UNION CARBIDE CORPORATION
CHEMICALS AND PLASTICS

UNION CARBIDE

P. O. BOX 186
PORT LAVACA, TEXAS 77979

March 10, 1981

RN 30129

Mr. Jay Snow, PE
Chief, Solid Waste Section
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

TXD041515420

Re: Review Package for Extension of Landfill Activities for Industrial Solid Waste at Union Carbide, Seadrift Plant, Calhoun County

SUPERFUND FILE
OCT 09 1992
REORGANIZED

Dear Mr. Snow:

Enclosed are two copies of an information package which describes our plans to extend our landfill activities for on-site disposal of industrial solid waste at Union Carbide's Seadrift Plant. We believe our plans are consistent with the current guidelines of the Texas Department of Water Resources, and we hereby request review of these plans by your staff to confirm this.

Our currently developed landfill area is filling up and we project a Fourth Quarter of 1982 "completely full" date. Accordingly, we are designing an extension of our landfill activities to support operation of our plant beyond 1982. We have discussed our project with you and your staff beginning in May, 1979. On December 13, 1979, we met with you, Steve Jones and Russell Lewis to discuss preliminary design concepts. Most recently, we met with Steve Jones and Alan Messenger on December 16, 1980, to discuss design, subsurface conditions, and Texas Department of Water Resources information requirements. The enclosed information package and our design have benefited from these discussions.

We do not believe our extension requires pre-operational permitting as a new facility but rather is a proper interim status activity. We have filed timely RCRA notification and Part A Permit Applications and believe we have interim status. I discussed our plans with Mr. Paul Seils of the Texas Department of Water Resources legal staff on December 16, 1980 and he concurred that our activity was clearly acceptable without new permitting under state regulation. We would appreciate notification by April 11, 1981, if you do not agree with our plans to proceed under interim status.

ATTACHMENT

9524784

Our project schedule is based upon receiving a favorable Texas Department of Water Resources review by October 1, 1981 and we are anxious to work with your staff to achieve this. As mentioned earlier, our current landfill space will be fully utilized by the end of 1982 and the extension is needed by then to support plant operations.

Please let me know if you have questions or need more information.

Very truly yours,

Val D. Dutcher

Val D. Dutcher

VDD:rjj

Last ATTACHMENT 4-28-81

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1) Cover Sheet
2) Facility List
3) Generators Checklist and Attachment
4) Facilities Checklist
5) Landfill
6) Surface Impoundment Checklist (landfill runoff retention pond)
7) Tanks Checklist (6 tanks)
8) Thermal Treatment Checklist (4 national air oil burners)
9) Ground Water Monitoring Checklist

## Facilities List

1) Landfill *

2) Landfill Retention Pond *

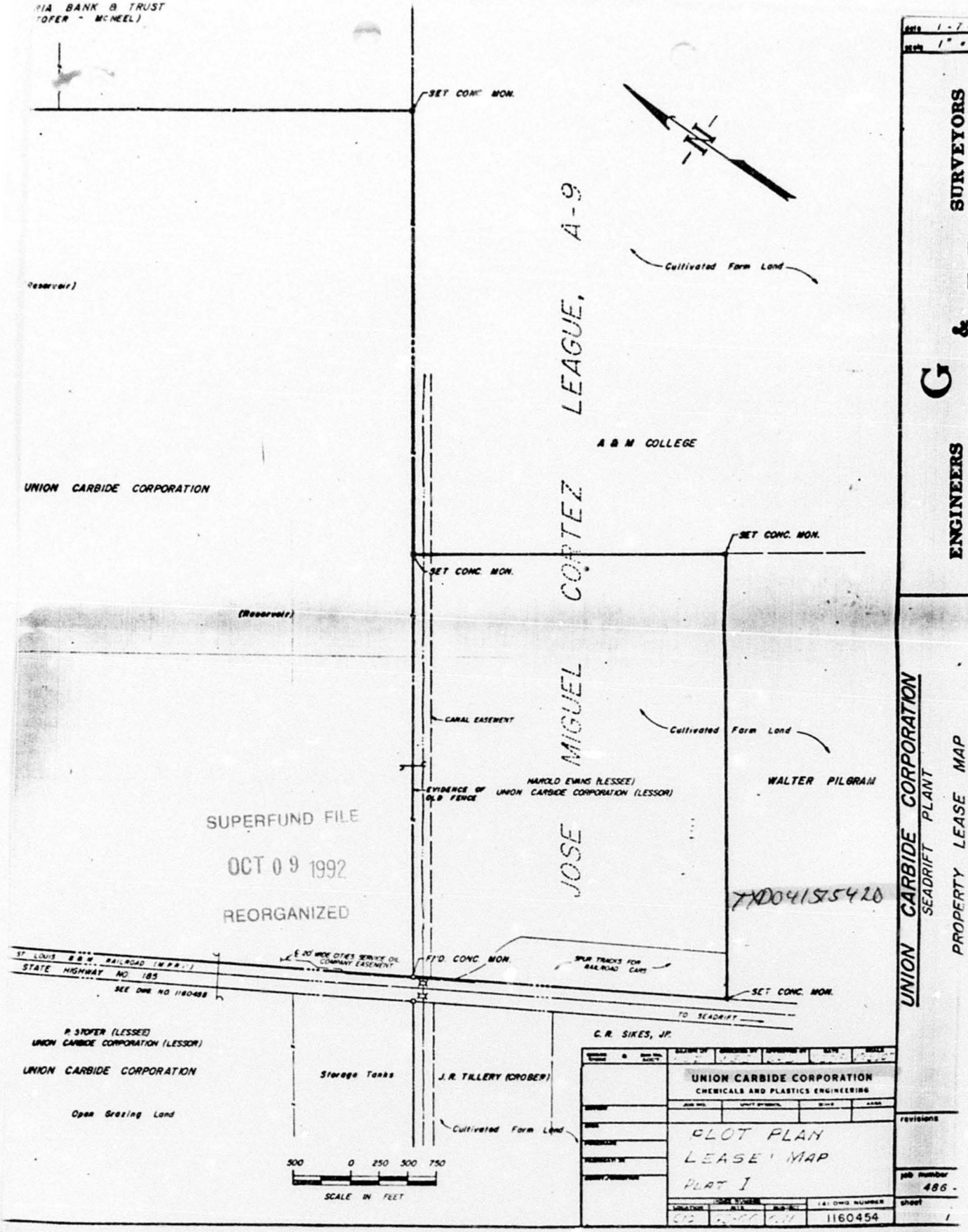
3) Drum and Bulk Storage (6 tanks) *

4) Residue Burners (4 national air oil burners) *

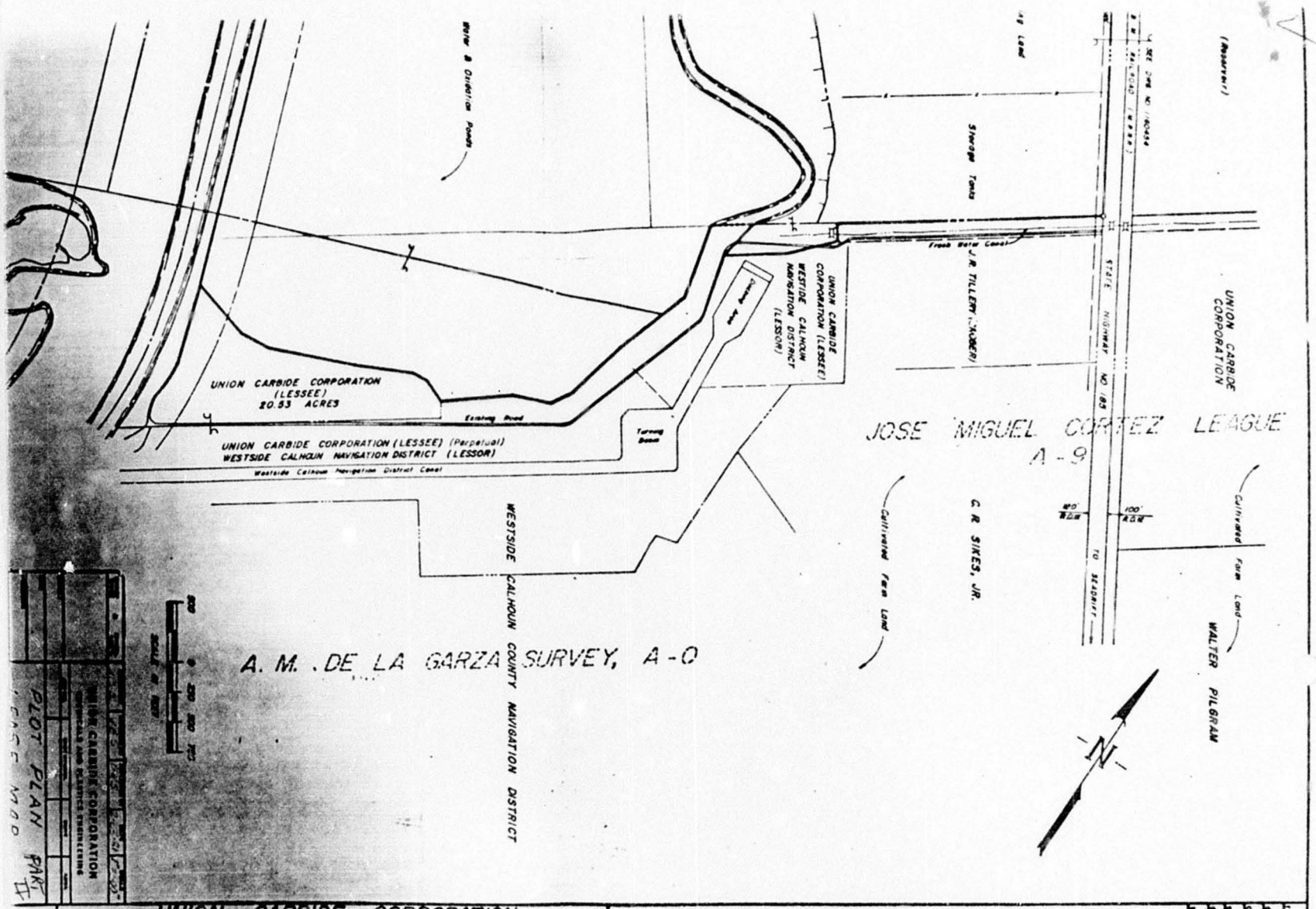
5) Residue Bulk Storage (6,000 gallon tank trailer)
   90 day

6) Drum Storage Facilities * 90 day

* interim status hazardous waste facilities



RIA BANK & TRUST
TOFER - McNEEL)
SET CONC. MON.
Reservoir)
UNION CARBIDE CORPORATION
(Reservoir)
SET CONC. MON.
SET CONC. MON.
CANAL EASEMENT
EVIDENCE OF OLD FENCE
HAROLD EVANS (LESSEE)
UNION CARBIDE CORPORATION (LESSOR)
JOSE MIGUEL CORTEZ LEAGUE, A-9
A & M COLLEGE
Cultivated Farm Land
Cultivated Farm Land
WALTER PILGRAM
SUPERFUND FILE
OCT 09 1992
REORGANIZED
TXD041575420
ST. LOUIS B & M RAILROAD (M.P.R.R.)
STATE HIGHWAY NO. 185
SEE DWG. NO. 1160458
℄ 20' WIDE CITIES SERVICE OIL COMPANY EASEMENT
FI'D. CONC. MON.
SPUR TRACKS FOR RAILROAD CARS
SET CONC. MON.
TO SEADRIFT
C.R. SIKES, JR.
P. STOFER (LESSEE)
UNION CARBIDE CORPORATION (LESSOR)
UNION CARBIDE CORPORATION
Open Grazing Land
Storage Tanks
J.R. TILLERY (CROBER)
Cultivated Farm Land
500 0 250 500 750
SCALE IN FEET
UNION CARBIDE CORPORATION
CHEMICALS AND PLASTICS ENGINEERING
PLOT PLAN
LEASE MAP
PLAT I
1160454
date 1-7-6
scale 1" = 50
ENGINEERS G & SURVEYORS
UNION CARBIDE CORPORATION
SEADRIFT PLANT
PROPERTY LEASE MAP
revisions
job number 486 -
sheet 1




**UNION CARBIDE CORPORATION**

SEADRIFT PLANT

PROPERTY LEASE MAP

ENGINEERS G & W SURVEYORS

PORT LAVACA, TEXAS — BAY CITY, TEXAS

| | |
|---|---|
| Drawn by | D.W.G. |
| Checked by | W.L.Z. |
| Approved by | O.W.D. |
| Date | T.E.T. |
| Scale | 1-9-81 |
| Scale | 1" = 500' |

# WASTE CHARACTERIZATION

In annual waste summaries to the Texas Department of Water Resources, plant waste loads have been categorized on a general basis. Quantities are given for each of these general categories.

The following table breaks down these large categories into unit and waste stream categories. Quantities of wastes are included. Health-Fire-Stability (H-F-S) ratings are given where available to further characterize the residues. The UCC H-F-S explanation is attached to aid in understanding the ratings. The Texas waste codes are given with the general categories to correspond with the annual waste summary. Quantities are based on 1980 operating data.

UNION CARBIDE CORP
TXD 041515420

SUPERFUND FILE
OCT 07 1992
REORGANIZED

ATTACHMENT

# WASTE SUMMARY

(H-F-S ratings in parentheses)

| WASTE | QUANTITY | CODE |
|---|---|---|
| Plant Trash | 2,950 Tons | 279760 |
| Water Treating Sludge | 5,591 Tons | 240150 |
| Olefins Sludge (4-2-0) | 6 Tons | 149530 |
| Mixed Solids | 55 Tons | 171470 |
| Polyethylene | | |
| - Catalyst | 11,400 lbs | (4-4-3) |
| - Additive | 13,000 lbs | (1-1-1) |
| - Molecular sieve and catalyst | 1,000 lbs | (4-4-3) |
| - Caustic contaminated material | 30 lbs | (4-1-1) |
| - Inhibitor | | (4-1-1) |
| Laboratory | | |
| - Pyrolysis Fuel Oil contaminated material | 60 lbs | (4-2-1) |
| Oxo | | |
| - Catalyst | 3,700 lbs | (2-0-1) |
| - Activated alumina | 30,000 lbs | (1-0-2) |
| - Perlite insulation | 8,400 lbs | (1-0-1) |
| Energy Systems | | |
| - Lime | 3,200 lbs | (4-0-3) |
| - Coal filter | 28,400 lbs | (1-1-1) |
| Olefins #1 | | |
| - Catalyst | 2,400 lbs | (1-0-2) |
| - Activated carbon & ceramic balls | 4,900 lbs | |
| Molecular Sieve | 12 Tons | 171980 |
| Asbestos Insulation | 31 Tons | 170750 |

