UNION CHEMICALS - DIVISION OF UNION OIL CO.
350 ROOSEVELT AVENUE
CARTERET BOROUGH/MIDDLESEX COUNTY
NEW JERSEY
EPA # NJD063173280

The Union Chemicals Company is an active facility on a 4.4 acre parcel of land in Carteret Borough, Middlesex County. The facility is located in a heavily industrialized section of Carteret Borough and is owned and operated by Union Oil Company of California, AKA: American Mineral Spirits Co. The property is bounded by Noes Creek to the south, New Jersey Branch railroad tracks to the west, Roosevelt Avenue to the east, and the Wheeler Condenser and Engineering Company to the north. Development of this parcel of land began in 1920. The Benjamin Moore Company owned the property and operated until 1962 when Union Chemicals purchased the facility primarily for bulk storage and repackaging. In the years 1969 to 1984, anhydrous anmonia was processed to ammonia. Today, approximately 125 different products are handled at the facility, most of which are solvents.

The geology of the area is characterized by the Triassic Brunswick Formation, composed of soft red shale with sandstone beds, however, the Union Chemicals site is not consistent with the surrounding area. The facility is contructed on fill material which ranges in thickness from zero to fifteen feet and is composed of fine to coarse sand with gravel, clay, bricks, concrete, metal, glass, and slag. Beneath the fill are irregular deposits of sands, clays, silty clays, silt and peat which was probably deposited as a result of meandering and ensizing by Noes Creek. The movement of ground water flows from north to south across the site in the direction of Noes Creek.

The Union Chemicals facility has a past history of several product releases to the environment. The first major spill occurred on 2-17-83 when approximately 1860 gallons of MEK, petroluem napthalene, and propyl alcohol leaked into Noes Creek. This occurred as a result of a failure of an underground pipeline which was connected to a 12,000 gallon above ground tank. The second major spill occurred on 7-1-85 when approximately 500 gallons of xylene, toluene, napthalene, and benzene were also released into Noes Creek as a result of a failure in a 10,000 gallon underground tank (Tank #7). The leak was first noted by plant personnel as a large oil sheen on the creek and was traced to a 6" clay tile pipe adjacent to the creek bank. A review of the plant blue prints did not indicate any pipes of that material on the plant grounds. The pipe is believed to have been installed by the Benjamin Moore Company which formerly owned the site. To date, this pipe has not been removed from the site.

Union Chemicals contracted IT Corporation to conduct a site-assessment because of several product releases to the environment. IT installed twelve monitoring wells for ground water monitoring and to assess the direction and rate of ground water flow. The ground water sampling and quantitative analysis revealed significant (greater than 100,000 ppb) levels of xylene, toluene, benzene and chlorobenzene. Many other volatile organic compounds were also detected in smaller concentrations.

At present no remediation of the soil and ground water has been conducted. The USEPA has reviewed the work plan prepared by IT Corporation and determined that additional site information was needed to determine the full extent of contamination. The NJDEP/DHWM/Bureau of Field Operations has recommended that this case be closed because the site is being surpervised by the USEPA.

It is recommended that no further action be taken at the present time due to current investigations conducted by USEPA and IT Corporation. However, a future follow up investigation is recommended to assess the extent of remediation at the site.

Submitted by:

Frank Faranca, HSMS IV
NJDEP/DHWM/BPA
MSCA Project

Hours worked: 40 hours

Preliminary Assessment

Union Chemicals - Div. of Union Oil Co.
350 Roosevelt Avenue
Carteret Borough/Middlesex County
New Jersey

EPA # NJD063173280

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	D063173280

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Union Chemicals - Div. of Union Oil Co.	350 Roosevelt Avenue

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Carteret Borough	NJ	07008	Middlesex	12	

09 COORDINATES LATITUDE	LONGITUDE	
40° 34' 42"	74° 12' 53"	Block: 6.01 Acreage: 4.436 Lot: 8

10 DIRECTIONS TO SITE (Starting from nearest public road)

From Trenton, take the New Jersey Turnpike North to Exit 12. Take Roosevelt Avenue East pass FMC Corporation and site is on the right before Noes Creek.

III. RESPONSIBLE PARTIES

01 OWNER (if known)	02 STREET (Business, mailing, residential)		
American Mineral Spirits Col	1900 E. Golf Road		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Schaumburg	IL	60195	(312) 490-2500 H. J. Kopp
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 ☐ NO DATE 2 17 83 (MONTH DAY YEAR)

BY (Check all that apply): ☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☒ D. OTHER CONTRACTOR ☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: USCG (Specify)

CONTRACTOR NAME(S): Moran Crowley

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1963 (BEGINNING YEAR) | Present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Various volatile and semivolatile organic compounds including xylene, toluene, benzene and petroluem napthalene.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

A low potential exists for human exposure, however, a high possibility of impact on the environmental biota in Noes Creek and the Arthur Kill are present.

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
Nigel Robinson	USEPA - Region II	(212) 264-0854

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Frank Faranca, HSMS IV	NJDEP	DHWM/BPA	(609) 633-2219	5 22 87 (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
NJ	D063173280

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 _____
NO. OF DRUMS 47.2

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			Several releases have occurred
OLW	OILY WASTE			in the past four (4) years
SOL	SOLVENTS	2360	Gallons	causing contamination of the
PSO	PESTICIDES			soil, groundwater, surface
OCC	OTHER ORGANIC CHEMICALS			water and air.
IOC	INORGANIC CHEMICALS			
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
SOL	Xylene	95-47-6	Groundwater sample	64,000,000	PPB
SOL	Benzene	71-43-2	Groundwater sample	1,000,000	PPB
SOL	Vinyl Chloride	75-01-4	Groundwater sample	60	PPB
SOL	Tetrachloroethylene	127-18-4	Soil Sample	2,100	PPB
SOL	Ethylbenzene	100-41-4	Groundwater sample	2,700	PPB
SOL	Toluene	108-88-3	Groundwater sample	3,600,000	PPB
SOL	1,1,1-Trichloroethane	71-55-6	Soil sample	510	PPB
SOL	Chloroethane	75-00-3	Groundwater sample	1,600	PPB
SOL	1,1,2,2-Tetrachloroethane	79-34-5	Groundwater sample	15	PPB
SOL	Methylethyl Ketone	78-93-3	Groundwater sample	100	PPB
SOL	Chlorobenzene	108-90-7	Groundwater sample	230,000	PPB
SOL	Methylbromide	74-83-9	Surface water sample	1,400	PPB
SOL	4-methyl-2-pentanone	108-10-1	Surface water sample	2,700	PPB
SOL	Styrene	100-42-5	Surface water sample	690	PPB
SOL	Trichloroethylene	79-01-6	Groundwater sample	11	PPB
SOL	Methylene Chloride	75-09-2	Groundwater sample	630	PPB

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)

See reference sheet for a list of attachments

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE: NJ | 02 SITE NUMBER: D063173280

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [X] OBSERVED (DATE: 10/10/85) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

The groundwater was sampled and analyzed by IT Corporation on 10/10/85. Test results revealed elevated levels of various volatile organic compounds including xylene as high as 64,000,000 PPB. Both a horizontal and vertical migration of the contaminants were observed.

Attachment C

01 [X] B. SURFACE WATER CONTAMINATION — 02 [X] OBSERVED (DATE: 6/25/85) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Groundwater discharges and surface water seeps flowing into Noes Creek were sampled and analyzed. High levels of various volatile organic compounds were detected. A large oil sheen was also observed on Noes Creek by plant personnel.

Attachment C

01 [X] C. CONTAMINATION OF AIR — 02 [X] OBSERVED (DATE: 2/17/83) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NJDEP inspectors investigated the facility during the 2/17/83 spill incident in which the soil was observed to be darkly stained and a chemical odor was present. High OVA readings WERE ALSO OBSERVED.

Attachment A

01 [X] D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

A potential for fire/explosive conditions exists due to the large amount of product loss of highly volatile compounds. However, in the two (2) years since the last major spill many of the contaminants may have volatilized.

Attachment A, B

[X] E. DIRECT CONTACT — [illegible] [X] POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

The entire facility is fenced to prevent unauthorized access to the facility by the general population. A potential does exist for direct contact by Union Chemical personnel.

Attachment C, D

01 [X] F. CONTAMINATION OF SOIL — 02 [X] OBSERVED (DATE: 2-17-83) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION

Three separate spill incidents were observed from 1983 to 1986 in which various volatile organic compounds were released into the soil beneath the facility consequently contaminating the groundwater.

Attachment A, B

01 [X] G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

The Middlesex Water Company supplies potable water to the entire area surrounding the facility. There are no known private wells located in the area.

Attachment C, D

01 [X] H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

A potential exists for worker exposure/injury of Union Chemical personnel who come into direct contact with the contaminated soil and ground water seeps that are on site.

Attachment C

01 [X] I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

A potential exists for population exposure indirectly by ingestion of contaminated fish caught in the Arthur Kill and by dermal and inhalation routes during the recreational use of surface waters.

Attachment C

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D063173280

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 [X] J. DAMAGE TO FLORA — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

A potential exists for damage to Phragmites communis species found on either side of Noes Creek and the banks of the Arthur Kill.

01 [X] K. DAMAGE TO FAUNA — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

The volatile organics in the groundwater will be attenuated due to evaporation at the surface water/air interface, however, the introduction of semivolatile pollutants could accumulate in bottom sediment with adverse effects on aquatic biota. Att. C

01 [X] L. CONTAMINATION OF FOOD CHAIN — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

The migration of semivolatile organic pollutants (i.e., PAH's - Napthalene) in the nonaqueous fraction of contaminated groundwater could adsorb to colloidal particles in surface water and bio-magnify into a significant environmental exposure. Att. C

01 [X] M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Volatile and semivolatile compounds in excess of 2360 gallons have been released to the environment through various tank and service line failures. Attachment A, B

01 [X] N. DAMAGE TO OFFSITE PROPERTY — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

Groundwater discharges and seeps to surface water may potentially contaminate property down stream with volatile and semivolatile organic compounds.
Attachment C

01 [ ] O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

The potential for contamination of storm sewers does not exist.

01 [ ] P. ILLEGAL/UNAUTHORIZED DUMPING — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

There are no reports of unauthorized dumping within State and local files.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

The Benjamin Moore Company was the previous property owners (1920-1962) which constructed a myriad of underground clay tile pipe and underground tanks which may still contain product.

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

See reference sheet for a list of attachments.

UNION CHEMICALS - DIVISION OF UNION OIL COMPANY
CARTERET BOROUGH/MIDDLESEX COUNTY
NEW JERSEY
EPA # NJD063173280

REFERENCE:

I. MAPS

1. USGS MAP - ARTHUR KILL QUADRANGLE
2. COUNTY MAP
3. CARTERET TAX MAP
4. STATE MAP
5. UNION CHEMICALS SITE MAP

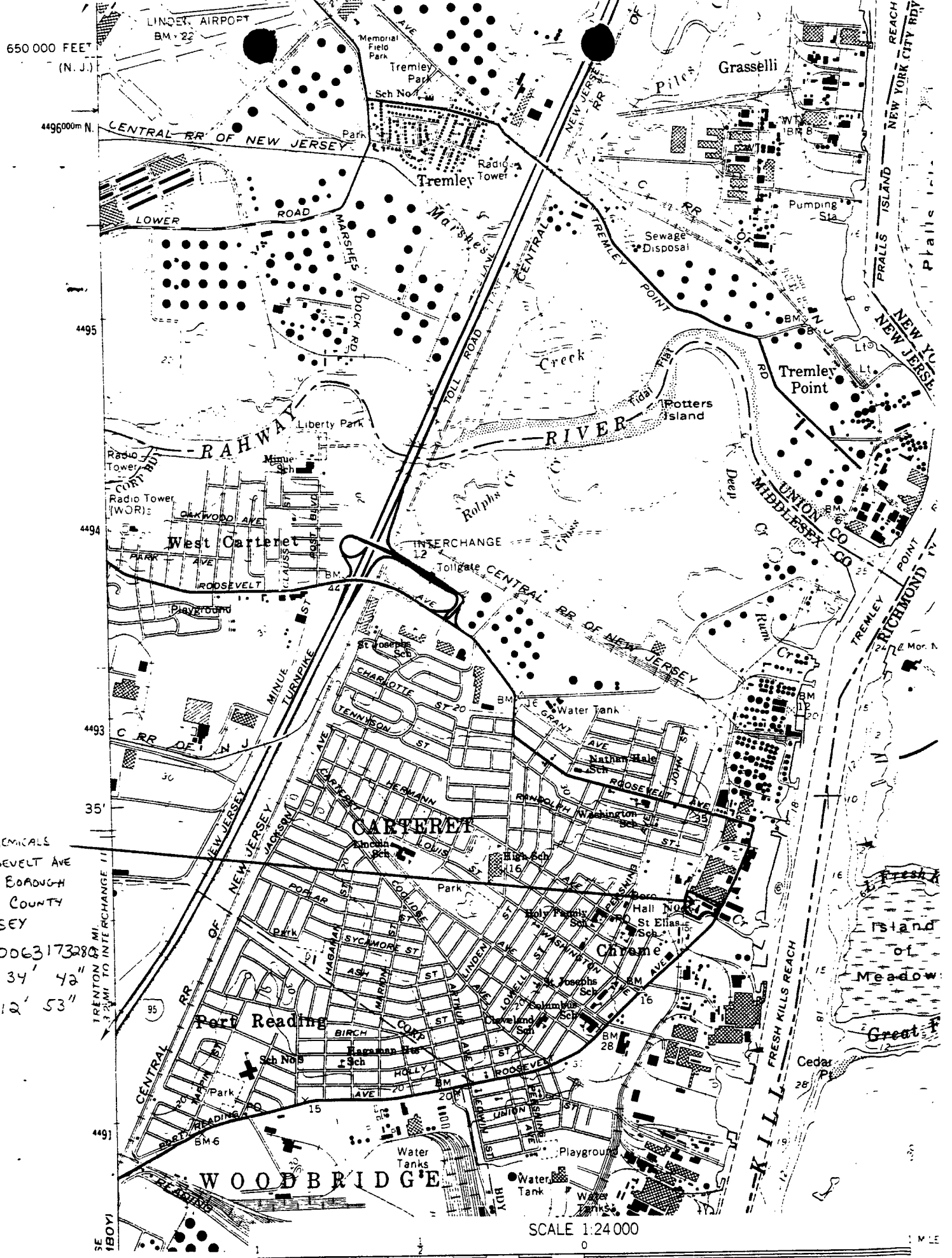
II. ATTACHMENTS

A. HISTORICAL SITE INFORMATION - 2/17/83 - 12/11/84

B. HISTORICAL SITE INFORMATION - 7/2/85 - 10/3/86

C. INITIAL SITE ASSESSMENT - IT CORP. 11/25/85

D. MEMO TO FILE FROM FRANK FARANCA 5/18/87



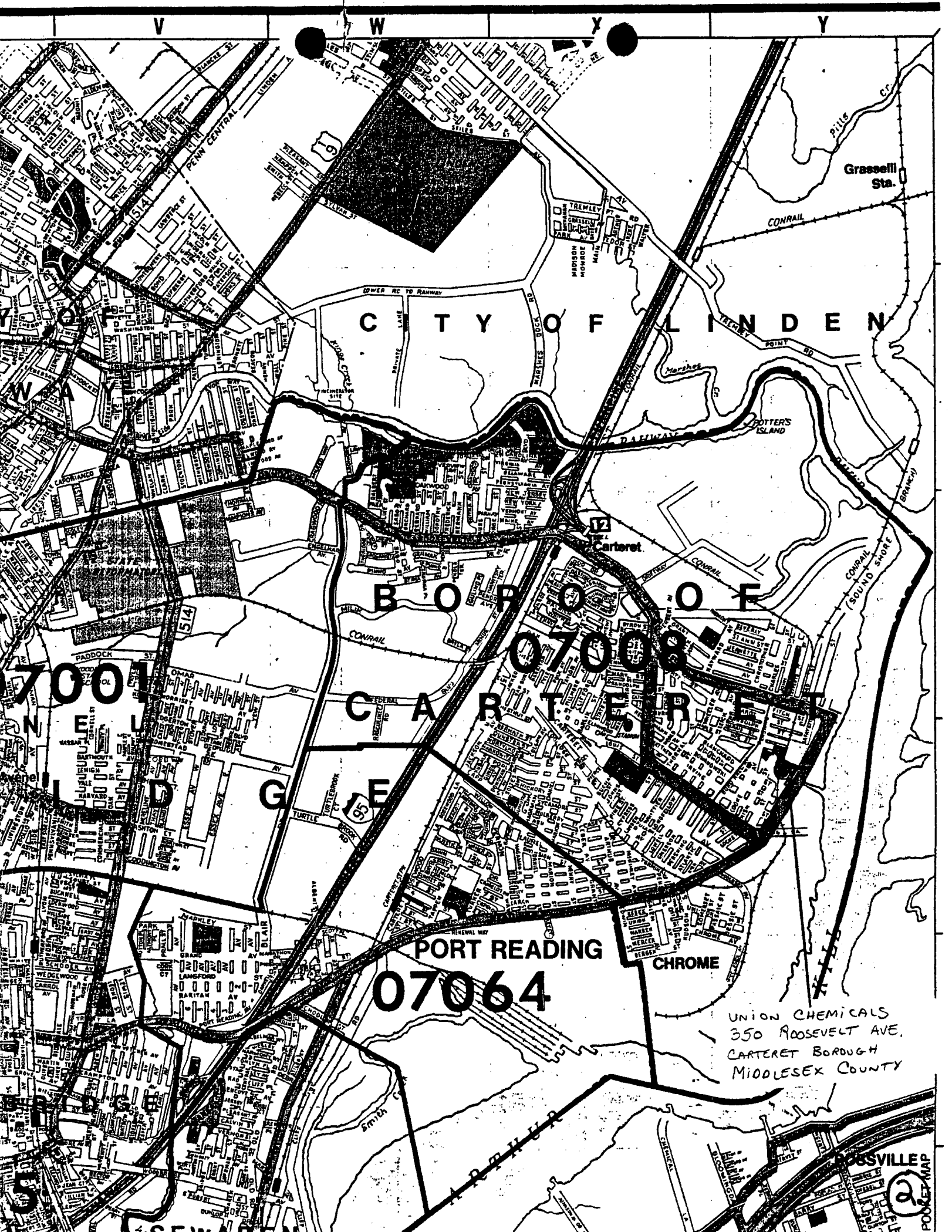
ARTHUR KILL, N.Y.—N.J.

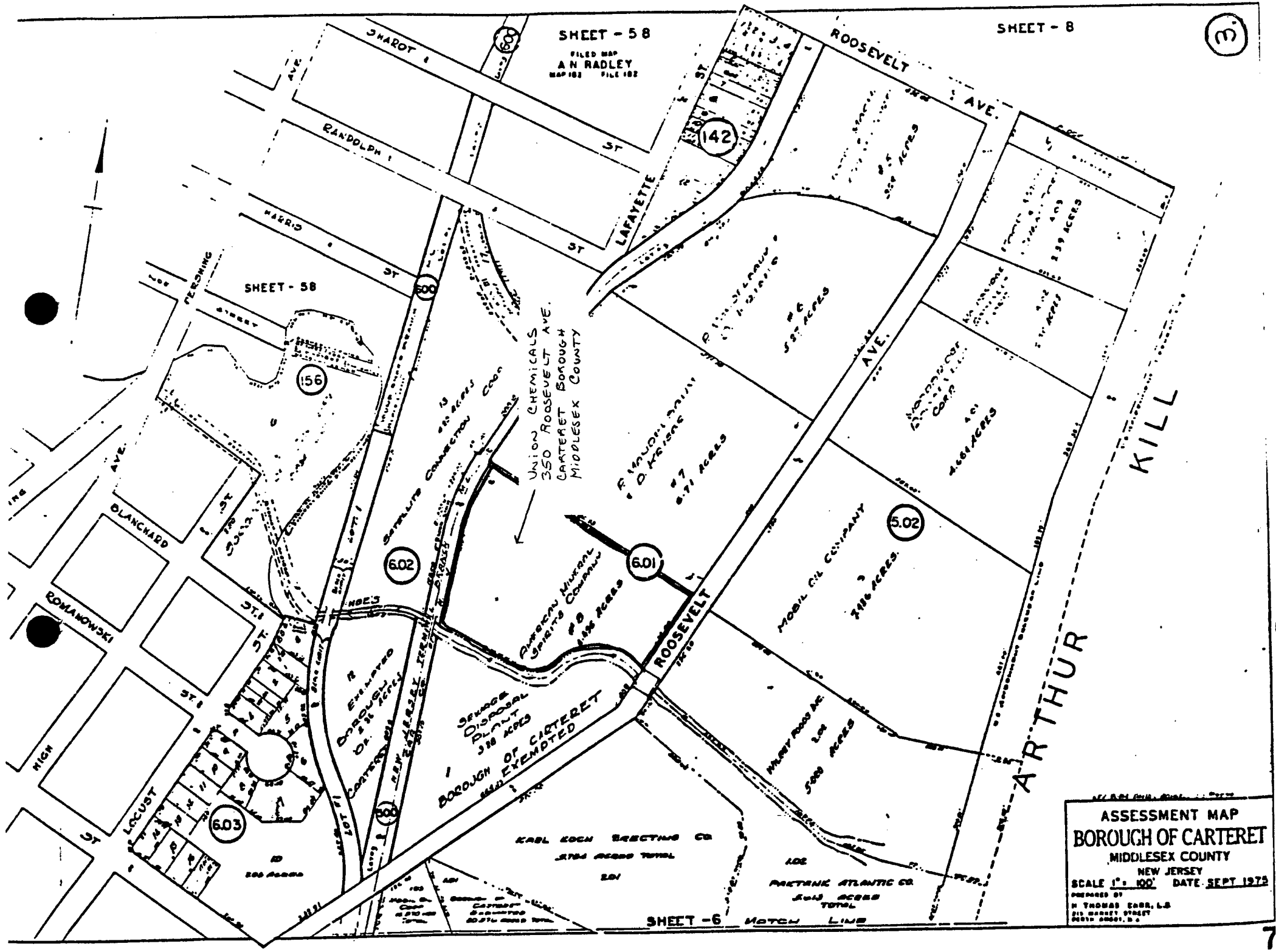
N4030—W7407.5/7.5

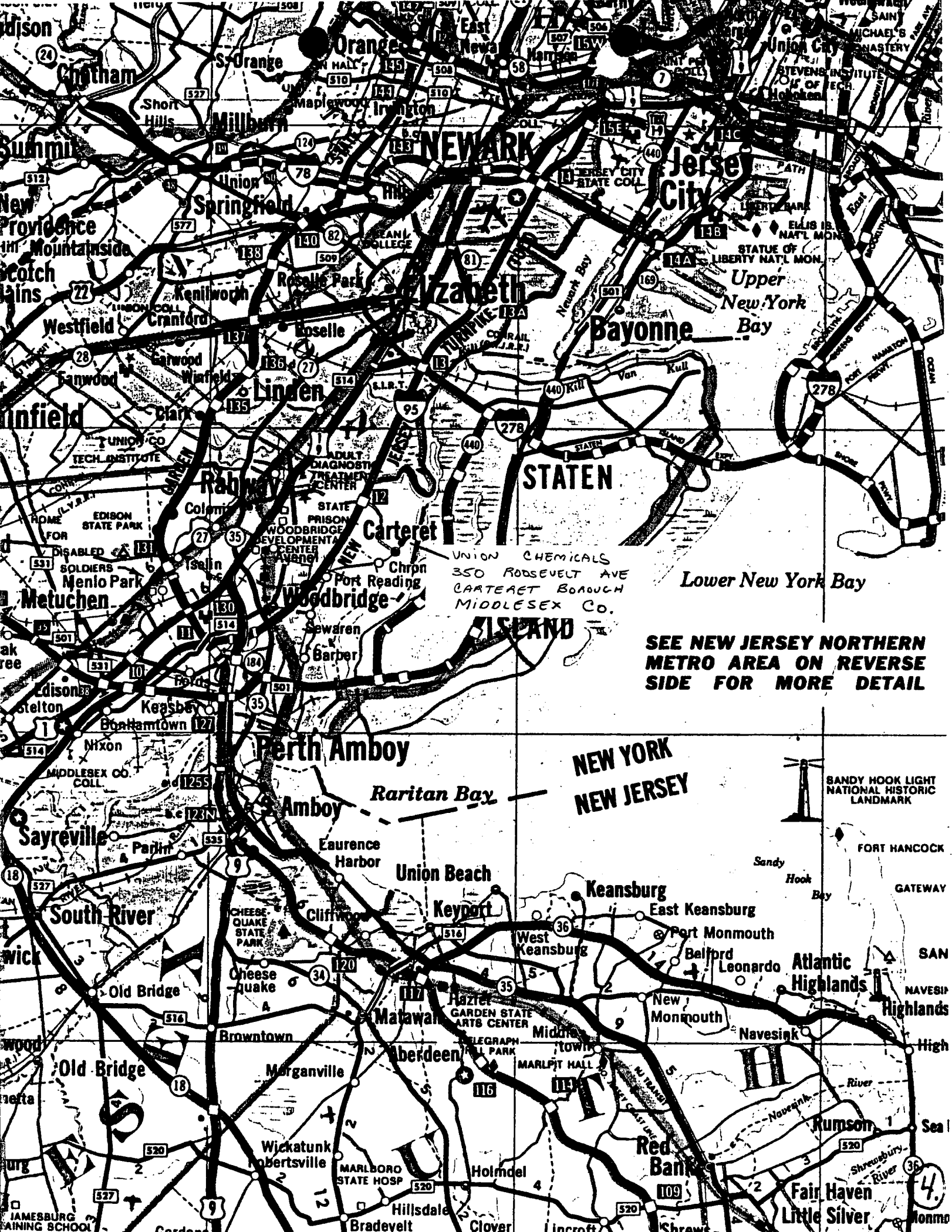
1966

CONTOUR INTERVAL 10 FEET

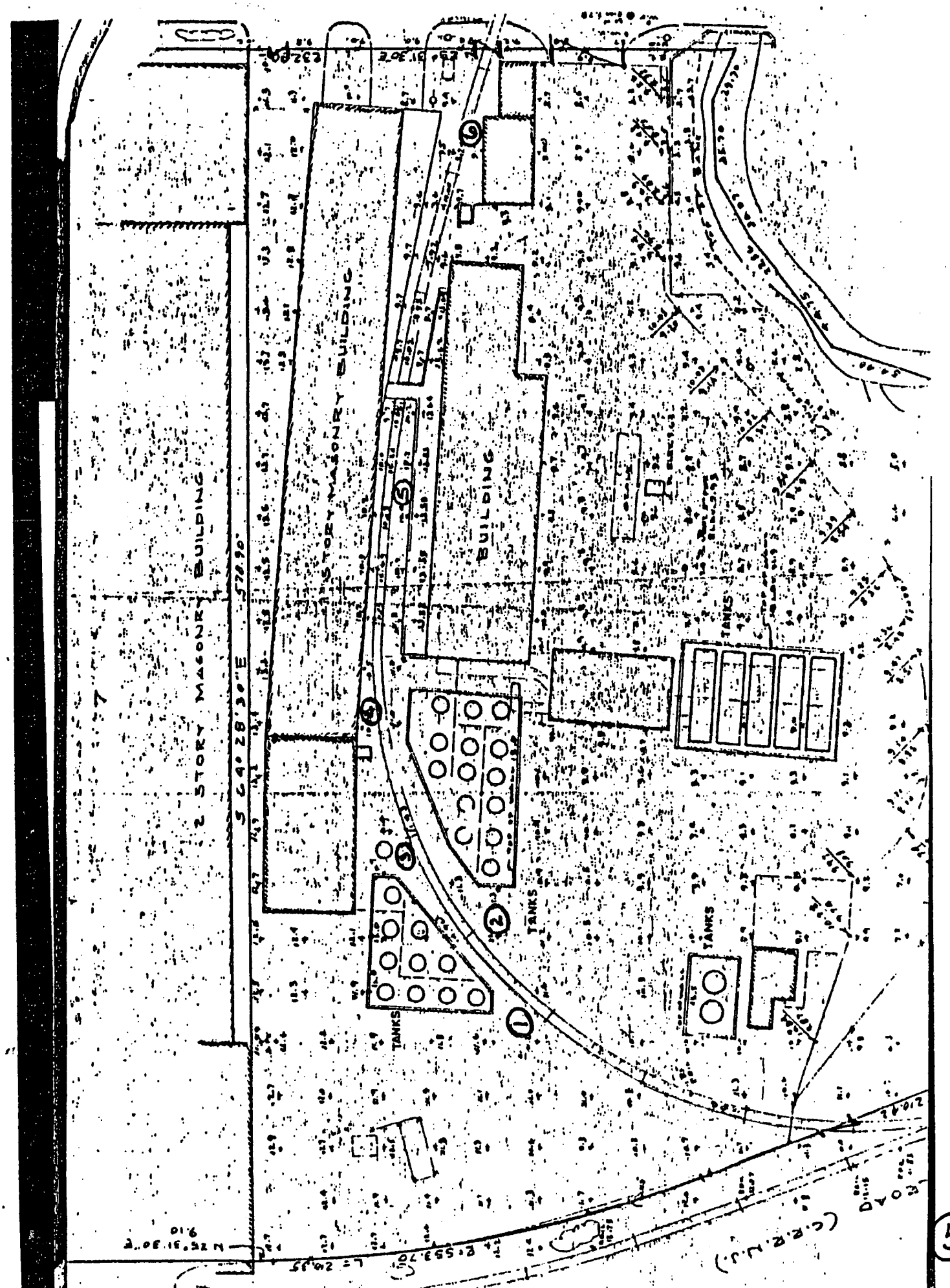
1.


