SECTION

3

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

American Cyanamid Company, Environmental Upgrade Projects, Area 1, Fortier Plant, Avondale, Louisiana

(Sheet 1 of 2)

Ground Elev.: | Datum: | Gr. Water Depth: See Text | Job No: 10006 | Date Drilled: 9/28/87 | Boring: 1 | Refer To "Legends & Notes"

Scale In Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Stiff tan silty clay w/shells	CL	1	0-.5											
	0.40			Soft gray clay w/shells	CH	2	2-3	34										
5	0.70			Medium stiff gray clay w/shells & concretion fragments	CH	3	5-6	29										
	0.50			Soft gray & tan silty clay	CL	4	8-9	32	89	117	UC	--	290	38	21	17		
10	0.40			Loose gray & tan clayey silt w/silty clay layers	ML	5	11-12	33	90	120	OB	--	450					
15	0.40					6	14-15											
20	0.20			Loose gray sandy silt w/clay lenses	ML	7	18-19	31	93	121	OB	--	740					
25	0.40			Loose gray clayey silt w/clay layers	ML	8	23-24											
30	0.70					9	28-29	46	76	111	OB	--	445					
35	0.70			Soft gray clay w/clayey silt lenses	CH	10	33-34	52	70	107	UC	--	480					
40				Loose to medium dense gray silty sand	SM													
		50=9"		Very dense gray silty sand	SM	11	41-42											
45		15		Medium dense gray silty sand	SM	12	44-45											
		9		Loose gray silty sand	SM	13	47-48											
50				Dense gray silty sand	SM													

*Encountered side of piling in push from 36.5 to 40 feet.

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

American Cyanamid Company, Environmental Upgrade Projects, Area 1, Fortier Plant, Avondale, Louisiana
(Sheet 2 of 2)

Ground Elev.: | Datum: | Gr. Water Depth: See Text | Job No: 10006 | Date Drilled: 9/28/87 | Boring: 1 | Refer To "Legends & Notes"

Scale in Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
		33		Dense gray silty sand	SM	14	50-51											
55		19		Medium dense gray silty sand w/clay layers	SM	15	54-55											
60		40		Dense gray fine sand w/clay layers & few shell fragments	SP	16	59-60											
65		50=11"		Very dense gray fine sand	SP	17	64-65											
70		50=9"		w/few shell fragments		18	69-70											
75		46		Dense gray fine sand	SP	19	74-75											
80		50=11"		Very dense gray fine sand	SP	20	79-80											
				Dense gray fine sand	SP													
85		40				21	84-85											
				Very dense gray fine sand	SP													
90		50=7"				22	89-90											
95		50=8"				23	94-95											
100		50=9"				24	99-100											

Boring located approximately at Plant Coordinates S1181, E2207.

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

American Cyanamid Company, Environmental Upgrade Projects, Area 1, Fortier Plant, Avondale, Louisiana

Ground Elev.. Datum: Gr. Water Depth: See Text Job No: 10006 Date Drilled: 9/28/87 Boring: 2 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ϕ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Stiff gray & brown silty clay w/shell fragments & concretions	CL	1	0-.5											
5	0.90			Medium stiff gray & tan clay w/shell & brick fragments	CH	2	4-5	32										
	0.75			Medium stiff gray & tan clay	CH	3	7-8	33	88	118	UC	—	775					
10	0.30			Soft tan & gray silty clay w/clayey silt lenses	CL	4	9-10	32	91	120	UC	—	260					
	0.30			Loose tan & gray sandy silt w/silty clay layers	ML	5	11-12											
15	0.30					6	14-15	32										
20	0.50			Soft gray clay w/silt pockets & lenses	CH	7	18-19	42	80	113	UC	—	480	57	22	35		

Boring located approximately at Plant Coordinates S1114, E2204.

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

American Cyanamid Company, Environmental Upgrade Projects, Area 1, Fortier Plant, Avondale, Louisiana

Ground Elev: | Datum: | Gr. Water Depth: See Text | Job No: 10006 | Date Drilled: 9/29/87 | Boring: 3 | Refer To "Legends & Notes"

Scale In Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Stiff gray & brown silty clay w/shells, concretion fragments & silty sand	CL	1	0-.5											
	2.30					2	2-3	26										
				Stiff gray & tan clay w/shells	CL													
5				Stiff gray & tan clay w/silty clay layers & shells	CH													
	1.90					3	5-6	20	101	122	OB	--	1095					
				Medium stiff gray clay w/clayey silt pockets	CH													
	0.40					4	8-9	29	93	120	UC	—	760	54	21	33		
10				Loose gray & tan sandy silt w/silty clay layers	ML													
	0.30					5	11-12											
15	0.30					6	14-15	31	93	122	OB	--	840					
	0.40			Loose gray sandy silt w/clay layers	ML	7	18-19											
20																		

Boring located approximately at Plant Coordinates S1220, E2202.

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

American Cyanamid Company, Environmental Upgrade Projects, Area 1, Fortier Plant, Avondale, Louisiana

Ground Elev.: | Datum: | Gr. Water Depth: See Text | Job No: 10006 | Date Drilled: 9/29/87 | Boring: 4 | Refer To "Legends & Notes"

Scale in Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests c	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Loose shells	SI		0-.5											
				Stiff gray & brown clay w/shells	CH	1	1-1.5											
	1.90			Stiff gray & tan clay w/trace of wood	CH	2	2-3	26	94	118	UC	—	1610					
5	1.30			w/shells		3	5-6	32	89	118	UC	—	1190					
				Soft gray & tan silty clay w/clayey silt layers	CL													
	0.50					4	8-9	34	87	117	UC	—	395					
10																		
				Loose gray & tan clayey silt w/silty clay layers	ML													
	0.30					5	11-12											
				Loose gray clayey silt w/clay layers	ML													
15	0.30					6	14-15	31	94	123	OB	—	615	27	20	7		
	0.20					7	18-19											
20																		

Boring located approximately at Plant Coordinates S1167, E2245.

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

American Cyanamid Company, Environmental Upgrade Projects, Area 2, Fortier Plant, Avondale, Louisiana

(Sheet 1 of 2)

Ground Elev.: | Datum: | Gr. Water Depth: See Text | Job No: 10006 | Date Drilled: 9/29-30/87 | Boring: 5 | Refer To "Legends & Notes"

Scale in Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Loose shells	SI													
	1.60			Medium stiff gray & brown clay w/shell & asphalt fragments	CH	1	2-3	34										
5				Medium stiff gray & tan clay	CH													
	1.60					2	5-6	41	79	112	UC	--	690					
	0.75			w/trace organic matter		3	8-9	42	79	112	UC	--	650					
10	1.30			w/clayey silt lenses		4	11-12	40	81	113	UC	--	740					
				Soft gray silty clay w/clayey silt layers	CL													
15	0.30					5	14-15	36	87	118	UC	--	425					
20	0.30					6	18-19											
	0.60			Medium stiff gray fissured clay w/clayey silt lenses	CH	7	23-24	69	59	101	UC	--	720	89	28	61		
25																		
30	0.50					8	28-29	70	59	100	UC	--	285					
	0.35			Soft to medium stiff gray clay w/silt lenses	CH	9	33-34	61	65	104	UC	--	560					
35																		
	0.25					10	38-39	60	65	104	UC	--	475	92	25	67		
40				Loose gray silty sand w/sandy silt layers	SM													
45						11	43-44											
	0.30			Medium stiff gray clay w/silty sand lenses	CH	12	48-49	64	62	103	UC	--	740					
50																		

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

American Cyanamid Company, Environmental Upgrade Projects, Area 2, Fortier Plant, Avondale, Louisiana

(Sheet 2 of 2)

Ground Elev.: | Datum: | Gr. Water Depth: See Text | Job No 10006 | Date Drilled: 9/29-30/87 | Boring: 5 | Refer To "Legends & Notes"

Scale in Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ϕ'	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Medium stiff gray clay w/silty sand & sandy silt lenses	CH													
55	0.30					13	53-54											
60	0.40					14	58-59	60	65	104	UC	—	705	88	25	63		
65	0.25					15	63-64											
70	0.40					16	68-69	59	66	104	UC	--	900					
75	0.70					17	73-74											
80	0.45					18	78-79	60	65	104	UC	--	610	90	26	64		
85	0.35					19	83-84											
				Stiff gray clay w/sandy silt lenses, layers & trace of organic matter	CH													
90	0.65					20	88-89	61	64	103	UC	—	1150					
				Stiff greenish-gray & tan fissured clay w/sandy silt pockets	CH													
95	1.25					21	93-94	34	88	118	UC	—	1135					
100	2.50					22	98-99	30	94	122	UC	--	1225					

Boring located approximately at Plant Coordinates S2690, E1590.

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

AMERICAN CYANAMID COMPANY, PROPOSED BUILDING, FORTIER PLANT
WESTWEGO, LOUISIANA

Ground Elev.: Datum: Gr. Water Depth: See Text Job No.: 11676 Date Drilled: 8/12/91 Boring: 1 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests Ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					4" Topsoil (gray & tan silty clay w/vegetation)	CH													
	1.30				Stiff gray & tan clay w/silt pockets & roots	CH	1	2-3	25	97	122	UC	—	1680					
5	0.80				Medium stiff gray & tan clay w/silt pockets		2	5-6	35	86	116	UC	—	585					
	0.55				Soft gray & tan silty clay w/clay layers & lenses	CL	3	8-9	32	92	121	UC	—	490					
10	0.60						4	11-12	34	89	120	UC	—	410					
15	0.30				Loose gray sandy silt w/clay lenses & layers	ML	5	14-15	32	92	121	CB	—	475	28	20	8		
20	0.25				Soft gray silty clay w/sandy silt lenses & layers	CL	6	18-19											
25	0.25						7	23-24	39	83	115	UC	—	430					
					Soft gray clay w/sandy silt layers	CH													
30	0.30						8	28-29											
					Soft gray clay w/clayey silt lenses & some wood	CH													
35	0.30						9	33-34	57	67	104	UC	—	330	81	28	53		
					Soft gray clay w/sand lenses	CH													
40	0.40						10	38-39											
		11			Medium dense gray fine sand w/clay layers	SP	11	40-41											
45		22					12	43-44											
		26			w/clay layers & shells		13	46-47											
50		15					14	49-50											

PROPOSED HAZARDOUS WASTE CONTAINER STORAGE BUILDING - PLANT COORDINATES: S 944; E 2422

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

AMERICAN CYANAMID COMPANY, PROPOSED BUILDING, FORTIER PLANT
WESTWEGO, LOUISIANA

Ground Elev.: Datum: Gr. Water Depth: See Text Job No.: 11676 Date Drilled: 8/12/81 Boring: 1 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests Ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					Medium dense gray fine sand w/clay layers & shell fragments	SP													
55		15	X				15	54–55											
60		36	X		Dense gray fine sand w/shell fragments & clay layers	SP	16	59–60											
					Dense gray fine sand	SP													
65		43	X				17	64–65											
70		32	X				18	69–70											
75		47	X				19	74–75											
80																			
85																			
90																			
95																			
100																			

PROPOSED HAZARDOUS WASTE CONTAINER STORAGE BUILDING – PLANT COORDINATES: S 944; E 2422

LEGEND AND NOTES FOR LOG OF BORING AND TEST RESULTS

PP — Pocket penetrometer resistance in tons per square foot

TV — Torvane shear strength in tons per square foot

SPT — Standard Penetration Test. Number of blows of a 140-lb. hammer dropped 30 inches required to drive 2-in O.D., 1.4-in. I.D. sampler a distance of one foot into the soil, after first seating it 6 inches

SPLR — Type of Sampling: Shelby, SPT, Auger, No Sample

SYMBOL — Clay, Silt, Sand, Humus. Predominant type shown heavy; Modifying type shown light

DENSITY — Unit weight in pounds per cubic foot

USC — Unified Soil Classification

TYPE

UC	Unconfined compression shear
OB	Unconsolidated undrained triaxial compression shear on one specimen confined at the approximate overburden pressure
UU	Unconsolidated undrained triaxial compression shear
CU	Consolidated undrained triaxial compression shear
DS	Direct shear
CON	Consolidation
PD	Particle size distribution
k	Coefficient of permeability in centimeters per second
SP	Swelling pressure in pounds per square foot

ϕ — Angle of internal friction in degrees

c — Cohesion in pounds per square foot

Other laboratory test results reported on separate figure

Ground Water Measurements: Initial, Final

GENERAL NOTES

(1) At the time the borings were made, ground water levels were measured below existing ground surface. These observations are shown on the boring logs. However, ground water levels may vary due to seasonal and other factors. If important to construction, the depth to ground water should be determined by those persons responsible for construction, immediately prior to beginning work.

(2) While the individual logs of borings are considered to be representative of subsurface conditions at their respective locations on the dates shown, it is not warranted that they are representative of subsurface conditions at other locations and times.

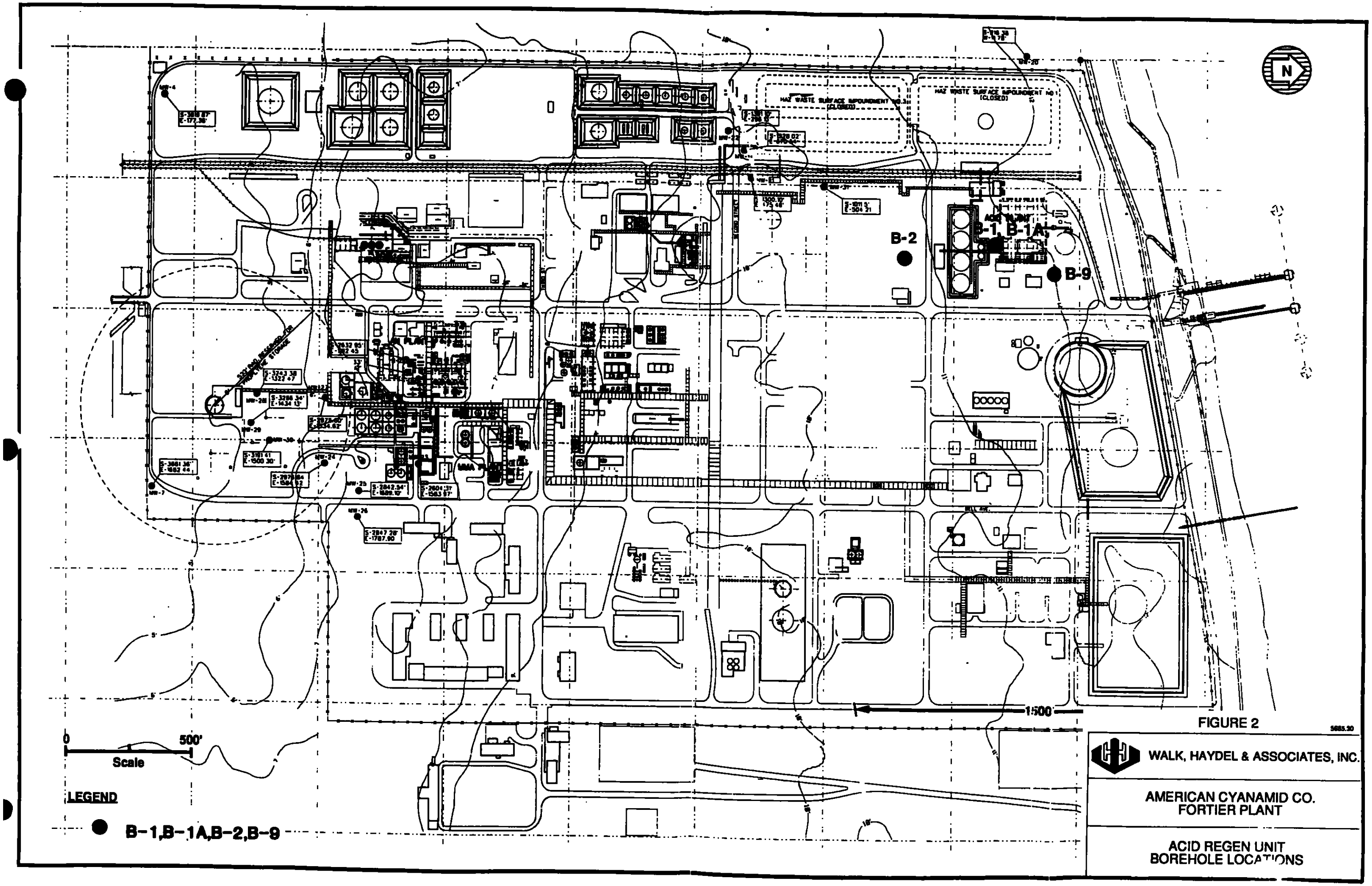

N
HAZ WASTE SURFACE IMPOUNDMENT NO.3 (CLOSED)
HAZ WASTE SURFACE IMPOUNDMENT NO. (CLOSED)
B-2
B-1, B-1A
B-9
1500'
0
500'
Scale
LEGEND
B-1,B-1A,B-2,B-9
WALK, HAYDEL & ASSOCIATES, INC.
AMERICAN CYANAMID CO.
FORTIER PLANT
ACID REGEN UNIT
BOREHOLE LOCATIONS

FIGURE 2

GORE ENGINEERING, INC.

SOIL AND FOUNDATION INVESTIGATIONS

LAWRENCE W. GILBERT, D ENGR.
REG. C.E.

JAMES. R. GORE
REG. C.E.

