

It is to be noted that, whereas the test borings are drilled and sampled by experienced drillers, it is sometimes difficult to record changes in stratification within narrow limits. In the absence of foreign substances, it is also difficult to distinguish between discolored soils and clean soil fill.

Soil Conditions

Boring B-1 - The subsurface soil conditions consist of an upper stratum of fine sand, an intermediate stratum of clayey sand, and a deeper stratum of silty clay.

From the mudline to an approximate depth of six (6) feet, an upper stratum of medium sand with shells was encountered. Standard penetration values (N) obtained within these soils ranged from one (1) to four (4) blows per foot. These soils are non-plastic and contain between 12 and 23 percent silt and clay size particles as indicated by minus #200 sieve tests.

From six (6) feet below the mudline, to a depth of 7.5 feet, an intermediate stratum of clayey sand was encountered. A standard penetration value (N) obtained within these soils was two (2) blows per foot. These soils contain approximately 42 percent silt and clay size particles as indicated by minus #200 sieve tests.

From 7.5 feet below the mudline and extending to a depth of nine (9) feet, a stratum of silty clay was encountered. A standard penetration value (N) obtained within these soils was four (4) blows per foot. These soils are high in plasticity as indicated by an Atterberg limit test. The tested liquid limit was 53 percent and plasticity index (PI) was 31. These soils contain approximately 22 percent sand size particles as indicated by a minus #200 sieve test.

Boring B-2 - The subsurface soil conditions consist of an upper stratum of fine sand, intermediate strata of clayey sand and silty clay, and a deeper stratum of sandy clay.

From the mudline to an approximate depth of six (6) feet, an upper stratum of fine sand was encountered. Standard penetration values (N) obtained within these soils ranged from zero (0) to one (1) blow per foot. These soils are non-plastic and contain between five (5) and 14 percent silt and clay size particles as indicated by minus #200 sieve tests.

From six (6) feet below the mudline, to a depth of 10.5 feet, intermediate strata of clayey sand and silty clay were encountered. Standard penetration values (N) obtained within these soils ranged from one (1) to 11 blows per foot. These soils are low in plasticity as indicated by Atterberg limit tests. Liquid limits ranged from 24 to 27 percent and plasticity indices (PI) ranged from seven (7) to 12.

PROFESSIONAL SERVICE INDUSTRIES INC.

RECORD OF SUBSURFACE EXPLORATION

Boring: B-1

Project Name: 1995 Marina Dredging Project Date of Boring: November 16, 1995

Site: T-Heads - Corpus Christi, Texas Project No.: 326-55415

DESCRIPTION	DEPTH	SAMPLE	N	Qu	Qp	Mc	REMARKS
SURFACE							
Water							
	5						
Mudline = 8.5 feet below water surface							
MEDIUM SAND, some clay, with shells, gray, wet, very loose.	10	SS-1	2			35.2	-#200=12%
		SS-2	1			34.0	
Same as above, loose.		SS-3	4			34.6	-#200=18%
MEDIUM SAND, with clay, with shells, gray, wet, very loose.		SS-4	1			34.4	-#200=23%
	15	SS-5	2			32.9	-#200=42%
CLAYEY SAND, gray, wet, very loose.							
SILTY CLAY, with sand, gray, very moist, firm, (CH)		SS-6	4		1.0	32.6	-#200=78% LL=53% PI=31
Total Depth of Boring = 17.5 ft below water surface							
	20						

LA #: 11160-01
Client ID: B-1 Comp.

PURGEABLE AROMATICS

Matrix: Soil
LOW LEVEL

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>MDL/DF</u>
Benzene	<10	ug/kg	SW 8020	10/1
Toluene	<10	ug/kg	SW 8020	10/1
Ethylbenzene	<10	ug/kg	SW 8020	10/1
Total Xylenes	<10	ug/kg	SW 8020	10/1
Total VOAs	<10	ug/kg	SW 8020	-/-
MTBE	<10	ug/kg	SW 8020	10/1

Extraction Date:
NA
Analysis Date:
11/28/95
Analyst: WH

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date</u>	<u>Analyst</u>	<u>MDL</u>
Total Recoverable Petroleum Hydrocarbons	17.0	mg/kg	EPA 418.1	11/20/95	RM	10.0