V
W
X
Y
CITY OF LINDEN
BORO OF CARTERET
07008
07001
PORT READING
07064
CHROME
Carteret
Grasselli Sta.
POTTER'S ISLAND
CONRAIL
PENN CENTRAL
TREMLEY POINT RD
LOWER RC TO RAHWAY
MARSHES DOCK RD
RAILWAY
CONRAIL (SOUND SHORE BRANCH)
PADDOCK ST
FEDERAL
TURTLE
RENEWAL WAY
CARTERET ST
ROOSEVELT
ROOSEVILLE
UNION CHEMICALS
350 ROOSEVELT AVE.
CARTERET BOROUGH
MIDDLESEX COUNTY
POLICE MAP
2


SHEET - 58
FILED MAP
A N RADLEY
SHEET - 8
SHEET - 58
SHEET -6 MATCH LINE
SHAROT ST
RANDOLPH ST
HARDING ST
PERSHING
BLANCHARD ST
ROMANOWSKI
HIGH ST
LOCUST ST
LAFAYETTE ST
ROOSEVELT AVE.
ARTHUR KILL
UNION CHEMICALS
350 ROOSEVELT AVE.
CARTERET BOROUGH
MIDDLESEX COUNTY
SANITARY CONNECTION CORP
BOROUGH OF CARTERET
EXEMPTED
SEWAGE DISPOSAL PLANT
MOBIL OIL COMPANY
KARL KOCH ERECTING CO
PACTANK ATLANTIC CO
156
142
6.01
6.02
6.03
5.02
ASSESSMENT MAP
BOROUGH OF CARTERET
MIDDLESEX COUNTY
NEW JERSEY
SCALE 1" = 100'
DATE SEPT 1979
PREPARED BY
H THOMAS CARR, L.S.


Chatham
Short Hills
Millburn
Summit
Orange
S. Orange
Maplewood
Irvington
NEWARK
East Newark
Harrison
Union City
STEVENS INSTITUTE OF TECH.
Hoboken
Jersey City
JERSEY CITY STATE COLL.
LIBERTY PARK
ELLIS IS. NAT'L MON.
STATUE OF LIBERTY NAT'L MON.
Upper New York Bay
Bayonne
Newark Bay
New Providence
Mountainside
Scotch Plains
Union
Springfield
Kenilworth
Roselle Park
Elizabeth
Westfield
Cranford
Roselle
Garwood
Winfield
Fanwood
Linden
Clark
Rahway
UNION CO. TECH. INSTITUTE
ADULT DIAGNOSTIC TREATMENT CENTER
STATE PRISON
WOODBRIDGE DEVELOPMENTAL CENTER
EDISON STATE PARK
HOME FOR DISABLED SOLDIERS
Menlo Park
Metuchen
Iselin
Colonia
Avenel
Carteret
Port Reading
Woodbridge
Sewaren
Barber
STATEN ISLAND
Lower New York Bay
UNION CHEMICALS
350 ROOSEVELT AVE
CARTERET BOROUGH
MIDDLESEX CO.
SEE NEW JERSEY NORTHERN METRO AREA ON REVERSE SIDE FOR MORE DETAIL
Edison
Stelton
Keasbey
Bonhamtown
Nixon
Perth Amboy
MIDDLESEX CO. COLL.
Raritan Bay
NEW YORK
NEW JERSEY
Amboy
Sayreville
Parlin
Laurence Harbor
Union Beach
SANDY HOOK LIGHT NATIONAL HISTORIC LANDMARK
FORT HANCOCK
Sandy Hook Bay
GATEWAY
Keansburg
East Keansburg
Port Monmouth
Belford
Leonardo
Atlantic Highlands
South River
CHEESE-QUAKE STATE PARK
Cliffwood
Keyport
West Keansburg
Cheesequake
Old Bridge
Matawan
Hazlet
GARDEN STATE ARTS CENTER
New Monmouth
Navesink
Highlands
Browntown
Aberdeen
TELEGRAPH HILL PARK
Middletown
MARLPIT HALL
Morganville
Wickatunk
Robertsville
MARLBORO STATE HOSP
Holmdel
Red Bank
Rumson
Navesink River
Shrewsbury River
Fair Haven
Little Silver
Hillsdale
Bradevelt
Clover
Lincroft
JAMESBURG TRAINING SCHOOL

ROOSEVELT AVENUE



PROSECUTOR COPY

CRIMINAL INVESTIGATION REPORT

PR-34

1. STATION	2. FILE	3. I NUMBER	4.	5	6	7
Carteret		83-0449				081811

DATE	TOTAL VALUE	UCR	CHANGE	CLASS CODE	MUNC CODE	9. MO. DAY YR	10.	11.	12.	13.	14.	15.
						2 17 83					1201	4089

16. CURR.	17. JEWELRY	18. FURS	19. CLOTHING	20. AUTO	21. MISC.	22 REC	23 AUTO REC
1. A.	2. B.	3. C.	4. D.	5. E.	6. F.		

25. CRIME	26. N.J.S.	27. VICTIM	28. RACE	29. SEX	30. D.O.B.
Hazardous Chemical Leak		Union Chemical			

31. BETWEEN	32. HOUR	33. D-WK.	34. MTH.	35. DAY	36 YEAR	37. HOME ADDRESS-CITY-STATE	PHONE
X	2027	Thu	2	17	83	Roosevelt Ave Carteret,NJ	

LOCATION	39. DISTRICT OR ZONE	40. EMPLOYER-SCHOOL	BUS. PHONE
Union Chemical Co.			

SEARCH WARRANT	42. CONFESSION	43. PERSON REPORTING CRIME	44. DATE & TIME
YES NO	YES NO	Unknown caller	2/17/83 2027

TYPE OF PREMISES	46. CODE	47. WEAPONS-TOOLS	48. CODE	49 ADDRESS	PHONE
				Unknown	

HOW ATTACKED

See Narrative

VEHICLE	SUSPECT	52. YR	53. MAKE	54. BODY TYPE	55. COLOR	56. REGISTRATION & STATE	57. SERIAL #

DETAIL TIME	59. ARRIVAL TIME	60. CLEARING TIME AND DATE

WITNESS/SUSPECT	62. ADDRESS	63. PHONE	64. SEX	65. RACE	66. D. O. B.

NARRATIVE:

67. DIVISION NO PATROL

Detailed to investigate a report of a possible water or sewer line break upon our arrival and arrival of Sgt Terebetski it was determined the liquid was not water and was coming from Union Chemical,Ptl Zubenko detoured traffic at Roosevelt Ave and Irving St Ptl Bialowarczuk did the same at Roosevelt Ave and Lafayette St. Ptl Tarrant and Sgt Terebetski spoke to Mr. Francis Ullersberger(Union Chemical Supervisor) who stated that the chemical is a mixture of several flammable solvents. The Fire Department was notified was the DEP,USCG and Mr.Capp from the Board Of Health. The leak was traced to a holding tank at Union Chemical and the flow was stopped by shutting off

TYPE NAME	68. REPORTING NO	71. MUNICIPALITY
Ptl Daniel Tarrant #82	82/86	Carteret
Ptl Nicholas Zubenko	70 REVIEWED BY	72 DATE OF REPORT 2/18/83

(Page 1 of 2)

ATT. A

CONTINUATION PAGE

1 DIVISION	2 CODE	3 CASE NUMBER	4 DIVISION NUMBER
Carteret	1201		83-0449 81841 4089

NARRATIVE

valve by the tank. Union Chemical called Moran-Crowley Environmental Control to clean up the chemical from the roadway and lot. The U.S. Coast Guard hazardous materials response team arrived and assisted with the clean-up. The Fire Department was called again to wet down the roadway after the clean-up was finished. Roadway was again open for traffic at 0350 Hrs 2/18/83.

	6 BADGE NUMBER	7 PAGE		8 DATE OF REPORT
Ptl Daniel Tarrant #82 Ptl Daniel Tarrant Ptl Nicholas Zubenko	82/86 9 REVIEWED BY	2	2	2/18/83 A2

D.W.M. ASSIGNED CASE NUMBER 83-02-17-0993 HOT LINE

DATE 83-02-17 | T (Military) 2123 | D.W.M. ID NO. 213

INCIDENT REPORTED BY:

NAME SGT DENNIS NAGY | PHONE 201 541 4181

AFFILIATION CARTERET Police | CODE

STREET

CITY CARTERET | STATE NJ | ZIP CODE

INCIDENT LOCATION:

NAME UNION CHEMICAL | PHONE 201 541 4224

STREET 350 ROOSEVELT AVE | UTM VERT | UTM HORIZ

CITY CARTERET | COUNTY Middlesex | STATE NJ | ZIP CODE

SOURCE OF SPILLED AND/OR DISCHARGED SUBSTANCE: Confirmed ☐ Alleged ☐ More Than 1 Source ☐

COMPANY NAME UNION CHEMICAL | PHONE 201 541 4224

CONTACT DYKON WOLANSKY | TITLE Plant Manager

STREET 350 Roosevelt Ave | DEP COMPANY NO.

CITY CARTERET | COUNTY Middlesex | STATE NJ | ZIP CODE

SUSPECTED SPILLED AND/OR DISCHARGED SUBSTANCE: ☐ Confirmed ☐ Alleged ☐ More Than 2 Substances

1. KETONES and Petroleum Naphtha's | SUBSTANCE NO.

AMOUNT SPILLED 800 to 1500 | UNITS GALLONS | A/P/E Anaex. | S/L/G/M Liquid

2. | SUBSTANCE NO.

AMOUNT SPILLED | UNITS | A/P/E | S/L/G/M

DATE OF INCIDENT	TIME (Military)	TEMP.	WEATHER	WIND (Dir. & Vel.)
83-02-17	1930	38°	Clear	

SPILL ORIGIN Hose From tank truck to Bouguet vertical tank | CODE

CAUSE cracked flange or poor seal on Hose | CODE

WATER BODY AFFECTED NOE'S CREEK 4 inch runs into Hackensack | CODE

ASSOCIATED FIRE AND/OR HAZARDS CARTERET Fire Co. on scene

INCIDENT REFERRED TO:

AGENCY See attachment | PHONE

CONTACT | AGENCY CODE

PRIMARY D.W.M. INVESTIGATOR JOH Grozlovic | FOLLOWUP

NO FURTHER ACTION | DATE

COMMENTS:

AT Approx. 9:30 pm SGT NAGY was contacted and the incident at the above facility was confirmed. This facility was formed as the result of MISCE

A3

DATE 83-07-12	TIME 2124	D.W.M ID NO. 213

on scene and the site is secure.
AT 945 pm George Smajda was contacted - no answer
AT 950 pm Tom Allen was contacted - His comments were AFTER proper authorities were notified and since the Fire Dept & Marine Crowley is on scene this problem did not warrant immediate response.
AT 1015 pm MR Shiller calls me from Div Water Resources and informs me that different information is reported by the facilities plant manager.
AT 1115 pm UNION CHEMICALS Plant MANAGER Myron WALANSKI is contacted. He informs me that a hose with a cracked flange on pump said leaked 800 to 1500 gallons (estimated only) of ketones and various Petroleum Naphthas onto the ground. AN unknown amount went into the Joe's Creek leading to the Arthur Kill. The current status at this time is that Marine Crowley is on scene, All spillage is being cleaned up and no additional spillage is occuring. I informed him to give the Duty OFFICER an update tomorrow AS PER. He agreed.

Incident referred to:

USEPA	Bob Cobiella	(201) 548 8730
KSCG (NRC)	R.O. Blackwell	(609) 424 8802
Div Water Resources	Shiller	(609) 443-4580

Personnel also contacted:

Tom Allen	NJDEP	(609) 328-9255
SGT Nagy	Carteret PD	(201) 541-4181
[illegible]	[illegible]	[illegible]

A4

D.W.M. ASSIGNED CASE NUMBER

DATE 02-18-83 | TIME 0900 | D.W.M. NO. ECO 203

0830 Mike Nalbone called this morning. He said he received two phone calls last night. One incident involved an oil sheen on the Arthur Kill near Perth Amboy. The other involved a chemical spill in Carteret involving ketones and petroleum naptha at Union Chemical Co.

0900 Myron Wolansky of Union Chemical Co. (201) 541-4224 called with an update of the situation. He said an underground pipeline from a chemical storage tank ruptured and the chemicals percolated out of the ground. This leakage occurred in an area between two railroad tracks. He said that 1700 gallons of ketones, petroleum naptha and possibly propyl alcohol was involved. This material is used to thin ink. He said that the police, fire dept., health dept. and DEP were notified and also the Coast Guard. Moran Crowley initiated a cleanup. Two vacuum trucks are being employed. The Coast Guard installed a boom on a nearby creek. The Coast Guard said that they felt that nothing got into the creek. Myron Wolansky said that the area has been bermed, sealed and contained. Cleanup is continuing this morning.

0930 I called Frank Cap, health officer for Carteret, to get an update on spill. He was called out at 2030 hrs last night. Spill was near Roosevelt Av. Police blocked off the roadway. Spill area was bermed and tank was shutdown to prevent more spill. The residual on roadway was absorbed. Cleanup is continuing. He said a stream which flows into the Arthur Kill is located approx. 20' from the spill. He feels that some of the chemical

A5

Form DEP-006
12/82

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON DISPATCH

INCIDENT REPORT

83-2-17-008

☐ RADIO ☒ ACTION LINE

FILE NO. 0206 DWM, WR

☐ CITIZEN ☒ POLICE ☐ FIRE ☐ OTHER AGENCY

REPORTED BY: SARGEANT DENNIS NAGY

PHONE NO. 201-541-4181

AFFILIATION AND/OR ADDRESS: CARTARET POLICE DEPARTMENT

MUNICIPALITY: CARTARET

COUNTY: MIDDLESEX

DATE OF INCIDENT: FEBRUARY 17, 1983.

TIME OF INCIDENT: 2030

NATURE OF INCIDENT
☐ COMPLAINT ☐ SMOKE ☐ ODORS ☐ PARTICULATE ☐ SEWAGE ☐ NOISE ☐ OTHER
☐ EMERGENCY ☒ Spill ☐ Chem. Fire ☐ Explosion ☐ Derailment ☐ Radiation ☐ Other

EXPLANATION: SIZEABLE AMOUNT OF SLOP HAS LEAKED OUT INTO THE NOE'S CREEK

LOCATION OF INCIDENT: 350 ROOSEVELT AVE., CARTARET

TYPE OF MATERIAL INVOLVED: UNKNOWN: POSSIBLY TOXIC OR FLAMMABLE

SOURCE: LEAKY VERTICAL TANK ☐ CONFIRMED ☐ SUSPECTED

QUANTITY OF MATERIAL: POSSIBLY 200 GALLONS

CONTAMINATION VIA: ☐ AIR ☐ LAND ☒ WATER: Receiving Water NOE'S CREEK

TRIBUTARY TO: ARTHUR KILL RIVER

ANYONE HOSPITALIZED? ☐ YES ☒ NO

ALSO REPORTED TO: EPA, COAST GUARD

AREA BEING EVACUATED? ☐ YES ☐ NO ☐ POLICE ☐ FIRE ☐ OTHER

REPORT TAKEN BY:

Dispatcher	Date	Time
FRANKLIN NICOLOUDAKIS	FEBRUARY 17, 1983.	2112

ADDITIONAL INFORMATION: SGT. NAGY REPORTS THAT THE SPILL HAS BEEN CONTAINED.

PERSON(S) CONTACTED TO REPORT INCIDENT:

NAME: MIKE NALBONE	NAME: CHRIS SCHILLER
AGENCY: DWM	AGENCY: WATER RESOURCES
TELEPHONE NO. CALL SIGN: 587-3395	TELEPHONE NO. CALL SIGN: 443-4520
PAGER NO.	PAGER NO.
TIME NOTIFIED: 2113	TIME NOTIFIED: 2131

A6

Form DEP-006
12/82

N SEY DEPARTMENT OF ENVIRONMENTAL P. TION
TRENTON DISPATCH

INCIDENT REPORT

☐ RADIO ☒ ACTION LINE

FILE NO. 0206 CONTINUED

☒ CITIZEN ☐ POLICE ☐ FIRE ☐ OTHER AGENCY

REPORTED BY: MYRON WOLANSKY, PLANT MANAGER

PHONE NO. 201-541-4224

AFFILIATION AND/OR ADDRESS: UNION CHEMICAL, 350 ROOSEVELT AVE.

MUNICIPALITY: CARTARET

COUNTY: MIDDLESEX

DATE OF INCIDENT:

TIME OF INCIDENT: BETWEEN 1930 & 2000

NATURE OF INCIDENT
☐ COMPLAINT ☐ SMOKE ☐ ODORS ☐ PARTICULATE ☐ SEWAGE ☐ NOISE ☐ OTHER
☐ EMERGENCY ☐ Spill ☐ Chem. Fire ☐ Explosion ☐ Derailment ☐ Radiation ☐ Other

EXPLANATION: NOT SURE HOW IT OCCURED, BUT HE KNOWS THAT THERE WAS A TRUCK PUMPING INTO THE TANK PRIOR TO THE LEAK.

LOCATION OF INCIDENT:

TYPE OF MATERIAL INVOLVED: COMBINATION OF METHYL KEYTONE AND MINERAL SPIRITS

SOURCE: NOT SURE ☐ CONFIRMED ☐ SUSPECTED

QUANTITY OF MATERIAL: 1500 GALLONS

CONTAMINATION VIA: ☐ AIR ☒ LAND ☒ WATER: Receiving Water

TRIBUTARY TO:

ANYONE HOSPITALIZED? ☐ YES ☐ NO

ALSO REPORTED TO: FIRE DEPT., COAST GUARD

AREA BEING EVACUATED? ☐ YES ☐ NO ☐ POLICE ☐ FIRE ☐ OTHER

REPORT TAKEN BY:

FRANKLIN NICOLOUDAKIS	FEBRUARY 17, 1983.	2155
Dispatcher	*Date*	*Time*

ADDITIONAL INFORMATION: REPORTED ADDITIONAL INFORMATION TO CHRIS SCHILLER, WR, WHO PASSED IT ON TO NALBONE OF DWM.

PERSON(S) CONTACTED TO REPORT INCIDENT:

NAME:	NAME:
AGENCY:	AGENCY:
TELEPHONE NO. CALL SIGN	TELEPHONE NO. CALL SIGN
PAGER NO.	PAGER NO.
TIME NOTIFIED	TIME NOTIFIED

A7

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO KARL DELANEY

FROM MARK S. GRUZLOVIC DATE FEBRUARY 24, 1983

SUBJECT PETROLEUM NAPTHA & KETONE SPILL
UNION (76) CHEMICAL COMPANY
350 ROOSEVELT AVENUE IN CARTERET
DWM #83-02-17-003

TUESDAY, FEBRUARY 22, 1983

At 1117 hours I arrived at Union Chemical Company in Carteret to investigate discharge of petroleum napthas and ketones from a reported leak of a transfer line on February 17, 1983.

When I arrived I observed that various sand dikes and booms were placed in the path of a dark liquid with an unknown chemical odor draining from railroad track area from side of office building towards small creek on border of the property.

Sheen noted on water draining from driveway into creek. Workers from Moran Crowley (cleanup contractor) arrived in trucks and began placing sorbents near outfall and/on driveway.

I met with Harry Whelan (Moran Crowley) and Myron Wolansky (Plant Manager) in the office building.

I told Mr. Wolansky that I would like to look at the area where the spillage occurred and at the cleanup progress. He showed me the area of the yard where the leakage occurred.

The leak occurred in a tank field towards the rear of the yard. Ten transfer lines from the tank field were lined up and numbered outside of the dike wall for the field where they went underground beneath railroad tracks, and emerged on the other side of the tracks about 30 feet away to continue to truck racks.

Dark liquid was noted along the dike wall and mixed with water on gravel next to the railroad tracks. Mr. Wolansky told me drainage in this area runs out along tracks to street (Roosevelt Avenue). He stated that all ten transfer lines were tested, only #6 was found to be leaking.

When I asked how he planned to get the liquid product out of the gravel, he told me that he was awaiting a call from the company engineer to find out if just #6 or all lines are to be replaced.

When asked what the lacquer thinner was composed of, he told me that the material was composed of various left over liquids from drums of naptha, methyl ethyl ketone, etc. He did not know what percentages of each would be found in the tank, because the amount going into the tank of each material varies according to how much material was used of each daily in other processes.

A8

At 1200 hours Frank Capp of Carteret Board of Health arrived. We checked the area of the drainage from the #6 line towards front of property. The spillage followed the gravel and railroad tracks about 50 yards, then went across driveway to Noe's Creek.

Mr. Wolansky told me that the material appears dark because it leached the creosote out of the railroad ties.

Before securing I asked Mr. Wolansky if he could let myself and/or Mr. Capp of the health department know when they are going to excavate the lines and recover the liquid in the gravel so that one or both of us can be present to observe and make recommendations. He agreed. He told me it will probably be in a few days. I also recommended that he have the liquid sampled to find out concentrations of the various materials in it and include pcb analysis as it will help eventually for disposal.

Analysis will help to determine how to clean up gravel area as well as to be able to find out what might be able to be reclaimed.

He agreed to have analysis done.

At 1234 hours I secured.

MSG:lmc

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO Karl J. Delaney

FROM Mark S. Gruzlovic DATE June 8, 1983

SUBJECT (12-01) #83-02-17-03C --- Spill at Union 76 Chemical, 350 Roosevelt Avenue, Carteret.

March 1, 1983

0838 - Mr. Wolansky called me at the office by phone. He told me that they have done a flash point test on the material to be disposed of and should be sending the material to Maryland in a dumpster to be disposed of.

Underground transfer lines have not been excavated, he is still awaiting an engineering decision on repiping transfer lines above or below ground.

March 7, 1983

1041 - I returned a call to Frank Capp of Carteret Health Department (201-541-7533). He had checked with Mr. Wolansky. No word yet on when analysis is to be completed nor excavation of soil near transfer lines.

April 18, 1983

I received a copy of the analysis on the liquifier. I called and left a message for Mr. Wolansky at his office that I will not be available on April 23, 1983 for excavation as suggested in his letter.