BORINGS TESTING
ANALYSES REPORTS

3613 HESSMER AVENUE
P. O. BOX 8867
METAIRIE, LOUISIANA 70011

TELEPHONE:
(504) 888-6690

26 November 1991

Walk, Haydel & Associates, Inc.
600 Carondelet Street
New Orleans, Louisiana 70130

Attention: Ed Lee

Soil Borings
American Cyanamid Company
Fortier Plant
Waggaman, Louisiana
Our Job No. 5019

Gentlemen:

This letter report contains the results of soil borings made at the subject site. Instructions to proceed with the borings were received in an Agreement for Geotechnical Services (WH-9193-003) with Walk, Haydel and Associates, Inc. The borings were made at the American Cyanamid Company's Fortier Plant in Waggaman, Louisiana. They were made under the direction of Ed Lee of Walk, Haydel and Associates, Inc.

Twelve (12) undisturbed sample type soil test borings (B-1 thru B-7 and B-9 thru B-13) were drilled to depths ranging from 12 to 18 ft. during the period of November 18-22, 1991. Boring B-8 was not drilled as an underground obstruction was encountered

near the ground surface and there was insufficient unobstructed area in which to relocate this boring. The borings were made with a truck mounted drill rig at designated locations. Undisturbed sampling was performed continuously in all cohesive or semi-cohesive materials with a three inch diameter thin wall tube sampler. Representative samples were cut from the cores and furnished to a representative of Walk, Haydel and Associates, Inc. Logs of the individual borings showing the detailed stratification and sample depths are given on Figures 1 thru 12.

All drilling equipment was steamed cleaned between bore holes to minimize cross contamination. No water was used in the drilling process. Casing was used when needed to minimize caving of the near surface soils. Upon completion of the borings, they were grouted in accordance with Louisiana Department of Transportation and Development requirements.

It is hoped that the information contained herein is self explanatory. If there are any question or if further information is needed, please advise.

Yours very truly,
GORE ENGINEERING, INC.

Lawrence W. Gilbert

LWG:tk

GORE ENGINEERING, INC.

J#5019

Soil and Foundation Investigations
Metairie, Louisiana

Boring No. B-1

LOG OF BORING

Date of Boring: 19 Nov 1991

Project: AMERICAN CYANAMID - FORTIER PLANT - WAGGAMANN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hill

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
			.0					
1	.0	.5	.5	SHELL				
2	.5	1.0	1.5	LOOSE GRAY FINE SAND				
3	1.5	2.0		STIFF BROWN CLAY W/SILT & BLACK SPECKS				
4	3.5	4.0	4.5				5	
5	5.5	6.0						
6	7.5	8.0		MEDIUM STIFF TAN & GRAY CLAY W/SILT				
7	9.5	10.0					10	
8	11.5	12.0						
9	13.5	14.0	13.5	SOFT TAN & GRAY SILTY CLAY W/GRAY CLAY ON TIP 2"				
			14.0	LOOSE TAN FINE SAND			15	
10	15.5	16.0	14.5	SOFT TAN & GRAY SILTY CLAY W/GRAY CLAY ON TIP 2"				
			16.0					

- GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 1

GORE ENGINEERING, INC.

J-5019

Soil and Foundation Investigations
Metairie, Louisiana

LOG OF BORING

Boring No. B-2

Date of Boring: 19 Nov 199

Project: AMERICAN CYNAMID - FORTIER PLANT - WAGGAMAN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hill

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
1	.0	.5	.0	SHELL & SAND				
			2.0					
2	3.5	4.0		STIFF BROWN CLAY W/SILT			5	
			5.0					
3	5.5	6.0						
4	7.5	8.0		MEDIUM STIFF TO STIFF TAN & GRAY CLAY				
5	9.5	10.0					10	
6	11.5	12.0						
7	13.5	14.0					15	▽
			15.0					
8	15.5	16.0		SOFT TAN & GRAY SILTY CLAY				
			17.0					
9	17.5	18.0	18.0	SOFT GRAY SILTY CLAY				

▽ - GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 2

GORE ENGINEERING, INC.

J-5019

Soil and Foundation Investigations
Metairie, Louisiana

LOG OF BORING

Boring No. B-9

Date of Boring: 19 Nov 1991

Project: AMERICAN CYANAMID - FORTIER PLANT - WAGGAMAN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hill

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in Feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
			.0					
1	1.0	1.5	1.5	SHELL				
2	3.5	4.0					5	
3	5.5	6.0		STIFF BROWN & TAN CLAY				
4	7.5	8.0						
5	9.5	10.0					10	
6	11.5	12.0						
			13.0					
7	13.5	14.0		SOFT GRAY CLAY W/SILT			15	
8	15.5	16.0	16.0					

- GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 8

DEPOLYMENT TWO

APRIL 2, 1992

(Reference to boring B-1 should be B-1A in the following document.)

GORE ENGINEERING, INC.

SOIL AND FOUNDATION INVESTIGATIONS

WRENCE W. GILBERT, D. ENGR.
REG. C.E.

JAMES. R. GORE
REG. C.E.

BORINGS TESTING
ANALYSES REPORTS

3613 HESSMER AVENUE
P. O. BOX 8867
METAIRIE, LOUISIANA 70011

TELEPHONE.
(504) 888-6690

20 April 1992

Walk, Haydel & Associates, Inc.
Consulting Engineers
600 Carondelet Street
New Orleans, Louisiana 70130

Attention: Ed Lee

Soil Boring (B-1)
American Cyanamid Company
Fortier Plant
Waggamann, Louisiana
Project No. 5019B

Gentlemen:

This letter report contains the results of a soil boring made at the subject site. Instructions to proceed with the boring were received by Subcontract No. 9093-003, Task Order No. 003, Job No. 5685.10 dated March 16, 1992 from Walk, Haydel & Associates, Inc., Consulting Engineers for the project. The boring was made at the American Cyanamid Company's Fortier Plant in Waggamann, Louisiana. The boring was made under the direction of Ed Lee of Walk, Haydel and Associates, Inc.

One (1) undisturbed sample type soil test boring (B-1) was drilled to a depth of 20 ft. on April 2, 1992. The boring was made with a truck mounted drill rig at a designated location. Undisturbed sampling was performed continuously in all cohesive or semi-cohesive materials with a three inch diameter thin wall tube

sampler. No soil samples were retained, but samples of the groundwater were taken by E.I.R.A., St. Rose, Louisiana. A log of the boring showing the detailed stratification and sample depths is given on Figure 1.

All drilling equipment was steam cleaned to minimize cross contamination. No water was used in the drilling process. All samples and soil cuttings were placed in a 55 gallon drum for disposal by others. Upon completion of the boring, it was grouted in accordance with Louisiana Department of Transportation and Development requirements.

It is hoped that the information contained herein is self-explanatory. If there are any questions or if further information is needed, please advise.

Yours very truly,

GORE ENGINEERING, INC.

Lawrence W. Gilbert

LWG:tk

GORE ENGINEERING, INC.

J-5019

Soil and Foundation Investigations
Metairie, Louisiana

LOG OF BORING

Boring No. B-1A

Date of Boring: 2 Apr 19

Project: AMERICAN CYANAMID COMPANY - FORTIER PLANT - WAGGAMANN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D.A. Hil

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
			.0					
1	.5	1.0		LIMESTONE & SHELL W/SAND (FILL)				
			1.5					
2	1.5	2.0		STIFF DARK GRAY TO OLIVE CLAY W/SOME SMALL IRON NODULES				
3	2.5	3.0						
			3.0					
4	5.5	6.0		VERY SOFT DARK GRAY TO OLIVE SILTY CLAY W/ORGANIC OR CLAYEY SILT			5	
5	7.5	8.0						
6	8.5	9.0						
			9.0					
7	9.5	10.0		SOFT TAN CLAY W/IRON NODULES			10	
			10.5					
8	10.5	11.0		LOOSE TAN FINE SAND				
			11.0					
9	11.5	12.0		SOFT TAN CLAY W/IRON NODULES				
10	13.5	14.0						
11	14.5	15.0					15	
			15.0					
12	15.5	16.0		LOOSE TAN CLAYEY SILT				
			16.0					
13	16.0	16.5		LOOSE TAN FINE SAND				
			16.5					
14	16.5	17.0		STIFF TAN TO OLIVE CLAY W/IRON NODULES & ORGANIC				
15	17.5	18.0						
16	19.5	20.0					20	
			20.0					

- GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 i

Fig. 2

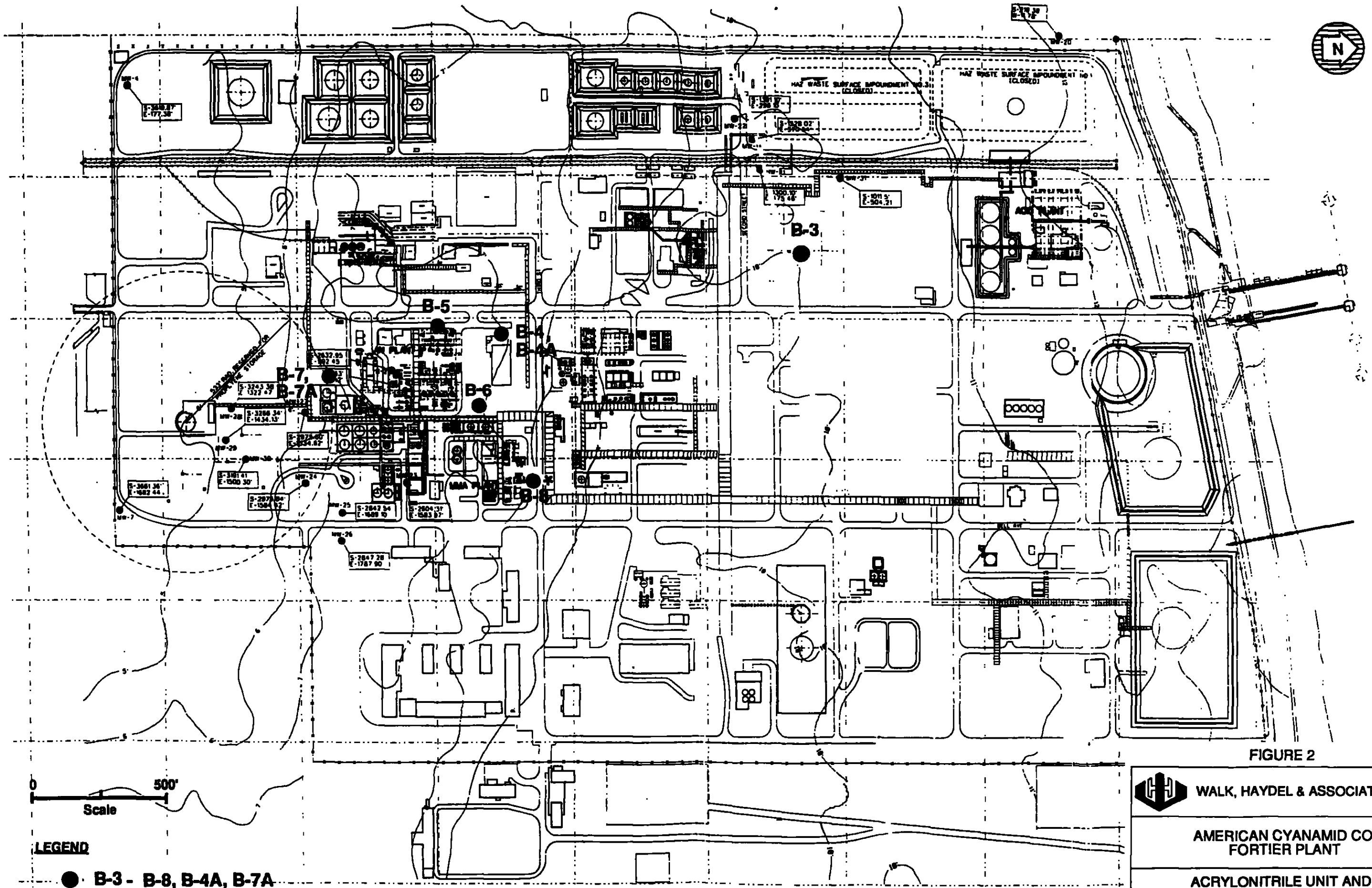


FIGURE 2

WALK, HAYDEL & ASSOCIATES, INC.

AMERICAN CYANAMID CO.
FORTIER PLANT

ACRYLONITRILE UNIT AND
METHYL METHACRYLATE UNIT
BOREHOLE LOCATIONS

GORE ENGINEERING, INC.

SOIL AND FOUNDATION INVESTIGATIONS

LAWRENCE W. GILBERT, D. ENGR.
REG. C.E.

JAMES. R. GORE
REG. C.E.

BORINGS TESTING
ANALYSES REPORTS

3613 HESSMER AVENUE
P. O. BOX 8867
METAIRIE, LOUISIANA 70011

TELEPHONE:
(504) 888-6690

26 November 1991

Walk, Haydel & Associates, Inc.
600 Carondelet Street
New Orleans, Louisiana 70130

Attention: Ed Lee

Soil Borings
American Cyanamid Company
Fortier Plant
Waggaman, Louisiana
Our Job No. 5019

Gentlemen:

This letter report contains the results of soil borings made at the subject site. Instructions to proceed with the borings were received in an Agreement for Geotechnical Services (WH-9193-003) with Walk, Haydel and Associates, Inc. The borings were made at the American Cyanamid Company's Fortier Plant in Waggaman, Louisiana. They were made under the direction of Ed Lee of Walk, Haydel and Associates, Inc.

Twelve (12) undisturbed sample type soil test borings (B-1 thru B-7 and B-9 thru B-13) were drilled to depths ranging from 12 to 18 ft. during the period of November 18-22, 1991. Boring B-8 was not drilled as an underground obstruction was encountered

near the ground surface and there was insufficient unobstructed area in which to relocate this boring. The borings were made with a truck mounted drill rig at designated locations. Undisturbed sampling was performed continuously in all cohesive or semi-cohesive materials with a three inch diameter thin wall tube sampler. Representative samples were cut from the cores and furnished to a representative of Walk, Haydel and Associates, Inc. Logs of the individual borings showing the detailed stratification and sample depths are given on Figures 1 thru 12.

All drilling equipment was steamed cleaned between bore holes to minimize cross contamination. No water was used in the drilling process. Casing was used when needed to minimize caving of the near surface soils. Upon completion of the borings, they were grouted in accordance with Louisiana Department of Transportation and Development requirements.

It is hoped that the information contained herein is self explanatory. If there are any question or if further information is needed, please advise.

Yours very truly,
GORE ENGINEERING, INC.

Lawrence W. Gilbert

LWG:tk

GORE ENGINEERING, INC.

J"501

Soil and Foundation Investigations
Metairie, Louisiana

Boring No. B-3

LOG OF BORING

Date of Boring: 22 Nov 199

Project: AMERICAN CYNAMID - FORTIER PLANT - WAGGAMAN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hil

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
1	.0	.5	.0	STIFF BROWN & TAN CLAY W/SILT				
2	1.5	2.0						
			3.0					
3	3.5	4.0		MEDIUM STIFF TO STIFF TAN & GRAY CLAY			5	
4	5.5	6.0						
5	7.5	8.0						
6	9.5	10.0					10	
			11.0					
7	11.5	12.0		SOFT GRAY SILTY CLAY W/CLAY LAYERS				
8	13.5	14.0					15	
9	15.5	16.0						
			16.0					

- GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in

Fig. 3

GORE ENGINEERING, INC.

J-5019

Soil and Foundation Investigations
Metairie, Louisiana

LOG OF BORING

Boring No. B-4

Date of Boring: 22 Nov 1991

Project: AMERICAN CYNAMID - FORTIER PLANT - WAGGAMAN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hill

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
			.0					
1	.0	.5		LIMESTONE & SHELL				
			1.5					
2	1.5	2.0						
3	3.5	4.0		STIFF BROWN CLAY			5	
4	5.5	6.0						
5	7.5	8.0						
			9.5				10	
6	9.5	10.0		SOFT TAN & GRAY SILTY CLAY				
7	11.5	12.0						
			12.5					
8	13.5	14.0		SOFT GRAY CLAY W/SILT LAYERS			15	
9	15.5	16.0						
			16.0					

- GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 4

GORE ENGINEERING, INC.

J-5019

Soil and Foundation Investigations
Metairie, Louisiana

Boring No. B-5

LOG OF BORING

Date of Boring: 22 Nov 199.

Project: AMERICAN CYNAMID - FORTIER PLANT - WAGGAMAN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D.A. Hil

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
1	.0	.5	.0	SHELL				
2	1.5	2.0	1.5	STIFF GRAY CLAY W/SHELL				
3	3.5	4.0					5	
4	5.5	6.0	5.0	MEDIUM STIFF TAN & GRAY CLAY W/SILT				
5	7.5	8.0						
6	9.5	10.0					10	
7	11.5	12.0	11.0	SOFT TAN & GRAY SILTY CLAY				
8	13.5	14.0	13.0	SOFT GRAY SILTY CLAY W/SAND			15	
9	15.5	16.0	16.0					

- GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

* * *

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 5

GORE ENGINEERING, INC.

J-501

Soil and Foundation Investigations
Metairie, Louisiana

LOG OF BORING

Boring No. B-6

Date of Boring: 22 Nov 199

Project: AMERICAN CYNAMID - FORTIER PLANT - WAGGAMAN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hil

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
1	.0	.5	.0	LIMESTONE				
			1.0					
2	1.5	2.0		STIFF BROWN & TAN CLAY				
3	3.5	4.0					5	
			5.0					
4	5.5	6.0		MEDIUM STIFF TAN & GRAY CLAY				
5	7.5	8.0						
			9.5				10	
6	9.5	10.0		MEDIUM STIFF TAN & GRAY SILTY CLAY				
			11.5					
7	11.5	12.0		SOFT GRAY & TAN SILTY CLAY W/SAND				
8	13.5	14.0						
			14.5				15	
9	15.5	16.0		SOFT GRAY SILTY CLAY W/SAND LENSES				
			16.0					

- GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 6

GORE ENGINEERING, INC.

