Dichlorobenzene-353 ug/l 1,1 Dichloroethane-2.1 ug/l 1,2 Dichloroethylene-26.2 ug/l 1,1,1 Trichloroethane-1.8 ug/l	Proof of responsibility
6/4/86	Discharge to surface Copper-41.5 ppm Chromium (Total)-42.0 ppm Lead-48.0 ppm	SPDES, NYSECL, Article 12
6/4/86	Waste storage area Ethylbenzene-450 ppb Xylene-2500 ppb	SPDES
6/4/86	Tank Overflow Toluene-950 ppb Ethylbenzene-450 ppb Xylene-1900 ppb Decane-530 ppb	SPDES
6/4/86	Disharge to surface EP Toxicity Lead-0.25 ppm Copper-1510 ppm Chromium (Total)-34.0 ppm Lead-229.0 ppm	SPDES
6/3/86	Trench area, Red stain Chromium (Total)-34.0 ppm Lead-68 ppm	SPDES
6/3/86	Puddle within fenced area East side Iron-14mg/l	SPDES
5/12/86	Registration of toxic liquid storage tanks	None

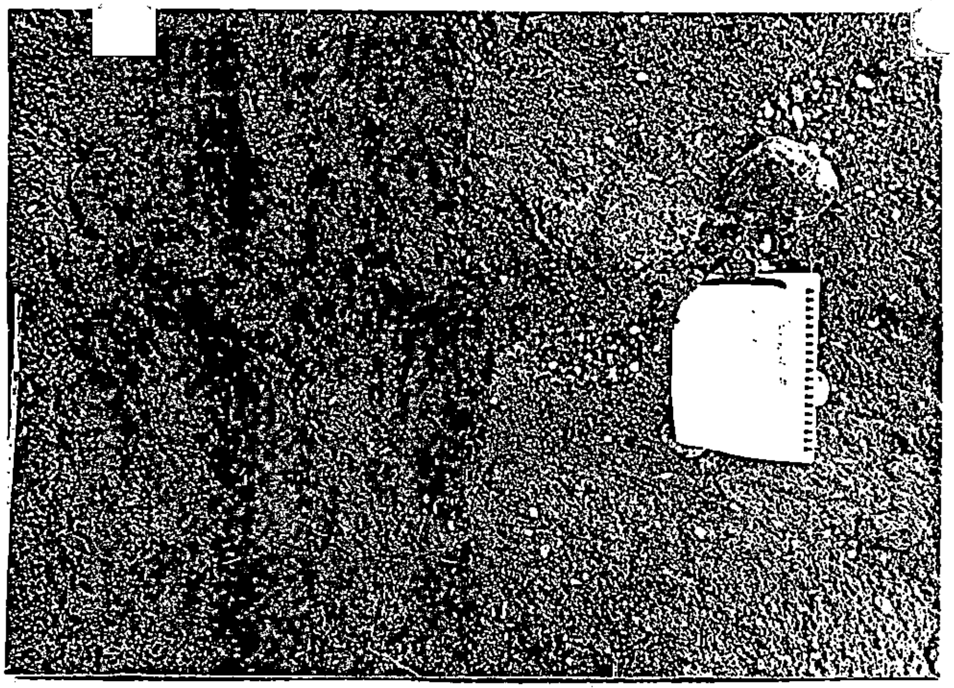
5/14/86	Area 3, No. 1 Storm Drain Iron-2.0 mg/l Area No. 2 Storm Drain Iron-1.1 mg/l Area No. 3 Storm Drain Iron-0.8 mg/l Area No. 4 Storm Drain Iron-1.5 mg/l	NYSECL
10/20/82	NYSDEC applies for warrant but later access was allowed on 10/26/82	
10/26/82	Waste drums outdoors Storm drain, Lead-0.2 mg/l East side soil, Xylene-950 ppb Lead-0.33 mg/l Soil near fill box, Copper-8.7 mg/l Iron-5,100 mg/l Nickel-2.9 mg/l Zinc-16.9 mg/l Lead-6.3 mg/l Cadmium-0.2 mg/l Eastside Soil, Copper-4.6 mg/l Iron-1,400 mg/l Nickel-2.7 mg/l Zinc-50.3 mg/l Lead-27.0 mg/l Cadmium-0.7 mg/l South Side Wall, Iron-72.6 mg/l Nickel-1.4 mg/l Zinc-14.5 mg/l Lead-33.8 mg/l Cadmium-0.5 mg/l	Article 12, NYCRR 1205 (a)
12/16/81	Storm drain No. 4, Tetrachloroethylene-290 ppb Chlorobenzene-6,300 ppb Tolune-1700 ppb o-Xylene-200,000 ppb m-Xylene-410,000 ppb Ethylbenzene-80,000 ppb 1,2,4 Trimethylbenzene-1,700 ppb Storm drain No. 2 Methylene Chloride-570 ppb Storm drain No. 3 Chloroform-66 ppm Methylene Chloride-40,000 ppm Toluene-31,000 ppm	SPDES, NYCRR 1205(a)

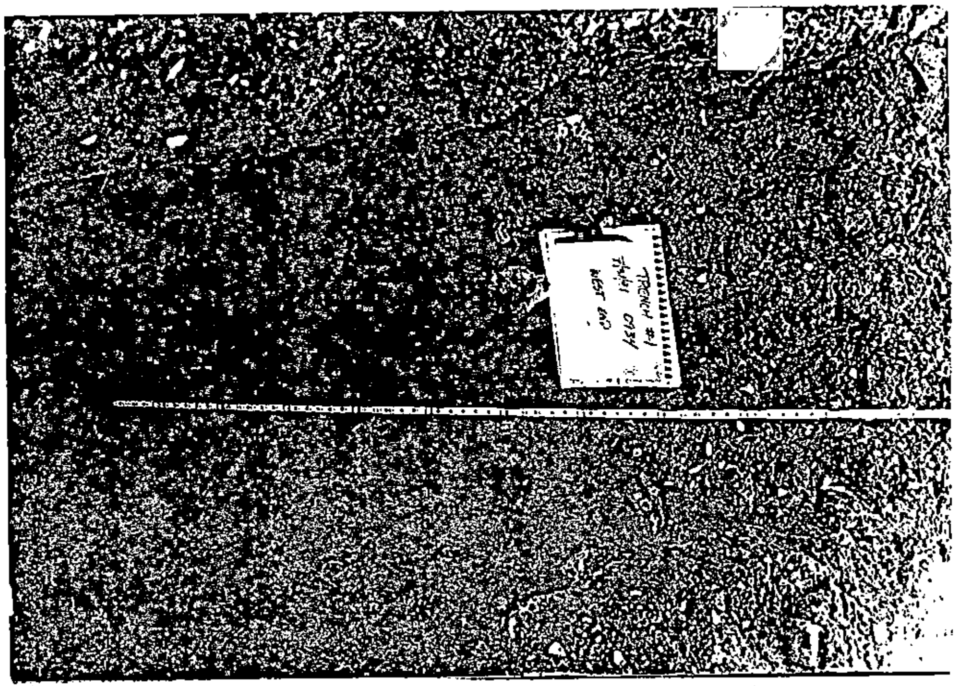
	Xylene-53,000 ppm Ethylbenzene-8,700 ppm 1,2,4 Trimethylbenzene-710 ppm	
3/31/81	Puddle Beneath Loading Dock Iron-14 mg/l Lead-0.5 mg/l	SPDES,NYCRR 1205(a)
3/31/81	Outside Storage of Drums	Article 12
3/31/81	Large Storage Tanks not on impervious pads, not bermed	NYSDEC Bulk Storage Law
3/31/81	Underground Tanks 1) Not Tested 2) Single Wall	Article 12

Source: Galli Engineering , Northport, NY

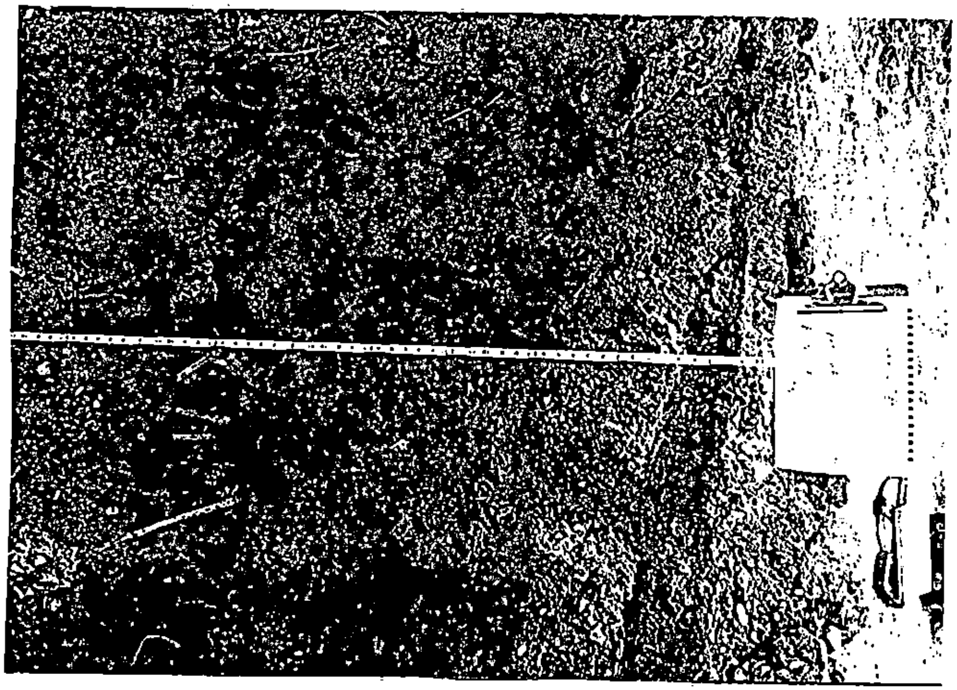
APPENDIX C

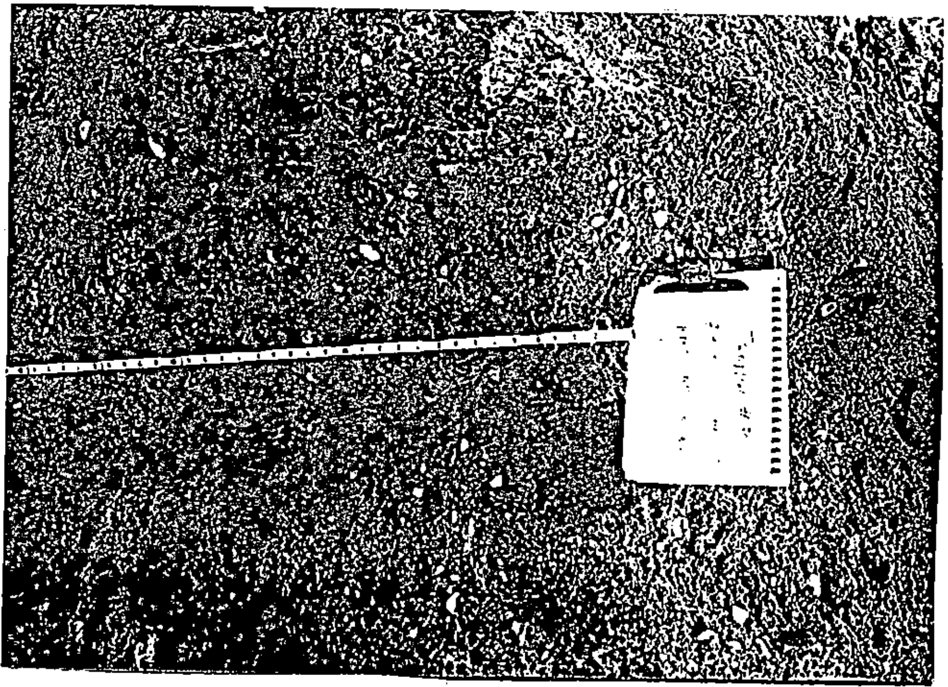
TEST PIT/TRENCH DETAILS AND PHOTOS

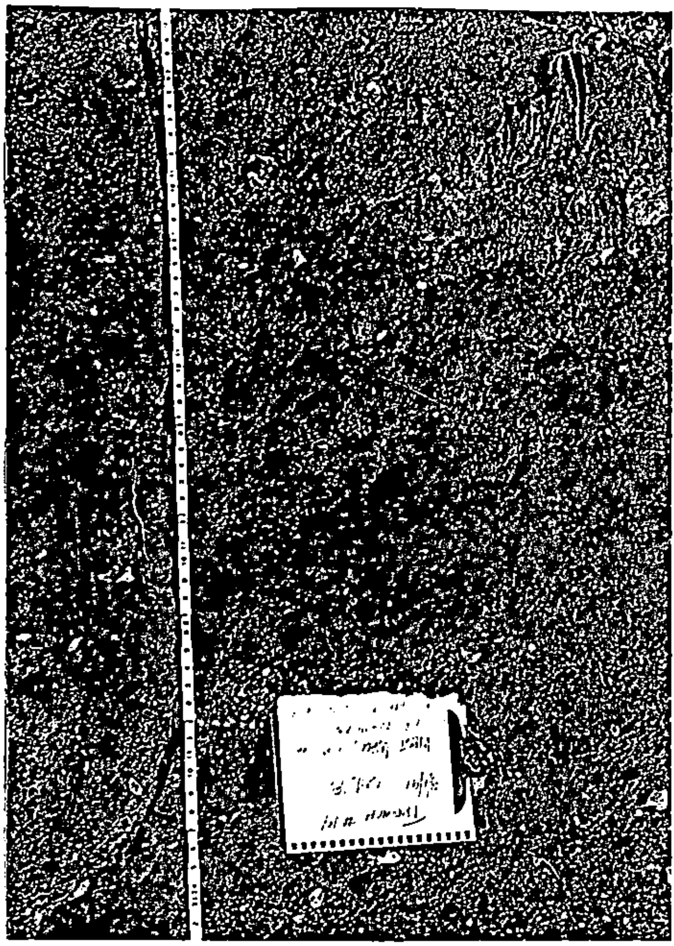




TRENCH #1
7/4/91 0934
WEST END



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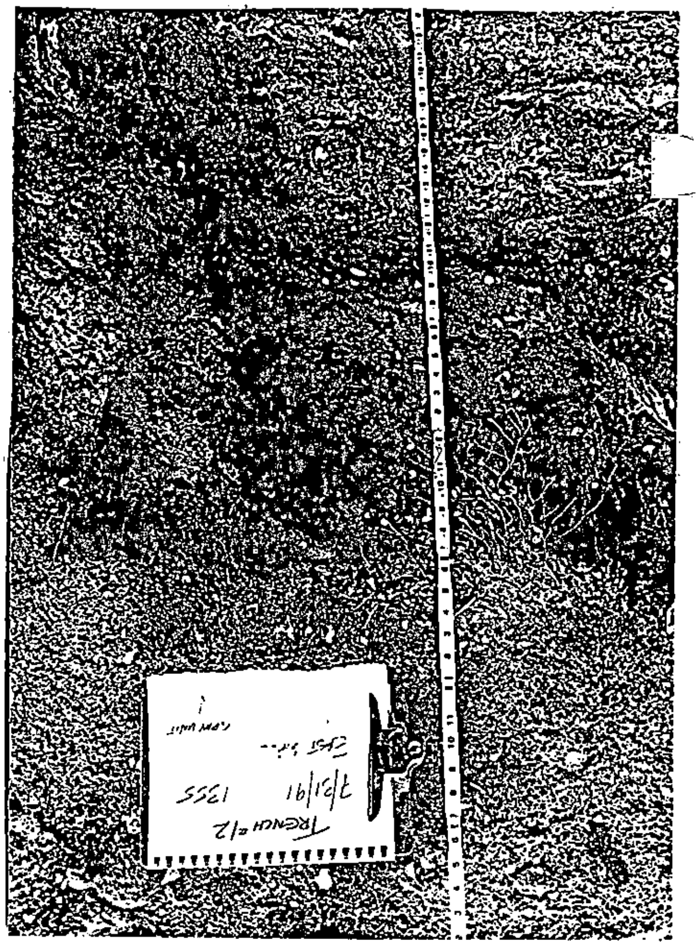
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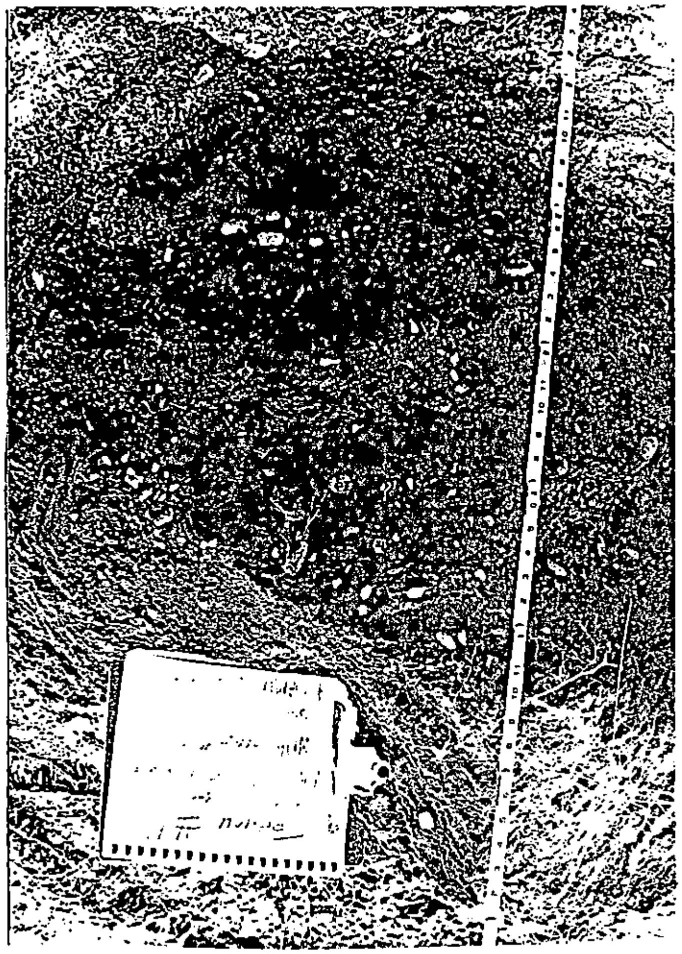
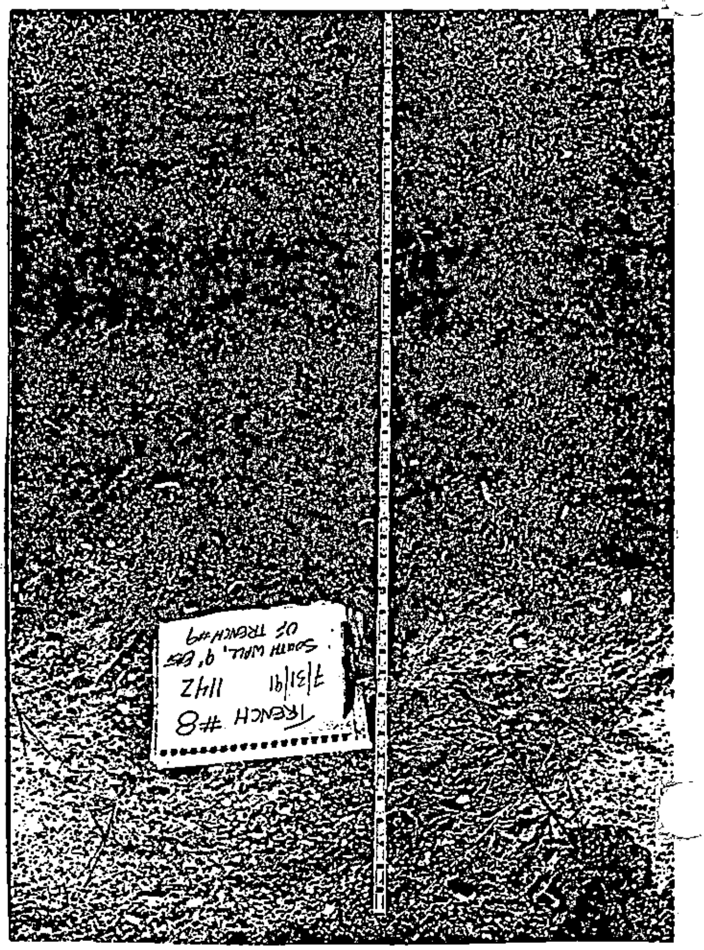
7/31/91 1355
EAST WALL
UNIT

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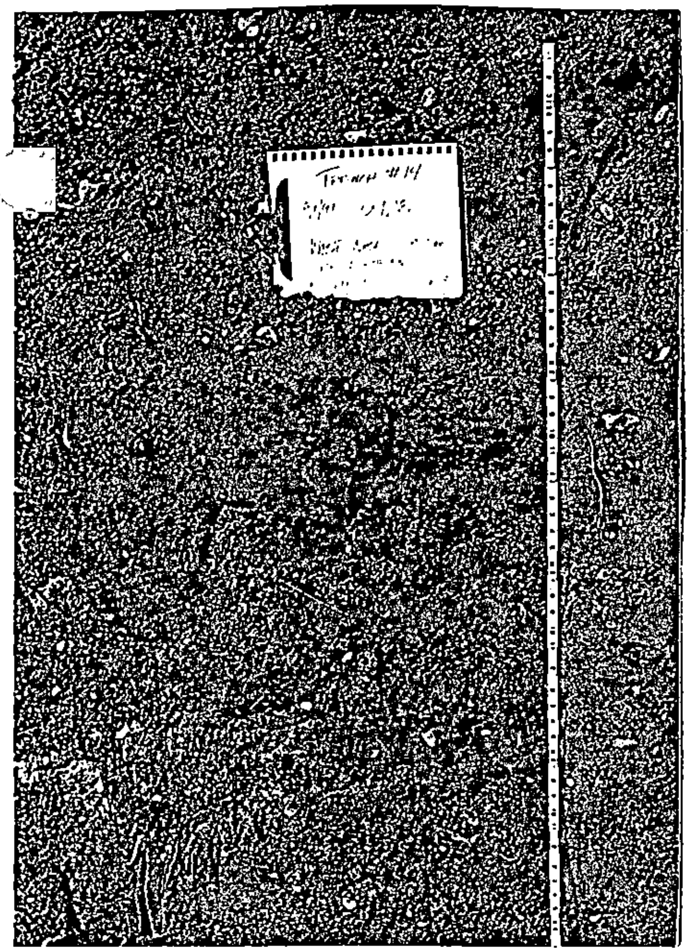
7/31/91 1142
SOUTH WALL, 9' EAS
OF TRENCH #9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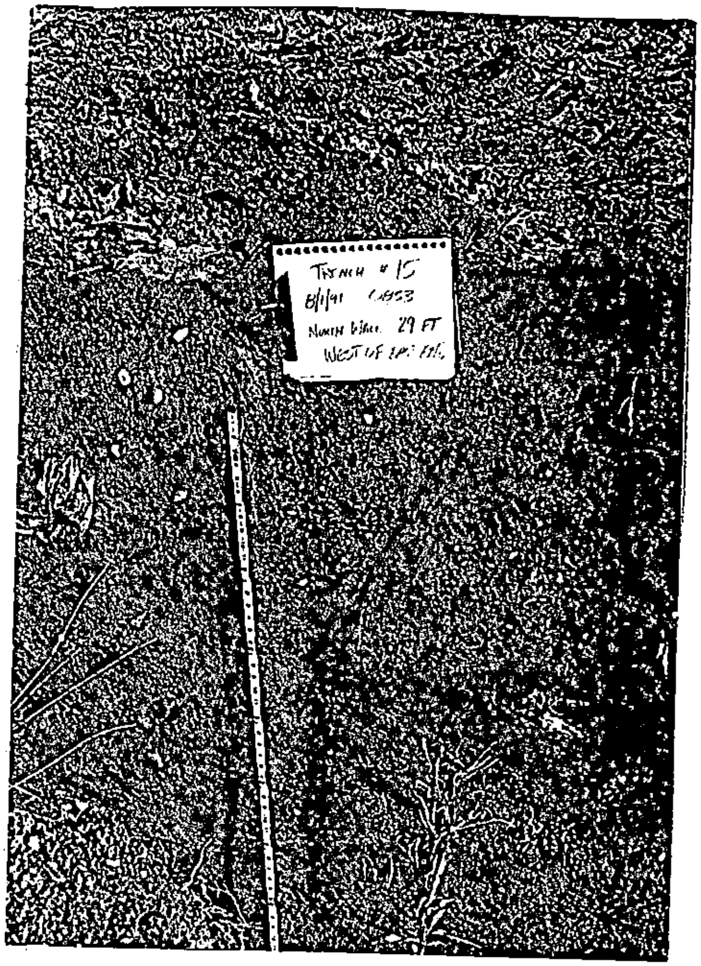
WEST WALL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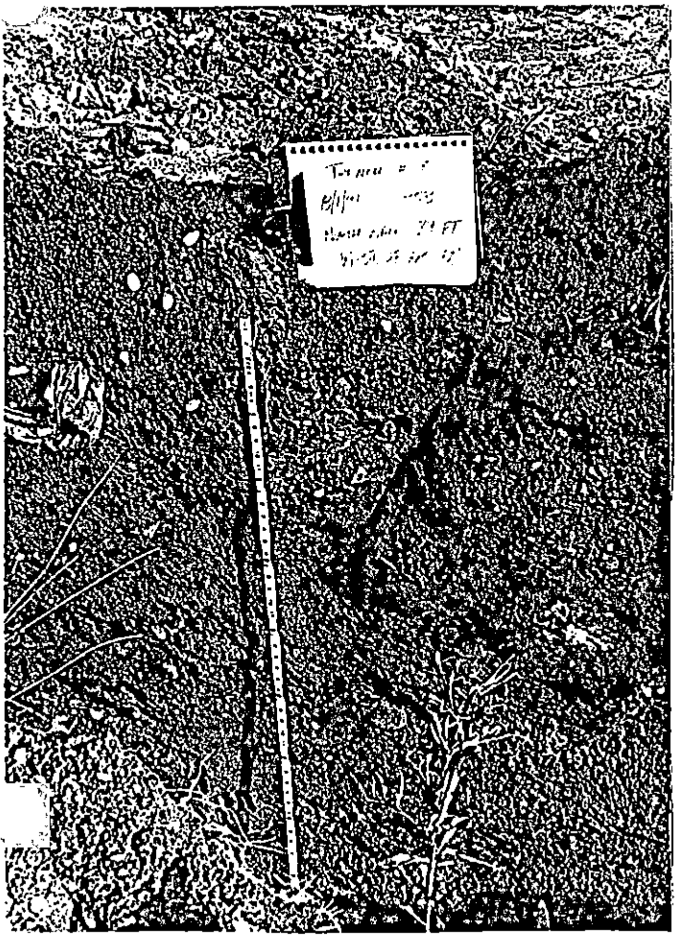
NORTH WALL 29 FT
WEST OF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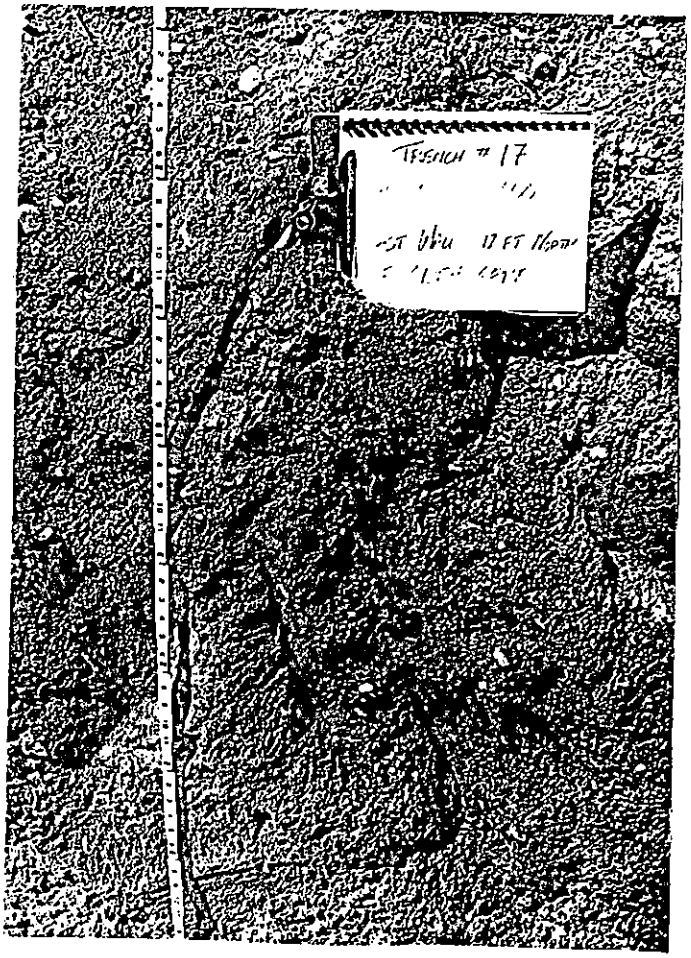
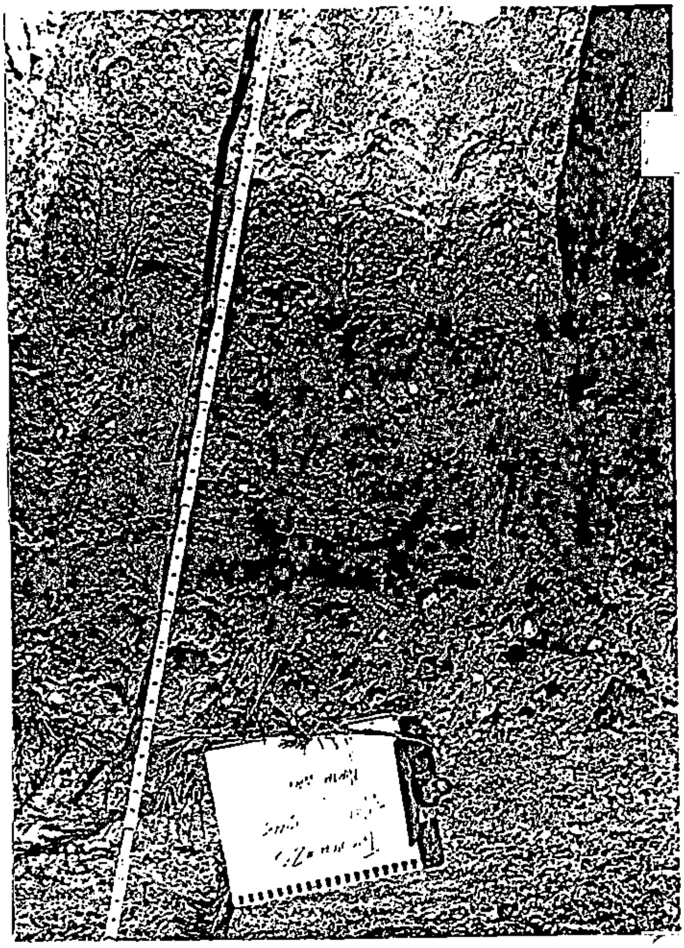
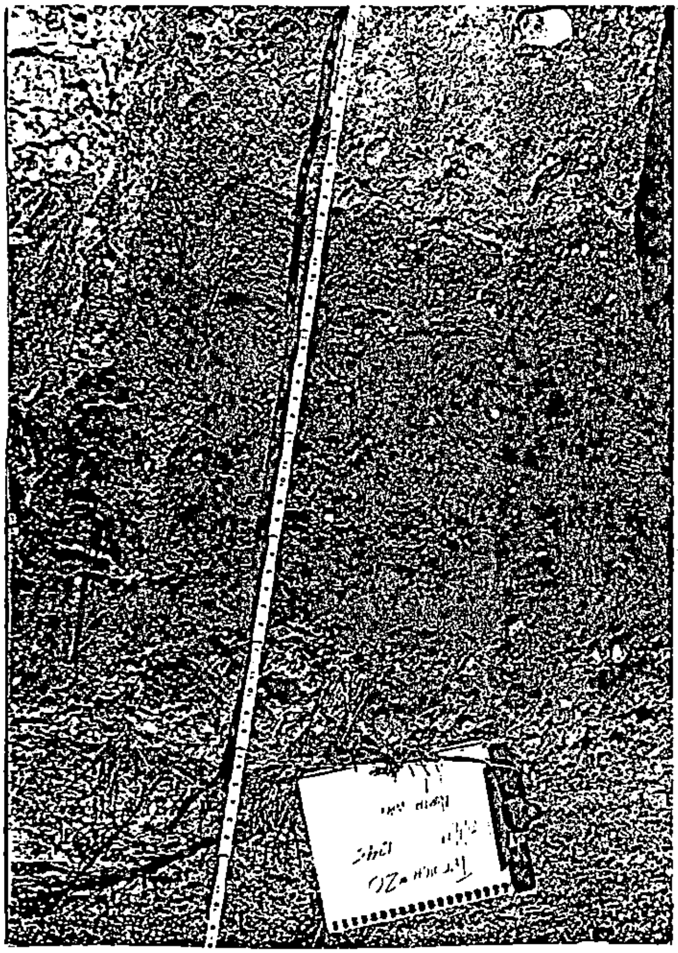
NORTH WALL 29 FT

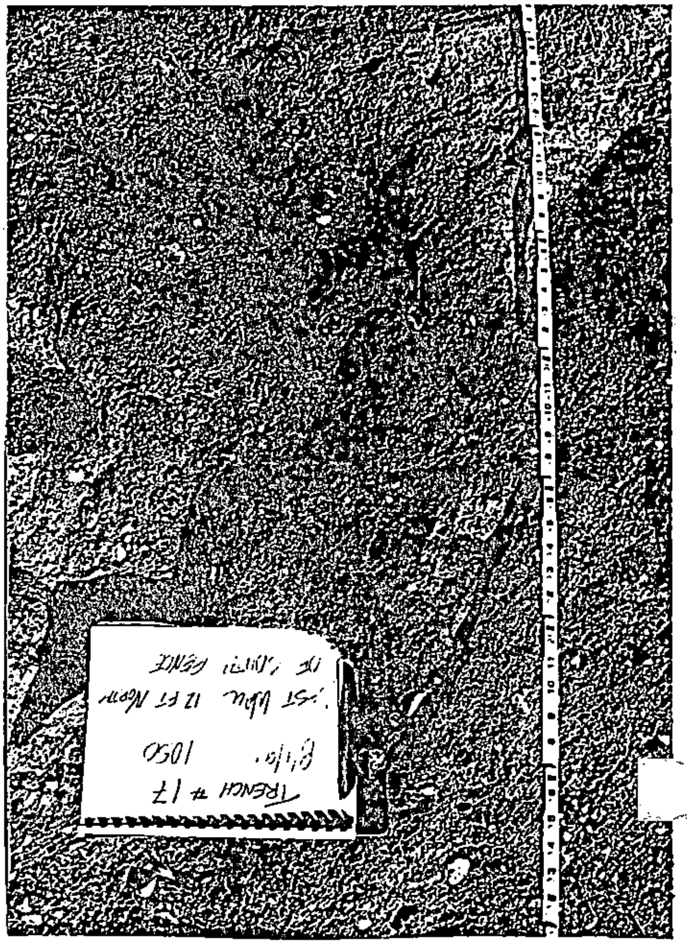

TRENCH #17
WALL 17 FT NORTH



TRENCH #20



TRENCH #20
1045



TRENCH # 17
8/10 1050
1ST WALL 12 FT NORTH
OF SOUTH FENCE

TRENCH SPECIFICATIONS

GIBSON CHEMICAL AND OIL SITE

NUMBER	STARTING CELL	ENDING CELL	DIRECTION	LENGTH	MAXIMUM DEPTH
TR-1	D3	C4	E-W	44'	5'
TR-2	C4	D4	N-S	22'	5'
TR-3	D4	E4	N-S	27'	5'
TR-4	E4	E5	E-W	10'	5'
TR-5	F4	E4	E-W	25'	5'
TR-6	F4	G5	N-S	28'	5'
TR-7	F4	F4	E-W	18'	5'
TR-8	I8	H11	E-W	55'	5'
TR-9	H8	I9	N-S	35'	4'
TR-10	G10	H10	N-S	49'	5'
TR-11	F11	H12	N-S	70'	6'
TR-12	F12	I13	N-S	77'	9'
TR-13	G11	F13	E-W	45'	6'
TR-14	C13	D13	NW-SE	29'	6'
TR-15	C13	C13	NE-SW	39'	6'
TR-16	A10	A10	NW-SE	20'	5'
TR-17	A7	A7	NW-SE	25'	5'
TR-18	A4	A4	NW-SE	25'	5'
TR-19	I10	I10	N-S	20'	5'
TR-20	E7	F8	N-S	42'	5'
TR-21	D7	F9	N-S	44'	5'
TR-22	F7	E8	E-W	56'	5'

NOTE: For purposes of orientation, the fence at the northern edge of the Gibson property is considered to run east-west.

TEST PITS

GIBSON CHEMICAL AND OIL SITE

PIT	GRID CELL	DEPTH
TP-1	D7	2'
TP-2	A13	6'
TP-3	F13	5'
TP-4	A6	4'

NOTE: Each test pit was excavated to investigate a relatively large anomaly found during the magnetometer survey of the site. In each case, the magnetic anomaly was found to be a large metal object (crushed tank, piping, etc.), with no sensory or OVA indication that impacts to soil had occurred.

TRENCH SPECIFICATIONS

GIBSON CHEMICAL AND OIL SITE

NUMBER	STARTING CELL	ENDING CELL	DIRECTION	LENGTH	MAXIMUM DEPTH
TR-1	D3	C4	E-W	44'	5'
TR-2	C4	D4	N-S	22'	5'
TR-3	D4	E4	N-S	27'	5'
TR-4	E4	E5	E-W	10'	5'
TR-5	F4	E4	E-W	25'	5'
TR-6	F4	G5	N-S	28'	5'
TR-7	F4	F4	E-W	18'	5'
TR-8	I8	H11	E-W	55'	5'
TR-9	H8	I9	N-S	35'	4'
TR-10	G10	H10	N-S	49'	5'
TR-11	F11	H12	N-S	70'	6'
TR-12	F12	I13	N-S	77'	9'
TR-13	G11	F13	E-W	45'	6'
TR-14	C13	D13	NW-SE	29'	6'
TR-15	C13	C13	NE-SW	39'	6'
TR-16	A10	A10	NW-SE	20'	5'
TR-17	A7	A7	NW-SE	25'	5'
TR-18	A4	A4	NW-SE	25'	5'
TR-19	I10	I10	N-S	20'	5'
TR-20	E7	F8	N-S	42'	5'
TR-21	D7	F9	N-S	44'	5'
TR-22	F7	E8	E-W	56'	5'

NOTE: For purposes of orientation, the fence at the northern edge of the Gibson property is considered to run east-west.

TEST PITS

GIBSON CHEMICAL AND OIL SITE

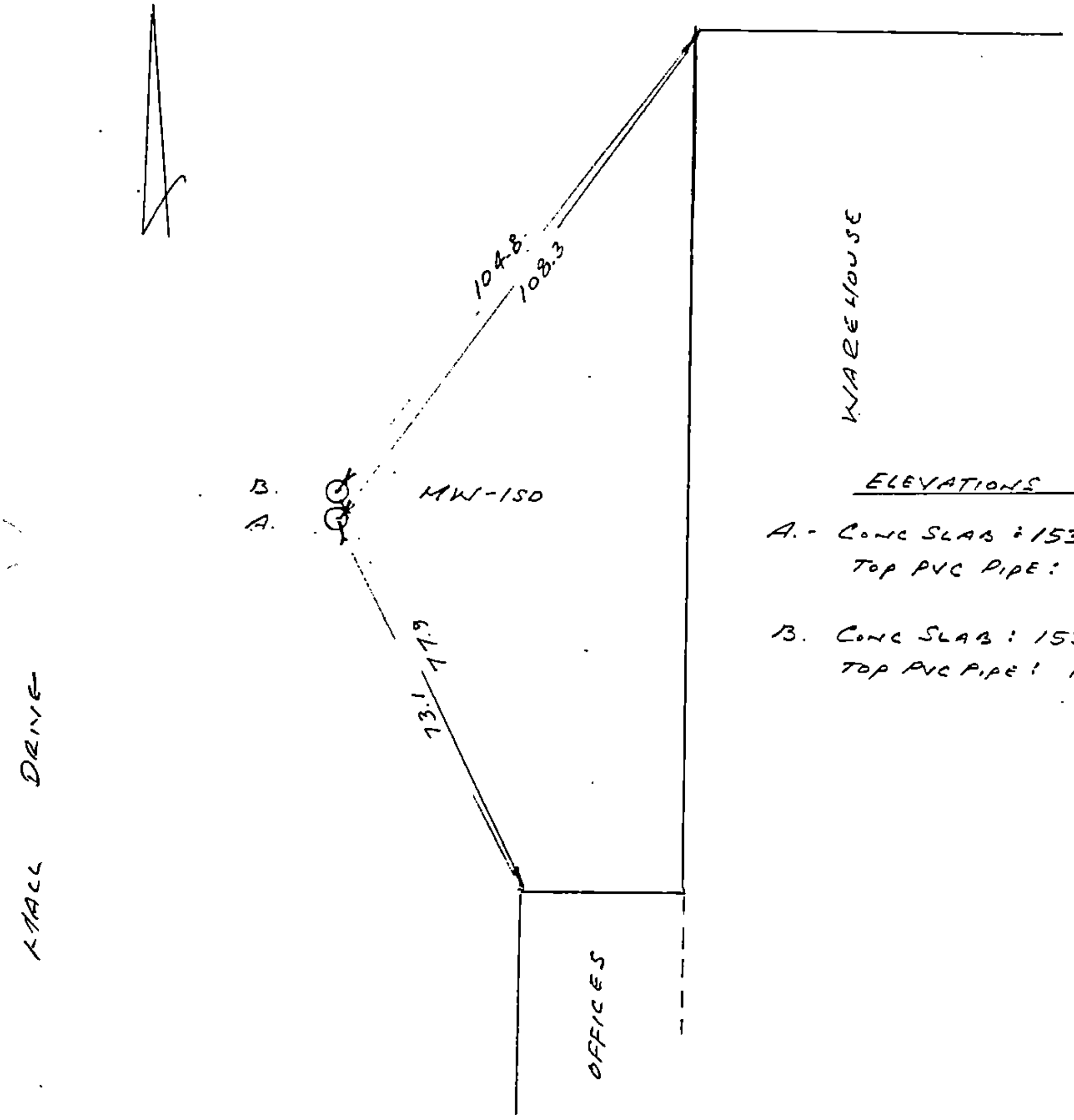
PIT	GRID CELL	DEPTH
TP-1	D7	2'
TP-2	A13	6'
TP-3	F13	5'
TP-4	A6	4'

NOTE: Each test pit was excavated to investigate a relatively large anomaly found during the magnetometer survey of the site. In each case, the magnetic anomaly was found to be a large metal object (crushed tank, piping, etc.), with no sensory or OVA indication that impacts to soil had occurred.

APPENDIX D

WELL SURVEYANCE REPORT

CLIENT	ERM	**STV/SEELYE STEVENSON VALUE & KNECHT.**			
PROJECT	Gibson Site, Commack NY	**MADE**	**CHK.**	**REV.**	**JOB. NO.** 7211
SUBJECT	N.Y.S.DEC Cont # D002402	10/10/91	LP RT RM		
	Monitoring Wells Loc & Elev.				**SHT. NO.** 1 of 4

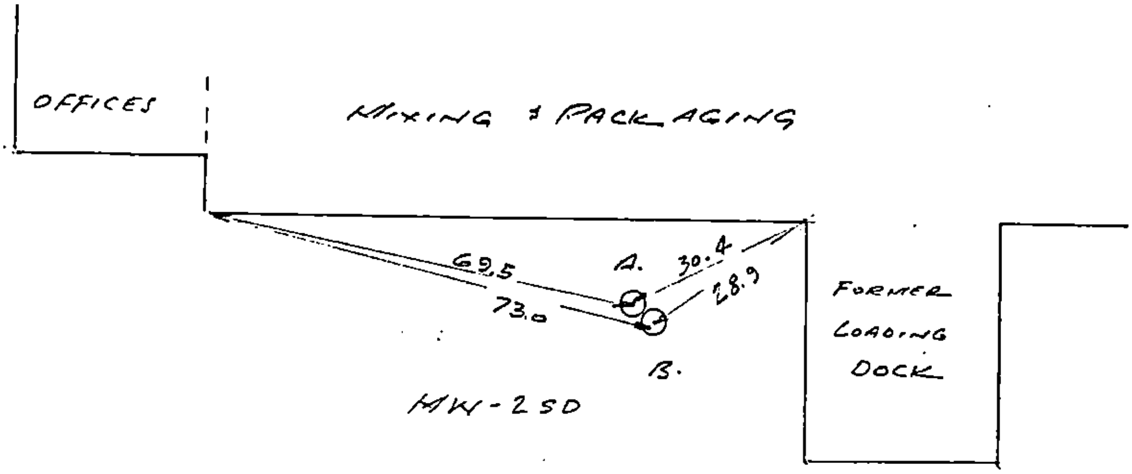


ELEVATIONS

A.- Conc Slab : 153.09
Top PVC Pipe : 152.17

B. Conc Slab : 153.17
Top PVC Pipe : 152.90

CLIENT	ERM	**STV/SEELYE STEVENSON VALUE & KNECHT.**			
PROJECT	Gibson Site, Commack, N.Y.	**MADE**	**CHK.**	**REV.**	**JOB. NO.** 7211
SUBJECT		10/10/91			**SHT. NO.** 2 of 4

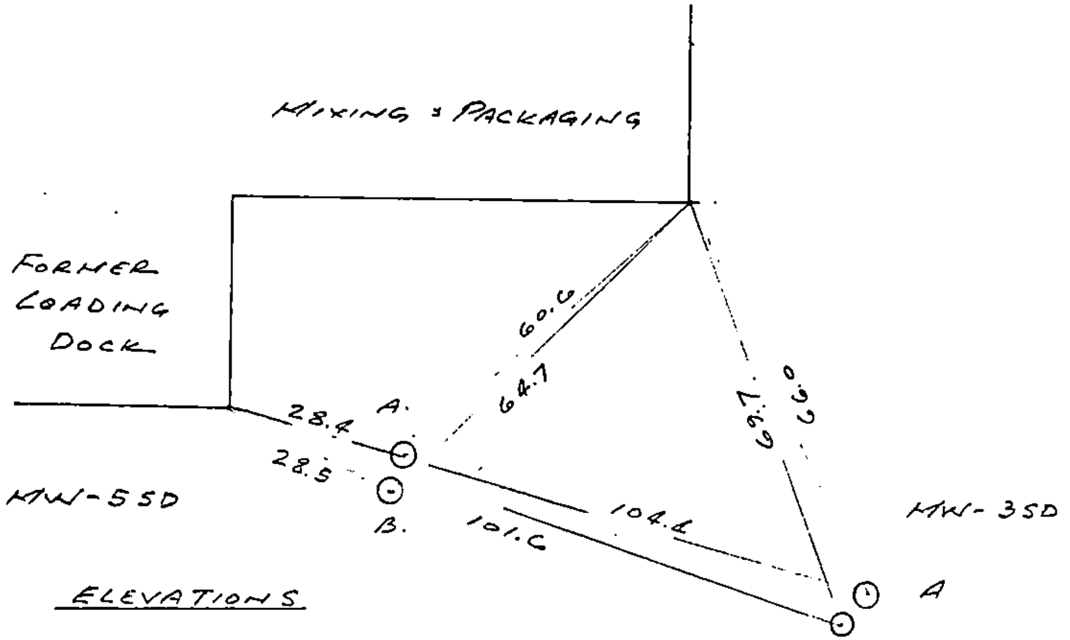


ELEVATIONS

A. Conc. Slab : 151.03
Top PVC Pipe : 150.59

B. Conc. Slab : 150.89
Top PVC Pipe : 150.45

CLIENT	ERM	**STV/SEELYE STEVENSON VALUE & KNECHT.**			
PROJECT	GIBSON SITE COMMACK N.Y.	MADE	CHK.	REV.	JOB. NO. 7211
SUBJECT		10/10/91			SHT. NO. 3 OF 4



ELEVATIONS

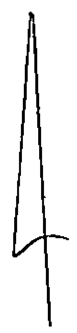
A. CONC. SLAB: 150.53
TOP PVC PIPE: 149.84

B. CONC SLAB: 150.39
TOP PVC PIPE: 150.10

ELEVATIONS

A. CONC SLAB: 152 61
TOP PVC PIPE: 151.90

B. CONC. SLAB: 152.66
TOP PVC PIPE: 152.50



CLIENT ERM	STV/SEELYE STEVENSON VALUE & KNECHT.				
PROJECT GIBSON SITE COMMACK, N.Y.	MADE	CHK.	REV.	JOB. NO. 7211	
SUBJECT	10/10/91			SHT. NO. 4 of 4	

ELEVATIONS

MW-6SD

A. CONC. SLAB: 153.22
TOP PVC PIPE: 152.82

B. CONC. SLAB: 153.30
TOP PVC PIPE: 152.96

MW-7SD

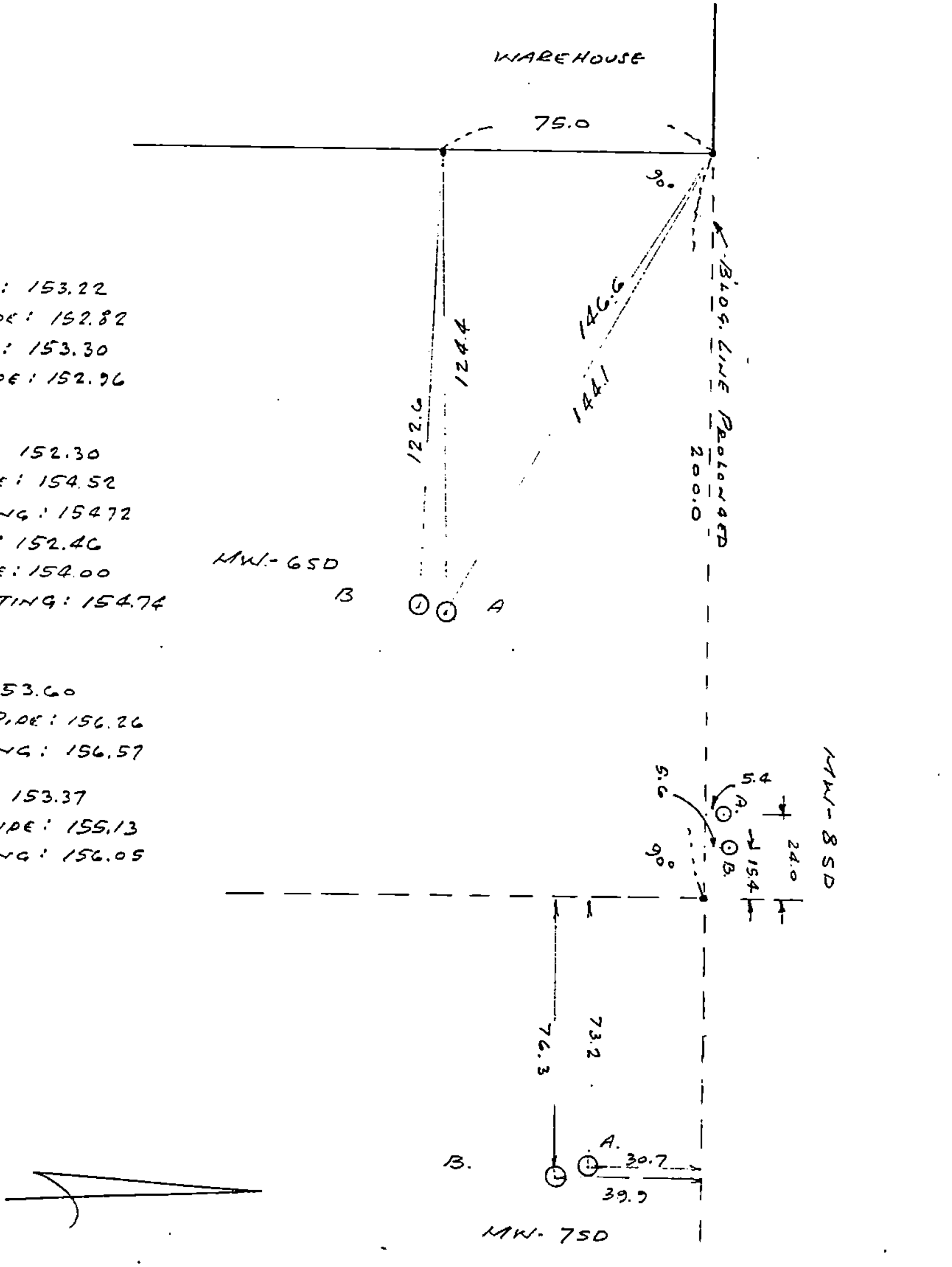
A. CONC. SLAB: 152.30
TOP PVC PIPE: 154.52
TOP OF CASTING: 15472

B. CONC. SLAB: 152.46
TOP PVC PIPE: 154.00
TOP OF CASTING: 154.74

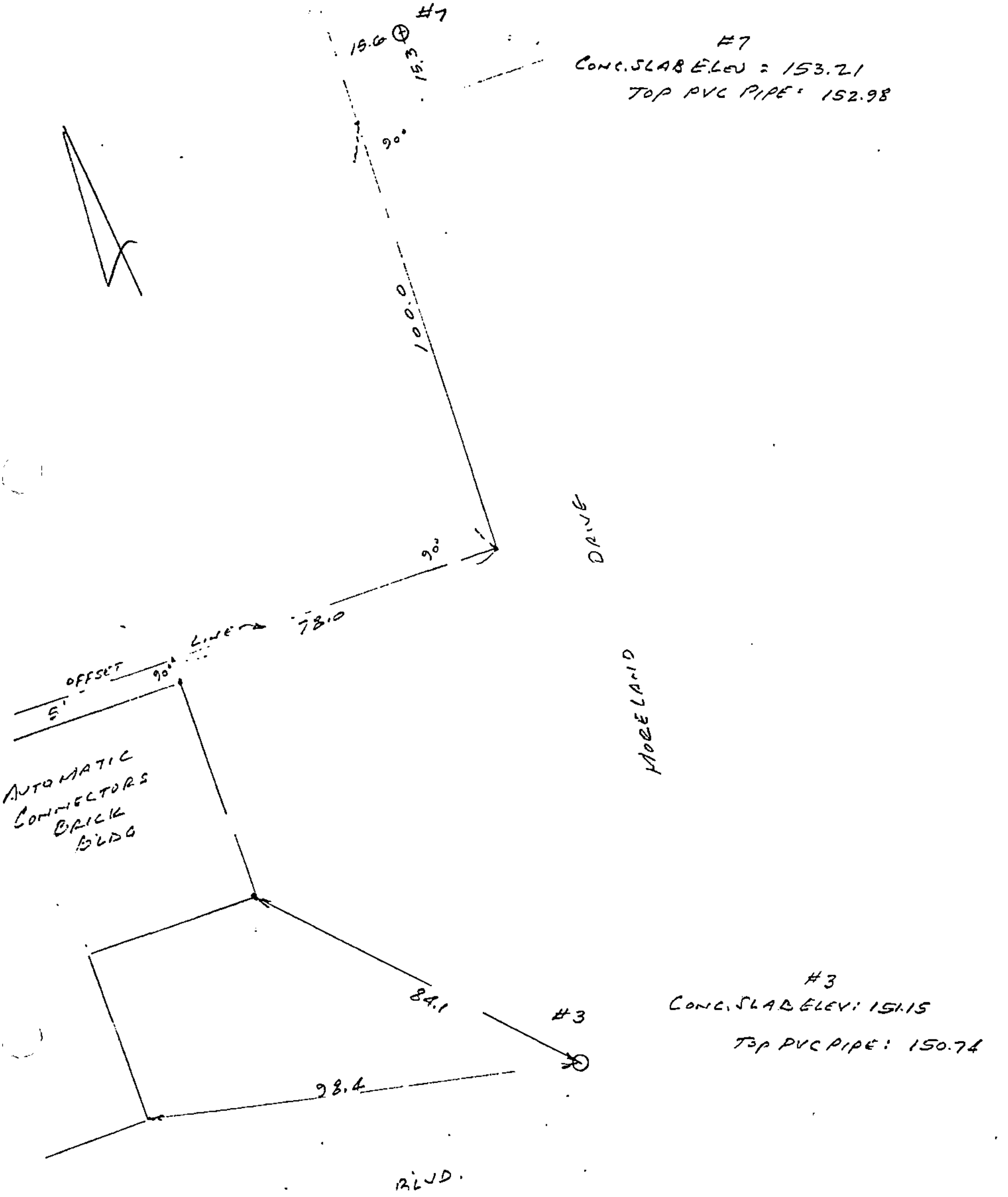
MW-8SD

A. GROUND: 153.60
TOP OF PVC PIPE: 156.26
TOP OF CASTING: 156.57

B. CONC. SLAB: 153.37
TOP OF PVC PIPE: 155.13
TOP OF CASTING: 156.05



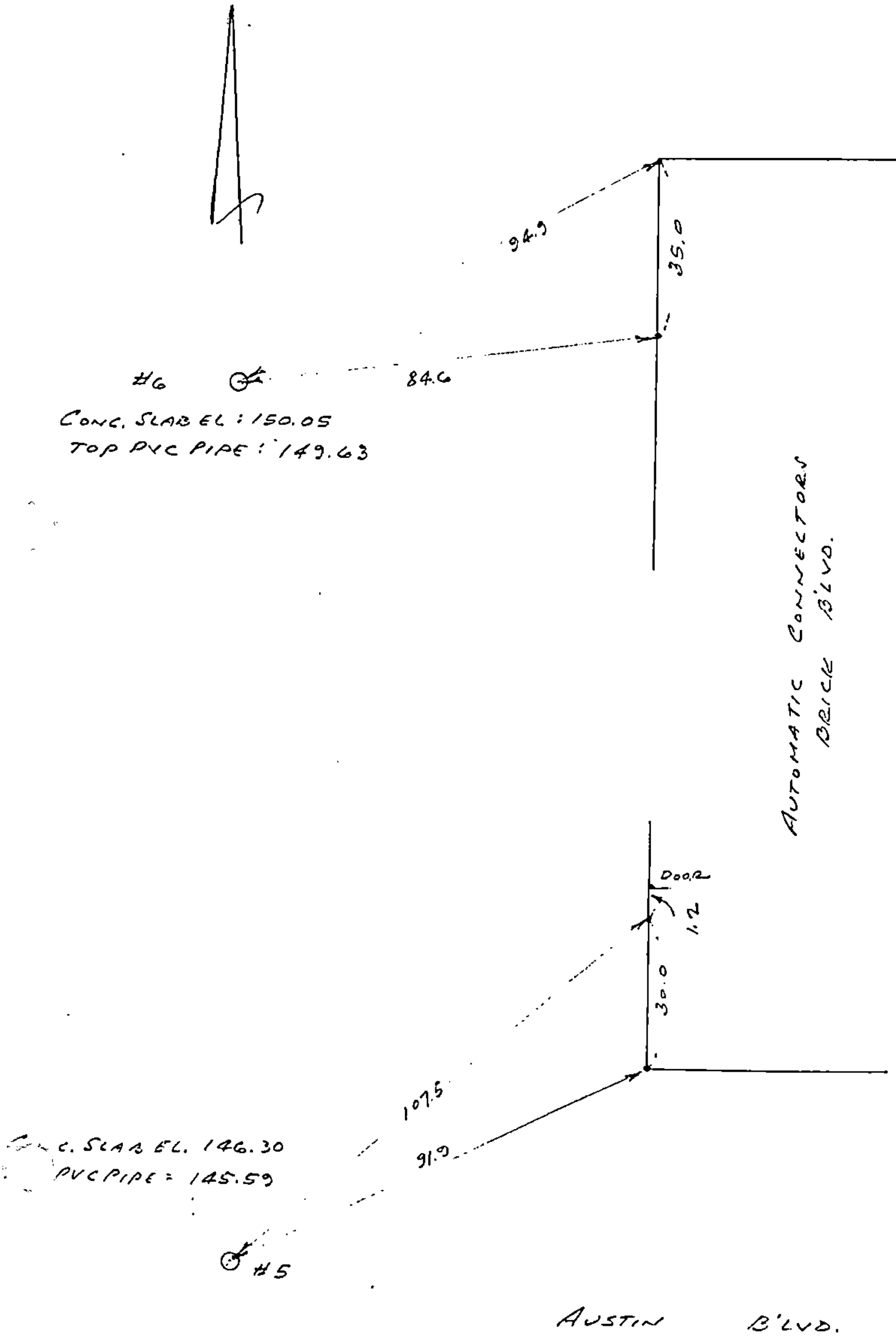
CLIENT	E.R.M.	**STV/SEELYE STEVENSON VALUE & KNECHT.**			
PROJECT	GIBSON SITE, COMMACK, N.Y.	**MADE**	**CHK.**	**REV.**	**JOB. NO.** 7211
SUBJECT	OFFSITE MONTORING WELLS	10/14/91	LP RT		
					SHT. NO. 1 of 2



#7
CONC. SLAB ELEV = 153.21
TOP PVC PIPE: 152.98

#3
CONC. SLAB ELEV: 151.15
TOP PVC PIPE: 150.74

CLIENT	ERM	STV/SEELYE STEVENSON VALUE & KNECHT.			
PROJECT	GIBSON SITE COMMACK	MADE	CHK.	REV.	JOB. NO. 7211
SUBJECT	OFFSITE MONITORING WELLS	10/14/91	LP RT		SHT. NO. 2 OF 2



APPENDIX E

AIR MONITORING RESULTS

PERIMETER AIR MONITORING
GIBSON CHEMICAL & OIL
COMACK, NY

DATE	AIR MONITORING STATIONS													
	A		B		C		D		E		F		G	
	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM
7/23/91	0.4	0.00	1.2	0.02	1.8	0.00	1.6	0.00	2.0	0.02	2.4	0.00	3.2	0.00
	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.02	0.0	0.00
	0.0	0.04	0.0	0.04	0.0	0.04	0.0	0.06	0.0	0.06	0.0	0.06	0.0	0.06
	0.0	0.04	0.0	0.04	0.0	0.04	0.0	0.02	0.0	0.04	0.0	0.04	0.0	0.02
7/24/91	0.0	0.00	0.2	0.00	0.4	0.00	0.6	0.00	0.8	0.00	1.2	0.00	1.4	0.00
	26.0	0.00	26.0	0.00	26.0	0.00	25.0	0.01	24.0	0.00	23.0	0.01	23.0	0.01
7/25/91	1.5	0.00	0.2	0.00	0.0	0.00	0.2	0.00	0.1	0.00	0.0	0.02	0.2	0.00
	3.0	0.00	2.9	0.00	2.6	0.00	2.3	0.00	2.5	0.00	2.3	0.00	2.2	0.00
	0.0	0.00	0.0	0.00	0.0	0.04	0.0	0.00	0.0	0.02	0.0	0.02	0.0	0.02
7/26/91	14.0	0.00	15.0	0.00	14.0	0.00	15.0	0.00	15.0	0.00	15.0	0.00	14.0	0.00
	20.0	0.00	10.0	0.00	20.0	0.00	21.0	0.00	21.0	0.00	20.0	0.00	20.0	0.00
7/29/91	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
	0.0	0.06	0.0	0.08	0.0	0.06	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
7/30/91	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.3	0.00	0.2	0.00	0.2	0.00
	3.2	0.00	3.7	0.00	4.0	0.00	4.5	0.00	4.8	0.00	5.0	0.00	5.0	0.01
7/31/91	0.0	0.00	0.8	0.00	1.2	0.00	1.1	0.00	1.0	0.00	1.0	0.00	1.0	0.00
	8.4	0.00	8.5	0.01	8.6	0.00	8.8	0.00	9.0	0.02	9.0	0.07	9.3	0.00
8/1/91	0.3	0.00	0.3	0.00	0.1	0.00	0.1	0.00	0.0	0.00	0.0	0.00	0.0	0.00
	1.3	0.00	1.6	0.00	1.6	0.00	1.4	0.02	1.3	0.00	1.2	0.00	1.0	0.00
8/2/91	4.4	0.01	5.4	0.01	6.6	0.00	6.6	0.01	6.6	0.00	6.7	0.03	6.7	0.00
	2.2	0.00	2.3	0.00	2.4	0.00	2.6	0.00	2.6	0.00	2.8	0.00	2.9	0.01
8/5/91	2.0	0.37	2.3	0.00	2.5	0.00	2.5	0.00	2.7	0.00	2.8	0.00	2.7	0.00
	1.5	0.49	1.7	0.43	1.6	0.49	1.7	0.49	1.8	0.45	1.8	0.47	1.7	0.43
8/6/91	8.9	0.00	9.2	0.00	9.4	0.00	9.6	0.00	8.8	0.00	7.2	0.00	5.6	0.00
8/7/91	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
	0.5	0.00	0.0	0.00	0.0	0.00	1.0	0.00	0.2	0.00	0.6	0.00	0.7	0.00
8/9/91	9.0	0.00	9.0	0.00	9.0	0.00	10.0	0.00	10.0	0.00	10.0	0.00	9.0	0.00
8/12/91	2.4	0.00	2.3	0.00	2.1	0.00	1.8	0.00	1.7	0.00	1.6	0.00	1.4	0.00
	21.0	0.00	22.0	0.00	23.0	0.00	23.0	0.00	23.0	0.00	23.0	0.00	24.0	0.00
	30.0	0.00	30.0	0.00	29.0	0.00	29.0	0.00	28.0	0.00	27.0	0.00	28.0	0.00
8/13/91	1.9	0.00	1.9	0.00	1.8	0.00	1.6	0.00	1.4	0.00	1.0	0.00	0.5	0.00
	0.0	0.04	0.0	0.00	0.0	0.04	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
8/14/91	41.0	0.00	42.0	0.00	43.0	0.00	44.0	0.00	44.0	0.00	44.0	0.00	44.0	0.00
	0.8	0.00	1.0	0.00	1.4	0.00	1.3	0.00	1.4	0.00	1.5	0.00	1.4	0.00
8/15/91	10.0	0.00	10.0	0.04	10.0	0.00	10.0	0.00	10.0	0.00	10.0	0.00	11.0	4.00
8/20/91	3.0	0.00	3.0	0.00	3.0	0.00	3.0	0.00	3.0	0.00	3.0	0.00	4.0	0.00
8/21/91	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00
	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00
8/22/91	15.0	0.00	16.0	0.00	16.0	0.00	16.0	0.00	16.0	0.00	17.0	0.00	17.0	0.00
	2.0	0.00	1.0	0.00	1.4	0.00	1.2	0.00	1.2	0.00	0.4	0.00	0.0	0.00
	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	2.0	0.03	0.0	0.07
8/23/91	8.9	0.00	9.0	0.00	9.1	0.00	9.2	0.00	9.2	0.00	9.4	0.00	9.4	0.00
	9.0	0.00	10.0	0.00	10.0	0.07	9.0	0.00	9.0	0.00	9.0	0.00	8.0	0.00
8/26/91	19.0	0.00	20.0	0.00	19.0	0.00	20.0	0.00	20.0	0.00	20.0	0.00	20.0	0.00
	19.0	0.00	19.0	0.00	19.0	0.00	19.0	0.00	20.0	0.00	19.0	0.00	20.0	0.00
8/27/91	2.6	0.00	2.2	0.00	1.9	0.00	1.6	0.00	1.7	0.00	1.8	0.00	1.9	0.00
	28.0	0.00	29.0	0.00	29.0	0.00	29.0	0.00	29.0	0.00	30.0	0.00	31.0	0.00
	8.0	0.00	7.0	0.00	7.0	0.00	7.0	0.01	7.0	0.00	7.0	0.00	6.0	0.00
8/28/91	6.0	0.00	6.0	0.00	6.0	0.00	6.0	0.00	6.0	0.00	6.0	0.00	6.0	0.00
	76.0	0.00	75.0	0.00	75.0	0.00	75.0	0.00	74.0	0.00	73.0	0.00	71.0	0.00
	10.0	0.00	10.0	0.00	11.0	0.00	10.0	0.00	10.0	0.00	10.0	0.00	10.0	0.00
8/29/91	3.0	0.00	2.9	0.00	1.0	0.00	1.3	0.02	1.6	0.00	1.7	0.00	2.1	0.00
	12.0	0.00	11.0	0.03	11.0	0.00	11.0	0.00	12.0	0.00	11.0	0.00	12.0	0.00
	5.1	0.00	5.4	0.00	4.6	0.00	4.2	0.00	4.2	0.00	4.5	0.00	4.9	0.00
9/3/91	1.2	0.00	1.2	0.00	1.2	0.00	1.1	0.00	1.1	0.00	0.8	0.00	0.7	0.00
	0.4	0.00	0.3	0.00	0.6	0.00	0.6	0.00	0.3	0.00	0.2	0.00	0.2	0.00
	1.9	0.00	1.8	0.00	1.8	0.00	1.7	0.00	1.4	0.00	1.3	0.00	1.1	0.00
9/4/91	4.4	0.00	4.4	0.00	4.2	0.00	4.1	0.00	4.1	0.00	3.9	0.00	3.8	0.00
	5.0	0.00	5.2	0.00	5.4	0.00	5.2	0.00	5.3	0.00	5.3	0.00	5.2	0.00
	4.2	0.00	4.4	0.00	4.5	0.00	4.5	0.00	4.6	0.00	4.4	0.00	4.4	0.07

NOTES

OVA readings are in ppm; instrument calibrated to 100 ppm methane in air.
MiniRam readings are in mg per cubic meter.
See Figure 5-1 for locations of air monitoring stations.