May 27, 1983

1455 - I returned call to Mr. Wolansky. He wanted to make sure that I still knew he was trying to get an answer on the replacement of his underground transfer lines.

After discussing that he still does not know the extent of penetration from the liquifier spillage, he agreed to try to set up excavation for Friday, June 3, 1983.

June 2, 1983

1512 - Mr. Wolansky called to tell me he would have excavator for tomorrow. We agreed to meet at the site 1230 hours tomorrow June 3, 1983.

June 3, 1983 – Almost 4 mo. from date of spill

0930 – I called Carteret Health Department and left a message with Terry Brundage for Mr. Capp that I will be out at Union 76 for excavation near the underground transfer line which had the spillage back in February.

1231 – I arrived at Union 76 in Carteret and met with Mr. Wolansky and Mr. Robert Reck (Regional Technical Manager).

Mr. Wolansky told me that liquid and soil wastes have already left the site and was manifested for disposal. He will send me copies.

When I asked how much he believed was discharged from the liquifier spill, Mr. Wolansky stated he estimated approximately 1860 gallons lost.

1250 – We inspected the spill site. Contractor for excavation has not yet arrived.

I observed that none of the soil has been removed in the immediate area of where the spillage occurred. (Leak from underground #6 transfer line). Surface soil was darkly stained and had a slight chemical odor.

Mr. Wolansky told me he has been checking with the engineers, but still no luck with changing the piping.

I told Mr. Wolansky that whether or not he switches piping would not matter in regard to cleaning up the spillage. I told him that by law he is required to remove the contaminated soil from the spillage to prevent further contamination.

I asked if he was going to do this as required.

He told me he can set up for early next week to begin removal.

1320 – The contractor for the excavating arrived.

Two holes were dug about 2 feet deep downgradient of the lines on either side of railroad tracks. One hole was dug to the top of #6 line (about 1½ ft. deep) and one hole was dug upgradient and across railroad tracks from the lines to a depth of about 1½ to 2 ft. deep.

1330 – Mr. Wolansky had to secure for a phone call.

A11

All excavations went down to water. Soil had heavy chemical odor in all excavations. Downgradient excavations had a black tarry substance floating on the top of the water in the excavation, which may possibly be creosote from the railroad ties.

I told Mr. Reck that I recommended all contaminated soil must be removed and properly disposed of.

1400 - We walked downgradient along the railroad tracks towards Roosevelt Avenue. About ~~100~~ 80 to ~~150~~ 100 feet from the underground transfer lines was a diked berm across the tracks. The area in front of the tracks had darkly stained soil. A worker told Mr. Reck and I that this was the area where spill was first contained.

Beyond this berm to where berm was placed near Roosevelt Avenue, soil did not appear stained.

I told Mr. Reck that this soil also must be disposed of.

1400 - We met with Mr. Wolansky in his office. I explained that by law he was required to remove all contaminated soil. He told me he could arrange for this to begin early next week. I asked that I be notified of that schedule as soon as possible in order that I can have myself or Mr. Capp of Carteret Health Department verify the cleanup. He agreed.

1445 - I secured. Before securing I walked back with Mr. Wolansky to the area of stained soil downgradient from the spill location where the first berm was, in order that we both knew the areas to be addressed.

MSG:dg

[redacted]

Incident Report # [redacted]

Page 1 of 2

Subject: Union 76 chemical spill, contract.

Date: 6/24/83

Findings and Summary:

1301 hrs. I arrived at Union 76 Chemical Company in Crotonet in order to meet with representatives in regard to cleanup of contaminated soil from lacquer thinner spill on 2/17/83.

I met with the following people:

Myron Wolansky - Plant Manager
Ken Daley - Assistant manager regional relations
H. J. Kopp - Supervisor - Loss prevention
Ray Stender - LoMA Industries, Inc.

We inspected the spill area and after updating everyone, Mr. Wolansky told me that Union 76 would like to clean up the contaminated soil by use of DBC (Dried bacteria culture) application.

I told Mr. Wolansky that DBC application would have to be approved by the Dept. as this type of cleanup would over various regulations enforced by the Department through Environmental Protection, NJPDES and the Spill act.

Mr. Wolansky told me that they would like to attempt this type of cleanup as it would cost considerably less. Disposal of soil excavated and properly disposed of would cost $45,000.00 alone.

(over)

A13

(12-01)

Incident Report # 83-02-17-03C

Page 2 of 2

Subject: Union 76 chemical spill, Carteret

Date: 6/24/83

Findings and Summary:

Mr. Stenger, after explaining ~~the~~ application of DBC produced a copy of Administrative consent order used to allow DBC application at B.P. Terminal Newark (old Coastal oil facility). The order was issued to Coastal oil by the Department with John Skoviak handling the order's signature in a letter to the company dated 5/23/83.

I told Mr. Wolansky that I did not know if the Department will consider approving this type of treatment as they will have to show that the spillage is contained from spreading while being treated and that at this time he still has not determined the extent of the contamination.

Mr Stenger told me that in order to present the DBC application as a possible cleanup solution he will have to determine the extent of the problem by means of sampling (core samples) and a treatability study to determine if it can be cleaned up by this technique.

I told Mr. Wolansky that I recommend he determine the extent of the spillage as he will need to know this whether they go for disposal or DBC application.

In the meantime I will speak with management in regard to setting up a meeting to discuss the DBC application to move towards treating this soil contamination problem. He agreed.

Mr. Stenger told me that he will do core sampling and treatability studies next week.

1435 hrs I departed.

A14

(12-81)

CONFIDENTIAL - RECOMMENDATIONS

TO: George Smajda through Karl Delaney

FROM: MARK S. GUZLOVIC DATE: 6/28/83

SUBJECT: 83-02-17-03C Union Chemical Spill, Carteret.

On 6/27/83 I spoke with J. Skovinka of Enforcement & compliance. He told me that it is possible to allow DBC application through administrative consent agreement with the Department after Engineering, Water Resources and DWM review the proposal for this type of treatment.

I recommend that we request that someone from Spot wells group (Enforcement & compliance) be assigned to coordinate this case towards obtaining the administrative consent order required towards using DBC application to do the cleanup from the spill at Union 76 in Carteret.

Mark S. Guzlovic

Mark,
Rec a Directive Letter be issued.
6/30/83 [illegible] 6/30/83

I recommend that a directive letter be issued to Union 76 as they have been unable to take action to define the extent of the spillage and clean up zone. (since 2/17/83)
Directive letter should include defining extent of soil and groundwater contamination and cleanup of spillage in accordance to Spill Act. Mark S. Guzlovic

A15

SFS 00063

Received 7-12-
Due from 8-2-

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
120 Rt. 156, Yardville, N.J. 08620

JACK STANTON
DIRECTOR

LINO F. PEREIRA
DEPUTY DIRECTOR

DIRECTIVE LETTER

AUG 11 1983

Mr. Myron Wolansky
Union (76) Chemical Company
350 Roosevelt Avenue
Carteret, New Jersey 07008

DWM #83-02-17-03C

Dear Mr. Wolansky:

Members of the Division of Waste Management have determined that the following conditions at 350 Roosevelt Avenue, Boro of Carteret, County of Middlesex, State of New Jersey, constitute a danger to the environment and to the public health, safety and welfare and are violative of the laws of the State of New Jersey:

A ruptured underground pipeline servicing a chemical storage tank allowed approximately 1,500 gallons of a mixture of naptha and methyl ethyl ketone to be discharged into the ground causing possible groundwater contamination.

You are therefore directed, pursuant to Section f of the Spill Compensation and Control Act as amended, N.J.S.A. 58:10-23.11 et seq., to initiate at once the following remedial measures at the site:

1. Remove and properly dispose of all contaminated soils in accordance with the laws of the State of New Jersey.

2. Install four (4) groundwater observation wells as supervised by a representative of the Division of Water Resources, Groundwater Section.

In addition, you must notify the Department of Environmental Protection (DEP) upon the commencement of any remedial action taken in this regard.

Failure by you to respond to this notice within ten (10) days of its receipt by you may result in the Department of Environmental Protection itself performing the cleanup operations specified

herein. Should you fail to respond to this notice and fail to initiate cleanup operations as required by this letter, the DEP may commence legal action against you seeking penalties and reimbursement for all costs incurred. Specifically, failure to comply with this directive may increase your liability to the DEP in an amount equal to three times the costs of all expenses incurred in this operation and may cause a first priority claim and lien to be placed upon all of your real and personal property in the amount of the DEP's costs, in accordance with the Spill Compensation and Control Act.

Should you have any questions, please contact Mr. John Skoviak at (609) 292-0967.

Very truly yours,

Joseph A. Rogalski
Assistant Director

JS:kas

Please File
(ACtive)
12.01
83-02-17-03C.

Union Chemicals Division
Union Oil Company of California
General Office: 1900 Golf Road
Schaumburg, Illinois 60195
Telephone: (312) 490-2500

union 76

September 8, 1983

Mr. Joseph A. Rogalski
Assistant Director
Department of Environmental Protection
120 Route 156
Yardville, NJ 08620

Dear Mr. Rogalski:

Your directive letter of August 11, 1983 (reference number DWM 83-02-17-03C) has been forwarded to my office for response. Your letter required Union Chemicals to dispose of contaminated soils and install four (4) groundwater observation wells on our property located at 350 Roosevelt Avenue, Carteret, New Jersey. These actions were requested due to a spill of product caused by a ruptured pipeline at the above facility on February 17, 1983.

We have been working with several contractors to develop a viable clean-up plan for the site. Due to problems with insurance and summer vacations, this process has required more time than originally estimated. The final proposal for the work is due in my office on September 9, 1983. We will provide your department a proposal for clean up by September 23, 1983.

Please be assured, we are working most diligently towards an acceptable resolution to this incident.

Sincerely,

H. J. Kopp
Supervisor
Environmental Control

HJK/ch
cc: John Skoviak
Myron Wolansky

A18

Incident Report #: 83-02-17-03C

Page 1 of 1

Subject: unknown chemical spill at Union 76 Roosevelt Ave (2-01)

Date: 9/13/83

Findings and Summary:

0956 hrs. I returned a call to John Francis of Loma Industries (609-424-4041). Mr. Francis told me he was calling me because Union 76 is considering going with another company because Loma could not guarantee that their process will take care of all the chlorinated solvents in the groundwater. (This will have to use carbon absorption to completely clean the water).

The company that Union 76 is now considering proposes to air strip the solvents.

Mr. Francis wanted to know if this method was proper and allowable.

I told him that if that method is proposed it would have to be approved through air pollution to permit it's use.

To date I still have not seen a proposal from Union 76 for either operation.

1005 hrs. I spoke with John Skowiak, DCWM Enforcement and Compliance, and asked if we had word on when the proposal from Union 76 was due.

He gave me a copy of a letter sent to Asst. Director Kosalski in response to our Directive letter issued. In the letter Union 76 stated they will provide us with a cleanup proposal by 9/23/83.

Mark A. Gilson
P.E.

~~20-01-130~~

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO John Skoviak, Bureau of Compliance & Enforcement

FROM Mark S. Gruzlovic through Vince Krisak (CFO) DATE October 20, 1983

SUBJECT #83-02-17-03c (12-01) Union 76 Carteret - unknown chemical spill compliance with Directive Letter.

This is to confirm and record conversations I had with you and Ray Stenger of Lama Industries, Inc., as they occurred on Thursday, October 20, 1983.

0930 hrs.- I spoke with John Skoviak in regard to whether or not we received details of the clean-up proposal for work to be done on the chemical spillage at Union 76 Carteret. He told me that we did not have further word on clean-up details.

I told him I will review correspondence and any action taken by Union 76 and possibly recommend further departmental action be taken if necessary.

1002 hrs.- I received a call from Ray Stenger of Lama Industries, Inc. in regard to the Union 76 Carteret chemical spill clean-up.

He told me that Union 76 has decided to use Lama to do clean-up of the chemical spill in Carteret by way of bacterial application. He would like to send me a copy of the work proposal for N.J.D.E.P. review and approval.

I recommended he have the proposal go through Union 76 for their approval then have them send the proposal to John Skoviak who is coordinating the compliance of the Directive Letter issued to Union 76.

Also, we would like a copy of the base line data used for the proposal including sample analysis, surveys, etc., collected previously. Mr. Stenger agreed to send the proposal through to Union 76. He told me he will walk through the proposal (hand-carry) to Union 76 then to N.J.D.E.P. Yardville tommorrow (10/21/83) to try to expedite getting the proposal to us for our review.

1020 hrs. - I informed John Skoviak of the above information.

Mark S. Gruzlovic

Mark S. Gruzlovic

FOC16/ekd

A20

83-02-17-~3c
(12-01)
File Active

Union Chemicals Di[illegible]n: Petrochemical Group
Union Oil Company [illegible]ifornia
General Office: 1900 East Golf Road
Schaumburg, Illinois 60195
Telephone: (312) 490-2500

union 76

April 5, 1984

Mark S. Gruzlovic
Department of Environmental Protection
120 RTE 156
Yardville, NJ 08620

Dear Mark:

I am enclosing the lab results from the soil samples taken at our Carteret plant. I will be expecting your questions on our proposal in the near future.

Sincerely,

H.J. Kopp
Supervisor Regulatory Affairs

HJK/aob
Attachment

A21

SULTS FROM LABORATORY ANALYSES PERFORMED BY A E L, INC.

MPLE IDENTIFICATION - GROUND SAMPLES - UNION CHEMICAL - CARTERET, NEW JERSEY

	Site # 1 (PPM)			Site # 2 (PPM)		
LATILE ORGANICS	6"	24"	48"	6"	24"	
luene	ND	855.3	ND	ND	ND	
lene	ND	4529.2	ND	ND	ND	
hylene Chloride	58.1	2.7	4.3	1.4	0.4	1
I,I, Trichloroethane	62.1	ND	ND	180.0	678.5	
ichloroethylene	ND	ND	ND	268.5	ND	
tra chloroethylene	ND	2237.4	ND	ND	80.73	
thyl Ethyl Ketone	1453.3	ND	ND	6961.1	ND	
etone	15.65	366.1	61.2	73.3	112.4	18
- Methyl - 2 - Pentanone	ND	1616.8	ND	ND	ND	
thyl Alcohol	0.8	ND	ND	ND	ND	
yl Alcohol	ND	ND	ND	ND	ND	
SE NEUTRALS (PHTHALATES)						
(2-Ethylhexyl) Phthalate	18.1	ND	ND	ND	ND	N
yl Benzyl Phthalate	ND	ND	ND	ND	ND	N
ethyl Phthalate	ND	ND	ND	ND	ND	N
N-Butyl Phthalate	11.4	4.9	ND	2.28	2.4	N
N-Octyl Phthalate	ND	ND	ND	ND	ND	N

A22

Site # 3 (PPM)				Site # 4 (PPM)			Site # 5 (	
6"	24"	48"	Water 12"	6"	24"	48"	6"	24"
				ND	ND	ND	236.5	ND
ND	479.2	ND	2932.5	ND	ND	ND	286.0	ND
ND	ND	ND	5502.5	1.9	2.0	10.9	35.0	5.4
0.81	ND	8.95	424.3	ND	10.3	ND	ND	17.8
ND	6.2	ND	1557.5	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	1927.2	ND
ND	1608.9	ND	2582.5	ND	ND	3.3	1322.9	ND
ND	3290.6	2.4	1637.5	82.86	58.9	107.7	354.5	72.6
.63	ND	86.8	4660.0	ND	ND	ND	ND	ND
.8	65.8	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	7673.0					
				ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND					

A23

Site # 5 (PPM)			Site # 6 (PPM)				
6"	24"	48"	6"	24"	48"	Water 20"	VOLA
236.5	ND	529.5	ND	ND	ND	ND	Tolu
286.0	ND	6692.9	685.4	ND	ND	ND	Xyle
35.0	5.4	9.07	0.78	ND	16.6	25.9	Meth
ND	17.8	ND	ND	ND	ND	ND	I,I,
ND	ND	ND	ND	ND	ND	ND	Tric
1927.2	ND	280.6	3774.0	ND	ND	ND	Tetr
1322.9	ND	112.1	5498.1	ND	ND	ND	Meth
354.5	72.6	214.2	123.8	ND	97.4	27.5	Acet
ND	ND	221.6	ND	ND	ND	ND	4-Me
ND	ND	ND	ND	ND	ND	ND	Meth
ND	ND	ND	ND	ND	ND	ND	Ethy
							BASE
ND	ND	ND	ND	ND	ND	ND	Bis (
ND	ND	ND	ND	ND	ND	ND	Butyl
ND	ND	ND	ND	ND	ND	ND	Dimet
ND	ND	ND	ND	ND	ND	ND	Di-N-
ND	ND	ND	ND	ND	ND	ND	Di-N-

LOMA INDUSTRIES, INC.

POST OFFICE BOX 3528
CHERRY HILL, NEW JERSEY 08034

NEW JERSEY
(609) 424-4041
NEW YORK
(212) 948-9395
PENNSYLVANIA
(215) 237-6598

MAY 1 1984

April 27, 1984

H. J. Kopp
Union Oil Company of California
1900 East Golf Road
Schaumburg, Illinois 60195

Dear Bud,

The following is in response to the questions presented by Mark Gruzlovic in his memo dated November 10, 1983 and attached to his cover letter dated April 10, 1984.

1-a) A copy of the original sample analyses have been submitted to Mark per our phone conversation of April 20.

The samples were taken by a pipe at elevations of 6", 24" and 48". The plug was removed from the pipe 2" short of each of these depths and a 4" sample was taken from the ground and removed from the pipe and placed in a marked jar. For example the 24" sample represented material taken from 22" to 26". The tube was washed with clean water prior to taking each sample.

AEL Labs took all the samples, retained custody of the samples and AEL Labs performed the analysis.

2- Loma will collect the samples and will maintain custody of the sample until turned over to the lab. Should this be a point of concern with the State, then arrangements can be made for AEL to collect the samples at some additional cost.

3-a & b) Attached is a sketch indicating extent of the spill and location of the injection heads.

The pump has a capacity of 750 gallons/hr at a cut off pressure of 50 psi.

The railroad has a 2" stone ballast bed and provides adequate capacity for the flow involved. The characteristics observed of the soil during sampling indicated a very porous ground material. However, in an effort to ally all concerns in this area I will along with a hydrologist, will conduct flow studies to determine porosity of the ballast bed.

The grade from Pt. 1 to Pt. 5 is approximately 20" over a 220 ft. span or a drop of 1" per 10 ft. which is adequate for these flows.

A25

The spill is contained on two sides by the building foundation and on the low end by a clay dike. A clay membrane approximately five feet below grade should restrict vertical migration.

c) The heater will be installed immediately after the pump and the temperature will be maintained in the 70°to 75°F range via a temperature controller.

This temperature is sufficient for an adequate rate of biodegradation.

d) The proprietary nutrients and synergists are primarily nitrogen and phosphorus and will leave no harmful residues.

Recirculating flow will be observed by stopping the pump and then watching the rise of water in the sump and then watching the drop in level when the pump is restarted. A minimum level will be maintained in the sump sufficient to keep a continuous flow.

e) The bacteria are harmless saprophytic organisms (the type normally found in soil) which utilize non-living organic matter as a food source. Please find attached R - 5 literature.

The bacteria may have little effect on the chlorinated solvents (see 4-a).

f) The N.J.D.E.P. will be notified of any changes in bacteria but this is not anticipated.

g) Periodic progress reports will be submitted to Union Chemical by LOMA INDUSTRIES for dissemination as Union Chemical sees fit.

4-a) Upon completion of biodegradation of all biodegradable materials, a carbon absorption unit will be installed in line after the heater and continuous recirculation will proceed until all contaminants have been satisfactorily removed from the site.

The contaminated carbon containing the final residue will be packaged in drums and hauled to appropriate disposal site using all necessary manifests.

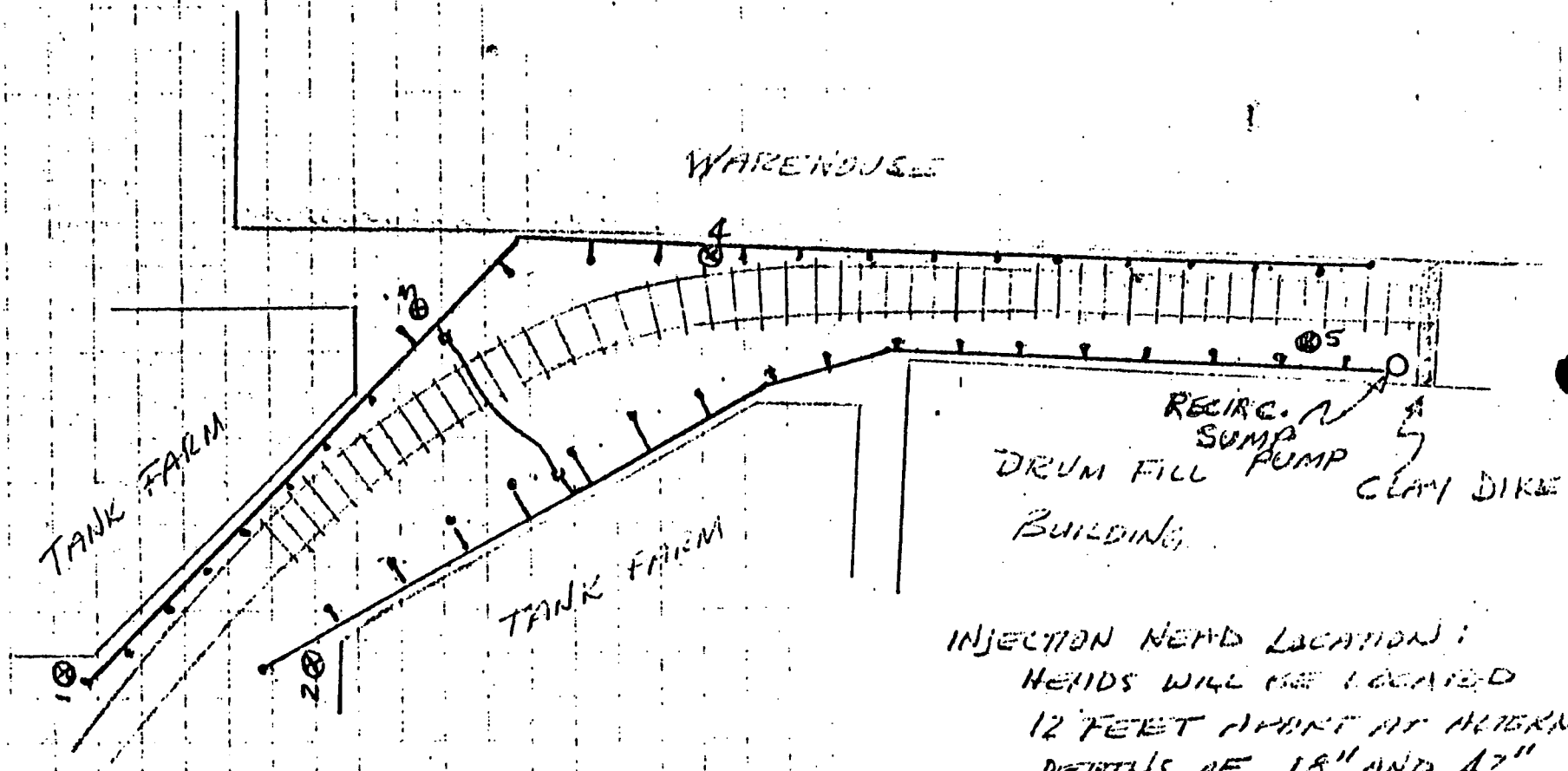
4-b) All hardware items used in this project will be plastic and metal and all levels of contaminants should be low enough not to require any special handling. Only the activated carbon will require classification and appropriate disposal permits.

I trust this will satisfactorily answer the states questions. I am preparing a revised proposal that will reflect current costs both fixed and variable.

Sincerely,

Ray Stenger

Ray Stenger



INJECTION HEAD LOCATION:
HEADS WILL BE LOCATED 12 FEET APART AT ALTERNATE DEPTHS OF 18" AND 42".

LEGEND:
⊗ SAMPLE LOCATIONS

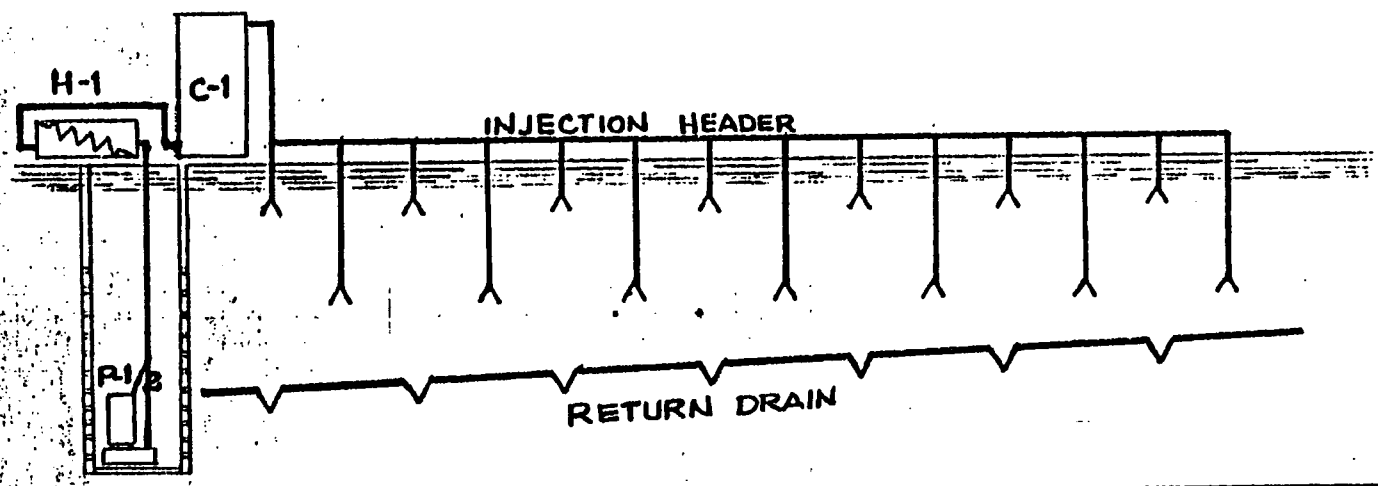
OPERATION: THE SUMP PUMP WOULD CONTINUOUSLY CIRCULATE BACTERIAL LADEN WATER INTO THE GROUND. THE R/R BALLAST WOULD SERVE AS A FRENCH DRAIN RETURNING EVERYTHING TO THE SUMP.