J-5015

Soil and Foundation Investigations
Metairie, Louisiana

Boring No. B-7

LOG OF BORING

Date of Boring: 22 Nov 199[illegible]

Project: AMERICAN CYNAMID - FORTIER PLANT - WAGGAMAN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hill

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
1	.0	.5	.0 / .5	LIMESTONE				
2	1.5	2.0		STIFF BROWN & TAN CLAY W/SILT				
3	3.5	4.0					5	
4	5.5	6.0	5.0	MEDIUM STIFF TAN & GRAY CLAY W/SILT LAYERS				
5	7.5	8.0						
6	9.5	10.0	9.0	SOFT TAN & GRAY SILTY CLAY			10	▽
7	11.5	12.0	11.0 / 12.0	SOFT GRAY SILTY CLAY				

▽ - GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 7

DEPLOYMENT TWO

GORE ENGINEERING, INC.

SOIL AND FOUNDATION INVESTIGATIONS

LAWRENCE W. GILBERT, D ENGR
REG C.E

JAMES R GORE
REG. C.E

BORINGS TESTING
ANALYSES REPORTS

3813 HESSMER AVENUE
P. O. BOX 8867
METAIRIE, LOUISIANA 700:·

TELEPHONE:
(504) 888-6690

18 February 1992

Walk, Haydel & Associates, Inc.
Consulting Engineers
600 Carondelet Street
New Orleans, Louisiana 70130

Attention: Ed Lee

Soil Boring (B-7A)
American Cyanamid Company
Fortier Plant
Waggamann, Louisiana
Project No. 5019A

Gentlemen:

This letter report contains the results of a soil boring made at the subject site. Instructions to proceed with the boring were received by Subcontract No. 9193-003, Task Order No. 002, Job No. 5685.20/.40 dated January 22, 1992 from Walk, Haydel & Associates, Inc. The boring was made at the American Cyanamid Company's Fortier Plant in Waggaman, Louisiana. The boring was made under the direction of Ed Lee of Walk, Haydel and Associates, Inc.

One (1) undisturbed sample type soil test boring (B-7A) was drilled to a depth of 9 ft. on January 28, 1992. The boring was made with a truck mounted drill rig at a designated location. Undisturbed sampling was performed continuously in all cohesive or semi-cohesive materials with a three inch diameter thin wall tube sampler. No samples were retained, but a sample of the groundwater was taken by

E.I.R.A.,St. Rose, Louisiana. A log of the boring showing the detailed stratification and sample depths are given on Figure 1.

All drilling equipment was steam cleaned to minimize cross contamination. No water was used in the drilling process. All samples and soil cuttings were placed in a 55 gallon drum for disposal by others. Upon completion of the boring, it was grouted in accordance with Louisiana Department of Transportation and Development requirements.

It is hoped that the information contained herein is self-explanatory. If there are any questions or if further information is needed, please advise.

Yours very truly,

GORE ENGINEERING, INC.

Lawrence W. Gilbert

LWG:jr

GORE ENGINEERING, INC.

J-5019A

Soil and Foundation Investigations
Metairie, Louisiana

Boring No. B-7A

LOG OF BORING

Date of Boring: 28 Jan 1992

Project: AMERICAN CYANAMID COMPANY - FORTIER PLANT - WAGGAMANN, LOUISIANA
WALK, HAYDEL & ASSOCIATES, INC. - CONSULTING ENGINEERS - NEW ORLEANS, LOUISIANA

Recorded By: D. A. Hill

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	REMARKS
1	.0	.5	.0	LIMESTONE & SHELL				
			.5					
2	1.5	2.0						
3	3.5	4.0		MEDIUM STIFF TO STIFF GRAY & TAN CLAY			5	
4	5.5	6.0						
5	7.5	8.0						
6	8.5	9.0						
			9.0					

▽ - GROUNDWATER

CLAY SILT SAND

ORGANIC

Predominant type bold.
Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. split-spoon sampler after first being seated 6 in.

Fig. 1

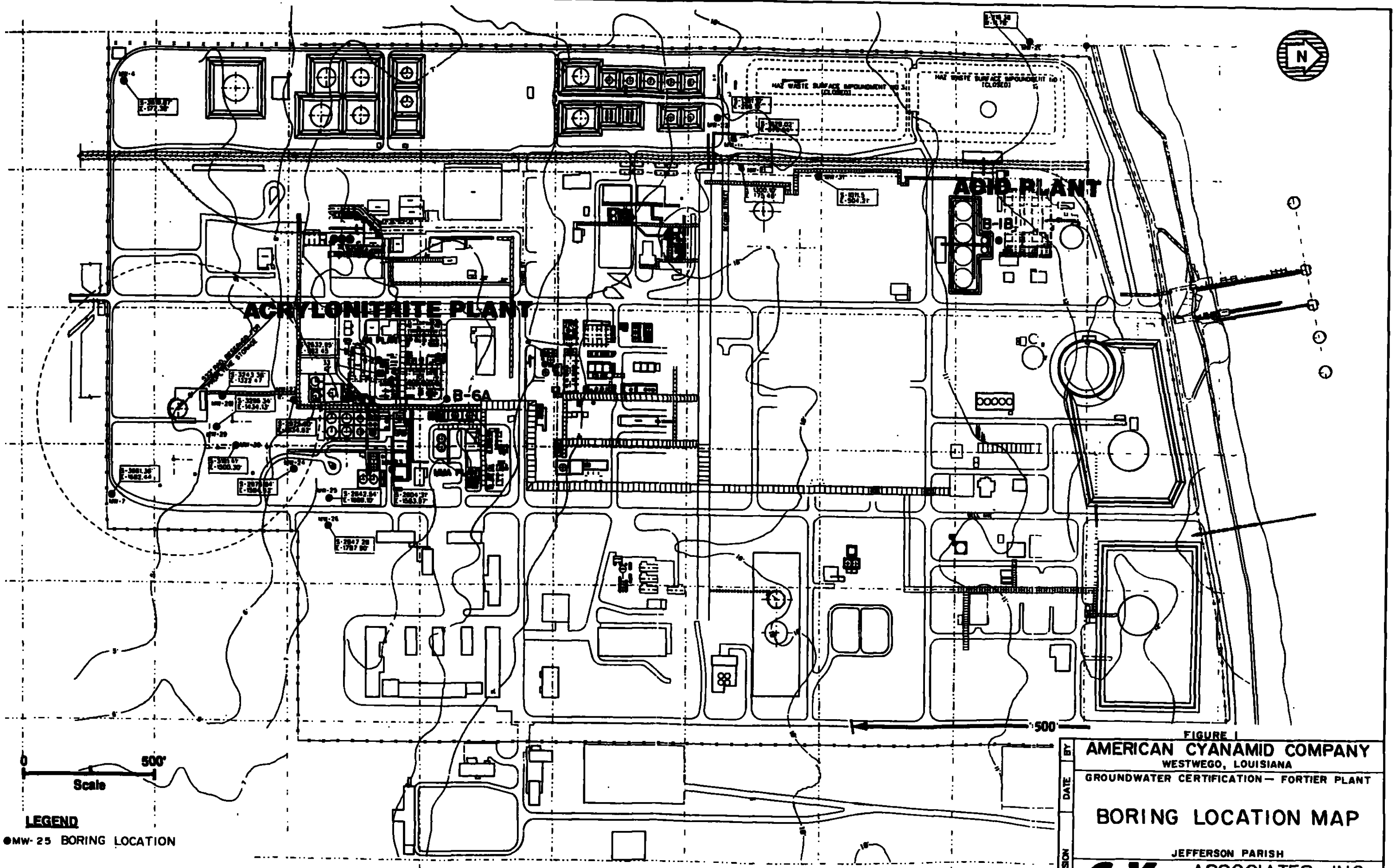


FIGURE 1

NOTE:
BASE MAP TAKEN FROM DRAWING FURNISHED BY CLIENT "ACID REGEN UNIT BOREHOLE LOCATIONS", FIGURE 2.

NO.	REVISION	DATE	BY

AMERICAN CYANAMID COMPANY
WESTWEGO, LOUISIANA

GROUNDWATER CERTIFICATION — FORTIER PLANT

BORING LOCATION MAP

JEFFERSON PARISH

C·K ASSOCIATES, INC.
BATON ROUGE, LOUISIANA

DRAWN	DLE	APPROVED	GHC
CHECKED	TAM	DATE	JULY 23, 1992
SHEET OF		DWG. NO.	A12-603-

310684

C–K ASSOCIATES, INC.
SOIL BORING LOG

ENT: American Cyanamid	LOCATION: Acid Plant	APPROVAL: GHC
JECT NUMBER: 12-603-2	PROJECT NAME: Groundwater Certification	
ORING NUMBER: B-1B	COORDINATES: S 319.25 / E 717.5	DATE STARTED: 06/24/92
LEVATION: NA	GWL: 11' / 3' after 20 minutes	DATE COMPLETED: 06/26/92
-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 2
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'						0-1' Limestone Fill		
		8:44	Split Spoon	--	1.8	Dark gray fine Silty SAND to 3'	SM	9.8 / 8.0 methane
2'								
		8:51	Split Spoon	--	0	Firm gray Silty CLAY with Fe stains	CL	19 / 19 methane
4'								
		8:59	Shelby tube	1.0	0			19 / 19 methane
6'								
		9:03	Shelby tube	1.0	4.0	---with black organic streaks		16 / 12 methane
8'								
		9:08	Shelby tube	1.0	20	---increase in silt from 8'-10'		40 / 20 methane
10'								
		9:12	Shelby tube	1.0	16	Firm to soft gray very Silty CLAY with trace of sand, Fe stains	CL/ML	28 / 12 methane, wet
12'								
		9:45	Shelby tube	--	24	Soft gray very Clayey SILT with trace of sand	ML	36 / 12 methane
14'								
		10:28	Shelby tube	0.5	12	---soft gray sandy clay with silt at 14'-16' wood fragments	CL/ML	28 / 16 methane
16'								
		10:36	Split Spoon	--	2.0	---very soft gray clayey sand from 16'-20'	ML	12 / 10 methane
18'								
		10:41	Split Spoon	--	3.2	---large sandy clay layers		10 / 6.8 methane
20'								
		10:47	Shelby tube	--	0	Very soft gray Sandy CLAY with wood fragments	CL	10 / 10 methane
22'								
		10:57	Shelby tube	1.5	0	Firm gray Silty CLAY with sand and sandy clay seams/pockets	CL	250 / 250 methane
24'								
26'								
28'								
		10:06	Shelby tube	--	0	Very loose gray Sandy SILT with silty clay pockets at 28'	ML	>1000 / >1000 methane
30'								

NOTES:

* Difference between the total OVA reading and methane filter.

SI = Sample Interval

C-K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid	LOCATION: Acid Plant	APPROVAL: GHC
PROJECT NUMBER: 12-603-2	PROJECT NAME: Groundwater Certification	
BORING NUMBER: B-1B	COORDINATES: S 319.25 / E 717.5	DATE STARTED: 06/24/92
ELEVATION: NA	GWL: 11' / 3' after 20 minutes	DATE COMPLETED: 06/26/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 2 OF 2
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
33'		10:15	Split Spoon	--	0.2	Very loose gray fine Silty SAND	SM	9.8 / 9.6 methane
35'								
38'		10:25	Split Spoon	--	0	Firm gray CLAY with large sandy clay layers from 38'-40'	CL/ML	19 / 19 methane
40'								
43'		10:38	Shelby tube	--	0	Alternating layers of firm gray CLAY with very loose gray fine silty sand	SM	40 / 40 methane
45'						Boring terminated at 45.0 feet		

NOTES:

* Difference between the total OVA reading and methane filter.
SI = Sample Interval

*Stratification is inferred and may not be exact.

C-K ASSOCIATES, INC.
SOIL BORING LOG

ENT: American Cyanamid	LOCATION: Acrylonitrile Plant	APPROVAL: GHC
JECT NUMBER: 12-603-2	PROJECT NAME: Groundwater Certification	
BORING NUMBER: B-6A	COORDINATES: S 2383 / E 1326	DATE STARTED: 06/22/92
ELEVATION: NA	GWL: 6' / 4.4' after 10 minutes	DATE COMPLETED: 06/23/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 2
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		1:25	Flight auger	--	0.6	Shell/limestone to 3'	Fill	4.4 / 3.8 methane
2'		1:33	Shelby tube	1.0	10	Stiff gray CLAY with Fe stains and trace of silt	CL/CH	220 / 210 methane
4'		1:41	Shelby tube	1.5	0	Stiff gray Silty CLAY with Fe stains	CL	440 / 440 methane
6'		1:49	Shelby tube	1.5	1.0	---trace of sand at 6'8'		89 / 88 methane
8'		1:55	Shelby tube	1.0	0	---becoming firm with silt layers, and black natural organics		31 / 31 methane
10'		2:03	Shelby tube	--	0	Soft gray Sandy SILT	ML/SM	37 / 37 methane
12'		3:15	Shelby tube	--	5.0	---sandy silt to 13' ---soft to firm gray silty clay lense from 13'-14'		200 / 195 methane
14'		3:30	Split Spoon	--	0			100 / 100 methane
16'		3:43	Shelby tube	--	0	---becoming clayey silt with sand from 16'-20'	ML	630 / 630 methane
18'		3:48	Shelby tube	--	0	Loose gray Clayey SILT with large clay pockets grading to firm gray clay at 20'	CL	500 / 500 methane
20'								
23'		11:17	Shelby tube	--	0	Firm gray CLAY to 23.5' grading to loose dark gray clayey silt with sand	CL	>1000 / >1000 methane
25'								
28'		11:27	Shelby tube	--	0	Firm dark gray CLAY (fat) grading to loose gray sandy silt at 29.5'	CL/ML	1000 / 1000 methane
30'								

NOTES:

* Difference between the total OVA reading and methane filter.

SI = Sample Interval

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid	LOCATION: Acrylonitrile Plant	APPROVAL: GHC
PROJECT NUMBER: 12-603-2	PROJECT NAME: Groundwater Certification	
BORING NUMBER: B-6A	COORDINATES: S 2383 / E 1326	DATE STARTED: 06/22/92
ELEVATION: NA	GWL: 6' / 4.4' after 10 minutes	DATE COMPLETED: 06/23/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 2 OF 2
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

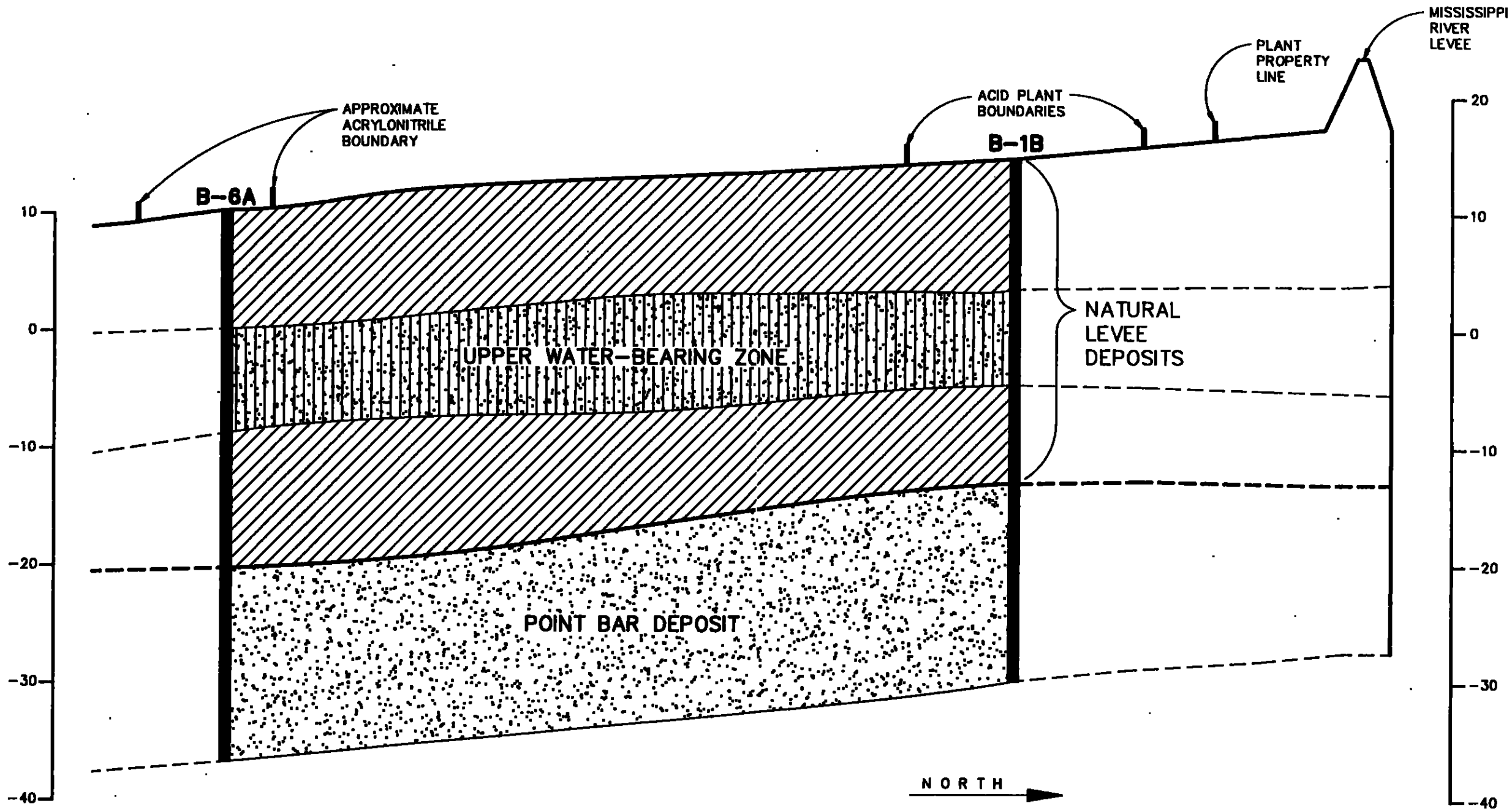
DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
33'								
35'		11:35	Shelby tube	--	0	Very loose gray very fine Silty SAND	SM	>1000 / > 1000 methane relatively dry
38'								
40'		11:52	Split Spoon	--	220	Very loose gray medium SAND	SP	>1000 / 780 methane wet
43'								
45'		12:09	Split Spoon	--	0	Firm gray clay layers at 43' Very loose gray Silty fine SAND with wood	SM	760 / 760 methane wet
47'		12:22	Shelby tube	--	0	---large gray clay layers at 47'	SM/CL	>1000 / >1000 methane
						Boring terminated at 47'		

NOTES:

* Difference between total OVA reading and methane filter.