METALS ANALYSIS

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date</u>	<u>Analyst</u>
Total Arsenic	10.4	mg/kg	SW 7060	11/22/95	MC
Total Barium	78	mg/kg	SW 7080	11/27/95	JS
Total Cadmium	<0.6	mg/kg	SW 7130	11/20/95	JS
Total Chromium	2.7	mg/kg	SW 7190	11/20/95	JS
Total Lead	5.00	mg/kg	SW 7420	11/21/95	JS
Total Mercury	<0.03	mg/kg	SW 7471	11/27/95	JS
Total Selenium	<0.6	mg/kg	SW 7740	11/22/95	MC
Total Silver	3.00	mg/kg	SW 7760	11/22/95	JS



LAB #: 11160-01
Client ID: B-1 Comp.

BASE/NEUTRAL AND ACID EXTRACTABLES BY GC/MS

Matrix: Soil

Analyte	Results	Units	Method	MDL/DF
<u>BASE NEUTRAL EXTRACTABLES</u>				
N-Nitrosodimethylamine	<330	ug/kg	SW 8270	330/1
Bis (2-chloroethyl) ether	<330	ug/kg	SW 8270	330/1
1,3-Dichlorobenzene	<330	ug/kg	SW 8270	330/1
1,4-Dichlorobenzene	<330	ug/kg	SW 8270	330/1
Benzyl alcohol	<330	ug/kg	SW 8270	330/1
1,2-Dichlorobenzene	<330	ug/kg	SW 8270	330/1
Bis (2-chloroisopropyl) ether	<330	ug/kg	SW 8270	330/1
N-Nitroso di-n-propyl amine	<330	ug/kg	SW 8270	330/1
Hexachloroethane	<330	ug/kg	SW 8270	330/1
Nitrobenzene	<330	ug/kg	SW 8270	330/1
Isophorone	<330	ug/kg	SW 8270	330/1
Bis (2-chloroethoxy) methane	<330	ug/kg	SW 8270	330/1
1,2,4-Trichlorobenzene	<330	ug/kg	SW 8270	330/1
Naphthalene	<330	ug/kg	SW 8270	330/1
4-Chloroaniline	<330	ug/kg	SW 8270	330/1
Hexachlorobutadiene	<330	ug/kg	SW 8270	330/1
2-Methylnaphthalene	<330	ug/kg	SW 8270	330/1
Hexachlorocyclopentadiene	<330	ug/kg	SW 8270	330/1
2-Chloronaphthalene	<800	ug/kg	SW 8270	800/1
2-Nitroaniline	<330	ug/kg	SW 8270	330/1
Dimethylphthalate	<330	ug/kg	SW 8270	330/1
2,4-Dinitrotoluene	<330	ug/kg	SW 8270	330/1
Acenaphthylene	<330	ug/kg	SW 8270	330/1
3-Nitroaniline	<800	ug/kg	SW 8270	800/1
Acenaphthene	<330	ug/kg	SW 8270	330/1
Dibenzofuran	<330	ug/kg	SW 8270	330/1
2,6-Dinitrotoluene	<330	ug/kg	SW 8270	330/1
Fluorene	<330	ug/kg	SW 8270	330/1
4-Chloro phenyl phenyl ether	<330	ug/kg	SW 8270	330/1
4-Nitroaniline	<800	ug/kg	SW 8270	800/1
Diethyl phthalate	<330	ug/kg	SW 8270	330/1
Di-n-Butylphthalate	<330	ug/kg	SW 8270	330/1
N-Nitrosodiphenylamine	<330	ug/kg	SW 8270	330/1
4-Bromo phenyl phenyl ether	<330	ug/kg	SW 8270	330/1
Hexachlorobenzene	<330	ug/kg	SW 8270	330/1
Phenanthrene	<330	ug/kg	SW 8270	330/1
Anthracene	<330	ug/kg	SW 8270	330/1
Fluoranthene	<330	ug/kg	SW 8270	330/1
Pyrene	<330	ug/kg	SW 8270	330/1
Butylbenzyl phthalate	<330	ug/kg	SW 8270	330/1
Benzo (a) anthracene	<330	ug/kg	SW 8270	330/1
Chrysene	<330	ug/kg	SW 8270	330/1
Bis (2-ethylhexyl) phthalate	<330	ug/kg	SW 8270	330/1
1,2-Dichlorobenzidine	<330	ug/kg	SW 8270	330/1
n-Octylphthalate	<330	ug/kg	SW 8270	330/1
Benzo- (b) fluoranthene	<330	ug/kg	SW 8270	330/1

Extraction Date:
11/20/95
Analysis Date:
11/22/95
Analyst: SP

(continued)



Job #: 11160-01
Client ID: B-1 Comp.