LOMA INDUSTRIES, INC. BOX 3528, CHERRY HILL, N.J.	
UNION CHEMICAL	
PROJECT: CARTERET SITE	
DESIGN	APPROVED R.G.A.
DATE	DATE 4/27/84

A28

A29

CONTINUOUSLY RECIRCULATING GROUND INJECTION SYSTEM



LEGEND: H-1 HEATER
C-1 ABSORPTION UNIT
P-1/2 PUMPS (1 OR MORE)

LOMA INDUSTRIES, INC.
P.O. BOX 3528, CHERRY HILL, N.J.

PROJECT	DWG NO.
DESIGN	APPROVED
DATE	DATE

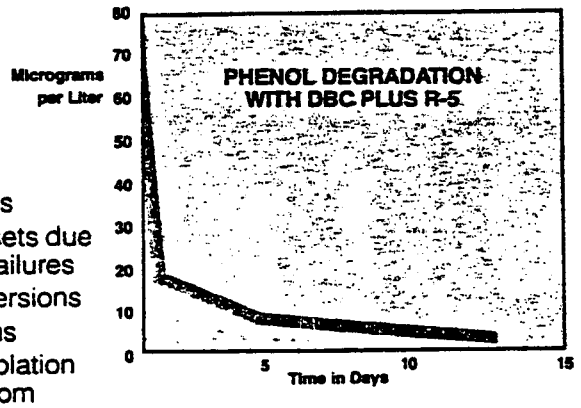
TYPE R-5 DBC PLUS™

DRIED BACTERIAL CULTURES

For effective treatment of heavy, tarry petroleum derivatives. Type R-5 is also useful in treating aromatic and napthenic chemical structures. It has found use in reducing the phenol content of waste streams, enabling users to comply with discharge requirements.

Proven Results Use of DBC Plus bacterial supplements in waste treatment operations have proven to:

- Improve BODs removals
- Increase settleability
- Lower sludge volumes
- Eliminate grease mats
- Abate malodors
- Control hydrogen sulfide emissions
- Provide quicker recovery from upsets due to shock loadings or mechanical failures
- Prevent malodors from lagoon inversions
- Clean-grease in collection systems
- Restore percolation in fields, percolation ponds, etc., which are plugged from organic matter
- Provide more predictable results



The Bioaugmentation Concept In most waste treatment systems, including lagoons, trickling filters, or activated sludge systems, naturally occurring bacteria can sufficiently handle the decomposition of waste products. However, when troublesome substrates or hydrogen sulfide formation create problems, bacterial supplementation can be effective.

The concept of bacterial supplementation, or bioaugmentation, has been used for generations. It is an important process in the brewing and dairy industries. For the past twenty years, its importance in waste treatment has been growing.

In practice, through the addition of specifically formulated bacteria to a waste system, the bacteria soon dominate the system. Because the bacteria have specific characteristics that allow them to handle troublesome substrates, they are able to control and even eliminate typical problems associated with these substrates, such as grease buildups, insufficient BODs removal, malodors, etc.

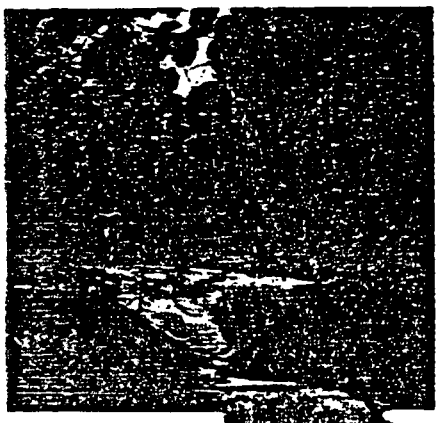
Through a carefully planned program of periodic maintenance dosages, the bacterial supplement will continue domination of a system and provide more dependable performance.

Formulation Type R-5 DBC Plus, is formulated from specifically cultured bacteria which are preserved through freeze drying and air drying techniques. To assure consistent quality, the various strains and species are grown individually in pure form and preserved. Then, they are compounded together with wetting agents, buffering agents, and other synergists which allow the organisms to readily adapt themselves into the treatment system. The organisms have been carefully matched so that they will complement one another and are compatible with existing systems in the areas of intended use.

The organisms chosen for Type R-5 are particularly effective in handling waste-streams containing heavy type petroleum products and derivatives. It usually is not as effective as the Type L formulation in handling lighter oils and aliphatic structures. Inasmuch as most wastestreams contain a variety of components, treatability studies should be conducted by Flow Laboratories, Inc. personnel.

Since the bacteria used are facultative anaerobes, they can function under either aerobic or anaerobic conditions. In anaerobic systems, they cannot generate hydrogen sulfide which makes them ideal to use in control of odors, for corrosion inhibition and improved safety.

Flow Laboratories, Inc.— *leaders in environmental micro-biology • working with Nature to improve the quality of water.*



Flow Laboratories, Inc.

Environmental Cultures Division

828 West Hillcrest
Inglewood, California 90301 (213) 641-7722

A30

Using Type R-5. In lagoon systems, a slurry of cultures are spread over as much of the surface area as practical after appropriate nitrogen and phosphorous additions have been made.

In flow through systems it is generally desirable to add the cultures as far up stream as possible which is conducive to biological activity. In most industrial systems this usually follows equalization and neutralization. Treatment ahead of oil separation can frequently be of benefit, as the cultures will often demulsify oil/water mixtures.

Applying Type R-5. The Type R-5 cultures are fully activated after soaking for four hours. In flowing systems with washouts the cultures should be presoaked for four to twelve hours in lukewarm (80–100°F) water. Use two gallons of either tap water or wastewater for each pound of Type R-5. If the waste stream is cool, the slurry should be cooled to the system's temperature during the presoak to avoid thermal shock. In lagoon or other systems with long detention times, presoaking is not necessary but the cultures should be made-up as a slurry. The slurry can then be added directly to the system.

The Experienced Leader The Environmental Cultures Division of Flow Laboratories has been supplying quality bacterial cultures since 1964. The division has advanced from one product, used to control light oils, vegetable oils, and carbohydrates, to a varied product line sold under the DBC Plus trademark which consists of several product formulations used in many areas. Flow Labs, with its State approved water laboratory, is structured to provide its customers with waste treatment expertise through personnel that are proven specialists in the field.

Type R-5 Properties

pH Levels	Most applications are between 5.5 and 8.5. Most effective level is 7
Temperature	Regular usage is between 55°F. to 100°F.
Form	Free flowing powder and granules
Color	Individual particles vary from white to tan
Bulk Density	6.7 lbs/gal or 0.8g/cc
Packaging	Cultures are packaged in convenient 25 pound boxes which are easily stored. Each box contains a resealable plastic liner to minimize moisture pick-up.
Safety	This formulation is based upon harmless saprophytic organisms (the type normally present in soil) which utilize non-living organic matter as a food source. Since some persons are hypersensitive to the related chemical compounds present, it is suggested that direct contact with skin be avoided, with the dry powder itself. Simply wash hands, should there be direct contact. Take normal precautions for the handling of any product which is slightly dusty.
Storage	The cultures should be stored in a cool, dry place. Moisture will activate the product. Pasteurization will occur above 120°F.
Treatment Schedule	The quantities required for waste treatment plants depend upon the type of treatment system, the size of the system, and the nature and characteristics of the wastewater. Due to the many variables that exist, individual treatment programs need to be tailored for each particular application. Flow Laboratories, Inc., technical personnel are available for consultation and development of appropriate treatment programs. A completed questionnaire (Form F-ECD 2003) should be returned to your Flow Laboratories, Inc. representative. The quantities required for static lagoons and dry land spills are shown in Bulletin FECD-2011 entitled "Oil Removal from Water and Wastewater with DBC Plus Dried Bacteria Cultures."

To order Type R-5 DBC Plus, specify Catalog No. 37-021-34

Flow Laboratories, Inc.— *leaders in environmental microbiology • working with Nature to improve the quality of water.*

Flow Laboratories, Inc. Environmental Cultures Division
828 West Hillcrest

Union Chemicals Div[illegible] Petrochemical Group
Union Oil Company o[illegible] California
General Office: 1900 East Golf Road
Schaumburg, Illinois 60195
Telephone: (312) 490-2500

union 76

E3-02-17-036
(12-01)

May 1, 1984

Mr. M. S. Gruzlovic
Department of Environmental
Protection
Division of Waste Management
120 Route 156
Yardville, NJ 08620

Dear Mark:

In response to your letter of April 10, 1984, I am enclosing the answers to the questions you raised about our proposal to biotreat contaminated soil at our Carteret, New Jersey Terminal. This response was prepared by Mr. Ray Stenger of Loma Industries who will be doing the work. I have reviewed Mr. Stenger's response and I feel he has answered your questions without going into great detail.

The flow studies Mr. Stenger mentions are being performed this week. I will forward a copy of the results to you when they are available. Please let me know if you have any further questions.

Sincerely,

H. J. Kopp
Supervisor, Regulatory Affairs

HJK:bls
Enclosure

cc: R. R. Culp
R. Stenger

A32

HW 00583

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
120 Rt. 156, Yardville, N.J. 08620

DR. MARWAN M. SADAT, P.E.
DIRECTOR

LINDA F. FLICH
DEPUTY DIRECTOR

DEC 11 1984

(IN THE MATTER OF)
(UNION CHEMICAL DIVISION)

ADMINISTRATIVE
ORDER

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (Department) and duly delegated to the Assistant Director for Enforcement and Field Operations, Division of Waste Management, under the Solid Waste Management Act, N.J.S.A. 13:1E et seq.

FINDINGS

1) Union Chemical Division (hereinafter referred to as "UCD") is a generator of hazardous waste as defined by N.J.A.C. 7:26-1.4, located at 350 Roosevelt Avenue, in Carteret, County of Middlesex, State of New Jersey.

2) On July 6, 1984, during the course of a routine manifest audit, a Department representative observed the following violation(s):

   N.J.A.C. 7:26-7.4(e)1: UCD failed to properly complete manifest number NJ0214935, specifically DOT name, DOT hazard class, and EPA hazard code.

3) The New Jersey Administrative Code, specifically N.J.A.C. 7:26-7.4(e)1 state that:

   N.J.A.C. 7:26-7.4(e)1: It shall be considered a violation of these regulations for a hazardous waste generator to: Fail to properly complete any part of the manifest form as required by the Department.

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED that Union Chemical Division, its principals, agents, employees, successors, assigns, tenants, and any receiver or trustee in bankruptcy, (should such an entity be appointed to take control of the facility which is the subject of this Order) shall:

4) Within fifteen (15) calendar days of receipt of this Order, submit to this office the corrected information for manifest #NJ0214935, specifically DOT name, DOT hazard class, and EPA hazard code.

5) Within fifteen (15) calendar days of receipt of this Order, submit to this office an affidavit certifying compliance with this Order, specifically, your official policy of not relinquishing shipments of hazardous waste to a transporter without an accompanying hazardous waste manifest that is properly completed and signed in accordance with N.J.A.C. 7:26-7.4.

Should you have any questions regarding this matter, contact Joe DeSantis at (609) 292-0967.

BE ON NOTICE that the maximum civil penalty for violations of the Solid Waste Management Act on an ORDER issued pursuant thereto is $25,000 per day.

Joseph A. Rogalski
Assistant Director

F01:F022:lmc

☐ TRENTON DISPATCH ☒ DIV. OF WASTE MANAGEMENT ☐ DIV. OF ENVIR. QUALITY ☐ DIV. OF WATER RESOURCES

☐ HQ FIELD OFFICE: ☐ NORTHERN ☐ METRO ☒ CENTRAL ☐ SOUTHERN

DATE 07-02-85 TIME (Military) 1140 REC'D BY E2206 PHONE NO. 609-426-0700

INCIDENT REPORTED BY: CASE NO. 85.07.02.036

NAME Mr. Culp PHONE 201-541-4224

STREET 350 Roosevelt Ave.

CITY Carteret STATE NJ

AFFILIATION Union Chemical - Div. Union Oil Co.

NATURE OF INCIDENT:

EMERGENCY: ☐ FIRE ☐ EXPLOSION ☐ DRUMS ☐ SPILL ☐ DERAILMENT ☐ MVA

COMPLAINT: ☐ SMOKE ☐ ODORS ☐ DUST ☐ SEWAGE ☐ NUISANCE ☐ ILLEGAL DUMPING

OTHER: ☒

INCIDENT LOCATION:

NAME (Site) Same as I.R. ☐ UNK PHONE

STREET

CITY COUNTY SP 12/01 STATE ZIP CODE

STATUS AT SCENE OF INCIDENT: Booms in Noes Creek to Contain Seepage

DATE OF INCIDENT: 07-01-85 TIME:

ANYONE HOSPITALIZED ☐ YES ☒ NO

AREA EVACUATED ☐ YES ☒ NO

CONTAMINATION OF ☐ AIR ☐ LAND ☒ WATER

PUBLIC EXPOSURE ☐ YES ☒ NO

RECEIVING WATER Noes Creek

WIND DIRECTION

POLICE AT SCENE ☐ YES ☒ NO

FIREMAN AT SCENE ☐ YES ☒ NO

ASSISTANCE REQUIRED ☒ YES ☐ NO

POTABLE WATER SOURCE ☐ YES ☐ NO

LOCATION TYPE ☐ CITY ☒ INDUSTRIAL ☐ RURAL

SOURCE OF INCIDENT/PROBLEM: ☐ KNOWN ☒ UNKNOWN

COMPANY NAME PHONE

CONTACT TITLE

STREET

CITY COUNTY STATE ZIP CODE

IDENTITY OF SPILLED AND/OR DISCHARGED SUBSTANCE: ☐ KNOWN ☒ UNKNOWN

NAME OF SUBSTANCE Possibly an aromatic

AMT. A/P/E SUBSTANCE CONTAINED ☒ YES ☐ NO ☐ UNKNOWN

OFFICIALS NOTIFIED: (A-310)

HEALTH DEPT.: PERSON Middlesex Co. Mr. Spiatore - E. Brunswick PHONE 390-6788 DATE 7-2-85

LOCAL MUNIC.: PERSON PHONE DATE

INCIDENT REFERRED TO: ☐ BFO ☐ BERC ☐ DCJ ☐ DWR ☐ F&G ☐ BAPC ☑ HD

1. PERSON G. Allen & F. Gagliano PHONE DATE

2. PERSON PHONE DATE

ATT. B

COMMENTS:

Mr. Culp called Trenton Dispatch on 7-1-85. We have not yet received [illegible] T.T. crew has placed boom in creek to contain seepage

ADM-012

12-01-12

MEMO

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO Spill File

FROM Frank Gagliano through Bruce Comfort DATE July 9, 1985

SUBJECT Union Chemical, Roosevelt Avenue, Carteret
DWM #85-07-02-03C - SP 12-01

An initial investigation and inspection was conducted on July 3, 1985, at the subject location in response to a report from Union Chemical concerning a seepage problem into Noes Creek.

I arrived at the facility at 1345 hours. IT Corporation was on site performing the cleanup in the creek's flood plain. The tide was low and still going out. Booms and sorbent sweeps were placed in the creek in two locations to insure that no floating contaminants escaped. A vac truck was also on site. Other personnel on site were:

Carol Presant	-	Middlesex County Health
Mr. R.R. Culp	-	Union Chemical, Plant Manager
John Stefonik	-	Supervisor, IT Corporation
Sgt. McCarty	-	State Police, Office of Emergency Mgt.
Dennis Nagy	-	Carteret Office of Emergency Mgt.
LTJG Polizzotti	-	U.S. Coast Guard

I discussed the incident with Mr. Culp. He reported that, what originally appeared to be a soil seepage problem, later turned out to be coming from an old 6 inch clay pipe. The pipe appears to originate beneath the Union Chemical property. Mr. Culp said that his company has no records of this pipe, and is believed to have been installed by the former company which occupied the facility prior to Union's purchase in the early 1960s.

A black liquid was flowing moderately out of this pipe. A vac truck was utilized to recover this liquid. Union Chemical had a lab run analysis on the substance. A verbal identification was provided. The liquid contained xylene, toluene, aromatic naptha and a trace of benzene. The results on the chlorinated hydrocarbons were negative.

The spill was first reported on July 1. At the time of my investigation, contractors were already testing all the buried lines in the plant. Arrangements were being made to trace the clay pipe to its origin.

IT was to maintain the cleanup and monitor the site through the July 4 weekend. The installation of monitoring wells was discussed and will likely be installed.

The company will contact this office on July 8, to provide the details of the investigation.

FOC5:dg

B2

15-0-8 85-7-2-32 Krusab

U.S. ENVIRONMENTAL PROTECTION AGENCY

POLLUTION REPORT

DATE: July 10, 1985

Region II
Response and Prevention Branch
Edison, New Jersey 08837

(201) 321-6670 - Commercial
(201) 548-8730 - 24 Hour Emergency
340-6670 - FTS

TO: C. Daggett, EPA
W. Librizzi, EPA
F. Rubel, EPA
J. Marshall, EPA
R. Ogg, EPA
ERD, Washington D.C. (E-Mail)
NRC
USCG 3rd District (mer)
USCG COTPNY
J. Berkowitz, NJDEP
J. Rogalski, NJDEP
TAT

POLREP NO.: One (1)
INCIDENT NAME: Union Oil Company of California
SITE/SPILL NO.: 667-85
POLLUTANT: Xylene
CLASSIFICATION: Minor
SOURCE: 10,000 Gallon Underground Xylene Tank
LOCATION: 350 Roosevelt Ave., Carteret, N.J.
AMOUNT: Greater than 500 gallons
WATER BODY: Noes Creek to the Arthur Kill

1. SITUATION:

A. On July 3, 1985, the U.S. Coast Guard received notification from the Union Oil Company of California, Chemical Division, (Union Chemical), of a leak of liquid containing Xylene and traces of several other organic solvents, at their Roosevelt Avenue, Carteret facility.

B. At this time the U.S. Coast Guard notified EPA of the incident and requested the agency's presence to assist in an initial site evaluation/meeting.

C. The leak was first noted by plant personnel on about June 25th and was finally discovered when plant personnel noticed a large oil sheen on Noes Creek, which runs along the southern boundary of the facility.

D. Initial excavation of the creek area, to determine the source of the sheen uncovered a 6" clay tile pipe, adjacent to the creek bank. The pipe that was discovered was unknown to Union Chemical officials. A review of the available plant blue prints and diagrams did not indicate a pipe of that particular material on the plant grounds.

B3

D. Upon discovery of the source of the pipe, Union Chemical officials collected a sample of the oily material for analysis.
E. Preliminary results of the analysis showed the substance contained xylene, toluene and benzene.

2. ACTION TAKEN:

A. U.S. Coast Guard (USCG) representatives were notified on July 3, 1985. The USCG then notified U.S. EPA and requested that, although Carteret is Coast Guard jurisdiction, USCG preferred that U.S. EPA assume the lead agency role due to the long term nature of cleanup activities that would be required.

B. Union Chemical Company contracted IT Corporation, Carteret, N.J. to perform a clean up of the site. IT placed booms and sorbent sweeps on Noes Creek to absorb the oil sheen from the creek.

C. IT Corp. used a vacuum truck to collect liquid material as it discharged from the pipe. When the flow leaving the pipe had been reduced, IT placed a bladder in the pipe to plug it temporarily. In addition a pressure test was performed on the 10,000 gallons xylene tank (Tank #7) located in the facilities tank farm. The tank failed the leak test.

D. During the four day weekend, caused by the July 4 holiday, IT Corp. maintained the booms and sweeps in the creek and ensured the bladder was secured in the pipe so that no more material could be discharged.

E. On July 3, 1985, Union Chemical conducted pressure tests on all twenty-four above ground storage tanks at the plant. Preliminay results of this testing identified a leak in the Xylene tank only (Tank #7).

3. FUTURE PLANS AND RECOMMENDATIONS:

A. EPA will monitor the site and coordinate efforts with the NJDEP.

B. Union Chemcial officials plan to remove the contaminated material, trace the newly discovered pipe back to its source, and maintain the booms and sweeps on Noes Creek until the clean up is complete.

C. Union Chemical officials flew in their Company Environmental Manager to assist in the clean up operation.

D. EPA has requested written results of the sample collected initially.

E. A meeting between EPA, NJDEP and Union Chemical officials is scheduled for the immediate future to discuss a clean up strategy.

CASE PENDS X CASE CLOSED ____ SUBMITTED BY Joseph Rotola

(TAT)

Joseph Rotola, OSC
Response and Prevention Branch

DATE RELEASED _____

B5

12-01-12

Middlesex
Frank
FYI
&
File

U.S. ENVIRONMENTAL PROTECTION AGENCY

POLLUTION REPORT

DATE: August 8, 1985

Region II
Response and Prevention Branch
Edison, New Jersey 08837

(201) 321-6670 - Commercial
(201) 548-8730 - 24 Hour Emergency
340-6670 - FTS

TO: C. Daggett, EPA
W. Librizzi, EPA
F. Rubel, EPA
J. Marshall, EPA
R. Ogg, EPA
ERD, Washington D.C. (E-Mail)
NRC
USCG 3rd District (mer)
USCG COTPNY
G. Berkowitz, NJDEP
J. Rogalski, NJDEP
TAT

POLREP NO.: Three (3)
INCIDENT NAME: Union Oil Company of California
SITE/SPILL NO.: 667-85
POLLUTANT: Xylene
CLASSIFICATION: Minor
SOURCE: 10,000 Gallon Aboveground Xylene Tank
LOCATION: 350 Roosevelt Ave., Carteret, N.J.
AMOUNT: Greater than 500 gallons
WATER BODY: Noes Creek to the Arthur Kill

1. SITUATION:

A. Same as previous POLREP.

2. ACTION TAKEN:

A. TAT has been performing biweekly site inspections to keep informed of the site status.

B. A site inspection was conducted by TAT on July 25, 1985. It was observed that the two dumpsters on site were full and leaking from the bottom. A collection pan was placed under one to collect the leachate, but this was overflowing. Sorbent pads were placed under the second dumpster.

B6

C. A site inspection was conducted by TAT on July 30, 1985. The two full dumpsters were still leaking and a third empty dumpster had been placed on site. The four booms and two sweeps placed on Noes Creek were soiled and appeared ineffective. These facts were pointed out to the plant manager, who said he would have these problems taken care of.

D. A site inspection was conducted by TAT on August 1, 1985. The two full dumpsters were still leaking, and there was an accumulattion of large plastic bags containing used sorbent material next to the third empty dumpster. The sorbent booms and sweeps had been changed and appeared effective.

E. A site inspection was conducted by TAT on August 6, 1985. Situation remains the same. IT Corporation (Carteret, N.J.) has submitted its cleanup proposal to Union Chemical, who is in the process of reviewing it.

F. A site inspection was conducted by TAT on August 9, 1985. Situation remains the same. Union Chemical has reviewed IT Corporation's work proposal. This proposal has been accepted with some minor changes. Cleanup activities are scheduled to commence the week of August 19, 1985.

3. FUTURE PLANS AND RECOMMENDATIONS:

A. EPA will monitor the site and coordinate efforts with the NJDEP.

B. Union Chemical officials continue to perform a clean up of the site and have fully cooperated with U.S. EPA.

CASE PENDS X CASE CLOSED____ SUBMITTED BY Joseph Rotola

(TAT)

Joseph Rotola, OSC
Response and Prevention Branch

DATE RELEASED 8/14/85

B7

5-07-02-03C
SP12-01-1

~~Hand~~ Frank
FYI
+
main File

U.S. ENVIRONMENTAL PROTECTION AGENCY

POLLUTION REPORT

DATE: September 11, 1985

Region II
Response and Prevention Branch
Edison, New Jersey 08837

(201) 321-6670 - Commercial
(201) 548-8730 - 24 Hour Emergency
340-6670 - FTS

TO: C. Daggett, EPA
W. Librizzi, EPA
F. Rubel, EPA
W. Mugdan, EPA
J. Marshall, EPA
R. Ogg, EPA
ERD, Washington D.C.
(E-Mail)
NRC
USCG 3rd District (mer)
USCG COTPNY
J. Berkowitz, NJDEP
J. Rogalski, NJDEP
TAT

POLREP NO.:	Five (5)
INCIDENT NAME:	Union Oil Company of California
SITE/SPILL NO.:	667-85
POLLUTANT:	Xylene
CLASSIFICATION:	Minor
SOURCE:	10,000 Gallon Aboveground Xylene Tank
LOCATION:	350 Roosevelt Ave., Carteret, N.J.
AMOUNT:	Greater than 500 gallons
WATER BODY:	Noes Creek to the Arthur Kill

1. SITUATION:

A. Same as previous POLREP.

2. ACTION TAKEN:

A. From August 22, 1985 to August 26, 1985 no site activity took place by IT Corporation. During this time period, IT Corporation awaited Union Chemical's approval of the proposed work plan submitted by IT on July 30, 1985.

B. On August 27, 1985 IT received approval of the proposed work plan and began the hydrogeologic investigation phase by initiating the drilling of 12 monitoring wells. The actual well drilling procedure was performed by Parratt Wolff, Inc. (E. Syracuse, New York). By the end of the day, Wells #4, #5, and #6 were completed.

B8

C. On August 28, 1985, well drilling performed by Parratt Wolff continued. Wells #2 and #3 were completed on this day.

D. On August 29, 1985, IT Corporation continued with the well drilling phase of the work plan. Wells #7,8,9 were finished. A representative from the U.S. EPA Technical Assistance Team (TAT) took photographs for documentation purposes.