SI = Sample Interval

*Stratification is inferred and may not be exact.



LEGEND:

- FIRM GRAY SILTY CLAY WITH IRON STAINS
- GRAY CLAY SILT TO SANDY SILT
- LOOSE GRAY FINE TO MEDIUM GRAIN SAND

SCALE:

1" = 10' VERTICAL

1" = 300' HORIZONTAL

NOTE:

STRATIGRAPHY INTERPRETATED BETWEEN B-1A & B-6A. ACTUAL CONDITION MAY VARY.

FIGURE 2

NO.	REVISION	DATE	BY

AMERICAN CYANAMID
FORTIER PLANT

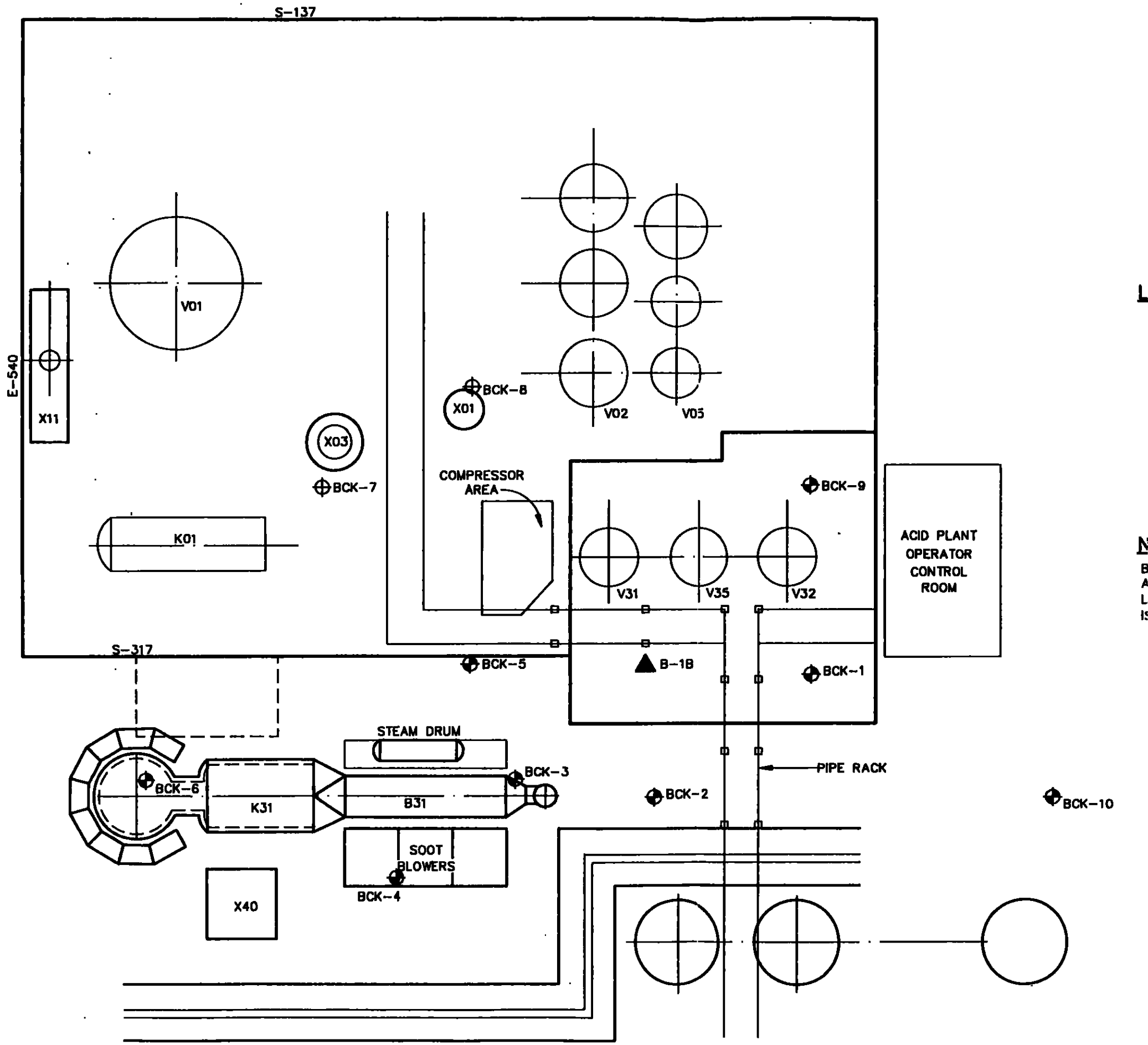
GENERALIZED GEOLOGIC CROSS SECTION

JEFFERSON PARISH, LOUISIANA

C-K ASSOCIATES, INC.
BATON ROUGE, LOUISIANA

DRAWN	MPC/ACAD	APPROVED	GHC
CHECKED	TAM	DATE	JULY 27, 1992
SHEET OF		DWG. NO.	B12-603-08

7/28/92



LEGEND:

- HAND AUGER BORING
- BORING LOCATION
- PLUGGED AND ABANDONED MONITORING WELL

NOTE:

BASE INFORMATION DIGITIZED FROM MAP PROVIDED BY AMERICAN CYANAMID CO. ENTITLED "SPENT ACID PLANT LAYOUT" BY MONSANTO ENVIRO – CHEM SYSTEMS, INC. ISSUED OCTOBER 18, 1991.

SCALE
FEET

30 0 30 60

1" = 30'

FIGURE 2

NO.	REVISION	DATE	BY

AMERICAN CYANAMID COMPANY
FORTIER PLANT

GROUNDWATER CERTIFICATION

SOIL BORING LOCATION MAP

JEFFERSON PARISH LOUISIANA

C·K ASSOCIATES, INC.
BATON ROUGE, LOUISIANA

DRAWN	BOB/ACAD	APPROVED	GHC
CHECKED	TAM	DATE	SEPTEMBER 30, 1992
SHEET OF		DWG. NO.	B12-603-11

C–K ASSOCIATES, INC.
SOIL BORING LOG

ENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
JECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-1	COORDINATES: NA	DATE STARTED: 09/09/92
ELEVATION: NA	GWL: 10' initial; 4.1' after 5 minutes	DATE COMPLETED: 09/09/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'						0-6" limestone fill		
		2:28	Hand auger	5	0	Dark and black fine Silty SAND		
2'						Fill to 2'		
		2:32	Shelby tube	1.5	5	Stiff dark CLAY with silt pockets, wood fragments, rootlets	CH	
4'								
		2:38	Shelby tube	1.5	2	Stiff to firm tan and brown CLAY with Fe stains	CH	
6'								
		2:45	Shelby tube	1.5	2.2	Same		
8'								
		2:48	Shelby tube	0.5	2	Soft tan and gray Silty CLAY with sandy silt strips, clayey silt pockets, lenses	CL/ML	Wet
10'								
		3:00	Shelby tube	0.5	1.5	Firm to soft tan and gray Silty CLAY with large gray clayey silt lenses, Fe stains	CL/ML	
2'								
		3:05	Shelby tube	--	1.4	Firm to soft tan and gray Silty CLAY grading to soft dark very clayey silt with trace sand, large silty clay pockets	ML	
14'								
						End of boring Grouted full depth		

NOTES:

*Stratification is inferred and may not be exact.

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-2	COORDINATES: NA	DATE STARTED: 09/08/92
ELEVATION: NA	GWL: 11' initial; 4.3' after 5 minutes	DATE COMPLETED: 09/08/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'						0-1" loose limestone		
2'		2:15	Hand auger	--	2.6	Black fine Silty SAND to 2'	Fill	
4'		2:20	Shelby tube	--	3	Black fine Silty SAND	Fill	
6'		2:25	Shelby tube	1.5	4.5	Fill to 5' Firm tan and gray CLAY with Fe stains, trace natural organics	CL	
8'		2:33	Shelby tube	1.5	1.6	---with trace shells, rootlets	CL	
10'		2:38	Shelby tube	1.5	2.0	Firm gray Silty CLAY with black organic streaks	CL	
12'		2:45	Shelby tube	1.5	1.2	Firm tan and gray Silty CLAY with black organic streaks, increased silt	CL	Moist
14'		3:00	Shelby tube	--	0.4	Soft gray and tan very Silty CLAY with silt pockets	CL/ML	
						End of boring Grouted full depth		

NOTES:

Bail 4 gallons from borehole
(1) Total OVA reading with dust filter
(2) Methane filter reading

*Stratification is inferred and may not be exact.

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-3	COORDINATES: NA	DATE STARTED: 09/09/92
ELEVATION: NA	GWL: 11' initial; 5.9' after 10 minutes	DATE COMPLETED: 09/09/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'						0–6" shell limestone		
2'		8:40	Hand auger	--	2.4	Black fine Silty SAND fill 6"–2'	Fill	
4'		8:48	Shelby tube	2.5	1.0	Stiff dark Silty CLAY with calc. nodules, Fe stains	CL	
6'		8:52	Shelby tube	2.0	1.6	Stiff tan and gray Silty CLAY with shells, Fe stains	CL	
8'		8:56	Shelby tube	1.5	1.5	Stiff to firm tan and gray Silty CLAY with trace shells, black organics	CL	
10'		9:00	Shelby tube	1.5	1.1	Same		
12'		9:06	Shelby tube	0.75	1.3	Soft tan and gray Silty CLAY with increase silty to 12'; very clayey silt seams at 11'	CL	Wet
14'		9:30	Shelby tube	0.5	2.4	Soft tan and gray very Silty CLAY with large clayey silt seams, trace sand	CL/ML	
16'		9:36	Shelby tube	--	2.4	Dark gray very Clayey SILT with sand, sandy silty pockets, and seams	ML	
						End of Boring Grouted full depth		

NOTES:

Bail 5 gallons from borehole

*Stratification is inferred and may not be exact.

C-K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-4	COORDINATES: NA	DATE STARTED: 09/10/92
ELEVATION: NA	GWL: 11' initial; 5.9' after 10 minutes	DATE COMPLETED: 09/10/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'								
2'		--	Hand auger	--	--	Limestone rubble, concrete		
4'		12:15	Shelby tube	--	ND	Shells, limestone fill to 5'		
6'		1:40	Shelby tube	1.5	0.8	Stiff dark CLAY with iron stains, rootlets	CH	
8'		1:55	Shelby tube	2.0	1.0	Stiff orange Silty CLAY with Fe stains	CL	
10'		1:59	Shelby tube	1.25	1.0	Firm tan and gray Silty CLAY	CL	
12'		2:03	Shelby tube	1.0	0.9	Firm tan and gray very Silty CLAY with clayey silt pockets, trace sand	CL/ML	Dry
14'		2:08	Shelby tube	--	0.7	Soft dark very Clayey SILT with sandy silt lenses	ML	Moist
16'		2:11	Shelby tube	--	0.8	---with large dark clay seams and layers		
18'		2:30	Shelby tube	--	0.9	Very soft dary Clayey SILT with trace sand and very large wood fragments	ML	Wet
						End of Boring Grouted full depth		

NOTES:

Makes less than 1 liter

*Stratification is inferred and may not be exact.

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-5	COORDINATES: NA	DATE STARTED: 09/10/92
ELEVATION: NA	GWL: 9' initial; 4.5' after 10 minutes	DATE COMPLETED: 09/10/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'						Limestone		
2'		10:25	Hand auger	--	4.0	Black fine Silty SAND		
4'		10:28	Shelby tube	1.5	3.0	Firm to stiff gray Silty CLAY with Fe stains	CL	
6'		10:30	Shelby tube	1.5	2.0			
8'		10:35	Shelby tube	1.0	3.6	Firm tan and gray Silty CLAY with Fe stains, Fe nodules, trace of rootlets, increase silt with depth	CL	
10'		10:40	Shelby tube	1.0	2.8	Firm tan and gray Silty CLAY with Fe nodules, stains	CL	Moist
12'		11:45	Shelby tube	0.5	3.0			
14'		11:50	Shelby tube	--	2.9	Soft dark very Silty CLAY to very Clayey SILT, wet, trace of sand	CL/ML	
						End of Boring Grouted Full Depth		

NOTES:

Makes less than 1 liter

*Stratification is inferred and may not be exact.

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-6	COORDINATES: NA	DATE STARTED: 09/10/92
ELEVATION: NA	GWL: 11' initial; 3.9' after 10 minutes	DATE COMPLETED: 09/10/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'								
2'		--	Hand auger	--	--	Fill, Sand		
4'		3:45	Shelby tube	--	1.0	Firm black fine Silty SAND to 4.5'	Fill	
6'		3:50	Shelby tube	1.5	0	Stiff dark CLAY with Fe stains	CH	
8'		3:55	Shelby tube	1.0	0	Firm to stiff gray Silty CLAY with silt streaks and pockets	CL	
10'		3:58	Shelby tube	0.5	0	Soft tan and gray very Silty CLAY with increase silt at 10'	CL/ML	
12'		4:01	Shelby tube	--	0	Soft tan and gray Silty CLAY with 8" clayey silt layer at 10'	CL/ML	Wet
14'		4:10	Shelby tube	0.75	0	12-13' stiff very Clayey SILT grading to firm tan and gray silty clay with heavy Fe stains		Wet
						End of Boring Grouted Full Depth		

NOTES:

Sample at 4:30

*Stratification is inferred and may not be exact.

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-7	COORDINATES: NA	DATE STARTED: 09/10/92
ELEVATION: NA	GWL:	DATE COMPLETED: 09/10/92
C-K REPRESENTATIVE ON-SITE: Todd McLane/Jim Garrett		PAGE 1 OF 1
DRILLING METHODS: Hand Auger	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	S I	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'								
2'		--	Hand auger	--	2.2	Dark gray SAND Backfill	Fill SM	
4'		--	Hand auger	--	2.0	Stiff gray CLAY with Fe stains	CH	
6'		--	Hand auger	--	0			
8'		--	Hand auger	--	0.2			
						End of Boring Grouted full depth		

NOTES:

Hole caved in at 2 1/2' - 3'. Used post hole digger and widened hole.
Still had trouble getting to 8'. VOA sample had some air due to excess sand.

*Stratification is inferred and may not be exact.

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-8	COORDINATES: NA	DATE STARTED: 09/10/92
ELEVATION: NA	GWL:	DATE COMPLETED: 09/10/92
C-K REPRESENTATIVE ON-SITE: Todd McLane/Jim Garrett		PAGE 1 OF 1
DRILLING METHODS: Hand Auger	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	S I	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		9:37	Hand auger	--	7.0	Soft dark gray CLAY with black (natural) organic mottling	CH	
2'		9:58	Hand auger	--	0.2	Light brown (gray) Silty CLAY with Fe stains (moist)	CH	
4'		10:30	Hand auger	--	1.2	Stiff gray CLAY, Fe stains	CH	
6'		10:45	Hand auger	--	0.7			
8'		2:30	Hand auger	--	0	---with Fe stains		
10'						End of Boring Grouted full depth		

NOTES:

Bail 5 gallons, recharge immediately. Sample at 2:50

*Stratification is inferred and may not be exact.

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-9	COORDINATES: NA	DATE STARTED: 09/11/92
ELEVATION: NA	GWL: 13' initial; 5.8' after 10 minutes	DATE COMPLETED: 09/11/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		9:55	Hand auger	--	0	0'6" limestone/shells Brown and black fine Silty SAND	SM Fill	
2'		9:57	Shelby tube	1.75	0	Stiff dark CLAY with black natural organics, silty pockets	CH	
4'		10:00	Shelby tube	1.0	1.6	Firm tan and gray stiff Silty CLAY with Fe stains and trace silty pockets	CH	
6'		10:05	Shelby tube	1.0	1.4		CH	
8'		10:08	Shelby tube	1.5	1.6	Firm to stiff tan and gray slightly Silty CLAY with silty pockets, heavy Fe stains	CH	
10'		10:11	Shelby tube	1.0	1.5	Firm tan and gray slightly Silty CLAY, silt pockets	CH	Moist
12'		10:15	Shelby tube	--	0.8	Soft dark very Silty CLAY with clayey silty and trace of sand from 12-13'	ML/CL	
14'		10:25	Shelby tube	--	0	Stiff dark very Silty CLAY with trace sand, wood fragments, rootlets	ML/CL	
16'						End of Boring Grouted full depth		

NOTES:

Bailed 3 gallons, went dry at recharge

*Stratification is inferred and may not be exact.