BASE/NEUTRAL AND ACID EXTRACTABLES BY GC/MS (cont.)

Matrix: Soil

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>MDL/DF</u>
<u>BASE NEUTRAL EXTRACTABLES</u>				
Benzo (k) fluoranthene	<330	ug/kg	SW 8270	330/1
Benzo- (a) pyrene	<330	ug/kg	SW 8270	330/1
Benzo (1,2,3-cd) pyrene	<330	ug/kg	SW 8270	330/1
Dibenzo (a,h) anthracene	<330	ug/kg	SW 8270	330/1
Benzo (g,h,i) perylene	<330	ug/kg	SW 8270	330/1

ACID EXTRACTABLES

Phenol	<330	ug/kg	SW 8270	330/1
2-Chlorophenol	<330	ug/kg	SW 8270	330/1
2-Methylphenol	<330	ug/kg	SW 8270	330/1
4-Methylphenol	<330	ug/kg	SW 8270	330/1
2-Nitrophenol	<330	ug/kg	SW 8270	330/1
2,4-Dimethylphenol	<330	ug/kg	SW 8270	330/1
Benzoic acid	<330	ug/kg	SW 8270	330/1
2,4-Dichlorophenol	<330	ug/kg	SW 8270	330/1
4-Chloro-3-methylphenol	<330	ug/kg	SW 8270	330/1
2,4,6-Trichlorophenol	<330	ug/kg	SW 8270	330/1
2,4,5-Trichlorophenol	<330	ug/kg	SW 8270	330/1
2,4-Dinitrophenol	<800	ug/kg	SW 8270	800/1
4-Nitrophenol	<800	ug/kg	SW 8270	800/1
4,6-Dinitro-2-methyl phenol	<800	ug/kg	SW 8270	800/1
Pentachlorophenol	<800	ug/kg	SW 8270	800/1

PESTICIDES

Alpha-BHC	<330	ug/kg	SW 8270	330/1
Beta-BHC	<330	ug/kg	SW 8270	330/1
Gamma-BHC	<330	ug/kg	SW 8270	330/1
Delta-BHC	<330	ug/kg	SW 8270	330/1
Heptachlor	<330	ug/kg	SW 8270	330/1
Aldrin	<330	ug/kg	SW 8270	330/1
Heptachlor epoxide	<330	ug/kg	SW 8270	330/1
Endosulfan I	<330	ug/kg	SW 8270	330/1
Dieldrin	<330	ug/kg	SW 8270	330/1
4,4'-DDE	<330	ug/kg	SW 8270	330/1
Endrin	<330	ug/kg	SW 8270	330/1
Endosulfan II	<330	ug/kg	SW 8270	330/1
4,4'-DDD	<330	ug/kg	SW 8270	330/1
Endrin aldehyde	<330	ug/kg	SW 8270	330/1
Endosulfan sulfate	<330	ug/kg	SW 8270	330/1
4,4'-DDT	<330	ug/kg	SW 8270	330/1
Endrin Ketone	<330	ug/kg	SW 8270	330/1
thoxychlor	<330	ug/kg	SW 8270	330/1



PROFESSIONAL SERVICE INDUSTRIES INC.

RECORD OF SUBSURFACE EXPLORATION

Boring: B-1

Project Name: 1995 Marina Dredging Project Date of Boring: November 16, 1995

Site: T-Heads - Corpus Christi, Texas Project No.: 326-55415

DESCRIPTION	DEPTH	SAMPLE	N	Qu	Qp	Mc	REMARKS
SURFACE							
Water							
	5						
Mudline = 8.5 feet below water surface							
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MEDIUM SAND, with clay, with shells, gray, wet, very loose.		SS-4	1			34.4	-#200=23%
	15	SS-5	2			32.9	-#200=42%
CLAYEY SAND, gray, wet, very loose.		SS-6	4		1.0	32.6	-#200=78% LL=53% PI=31
SILTY CLAY, with sand, gray, very moist, firm, (CH)							
Total Depth of Boring = 17.5 ft below water surface							
	20						

LA #: 11160-01
Client ID: B-1 Comp.