E. On August 30, 1985, site well drilling was finished upon the completion of wells #1,#10,#11, and #12.

F. From August 31, 1985 to September 2, 1985, there was no site activity due to the Labor Day weekend.

G. On September 3, 1985, IT Corporation began to develop the 12 wells by pumping out a minimum of five (5) well cassings. The water was collected in 55-gallon drums and is to remain on site until IT workers are able to offload its contents with a VAC truck. Ultimately, the accumulated water would be stored in a tank on the Union Chemical (Carteret, New Jersey) premises.

H. On September 3, 1985, Loads #1 and #2, dumpsters containing approximately 17 cubic meters and 10 cubic meters of solid hazardous waste material were shipped by Russell Reid Co. (Edison, New Jersey) under Pennsylvania State Manifests PAB2512602 and PAB2512646 respectively. The destination of both shipments is Waste Conversion (Hatfield, PA) for ultimate disposal. Both shipments were placarded 9189.

I. On September 4, 1985, IT Corporation continued to develop the remaining wells on site.

J. On September 5, 1985, IT Corporation performed slug tests on wells #4,6,7, and 12 in order to obtain soil permeability data relating to the site geology.

K. On September 6, 1985, IT Corporation took samples of the 12 monitoring wells which are to be tested for approximately 50 priority pollutants. The analysis is to be performed by IT Corporation (Pittsburgh, PA). Top and bottom samples were taken for wells #5,6,8,9,10 and 11 whereas only top samples were taken for wells #1,2,3,4,7 and 12. In addition, wells #1,5,8 and 12 will be analyzed for chloride sulfate alkalinity. All twelve (12) wells were secured with locks after the samples were taken.

L. On September 6, 1985, the site was surveyed by Goodman, Allgair and Scott (Woodbridge, New Jersey) to obtain well height data. In addition, Loads #3 and #4, dumpsters containing 17 cubic meters and 10 cubic meters of solid hazardous waste material were shipped by Russell Reid Co. (Edison, N.J.) under Pennsylvania State Manifests PAB2512845 and PAB2512856 respectively. The destination of both shipments is Waste Conversion (Hatfield, PA) for ultimate disposal. Both shipments were placarded 9189.

M. On September 10, 1985, IT Corporation removed the layer of product (approximately 1/4 inch thick) which covered the water surface of excavation pit #2 and likewise drained pit #3. Then, IT workers backfilled the pits with the original excavated soil material. In addition, IT collected the water which accumulated during well development into the VAC truck and transferred it to an on-site tank.

3. FUTURE PLANS AND RECOMMENDATIONS:

A. EPA will monitor the site and coordinate efforts with the NJDEP.

B. EPA will perform biweekly inspections while awaiting results from the sampling analyses.

C. EPA will meet with Union Chemical officials and discuss our desire to establish a task by task work schedule for future cleanup activities.

CASE PENDS X CASE CLOSED ____ SUBMITTED BY G.H. Zacher, for J. Rotola

(TAT)

Joseph Rotola, OSC
Response and Prevention Branch

DATE RELEASED Sept. 16, 1985

B10

RCM

12-01-12

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

DR. MARWAN M. SADAT, P.E.
DIRECTOR

LINO F. PEREIRA, P.E.
DEPUTY DIRECTOR

23 SEP 1985

Mr. Richard R. Culp
Plant Manager
Union Chemicals Division: Petrochemicals Group
Union Oil Company of California
350 Roosevelt Avenue
Carteret, New Jersey 07008

RE: Response to Letter of August 1, 1985

Dear Mr. Culp:

In response to your letter of August 1, 1985, I wish to inform you that according to N.J.A.C. 7:26-9.1(c)7, you will not need to act as an existing facility to store accidental spilled hazardous waste on-site for a short period of time. Nevertheless, you need to dispose of the mentioned spill as soon as possible. Please keep us posted of your actions taken and supply us with copies of the manifests concerning the disposing of the stored spill.

Within thirty (30) days of receipt of this letter, submit a progress report to the Bureau of Hazardous Waste Engineering.

If you have additional questions regarding this matter, please do not hesitate to contact Al Navidi, of my staff, at (609) 984-4791.

Very truly yours,

Frank Coolick

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

EP12:lk

B11

☐ TRENTON DISPATCH ☒ DIV. OF WASTE MANAGEMENT ☐ DIV. OF ENVIR. QUALITY ☐ DIV. OF WATER RESOURCES

☐ HQ FIELD OFFICE: ☐ NORTH ☐ METRO ☒ CENTRAL ☐ EASTERN

DATE 01-23-86 TIME (Military) 0900 REC'D BY - PHONE NO.

CASE NO. 86.01.23.040

INCIDENT REPORTED BY:

NAME Richard Culp PHONE (201) 541-4224

STREET

CITY STATE

AFFILIATION Plant Manager UNOCAL Chem div. - Union Cl

NATURE OF INCIDENT:

EMERGENCY: ☐ FIRE ☐ EXPLOSION ☐ DRUMS ☐ SPILL ☐ DERAILMENT ☐ MVA

COMPLAINT: ☐ SMOKE ☐ ODORS ☐ DUST ☐ SEWAGE ☐ NUISANCE ☐ ILLEGAL DUMPING

OTHER: ☒

INCIDENT LOCATION:

NAME (Site) Union Chemicals ☐ UNK PHONE

STREET 350 Roosevelt Ave.

CITY Carteret COUNTY Middlesex STATE N.J. ZIP CODE

STATUS AT SCENE OF INCIDENT: Cleaning out tank - discovered leak

DATE OF INCIDENT: TIME:

ANYONE HOSPITALIZED ☐ YES ☐ NO

AREA EVACUATED ☐ YES ☐ NO

CONTAMINATION OF ☐ AIR ☒ LAND ☐ WATER

PUBLIC EXPOSURE ☐ YES ☐ NO

RECEIVING WATER

WIND DIRECTION

POLICE AT SCENE ☐ YES ☐ NO

FIREMAN AT SCENE ☐ YES ☐ NO

ASSISTANCE REQUIRED ☐ YES ☐ NO

POTABLE WATER SOURCE ☐ YES ☐ NO

LOCATION TYPE ☐ CITY ☐ INDUSTRIAL ☐ RURAL

SOURCE OF INCIDENT/PROBLEM: ☐ KNOWN ☐ UNKNOWN

COMPANY NAME PHONE

CONTACT TITLE

STREET

CITY COUNTY STATE ZIP CODE

IDENTITY OF SPILLED AND/OR DISCHARGED SUBSTANCE: ☐ KNOWN ☐ UNKNOWN

NAME OF SUBSTANCE Do Not think it involves haz. substances

AMT. A/P/E SUBSTANCE CONTAINED ☐ YES ☐ NO ☐ UNKNOWN

OFFICIALS NOTIFIED: (A-310)

HEALTH DEPT.: PERSON PHONE DATE

LOCAL MUNIC.: PERSON PHONE DATE

INCIDENT REFERRED TO: ☐ BFO ☐ BERC ☐ DCJ ☐ DWR ☐ F&G ☐ BAPC ☐ HD

1. PERSON Joe Rotulo - EPA PHONE DATE 1/23/86

2. PERSON NFA PHONE DATE 1/24/86

COMMENTS:

Groundwater runoff tank has developed a leak - plans to replace in 3-6 weeks - (Replacing API

B12

Region Office 67 Walnut Avenue
Clark, New Jersey 07
Telephone (201) 57

File
12/01-12

union 76

Union Chem
Carteret

May 7, 1986

Dept. of Environmental Protection
Twin River Office Plaza
State Hwy. 23
Hightstown, NJ 08520

Att: Mr. Alfred W. Valencia
Compliance Monitoring Unit
Central Bureau of Regional
Enforcement

Re: Compliance Evaluation
Inspection

Dear Mr. Valencia,

Reference is made to your letter of December 6, 1985 and Mr. Kopps' response dated January 6, 1986 regarding the subject. (copies attached).

On January 23,1986 we commenced to pump out the 2000 gallon underground tank. After the IT operator pumped approximately 5000 gallons out of the tank, we deduced that we had a hole in the tank and were drawing from the water table. At that point, we shut off the outlet valve from the separator and immediately started working on replacing the separator. After getting necessary monetary approvals and engineering input for an upgraded replacement, the separator components were ordered from AFL Industries. (purchase confirmation attached). I have been in contact with Mr. R. Berg and Mr. E. Post of the DEP to coordinate the installation of the new separator and will endeavor to complete this project as quickly as possible.

Sincerely,

R. R. Culp
Plant Manager

ds

attachment

B13

Form DWM-051 B
1/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT

INVESTIGATION

UNION 76
Roosevelt Ave
Carteret

CASE # ~~85-07-02-08~~C

DATE 10-3-86

RECOMMENDATIONS AND CONCLUSIONS:

This case is being supervised by EPA. Regular reports to this office have ceased.

It is recommended that this case be closed.

Supervisor Signature

Investigator Signature

COPIES: White - DWM File Yellow - Local Health Dept. Pink - Investigator

B14

Div. File

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10278

Union Chemicals
Carteret

AUG 06 1986

Mr. Alfred W. Valencia
Central Bureau Regional Enforcement
Twin River Office Plaza
Route 33
Heightstown, New Jersey 08520

Dear Mr. Valencia:

Enclosed please find a copy of the Initial Site Assessment Report (November 1985) for the Union Chemicals site in Carteret, New Jersey. The site was referred to EPA following a release of organic phase contaminants from the facility to a nearby creek. Since then, the company has initiated field work to gather additional hydrogeological information before proceeding with a remedial clean up alternative. Enclosed is also a copy of the Additional Site Assessment Work Plan (June 1986) describing the scope of this additional field work.

EPA is in the process of reviewing the Work Plan for the additional field work. Once the review is completed, we will schedule a meeting with Union Chemicals company representatives to discuss all available information before choosing a remedial action alternative.

I will keep your office abreast of EPA's actions in this matter. If your staff has any questions, or need any additional information, please do not hesitate to contact me at (212) 264-0854.

Sincerely yours,

Sui Leong

Sui Leong
Project Manager

Enclosures

B15

FINAL REPORT
INITIAL SITE ASSESSMENT
UNION CHEMICALS SITE
CARTERET, NEW JERSEY

Prepared for:

UNION CHEMICALS DIVISION
PETRO CHEMICAL GROUP
UNION OIL COMPANY OF CALIFORNIA
SCHAUMBURG, ILLINOIS

NOVEMBER 25, 1985
PROJECT NO. 671030

Prepared by:

IT CORPORATION
PITTSBURGH, PENNSYLVANIA

ATTACHMENT
C

DRAFT REPORT

INITIAL SITE ASSESSMENT
UNION CHEMICALS SITE
CARTERET, NEW JERSEY

1.0 INTRODUCTION

IT Corporation (IT) was retained by Union Chemicals Division of Union Oil Company of California (Union Chemicals) to conduct a site assessment at their facility in Carteret, New Jersey (Figure 1). This site assessment followed Union Chemicals' request to IT in June 1985 for emergency response action to control the seepage of organic phase contaminants (product) into Noes Creek. The Union Chemicals site requires hydrogeologic and chemical data to both assess the existing in situ conditions at the site and to permit consideration of some remedial action alternatives designed to prevent further product seepage into Noes Creek. The objectives of this investigation are to characterize the following:

- Unconsolidated materials underlying the site
- Site hydrogeology, including the ground water flow direction and rate
- Extent and depth of existing subsurface contamination.

A preliminary site investigation was conducted during the emergency response action. This work entailed the excavation of five test pits and the collection of soil and water samples for chemical analysis. The information derived from this initial task was used to establish guidelines for the sampling and analysis program conducted as part of the site assessment.

This 4.4-acre (estimated) site was purchased from the Benjamin Moore Company in 1962 and current operations were started in 1963. The facility has been primarily used for bulk storage and repackaging since that time; however, from 1969 to 1984, anhydrous ammonia was processed to ammonia.

Approximately 125 different products are handled at the facility, mostly solvents. The general categories of chemicals include:

C2

- o Aromatic hydrocarbons
- o Aliphatic hydrocarbons
- o Petrochemicals
  - Alcohol
  - Chlorinated solvents
  - Esters
  - Glycol
  - Glycol ether
  - Glycol ether esters
  - Ketones
  - Surfactants
  - Plasticizers
  - Silicones.

The site includes a packaging facility in the northern portion of the property, a driveway area and parking lot with a tank truck loading terminal, and an oil/water separator unit about 40 feet east of the terminal. The property is bounded by Noes Creek to the south, New Jersey Branch railroad tracks to the west, Roosevelt Avenue to the east, and the now or former Wheeler Condenser and Engineering Company to the north. An additional railroad track spur extends from the southwest to the northeast through the facility.

2.0 FIELD INVESTIGATION

2.1 EMERGENCY RESPONSE FIELD ACTIVITIES

Union Chemicals requested emergency response assistance on June 26, 1985 to contain product entering Noes Creek from a seep (Seep 1) south of the plant area (Figure 2). IT responded to their request to contain and collect seepage by placing a number of absorbent booms, both up- and downstream, across the creek, placing absorbent packs into sumps hand dug at the seep, and by excavating a suspect drain pipe found at the point of the seep. The excavation continued from the original point of the seep to just north of the concrete curb where a large pit was excavated. Product was observed seeping into this pit at several locations. A vacuum truck was used to collect the product and associated contaminated water which was then pumped into Union Chemicals storage tanks on site. Soil and water samples were collected from the area of the seep and analyzed for xylene, toluene, and benzene (Tables 1 and 2). A second seep was observed during these field activities approximately 60 feet east of the first seep (Figure 2). A sump was dug at the point of this seep

C3

and packed with absorbent material. The second seep prompted additional investigation to better define the existing problem.

Four test pits were excavated along the southern perimeter curb of the parking lot and driveway (Figure 2). During excavation of Test Pits 1, 2, and 3, product was observed seeping from the subsurface soil walls. One composite soil sample was collected from each of the four pits. Samples from Test Pits 2 and 4 were analyzed for volatile organics compounds (Table 2). A water sample was also collected from the bottom of the vacuum truck (Table 1). Soil classifications for these pits are presented in Appendix A.

The results of analyses from soil and water samples collected during the emergency response and additional investigation activities were used to design the work plan for the site assessment described in the following sections of this report.

2.2 DRILLING AND SOIL SAMPLING

Thirteen six-inch-outside-diameter soil borings were drilled to selected depths through surface fill and into natural subsurface soils (Figure 2). Soil samples were collected continuously from the borings using a two-inch-outside-diameter split-barrel sampler which was decontaminated between samples using detergent followed by clean rinse water. The sampler was driven ahead of the augers by a 140-pound hammer dropped 30 inches to provide Standard Penetration Test data (American Society for Testing and Materials [ASTM] Procedure D1586). Soil sample composites were collected from each two-foot interval starting at the ground surface. The soil samples were placed in clean, 500-milliliter, sealed amber glass jars. Two 40-milliliter volatile organic analysis (VOA) vials were also collected for each sample. Head space measurements for volatile organics were made from the jars with an organic vapor analyzer (OVA) to assist in characterizing soil contaminant levels (Table 3). All soil samples were shipped with appropriate chain-of-custody forms to the IT laboratory in Export, Pennsylvania for analysis and archiving. A log describing both the visual classification of the soils and drilling conditions was prepared by the IT field geologist (Appendix A). Drill cuttings and other wastes were drummed upon completion of each hole and properly disposed of later with other wastes derived from the initial emergency response activities at the Waste Conversion landfill.

C4

2.3 MONITORING WELL INSTALLATION AND DEVELOPMENT

Monitoring wells were installed in 12 of the borings to allow ground water samples to be collected for chemical analysis and to provide water level information necessary to assess the direction and rate of ground water flow. The wells were constructed of two-inch-inside-diameter Schedule 40 stainless steel pipe with flush threads and 0.010-inch slotted stainless steel screens. A filter pack of coarse silica sand was placed in the annulus around each well screen and a bentonite seal was installed above the filter pack to impede the infiltration of surface water into the well. The remaining annulus between the borings and riser pipes was then grouted to ground surface with a mixture of cement and bentonite. A locking cap was installed on the riser pipe and eight-inch steel lamp hole covers were cemented in place around the riser pipe and set level with the ground surface. Well completion diagrams are presented in Appendix B.

The wells were developed by pumping with a diaphragm pump and flushing to remove fines from the area around the sensing zone to enhance communication between the water-bearing zone and the well. All water collected from the wells was placed in drums and later transferred to the Union Chemicals on-site storage tanks. All downhole well completion equipment was decontaminated between holes with hexane washes and distilled water rinses. The decontaminating fluids were collected and placed in the Union Chemicals on-site storage tanks.

2.4 MONITORING WELL ELEVATION AND LOCATION SURVEY

A survey was conducted of the installed monitoring wells by Goodman, Allgair, and Scott, a local, registered surveyor, to provide both vertical and horizontal control for water levels, samples, and geologic data. The Union Chemicals facility itself is surveyed horizontally to the New Jersey State Plane Coordinate System and vertically to the U.S. Geologic Survey elevations. Well locations and pertinent elevations are shown in Figure 2 and Table 4, respectively.

2.5 WATER LEVEL MEASUREMENT

Measurements of ground water levels in the monitoring wells were taken on three different dates and at five different times (Table 5). The water levels

C5

were obtained at varying times in an attempt to define ground water gradients at the site under varying tidal conditions. It was concluded, however, that proper evaluation of the tidal influence on the site ground water gradient would require installation and operation of several continuous water level recorders for a period of at least two weeks.

2.6 GROUND WATER SAMPLING AND ANALYSIS

Water samples were collected from each of the monitoring wells using a 1.05-inch-outside-diameter point source bailer. The samples were collected in order from the cleanest wells to those with the greatest accumulation of product. The sampling method was designed to determine whether or not volatile organic contaminants were stratified in the aquifer. Samples were collected separately from the top and bottom of the water column in Wells 5, 6, 8, 9, 10, and 11. Only the top of the water column was sampled in the remaining wells. The monitoring wells were not purged immediately prior to collecting samples to avoid disturbing any stratification of dissolved contaminants in the aquifer or the formation of free-phase product layers. Free-phase product was observed in Monitoring Wells 5, 6, and 8 at the top of the ground water table. Sample temperature, pH, and specific conductance were measured and recorded for each sample in the field. Ground water samples were placed in appropriate sealed containers with appropriate chemical preservatives and cooled to wet ice temperature (4 degrees Celsius) for delivery to the IT analytical laboratory. Chain-of-custody forms were completed and shipped with the samples. The bailer was decontaminated between wells with hexane and distilled water which was collected and placed in the Union Chemicals on-site storage tanks.

All samples were analyzed for volatile organic compounds. Samples from Wells 1, 5, 8, and 12 were analyzed for chloride, sulfate, and alkalinity. The results of all analyses are presented in Table 6.

2.7 HYDRAULIC CONDUCTIVITY TESTING

In situ rising head permeability tests were conducted in Monitoring Wells 1, 4, 6, 7, and 12 following ground water sampling to determine well sensitivity (degree of communication between the well and the water-bearing zone) and the hydraulic conductivity of the water-bearing zone. The tests were conducted by

C6

lowering the water level in the well below the ground water table and measuring the subsequent rise in water level as a function of time. The results of the permeability testing are presented in Table 7.

2.8 STREAM SEDIMENT SAMPLING

Two sediment samples were collected from Noes Creek (a low gradient tidally influenced stream); one from sediments upstream of the plant and the second from sediments downstream of the plant (Figure 2). The purpose of collecting these samples was to provide a preliminary determination of the plant's impact on Noes Creek sediments. The samples were collected with a hand trowel at the surface of the stream bottom sediments. Samples were placed in clean, amber glass jars and shipped to the IT laboratory for analysis. Results of the analysis are presented in Table 8.

3.0 RESULTS OF INVESTIGATION

3.1 SITE GEOLOGY AND HYDROGEOLOGY

The Union Chemicals facility is constructed on relatively level fill material emplaced on irregular, unconsolidated sedimentary deposits. Cross sections were constructed from the borings logs and are presented in Figures 3, 4, and 5. The locations and orientations of the sections are shown in Figure 2.

Fill deposits range in thickness from zero to at least 15 feet beneath the site and are composed of fine to coarse sands with some gravels, clay, bricks, concrete, metal, glass, and slag. Beneath the fill are irregular deposits of sands, clays, silty clays, silt, and peat. It appears that older sand and clay deposits have been partially eroded and the depressions filled in with younger deposits of peat, clays, and sands. This reworking of sediments was probably the result of meandering and ensizing by Noes Creek.

Ground water elevation data were collected at five different times and tidal stages (Table 5). The data show fluctuating water levels which may be associated with tidal changes. The total change in ground water level and lag time at each well due to tidal influence cannot be determined from the present data base. It may be necessary to install and operate several continuous ground water level recorders for a short time period to obtain the data required for evaluation of remedial action alternatives.

Generally, the ground water flows from north to south across the site (Figure 6). The water table contours were developed from the average of the last four water level measurements, excluding deeper Wells MW-7 and MW-2.

Water levels in two well groups, MW-1 and MW-2 and MW-6 and MW-7, show a downward ground water gradient in the sediments. The gradient is slight but consistent at these two sites. Actual vertical gradients may be greater beneath the site; the measured magnitude is likely reduced from actual conditions by the size of the sensing zone established by the long length of screen in the wells.

Permeability test results indicate that the fill, sand, and clay deposits have low to moderate hydraulic conductivities (Table 7).

Assuming an average ground water gradient of 5 feet/330 feet, an average hydraulic conductivity of 3×10^{-5} feet per second (9×10^{-4} centimeter per second), and a porosity of 0.4, the average ground water velocity was calculated to be about 1×10^{-6} feet per second, or about 32 feet per year. This value was calculated using the following equation:

$$V = \frac{ki}{\theta}$$

where

- k = average hydraulic conductivity,
- i = average horizontal ground water gradient perpendicular to the direction of ground water flow, and
- θ = assumed representative porosity.

3.2 ANALYTICAL RESULTS

Elevated concentrations of volatile organics were detected in water and soil samples during the initial emergency response program (Tables 1 and 2). Additionally, free product was observed flowing into Test Pits 1 through 3 and at the water table in Monitoring Wells 5, 6, and 8. Water samples collected from seeps contained 8,200 parts per billion (ppb) benzene, 7,700 ppb toluene, and 100,000 ppb total xylenes. Soil samples collected from the area adjacent to the seep had a benzene concentration of 200 ppb and total xylenes of 440 ppb.

C8

Table 2 also indicates the levels of volatile organics which were detected in soil samples from Test Pits 2 and 4. Test Pit 2 evidenced higher concentrations of all parameters analyzed than Test Pit 4, with the exception of ethylbenzene and total xylenes. The Test Pit 2 soil sample contained significant concentrations of:

- Chlorobenzene
- Methylene chloride
- Tetrachloroethylene
- 1,1,1-trichloroethane
- Acetone
- Total xylenes.

The Test Pit 4 soil sample contained significant concentrations of chlorobenzene and total xylenes.

During the drilling operations, head space measurements of volatile organics were conducted on soil samples which had been placed in glass jars. The results of the measurements indicate that organic materials are present throughout the sampled soil columns (Table 3). The type of OVA used for these determinations was of the ionization type so that methane gas, if present, did not influence the readings.

The ground water collected from the 12 monitoring wells was analyzed for all volatile priority pollutants and selected volatile nonpriority pollutants. Table 6 is a summary of pollutants detected in the water samples. The significant contaminants appearing on this list which have the potential for the greatest health risk are:

- Benzene
- Chlorobenzene
- Methylene chloride
- Tetrachloroethylene
- Trans-1,2-dichloroethylene
- 1,1,1-trichloroethane
- Trichloroethylene.

Significant (greater than 100 ppb) concentrations of these contaminants were found in Monitoring Wells 4 through 11.

C9

Volatile organics were not detected in the sediment samples collected from Noes Creek.

4.0 QUALITATIVE RISK ASSESSMENT

4.1 INTRODUCTION

A hydrogeologic investigation of the Union Chemicals site located in Carteret, New Jersey has indicated the presence of several volatile organic chemicals in the ground water beneath the facility. This qualitative risk assessment will provide a preliminary appraisal of the health risks and environmental impacts associated with exposure to those chemicals in site-specific circumstances.

The fundamental concept of the risk assessment stipulates the requirement of a hazard and an exposure to that hazard before a health risk or environmental impact can occur. A completed exposure pathway is inferred, which includes three necessary components: (1) a source--the presence of contaminants having known toxicological characteristics; (2) an exposure pathway--actual or potential pathways that are complete; and (3) receptors--human and environmental receptors in the exposure paths. The hydrogeologic study has established the presence of the hazardous constituents and provides preliminary data to evaluate the potential exposure pathways.

High levels of monocyclic aromatic hydrocarbons (benzene, chlorobenzene, ethylbenzene, toluene, and xylene) and halogenated aliphatic hydrocarbons (tetrachloroethylene, 1,1,1-trichloroethane, and vinyl chloride) were detected in site ground water and surface seepage samples. A nonaqueous phase liquid (NAPL) flow condition, evidenced by the presence of a product layer above the aqueous fraction of the seeps and ground water samples, was observed during the emergency response and hydrogeologic investigation phases of this project.

Based on the geographical and topographical distribution of potential human receptors and environmental biota, a preliminary estimate would indicate a low potential for human exposure and a high possibility of impacts on environmental biota, to the extent they are present in Noes Creek and the Arthur Kill.

C10

4.2 CONTAMINATION CHARACTERIZATION

The contamination pattern of volatile organic constituents found on site can be characterized by the presence (or absence) and concentrations of selected indicator chemicals in the individual environmental media samples and by evaluation of the spatial distribution of contaminants.