C-K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid Company	LOCATION: Acid Regen Plant	APPROVAL: George Cramer
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: BCK-10	COORDINATES: NA	DATE STARTED: 09/09/92
ELEVATION: NA	GWL: 12' initial; 7' after 5 minutes	DATE COMPLETED: 09/09/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		11:20	Hand auger	--	4.2	0'4" Limestone 4"-2' dark fine Silty SAND	Fill	
2'								
4'		11:28	Shelby tube	2.0	3.0	Stiff dark gray CLAY with rootlets trace of silt	CH	
6'		11:32	Shelby tube	2.0	1.6	---with Fe stains		
8'		11:36	Shelby tube	0.75	1.3	Firm to soft tan and gray Silty CLAY with Fe stains		
10'		11:42	Shelby tube	0.75	1.4			
12'		11:46	Shelby tube	0.5	1.4	---with 8" very soft tan and gray clayey silt layer at 11'	CL	
14'		11:55	Shelby tube	1.0	1.0	Firm tan and gray Silty CLAY with silt strings and very clayey silty pockets, seams	CL	
16'		12:00	Shelby tube	--	0.6	Firm tan and gray Silty CLAY to 15' heavy Fe stains 15'-16', soft dark very silty clay with clayey silt pockets		
						End of Boring Grouted full depth		

NOTES:

Bailed 4 1/2 gallons, hole dry recharge 2' after 5 minutes

*Stratification is inferred and may not be exact.

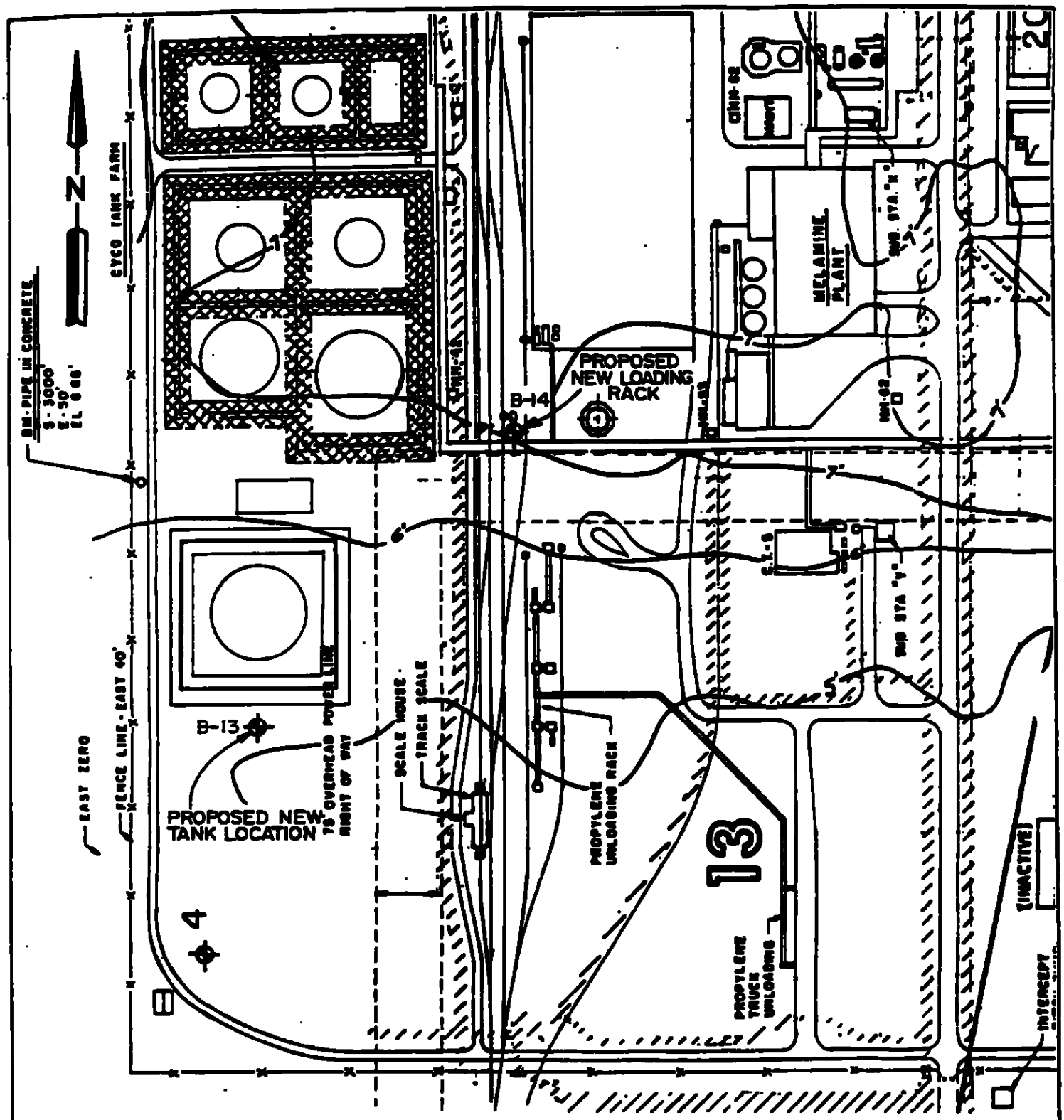


FIGURE 2

155 0 155

SCALE-FEET

1" = 155'

LEGEND:

B-13 SOIL BORING LOCATION

NOTE:

BASE MAP TAKEN FROM DRAWING FURNISHED BY CLIENT.

AMERICAN CYANAMID COMPANY	
FORTIER PLANT	
GROUNDWATER CERTIFICATION	
SOIL BORING LOCATIONS	
JEFFERSON PARISH LOUISIANA	
C-K ASSOCIATES, INC BATON ROUGE, LOUISIANA	
DRAWN DLE	APPROVED GHC
CHECKED TAM	DATE JANUARY 11, 1983
SHEET OF	DWG NO A12-605-02

BY DATE REVISION NO

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid	LOCATION: Methanol Tank Farm	APPROVAL: GHC
PROJECT NUMBER: 12–603	PROJECT NAME: Methanol Groundwater Certification	
BORING NUMBER: B-13	COORDINATES:	DATE STARTED: 11/16/92
ELEVATION: NA	GWL: 11.9' / 5.2' after 10 minutes	DATE COMPLETED: 11/17/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		12:50	Shelby tube	1.25	ND	Stiff to firm brown Silty CLAY with shells, Fe stains	CL	
2'		12:55	Shelby tube	1.50	ND	---no shells		
4'		13:00	Shelby tube	1.0	ND	Firm brown and gray Silty CLAY with Fe stains, natural organics	CL	
6'		13:04	Shelby tube	0.75	ND			
8'		13:08	Shelby tube	1.25	ND	Stiff gray Silty CLAY with Fe stains	CL	
10'		13:12	Shelby tube	1.25	ND	---increase in silt		
12'		13:15	Shelby tube	0.25	ND	Soft gray Silty CLAY with very silty clay pockets, moist	CL	
14'		13:20	Shelby tube	0.25	0	Soft gray very Silty CLAY to Clayey SILT, moist, trace of sand	ML/CL	
16'		13:25	Shelby tube	--	0	Loose gray Clayey SILT with sand, wet	ML	
18'						*Boring terminated at 18 ft bgs*		

NOTES:

SI = Sample Interval

* OVA readings after correction for methane

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid	LOCATION: Methanol Tank Farm	APPROVAL: GHC
PROJECT NUMBER: 12-603	PROJECT NAME: Methanol Groundwater Certification	
BORING NUMBER: B-14	COORDINATES:	DATE STARTED: 11/16/92
ELEVATION: NA	GWL: 16.4' / 15.6' after 10 minutes	DATE COMPLETED: 11/17/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		14:05	Shelby tube	1.0	0	Limestone fill 0-6" Shells, gray CLAY to 2'	Fill	
2'		14:10	Shelby tube	1.75	5	Stiff brown Silty CLAY with Fe stains, silt pockets	CL	
4'		14:12	Shelby tube	1.25	0			
6'		14:18	Shelby tube	1.25	0	---Fe nodules		
8'		14:22	Shelby tube	1.0	0	---increase silt pockets and streaks		
10'		14:25	Shelby tube	0.25	0	---increased silt, more gray silt lenses, moist		
12'		14:30	Shelby tube	0.25	0	Firm to soft gray CLAY with silt lenses and pockets	CL	
14'		14:35	Shelby tube	0.5	0	---increase silt with depth		
16'		14:40	Shelby tube	0.5	0	Firm to soft gray Silty CLAY with clay lenses and pockets	ML/CL	
18'		15:00	Shelby tube	--	50	Loose gray Clayey SILT with large clay pockets and trace of sand	ML	
20'		15:10	Shelby tube	0.25	0	Soft gray CLAY with large clayey silt seams and lenses	ML/CL	
22'						*Boring terminated at 22 ft bgs*		

NOTES:

SI = Sample Interval

* OVA readings after correction for methane

C–K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid	LOCATION: Acrylonitrile Plant	APPROVAL: GHC
PROJECT NUMBER: 12–603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: B–6B	COORDINATES:	DATE STARTED: 11/18/92
ELEVATION: NA	GWL: 14' / 11.3' after 5 minutes	DATE COMPLETED: 11/18/92
C–K REPRESENTATIVE ON–SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow–Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		10:35	Shelby tube	--	0	Shell, limestone fill	Fill	
2'		10:40	Shelby tube	1.0	0	Firm gray CLAY with Fe nodules and stains	CL	
4'		10:45	Shelby tube	0.5	0	Firm gray slightly Silty CLAY with Fe nodules and stains		
6'		10:50	Shelby tube	0.75	0			
8'		10:52	Shelby tube	0.25	1	Firm brown and gray Silty CLAY, increase silt, silty pockets, streaks		
10'		10:55	Shelby tube	--	0	Grading to soft gray Clayey SILT with sand at 10.5', moist	ML	
12'		10:58	Shelby tube	<0.25	5	Soft gray very Silty CLAY with clayey silt lenses		
14'		11:00	Shelby tube	--	0	Soft gray Clayey SILT with sand to 15.5'		
16'		11:10	Shelby tube	--	10	Soft Sandy SILT with clay, silty clay lense 17.5 to 18'	SM/ML	
18'		11:15	Shelby tube	<0.25	0	Soft gray very Silty CLAY with clay pockets, lenses	CL/ML	
20'						*Boring terminated at 20 ft bgs Completed as MW B–6B*		

SI = Sample Interval
* OVA readings after correction for methane

C-K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid	LOCATION: AOG Incinerator, Acrylonitrile Plant	APPROVAL: GHC
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: B-7B	COORDINATES:	DATE STARTED: 11/18/92
ELEVATION: NA	GWL: 14.5' / 10.2' after 10 minutes	DATE COMPLETED: 11/18/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		14:00	Shelby tube	2.5	ND	Very stiff brown CLAY with shells	Fill	
2'		14:05	Shelby tube	2.5	ND	---less shells		
4'		14:07	Shelby tube	0.5	ND	Firm brown and gray Silty CLAY with Fe nodules, stains	CL	
6'		14:10	Shelby tube	<0.25	ND	Soft brown and gray very Silty CLAY with Fe stains, silt seams, moist		
8'		14:12	Shelby tube	0.5	ND	Brown Silty CLAY with silt seams, less silt		
10'		14:16	Shelby tube	<0.25	ND	Very soft brown and gray Clayey SILT with clay pockets, wet	ML	
12'		14:20	Shelby tube	--	0	Very soft gray Clayey SILT with trace of sand		
14'		14:25	Shelby tube	--	0	---increasing sand		
16'						Boring terminated at 16 ft bgs		

NOTES:

SI = Sample Interval

* OVA readings after correction for methane

C-K ASSOCIATES, INC.
SOIL BORING LOG

CLIENT: American Cyanamid	LOCATION: AOG Incinerator, Acrylonitrile Plant	APPROVAL: GHC
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: B-16	COORDINATES:	DATE STARTED: 11/17/92
ELEVATION: NA	GWL: 14.0' / 12.0' after 10 minutes	DATE COMPLETED: 11/17/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		11:05	Shelby tube	--	0	Very stiff CLAY with shell fill	Fill/CL	
2'		11:10	Shelby tube	1.25	0	Stiff brown Silty CLAY with Fe stains, nodules		
4'		11:25	Shelby tube	1.25	0	Firm to stiff brown and gray Silty CLAY with Fe nodules, wood framents, Fe stains	CL	
6'		11:28	Shelby tube	0.75	ND	Firm brown and gray Silty CLAY, Fe stains, nodules		
8'		11:30	Shelby tube	0.5	ND			
10'		11:32	Shelby tube	0.5	ND	---8" very silty clay lense at 11'		
12'		11:35	Shelby tube	--	0	Soft gray very Silty CLAY to Clayey SILT, large clay pockets, wet	CL/ML	
14'		11:40	Shelby tube	--	0	Soft gray Sandy Clayey SILT	ML	
16'						*Boring terminated at 16 ft bgs*		

NOTES:

SI = Sample Interval

* OVa readings after correction for methane

C–K ASSOCIATES, INC.
SOIL BORING LOG

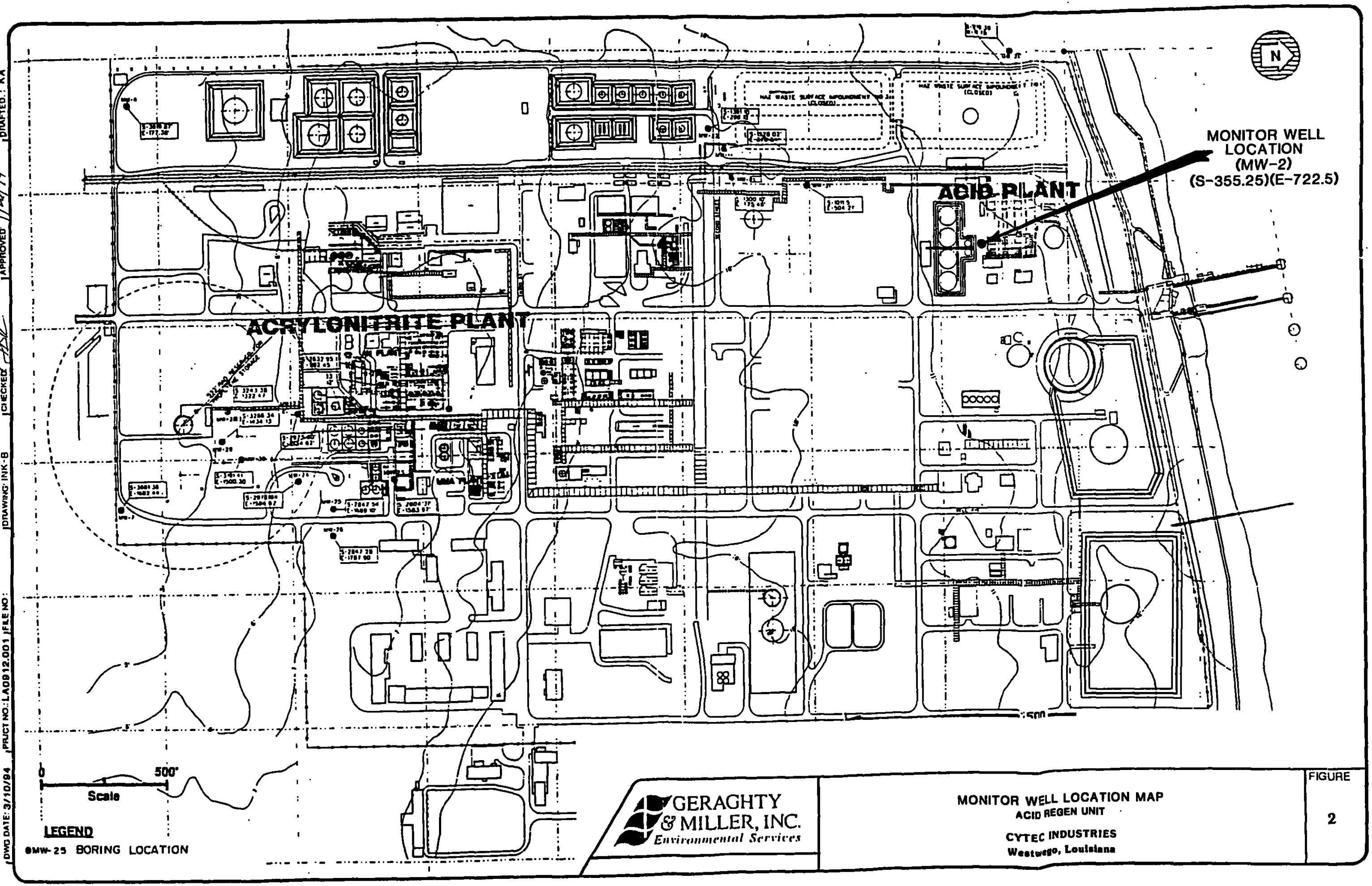
CLIENT: American Cyanamid	LOCATION: AOG Incinerator, Acrylonitrile Plant	APPROVAL: GHC
PROJECT NUMBER: 12-603	PROJECT NAME: Groundwater Certification	
BORING NUMBER: B-17	COORDINATES:	DATE STARTED: 11/17/92
ELEVATION: NA	GWL: 14.3' / 12.1' after 10 minutes	DATE COMPLETED: 11/17/92
C-K REPRESENTATIVE ON-SITE: Todd McLane		PAGE 1 OF 1
DRILLING METHODS: Hollow-Stem	DRY AUGERED: NA	WASH BORED: NA