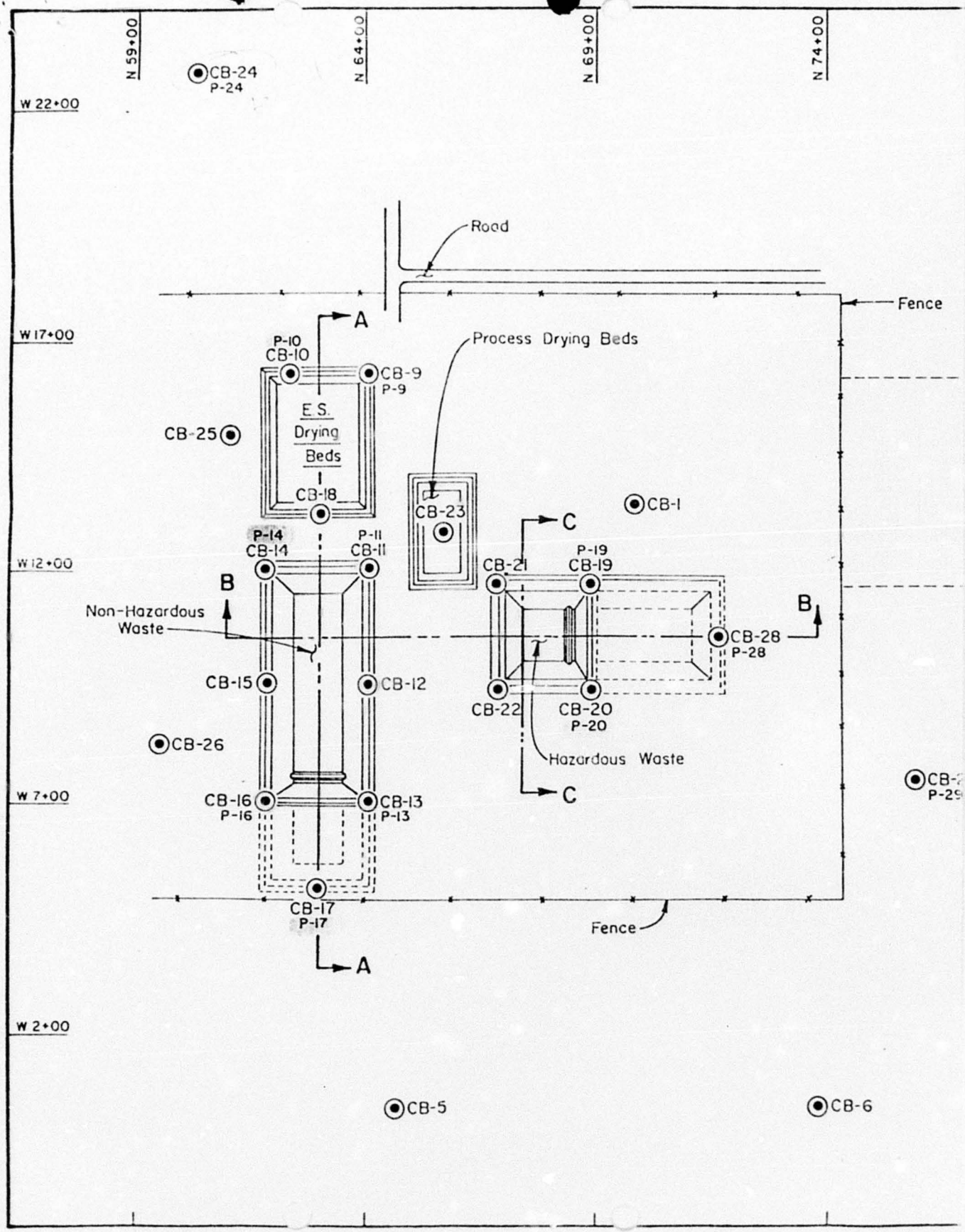
ATTACHMENT

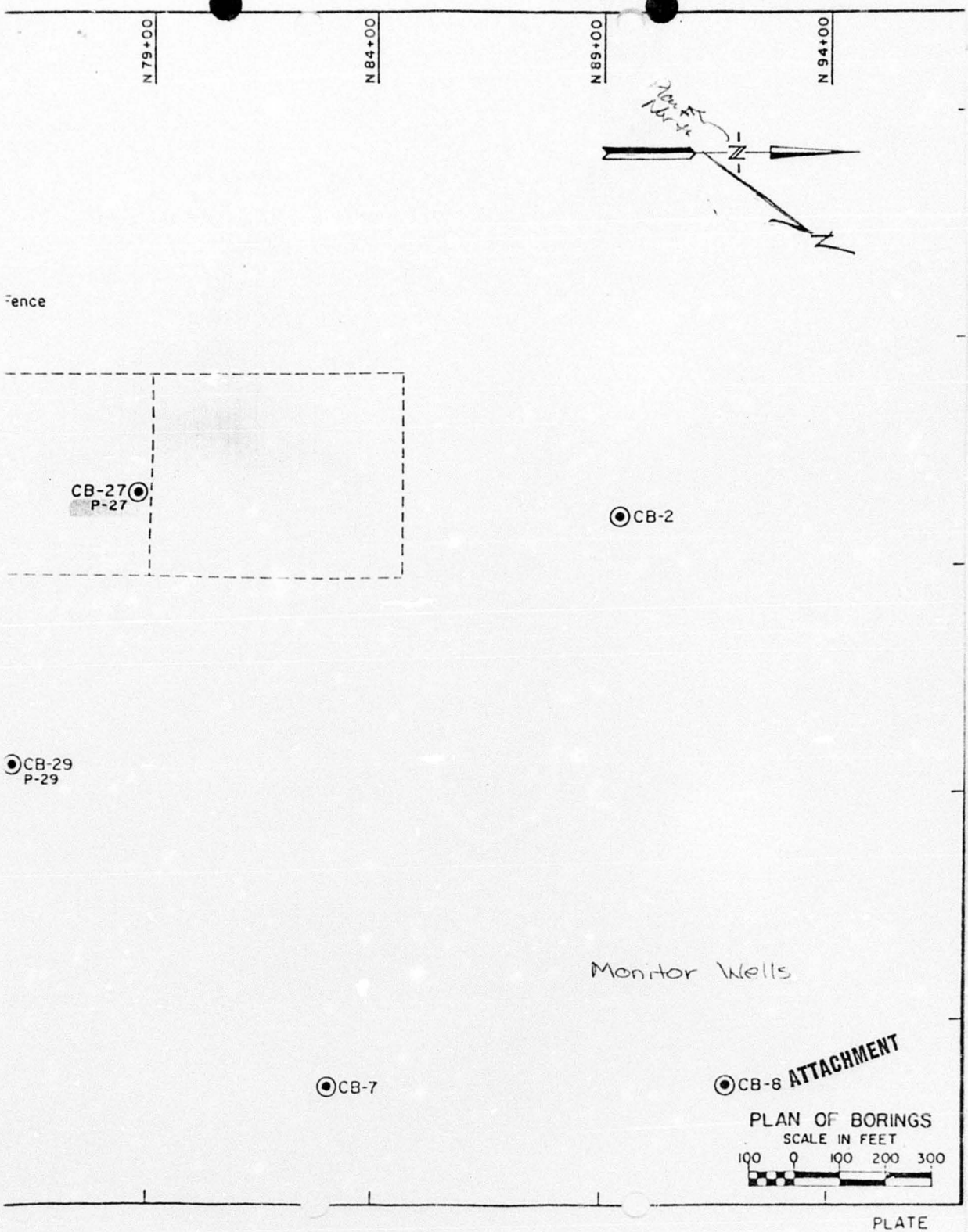
| WASTE | QUANTITY | CODE |
|---|---|---|
| Miscellaneous Liquid Wastes | 55 Tons | 109580 |
| Environmental Protection | | |
| - oil and sludge | 6,000 lbs | (1-1-1) |
| Olefins | | |
| - Pyrolysis Fuel Oil | 4,200 lbs | (4-2-1) |
| Laboratory | | |
| - Pitch | 700 lbs | (4-2-1) |
| Polyethylene | | |
| - Additives | 22,400 lbs | (2-1-1) |
| - Polyoils & waxes, isopropanol, acetone, Polyvinyl acetate, vinyl acetate | 72,500 lbs | (3-4-3) |
| Oxide | | |
| - Sag 470 - antifoam | 1,200 lbs | (I-I-1) |
| Stores | | |
| - Additive | 2,700 lbs | (2-1-1) |
| Miscellaneous Plant Wastes | 168 Tons | 170770 |
| Polyethylene | | |
| - Additives | 800 lbs | (2-1-1) |
| - Molecular sieve | 500 lbs | (1-1-2) |
| - Silica base | 2,000 lbs | (2-1-1) |
| - Filtrol - acid clay | 17,000 lbs | (1-1-1) |
| - Catalyst | 1,600 lbs | (4-4-4) |
| - Sludge & polyethylene | 139,900 lbs | (3-2-1) |
| - Empty Drums | 100 lbs | |
| Environmental Protection | | |
| - Tar contaminated material | 5,000 lbs | (4-1-1) |
| - Process sewer sludge | 3,250 lbs | (1-1-1) |
| - Pyrolysis Fuel Oil contaminated material | 6,100 lbs | (4-2-1) |

ATTACHMENT

| WASTE | QUANTITY | CODE |
|---|---|---|
| Miscellaneous Plant Wastes | | |
| Laboratory | | |
| - Steel cylinder with polymerized butadiene | 5 lbs | (2-4-3) |
| - Reactor waste | 20 lbs | (4-4-4) |
| - Reactor waste | 130 lbs | (3-2-3) |
| - Reactor waste & trash | 180 lbs | (4-4-3) |
| - Reactor waste | 200 lbs | (4-3-1) |
| Oxo | | |
| - Wood chips, $Fe_2O_3$, $Na_2CO_3$ | 47,400 lbs | (3-1-1) |
| - Filtrol - $H_2SO_4$ impregnated clay | 3,250 lbs | (2-1-1) |
| - Filter elements with butanol | 120 lbs | (3-4-3) |
| - Iron oxide flakes | 600 lbs | (1-[illegible]-1) |
| - Cobalt hydrate and mud | 10 lbs | (3-1-1) |
| Energy Systems | | |
| - Vermiculite insulation | 150 lbs | non-haz. |
| Oxide | | |
| - Organic contaminated insulation | 37,300 lbs | (2-1-1) |
| - Filter and oil | 180 lbs | (1-1-1) |
| Stores | | |
| - Empty caustic bags | 40 lbs | (4-0-2) |
| - Boric acid | 7,200 lbs | (3-0-1) |
| - Silica | 1,100 lbs | (2-0-1) |
| - Additive | 2,500 lbs | (2-1-1) |
| Olefins #1 | | |
| - C2 column polymer | 550 lbs | (2-4-2) pyrophoric |
| - C3 column polymer | 1,200 lbs | (2-4-4) pyrophoric |
| - Pyrolysis Fuel Oil contaminated material | 46,700 lbs | (4-2-1) |
| - Pyrolysis Fuel Oil still packing | 850 lbs | (2-4-2) |
| - Empty additive drum | 60 lbs | (4-1-1) |
| - Butadiene polymer | 2,800 lbs | (1-4-2) |
| - Scrubber grid polymer & contaminated material | 50 lbs | (1-4-3) |
| - Activated carbon & diethylamine | 7,000 lbs | (3-1-1) |
| Organic Contaminated Soil | 161 Tons | 179850 |

ATTACHMENT


N 59+00
N 64+00
N 69+00
N 74+00
W 22+00
W 17+00
W 12+00
W 7+00
W 2+00
CB-24
P-24
Road
Fence
A
Process Drying Beds
P-10
CB-10
CB-9
P-9
E.S.
Drying
Beds
CB-25
CB-18
CB-23
CB-1
C
P-14
CB-14
P-11
CB-11
CB-21
P-19
CB-19
B
Non-Hazardous
Waste
CB-28
P-28
CB-15
CB-12
CB-22
CB-20
P-20
CB-26
Hazardous Waste
CB-16
P-16
CB-13
P-13
CB-17
P-17
Fence
A
CB-5
CB-6


N 79+00
N 84+00
N 89+00
N 94+00
Fence
CB-27
P-27
CB-2
CB-29
P-29
Monitor Wells
CB-7
CB-6
ATTACHMENT
PLAN OF BORINGS
SCALE IN FEET
100 0 100 200 300

PLATE

EXISTING WATER WELLS IN THE
VICINITY OF LANDFILL AREA

| Well No. | Depth ft. | Screened Section | S.L. ft. | Yield GPM | Chloride Content, ppm |
|---|---|---|---|---|---|
| 3A | 220 | 192-200 | 20.5 | 100 | |
| 3B | 223 | 210-220 | 24 | 30 | Chlorides 850 |
| 3C | 224 | 213-223 | 29 | 20 | |
| 3C | 228 | 208-228 | 20 | 48 | |
| 3D | 216 | 204-214 | 20 | 150 | Chlorides 1100 |
| 3F | 227 | 216-226 | 19 | 100 | |
| 3J | 100 | 85-100 | 10 | | |
| 3M | 202 | 190-200 | 20 | 50 | |
| 3N | 260 | 240-260 | | | |
| 901 | 295 | 125-145 | | | |
| | | 170-195 | | | |
| | | 215-250 | | | |
| | | 265-290 | | | |
| 8C | 240 | 229-239 | 31 | 45 | Chlorides 650 |
| 9A | 95 | 85-95 | 16 | 100 | |
| 9A | 233 | 221-231 | 29 | 125 | |
| 9A | 105 | 96-101 | 17 | 40 | |
| 9B | 243 | 232-242 | 57 | 10 | Chlorides 650 |
| 9C | 216 | 195-216 | 34 | | |
| 9D | 347 | 252-260 | 22 | 20 | |
| 9E | 103 | 88-103 | 10 | | |
| 9F | 105 | 96-101 | 17 | 40 | |
| 9F | 103 | 98-103 | 16 | 40 | |
| 7E | 110 | 100-110 | 10 | | |
| 7H | 93 | 83-93 | 18 | 40 | |
| 7H | 96 | 91-96 | 18 | 30 | |

ATTACHMENT

# LOG OF BORING NO. CB-9

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | SURF. ELEV.: 29.2' | | | | | | |
| | | | Firm dark gray clay, organic w/calcareous nodules | | | | | | |
| | | | - very soft at 3' | | | | | | |
| | | | - stiff below 4' | | | | | | |
| 5 | | | - light tan, light gray and slightly slickensided below 6' | | 87 | 32 | 43 | | |
| | | | - very stiff at 9' (CH) | | | | | | |
| 10 | | | Medium dense dark tan silty sand, slightly clayey | | | | | | |
| | | | (SM) | 21/50 | | | | | |
| 15 | | | | | | | | | |
| 20 | | | | | | | | | |
| 25 | | | | | | | | | |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 15'
DATE: October 23, 1980

ATTACHMENT

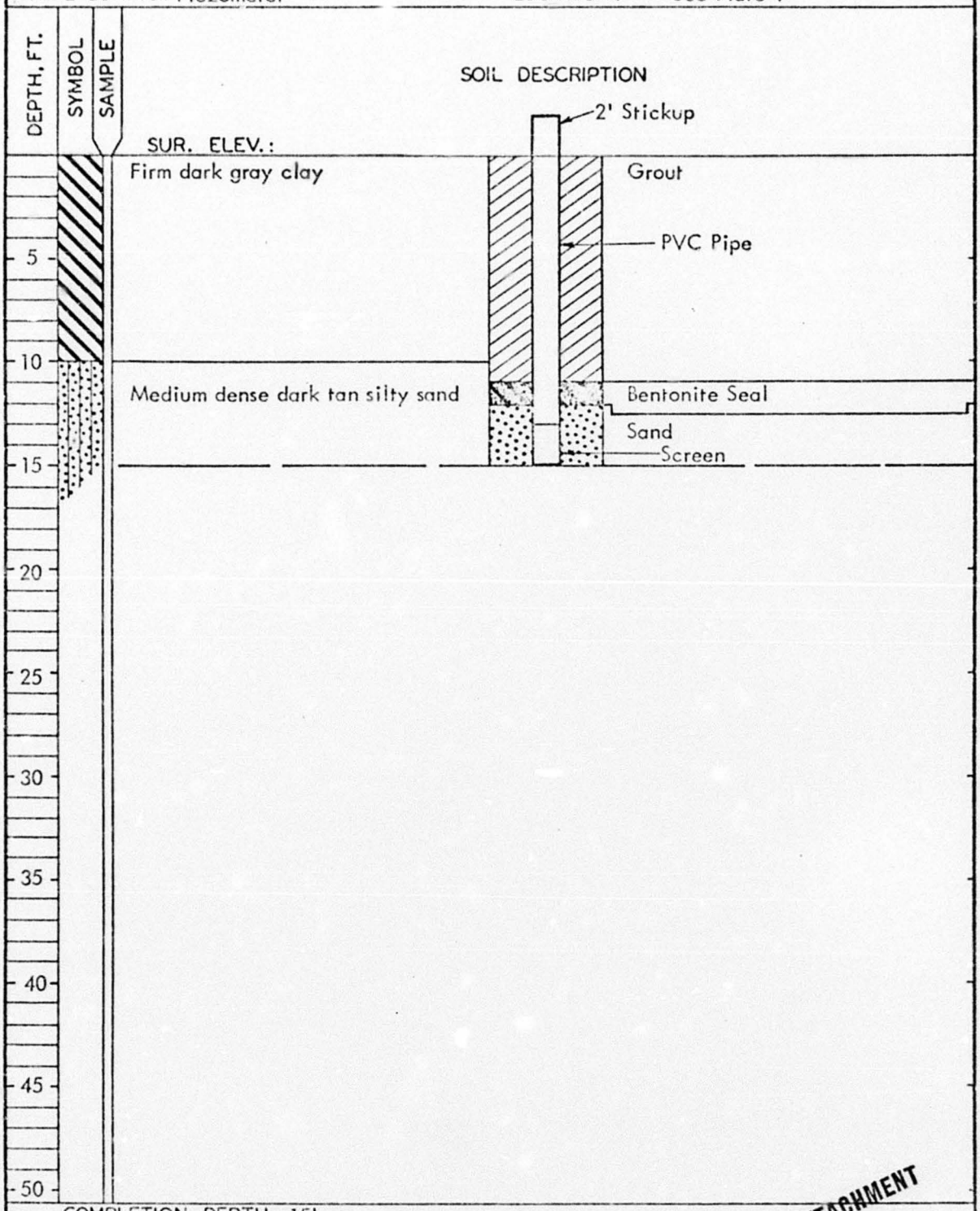
NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. P-9

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1




COMPLETION DEPTH: 15'
DATE: October 23, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: | BLOWS PER FT. | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm dark gray clay, organic w/ calcareous nodules | | | | | | |
| | | | | | 97 | 36 | 49 | | 72 |
| 5 | | | - light gray and tan below 5' | | | | | | |
| | | | - slickensided below 8' | | | | | | |
| | | | - very stiff at 9' | | | | | | |
| 10 | | | (CH) | | | | | | |
| | | | Medium dense tan silty fine sand (SM) | 15 | | | | | |
| 15 | | | | | | | | | |
| 20 | | | | | | | | | |
| 25 | | | | | | | | | |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 15'
DATE: October 31, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-11

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.9' | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm dark gray clay, organic w/ calcareous nodules | | | | | | |
| | | | - stiff light gray and light tan below 4' | | | | 22 | | 90 |
| 5 | | | - tan and slightly slickensided below 6' (CH) | | | | | | |
| 10 | | | Stiff tan sandy clay (CL) | 88 | | | | | |
| | | | Medium dense light tan clayey sand<br>- clay seam, 13'-14.5' (SC) | 20/43 | | | | | |
| 15 | | | | | | | | | |
| | | | Very stiff tan clay, slightly slickensided<br>- stiff at 18' | | | | | | |
| 20 | | | | | | | | | |
| 25 | | | | | | | | | |
| | | | - tan and light gray below 28' | | | | | | |
| 30 | | | | | | | | | |
| | | | - w/gypsum crystals, 33'-40'<br>- w/occasional calcareous nodules at 34' | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| | | | - stiff at 44' | | 90 | 31 | 39 | | |
| 45 | | | - w/silty sand seam and vertical calcareous vein, 44'-44.5' | | | | | | |
| | | | - gray w/occasional shell, 49'-49.2' (CH) | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 25, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