Volatile organic contamination of ground water was chosen as the primary site investigation focus due to the following:

- The bulk of the materials handled at the facility and the materials known to have been released in the past or detected in ground water during the emergency response phase of the project are volatile organic compounds.
- Volatile organic compounds are generally highly mobile in soils due to high volatility (as indicated by vapor pressure), have high water solubility, and low capacity for soil adsorption (soil adsorption coefficient); therefore, permanent soil and sediment contamination by volatile organics should be minimal as compared to current levels of ground water contamination.

4.2.1 Probable Contaminant Source

High concentrations of volatile organic chemicals were found in the ground water and seeps (aqueous and nonaqueous fractions) collected at the site. The observed pattern of contamination and the resulting hypothesized sources depend to some extent on the placement of the monitoring well. This dependence results from the necessity to infer contamination patterns between the monitoring wells.

It appears that past spills and leakage has occurred from the tank farm located in the northwest section of the site. Monitoring Well 12 is an on-site upgradient well that has some utility as the background descriptor. Monitoring Wells 1 to 3 may also be monitoring background water quality, or are located outside of the contaminant plume. The ground water in these wells does not appear to be impacted at the present time. Major chemical constituents in the contaminated ground water plume emanating from the tank area are monocyclic aromatic hydrocarbons (MAHs). Indicator constituents in this category are benzene, chlorobenzene, ethylbenzene, toluene, and xylene.

C11

Halogenated aliphatic hydrocarbon (HAHs) display a different distribution pattern among the analyzed samples and the location of the sampling points. They appear to have emanated from the tank farm in the center of the Union Chemicals facility. This is based on the absence of these particular contaminants in the ground water in the vicinity of the northwest tank farm. The HAHs selected as indicator chemicals for this site are tetrachloroethylene (PCE), 1,1,1-trichloroethane commonly known as methyl chloroform (MC), and vinyl chloride (VC) probably resulting from biodegradation of the PCE.

It must be emphasized that the above conclusions relating to the probable sources are based on limited background information and a small chemical analytical data base.

4.2.2 Characterization of Extent of Contamination

This description of the extent of contamination is intended to provide a framework for assessment of exposure to hazardous constituents migrating from the site. Since the chemical analytical data base is essentially limited to volatile organic contaminants detected in the ground water, the character of the other environmental media, i.e., ambient air (on and off site); soils (surficial and subsurface), in the unsaturated and saturated zone; surface water in Noes Creek and Arthur Kill; and creek sediments, cannot be directly evaluated. Appraisal of the likely extent of contamination of these environmental media is based on the limited background information and site investigation data available.

Ambient Air

The quality of on-site ambient air is unknown. However, the presence of volatile organics at relatively high concentrations in the ground water, the very shallow unsaturated zone above the ground water table which potentially provides a link between the air and ground water through capillary action, and contaminated seeps on site would indicate some impact on ambient air quality.

Volatile organic constituents are volatilizing from ground water, possibly contaminated soils (actual levels are unknown; high OVA readings were observed during soil disturbance when excavating the test pits) and contaminated surface waters of Noes Creek. The ambient air levels of benzene are probably

C12

elevated above background and could be at concentrations on the site that pose some risk upon exposure. All of the other contaminants, i.e., chlorobenzene, ethylbenzene, toluene, and xylene, will most likely also be elevated above background levels but are not expected to reach concentrations associated with health risks. None of the HAHs, although they will volatilize, are expected to be present above background levels. Vinyl chloride will evaporate readily at ambient temperatures, but detectable incremental elevations in concentrations are not likely due to the low levels detected in site ground water.

Undetermined semivolatile organics and inorganic constituents, if any, would not volatilize to the extent necessary to impact ambient air quality.

Soils

There is only a very limited chemical analytical data base available to estimate the extent of soil contamination. Based on the behavior of chemicals in the environment, the list of chemical products handled at this facility, and the presence of a NAPL flow condition, the following limited characterization may be applicable to this site:

- Presence and levels of volatile organic contaminants (found in the ground water) in the soils will be limited unless bulk dumping has occurred in the past or there is an ongoing contaminant release. Volatile organics are highly mobile in soils due to their ability to evaporate to air, high solubility in water, and low soil adsorption capability.

- Phthalate esters, polycyclic aromatic hydrocarbons (PAHs), and halogenated ethers may be present at significant levels in the soils in the unsaturated and saturated zones. The reported product mix and presence of a nonaqueous fraction (which is mainly organic solvents) would enhance the mobility of these relatively immobile chemicals in the soil and water media. However, there are no data available to determine the validity of this premise.

Ground Water

There appears to be both vertical and horizontal migration of the volatile organic constituents found in the ground water. This is likely due to the behavior of these particular chemicals in the environment. Vertical stratification of contaminants in some of the wells is apparent; lower specific

C13

gravity compounds were found in higher concentrations in samples taken from the top of the well. This may be due to gravity separation or could be due to a mixing of the NAPL solution in the upper sample.

The lighter MAHs appear to have migrated from the northwest tank area. The highest concentrations were found downgradient at this area in Monitoring Wells 6 and 8. Benzene and chlorobenzene were observed at the highest concentrations (benzene at 85,000 micrograms per liter [μg/ℓ] maximum; chlorobenzene at 230,000 μg/ℓ maximum) and with the highest frequency (15 positive detections in 16 samples). Only the MAHs (benzene, chlorobenzene, ethylbenzene, toluene, and xylene) and methyl chloroform have moved to the deeper part of the aquifer as indicated by the analytical results from the Monitoring Well 7 deep well sample.

The contaminant plume appears to be confined to a relatively limited area. Monitoring Wells 1 through 3 do not appear to be in the influence of the plume at this time.

Relative to potential exposure to contaminated ground water, it should be noted that:

- The dominant ground water flow direction is toward Noes Creek and Arthur Kill. This is away from the greatest concentration of human receptors located northwest of the site. Consequently, the potential for exposure to significant levels of volatile organic pollutants in ground water by ingestion is very low. This premise is valid whether the ground water is or is not being used for drinking purposes. There are, however, no known users of shallow ground water in the area of the site.

- Because there are no available data regarding semi-volatile organics that may be present in the ground water due to the NAPL conditions, the potential impacts due to ground water discharge to surface water cannot be evaluated.

Surface Water

There is a very limited available data base to characterize the contamination of surface water, i.e., Noes Creek and Arthur Kill. Seeps and ground water accumulated in the test pits are defined as ground water for the estimation of

C14

health risks and environmental impacts. Evaluation of surface water quality was not an objective of the first phase of the hydrogeological study.

A clear understanding of the environmental fate of the site contaminants is essential for estimating health and environmental impacts. The volatile organics in the ground water will be essentially volatilized at the surface water/ambient air interface. The most likely potential impacts on environmental and human receptors will be from migration of semivolatile organic pollutants in the nonaqueous fraction of contaminated ground water to both surface water and sediments. Semivolatiles that are solubilized in the nonaqueous phase could adsorb to colloidal particles in surface water and settle to the bottom in the sediments. There, they would be available to aquatic biota if biota are present. Some toxic constituents, i.e., PAHs, if they are present, could move up the food chain by bioaccumulation and biomagnification to result in significant potential exposure.

The extent of surface water contamination is unknown. Attenuation of volatile organic contaminants by evaporation and the unlikely possibility of impacted surface water being used as a potable water source (it may be brackish or sea water) may preclude exposure by human receptors. Transfer of volatile organics to ambient air is not expected to result in significant levels due to the great opportunities for attenuation by advection and dispersion in the open atmosphere.

4.3 EXPOSURE PATHWAYS

An exposure pathway is the route a contaminant may take to reach a susceptible receptor. For an exposure pathway to be complete, three factors must be present: a source of contamination, a route of contaminant transport, and an exposure of an environmental or human receptor to the contaminants. The mode of exposure and its duration also influence the impacts. Modes of exposure are usually categorized as inhalation, ingestion, and dermal (direct contact). There may be indirect exposures by ingestion of contaminated foods and by dermal and inhalation during recreational use (wading, fishing, and boating) of surface waters. Exposure durations are separated into two main classes, i.e., acute, which is of short duration and frequency, and chronic, which implies long-term (months and years) and continuous or frequent exposure.

4.3.1 Ambient Air

All of the detected contaminants are volatile organic constituents; consequently, all will evaporate at the soil/air and surface water/air interface to result in incremental increases in levels above background. The only potential exposure to toxicologically significant levels of the most critical contaminant (benzene) will be on site. Advection and dispersion would attenuate vapor concentrations to safe levels at the nearest off-site human receptor locations.

4.3.2 Soils

Surficial Soils

The relatively difficult access to the industrial area in which the site is located (the presence of a railroad track and perimeter fencing separating the residential area from this site) will minimize the trespass of children and third-party intruders. Consequently, only on-site personnel will be considered to be the potential receptors due to direct contact with or ingestion of contaminated surficial soils. Therefore, direct contact with contaminated surface soils is not considered to be a potential exposure path.

Subsurface Soils

Exposure to contaminants that may be present in the deep soils by direct contact is not expected to be a viable exposure pathway. Deep soils may serve as a conduit to transport volatile organics, and potentially semivolatile organics mobilized in the NAPL, to ground water.

Migration of volatile organics from the unsaturated zone to ambient air will elevate ambient air concentrations, but significant concentrations are not expected on site and are very unlikely at any off-site receptor location.

4.3.3 Ground Water

Ingestion of contaminated ground water is not expected to be a critical exposure path at this site. All of the ground water beneath the site is flowing away from the closest cluster of homes (supplied by a city water system). Ground water discharges from the site into Noes Creek very rapidly reach Arthur Kill . Both bodies of water are subject to salt water intrusion making local surface water an unavailable source of potable water for the nearby residents.

C16

Indirect exposure to some contaminants, if the volatile organics are not attenuated, during recreational use of Arthur Kill is possible. However, the industrial character of the surrounding area and the presence of a large active landfill and marsh on the Staten Island side of the Kill would deter recreational use of the surface water in the impacted area.

4.3.4 Surface Water

Surface waters may be impacted. There are no available data to determine whether volatile organic contaminant attenuation is occurring. If semivolatile organic constituents are entering the Creek and Kill they would accumulate in the bottom sediment. Consequently, there could be some potential for uptake in the food chain with subsequent exposure of human receptors due to ingesting contaminated aquatic food. The volatile organics do not bioaccumulate to any great extent. The most likely exposure path would be associated with semivolatiles that may be mobilized in the NAPL and transported by ground water discharges and surface seeps to Noes Creek.

4.3.5 Environmental Impacts

The most toxic class of contaminants in the context of aquatic toxicity is the inorganic constituents. This does not appear to be a problem at this site. The low conductivity of the ground water samples is indicative of low dissolved solids and an absence of ionic activity in the water. Volatile organics will be attenuated due to evaporation of the surface water/air interface. In addition, most of them are not acutely or chronically toxic to aquatic biota at the expected surface water concentrations. The introduction of pollutants from the landfill that have high associated biological and chemical oxygen demand may affect the dissolved oxygen levels in the creek and Arthur Kill to result in adverse effects on the aquatic biota (if they are present).

4.4 RECEPTORS

The following potential human receptors may be present in the vicinity of the site:

- Users of ground water for drinking purposes - None known in the area surrounding the site

C17

- Users of surface water for recreational purposes - Dermal exposure during swimming and boating (inadvertent dermal exposure) and inhalation of volatilized organics

- Persons trespassing on site and coming in direct contact (dermal exposure) with contaminated soils and ground water (seeps) on site

- Persons coming in contact with contaminated sediment and surface soils that may have migrated off site in surface runoff

- Persons inhaling volatilized organic vapors that are mobilized by wind erosion

- Persons consuming contaminated aquatic food that has bioaccumulated and biomagnified contaminant levels.

Environmental receptors include:

- Aquatic biota that are exposed to organic contaminants with associated bioaccumulation and biomagnification characteristics

- Surface waters that may be adversely affected to limit their use for any purpose

- Wetland and marsh ecologies that are very fragile and will be adversely altered by introduction of chemical contaminants.

The identification and characterization of the above receptors was not an objective of the first phase of this investigation. Based on the topographical and geographical character of the site and the surrounding area, as interpreted from the USGS map, the presence of the above receptors at locations where significant impacts may be possible is not a high probability at present or at some future time.

4.5 HAZARD IDENTIFICATION

The identification and characterization of hazards associated with the site is based on the presence and concentration of chemicals found. Consequently, this hazard characterization is based on volatile organic compounds detected in the ground water beneath the site.

C18

The following criteria are used to select the indicator contaminants for the risk assessment:

- Toxicity - If the contaminant has associated biological health impacts, i.e., carcinogenicity or development effects, it should be included as a contaminant of concern. Acute and chronic systemic toxicity has an implied threshold level; consequently, other criteria must be used in conjunction with toxicity.

- Concentration levels - Constituents detected at high concentrations in the environmental media should be included if they are prevalent.

- Prevalence is defined by the frequency of positive detections in the collected samples and the character of the contamination pattern.

- Persistence in the environment.

Table 9 provides a summary of the pertinent factors for categorizing the detected contaminants.

Benzene, vinyl chloride, and PCE are classified as suspect animal or human carcinogens. They were found frequently, especially benzene, in the ground water samples at significant concentrations. Consequently, all were included as indicator contaminants.

Ethylbenzene, toluene, methyl chloroform, and xylene, which have exhibited systemic toxicity with associated thresholds, were detected frequently to indicate a high prevalence in the ground water. They were selected as indicator contaminants for the risk assessment.

Chlorobenzene was classified as an indicator chemical due to the very high concentrations found on site. Since it does not possess any toxicological properties, it was considered to be a precursor of benzene and xylene and was used to define the extent of contamination.

Although chloroethane was frequently detected in the ground water samples and the maximum concentration of 1,600 μg/ℓ was considered to be an anomaly (the next highest value was 67 μg/ℓ) the concentrations are not considered to be significant. This evaluation is based on the low toxicity of this compound by

C19

the ingestion route and its chemical nature, i.e., it is a gas at normal temperatures. 1,1-dichloroethane and 1,2-trans-dichloroethylene were also detected frequently. However, at the concentrations measured exposure is not likely to cause a health impact.

Ketones (acetone, 2-butanone [methylethyl ketone]) and styrene were found less frequently. However, at the reported concentrations, exposure is not expected to result in any adverse health impacts due to the relatively low systemic toxicity of these compounds.

4.6 EXPOSURE ASSESSMENT

As explained in the previous sections, there is no existing exposure of receptors to the site contaminants due to hydrological and geographical factors. Vapors and airborne particulates are not expected to reach off-site human receptors in signifianct conentrations. Additionally, the population in close proximity to the site is served by a municipal water system and the direction of contaminated ground water migration is directly away from the closest off-site human receptors. Thus, they are not located in potential exposure pathways. Ambient air and ground water contaminant concentrations will be reduced to insignificant levels by the time they reach the nearest downwind and downgradient human receptor.

If sensitive ecological systems are in the exposure pathway, i.e., marsh and wetland habitats, there could be some potential degradation or alteration of the biotic communities.

Presence or absence of environmentally persistent contaminants has not been established. The above exposure assessment is based only on the available chemical analytical data, hydrological data developed in this phase of the investigation, and an interpretation of the U.S. Geological Survey topographic map of the area.

4.7 RISK CHARACTERIZATION

Due to hydrological and topographical factors, and spatial distribution of possible receptors, the site does not appear to pose any health risks. There is some potential for environmental impacts on aquatic and terrestrial biota if fragile ecological habitats are located in the area.

TABLE 1

SURFACE WATER ANALYSES SUMMARY

PARAMETER	SAMPLE IDENTIFICATION		
	U-1W(a) (water layer)	U-1W(a) (oil layer)	U-4(b)
VOLATILE PRIORITY POLLUTANTS (ppb)			
Benzene	8,200	1,000,000	14,000
Chlorobenzene			37,000
Methylbromide			1,400
Toluene	7,700	3,600,000	640
VOLATILE NONPRIORITY POLLUTANTS (ppb)			
4-Methyl-2-pentanone			2,700
Styrene			690
Total xylenes	100,000	64,000,000	610

(a)Water sample collected near first seep.

(b)Water sample collected from bottom valve of vacuum truck.

TABLE 2

SOIL ANALYSES SUMMARY

PARAMETER	SAMPLE IDENTIFICATION		
	U-2S(a)	U-TP-2(b)	U-TP-4(c)
VOLATILE PRIORITY POLLUTANTS (ppb)			
Benzene	200	64	33
Chlorobenzene		950	650
1,1-Dichloroethane		74	-
Ethylbenzene		17	69
Methylene Chloride		160	77
Tetrachloroethylene		2,100	19
1,1,1-Trichloroethane		510	-
Trichloroethylene		85	-
VOLATILE NONPRIORITY POLLUTANTS (ppb)			
Acetone		240	-
Total xylenes	440	120	520

(a)Surface soil sample collected near first seep.

(b)Composite soil sample collected in Test Pit No. 2.

(c)Composite soil sample collected in Test Pit No. 4.

TABLE 3

RESULTS OF MEASUREMENTS FOR VOLATILE ORGANICS OF SOIL
SAMPLE BOTTLE HEADSPACE REGION
(PPM from OVA)

SAMPLE NUMBER \ BORING NUMBER	B-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
S-1	<1.0	0	3	100	100	300	>1,000	250	500	>1,000	45	>1,[illegible]
S-2	90	300	950	>1,000	450	>1,000	(a)	>1,000	>1,000	>1,000	>1,000	>1,000
S-3	100	850	>1,000	350	>1,000	>1,000	650	>1,000	>1,000	>1,000	400	>1,000
S-4	>1,000	450	>1,000	100	>1,000	(a)	240	>1,000	>1,000	>1,000	650	>1,000
S-5		110	200	420	950	>1,000	200	>1,000	>1,000	>1,000	>1,000	400
S-6		75	60	800		>1,000	45	>1,000	>1,000	900	700	
S-7		250	15			>1,000	100	>1,000	>1,000	>1,000	50	
S-8		20				>1,000	10	>1,000	250			
S-9		50				>1,000	60	>1,000				
S-10		0				0		950				
S-11		10										
S-12		50										
S-13		10										
S-14		5										
S-15		15										

(a)Insufficient sample collected to measure.

C-23

TABLE 4

MONITORING WELL ELEVATIONS(a)

MONITORING WELL	TOP OF COVER	TOP OF INSIDE PIPE	BOTTOM OF WELL
MW-1	8.98	8.27	-1.02
MW-2	8.47	7.91	-21.53
MW-3	9.31	8.87	-4.69
MW-4	9.30	8.68	1.30
MW-5	9.16	8.90	1.16
MW-6	8.84	8.60	-7.16
MW-7	8.83	8.24	-23.17
MW-8	9.43	8.82	4.57
MW-9	10.40	9.89	-4.60
MW-10	10.83	10.32	2.83
MW-11	11.25	10.70	3.25
MW-12	12.48	12.10	4.48

(a)Elevations in feet (msl).

TABLE 5

GROUND WATER ELEVATIONS

MONITORING WELL NO.	DATE/APPROXIMATE TIME				
	9-17-85/07:50(a)	9-17-85/14:20(b)	10-7-85/10:00(c)	10-7-85/16:15(d)	10-15-85/12:30(e)
1	2.69	3.10	4.52	2.52	4.89
2	3.45	3.33	4.16	2.16	4.78
3	5.45	6.24	6.54	5.87	6.56
4	5.51	5.91	6.35	6.18	6.90
5	3.15	3.65	3.57	3.40	4.80
6	3.60	4.18	4.45	3.10	4.83
7	2.86	3.16	4.16	3.24	4.70
8	4.53	5.49	5.66	5.03	5.02
9	7.39	7.89	8.31	8.16	8.46
10	6.07	8.11	8.57	8.69	8.77
11	8.20	9.20	9.91	9.89	9.47
12	8.60	9.93	10.93	10.89	10.44

(a)High tide at Sandy Hook, NJ 9-17-85 was at 09:24.

(b)Low tide at Sandy Hook, NJ 9-17-85 was at 16:00.

(c)High tide at Sandy Hook,NJ 10-7-85 was at 13:11.

(d)Low tide at Sandy Hook, NJ 10-7-85 was at 20:18.

(e)Low tide at Sandy Hook, NJ 10-15-85 was at 14:38.

Note: All elevations in feet (msl).

Cas

TABLE 6

GROUND WATER ANALYSES SUMMARY

PARAMETER	SAMPLE IDENTIFICATION																
Volatile Priority Pollutants (ppb)	MW-1T	MW-2T	MW-3T	MW-4T	MW-5T	MW-6B	MW-6T	MW-7T	MW-8B	MW-8T	MW-9B	MW-9T	MW-10B	MW-10T	MW-11B	MW-11T	MW-12T
Benzene	7.3	22	22	2,200	2,500	49,000	85,000	320	17,000	18,000	2,800	2,300	120	61	240	240	-
Chlorobenzene	17	150	41	4,200	23,000	230,000	150,000	2,000	140,000	130,000	1,500	230	13	-	310	300	16
Chlorodibromomethane	-	-	-	-	-	-	-	2.7	-	-	-	-	-	-	-	-	-
Chloroethane	-	6.8	25	1,600	55	-	4.1	-	-	-	65	67	47	38	6.6	5.9	-
Chloroform	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-
1,1 Dichloroethane	2.5	46	4.2	120	12	-	2.5	-	5.6	4.1	7.7	6.0	-	-	-	-	1.1
1,2 Dichloroethane	-	-	-	9.9	3.7	-	-	2.4	-	-	-	-	-	-	1.1	-	-
1,1 Dichloroethylene	-	8.6	-	-	-	-	-	-	1.7	1.4	-	-	-	-	-	-	-
1,3 Dichloroethylene	-	-	-	64	-	-	-	-	-	-	79	37	-	-	6.2	6.0	-
Ethylbenzene	-	-	-	280	2,700	-	2,600	230	1,400	1,800	300	44	480	-	-	-	-
Methylene Chloride	-	-	-	-	-	630	21	-	14	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	15	-	-	-	-	-	-	-	-	-	7.2	-	1.9
Tetrachloroethylene	-	1.0	-	2.8	-	200	320	-	940	1,100	-	-	-	-	-	-	-
Toluene	1.0	6.6	-	2,800	570	2,700	5,200	37	990	580	18	-	220	2.1	3.0	1.8	-
Trans-1,2 Dichloroethylene	-	2.8	1.3	62	1.0	640	74	2.4	280	220	4.6	-	-	-	-	-	1.4
1,1,1-Trichloroethane	-	87	54	44	-	-	4.1	450	330	280	15	110	-	-	-	-	-
Trichloroethylene	-	2.2	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	15	-	-	10	-	49	60	-	10	-	-	-	-	-
Volatile Non Priority Pollutants (ppb)																	
Acetone	-	-	-	16	28	-	-	65	22	12	17	-	-	-	-	-	-
2-Butanone	-	-	-	-	100	-	-	62	89	-	78	100	-	-	-	-	-
Carbon disulfide	13	18	-	46	-	-	-	-	-	-	-	-	48	18	-	48	28
4-Methyl-2-pentanone	-	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	7.6	39	-	250	-	210	180	45	-	110	-	-	-	-
Xylenes, Total	-	-	-	920	4,500	2,200	24,000	890	750	620	1,500	250	10,000	540	-	-	-
Other Parameters (ppm)																	
Total Organic Carbon	14	6	82	23	28	48	30	13	23	18	26	24	13	12	8	7	4
Total Organic Halogen	0.38	0.15	0.14	1.5	13	73	26	3.1	40	36	0.94	2.2	0.44	0.64	0.46	0.85	0.26
Alkalinity	460				380				570/550	510							270
Chloride	180				290				220/220	210							13
Sulfate	60				3				4	3							15
Field pH	6.0	6.6	6.7	6.6	6.5	6.6	6.5	6.8	6.6	6.8	6.7	6.6	6.6	6.5	6.5	6.4	6.3
Field Specific Conductance (umhos/cm @ 25°C)	470	310	590	440	1500	220	1600	480	510	500	500	505	330	340	220	220	150
Field Temperature(°C)	23	23	25	26	23	22	25	23	21	24	22	29	23	23	24	25	23

C-26

TABLE 7

PERMEABILITY TEST RESULTS

WELL	PERMEABILITY (cm/sec)	SOIL TYPE
MW-1	2.1×10^{-4}	Silty clay
MW-4	1.3×10^{-5}	Sand/silty clay
MW-6	1.2×10^{-4}	Fill
MW-7	7.7×10^{-4}	Sand/silty clay
MW-12	3.5×10^{-3}	Sand/silty clay

TABLE 8

STREAM SEDIMENT ANALYSES SUMMARY

PARAMETER	SAMPLE IDENTIFICATION	
Volatile Priority Pollutants	NC-D	NC-U
(ppb)		
	None Detected	
Volatile Non Priority Pollutants		
(ppb)		
	None Detected	
Other Parameters		
(ppm)		
Total Organic Carbon	3500	3300
Total Organic Halogen	0.40/0.46	0.74

TABLE 9

SELECTION OF INDICATOR CONTAMINANTS

	FREQUENCY OF POSITIVE DETECTIONS (NO. OF +/NO. OF SAMPLES)	OBSERVED RANGE (μg/ℓ)	REMARKS
Benzene	15/16	22-85,000	
Chlorobenzene	15/16	13-230,000	
Chlorodibromomethane	1/16	2.7	
Chloroethane	11/16	4.1-1,600	4.1-67 (without maximum outlier)
Chloroform	1/16	12	
1,1-Dichloroethane	11/16	1.1-120	1.1-46 (without maximum)
1,2-Dichloroethane	4/16	1.1-9.9	
1,1-DCEthene	3/16	1.4-8.6	
1,3-DCEthene	5/16	6.0-79	
Ethylbenzene	9/16	44-2,700	
Methylene chloride	3/16	14-630	14-21 (without maximum)
1,1,2,2-Tetrachloroethane	3/16	1.9-15	
Tetrachloroethylene	6/16	1.0-1,000	
Toluene	14/16	1.0-5,200	
1,2,-trans-DCEthene	11/16	1.3-640	
1,1,1-Trichloroethane	9/16	4.1-330	
Trichloroethylene	1/16	11	
Vinyl Chloride	5/16	10-60	
Acetone	6/16	12-65	
2-Butanone	5/16	62-100	
Carbon disulfide	7/16	13-48	
4-methyl-2-pentanone	1/16	26	
Styrene	7/16	7.6-250	
Xylenes	11/16	250-24,000	