DEPTH FEET	SI	SAMPLE TIME	SAMPLE METHOD	S.P.T (B/ft.) OR PKT PEN (TSF)	OVA* READINGS (ppm)	DESCRIPTION OF STRATUM	USCS SYMBOL	ENVIRONMENTAL IMPACT OBSERVATIONS
0'		9:50	Shelby tube	2.75	ND	Shells, limestone fill to 2.5' Very stiff dark gray silty CLAY with Fe stains, fill	Fill/CL	
2'		9:55	Shelby tube	0.75	0	Firm to stiff brown and gray Silty CLAY with Fe nodules, stains	CL	
4'		9:58	Shelby tube	0.75	ND			
6'		10:02	Shelby tube	0.25	ND	---softer, increased silt, moist		
8'		10:05	Shelby tube	0.75	0	Very Silty CLAY lense at 8' grading to firm or stiff		
10'		10:07	Shelby tube	0.5	ND	Firm brown and gray Silty CLAY with very silty clay lenses and seams		
12'		10:10	Shelby tube	<0.25	0	Soft gray Silty CLAY with very silty clay lenses	ML/CL	
14'		10:13	Shelby tube	<0.25	0	---with trace of sand, wet, wood fragments		
16'		10:25	Shelby tube	<0.25	0	---trace fine sand		
18'						*Boring terminated at 18 ft bgs*		

NOTES:

SI = Sample Interval

* OVA readings after correction for methane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MONITOR WELL LOCATION (MW-2) (S-355.25)(E-722.5)
ACID PLANT
ACRYLONITRITE PLANT
HAZ WASTE SURFACE IMPOUNDMENT (CLOSED)
0
500'
Scale
LEGEND
MW-25 BORING LOCATION
GERAGHTY & MILLER, INC.
Environmental Services
MONITOR WELL LOCATION MAP
ACID REGEN UNIT
CYTEC INDUSTRIES
Westwego, Louisiana
FIGURE
2
DRAFTED: KA
APPROVED: 4/20/94
CHECKED:
DRAWING: INK-B
PRJCT NO: LA0912.001 FILE NO:
DWG DATE: 3/10/94

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MW-2 Project/No.: CYTEC (AMERICAN CYANAMID) (LA0554.001) Page 1 of 1

Site Location: Fortier Plant Westwego - Acid Plant Area Drilling Started: 02-01-94 1115 Drilling Completed: 02-01-94

Land-Surface Elev.: 13.95 feet ☐ Surveyed ☐ Estimated Datum: TOC = 17.13 ft (NGVD); 722.5 E, 355.25 S

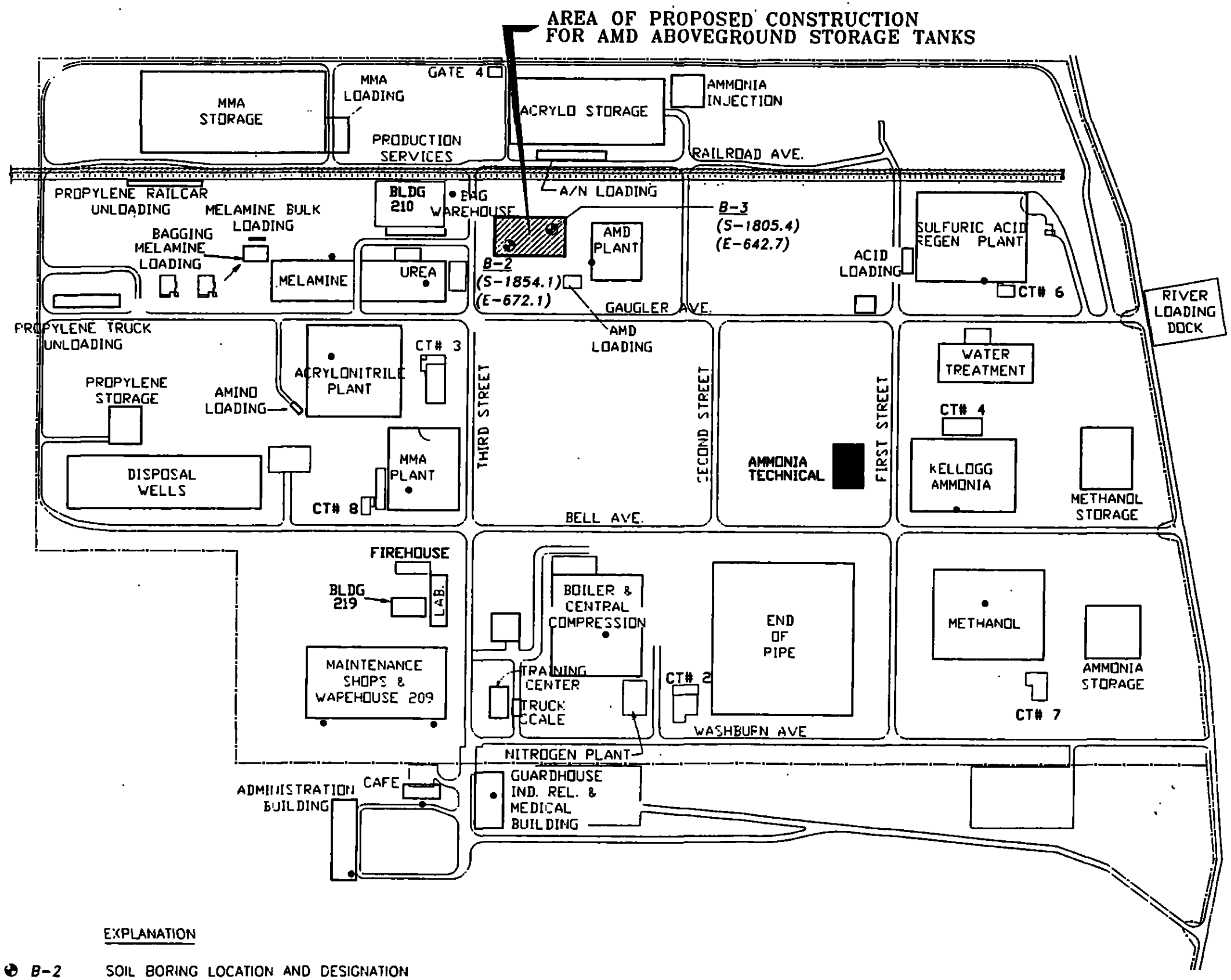
Drilling Fluid Used: NA Drilling Method: Hollow Stem

Drilling Contractor: Groundwater Protection Driller: Larry Helper: Jonathan

Prepared By: Kipper Montgomery Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Hand Auger | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	OVM (ppm)	REMARKS
0								
1	Post Hole Dig			Fill, rocks, shells, sand-black, coarse				Post holed to 4' bls to ID underground lines
2							0	
3				Sand, gray, wet				
4				Clay, sandy, silty gray, very soft to wet				
5				- gray, silty (30%), rootlets, ferrous oxide staining, soft, moist			0	
6		1.0						
7				- very soft			0	
8		2.0						
9				- silting downward			0	
10		2.0		Silt, clayey (40%), gray, ferrous oxide staining, very soft, moist				
11							0	
12		2.0		Clay, silt seams (2") wet, soft, gray, ferrous oxide staining				
13							0	
14		2.0		Silt, clayey (20%), wet, brown-gray, soft				
15				- clay seams throughout, soft wet, clay (30%)			0	
16		2.0		- gray, wet, soft				
17							0	
18		2.0		- alternating clay/silt seams				
19							0	
20		2.0						
21				Silt, laminated, saturated, gray			0	
22								
				Total Depth - 22 ft bls				



NOT TO SCALE

EXPLANATION

B-2 SOIL BORING LOCATION AND DESIGNATION

(S-1854.1) (E-672.1) PLANT COORDINATES

NOTE. BASE WAS PROVIDED BY CYTEC INDUSTRIES, DRAWING NO. CYTEC.DWG 8-22-94

GERAGHTY & MILLER, INC.
Environmental Services

PLOT 1=350

LOCATION MAP FOR THE AMD ABOVEGROUND STORAGE TANKS

CYTEC INDUSTRIES
FORTIER PLANT
Westwego, Louisiana

FIGURE 2

DWG DATE: 8-25-94 | PRJCT NO.: LA1037.001 | FILE NO.: CAD-B2 | DRAWING: CYTECGM2 | CHECKED: TDL 9/26/94 | APPROVED: TDL 9/26/94 | DRAFTER: GRM

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SAMPLE/CORE LOG

Boring/Well: B-2 Project/No.: CYTEC (LA1037.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 07-20-94 11:30 Drilling Completed: 07-20-94 12:00

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: NA Drilling Method: Hollow Stem Auger

Drilling Contractor: Eustis Engineering Driller: Eric Helper:

Prepared By: Victor Scherer Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Non-methane OVA (ppm)	OVA Methane	OVA Total
0									
1		2.0		Fill material (silty clay 20/80) abundant shells, roots and stems, damp, loose, no odor, sticky and pliable		0/0	0	10	10
2									
3		2.0		Silty clay (30/70), dark gray, organic nodules, organic and ferrous staining, roots and stems, decreased shells, increased dampness, medium stiff, mottled		1.5/1.0	0	7	7
4									
5		2.0				1.5/1.5	0	10	10
6									
7		2.0		- increased stiffness, increased moisture content, increased shells, sticky, pliable - wet at 7 ft bls		1.5/1.0	1	8	9
8									
				Total Depth - 8 ft bls					

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SAMPLE/CORE LOG

Boring/Well: B-3 Project/No.: CYTEC (LA1037.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 07-20-94 09:18 Drilling Completed: 07-20-94 10:30

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

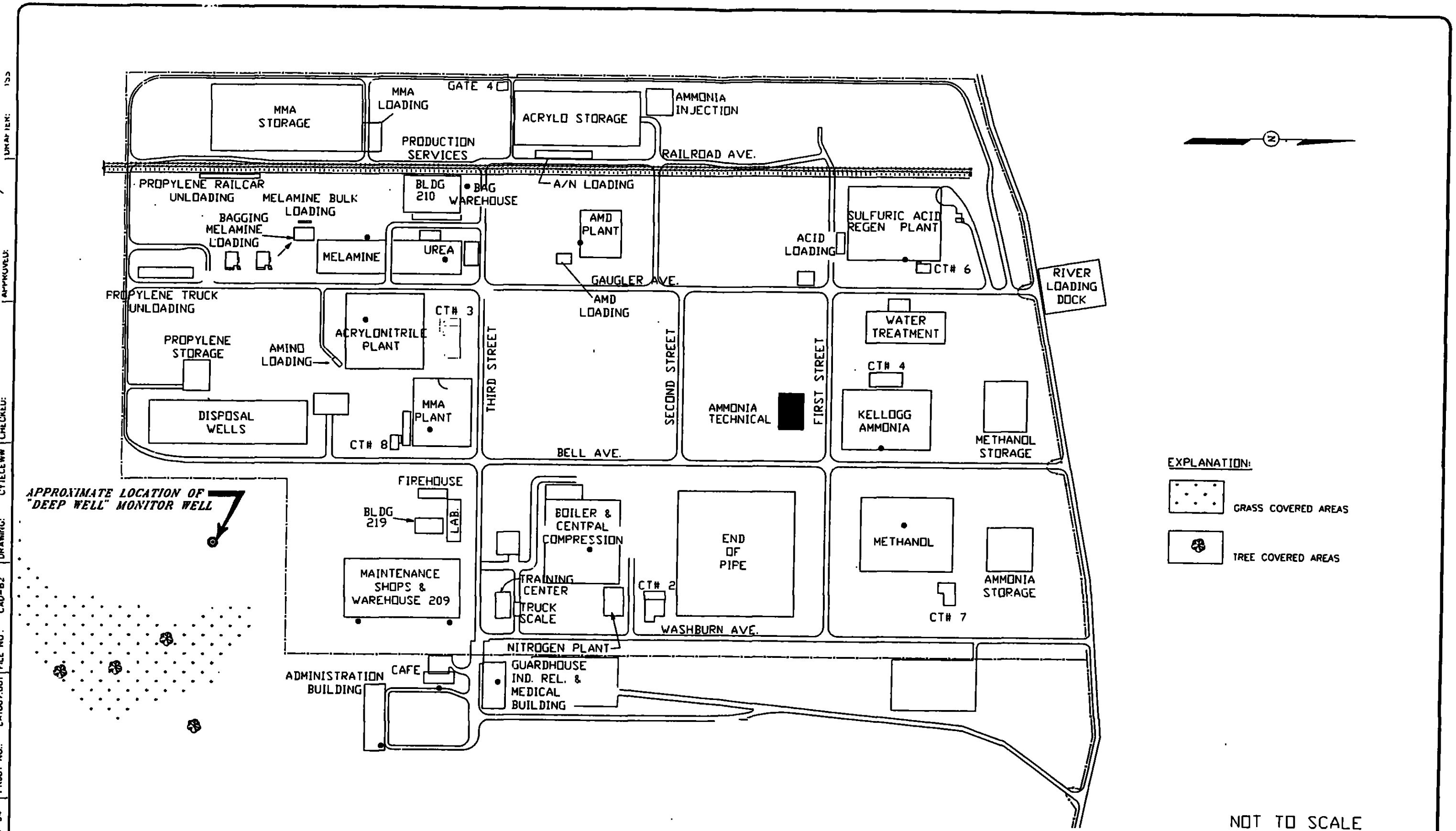
Drilling Fluid Used: NA Drilling Method: Hollow Stem Auger

Drilling Contractor: Eustis Engineering Driller: Eric Held Helper: Roy Parkerson

Prepared By: Victor Scherer Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Non-methane OVA (ppm)	OVA Methane	OVA Total
0									
1		2.0		Fill material (silty clay 30/70) abundant shells, organic roots and stems, organic staining, loose, dry, no odor		0/0	0	108	108
2									
3		2.0		Silty clay (20/80), dark gray, organic staining, decreased shell content, mottled, ferrous staining, medium stiff, damp, no odor		1.5/1.0	5	120	125
4									
5		2.0				1.0/1.0	0	130	130
6									
7		2.0		- increased silt content (30%), damp, no odor		1.0/1.0	0	850	850
8				- wet (saturated) at 7 ft bls					
				Total Depth - 8 ft bls					



NOTE: BASE WAS PROVIDED BY CYTEC INDUSTRIES, DRAWING NO. CYTEC.DWG 8-22-94

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PLOT 1=350

LOCATION MAP FOR THE "DEEP WELL" MONITOR WELL
CYTEC INDUSTRIES
FORTIER PLANT
Westwego, Louisiana

FIGURE 2

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: Deep Well Project/No.: CYTEC (LA1067.001) Page 1 of 6

Site Location: Westwego, Louisiana Drilling Started: 10-04-94 9:06 Drilling Completed: NA

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: NA Drilling Method: Hollow Stem/Rotary Wash

Drilling Contractor: Grinner Driller: John Helper: Jim and Joe

Prepared By: Tim Ratchford/Victor Scherer Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)		OVA (ppm) Methane Total
0								
				Open area				
4								
		1.5		Clay, silty with some organics, hard, low moisture		1.5/1.2		0/0
6		2.0		- gray molting and some oxide staining, hard				20/20
8		2.0				0.5/0.0		10/10
10		2.0				1.5/0.0		10/10
12		2.0		- moist, rocks, wet, soft		1.5/0.0		10/10
14		1.9		- silty, clayey with wet pockets, soft		0/0		10/10[1]
16		1.8				0/0		250/250
18		1.5		-with brown and gray color, moist clay, wet, silt, soft		0/0		250/250
20		1.5		Sand, silty, gray unconsolidated with clay lenses, wet, soft		0/0		250/250
22		1.5				0/0		250/250
24		1.5		Clayey sand with clay lenses, gray		10/10		250/250
26		2.0		Sand, gray with black ???? poor sorting, loosely consolidated		10/10		250/250
28								

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SAMPLE/CORE LOG

Boring/Well: Deep Well Project/No.: CYTEC (LA1067.001) Page 2 of 6

Site Location: Westwego, Louisiana Drilling Started: 10-04-94 9:06 Drilling Completed: NA

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: NA Drilling Method: Hollow Stem/Rotary Wash

Drilling Contractor: Grinner Driller: John Helper: Jim and Joe

Prepared By: Tim Ratchford/Victor Scherer Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)		OVA (ppm) Methane Total
28–30		1.5		Sand, gray, fine grain and micaceous, wet and saturated		0/0		250/250[2]
32, 34, 36, 38, 40, 42								
44		1.5		Silty clay (20,60) dark brown, trace of sand, sticky, pliable, wet, no odor, very soft		0/0		125/125
46								
48				No Recovery				
50, 52, 54								

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SAMPLE/CORE LOG

Boring/Well: Deep Well Project/No.: CYTEC (LA1067.001) Page 3 of 6

Site Location: Westwego, Louisiana Drilling Started: 10-04-94 9:06 Drilling Completed: NA

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: NA Drilling Method: Hollow Stem/Rotary Wash

Drilling Contractor: Grinner Driller: John Helper: Jim and Joe

Prepared By: Tim Ratchford/Victor Scherer Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)		OVA (ppm) Methane Total
54, 56								
58–60		2.0		Sand, fine-medium grained, dark gray, trace of clay and silt, loose, wet, no odor		0/0		120/120
62, 64, 66								
68–70				Sand, coarse grained, brown, natural organics, loose, no odor, saturated, trace of shells		0/0		40/40
72, 74, 76								
78–80		1.0		Sand, medium coarse grained, dark gray, organic nodules, wet, increased shell content, no odor, loose (poor recovery)		0/0		60/60