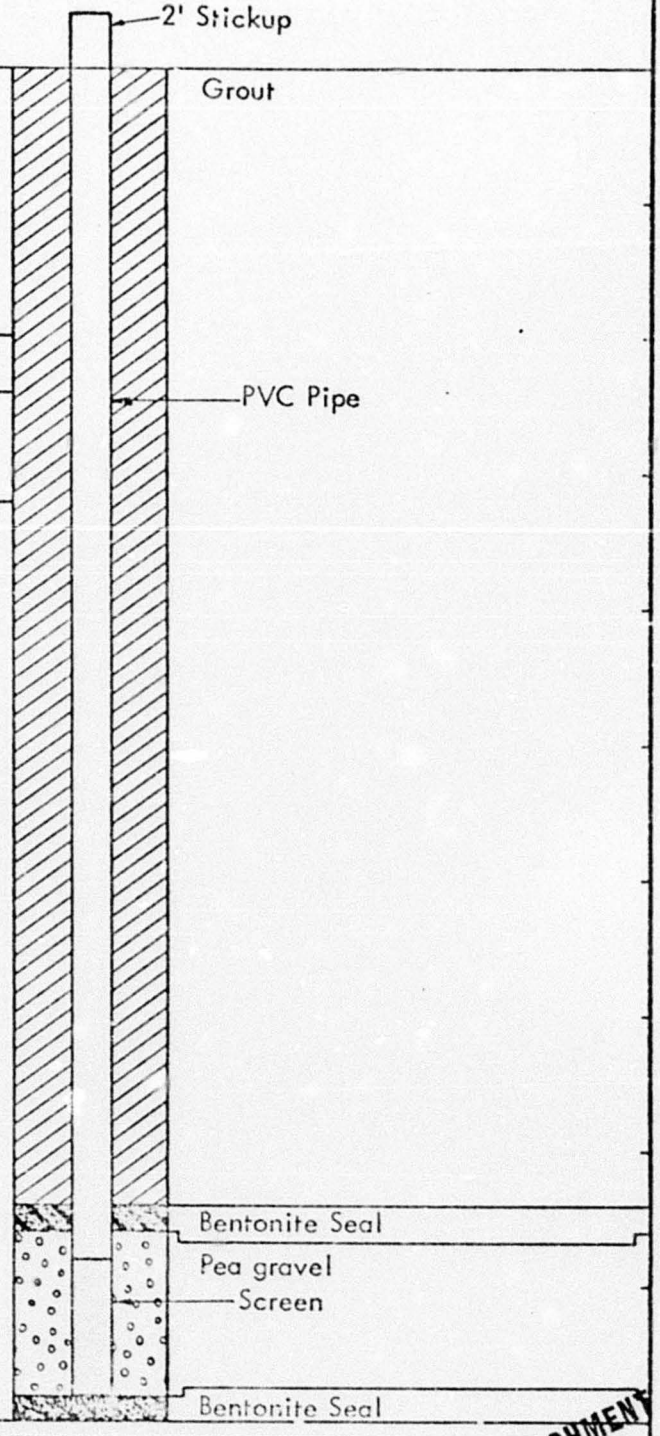
# LOG OF BORING NO. P-11

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer

LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLE | SOIL DESCRIPTION |
|---|---|---|---|
| | | | SUR. ELEV.: |
| | | | Firm dark gray clay |
| 5 | | | |
| 10 | | | Stiff tan sandy clay |
| | | | Medium dense light tan clayey sand |
| 15 | | | Very stiff tan clay |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |




COMPLETION DEPTH: 50'
DATE: October 25, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-12

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

SURF. ELEV.: 28.5'

| DEPTH, FT. | SOIL DESCRIPTION | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|
| | Firm dark gray clay, organic w/ calcareous nodules | | 96 | 27 | 40 | |
| 5 | - stiff below 5' | | | | | |
| | - light gray and tan and slightly silty below 6' (CH) | | | | | |
| | Stiff light gray and tan sandy clay w/ calcareous nodules | | | | | |
| 10 | - firm below 10' (CL) | 62 | | | | |
| | Dense tan silty sand | 32 | | | | |
| 15 | - w/silty clay seam, 15'-15.4' | | | | | |
| | - medium dense below 15' (SM) | 24 | | | | |
| | Stiff to very stiff tan clay, slightly slickensided w/ferrous stains and occasional calcareous nodules | | | | | |
| 20 | - w/vertical sand seam at 19' | | | | 40 | 89 |
| 25 | | | | | | |
| | - w/numerous sand seams, 28'-28.5' | | 39 | 15 | 22 | |
| 30 | | | | | | |
| | - light tan and light gray below 33' | | | | | |
| 35 | | | | | | |
| 40 | | | | | | |
| 45 | | | | | | |
| 50 | (CH) | 94 | | | | |

SHEAR STRENGTH IN TONS / SQ. FT.: 0.5 1.0 1.5

COMPLETION DEPTH: 50'
DATE: October 30, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

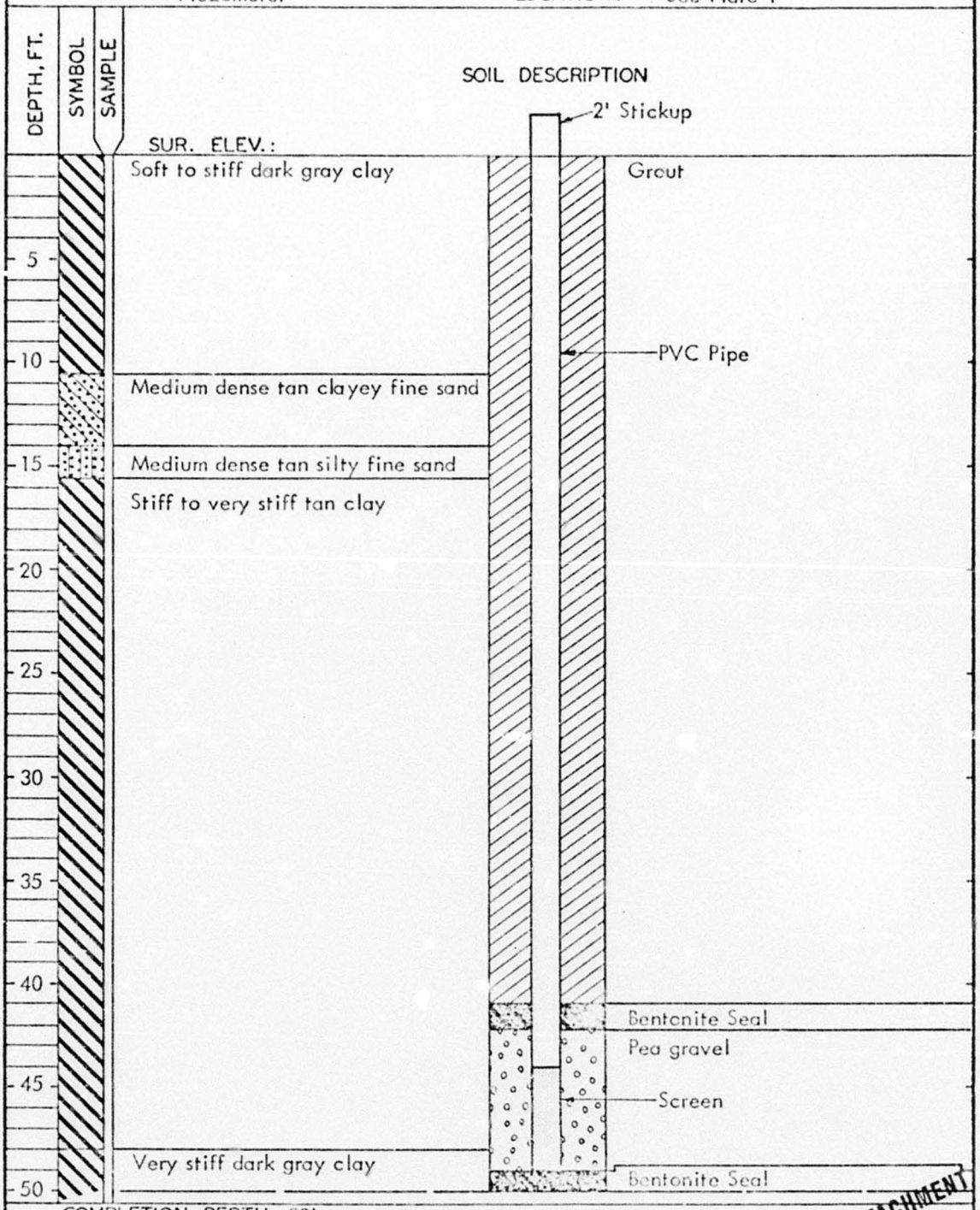
ATTACHMENT

PLATE

# LOG OF BORING NO. P-13

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1




COMPLETION DEPTH: 50'
DATE: October 29, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-13

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

SURF. ELEV.: 28.2'

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Soft to stiff dark gray clay, organic w/ calcareous nodules | | | | | | |
| | | | $k_{20} = 2.4 \times 10^{-9}$ cm/sec | | 96 | 30 | 43 | | |
| 5 | | | - tan below 6' | | | | | | |
| | | | - very stiff and slightly sandy below 8' (CH) | | | | | | |
| 10 | | | | | | | 25 | | 101 |
| | | | Medium dense tan clayey fine sand (SC) | 21/39 | | | | | |
| 15 | | | Medium dense tan silty fine sand (SM) | 14/ | | | | | |
| | | | Stiff to very stiff tan clay, slightly slickensided w/occasional gypsum crystals and calcareous nodules | | | | | | |
| 20 | | | | | | | | | |
| 25 | | | - light gray and light tan below 28' | | | | | | |
| 30 | | | - tan below 33' | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | (CH) | | | | | | |
| 50 | | | Very stiff dark gray clay w/thin horizontal organic seams (CH) | | 104 | 39 | 52 | | |

COMPLETION DEPTH: 50'
DATE: October 29, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-14

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.9' | BLOWS PER FT. | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm to stiff dark gray clay, organic w/ calcareous nodules | | | | | | |
| 5 | | | - light gray and tan below 6' | | | | | | |
| | | | - very stiff, 8'-10' (CL) | | 41 | 16 | 20 | | |
| 10 | | | Medium dense light gray and tan silty sand w/occasional clay ball seam (SM) | 13 | | | | | |
| 15 | | | Very stiff tan clay, slickensided w/ calcareous nodules and occasional gypsum crystals | 12 | | | | | |
| 20 | | | - w/fine ferrous stained veins at 20' | | | | | | |
| | | | $k_{20} = 4.13 \times 10^{-9}$ cm/sec | | 77 | 23 | 27 | | |
| | | | - w/fine vertical sand veins at 20.5' | | | | | | |
| 25 | | | - light gray and tan below 28' | | | | 28 | | |
| 30 | | | | | | | | | |
| 35 | | | - stiff at 34' | | | | | | |
| 40 | | | | | | | | | |
| | | | - stiff, 43'-49' | | | | 40 | | |
| 45 | | | | | | | | | |
| 50 | | | (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 30, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

ATTACHMENT

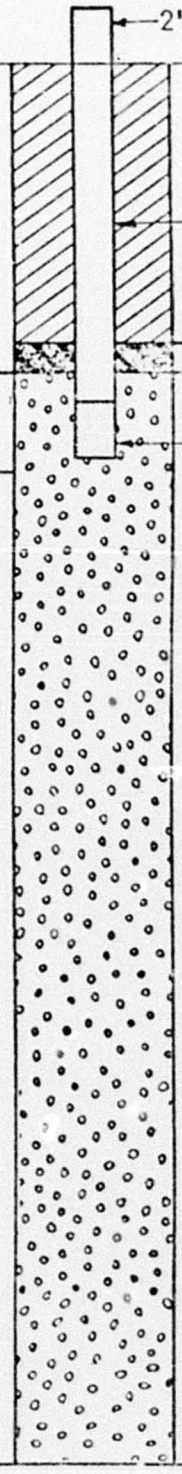
PLATE

# LOG OF BORING NO. P-14

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLE | SOIL DESCRIPTION |
|---|---|---|---|
| | | | SUR. ELEV.: |
| | | | Firm to stiff dark gray clay |
| 5 | | | |
| 10 | | | |
| | | | Medium dense light gray and tan silty sand |
| 15 | | | Very stiff tan clay |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |




Note: Set Piezometer Tip at 14'

COMPLETION DEPTH: 50'
DATE: October 30, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-15

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.8' | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm to stiff dark gray clay, organic w/ calcareous nodules | | | | | | |
| | | | - gray below 4' | | | | | | |
| 5 | | | | | | | 40 | | |
| | | | - light tan and gray below 7' | | | | | | |
| | | | - very stiff at 8' | | | | | | |
| | | | - slightly sandy below 8' (CH) | | | | 30 | | 100 |
| 10 | | | Stiff light tan and gray sandy clay w/fine sand seams (CL) | | | | | | |
| | | | Medium dense tan silty fine sand (SM) | 30/13 | | | | | |
| 15 | | | Tan sandy clay, slightly slickensided (CL) | 12 | | | | | |
| 20 | | | Very stiff tan clay, slickensided w/ferrous nodules and occasional calcareous nodules | | 68 | 27 | 27 | | |
| 25 | | | | | | | | | |
| | | | | | | | 24 | | |
| 30 | | | | | | | | | |
| | | | - tan and light gray below 33' | | | | | | |
| 35 | | | | | | | | | |
| | | | - w/gypsum crystals at 39' | | | | | | |
| 40 | | | | | | | | | |
| | | | - w/gypsum crystals at 44' | | | | | | |
| 45 | | | | | | | | | |
| | | | - w/occasional sand lenses at 49' (CH) | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 30, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

ATTACHMENT

PLATE

# LOG OF BORING NO. CB-1o

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.4' | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB./CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm dark gray clay, organic w/ calcareous nodules | | | | 43 | | 78 |
| | | | - soft at 4' | | | | | | |
| 5 | | | - light gray below 6'<br>- w/vertical calcareous seam at 6.5'<br>- tan below 7' | | 92 | 30 | 21 | | |
| | | | - very stiff below 8' | | | | | | |
| 10 | | | - stiff at 11' (CH) | | | | | | |
| | | | Dense tan silty sand (SM) | 48/23 | | | | | |
| 15 | | | Stiff to very stiff tan clay, slickensided w/ferrous stains and occasional calcareous nodules | 11/ | | | | | |
| | | | - w/clayey silt seam, 17.5'-18' | | | | | | |
| 20 | | | | | 76 | 22 | 28 | | |
| | | | - tan and light gray below 22' | | | | | | |
| 25 | | | | | | | | | |
| | | | - slightly sandy at 29' | | | | 45 | | 83 |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| | | | - light gray below 39' | | | | | | |
| | | | $k_{20} = 1.8 \times 10^{-8}$ cm/sec | | 44 | 13 | 23 | | |
| 40 | | | | | | | | | |
| | | | - w/gypsum crystals and laminated w/ numerous small silty sand lenses, 43'-45' | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | - gray below 49.5' (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 30, 1980

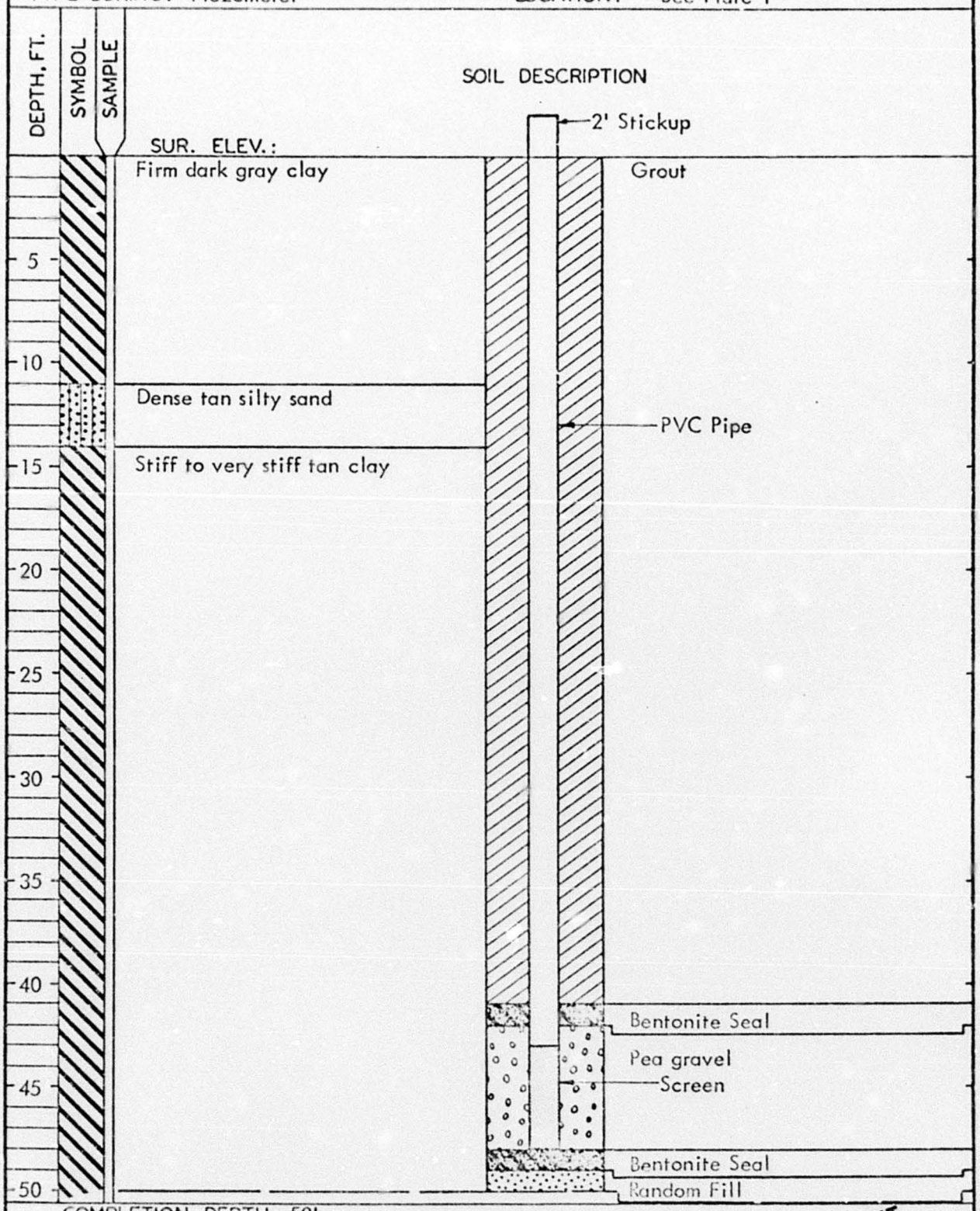
NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