TABLE 3-1
PERIMETER AIR MONITORING
GIBSON CHEMICAL & OIL
COMACK, NY

DATE	AIR MONITORING STATIONS													
	A		B		C		D		E		F		G	
	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM	OVA	MINIRAM
9/5/91	5.7	0.00	5.6	0.00	5.8	0.01	5.6	0.00	5.2	0.00	5.1	0.01	5.0	0.07
9/9/91	2.5	0.00	2.6	0.00	2.6	0.00	2.6	0.00	2.6	0.00	2.6	0.00	2.6	0.00
	2.5	0.00	2.7	0.00	2.8	0.00	2.6	0.00	2.6	0.00	2.7	0.00	2.7	0.00
	2.7	0.00	3.2	0.00	3.4	0.00	3.4	0.00	3.5	0.00	3.5	0.00	3.7	0.00
9/10/91	9.0	0.00	9.0	0.00	9.0	0.00	9.0	0.00	9.0	0.00	9.0	0.00	9.0	0.03
	15.0	0.00	14.0	0.00	15.0	0.00	14.0	0.00	14.0	0.00	14.0	0.00	14.0	0.02
9/11/91	0.3	0.00	0.3	0.00	0.5	0.00	0.6	0.00	0.5	0.00	0.7	0.00	0.9	0.00
	2.1	0.00	2.1	0.00	1.9	0.00	0.4	0.00	0.7	0.00	1.0	0.00	1.5	0.00
	1.2	0.00	1.2	0.00	1.2	0.00	1.3	0.02	1.2	0.00	1.2	0.00	1.2	0.00
9/12/91	5.0	0.00	5.0	0.00	4.0	0.00	4.0	0.00	4.0	0.00	4.0	0.00	4.0	0.00
	5.0	0.00	5.2	0.00	5.2	0.00	5.1	0.00	5.1	0.00	5.0	0.00	4.5	0.00
	4.8	0.00	4.8	0.00	4.8	0.00	4.7	0.00	4.8	0.00	4.7	0.00	4.8	0.03
9/13/91	7.0	0.00	6.0	0.00	6.0	0.00	6.0	0.04	6.0	0.00	5.0	0.00	5.0	0.00
	9.0	0.00	9.4	0.00	8.0	0.00	8.0	0.00	8.0	0.00	7.0	0.00	8.0	0.00
	5.2	0.00	5.2	0.00	5.3	0.00	5.4	0.00	5.2	0.00	5.2	0.00	5.4	0.00
9/16/91	6.0	0.02	6.0	0.02	5.7	0.02	5.6	0.02	5.5	0.00	5.3	0.00	5.0	0.00
	27.0	0.00	27.0	0.00	27.0	0.00	27.0	0.00	27.0	0.00	28.0	0.00	27.0	0.00
	19.0	0.00	19.0	0.00	19.0	0.00	18.0	0.00	17.0	0.00	17.0	0.00	17.0	0.00
9/17/91	6.3	0.00	6.2	0.00	6.1	0.00	6.1	0.00	6.0	0.00	5.8	0.00	5.9	0.00
	9.0	0.00	9.0	0.00	8.0	0.00	8.0	0.00	9.0	0.00	8.0	0.00	8.0	0.00
	7.0	0.00	8.0	0.00	7.0	0.00	8.0	0.00	7.0	0.00	7.0	0.00	7.0	0.00
9/18/91	7.8	0.00	9.2	0.00	9.4	0.00	9.1	0.00	8.9	0.00	8.9	0.00	9.1	0.00
	9.3	0.00	9.7	0.00	9.9	0.00	9.8	0.00	10.4	0.00	10.2	0.00	9.9	0.00
	12.1	0.00	12.4	0.00	11.9	0.00	11.5	0.00	11.6	0.00	11.7	0.00	12.3	0.00
9/19/91	6.5	0.00	6.6	0.00	6.7	0.00	6.5	0.00	6.4	0.00	6.3	0.00	6.2	0.02
	6.0	0.00	6.0	0.00	6.1	0.00	6.9	0.00	6.9	0.04	7.0	0.00	6.6	0.00
	0.9	0.00	0.9	0.00	0.8	0.00	0.8	0.00	0.7	0.00	0.7	0.00	0.8	0.00
9/20/91	4.2	0.00	4.7	0.00	4.3	0.00	3.8	0.00	3.7	0.00	3.9	0.00	4.1	0.02
	4.2	0.00	4.1	0.00	4.1	0.00	4.5	0.00	4.2	0.00	3.8	0.00	3.9	0.00
9/23/91	5.0	0.01	5.2	0.01	5.2	0.00	5.2	0.00	5.3	0.00	5.2	0.01	5.3	0.00
9/24/91	4.5	0.00	4.7	0.00	4.6	0.00	4.7	0.00	4.7	0.00	4.8	0.00	4.9	0.00
	4.4	0.00	4.6	0.00	4.6	0.00	4.7	0.00	4.5	0.00	4.4	0.00	4.2	0.00
	1.8	0.00	1.5	0.00	1.4	0.00	1.4	0.00	1.2	0.00	1.0	0.00	0.8	0.00
9/25/91	7.6	0.33	7.7	0.33	7.7	0.33	7.7	0.33	7.7	0.35	7.7	0.35	7.7	0.35
	7.9	0.06	7.5	0.02	7.4	0.04	7.3	0.04	7.3	0.04	7.4	0.02	7.6	0.02
	6.6	0.04	6.4	0.02	6.3	0.02	6.3	0.02	6.4	0.02	6.3	0.04	6.5	0.02

NOTES
OVA readings are in ppm; instrument calibrated to 100 ppm methane in air.
MiniRam readings are in mg per cubic meter.
See Figure 5-1 for locations of air monitoring stations.

APPENDIX F

WETLANDS MAP/CLIMATOLOGICAL DATA

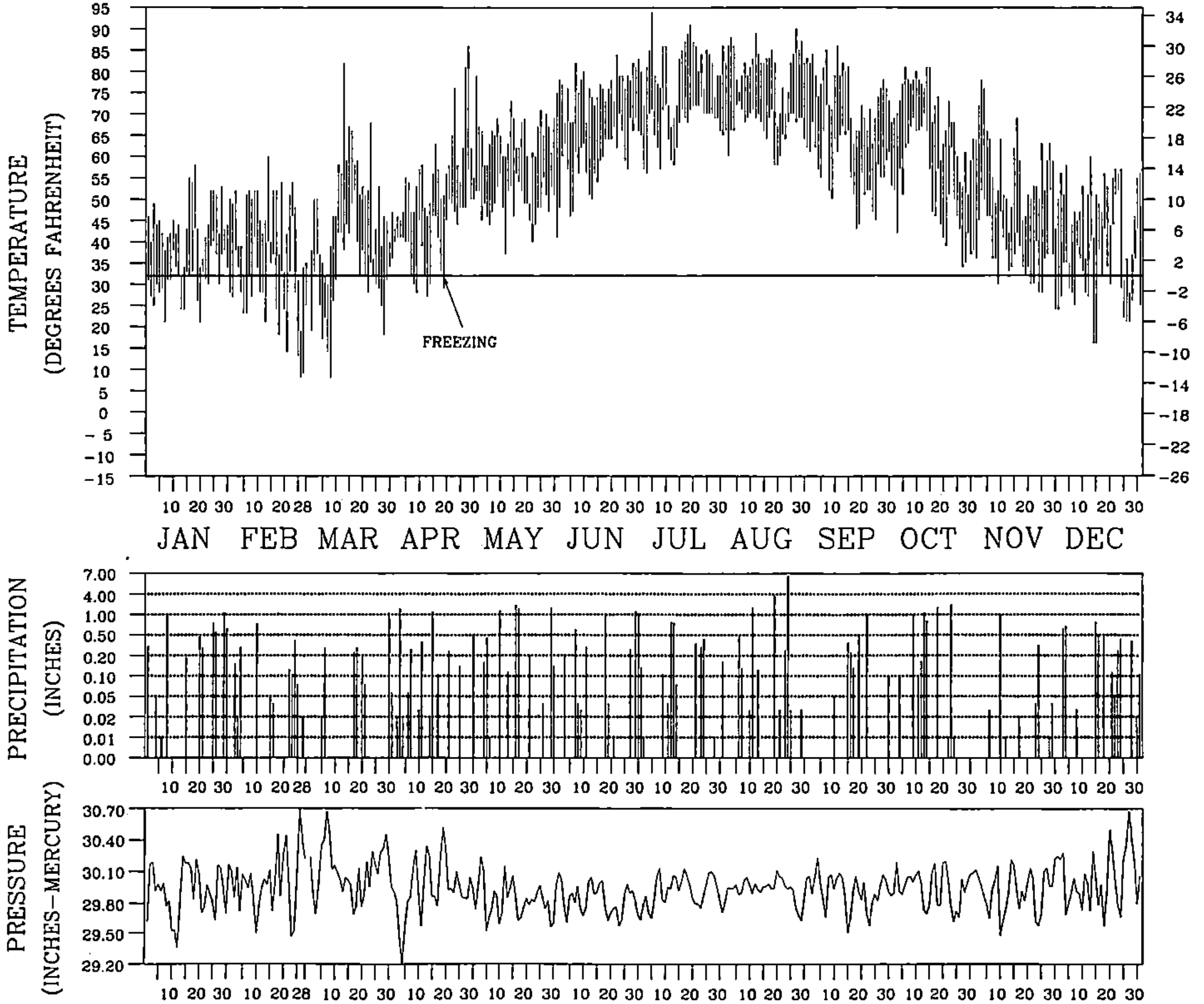
ISSN 0742-8715

1990 LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

DEPARTMENT OF COMMERCE UNITED STATES OF AMERICA

ISLIP,
NEW YORK

Daily Data



TEMPERATURE DEPICTS DAILY HIGH AND LOW VALUES (FAHRENHEIT)
PRECIPITATION IS MEASURED IN INCHES, SCALE IS NON-LINEAR
STATION PRESSURE IS MEASURED IN INCHES OF MERCURY

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC DATA CENTER, ASHEVILLE, NORTH CAROLINA, 28801

Kenneth D Hadeen
DIRECTOR
NATIONAL CLIMATIC DATA CENTER

noaa
NATIONAL
OCEANIC AND
ATMOSPHERIC ADMINISTRATION

NATIONAL
ENVIRONMENTAL SATELLITE, DATA
AND INFORMATION SERVICE

NATIONAL
CLIMATIC DATA CENTER
ASHEVILLE NORTH CAROLINA

METEOROLOGICAL DATA FOR 1990

ISLIP, NEW YORK

LATITUDE: 40°47' N LONGITUDE: 73°06' W ELEVATION: FT. GRND 84 BARO 84 TIME ZONE: EASTERN WBAN: 04781

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:													
Averages													
-Daily Maximum	44.5	44.4	49.4	56.2	65.1	76.3	81.1	81.3	74.8	69.6	56.9	48.0	62.3
-Daily Minimum	31.3	27.5	31.6	41.2	48.8	59.7	66.9	66.9	57.2	52.3	37.7	31.8	46.1
-Monthly	37.9	36.0	40.5	48.7	57.0	68.0	74.0	74.1	66.0	61.0	47.3	39.9	54.2
-Monthly Dewpt.	29.5	28.3	32.2	39.7	46.6	59.0	65.1	65.9	59.4	53.0	36.7	31.0	45.5
Extremes													
-Highest	58	60	82	86	79	84	94	90	86	81	78	60	94
-Date	18	14	13	28	1	22	5	27	11	15	3	13	JUL 5
-Lowest	21	8	8	27	37	46	56	58	43	34	24	16	8
-Date	20	26	8	13	12	5	3	20	18	27	30	15	MAR 8
DEGREE DAYS BASE 65 °F:													
Heating	833	807	751	488	244	26	3	2	71	193	524	771	4713
Cooling	0	0	0	7	1	123	290	287	108	73	0	0	889
% OF POSSIBLE SUNSHINE													
AVG. SKY COVER (tenths)													
Sunrise - Sunset													
Midnight - Midnight													
NUMBER OF DAYS:													
Sunrise to Sunset													
-Clear													
-Partly Cloudy													
-Cloudy													
Precipitation .01 inches or more	11	11	8	13	11	11	12	11	7	10	8	13	126
Snow, Ice pellets 1.0 inches or more	2	1	1	1	0	0	0	0	0	0	0	1	6
Thunderstorms	0	0	1	2	3	11	7	5	4	2	0	1	36
Heavy Fog, visibility 1/4 mile or less	1	3	5	6	3	5	3	3	1	4	3	5	42
Temperature °F													
-Maximum													
90° and above	0	0	0	0	0	0	2	1	0	0	0	0	3
32° and below	1	3	2	0	0	0	0	0	0	0	0	2	8
-Minimum													
32° and below	19	18	17	7	0	0	0	0	0	0	7	17	85
0° and below	0	0	0	0	0	0	0	0	0	0	0	0	0
AVG. STATION PRESS. (mb)	1013.0	1016.3	1019.5	1013.9	1010.2	1010.5	1012.9	1013.5	1013.2	1014.2	1013.2	1017.3	1013.9
RELATIVE HUMIDITY (%)													
Hour 01 (Local Time)	79	82	80	81	84	86	86	89	87	85	76	76	83
Hour 07	81	80	81	82	77	81	81	86	88	85	81	78	82
Hour 13	63	64	62	65	57	60	62	64	62	62	51	64	61
Hour 19	76	75	75	72	71	71	77	81	80	75	71	70	75
PRECIPITATION (inches):													
Water Equivalent													
-Total	5.68	2.13	2.55	5.06	8.94	5.20	3.33	13.78	2.48	8.12	1.57	4.65	63.49
-Greatest (24 hrs)	1.91	0.78	1.30	1.81	2.43	1.58	1.62	6.92	1.02	2.45	1.07	1.38	6.92
-Date	29-30	10	30-31	3- 4	16-17	29-30	12-13	23-24	22	23-24	10	3- 4	AUG 23-24
Snow, Ice pellets													
-Total	2.0	2.0	4.2	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	15.2
-Greatest (24 hrs)	1.0	1.8	4.2	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.2
-Date	20	24-25	5- 6	7								28	MAR 5- 6
WIND:													
Resultant													
-Direction (!!)	261	282	261	243	287	232	231	129	256	253	301	281	265
-Speed (mph)	5.1	3.7	1.9	2.4	1.4	3.5	0.9	0.2	1.7	3.0	4.3	2.9	2.4
Average Speed (mph)	9.4	9.2	7.5	7.7	7.2	6.2	5.6	5.0	5.1	8.0	7.9	7.8	7.2
Fastest Obs. 1 Min.													
-Direction (!!)													
-Speed (mph)													
-Date													
Peak Gust													
-Direction (!!)													
-Speed (mph)													
-Date													

(!!) See Reference Notes on Page 6B

NORMALS, MEANS, AND EXTREMES

ISLIP, NEW YORK

LATITUDE: 40°47'N LONGITUDE: 73°06' W ELEVATION: FT. GRND 84 BARO 84 TIME ZONE: EASTERN WBAN: 04781

	(a)	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:														
Normals														
-Daily Maximum														
-Daily Minimum														
-Monthly														
Extremes														
-Record Highest	7	59	63	82	86	95	95	95	93	91	83	78	65	95
-Year		1989	1985	1990	1990	1987	1988	1988	1989	1985	1986	1990	1984	JUN 1988
-Record Lowest	7	-7	5	8	27	34	46	50	45	38	28	11	7	-7
-Year		1988	1987	1990	1990	1987	1990	1988	1986	1989	1985	1989	1988	JAN 1988
NORMAL DEGREE DAYS:														
Heating (base 65°F)														
Cooling (base 65°F)														
% OF POSSIBLE SUNSHINE														
MEAN SKY COVER (tenths)														
Sunrise - Sunset														
MEAN NUMBER OF DAYS:														
Sunrise to Sunset														
-Clear														
-Partly Cloudy														
-Cloudy														
Precipitation														
.01 inches or more	7	10.7	9.6	9.3	12.4	11.0	11.0	9.9	8.1	7.6	8.4	11.0	9.6	118.6
Snow,Ice pellets														
1.0 inches or more	7	2.6	1.4	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	7.1
Thunderstorms	7	0.1	0.6	1.0	1.9	3.3	6.1	6.7	3.9	2.0	1.0	1.0	0.3	27.9
Heavy Fog Visibility														
1/4 mile or less	7	2.7	2.9	2.7	3.9	4.6	4.3	2.6	2.7	1.6	4.4	3.4	2.9	38.6
Temperature °F														
-Maximum														
90° and above	7	0.0	0.0	0.0	0.0	0.7	1.7	1.9	1.0	0.4	0.0	0.0	0.0	5.7
32° and below	7	8.4	5.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	4.7	20.4
-Minimum														
32° and below	7	25.1	21.7	17.3	2.9	0.0	0.0	0.0	0.0	0.0	1.3	9.1	21.7	99.1
0° and below	7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
AVG. STATION PRESS.(mb)	7	1014.0	1014.5	1015.0	1010.9	1011.8	1010.8	1012.6	1013.3	1015.5	1016.1	1015.0	1015.4	1013.7
RELATIVE HUMIDITY (%)														
Hour 01	6	75	75	74	78	83	82	86	86	85	83	78	72	80
Hour 07 (Local Time)	6	77	78	77	77	77	77	82	84	85	85	81	75	80
Hour 13	6	62	61	56	56	58	58	62	61	61	59	60	58	59
Hour 19	6	71	70	66	68	71	69	75	75	77	75	73	67	71
PRECIPITATION (inches):														
Water Equivalent														
-Normal														
-Maximum Monthly	7	6.28	5.55	5.53	5.06	10.14	7.86	8.36	13.78	5.06	8.71	8.02	5.46	13.78
-Year		1987	1984	1984	1990	1989	1989	1984	1990	1984	1989	1988	1986	AUG 1990
-Minimum Monthly	7	1.34	1.11	2.38	1.79	0.73	0.58	1.90	0.47	0.81	1.31	1.57	0.90	0.47
-Year		1985	1987	1985	1985	1986	1988	1987	1984	1985	1985	1990	1985	AUG 1984
-Maximum in 24 hrs	7	1.91	2.33	2.52	1.81	4.76	2.92	2.69	6.92	2.23	3.95	2.63	1.53	6.92
-Year		1990	1984	1987	1990	1989	1989	1984	1990	1984	1989	1988	1988	AUG 1990
Snow,Ice pellets														
-Maximum Monthly	7	13.5	10.4	13.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	10.4	13.5
-Year		1985	1986	1984	1990							1989	1988	JAN 1985
-Maximum in 24 hrs	7	6.0	6.7	5.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	9.2	9.2
-Year		1984	1987	1984	1990	1984	1984	1984	1984	1984	1984	1989	1988	DEC 1988
WIND:														
Mean Speed (mph)	7	9.7	10.1	10.5	10.0	9.0	8.5	7.5	7.4	7.5	8.3	9.9	9.4	9.0
Prevailing Direction														
through ν														
Fastest Obs. 1 Min.														
-Direction (!!)														
-Speed (MPH)														
-Year														
Peak Gust														
-Direction (!!)														
-Speed (mph)														
-Date														

(!!) See Reference Notes on Page 6B.

PRECIPITATION (inches)

ISLIP, NEW YORK

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1984	2.63	5.55	5.53	4.81	9.43	5.14	8.36	0.47	5.06	2.43	1.69	2.33	53.43
1985	1.34	2.00	2.38	1.79	4.13	6.32	3.41	3.84	0.81	1.31	6.18	0.90	34.41
1986	3.37	3.20	3.10	2.66	0.73	1.69	4.18	3.95	0.82	2.06	6.56	5.46	37.78
1987	6.28	1.11	4.93	3.65	1.53	2.53	1.90	4.46	3.28	1.96	2.55	2.94	37.12
1988	3.17	5.36	3.94	1.97	2.92	0.58	2.45	1.49	3.59	3.35	8.02	2.96	39.80
1989	2.21	4.01	4.68	4.78	10.14	7.86	4.90	7.68	4.56	8.71	4.82	0.97	65.32
1990	5.68	2.13	2.55	5.06	8.94	5.20	3.33	13.78	2.48	8.12	1.57	4.65	63.49
Record Mean	3.53	3.34	3.87	3.53	5.40	4.19	4.08	5.10	2.94	3.99	4.48	2.89	47.34

See Reference Notes on Page 6B.

AVERAGE TEMPERATURE (deg. F)

ISLIP, NEW YORK

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1984	27.4	38.1	34.7	48.0	57.2	70.2	71.8	73.9	62.6	57.5	44.7	41.3	52.3
1985	26.3	32.9	41.9	50.8	60.5	65.4	73.4	71.8	66.9	55.9	48.4	32.1	52.2
1986	31.7	30.1	40.4	49.8	61.4	67.6	73.4	70.3	63.7	53.9	42.6	36.4	51.8
1987	30.5	30.3	41.1	49.9	58.0	69.2	74.9	70.9	65.1	51.0	45.7	36.9	52.0
1988	26.6	32.4	39.9	47.8	58.8	67.8	75.0	75.0	64.2	49.7	45.3	33.4	51.3
1989	34.6	31.4	38.2	47.4	58.6	69.9	72.7	73.1	65.0	54.4	42.6	24.8	51.1
1990	37.9	36.0	40.5	48.7	57.0	68.0	74.0	74.1	66.0	61.0	47.3	39.9	54.2
Record													
Mean	30.7	33.0	39.5	48.9	58.8	68.3	73.6	72.7	64.8	54.8	45.2	35.0	52.1
Max	38.1	40.0	47.8	56.7	67.3	76.5	80.7	79.9	73.0	63.7	53.7	42.6	60.0
Min	23.3	26.0	31.2	41.1	50.2	60.0	66.5	65.5	56.6	45.8	36.7	27.3	44.2

See Reference Notes on Page 6B.

HEATING DEGREE DAYS Base 65 deg. F ISLIP, NEW YORK

SEASON	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
1983-84							1162	773	933	501	237	29	
1984-85	0	0	119	228	601	729	1193	892	707	421	155	49	5094
1985-86	1	2	57	279	493	1012	1026	970	755	449	166	32	5242
1986-87	2	24	92	356	664	880	1064	964	736	447	257	25	5511
1987-88	0	7	59	427	572	867	1182	940	772	509	212	56	5603
1988-89	5	1	69	467	583	975	934	934	826	520	201	9	5524
1989-90	0	3	94	319	666	1239	833	807	751	488	244	26	5470
1990-91	3	2	71	193	524	771							

See Reference Notes on Page 6B.

COOLING DEGREE DAYS Base 65 deg. F ISLIP, NEW YORK

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
1984	0	0	0	0	2	189	217	282	53	3	0	0	746
1985	0	0	0	5	22	69	269	218	122	7	0	0	712
1986	0	0	0	0	64	115	270	194	60	19	0	0	722
1987	0	0	0	0	47	156	316	196	67	0	0	0	782
1988	0	0	0	0	25	145	320	319	55	2	0	0	866
1989	0	0	0	0	10	161	245	262	100	0	0	0	778
1990	0	0	0	7	1	123	290	287	108	73	0	0	889

See Reference Notes on Page 6B.

SNOWFALL (inches)

ISLIP, NEW YORK

SEASON	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
1983-84							11.9	T	13.0	0.0	0.0	0.0	
1984-85	0.0	0.0	0.0	0.0	T	4.7	13.5	8.7	T	T	0.0	0.0	26.9
1985-86	0.0	0.0	0.0	0.0	T	2.1	2.6	10.4	0.1	T	0.0	0.0	15.2
1986-87	0.0	0.0	0.0	0.0	T	3.4	8.8	8.6	1.7	0.0	0.0	0.0	22.5
1987-88	0.0	0.0	0.0	0.0	1.1	4.2	10.7	0.1	3.4	0.0	0.0	0.0	19.5
1988-89	0.0	0.0	0.0	0.0	0.0	10.4	4.4	1.2	3.0	T	0.0	0.0	19.0
1989-90	0.0	0.0	0.0	0.0	7.6	0.2	2.0	2.0	4.2	3.0	0.0	0.0	19.0
1990-91	0.0	0.0	0.0	0.0	0.0	4.0							
Record Mean	0.0	0.0	0.0	0.0	1.2	4.1	7.7	4.4	3.6	0.4	0.0	0.0	21.6

See Reference Notes on Page 6B.

REFERENCE NOTES

ISLIP, NEW YORK

GENERAL
T - TRACE AMOUNT.
BLANK ENTRIES DENOTE MISSING/UNREPORTED DATA.
# INDICATES A STATION OR INSTRUMENT RELOCATION.
SEE STATION LOCATION TABLE ON PAGE 8.

SPECIFIC
PAGE 2
PM - INCLUDES LAST DAY OF PREVIOUS MONTH

PAGE 3
(a) - LENGTH OF RECORD IN YEARS, ALTHOUGH INDIVIDUAL MONTHS MAY BE MISSING.
0.* OR * THE VALUE IS BETWEEN 0.0 AND 0.05
NORMALS - BASED ON THE 1951-1980 RECORD PERIOD.
EXTREMES - DATES ARE THE MOST RECENT OCCURRENCE
WIND DIR.- NUMERALS SHOW TENS OF DEGRESS CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM.
RESULTANT DIRECTIONS ARE GIVEN TO WHOLE DEGREES.

PAGE 4B
MAX AND MIN ARE LONG TERM MEAN DAILY MAXIMUM AND MEAN DAILY MINIMUM TEMPERATURES.

EXCEPTIONS

PAGES 4A, 4B, 6A
RECORD MEANS ARE THROUGH THE CURRENT YEAR,
BEGINNING IN 1984 FOR TEMPERATURE
1984 FOR PRECIPITATION
1984 FOR SNOWFALL

ISLIP,
NEW YORK

Long Island is the terminal moraine marking the southernmost advance of the ice sheet along the Atlantic Coast during the last ice age. The terrain is generally flat, with only a gradual rise in elevation from Long Island Sound on the northern shore and from the Atlantic Ocean on the southern shore toward the middle of the island. Islip is located about half-way out Long Island on the southern coast. The airport is located about seven miles to the northeast of the city. Islip is protected from flooding during periods of high tides by Fire Island, a natural barrier located about three miles offshore. Most of the air masses affecting Islip are continental in origin, however the ocean has a pronounced influence on the climate of the area.

A cool sea breeze blowing off the ocean during the summer months helps to alleviate the afternoon heat. There are an average of 7 days between June and September when the afternoon temperature exceeds 90 degrees, while farther inland there are 10 to 15 such days.

It is uncommon for the eye of a tropical storm to pass directly over Long Island. Tropical weather systems moving along the Atlantic Coast, however, are capable of producing episodes of heavy rain and strong winds in the late summer or fall.

The winter season is relatively mild. Below zero temperatures are reported on only one or two days in about half the winters. Temperatures of 10 degrees below zero or colder are extremely rare. The seasonal snowfall averages about 29 inches. Almost all of this snow falls between December and March. Coastal low pressure systems, Northeasters, are the principle source of this snow. These weather systems will occasionally produce a heavy snowfall. There are usually extended periods during the winter when the ground is bare of snow.

The average date of the last spring temperature of 32 degrees is April 27 and the average first fall occurrence is October 21. Inland locations would expect a shorter freeze-free season.

STATION LOCATION

ISLIP, NEW YORK

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE									AUTOMATIC OBSERVING EQUIPMENT *	REMARKS * Type M = AMOS T = AUTOB S = ASOS W = AWOS
						SEA LEVEL	GROUND									
						GROUND TEMPERATURE SITE	WIND INSTRUMENTS	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING BUCKET RAIN GAGE	WEIGHING RAIN GAGE	8 INCH RAIN GAGE	HYGROTHERMOMETER		
Control Tower Building Long Island MacArthur Airport	?	Present	NA	40°47'	73°06'	b84	b20 c20	a5	a5	NA	NA	NA	a3	b4 c4	NA	a - Effective 9/5/63. b - Effective 12/15/64. c - Moved 125' W 4/18/67. First LCD published 1/1984. First LCD Annual 1986.

SUBSCRIPTION:
Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801.

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FIRST CLASS

306441 PATCHOGUE, NY

	DEG MIN		DEG MIN
LAT:	40 48N	LONG:	73 01W

PERIOD: 1951-80

FREEZE DATA

PROBABILITY OF LATER DATE IN SPRING (THRU JULY 31) THAN INDICATED(*)

SPRING FREEZE DATES (MO/DAY)

TEMP (F)	.90	.80	.70	.60	.50	.40	.30	.20	.10
36	4/24	4/29	5/03	5/07	5/10	5/13	5/17	5/21	5/26
32	4/09	4/16	4/20	4/24	4/27	5/01	5/05	5/09	5/15
28	3/27	4/01	4/05	4/08	4/11	4/14	4/17	4/21	4/26
24	3/17	3/21	3/25	3/27	3/30	4/02	4/04	4/08	4/12
20	3/04	3/10	3/14	3/18	3/21	3/24	3/28	4/01	4/07
16	2/19	2/24	3/01	3/04	3/08	3/11	3/15	3/19	3/25

PROBABILITY OF EARLIER DATE IN FALL (BEGINNING AUG 1) THAN INDICATED(*)

FALL FREEZE DATES (MO/DAY)

TEMP (F)	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	9/21	9/25	9/27	9/30	10/02	10/04	10/07	10/09	10/13
32	10/07	10/11	10/15	10/18	10/21	10/24	10/27	10/30	11/04
28	10/16	10/21	10/25	10/28	10/31	11/03	11/06	11/10	11/15
24	10/26	11/02	11/07	11/11	11/15	11/18	11/22	11/27	12/04
20	11/08	11/14	11/19	11/24	11/28	12/02	12/06	12/11	12/18
16	11/27	12/03	12/06	12/09	12/12	12/15	12/19	12/22	12/28

PROBABILITY OF LONGER THAN INDICATED FREEZE FREE PERIOD (DAYS)

FREEZE FREE PERIOD

TEMP (F)	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	163	156	152	148	144	141	137	132	126
32	201	192	186	181	176	171	165	159	151
28	224	217	211	206	202	198	193	187	180
24	255	246	240	234	229	224	218	212	203
20	281	271	263	257	251	245	238	231	221
16	300	293	288	283	279	275	270	265	258

(*)PROBABILITY OF OBSERVING A TEMPERATURE AS COLD, OR COLDER, LATER IN THE SPRING OR EARLIER IN THE FALL THAN THE INDICATED DATE.
0/00 INDICATES THAT THE PROBABILITY OF OCCURRENCE OF THRESHOLD TEMPERATURE IS LESS THAN INDICATED PROBABILITY.

GROWING DEGREE UNITS TO SELECTED BASE TEMPERATURES (F)

BASE		GROWING DEGREE UNITS												
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
40	M	14	15	62	246	547	809	1018	993	751	451	176	42	5124
	S	14	29	91	337	884	1693	2711	3704	4455	4906	5082	5124	
45	M	3	2	17	129	392	659	863	838	601	305	87	13	3909
	S	3	5	22	151	543	1202	2065	2903	3504	3809	3896	3909	
50	M	0	0	3	54	246	509	708	683	451	177	35	2	2868
	S	0	0	3	57	303	812	1520	2203	2654	2831	2866	2868	
55	M	0	0	0	19	127	360	553	528	306	85	11	0	1989
	S	0	0	0	19	146	506	1059	1587	1893	1978	1989	1989	
60	M	0	0	0	6	50	218	398	374	179	30	2	0	1257
	S	0	0	0	6	56	274	672	1046	1225	1255	1257	1257	

M = MONTHLY DATA   S = SUM OF MONTHLY DATA

GROWING DEGREE UNITS FOR CORN

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
CORN	M	6	6	31	132	305	513	696	675	473	259	88	17	3201
	S	6	12	43	175	480	993	1689	2364	2837	3096	3184	3201	

NOTE: FOR CORN THE BASE IS 50, AND THE DEGREE UNITS ARE ADJUSTED FOR TEMPERATURES BELOW 50 AND ABOVE 86

OTHER CLIMATOLOGICAL DATA ARE AVAILABLE IN A VARIETY OF SUMMARIES AND FORMATS, SUCH AS THE CLIMATOGRAPHY OF THE UNITED STATES: NO. 60 - CLIMATE OF STATES; NO. 81 - MONTHLY NORMALS (AND SUPPLEMENTS: ANNUAL DEGREE DAYS TO SELECTED BASES DERIVED FROM THE 1951-80 NORMALS; AND MONTHLY PRECIPITATION PROBABILITIES, SELECTED PROBABILITY LEVELS DERIVED FROM THE 1951-80 NORMALS); NO. 84 - DAILY NORMALS; NO. 85 - DIVISIONAL NORMALS. A VARIETY OF DATA IS AVAILABLE EITHER ON MAGNETIC TAPE, MICROFICHE, OR PAPER COPY.

TO OBTAIN INFORMATION ABOUT CLIMATOLOGICAL DATA AND RELATED PUBLICATIONS, CONTACT:

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USCOMM-NOAA-ASHEVILLE, NC 7/84/200

CLIMATOGRAPHY OF THE UNITED STATES NO. 20

PATCHOGUE, NY

PERIOD: 1951-80
ELEVATION: 55 FT

CLIMATOLOGICAL SUMMARY

	TEMPERATURE (F)															PRECIPITATION TOTALS (INCHES)											
	MEANS			EXTREMES						MEAN NUMBER OF DAYS				DEGREE DAYS		*	*					SNOW			MEAN NUMBER OF DAYS		
										MAX		MIN															
	* DAILY MAXIMUM	* DAILY MINIMUM	* MONTHLY	RECORD HIGHEST	YEAR	DAY	RECORD LOWEST	YEAR	DAY	90 AND ABOVE	32 AND BELOW	32 AND BELOW	0 AND BELOW	* HEATING BASE 65	* COOLING BASE 65	MEAN	GREATEST MONTHLY	YEAR	GREATEST DAILY	YEAR	DAY	MEAN	MAXIMUM MONTHLY	YEAR	.10 OR MORE	.50 OR MORE	1.00 OR MORE
JAN	38.3	21.0	29.7	67+	67	24	-12+	61	22	0	8	27	1	1094	0	3.78	12.35	79	3.38	79	21	8.3	25.1	78	7	2	1
FEB	39.6	22.0	30.8	65+	76	28	-6+	79	12	0	5	24	1	958	0	3.62	5.98	79	2.05	72	19	8.9	29.0	78	6	3	1
MAR	47.1	29.2	38.1	71+	79	22	-7+	67	19	0	1	21	0	834	0	4.33	8.31	53	2.90	68	13	6.5	28.8	58	8	3	1
APR	57.8	37.4	47.6	90+	76	17	12+	69	1	0	0	8	0	522	0	3.95	7.88	73	2.78	80	10	.3	2.5	57	7	3	1
MAY	67.6	47.2	57.4	94+	69	29	28+	71	15	0	0	1	0	246	10	3.66	8.26	78	1.85	78	24	.0	.0		6	3	1
JUN	76.5	56.9	66.7	99	52	26	34+	67	1	1	0	0	0	37	88	2.94	7.49	72	2.38	75	13	.0	.0		5	2	1
JUL	82.1	63.1	72.6	98+	63	1	46+	71	4	3	0	0	0	0	236	3.31	8.21	69	4.25	69	28	.0	.0		5	2	1
AUG	81.3	62.2	71.8	102+	75	2	40+	71	25	2	0	0	0	0	215	4.49	10.98	76	5.54	55	12	.0	.0		6	3	1
SEP	74.7	54.8	64.8	95+	53	2	33	51	30	1	0	0	0	65	59	3.36	7.77	54	5.70	54	11	.0	.0		5	2	1
OCT	64.8	43.6	54.2	85+	67	5	17+	69	24	0	0	3	0	335	0	3.85	12.93	55	4.92	72	07	.0	.0		5	2	1
NOV	53.6	35.2	44.4	75+	77	4	12+	70	25	0	0	13	0	618	0	4.01	6.93	71	3.54	75	13	.5	4.5	55	7	3	1
DEC	42.8	25.5	34.2	67+	71	11	0+	80	26	0	4	24	0	955	0	4.41	8.06	73	3.85	53	14	4.7	20.8	60	7	3	1
YEAR	60.5	41.5	51.0	102	AUG 75	2	-12	JAN 61	22	7	18	121	2	5664	608	45.71	12.93	OCT 55	5.70	SEP 54	11	29.2	29.0	FEB 78	74	31	12

*FROM 1951-80 NORMALS

ESTIMATED VALUE BASED ON DATA FROM SURROUNDING STATIONS

\+ ALSO ON EARLIER DATES.

DEGREE DAYS TO SELECTED BASE TEMPERATURES (F)

BASE	HEATING DEGREE DAYS												
BELOW	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
65	1094	958	834	522	246	37	0	0	65	335	618	955	5664
60	939	818	679	372	127	5	0	0	12	193	468	800	4413
57	846	734	586	285	76	0	0	0	0	122	378	707	3734
55	784	678	524	228	48	0	0	0	0	86	322	645	3315
50	629	538	369	107	11	0	0	0	0	22	186	495	2357

BASE	COOLING DEGREE DAYS												
ABOVE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
55	0	0	0	6	123	351	546	521	294	61	0	0	1902
57	0	0	0	0	89	291	484	459	238	35	0	0	1596
60	0	0	0	0	46	206	391	366	156	13	0	0	1178
65	0	0	0	0	10	88	236	215	59	0	0	0	608
70	0	0	0	0	0	21	100	88	11	0	0	0	220

DERIVED FROM THE 1951-80 MONTHLY NORMALS

PROBABILITY THAT THE MONTHLY PRECIPITATION WILL BE EQUAL TO OR LESS THAN THE INDICATED PRECIPITATION AMOUNT

MONTHLY PRECIPITATION (INCHES)

PROBABILITY LEVELS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
.05	.89	1.71	2.09	1.64	.91	.71	.77	.99	.81	.65	1.40	1.43
.10	1.25	2.02	2.47	2.00	1.26	.98	1.07	1.40	1.13	.99	1.78	1.85
.20	1.80	2.45	2.98	2.50	1.79	1.41	1.56	2.06	1.62	1.55	2.33	2.47
.30	2.29	2.80	3.39	2.92	2.26	1.79	1.99	2.65	2.05	2.08	2.79	2.99
.40	2.78	3.13	3.76	3.31	2.73	2.17	2.42	3.25	2.48	2.62	3.24	3.50
.50	3.30	3.45	4.14	3.71	3.23	2.58	2.88	3.88	2.94	3.21	3.69	4.02
.60	3.89	3.80	4.55	4.14	3.78	3.03	3.40	4.59	3.45	3.88	4.19	4.60
.70	4.58	4.20	5.01	4.63	4.43	3.56	4.01	5.45	4.06	4.70	4.77	5.27
.80	5.49	4.69	5.58	5.25	5.29	4.26	4.82	6.57	4.86	5.80	5.51	6.13
.90	6.94	5.44	6.45	6.20	6.65	5.37	6.10	8.36	6.13	7.57	6.66	7.48
.95	8.30	6.12	7.23	7.06	7.92	6.42	7.30	10.05	7.31	9.26	7.72	8.72

THESE VALUES WERE DETERMINED FROM THE INCOMPLETE GAMMA DISTRIBUTION.

APPENDIX G

SOIL BORING AND WELL LOGS

OVA READINGS FROM SPLIT SPOON SAMPLES
GIBSON CHEMICAL & OIL
COMMACK, NY

DEPTH	OVA READINGS (in ppm)						
(FT)	E-DS1-1	E-DS1-2	E-DS2-1	E-DS2-2	E-DS2-3	E-DS2-4	E-SP-1
(0-2)	8.0	4.0	4.0	4.0	8.0	3.0	0.0
(2-4)	14.0	18.0	0.0	6.0	0.0	0.0	0.0
(4-6)	-	4.0	0.0	3.0	1.0	5.0	0.0
(6-8)	1.0	2.0	8.0	5.0	2.0	5.0	3.0
(8-10)	2.0	2.0	4.0	3.0	0.0	0.0	0.0
(10-12)	1.0	4.0	-	-	-	-	-
(12-14)	1.0	2.0	-	-	-	-	-
(14-16)	0.0	4.0	-	-	-	-	-
(16-18)	0.0	0.0	-	-	-	-	-
(18-20)	0.0	2.0	-	-	-	-	-

DEPTH	OVA READINGS (in ppm)						
(FT)	E-TF-1	E-TF-2	E-SDS-1	E-SDS-2	BG	E-RP	E-P-1
(0-2)	-	0.0	-	-	0.0	290.0	290.0
(1-3)	6.0	-	-	-	-	-	-
(5-7)	4.0	0.0	-	-	-	-	-
(10-12)	0.0	1.0	-	-	-	-	-
(15-17)	3.0	1.2	268.0	790.0	-	-	-
(17-19)	-	-	94.0	84.0	-	-	-
(19-21)	-	-	4.0	40.0	-	-	-
(20-22)	34.0	0.8	-	-	-	-	-
(25-27)	160.0	1.0	-	-	-	-	-
(30-32)	100.0	2.4	-	-	-	-	-

DEPTH	OVA READINGS (in ppm)						
(FT)	E-P-2	E-TS-1	E-TS-2	E-TS-3	E-UL-1	W-SS	W-FT
(0-2)	90.0	0.2	0.0	0.0	6.0	-	0.0
(2-4)	-	0.2	0.0	1.0	18.0	-	0.0
(4-6)	-	0.6	0.4	2.0	0.4	-	0.0
(6-8)	-	-	-	-	-	-	0.0
(8-10)	-	-	-	-	-	-	0.2
(10-12)	-	-	-	-	-	87.4	0.0
(12-14)	-	-	-	-	-	135.4	0.4
(14-16)	-	-	-	-	-	87.4	0.0
(16-18)	-	-	-	-	-	-	0.0
(18-20)	-	-	-	-	-	-	0.0

NOTES:

Shading indicates that the sample was sent to the laboratory for analysis.

OVA READINGS FROM SPLIT SPOON SAMPLES
GIBSON CHEMICAL & OIL
COMMACK, NY

DEPTH	OVA READINGS (in ppm)						
(FT)	S-FWT-1	S-PWT-1	S-SL-1	S-SL-2	S-SL-3	S-SL-4	S-SP
(0-2)	0.0	-	0.0	0.2	0.0	0.0	4.6
(2-4)	-	-	0.0	0.0	0.0	0.0	0.0
(4-6)	0.0	0.0	-	-	-	-	0.0
(5-7)	-	-	-	-	-	-	-
(9-11)	0.4	0.0	-	-	-	-	-
(14-16)	0.0	0.0	-	-	-	-	-
(19-21)	0.0	0.0	-	-	-	-	-
(24-26)	-	0.0	-	-	-	-	-

DEPTH	OVA READINGS (in ppm)						
(FT)	S-FSDS-1	S-FSDS-2	S-FSDS-3	S-PSDS-1	S-PSDS-2C	S-WD-1	S-WD-2
(0-2)	0.0	0.0	0.0	0.0	0.0	177.8	0.0
(2-4)	-	-	-	-	390.0	117.0	20.0
(4-6)	2.0	0.0	0.4	0.0	0.0	36.0	>1000
(9-11)	0.0	0.0	0.2	0.0	0.0	-	-
(14-16)	0.0	0.0	0.0	0.0	2.0	-	-
(16-18)	2.0	7.8	0.0	0.0	14.0	-	-
(18-20)	3.0	10.0	0.4	8.6	22.0	-	-
(20-22)	0.0	-	0.8	66.0	40.0	-	-
(22-24)	20.0	52.0	0.7	25.4	28.0	-	-
(24-26)	37.0	30.0	1.4	83.4	14.0	-	-
(26-28)	74.0	24.0	2.0	74.6	-	-	-
(28-30)	10.0	88.0	1.2	118.4	8.0	-	-

DEPTH	OVA READINGS (in ppm)					
(FT)	S-UTF-1	S-UTF-2	S-UTF-3	S-UTF-4^	S-UTF-5^	S-UTF-6
(0-2)	0.0	0.0	0.0	0.0	0.4	0.0
(2-4)	-	-	-	-	-	-
(4-6)	0.1	0.0	0.1	0.0	0.2	0.0
(9-11)	0.0	1.6	15.0	0.0	399.6	0.0
(11-13)	0.0	24.0	16.0	3.0	29.0	0.0
(13-15)	0.0	34.0	21.0	0.8	8.0	0.0
(15-17)	0.0	66.0	90.0	0.0	138.0	0.4
(17-19)	0.0	26.0	180.0	0.0	118.0	0.0
(19-21)	0.0	136.0	>1000	0.6	638.0	0.4
(21-23)	0.0	146.0	290.0	0.2	337.8	1.2
(23-25)	0.0	176.0	650.0	6.6	237.6	0.4
(25-27)	1.1	236.0	430.0	27.0	137.6	0.4
(27-29)	1.6	396.0	290.0	-	-	1.4
(28-30)	-	-	-	91.0	116.6	-
(30-32)	-	-	-	27.0	-	-

NOTES:

Shading indicates that the sample was sent to the laboratory for analysis.

^=these samples were obtained using a different drill rig; please add 1' to the listed depth intervals for the accurate sampling depth (ie. (11-13)+1=(12-14)).

OVA READINGS FROM SPLIT SPOON SAMPLES
GIBSON CHEMICAL & OIL
COMMACK, NY

DEPTH	OVA READINGS (in ppm)						
(FT)	MW-1S/D	MW-2S/D	MW-3S/D	MW-5S/D	MW-6S/D	MW-7S/D	MW-8S/D
(0-2)	-	-	-	-	-	-	-
(4-6)	0.0	-	0.0	-	0.0	0.0	0.5
(9-11)	-	-	0.0	-	0.0	0.0	0.0
(14-16)	0.0	-	0.0	-	0.0	0.0	0.0
(19-21)	0.0	-	0.0	-	0.0	0.0	0.0
(24-26)	0.0	-	0.0	-	0.0	0.0	0.0
(29-31)	0.0	>1000	0.0	0.0	2.0	0.0	0.0
(34-36)	0.0	>1000	0.0	0.0	0.0	0.0	0.0
(39-41)	0.0	-	0.0	0.0	0.0	0.0	0.0
(44-46)	0.0	222.0	0.0	0.0	0.0	0.0	0.0
(49-51)	0.4	418.0	0.0	0.0	0.0	0.0	0.0
(54-56)	0.0	935.0	0.0	0.0	0.0	0.0	0.5
(59-61)	0.0	588.0	0.0	0.0	0.0	0.0	0.5
(64-66)	0.0	290.0	-	0.0	1.0	0.0	0.0
(69-71)	0.0	110.0	0.0	0.0	0.0	0.0	0.0
(74-76)	0.5	4.0	-	0.0	0.0	0.0	0.0
(79-81)	0.3	-	0.0	1.0	1.0	0.0	0.0
(84-86)	0.0	42.0	-	1.0	0.0	1.0	0.0
(89-91)	0.0	32.0	0.0	206.0	1.0	1.0	2.5
(94-96)	0.0	180.0	-	>1000	0.0	0.0	-
(100-102)	0.0	-	0.0	-	12.0	2.0	-
(105-107)	-	-	-	-	-	90.0	-
(110-112)	-	-	0.0	-	-	58.0	-
(115-117)	-	-	-		-	20.0	-
(120-122)	-	-	0.0	-	-	12.0	-
(124-126)	-	-	0.0	-	-	16.0	-
(128-130)	-	-	0.0	-	-	14.0	-
(132-134)	-	-	0.0	-	-	13.0	-
(136-138)	-	-	0.0	-	-	22.0	-
(138-140)	-	-	0.0	-	-	16.0	-

ERM-NORTHEAST

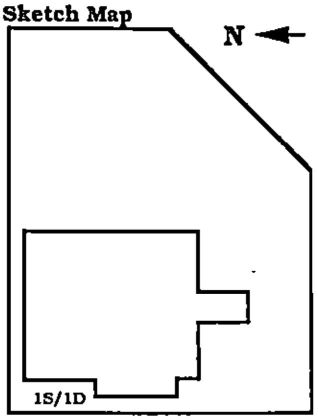
DRILLING LOG

Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

Well Number MW-1S **Total Depth** 100.76' (from grade)
Surface Elev. 153.1' **Depth to Water** 90.5'
Screen: Dia. 2" **Length** 20' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 79.84' **Type** PVC

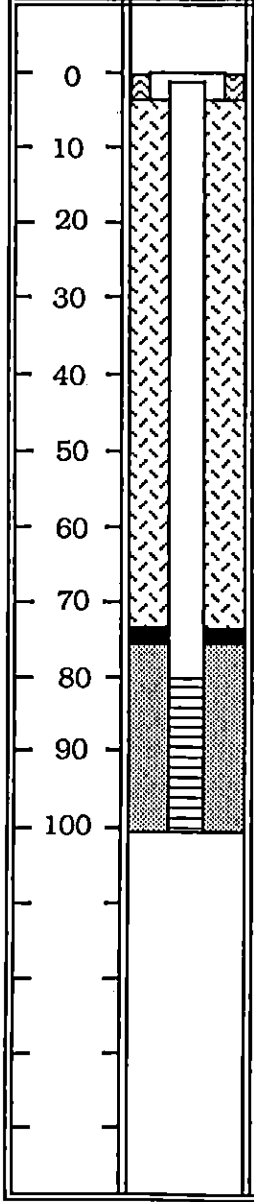
Drilling Co. Land, Air, Water **Drilling Method** Hollow Stem Auger
Driller Carl Pederson **Log By** Curt Buyum **Date** 8/28/91

Sketch Map



Notes:
Developed on 10/2/91 using the Geoguard pneumatic pump for 44 minutes (24 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
					For geologic information, see log for MW-1D. Well Construction Screen set 80-100' below grade. Sand pack set 76-100' below grade (includes 1' of choke). Bentonite seal set 73.5-76' below grade. Grout to surface. Well finished at grade with flush-mounted curb box set in cement. Key ▨ =grout ■ =bentonite ▒ =sand pack ☰ =screen zone ≋ =cement



ERM-NORTHEAST

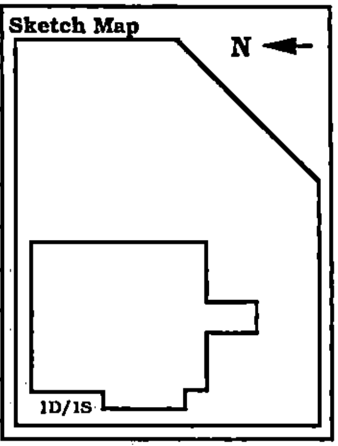
DRILLING LOG

Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

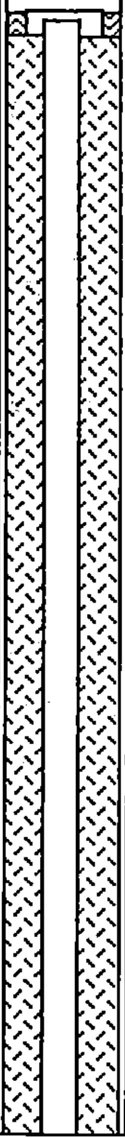
Well Number MW-1D **Total Depth** 140.07' (from grade)
Surface Elev. 153.2' **Depth to Water** 90.55'
Screen: Dia. 2" **Length** 10' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 129.80' **Type** PVC

Drilling Co. ADT, Inc. **Drilling Method** Hollow Stem Auger
Driller Rich Beauman **Log By** Curt Buyum **Date** 9/25/91

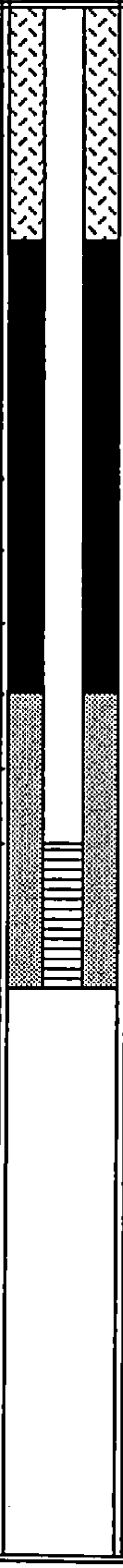
Sketch Map



Notes:
Developed on 10/2/91 using the Geoguard pneumatic pump for 68 minutes (48 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0					
5		0.0	12,15, 17,23	10	0~27.5': FM SAND-lt tan to tan to orange-tan; little fm gravel; trace silt.
10		-	6,13, 21,23	1	
15		0.0	5,7,14, 12	10	
20		0.0	7,9,13, 14	11	
25		0.0	5,11, 19,17	12	
30		0.0	6,8,13, 15	8	27.5~37.5': FMC SAND-tan to orange-tan; little fm trace silt; trace pebbles.
35		0.0	8,14, 13,16	11	
40		0.0	9,11, 15,19	10	37.5~47.5': FM SAND-lt tan to tan to orange-tan; little gravel; trace silt; trace pebbles.
45		0.0	7,8,14, 18	10	
50		0.4	10,11, 15,18	8	47.5~72.5': FMC SAND-tan to lt tan to orange-tan to white; trace to some fm gravel; trace silt; trace pebble.
55		0.0	7,11, 12,17	10	
60		0.0	8,8,9, 12	8	
65		0.0	10,11, 17,14	10	
70		0.0	10,9, 12,13	10	

WELL NUMBER MW-1D



Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)
75		0.5	7,20, 21,16	10
80		0.3	17,22, 23,26	12
85		0.0	18,24, 30,33	12
90		0.0	9,17, 16,19	10
95		0.0	8,10, 10,12	9
100		0.0	8,11, 12,16	6
105				
110				
115				
120				
125				
130				
135				
140				

Description/Soil Classification (Color, Texture, Structures)

72.5~78.5': FM SAND-tan to lt tan to white; little fm gravel; trace silt; trace pebbles.

78.5~101': FMC SAND-white, lt tan through dark tan; trace to some fmc gravel; trace silt; trace pebbles.

For geology to 140' see log for MW-3D, 7D or 8D.

Well Construction

Screen set 130.07-140.07' below grade.

Sand pack set 120-140.07' below grade (includes 2.5' of choke).

Bentonite seal (as volclay slurry) to 89'.

Grout to surface.

Well finished at grade with flush-mounted curb box set in cement.

Key

▧ =grout

■ =bentonite

▒ =sand pack

☰ =screen zone

≋ =cement

ERM-NORTHEAST

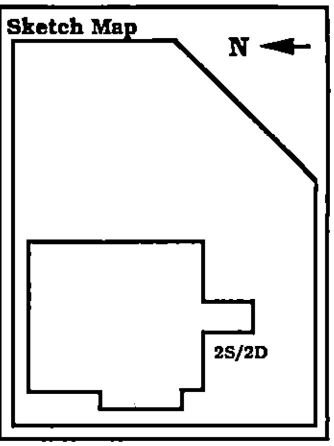
DRILLING LOG

Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

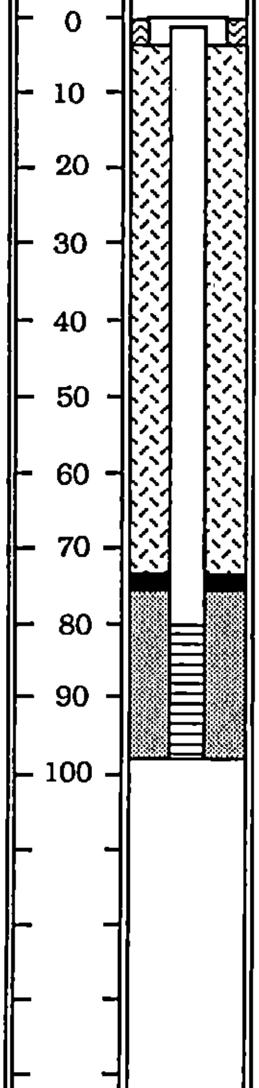
Well Number MW-2S **Total Depth** 98.38' (from grade)
Surface Elev. 150.9' **Depth to Water** 88'
Screen: Dia. 2" **Length** 20' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 77.94' **Type** PVC

Drilling Co. Land, Air, Water **Drilling Method** Hollow Stem Auger
Driller Carl Pederson **Log By** Curt Buyum **Date** 8/28/91

Sketch Map



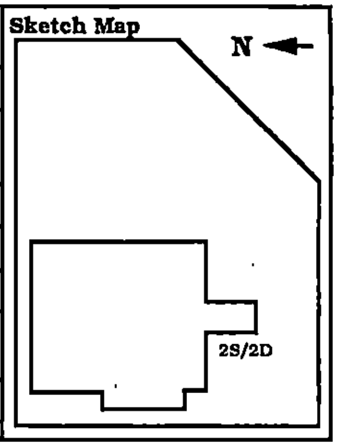
Notes:
Developed on 10/22/91 using the Geoguard pnematic pump for 17 minutes (25 gals. purged).



Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
					For geologic information, see log for MW-2D. Well Construction Screen set 78-98.38' below grade. Sand pack set 75-98.38' below grade (includes 1' of choke). Bentonite seal set 73-75' below grade. Grout to surface. Well finished at grade with flush-mounted curb box set in cement. Key ▨ =grout ■ =bentonite ▒ =sand pack ☰ =screen zone ≋ =cement

ERM-NORTHEAST

DRILLING LOG

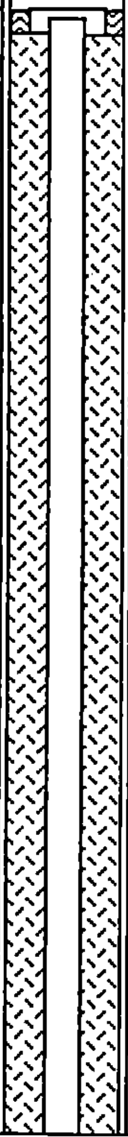


Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

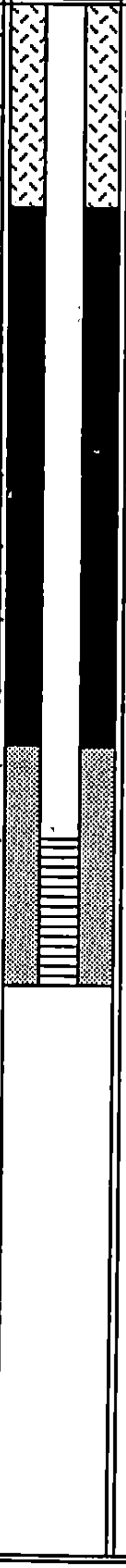
Well Number MW-2D **Total Depth** 139.24' (from grade)
Surface Elev. 151.0' **Depth to Water** 88.56'
Screen: Dia. 2" **Length** 10' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 128.80' **Type** PVC

Drilling Co. ADT, Inc. **Drilling Method** Hollow Stem Auger
Driller Rich Beauman **Log By** Curt Buyum **Date** 9/23,24/91

Notes:
Developed on 10/3/91 using the Geoguard pneumatic pump for 77 minutes (54 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0					
5					For geology from 0-30' see log for S-UTF-3.
10					
15					
20					
25					
30		>1000	6,9,8, 14	11	30~82.5': FM SAND-white to tan to orange-tan with grey staining throughout; trace to some fm gravel; trace to little silt; occassional cobbles; strong odor 30-75', moderate 75-82.5'.
35		>1000	8,8,11, 15	10	
40		-	7,12, 11,18	0	
45		220.0	11,11, 16,21	10	
50		418.0	9,9,7, 13	8	
55		935.0	9,8,14, 18	12	
60		588.0	10,14, 15,19	11	
65		290.0	9,8,13, 15	8	
70		110.0	14,8, 15,21	12	

WELL NUMBER MW-2D



Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)
75		4.0	11,14, 15,23	8
80		-	16,17, 24,28	0
85		42.0	7,8,10, 14	11
90		32.0	4,6,9, 14	5
95		180.0	8,10, 10,12	12
100				
105				
110				
115				
120				
125				
130				
135				
140				

Description/Soil Classification (Color, Texture, Structures)

82.5-96': FC SAND-tan to yellow-orange; trace to little fm gravel; trace silt; wet @ 88'; moderate odor 82.5-92.5', strong 92.5-96'.