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SAMPLE/CORE LOG

Boring/Well: Deep Well Project/No.: CYTEC (LA1067.001) Page 4 of 6

Site Location: Westwego, Louisiana Drilling Started: 10-04-94 9:06 Drilling Completed: NA

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: NA Drilling Method: Hollow Stem/Rotary Wash

Drilling Contractor: Grinner Driller: John Helper: Jim and Joe

Prepared By: Tim Ratchford/Victor Scherer Hammer Weight: NA Hammer Drop: NA Inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, ▽ Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)		OVA (ppm) Methane Total
80								
82								
84								
86								
88								
		2.0		Clay, dark gray, trace of silt, sticky, pliable, medium stiff, dry, no odor		1.5/1.5		200/200
90								
92								
94								
96								
98								
		2.0		Clay, dark gray, ferrous nodules, ferrous staining, dry, medium stiff, no odor, organic nodules and staining		1.5/1.5		320/320
100								
102								
104								
106								

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Environmental Services

SAMPLE/CORE LOG

Boring/Well: Deep Well Project/No.: CYTEC (LA1067.001) Page 5 of 6

Site Location: Westwego, Louisiana Drilling Started: 10-04-94 9:00 Drilling Completed: NA

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: NA Drilling Method: Hollow Stem/Rotary Wash

Drilling Contractor: Grinner Driller: John Helper: Jim and Joe

Prepared By: Tim Ratchford/Victor Scherer Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)		OVA (ppm) Methane Total
108								
		2.0		Clay, dark gray, ferrous nodules, ferrous staining, slightly sticky and pliable, very stiff, mottled, no odor, dry		2.5/3.0		130/130
110								
112								
114								
116								
118								
		0.5		Clay, tan, trace of sand, mottled, ferrous nodules and ferrous staining, organic nodules, stiff, dry, no odor (poor recovery)		1.5/1.5		85/85
120								
122								
124								
126								
128								
		0		No Recovery				
130								
132								
134								

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Environmental Services

SAMPLE/CORE LOG

Boring/Well: Deep Well Project/No.: CYTEC (LA1067.001) Page 6 of 6

Site Location: Westwego, Louisiana Drilling Started: 10-04-94 9:06 Drilling Completed: NA

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

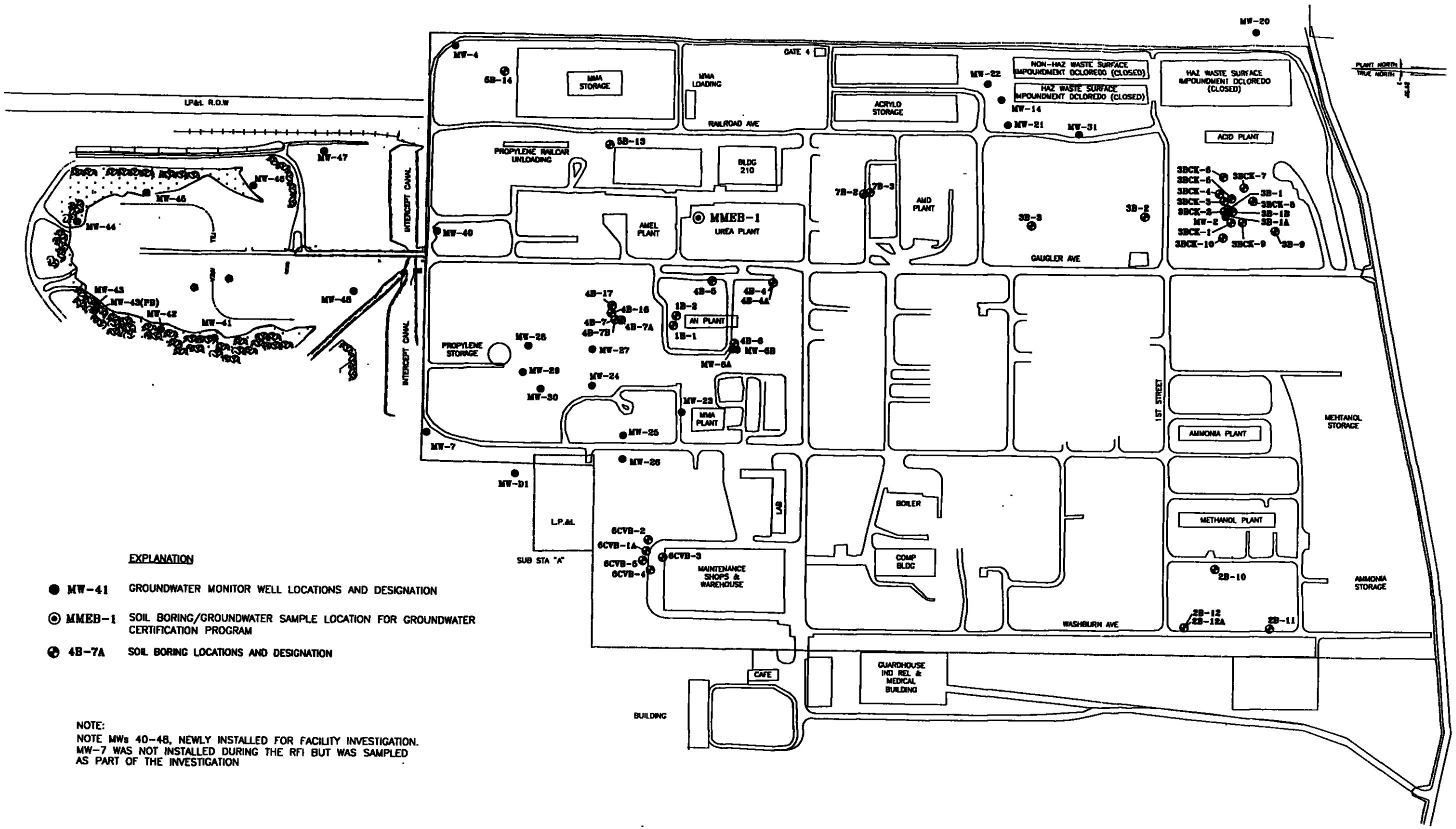
Drilling Fluid Used: NA Drilling Method: Hollow Stem/Rotary Wash

Drilling Contractor: Grinner Driller: John Helper: Jim and Joe

Prepared By: Tim Ratchford/Victor Scherer Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)		OVA (ppm) Methane Total
134								
136								
138	■	2.0		Silty clay, (10,90) dark gray, pliable, slightly sticky, very stiff, mottled ferrous staining, dry, no odor		3.0/3.0		75/75
140				Total Depth = 140 ft				
142				Notes: (1) Soil Sample SS(14-16) retained for chemical analyses. (2) Soil Sample SS (28-30) retained for chemical analyses.				
144								
146								
148								
150								
152								
154								
156								
158								
160								



EXPLANATION

- ● MW-41 GROUNDWATER MONITOR WELL LOCATIONS AND DESIGNATION
- ⊙ MMEB-1 SOIL BORING/GROUNDWATER SAMPLE LOCATION FOR GROUNDWATER CERTIFICATION PROGRAM
- ⊕ 4B-7A SOIL BORING LOCATIONS AND DESIGNATION

NOTE:
NOTE MWs 40-48, NEWLY INSTALLED FOR FACILITY INVESTIGATION.
MW-7 WAS NOT INSTALLED DURING THE RFI BUT WAS SAMPLED AS PART OF THE INVESTIGATION

0 400 800 FEET
SCALE

GERAGHTY & MILLER, INC.
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GROUNDWATER MONITOR WELL SOIL BORING LOCATION MAP

GROUNDWATER CERTIFICATION PROGRAM MME PRODUCTION UNIT
CYTEC INDUSTRIES
FORTIER FRONT
Westwego, Louisiana

FIGURE 2

DWG DATE: 10-5-95 | PRJCT NO.: LA1257.001 | FILE NO.: CY1245F2 | CHECKED: | DRAWING: CAD-A1 | APPROVED: | DRAFTER: AHG

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SAMPLE/CORE LOG

Boring/Well: MMEB-1 Project/No.: CYTEC INDUSTRIES (LA1257.001) Page 1 of 1

Site Location: MME - Groundwater Certification, Westwego, Louisiana Drilling Started: 09/10/95 950 Drilling Completed: 09/10/95 1055

Land-Surface Elev.: Ground Level feet ☐ Surveyed ☐ Estimated Datum: Ground Level

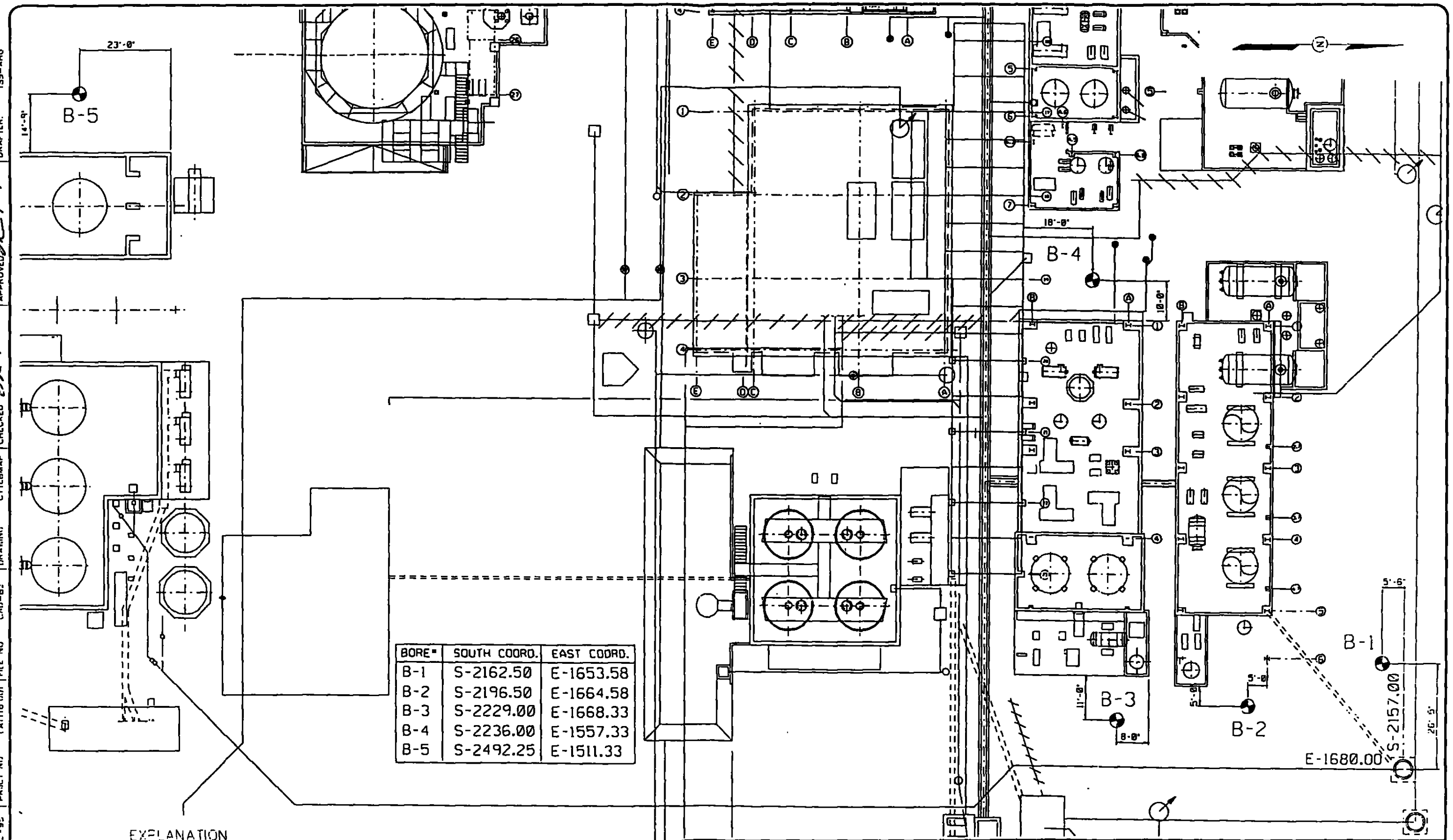
Drilling Fluid Used: None Drilling Method: Hollow Stem

Drilling Contractor: Eustis Engineering Driller: James Smith Helper: Lionell/Jim

Prepared By: Tim Ratchford Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	OVM (ppm) F	OVM (ppm) U	
0									
				Fill gravel & shell, unconsolidated (top 6")					
1		2.0		Silty clay, gray increasing silt to base, consolidated (bottom 1.5')		1.0	0	0	
2									
3		2.0		- gray, soft to moist, consolidated		0.5	0	0	
4				- silt, moist, consolidated					
5		2.0				0.5	2	2	
6									
7		2.0		Clayey silt, gray, moist to wet, consolidated		0.5	2	2	
8									
9		2.0		Silty clay, sandy to fine grain, gray to brown, soft, wet, semiconsolidated		0.0	4	4	
10									
				Total Depth - 10 ft bls					



BORE#	SOUTH COORD.	EAST COORD.
B-1	S-2162.50	E-1653.58
B-2	S-2196.50	E-1664.58
B-3	S-2229.00	E-1668.33
B-4	S-2236.00	E-1557.33
B-5	S-2492.25	E-1511.33

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MMA B-1 Project/No.: CYTEC INDUSTRIES (LA1293.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 11-08-95 1445 Drilling Completed: 11-08-95 1530

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: None Drilling Method: Hollow Stem

Drilling Contractor: Eustis Engineering Driller: Pharoah Helper: Mike/Rev.

Prepared By: R. John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, ▽ Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	OVA (ppm) WO/W	
0				Concrete				
1		0.1		Limestone backfill, very moist to wet	Fill			
2				Silty clay, dark gray, very moist	CL			
3		2.0		Clay, dark gray, moist, firm, iron oxide staining/nodules	CH		2.2/0.0	Soil Sample ▼
4								
5		2.0		Silty clay, dark gray, moist to very moist, minor iron oxide staining/nodules, silt content, increase towards base	CL		0.4/0.0	
6								
7		2.0		Clay, dark gray, moist to very moist, increase in iron oxide staining, silty clay lense at base	CL		0.0/0.0	
8								
9		2.0		Clayey silt, dark gray to brown, wet, iron oxide staining/nodules, faint laminations, silt partings	ML		0.0/0.0	▽
10				Silty clay, dark gray to brown, wet iron oxide staining//nodules, faint laminations, silt partings	CL			
				Clay with minor amounts of silt, dark gray, moist	CL			
11		2.0		Silty clay, dark gray, very moist, laminated silt partings	CL		0.2/0.0	
12								

Total Depth - 12 ft bls

The first water bearing zone was cased off to a depth of 20 ft bls and the boring was advanced to a total depth of 100 ft bls via mud rotary for geotechnical purposes

WO Without a methane filter

W With a methane filter

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MMA B-2 Project/No.: CYTEC INDUSTRIES (LA1293.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 11-07-95 1510 Drilling Completed: 11-07-95 1600

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: None Drilling Method: Hollow Stem

Drilling Contractor: Eustis Engineering Driller: Pharoah Helper: Mike/Rev.

Prepared By: R. John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, ▽ Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	OVA (ppm) WO/W	
0								
				Concrete				
1		0.2		Limestone backfill, very moist to wet	Fill			
2								
3		2.0		Clay, gray with minor amounts of brown, moist, minor amounts of silt, firm, iron oxide staining/nodules	CH/CL		110/60	Soil Sample
4								▼
5		2.0					40/35	
6				Silty clay, gray to dark gray, very moist	CL			
7		2.0		- silt content, increasing, very moist to wet, iron oxide staining/nodules			5/2.2	
8								
9		2.0		Clayey silt, gray to brown, very moist to wet, iron oxide staining/nodules	ML		0.8/0.6	▽
10								
11		2.0		Clay with minor amounts of silt, dark greenish gray, moist, firm, silt partings throughout	CL		14/6	
12								

Total Depth - 12 ft bls

The first water bearing zone was cased off to a depth of 20 ft bls and the boring was advanced to a total depth of 100 ft bls via mud rotary for geotechnical purposes

WO Without a methane filter
W With a methane filter

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MMA B-3 Project/No.: CYTEC INDUSTRIES (LA1293.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 11-06-95 1420 Drilling Completed: 11-06-95 1520

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: None Drilling Method: Hollow Stem

Drilling Contractor: Eustis Engineering Driller: Pharoah Helper: Mike/Rev.

Prepared By: R. John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	OVA (ppm) WO/W	
0				Concrete				
1		0.3		Limestone backfill, wet	Fill			
2								Soil Sample
3		2.0		Clay, dark gray to gray, moist, firm, iron oxide staining/nodules	CH		0.6/0.0	▼
4				Silty clay, gray, moist, firm - gray with minor amounts of brown	CL			
5		2.0					0.6/0.2	
6				Clayey silt, very moist to wet, iron oxide staining/nodules	ML			
7		2.0		Clay with minor amounts of silt, gray to brown, moist, silt content, increases towards base, very moist	CL		0.6/0.6	
8				Slightly clayey silt, gray to brown, wet	ML			▽
9		2.0		Clay, gray to brown, firm, iron oxide staining	CL		0.4/0.4	
10								

Total Depth - 10 ft bls

The first water bearing zone was cased off to a depth of 20 ft bls and the boring was advanced to a total depth of 100 ft bls via mud rotary for geotechnical purposes

WO Without a methane filter
W With a methane filter

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MMA B-4 Project/No.: CYTEC INDUSTRIES (LA1293.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 11-09-95 1015 Drilling Completed: 11-09-95 1115

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: None Drilling Method: Hollow Stem

Drilling Contractor: Eustis Engineering Driller: Pharoah Helper: Mike/Rev.