PURGEABLE AROMATICS

Matrix: Soil
LOW LEVEL

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>MDL/DF</u>
Benzene	<10	ug/kg	SW 8020	10/1
Toluene	<10	ug/kg	SW 8020	10/1
Ethylbenzene	<10	ug/kg	SW 8020	10/1
Total Xylenes	<10	ug/kg	SW 8020	10/1
Total VOAs	<10	ug/kg	SW 8020	-/-
MTBE	<10	ug/kg	SW 8020	10/1

Extraction Date:
NA
Analysis Date:
11/28/95
Analyst: WH

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date</u>	<u>Analyst</u>	<u>MDL</u>
Total Recoverable Petroleum Hydrocarbons	17.0	mg/kg	EPA 418.1	11/20/95	RM	10.0

METALS ANALYSIS

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date</u>	<u>Analyst</u>
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Total Cadmium	<0.6	mg/kg	SW 7130	11/20/95	JS
Total Chromium	2.7	mg/kg	SW 7190	11/20/95	JS
Total Lead	5.00	mg/kg	SW 7420	11/21/95	JS
Total Mercury	<0.03	mg/kg	SW 7471	11/27/95	JS
Total Selenium	<0.6	mg/kg	SW 7740	11/22/95	MC
Total Silver	3.00	mg/kg	SW 7760	11/22/95	JS



LAB #: 11160-01
Client ID: B-1 Comp.

BASE/NEUTRAL AND ACID EXTRACTABLES BY GC/MS

Matrix: Soil

Analyte	Results	Units	Method	MDL/DF
<u>BASE NEUTRAL EXTRACTABLES</u>				
N-Nitrosodimethylamine	<330	ug/kg	SW 8270	330/1
Bis (2-chloroethyl) ether	<330	ug/kg	SW 8270	330/1
1,3-Dichlorobenzene	<330	ug/kg	SW 8270	330/1
1,4-Dichlorobenzene	<330	ug/kg	SW 8270	330/1
Benzyl alcohol	<330	ug/kg	SW 8270	330/1
1,2-Dichlorobenzene	<330	ug/kg	SW 8270	330/1
Bis (2-chloroisopropyl) ether	<330	ug/kg	SW 8270	330/1
N-Nitroso di-n-propyl amine	<330	ug/kg	SW 8270	330/1
Hexachloroethane	<330	ug/kg	SW 8270	330/1
Nitrobenzene	<330	ug/kg	SW 8270	330/1
Isophorone	<330	ug/kg	SW 8270	330/1
Bis (2-chloroethoxy) methane	<330	ug/kg	SW 8270	330/1
1,2,4-Trichlorobenzene	<330	ug/kg	SW 8270	330/1
Naphthalene	<330	ug/kg	SW 8270	330/1
4-Chloroaniline	<330	ug/kg	SW 8270	330/1
Hexachlorobutadiene	<330	ug/kg	SW 8270	330/1
2-Methylnaphthalene	<330	ug/kg	SW 8270	330/1
Hexachlorocyclopentadiene	<330	ug/kg	SW 8270	330/1
2-Chloronaphthalene	<800	ug/kg	SW 8270	800/1
2-Nitroaniline	<330	ug/kg	SW 8270	330/1
Dimethylphthalate	<330	ug/kg	SW 8270	330/1
2,4-Dinitrotoluene	<330	ug/kg	SW 8270	330/1
Acenaphthylene	<330	ug/kg	SW 8270	330/1
3-Nitroaniline	<800	ug/kg	SW 8270	800/1
Acenaphthene	<330	ug/kg	SW 8270	330/1
Dibenzofuran	<330	ug/kg	SW 8270	330/1
2,6-Dinitrotoluene	<330	ug/kg	SW 8270	330/1
Fluorene	<330	ug/kg	SW 8270	330/1
4-Chloro phenyl phenyl ether	<330	ug/kg	SW 8270	330/1
4-Nitroaniline	<800	ug/kg	SW 8270	800/1
Diethyl phthalate	<330	ug/kg	SW 8270	330/1
Di-n-Butylphthalate	<330	ug/kg	SW 8270	330/1
N-Nitrosodiphenylamine	<330	ug/kg	SW 8270	330/1
4-Bromo phenyl phenyl ether	<330	ug/kg	SW 8270	330/1
Hexachlorobenzene	<330	ug/kg	SW 8270	330/1
Phenanthrene	<330	ug/kg	SW 8270	330/1
Anthracene	<330	ug/kg	SW 8270	330/1
Fluoranthene	<330	ug/kg	SW 8270	330/1
Pyrene	<330	ug/kg	SW 8270	330/1
Butylbenzyl phthalate	<330	ug/kg	SW 8270	330/1
Benzo (a) anthracene	<330	ug/kg	SW 8270	330/1
Chrysene	<330	ug/kg	SW 8270	330/1
Bis (2-ethylhexyl) phthalate	<330	ug/kg	SW 8270	330/1
1,2-Dichlorobenzidine	<330	ug/kg	SW 8270	330/1
n-Octylphthalate	<330	ug/kg	SW 8270	330/1
Benzo- (b) fluoranthene	<330	ug/kg	SW 8270	330/1