ATTACHMENT PLATE

# LOG OF BORING NO. P-16

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1




COMPLETION DEPTH: 50'
DATE: October 30, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-17

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | SURF. ELEV.: 28.0' | | | | | | |
| | | | Firm to stiff dark gray clay, organic w/ calcareous nodules | | | | | | |
| 5 | | | - slickensided below 5' | | 89 | 29 | 46 | | |
| | | | - light tan w/gypsum crystals below 6' | | | | 21 | | 94 |
| | | | (CH) | | | | | | |
| 10 | | | Firm to very stiff light gray and tan sandy clay | 83 | | | | | |
| | | | - w/silty clay seam, 11'-11.5' | | | | | | |
| | | | - w/calcareous nodules at 13' (CL) | | | | | | |
| 15 | | | Medium dense dark tan clayey sand (SC) | 14/ | | | | | |
| | | | Stiff dark tan clay, slightly sandy w/ ferrous stains | | | | | | |
| 20 | | | - very stiff below 19' | | 60 | 20 | 23 | | |
| | | | - w/calcareous nodules below 20' | | | | | | |
| | | | - slickensided below 22' | | | | | | |
| 25 | | | | | | | | | |
| | | | - light gray and light brown w/occasional gypsum crystals below 28' | | | | | | |
| 30 | | | - hard at 30' | | | | | | |
| | | | (CH) | | | | | | |
| 35 | | | Light gray and light brown sandy clay | 64 | 31 | 16 | 25 | | |
| | | | (CL) | | | | | | |
| | | | Stiff to very stiff light tan clay | | | | | | |
| 40 | | | | | | | | | |
| | | | - light gray below 43' | | | | | | |
| 45 | | | - w/ferrous stains at 44' | | | | | | |
| | | | - w/thin horizontal laminated sand seams below 48' | | | | | | |
| 50 | | | (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 23, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

ATTACHMENT
PLATE

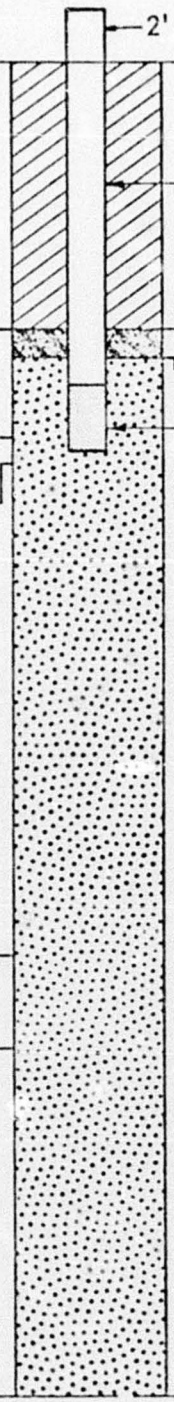
# LOG OF BORING NO. P-17

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer

LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLE | SOIL DESCRIPTION |
|---|---|---|---|
| | | | SUR. ELEV.: |
| | | | Firm to stiff dark gray clay |
| 5 | | | |
| 10 | | | Firm to very stiff light gray and tan sandy clay |
| 15 | | | Medium dense dark tan clayey sand |
| | | | Stiff dark tan clay |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | Light gray and light brown sandy clay |
| | | | Stiff to very stiff light tan clay |
| 40 | | | |
| 45 | | | |
| 50 | | | |




Note: Set Piezometer Tip at 14.5'

COMPLETION DEPTH: 50'
DATE: October 23, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-1

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | BLOWS PER FT. | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | SURF. ELEV.: 29.1' | | | | | | |
| | | | Firm dark gray clay, organic w/ calcareous nodules | | | | 42 | | |
| | | | - stiff below 4' | | | | | | |
| 5 | | | - light gray and tan below 6' | | | | 43 | | |
| | | | - slightly sandy below 8' | | | | | | |
| 10 | | | (CH) | | | | 31 | | |
| | | | Medium dense light brown silty sand (SM) | 20 | | | | | |
| 15 | | | | | | | | | |
| 20 | | | | | | | | | |
| 25 | | | | | | | | | |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 15'
DATE: October 23, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-19

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.7' | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm dark gray clay<br>- stiff below 3'<br>- light gray w/occasional calcareous nodules below 6'<br>- tan below 7'<br>- very stiff at 8' (CH) | | | | 43 | | 72 |
| 5 | | | | | | | | | |
| 10 | | | Firm tan sandy clay (CL) | | | | | | |
| | | | Medium dense tan clayey silt (ML) | 13/63 | | | | | |
| 15 | | | Stiff to hard tan clay, slickensided w/ occasional calcareous nodules | | | | | | |
| 20 | | | $k_{20} = 3.8 \times 10^{-8}$ cm/sec | | 63 | 20 | 27 | | |
| | | | - w/thin vertical sand veins at 19' | | | | | | |
| 25 | | | | | | | | | |
| | | | - tan and light gray below 28' | | | | 30 | | |
| 30 | | | | | | | | | |
| | | | - tan below 33' | | | | | | |
| 35 | | | | | | | | | |
| | | | - ferrous at 39' and 49' | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | - stiff w/iron stained sand pockets and seams and vertical gypsum veins at 45' | | | | | | |
| 50 | | | (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 26, 1980

ATTACHMENT

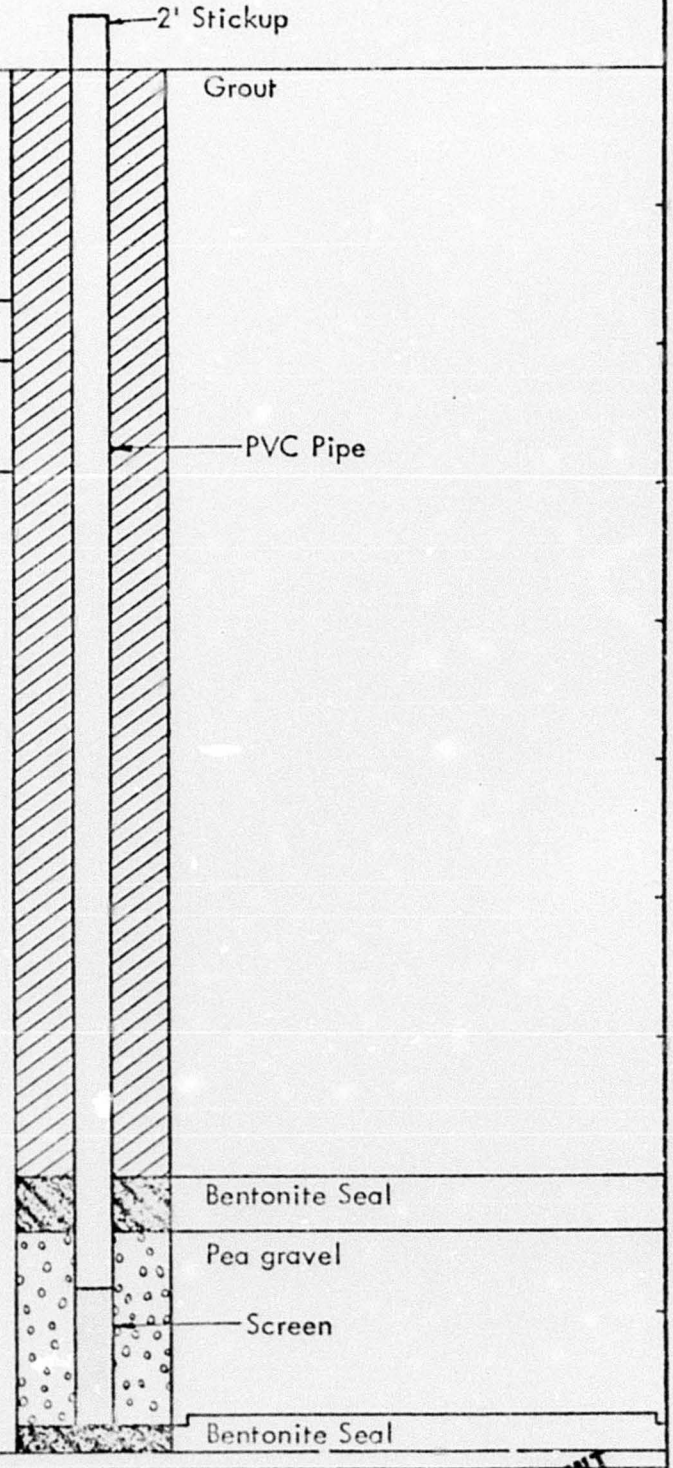
NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

# LOG OF BORING NO. P-19

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLE | SOIL DESCRIPTION |
|---|---|---|---|
| | | | SUR. ELEV.: |
| | | | Firm dark gray clay |
| 5 | | | |
| | | | Firm tan sandy clay |
| 10 | | | Medium dense tan clayey silt |
| 15 | | | Stiff to hard tan clay |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |




COMPLETION DEPTH: 50'
DATE: October 26, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-20

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

SURF. ELEV.: 28.7'

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm to stiff dark gray clay, organic w/occasional calcareous nodules $k_{20} = 4.8 \times 10^{-9}$ cm/sec | | 85 | 24 | 41 | | |
| 5 | | | - gray below 6' | | | | | | |
| | | | - tan and slickensided below 7' (CH) | | | | | | |
| | | | Stiff tan sandy clay (CL) | | | | | | |
| 10 | | | | | | | | | |
| | | | Dense tan silty fine sand w/occasional clay ball seams | 40/45 | | | | | |
| | | | - medium dense below 12.5' (SM) | 16 | | | | | |
| 15 | | | Very stiff tan clay, slickensided and occasionally ferrous w/occasional calcareous nodules | | | | 52 | | 80 |
| | | | - slightly silty at 15' | | | | | | |
| 20 | | | | | 65 | 20 | 25 | | |
| 25 | | | | | | | | | |
| | | | - tan and light gray below 28' | | | | 31 | | |
| 30 | | | - stiff at 30' | | | | | | |
| 35 | | | | | | | | | |
| | | | - hard, 38'-40' | | | | | | |
| 40 | | | - w/gypsum crystals at 39' | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 28, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

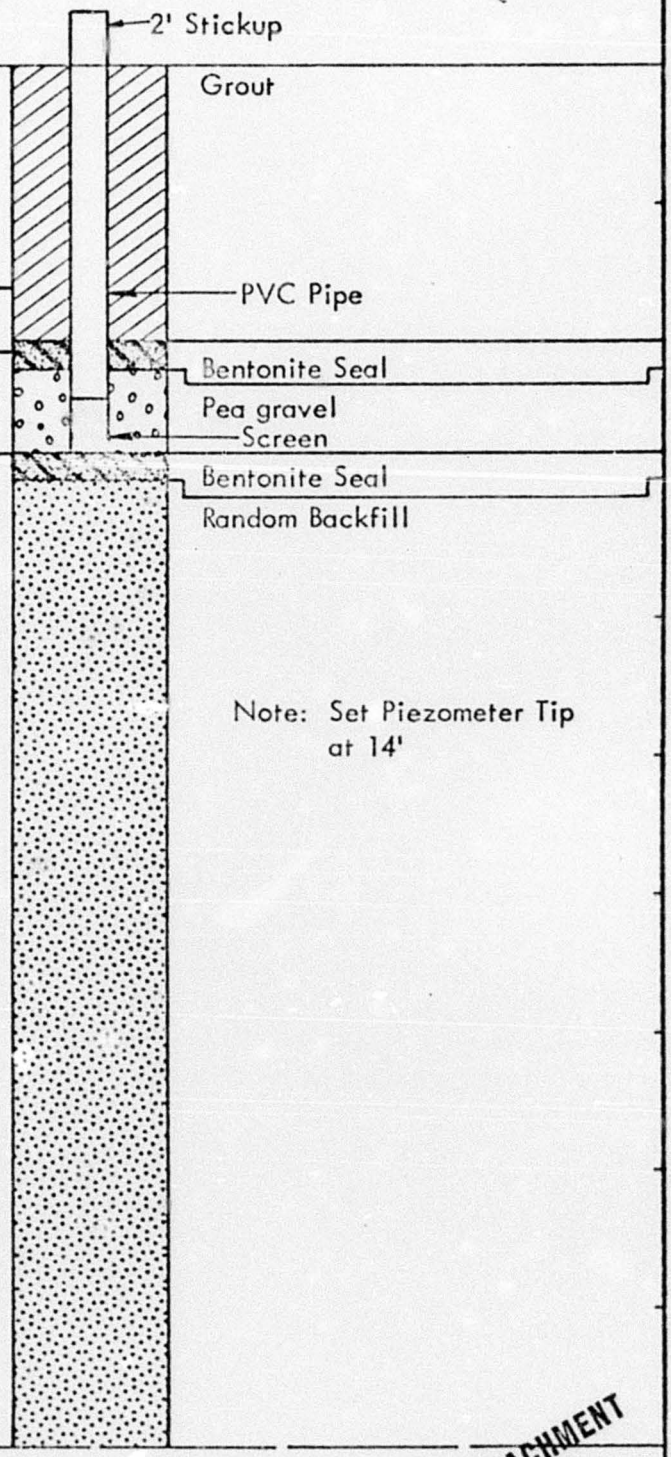
# LOG OF BORING NO. P-20

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer

LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLE | SOIL DESCRIPTION |
|---|---|---|---|
| | | | SUR. ELEV.: |
| | | | Firm to stiff dark gray clay |
| 5 | | | |
| | | | Stiff tan sandy clay |
| 10 | | | Dense tan silty fine sand |
| 15 | | | Very stiff tan clay |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |




COMPLETION DEPTH: 50'
DATE: October 28, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-21

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.9' | BLOWS/FT / % FINES | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm to stiff dark gray clay, organic w/ calcareous nodules | | | | | | |
| 5 | | | - slightly slickensided below 4' | | | | | | |
| | | | - light gray and tan below 7'<br>- slightly sandy below 8' (CH) | | | | | | |
| 10 | | | Stiff light gray and tan clay, slighty sandy w/calcareous nodules (CL) | 35 | | | 32 | | 98 |
| 15 | | | Light brown silty fine sand (SM) | 20 | | | | | |
| | | | Stiff light tan clay, slickensided and occasionally ferrous w/occasional calcareous nodules | | | | | | |
| 20 | | | - very stiff below 18' | | 58 | 22 | 26 | | |
| 25 | | | | | | | | | |
| 30 | | | - highly slickensided at 29' | | | | 48 | | 80 |
| | | | - tan below 33' | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | - light gray and tan w/gypsum crystals below 38'<br>- hard at 40' | | | | | | |
| 45 | | | - light brown and light gray and slightly weathered w/occasional sand seams below 43' | | | | | | |
| 50 | | | - hard at 50' (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 25, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

ATTACHMENT

PLATE

# LOG OF BORING NO. CB-22

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.6' | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Stiff dark gray clay, organic w/occasional calcareous nodules | | | | | | |
| | | | - soft w/gypsum crystals at 3' | | | | 38 | | |
| 5 | | | - light gray below 6' | | | | | | |
| | | | - tan and slightly slickensided below 7' (CH) | | | | | | |
| 10 | | | Light gray and tan clayey sand (SC) | | | | | | |
| | | | Dense tan fine sand, slightly silty | 53/12 | | | | | |
| | | | - slightly clayey at 13' | 81 | | | | | |
| 15 | | | (SM) | | | | | | |
| | | | Very stiff tan clay, slickensided and occasionally ferrous w/occasional calcareous nodules | | | | | | |
| 20 | | | - stiff, 18'-20' | | 74 | 20 | 19 | | |
| 25 | | | | | | | | | |
| | | | - light tan and light gray below 28' | | | | | | |
| 30 | | | - w/gypsum crystals below 33' | | | | | | |
| 35 | | | $k_{20} = 2.4 \times 10^{-9}$ cm/sec | | 44 | 16 | 36 | | |
| 40 | | | | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | - laminated at 49' (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 29, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