For geology to 140' see log for MW-3D, 7D or 8D.

Well Construction

Screen set 129.24-139.24' below grade.
Sand pack set 124-139.24' below grade (includes 2' of choke).
Bentonite seal (as volclay slurry) to 87'.
Grout to surface.
Well finished at grade with flush-mounted curb box set in cement.

Key

▨ =grout
■ =bentonite
▒ =sand pack
☰ =screen zone
▩ =cement

ERM-NORTHEAST

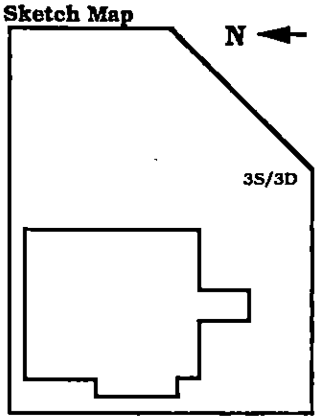
DRILLING LOG

Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164,007

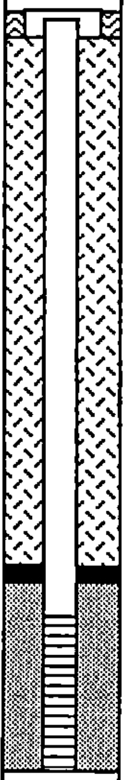
Well Number MW-3S **Total Depth** 99.36' (from grade)
Surface Elev. 152.7' **Depth to Water** 90'
Screen: Dia. 2" **Length** 20' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 79.20' **Type** PVC

Drilling Co. Land, Air, Water **Drilling Method** Hollow Stem Auger
Driller Carl Pederson **Log By** Curt Buyum **Date** 8/21/91

Sketch Map



Notes:
Developed on 10/4/91 using the Geoguard pneumatic pump for 45 minutes (24 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0 10 20 30 40 50 60 70 80 90 100					For geologic information, see log for MW-3D. Well Construction Screen set 79.38-99.38' below grade. Sand pack set 76-99.38' below grade (includes 1.5' of choke). Bentonite seal set 74-76' below grade. Grout to surface. Well finished at grade with flush-mounted curb box set in cement. Key ▨=grout ■=bentonite ▒=sand pack ☰=screen zone ≋=cement

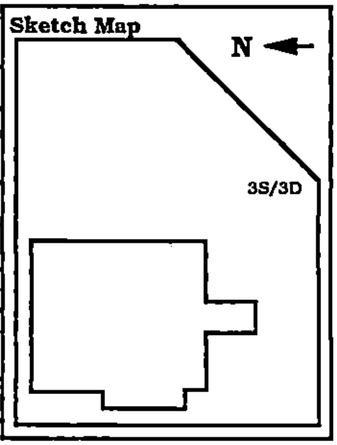
ERM-NORTHEAST

DRILLING LOG

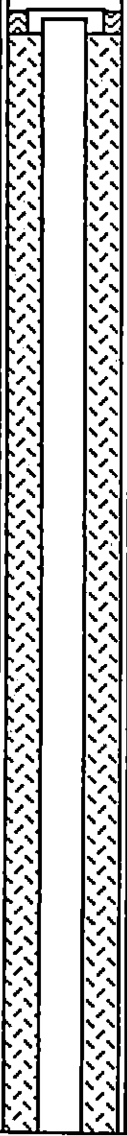
Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

Well Number MW-3D **Total Depth** 140.71' (from grade)
Surface Elev. 152.6' **Depth to Water** 89.84'
Screen: Dia. 2" **Length** 10' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 130' **Type** PVC

Drilling Co. ADT, Inc. **Drilling Method** Hollow Stem Auger
Driller Rich Beauman **Log By** Curt Buyum **Date** 10/3/91



Notes: Developed on 10/4/91 using the Geoguard pneumatic pump for 66 minutes (31 gals. purged). Unable to obtain accurate blow counts for spoons taken from below 90' (NR) as down-hole hammer was used.



Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0					0~13.5': FM SAND-lt brown to tan; little silt; trace to fm gravel; trace pebbles.
5		0.0	-,40, 47,52	20	
10		0.0	17,15, 17,21	18	
15		0.0	5,7,21, 31	1	13.5~91': FC SAND-white to lt tan to tan to orange-tan; trace to little to some fm gravel; trace to little pebbles; trace silt.
20		0.0	5,-,8, 11	16	
25		0.0	5,6,7, 9	24	
30		0.0	5,11, 9,11	18	
35		0.0	5,6,9, 12	18	
40		0.0	4,6,10, 6	20	
45		0.0	7,12, 17,15	18	
50		0.0	6,10, 11,13	18	
55		0.0	12,16, 15,14	16	
60		0.0	5,11, 12,14	24	
65					
70		0.0	5,7,7, 9	18	

WELL NUMBER MW-3D

Depth (ft)	OVA (ppm)	Blows /6 in.	Recov. (in.)
75			
80	0.0	7,10, 15,15	18
85			
90	0.0	5,8,11, 16	14
95			
100	0.0	NR	6
105			
110	0.0	NR	16
115			
120	0.0	NR	24
125	0.0	NR	24
130	0.0	NR	18
	0.0	NR	20
135			
	0.0	NR	24
140	0.0	NR	24

Description/Soil Classification (Color, Texture, Structures)

91~96': FM SAND-tan; little silt; trace fm gravel.

96~116': FMC SAND AND FMC GRAVEL-white to yellow to lt tan to tan; trace to little pebbles; trace silt.

116~133': FM SAND-tan; trace to little silt; trace gravel.

133~140': FMC SAND-tan; little to some fm gravel; trace to little silt; trace pebbles.

Well Construction

Screen set 130.71-140.71' below grade.
Sand pack set 122-140.71' below grade (includes 2' of choke).
Bentonite seal (as volclay slurry) to 87'.
Grout to surface.
Well finished at grade with flush-mounted curb box set in cement.

Key

▨ =grout
■ =bentonite
▒ =sand pack
☰ =screen zone
≋ =cement

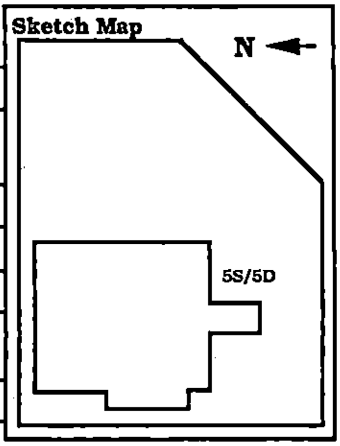
ERM-NORTHEAST

DRILLING LOG

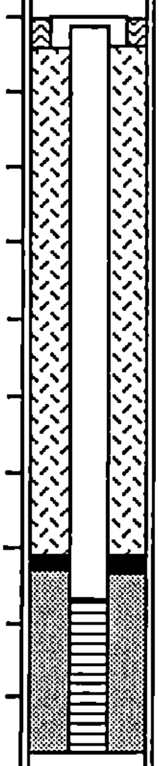
Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

Well Number MW-5S **Total Depth** 98.31' (from grade)
Surface Elev. 150.4' **Depth to Water** 88'
Screen: Dia. 2" **Length** 20' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 78.02' **Type** PVC

Drilling Co. Land, Air, Water **Drilling Method** Hollow Stem Auger
Driller Carl Pederson **Log By** Curt Buyum **Date** 8/29/91



Notes:
Developed on 10/3/91 using the Geoguard pneumatic pump for 46 minutes (32 glas. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0 10 20 30 40 50 60 70 80 90 100					For geologic information, see log for MW-5D. Well Construction Screen set 78.71-98.71' below grade. Sand pack seT 75.5-98.71' below grade (includes 1' of choke). Bentonite seal set 73.5-75.5' below grade. Grout to surface. Well finished at grade with flush-mounted curb box set in cement. Key ▨ =grout ■ =bentonite ▒ =sand pack ☰ =screen zone ≋ =cement

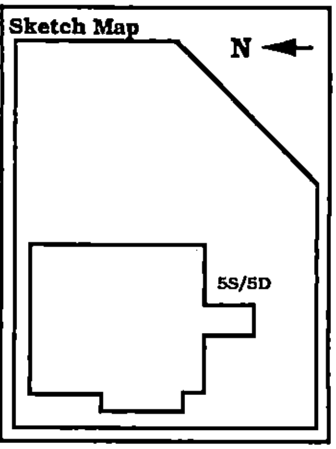
ERM-NORTHEAST

DRILLING LOG

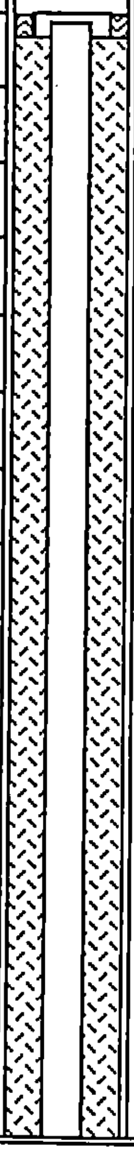
Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

Well Number MW-5D **Total Depth** 140.29' (from grade)
Surface Elev. 150.5' **Depth to Water** 87.69'
Screen: Dia. 2" **Length** 10' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 129.60' **Type** PVC

Drilling Co. ADT, Inc. **Drilling Method** Hollow Stem Auger
Driller Rich Beauman **Log By** Curt Buyum **Date** 9/18,19/91



Notes:
Developed on 10/8/91 using the Geoguard pneumatic pump for 90 minutes (69 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0					
5					
10					For geology from 0-30' see log for S-FSDS-3.
15					
20					
25					
30		0.0	10,12, 9,15	10	30~40': FM SAND-tan to orange-tan; trace to little fm gravel; trace silt.
35		0.0	9,11, 14,13	1	
40		0.0	8,9,14, 17	10	40-45': FC SAND-tan; little fm gravel; trace silt.
45		0.0	11,11, 16,21	8	45~77.5': FM SAND-tan to orange-tan to orange; trace to some fm gravel; trace silt; occassional layers of coarse sand.
50		0.0	50,ref	2	
55		0.0	9,10, 17,13	9	
60		0.0	12,15, 19,22	8	
65		0.0	9,18, 17,23	9	
70		0.0	13,19, 18,21	12	

ERM-NORTHEAST **DRILLING LOG**

WELL NUMBER MW-5D

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)
75		0.0	12,15 16,17	8
80		1.0	14,13, 21,24	10
85		1.0	7,8,14, 16	8
90		206.0	6,8,11, 15	8
95		>1000	5,8,11, 17	6
100				
105				
110				
115				
120				
125				
130				
135				
140				

Description/Soil Classification (Color, Texture, Structures)

77.5-96': FC SAND-tan to yellow-tan;litle to some fm gravel; trace silt; occassional 2" layers of fm sand.

For geology to 140' see log for MW-3D, 7D or 8D.

Well Construction

Screen set 130.29-140.29' below grade.
Sand pack set 123-140.29' below grade (includes 2' of choke).
Bentonite seal (as volclay slurry) to 86'.
Grout to surface.
Well finished at grade with flush-mounted curb box set in cement.

Key

▧ =grout
■ =bentonite
▒ =sand pack
☰ =screen zone
≋ =cement

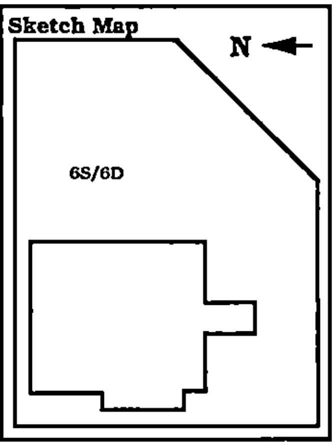
ERM-NORTHEAST

DRILLING LOG

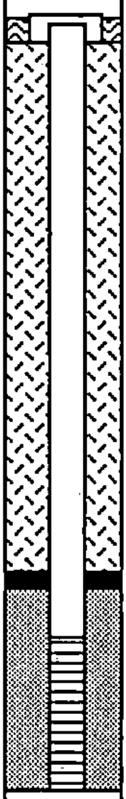
Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

Well Number MW-6S **Total Depth** 101.32' (from grade)
Surface Elev. 153.3' **Depth to Water** 90.5'
Screen: Dia. 2" **Length** 20' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 80.97' **Type** PVC

Drilling Co. Land, Air, Water **Drilling Method** Hollow Stem Auger
Driller Carl Pederson **Log By** Curt Buyum **Date** 8/27/91



Notes:
Developed on 10/2/91 using the Geoguard pneumatic pump for 45 minutes (24 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0 10 20 30 40 50 60 70 80 90 100					For geologic information see log for MW-6D. Well Construction Screen set 81.32-101.32' below grade. Sand pack set 75.5-101.32' below grade (includes 1' of choke). Bentonite seal set 74.5-76.5' below grade. Grout to surface. Well finished at grade with flush-mounted curb box set in cement. Key ▨ =grout ■ =bentonite ▒ =sand pack ☰ =screen zone ≋ =cement

ERM-NORTHEAST

DRILLING LOG

Project Gibson Chemical & Oil **Client** NYSDEC

Location Commack, NY **W. O. Number** 164.007

Well Number MW-6D **Total Depth** 140.35' (from grade)

Surface Elev. 153.2 **Depth to Water** 90.63'

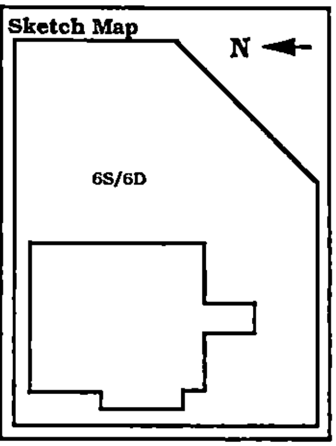
Screen: Dia. 2" **Length** 10' **Slot Size** 0.010'

Casing: Dia. 2" **Length** 129.95' **Type** PVC

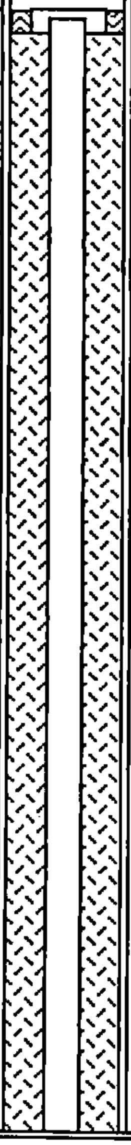
Drilling Co. ADT, Inc. **Drilling Method** Hollow Stem Auger

Driller Rich Beauman **Log By** Curt Buyum **Date** 9/18/91

Sketch Map



Notes:
Developed on 10/2/91 using the Geoguard pneumatic pump for 40 minutes (30 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0					0~37.5': FM SAND-brown to tan to orange-tan, grey staining throughout; trace to some fm gravel; occassional cobbles; occassional 8-14" layers of fc sand.
5		0.0	-,24, 36,50	10	
10		0.0	9,17, 21,29	11	
15		0.0	11,15, 23,28	10	
20		0.0	7,12, 18,24	10	
25		0.0	9,10, 14,16	10	
30		2.0	12,14, 15,23	9	
35		0.0	7,9,14, 19	8	37.5~77.5': FC SAND-white to tan to orange-tan; trace to some fm gravel; trace silt.
40		0.0	6,7,10, 16	8	
45		0.0	8,14, 13,16	7	
50		0.0	12,11, 18,21	6	
55		0.0	13,14, 17,12	10	
60		0.0	8,11, 14,17	12	
65		1.0	7,12, 12,19	9	
70		0.0	14,11, 12,11	8	

ERM-NORTHEAST

DRILLING LOG

WELL NUMBER MW-6D

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
75		0.0	10,10, 14,13	12	77.5-101': FM SAND-tan to orange-tan to orange; trace to little fm gravel; trace silt; occassinal 2-6" layers of fc sand.
80		1.0	-,-,-,-	11	
85		0.0	14,13, 15,14	12	For geology to 140' see log for MW-3D, 7D or 8D.
90		1.0	8,10, 13,11	16	Well Construction Screen set 130.35-140.35' below grade. Sand pack set 121-140.35' below grade (includes 2' of choke). Bentonite seal (as volclay slurry) to 88'. Grout to surface. Well finished at grade with flush-mounted curb box set in cement.
95		0.0	6,9,8, 12	10	
100		12.0	-,-,-,-	12	
105					
110					Key ▨ =grout ■ =bentonite ▒ =sand pack ☰ =screen zone ≋ =cement
115					
120					
125					
130					
135					
140					

ERM-NORTHEAST

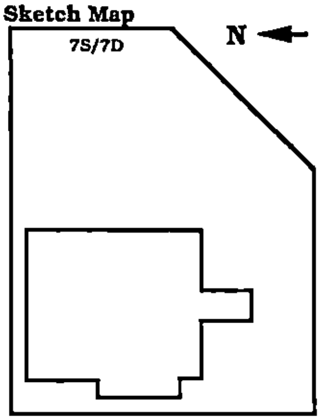
DRILLING LOG

Project Gibson Chemical & Oil
Client NYSDEC
Location Commack, NY
W. O. Number 164.007

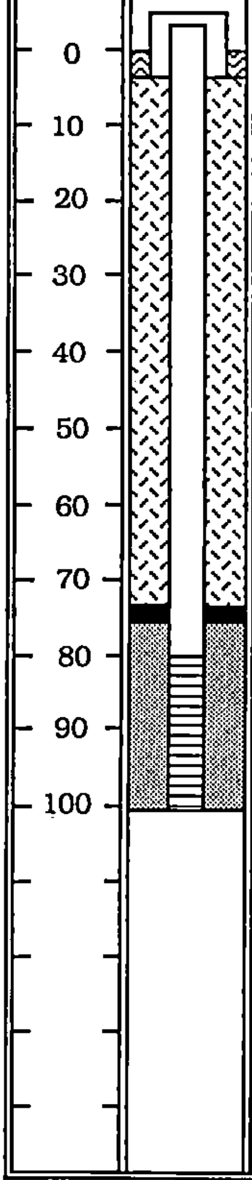
Well Number MW-7S
Total Depth 100.54' (from grade)
Surface Elev. 152.3'
Depth to Water 90.0'
Screen: Dia. 2"
Length 20'
Slot Size 0.010'
Casing: Dia. 2"
Length 82.76'
Type PVC

Drilling Co. Land, Air, Water
Drilling Method Hollow Stem Auger
Driller Carl Pederson
Log By Curt Buyum
Date 8/26/91

Sketch Map



Notes:
Developed on 10/1/91 using the Geoguard pneumatic pump for 45 minutes (18 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
					For geologic information, see log for MW-7D. Well Construction Screen set 80.54-100.54' below grade. Sand pack set 73.5-100.54' below grade (includes 1' of choke). Bentonite seal set 71.5-73.5' below grade. Grout to surface. Well finished with standpipe set in cement. Key ▨ =grout ■ =bentonite ▒ =sand pack ☰ =screen zone ≋ =cement

ERM-NORTHEAST

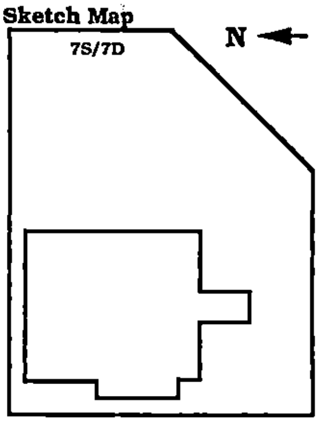
DRILLING LOG

Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

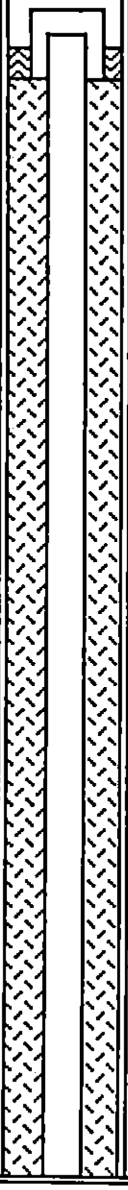
Well Number MW-7D **Total Depth** 142.15' (from grade)
Surface Elev. 152.5' **Depth to Water** 91.87'
Screen: Dia. 2" **Length** 10' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 133.69' **Type** PVC

Drilling Co. ADT, Inc. **Drilling Method** Hollow Stem Auger
Driller Rich Beauman **Log By** Curt Buyum **Date** 10/16,17/91

Sketch Map



Notes: Developed on 10/1/91 using the Geoguard pneumatic pump for 53 minutes (33 gals. purged). Unable to obtain accurate blow counts for spoons taken from below 90' (NR) as down-hole hammer was used.

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0					0~22.5': FM SAND-lt tan to tan to orange-tan, brown to grey-brown at surface; some to trace silt; little to no clay (both silt and clay decrease with depth); trace to little fm gravel; trace pebbles.
5		0.0	3,2,4,4	6	
10		0.0	3,4,4,6	16	
15		0.0	5,9,12,16	8	
20		0.0	10,14,15,18	16	22.5~50': FC SAND-lt tan to tan; some fm gravel; trace silt; trace pebbles.
25		0.0	11,12,18,22	14	
30		0.0	10,14,15,18	10	
35		0.0	12,14,17,23	10	
40		0.0	11,12,15,18	8	
45		0.0	9,14,15,19	7	
50		0.0	10,13,15,14	8	50~77.5': FM SAND-tan to lt tan to white; trace to little fm gravel; trace silt; trace pebbles.
55		0.0	17,19,23,22	11	
60		0.0	9,12,14,15	10	
65		0.0	15,23,25,28	8	
70		0.0	14,18,17,22	10	

WELL NUMBER MW-7D

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)
75		0.0	12,15,21,24	8
80		0.0	7,10,15,15	18
85		1.0	6,9,13,17	12
90		1.0	5,8,11,16	14
95		0.0	NR	8
100		2.0	NR	4
105		90.0	NR	18
110		58.0	NR	12
115		20.0	NR	8
120		12.0	NR	24
125		16.0	NR	18
130		14.0	NR	24
		13.0	NR	10
135		22.0	NR	24
140		16.0	NR	6

Description/Soil Classification (Color, Texture, Structures)

77.5-140': FC SAND-white to lt tan to yellow-tan to grey; little to some fm gravel; trace to little pebbles; trace silt.

Well Construction

Screen set 132.15-142.15' below grade.
Sand pack set 121-142.15' below grade (includes 2' of choke).
Bentonite seal (as volclay slurry) to 90'.
Grout to surface.
Well finished with stand pipe set in cement.

Key

▨ =grout
■ =bentonite
▒ =sand pack
☰ =screen zone
▩ =cement

ERM-NORTHEAST

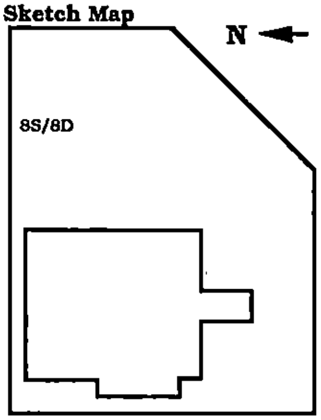
DRILLING LOG

Project Gibson Chemical & Oil **Client** NYSDEC
Location Commack, NY **W. O. Number** 164.007

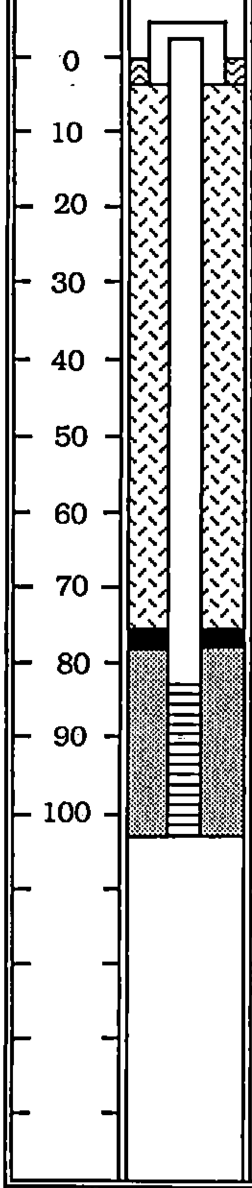
Well Number MW-8S **Total Depth** 101.57' (from grade)
Surface Elev. 153.6' **Depth to Water** 94.30
Screen: Dia. 2" **Length** 20' **Slot Size** 0.010'
Casing: Dia. 2" **Length** 84.23' **Type** PVC

Drilling Co. Land, Air, Water **Drilling Method** Hollow Stem Auger
Driller Carl Pederson **Log By** Curt Buyum **Date** 8/20/91

Sketch Map

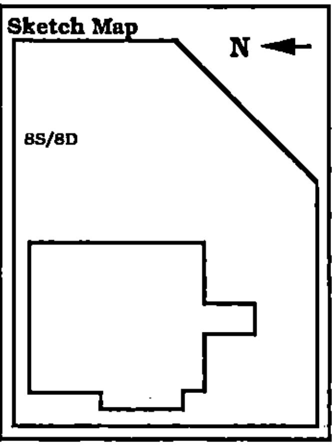


Notes:
Developed on 10/2/91 using the Geoguard pneumatic pump for 45 minutes (20 gals. purged).

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
					For geologic information, see log for MW-8D. Well Construction Screen set 81.57-101.57' below grade. Sand pack set 79-101.57 below grade (includes 1' of choke). Bentonite seal set 77-79' below grade. Grout to surface. Well completed with standpipe set in cement. Key ▨=grout ■=bentonite ▒=sand pack ☰=screen zone ▩=cement

ERM-NORTHEAST

DRILLING LOG


Sketch Map

Project Gibson Chemical & Oil **Client** NYSDEC

Location Commack, NY **W. O. Number** 164.007

Well Number MW-8D **Total Depth** 140.14' (from grade)

Surface Elev. 153.4' **Depth to Water** 89.98'

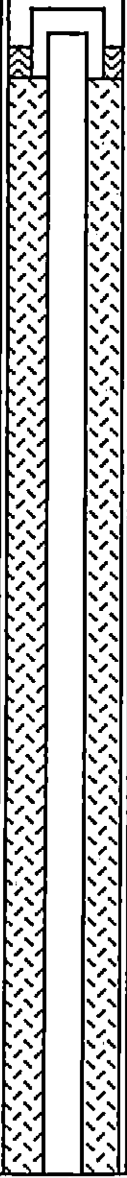
Screen: Dia. 2" **Length** 10' **Slot Size** 0.010'

Casing: Dia. 2" **Length** 131.90' **Type** PVC

Drilling Co. ADT, Inc. **Drilling Method** Hollow Stem Auger

Driller Rich Beauman **Log By** Curt Buyum **Date** 10/12,13/91

Notes: Developed on 10/1/91 using the Geoguard pneumatic pump for 50 minutes (31gals. purged). Unable to obtain accurate blow counts for spoons taken from below 90' (NR) as down-hole hammer was used.

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
0					0~42.5': FM SAND-white to yellow to tan to brown; trace to little fm gravel; trace silt.
5		0.5	25,40, 45,50	14	
10		0.0	10,22, 32,37	20	
15		0.0	7,12, 12,17	11	
20		0.0	9,17, 14,12	12	
25		0.0	7,9,11, 12	12	
30		0.0	20,20, 25,26	11	
35		0.0	9,18, 29,33	10	
40		0.0	8,12, 14,14	13	42.5~47.5': FC SAND-white to brown; little fm gravel; trace silt.
45		0.0	15,20, 30,25	13	47.5~82.5': FM SAND-tan to lt tan; trace to little fm gravel; trace silt.
50		0.0	10,20, 20,24	8	
55		0.5	13,13, 22,25	17	
60		0.5	-,-,24, 22	19	
65		0.0	17,17, 18,17	16	
70		0.0	14,14, 18,23	-	

ERM-NORTHEAST **DRILLING LOG**

WELL NUMBER MW-8D

Depth (ft)	Well Constr.	OVA (ppm)	Blows /6 in.	Recov. (in.)	Description/Soil Classification (Color, Texture, Structures)
75		0.0	6,13, 22,23	12	
80		0.0	12,14, 19,22	-	
85		0.0	14,22, 27,29	12	87.5~108.5': FM SAND-tan to lt tan to white to brown; trace to some fm gravel; trace silt.
90		2.5	8,13, 27,23	12	
95					
100			NR	24	
105			NR	14	108.5~118.5': FINE SAND-lt brown; some silt; trace to little fm gravel.
110			NR	24	
115			NR	16	118.5~127.5': FM SAND-lt grey; some fmc gravel; trace silt.
120			NR	7	
125			NR	18	
130			NR	6	127.5-140': FINE SAND-lt grey; some silt.
			NR	18	
135			NR	20	
140			NR	6	

Well Construction

Screen set 130.14-140.14' below grade.
Sand pack set 121-140.14' below grade (includes 2' of choke).
Bentonite seal (as volclay slurry) to 90'.
Grout to surface.
Well finished with standpipe set in cement

Key

▨ =grout
■ =bentonite
▒ =sand pack
☰ =screen zone
≋ =cement

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-UTF-2 Total Depth 29' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

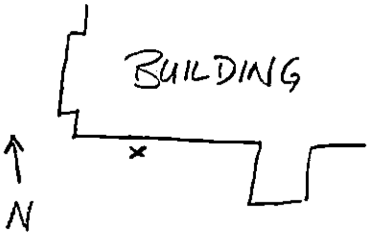
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/1/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0			1	12,18, 28,32	16	0.0	0-29' FINE TO MEDIUM SAND - tan to orange to brown to gray (stained); no to little clay; trace to some silt; no to some coarse sand; no to little pebbles; no to some fine to medium or fine to coarse gravel; no to trace cobbles; moist 4-29'; moderate odor 9-11'; strong odor 11-29'; 18" layer of fine to coarse gravel, some fine to coarse sand at 12'
5			2	8,6, 6,5	2	0.0	
10			3	2,3, 2,2	8	1.6	
			4	3,5, 9,11	18	24	
			5	5,7, 8,7	17	34	
15			6	4,4 6,12	14	66	
			7	7,13 12,11	18	26	
20			8	8,9, 18,14	20	136	
			9	14,13 15,17	22	146	
			10	13,22 24,26	22	176	
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-UTF-2 Total Depth 29' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/1/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25			11	17,27,	23	236	
				33,21			
			12	20,23,	23	396	
				30,35			
30							
35							
40							
45							
50							

Page 2 of 2

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-UTF-3 Total Depth 29' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

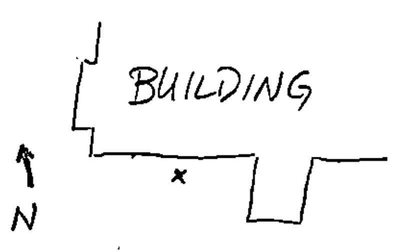
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/31/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	7,12,	20	0.0	0-~7.5' FINE TO MEDIUM SAND -
				13,16			brown to orange-tan; trace clay; trace to little silt; no to trace pebbles; little fine to medium gravel; moist 4 - ~7.5'.
5			2	7,7,	12	0.1	
				6,3			
							~7.5-11' FINE SAND AND SILT - gray-brown; some clay; little to some fine to medium gravel;
10			3	3,3,	12	15	trace pebbles; trace cobbles;
				4,4			occasional wood pieces; very moist throughout; mild odor.
			4	4,5,	12	16	
				5,4			
			5	4,6	16	21	
15				10,11			11-18' FINE TO COARSE SAND - tan to orange-tan to gray (stained);
			6	11,18,	14	90	trace silt; no to little pebbles;
				17,17			little to some fine to medium gravel; moist throughout;
			7	10,11,	18	180	moderate odor 11-15'; moderate
				7,7			to strong odor 15-18'.
20			8	9,12,	18	>1000	
				13,19			
			9	10,10	18	290	
				13,15			
			10	13, 14	18	650	18-29' FINE TO MEDIUM SAND - tan
				20,22			to gray (stained); trace silt;
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-UTF-3 Total Depth 29' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/31/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25							
			11	10,13,	20	430	some to no pebbles; trace to
				14,22			little fine to medium gravel;
			12	15,21	22	290	occasional 4-18" layers of fine to coarse sand; moist throughout
				30,23			strong odor 18-27'; moderate odor 27-29'.
30							
35							
40							
45							
50							

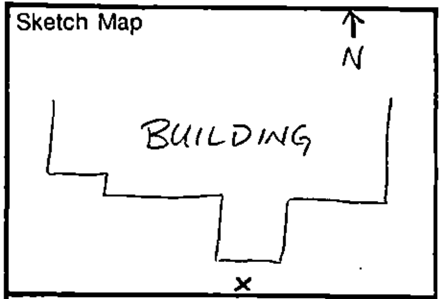
Page 2 of 2

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-FSDS-2 Total Depth 30' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/29 /91

Sketch Map



Notes
28-30' sample sent for analysis

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	42,28 20,15	18	0.0	0 - ~7.5' FINE TO MEDIUM SAND - brown to tan to orange-tan; trace silt; no to some coarse sand; trace to some pebbles; little to some fine to medium or fine to coarse gravel.
5			2	10,12 22,20	14	0.0	
							~ 7.5 - 16' FINE TO COARSE SAND AND FINE TO COARSE GRAVEL - tan to orange-tan; trace silt; trace pebbles; most 10-16'.
10			3	6,24 26,26	18	0.0	
							16 - 30' FINE TO MEDIUM SAND - tan; stained gray 16.5-20' and 22 - 28'; trace silt; no to some coarse sand; no to little pebbles; trace to some fine to medium or fine to coarse gravel; occasional 12-18" layers of fine to coarse sand; occasional thin bands of mustard colored fine to medium sand; occasional 2-6" layers of fine to coarse sand and fine to
15			4	13,19, 20,18	19	0.0	
			5	14,24 20,24	18	7.8	
20			6	6,12, 10,23	18	10	
			7	13,26 27,29	20	-	
			8	11,19 24,31	20	52	
25			9	20,30 30,32	20	30	

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-FSDS-2 Total Depth 30' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/29/91

Sketch Map

Notes

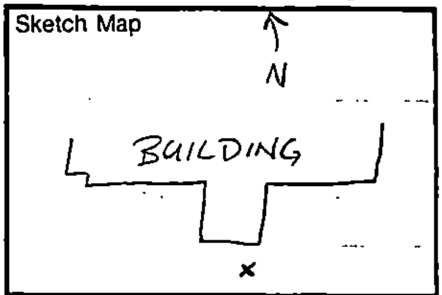
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25							
			10	17,20, 24,34	20	24	medium gravel; alternating bands of light gray and dark gray fine to medium sand
			11	22,20, 17,20	20	88	28 - 30'; moderate odor 16.5 - 20' and 22 - 28'; slight to moderate odor 20-22'; moderate to strong odor 28-30'; moist throughout
30							
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-FSDS-3 Total Depth 30' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/30/91

Sketch Map



Notes
26-28' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0			1	18,18, 11,29	16	0.0	0 - ~3' SILT AND CLAY- gray-green to orange-brown; trace very fine sand; moist 1.5 - ~3'.
5			2	13,32 34,38	12	0.4	~3 - ~12.5' FINE TO COARSE SAND - tan; trace silt; little pebbles; some fine or fine to coarse gravel; occasional cobbles; moist 9-~12.5'.
10			3	14,22 27,44	14	0.2	~12.5 - 30' FINE TO MEDIUM SAND - tan to orange-tan to white; trace silt; no to little coarse sand; trace to little pebbles; little to some fine to medium gravel; moist 16-30'.
15			4	5,12 14,19	16	0.0	
			5	13,15 21,23	20	0.0	
			6	8,16, 16,19	18	0.4	
20			7	16,17 17,16	20	0.8	
			8	9,12 15,16	16	0.7	
25			9	15,22 31,30	22	1.4	

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-FSDS-3 Total Depth 30' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/30/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25							
			10	11,22 27,31	14	2.0	
			11	20,28 28,30	10	1.2	
30							
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-DS#2-1 Total Depth 10' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

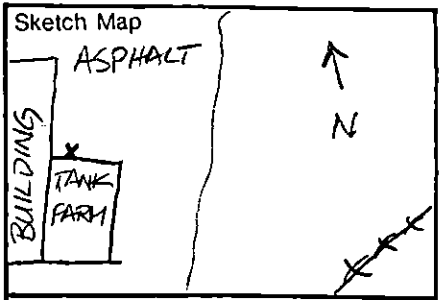
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/12/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	13,11	18	4	0-3' FINE SAND AND SILT - brown to orange-tan; some clay; trace pebbles; little fine to medium gravel; moist 1-3'; grades to unit below.
				6,10			
			2	5,10	22	0.0	
				25,28			
			3	25,50,	12	0.0	
5				REF			
			4	25,50,	20	8	3-10' FINE TO MEDIUM SAND - tan to orange-tan; trace silt; trace to little pebbles; trace to some fine to medium gravel; occasional cobbles; moist throughout.
				45,39			
			5	15,20	16	4	
				25,26			
10							
15							
20							
25							

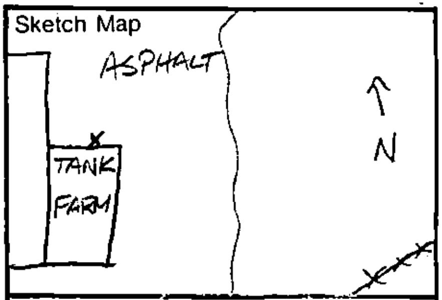
Page 1 of 1

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-DS#2-2 Total Depth 10' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/12/91

Sketch Map



Notes

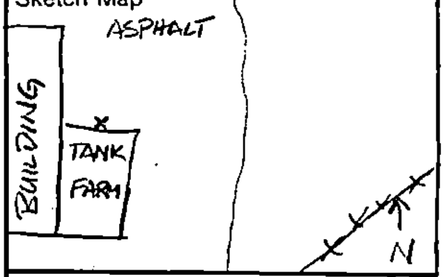
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	26,17 15,13	16	4	0-1.5' FINE SAND AND SILT - brown-gray; some clay; trace pebbles; little fine to medium gravel.
			2	17,31 50,REF	12	6	
			3	25,40 50,50	22	3	
5							1.5-10' FINE TO MEDIUM SAND - brown to orange-tan; no to little clay; trace to some silt; no to little pebbles; trace to some fine to medium or fine to coarse gravel; layer of fine to coarse sand 4-6'; moist 2-10'
			4	21,36 55,39	20	5	
			5	15,20 25,25	20	3	
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-TF-1 Total Depth 32' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/12/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							0-0.5' Asphalt
			1	19,15,	14	6	
				13,10			0.5-~4' FINE SAND AND SILT - brown; stained gray 0.5-1'; little clay; trace pebbles; trace fine to medium gravel; moist throughout; moderate petroleum odor throughout.
5							
			2	23,33,	20	4	
				40,40			
10							~4-32' FINE TO COARSE SAND - tan to brown to orange-tan; stained gray 20-27'; trace silt; trace to little pebbles; little to some fine to medium or fine to coarse gravel; no to trace cobbles; moderate odor to 7'; moderate to strong odor 20-32'; moist throughout; occasional 12" layers of fine to medium sand.
			3	14,40	12	0.0	
				50,R F			
15							
			4	10,13	20	3	
				13,14			
20							
			5	5,8,	18	34	
				8,10			
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-TF-1 Total Depth 32' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/12/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25							
			6	17,17	20	160	
				25,28			
30							
			7	13,13	20	100	
				13,15			
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-TF-2 Total Depth 32' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

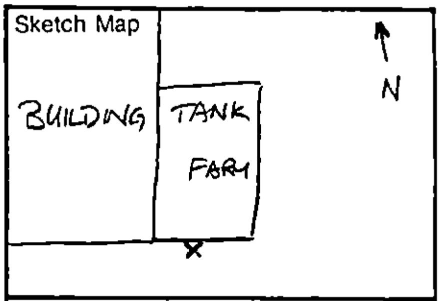
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/7/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	8,7 6,6	18	0.0	0-~3.5' FINE SAND AND SILT - brown to gray (stained); little clay; trace pebbles; little fine to coarse gravel.
5							
			2	28,35 59,46	20	0.0	~3.5-32' FINE TO MEDIUM SAND - tan to orange-tan to brown; trace to little silt; trace to little pebbles; little to some fine to medium or fine to coarse gravel; moist 10-32'.
10							
			3	20,31 46,32	20	1.0	
15							
			4	12,16 16,20	20	1.2	
20							
			5	13,14 15,13	22	0.8	
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-TF-2 Total Depth 32' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/7/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25			6	13,16 21,26	18	1.0	
30			7	17,25 28,30	24	2.4	
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-SDS-1 Total Depth 21' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

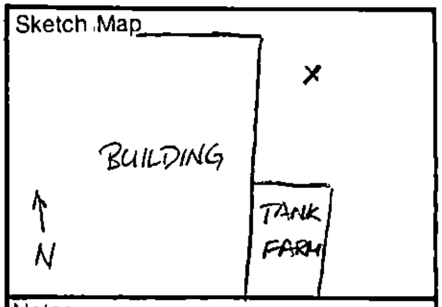
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/9/91

Sketch Map



Notes

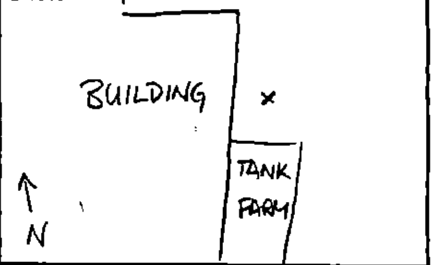
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							0-15' DRYWELL
							15-21' FINE TO COARSE SAND - tan to orange-tan; stained black 15-18'; no to trace clay; trace to little silt; little to some fine to medium gravel.
5							
10							
15							
			1	3,2 2,3	12	268	
			2	8,8 14,22	18	94	
			3	12,17 20,19	12	4	
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-SDS-2 Total Depth 21' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/9/91

Sketch Map



Notes 15-17' sample sent for analysis.

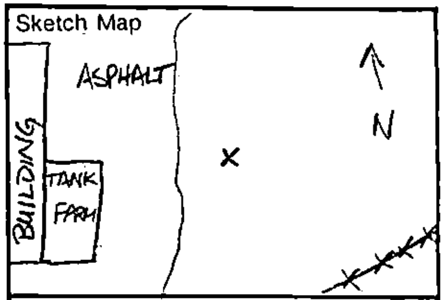
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							0-15' DRYWELL
							15-17.5' FINE TO COARSE SAND - black (stained); trace clay; some silt.
5							17.5-21' FINE TO MEDIUM SAND - tan to orange-tan; stained gray 17.5-18' and 19-20.5'; no to trace clay; trace silt; little fine to medium gravel.
10							
15							
			1	8,11 8,5	14	790	
			2	5,5 8,14	12	84	
			3	18,23 28,23	24	40	
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-DS#1-1 Total Depth 20' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/15/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	12,21, 40,35	16	8	0-3' FINE SAND AND SILT - brown to gray-brown; some clay; trace to little pebbles; little fine to medium gravel; moist, moderate odor throughout.
			2	12,15, 20,25	18	14	
5			3	15,20 30,30	0	-	
			4	15,20, 30,37	20	1	3-20' FINE TO COARSE SAND - brown to tan to orange-tan; trace silt; trace to little pebbles; little to some fine to medium or fine to coarse gravel; moist throughout.
			5	20,30 45,37	22	2	
10							
			6	20,25 37,42	12	1	
			7	40,60, 65,REF	14	1	
15			8	21,25, 25,22	12	0.0	
			9	25,25 35,20	18	0.0	
			10	8,11, 15,20	18	0.0	
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-P-1 Total Depth 2' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

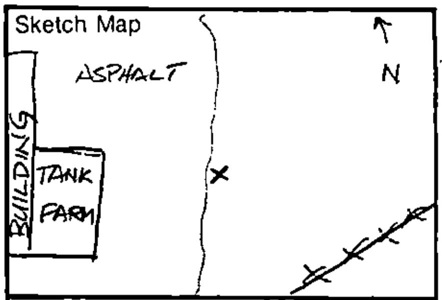
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/9/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	18,22, 22,18	18	290	0-0.5' FINE TO MEDIUM SAND - brown; trace clay; little silt; little pebbles; little fine to medium gravel.
5							
							0.5.2' FINE SAND AND SILT - brown to green-brown; little clay; trace pebbles; trace fine gravel.
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-P-2 Total Depth 2' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

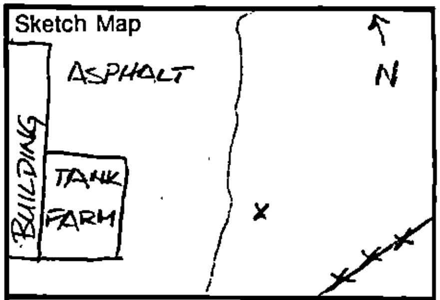
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/9/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	23,26, 11,14	14	90	0-0.5' FINE TO COARSE SAND - brown; little pebbles; little fine to medium gravel.
5							0.5-2' SILT AND CLAY - brown to gray-brown; little fine to medium sand.
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-SP-1 Total Depth 10' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

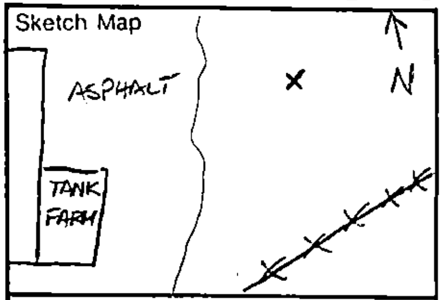
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/15/91

Sketch Map



Notes

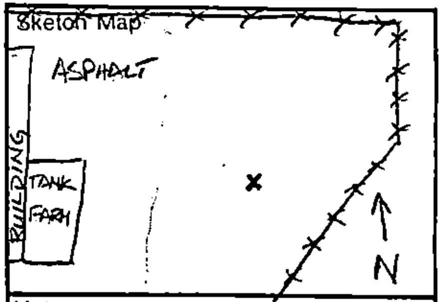
0-2' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	10,17, 17,20	18	0.0	0-3' FINE SAND AND SILT - brown; slight staining 1-15'; some clay; little pebbles; little fine to medium gravel; moist throughout; moderate petroleum odor 0-2'.
			2	20,26, 38,42	14	0.0	
5			3	50,54, 50,REF	4 ---	0.0	
			4	25,38, 42,50	20	3	3-10' FINE TO MEDIUM SAND - tan to brown; trace silt; trace to little pebbles; little to some fine to medium gravel; moist throughout.
			5	12,48, 50,REF	12	0.0	
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Sketch Map



Notes

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-UL-1 Total Depth 10' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/14-15/91

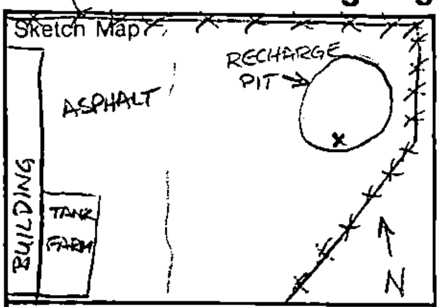
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	12,14, 16,20	18	6	0-3' FINE SAND AND SILT - brown to gray (stained); some clay; little pebbles; little fine to medium gravel; moist, moderate petroleum odor throughout.
			2	15,23	20	18	
				30,42			
5			3	40,50	12	0.4	
				REF	—		
			4	30,40	18	0.0	
				50,61			3-10' FINE TO MEDIUM SAND - tan to orange-tan to brown; trace silt; trace to little pebbles; trace to little fine to medium gravel; moist throughout.
			5	40,50,	20	2	
10				65,75			
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-RP Total Depth 2' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/13/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	-	18	290	0-2' FINE TO MEDIUM SAND - gray-brown; little silt; little pebbles; little fine to medium gravel; moderate to strong odor; wet throughout.
5							

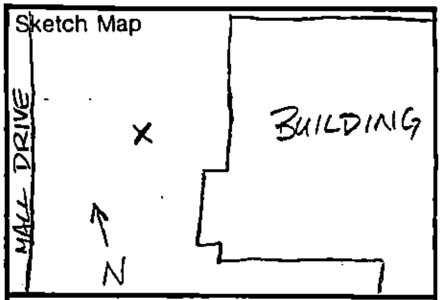
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number W-FT Total Depth 20 Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/6/91

Sketch Map



Notes

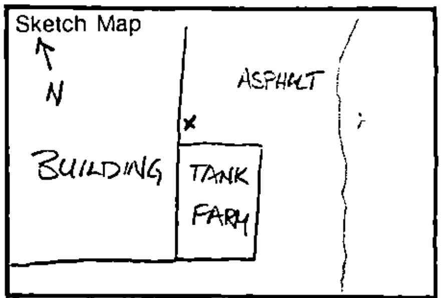
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	5,3,	18	0.0	0-16' FINE TO MEDIUM SAND - brown to orange-tan to tan; no to little clay; trace to little silt; no to trace pebbles; no to some fine to medium or fine to coarse gravel; occasional roots 0-8'; moist 7-16'.
				3,2			
			2	3,1	18	0.0	
				2,1			
5			3	1,2,	16	0.0	
				2,3			
			4	2,1	6	0.0	
				2,5			
			5	2,3,	12	0.2	16-20' FINE TO COARSE SAND AND FINE TO COARSE GRAVEL - brown to tan; trace silt; little pebbles; moist throughout.
10				3,4			
			6	4,5,	19	0.0	
				10,18			
			7	10,12,	20	0.4	
				21,12			
15			8	10,12,	18	0.0	
				14,10			
			9	10,12,	20	0.0	
				14,10			
			10	7,12,	22	0.0	
20				15,25			
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number E-DS#2-3 Total Depth 10' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 8/13/91

Sketch Map



Notes 0-2' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	6,10 12,9	16	8	0-3.5' FINE SAND AND SILT - gray to gray-brown to brown; some clay; trace pebbles; trace to little fine to medium gravel; occas. wood pieces and roots; moist, moderate petroleum odor throughout.
			2	9,9 17,50	20	22	
5			3	37,50 50,REF	14	1	
			4	23,40 50,50	18	2	3.5-10' FINE TO MEDIUM SAND - tan to brown; trace to little silt; trace pebbles; trace to some fine to medium gravel; no to trace cobbles; moist throughout
			5	27,20 23,20	18	0.0	
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-DS#2-4 Total Depth 10' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

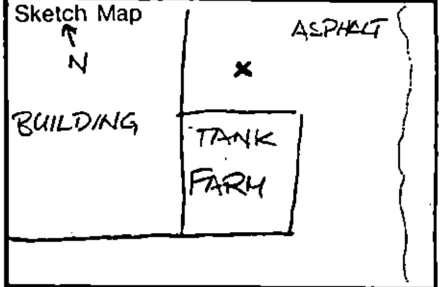
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/13/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	20,10 12,13	18	3	0-2.5' FINE SAND AND SILT - brown-gray; some clay; little pebbles; little fine to medium gravel; moderate odor throughout; slightly moist throughout.
			2	18,30 32,32	19	0.0	
5			3	35,36 35,38	20	5	
			4	25,45, 40,35	20	5	
			5	25,35 45,45	16	0.0	2.5-10' FINE TO MEDIUM SAND - brown to tan to orange-tan; trace silt; little pebbles; little to some fine to coarse gravel; no to trace cobbles; moist throughout.
10							
15							
20							
25							

Page 1 of 1

Environmental Resources Management **Drilling Log**

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-DS#1-2 Total Depth 20' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

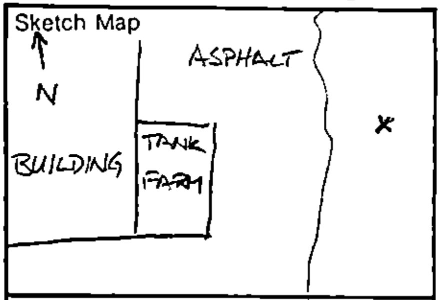
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/14/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	7,10, 10,12	20	4	0-3' FINE SAND AND SILT - brown; some clay; little pebbles; some fine to medium gravel; occasional wood pieces; moist, moderate odor throughout.
			2	12,12 20,25	18	18	
5			3	30,35 40,50	22	4	
			4	17,26 37,45	12	2	3-10' FINE TO MEDIUM SAND - tan to orange-tan to brown; trace silt; no to some pebbles; trace to some fine to medium or fine to coarse gravel; no to trace cobbles; moist 5-10'.
			5	48,34 38,32	20	2	
10			6	15,25 35,45	20	4	
			7	20,25 50,50	12	2	
			8	15,28 30,32	20	4	
15							
			9	20,25 40,35	16	0.0	
			10	11,21 27,35	20	2	
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-TS-1 Total Depth 6' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

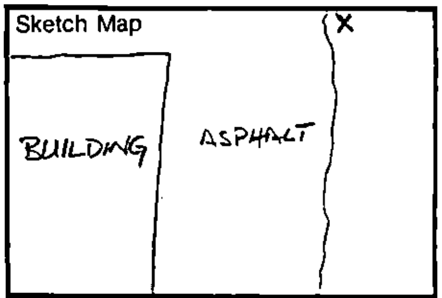
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/6 /91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	6,10	20	0.2	0-6' FINE TO MEDIUM SAND - brown to tan; trace to little silt; trace to little pebbles; little to some fine to coarse gravel; roots 0-0.5'; 18" layer of fine sand and silt, little clay, trace to little pebbles at 0.5'.
				23,25			
			2	25,25,	20	0.2	
				35,37			
5			3	35,50	18	0.6	
				50,REF			
10							
15							
20							
25							

Page 1 of 1

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-TS-2 Total Depth 6' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

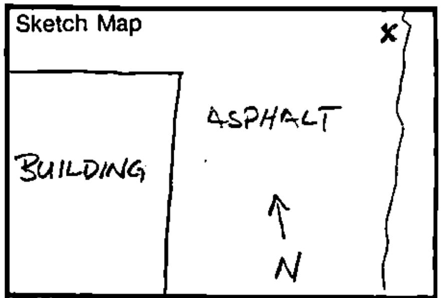
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/6/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	14,18,	16	0.0	0-2' FINE SAND AND SILT - brown; little clay; trace pebbles; trace to little fine to medium gravel.
				21,17			
			2	22,30,	18	0.0	
				38,45			
5			3	38,59	20	0.4	2-6' FINE TO MEDIUM SAND - tan to yellow-tan; trace silt; trace pebbles; trace to some fine to medium gravel.
				67,REF			
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number E-TS-3 Total Depth 6' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

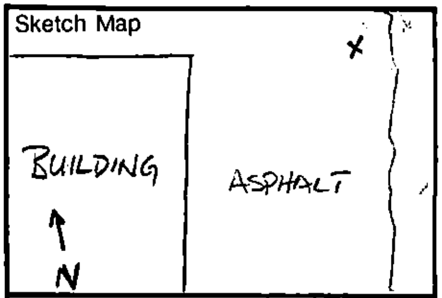
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 8/7/'91

Sketch Map



Notes

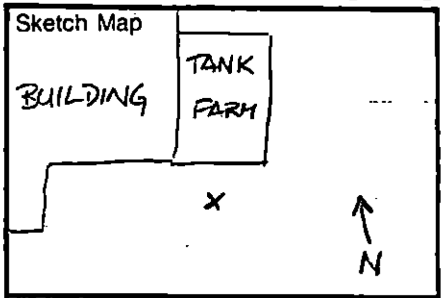
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	17,15,	20	0.0	0-2' FINE SAND AND SILT - brown; little clay; trace pebbles; little fine to medium gravel.
				31,30			
			2	31,30,	17	1.0	
				41,40			
			3	34,50,	18	2.0	2-6' FINE TO MEDIUM SAND - tan; trace silt; trace to little pebbles; trace to little fine medium gravel.
5				56,66			
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-PWT-1 Total Depth 26' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/29/91

Sketch Map



Notes

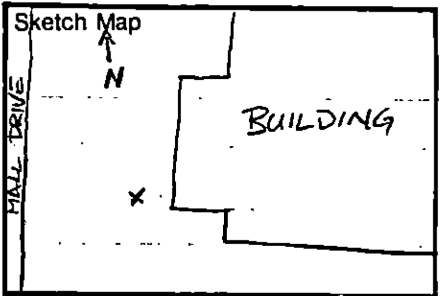
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							0 - ~7.5' FINE TO MEDIUM SAND- tan to light brown; trace silt; trace pebbles; trace to little fine to medium gravel.
5			1	20,70, 80,REF	16	0.0	
							~7.5 -~12.5' FINE TO COARSE SAND - brown to orange-brown to tan; trace silt; little pebbles; some fine to medium gravel.
10			2	22,38, 46,58	23	0.0	
							~12.5 - 26' FINE TO MEDIUM SAND - tan to orange-tan; trace silt; no to some coarse sand; trace to little pebbles; little to some fine to medium gravel.
15			3	9,19 19,22	20	0.0	
20			4	20,25, 26,33	22	0.0	
25			5	-,-, -,-	19	0.0	

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-SS Total Depth 16' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/30/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
							0-10' CESSPOOL
							10-12' FINE TO MEDIUM SAND - black (stained); little silt; little pebbles; some fine to medium gravel; trace cobbles; strong odor.
5							
							12-16' FINE TO COARSE SAND AND FINE TO COARSE GRAVEL - gray (stained); trace silt; little pebbles; strong odor.
10							
			1	9,12, 17,19	4	87.4	
			2	15,27, 27,36	8	135.6	
15			3	25,25 35,40	12	87.4	
20							
25							

Page 1 of 1

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-UTF-1 Total Depth 29' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

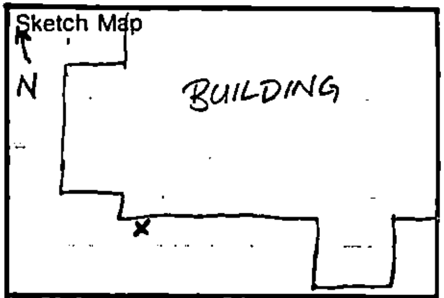
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/31/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	12,25,	16	0.0	0- ~3' FINE SAND - light brown
				32,35			to dark brown; trace clay;
							little silt; little pebbles;
							little fine to medium gravel.
5			2	7,6,	18	0.1	
				4,4			~3-11' FINE SAND AND SILT -
							brown; little clay; little
							pebbles; little to some fine
							to coarse gravel; trace
							cobbles; moist throughout.
10			3	4,5,	14	0.0	
				6,6			
			4	4,5	18	0.0	11-29' FINE TO MEDIUM SAND -
				7,11			tan to orange-tan to light
							brown; trace silt; trace to
			5	9,13	17	0.0	little pebbles; little to
15				14,16			some fine to medium or fine to
			6	13,12	19	0.0	coarse gravel; no to trace
							cobbles; moist throughout;
				13,18			occasional 6-18" layers of
							fine to coarse sand, little
			7	22,26	18	0.0	fine to coarse gravel.
				20,18			
20			8	15,23	20	0.0	
				26,17			
			9	10,16,	22	0.0	
				16,18			
			10	17,20	22	0.0	
25				24,32			

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-UTF-1 Total Depth 29' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/31/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25							
			11	17,20, 25,18	16	1.1	
			12	28,33, 33,35	22	1.6	
30							
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-SL-1 Total Depth 4' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

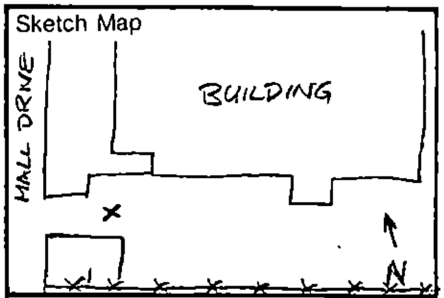
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/24/91

Sketch Map



Notes 0-2' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	132,40 45,35	12	0.0	0-0.5' ASPHALT
			2	30,27 21,25	18	0.0	0.5-1.5' VERY FINE SAND AND SILT - brown; little to some clay; some pebbles.
5							1.5-4' FINE TO MEDIUM SAND - trace clay; trace silt; some coarse sand; little pebbles; little fine to medium gravel.
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-SL-2 Total Depth 4' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

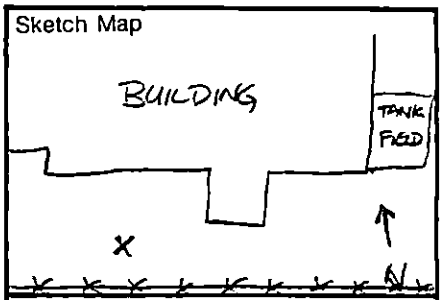
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/23/91

Sketch Map



Notes 0-2' sample sent for TPH analysis

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	37,18 11,10	14	0.2	0-0.5' ASPHALT
			2	6,8 6,6	20	0.0	0.5-4' FINE TO MEDIUM SAND - brown to tan to orange; trace silt; some to no pebbles; trace to little fine to medium gravel.
5							
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-FSDS-1 Total Depth 30' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

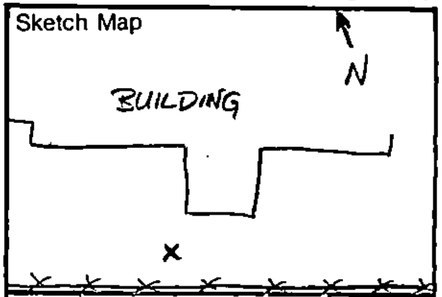
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/24/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	20,21 18,10	16	0.0	0-~7.5' FINE TO MEDIUM SAND TO FINE TO MEDIUM SAND AND SILT - brown to gray; trace to little clay; trace to little pebbles; little to no fine to medium gravel; debris present 5-6'; appears to be fill.
5			2	8,8 7,7	20	2	
							~7.5-30' FINE TO MEDIUM SAND - tan to brown; trace to no clay; trace silt; some coarse sand to 11'; trace to some pebbles; trace to some fine to medium gravel; moist 14-30'; gray (stained) layers 14-16' and 23.5-30'; layers of fine to medium sand and fine to medium gravel at 16-17.5' and 22-23.5'; 16-17.5' zone is gray (stained), 22-23.5' layer is light tan to white.
10			3	3,3, 4,6	18	0.0	
15			4	2,3 6,8	18	0.0	
			5	10,13 18,19	18	2	
			6	3,10 22,21	14	3	
20							
			7	17,17 17,22	20	0	
			8	11,14 32,35	18	20	
25			9	20,20 30,43	22	37	

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-FSDS-1 Total Depth 30' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/24/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25							
			10	18,23 31,33	22	74	
			11	22,24 28,31	23	10	
30							
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-PSDS-2 Total Depth 30' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

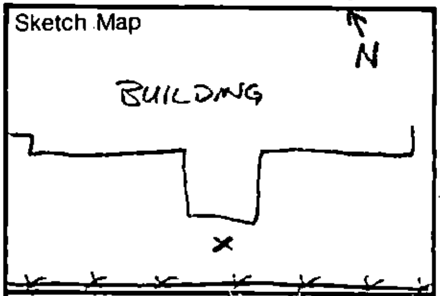
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/26/91

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	11,14 15,11	18	0.0	0- ~3' FINE TO MEDIUM SAND - brown; trace silt; little to some pebbles; some fine to medium gravel; plastic sheeting; appears to be fill.
			2	8,14 22,24	16	0.0	
5							~3-~12.5' FINE TO COARSE SAND - brown to orange-brown to tan; trace silt; little to some pebbles; some fine to coarse gravel.
			3	7,12 14,15	18	0.0	
10							
							~12.5-16' FINE SAND AND FINE TO COARSE GRAVEL - tan to white to light gray; trace silt; little to some pebbles; very slight odor.
			4	7,10 11,10	16	2	
15							
			5	9,11 10,14	20	14	
							16-30' FINE TO MEDIUM SAND - white to light gray (stained); trace silt; trace to little pebbles; some to no fine or fine to medium gravel; occasional 1/2" layers with dark gray color; occasional 12-18"
			6	8,11 13,19	23	22	
20							
			7	13,15 20,23	23	40	
			8	9,16 26,29	22	28	
			9	18,26 32,35	24	14	
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-PSDS-2 Total Depth 30' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/26/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
25							Layers of gray, fine to coarse sand, trace silt, little pebbles, some fine to medium gravel; moist throughout; moderate odor throughout.
			10	33,31 37,33	24	8	
30							
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-WD-2 Total Depth 6' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

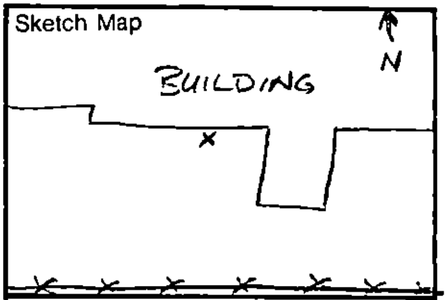
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/26/91

Sketch Map



Notes

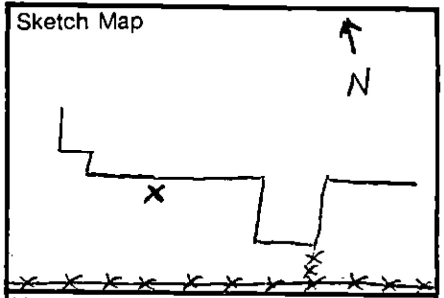
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	45,10 5,8	18	0.0	0 - 0.5' ASPHALT
			2	6,5 5,5	18	20	0.5-6' FINE TO MEDIUM SAND - tan to orange-brown to brown; little to no clay; trace to little silt; trace to no pebbles; little to no fine to coarse gravel; occasional 1/2-1" layers of silt and clay; 3" layer of gray-brown silt and fine to medium sand little clay, trace fine to medium sand, little clay, trace fine to medium gravel, with strong odor, at 3.5'; very strong odor, 4-6'.
5			3	4,3 4,5	18	> 1000	
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-WD-1 Total Depth 6' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/25/91

Sketch Map



Notes
0-2' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	12,10 8,11	20	177.8	0-1.5' FINE TO MEDIUM SAND - tan to brown; trace to little clay; trace to little silt; little to no pebbles; little to no fine to medium gravel.
			2	12,19 23,11	16	117	
			3	3,3 4,4	12	36	
5							1.5-6' VERY FINE SAND AND SILT - gray-brown; little to some clay; little to no medium sand; trace to no fine to medium gravel; coarsens with depth; appears to be fill; occasional concrete pieces 4-6'; strong odor 1.5-4'; moderate odor 4-6'.
10							
15							
20							
25							

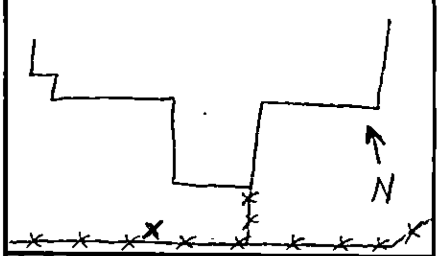
Page 1 of 1

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Well Number S-SP Total Depth 6' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/23/91

Sketch Map



Notes
0-2' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	13,11 13,19	14	4.6	0-0.5' FINE SAND AND SILT - 0-3": brown; little fine to medium gravel; root traces
			2	18,32 35,43	14	0.0	3-6": green-grey; trace clay; trace medium sand; moderate odor (OVA reading is from this zone).
5			3	38,38 38,36	16	0.0	
							0.5-6' FINE TO MEDIUM SAND - orange to orange-brown to tan; trace silt; little to no pebbles; some fine or fine to medium gravel; 2" layers of brown, fine sand and silt, little clay at 3'.
10							
15							
20							
25							

Page 1 of 1

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-PSDS-1 Total Depth 30' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

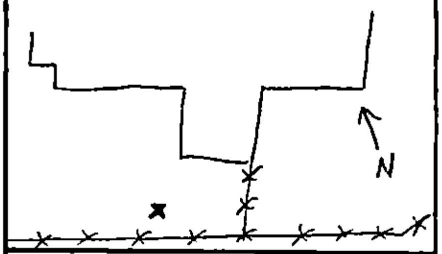
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/25/91

Sketch Map



Notes 28-30' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	20,25 23,20	14	0.0	0-0.5' ASPHALT AND GRAVEL
							0.5-30' FINE TO MEDIUM SAND - tan to orange-brown to brown; trace silt; trace to some pebbles; some fine to medium or fine to coarse gravel; occasional 3" layers with little to some silt; occasional 6-12" layers of fine to coarse sand and fine to med. gravel, trace silt, little pebbles; moist 9-30'; light gray staining 20-28'; staining darkens with depth;alternating 3-4" layers of light gray and dark gray material 28-30'; moderate odor 18-20'; strong odor 20-28'; very strong odor 28-30'.
5			2	4,4 5,5	12	0.0	
10			3	8,14 23,27	14	0.0	
15			4	5,8 13,16	18	0.0	
			5	16,23 28,24	18	0.0	
			6	8,14 16,24	?	8.6	
20			7	15,17 20,33	20	66	
			8	14,20 19,17	19	25.4	
25			9	14,20 18,20	22	83.4	

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-PSDS-1 Total Depth 30' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/25/91

Sketch Map

Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
.25							
			10	12,29 31,33	24	74.6	
			11	20,40 41,39	21	118.4	
30							
35							
40							
45							
50							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-FWT Total Depth 21' Diameter ---

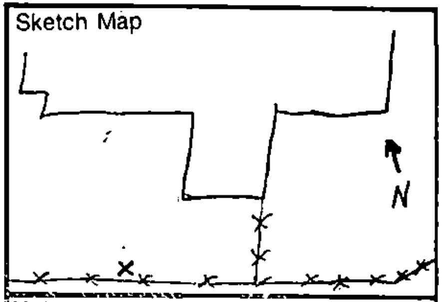
Surface Elevation --- Water Level: Initial --- 24-hrs. ---

Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/23/91



Notes 9-11' sample sent for analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	10,19 19,16	18	0.0	0-0.5' Asphalt 0.5-21' FINE TO MEDIUM SAND - brown to yellow/tan; trace clay 0.5 to 1'; trace to little silt; trace to little pebbles; trace to some fine to medium gravel; occasional 1" layers of sand and gravel; occasional zones of alternating very thin layers of lighter and darker fine to medium sand; 6" zone of alternating thin layers of tan to light brown to dark brown, fine sand, some medium sand, trace silt at 19'; moist 9-21'.
5			2	15,37 39,50	14	0.0	
10			3	15,25 30,33	12	0.4	
15			4	6,11 17,27	16	0.0	
20			5	10,20 22,23	18	0.0	
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC

Location Commack, NY W.O. Number 164-007-02

Boring Number S-SL-3 Total Depth 4' Diameter ---

Surface Elevation --- Water Level: Initial --- 24-hrs. ---

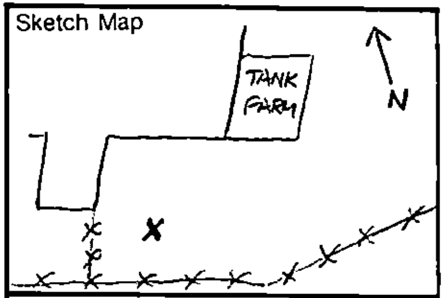
Screen: Dia. --- Length --- Slot Size ---

Casing: Dia. --- Length --- Type ---

Drilling Company ADT Drilling Method HSA

Driller R. Beauman Log By C. Buyum Date Drilled 7/23/91

Sketch Map



Notes 0-2' sample sent for TPH and TAL/TCL analysis.