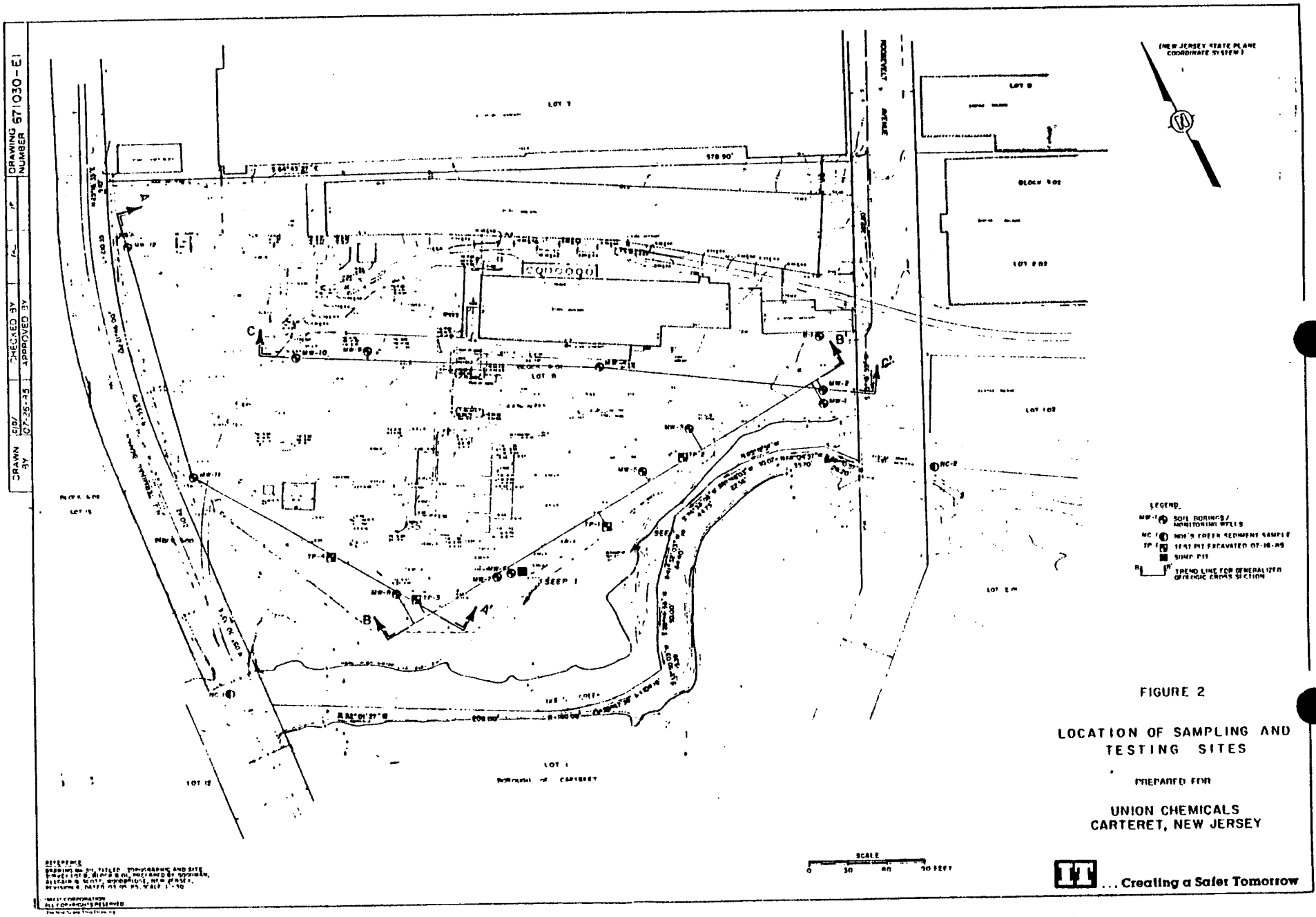


FIGURE 2

LOCATION OF SAMPLING AND TESTING SITES

PREPARED FOR

UNION CHEMICALS
CARTERET, NEW JERSEY

IT ... Creating a Safer Tomorrow

C30

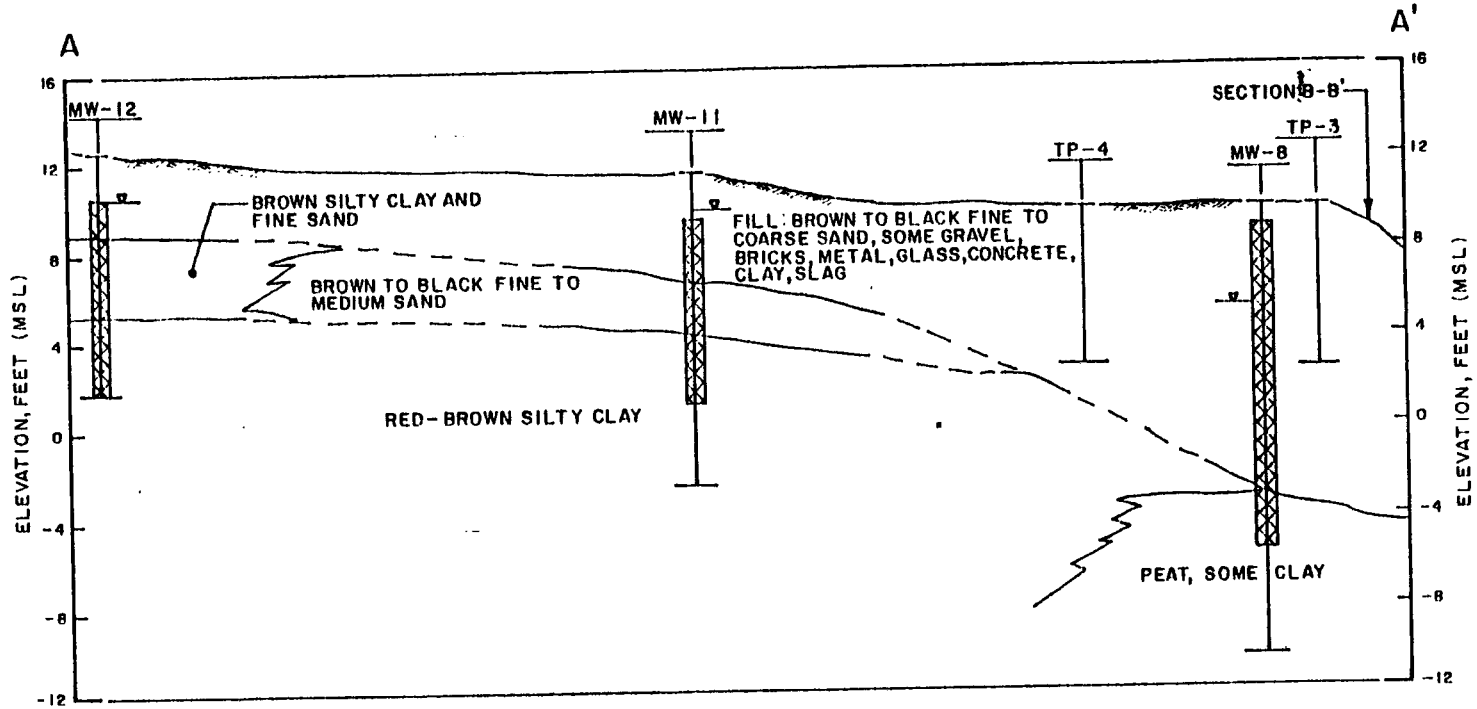


FIGURE 3

GENERALIZED HYDROGEOLOGIC CROSS SECTION A-A' LOOKING EAST

PREPARED FOR

UNION CHEMICALS
CARTERET, NEW JERSEY

LEGEND:

SCREENED INTERVAL

WATER LEVELS 10-15-85

VERTICAL SCALE

0 4 8 12

HORIZONTAL SCALE

0 30 60 90

THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THOSE INDICATED

IT ...Creating a Safer Tomorrow

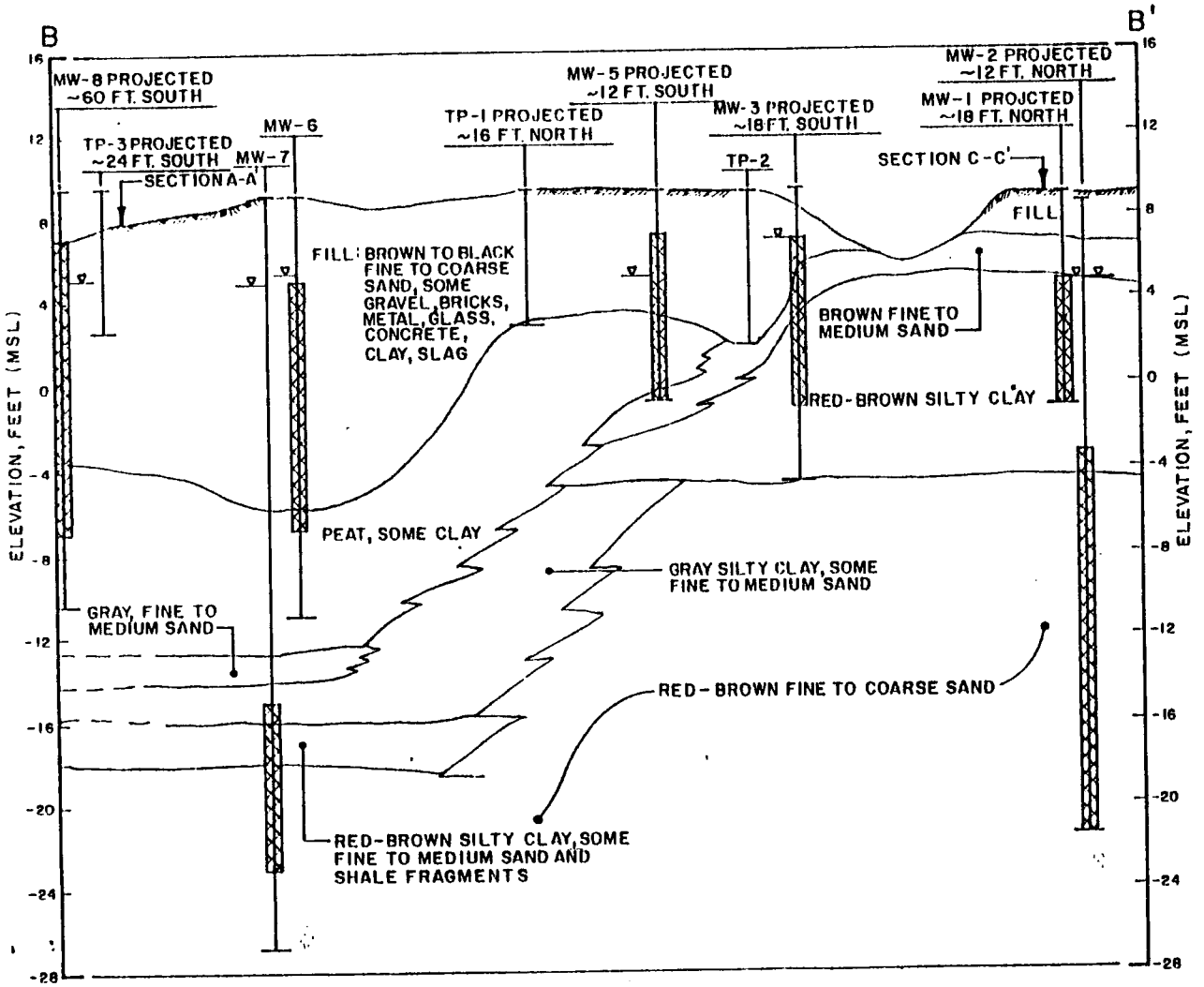
© 1984 IT CORPORATION
ALL COPYRIGHTS RESERVED
Do Not Scale This Drawing

DRAWING NUMBER 67:030-84

DATE 11-14-85

DRAWN BY

C-81



LEGEND:

SCREENED INTERVAL

WATER LEVELS 10-15-85

VERTICAL SCALE

0 4 8 12

HORIZONTAL SCALE

0 30 60 90

FIGURE 4

GENERALIZED HYDROGEOLOGIC CROSS SECTION B-B' LOOKING NORTH

PREPARED FOR

UNION CHEMICALS
CARTERET, NEW JERSEY

IT ... Creating a Safer Tomorrow

THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THOSE INDICATED

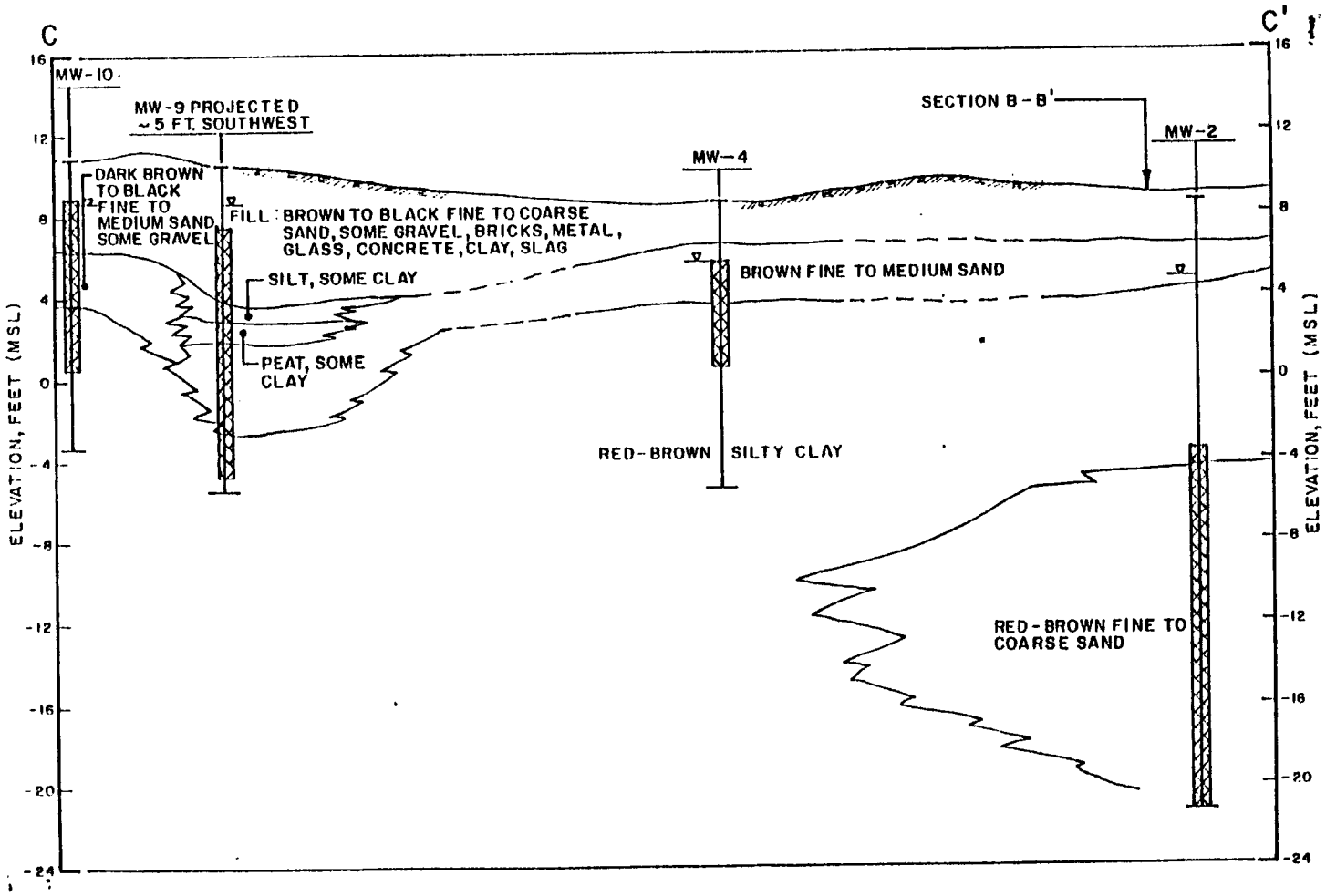
© 1984 IT CORPORATION
ALL COPYRIGHTS RESERVED

Do Not Scale This Drawing

DRAWING NUMBER 571030-32

DRAWN BY MBI 10-15-85

C32



LEGEND:

SCREENED INTERVAL

WATER LEVELS 10-15-85

VERTICAL SCALE

0 4 8 12

HORIZONTAL SCALE

0 30 60 90

FIGURE 5

GENERALIZED HYDROGEOLOGIC CROSS SECTION C-C' LOOKING NORTH-EAST

PREPARED FOR

UNION CHEMICALS
CARTERET, NEW JERSEY

THE DEPTH AND THICKNESS OF THE SUBSURFACE INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THOSE INDICATED.

© 1984 IT CORPORATION
ALL COPYRIGHTS RESERVED

Do Not Scale This Drawing

IT ...Creating a Safer Tomorrow

DRAWN: 571030-33
AREA:
DATE: 9-15-85
DRAWN BY:

C33

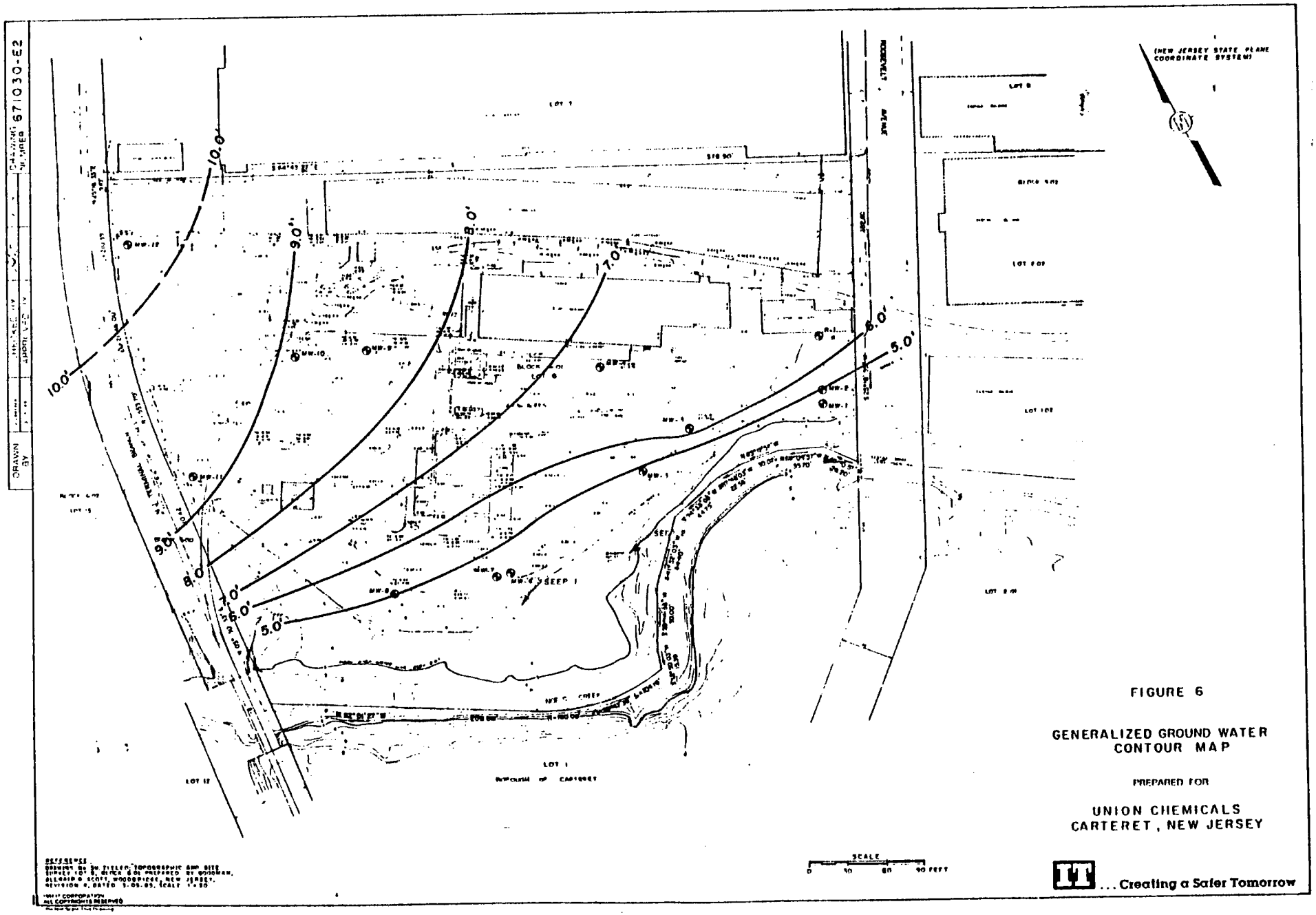


FIGURE 6

GENERALIZED GROUND WATER CONTOUR MAP

PREPARED FOR

UNION CHEMICALS
CARTERET, NEW JERSEY

IT ... Creating a Safer Tomorrow

DRAWN BY

DRAWING NO. 67 1030-E2

REFERENCE
DRAWN BY W. FILLER, TOPOGRAPHIC SUR. SITE SURVEY LOT 8, BLOCK 601 PREPARED BY BRIGHAM, ALLGAIER & SCOTT, WOODBRIDGE, NEW JERSEY. REVISION 4, DATED 1-05-83, SCALE 1"=50'

IT CORPORATION
ALL COPYRIGHTS RESERVED

C34

DATE BEGAN: 8-3-85
DATE FINISHED: 8-30-85
GROUND SURFACE EL.: 9.0'

BORING NO. B-1

N _____ E _____

FIELD ENGINEER: DAN HOLZMAN
CHECKED BY: GARY GAILLOT

ELEV. (FEET)	DEPTH (FEET)	SAMPLE TYPE	PROFILE	DESCRIPTION	U.S.C.S.	PENTRATION RESISTANCE (BLOWS PER FOOT) 10 30 50	REMARKS
		S 1		ASPHALT 0.1'			
				FILL: (LOOSE TO MEDIUM DENSE, BROWN CLAYEY FINE TO MEDIUM SAND, SOME FINE TO COARSE CRUSHED GRAVEL, MOIST) 1.8'			
	2.5	S 2		MEDIUM STIFF, RED-BROWN SILTY CLAY, TRACE FINE GRAVEL, MOIST			
	5.0	S 3		VERY STIFF, RED-BROWN SILTY CLAY, TRACE FINE GRAVEL, MOIST	CL		
	7.5	S 4		HARD, RED-BROWN SILTY CLAY, TRACE FINE SAND AND GRAVEL, MOIST		69	
1.0	8.0			BOTTOM OF BORING 8.0'			

PROJECT NO. 671030

BORING NO. B-1
SHEET 1 OF 1

C35

DATE BEGAN: 8-30-85
DATE FINISHED: 8-30-85
GROUND SURFACE EL.: 8.98'

BORING NO. MW-1

N _____ E _____

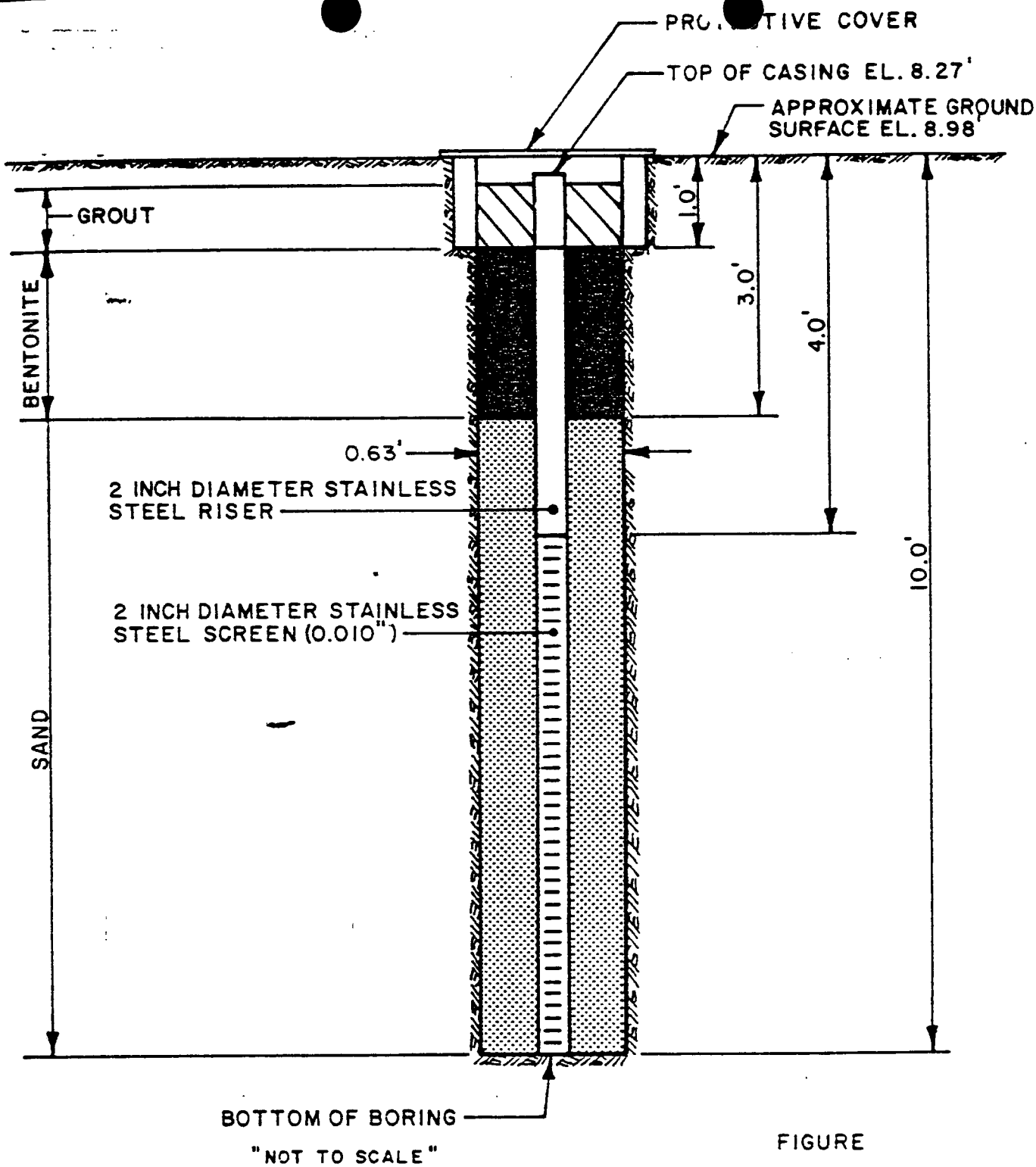
FIELD ENGINEER: DAN HOLZMAN
CHECKED BY: GARY GAILLOT

ELEV. (FEET)	DEPTH (FEET)	SAMPLE TYPE	PROFILE	DESCRIPTION	U.S.C.S.	PENTRATION RESISTANCE (BLOWS PER FOOT) 10 30 50	REMARKS
				CRUSHED SLAG 0.2'			
				FILL: (MEDIUM DENSE, BROWN FINE TO COARSE SAND AND CRUSHED SLAG, DRY) 2.0'			NO SAMPLES COLLECTED SAME AS MW-2
	2.5			MEDIUM DENSE, BROWN FINE TO MEDIUM SAND, TRACE CRUSHED GRAVEL, MOIST 4.0'	sp		
	5.0			MEDIUM STIFF, RED-BROWN SILTY CLAY, TRACE FINE SAND, MOIST 6.0'	cl		
8-30-85	7.5			VERY STIFF TO MEDIUM STIFF, RED-BROWN SILTY CLAY, TRACE FINE SAND AND GRAVEL, MOIST	cl		
0.0							
-1.02	10.0			BOTTOM OF BORING 10.0'			

PROJECT NO. 671030

BORING NO. MW-1
SHEET 1 OF 1

C36



FIGURE

MONITORING WELL MW-1

PREPARED FOR

UNION CHEMICALS
CARTERET, NEW JERSEY

DRAWING NUMBER 671030-A3

DRAWN BY mb 10-23-85

CHECKED BY

APPROVED BY

© 1984 IT CORPORATION
ALL COPYRIGHTS RESERVED

Do Not Scale This Drawing

Creating a Safer Tomorrow

C37

IT CORPORATION

Memorandum

To: D. E. Brunner
P. D. Holzman
R. N. Johnsen

Date: July 30, 1985

From: R. M. Burke
S. H. Cochenour SHC 7/31/85
D. J. Nestasie DJN 7/31/85

Subject: Transmittal
Analytical Results for Union Chemical
Project No. 611046.11

The IT Analytical Services (ITAS) Murrysville Laboratory has completed the analysis of the three samples received in the laboratory on July 3, 1985. Results of the analyses are presented in the enclosed tables and were determined in accordance with U.S. Environmental Protection Agency analytical procedures.