ATTACHMENT
PLATE

# LOG OF BORING NO. CB-23

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | BLOWS PER FT. | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | SURF. ELEV.: 29.1' | | | | | | |
| | | | Firm to stiff dark gray clay, organic w/ calcareous nodules | | | | | | |
| 5 | | | - light gray and tan below 6' | | 91 | 24 | 39 | | |
| | | | - very stiff at 10' | | | | | | |
| 10 | | | - slightly sandy below 10' (CH) | | | | | | |
| | | | Medium dense light brown silty sand | | | | | | |
| 15 | | | (SM) | 24 | | | | | |
| 20 | | | | | | | | | |
| 25 | | | | | | | | | |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 15'
DATE: October 25, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-24

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 30.9' | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|
| | | | Fill-soft to firm black and dark gray sandy clay w/petro-chemical odor, wood, plastic and calcareous nodules | 74 | 27 | 26<br>46 | | 70 |
| 5 | | | | | | 39 | | 65 |
| 10 | | | $k_{20} = 4.3 \times 10^{-8}$ cm/sec | 72 | 27 | 50 | | |
| | | | - w/plastic pellets at 14' (CH) | | | 25 | | 82 |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |
| 35 | | | | | | | | |
| 40 | | | | | | | | |
| 45 | | | | | | | | |
| 50 | | | | | | | | |

COMPLETION DEPTH: 14'
DATE: October 31, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

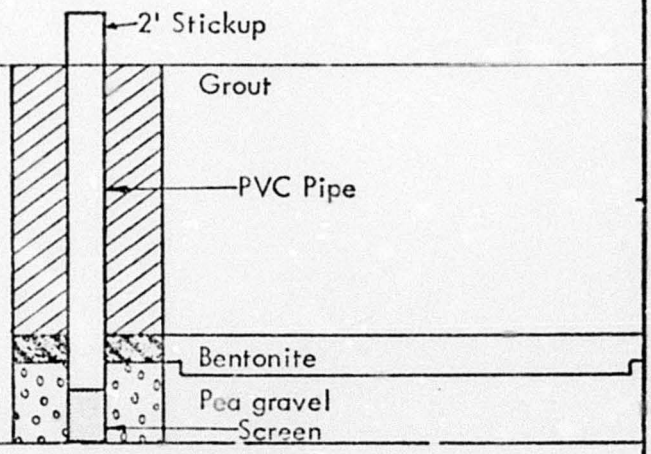
ATTACHMENT
PLATE

# LOG OF BORING NO. P-24

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLE | SOIL DESCRIPTION |
|---|---|---|---|
| | | | SUR. ELEV.: |
| | | | Fill-soft to firm black and dark gray sandy clay |
| 5 | | | |
| 10 | | | |
| 15 | | | |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |




COMPLETION DEPTH: 14'
DATE: October 31, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-25

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: | % FINER NO. 200 SIEVE | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Firm to stiff dark gray clay, organic<br>- slightly slickensided below 2' | | | | 35 | | 83 |
| 5 | | | | | | | 34 | | 82 |
| | | | - light gray and tan w/calcareous nodules below 8'<br>- very stiff, 8'-10'<br>- ferrous at 9' (CH) | | | | | | |
| 10 | | | Light brown silty fine sand (SM) | 36 | | | | | |
| 15 | | | | | | | | | |
| 20 | | | | | | | | | |
| 25 | | | | | | | | | |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 15'
DATE: October 31, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-26

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5, 1.0, 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|
| | | | Fill-firm gray sandy clay, highly organic (CL) | | | | | |
| 5 | | | Fill-firm gray clay, organic w/calcareous nodules<br>- light gray and tan and slickensided below 6' | | | 39 | | |
| | | | (CH) | | | 35 | | 92 |
| 10 | | | Stiff light gray and tan clay w/calcareous nodules | | | | | |
| | | | (CH) | | | | | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |
| 35 | | | | | | | | |
| 40 | | | | | | | | |
| 45 | | | | | | | | |
| 50 | | | | | | | | |

COMPLETION DEPTH: 15'
DATE: October 31, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-27

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | % FINER NO. 200 SIEVE | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | SURF. ELEV.: 28.5' | | | | | | |
| | | | Soft to stiff black clay, organic w/ calcareous nodules | | | | 43 | | |
| 5 | | | - gray and slickensided at 6' | | | | 43 | | 78 |
| | | | - light gray and tan at 7' | | | | | | |
| | | | - tan w/gypsum crystals below 8' | | | | 32 | | |
| 10 | | | - w/silty clay seam, 12'-13' | | | | | | |
| 15 | | | (CH) | | | | | | |
| | | | Stiff dark tan and gray sandy clay w/sand pockets | 97 | 47 | 17 | 22<br>27 | | |
| 20 | | | (CL) | | | | | | |
| | | | Dark tan and gray silty sand, slightly clayey (SM) | 41 | | | | | |
| 25 | | | | | | | | | |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| 40 | | | | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 25'
DATE: October 31, 1980

ATTACHMENT

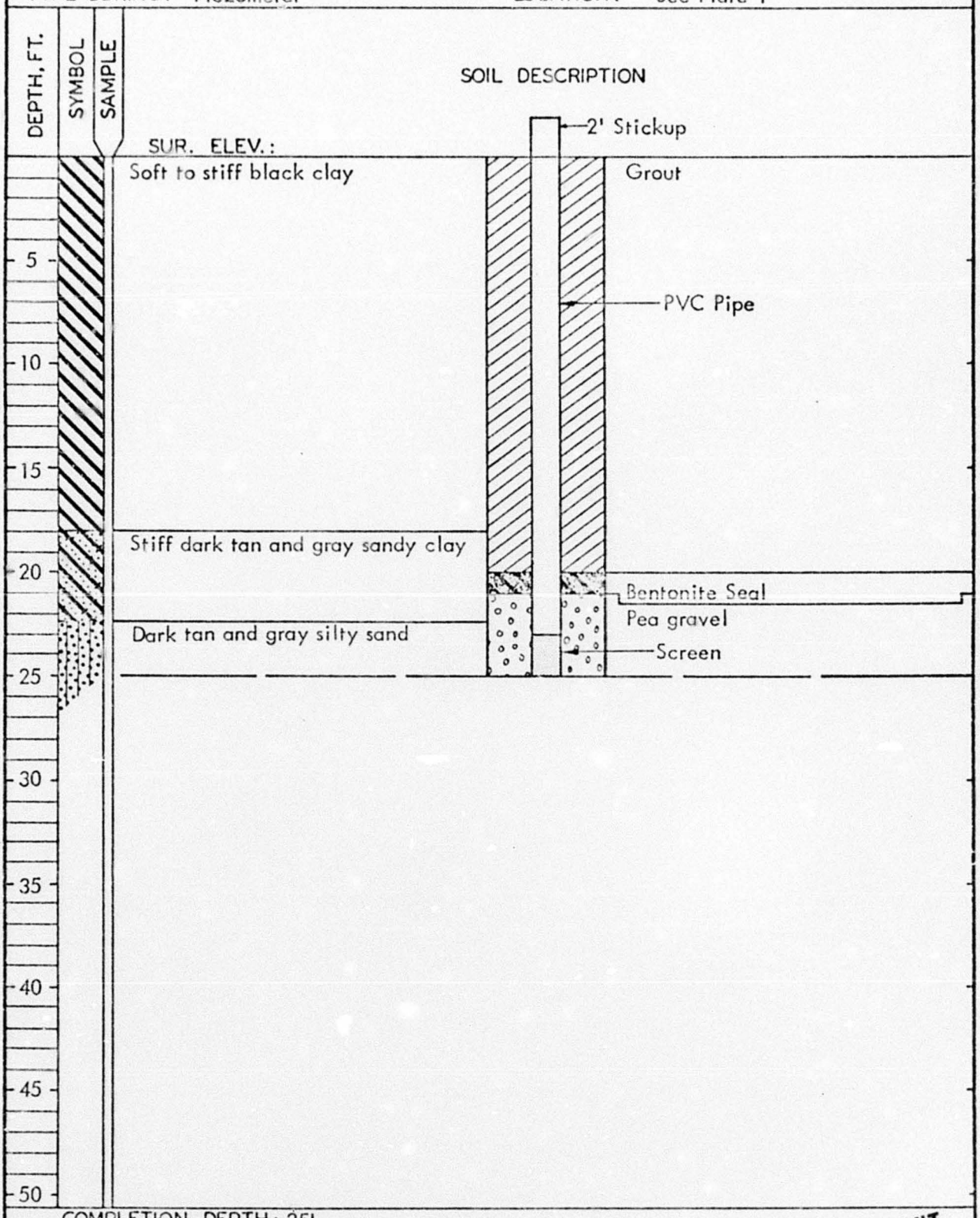
NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. P-27

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1




COMPLETION DEPTH: 25'
DATE: October 31, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-28

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION<br>SURF. ELEV.: 28.8' | % FINER NO. 200 SIEVE | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Soft dark gray clay, organic w/ calcareous nodules | | | | | | |
| | | | - firm below 2' | | | | | | |
| 5 | | | - stiff gray and slightly slickensided below 4' | | | | | | |
| | | | - tan below 6' | | 88 | 30 | 36 | | |
| 10 | | | - very stiff and slightly silty below 10' | | | | | | |
| | | | - hard at 12' (CH) | | | | | | |
| | | | Tan silty sand, slightly silty | | | | | | |
| 15 | | | (SM) | 30 | | | | | |
| | | | Stiff to very stiff tan clay, slightly sandy and slickensided w/occasional calcareous nodules | | | | | | |
| 20 | | | $k_{20} = 7.9 \times 10^{-8}$ cm/sec | | 52 | 18 | 21 | | |
| | | | - occasionally ferrous at 20' | | | | | | |
| 25 | | | - light gray and tan below 23' | | | | | | |
| 30 | | | | | | | | | |
| 35 | | | | | | | | | |
| | | | - hard w/gypsum crystals at 39' | | | | | | |
| 40 | | | | | | | | | |
| | | | - laminated w/organic seams below 43' | | | | | | |
| | | | - gray below 43.5' | | | | | | |
| 45 | | | | | | | | | |
| 50 | | | (CH) | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 26, 1980

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

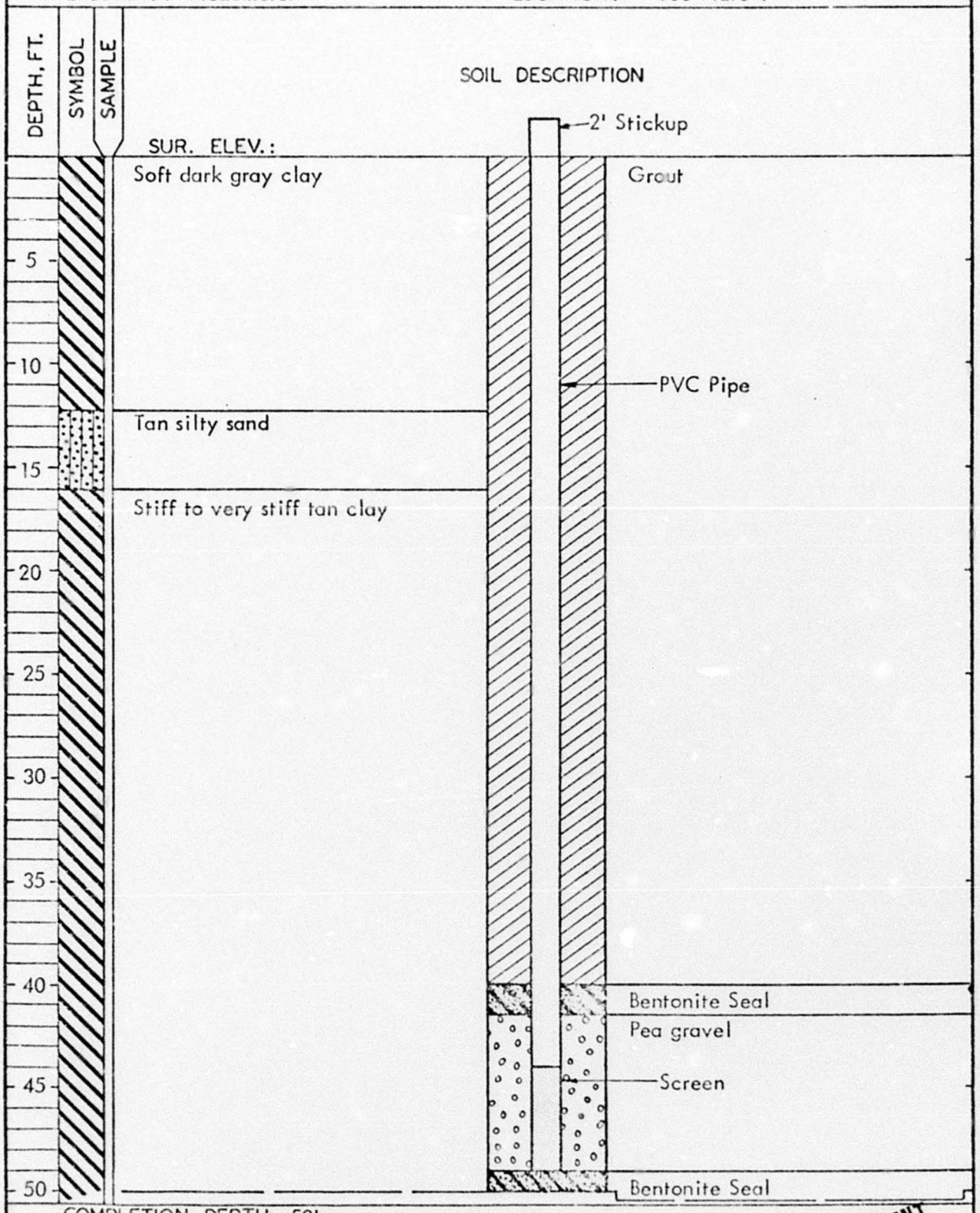
ATTACHMENT

PLATE

# LOG OF BORING NO. P-28

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1




COMPLETION DEPTH: 50'
DATE: October 26, 1980

ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. CB-29

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Undisturbed Sample & Split-spoon LOCATION: See Plate 1

SURF. ELEV.: 28.2'

| DEPTH, FT. | SYMBOL | SAMPLES | SOIL DESCRIPTION | BLOWS/FT / % FINER | LIQUID LIMIT | PLASTIC LIMIT | MOISTURE CONTENT, % | SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5) | UNIT DRY WT. LB/CU FT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Soft to stiff black clay, organic w/ calcareous nodules | | | | | | |
| | | | - slickensided below 2' | | | | | | |
| 5 | | | - light gray and tan below 6' | | | | | | |
| | | | - tan below 7' | | 77 | 29 | 32 | | |
| | | | - very stiff w/sand pockets below 8' | | | | | | |
| 10 | | | (CH) | | | | | | |
| | | | Medium dense tan silty fine sand w/clay balls (SM) | 11/60 | | | | | |
| 15 | | | Stiff tan clay, slickensided w/calcareous nodules | | | | | | |
| | | | - w/vertical sand seam at 15' | | | | | | |
| | | | - very stiff below 17' | | | | | | |
| 20 | | | - w/occasional ferrous stains at 20' | | | | | | |
| | | | | | 71 | 24 | 27 | | |
| 25 | | | | | | | | | |
| | | | - w/sand seams at 29' | | | | | | |
| 30 | | | | | | | | | |
| | | | - light tan and gray below 33' | | 71 | 23 | 29 | | |
| 35 | | | | | | | | | |
| | | | - w/gypsum crystals at 39' | | | | | | |
| 40 | | | | | | | | | |
| | | | - stiff and light gray below 43' | | | | | | |
| 45 | | | | | | | | | |
| | | | - light gray and ferrous below 48' | | | | | | |
| | | | - very stiff at 49' (CH) | | | | | | |
| 50 | | | | | | | | | |