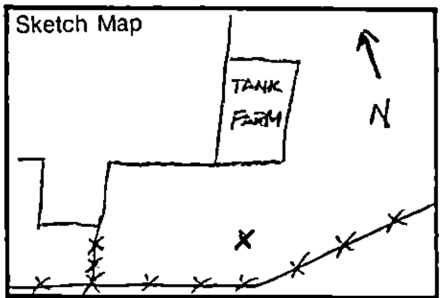
Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	32,30 30,30	18	0.0	0-0.5' ASPHALT
			2	43,66 73,75	24	0.0	0.5-4' FINE TO MEDIUM SAND - brown to tan; trace silt; little to no fine to medium gravel; trace to some cobbles; cobbles especially prevalent 3-4'.
5							
10							
15							
20							
25							

Environmental Resources Management

Drilling Log

Project Gibson Chemical & Oil Co Owner NYSDEC
Location Commack, NY W.O. Number 164-007-02
Boring Number S-SL-4 Total Depth 4' Diameter ---
Surface Elevation --- Water Level: Initial --- 24-hrs. ---
Screen: Dia. --- Length --- Slot Size ---
Casing: Dia. --- Length --- Type ---
Drilling Company ADT Drilling Method HSA
Driller R. Beauman Log By C. Buyum Date Drilled 7/24/91

Sketch Map



Notes 0-2' sample sent for TPH analysis.

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Blow Counts	Recovery (inches)	OVA (ppm)	Description/Soil Classification (Color, Texture, Structures)
0							
			1	47,27 21,19	21	0.0	0-0.5' ASPHALT
			2	20,33 33,58	18	0.0	0.5-2.5' VERY FINE SAND AND SILT - brown to orange-brown to rust; some clay; trace pebbles wood fragments.
5							
							2.5-4' FINE TO MEDIUM SAND - light brown to tan to tan-white; trace silt; little to some fine to medium or fine to coarse gravel; amount of gravel increases with depth.
10							
15							
20							
25							

BORING LOG

Project NYSDEC-Gibson Chemical & Oil, Inc.
Location Commack, NY W.O. Number 164.007
Boring Number S-SP Total Depth 6´
Drilling Company Aquifer Drilling & Testing, Inc.
Driller Rich Beauman Date 7/23/91
Log By Curt Buyum

Sketch Map

Notes

Depth	Sample Number	Description/Soil Classification (Color, Texture, Structure)
0 1 2		(0-2´): 0-3"=dull brown fine sand and silt, little fm gravel, root traces; 3-6"=green-grey stained fine sand and silt, trace medium sand, trace clay, moderate odor, OVA=4.6 ppm; 6-14"=orange-brown fm sand, some fm gravel, trace silt; bc=13,11,13,19; rec=14".
3 4		(2-4´): orange to lt tan fm sand; some fm gravel; little pebbles; trace silt; 12-14"=dull brown, fine sand and silt, little clay; dry; no odor; OVA=0.0 ppm; bc=18,32, 35,43; rec=14".
5 6		(4-6´): lt tan fm sand; some fmc gravel; little pebbles; trace silt; dry; no odor; OVA=0.0 ppm; bc=38,38,38,36; rec=16".

BORING LOG

Sketch Map

Notes

Project NYSDEC-Gibson Chemical & Oil, Inc.
Location Commack, NY W.O. Number 164.007
Boring Number S-SL-1 Total Depth 4′
Drilling Company Aquifer Drilling & Testing, Inc.
Driller Rich Beauman Date 7/24/91
Log By Curt Buyum

Depth	Sample Number	Description/Soil Classification (Color, Texture, Structure)
0		(0-2′): 0-6"=asphalt and stone; 6-12"=rich brown vf sand and silt, little to some clay, some pebbles; dry; no odor; OVA=0.0 ppm; bc=132,40,45,35; rec=12".
1		
2		(2-4′): orange-brown fm sand; some coarse sand; little fm gravel; little pebbles; trace silt; trace clay; dry; no odor; OVA=0.0 ppm; bc=30,27,21,25; rec=18".
3		
4		

BORING LOG

oject NYSDEC-Gibson Chemical & Oil, Inc.
cation Commack, NY W.O. Number 164.007
Boring Number S-SL-2 Total Depth 4′
Drilling Company Aquifer Drilling & Testing, Inc.
Driller Rich Beauman Date 7/24/91
Log By Curt Buyum

Sketch Map

Notes

Depth	Sample Number	Description/Soil Classification (Color, Texture, Structure)
0 1 2 3 4		(0-2′): 0-4"=asphalt and stone; 4-9"=medium brown fm sand, some pebbles, little fm gravel, trace silt, dry, no odor, OVA=2.0 with BG=1.8 ppm; 9-14"=tan and orange fm sand, trace silt, dry, no odor, OVA=2.0 ppm; bc=33, 18,11,10; rec=14". (2-4′): lt tan darkening with increasing depth to a lt brown fm sand; trace fm gravel; trace silt; @16"=bright orange of same; very sublte banding througout; dry; no odor; OVA=1.6 ppm=BG; bc=6,8,6,6; rec=20".

BORING LOG

Sketch Map

Notes

oject NYSDEC-Gibson Chemical & Oil, Inc.
cation Commack, NY W.O. Number 164.007
Boring Number S-SL-3 Total Depth 4′
Drilling Company Aquifer Drilling & Testing, Inc.
Driller Rich Beauman Date 7/23/91
Log By Curt Buyum

Depth	Sample Number	Description/Soil Classification (Color, Texture, Structure)
0		(0-2′): 0-4"=asphalt and stone; 4-18′=medium brown to tan (lighter with increasing depth) fm sand, some pebbles, trace silt, trace cobble; dry no odor; OVA=0.0 ppm; bc=32,30,30,30; rec=18".
1		
2		(2-4′): tan fm sand; some cobbles (especially @ 12-24"); little fm gravel; trace silt; dry; no odor; OVA=0.0 ppm; dry; no odor; bc=43,66,73,75; rec=24".
3		
4		

BORING LOG

oject NYSDEC-Gibson Chemical & Oil, Inc.
cation Commack, NY W.O. Number 164.007
Boring Number S-SL-4 Total Depth 4′
Drilling Company Aquifer Drilling & Testing, Inc.
Driller Rich Beauman Date 7/24/91
Log By Curt Buyum

Sketch Map

Notes

Depth	Sample Number	Description/Soil Classification (Color, Texture, Structure)
0 1 2		(0-2′): 0-4"=asphalt and stone; 6-21"=brown with some orange-tan very fine sand and silt; some clay; trace pebbles; wood fragments (Fill); dry; very densely packed; OVA=2.6 ppm=BG; bc=47,27,21,19; rec=21".
3 4		(2-4′): 0-3"=same as 6-21" from (0-2′); 3-13"=lt brown fm sand, little to some fm gravel, trace silt; 13-18"= same as 3-13" but lt tan to almost white; @13"=fmc gravel and sand; dry; no odor; bc=20,33,33,58; rec=18".

BORING LOG

Sketch Map

oject NYSDEC-Gibson Chemical & Oil, Inc.
cation Commack, NY W.O. Number 164.007
Boring Number S-FSDS-1 Total Depth 4´
Drilling Company Aquifer Drilling & Testing, Inc.
Driller Rich Beauman Date 7/24/91
Log By Curt Buyum

Notes

Page 1 of 2

Depth	Sample Number	Description/Soil Classification (Color, Texture, Structure)
0 1		(0-2´): dull brown to grey-brown fine sand and silt; little pebbles; trace clay; appears to be fill material; dry; no odor; OVA=19.0 ppm=BG; bc=20,21,18,10; rec=16".
2 3 4		(4-6´): 0-8"=brown fm sand, little fm gravel, trace silt, trace pebble, dry, no odor; 8-20"=dull brown to grey-stained fine sand and silt, little clay, little pebbles, fill material; moderate odor; moist; OVA=BG; bc=8,8,7,7; rec=20".
5 6		(9-11´)=brown fm sand; some coarse sand; little to some fm gravel; little pebbles; trace silt; dry; no odor; OVA=27 ppm=BG; bc=3,3,4,6; rec=18".
7 8		(14-16´): grey-stained fm sand; some fm gravel; little pebbles; trace silt; moist; strong odor; especially dark @ 11-14"; OVA=25 ppm=BG; bc=2,3,6,8; rec=18".
9 10		(16-18´): tan to lt grey fm sand and fm gravel; trace silt; trace pebbles; 14-18"=lt grey fm sand, trace silt; moist; moderate odor; OVA=28 w/BG=26 ppm; bc=10,13,10,9; rec=18".
11 12 13		(18-20´): lt tan to white (slightly grey-stained ?) fm sand; little pebbles; little fm gravel; trace silt; moist; moderate odor; OVA=31 w/BG=28 ppm; bc=3,10,22,21; rec=14:.
14 15 16		(20-22´): lt grey to white (partially stained ?) fm sand; little fm gravel (increases with depth); trace pebbles; trace silt; moist; moderate to strong odor; OVA=47 w/BG =31 ppm; bc=17,17,17,22; rec=20".
17 18		(22-24´): lt tan to white fm sand and fm gravel (gravel decreases with depth); little pebbles; trace silt; @16" dark grey-stained band; moist; moderate to strong odor; OVA=52 w/BG=32 ppm; bc=11,14,32,35; rec=18".
19 20		(24-26´): lt grey-stained fm sand; some pebbles; trace fm gravel; trace silt; moist; strong odor; OVA=70 w/BG= 33 ppm; bc=20,20,30,43; rec=22".

BORING LOG

Sketch Map

Notes

Page 2 of 2

Project NYSDEC-Gibson Chemical & Oil, Inc.
Location Commack, NY W.O. Number 164.007
Boring Number S-FSDS-1 Total Depth 4′
Drilling Company Aquifer Drilling & Testing, Inc.
Driller Rich Beauman Date 7/24/91
Log By Curt Buvum

Depth	Sample Number	Description/Soil Classification (Color, Texture, Structure)
22		
23		
24		
25		(26-28′): lt grey-stained fm sand; little fm gravel; little pebbles; trace silt; darker 1/4" bands throughout lower 5"; moist; strong odor; OVA=100 w/BG=26 ppm; bc= 18,23,31,33; rec=22".
26		
27		
28		(28-30′): lt grey-stained fm sand; little pebbles; trace fm gravel; strace silt; moist; moderate odor; OVA=30 w/ BG=20ppm; bc=22,24,28,31; rec=23".
29		
30		

APPENDIX H

LABORATORY AND FIELD PERMEABILITY DATA

EMPIRE
SOILS INVESTIGATIONS, INC.

GEOTECHNICAL TESTING REPORT
GIBSON OIL RI/FS
COMMACK, NEW YORK

For:
ERM-NORTHEAST
WOODBURY, NEW YORK

JOB NO. G010.002
DECEMBER, 1991

EMPIRE
SOILS INVESTIGATIONS INC.

Corporate Offices:
140 TELEGRAPH ROAD • P.O. BOX 297 • MIDDLEPORT, NY 14105 • 716/735-3502 • FAX 716/735-90

January 10, 1992

Mr. Al Jaroszewski, Senior Hydrogeologist
ERM-Northeast
175 Froehlich Farm Boulevard
Woodbury, New York 11797

Dear Mr. Jaroszewski:

RE: GEOTECHNICAL TESTING
GIBSON OIL RI/FS
COMMACK, NEW YORK

Transmitted herewith are the results of geotechnical laboratory testing performed on soil samples from the subject project. The work was performed in accordance with our subcontract agreement dated March 14, 1991 as part of your Contract No. D002402 with the New York State Department of Environmental Conservation.

Six (6) samples were received at our laboratory in Middleport, New York on November 22, 1991 and catalogued as follows:

LAB NO.	BORING IDENTIFICATION
1096.001	MW-1S
1096.002	MW-2S
1096.003	MW-3D
1096.004	MW-7S
1096.005	MW-7D
1096.006	MW-8S

Two of the sample jars from MW-7S were broken in transit. Three additional jar samples from this boring were received in good condition on December 6, 1991.

In accordance with your instructions we have performed Grain Size Distribution Test (ASTM D422), Water Content Determination (ASTM D2216), and remolded permeability test (ASTM D2434) on the combined jar samples from each boring.

Since there were insufficient material to fill the compaction mold permeameter the permeability test was performed in a shelby tube permeameter with capability for backpressure saturation. The permeability was calculated on basis of a minimum of 4 sets of flow versus time observations indicating a stable flow rate by having a coefficient of correlation in linear regression analysis of better than 0.999.

Individual grain size distribution test reports, with the result of water content determination noted, are presented in Appendix A. The results of the permeability tests are contained in Appendix B.

It has been a pleasure working with you on this interesting project. Should you have any questions or in case we may be of further service, do not hesitate to contact the undersigned at 716-735-3400.

Respectfully submitted,

EMPIRE SOILS INVESTIGATIONS, INC.

Jorgen F. Christiansen

Jorgen F. Christiansen, PE
Director, Geotechnical Services

JFC/mas

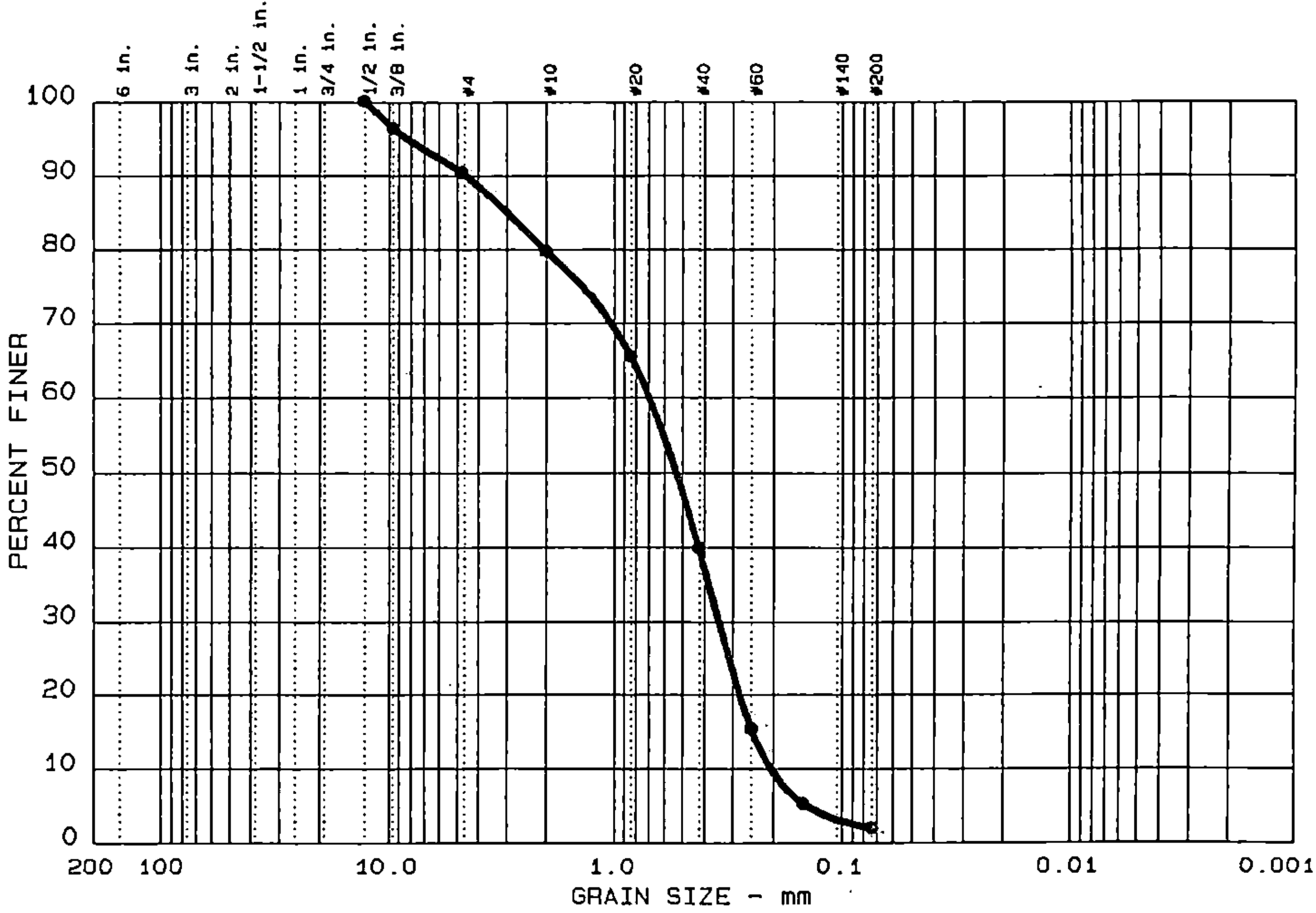
ENCLOSURE

APPENDIX A

GRAIN SIZE DISTRIBUTION

WATER CONTENT

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	1	0.0	9.5	88.4	2.1	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			2.95	0.69	0.52	0.345	0.2469	0.2054	0.84	3.4

MATERIAL DESCRIPTION	USCS	AASHTO
● TAN SAND, Trace Gravel and fines	SP	

Project No.: G010.002
Project: NYSDEC / GIBSON
● Location: MW-1S

Date: DECEMBER 30, 1991

Remarks:

CLIENT: ERM NORTHEAST

WATER CONTENT: 9.0%

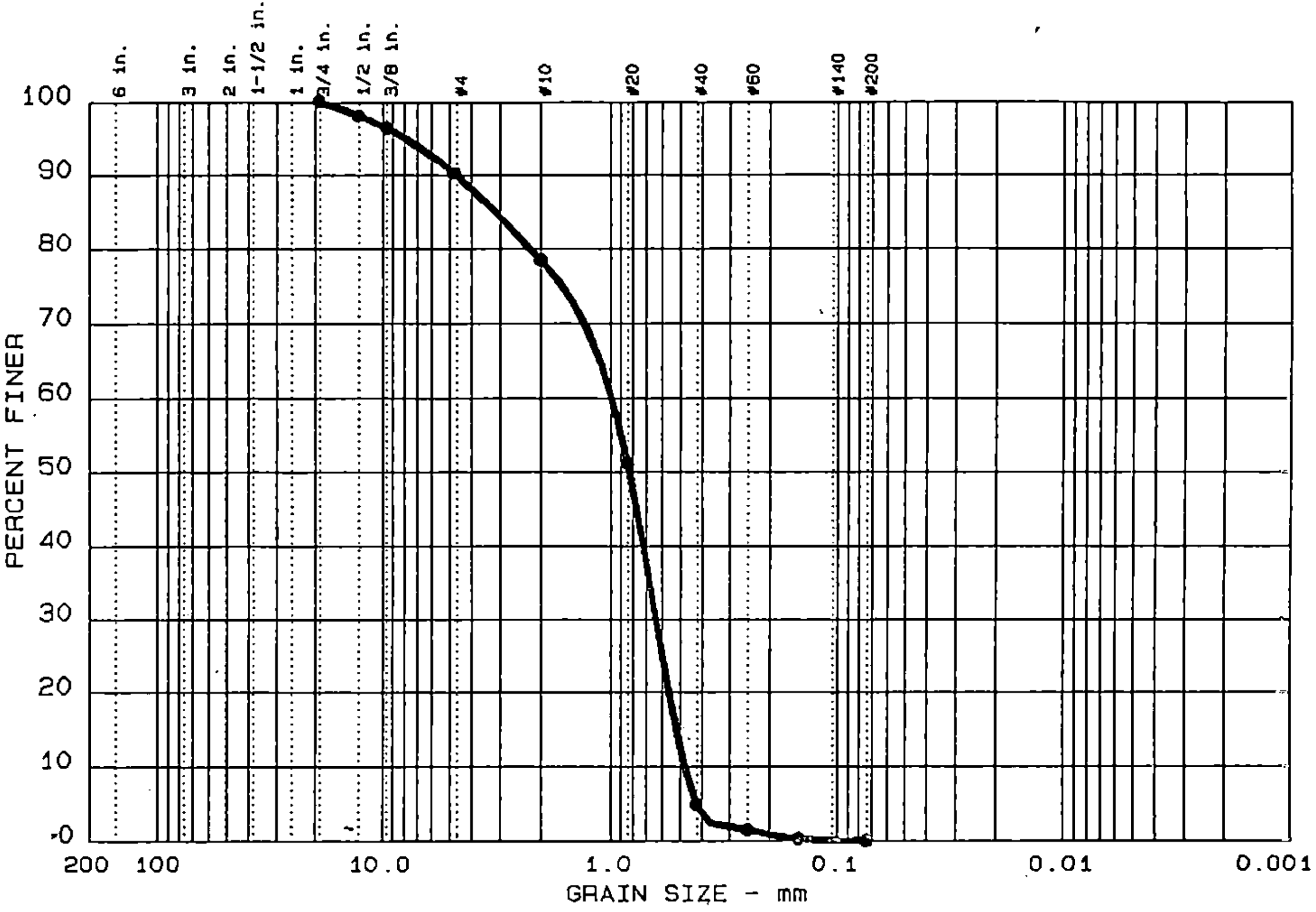
LAB NO. 1096.001

GRAIN SIZE DISTRIBUTION TEST REPORT

EMPIRE SOILS INVESTIGATIONS, INC

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	2	0.0	9.7	90.3	0.0	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			3.13	0.98	0.83	0.634	0.5152	0.4742	0.86	2.1

MATERIAL DESCRIPTION	USCS	AASHTO
● TAN SAND, Trace Gravel	SP	

Project No.: G010.002
Project: NYSDEC / GIBSON
● Location: MW-2S

Date: DECEMBER 30, 1991

GRAIN SIZE DISTRIBUTION TEST REPORT

EMPIRE SOILS INVESTIGATIONS, INC

Remarks:

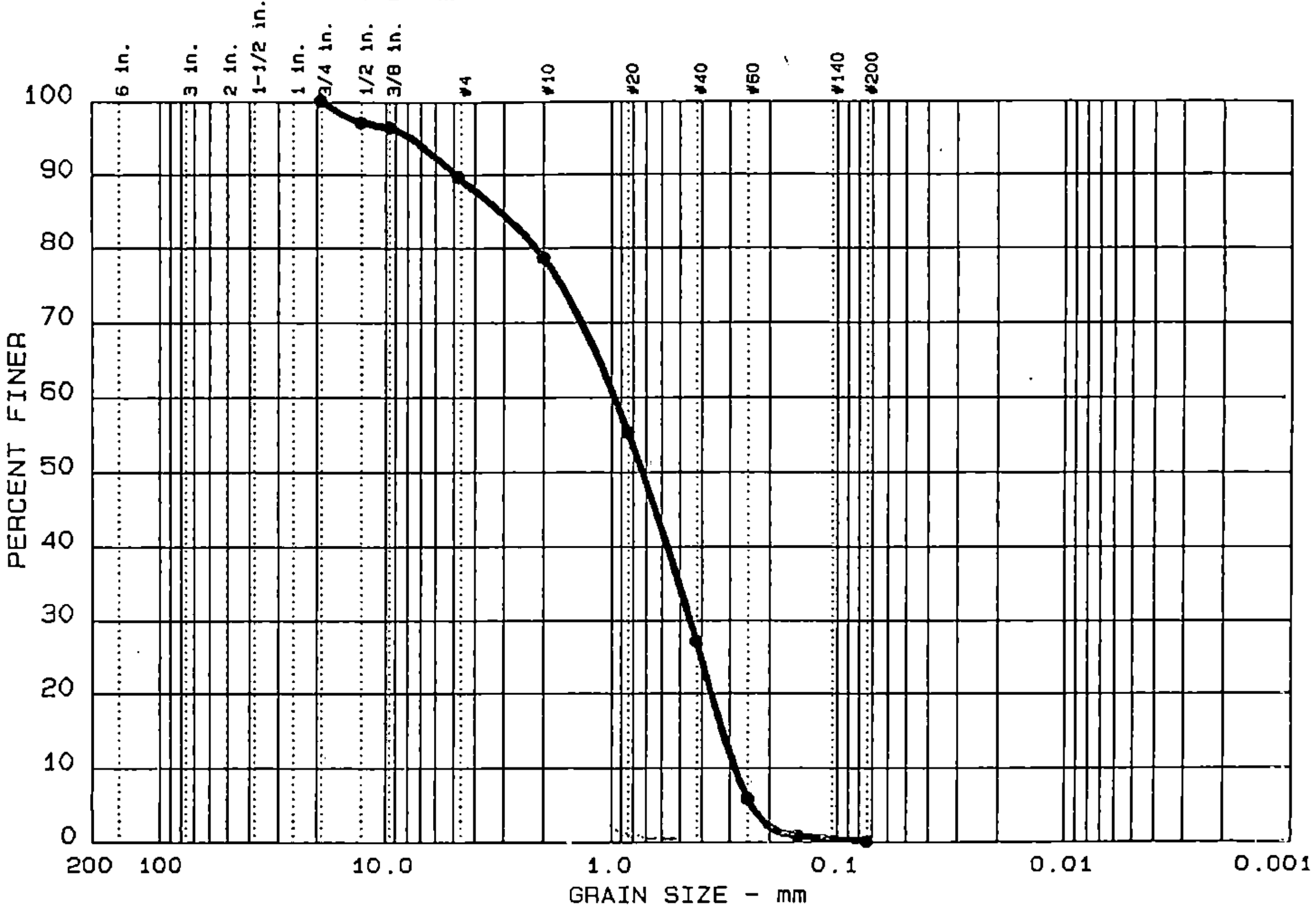
CLIENT: ERM NORTHEAST

WATER CONTENT: 12.7%

LAB NO. 1096.002

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	2	0.0	10.3	89.7	0.0	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			3.09	0.97	0.72	0.447	0.3228	0.2844	0.73	3.4

MATERIAL DESCRIPTION	USCS	AASHTO
● TAN SAND, Little Gravel	SP	

Project No.: G010.002
Project: NYSDEC / GIBSON
● Location: MW-3D

Date: DECEMBER 30, 1991

GRAIN SIZE DISTRIBUTION TEST REPORT

EMPIRE SOILS INVESTIGATIONS, INC

Remarks:

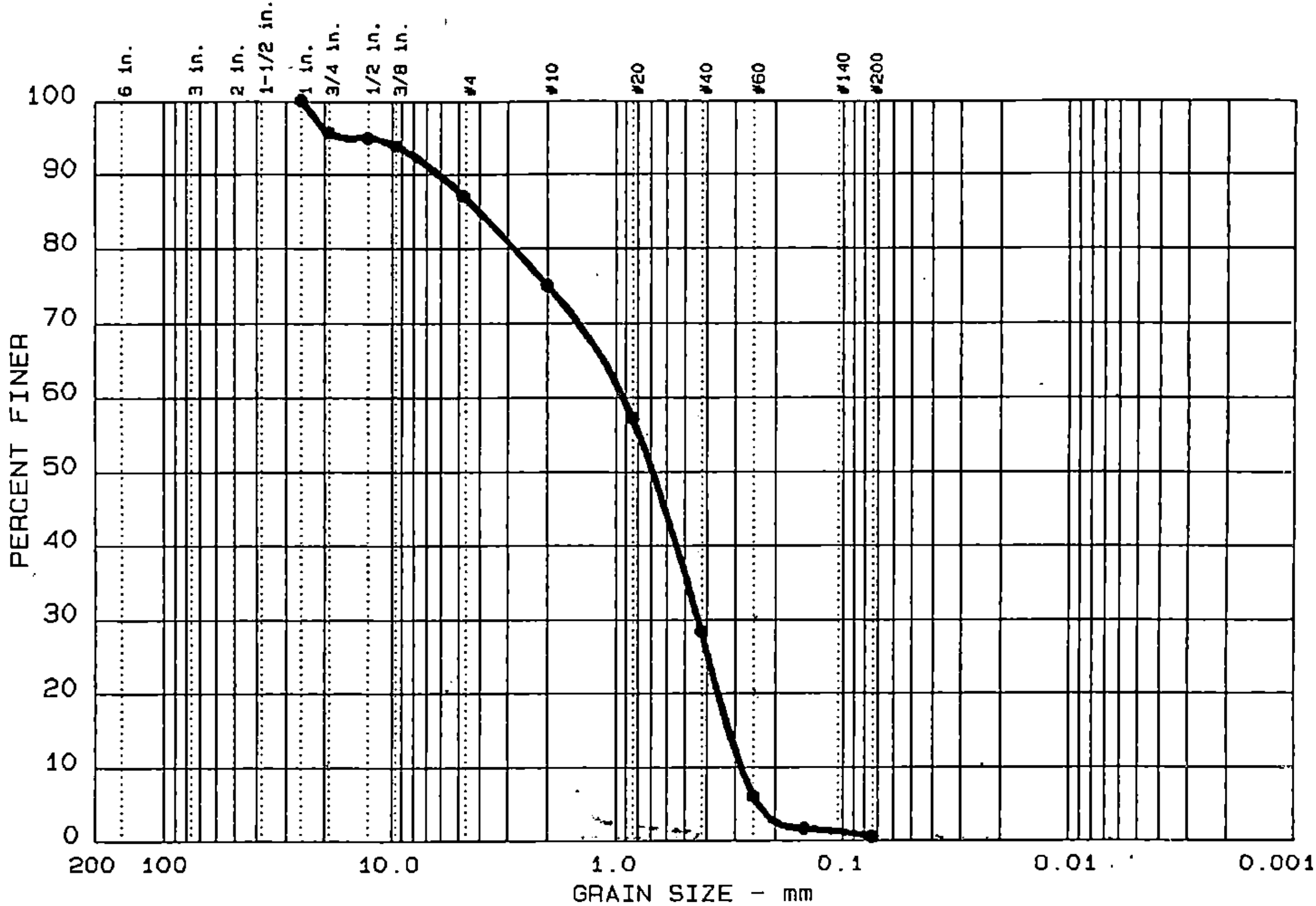
CLIENT: ERM NORTHEAST

WATER CONTENT: 12.5%

LAB NO. 1096.003

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	3	0.0	12.9	86.6	0.5	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			4.03	0.92	0.68	0.435	0.3184	0.2825	0.72	3.3

MATERIAL DESCRIPTION	USCS	AASHTO
● TAN SAND, Little Gravel, Trace fines	SP	

Project No.: G010.002
Project: NYSDEC / GIBSON
● Location: MW-7S

Date: DECEMBER 30, 1991

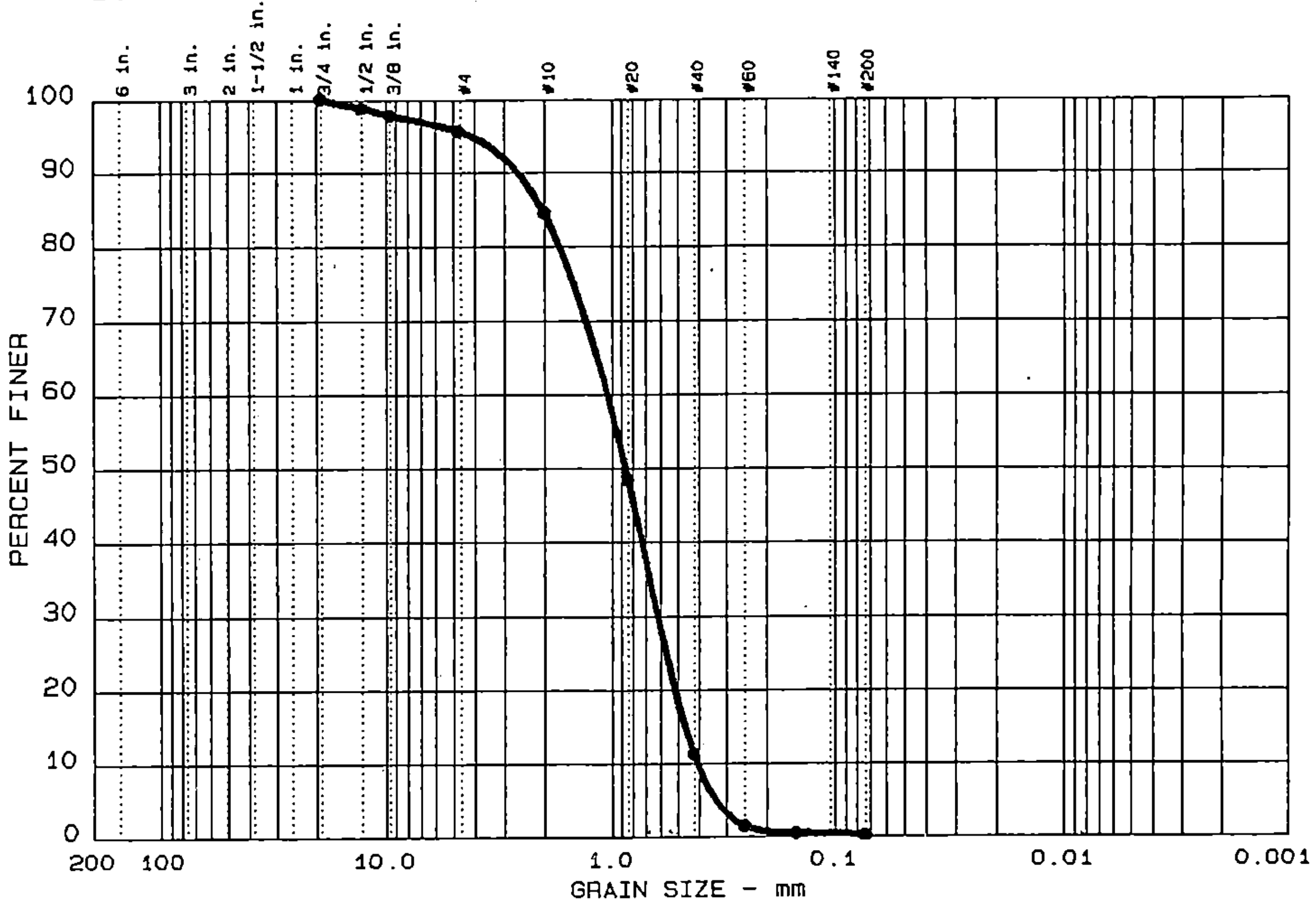
Remarks:
CLIENT: ERM NORTHEAST

WATER CONTENT: 13.1%
LAB NO. 1096.004

GRAIN SIZE DISTRIBUTION TEST REPORT
EMPIRE SOILS INVESTIGATIONS, INC

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	4	0.0	4.4	95.4	0.2	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			2.03	1.04	0.86	0.612	0.4592	0.4046	0.89	2.6

MATERIAL DESCRIPTION	USCS	AASHTO
● TAN SAND, Trace Gravel and fines	SP	

Project No.: G010.002
Project: NYSDEC / GIBSON
● Location: MW-7D

Date: DECEMBER 30, 1991

Remarks:

CLIENT: ERM NORTHEAST

WATER CONTENT: 11.0%

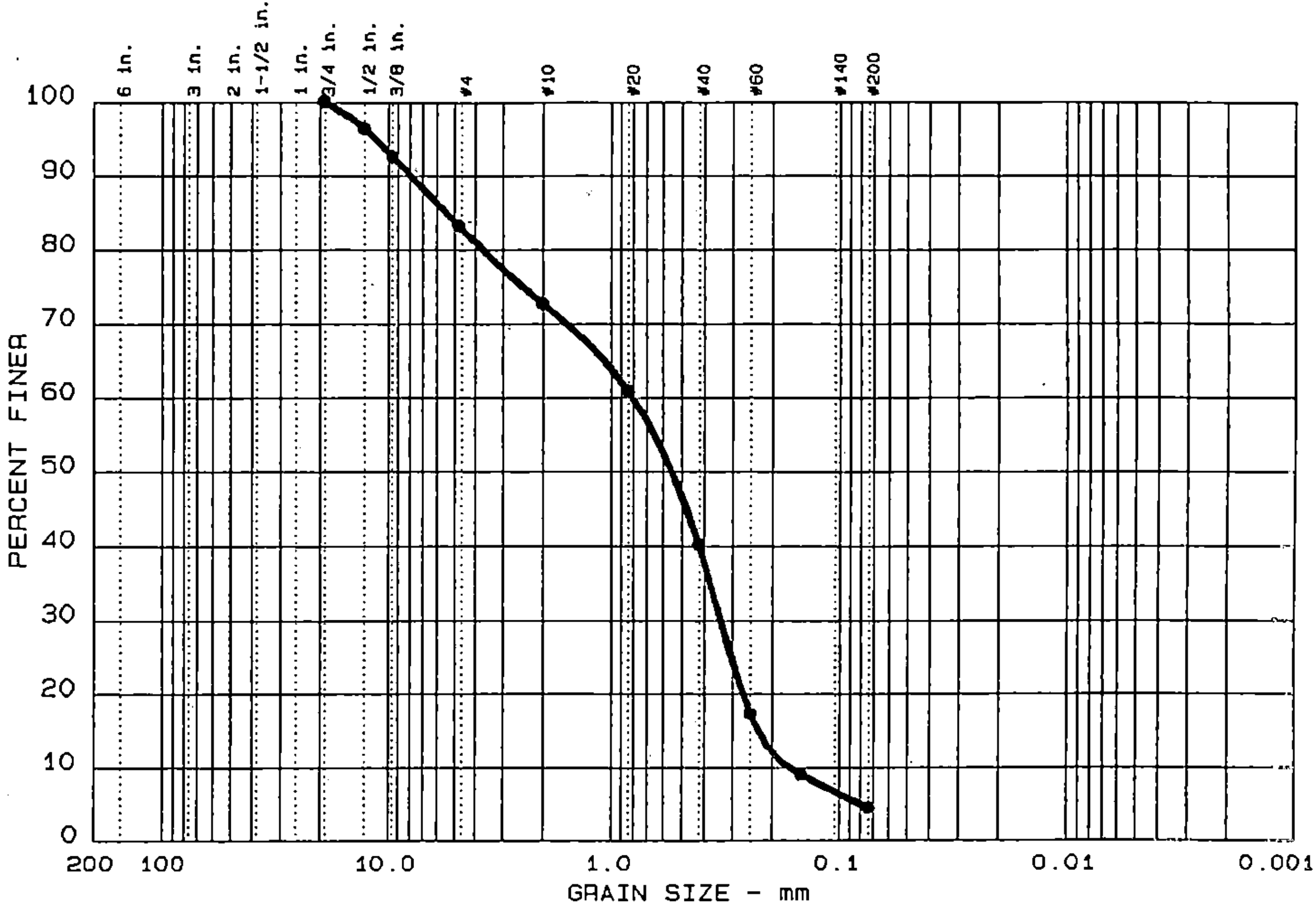
1AB NO. 1096.005

GRAIN SIZE DISTRIBUTION TEST REPORT

EMPIRE SOILS INVESTIGATIONS, INC

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	5	0.0	16.7	78.8	4.5	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			5.37	0.80	0.54	0.338	0.2304	0.1669	0.85	4.8

MATERIAL DESCRIPTION	USCS	AASHTO
● TAN SAND, Little Gravel, trace fines	SP	

Project No.: G010.002
Project: NYSDEC / GIBSON
● Location: MW-8S

Date: DECEMBER 30, 1991

Remarks:

CLIENT: ERM NORTHEAST

WATER CONTENT: 8.4%

LAB NO. 1096.006

GRAIN SIZE DISTRIBUTION TEST REPORT

EMPIRE SOILS INVESTIGATIONS, INC

Figure No. 1

APPENDIX B

PERMEABILITY TESTS

1096.001

TEST DATA:

Specimen Height (cm): 7.68

Specimen Diameter (cm): 7.30

Dry Unit Weight (pcf): 98.7

Moisture Content Before Test (%): 7.7

Moisture Content After Test (%): 32.0

Cell Confining Pressure (psi): ----

Test Pressure (psi): 80.2

Back Pressure (psi): 80.0

Differential Head (psi): 0.2

Flow Rate (ΔV/t)(cm³/sec) ○ $2.36\text{x}10^{-1}$ Δ

Permeability (cm/sec): ○ $2.70\text{x}10^{-3}$ Δ

SAMPLE DATA:

Sample Identification: LAB NO. 1096.001
BORING MW-1S

Visual Description: Tan SAND, trace
Gravel & SILT

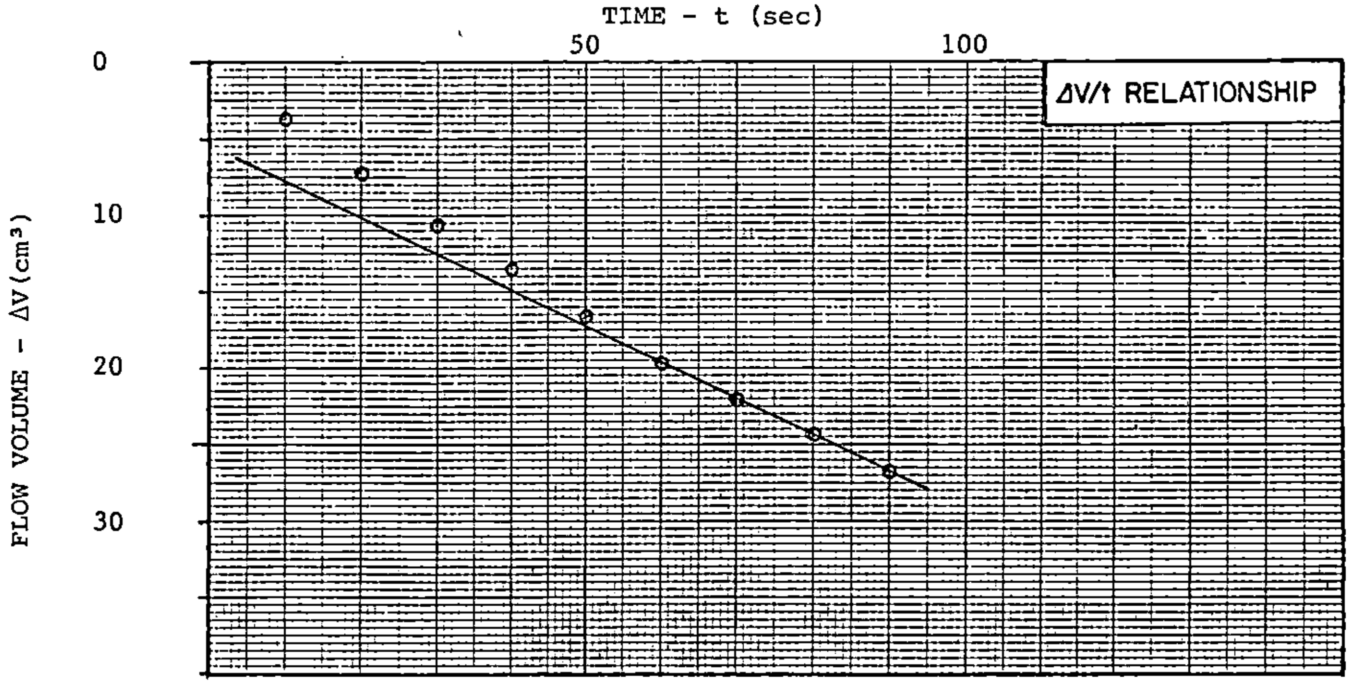
Remarks: Remolded and Tested in
Section of Shelby Tube

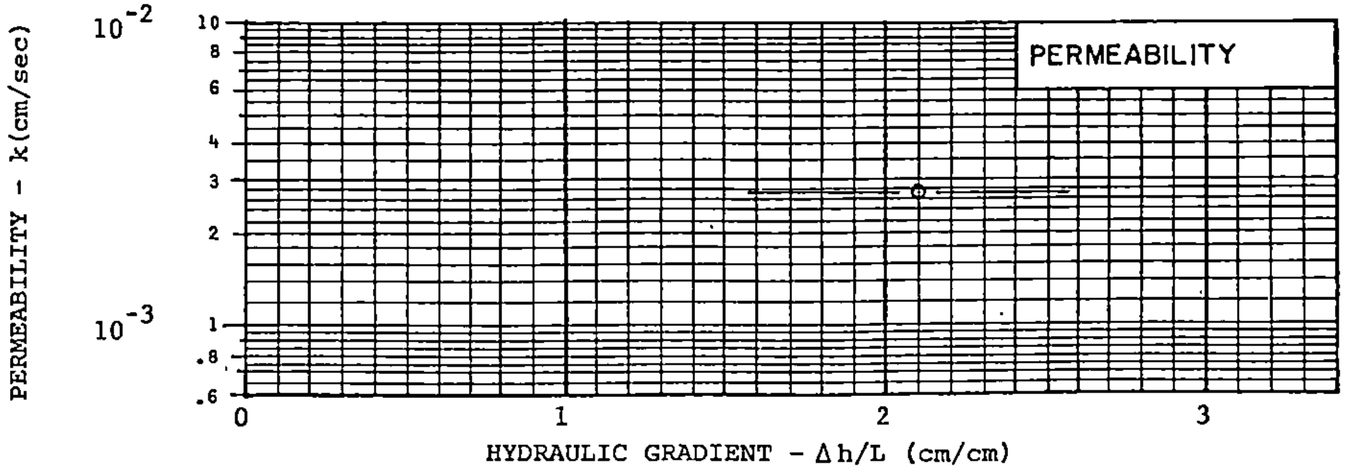
Maximum Dry Density
(ASTM D ____) (pcf):

Optimum Moisture Content (%):

Percent Compaction:

Permeameter Type: RIGID WALL





EMPIRE
SOILS INVESTIGATIONS INC.

PERMEABILITY TEST REPORT

GIBSON OIL RI/FS
COMMACK, NEW YORK

DR BY: JFC	CK'D. JFC	DATE: DEC, 1991	PROJ.NO. G010.002

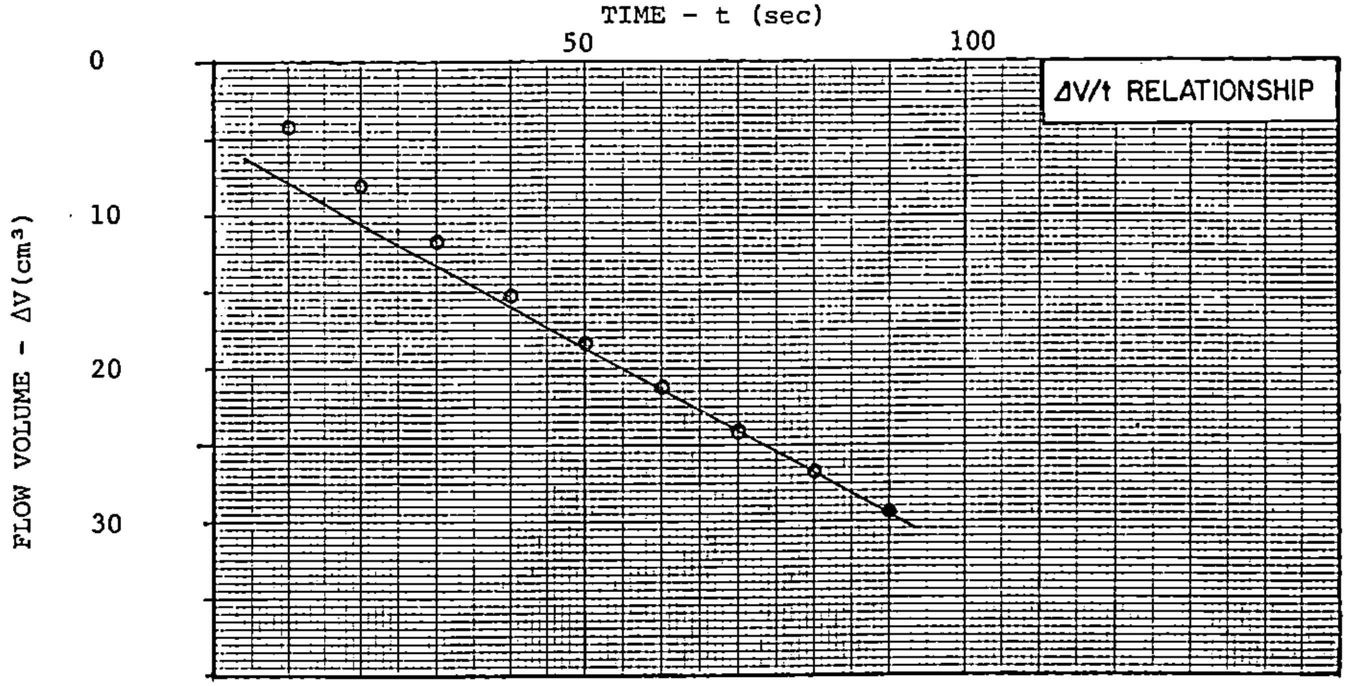
96.002

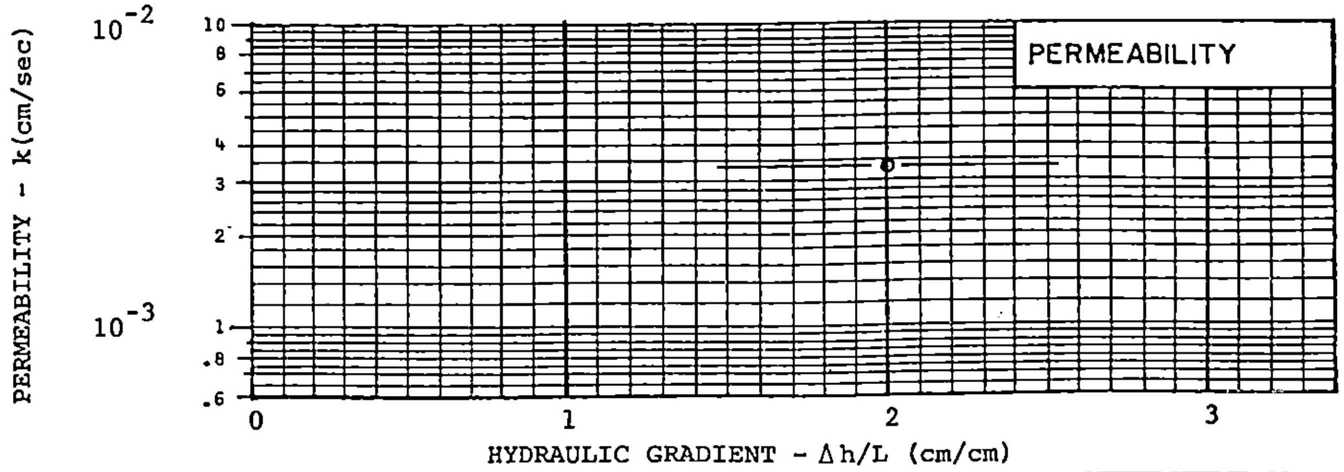
TEST DATA:

Specimen Height (cm): 7.68
Specimen Diameter (cm): 7.30
Dry Unit Weight (pcf): 107.0
Moisture Content Before Test (%): 13.7
Moisture Content After Test (%): 21.3
Cell Confining Pressure (psi): ----
Test Pressure (psi): 80.2
Back Pressure (psi): 80.0
Differential Head (psi): 0.2
Flow Rate (ΔV/t)(cm³/sec) ○ 2.70×10^{-1} Δ
Permeability (cm/sec): ○ 3.26×10^{-3} Δ

SAMPLE DATA:

Sample Identification: LAB NO. 1096.002
BORING MW-2S
Visual Description: Tan SAND, trace gravel
Remarks: Remolded and Tested in Section of Shelby Tube
Maximum Dry Density (ASTM D ____) (pcf):
Optimum Moisture Content (%):
Percent Compaction:
Permeameter Type: RIGID WALL





EMPIRE
SOILS INVESTIGATIONS INC.

PERMEABILITY TEST REPORT

GIBSON OIL RI/FS
COMMACK, NEW YORK

DR BY: JFC
CK'D. JFC
DATE: DEC, 1991
PROJ.NO. G010.002

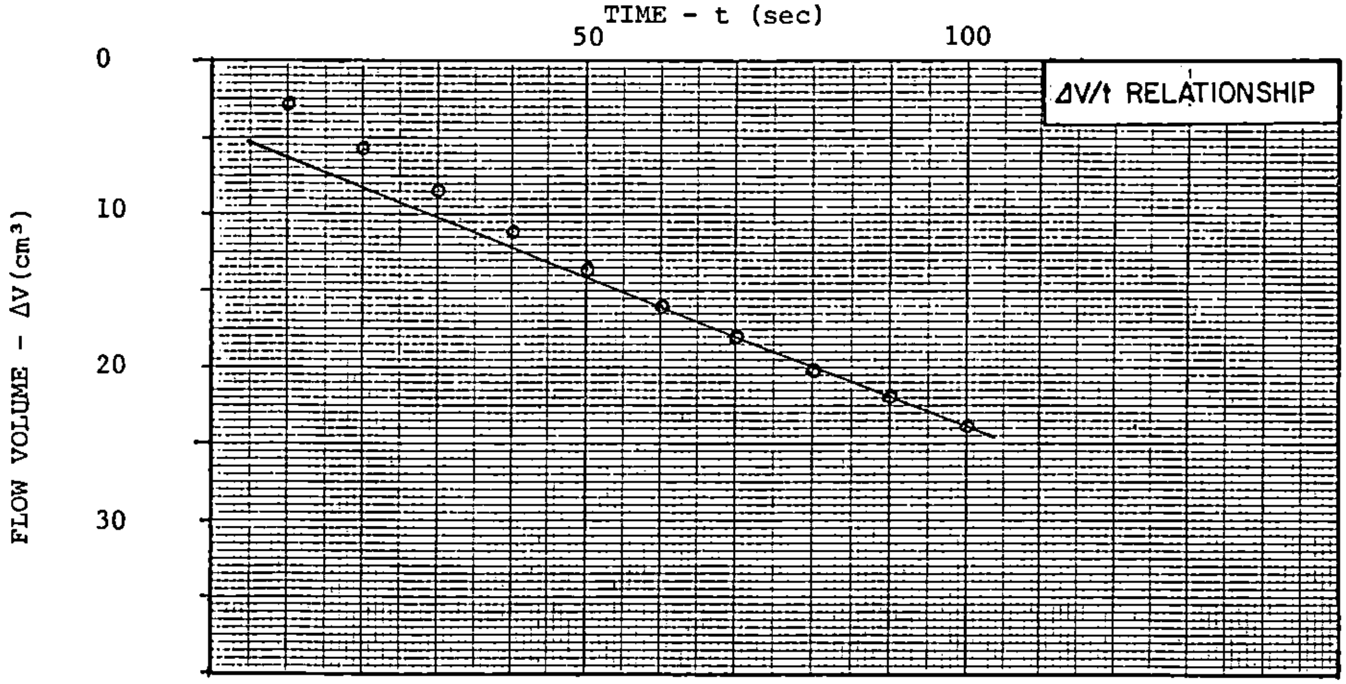
1096.003

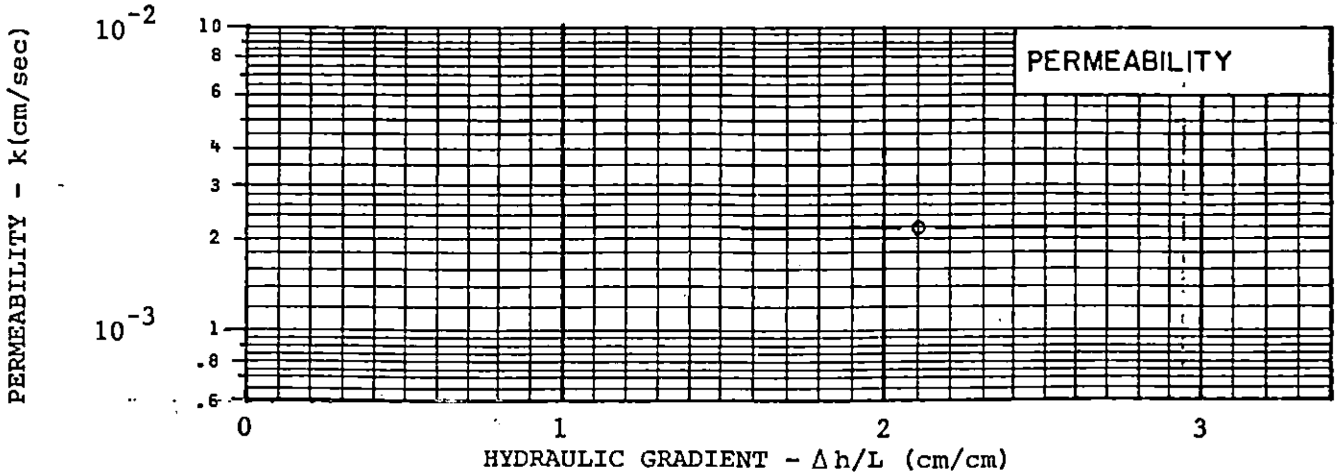
TEST DATA:

Specimen Height (cm): 7.46
Specimen Diameter (cm): 7.31
Dry Unit Weight (pcf): 104.6
Moisture Content Before Test (%): 14.1
Moisture Content After Test (%): 21.4
Cell Confining Pressure (psi): ----
Test Pressure (psi): 80.2
Back Pressure (psi): 80.0
Differential Head (psi): 0.2
Flow Rate (ΔV/t)(cm³/sec) ○ 1.95×10^{-1} Δ
Permeability (cm/sec): ○ 2.18×10^{-3} Δ

SAMPLE DATA:

Sample Identification: LAB NO. 1096.003
BORING MW-3D
Visual Description: Tan SAND, little gravel
Remarks: Remolded and Tested in Section of Shelby Tube
Maximum Dry Density
(ASTM D ______) (pcf): ______
Optimum Moisture Content (%): ______
Percent Compaction: ______
Permeameter Type: RIGID WALL





EMPIRE
SOILS INVESTIGATIONS INC.