Should you have any questions or need additional information, please contact us at the Murrysville Laboratory.

RMB;SHC;DJN:ws

TABLE 1

WATER, OIL AND SOIL ANALYSIS SUMMARY
OF SELECTED VOLATILE PRIORITY POLLUTANT COMPOUNDS
FOR UNION CHEMICAL
PROJECT NO. 611046.11

PARAMETER	CAS NUMBER[1]	SAMPLE IDENTIFICATION		
		U-1W WATER LAYER mg/ℓ[2]	U-1W OIL LAYER mg/ℓ	U-2S SOIL mg/kg[3]
Benzene	71-43-2	8.2	1,000	0.20
Toluene	108-88-3	7.7	3,600	<0.10
Total xylenes	95-47-6	100	64,000	0.44

(1) The numbers presented in this column are the Chemical Abstracts Service (CAS) numbers used for cataloging the indicated compounds in the Chemical Abstracts Index.

(2) mg/ℓ = milligrams per liter or parts per million.

(3) mg/kg = milligrams per kilogram or parts per million.

IT CORPORATION

Memorandum

To: D. Holzman

Date: August 13, 1985

From: R. M. Burke RMB 8/14/85
S. H. Cochenour SHC 8-14-85

Subject: Transmittal
Laboratory Analysis for Union Chemical
Project No. 611046

The IT Analytical Services (ITAS) Murrysville Laboratory has completed the analysis of the one water sample and two soil samples received in the laboratory on July 30; 1985. Results of the analyses are presented in the enclosed tables and were determined in accordance with U.S. Environmental Protection Agency analytical procedures.

Should you have any questions or need additional information, please contact us at the Murrysville Laboratory.

SHC;RMB:ws

C40

TABLE 1

WATER ANALYSIS SUMMARY
OF VOLATILE PRIORITY POLLUTANT RESULTS
FOR UNION CHEMICAL
PROJECT NO. 611046

PARAMETER	CAS NUMBER[1]	SAMPLE IDENTIFICATION U-4-W Concentration mg/ℓ[2]
Acrolein	107-02-8	<1.0
Acrylonitrile	107-13-1	<1.0
Benzene	71-43-2	14
Bromoform	75-25-2	<0.10
Carbon Tetrachloride	56-23-5	<0.10
Chlorobenzene	108-90-7	37
Chlorodibromomethane	124-48-1	<0.10
Chloroethane	75-00-3	<1.0
2-Chloroethylvinyl ether	110-75-8	<0.10
Chloroform	67-66-3	<0.10
Dichlorobromomethane	75-27-4	<0.10
1,1-Dichloroethane	75-34-3	<0.10
1,2-Dichloroethane	107-06-2	<0.10
1,1-Dichloroethylene	75-35-4	<0.10
1,2-Dichloropropane	78-87-5	<0.10
1,3-Dichloropropylene[3]	542-75-6	<0.10
Ethylbenzene	100-41-4	1.4
Methyl bromide	74-83-9	<1.0
Methyl chloride	74-87-3	<1.0
Methylene chloride	75-09-2	<0.10
1,1,2,2-Tetrachloroethane	79-34-5	<0.10
Tetrachloroethylene	127-18-4	<0.10
Toluene	108-88-3	0.64
trans-1,2-Dichloroethylene	156-60-5	<0.10
1,1,1-Trichloroethane	71-55-6	<0.10
1,1,2-Trichloroethane	79-00-5	<0.10
Trichloroethylene	79-01-6	<0.10
Trichlorofluoromethane	75-69-4	<0.10
Vinyl Chloride	75-01-4	<1.0

TABLE 2

SOIL ANALYSIS SUMMARY
OF VOLATILE PRIORITY POLLUTANT RESULTS
FOR UNION CHEMICAL
PROJECT NO. 611046

PARAMETER	CAS NUMBER[1]	SAMPLE IDENTIFICATION U-TP-2	U-TP-4
		Concentration mg/kg[2]	
Acrolein	107-02-8	<0.10	<0.10
Acrylonitrile	107-13-1	<0.10	<0.10
Benzene	71-43-2	0.064	0.033
Bromoform	75-25-2	<0.010	<0.010
Carbon Tetrachloride	56-23-5	<0.010	<0.010
Chlorobenzene	108-90-7	0.95	0.65
Chlorodibromomethane	124-48-1	<0.010	<0.010
Chloroethane	75-00-3	<0.10	<0.10
2-Chloroethylvinyl ether	110-75-8	<0.010	<0.010
Chloroform	67-66-3	<0.010	<0.010
Dichlorobromomethane	75-27-4	<0.010	<0.010
1,1-Dichloroethane	75-34-3	0.074	<0.010
1,2-Dichloroethane	107-06-2	<0.010	<0.010
1,1-Dichloroethylene	75-35-4	<0.010	<0.010
1,2-Dichloropropane	78-87-5	<0.010	<0.010
1,3-Dichloropropylene[3]	542-75-6	<0.010	<0.010
Ethylbenzene	100-41-4	0.017	0.069
Methyl bromide	74-83-9	<0.10	<0.10
Methyl chloride	74-87-3	<0.10	<0.10
Methylene chloride	75-09-2	0.16	0.077
1,1,2,2-Tetrachloroethane	79-34-5	<0.010	<0.010
Tetrachloroethylene	127-18-4	2.1	0.019
Toluene	108-88-3	<0.010	<0.010
trans-1,2-Dichloroethylene	156-60-5	<0.010	<0.010
1,1,1-Trichloroethane	71-55-6	0.51	<0.010
1,1,2-Trichloroethane	79-00-5	<0.010	<0.010
Trichloroethylene	79-01-6	0.085	<0.010
Trichlorofluoromethane	75-69-4	<0.010	<0.010
Vinyl Chloride	75-01-4	<0.10	<0.10

TABLE 3
WATER ANALYSIS SUMMARY
OF VOLATILE NON-PRIORITY POLLUTANT COMPOUNDS
FOR UNION CHEMICAL
PROJECT NO. 611046

PARAMETERS	CAS NUMBER[1]	SAMPLE IDENTIFICATION U-4-W Concentration mg/ℓ[2]
Acetone	67-64-1	<1.0
2-Butanone	78-93-3	<1.0
Carbon disulfide	75-15-0	<0.10
2-Hexanone	591-78-6	<1.0
4-Methyl-2-pentanone	108-10-1	2.7
Styrene	100-42-5	0.69
Vinyl acetate	108-05-4	<1.0
Total xylenes	95-47-6	0.61

(1) The numbers presented in this column are the Chemical Abstracts Service (CAS) numbers used for cataloging the indicated compounds in the Chemical Abstracts Index.

(2) mg/ℓ = milligrams per liter or parts per million.

TABLE 4

SOIL ANALYSIS SUMMARY
OF VOLATILE NON-PRIORITY POLLUTANT COMPOUNDS
FOR UNION CHEMICAL
PROJECT NO. 611046

PARAMETERS	CAS NUMBER[1]	SAMPLE IDENTIFICATION U-TP-2	U-TP-4
		Concentration mg/kg[2]	
Acetone	67-64-1	0.24	<0.10
2-Butanone	78-93-3	<0.10	<0.10
Carbon disulfide	75-15-0	<0.010	<0.010
2-Hexanone	591-78-6	<0.10	<0.10
4-Methyl-2-pentanone	108-10-1	<0.10	<0.10
Styrene	100-42-5	<0.010	<0.010
Vinyl acetate	108-05-4	<0.10	<0.10
Total xylenes	95-47-6	0.12	0.52

(1) The numbers presented in this column are the Chemical Abstracts Service (CAS) numbers used for cataloging the indicated compounds in the Chemical Abstracts Index.

(2) mg/kg = milligrams per kilogram or parts per million.

IT CORPORATION

Memorandum

To: J. Hosler
D. Holzman
G. Gaillot

Date: October 10, 1985

From: R. M. Burke RMB 10/11/85
S. H. Cochenour
D. J. Nestasie DJN 10/11/85

Subject: Transmittal
Analytical Results for Union Chemicals, Carteret, New Jersey
Project No. 67-1030

IT Analytical Services (ITAS) Murrysville Laboratory has completed the analysis of the seventeen water and two soil samples received in our laboratory on September 9, 1985, Results of the analyses are presented in the enclosed tables and were determined in accordance with U.S. Environmental Protection Agency and Standard Methods, 16th Ed. analytical procedures.

Should you have any questions or need additional information, please contact us at the Murrysville Laboraory.

RMB:SHC:DJN:pas
Enclosures

C45

TABLE 1

WATER ANALYSIS SUMMARY
OF VOLATILE PRIORITY POLLUTANT RESULTS
FOR UNION CHEMICALS, CARTERET, NEW JERSEY
PROJECT NO. 67-1030

PARAMETER	CAS NUMBER(1)	SAMPLE IDENTIFICATION MW-1T	MW-2T	MW-3T	MW-4T
		Concentration µg/ℓ(2)			
Acrolein	107-02-8	<10	<10	<10	<10
Acrylonitrile	107-13-1	<10	<10	<10	<10
Benzene	71-43-2	7.3	22	22	2200
Bromoform	75-25-2	<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride	56-23-5	<1.0	<1.0	<1.0	<1.0
✓ Chlorobenzene	108-90-7	17	150	41	4200
Chlorodibromomethane	124-48-1	<1.0	<1.0	<1.0	<1.0
✓ Chloroethane	75-00-3	<1.0	6.8	25	1600
2-Chloroethylvinyl ether	110-75-8	<1.0	<1.0	<1.0	<1.0
Chloroform	67-66-3	<1.0	<1.0	<1.0	<1.0
Dichlorobromomethane	75-27-4	<1.0	<1.0	<1.0	<1.0
✓ 1,1-Dichloroethane	75-34-3	2.5	46	4.2	120
1,2-Dichloroethane	107-06-2	<1.0	<1.0	<1.0	9.9
✓ 1,1-Dichloroethylene	75-35-4	<1.0	8.6	<1.0	<1.0
1,2-Dichloropropane	78-87-5	<1.0	<1.0	<1.0	<1.0
✓ 1,3-Dichloropropylene(3)	542-75-6	<1.0	<1.0	<1.0	64
✓ Ethylbenzene	100-41-4	<1.0	<1.0	<1.0	280
Methyl bromide	74-83-9	<10	<10	<10	<10
Methyl chloride	74-87-3	<10	<10	<10	<10
Methylene chloride	75-09-2	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	79-34-5	<1.0	<1.0	<1.0	<1.0
✓ Tetrachloroethylene	127-18-4	<1.0	1.0	<1.0	2.8
✓ Toluene	108-88-3	1.0	6.6	<1.0	2800
✓ trans-1,2-Dichloroethylene	156-60-5	<1.0	2.8	1.3	62
✓ 1,1,1-Trichloroethane	71-55-6	<1.0	87	54	44
1,1,2-Trichloroethane	79-00-5	<1.0	<1.0	<1.0	<1.0
✓ Trichloroethylene	79-01-6	<1.0	2.2	<1.0	<1.0
✓ Vinyl Chloride	75-01-4	<10	<10	<10	15

TABLE 1

(Continued)

PARAMETER	CAS NUMBER(1)	SAMPLE IDENTIFICATION MW-5T	MW-6B	MW-6T	MW-7T
		Concentration µg/ℓ(2)			
Acrolein	107-02-8	<10	<100	<10	<10
Acrylonitrile	107-13-1	<10	<100	<10	<10
✓ Benzene	71-43-2	2500	49,000	85,000	320
Bromoform	75-25-2	<1.0	<10	<1.0	<1.0
Carbon Tetrachloride	56-23-5	<1.0	<10	<1.0	<1.0
✓ Chlorobenzene	108-90-7	23,000	230,000	150,000	2000
Chlorodibromomethane	124-48-1	<1.0	<10	<1.0	2.7
✓ Chloroethane	75-00-3	55	<10	4.1	<1.0
2-Chloroethylvinyl ether	110-75-8	<1.0	<10	<1.0	<1.0
✓ Chloroform	67-66-3	<1.0	<10	<1.0	12
Dichlorobromomethane	75-27-4	<1.0	<10	<1.0	<1.0
✓ 1,1-Dichloroethane	75-34-3	12	<10	2.5	<1.0
✓ 1,2-Dichloroethane	107-06-2	3.7	<10	<1.0	2.4
1,1-Dichloroethylene	75-35-4	<1.0	<10	<1.0	<1.0
1,2-Dichloropropane	78-87-5	<1.0	<10	<1.0	<1.0
1,3-Dichloropropylene(3)	542-75-6	<1.0	<10	<1.0	<1.0
✓ Ethylbenzene	100-41-4	2700	<10	2600	230
Methyl bromide	74-83-9	<10	<100	<10	<10
Methyl chloride	74-87-3	<10	<100	<10	<10
✓ Methylene chloride	75-09-2	<10	630	21	<10
✓ 1,1,2,2-Tetrachloroethane	79-34-5	15	<10	<1.0	<1.0
✓ Tetrachloroethylene	127-18-4	<1.0	200	320	<1.0
✓ Toluene	108-88-3	570	2700	5200	37
✓ trans-1,2-Dichloroethylene	156-60-5	1.0	640	74	2.4
✓ 1,1,1-Trichloroethane	71-55-6	<1.0	<10	4.1	450
1,1,2-Trichloroethane	79-00-5	<1.0	<10	<1.0	<1.0
✓ Trichloroethylene	79-01-6	<1.0	<10	11	<1.0
✓ Vinyl Chloride	75-01-4	<10	<100	10	<10

TABLE 1

(Continued)

PARAMETER	CAS NUMBER(1)	SAMPLE IDENTIFICATION MW-8B	MW-8T	MW-9B	MW-9T
		Concentration µg/ℓ(2)			
Acrolein	107-02-8	<10	<10	<10	<10
Acrylonitrile	107-13-1	<10	<10	<10	<10
✓ Benzene	71-43-2	17,000	18,000	2800	2300
Bromoform	75-25-2	<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride	56-23-5	<1.0	<1.0	<1.0	<1.0
✓ Chlorobenzene	108-90-7	140,000	130,000	1500	230
Chlorodibromomethane	124-48-1	<1.0	<1.0	<1.0	<1.0
✓ Chloroethane	75-00-3	<1.0	<1.0	65	67
2-Chloroethylvinyl ether	110-75-8	<1.0	<1.0	<1.0	<1.0
Chloroform	67-66-3	<1.0	<1.0	<1.0	<1.0
Dichlorobromomethane	75-27-4	<1.0	<1.0	<1.0	<1.0
✓ 1,1-Dichloroethane	75-34-3	5.6	4.1	7.7	6.0
1,2-Dichloroethane	107-06-2	<1.0	<1.0	<1.0	<1.0
✓ 1,1-Dichloroethylene	75-35-4	1.7	1.4	<1.0	<1.0
1,2-Dichloropropane	78-87-5	<1.0	<1.0	<1.0	<1.0
✓ 1,3-Dichloropropylene(3)	542-75-6	<1.0	<1.0	79	37
✓ Ethylbenzene	100-41-4	1400	1800	300	44
Methyl bromide	74-83-9	<10	<10	<10	<10
✓ Methyl chloride	74-87-3	14	<10	<10	<10
Methylene chloride	75-09-2	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	79-34-5	<1.0	<1.0	<1.0	<1.0
✓ Tetrachloroethylene	127-18-4	940	1100	<1.0	<1.0
✓ Toluene	108-88-3	990	580	18	<1.0
✓ trans-1,2-Dichloroethylene	156-60-5	280	220	4.6	<1.0
✓ 1,1,1-Trichloroethane	71-55-6	330	280	15	110
1,1,2-Trichloroethane	79-00-5	<1.0	<1.0	<1.0	<1.0
Trichloroethylene	79-01-6	<1.0	<1.0	<1.0	<1.0
✓ Vinyl Chloride	75-01-4	49	60	~~<10~~	10

C48

TABLE 1

(Continued)

PARAMETER	CAS NUMBER(1)	SAMPLE IDENTIFICATION				
		MW-10B	MW-10T	MW-11B	MW-11T	MW-1
		Concentration µg/ℓ(2)				
Acrolein	107-02-8	<10	<10	<10	<10	<10
Acrylonitrile	107-13-1	<10	<10	<10	<10	<1(
Benzene	71-43-2	120	61	240	240	<1.
Bromoform	75-25-2	<1.0	<1.0	<1.0	<1.0	<1.
Carbon Tetrachloride	56-23-5	<1.0	<1.0	<1.0	<1.0	<1.
Chlorobenzene	108-90-7	13	<1.0	310	300	16
Chlorodibromomethane	124-48-1	<1.0	<1.0	<1.0	<1.0	<1.
Chloroethane	75-00-3	47	38	6.6	5.9	<1.
2-Chloroethylvinyl ether	110-75-8	<1.0	<1.0	<1.0	<1.0	<1.
Chloroform	67-66-3	<1.0	<1.0	<1.0	<1.0	<1.
Dichlorobromomethane	75-27-4	<1.0	<1.0	<1.0	<1.0	<1.
1,1-Dichloroethane	75-34-3	<1.0	<1.0	<1.0	<1.0	1.1
1,2-Dichloroethane	107-06-2	<1.0	<1.0	1.1	<1.0	<1.
1,1-Dichloroethylene	75-35-4	<1.0	<1.0	<1.0	<1.0	<1.
1,2-Dichloropropane	78-87-5	<1.0	<1.0	<1.0	<1.0	<1.
1,3-Dichloropropylene(3)	542-75-6	<1.0	<1.0	6.2	6.0	<1.
Ethylbenzene	100-41-4	480	<1.0	<1.0	<1.0	<1.
Methyl bromide	74-83-9	<10	<10	<10	<10	<10
Methyl chloride	74-87-3	<10	<10	<10	<10	<10
Methylene chloride	75-09-2	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	79-34-5	<1.0	<1.0	2.2	<1.0	1.9
Tetrachloroethylene	127-18-4	<1.0	<1.0	<1.0	<1.0	<1.
Toluene	108-88-3	220	2.1	3.0	1.8	<1.
trans-1,2-Dichloroethylene	156-60-5	<1.0	<1.0	<1.0	<1.0	1.4
1,1,1-Trichloroethane	71-55-6	<1.0	<1.0	<1.0	<1.0	<1.
1,1,2-Trichloroethane	79-00-5	<1.0	<1.0	<1.0	<1.0	<1.
Trichloroethylene	79-01-6	<1.0	<1.0	<1.0	<1.0	<1.
Vinyl Chloride	75-01-4	<10	<10	<10	<10	<10

TABLE 2

WATER ANALYSIS SUMMARY
OF VOLATILE NON-PRIORITY POLLUTANT COMPOUNDS
FOR UNION CHEMICALS, CARTERET, NEW JERSEY
PROJECT NO. 67-1030

		SAMPLE IDENTIFICATION			
		Concentration μg/ℓ(2)			
PARAMETERS	CAS NUMBER(1)	MW-1T	MW-2T	MW-3T	MW-4T
Acetone	67-64-1	<10	<10	<10	16
2-Butanone	78-93-3	<10	<10	<10	<10
Carbon disulfide	75-15-0	13	18	<10	46
2-Hexanone	591-78-6	<10	<10	<10	<10
4-Methyl-2-pentanone	108-10-1	<10	<10	<10	26
Styrene	100-42-5	<1.0	<1.0	<1.0	7.6
Vinyl acetate	108-05-4	<10	<10	<10	<10
Xylenes, Total	95-47-6	<1.0	<1.0	<1.0	920

C50

TABLE 2

(Continued)

PARAMETERS	CAS NUMBER(1)	SAMPLE IDENTIFICATION Concentration µg/ℓ(2) MW-5T	MW-6B	MW-6T	MW-7T
Acetone	67-64-1	28	<100	<10	65
2-Butanone	78-93-3	100	<100	<10	62
Carbon disulfide	75-15-0	<10	<100	<10	<10
2-Hexanone	591-78-6	<10	<100	<10	<10
4-Methyl-2-pentanone	108-10-1	<10	<100	<10	<10
Styrene	100-42-5	39	<10	250	<1.0
Vinyl acetate	108-05-4	<10	<100	<10	<10
Xylenes, Total	95-47-6	4500	2200	24,000	890

TABLE 2

(Continued)

PARAMETERS	CAS NUMBER[1]	SAMPLE IDENTIFICATION Concentration µg/ℓ[2] MW-8B	MW-8T	MW-9B	MW-9T
Acetone	67-64-1	22	12	17	<10
2-Butanone	78-93-3	89	<10	78	100
Carbon disulfide	75-15-0	<10	<10	<10	<10
2-Hexanone	591-78-6	<10	<10	<10	<10
4-Methyl-2-pentanone	108-10-1	<10	<10	<10	<10
Styrene	100-42-5	210	180	45	<1.0
Vinyl acetate	108-05-4	<10	<10	<10	<10
Xylenes, Total	95-47-6	750	620	1500	250

C52

TABLE 2

(Continued)

PARAMETERS	CAS NUMBER(1)	SAMPLE IDENTIFICATION Concentration µg/ℓ(2) MW-10B	MW-10T	MW-11B	MW-11T
Acetone	67-64-1	<10	<10	<10	<10
2-Butanone	78-93-3	<10	<10	<10	<10
Carbon disulfide	75-15-0	48	18	<10	48
2-Hexanone	591-78-6	<10	<10	<10	<10
4-Methyl-2-pentanone	108-10-1	<10	<10	<10	<10
Styrene	100-42-5	110	<1.0	<1.0	<1.0
Vinyl acetate	108-05-4	<10	<10	<10	<10
Xylenes, Total	95-47-6	10,000	540	<1.0	<1.0

Form ADM-012

MEMO

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO FILE - UNION CHEMICALS CO. DATE

FROM FRANK FARANCA, HSMS IV, BUREAU OF PLANNING AND ASSESSMENT

SUBJECT SITE RECONNAISSANCE AND CORRESPONDENCE

At 1100 hours on 5-18-87 a site reconnaissance was conducted by the writer at Union Chemicals Co., Carteret Borough, Middlesex County. The site is adjacent to Noes Creek which is a tributary to the Arthur Kill. The area is heavily industrialized and various chemical odors are present all along Roosevelt Avenue. A hydraulic gradient exists on site with surface water runoff flowing from west to east.

A conversation was held with Mr. Francis Cap, Carteret Health Administrator at 1130 hours on 5-18-87. Mr. Cap stated that there are no private wells within the vicinity of Union Chemicals and the closest residential dwelling is 500 feet to the south-west.

A telecon was held with Mr. Nigel Robinson, USEPA Project Manager-Region II on 5-15-87. Mr. Robinson stated that he has reviewed the work plan prepared by IT Corporation for the remediation of Union Chemicals Company and determined that additional information was needed. Specifically, additional samples were required to determine the full extent of the contaminated plume beneath the facility. Additionally, there has not been any site cleanup instituted other than the sorbent pads which were put into place at the time of the spills.

ATTACHMENT D