Extraction Date:
11/20/95
Analysis Date:
11/22/95
Analyst: SP

(continued)



Job #: 11160-01
Client ID: B-1 Comp.

BASE/NEUTRAL AND ACID EXTRACTABLES BY GC/MS (cont.)

Matrix: Soil

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>Method</u>	<u>MDL/DF</u>
<u>BASE NEUTRAL EXTRACTABLES</u>				
Benzo (k) fluoranthene	<330	ug/kg	SW 8270	330/1
Benzo- (a) pyrene	<330	ug/kg	SW 8270	330/1
Benzo (1,2,3-cd) pyrene	<330	ug/kg	SW 8270	330/1
Dibenzo (a,h) anthracene	<330	ug/kg	SW 8270	330/1
Benzo (g,h,i) perylene	<330	ug/kg	SW 8270	330/1

ACID EXTRACTABLES

Phenol	<330	ug/kg	SW 8270	330/1
2-Chlorophenol	<330	ug/kg	SW 8270	330/1
2-Methylphenol	<330	ug/kg	SW 8270	330/1
4-Methylphenol	<330	ug/kg	SW 8270	330/1
2-Nitrophenol	<330	ug/kg	SW 8270	330/1
2,4-Dimethylphenol	<330	ug/kg	SW 8270	330/1
Benzoic acid	<330	ug/kg	SW 8270	330/1
2,4-Dichlorophenol	<330	ug/kg	SW 8270	330/1
4-Chloro-3-methylphenol	<330	ug/kg	SW 8270	330/1
2,4,6-Trichlorophenol	<330	ug/kg	SW 8270	330/1
2,4,5-Trichlorophenol	<330	ug/kg	SW 8270	330/1
2,4-Dinitrophenol	<800	ug/kg	SW 8270	800/1
4-Nitrophenol	<800	ug/kg	SW 8270	800/1
4,6-Dinitro-2-methyl phenol	<800	ug/kg	SW 8270	800/1
Pentachlorophenol	<800	ug/kg	SW 8270	800/1

PESTICIDES

Alpha-BHC	<330	ug/kg	SW 8270	330/1
Beta-BHC	<330	ug/kg	SW 8270	330/1
Gamma-BHC	<330	ug/kg	SW 8270	330/1
Delta-BHC	<330	ug/kg	SW 8270	330/1
Heptachlor	<330	ug/kg	SW 8270	330/1
Aldrin	<330	ug/kg	SW 8270	330/1
Heptachlor epoxide	<330	ug/kg	SW 8270	330/1
Endosulfan I	<330	ug/kg	SW 8270	330/1
Dieldrin	<330	ug/kg	SW 8270	330/1
4,4'-DDE	<330	ug/kg	SW 8270	330/1
Endrin	<330	ug/kg	SW 8270	330/1
Endosulfan II	<330	ug/kg	SW 8270	330/1
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Endosulfan sulfate	<330	ug/kg	SW 8270	330/1
4,4'-DDT	<330	ug/kg	SW 8270	330/1
Endrin Ketone	<330	ug/kg	SW 8270	330/1
thoxychlor	<330	ug/kg	SW 8270	330/1