PERMEABILITY TEST REPORT

GIBSON OIL RI/FS
COMMACK, NEW YORK

DR BY: JFC	CK'D. JFC	DATE: DEC, 1991	PROJ.NO. G010.002

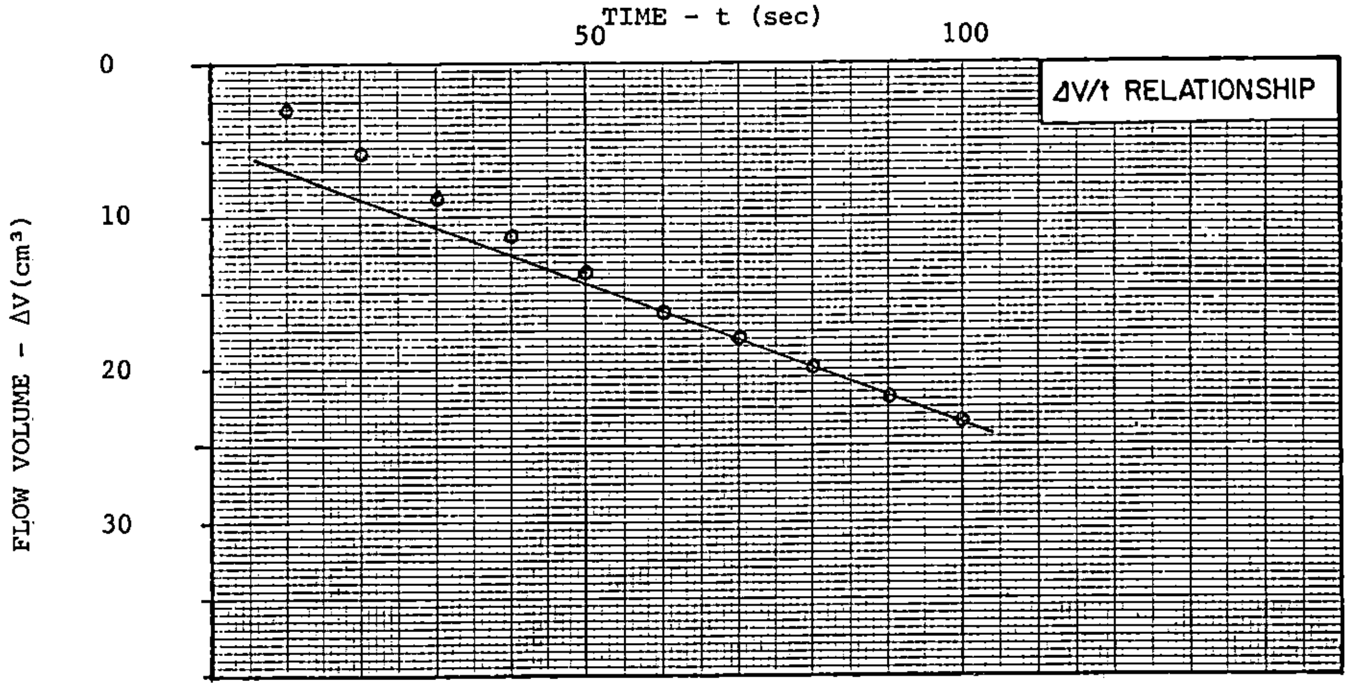
.004

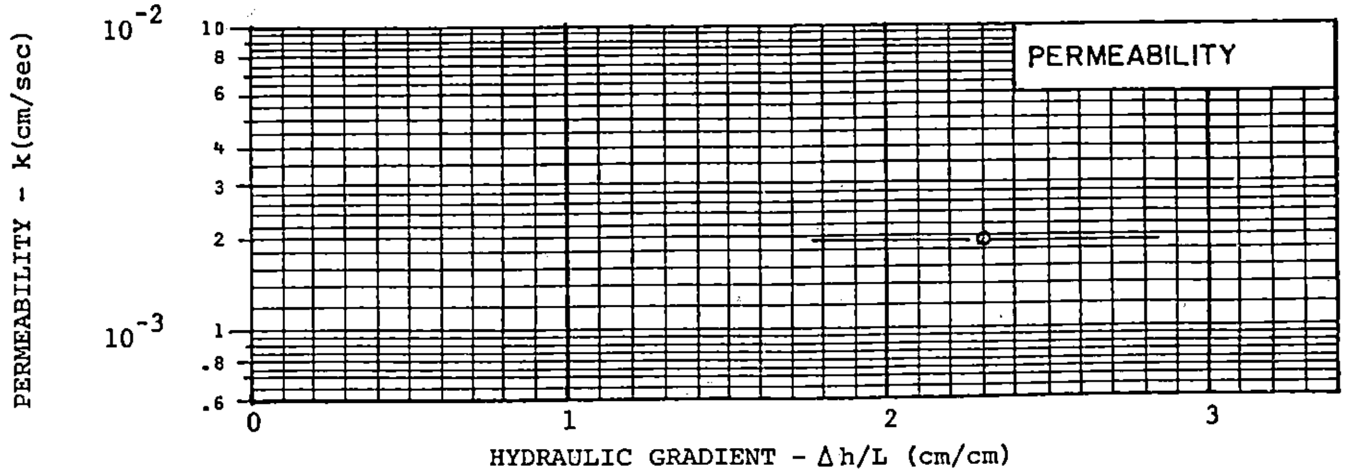
TEST DATA:

Specimen Height (cm): 7.53
Specimen Diameter (cm): 7.31
Dry Unit Weight (pcf): 109.0
Moisture Content Before Test (%): 12.9
Moisture Content After Test (%): 17.8
Cell Confining Pressure (psi): ----
Test Pressure (psi): 80.2
Back Pressure (psi): 80.0
Differential Head (psi): 0.2
Flow Rate (ΔV/t)(cm³/sec) ○ 1.84×10^{-1} Δ
Permeability (cm/sec): ○ 1.90×10^{-3} Δ

SAMPLE DATA:

Sample Identification: LAB NO. 1096.004
BORING MW-7S
Visual Description: Tan, SAND, little gravel, trace silt
Remarks: Remolded and Tested in Section of Shelby Tube
Maximum Dry Density (ASTM D ____) (pcf):
Optimum Moisture Content (%):
Percent Compaction:
Permeameter Type: RIGID WALL





EMPIRE
SOILS INVESTIGATIONS INC.

PERMEABILITY TEST REPORT

GIBSON OIL RI/FS
COMMACK, NEW YORK

DR BY: JFC
CK'D: JFC
DATE: DEC, 1991
PROJ.NO. G010.002

6.005

TEST DATA:

Specimen Height (cm): 7.37

Specimen Diameter (cm): 7.30

Dry Unit Weight (pcf): 109.6

Moisture Content Before Test (%): 8.1

Moisture Content After Test (%): 15.9

Cell Confining Pressure (psi): ----

Test Pressure (psi): 80.2

Back Pressure (psi): 80.0

Differential Head (psi): 0.2

Flow Rate ($\Delta V/t$)(cm³/sec) O $2.66x10^{-1}$ Δ

Permeability (cm/sec): O $3.25x10^{-3}$ Δ

SAMPLE DATA:

Sample Identification: LAB NO. 1096.005

BORING MW-7D

Visual Description: Tan SAND, trace gravel & silt

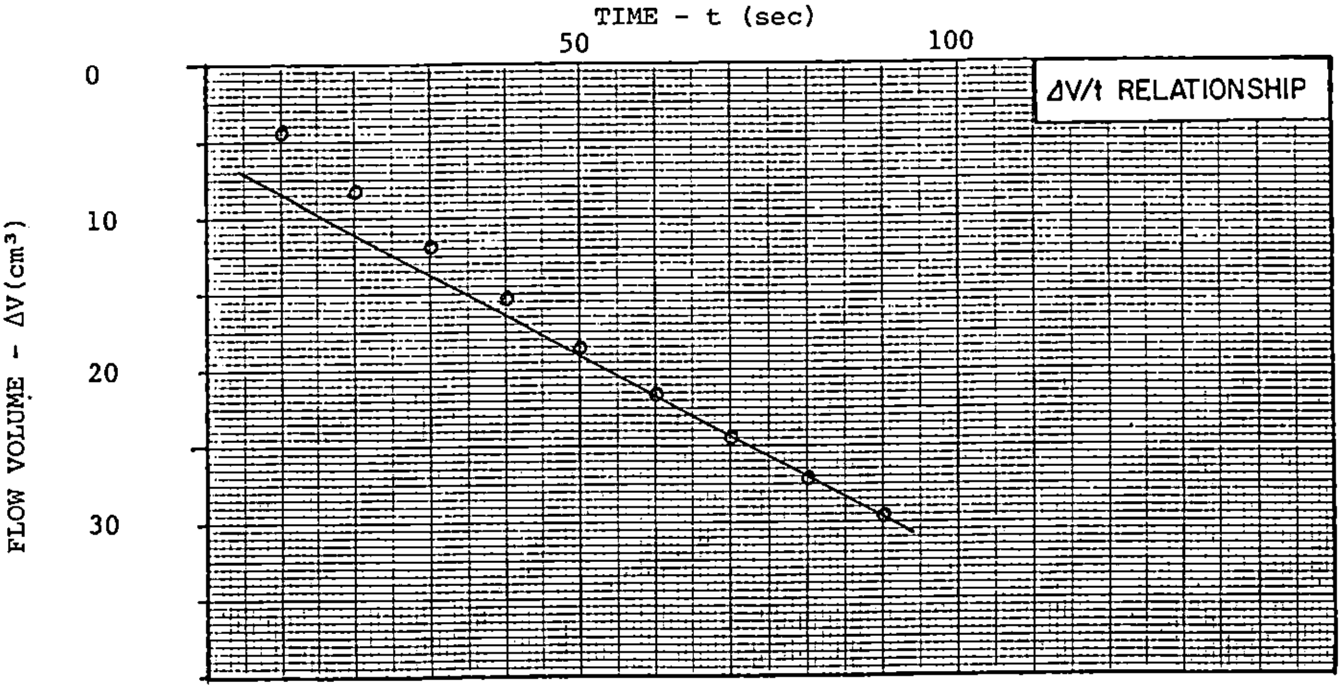
Remarks: Remolded and Tested in Section of Shelby Tube

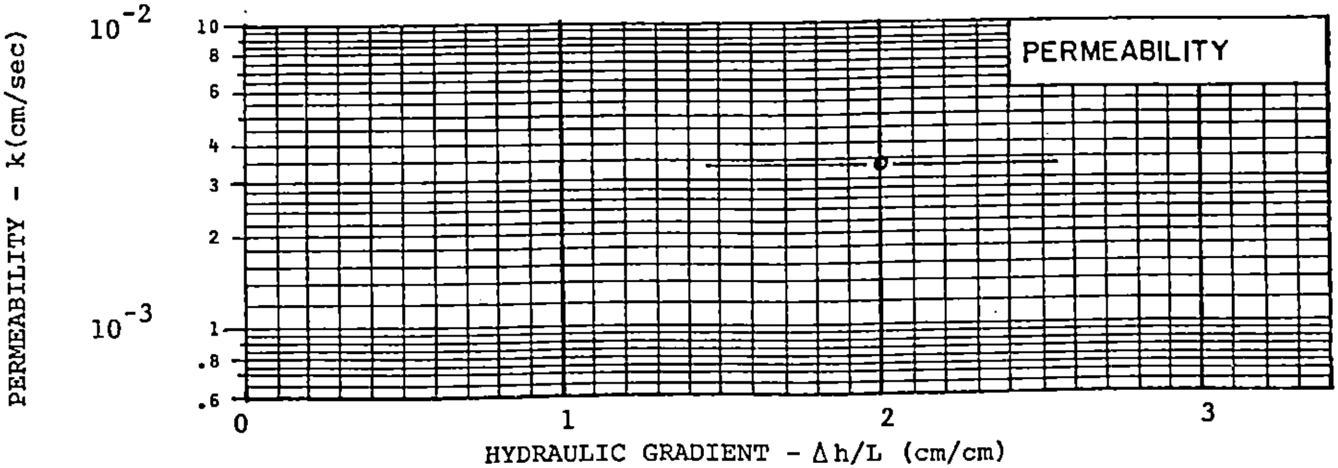
Maximum Dry Density (ASTM D ____) (pcf):

Optimum Moisture Content (%):

Percent Compaction:

Permeameter Type: RIGID WALL





EMPIRE
SOILS INVESTIGATIONS INC.

PERMEABILITY TEST REPORT

GIBSON OIL RI/FS
COMMACK, NEW YORK

DR BY: JFC
CK'D. JFC
DATE: DEC, 1991
PROJ.NO. G010.002

6.006

TEST DATA:

Specimen Height (cm): 7.68

Specimen Diameter (cm): 7.30

Dry Unit Weight (pcf): 111.7

Moisture Content Before Test (%): 11.7

Moisture Content After Test (%): 17.5

Cell Confining Pressure (psi): ----

Test Pressure (psi): 80.2

Back Pressure (psi): 80.0

Differential Head (psi): 0.2

Flow Rate (ΔV/t)(cm³/sec) ○ $2.45\text{x}10^{-1}$ Δ

Permeability (cm/sec): ○ $3.16\text{x}10^{-3}$ Δ

SAMPLE DATA:

Sample Identification: LAB NO. 1096.006
BORING MW-8S

Visual Description: Tan SAND, little gravel, trace silt

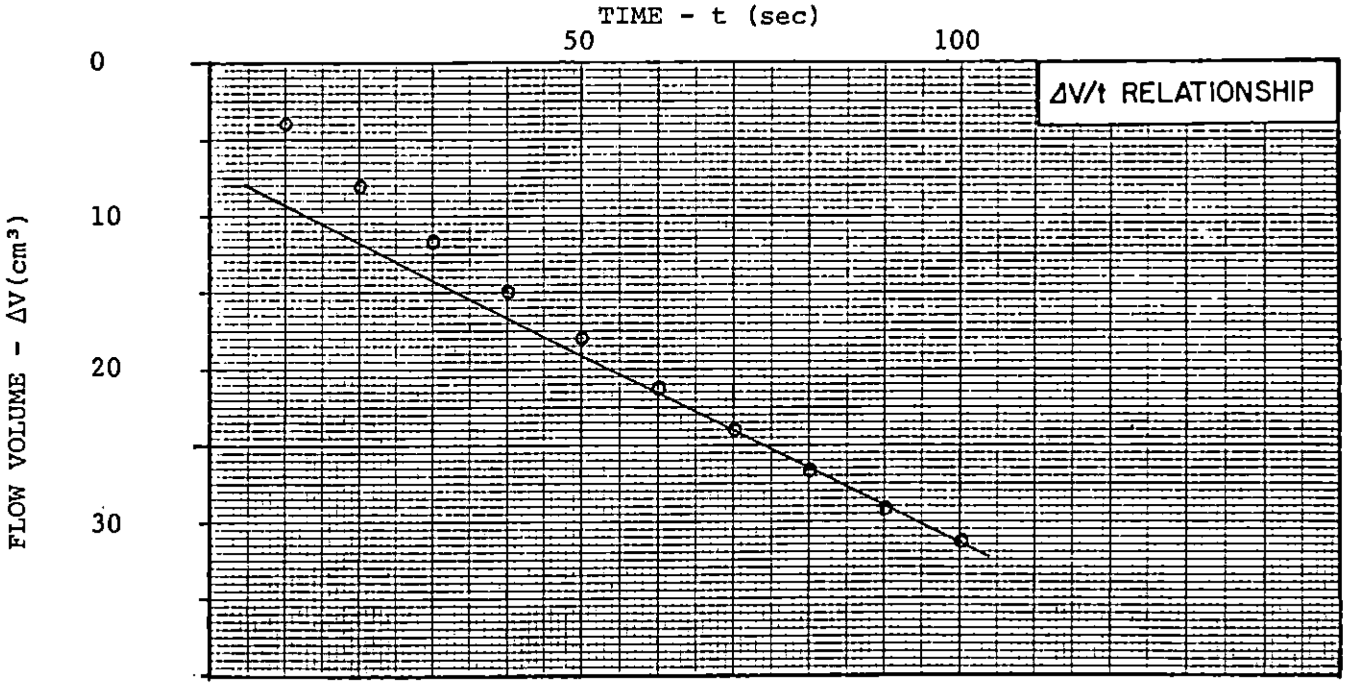
Remarks: Remolded and Tested in Section of Shelby Tube

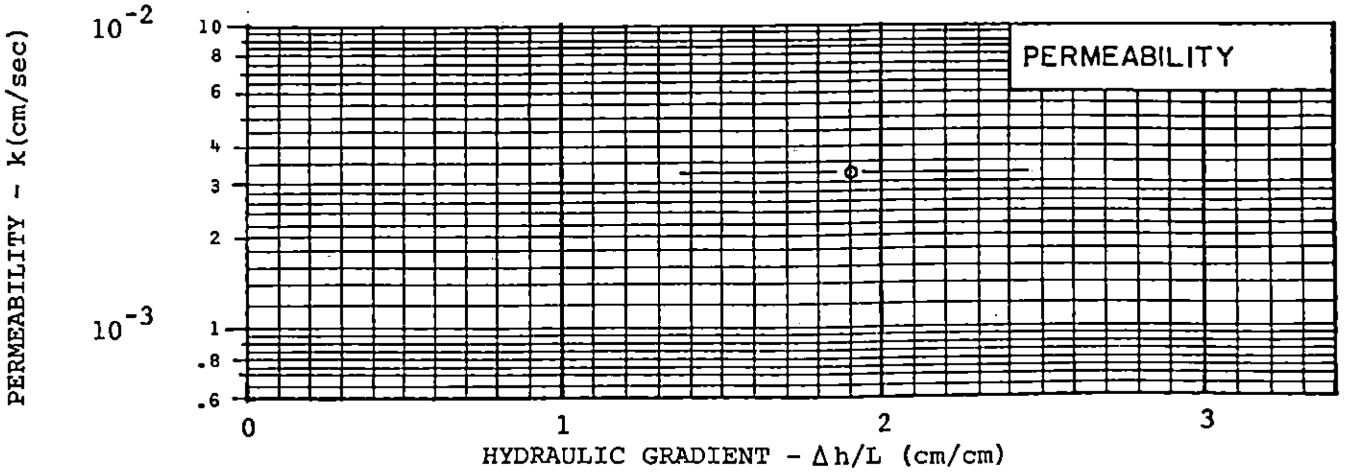
Maximum Dry Density (ASTM D ____) (pcf):

Optimum Moisture Content (%):

Percent Compaction:

Permeameter Type: RIGID WALL



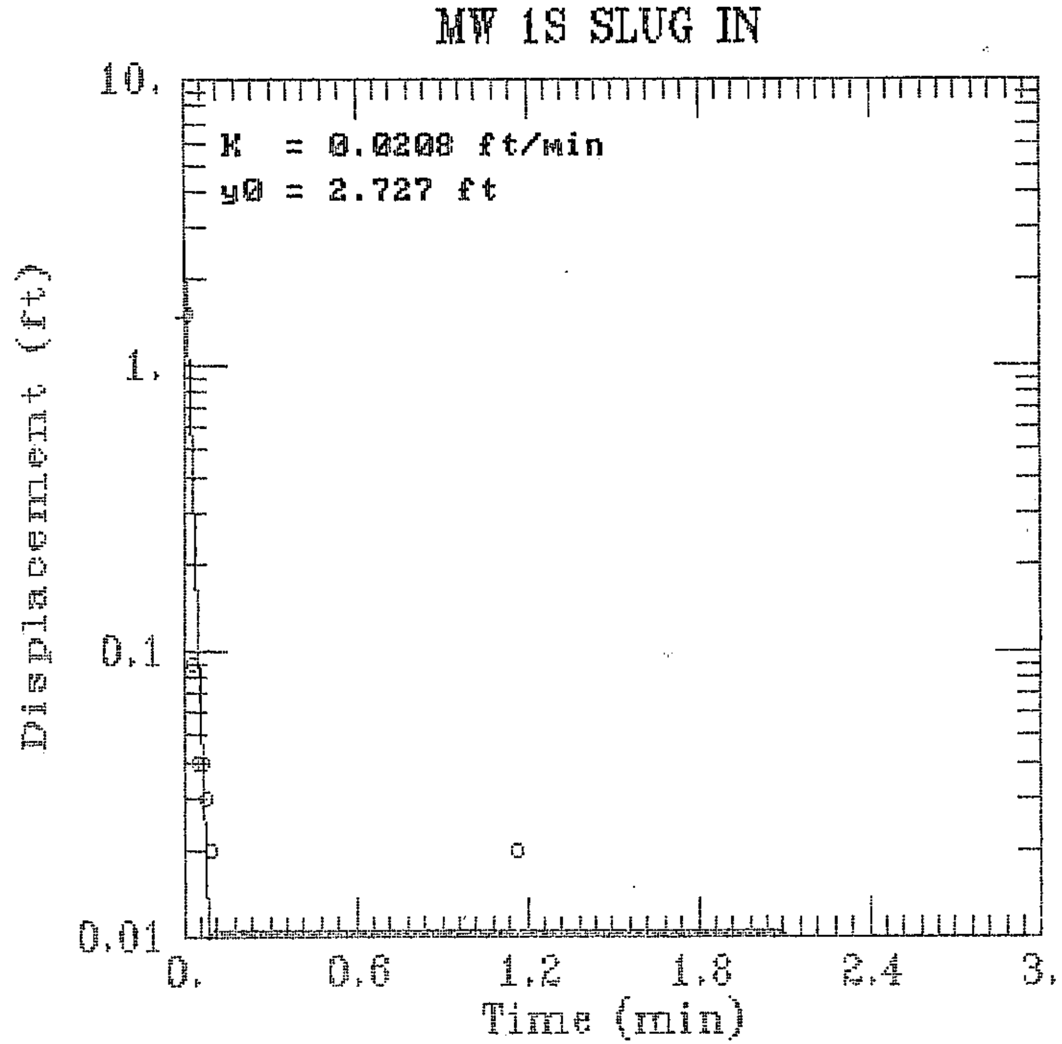


PERMEABILITY TEST REPORT

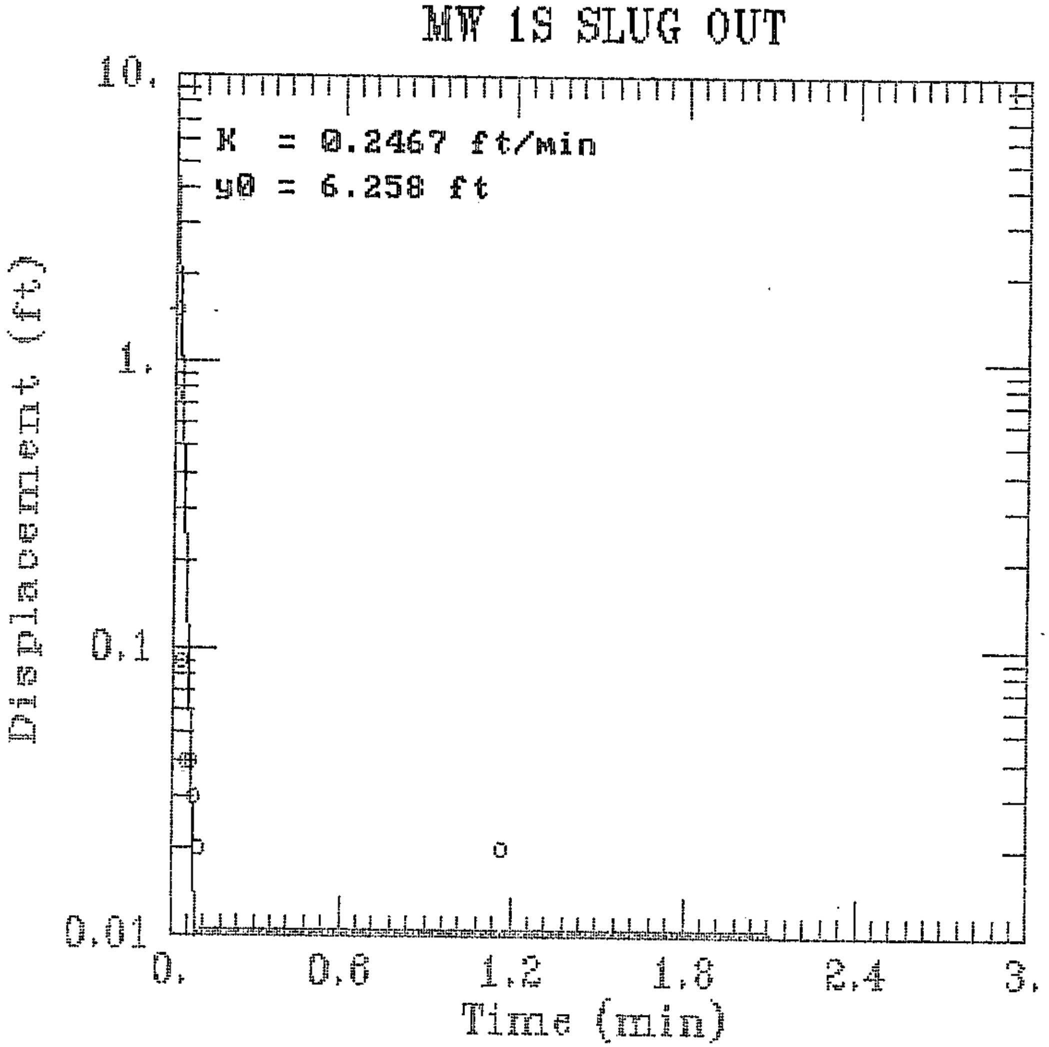
EMPIRE
SOILS INVESTIGATIONS INC.

GIBSON OIL RI/FS
COMMACK, NEW YORK

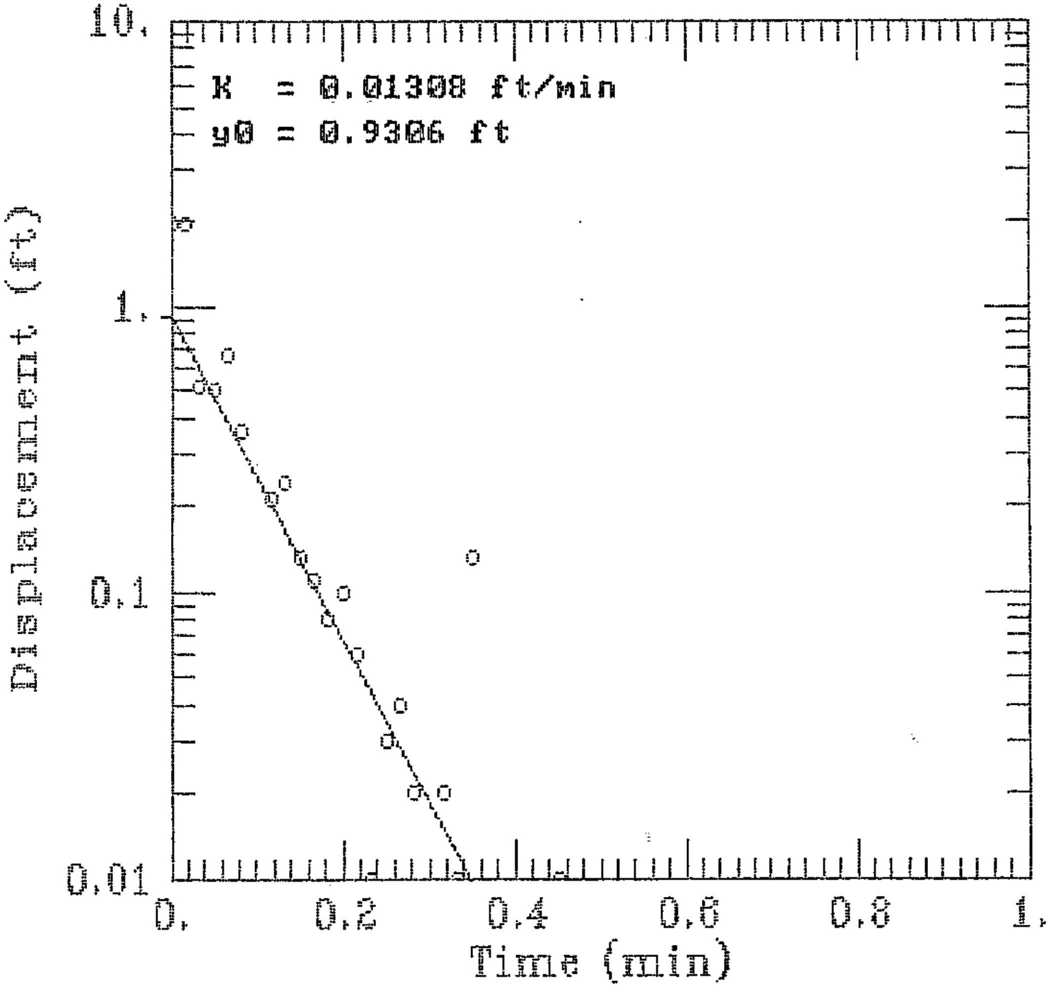
DR BY: JFC
CK'D. JFC
DATE: DEC, 1991
PROJ.NO. G010.002

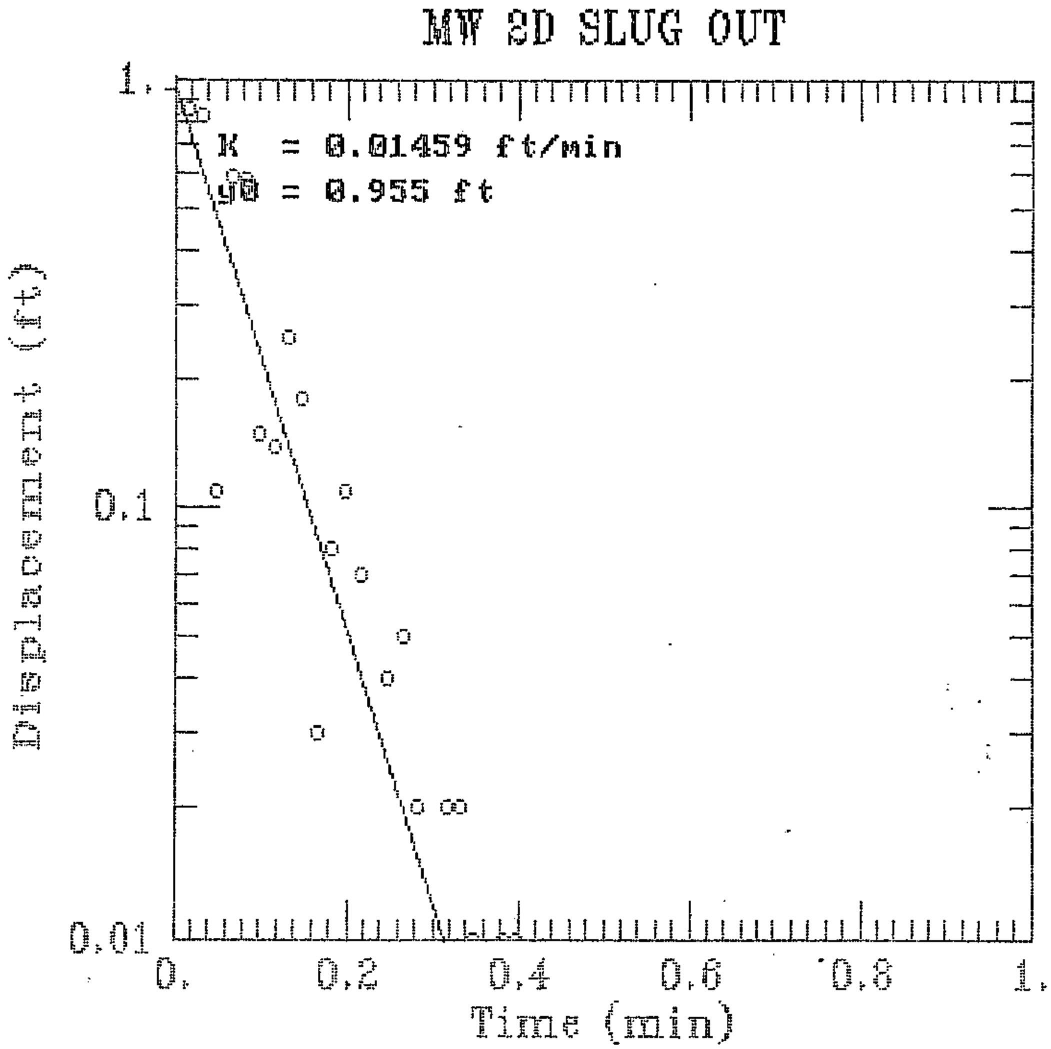


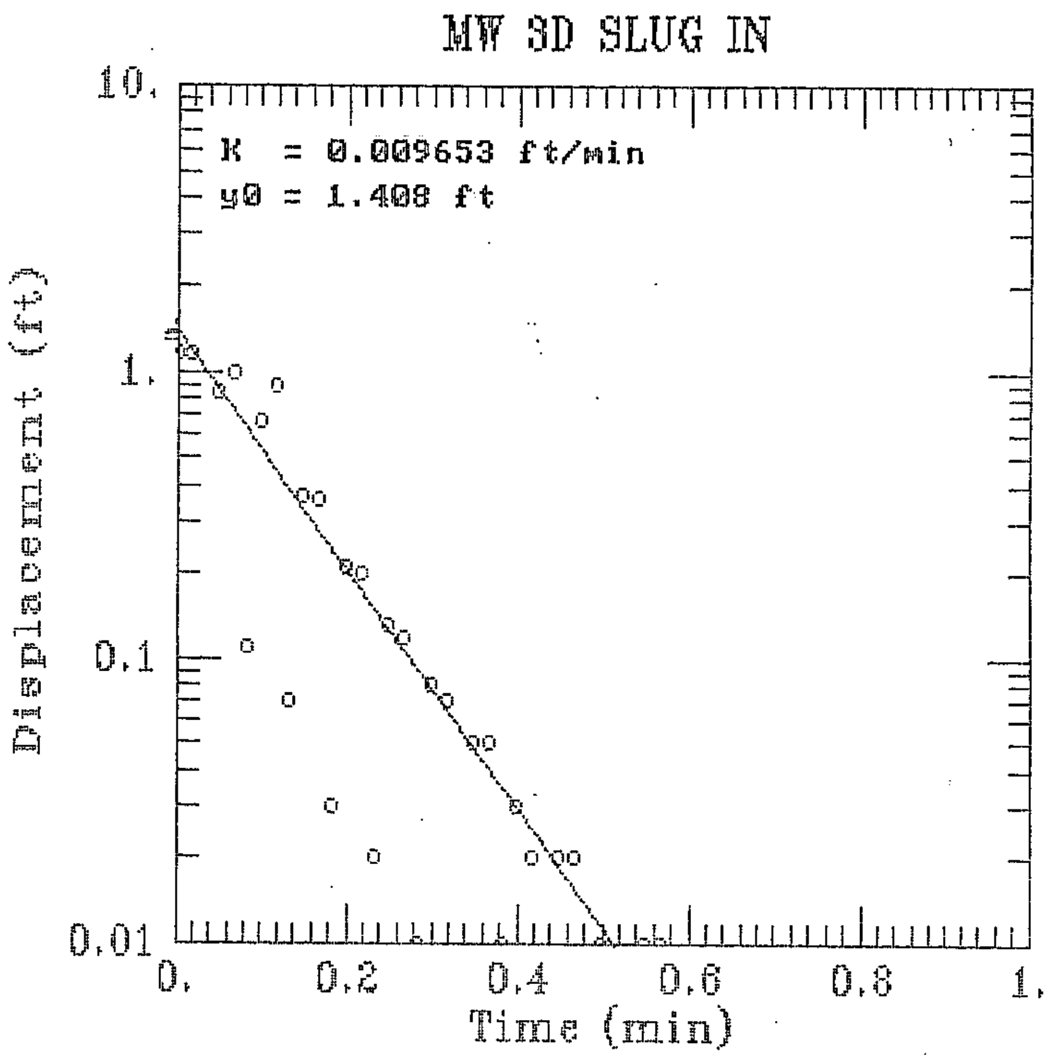
ERM-Northeast

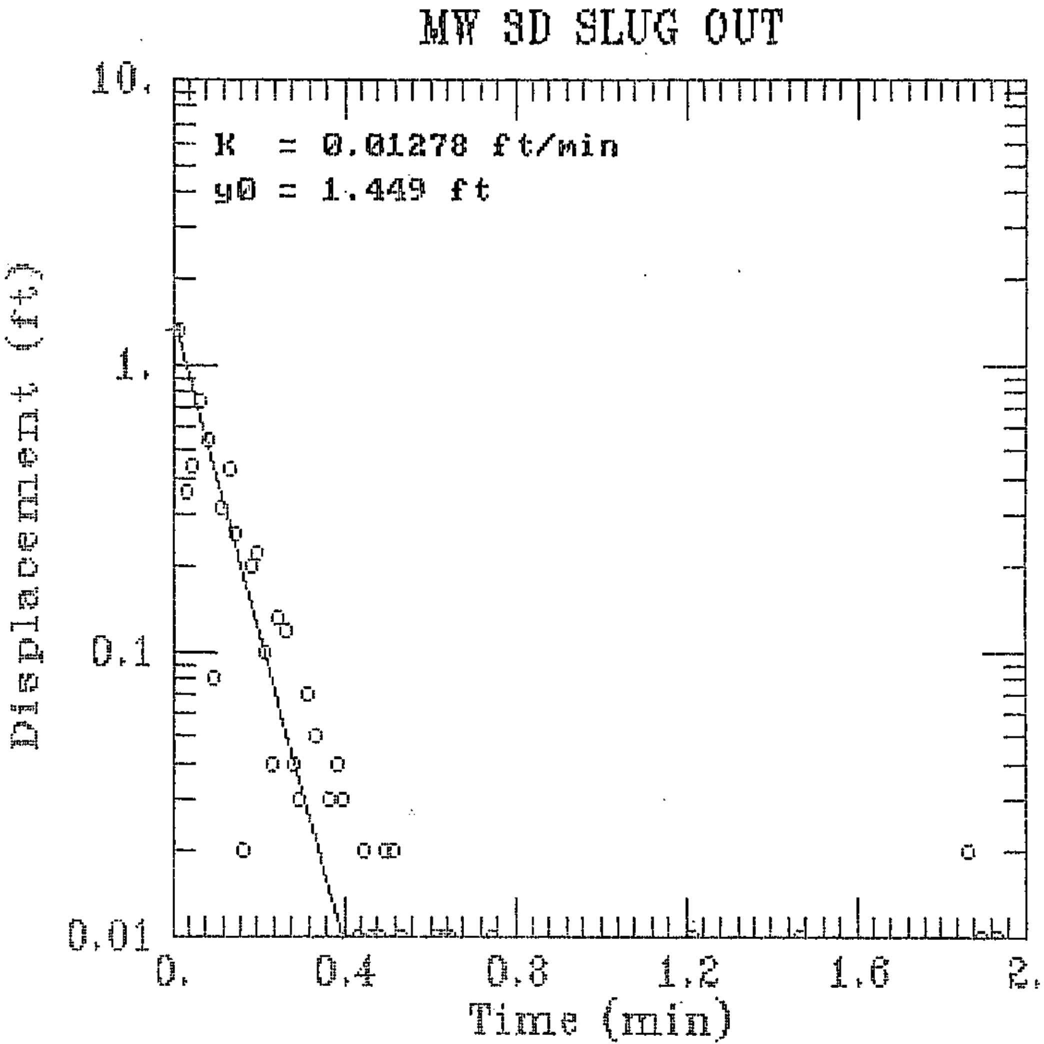

MW 1S SLUG OUT
K = 0.2467 ft/min
y0 = 6.258 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
0.6
1.2
1.8
2.4
3.
Time (min)

MW 2D SLUG IN


K = 0.01308 ft/min
y0 = 0.9306 ft
10.
1.
0.1
0.01
Displacement (ft)
0.
0.2
0.4
0.6
0.8
1.
Time (min)

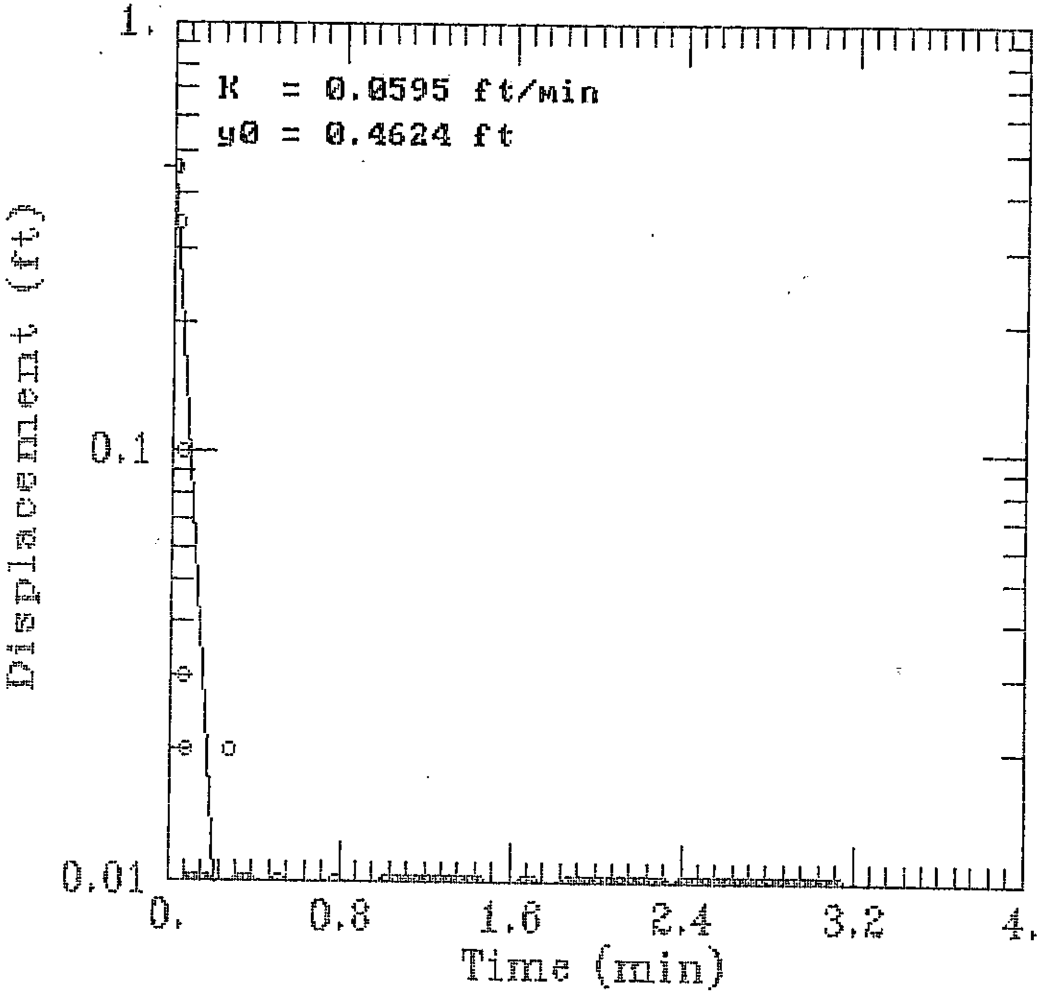

MW 2D SLUG OUT
K = 0.01459 ft/min
y0 = 0.955 ft
Displacement (ft)
1.
0.1
0.01
Time (min)
0.
0.2
0.4
0.6
0.8
1.


MW 3D SLUG IN
K = 0.009653 ft/min
y0 = 1.408 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
0.2
0.4
0.6
0.8
1.
Time (min)



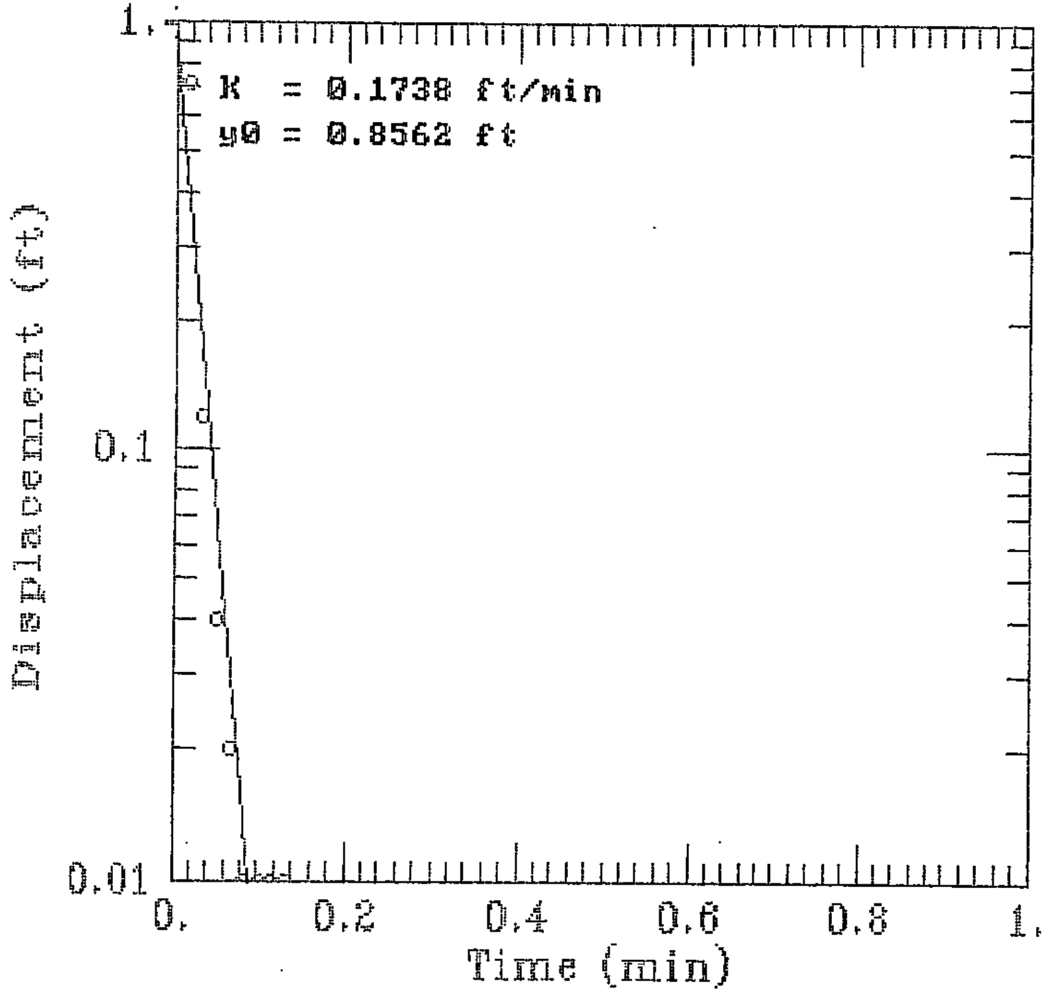
ERM-Northeast

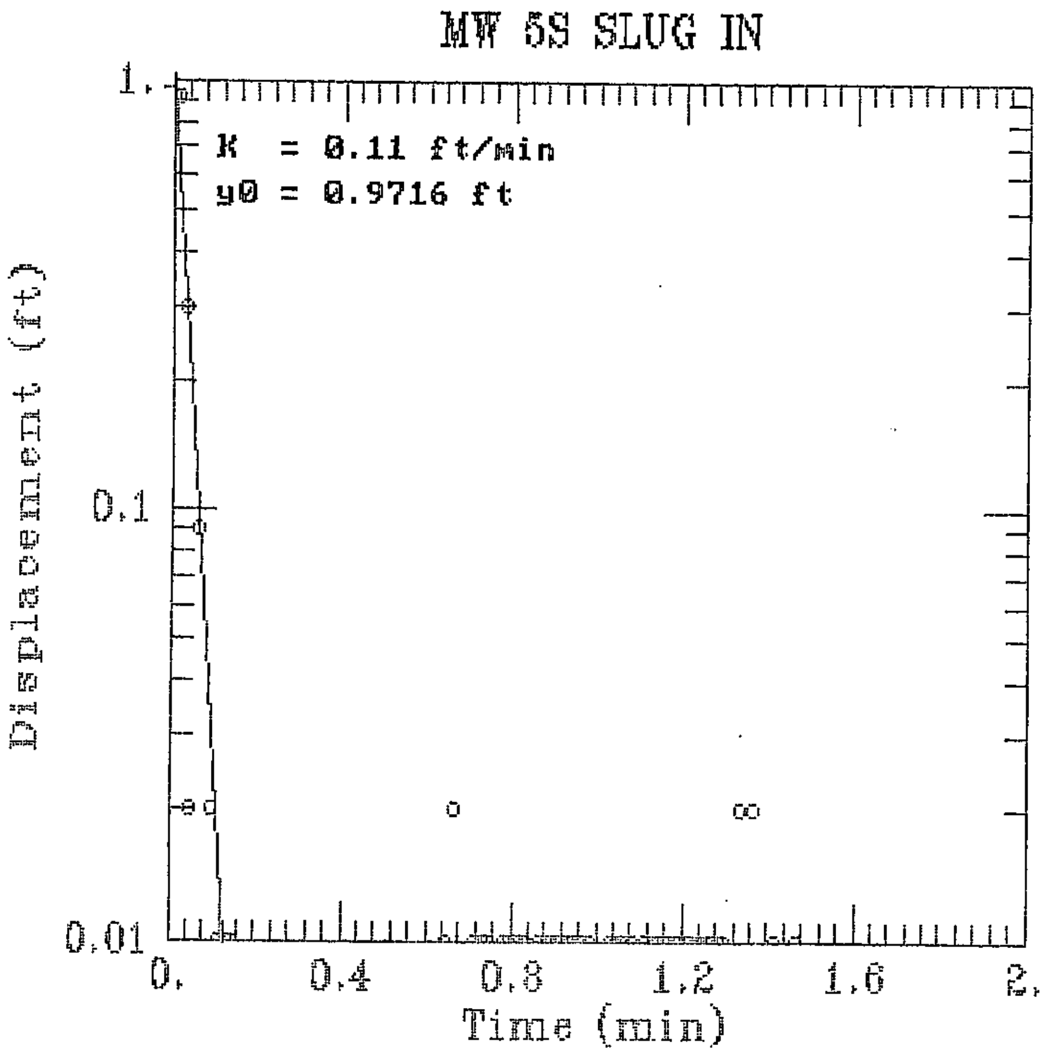
MW 3S SLUG IN

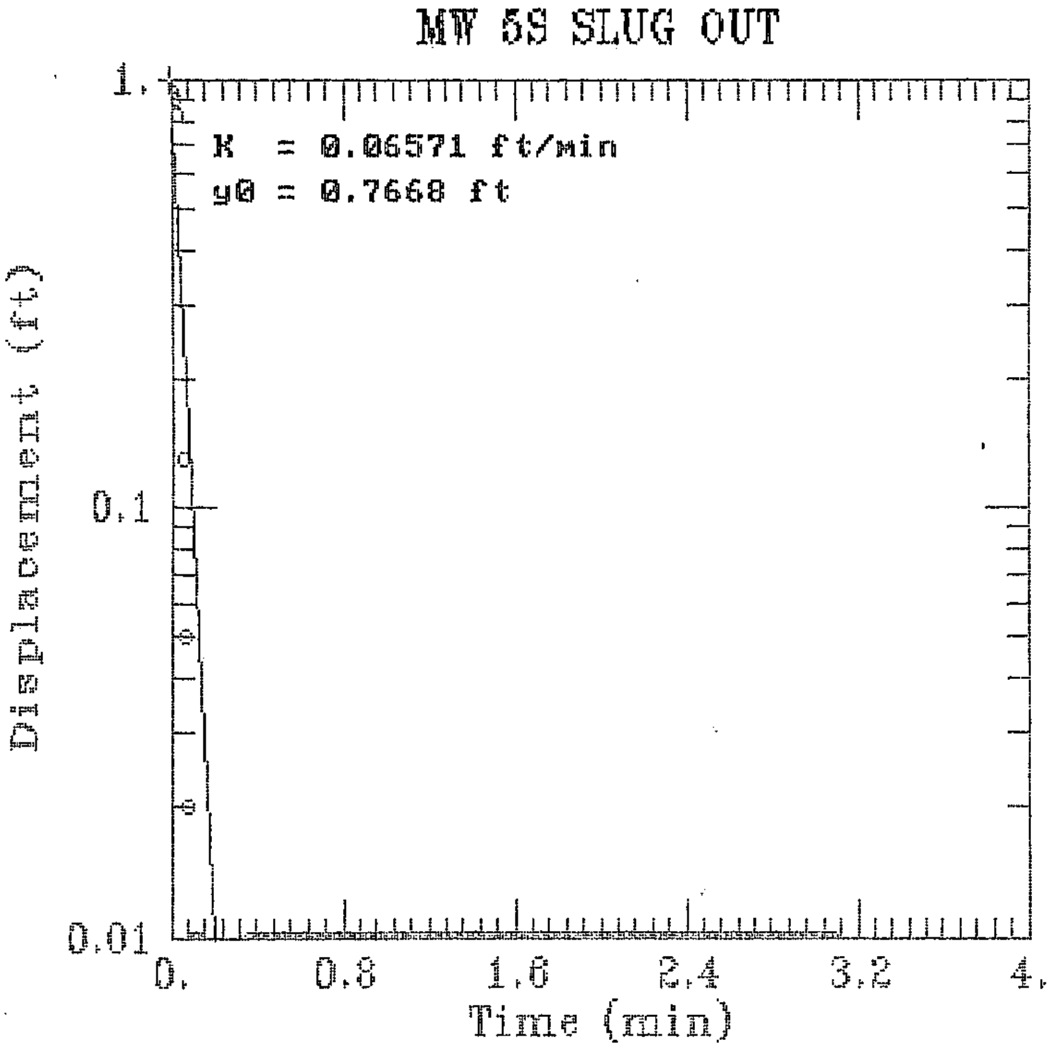


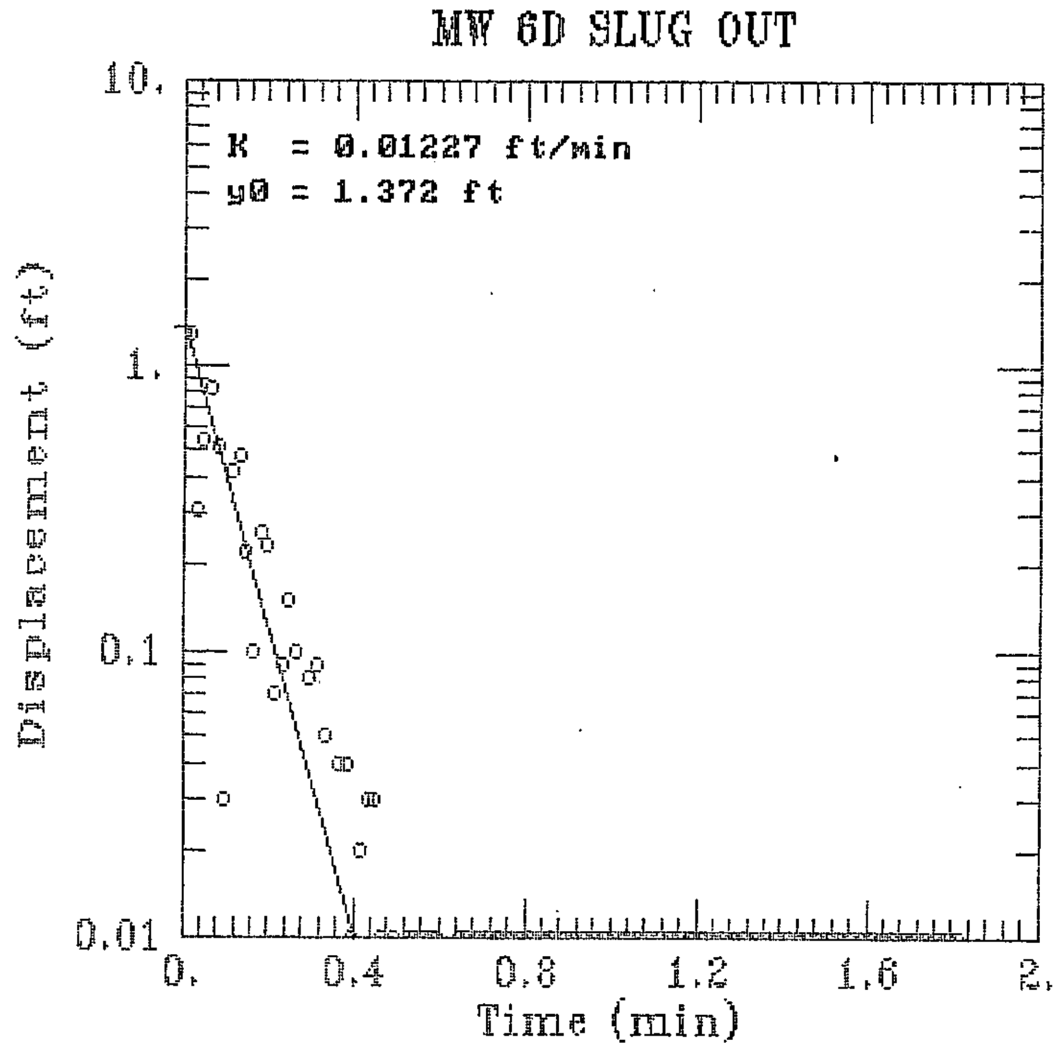
ERM-Northeast

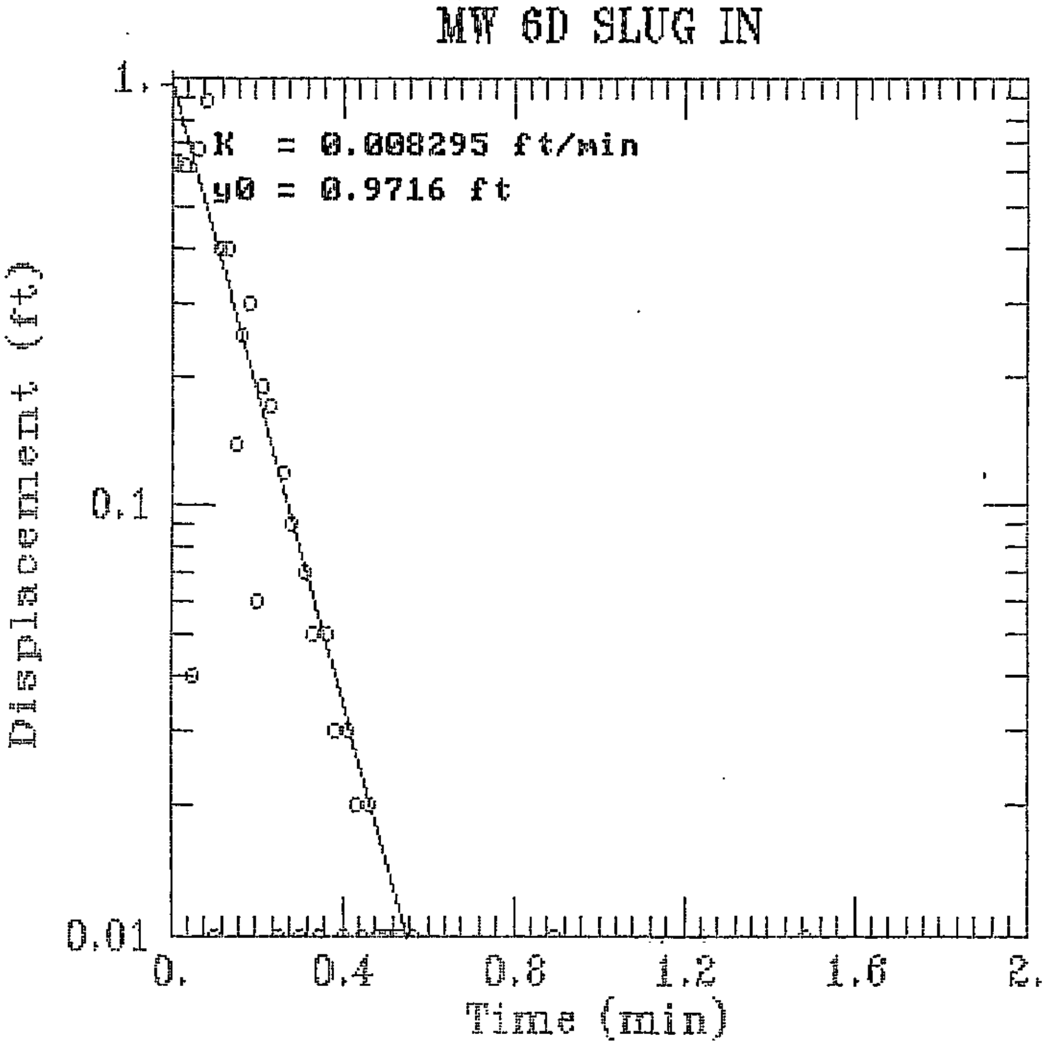
MW 3S SLUG OUT

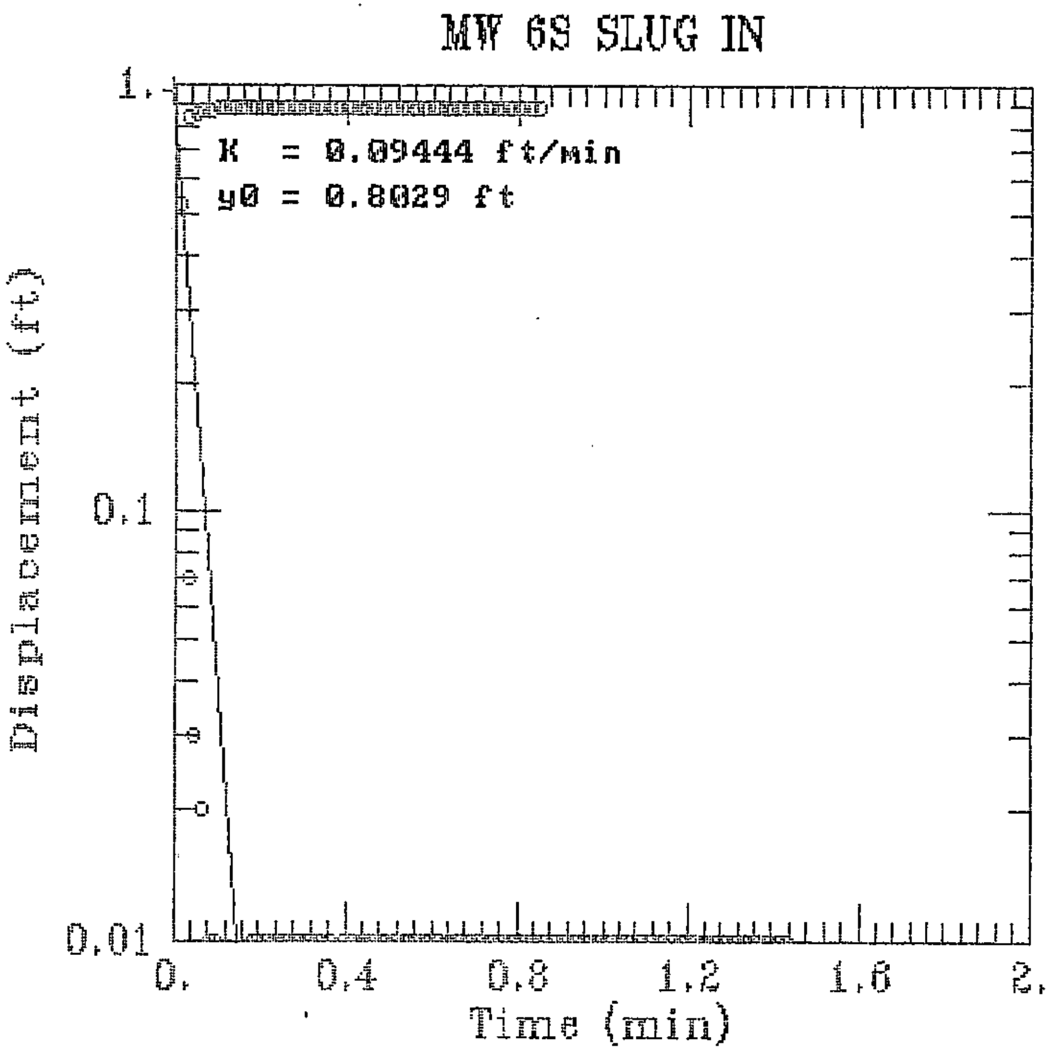



MW 5S SLUG IN
K = 0.11 ft/min
y0 = 0.9716 ft
Displacement (ft)
1.
0.1
0.01
Time (min)
0.
0.4
0.8
1.2
1.6
2.