COMPLETION DEPTH: 50'
DATE: October 31, 1980

ATTACHMENT

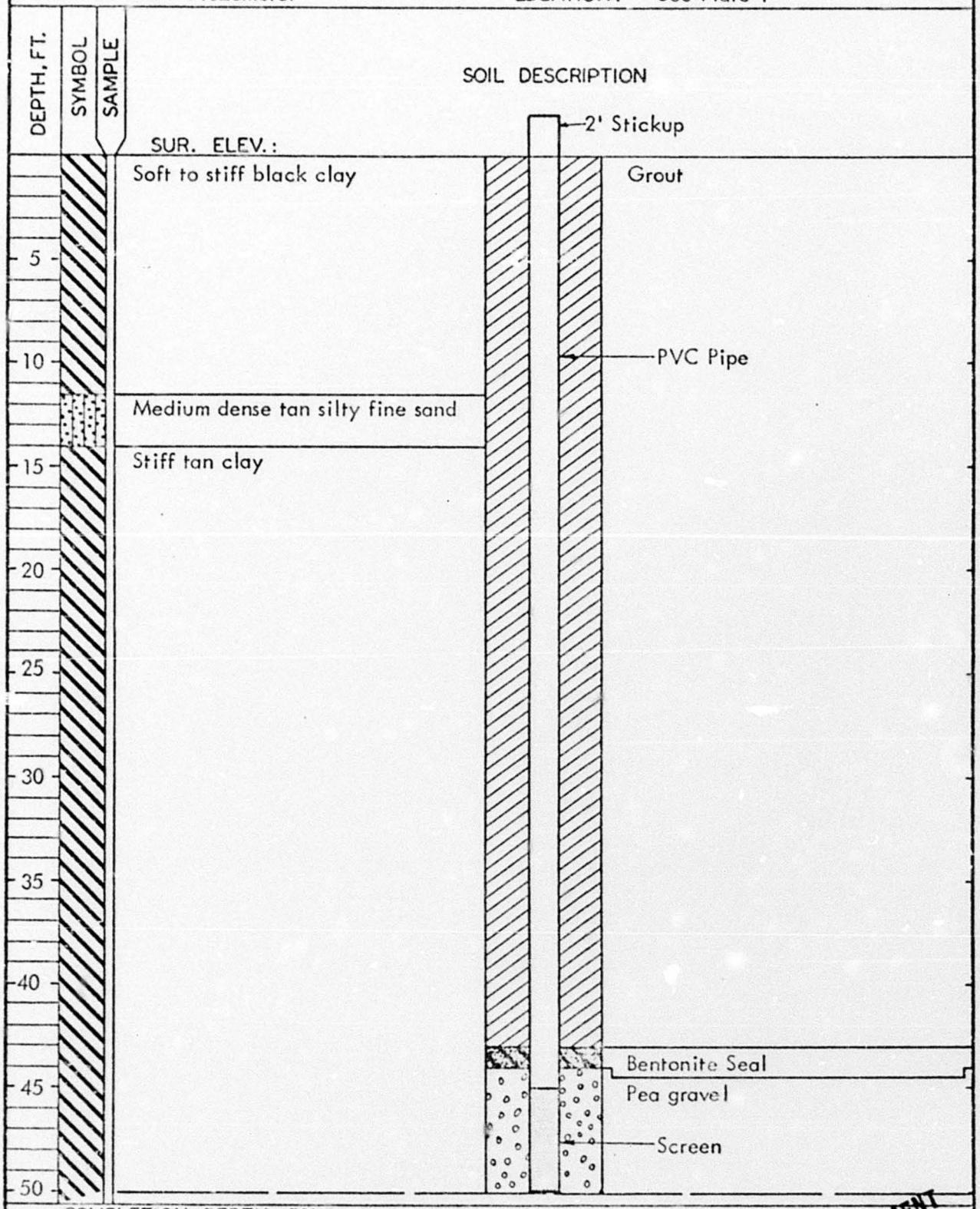
NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE

# LOG OF BORING NO. P-2

HAZARDOUS AND NONHAZARDOUS LANDFILL
UNION CARBIDE CORPORATION
SEADRIFT, TEXAS

TYPE BORING: Piezometer LOCATION: See Plate 1

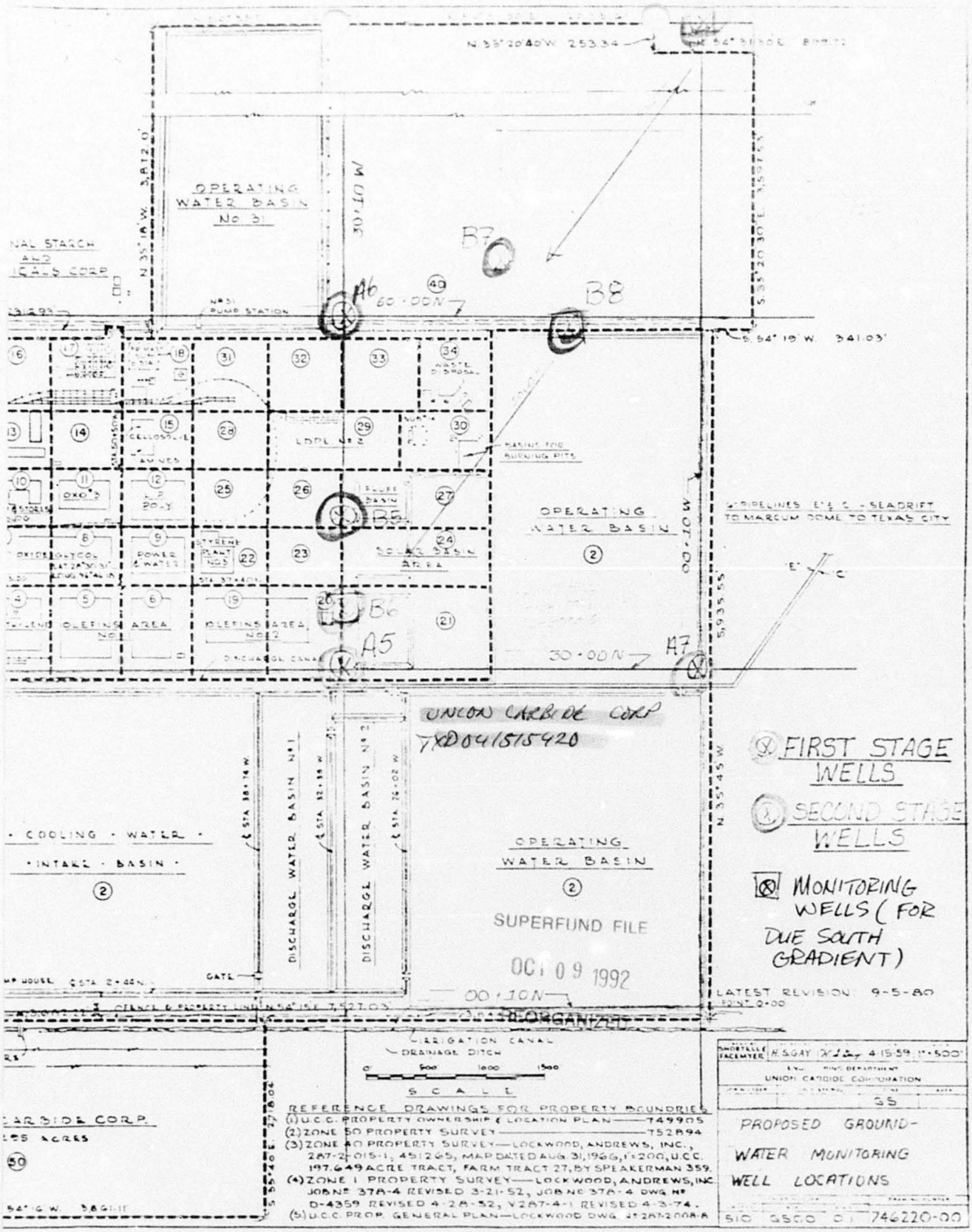



COMPLETION DEPTH: 50'
DATE: October 31, 1980

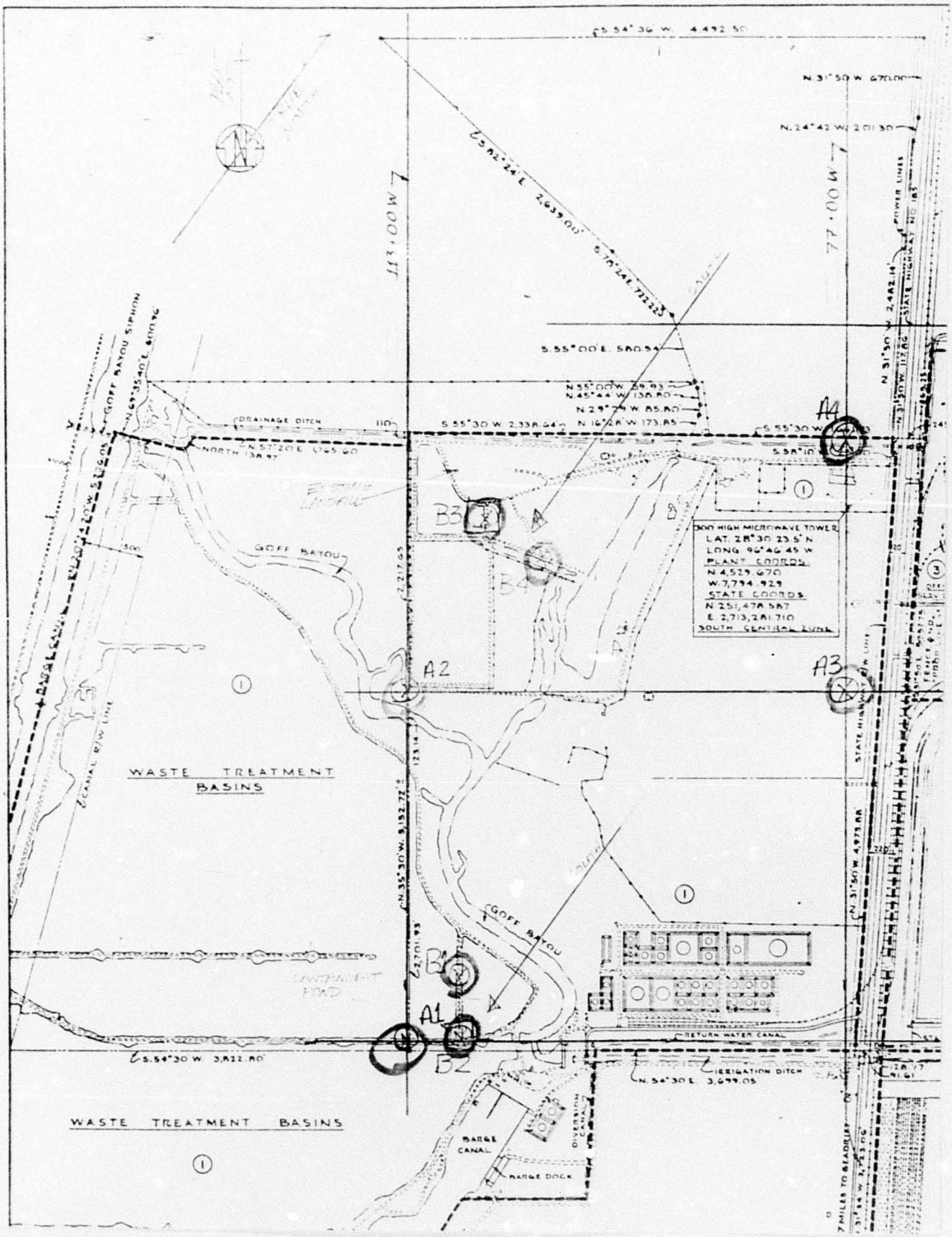
ATTACHMENT

NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

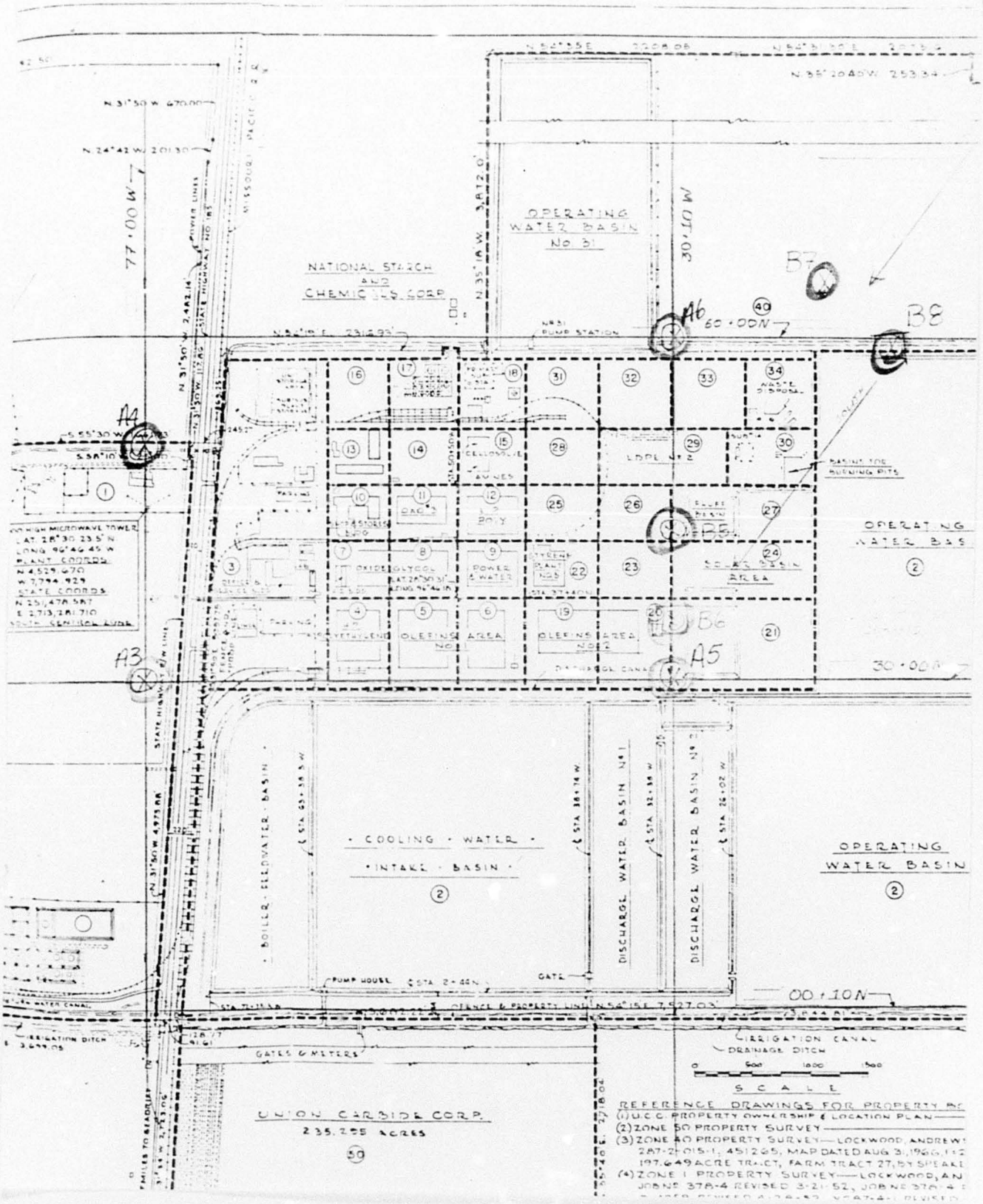
PLATE




CHRIS R. BIGBY



S.54°36' W. 4,492.50
N.31°50' W. 670.00
N.24°42' W. 201.30
S.82°24' E. 2,639.00'
S.78°24' E. 722.22
113°00' W
77°00' W
S.55°00' E. 580.54
N.55°00' W. 39.93
N.45°44' W. 138.80
N.29°29' W. 85.80
N.16°28' W. 173.85
S.55°30' W. 2,338.64
S.55°30' W.
S.58°10'
DRAINAGE DITCH
NORTH 138.97
N.57°20' E. 1,765.60
GOFF BAYOU SIPHON
N.69°35'40" E. 600.96
BARGE CANAL
CANAL R/W LINE
GOFF BAYOU
300' HIGH MICROWAVE TOWER
LAT. 28°30' 23.5" N
LONG. 96°46' 45" W
PLANT COORDS.
N 4,529.670
W 7,794.929
STATE COORDS.
N 251,478.587
E 2,713,281.710
SOUTH CENTRAL ZONE
A1
A2
A3
A4
B1
B2
B3
B4
WASTE TREATMENT BASINS
N.35°30' W. 5,152.72
2,701.93
2,217.65
123.14
CONTAINMENT POND
S.54°30' W. 3,822.80
RETURN WATER CANAL
IRRIGATION DITCH
N.54°30' E. 3,699.05
DIVERSION CANAL
BARGE CANAL
BARGE DOCK
WASTE TREATMENT BASINS
STATE HIGHWAY R/W LINE
N.31°50' W. 4,973.88
POWER LINES
STATE HIGHWAY NO. 185
N.31°50' W. 2,482.14
7 MILES TO GEADRIFF



NATIONAL STARCH AND CHEMICALS CORP.
OPERATING WATER BASIN No. 31
77+00 W
30+10 W
60+00 N
30+00 N
00+10 N
B7
B8
A6
A4
A3
A5
B5
B6
WASTE DISPOSAL
BASINS FOR BURNING PITS
OPERATING WATER BAS
SOLAR BASIN AREA
OLEFINS AREA No. 1
OLEFINS AREA No. 2
DISCHARGE CANAL
COOLING WATER INTAKE BASIN
BOILER FEEDWATER BASIN
DISCHARGE WATER BASIN No. 1
DISCHARGE WATER BASIN No. 2
OPERATING WATER BASIN
PUMP HOUSE
GATE
GATES & METERS
IRRIGATION CANAL
DRAINAGE DITCH
IRRIGATION DITCH
UNION CARBIDE CORP.
235.255 ACRES
SCALE
REFERENCE DRAWINGS FOR PROPERTY BO
(1) U.C.C. PROPERTY OWNERSHIP & LOCATION PLAN
(2) ZONE 50 PROPERTY SURVEY
(3) ZONE 40 PROPERTY SURVEY—LOCKWOOD, ANDREWS
287-2-015-1, 451265, MAP DATED AUG 31, 1966, 1=2
197.649 ACRE TRACT, FARM TRACT 27, BY SPEAKE
(4) ZONE 1 PROPERTY SURVEY—LOCKWOOD, AN
JOB No. 378-4 REVISED 3-21-52, JOB No. 378-4

TEXAS DEPARTMENT OF WATER RESOURCES

PERMIT APPLICATION
FOR
INDUSTRIAL SOLID WASTE STORAGE/PROCESSING/DISPOSAL FACILITY

PART A - FACILITY BACKGROUND INFORMATION

APPL. NO. 10956
Calhoun -12
JKB
COPIES SENT: (CHECK)
Dist-12 ✓

I. GENERAL INFORMATION

A. Applicant: **Union Carbide Corporation,** Polyolefins Division
(Individual, Corporation, or Other Legal Entity Name)

Address: P. O. Box 186 TXD041515420

City: Port Lavaca State: Texas Zip Code: 77979

Telephone Number: 512-552-9711

B. Authorized Agents

1. List those persons or firms authorized to act for the applicant during the processing of the permit application. Also indicate the capacity in which each person may represent the applicant (engineering, legal, etc.). The person listed first will be the primary recipient of correspondence regarding this application. Include the complete mailing addresses and phone numbers.