MW 5S SLUG OUT
K = 0.06571 ft/min
y0 = 0.7668 ft
Displacement (ft)
1.
0.1
0.01
0.
0.8
1.6
2.4
3.2
4.
Time (min)


MW 6D SLUG OUT
K = 0.01227 ft/min
y0 = 1.372 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
0.4
0.8
1.2
1.6
2.
Time (min)

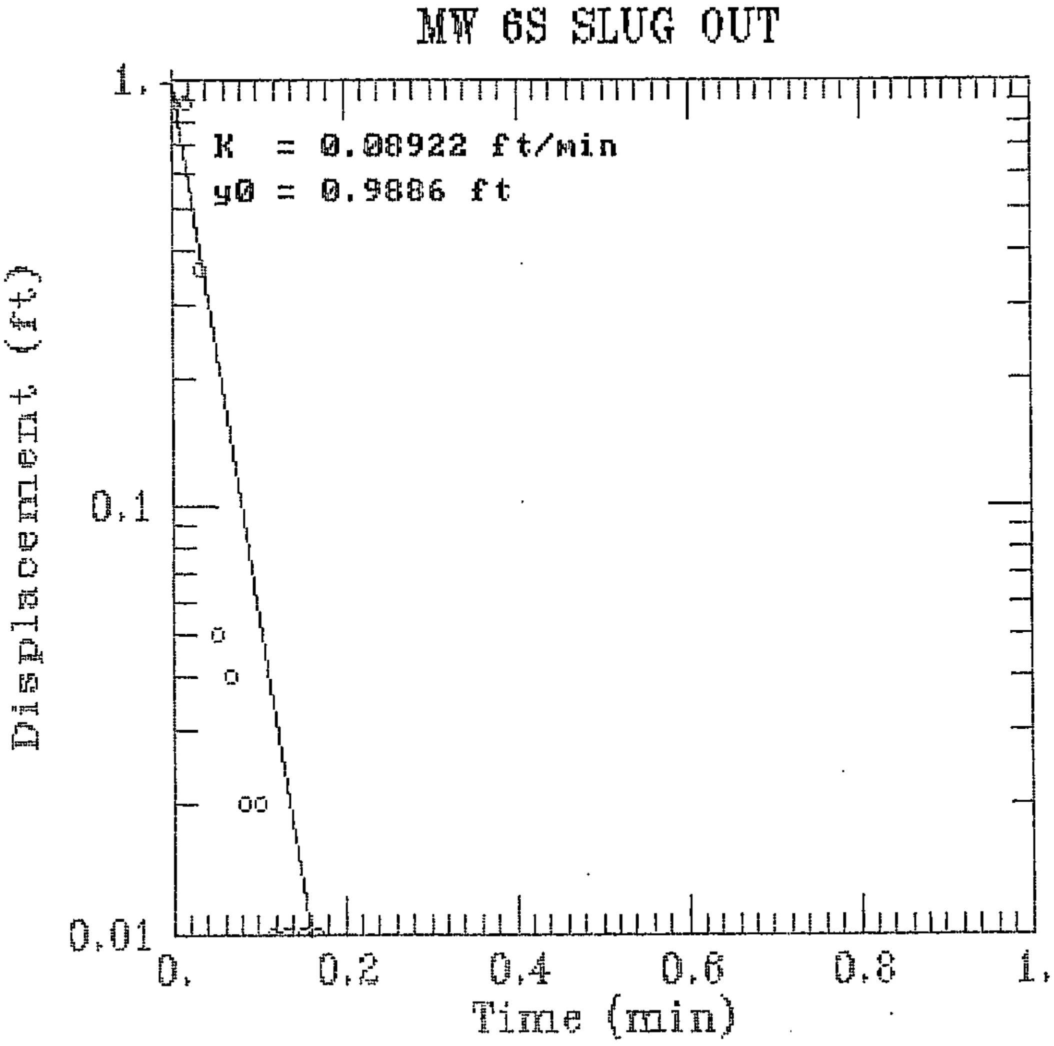

MW 6D SLUG IN
K = 0.008295 ft/min
y0 = 0.9716 ft
Displacement (ft)
1.
0.1
0.01
Time (min)
0.
0.4
0.8
1.2
1.6
2.

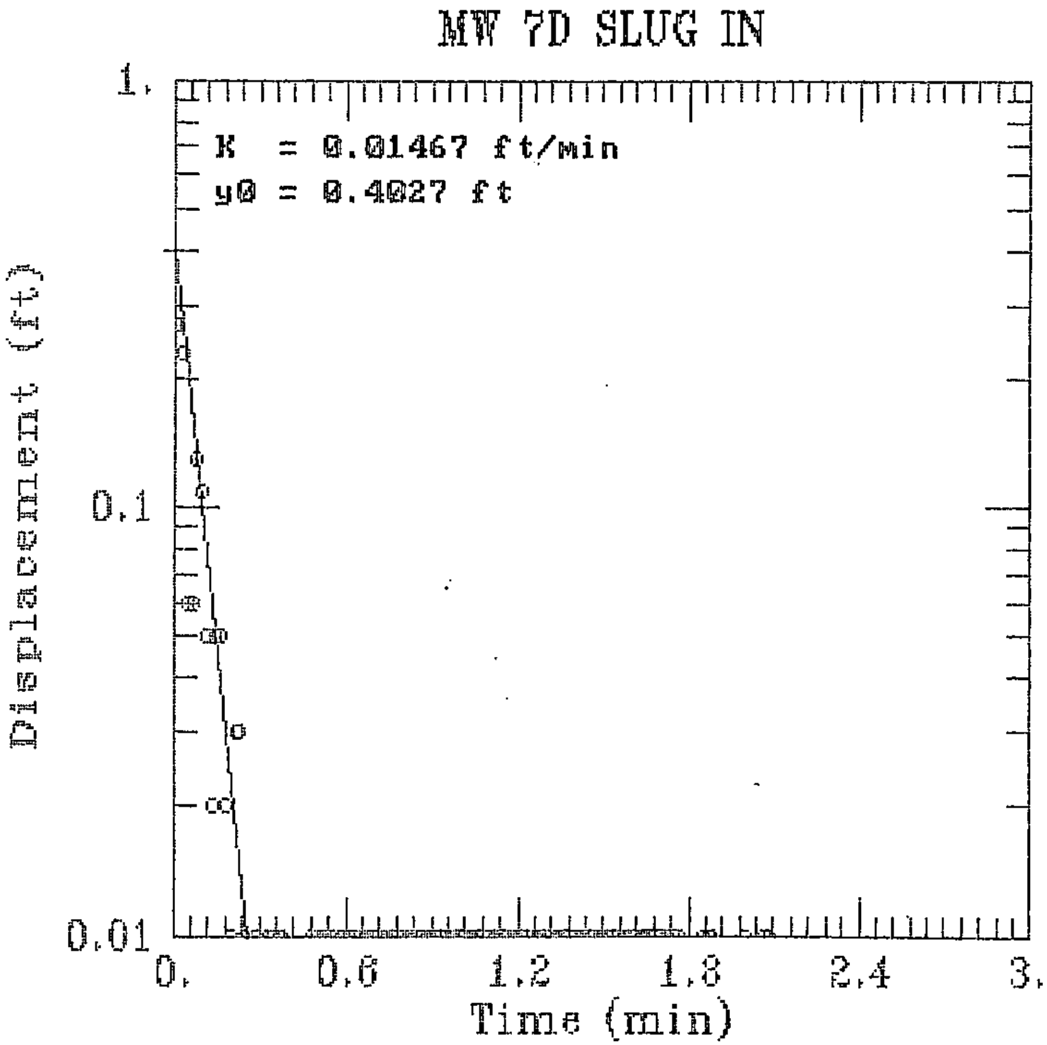


ERM-Northeast

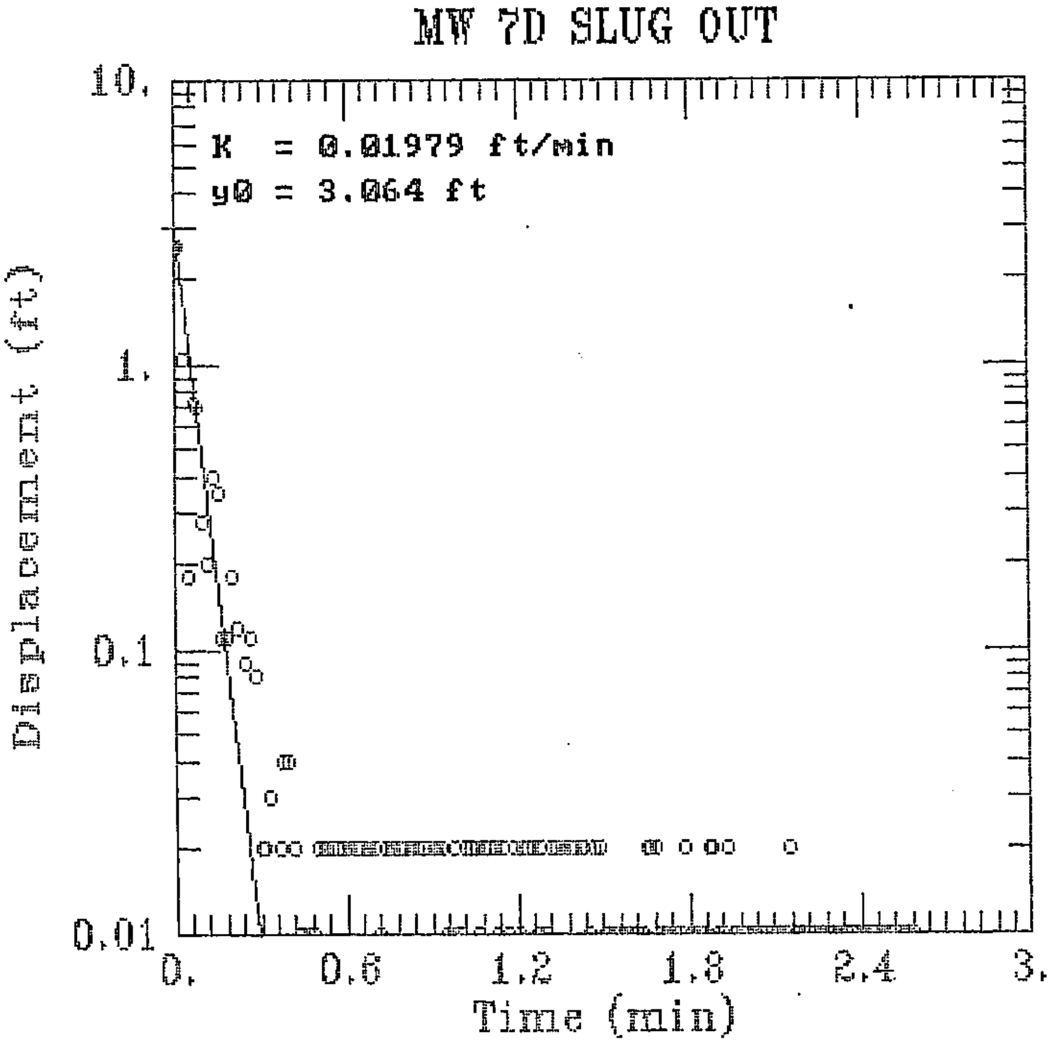
ERM-Northeast

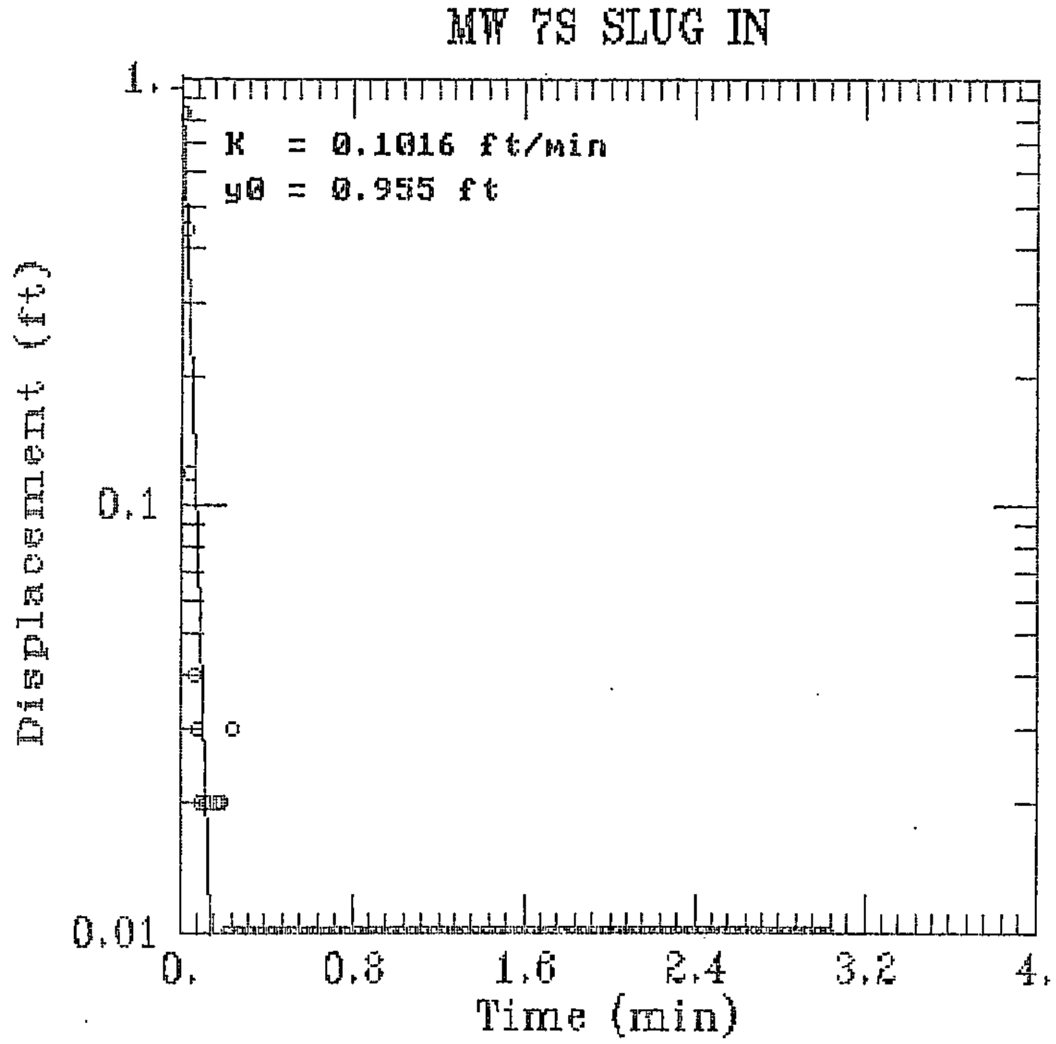
MW 6S SLUG OUT



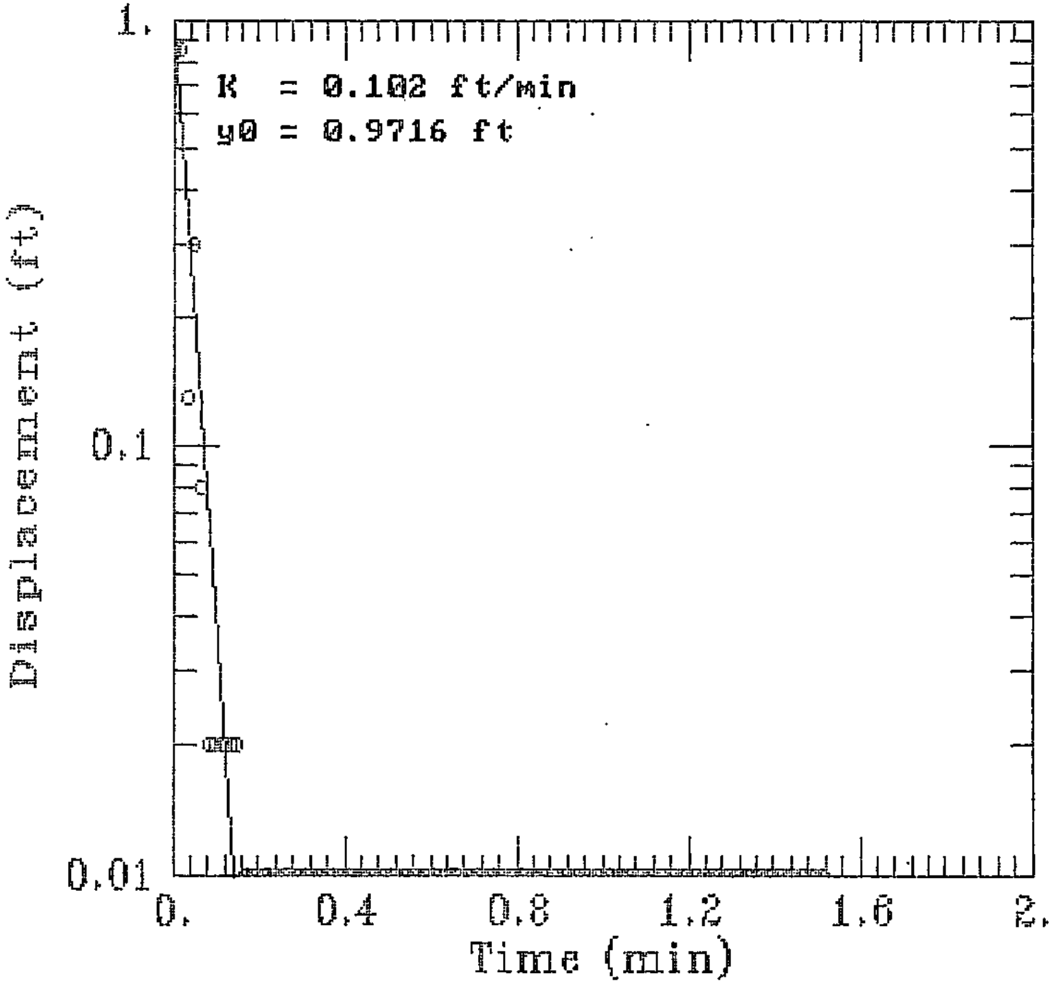

MW 7D SLUG IN
K = 0.01467 ft/min
y0 = 0.4027 ft
Displacement (ft)
1.
0.1
0.01
0.
0.6
1.2
1.8
2.4
3.
Time (min)

ERM-Northeast



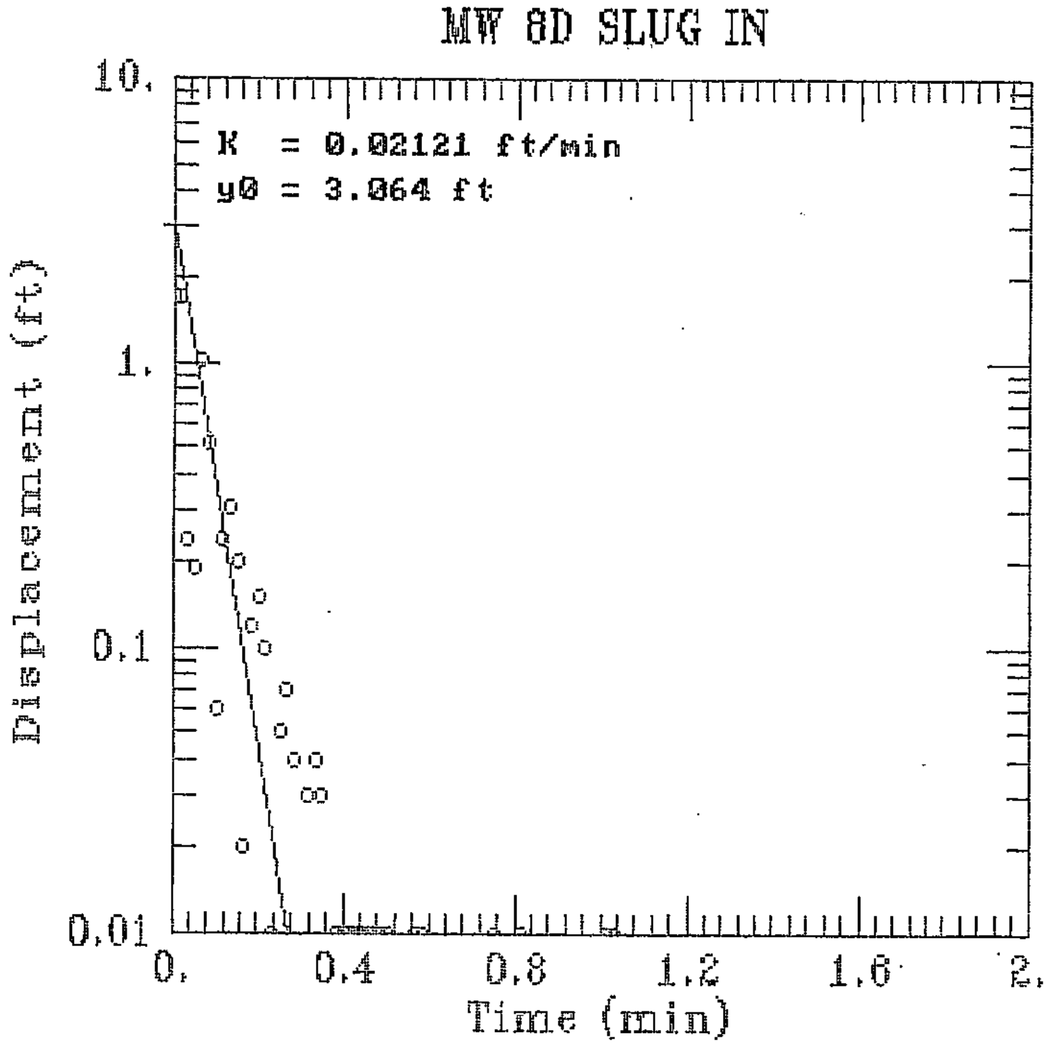

MW 7S SLUG IN
K = 0.1016 ft/min
y0 = 0.955 ft
Displacement (ft)
1.
0.1
0.01
0.
0.8
1.6
2.4
3.2
4.
Time (min)

MW 7S SLUG OUT



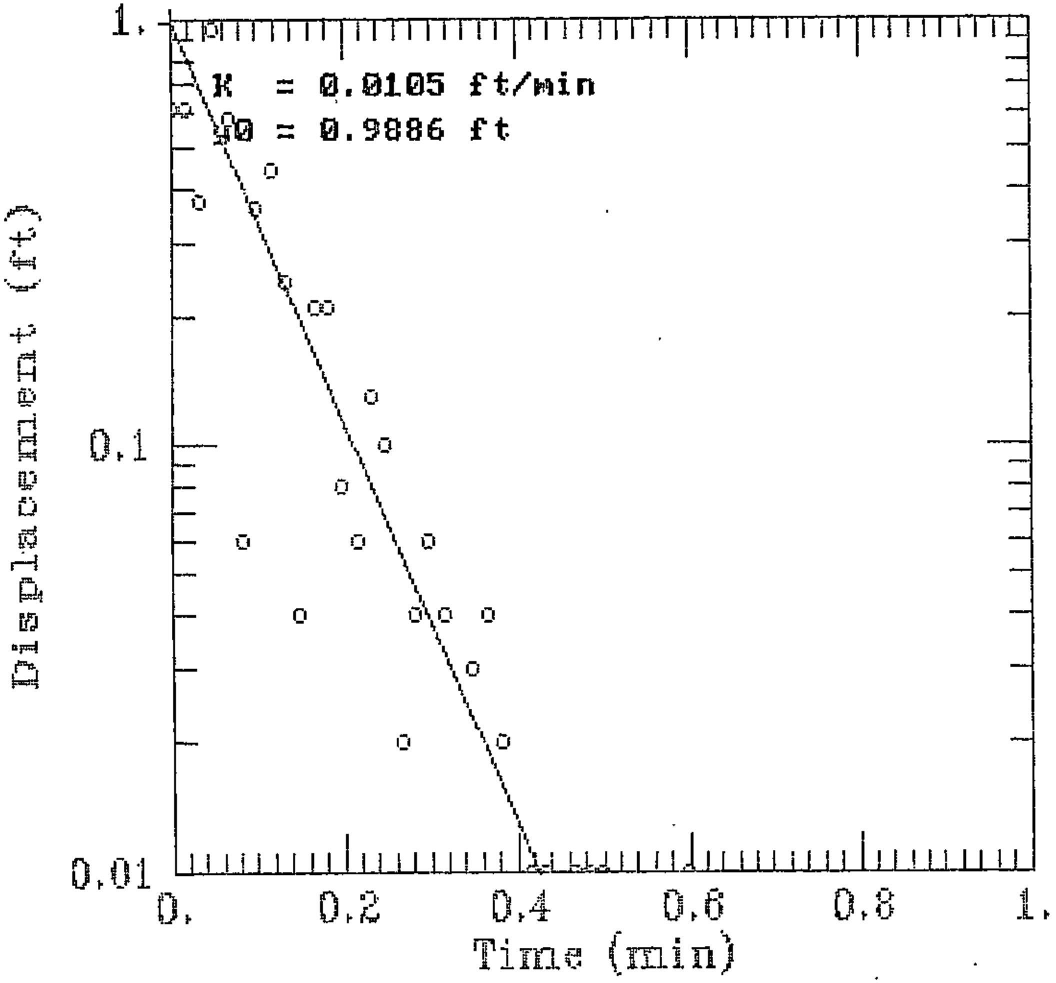
ERM-Northeast

ERM-Northeast



MW 8D SLUG IN

MW 8D SLUG OUT



Monitoring Well*	Static Height of Water	Drawdown Intial	Screen Length
MW1S Slug In	8.71 ft.	1.52 ft.	20 ft.
MW1S Slug Out	8.71 ft.	0.74 ft.	20 ft.
MW2D Slug In	49.60 ft.	1.95 ft.	10 ft.
MW2D Slug Out	49.60 ft.	0.86 ft.	10 ft.
MW3D Slug In	49.63 ft.	1.61 ft.	10 ft.
MW3D Slug Out	49.63 ft.	1.31 ft.	10 ft.
MW3S Slug In	8.28 ft.	0.46 ft.	20 ft.
MW3S Slug Out	8.28 ft.	0.72 ft.	20 ft.
MW5S Slug In	9.87 ft.	0.91 ft.	20 ft.
MW5S Slug Out	9.87 ft.	0.93 ft.	20 ft.
MW6D Slug In	48.65 ft.	0.64 ft.	10 ft.
MW6D Slug Out	48.65 ft.	1.29 ft.	10 ft.
MW6S Slug In	9.53 ft.	0.53 ft.	20 ft.
MW6S Slug Out	9.53 ft.	0.89 ft.	20 ft.
MW7D Slug In	51.13 ft.	0.27 ft.	10 ft.
MW7D Slug Out	51.13 ft.	2.61 ft.	10 ft.
MW7S Slug In	9.68 ft.	0.82 ft.	20 ft.
MW7S Slug Out	9.68 ft.	0.85 ft.	20 ft.
MW8D Slug In	48.26 ft.	1.71 ft.	10 ft.
MW8D Slug Out	48.26 ft.	0.61 ft.	10 ft.

* = All monitoring wells consisted of a casing raduis of 0.083 ft. except the shallow wells in which 0.1635 feet as per Bouwer and Rice. The effective well raduis used was 0.271 feet.

APPENDIX J

USGS WELL SURVEY PRINTOUT

		W[illegible]	AQUIFER	STATION ID	LAT-LONG	SQ	LSD	MP	DEPTH	--SCREEN-- TOP	BOTTOM	MAX DRILL	TOWN	COMM	SWDST	ZN	TRM	WELUS
1	S	19. 1	112GLCLU	404750073194201	4047500731942	01	130.0	0.00	203	0	0	0	7	133	0		~~SK 690~~	
✓2	S	42. 1		404731073164701	4047310731647	01	120.0	0.00	1008	0	0	0	8	189	0		SK 857	3
✓3	S	45. 1	112GLCLU	404940073165201	4049400731652	01	160.0	160.87	129	0	0	0	11	169	0		~~SJ 900~~	5
✓4	S	61. 1		404638073152601	4046380731526	01	93.0	0.00	194	0	0	194	8	189	0		~~SL 917~~	7
✓5	S	62. 1		404640073152101	4046400731521	01	92.0	0.00	200	0	0	200	8	189	0		SL 917	7
* M 6	S	302. 1	112GLCLU	404629073143201	4046280731432	01	80.0	0.00	52	0	0	0	8	169	0		~~SH 360~~	[illegible]
7	S	1723. 1	112GLCLU	404749073161001	4047490731610	01	122.0	0.00	159	0	0	0	8	189	0		SK 896	5
~~8~~	~~S~~	~~1810. 1~~	~~112GLCLU~~	~~404614073164401~~	~~4046140731647~~	~~01~~	~~89.7~~	~~89.87~~	~~46~~	~~42~~	~~46~~	~~0~~	~~8~~	~~194~~	~~0~~		~~SL 827~~	~~6~~
~~9~~	~~S~~	~~1810. 2~~	~~112GLCLU~~	~~404613073164702~~	~~4046130731647~~	~~02~~	~~93.7~~	~~93.05~~	~~48~~	~~46~~	~~48~~	~~0~~	~~8~~	~~194~~	~~0~~		~~SL 828~~	~~6~~
~~10~~	~~S~~	~~1810. 3~~	~~112GLCLU~~	~~404614073164403~~	~~4046140731644~~	~~03~~	~~90.1~~	~~91.13~~	~~56~~	~~54~~	~~56~~	~~0~~	~~8~~	~~194~~	~~0~~		~~SL 828~~	~~6~~
11	S	1810. 4	112GLCLU	404614073164404	4046140731644	04	90.8	89.80	51	0	0	0	8	194	0		~~SL 828~~	1
12	S	1815. 1	112GLCLU	404659073141901	4046590731419	01	73.0	72.45	40	0	0	0	0	0	0		~~SL 986~~	1
13	S	1815. 2	112GLCLU	404659073141902	4046590731419	02	73.0	71.85	0	0	0	0	0	0	0		~~SL 986~~	1
14	S	1815. 3	112GLCLU	404659073141601	4046590731418	01	72.5	72.33	54	50	54	0	0	0	0		~~SL 986~~	1
15	S	1816. 1		404610073184001	4046100731840	01	80.0	34.02	37	0	0	0	0	0	0		~~SL 714~~	1
16	S	3514. 1	112GLCLU	405031073181201	4050310731812	01	153.6	153.78	98	0	0	0	0	0	0		~~SH 841~~	1
17	S	4184. 1	112GLCLU	405032073162801	4050340731618	01	143.0	139.91	162	136	162	0	11	169	0		~~SH 954~~	5
18	S	4206. 1	112GLCLU	404630073180001	4046300731800	01	80.0	0.00	125	81	101	0	4	159	0		~~SL 753~~	5
19	S	4270. 1		404725073162201	4047250731622	01	119.2	118.17	83	0	0	0	0	0	0		SK 879	1
20	S	4519. 1	112GLCLU	404813073194401	4048130731944	01	140.0	0.00	118	115	118	0	7	133	0		~~SJ 738~~	5
21	S	4615. 1	112GLCLU	405006073174601	4050060731746	01	130.0	0.00	148	123	143	0	7	169	0		~~SH 865~~	5
→22	S	7935. 1	112GLCLU	404853073165401	4048530731654	01	175.0	0.00	146	141	145	0	11	169	0		SJ 887	5✓
23	S	8117. 1	211MGTY	404914073194001	4049140731940	01	260.0	0.00	250	239	244	0	7	133	0		~~SH 729~~	5
24	S	8448. 1	112GLCLU	405059073185801	4050590731858	01	190.0	0.00	520	500	520	0	7	169	0		~~SG 818~~	5
25	S	9011. 1	112GLCLU	405107073164301	4051070731643	01	140.0	0.00	199	160	166	0	7	169	0		~~SG 949~~	5
26	S	9771. 1	112GLCLU	405046073161401	4050480731615	01	140.0	0.00	147	126	146	151	11	169	0		SH 963	7
27	S	10766. 1	112GLCLU	404842073172001	4048420731720	01	130.0	0.00	137	132	137	0	10	0	0		SJ 857	5
X28	S	11891. 1	112GLCLU	405054073151001	4050540731510	01	70.0	68.14	119	86	108	328	11	182	0		SH1024	7
29	S	12163. 1	112GLCLU	404821073185601	4048210731856	01	165.0	0.00	169	145	155	0	7	133	0		~~SJ 757~~	5
30	S	12363. 1	112GLCLU	404942073160201	4049420731602	01	140.0	0.00	183	120	131	0	7	169	0		~~SH 638~~	5
31	S	13642. 1	112GLCLU	404821073171501	4048210731715	01	90.0	0.00	95	79	95	0	11	169	0		SK 840	5
(32)	S	14326. 1T	211MGTY	404919073142701	4049200731427	01	70.0	0.00	225	141	225	0	11	182	0		~~SJ1036~~	7
33	S	14579. 1T	211MGTY	404954073183901	4049540731839	01	157.0	0.00	554	455	507	0	7	169	0		SH 805	5
34	S	14609. 1		405000073170501	4050000731705	01	0.0	0.00	0	0	0	0	0	0	0		~~SH 897~~	
35	S	15338. 1T	112GLCLU	405015073170101	4050150731701	01	150.0	0.00	170	0	0	0	11	169	0		~~SH 906~~	3
36	S	15366. 1	211MGTY	404917073195301	4049170731953	01	290.0	0.00	240	0	0	0	7	133	0		~~SH 718~~	5
37	S	15427. 1	112GLCLU	405002073164501	4050020731645	01	140.0	0.00	137	132	137	0	11	169	0		~~SH 918~~	5
38	S	15602. 1		404738073133601	4047380731336	01	0.0	0.00	0	0	0	0	0	0	0		~~SL1042~~	
39	S	15661. 1	112GLCLU	404841073135001	4048410731350	01	115.0	0.00	119	111	119	0	8	196	0		~~SK1054~~	5
40	S	15809. 1	112GLCLU	404724073165001	4047240731650	01	100.0	0.00	153	118	150	0	8	189	0		SK 848	5
41	S	15810. 1		404708073165201	4047080731652	01	90.0	0.00	202	170	202	202	8	189	0		~~SL 840~~	5
42	S	16501. 1	112GLCLU	404946073192301	4049460731923	01	180.0	0.00	141	134	141	0	7	133	0		~~SH 755~~	5
43	S	16604. 1	211MGTY	404849073192901	4048490731929	01	210.0	0.00	183	177	183	0	7	133	0		~~SJ 732~~	5
(44)	S	16608. 1		404733073153601	4047330731536	01	110.0	0.00	140	110	140	166	8	169	0		SK 929	7
45	S	16861. 1	112GLCLU	405034073140401	4050340731404	01	58.0	57.66	47	0	0	0	11	169	0		~~SH1087~~	1
46	S	16975. 1T	211MGTY	404707073190501	4047070731905	01	110.0	0.00	627	0	0	0	7	0	0		~~SK 716~~	3
47	S	16261. 1	211MGTY	404707073190401	4047060731903	01	110.0	109.59	388	290	373	388	7	159	0		~~SK 716~~	3
48	S	18621. 1	112GLCLU	404704073190401	4047080731905	01	110.0	110.00	201	144	201	250	7	159	0		~~SK 716~~	5
49	S	19057. 1	211MGTY	405040073175601	4050400731758	01	150.0	152.50	681	604	676	0	7	169	0		~~SH 861~~	(5)
(50)	S	20318. 1T	211MGTY	404733073153101	4047330731531	01	110.0	0.00	636	370	430	605	8	169	0		SL 920	7

	WE		AQUIFER	STATION ID	LAT-LONG	SQ	LSD	MP	DEPTH	--SCREEN-- TOP	BOTTOM	MAX DRILL	TOWN	COMM	SWDST	ZON	TRM	WELUS
51	S 20369.	1	211MGTY	404936073152501	4049360731525	01	120.0	0.00	312	260	310	312	11	169	0		SJ 984	7
52	S 21006.	1	112GLCLU	404809073191301	4048090731913	01	143.0	0.00	376	310	372	402	7	0	0		SJ 728	7
53	S 21134.	1	211MGTY	405108073174201	4051080731742	01	160.0	0.00	547	489	540	680	7	169	0		~~SC 887~~	~~7~~
54	S 22362.	1	112GLCLU	404955073170401	4049570731704	01	155.0	156.76	315	243	311	604	11	169	0		~~SH 898~~	~~7~~
55	S 22471.	1	211MGTY	404922073162901	4049220731629	01	165.0	0.00	383	312	381	602	7	169	0		SJ 914	7
56	S 22549.	1	211MGTY	404708073190701	4047080731902	01	114.0	116.68	415	347	403	541	7	159	0		SK 716	7
57	S 22823.	1	211MGTY	404808073132601	4048080731326	01	125.0	0.00	400	349	400	0	8	191	0		~~SK1069~~	~~5~~
58	S 23445.	1	211MGTY	404659073164101	4046590731642	01	110.0	113.56	610	541	605	610	9	139	0		~~SL 242~~	~~7~~
59	S 23462.	1	112GLCLU	404813073132301	4048130731328	01	125.0	0.00	400	374	400	0	8	191	0		~~SK1068~~	
60	S 23522.	1	112GLCLU	404808073191301	4048080731913	01	145.0	0.00	424	358	420	424	7	133	0		SJ 728	7
61	S 23715.	1	112GLCLU	404955073170402	4049550731704	02	155.0	0.00	340	238	310	340	11	169	0		~~SH 892~~	~~7~~
62	S 23853.	1	211MGTY	404922073162701	4049220731626	01	165.0	170.00	405	316	402	409	7	169	0		~~SJ 914~~	~~7~~
63	S 23999.	1	211MGTY	405018073161701	4050180731617	01	160.0	0.00	704	535	607	0	7	169	0		~~SH 833~~	~~5~~
64	S 24769.	1	211MGTY	404819073160301	4048190731603	01	139.0	140.98	810	600	810	856	8	169	0		SK 913	1
65	S 24770.	1	211MGTY	404829073161502	4048190731603	02	139.0	141.01	434	424	434	0	11	198	0		SK 913	1
66	S 24771.	1	112GLCLU	404820073160303	4048200731603	03	139.0	141.08	127	117	127	0	8	193	0		SK 912	1
67	S 24772.	1		404818073135802	4048130731356	02	120.0	120.37	966	828	838	966	8	189	0		SK1037	7
68	S 24773.	1	211MGTY	404818073135904	4048130731356	04	118.4	120.35	423	412	422	0	8	196	0		SK1037	1
69	S 24774.	1	112GLCLU	404818073135906	4048130731356	06	118.3	120.32	110	100	110	0	0	0	0		~~SK1037~~	~~1~~
70	S 24846.	1	211MGTY	404639073151401	4046390731514	01	90.0	0.00	597	461	517	597	8	189	0		SL 927	7
71	S 29277.	1	112GLCLU	405002073150601	4050020731506	01	115.0	0.00	112	108	112	0	11	182	0		~~SJ1011~~	~~5~~
72	S 29352.	1	211MGTY	405042073195501	4050420731957	01	190.0	0.00	607	530	601	690	7	139	0		~~SG 747~~	~~7~~
73	S 30234.	1	112GLCLU	404754073132601	4047540731316	01	112.0	0.00	153	114	153	157	8	191	0		SL1061	7
74	S 31104.	1	211MGTY	404703073164401	4047000731641	01	110.0	105.47	658	592	655	665	8	189	0		SL 842	7
75	S 31624.	1T	211MGTY	404754073132602	4047540731317	02	110.0	116.08	439	364	434	677	8	189	0		SL1061	7
76	S 32412.	1		404736073153201	4047360731532	01	110.0	0.00	900	0	0	900	8	189	0		SK 929	7
77	S 34032.	1	112GLCLU	404808073191201	4048080731912	01	150.0	0.00	441	369	436	441	7	133	0		SJ 738	7
78	S 35399.	1	112GLCLU	404828073145401	4048280731454	01	140.0	0.00	166	151	166	0	11	196	0		SK 984	5
79	S 35609.	1T	112GLCLU	404604073175101	4046040731751	01	70.0	0.00	118	91	101	0	4	159	0		~~SL 737~~	~~1~~
~~80~~	~~S 36132.~~	~~1~~	~~112GLCLU~~	~~404800073193501~~	~~4048000731935~~	~~01~~	~~149.0~~	~~152.74~~	~~110~~	~~105~~	~~110~~	~~112~~	~~0~~	~~0~~	~~0~~		~~SJ 765~~	~~6~~
81	S 36139.	1	112GLCLU	404600073193201	4046000731932	01	76.0	70.91	21	0	0	0	4	159	0		~~SL 654~~	~~1~~
82	S 36140.	1	112GLCLU	404931073140601	4049310731406	01	48.0	47.93	41	0	0	0	11	182	0		~~SJ1057~~	~~1~~
83	S 36141.	1	112GLCLU	405003073155301	4050030731553	01	138.0	136.71	112	109	112	112	0	0	0		~~SH 969~~	~~1~~
84	S 36791.	1	211MGTY	405014073161401	4050470731615	01	140.0	137.52	674	534	670	680	7	169	0		SH 963	7
85	S 36976.	1	211MGTY	404923073162301	4049230731628	01	160.0	0.00	418	331	418	453	0	169	0		SJ 913	7
86	S 37141.	1	211MGTY	404753073132401	4047540731314	01	112.0	0.00	429	351	426	445	8	189	0		~~SL1071~~	~~7~~
87	S 37276.	1	112GLCLU	404918073133001	4049180731330	01	40.0	0.00	400	349	399	0	11	196	0		~~SK1080~~	
88	S 40497.	1	211MGTY	404606073174602	4046040731752	02	74.0	74.29	283	220	280	708	4	0	0		SL 757	7
89	S 41344.	1	211MGTY	404919073142801	4049190731428	01	79.0	73.70	693	0	0	693	11	196	0		SJ1038	7
90	S 42053.	1T	211MGTY	405032073140701	4050320731407	01	50.0	50.00	713	0	0	0	11	196	0		~~SH1089~~	~~3~~
91	S 43068.	1T	211MGTY	404640073152102	4046400731521	02	90.0	90.00	902	0	0	0	8	0	0		~~SL 917~~	~~3~~
92	S 43920.	1	112GLCLU	404649073184001	4046490731840	01	110.0	104.13	98	82	92	0	4	159	0		~~SK 729~~	~~1~~
93	S 44774.	1	112GLCLU	404920073142601	4049200731428	01	71.6	0.00	294	199	290	294	0	0	0		SJ1038	7
94	S 45210.	1	112GLCLU	404945073174501	4049450731745	01	130.2	128.27	109	97	107	0	7	169	0		~~SH 858~~	~~1~~
95	S 45347.	1	211MGTY	404726073162601	4047260731626	01	130.0	0.00	643	587	643	0	0	0	0		SK 879	5
96	S 45348.	1	211MGTY	404729073162801	4047290731628	01	130.0	0.00	650	590	648	0	0	0	0		SK 878	5
97	S 45455.	1		404859073194005	4048590731940	05	0.0	0.00	0	0	0	0	7	133	0		~~SJ 721~~	
98	S 45594.	1T	112GLCLU	404920073150901	4049200731509	01	105.0	102.37	85	73	83	0	11	183	0		SJ 996	1
99	S 45717.	1	112GLCLU	404618073164501	4046180731645	01	93.0	89.34	75	63	75	0	0	0	0		~~SL 827~~	~~1~~
100	S 45720.	1	112GLCLU	404716073131602	4047160731316	02	90.0	89.38	81	[illegible]	78	0	0	0	0		~~SL1056~~	~~1~~

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                                                                                      --SCREEN--   MAX
      WELL       AQUIFER     STATION  ID       LAT-LONG     SQ   LSD            DEPTH   TOP BOTTOM DRILL TOWN COMM SWDST ZON HG        WELUS

101 S 45935. 1  112GLCLU 404851073185101 4048510731851 01 285.0 285.00    605    539    599    660    4   159     0      SJ 763    7
102 S 46265. 1  112GLCLU 404716073131601 4047160731316 01   0.0   0.00      0      0      0      0    0     0     0      SL1056
103 S 46830. 1  211MGTY  404606073174601 4046060731746 01  76.0  67.75    655    550    651    663    0     0     0      SL 767    7
104 S 47157. 1  112GLCLU 404933073134201 4049330731342 01  45.0  43.92     25     12     22     25    0     0     0      SJ1087    1
105 S 50513. 1  112GLCLU 405100073152601 4051000731526 01  93.0  92.94     61     57     61      0   11   169     0      SH1013    1

106 S 52314. 1  112GLCLU 404904073151401 4049040731514 01 129.8 131.80     91     76     81      0    0     0     0      SJ 983    1
107 S 53360. 1  211MGTY  405034073161802 4050340731618 02 141.0 137.90    703    551    667      0    0     0     0      SH 954    7
108 S 57008. 1  211MGTY  404659073164201 4046590731642 01 111.0   0.00    635    529    632      0    0     0     0      SL 642    3
109 S 57469. 1  112GLCLU 405047073152201 4050470731522 01   0.0  70.66     56     52     56      0    0     0     0      SH1135    1
110 S 58709. 1  211MGTY  404938073152701 4049380731527 02 132.0 124.70    423    329    387      0    0     0     0      SJ 984    7

111 S 63906. 1  211MGTY  405053073150901 4050530731509 01  79.0  68.03    653    560    650      0   11   169     0      SH1034    7
112 S 64314. 1  112GLCLU 404918073171601 4049180731716 01 100.1  95.94     60     55     60      0    7   169     0      SK 840    1
113 S 64315. 1           404917073174401 4049170731744 01 118.3 118.12      0      0      0      0    0     0     0      SJ 642
114 ~~S 65662.~~ 1  112GLCLU 405030073180601 4050300731806 01 146.0 145.81     96     91     96      0    7   169     0      SH 652    1
115 S 65607. 1  112GLCLU 405003073155201 4050030731552 01   0.0 137.72    102     97    102      0   11   169     0      SH 969    1

116 S 66142. 1  211MGTY  404815073163201 4048150731632 01 150.0   0.00    203    172    182      0   11   169     0      SK 882    1
117 S 66143. 1  211MGTY  404614073133601 4046140731336 01  66.0   0.00    153    135    145      0    5   169     0      SM1005    1
118 S 68967. 1  112GLCLU 404328073154801 4043280731548 01 154.0 153.57      0      0      0      0    0     0     0      SK 932    1
119 S 72050. 1           404723073193701 4047230731937 01   0.0   0.00      0      0      0      0    0     0     0      SK 683
120 S 72271. 1  112GLCLU 405057073170201 4050570731702 01 159.3   0.00    681      0    681      0    0     0     0      SH 920    7.

121 S 75454. 1  211MGTY  404859073194001 4048590731940 01 230.7 230.56    740    730    735    855    7   133     0      SJ 721    1
122 S 75454. 2  211MGTY  404859073194002 4048590731940 02 230.7 230.56    740    730    735      0    7   133     0      SJ 721    1
123 S 75455. 1  211MGTY  404859073194003 4048590731940 03 230.2 229.88    508    500    505      0    7   133     0      SJ 721    1
~~124 S 75456.~~ 1  112GLCLU 404859073194004 4048590731940 04 230.5 229.52    203    195    200      0    7   133     0      SJ 721    1
125 S 76673. 1  211MGTY  404942073175501 4049420731755 01 130.0 128.67    633    625    630    742    7   169     0      SH 848    1

126 S 76673. 2  211MGTY  404942073175502 4049420731755 02 130.0 128.67    633    625    630      0    0     0     0      SH 848    1
127 S 76674. 1  211MGTY  404942073175503 4049420731755 03 130.0 129.06    463    455    460      0    7   169     0      SH 848    1
128 S 76675. 1  211MGTY  404942073175504 4049420731755 04 130.0 129.26    253    245    250      0    7   169     0      SH 848    1
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APPENDIX K

EPA POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

15 2023

NUS CORPORATION

POTENTIAL HAZARDOUS WASTE SITE

EXECUTIVE SUMMARY

Gibson Oil & Chemical
Site Name

NYD980528616
EPA Site ID Number

Commack, New York
Address

02-8303-31
TDD Number

Date of Site Visit: 5/31/83

processes packages?

SITE DESCRIPTION

The site ia a 4 acre warehouse and factory located in an industrial park. The facility produces multigrade oil and automotive accessories such as anti-freeze and brake fluid. There are 14 outdoor and underground product storage tanks. Poor housekeeping and off-loading has resulted in contamination of much of the yard with oily wastes. State and local environmental authorities have cited the facility for violations regarding this problem.

PRIORITY FOR FURTHER ACTION: High____ Medium X Low____

RECOMMENDATIONS

Recommend RCRA inspection to determine if waste oils are generated and/or processed at this facility. Further recommended clean up of yard to prevent groundwater contamination in a sole source aquifer region.

Prepared by: ____________ Date: 6/8/83
of NUS Corporation

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980528616

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Gibson Oil and Chemical	74 Mall Drive

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Commack	NY	11725	Suffolk	103	01

09 COORDINATES LATITUDE 40° 48' 10.0"N LONGITUDE 070° 17' 00.0"W

10 DIRECTIONS TO SITE (Starting from nearest public road)
Long Island Expressway to Exit ~~55~~ 54 north to Mall Drive. Site is on north side of street.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Gibson Oil and Chemical	74 Mall Drive

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Commack	NY	11725	(516 234-4528

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: ______ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: ______ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: __/__/__ MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: __/__/__ MONTH DAY YEAR ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 5, 31, 83 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: ______ (Specify)
CONTRACTOR NAME(S): NUS Corp.

02 SITE STATUS (Check one)
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION 1969 (BEGINNING YEAR) | Active (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Waste oils, solvents and other organic chemicals.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Potential for groundwater pollution in a sole source aquifer refion.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
Mark Haulenbeek	EPA Region II Edison, NJ	201 321-6685

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Edward F. McTiernan		NUS FIT II	(201 225-6160	6, 2 83 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980528616

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

☐ A. SOLID
☐ B. POWDER, FINES
☐ C. SLUDGE
☐ D. OTHER ______ *(Specify)*
☐ E. SLURRY
☒ F. LIQUID
☐ G. GAS

02 WASTE QUANTITY AT SITE *(Measures of waste quantities must be independent)*

TONS ______
CUBIC YARDS 297±
NO. OF DRUMS 25±

03 WASTE CHARACTERISTICS *(Check all that apply)*

☐ A. TOXIC
☐ B. CORROSIVE
☐ C. RADIOACTIVE
☒ D. PERSISTENT
☒ E. SOLUBLE
☐ F. INFECTIOUS
☐ G. FLAMMABLE
☒ H. IGNITABLE
☒ I. HIGHLY VOLATILE
☐ J. EXPLOSIVE
☐ K. REACTIVE
☐ L. INCOMPATIBLE
☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	Unknown		On site cesspools are covered
SOL	SOLVENTS			with oily waste
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		A variety of organic chemicals
IOC	INORGANIC CHEMICALS			products are stored on site
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

Site Inspection 5/31/83
Interview with Lee Roth, Plant Manager (516) 234-4528

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE: NY
02 SITE NUMBER: D980528616

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION
02 ☐ OBSERVED (DATE: ________) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 20,000
04 NARRATIVE DESCRIPTION

Yard runoff containing oily wastes is channelled into on site cesspools and may result in contamination of groundwater. On site storage of product oils and chemicals in areas without secondary containment also results in the potential for groundwater contamination.

01 ☐ B. SURFACE WATER CONTAMINATION
02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________
04 NARRATIVE DESCRIPTION

No Potential Exists 3 also recharge basins

01 ☐ C. CONTAMINATION OF AIR
02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________
04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS
02 ☐ OBSERVED (DATE: ________) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 200
04 NARRATIVE DESCRIPTION

On site storage of oil and chemicals results in a potential for fire/explosive conditions. There was a major warehouse fire at the site in 1973 or 1974.

01 ☐ E. DIRECT CONTACT
02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________
04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☒ F. CONTAMINATION OF SOIL
02 ☒ OBSERVED (DATE: 5/83) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 4 (Acres)
04 NARRATIVE DESCRIPTION

The majority of the site is developed as warehouse and factory space. Due to poor housekeeping and material off-loading practices, much of the yard appears to be contaminated with oily wastes.

01 ☒ G. DRINKING WATER CONTAMINATION
02 ☐ OBSERVED (DATE: ________) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 20,000
04 NARRATIVE DESCRIPTION

Contamination of groundwater may result in impacts to local drinking water supplies.

01 ☒ H. WORKER EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: ________) ☒ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 20
04 NARRATIVE DESCRIPTION

Fire and explosive conditions and accidental product spills may result in worker exposure.

01 ☒ I. POPULATION EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: ________) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 20,000
04 NARRATIVE DESCRIPTION

Contamination of groundwater may result in exposure of local populations.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980528616

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☐ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

No Potential Exists

01 ☐ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☑ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) 02 ☒ OBSERVED (DATE: 5/83) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 200 04 NARRATIVE DESCRIPTION

On site storage tanks offer no secondary containment.

01 ☑ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE: ________) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Accidential spills, discharges and overflows of cesspools may result in significant damage to off site property.

01 ☑ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: ________) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Due to the drainage patterns at the site spills and discharges which escape or overflow the storm drains will enter local streets and may contaminate sewers and local recharge basins.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No Potential Exists

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Due to the processes utilized at this facility there exists the possibility of illegal use of waste oils which may result in additional on site contamination.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 20,000

IV. COMMENTS

Poor housekeeping practices and improper design of the storm water runoff system results in the potential for contamination of groundwater and off site property.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83

PA & SI
done same day
(no samples)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE: NY
02 SITE NUMBER: D980528616

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): Gibson Oil and Chemical
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: 74 Mall Drive
03 CITY: Commack
04 STATE: NY
05 ZIP CODE: 11725
06 COUNTY: Suffolk
07 COUNTY CODE: 103
08 CONG DIST: 01
09 COORDINATES LATITUDE N: 40° 48' 10.0" LONGITUDE W: 070° 17' 00.0"
10 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION: 5 / 31 / 83 (MONTH DAY YEAR)
02 SITE STATUS: ☒ ACTIVE ☐ INACTIVE
03 YEARS OF OPERATION: 1969 (BEGINNING YEAR) / Active (ENDING YEAR) ___ UNKNOWN
04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR NUS Corporation (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ______ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR ______ (Name of firm) ☐ G. OTHER ______ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Edward F. McTiernan	Ecologist	NUS	(201)225-6160
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Arthur Clarke	Chemist	NUS	(201)225-6160
Jerry Cirilli	Geologist	NUS	(201)225-6160
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Lee Roth	Plant Manager	Gibson Chemical 74 Mall Drive Commack, NY	(516)234-4528
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one): ☒ PERMISSION ☐ WARRANT
18 TIME OF INSPECTION: 11:00 am
19 WEATHER CONDITIONS: Overcast, Temp 65°F Winds Calm

IV. INFORMATION AVAILABLE FROM

01 CONTACT: Mark Haulenbeek
02 OF (Agency/Organization): EPA Region II, Edison, NJ
03 TELEPHONE NO: (201)321-6685
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM: Edward F. McTiernan
05 AGENCY:
06 ORGANIZATION: NUS FIT II
07 TELEPHONE NO.: (201)225-6160
08 DATE: 6 / 02 / 83 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980528616

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA　　02 ☐ OBSERVED (DATE: ________)　　☐ POTENTIAL　　☐ ALLEGED

04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☐ K. DAMAGE TO FAUNA　　02 ☐ OBSERVED (DATE: ________)　　☐ POTENTIAL　　☐ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

No Potential Exists

01 ☐ L. CONTAMINATION OF FOOD CHAIN　　02 ☐ OBSERVED (DATE: ________)　　☐ POTENTIAL　　☐ ALLEGED

04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☑ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums)　　02 ☒ OBSERVED (DATE: 5/83)　　☐ POTENTIAL　　☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 200　　04 NARRATIVE DESCRIPTION

On site storage tanks offer no secondary containment.

01 ☑ N. DAMAGE TO OFFSITE PROPERTY　　02 ☐ OBSERVED (DATE: ________)　　☒ POTENTIAL　　☐ ALLEGED

04 NARRATIVE DESCRIPTION

Accidential spills, discharges and overflows of cesspools may result in significant damage to off site property.

01 ☑ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs　　02 ☐ OBSERVED (DATE: ________)　　☒ POTENTIAL　　☐ ALLEGED

04 NARRATIVE DESCRIPTION

Due to the drainage patterns at the site spills and discharges which escape or overflow the storm drains will enter local streets and may contaminate sewers and local recharge basins.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING　　02 ☐ OBSERVED (DATE: ________)　　☐ POTENTIAL　　☐ ALLEGED

04 NARRATIVE DESCRIPTION

No Potential Exists

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Due to the processes utilized at this facility there exists the possibility of illegal use of waste oils which may result in additional on site contamination.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 20,000

IV. COMMENTS

Poor housekeeping practices and improper design of the storm water runoff system results in the potential for contamination of groundwater and off site property.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980528616

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 20,000 — 04 NARRATIVE DESCRIPTION

Yard runoff containing oily wastes is channelled into on site cesspools and may result in contamination of groundwater. On site storage of product oils and chemicals in areas without secondary containment also results in the potential for groundwater contamination.

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 200 — 04 NARRATIVE DESCRIPTION

On site storage of oil and chemicals results in a potential for fire/explosive conditions. There was a major warehouse fire at the site in 1973 or 1974.

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

No Potential Exists

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 5/83) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 4 (Acres) — 04 NARRATIVE DESCRIPTION

The majority of the site is developed as warehouse and factory space. Due to poor housekeeping and material off-loading practices, much of the yard appears to be contaminated with oily wastes.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 20,000 — 04 NARRATIVE DESCRIPTION

Contamination of groundwater may result in impacts to local drinking water supplies.

01 ☒ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 20 — 04 NARRATIVE DESCRIPTION

Fire and explosive conditions and accidental product spills may result in worker exposure.

01 ☒ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 20,000 — 04 NARRATIVE DESCRIPTION

Contamination of groundwater may result in exposure of local populations.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980528616

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

☐ A. SOLID
☐ B. POWDER, FINES
☐ C. SLUDGE
☐ D. OTHER ______ (Specify)
☐ E. SLURRY
☒ F. LIQUID
☐ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ______
CUBIC YARDS 297±
NO. OF DRUMS 25±

03 WASTE CHARACTERISTICS (Check all that apply)

☐ A. TOXIC
☐ B. CORROSIVE
☐ C. RADIOACTIVE
☒ D. PERSISTENT
☒ E. SOLUBLE
☐ F. INFECTIOUS
☐ G. FLAMMABLE
☒ H. IGNITABLE
☒ I. HIGHLY VOLATILE
☐ J. EXPLOSIVE
☐ K. REACTIVE
☐ L. INCOMPATIBLE
☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	Unknown		On site cesspools are covered
SOL	SOLVENTS			with oily waste
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		A variety of organic chemicals
IOC	INORGANIC CHEMICALS			products are stored on site
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83
Interview with Lee Roth, Plant Manager (516) 234-4528

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION
01 STATE: NY
02 SITE NUMBER: D980528616

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☒ D. TANK, ABOVE GROUND	50,000	Gallons
☒ E. TANK, BELOW GROUND	90,000	Gallons
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER ______ (Specify)		

04 TREATMENT (Check all that apply)
- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER ______ (Specify)

05 OTHER
☒ A. BUILDINGS ON SITE
1

06 AREA OF SITE
4 (Acres)

07 COMMENTS
On site storage tanks offer no secondary containment and appear to be as old as the facility, approximately 14 years. Cesspools used to collect yard runoff and rainwater are covered by an oily film.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)
☐ A. ADEQUATE, SECURE ☒ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.
There are fourteen 10,000 gallon product storage tanks on site. Underground tanks are used to store product oils and aboveground tanks are basically used for chemicals. Approximately 25 drums were observed being stored outdoors uncovered; the plant manager stated they were empty.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☒ NO
02 COMMENTS
Site is located in an industrial park.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Site Inspection 5/31/83
Interview with Lee Roth (516) 234-4528
Review of NYS DEC files, Stony Brook, NY

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE NY
02 SITE NUMBER D980528616

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☒
NON-COMMUNITY	C. ☐	D. ☒

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☒
D. ☐	E. ☐	F. ☒

03 DISTANCE TO SITE
A. 2 (mi)
B. >3 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING
☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)
☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available)
☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER >900,000

03 DISTANCE TO NEAREST DRINKING WATER WELL 2± (mi)

04 DEPTH TO GROUNDWATER 40 (Estimate) (ft)

05 DIRECTION OF GROUNDWATER FLOW N

06 DEPTH TO AQUIFER OF CONCERN 0 (ft)

07 POTENTIAL YIELD OF AQUIFER >60,000 (gpd)

08 SOLE SOURCE AQUIFER ☒ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

The site is located in central Suffolk County. Residences in the vicinity of the site are served by public water from wells in both the upper and deep aquifer. There may be industrial production wells near the site. The Greenlawn Water District has a well field approximately 2 miles north of the site.

10 RECHARGE AREA
☒ YES
☐ NO
COMMENTS This area serves a recharge function for both the upper and deep aquifer.

11 DISCHARGE AREA
☐ YES
☒ NO
COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE
☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
☐ C. COMMERCIAL, INDUSTRIAL
☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Nissequogue River	☐	3.5 (mi)
Great South Bay	☐	5.5 (mi)
Long Island Sound	☐	5.5 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 10,000 NO. OF PERSONS	B. 20,000 NO. OF PERSONS	C. 40,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 0.25 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE >2,000

04 DISTANCE TO NEAREST OFF-SITE BUILDING Adjacent (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is located in an industrial/commercial park. Adjacent land uses are generally light manufacturing and warehouses. The nearest population to the site is the town of Commack, a suburban community of approximately 34,000 which is centered north of the site. The Sagtikos Public School is approximately 0.25 miles west of the site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: NY
02 SITE NUMBER: D980528616

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☒ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

Not Applicable

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK: >1500 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE: Unknown (ft)

05 SOIL pH: (Estimate) 5 - 7

06 NET PRECIPITATION: 20± (in)

07 ONE YEAR 24 HOUR RAINFALL: 2.8± (in)

08 SLOPE
SITE SLOPE: 0 - 5 %
DIRECTION OF SITE SLOPE: SE
TERRAIN AVERAGE SLOPE: 0 - 5 %

09 FLOOD POTENTIAL
Not Applicable
SITE IS IN ______ YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)
ESTUARINE A. >5 (mi)
OTHER B. 5± (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
______ (mi)
ENDANGERED SPECIES: None

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL A. Adjacent (mi)
RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES B. 3.5± (mi)
AGRICULTURAL LANDS
PRIME AG LAND C. >5 (mi)
AG LAND D. >5 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located in central Suffolk County on the relatively flat Long Island coastal plain. There are no surface waters within 2 miles of the site. Much of the land in the vicinity of the site has been developed for residential and commercial uses.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83
LI 208 Study - LI Regional Planning Board, 1978
New York State Atlas of Community Water System Sources, NYS Dept. of Health, 1983
Hydrogeology of Suffolk County - USGS (Jensen & Soren), 1974

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980528616

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
		No Samples Taken	
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Air Quality	Photoionizer (HNU) did not detect contamination above background
	levels

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF Attached as Appendix A (Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS Attached as Appendix A

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

None

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION
01 STATE: Ny
02 SITE NUMBER: D980528616

II. CURRENT OWNER(S)

01 NAME: Gibson Oil & Chemical
02 D+B NUMBER: Unknown
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 74 Mall Drive
04 SIC CODE:
05 CITY: Commack
06 STATE: NY
07 ZIP CODE: 11725

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

PARENT COMPANY (If applicable)

08 NAME:
09 D+B NUMBER:
10 STREET ADDRESS (P.O. Box, RFD #, etc.):
11 SIC CODE:
12 CITY:
13 STATE:
14 ZIP CODE:

08 NAME:
09 D+B NUMBER:
10 STREET ADDRESS (P.O. Box, RFD #, etc.):
11 SIC CODE:
12 CITY:
13 STATE:
14 ZIP CODE:

08 NAME:
09 D+B NUMBER:
10 STREET ADDRESS (P.O. Box, RFD #, etc.):
11 SIC CODE:
12 CITY:
13 STATE:
14 ZIP CODE:

08 NAME:
09 D+B NUMBER:
10 STREET ADDRESS (P.O. Box, RFD #, etc.):
11 SIC CODE:
12 CITY:
13 STATE:
14 ZIP CODE:

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE: NY
02 SITE NUMBER: D980528616

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME: Gibson Oil & Chemical
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 74 Mall Drive
04 SIC CODE:
05 CITY: Commack
06 STATE: NY
07 ZIP CODE: 11725
08 YEARS OF OPERATION:
09 NAME OF OWNER:

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME:
11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):
13 SIC CODE:
14 CITY:
15 STATE:
16 ZIP CODE:

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:
08 YEARS OF OPERATION:
09 NAME OF OWNER DURING THIS PERIOD:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:
08 YEARS OF OPERATION:
09 NAME OF OWNER DURING THIS PERIOD:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:
08 YEARS OF OPERATION:
09 NAME OF OWNER DURING THIS PERIOD:

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME:
11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):
13 SIC CODE:
14 CITY:
15 STATE:
16 ZIP CODE:

10 NAME:
11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):
13 SIC CODE:
14 CITY:
15 STATE:
16 ZIP CODE:

10 NAME:
11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):
13 SIC CODE:
14 CITY:
15 STATE:
16 ZIP CODE:

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE: NY
02 SITE NUMBER: D980528616

II. ON-SITE GENERATOR

01 NAME: None
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

IV. TRANSPORTER(S)

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site Inspection 5/31/83

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE: NY

02 SITE NUMBER: D980528616

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ D. SPILLED MATERIAL REMOVED 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION The on site cesspools were contaminated with oily wastes due to spills during product off-loading. The Suffolk County Health Department ordered a clean up in 1981.