Michael Scherm
Sr. Env. Engineer
Union Carbide Corp.
P. O. Box 186
Port Lavaca, Tx. 77979
512-552-9711 (2114)

Val D. Dutcher
Env. Prot. Dept. Head
Union Carbide Corp.
P. O. Box 186
Port Lavaca, Tx. 77979
512-552-9711 (2607)

2. List the individual and his/her mailing address that will be responsible for causing any necessary public notices to be published in the newspaper.

Name: Michael Scherm

Address: Union Carbide Corp. P. O. Box 186

City: Port Lavaca State: Texas Zip Code: 77979

Telephone Number: 512-552-9711 (2114)

RECEIVED
AUG 17 1980
PERMIT CONTROL
TDWR

SUPERFUND FILE
OCT 09 1992
REORGANIZED

3. List the applicant's authorized agent for service.

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

C. Operator: Identify the entity who will conduct facility operations. If same as applicant, state "same as applicant."

Name: Same as applicant

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

D. Ownership

1. Indicate the ownership status of the facility:

a. Private X

(1) Corporation X
(2) Partnership ____
(3) Proprietorship ____
(4) Non-profit organization ____

b. Public ____

(1) Federal ____
(2) Military ____
(3) State ____
(4) Regional ____
(5) County ____
(6) Municipal ____

c. Other (specify) _____

2. Is facility and site property owned by applicant?

X Yes ____ No

If you checked "no",

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AUG 17 1980
PERMIT CONTROL
TDWR

a. Submit as an attachment a copy of the lease for use of said facility and/or site property, as appropriate; and

b. Identify the facility owner. If same as applicant in Part A above, state "same as applicant." If different from the applicant, please note that the owner is required to sign the application on page 5.

Name: Same as applicant

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

E. Type of Permit Application:

1. New X
2. Amendment ____ (TDWR Permit Number: _____)

F. Registration and Permit Information

1. Denote your TDWR Solid Waste Registration Number. If none, state "none."

30129

2. Indicate (by listing the permit number(s) in the appropriate column below) all existing or pending State and/or Federal permits or construction approvals which pertain to pollution control or industrial solid waste management activities conducted by your plant or at your location. Complete each blank by entering the permit number, or the date of application, or "none".

| Relevant Program and/or Law | Permit No. | Government Agency* |
|---|---|---|
| a. Texas Solid Waste Disposal Act | 30129 | TDWR |
| b. Wastewater disposal under the Texas Water Code | TX00447 | TDWR |
| c. Underground injection under the Texas Water Code | --- | --- |
| d. Texas Clean Air Act R-803, C-6514, | | TACB |
| e. Texas Uranimum Surface Mining & Reclamation Act | --- | --- |
| f. Texas Surface Coal Mining & Reclamation Act | --- | --- |
| g. Hazardous Waste Management program under the Resource Conservation and Recovery Act | --- | --- |

| | | | |
|---|---|---|---|
| h. | UIC program under the Safe Drinking Water Act | --- | --- |
| i. | NPDES program under the Clean Water Act | TX0002844 | EPA |
| j. | PSD program under the Clean Air Act | PSD-TX-118A | EPA |
| k. | Nonattainment program under the Clean Air Act | --- | --- |
| l. | National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act | --- | --- |
| m. | Ocean dumping permits under the Marine Protection Research and Sanctuaries Act | --- | --- |
| n. | Dredge or fill permits under section 404 of the Clean Water Act | --- | --- |
| o. | Other relevant environmental permits | --- | --- |

* Use the following acronyms for each agency as shown below:

TDWR = Texas Department of Water Resources
TACB = Texas Air Control Board
TRC = Texas Railroad Commission
TDH = Texas Department of Health
TDA = Texas Department of Agriculture
EPA = U. S. Environmental Protection Agency
CORPS = U. S. Army Corps of Engineers

G. Description of Business

1. Give a brief description of the nature of your business.

Manufacturing plant for production of organic chemicals and polyethylene resin.

2. List the principal products and/or services which are provided by your plant. Please itemize by Standard Industrial Classification (SIC) codes.

2869 (Industrial Organic Chemicals)

2821 (Plastics - polyethylene)

I, D. L. Goris, Plant Manager
(Name) (Title)

I, V. D. Dutcher, E.P. Dept. Head
(Name) (Title)

Certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.

Signature: D L Goris, Date: 8/14/80

Signature: Val D Dutcher, Date: 8/14/80

SUBSCRIBED AND SWORN to before me by the said D L Goris and Val D Dutcher on this 14th day of August, 19 80.

My commission expires on the 31st day of May, 19 81.

Clarice O. Moody
Notary Public in and for

Calhoun County, Texas

## II. SITE BACKGROUND INFORMATION

### A. Location of Site

1. Facility Name: Union Carbide Corp. Seadrift Plant

   Street Address, if available: Hwy. 185

   _____ County: Calhoun

2. Are your waste management operations within the extraterritorial jurisdiction of a municipality?

   _____ Yes __X__ No

   If you checked "yes," what municipality? _____

3. Give a verbal description of the location of the facility site with respect to known or easily identifiable landmarks.

   Approximately 1.0 miles south of Hwy. 35 on Hwy. 185. Property lies both east and west of Hwy. 185.

4. Detail the access routes from the nearest U.S. or State Highway to the facility site.

   See II (A) 3. above.

5. Submit as "Attachment A" a United States Geological Survey (USGS), 7½ minute quadrangle map. Indicate on this map the location of the site and the land use patterns of the areas within 1 mile (1.6 km) of the site boundaries (e.g., residential, commercial, recreational, agricultural, undeveloped, etc.). Each area of land use should be labeled on the map. (Note: if such a map is not available, submit a substitute map such as a State Department of Highways and Public Transportation county map with sufficient scale to adequately show the site location and surrounding land use patterns.

6. a. Submit as "Attachment B" a map indicating the boundaries of all adjacent parcels of land, and a list of the names and mailing addresses of all adjacent landowners and other nearby landowners who might consider themselves affected by the activities described by this application. Cross-reference this list to the map through the use of appropriate keying techniques. The map should be a USGS map, a city or county plat, or another map or drawing with a scale adequate enough to show the cross-referenced affected landowners.

b. Indicate from what source(s) the names and addresses of persons identified as affected were obtained.

City _____
County _____
School District _____
Water District _____
Abstract Co. _____
Other (specify) UCC Records of adjacent properties

7. Enter the geographical coordinates of the site:

Latitude: 28 deg 30 min 31 sec

Longtitude: 96 deg 46 min 18 sec

8. Is the facility located on Indian lands? Check one:

_____ Yes X No

B. Legal Description of Site

Submit as "Attachment C" a legal description of the entire tract of land upon which the waste management operations referred to in this permit application occur or will occur.

C. Site Environmental and Technical Information

I. Climatic and Hydrologic

a. Is any portion of your waste management facility site (including proposed, active, and inactive portions) subject to flooding from adjacent or nearby surface water bodies under the following conditions?

| 24-hr Rainfall Event | Yes | No |
|---|---|---|
| 5-year | | X |
| 50-year | X | |
| 100-year | X | |

NOTE:
50 yr Flood~11 ft. MSL
100 yr Flood~12 ft. MSL
as determined by USGS

b. Are there any producing groundwater wells on your site property?

_____ Yes X No

If you checked "yes,"

(1) Indicate the number of such wells: _____, and

(2) Indicate the corresponding water uses below:

(a) Industrial uses:
Cooling water _____
Process water _____
Fire-control water _____

(b) Potable (drinking) water _____

(c) Agricultural uses:
Irrigation water for livestock food crops or grazing land _____
Livestock watering _____
Irrigation water for human food crops _____

c. Are any adjacent or nearby surface waters utilized by the applicant?

__X__ Yes _____ No

If you checked "yes," indicate the corresponding water uses below:

(1) Industrial uses:
Cooling water __X__
Process water __X__
Fire-control water __X__

(2) Potable (drinking) water __X__

(3) Agricultural uses:
Irrigation water for livestock food crops or grazing land __X__
Livestock watering __X__
Irrigation water for human food crops __X__

Note:
Used in this way but not by the applicant.

2. Site Land Use and Subsidence Information

a. Is any portion of the overall site property utilized for agricultural purposes?

__X__ Yes _____ No

If you checked "yes," indicate the corresponding uses below:

(1) Grazing __X__
(2) Livestock food crop __X__
(3) Human food crop _____
If you checked no. (2) or (3), specify the types of crops grown. Maize, Corn

b. Is any portion of the overall site property subject to land subsidence?

_____ Yes __X__ No

If you checked "yes," estimate the magnitude of the greatest subsidence that has occurred (in units of feet). _____

## III. WASTES AND WASTE MANAGEMENT

### A. Waste Generation and Management Activities

Is any hazardous industrial solid waste (see Title 40, Code of Federal Regulations, Part 261) presently or proposed to be generated at your facility?

X Yes ___ No

If you checked "no," go to Section III.B.2. below.
If you checked "yes," answer the following question.

1. Are you presently registered with TDWR as a solid waste generator?

   X Yes ___ No

   If you checked "no," contact the Solid Waste Section of TDWR in Austin, Texas to obtain registration information. Also, continue with the application form (go to Number 2 below).

   If you checked "yes," go to Section I of your Notice of Registration, determine which of your wastes are hazardous, and list these wastes (and mixtures) in Table III-1 (see Number 2 below).

2. Complete Table III-1 below, listing all hazardous wastes and all mixtures containing any hazardous waste which are presently or proposed to be generated at your facility. (see 40 CFR 261.31-33), attaching additional copies as necessary.

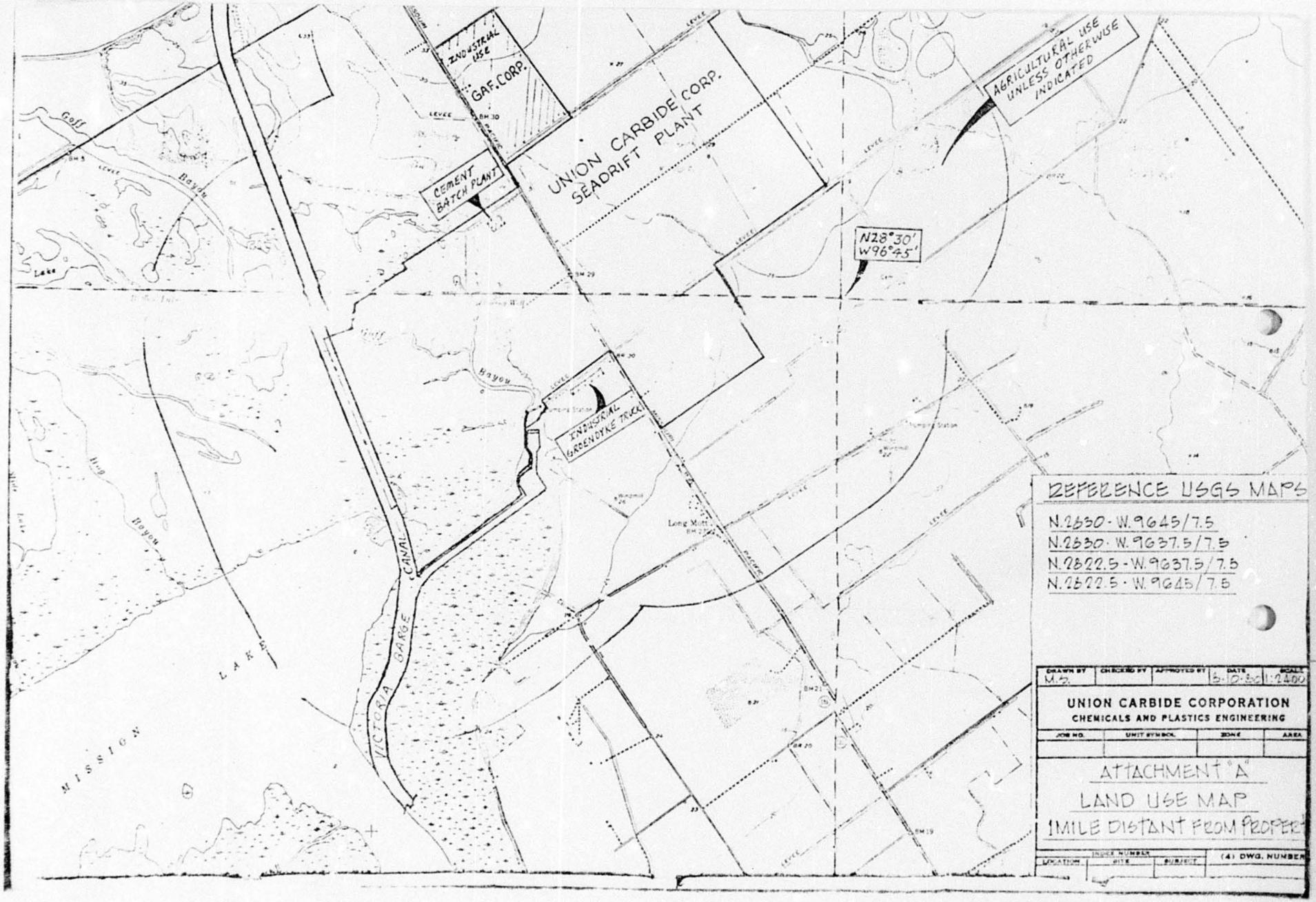
   In this table, "TDWR Sequence Number" refers to the number in the left-hand column in Section I of your Notice of Registration (Note: if you are not registered with TDWR, enter "NA" for TDWR Sequence Number and TDWR Waste Code Number).

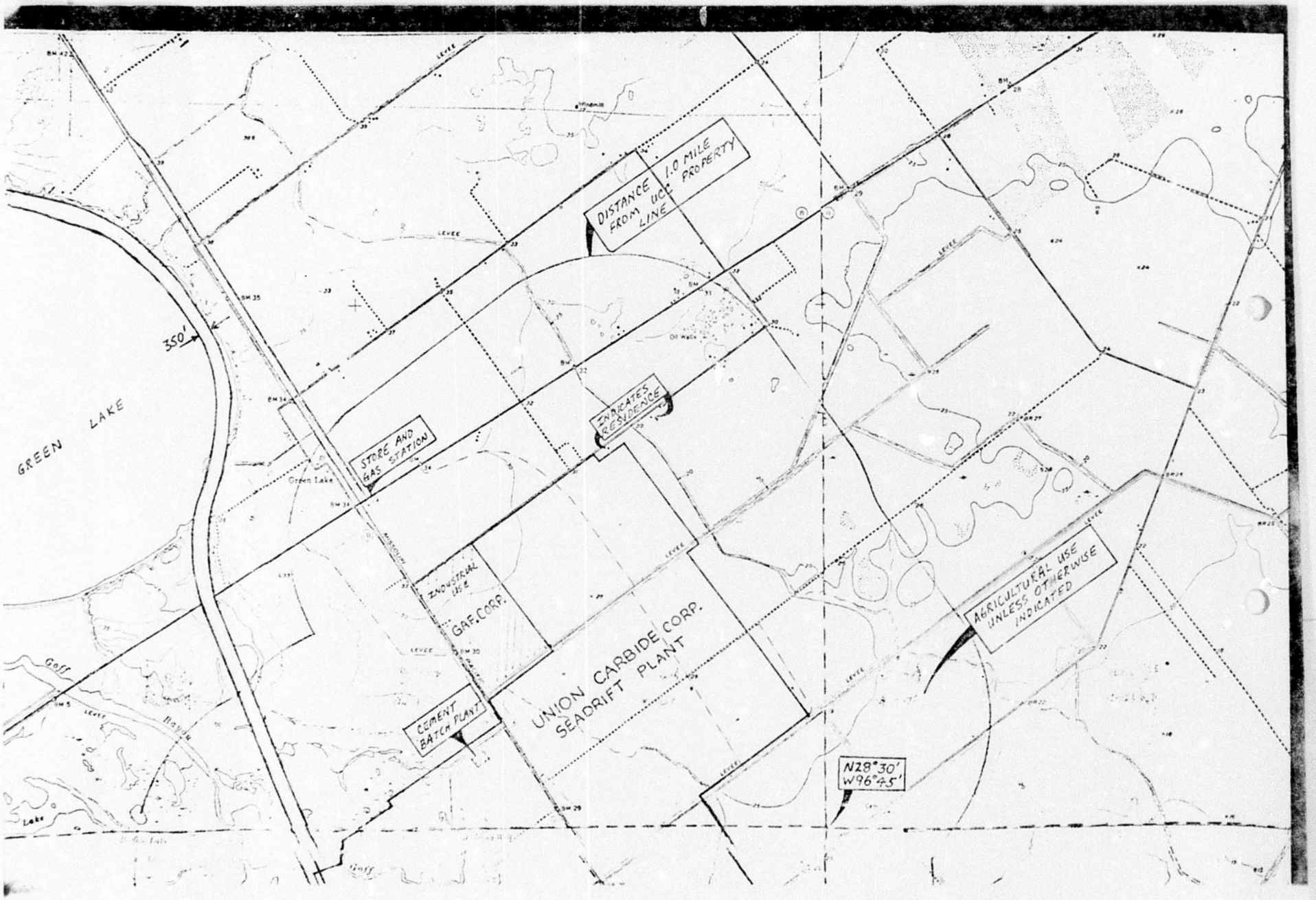
   For the EPA Hazard Code and EPA Hazardous Waste Numbers, see 40 CFR 261.30-33. For annual quantity, provide the amount in units of pounds (as generated) for each waste and/or waste mixture.

   Please group the listings of wastes by SIC code, insofar as your processes are designated by SIC codings. Also, within the general SIC code groups, give a brief description of the specific process or operation from which the waste has been generated.

### B. Waste Management Facilities Summary

1. For each waste and waste mixture listed in Table III-1 that is presently or proposed to be managed on-site, provide the summary sheet shown in Table III-2 (Note: you must make copies of Table III-2 and submit the completed set of tables as "Attachment D").


INDUSTRIAL USE
GAF. CORP.
UNION CARBIDE CORP.
SEADRIFT PLANT
CEMENT BATCH PLANT
AGRICULTURAL USE UNLESS OTHERWISE INDICATED
N28°30'
W96°45'
INDUSTRIAL GROENDYKE TRUCK
VICTORIA BARGE CANAL
Goff Bayou
Long Mott
MISSION LAKE
REFERENCE USGS MAPS
N.2830 - W.9645/7.5
N.2830 - W.9637.5/7.5
N.2822.5 - W.9637.5/7.5
N.2822.5 - W.9645/7.5
DRAWN BY M.S.
CHECKED BY
APPROVED BY
DATE 5-10-80
SCALE 1:2400
UNION CARBIDE CORPORATION
CHEMICALS AND PLASTICS ENGINEERING
JOB NO.
UNIT SYMBOL
ZONE
AREA
ATTACHMENT "A"
LAND USE MAP
1 MILE DISTANT FROM PROPERTY
INDEX NUMBER
LOCATION
SITE
SUBJECT
(4) DWG. NUMBER

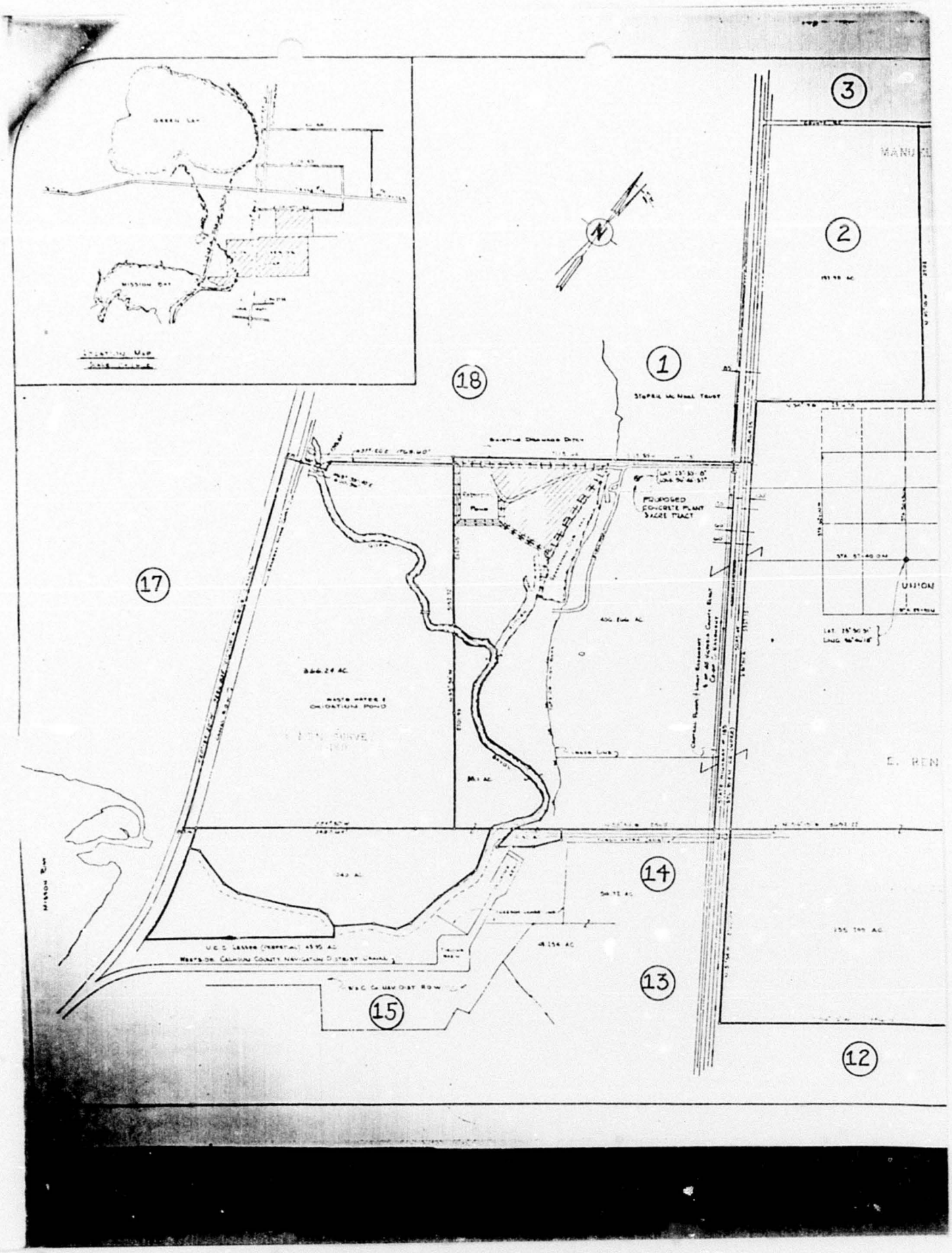

DISTANCE FROM UCC PROPERTY LINE 1.0 MILE
INDICATES RESIDENCE
STORE AND GAS STATION
INDUSTRIAL USE
GAF. CORP.
UNION CARBIDE CORP.
SEADRIFT PLANT
CEMENT BATCH PLANT
AGRICULTURAL USE UNLESS OTHERWISE INDICATED
N28°30'
W96°45'
350'
GREEN LAKE
Green Lake
LEVEE

"ATTACHMENT B"

LIST OF PROPERTY OWNERS ADJACENT TO
UNION CARBIDE CORPORATION
SEADRIFT PLANT

(Reference to UCC property ownership location plan - "Attachment B")

| Ref. No. | Owner Name/Address |
|---|---|
| 1 | Stofer-McNeel, Victoria Bank & Trust Co.: Trustee, Victoria Texas 77901 |
| 2 | GAF Corporation |
| 3 | Ethel Rigby Estate, C/O Rt. 2, Box 282, Port Lavaca, Texas 77979 |
| 4 | Truman Rodgers, 1419 Springwood Lane, Port Lavaca, Texas 77979 |
| 5 | Kenneth Dolezal, 514 Travis, Port Lavaca, Texas 77979 |
| 6 | E. C. Kimbriel, Rt. 2, Box 322, Port Lavaca, Texas 77979 |
| 7 | Bertha Kincannon & A. S. DeLeon, 101 Bowie, Port Lavaca, Texas 77979 |
| 8 | Robert J. Reilly, Jesse Rigby Rd, Port Lavaca, Texas 77979 |
| 9 | R. T. Peterschmidt, Jesse Rigby Rd., Port Lavaca, Texas 77979 |
| 10 | H. J. Hahn, Corpus Christi Hwy,Port Lavaca, Texas 77979 |
| 11 | Texas A & M, University College Station, Texas 77843 |
| 12 | Walter Pilgram, Sr., P. O. Box 49, Long Mott, Texas 77972 |
| 13 | Kalama Chemical Co. |
| 14 | Mrs. Ray Crober, Aransas Pass, Texas 78336 |
| 15 | Westside Calhoun Co. Navigation District, Long Mott, Texas 77972 |
| 17 | R. M. Lucas, Berclair, Texas |
| 18 | Indianola Holding Co., 1200 San Jacinto, Houston, Texas 77002 |



3
2
1
18
17
14
13
15
12
MANUEL
UNION
E. BEN
MISSION BAY
STOPPER MC NEAL TRUST
EXISTING DRAINAGE DITCH
PROPOSED CONCRETE PLANT 3 ACRE TRACT
WASTE WATER & OXIDATION POND
U.C.C. LEASER (PERPETUAL) 43.95 AC
WESTSIDE CALHOUN COUNTY NAVIGATION DISTRICT CANAL
U.C.C. Co. NAV. DIST. ROW
MISSION RIVER

3
4
5
6
7
8
9
2
10
1
1
1
14
11
13
12
UNION CARBIDE CORP.
C. RENDON SURVEY
A-31
"ATTACHMENT 8"
UNION CARBIDE CORPORATION

1.0 MILE DISTANCE FROM PROPERTY
LANDFILL UNDER DEV'T. -180 AC.
FUTURE LF & OR WATER BASIN -125 AC.
POLY RECOVERY & DRYER (INACTIVE)
RESIDUE BURNERS (4) (ACTIVE)
STYRENE TAR PIT 1.3 AC (INACTIVE)
COOLING WATER BASIN
WATER DITCH TO PORT LAVACA
DRUM & BULK RESIDUE STORAGE 0.5 AC (ACTIVE)
(5) IN-PLANT LAGOONS 1 AC (ACTIVE)
WATER BASINS
FILL 30 AC. (ACTIVE)
RESIDUE BURNING PITS ~3 AC. (3) (INACTIVE)
C-DRO BASIN .15 AC (INACTIVE)
LANDFARM SITE 200 AC. (PROPOSED)
PANIC POND 11 AC. (ACTIVE)
Pumping Station
Windmill
Long Mott
LEVEE
Oil Well
DRAWN BY
CHECKED BY
APPROVED BY
DATE
UNION CARBIDE CORPORATION
CHEMICALS AND PLASTICS ENGINEERING
JOB NO.
UNIT SYMBOL
ZONE
ATTACHMENT "B"
WASTE MANAGEMENT FACILI
COMPONENT MAP
UCC SEADRIFT PLANT
INDEX NUMBER
LOCATION
SITE
SUBJECT
(4) DWG. NUMBE

1.0 MILE DISTANCE FROM PROPERTY
LANDFILL UNDER DEV'T. -180 AC.
FUTURE LF OR WATER BASIN -125 AC.
POLY RECOVERY & DRYER (INACTIVE)
RESIDUE BURNERS (a) (ACTIVE)
STYRENE TAR PIT 1.3 AC (INACTIVE)
COOLING WATER BASIN
DRUM & BULK RESIDUE STORAGE 0.5 AC (ACTIVE)
(5) IN-PLANT LAGOONS 14 AC (ACTIVE)
LANDFILL 30 AC. (ACTIVE)
(ACTIVE) RETENTION & EVAPORATION PONDS (25 AC)
RESIDUE BURNING PITS 3 AC. (3) (INACTIVE)
WATER BASINS
C-DRP BASIN .15 AC (INACTIVE)
STORMWATER AND TREATMENT PLT. DISCHARGES
TERTIARY TREATMENT POND 300 AC.
PANIC POND 11 AC. (ACTIVE)
LANDFARM SITE 200 AC. (PROPOSED)
SECONDARY TREATMENT POND 140 AC
VICTORIA BARGE CANAL
LAKE
Green Lake
Long Mott
Hog Bayou
Goff Bayou
LEVEE

"ATTACHMENT G"

FLOW DIAGRAM/DESCRIPTION

| | |
|---|---|
| ETHYLENEDIAMINE | - Originates as heels in barges. Barge washings flow via pipeline into panic pond. Effluent from panic pond discharges to treatment ponds. |
| ETHYLENEIMINE | - Same as above. |
| ACETONE | - Primarily originates in polyethylene units. Transported by tank truck to burning area and fed to National Air Oil Burners directly from truck. Smaller quantities arrive in drums from Olefins, Labs and Shops; stored in bulk storage tank and then burned. |
| BENZENE | - Arrives in barges; barge washings pumped to panic pond. Smaller quantities in drums originate at ODU, Styrene and laboratories. Drums are transferred into bulk storage for future burning. |
| N-BUTYL ALCOHOL | - Barge washings flow via pipeline into panic pond. Oxo and ODU units pump dilute streams directly into in-plant lagoons. Labs and units generate small quantities in drums which are unloaded into bulk storage tanks and then burned. |
| CHLOROETHENE | - Solvent used primarily in maintenance of $O_2$ unit; collected in drums, transported on truck and discharged into in-plant lagoon. |
| CYCLOHEXANE | - Originates in polyethylene units and laboratories. Collected in drums, transported to burning area, stored in bulk storage tanks and then burned. |
| ETHYL ACETATE | - Same as Ethylenediamine |
| ETHYL ACRYLATE | - Originates in polyethylene units. May be transported to burning area by tank truck or in drums. Stored in bulk storage tanks before burning. Poly waxes containing EA are transported in a dedicated lugger bin to the landfill. |
| ETHYLENE OXIDE | - Filter cartridges from oxide load rack are collected in drums and transported to landfill. Dilute ethylene oxide in water is piped to the in-plant lagoon. ? |

| | |
|---|---|
| ISOBUTYL ALCOHOL | - Barge washings flow via pipeline into panic pond. Dilute stream piped directly into in-plant lagoon. Small drummed quantities from the unit and labs are transported to burning area, stored in bulk storage and burned. |
| METHANOL | - Small quantities in drums originate in units and labs. Transported to burning area, stored in bulk and burned. |
| METHYL-ETHYL-KETONE | - Barge washings are piped to panic pond. Small quantities of drummed material originate in paint shop. These are taken to burning area, stored in bulk and burned. |
| METHYL ISOBUTYL KETONE | - Same as MEK |
| TOLUENE | - Barge washings are piped to panic pond. Small drummed quantities from Styrene unit and laboratories are transported to burning area, stored in bulk and burned. |
| 1,1,1-TRICHLOROETHANE | - Solvent originating in Maintenance Shop in drummed quantities. Transported to the burning area, stored in bulk and burned. |
| XYLENE | - Originates in small drummed quantities in laboratories. Transported to burning area, stored in bulk and burned. |
| TRI-ETHYL-ALUMINUM (TEAL) | - Originates in polyethylene unit. Collected and transported in a dedicated tank to burning area. Burned in burners directly from dedicated tank. |
| SODIUM HYDROXIDE PELLETS | - Originates in polyethylene unit. Transported by truck in drums and discharged into in-plant lagoons. |

I.D. – FOR OFFICIAL USE ONLY

W T X D 0 4 1 5 1 5 4 2 0 2

## IX. DESCRIPTION OF HAZARDOUS WASTES (continued from front)

A. HAZARDOUS WASTES FROM NON–SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.31 for each listed hazardous waste from non–specific sources your installation handles. Use additional sheets if necessary.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| | | | | | |

| 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|
| | | | | | |

B. HAZARDOUS WASTES FROM SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.32 for each listed hazardous waste from specific industrial sources your installation handles. Use additional sheets if necessary.

| 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|
| | | | | | |

| 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|
| | | | | | |

| 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|
| | | | | | |

C. COMMERCIAL CHEMICAL PRODUCT HAZARDOUS WASTES. Enter the four–digit number from 40 CFR Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

| 31 | 32 | 33 | 34 | 35 | 36 |
|---|---|---|---|---|---|
| P035 | P053 | P054 | U002 | U019 | U031 |

| 37 | 38 | 39 | 40 | 41 | 42 |
|---|---|---|---|---|---|
| U041 | U056 | U112 | U113 | U115 | U140 |

| 43 | 44 | 45 | 46 | 47 | 48 |
|---|---|---|---|---|---|
| U154 | U159 | U161 | U220 | U226 | U239 |

D. LISTED INFECTIOUS WASTES. Enter the four–digit number from 40 CFR Part 261.34 for each listed hazardous waste from hospitals, veterinary hospitals, medical and research laboratories your installation handles. Use additional sheets if necessary.

| 49 | 50 | 51 | 52 | 53 | 54 |
|---|---|---|---|---|---|
| | | | | | |

E. CHARACTERISTICS OF NON–LISTED HAZARDOUS WASTES. Mark "X" in the boxes corresponding to the characteristics of non–listed hazardous wastes your installation handles. *(See 40 CFR Parts 261.21 – 261.24.)*

[X] 1. IGNITABLE (D001) [X] 2. CORROSIVE (D002) [X] 3. REACTIVE (D003) [X] 4. TOXIC (D000)

## X. CERTIFICATION

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| SIGNATURE | NAME & OFFICIAL TITLE (type or print) | DATE SIGNED |
|---|---|---|
| D L Goris | Plant Manager UCC Seadrift | 8-14-80 |

EPA Form 8700-12 (6-80) REVERSE

D. L. Goris

UNION CARBIDE CORP

TXD041515420

SUPERFUND FILE

OCT 0 9 1992

REORGANIZED