01 ☐ E. CONTAMINATED SOIL REMOVED 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ F. WASTE REPACKAGED 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ G. WASTE DISPOSED ELSEWHERE 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ H. ON SITE BURIAL 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History.

01 ☐ I. IN SITU CHEMICAL TREATMENT 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ J. IN SITU BIOLOGICAL TREATMENT 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ K. IN SITU PHYSICAL TREATMENT 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ L. ENCAPSULATION 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ M. EMERGENCY WASTE TREATMENT 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ N. CUTOFF WALLS 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ P. CUTOFF TRENCHES/SUMP 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

01 ☐ Q. SUBSURFACE CUTOFF WALL 02 DATE ________ 03 AGENCY ________

04 DESCRIPTION

No Reported History

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980528616

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ S. CAPPING/COVERING 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ T. BULK TANKAGE REPAIRED 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ U. GROUT CURTAIN CONSTRUCTED 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ V. BOTTOM SEALED 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ W. GAS CONTROL 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ X. FIRE CONTROL 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ Y. LEACHATE TREATMENT 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ Z. AREA EVACUATED 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ 1. ACCESS TO SITE RESTRICTED 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ 2. POPULATION RELOCATED 02 DATE 03 AGENCY
04 DESCRIPTION

No Reported History

01 ☐ 3. OTHER REMEDIAL ACTIVITIES 02 DATE 03 AGENCY
04 DESCRIPTION

None

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Interview with Mr. James Pim, P.E. Suffolk County Health Department (516) 451-4634

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980528616

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

The facility has been cited by State and local health authorities for poor plant housekeeping. The New York Department of Environmental Conservation is considering taking administrative action against Gibson to bring about a yard clean up.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Interview with Mr. James Pim, P.E. Suffolk County Health Department (516) 451-4634

EPA FORM 2070-13 (7-81)

APPENDIX L

HRS II SCORE SHEETS AND SUPPORT DOCUMENTATION

HRS II - FINAL SCORE

HRS - Site Score 2/4/92

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}}$$

SQUARED

S_{gw} (upper glacial) = 35 1225

S_{gw} (magothy + upper glacial targets only) = 51.5 2652

S_{sw} = 0 0

S_s = 0.34 0.12

S_a = 2.18 4.75

$$S = \sqrt{\frac{2652 + 0.12 + 4.75}{4}} = 25.8$$

$$S_{(\text{upper glacial gw})} = \sqrt{\frac{1225 + 0.12 + 4.75}{4}} = 17.5$$

GROUND WATER MIGRATION PATHWAY

UPPER GLACIAL AQUIFER

Upper Ocala Aquifer
2/3/92

TABLE 3-1
GROUND WATER MIGRATION PATHWAY SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigned	
	Likelihood of Release to an Aquifer			
1.	Observed Release	550	550	
2.	Potential to Release			
	2a. Containment	10		
	2b. Net Precipitation	10		
	2c. Depth to Aquifer	5		
	2d. Travel Time	35		
	2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500		
3.	Likelihood of Release (higher of lines 1 and 2e)	550		550
	Waste Characteristics			
4.	Toxicity/Mobility	a	10,000	
5.	Hazardous Waste Quantity	a	1	
6.	Waste Characteristics	100		10
	Targets			
7.	Nearest Well	50	9	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	506	
	8d. Population (lines 8a + 8b + 8c)	b	506	
9.	Resources	5	5	
10.	Wellhead Protection Area	20	5	
11.	Targets (lines 7 + 8d + 9 + 10)	b		525
	Ground Water Migration Score for an Aquifer			
12.	Aquifer Score [(lines 3 x 6 x 11)/82,500]^c 550 x 10 x 525	100		35
	Ground Water Migration Pathway Score			
13.	Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)^c	100		

---

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Toxicity Factors

GW-Up-1
GW-Up-4.

Gibson - Ground Water Contaminants 1/16/92

	Maximum (1) Conc. (ug/L)	Inhal.	Oral Pf	Toxicity Factors Inhal	 Oral RfD
1,2-Dichloroethene	22				100 1E-2
1,1,1-Trichloroethane	8			10 3E-1	1 9E+2
Carbon Disulfide	6			1000 2.9E-3 ~~[illegible]~~	10 1E-1
Tetrachloroethene B2	87	10 1.8E-3	100 5.1E-2		100 1E-2
Toluene	~~[illegible]~~ 6			1 5.7E-1 ~~[illegible]~~	10 2E-1
(AC) Trichloroethene B2	34	10 1.7E-2	10 1.1E-2		
Vinyl Chloride A	14	1000 2.9E-1	10,000 1.9		
Xylenes	11			10 8.6E-2	1 2E+0
Aluminum	13900				0 —
Arsenic A	12	10,000 5E+1	10,000 1.75		10,000 3E-4
Barium	249			1E-4	10 5E-2
Chromium A	77.6	10,000. 4.1E+1		5.7E-7	100 5E-3
Copper	65.5			1E-2	100 3.7E-2
~~[illegible]~~ Iron	101,000				0 —
Manganese	24,700			1.14E-4	10 1E-1
Nickel A	53.7	10,000 8.4E-1			10 2E-2
Vanadium	75.1				100 7E-3
Zinc	101,000				10 2E-1

(1) see page 16 - only chemicals greater than the detection limit and greater than 3x background

— inhalation

(AC) - Detected only at Automatic Conductors off-site, possibly downgradient

1/16/92
GW-Up-4

Mobility factors

Gibson - Ground Water Contaminants

	Mobility Factor	(Factor) Toxicity	Factor Toxicity/ Mobility
1,2-Dichloroethene	1	100 ~~Factor~~	100
1,1,1-Trichloroethane	1	10	10
Carbon Disulfide	1	1000	1000
Tetrachloroethene	1	1000	1000
Toluene	1	10	10
Trichloroethene AC site only	1	100	100
* Vinyl Chloride	1	10,000	10,000
Xylenes	1	10	10
Aluminum	1	0	0
* Arsenic	1	10,000	10,000
Barium	1	10	10
* Chromium	1	10,000	10,000
Copper	1	100	100
Iron	1	0	0
Manganese	1	10	10
* Nickel	1	10,000	10,000
Vanadium	1	100	100
Zinc	1	10	10

Maximum Toxicity/Mobility Factor = 10,000

TABLE 3-9
TOXICITY/MOBILITY FACTOR VALUES[a]

Mobility Factor Value	Toxicity Factor Value					
	10,000	1,000	100	10	1	0
1.0	10,000	1,000	100	10	1	0
0.2	2,000	200	20	2	0.2	0
0.01	100	10	1	0.1	0.01	0
0.002	20	2	0.2	0.02	0.002	0
0.0001	1	0.1	0.01	0.001	1×10^{-4}	0
2×10^{-5}	0.2	0.02	0.002	2×10^{-4}	2×10^{-5}	0
2×10^{-7}	0.002	2×10^{-4}	2×10^{-5}	2×10^{-6}	2×10^{-7}	0
2×10^{-9}	2×10^{-5}	2×10^{-6}	2×10^{-7}	2×10^{-8}	2×10^{-9}	0

---

[a] Do not round to nearest integer.

Backup to
GW-UP-4

Backup to
GW-UP-5

TABLE 2-5
HAZARDOUS WASTE QUANTITY EVALUATION EQUATIONS

Tier	Measure	Units	Equation for Assigning Value[a]
A	Hazardous Constituent Quantity (C)	lb	C
B[b]	Hazardous Wastestream Quantity (W)	lb	W/5,000
C[b]	Volume (V)		
	Landfill	yd^3	V/2,500
	Surface Impoundment	yd^3	V/2.5
	Surface Impoundment (Buried/backfilled)	yd^3	V/2.5
	Drums[c]	gallon	V/500
	Tanks and Containers Other Than Drums	yd^3	V/2.5
	Contaminated Soil	yd^3	V/2,500
	Pile	yd^3	V/2.5
	Other	yd^3	V/2.5
D[b]	Area (A)		
	Landfill	ft^2	A/3,400
	Surface Impoundment	ft^2	A/13
	Surface Impoundment (Buried/backfilled)	ft^2	A/13
	Land treatment	ft^2	A/270
	Pile[d]	ft^2	A/13
	→ Contaminated Soil	ft^2	A/34,000

[a] Do not round to nearest integer.
[b] Convert volume to mass when necessary: 1 ton - 2,000 pounds - 1 cubic yard - 4 drums - 200 gallons. 1 Acre = 43,560 ft^2
[c] If actual volume of drums is unavailable, assume 1 drum - 50 gallons.
[d] Use land surface area under pile, not surface area of pile.

GW-Up - 5

Ground Water Pathway

Gibson 1/23/92

Source - contaminated soil (all depths)

Area		Square Feet
S-FSDS		620
S-PSDS		301
S-UTF		1500-432 = 1068
S-WD		432
E-SP		2700
E-P		798
E-RP		804
Trench 11	(12.8 x 0.3) ⇒ (56 x 6)	336
Trench 14	(0.9 x 0.3) ⇒ (18 x 6)	108
~~E UL~~		
S-SP		201
S-S2		500
E-DS1		1126
E-DS2		198
E-SDS-1		4
E-SDS-2		4
E-TF		384
		9584

$\frac{9584}{34,000} = 0.28$

0.28 < 1 ⇒ 1

Dack up To
GW-up-5

TABLE 2-6
HAZARDOUS WASTE QUANTITY FACTOR VALUES

Hazardous Waste Quantity Value	Assigned Value
0	0
1[a] to 100	1[b] ✓
Greater than 100 to 10,000	100
Greater than 10,000 to 1,000,000	10,000
Greater than 1,000,000	1,000,000

---

[a] If the hazardous waste quantity value is greater than 0, but less than 1, round it to 1 as specified in text.

[b] For the pathway, if hazardous constituent quantity is not adequately determined, assign a value as specified in the text; do not assign the value of 1.

GW-Up-6

TABLE 2-7
WASTE CHARACTERISTICS FACTOR CATEGORY VALUES

Waste Characteristics Product	Assigned Value
0	0
Greater than 0 to less than 10	1
10 to less than 1 x 10^2	2
1 x 10^2 to less than 1 x 10^3	3
1 x 10^3 to less than 1 x 10^4	6
1 x 10^4 to less than 1 x 10^5	10
1 x 10^5 to less than 1 x 10^6	18
1 x 10^6 to less than 1 x 10^7	32
1 x 10^7 to less than 1 x 10^8	56
1 x 10^8 to less than 1 x 10^9	100
1 x 10^9 to less than 1 x 10^{10}	180
1 x 10^{10} to less than 1 x 10^{11}	320
1 x 10^{11} to less than 1 x 10^{12}	560
1 x 10^{12}	1,000

1 X 10,000 = 1E+4

GW-UP-7

TABLE 3-11
NEAREST WELL FACTOR VALUES

Distance from Source (miles)	Assigned Value
Level I concentrations[a]	50
Level II concentrations[a]	45
0 to 1/4	20
Greater than 1/4 to 1/2	18
Greater than 1/2 to 1	9 ✓
Greater than 1 to 2	5
Greater than 2 to 3	3
Greater than 3 to 4	2
Greater than 4	0

---

[a] Distance does not apply.

private well Adams ave. & David Dr.
(installed in 1983)
nearly 1 mile NE

Backup to
GW-Up-7 P
S-74853
Well No.

SUFFOLK
County

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

COMPLETION REPORT – LONG ISLAND WELL

OWNER: RUETERS LTD

ADDRESS: 90 DAVIDS DR HAUPPAUGE

LOCATION OF WELL: c/o DAVIDS Dr + Adams Ave HAUPPAUGE

DEPTH OF WELL BELOW SURFACE: 130 ft.

DEPTH TO GROUND WATER FROM SURFACE: 108 ft.

CASINGS

DIAMETER: 5" in. | in. | in. | in.

LENGTH: 145 ft. | ft. | ft. | ft.

SEALING:

CASINGS REMOVED:

SCREENS

MAKE: COOK SS

OPENINGS: 14

DIAMETER: 5 in. | in. | in. | in.

LENGTH: 5 ft. | ft. | ft. | ft.

DEPTH TO TOP FROM TOP OF CASING:

PUMPING TEST

DATE:

TEST OR PERMANENT PUMP?

DURATION OF TEST: days hours

MAXIMUM DISCHARGE: gallons per min.

STATIC LEVEL PRIOR TO TEST: ft. in. below top of casing

LEVEL DURING MAXIMUM PUMPING: ft. in. below top of casing

MAXIMUM DRAWDOWN: ft.

Approximate time of return to normal level after cessation of pumping: hrs. min.

PUMP INSTALLED

TYPE:

MAKE: GOULDS

MODEL NO.: 25 EC204

MOTIVE POWER:

MAKE:

H.P.:

CAPACITY: g.p.m. against ft. of discharge head

NUMBER BOWLS OR STAGES: ft. of total head

RECEIVED
JUL 13 1983
WATER UNIT
DEC REGION I

DROP LINE

DIAMETER: 2 in.

LENGTH: 120 ft.

SUCTION LINE

DIAMETER: in.

LENGTH: ft.

METHOD OF DRILLING: ☐ rotary ☒ cable tool ☐ other:

USE OF WATER:

WORK STARTED: 6/28/73

COMPLETED: 7/1/83

DATE: 7/22/83

DRILLER: Kruger Well + Pump

REGISTRATION NO.: 10

*LOG.

Ground Surface

El. ______ ft. above sea

A/V ______ ft.

TOP OF WELL

20'	2"	coarse sand coarse gravel
30	5	hardpan gravel
40	4	"
50	5	"
60	7	"
70	10	"
81	1/2	coarse to medium sand coarse gravel
89	11 1/2	
99	10 1/2	
111	1/2	
131	5 1/2	

*NOTE: Show log of well - materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See Instructions as to Well Drillers' Certificates of Registration and Reports. Pages 5 - 7.

ORIGINAL – Environmental Conservation Copy

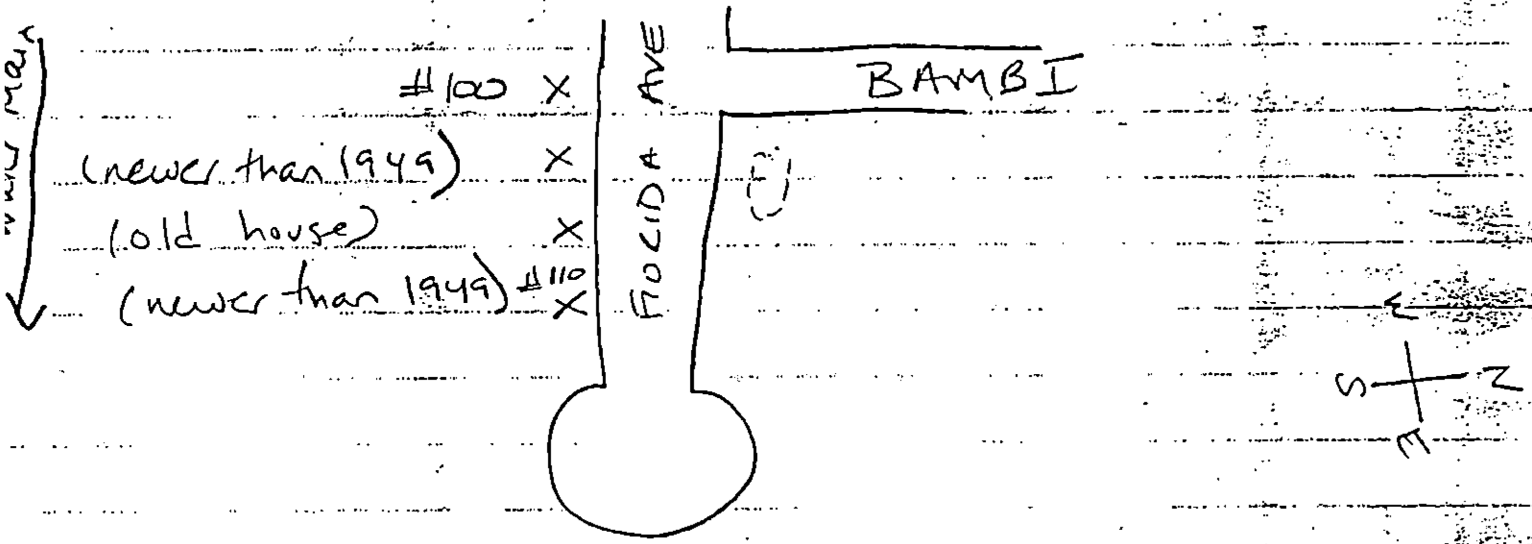
Backup to
GW-Up-7

Ground Water Pathway

1/28/92

re: S-7935 (see Section 4.6)
(USGS had a well listed on Florida Avenue
installed in 1949

visit to Florida Avenue



( ) GW Recharge/open ditch with drainage pipe

Water main extends approximately
300-400' on Florida Avenue, east of Bambi
source: Tim Cassidy of SCWA
Smithtown 979-8460

Ground Water 2/3/92

Municipal Wells - Upper Glacial Aquifer

Distance (miles)

0-1/4 Not Applicable Score = 0

>1/4-1/2 Not Applicable Score = 0

>1/2-1 - Not Applicable Score = 0

>1-2 $\frac{2{,}125{,}914 \text{ gpd}}{120 \text{ gpd / person}}$ = 17,716 persons

Score = 2939

>2-3 $\frac{2{,}574{,}750 \text{ gpd}}{120 \text{ gpd / person}}$ = 21,456 persons

Score = 2122

>3-4 Not Applicable Score = 0

Distance-Weighted Value

$PC = \frac{1}{10}\left[0 + 0 + 0 + 2939 + 2122 \text{ to}\right]$

$= 506.1 \Rightarrow 506$

upper Glacial
1/29/92

TABLE 3-12
DISTANCE-WEIGHTED POPULATION VALUES FOR POTENTIAL CONTAMINATION FACTOR FOR GROUND WATER MIGRATION PATHWAY[a]

Distance Category (miles)	Number of People Within the Distance Category												
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000
OTHER THAN KARST[b]													
0 to 1/4	0 ✓	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455
Greater than 1/4 to 1/2	0 ✓	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122
Greater than 1/2 to 1	0 ✓	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385
Greater than 1 to 2	0	0.7	3	10	30	94	294	939	2,939 ✓	9,385	29,384	93,845	293,842
Greater than 2 to 3	0	0.5	2	7	21	68	212	678	2,122 ✓	6,778	21,222	67,777	212,219
Greater than 3 to 4	0 ✓	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596
KARST[c]													
0 to 1/4	0	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455
Greater than 1/4 to 1/2	0	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122
Greater than 1/2 to 1	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 1 to 2	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 2 to 3	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 3 to 4	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227

---

[a] Round the number of people present within a distance category to nearest integer. Do not round the assigned distance-weighted population value to nearest integer.

[b] Use for all aquifers, except karst aquifers underlying any portion of the sources at the site.

[c] Use only for karst aquifers underlying any portion of the sources at the site.

backup to GW-4-8c

Backup to
FW-UP-8c

TABLE A

LOCATIONS OF MUNICIPAL WELLS IN THE UPPER GLACIAL AQUIFER

Well	Distance (miles)	Direction
S-22362	1.7	NNW
S-23715	1.7	NNW
S-44774	1.9	NE
S-30234	2.9	ESE
S-16608	1.4	SE
S-21006	2.5	WSW
S-23522	2.5	WSW
S-34032	2.5	WSW
S-45935	2.1	WNW

Backup to
GW-Up-8c

TABLE B

CAPACITIES AND PUMPAGE FOR MUNICIPAL WELLS IN THE UPPER GLACIAL AQUIFER

Well	Purveyor	Maximum Capacity (gpm)	1990 Annual Pumpage (gpy)	1990 Annual Pumpage (gpd)
S-22362	SCWA	1000	114,149,000	312,737
S-23715	SCWA	1000	79,753,000	218,501
S-44774	SCWA	2400	303,986,000	832,838
S-16608	Brentwood	1000	278,072,000(1)	761,841
S-45935	Dix Hills	1400	187,506,000	513,715
S-30234	Dix Hills	1400	191,800,000	525,479
S-21006	Dix Hills	1200	225,931,000	618,989
S-23522	Dix Hills	1400	142,747,000	391,088
S-34032	Dix Hills	1400	191,800,000	525,479

16400701.649

Notes:

(1) 1987 data.

Backup to
GW-Up-8c

Ground Water Pathway 2/3/92
Municipal Wells - Upper Glacial Aquifer

Distance

1-2 Miles (gpd)	2-3 Miles (gpd)
312,737	513,715
218,501	525,479
761,841	618,989
832,838	391,088
	525,479
2,125,917	2,574,750

Backup to
GW-Up-8c.

1/24/92

Average Water Use per household

5/29/91 – 8/27/91 = 3 months 40,748 gal
8/27/91 – 11/27/91 = 3 months 23,867 gal

64,615 gallons

Source: Suffolk County Water Authority

$$\frac{64,615 \text{ gallons}}{6 \text{ months}} = 10,769 \text{ gal/mo.}$$

assume average household = 3.04 people
(see 1990 census data, Suffolk County
Source: LI Regional Planning Board)

$$\frac{10,769 \text{ gal/mo-household}}{3.04 \text{ persons/household}}$$

$= 3542$ gal/mo-~~m~~person

$= \frac{3542 \text{ gal/mo-person}}{30 \text{ day/mo.}}$

$= 118$ gal per day per person

OR ≈ 120 gpd/person

Backup to
GW-up-80

1/24/92

1990 Census Data

☆ Suffolk County 3.04 people per household
Smithtown (town) 3.10 people per household
Commack (Smithtown) 3.21 people per household
Commack (Huntington) 3.24 people per household

Source: Peter Lambrecht
LI Regional Planning Board
(516) 853-5194

☆ page 68 (section 3.3.2)(ground water)

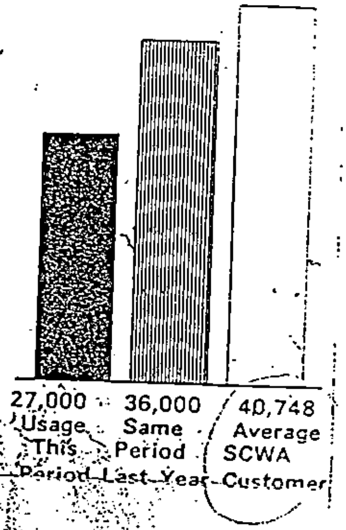
"In estimating residential population, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the <u>County</u> in which the residence is located."

Backup to GW-up-8c

PLEASE DETACH THE TOP PORTION OF THIS BILL AND ENCLOSE IT WITH YOUR CHECK MADE PAYABLE TO "SCW

Meter Reading for service at 95 BURT AVENUE
Aug.27, 1991 124 Actual Reading
May 29, 1991 97 Actual Reading
Water Use 27,000 Gallons

WATER USE GRAPH
(Gallons)



Previous Transactions

Balance	Jan.28, 1991	0.00
Billing	Mar.08, 1991	31.62
Payment	Apr.09, 1991	31.62CR
Billing	Jun.07, 1991	26.89
Payment	Jun.21, 1991	26.89CR
Balance Forward		0.00

PAID 9/15

Current Charges

Basic Service for 5/8" Meter	6.80	
27,000 Gallons @ 1.1820 per 1000 Gallons Water Charge	31.91	
		38.71
Total Amount Due		38.71

Dispose of Household Chemicals Wisely....
Participate In Your Town's
STOP Program.

09/06/91	08 3 050 055680 4	45	427-0305	665-0663
Date	Account Number	Cycle	Questions?	Emergency Service (After Normal Business Hours)

PLEASE DETACH THE TOP PORTION OF THIS BILL AND ENCLOSE IT WITH YOUR CHECK MADE PAYABLE TO "SCWA"

Meter Reading for service at 95 BURT AVENUE

Nov.22, 1991	144	Actual Reading
Aug.27, 1991	124	Actual Reading

Water Use 20,000 Gallons

PAID 12/7/1

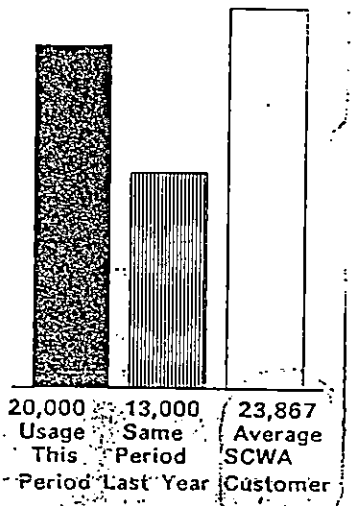
Previous Transactions

Balance	Apr.09, 1991	0.00	
Billing	Jun.07, 1991	26.89	
Payment	Jun.21, 1991	26.89CR	
Billing	Sep.06, 1991	38.71	
Payment	Sep.20, 1991	38.71CR	
Balance Forward			0.00

Current Charges

Basic Service for 5/8" Meter	6.80	
20,000 Gallons @ 1.1820 per 1000 Gallons	23.64	
Water Charge		30.44
Total Amount Due		30.44

WATER USE GRAPH
(Gallons)



Dispose of Household Chemicals Wisely
Participate In Your Town's
STOP Program.

12/05/91	08 3 050 055680 4	45	427-0305	665-0663
Date	Account Number	Cycle	Questions?	Emergency Service (After Normal Business Hours)

GW-Up-4

Ground Water Pathway 2/3/92
Upper Glacial
Section 3.3.3 Resources

A value of 5 was assigned as the resources value, because

- the Dix Hills Pool is located approximately 3 1/2 miles WNW of the site.

⇓

municipal wells in the area (45935 - upper glacial, or 14579 - magothy) may possibly be supplying the pool with water.

Also, it is not certain that there are no farms (5-acre minimum) within the 4-mile target radius boundary

∴ assign a value of 5

GW-Vp-10

Ground Water Pathway

Wellhead Protection Area

"Assign a value of 5, if, within the target distance limit, there is a designated Wellhead Protection Area applicable to the aquifer being evaluated or overlying aquifers"

GROUND WATER MIGRATION PATHWAY

MAGOTHY AQUIFER

Magothy

a (upper glacial) target

TABLE 3-1
GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

Likelihood of Release to an Aquifer	Maximum Value	Value Assigned	
1. Observed Release	550	~~0~~	550
2. Potential to Release			
2a. Containment	10	~~10~~	
2b. Net Precipitation	10	~~6~~	
2c. Depth to Aquifer	5	~~1~~	
2d. Travel Time	35	~~15~~	
2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500	~~220~~	
3. Likelihood of Release (higher of lines 1 and 2e)	550		~~220~~ 550
Waste Characteristics			
4. Toxicity/Mobility	a	10000	
5. Hazardous Waste Quantity	a	1	
6. Waste Characteristics	100		10
Targets			
7. Nearest Well	50	9	
8. Population			
8a. Level I Concentrations	b	0	
8b. Level II Concentrations	b	0	
8c. Potential Contamination	b	1914	
8d. Population (lines 8a + 8b + 8c)	b	1914	
9. Resources	5	5	
10. Wellhead Protection Area	20	5	
11. Targets (lines 7 + 8d + 9 + 10)	b		1933
Ground Water Migration Score for an Aquifer			
12. Aquifer Score [(lines 3 x 6 x 11)/82,500]^c 550 ~~220~~ 10 1933	100		~~51.5~~ 128.9
Ground Water Migration Pathway Score			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)^c	100		

---

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

HRS - Site Score 2/4/92

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}}$$

SQUARED

S_{gw} (upper glacial) = 35 1225

S_{gw} (magothy + upper glacial targets only) = ~~51.5~~ 128.9 ~~2652~~ 16,615.2

S_{sw} = 0 0

S_s = 0.34 0.12

S_a = 2.18 4.75

$$S = \sqrt{\frac{\cancel{2652} \overset{16,615.2}{} + 0.12 + 4.75}{4}} = \cancel{25.8} \; 64.5$$

$$S_{(\text{upper glacial gw})} = \sqrt{\frac{1225 + 0.12 + 4.75}{4}} = 17.5$$

Magothy
a (upper glacial)
target

TABLE 3-1
GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Likelihood of Release to an Aquifer	Maximum Value	Value Assigned	
1.	Observed Release	550	0	
2.	Potential to Release			
	2a. Containment	10	10	
	2b. Net Precipitation	10	6	
	2c. Depth to Aquifer	5	1	
	2d. Travel Time	35	15	
	2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500	220	
3.	Likelihood of Release (higher of lines 1 and 2e)	550		220
	Waste Characteristics			
4.	Toxicity/Mobility	a	10000	
5.	Hazardous Waste Quantity	a	1	
6.	Waste Characteristics	100		10
	Targets			
7.	Nearest Well	50	9	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	1914	
	8d. Population (lines 8a + 8b + 8c)	b	1914	
9.	Resources	5	5	
10.	Wellhead Protection Area	20	5	
11.	Targets (lines 7 + 8d + 9 + 10)	b		1933
	Ground Water Migration Score for an Aquifer			
12.	Aquifer Score [(lines 3 x 6 x 11)/82,500]^c 220 10 1933	100		51.5
	Ground Water Migration Pathway Score			
13.	Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)^c	100		

---

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

GW-Mag-2a

TABLE 3-2
CONTAINMENT FACTOR VALUES FOR GROUND WATER MIGRATION PATHWAY

All Sources (except surface impoundments, land treatment, containers, and tanks)	Assigned Value
Evidence of hazardous substance migration from source area (i.e., source area includes source and any associated containment structures).	10 ✓
No liner.	10
No evidence of hazardous substance migration from source area, a liner, and:	
(a) None of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system, or (3) functioning leachate collection and removal system immediately above liner.	10
(b) Any one of the three items in (a) present.	9
(c) Any two of the items in (a) present.	7
(d) All three items in (a) present plus a functioning ground water monitoring system.	5
(e) All items in (d) present, plus no bulk or noncontainerized liquids nor materials containing free liquids deposited in source area.	3
No evidence of hazardous substance migration from source area, double liner with functioning leachate collection and removal system above and between liners, functioning ground water monitoring system, and:	
(f) Only one of the following deficiencies present in containment: (1) bulk or noncontainerized liquids or materials containing free liquids deposited in source area, or (2) no or nonfunctioning or nonmaintained run-on control system and runoff management system, or (3) no or nonmaintained engineered cover.	3

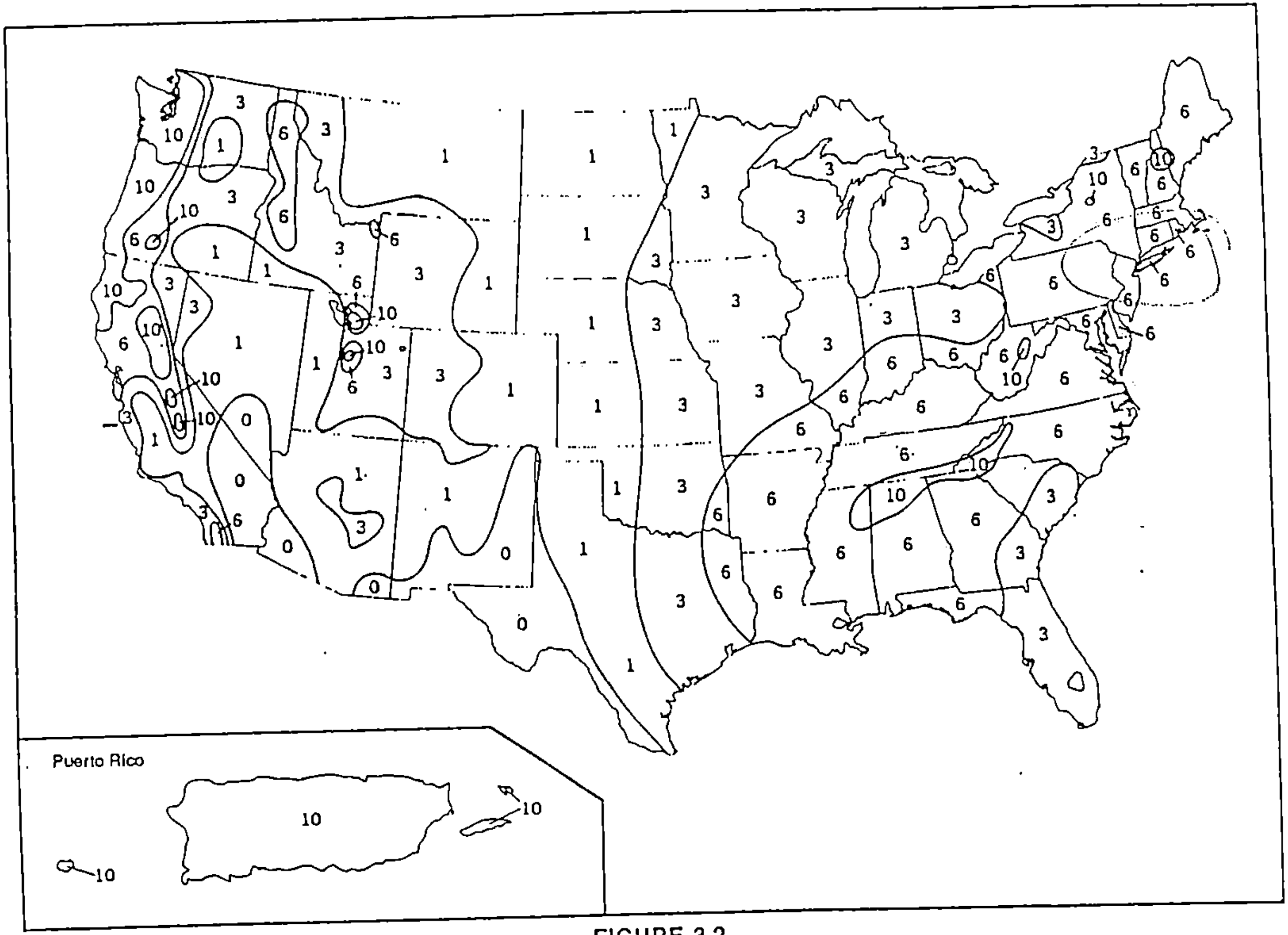


FIGURE 3-2
NET PRECIPITATION FACTOR VALUES

GW-Mag-2b

GW-Mag-2c

TABLE 3-5
DEPTH TO AQUIFER FACTOR VALUES

Depth To Aquifer[a] (feet)	Assigned Value
Less than or equal to 25	5
Greater than 25 to 250	3
Greater than 250	[✓ 1]

---

[a] Use depth of all layers between the hazardous substances and aquifer. Assign a thickness of 0 feet to any karst aquifer that underlies any portion of the sources at the site.

GW-Mag -2d

TABLE 3-7
TRAVEL TIME FACTOR VALUES[a]

Hydraulic Conductivity (cm/sec)	Thickness of Lowest Hydraulic Conductivity Layer(s)[b] (feet)			
	Greater than 3 to 5	Greater than 5 to 100	Greater than 100 to 500	Greater than 500
Greater than or equal to 10^{-3}	35	35	35	25
Less than 10^{-3} to 10^{-5}	35	25	[✓ 15]	15
Less than 10^{-5} to 10^{-7}	15	15	5	5
Less than 10^{-7}	5	5	1	1

[a] If depth to aquifer is 10 feet or less or if, for the interval being evaluated, all layers that underlie a portion of the sources at the site are karst, assign a value of 35.

[b] Consider only layers at least 3 feet thick. Do not consider layers or portions of layers within the first 10 feet of the depth to the aquifer.

Backup to
GW - Mag - 2d

TABLE 3-6
HYDRAULIC CONDUCTIVITY OF GEOLOGIC MATERIALS

Type of Material	Assigned Hydraulic Conductivity[a] (cm/sec)
Clay; low permeability till (compact unfractured till); shale; unfractured metamorphic and igneous rocks	10^{-8}
Silt; loesses; silty clays; sediments that are predominantly silts; moderately permeable till (fine-grained, unconsolidated till, or compact till with some fractures); low permeability limestones and dolomites (no karst); low permeability sandstone; low permeability fractured igneous and metamorphic rocks	10^{-6}
Sands; sandy silts; sediments that are predominantly sand; highly permeable till (coarse-grained, unconsolidated or compact and highly fractured); peat; moderately permeable limestones and dolomites (no karst); moderately permeable sandstone; moderately permeable fractured igneous and metamorphic rocks	$\boxed{10^{-4}}$
Gravel; clean sand; highly permeable fractured igneous and metamorphic rocks; permeable basalt; karst limestones and dolomites	10^{-2}

---

[a] Do not round to nearest integer.

1/16/92
GW-Mag-4

Mobility Factors

Gibson - Ground Water Contaminants

	Mobility Factor	(Factor) Toxicity	Factor Toxicity/ Mobility
1,2-Dichloroethene	1	100 ~~Factor~~	100
1,1,1-Trichloroethane	1	10	10
Carbon Disulfide	1	1000	1000
Tetrachloroethene	1	1000	1000
Toluene	1	10	10
No Trichloroethene At site only	1	100	100
* Vinyl Chloride	1	10,000	10,000
Xylenes	1	10	10
Aluminum	1	0	0
* Arsenic	1	10,000	10,000
Barium	1	10	10
* Chromium	1	10,000	10,000
Copper	1	100	100
Iron	1	0	0
Manganese	1	10	10
* Nickel	1	10,000	10,000
Vanadium	1	100	100
Zinc	1	10	10

Maxim Toxicity/Mobility Factor = 10,000

Toxicity Factors

GW-Mag-4

Gibson - Ground Water Contaminants 1/16/92

	(Upper Glacial)(1) Maximum Conc. (ug/L)	Inhal.	Oral Sf	Toxicity Factors Inhal	Oral RfD
1,2-Dichloroethene	22				100 1E-2
1,1,1-Trichloroethane	8.			10 3E-1	1 9E+2
Carbon Disulfide	6			1000 2.9E-3 ~~[illegible]~~	10 1E-1
Tetrachloroethene BZ	87	10 1.8E-3	100 5.1E-2		100 1E-2
Toluene	~~[illegible]~~ 6			1 5.7E-1 ~~[illegible]~~	10 2E-1
1C) Trichloroethene BZ	34	10 1.7E-2	10 1.1E-2		
Vinyl Chloride A	14	1000 2.9E-1	10,000 1.9		
Xylenes	11			10 8.6E-2	1 2E+0
Aluminum /	13900				0 —
Arsenic A	12	10,000 5E+1	10,000 1.75		10,000 3E-4
Barium	249			1E-4	10 5E-2
Chromium A	77.6	10,000 4.1E+1		5.7E-7	100 5E-3
Copper	65.5			1E-2	100 3.7E-2
~~Manganese~~ Iron	101,000				0 —
Manganese	24,700			1.14E-4	10 1E-1
Nickel A	53.7	10,000 8.4E-1			10 2E-2
Vanadium	75.1				100 7E-3
Zinc	101,000				10 2E-1

(1) see page 16 - only chemicals greater than the detection limit and greater than 3x background

— inhalation

(AC) - Detected only at Automatic Conductors off-site, possibly downgradient

TABLE 3-9
TOXICITY/MOBILITY FACTOR VALUES[a]

Mobility Factor Value	Toxicity Factor Value					
	10,000	1,000	100	10	1	0
1.0	10,000	1,000	100	10	1	0
0.2	2,000	200	20	2	0.2	0
0.01	100	10	1	0.1	0.01	0
0.002	20	2	0.2	0.02	0.002	0
0.0001	1	0.1	0.01	0.001	1×10^{-4}	0
2×10^{-5}	0.2	0.02	0.002	2×10^{-4}	2×10^{-5}	0
2×10^{-7}	0.002	2×10^{-4}	2×10^{-5}	2×10^{-6}	2×10^{-7}	0
2×10^{-9}	2×10^{-5}	2×10^{-6}	2×10^{-7}	2×10^{-8}	2×10^{-9}	0

[a] Do not round to nearest integer.

Backup to
GW-Mag-4

GW-Mag-5

[illegible]und Water Pathway   Gibson   1/23/92

Source - contaminated soil (all depths)

Area		Square feet
S-FSDS		620
S-PSDS		301
S-UTF		1500-432 = 1068
S-WD		432
E-SP		2700
E-P		798
E-RP		804
Trench11	(12.8 x 0.3) ⇒ (56 x 6)	336
Trench 14	(0.9 x 0.3) ⇒ (18 x 6)	108
~~E-UL~~		
S-SP		201
S-S2		500
E-DS1		1126
E-DS2		198
E-SDS-1		4
E-SDS-2		4
E-TF		384
		9584

$\frac{9584}{34{,}000} = 0.28$

0.28 < 1 ⇒ 1.

Gw- Mag-6

TABLE 2-7
WASTE CHARACTERISTICS FACTOR CATEGORY VALUES

Waste Characteristics Product	Assigned Value
0	0
Greater than 0 to less than 10	1
10 to less than 1×10^2	2
1×10^2 to less than 1×10^3	3
1×10^3 to less than 1×10^4	6
1×10^4 to less than 1×10^5	[✓ 10]
1×10^5 to less than 1×10^6	18
1×10^6 to less than 1×10^7	32
1×10^7 to less than 1×10^8	56
1×10^8 to less than 1×10^9	100
1×10^9 to less than 1×10^{10}	180
1×10^{10} to less than 1×10^{11}	320
1×10^{11} to less than 1×10^{12}	560
1×10^{12}	1,000

$1 \times 10{,}000 = 1 \times 10^4$

GW-Mag-7

TABLE 3-11
NEAREST WELL FACTOR VALUES

Distance from Source (miles)	Assigned Value
Level I concentrations[a]	50
Level II concentrations[a]	45
0 to 1/4	20
Greater than 1/4 to 1/2	18
Greater than 1/2 to 1	9 ✓
Greater than 1 to 2	5
Greater than 2 to 3	3
Greater than 3 to 4	2
Greater than 4	0

[a] Distance does not apply.

Either
private well Adams ave at David Dr.
(installed in 1983)
nearly 1 mile NE

OR
Magothy municipal wells
Wick's Rd ~0.9 mile N

Backup 40

SUFFOLK
County

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

COMPLETION REPORT – LONG ISLAND WELL

GW, S-74853
Mag-7
Well No.

OWNER: RUETERS LTD

ADDRESS: 90 DAVIDS DR HAUPPAUGE

LOCATION OF WELL: C/O DAVIDS Dr + Adams Ave HAUPPAUGE

DEPTH OF WELL BELOW SURFACE: 130 ft.

DEPTH TO GROUND WATER FROM SURFACE: 108 ft.

CASINGS

DIAMETER: 5" in. | in. | in. | in.

LENGTH: 145 ft. | ft. | ft. | ft.

SEALING:

CASINGS REMOVED:

SCREENS

MAKE: COOK SS

OPENINGS: 14

DIAMETER: 5 in. | in. | in. | in.

LENGTH: 5 ft. | ft. | ft. | ft.

DEPTH TO TOP FROM TOP OF CASING:

PUMPING TEST

DATE:

TEST OR PERMANENT PUMP?

DURATION OF TEST: days hours

MAXIMUM DISCHARGE: gallons per min.

STATIC LEVEL PRIOR TO TEST: ft. in. below top of casing

LEVEL DURING MAXIMUM PUMPING: ft. in. below top of casing

MAXIMUM DRAWDOWN: ft.

Approximate time of return to normal level after cessation of pumping: hrs. min.

PUMP INSTALLED

TYPE:

MAKE: GOULDS

MODEL NO.: 25 EC204

MOTIVE POWER:

MAKE:

H.P.:

CAPACITY: g.p.m. against ft. of discharge head

NUMBER BOWLS OR STAGES: ft. of total head

DROP LINE

DIAMETER: 2 in.

LENGTH: 120 ft.

SUCTION LINE

DIAMETER: in.

LENGTH: ft.

METHOD OF DRILLING: ☐ rotary ☒ cable tool ☐ other: ______

USE OF WATER:

WORK STARTED: 6/28/73

COMPLETED: 7/1/83

DATE: 7/22/83

DRILLER: Krueger Well + Pump

REGISTRATION NO: 10

*LOG

Ground Surface

El. __________ ft. above sea

A/V __________ ft.

TOP OF WELL

20'	2"	coarse sand coarse gravel
30	5	hardpan gravel
40	4	"
50	5	"
60	7	"
70	10	"
81	1/2	coarse to medium sand coarse gravel
89	11 1/2	
99	10 1/2	
111	1/2	
131	5 1/2	

RECEIVED
JUL 13 1983
WATER UNIT
DEC REGION 1

*NOTE: Show log of well - materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See Instructions as to Well Drillers' Certificates of Registration and Reports, Pages 5 - 7.

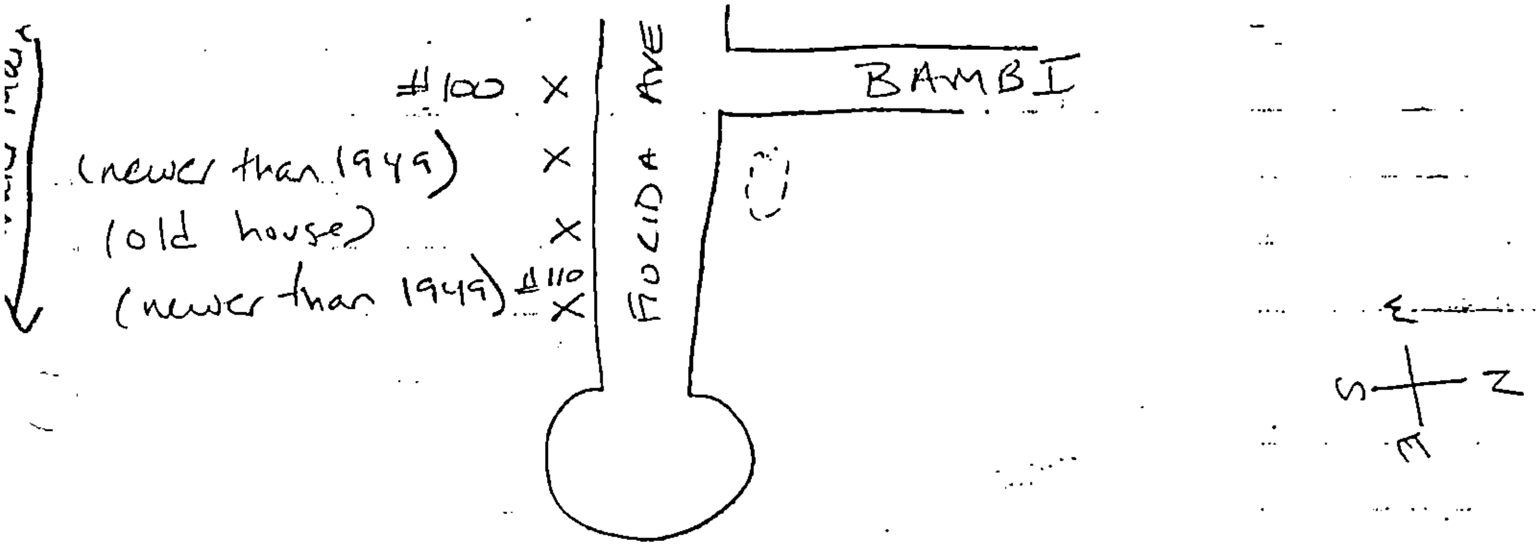
ORIGINAL – Environmental Conservation Copy

Back up to
GW-Mag-7

Ground Water Pathway 1/28/92

re: S-7935 (see Section 4.6)
(USGS had a well listed on Florida Avenue
installed in 1949

visit to Florida Avenue



◌ GW Recharge / open ditch with drainage pipe

Water main extends approximately
300-400' on Florida Avenue, east of Bambi
source: Tim Cassidy of SCWA
Smithtown 979-8460

2/3/92

Ground Water Pathway
Upper Glacial & Magothy Aquifers

Distance

0-1/4 - Not Applicable score=0
>1/4-1/2 - Not Applicable score=0

>1/2-1 $\frac{936{,}726\text{ gpd}}{120\text{ gpd/person}}$ = 7806 persons
score=1669

>1-2 $\frac{4{,}975{,}030\text{ gpd}}{120\text{ gpd/person}}$ = 41,459 persons
score=9385

>2-3 $\frac{5{,}957{,}133\text{ gpd}}{120\text{ gpd/person}}$ = 49,643 persons
score= 6778

>3-4 $\frac{2{,}788{,}948\text{ gpd}}{120\text{ gpd/person}}$ = 23,241 persons
score= 1306

Distance - Weighted Value

$$PC = \frac{1}{10}\left[0 + 0 + 1669 + 9385 + 6778 + 1306\right]$$

$$= 1913.8 \rightarrow 1914$$

Backup to
GW-8c

Ground Water

Targets (3.3)

"include both the drinking water wells drawing from the aquifer being evaluated and those drawing from overlying aquifers"

Backup to
GW-8c

round Water Pathway
Magothy Aquifer + Upper Glacial

2/3/92

Distance (miles)	1/2 -1	1-2	2-3	3-4
(gpd)				
Magothy	936,726	2,849,113	3,382,383	2,788,948
pper Glacial		2,125,917	2,574,750	
Total	936,726	4,975,030	5,957,133	2,788,948

Maquoketa
+ Upper Glacial Aquifers

TABLE 3-12
DISTANCE-WEIGHTED POPULATION VALUES FOR POTENTIAL CONTAMINATION FACTOR FOR GROUND WATER MIGRATION PATHWAY[a]

Distance Category (miles)	Number of People Within the Distance Category												
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000
OTHER THAN KARST[b]													
0 to 1/4	0	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455
Greater than 1/4 to 1/2	0	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122
Greater than 1/2 to 1	0	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385
Greater than 1 to 2	0	0.7	3	10	30	94	294	939	2,939	9,385	29,384	93,845	293,842
Greater than 2 to 3	0	0.5	2	7	21	68	212	678	2,122	6,778	21,222	67,777	212,219
Greater than 3 to 4	0	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596
KARST[c]													
0 to 1/4	0	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455
Greater than 1/4 to 1/2	0	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122
Greater than 1/2 to 1	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 1 to 2	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 2 to 3	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 3 to 4	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227

---

[a] Round the number of people present within a distance category to nearest integer. Do not round the assigned distance-weighted population value to nearest integer.

[b] Use for all aquifers, except karst aquifers underlying any portion of the sources at the site.

[c] Use only for karst aquifers underlying any portion of the sources at the site.

Back to GW-8

Back up to
GW-8c

TABLE A

LOCATIONS OF MUNICIPAL WELLS IN THE UPPER GLACIAL AQUIFER

Well	Distance (miles)	Direction
S-22362	1.7	NNW
S-23715	1.7	NNW
S-44774	1.9	NE
S-30234	2.9	ESE
S-16608	1.4	SE
S-21006	2.5	WSW
S-23522	2.5	WSW
S-34032	2.5	WSW
S-45935	2.1	WNW

Backup
to GW-8c

TABLE B

CAPACITIES AND PUMPAGE FOR MUNICIPAL WELLS IN THE UPPER GLACIAL AQUIFER

Well	Purveyor	Maximum Capacity (gpm)	1990 Annual Pumpage (gpy)	1990 Annual Pumpage (gpd)
S-22362	SCWA	1000	114,149,000	312,737
S-23715	SCWA	1000	79,753,000	218,501
S-44774	SCWA	2400	303,986,000	832,838
S-16608	Brentwood	1000	278,072,000(1)	761,841
S-45935	Dix Hills	1400	187,506,000	513,715
S-30234	Dix Hills	1400	191,800,000	525,479
S-21006	Dix Hills	1200	225,931,000	618,989
S-23522	Dix Hills	1400	142,747,000	391,088
S-34032	Dix Hills	1400	191,800,000	525,479

16400701.649

Notes:

(1) 1987 data.

Backup to
GW-8c

Ground Water Pathway 2/3/92
Municipal Wells - Upper Glacial Aquifer

Distance

1-2 Miles (gpd)	2-3 Miles (gpd)
312,737	513,715
218,501	525,479
761,841	618,989
832,838	391,088
	525,479
2,125,917	2,574,750

Backup to
GW-8c

TABLE C

LOCATIONS OF MUNICIPAL WELLS IN THE MAGOTHY AQUIFER

Well	Distance (miles)	Direction
S-23832	0.9	N
S-22471	0.9	N
S-36976	0.9	N
S-14326	1.9	NE
S-31624	2.9	ESE
S-37141	2.9	ESE
S-32412	1.4	SE
S-20318	1.4	SE
S-24846	2.5	SSE
S-43088	2.5	SSE
S-23445	1.8	S
S-31104	1.8	S
S-57008	1.8	S
S-22548	2.8	SW
S-40497	3.1	SSW
S-46830	3.1	SSW
S-63966	2.9	NE
S-20369	1.3	NE
S-58708	1.3	NE
S-18261	2.8	SW
S-54308	3.6	ESE
S-65766	3.6	ESE
S-14579	2.4	NW
S-23999	2.7	NW
S-21134	3.1	NNW
S-72271	2.9	N

Backup to
GW-8e

TABLE D

CAPACITIES AND PUMPAGE FOR MUNICIPAL WELLS IN THE MAGOTHY AQUIFER

Well	Purveyor	Maximum Capacity (gpm)	1990 Annual Pumpage (gpy)	1990 Annual Pumpage (gpd)
S-23832	SCWA	1100	116,711,000	319,756
S-22471	SCWA	1200	107,115,000	293,466
S-36976	SCWA	1200	118,079,000	323,504
S-14326	SCWA	1400	41,899,000	114,792
S-32412	Brentwood	1400	304,876,000	835,277
S-20318	Brentwood	1200	179,230,000	49,104
S-63966	SCWA	2400	75,610,000	207,151
S-20369	SCWA	1300	61,219,000	167,723
S-58708	SCWA	1300	138,739,000	380,107
S-14579	Greenlawn	1200	182,869,000	501,011
S-23999	Greenlawn	1200	92,787,000	254,211
S-21134	Greenlawn	1200	194,741,000	533,537
S-72271	SCWA	1300	149,120,000	408,548
S-31624	SCWA	1200	65,619,000	179,778
S-37141	SCWA	1200	62,061,000	170,030
S-24846	Brentwood	1200	109,308,000	299,473
S-43088	Brentwood	1400	297,347,000	814,649
S-23445	SCWA	1200	182,983,000	501,323
S-31104	SCWA	1200	175,294,000	480,258
S-57008	SCWA	1400	116,993,000	320,529
S-22548	SCWA	1000	132,215,000	362,233
S-40497	SCWA	1200	173,496,000	475,332
S-46830	SCWA	1200	235,389,000	644,901
S-18261	SCWA	950	67,634,000	185,299
S-54308	SCWA	1400	85,323,000	233,762
S-65766	SCWA	1300	329,017,000	901,416

Back up to
GW-8c

Ground Water Pathway
Municipal Wells - Magothy Aquifer

2/3/92

Distances
(miles)

1/2-1 (gpd)	1-2	2-3	3-4
319,756	114,792	207,151	533,537
293,466	835,277	501,011	475,332
323,~~4~~504	49,104	254,211	644,901
	167,723	408,548	233,762
	380,107	179,778	901,416
	501,323	170,030	
	320,529	299,473	
	480,258	814,649	
		362,233	
		185,299	
936,726	2,849,113	3,382,383	2,788,948

Backup to
GW-8c

1/24/92

1990 Census Data

★ Suffolk County 3.04 people per household
Smithtown (town) 3.10 people per household
Commack (Smithtown) 3.21 people per household
Commack (Huntington) 3.24 people per household

Source: Peter Lambrecht
LI Regional Planning Board
(516) 853-5194

★ page 68 (section 3.3.2)(ground water)

"In estimating residential population, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the <u>County</u> in which the residence is located."

Backup to
GW-8c

1/24/92

Average Water Use per household

5/29/91 – 8/27/91 = 3 months 40,748 gal
8/27/91 – 11/27/91 = 3 months 23,867 gal

64,615 gallons

Source: Suffolk County Water Authority

$$\frac{64{,}615 \text{ gallons}}{6 \text{ months}} = 10{,}769 \text{ gal/mo.}$$

assume average household = 3.04 people
(see 1990 census data, Suffolk County
Source: LI Regional Planning Board)

$$\frac{10{,}769 \text{ gal/mo - household}}{3.04 \text{ persons / household}}$$

= 3542 gal/mo-~~m~~person

$$= \frac{3542 \text{ gal/mo - person}}{30 \text{ day/mo.}}$$

= 118 gal per day per person
OR ≈ 120 gpd/person

Backup to
6W-8c

PLEASE DETACH THE TOP PORTION OF THIS BILL AND ENCLOSE IT WITH YOUR CHECK MADE PAYABLE TO "SCWA"

Meter Reading for service at 95 BURT AVENUE

Aug.27, 1991	124	Actual Reading
May 29, 1991	97	Actual Reading

Water Use 27,000 Gallons

Previous Transactions

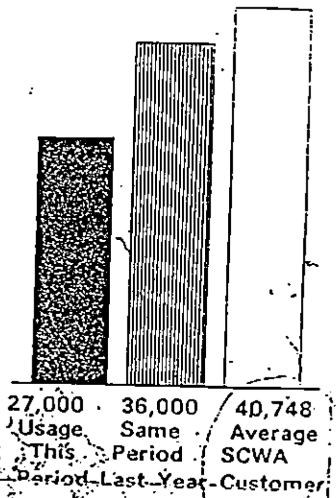
Balance	Jan.28, 1991	0.00
Billing	Mar.08, 1991	31.62
Payment	Apr.09, 1991	31.62CR
Billing	Jun.07, 1991	26.89
Payment	Jun.21, 1991	26.89CR
Balance Forward		0.00

PAID
9/15

Current Charges

Basic Service for 5/8" Meter	6.80	
27,000 Gallons @ 1.1820 per 1000 Gallons	31.91	
Water Charge		38.71
Total Amount Due		38.71

WATER USE GRAPH
(Gallons)



Dispose of Household Chemicals Wisely...
Participate In Your Town's
STOP Program.

09/06/91	08 3 050 055680 4	45	427-0305	665-0663
Date	Account Number	Cycle	Questions?	Emergency Service (After Normal Business Hours)

Backup to
GW-8c

PLEASE DETACH THE TOP PORTION OF THIS BILL AND ENCLOSE IT WITH YOUR CHECK MADE PAYABLE TO "SCWA"

Meter Reading for service at 95 BURT AVENUE

Nov.22, 1991	144	Actual Reading
Aug.27, 1991	124	Actual Reading
Water Use	20,000 Gallons	

PAID 12/7/1

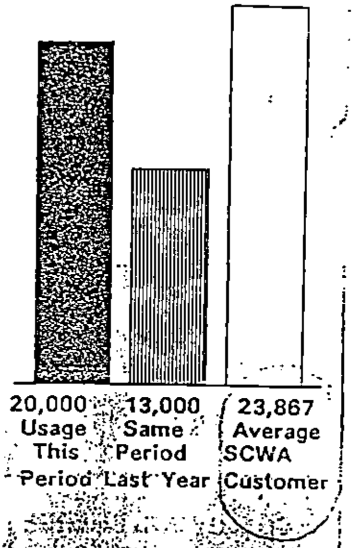
Previous Transactions

Balance	Apr.09, 1991	0.00	
Billing	Jun.07, 1991	26.89	
Payment	Jun.21, 1991	26.89CR	
Billing	Sep.06, 1991	38.71	
Payment	Sep.20, 1991	38.71CR	
Balance Forward			0.00

Current Charges

Basic Service for 5/8" Meter	6.80	
20,000 Gallons @ 1.1820 per 1000 Gallons	23.64	
Water Charge		30.44
Total Amount Due		30.44

WATER USE GRAPH
(Gallons)



Dispose of Household Chemicals Wisely
Participate In Your Town's
STOP Program.

12/05/91	08 3 050 055680 4	45	427-0305	665-0663
Date	Account Number	Cycle	Questions?	Emergency Service (After Normal Business Hours)

GW-Mag-9

Ground Water Pathway 2/3/92
Upper Glacial
Section 3.3.3 Resources

A value of 5 was assigned as the resources value, because

- the Dix Hills Pool is located approximately 3½ miles WNW of the site.

⇓

municipal wells in the area (45935 - upper glacial, or 14579 - magothy) may possibly be supplying the pool with water.

Also, it is not certain that there are no farms (5-acre minimum) within the 4-mile target radius boundary

∴ assign a value of 5

GW- Mag-10

Ground Water Pathway

Wellhead Protection Area

"Assign a value of 5, if, within the target distance limit, there is a designated Wellhead Protection Area applicable to the aquifer being evaluated or overlying aquifers"

SOIL EXPOSURE PATHWAY

TABLE 5-1
SOIL EXPOSURE PATHWAY SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigned	
	RESIDENT POPULATION THREAT			
	Likelihood of Exposure			
1.	Likelihood of Exposure	550		550
	Waste Characteristics			
2.	Toxicity	a	10,000	
3.	Hazardous Waste Quantity	a	1	
4.	Waste Characteristics	100		10
	Targets			
5.	Resident Individual	50	0	
6.	Resident Population			
	6a. Level I Concentrations	b		
	6b. Level II Concentrations	b		
	6c. Resident Population (lines 6a + 6b)	b	0	
7.	Workers	15	5	
8.	Resources	5	0	
9.	Terrestrial Sensitive Environments	c	0	
10.	Targets (lines 5 + 6c + 7 + 8 + 9)	b		5
	Resident Population Threat Score			
11.	Resident Population Threat (lines 1 x 4 x 10) 550 x 10 x 5	b		27,500
	NEARBY POPULATION THREAT			
	Likelihood of Exposure			
12.	Attractiveness/Accessibility	100	10	
13.	Area of Contamination	100	20	
14.	Likelihood of Exposure	500		5
	Waste Characteristics			
15.	Toxicity	a	10,000	
16.	Hazardous Waste Quantity	a	1	
17.	Waste Characteristics	100		10

TABLE 5-1 (Concluded)

Factor Categories and Factors	Maximum Value	Value Assigned	
NEARBY POPULATION THREAT (Concluded)			
Targets			
18. Nearby Individual	1	1	
19. Population Within 1 Mile	b	7	
20. Targets (lines 18 + 19)	b		8
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20) 5 10 8	b		400
SOIL EXPOSURE PATHWAY SCORE			
22. Soil Exposure Pathway Score[d] (S_s), (lines [11+21] ÷ 82,500, subject to a maximum of 100) $\frac{27{,}500 + 400}{82{,}500}$	100		0.34

---

[a] Maximum value applies to waste characteristics category.

[b] Maximum value not applicable.

[c] No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to maximum of 60.

[d] Do not round to nearest integer.

5.1.4.1 S011-2

Soil

Pathway Toxicity Gibson 1/22/92

Surface Soil

	PF		RfD	
	oral	inhal	oral	inhal
Acetone			1E-1 ^{10}	
Carbon Disulfide			1E-1 ^{10}	2.9E-3 ^{1000}
Chloroform	6.1E-3 ^{10}	8.1E-2 ^{100}	1E-2 ^{100}	
Ethylbenzene			1E-1 ^{10}	2.9E-1 ^{10}
Methylene Chloride	7.5E-3 ^{10}	1.6E-3 ^{10}	6E-2 ^{10}	8.6E-1 ^{1}
Tetrachloroethene	5.1E-2 ^{100}	1.8E-3 ^{1000}	1E-2 ^{100}	
Xylenes			2E+0 ^{1}	8.6E-2 ^{10}
DEHP	1.4E-2 ^{10}		2E-2 ^{100}	
Arsenic	1.75 ^{10,000}	5E+1 ^{10,000}	3E-4 ^{10,000}	
Copper			3.7E-2 ^{100}	1E-2 ^{100}
Lead			1.4E-3 ^{1000}	4.3E-4 ^{10,000}
Mercury			3E-4 ^{10,000}	8.4E-5 ^{10,000}
Nickel		8.4E-1 ^{10,000}	2E-2 ^{10}	
Vanadium			7E-3 ^{100}	
Zinc			2E-1 ^{10}	

Soil -3

TABLE 5-2
HAZARDOUS WASTE QUANTITY EVALUATION EQUATIONS FOR SOIL EXPOSURE PATHWAY

Tier	Measure	Units	Equation for Assigning Value[a]
A	Hazardous Constituent Quantity (C)	lb	C
B[b]	Hazardous Wastestream Quantity (W)	lb	W/5,000
C[b]	<u>Volume (V)</u>		
	Surface Impoundment[c]	yd^3	V/2.5
	Drums[d]	gallon	V/500
	Tanks and Containers Other Than Drums	yd^3	V/2.5
D[b]	<u>Area (A)</u>		
	Landfill	ft^2	A/34,000
	Surface Impoundment	ft^2	A/13
	Surface Impoundment (Buried/backfilled)	ft^2	A/13
	Land treatment	ft^2	A/270
	Pile[e]	ft^2	A/34
	Contaminated Soil	ft^2	A/34,000

[a] Do not round to nearest integer.

[b] Convert volume to mass when necessary: 1 ton = 2,000 pounds = 1 cubic yard = 4 drums = 200 gallons.

[c] Use volume measure only for surface impoundments containing hazardous substances present as liquids. Use area measures in Tier D for dry surface impoundments and for buried/backfilled surface impoundments.

[d] If actual volume of drums is unavailable, assume 1 drum = 50 gallons.

[e] Use land surface area under pile, not surface area of pile.

$$\frac{7143}{34,000} = 0.21$$

Soil -3 Backup
Soil -13 Backup

Soil

Pathway

Gibson 1/22/92

Hazardous Waste Quantity
(Surface area of all Contaminated Surface soils)

Area	Square Feet
EP1/EP2	798
EDS 2	198
EDS1	1126
SSP	201
SWD	432
ESP	2700
ERP	804
SSC	500
ETF	384
	7143 sq ft.

$$\frac{7143}{34,000} = 0.21$$

Soil -4

TABLE 2-7
WASTE CHARACTERISTICS FACTOR CATEGORY VALUES

Waste Characteristics Product	Assigned Value
0	0
Greater than 0 to less than 10	1
10 to less than 1×10^2	2
1×10^2 to less than 1×10^3	3
1×10^3 to less than 1×10^4	6
1×10^4 to less than 1×10^5	10
1×10^5 to less than 1×10^6	18
1×10^6 to less than 1×10^7	32
1×10^7 to less than 1×10^8	56
1×10^8 to less than 1×10^9	100
1×10^9 to less than 1×10^{10}	180
1×10^{10} to less than 1×10^{11}	320
1×10^{11} to less than 1×10^{12}	560
1×10^{12}	1,000

1 x 10,000 = 1E+4

Soil - 4

TABLE 5-4
FACTOR VALUES FOR WORKERS

Number of Workers	Assigned Value
0	0
1 to 100	5 ✓
101 to 1,000	10
Greater than 1,000	15

Between 20 - 100 workers

TABLE 5-6
ATTRACTIVENESS/ACCESSIBILITY VALUES

Area of Observed Contamination	Assigned Value
Designated recreational area	100
Regularly used for public recreation (for example, fishing, hiking, softball)	75
Accessible and unique recreational area (for example, vacant lots in urban area)	75
Moderately accessible (may have some access improvements - for example, gravel road), with some public recreation use	50
Slightly accessible (for example, extremely rural area with no road improvement), with some public recreation use	25
Accessible, with no public recreation use	10 ✓
Surrounded by maintained fence or combination of maintained fence and natural barriers	5
Physically inaccessible to public, with no evidence of public recreation use	0

Site is mostly fenced
- not fenced across the front
- some access to site, especially on the southwest side of the building

J011-15

TABLE 5-7
AREA OF CONTAMINATION FACTOR VALUES

Total Area of the Areas of Observed Contamination (ft^2)	Assigned Value
Less than or equal to 5,000	5
Greater than 5,000 to 125,000	20 ✓
Greater than 125,000 to 250,000	40
Greater than 250,000 to 375,000	60
Greater than 375,000 to 500,000	80
Greater than 500,000	100

7143 square feet

Soil-14

TABLE 5-8
NEARBY POPULATION LIKELIHOOD OF EXPOSURE FACTOR VALUES

Area of Contamination Factor Value	Attractiveness/Accessibility Factor Value						
	100	75	50	25	10	5	0
100	500	500	375	250	125	50	0
80	500	375	250	125	50	25	0
60	375	250	125	50	25	5	0
40	250	125	50	25	5	5	0
20	125	50	25	5	5	5	0
5	50	25	5	5	5	5	0

S011-18

TABLE 5-9
NEARBY INDIVIDUAL FACTOR VALUES

Travel Distance for Nearby Individual (miles)	Assigned Value
Greater than 0 to 1/4	1[a] ✓
Greater than 1/4 to 1	0

---

[a] Assign a value of 0 if one or more persons meet the Section 5.1.3 criteria for resident individual.

Closest house ~ 600' west

$$\frac{600}{5280} = 0.11 \text{ miles}$$

Distance to Nearest Residence ~600 feet (measured on aerial photographs

Soil 18 - Backup

FOR ADJOINING AREA SEE MAP NO. 8

TABLE 5-10
DISTANCE-WEIGHTED POPULATION VALUES FOR NEARBY POPULATION THREAT[a]

Travel Distance Category (miles)	Number of People Within the Travel Distance Category											
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000
Greater than 0 to 1/4	0	0.1	0.4	1	4	13 ✓	41	130	408	1,303	4,081	13,034
Greater than 1/4 to 1/2	0	0.05	0.2	0.7	2	7	20 ✓	65	204	652	2,041	6,517
Greater than 1/2 to 1	0	0.02	0.1	0.3	1	3	10	33 ✓	102	326	1,020	3,258

[a] Round the number of people present within a travel distance category to nearest integer. Do not round the assigned distance-weighted population value to nearest integer.

0 – 1/4 mile radius = 0,196 sq mi × 2960 $\frac{\text{people}}{\text{sq mi}}$ = 581 people

1/4 - 1/2 mile radius = 0,785 sq mi × 2960 = 2325 people

2325 – 581 = 1744 (>1/4 - 1/2 m.)

1744 + 150 (Sagtikos school) = 1894 people

1/2 - 1 mile radius = 3,14 sq mile × 2960 = 9299

9299 – 2325 = 6974 people

$PN = \frac{1}{10} [13 + 20 + 33] = 6.6 \Rightarrow 7$

(C 11 - 17

Exhibit 10
5011-19

1/24/92

1990 Census Data

population of Commack within the town of Smithtown only = 23,914

Area = 8.08 square miles

Therefore,

$$\frac{23914 \text{ people}}{8.08 \text{ square miles}}$$

$$= 2959.65 \Rightarrow 2960 \text{ people per sq mile}$$

source: Roy Fedelem
LI Regional Planning Board
(516) 853-5194

2011-14
Backup

1/23/92

Sagitikos School
Brentwood Drive

Association for the Health of Retarded Children
543-7200

Student population = 112
Certified teachers = 14

+ aides, custodial, administrative etc.

∴ assume ~ 150

students come from all over
Suffolk County

AIR MIGRATION PATHWAY

TABLE 6-1
AIR MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

Likelihood of Release	Maximum Value	Value Assigned	
1. Observed Release	550	0	
2. Potential to Release			
2a. Gas Potential to Release	500	360	
2b. Particulate Potential to Release	500	280	
2c. Potential to Release (higher of lines 2a and 2b)	500	360	
3. Likelihood of Release (higher of lines 1 and 2c)	550		360
Waste Characteristics			
4. Toxicity/Mobility	a	2000	
5. Hazardous Waste Quantity	a	1	
6. Waste Characteristics	100		6
Targets			
7. Nearest Individual	50	20	
8. Population			
8a. Level I Concentrations	b	0	
8b. Level II Concentrations	b	0	
8c. Potential Contamination	b	63.1	
8d. Population (lines 8a + 8b + 8c)	b	63.1	
9. Resources	5	0	
10. Sensitive Environments			
10a. Actual Contamination	c	0	
10b. Potential Contamination	c	0.258	
10c. Sensitive Environments (lines 10a + 10b)	c	0.258	
11. Targets (lines 7 + 8d + 9 + 10c)	b		83.36
Air Migration Pathway Score			
12. Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500][d] 360 6 83.36	100		2.18

---

[a] Maximum value applies to waste characteristics category.

[b] Maximum value not applicable.

[c] No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

[d] Do not round to nearest integer.

Air - 2a
2c
3

TABLE 6-2
GAS POTENTIAL TO RELEASE EVALUATION

Source	Source Type[a]	Gas Containment Factor Value[b]	Gas Source Type Factor Value[c]	Gas Migration Potential Factor Value[d]	Sum	Gas Source Value
		A	B	C	(B+C)	Ax(B+C)
1.	Contaminated soil	10	19	17	36	360
2.						
3.						
4.						
5.						
6.						
7.						
8.						

Gas Potential to Release Factor Value (Select the Highest Gas Source Value) 360

---

[a] Enter a Source Type listed in Table 6-4.
[b] Enter Gas Containment Factor Value from Section 6.1.2.1.1.
[c] Enter Gas Source Type Factor Value from Section 6.1.2.1.2.
[d] Enter Gas Migration Potential Factor Value from Section 6.1.2.1.3.

Backup to Table 6-2

TABLE 6-3
GAS CONTAINMENT FACTOR VALUES

Gas Containment Description	Assigned Value
All situations except those specifically listed below	10
Evidence of biogas release	10[a]
Active fire within source	10[a]
Gas collection/treatment system functioning, regularly inspected, maintained, and completely covering source	0
Source substantially surrounded by engineered windbreak and no other containment specifically described in this table applies	7
Source covered with essentially impermeable, regularly inspected, maintained cover	0
Uncontaminated soil cover > 3 feet:	
• Source substantially vegetated with little exposed soil	0
• Source lightly vegetated with much exposed soil	3
• Source substantially devoid of vegetation	7
Uncontaminated soil cover ≥ 1 foot and ≤ 3 feet:	
• Source heavily vegetated with essentially no exposed soil	
- Cover soil type resistant to gas migration[b]	3
- Cover soil type not resistant to gas migration[b] or unknown	7
• Source substantially vegetated with little exposed soil and cover soil type resistant to gas migration[b]	7
• Other	10
Uncontaminated soil cover < 1 foot:	
• Source heavily vegetated with essentially no exposed soil and cover soil type resistant to gas migration[b]	7
• Other	10 ✓
Totally or partially enclosed within structurally intact building and no other containment specifically described in this table applies	7
Source consists solely of intact, sealed containers:	
• Totally protected from weather by regularly inspected, maintained cover	0
• Other	3

[a] This value must be used if applicable.

[b] Consider moist fine-grained and saturated coarse-grained soils resistant to gas migration. Consider all other soils nonresistant.

Backup to
Table 6-2

TABLE 6-4
SOURCE TYPE FACTOR VALUES

Source Type	Assigned Value	
	Gas	Particulate
Active fire area	14	30
Burn pit	19	22
Containers or tanks (buried/below-ground):		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Containers or tanks, not elsewhere specified	28	14
Contaminated soil (excluding land treatment)	19	22 ✓
Landfarm/land treatment	28	22
Landfill:		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Pile:		
• Tailings pile	6	28
• Scrap metal or junk pile	6	17
• Trash pile	6	6
• Chemical waste pile	11	28
• Other waste piles	17	28
Surface impoundments (buried/backfilled):		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Surface impoundment (not buried/backfilled):		
• Dry	19	22
• Other	28	0
Other types of sources, not elsewhere specified	0	0

Backup to
Table 6-2

Gibson 1/22/92

Gas Potential to Release
Vapor Pressure & Henry's Constants
(Chemicals in Surface Soil

Table 6-11   Table 6-5   Table 6-5

otal		Gas Mobility Factor	VP	HRS value	Henry's Cnst.	HRS value
5	Acetone	1	2,7E+2	3	2.06E-5	2
6	Carbon Disulfide	1	3,6E+2	3	1,23E-2	3
	Chloroform	1	1.51E+2	3	2,87E-3	3
	Ethylbenzene	1	7E+0	2	6.43E-3	3
6	Methylene Chloride	1	3,62E+2	3	203 E-3	3
6	Tetrachloroethene	1	1.50E+2	3	2.59E-2	3
5	Xylenes	1	1E+1	2	7.04E-3	3
1	DEHP	0.002	2E-7	0	3.61E-7	1
	Arsenic		0			
	Copper		0			
	Lead		0			
	Mercury	0.2	2E-3	1	1.10E-02	3
	Nickel		0			
	Vanadium					
	Zinc		0			

Figure 6-3 ⇒ 0.0002 for particulates

Backup to Table 6-2

TABLE 6-5
VALUES FOR VAPOR PRESSURE AND HENRY'S CONSTANT

Vapor Pressure (Torr)	Assigned Value
Greater than 10	3
Greater than 10^{-3} to 10	2
10^{-5} to 10^{-3}	1
Less than 10^{-5}	0

Henry's Constant ($atm\text{-}m^3/mol$)	Assigned Value
Greater than 10^{-3}	3
Greater than 10^{-5} to 10^{-3}	2
10^{-7} to 10^{-5}	1
Less than 10^{-7}	0

Backup TO
Table 6-2

TABLE 6-6
GAS MIGRATION POTENTIAL VALUES FOR A HAZARDOUS SUBSTANCE

Sum of Values for Vapor Pressure and Henry's Constant	Assigned Value
0	0
1 or 2	6
3 or 4	11
5 or 6	17 ✓

Backup to
Table 6-2

TABLE 6-7
GAS MIGRATION POTENTIAL VALUES FOR THE SOURCE

Average of Gas Migration Potential Values for Three Hazardous Substances[a]	Assigned Value
0 to < 3	0
3 to < 8	6
8 to <14	11
14 to 17	[✓ 17]

---

[a] If fewer than three hazardous substances can be associated with the source, compute the average based only on those hazardous substances that can be associated.

Air -2b

TABLE 6-8
PARTICULATE POTENTIAL TO RELEASE EVALUATION

Source	Source Type[a]	Particulate Containment Factor Value[b] A	Particulate Type Factor Value[c] B	Particulate Migration Potential Factor Value[d] C	Sum (B+C)	Particulate Source Value Ax(B+C)
1.	contaminated soil	10	22	6	28	280
2.						
3.						
4.						
5.						
6.						
7.						
8.						

Particulate Potential to Release Factor Value (Select Highest Particulate Source Value) 280

---

[a] Enter a Source Type listed in Table 6-4
[b] Enter Particulate Containment Factor Value from Section 6.1.2.2.1.
[c] Enter Particulate Source Type Factor Value from Section 6.1.2.2.2.
[d] Enter Particulate Migration Potential Factor Value from Section 6.1.2.2.3.

Backup to Table 6-8

TABLE 6-9
PARTICULATE CONTAINMENT FACTOR VALUES

Particulate Containment Description	Assigned Value
All situations except those specifically listed below	10
Source contains only particulate hazardous substances totally covered by liquids	0
Source substantially surrounded by engineered windbreak and no other containment specifically described in this table applies	7
Source covered with essentially impermeable, regularly inspected, maintained cover	0
Uncontaminated soil cover > 3 feet:	
• Source substantially vegetated with little or no exposed soil	0
• Source lightly vegetated with much exposed soil	3
• Source substantially devoid of vegetation	7
Uncontaminated soil cover ≥ 1 foot and ≤ 3 feet:	
• Source heavily vegetated with essentially no exposed soil	
- Cover soil type resistant to gas migration[a]	3
- Cover soil type not resistant to gas migration[a] or unknown	7
• Source substantially vegetated with little exposed soil and cover soil type resistant to gas migration[a]	7
• Other	10
Uncontaminated soil cover < 1 foot:	
• Source heavily vegetated with essentially no exposed soil and cover soil type resistant to gas migration[a]	7
• Other	10 ✓
Totally or partially enclosed within structurally intact building and no other containment specifically described in this table applies	7
Source consists solely of containers:	
• All containers contain only liquids	0
• All containers intact, sealed, and totally protected from weather by regularly inspected, maintained cover	0
• All containers intact and sealed	3
• Other	10

[a] Consider moist fine-grained and saturated coarse-grained soils resistant to gas migration. Consider all other soils nonresistant.

Backup to
Table 6-8

TABLE 6-4
SOURCE TYPE FACTOR VALUES

Source Type	Assigned Value Gas	 Particulate
Active fire area	14	30
Burn pit	19	22
Containers or tanks (buried/below-ground):		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Containers or tanks, not elsewhere specified	28	14
Contaminated soil (excluding land treatment)	19	22 ✓
Landfarm/land treatment	28	22
Landfill:		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Pile:		
• Tailings pile	6	28
• Scrap metal or junk pile	6	17
• Trash pile	6	6
• Chemical waste pile	11	28
• Other waste piles	17	28
Surface impoundments (buried/backfilled):		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Surface impoundment (not buried/backfilled):		
• Dry	19	22
• Other	28	0
Other types of sources, not elsewhere specified	0	0

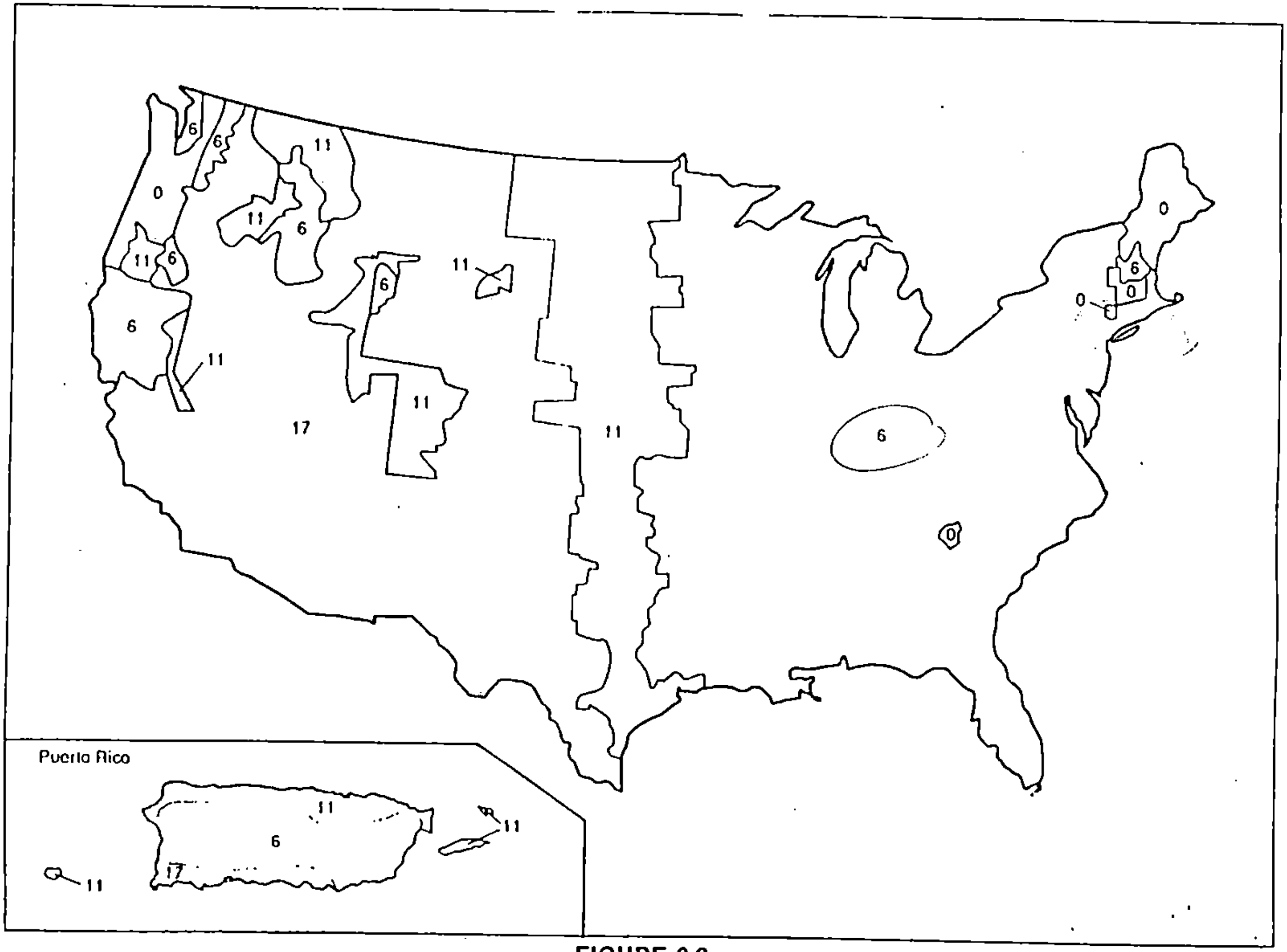


FIGURE 6-2
PARTICULATE MIGRATION POTENTIAL FACTOR VALUES

Backup to Table 6-8

Air - 4

Air Pathway

Gibson 1/22/92

	Table 6-11 Mobility Factor	Table 2-4 Toxicity Factor	Table 6-13 TOXICITY/ MOBILITY FACTOR
Acetone	1	10	10
Carbon Disulfide	1	1000	1000
Chloroform	1	100	100
Ethylbenzene	1	10	10
Methylene Chloride	1	10	10
Tetrachloroethene	1	1000	1000
Xylenes	1	10	10
DEHP	0.002	100	0.2
Arsenic	0.0002	10,000	2.0
Copper	0.0002	100	0.02
Lead	0.0002	10,000	2.0
Mercury	0.2	10,000	2000
Nickel	0.0002	10,000	2.0
Vanadium	0.0002	100	0.02
Zinc	0.0002	10	0.002

Backup to
Air-4

Pathway Toxicity Gibson 1/22/92

Surface Soil

	PF		RfD	
	oral	inhal	oral	inhal
Acetone			$\overset{10}{1E\text{-}1}$	
Carbon Disulfide			$\overset{10}{1E\text{-}1}$	$\overset{1000}{2.9E\text{-}3}$
Chloroform	$\overset{10}{6.1E\text{-}3}$	$\overset{100}{8.1E\text{-}2}$	$\overset{100}{1E\text{-}2}$	
Ethylbenzene			$\overset{10}{1E\text{-}1}$	$\overset{10}{2.9E\text{-}1}$
Methylene Chloride	$\overset{10}{7.5E\text{-}3}$	$\overset{10}{1.6E\text{-}3}$	$\overset{10}{6E\text{-}2}$	$\overset{1}{8.6E\text{-}1}$
Tetrachloroethene	$\overset{100}{5.1E\text{-}2}$	$\overset{1000}{1.8E\text{-}3}$	$\overset{100}{1E\text{-}2}$	
Xylenes			$\overset{1}{2E{+}0}$	$\overset{10}{8.6E\text{-}2}$
DEHP	$\overset{10}{1.4E\text{-}2}$		$\overset{100}{2E\text{-}2}$	
Arsenic	$\overset{10,000}{1.75}$	$\overset{10,000}{5E{+}1}$	$\overset{10,000}{3E\text{-}4}$	
Copper			$\overset{100}{3.7E\text{-}2}$	$\overset{100}{1E\text{-}2}$
Lead			$\overset{1000}{1.4E\text{-}3}$	$\overset{10,000}{4.3E\text{-}4}$
Mercury			$\overset{10,000}{3E\text{-}4}$	$\overset{10,000}{8.4E5}$
Nickel		$\overset{10,000}{8.4E\text{-}1}$	$\overset{10}{2E\text{-}2}$	
Vanadium			$\overset{100}{7E\text{-}3}$	
Zinc			$\overset{10}{2E\text{-}1}$	

TABLE 2-4
TOXICITY FACTOR EVALUATION

Chronic Toxicity (Human)

Reference Dose (RfD) (mg/kg-day)	Assigned Value
RfD < 0.0005	10,000
0.0005 ≤ RfD < 0.005	1,000
0.005 ≤ RfD < 0.05	100
0.05 ≤ RfD < 0.5	10
0.5 ≤ RfD	1
RfD not available	0

Backup to
Ar-4

TABLE 2-4 (Continued)

Carcinogenicity (Human)

Weight-of-Evidence[a]/Slope Factor $(\text{mg/kg-day})^{-1}$			Assigned Value
A	B	C	
$0.5 \le \text{SF}$[b]	$5 \le \text{SF}$	$50 \le \text{SF}$	10,000
$0.05 \le \text{SF} < 0.5$	$0.5 \le \text{SF} < 5$	$5 \le \text{SF} < 50$	1,000
$\text{SF} < 0.05$	$0.05 \le \text{SF} < 0.5$	$0.5 \le \text{SF} < 5$	100
---	$\text{SF} < 0.05$	$\text{SF} < 0.5$	10
---	---	---	---
Slope factor not available	Slope factor not available	Slope factor not available	0

[a] A, B, and C refer to weight-of-evidence categories. Assign substances with a weight-of-evidence category of D (inadequate evidence of carcinogenicity) or E (evidence of lack of carcinogenicity) a value of 0 for carcinogenicity.

[b] SF - Slope factor

Backup to Air-4

Backup
to Air-4

1) Air Pathway

Gibson 1/22/92

Particulate Potential to Release
(hazardous substances with vp ≤ 10^{-1} torr)

	Vp.	Maximum Surface Soil Conc. (ppm)
DEHP	2E -7	1.0
Arsenic	0	4.1
Copper	0	11.6
Lead	0	103
Mercury	2E -3	0.15
Nickel	0	12.7
Vanadium		27.6
Zinc	0	33.4

Backup to
Air-4

TABLE 6-11
GAS MOBILITY FACTOR VALUES

Vapor Pressure (Torr)	Assigned Value[a]
Greater than 10^{-1}	1.0
Greater than 10^{-3} to 10^{-1}	0.2
Greater than 10^{-5} to 10^{-3}	0.02
Greater than 10^{-7} to 10^{-5}	0.002
Less than or equal to 10^{-7}	0.0002

---

[a] Do not round to nearest integer.

TABLE 6-13
TOXICITY/MOBILITY FACTOR VALUES[a]

Mobility Factor Value	Toxicity Factor Value					
	10,000	1,000	100	10	1	0
1.0	10,000	1,000	100	10	1	0
0.2	2,000	200	20	2	0.2	0
0.02	200	20	2	0.2	0.02	0
0.008	80	8	0.8	0.08	0.008	0
0.002	20	2	0.2	0.02	0.002	0
0.0008	8	0.8	0.08	0.008	0.0008	0
0.0002	2	0.2	0.02	0.002	0.0002	0
0.00008	0.8	0.08	0.008	0.0008	0.00008	0
0.00002	0.2	0.02	0.002	0.0002	0.00002	0

---

[a] Do not round to nearest integer.

Go over
to Air 4

Air -5

Air Pathway

Gibson 1/22/92

Hazardous Waste Quantity
(Surface area of all Contaminated Surface soils)

Area	Square Feet
EP1/EP2	798
EDS 2	198
EDS1	1126
SSP	201
SWD	432
ESP	2700
ERP	804
SSC	500
ETF	384

7143 sq ft.

$$\frac{7143}{34,000} = 0.21$$

Air-6

TABLE 2-7
WASTE CHARACTERISTICS FACTOR CATEGORY VALUES

Waste Characteristics Product	Assigned Value
0	0
Greater than 0 to less than 10	1
10 to less than 1×10^2	2
1×10^2 to less than 1×10^3	3
1×10^3 to less than 1×10^4	[✓ 6]
1×10^4 to less than 1×10^5	10
1×10^5 to less than 1×10^6	18
1×10^6 to less than 1×10^7	32
1×10^7 to less than 1×10^8	56
1×10^8 to less than 1×10^9	100
1×10^9 to less than 1×10^{10}	180
1×10^{10} to less than 1×10^{11}	320
1×10^{11} to less than 1×10^{12}	560
1×10^{12}	1,000

1 X 2000 = 2E+3

Air - 7

TABLE 6-16
NEAREST INDIVIDUAL FACTOR VALUES

Distance to Nearest Individual (miles)	Assigned Value
Level I concentrations[a]	50
Level II concentrations[a]	45
0 to 1/8	20 ✓
Greater than 1/8 to 1/4	7
Greater than 1/4 to 1/2	2
Greater than 1/2 to 1	1
Greater than 1	0

---

[a] Distance does not apply.

On-site buildings where people work

TABLE 6-17
DISTANCE-WEIGHTED POPULATION VALUES FOR POTENTIAL CONTAMINATION FACTOR FOR AIR PATHWAY[a]

Distance Category (miles)	Number of People Within the Distance Category											
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,0 to 3,000,0
On a source WORKERS (20-100)	0	4	17	53 ✓	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,4
Greater than 0 to 1/4	0	1	4	13	41	131 ✓	408	1,304	4,081	13,034	40,812	130,340	408,11
Greater than 1/4 to 1/2	0	0.2	0.9	3	9	28	88 ✓	282	882	2,815	8,815	28,153	88,1
Greater than 1/2 to 1	0	0.06	0.3	0.9	3	8	26	83 ✓	261	834	2,612	8,342	26,11
Greater than 1 to 2	0	0.02	0.09	0.3	0.8	3	8	27	83 ✓	266	833	2,659	8,32
Greater than 2 to 3	0	0.009	0.04	0.1	0.4	1	4	12	38	120 ✓	375	1,199	3,75
Greater than 3 to 4	0	0.005	0.02	0.07	0.2	0.7	2	7	23	73 ✓	229	730	2,28

---

[a] Round the number of people present within a distance category to nearest integer. Do not round the assigned distance-weighted population value to nearest integer.

r0 - 1/4 = (0.196 sq mile)(2960 people/mile) = 581 people

r1/4 - 1/2 = (0.785 sq mile)(2960 people/mile) = 2325 people

2325 - 581 = 1744 + 150 (school) = 1894

r1/2 - 1 = (3.14 sq mile)(2960 people/mile) = 9299 people

9299 - 2325 = 6974

r1 - 2 = (12.57 sq mile)(2960 people/mile) = 37,207 people

37,207 - 9299 = 27908

r2 - 3 = (28.27 sq mi)(2960 people/mi) = 83679

r3 - 4 = (50.27 sq mi)(2960 people/mi) = 148,799

83,679 - 37,207 = 46,472

148,799 - 83,679 = 65,120

$$PC = \frac{1}{10}\left[53 + 131 + 88 + 83 + 83 + 120 + 73\right] \doteq \boxed{63.1}$$

Backup to
Air-8c
1/24/92

1990 Census Data

population of Commack within the town of Smithtown only = 23,914

Area = 8.08 square miles

Therefore,

$$\frac{23914 \text{ people}}{8.08 \text{ square miles}}$$

= 2959.65 => 2960 people per sq mile

source: Roy Fedelem
LI Regional Planning Board
(516) 853-5194

Air- 10b 1 of 2
10c

Air Pathway
Sensitive Areas - Wetlands

1/30/92

Distance (miles)			Estimated Area (acres)	Value Table 6-18
0 - 1/4	- None			
1/4 - 1/2	- None			
1/2 - 1	G-4	(small)	1-50	25
	G-5	(small)		
1-2	G-6	(small)	1-50	25
	G-7	(small)		
	G-8	(small)		
2-3	C-1	(64.4 ac)	50-100	75
	C-7	(5.16 ac)		
	G-3	(small)		
3-4	G-2	(small)	200-300	250
	G-9	(small)		
	G-10	(small)		
	C-1	(238.8 ac)		
	C-7	(30.8 ac)		

(acreage estimated by CAD; not available from NYSDEC)

2 of 2

Air-10b
10c

1/30/92

Air Pathway
Sensitive areas - wetlands

Sensitive Environments Rating Values
all areas were assigned a value
of 25 from Table 4-23
"state-designated natural areas"

Distance Category

$$\frac{1}{2}-1 \qquad \Big[\underset{\text{number of areas}}{(2)}\underset{\text{Table 4-23}}{(25)} + \underset{\text{area value Table 6-18}}{25}\Big]\underset{\text{Distance weight Table 6-15}}{(0.016)} = 1.2$$

$$1-2 \qquad [(3)(25) + 25](0.0051) = 0.51$$

$$2-3 \qquad [(3)(25) + 75](0.0023) = 0.345$$

$$3-4 \qquad [(5)(25) + 250](0.0014) = 0.525$$

$$EP = \frac{1}{10}(1.2 + 0.51 + 0.345 + 0.525)$$

$$= 0.258$$

Air

Backup to 10c
+ 10k

TABLE 4-23
SENSITIVE ENVIRONMENTS RATING VALUES

Sensitive Environment	Assigned Value
Critical habitat[a] for Federal designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Areas identified under Coastal Zone Management Act[b]	
Sensitive areas identified under National Estuary Program[c] or Near Coastal Waters Program[d]	
Critical areas identified under the Clean Lakes Program[e]	
National Monument[f]	
National Seashore Recreational Area	
National Lakeshore Recreational Area	
Habitat known to be used by Federal designated or proposed endangered or threatened species	75
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Coastal Barrier (undeveloped)	
Federal land designated for protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical[g] for the maintenance of fish/shellfish species within river, lake, or coastal tidal waters	
Migratory pathways and feeding areas critical for maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time	
Terrestrial areas utilized for breeding by large or dense aggregations of animals[h]	
National river reach designated as Recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federal designated Scenic or Wild River	

backup to
Air 10b + 10c

TABLE 4-23 (concluded)

Sensitive Environment	Assigned Value
State land designated for wildlife or game management State designated Scenic or Wild River ✓ State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25
State designated areas for protection or maintenance of aquatic life[i]	5

[a] Critical habitat as defined in 50 CFR 424.02.

[b] Areas identified in State Coastal Zone Management plans as requiring protection because of ecological value.

[c] National Estuary Program study areas (subareas within estuaries) identified in Comprehensive Conservation and Management Plans as requiring protection because they support critical life stages of key estuarine species (Section 320 of Clean Water Act, as amended).

[d] Near Coastal Waters as defined in Sections 104(b)(3), 304(1), 319, and 320 of Clean Water Act, as amended.

[e] Clean Lakes Program critical areas (subareas within lakes, or in some cases entire small lakes) identified by State Clean Lake Plans as critical habitat (Section 314 of Clean Water Act, as amended).

[f] Use only for air migration pathway.

[g] Limit to areas described as being used for intense or concentrated spawning by a given species.

[h] For the air migration pathway, limit to terrestrial vertebrate species. For the surface water migration pathway, limit to terrestrial vertebrate species with aquatic or semiaquatic foraging habits.

[i] Areas designated under Section 305(a) of Clean Water Act, as amended.

Backup to
Air 10b + 10c

TABLE 6-15
AIR MIGRATION PATHWAY DISTANCE WEIGHTS

Distance Category (miles)	Assigned Distance Weight[a]
0	1.0
Greater than 0 to 1/4	0.25
Greater than 1/4 to 1/2	0.054
Greater than 1/2 to 1	0.016
Greater than 1 to 2	0.0051
Greater than 2 to 3	0.0023
Greater than 3 to 4	0.0014
Greater than 4	0

---

[a] Do not round to nearest integer.

Backup to
air 10c

TABLE 6-18
WETLANDS RATING VALUES FOR AIR MIGRATION PATHWAY[a]

Wetland Area (acres)	Assigned Value
Less than 1	0
1 to 50	25
Greater than 50 to 100	75
Greater than 100 to 150	125
Greater than 150 to 200	175
Greater than 200 to 300	250
Greater than 300 to 400	350
Greater than 400 to 500	450
Greater than 500	500

[a] Wetlands as defined in 40 CFR Section 230.3

AR-10c
Backup to 10c

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(iii) Which are used or could be used for industrial purposes by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under this definition.

(5) Tributaries of waters identified in paragraphs (1)-(4) of this section;

(6) The territorial sea;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s) (1)-(6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR § 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

(t) The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

§ 230.4 Organization.

The Guidelines are divided into eight subparts. Subpart A presents those provisions of general applicability, such as purpose and definitions. Subpart B establishes the four conditions which must be satisfied in order to make a finding that a proposed discharge of dredged or fill material complies with the Guidelines. Section 230.11 of Subpart B, sets forth factual determinations which are to be considered in determining whether or not a proposed discharge satisfies the Subpart B conditions of compliance. Subpart C describes the physical and chemical components of a site and provides guidance as to how proposed discharges of dredged or fill material may affect these components. Subparts D-F detail the special characteristics of particular aquatic ecosystems in terms of their values, and the possible loss of these values due to discharges of dredged or fill material. Subpart G prescribes a number of physical, chemical, and biological evaluations and testing procedures to be used in reaching the required factual determinations. Subpart H details the means to prevent or mimimize adverse effects. Subpart I concerns advanced identification of disposal areas.

§ 230.5 General procedures to be followed.

In evaluating whether a particular discharge site may be specified, the permitting authority should use these Guidelines in the following sequence:

(a) In order to obtain an overview of the principal regulatory provisions of the Guidelines, review the restrictions on discharge in § 230.10(a)-(d), the measures to mimimize adverse impact of Subpart H, and the required factual determinations of § 230.11.

(b) Determine if a General permit (§ 230.7) is applicable; if so, the applicant needs merely to comply with its terms, and no further action by the permitting authority is necessary. Special conditions for evaluation of proposed General permits are contained in § 230.7. If the discharge is not covered by a General permit:

(c) Examine practicable alternatives to the proposed discharge, that is, not discharging into the waters of the U.S. or discharging into an alternative aquatic site with potentially less damaging consequences (§ 230.10(a)).

(d) Delineate the candidate disposal site consistent with the criteria and evaluations of § 230.11(f).

(e) Evaluate the various physical and chemical components which characterize the non-living environment of the candidate site, the substrate and the water including its dynamic characteristics (Subpart C).

(f) Identify and evaluate any special or critical characteristics of the candidate disposal site, and surrounding areas which might be affected by use of such site, related to their living communities or human uses (Subparts D, E, and F).

(g) Review Factual Determinations in § 230.11 to determine whether the information in the project file is sufficient to provide the documentation required by § 230.11 or to perform the pre-testing evaluation described in § 230.60, or other information is necessary.

(h) Evaluate the material to be discharged to determine the possibility of chemical contamination or physical incompatibility of the material to be discharged (§ 230.00).

(i) If there is a reasonable probability of chemical contamination, conduct the appropriate tests according to the section on Evaluation and Testing (§ 230.01).

(j) Identify appropriate and practicable changes to the project plan to minimize the environmental impact of the discharge, based upon the specialized methods of minimization of impacts in Subpart H.

(k) Make and document Factual Determinations in § 230.11.

(l) Make and document Findings of Compliance (§ 230.12) by comparing Factual Determinations with the requirements for discharge of § 230.10.

This outline of the steps to follow in using the Guidelines is simplified for purposes of illustration. The actual process followed may be iterative, with the results of one step leading to a reexamination of previous steps. The permitting authority must address all of the relevant provisions of the Guidelines in reaching a Finding of Compliance in an individual case.

§ 230.6 Adaptability.

(a) The manner in which these Guidelines are used depends on the physical, biological, and chemical nature of the proposed extraction site, the material to be discharged, and the candidate disposal site, including any other important components of the ecosystem being evaluated. Documentation to demonstrate knowledge about the extraction site, materials to be extracted, and the candidate disposal site is an essential component of guideline application. These Guidelines allow evaluation and documentation for a variety of activities, ranging from those with large, complex impacts on the aquatic environment to those for which the impact is likely to be innocuous. It is unlikely that the Guidelines will apply in their entirety to any one activity, no matter how complex. It is anticipated that substantial numbers of permit applications will be for minor, routine activities that have little, if any, potential for significant degradation of the aquatic environment. It generally is not intended or expected that extensive testing, evaluation or analysis will be needed to make findings of compliance in such routine cases. Where the conditions for General permits are met, and where numerous applications for similar activities are likely, the use of General permits will eliminate repetitive evaluation and documentation for individual discharges.

(b) The Guidelines user, including the agency or agencies responsible for implementing the Guidelines, must recognize the different levels of effort that should be associated with varying degrees of impact and require or prepare commensurate documentation. The level of documentation should reflect the significance and complexity of the discharge activity.

(c) An essential part of the evaluation process involves making determinations as to the relevance of any portion(s) of the Guidelines and conducting further evaluation only as needed. However,

[Sec. 230.6(c)]

SURFACE WATER OVERLAND/ FLOOD MIGRATION COMPONENT

TABLE 4-1
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor Categories and Factors	Maximum Value	Value Assigned	
DRINKING WATER THREAT			
Likelihood of Release			
1. Observed Release	550	0	
2. Potential to Release by Overland Flow			
2a. Containment	10		
2b. Runoff	25		
2c. Distance to Surface Water	25		
2d. Potential to Release by Overland Flow (lines 2a x [2b + 2c])	500	0	4.1.2.1.2.1
3. Potential to Release by Flood			
3a. Containment (Flood)	10	0	4 1.2,1.2.2.1
3b. Flood Frequency	50	0	4.12, 1, 2,2.2
3c. Potential to Release by Flood (lines 3a x 3b)	500	0	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	0	
5. Likelihood of Release (higher of lines 1 and 4)	550		0
Waste Characteristics			
6. Toxicity/Persistence	a		
7. Hazardous Waste Quantity	a		
8. Waste Characteristics	100		
Targets			
9. Nearest Intake	50		
10. Population			
10a. Level I Concentrations	b		
10b. Level II Concentrations	b		
10c. Potential Contamination	b		
10d. Population (lines 10a + 10b + 10c)	b		
11. Resources	5		

TABLE 4-1 (Continued)

Factor Categories and Factors	Maximum Value	Value Assigned
DRINKING WATER THREAT (Concluded)		
Targets (Concluded)		
12. Targets (lines 9 + 10d + 11)	b	
Drinking Water Threat Score		
13. Drinking Water Threat Score ([lines 5 x 8 x 12]/82,500, subject to a maximum of 100)	100	0
HUMAN FOOD CHAIN THREAT		
Likelihood of Release		
14. Likelihood of Release (same value as line 5)	550	0
Waste Characteristics		
15. Toxicity/Persistence/Bioaccumulation	a	
16. Hazardous Waste Quantity	a	
17. Waste Characteristics	1,000	
Targets		
18. Food Chain Individual	50	
19. Population		
19a. Level I Concentrations	b	
19b. Level II Concentrations	b	
19c. Potential Human Food Chain Contamination	b	
19d. Population (lines 19a + 19b + 19c)	b	
20. Targets (lines 18 + 19d)	b	
Human Food Chain Threat Score		
21. Human Food Chain Threat Score ([lines 14 x 17 x 20]/82,500, subject to a maximum of 100)	100	0

TABLE 4-1 (Concluded)

Factor Categories and Factors	Maximum Value	Value Assigned	
ENVIRONMENTAL THREAT			
Likelihood of Release			
22. Likelihood of Release (same value as line 5)	550		0
Waste Characteristics			
23. Ecosystem Toxicity/Persistence/ Bioaccumulation	a		
24. Hazardous Waste Quantity	a		
25. Waste Characteristics	1,000		
Targets			
26. Sensitive Environments			
26a. Level I Concentrations	b		
26b. Level II Concentrations	b		
26c. Potential Contamination	b		
26d. Sensitive Environments (lines 26a + 26b + 26c)	b		
27. Targets (value from line 26d)	b		
Environmental Threat Score			
28. Environmental Threat Score ([lines 22 x 25 x 27]/82,500, subject to a maximum of 60)	60		0
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED			
29. Watershed Score[c] (lines 13 + 21 + 28, subject to a maximum of 100)	100		0
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE			
30. Component Score (S_{of})[c] (highest score from line 29 for all watersheds evaluated, subject to a maximum of 100)	100		0

---

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

SW-2d

Surface Water Pathway 1/30/92

pg 85
4.1.2.1.2.1

Assign potential to release by overland flow a value of 0 for the water f:

"The overland segment of the hazardous substance migration path for the watershed exceeds 2 miles before surface water is encountered"

New Millpond / Nissequogue River
≈ 3 miles NE

SW-3a

TABLE 4-8
CONTAINMENT (FLOOD) FACTOR VALUES

Containment Criteria	Assigned Value
Documentation that containment at the source is designed, constructed, operated, and maintained to prevent a washout of hazardous substances by the flood being evaluated	0 ✓
Other	10

Site has berms constructed all around the edge

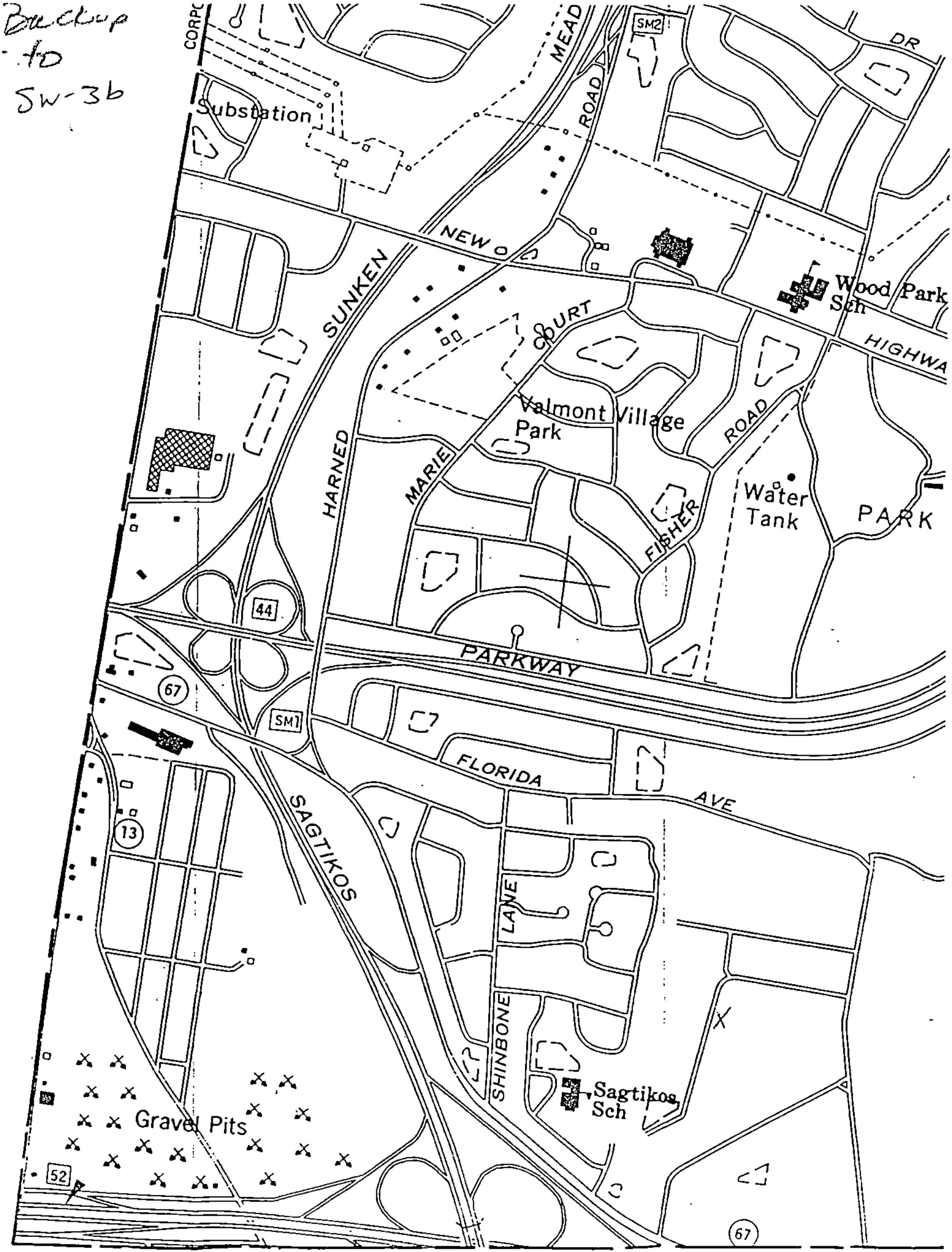
SW-36

TABLE 4-9
FLOOD FREQUENCY FACTOR VALUES

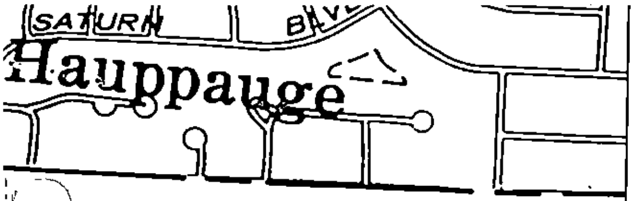
Floodplain Category	Assigned Value
Source floods annually	50
Source in 10-year floodplain	50
Source in 100-year floodplain	25
Source in 500-year floodplain	7
None of above	0

Site is not located in 100-yr or 500-yr floodplain

Backup to SW-3b



Site is not located within 100-yr or 500-yr floodplain



e No. P 644 over the Nissequoque River, 10

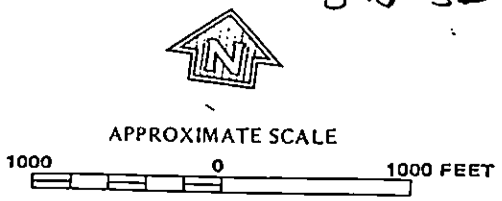
Route 25, 72 feet northeast of milepost 47,

ding Avenue and State Route 111, 37.8 feet

eet northeast of power pole NYT 162, 1.85
way 111.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

Backup to
SW-36



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
SMITHTOWN, NEW YORK
SUFFOLK COUNTY

PANEL 15 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
360810 0015 C

MAP REVISED:
FEBRUARY 16, 1983

Federal Emergency Management Agency

Not Applicable
see 4.2.1.1 (page 143)
Ø

TABLE 4-25
GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET

Factor Categories and Factors	Maximum Value	Value Assigned	
DRINKING WATER THREAT			
Likelihood of Release to Aquifer			
1. Observed Release	550		
2. Potential to Release			
2a. Containment	10		
2b. Net Precipitation	10		
2c. Depth to Aquifer	5		
2d. Travel Time	35		
2e. Potential to Release (lines 2a x [2b + 2c + 2d])	500		
3. Likelihood of Release (higher of lines 1 and 2e)	550		
Waste Characteristics			
4. Toxicity/Mobility/Persistence	a		
5. Hazardous Waste Quantity	a		
6. Waste Characteristics	100		
Targets			
7. Nearest Intake	50		
8. Population			
8a. Level I Concentrations	b		
8b. Level II Concentrations	b		
8c. Potential Contamination	b		
8d. Population (lines 8a + 8b + 8c)			
9. Resources	5		
10. Targets (lines 7 + 8d + 9)	b		
Drinking Water Threat Score			
11. Drinking Water Threat Score ([lines 3 x 6 x 10]/82,500, subject to a maximum of 100)	100		

Ø "Calculate ground water to surface water migration component scores only for surface waters . . . (where) a portion of the surface water is within 1 mile of one or more sources at the site having a containment factor value greater than Ø."
(Nissequogue River - approx 3 miles away)

TABLE 4-25 (Continued)

Factor Categories and Factors	Maximum Value	Value Assigned
HUMAN FOOD CHAIN THREAT		
Likelihood of Release		
12. Likelihood of Release (same value as line 3)	550	____
Waste Characteristics		
13. Toxicity/Mobility/Persistence/ Bioaccumulation	a	____
14. Hazardous Waste Quantity	a	____
15. Waste Characteristics	1,000	____
Targets		
16. Food Chain Individual	50	____
17. Population		
17a. Level I Concentrations	b	____
17b. Level II Concentrations	b	____
17c. Potential Human Food Chain Contamination	b	____
17d. Population (lines 17a + 17b + 17c)	b	____
18. Targets (Lines 16 + 17d)	b	____
Human Food Chain Threat Score		
19. Human Food Chain Threat Score ([lines 12 x 15 x 18]/82,500, subject to a maximum of 100)	100	____
ENVIRONMENTAL THREAT		
Likelihood of Release		
20. Likelihood of Release (same value as line 3)	550	____

TABLE 4-25 (Concluded)

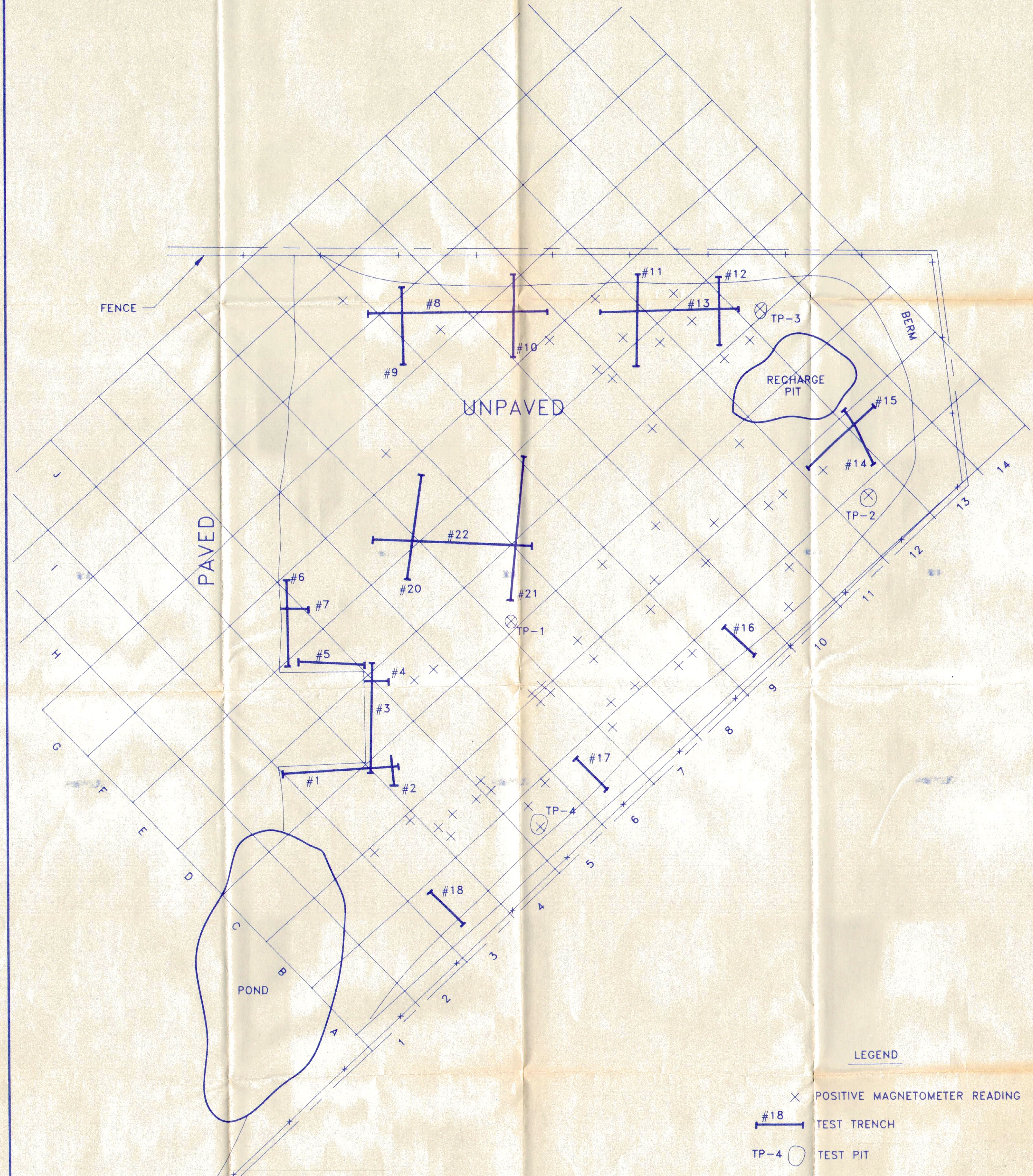
Factor Categories and Factors	Maximum Value	Value Assigned	
ENVIRONMENTAL THREAT (Concluded)			
Waste Characteristics			
21. Ecosystem Toxicity/Mobility/ Persistence/Bioaccumulation	a	____	
22. Hazardous Waste Quantity	a	____	
23. Waste Characteristics	1,000		____
Targets			
24. Sensitive Environments			
24a. Level I Concentrations	b	____	
24b. Level II Concentrations	b	____	
24c. Potential Contamination	b	____	
24d. Sensitive Environments (lines 24a + 24b + 24c)	b	____	
25. Targets (value from line 24d)	b		____
Environmental Threat Score			
26. Environmental Threat Score ([lines 20 x 23 x 25]/82,500, subject to a maximum of 60)	60		____
GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORE FOR A WATERSHED			
27. Watershed Score[c] (lines 11 + 19 + 26, subject to a maximum of 100)	100		____
GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORE			
28. Component Score (S_{gs})[c] (highest score from Line 27 for all watersheds evaluated, subject to a maximum of 100)	100		____

---

[a] Maximum value applies to waste characteristics category.

[b] Maximum value not applicable.

[c] Do not round to nearest integer.



TITLE

REAR UNPAVED LOT MAGNETOMETER RESULTS AND TEST PIT / TRENCH LOCATIONS

A

PREPARED FOR

NYSDEC

ERM ERM-Northeast
Environmental Resources Management

SCALE 1"=20'	FIGURE 5-2
DATE 2/92	

TITLE

SITE MAP

GIBSON CHEMICAL AND OIL
SITE #152023

F

PREPARED FOR

NYSDEC

ERM-Northeast
Environmental Resources Management

SCALE 1"=20'

DATE 2/6/92

FIGURE 2-1

SITEPL/NSH/EM

Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1967

SCALE 1:24 000

ROAD CLASSIFICATION

Mapped, edited, and published by the Geological Survey
Revised in cooperation with New York Department of Transportation
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs

TITLE

LOCATIONS OF PUBLIC SUPPLY WELLS WITHIN A FOUR MILE RADIUS OF GIBSON SITE NO. 152023

B

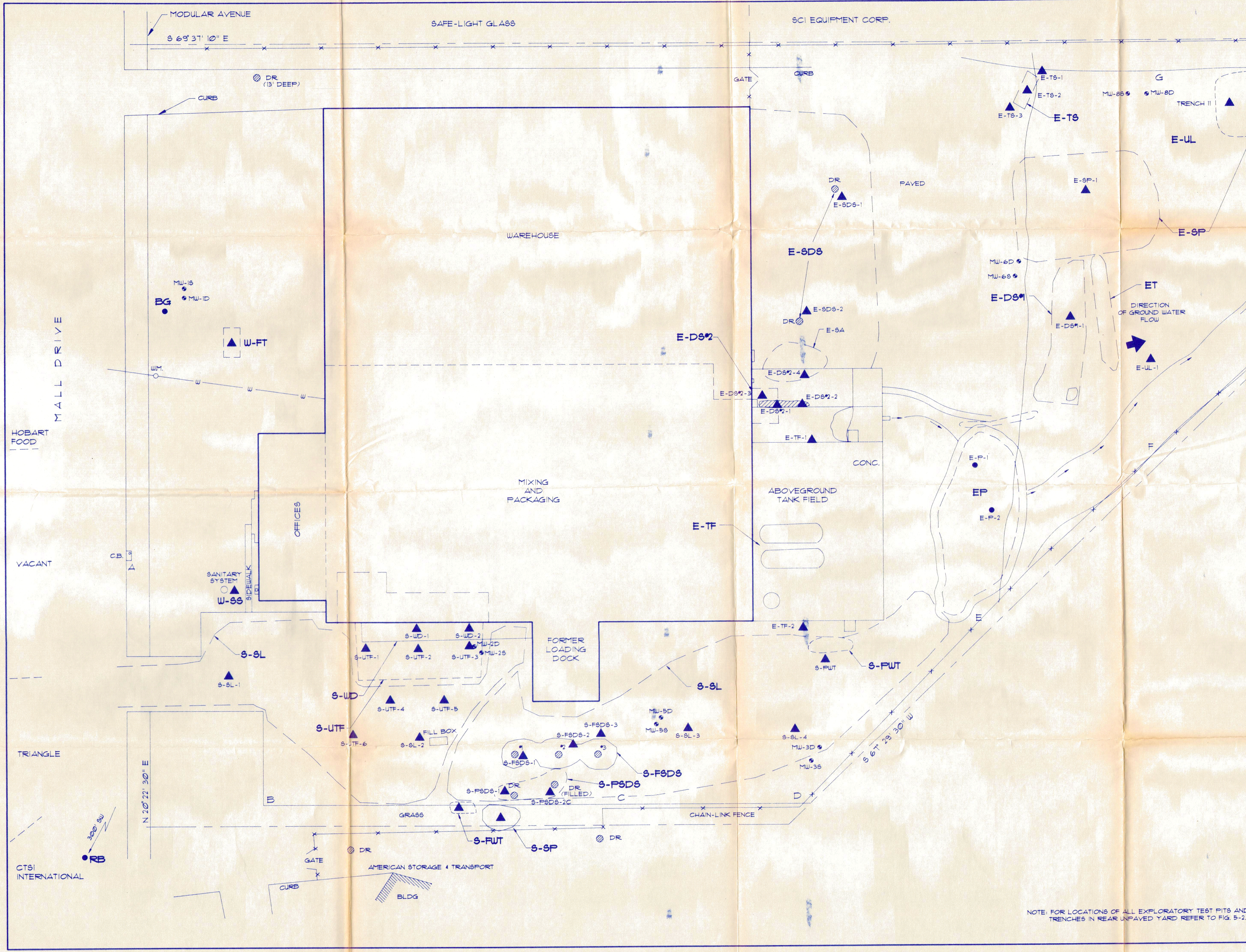
PREPARED FOR

NYSDEC

ERM-Northeast
Environmental Resources Management

SCALE NOTED	FIGURE 4-7
DATE MAY, 1992	

SOURCE: U.S.G.S. QUADRANGLE MAPS,
GREENLAWN & CENTRAL ISLIP, NY



LEGEND

BG	BACKGROUND SOIL SAMPLE LOCATION
SOUTH OF BUILDING	
S-UTF	FORMER UNDERGROUND TANK FIELD
S-WD	SOILS ADJACENT WALL
S-FSDS	FORMER STORM DRAINAGE SYSTEM
S-PSDS	PRESENT STORM DRAINAGE SYSTEM
S-SL	STAINED LOT
S-W2	EXISTING MONITORING WELL
S-SP	FORMER STORAGE STOCK PILE
S-FWT	FORMER WASTE OIL TANK
S-PWT	SUMP OVERFILL
EAST OF BUILDING	
E-TF	FORMER TANK FIELD
E-DS#2	FORMER DRUM STORAGE AREA #2
E-SA	STAINED AREA
E-SDS	STORM DRAINAGE SYSTEM
E-DS#1	FORMER DRUM STORAGE AREA #1
E-T	FORMER TRENCH
E-TS	FORMER TANK STORAGE
E-P	POND
E-RP	RECHARGE PIT
E-UL	UNDEVELOPED LOT
E-SP	FORMER SOIL STOCKPILE
WEST OF BUILDING	
BG	BACKGROUND SOIL SAMPLE LOCATION
W-SS	SANITARY SYSTEM
W-FT	FORMER FUEL TANK
OFF-SITE	
RB	RECHARGE BASIN
⊕	GROUND WATER MONITORING WELL
▲	SOIL BORING
●	SHALLOW SOIL SAMPLE
A,B,C,D, E,F,G	AIR MONITORING STATIONS

NOTE: FOR LOCATIONS OF ALL EXPLORATORY TEST PITS AND TRENCHES IN REAR UNPAVED YARD REFER TO FIG. 5-2.

TITLE

LOCATIONS OF DATA
COLLECTION POINTS
GIBSON CHEMICAL AND OIL
SITE #152023

1

PREPARED FOR

NYSDEC

ERM-Northeast
Environmental Resources Management

SCALE 1" = 20'

DATE 2/6/92

FIGURE 5-1

DATAPTS/EM

NO.	DATE	APPR.	REVISION	NO.	DATE	APPR.	REVISION

NYSDEC

ERM-Northeast
Environmental Resources Management

CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
PROJECT MANAGER
APPROVED
APPROVED
DATE

GEOLOGIC CROSS SECTIONS
A-A' AND B-B'
GIBSON SITE NO. 152023

D

DRAWN R.H./E.M.
DATE FEB. 7, 1992
CLIENT APPROVAL
SCALE AS NOTED
W.O. NO. GIBCROSS
ISSUED FOR 164.007.03
DATE
DRAWING NO. 4-3
REV. NO.
SHEET
OF

LEGEND

AREA	SOURCE / BACKGROUND
SOUTH OF BUILDING	
S-UTF	REMOVED 4/88
S-WD	SCDHS 5/86
S-FSDS	REMOVED 4/88 (8" OF PRODUCT IN #1)
S-PSDS	EASTERNMOST IS FILLED W/ SILT & SAND
S-SL	4/77 AERIAL PHOTO
S-WI	TEST WELL SAMPLED 4/88 (NOT PRESENTLY FOUND)
S-SP	SCDHS
S-SS	
S-PWT	GIBSON
S-FWT	SCDHS
EAST OF BUILDING	
E-TF	ABOVEGROUND TANKS OBSERVED IN 4/11/80 AERIAL PHOTO
E-DS#2	4/77 AERIAL PHOTO, SCHDS,PRESENT BUILDING EVIDENCE
E-SA	4/77 AERIAL PHOTO
E-SDS	EXISTING
E-DS#1	4/80 AERIAL PHOTO, SCDHS
E-T	4/80 AERIAL PHOTO
E-TS	4/80 AERIAL PHOTO
E-P	EXISTING
E-RP	EXISTING
E-UL	EXISTING
E-SP	GALLI ENGINEERING
WEST OF BUILDING	
W-FT	FORMER FUEL OIL TANK

TITLE

AREAS OF ENVIRONMENTAL CONCERN
GIBSON CHEMICAL AND OIL SITE #152023

E

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Environmental Resources Management

SCALE 1" = 20'
DATE 2/6/92
FIGURE 2-2

AREACONC/EM