Prepared By: R. John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	OVA (ppm) WO/W	
0								
				Concrete				
1				Limestone backfill, wet	Fill			
2		0.5		Clay, dark gray, moist, firm, iron oxide staining/nodules, minor amounts of rootlets	CH		200/100	
3								
4		2.0		Silty clay, dark gray, very moist, silt partings	CL		600/300	▼
5								
6		2.0		Clayey silt, dark gray, wet, decreasing amount of silt towards base	ML		960/480	Soil Sample ▽
7								
8		2.0		Clay, dark gray to gray, moist to very moist, clayey silt layer at 8 ft bls, wet	CH/CL		15/8	
9								

Total Depth - 9 ft bls

The first water bearing zone was cased off to a depth of 20 ft bls and the boring was advanced to a total depth of 100 ft bls via mud rotary for geotechnical purposes

WO Without a methane filter
W With a methane filter

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MMA B-5 Project/No.: CYTEC INDUSTRIES (LA1293.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 11-06-95 1920 Drilling Completed: 11-06-95 1025

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: None Drilling Method: Hollow Stem

Drilling Contractor: Eustis Engineering Driller: Pharoah Helper: Mike/Rev.

Prepared By: R. John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	OVA (ppm) WO/W	
0								
1				Limestone backfill, moist	Fill			
2				Clay, dark gray, natural organics, moist, firm				
3	■	2.0					50/6	▼
4				- becoming greenish gray colored				
5	■	2.0		- gray and brown with iron oxide staining/nodules	CH		300/110	Soil Sample
6								
7	■	2.0		- increase in iron oxide staining/nodules			18/18	
8								
9	■	2.0					8/2	
10				Silty clay, dary gray, very moist to wet, soft	CL			▽
11	■	2.0		Clayey silt, dark gray, wet	ML		4.8/1.0	
12				Silty clay, gray and brown, moist to very moist, firm	CL			

Total Depth - 12 ft bls

The first water bearing zone was cased off to a depth of 20 ft bls and the boring was advanced to a total depth of 100 ft bls via mud rotary for geotechnical purposes

WO Without a methane filter
W With a methane filter

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MW-40 Project/No.: CYTEC (LA1116.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 12/13/94 1000 Drilling Completed: 12/13/94 1105

Land-Surface Elev.: 4.6 feet ☐ Surveyed ☐ Estimated Datum: NGVD

Drilling Fluid Used: None Drilling Method: Hollow Stem Auger

Drilling Contractor: Alliance Environmental, Inc. Driller: Buddy Helper: Danny/Mackie

Prepared By: Timothy Ratchford/John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
1		1.5		Clay, organics, brown, mottled, firm			0/0	Soil Sample*
2							0/0	
3		1.5		- brown, mottled, organics				
4							0/0	
5		1.5		- brown-gray, mottled with organics, (rootlets and some silt), firm				
6							0/0	
7		2.0						
8				- brown-gray with maroon mottling, some organics, some silt, firm			0/0	
9		2.0						
10							0/0	
11		2.0		- brown-gray with mottling				
12							0/0	
13		2.0		- some mottling				
14							0/0	
15		2.0		- brown-gray mottled, silty, soft to medium firm, moist			0/0	Soil sample (1)
16								
17		2.0		Clayey silt to silty clay, gray, moist-wet, consolidated			0/0	
18								
19		2.0		Silty clay to clayey silt, gray, moist, wet			72/11	Soil sample (2)
20								
21		2.0					0/0	
22								
				Clay, brown-gray with some silt, soft			20/4.4	Soil sample*
		2.0		Total Depth - 22.5 ft bls				

(1) Capillary fringe; soil sample submitted for geotechnical analysis
(2) Soil sample submitted for Appendix IX analysis due to high OVA reading
* Soil sample submitted for site-specific/daughter parameter analysis

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SB/MW-41 Project/No. CYTEC (LA1116.001) Page 1 of 1

Site Location Westwego, Louisiana Drilling Started 12/19/94 1035 Drilling Completed 12/19/94 1120

Land-Surface Elev. 3.16 feet ☐ Surveyed ☐ Estimated Datum NGVD

Drilling Fluid Used None Drilling Method Hollow Stem Auger

Drilling Contractor Alliance Environmental, Inc. Driller Buddy Helper Danny/Mackie

Prepared By Timothy Ratchford/John Ellis Hammer Weight NA Hammer Drop NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
				Clayey loam, brown-gray with organics, soft, moist		0.5/0	0/0	Soil sample*
1		1.0						
2				- brown-gray with organics, clay brown with rootlets		0.5/0	0/0	
3		1.5						
4						0.5/0	0/0	
				Silty clay to clayey silt, brown with gray mottling, soft				
5		2.0						
6				- brown-gray silt, grades to clay, firm		0/0	0/0	
7		2.0						
8				- brown-gray mottled, soft, wet		0/0	0/0	Soil sample (1,2)
9		2.0						
10						0.5/1.0	0/0	
				Clayey silt, gray-green, soft, wet				
11		2.0					10/10	
12								
				Silt, green, wet, grading into green clay, firm				
13		2.0				1.0/1.0	20/20	Soil sample*
14								
				Total Depth - 14.5 ft bls				

(1) Capillary fringe; soil sample submitted for geotechnical analysis

(2) Soil sample submitted for Appendix IX analysis (soil corresponds to QA/QC Duplicate Soil Sample A)

* Soil sample submitted for site-specific/daughter parameter analysis

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MW-42 Project/No.: CYTEC (LA1116.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 12/19/94 1415 Drilling Completed: 12/19/94 1530

Land-Surface Elev.: 3.0 feet ☐ Surveyed ☐ Estimated Datum: NGVD

Drilling Fluid Used: None Drilling Method: Hollow Stem Auger

Drilling Contractor: Alliance Environmental, Inc. Driller: Buddy Helper: Danny/Mackie

Prepared By: Timothy Ratchford/John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
1		1.0		Clayey loam, brown with abundant organics, some silt		0/0	0/0	Soil sample*
2						0/0	0/0	
3		1.0		Silty clay with organics, brown with some oxides, moist				
4				- rootlets, brown, moist		0.5/0	0/0	
5		1.0						
6				- rootlets, brown-gray mottled, some maroon staining, firm, moist		0.5/0	0.4/0.4	
7		1.5						
8				- moist, clayey silt, brown, soft, wet		0.5/0	0.2/0.2	Soil sample (1,2)
9		2.0						
10				- silty clay to clayey silt, brown, soft, wet		0/0	0/0	
11		2.0						
12				Clayey silt, brown-gray, soft, wet, top 1.5 feet)		0/0		
13		2.0				1.0/1.5	0/0	Soil sample*
14				Clay, some silt, gray-brown, moderately firm, moist				

Total Depth - 14.5 ft bls

(1) Capillary fringe; soil sample submitted for geotechnical analysis

(2) Soil sample submitted for Appendix IX analysis

* Soil sample submitted for site-specific/daughter parameters analysis

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well MW-43 (PB) Project/No. CYTEC (LA1116.001) Page 1 of 2

Site Location Westwego, Louisiana Drilling Started 12/15/94 0830 Drilling Completed 12/16/94 0930

Land-Surface Elev. 3.31 feet ☐ Surveyed ☐ Estimated Datum NGVD

Drilling Fluid Used None Drilling Method Hollow Stem Auger

Drilling Contractor Alliance Environmental, Inc. Driller Buddy Helper Danny/Mackie

Prepared By Timothy Ratchford/John Ellis Hammer Weight NA Hammer Drop NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
				Clay, brown, mottled, moist, firm, vegetation, minor silt			0/0	Soil sample (3)*
1		1.0						
2				- gray to brown, mottled, firm, minor silt, moist			0/0	
3		1.5						
4				- gray to brown, mottled, grades into a gray mottled clay, firm, moist			0/0	
5		2.0						
6				- gray, mottled, firm, moist			0/0	
7		2.0						
8				- gray, mottled, firm, grades into gray to brown silty clay, mottled, soft, moist			0/0	
9		2.0						
10							0/0	
				Silty clay, gray, minor mottling, firm				
11		2.0						Soil sample (1,2)
12							0/0	
				Clayey silt, gray, wet, grades into a silty clay, moist				
13		2.0						Soil sample*
14							0/0	
				Clay, greenish gray, minor mottling, moist, firm, minor silt				
15		2.0						Soil sample*
16				- greenish gray, moist, firm, grades into a gray clayey silt, moist			0/0	
17		2.0						
18							0/0	
				Clayey silt, greenish gray, moist, laminated				
19		1.5						
20				- greenish gray, laminated grades into wet very fine sand, dark grains (point bar sand)			0/0	
21		2.0						
22							0/0	
				Sand, very fine, gray, wet, micaceous, dark grains, unconsolidated				
23		2.0						
24								
25								

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well MW-43 (PB) Project/No. CYTEC (LA1116.001) Page 2 of 2

Site Location Westwego, Louisiana Drilling Started 12/15/94 0830 Drilling Completed 12/16/94 0930

Land-Surface Elev. 3.31 feet ☐ Surveyed ☐ Estimated Datum NGVD

Drilling Fluid Used None Drilling Method Hollow Stem Auger

Drilling Contractor Alliance Environmental, Inc. Driller Buddy Helper Danny/Mackie

Prepared By Timothy Ratchford/John Ellis Hammer Weight NA Hammer Drop NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
25								
		2.0		- same, very fine sand, gray, wet, micaceous, unconsolidated			0/0	Soil sample (2)
26								

Total Depth - 26.5 ft bls

(1) Capillary fringe; soil sample submitted for geotechnical analysis
(2) Soil sample submitted for Appendix IX analysis
(3) Soil sample corresponds to QA/QC Soil Sample Duplicate B
* Soil sample submitted for site-specific/daughter parameter analysis

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: SB/MW-44 Project/No.: CYTEC (LA1116.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 12/19/94 1600 Drilling Completed: 12/19/94 1700

Land-Surface Elev.: 2.65 feet ☐ Surveyed ☐ Estimated Datum: NGVD

Drilling Fluid Used: None Drilling Method: Hollow Stem Auger

Drilling Contractor: Alliance Environmental, Inc. Driller: Buddy Helper: Danny/Mackie

Prepared By: Timothy Ratchford/John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
1		1.0		Clay, loam, gray-brown, some rootlets/vegetation, firm, moist		0/0	0/0	Soil sample*
2				- gray to brown, iron oxide staining, staining, some silt, firm		0.75/1.25	0/0	
3		2.0						
4						0/0.25	0/0	
5		2.0		Silty clay, gray to brown, mottled, loosely consolidated at base				
6						0.5/1.5	0/0	
7		2.0		Clay, gray with brown mottling, moist, trace organics (oxide staining)				
8						0.25/0.1	0/0	Soil sample(1,2)
9		2.0		Silty clay, brown to gray, mottling (oxide staining), wet, grades to firm gray mottled clay at base				
10				- some gray clay inclusions, wet, grades into a dark gray, mottled, moist, silty clay		0.1/0.75	0/0	
11		2.0						
12						0/0	0/0	Soil sample(3)
13		2.0		Clayey silt, gray to brown, wet, grades into a firm light gray to dark gray clay, mottled, moist				
14								

Total Depth - 14.5 ft bls

(1) Capillary fringe; soil sample submitted for geotechnical analysis
(2) Soil sample submitted for Appendix IX analysis
(3) Soil sample corresponds to QA/QC Soil Sample Duplicate C
* Soil sample submitted for site-specific/daughter parameter analysis

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well MW-45 Project/No. CYTEC (LA1116.001) Page 1 of 1

Site Location Westwego, Louisiana Drilling Started 12/14/94 1320 Drilling Completed 12/14/94 1450

Land-Surface Elev. 2.60 feet ☐ Surveyed ☐ Estimated Datum NGVD

Drilling Fluid Used None Drilling Method Hollow Stem Auger

Drilling Contractor Alliance Environmental, Inc. Driller Buddy Helper Danny/Mackie

Prepared By Timothy Ratchford/John Ellis Hammer Weight NA Hammer Drop NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
1		1.0		Clay loam, peat with vegetation, brown and black, abundant vegetation and organics		0/0	0/0	Soil sample*
2						1.0/2.0	0/0	
3		1.0		Clay with organics and vegetation, brown, firm				
4						1.0/0.5	0/0	
5		1.0		Clay, brown-gray mottled with rootlets, peat, moist, firm				
6						1.0/1.5	0/0	
7		1.0						
8				- brown, some silt with organics, gray mottling		1.5/1.0	0/0	
9		1.5						
10				- gray to brown, mottled, very firm		1.25/1.75	0/0	
11		2.0						
12				- gray to brown, mottled, very firm		1.5/1.25	0/0	
13		2.0						
14				- greenish gray, mottled, water zone at top 6 inches of core				
15		2.0				1.0/2.0	0/0	Soil sample (1,2)
16				- greenish gray, minor mottling, wet, minor silt				
17		2.0				1.5/2.0	0/0	
18								
19		2.0		Silty sand (top 1.5) gray, fine-grain, wet, becoming clayey in base		0.0/0.0	0/0	Soil sample*
20								
				Total Depth - 20 ft bls				

(1) Capillary fringe; soil sample submitted for geotechnical analysis
(2) Soil sample submitted for Appendix IX analysis
* Soil sample submitted for site-specific/daughter parameter analysis

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: MW-46 Project/No.: CYTEC (LA1116.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 12/12/94 1530 Drilling Completed: 12/12/94 1645

Land-Surface Elev.: 7.3 feet ☐ Surveyed ☐ Estimated Datum: NGVD

Drilling Fluid Used: None Drilling Method: Hollow Stem Auger

Drilling Contractor: Alliance Environmental, Inc. Driller: Buddy Helper: Danny/Mackie

Prepared By: Timothy Ratchford/John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
1		1.0		Clay, loam, brown with abundant organics/vegetation, shells			0/0	Soil sample*
2				Fill, granular black (unconsolidated)			0/0	
3		1.5		Clay, brown (top 3inches)				
4				Fill, grannular, black, unconsolidated - grannular, black			0/0	
5		2.0						
6				Clayey silt, brown with shell fragments, firm, unconsolidated			0/0	
7		2.0						
8							0/0	
9		2.0		Clay, tan, brown and maroon, mottled, some silt, shells, firm				
10				- tan/brown mottled with maroon, some silt, firm			0/0	
11		2.0						
12				- gray, increase silt composition, firm, moist			0/0	
13		2.0						
14				- silty, gray, moist to wet				
15		2.0					0/0	Soil sample (1,2)
16								
17		2.0		Silty clay, gray, moist to wet, stiff			0/0	
18				- clayey silt, gray, moist to wet				
19		2.0					0/0	
20				- wet				
21		1.5					0/0	
22								
23		2.0		Silt with clay, wet			0/0	Soil sample*
24								
				Total Depth - 24 ft bls (1) Capillary fringe: soil sample submitted for geotechnical analysis (2) Soil sample submitted for Appendix IX analysis * Soil sample submitted for site-specific/daughter parameter analysis				

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well MW-47 Project/No. CYTEC (LA1116.001) Page 1 of 2

Site Location Westwego, Louisiana Drilling Started 12/14/94 1220 Drilling Completed 12/14/94 1355

Land-Surface Elev. 9.3 feet ☐ Surveyed ☐ Estimated Datum NGVD

Drilling Fluid Used None Drilling Method Hollow Stem Auger

Drilling Contractor Alliance Environmental, Inc. Driller Buddy Helper Danny/Mackie

Prepared By Timothy Ratchford/John Ellis Hammer Weight NA Hammer Drop NA inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
1		1.0		Silty clay, brown, moist, abundant vegetation, loosely consolidated			0/0	Soil sample*
2				- shell fill			0/0	
3		1.0						
4							0/0	
5		1.5		Clay, brown, shells some organics, firm, dry				
6				- brown with organics, stiff			0/0	
7		1.5						
8				- brown-gray mottled, firm, moist, consolidated			0/0	
9		2.0						
10				- brown, gray and maroon motting, some organics, firm, some silt			0/0	
11		2.0						
12				- gray-brown with some maroon, some silt, moist, firm			0/0	
13		2.0						
14				- gray-brown mottled with maroon, some silt, moist, firm			0/0	
15		2.0						(1.2) Soil sample
16							0/0	
17		2.0		Silty clay to silt, gray-brown, moist, (top), wet, bottom, silt				
18							0/0	
19		1.5		Silt with some clay, gray, wet, soft				
20				- gray, wet, soft, laminated			0/0	
21		2.0						
22				- gray, wet, soft, laminated			0/0	
23		2.0						
24				- gray, wet, soft, laminated			0/0	
25							0.4/0.4	Soil sample*

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well MW-47 Project/No. CYTEC (LA1116.001) Page 2 of 2

Site Location Westwego, Louisiana Drilling Started 12/14/94 1220 Drilling Completed 12/14/94 1355

Land-Surface Elev. 9.3 feet ☐ Surveyed ☐ Estimated Datum NGVD

Drilling Fluid Used None Drilling Method Hollow Stem Auger

Drilling Contractor Alliance Environmental, Inc. Driller Buddy Helper Danny/Mackie

Prepared By Timothy Ratchford/John Ellis Hammer Weight NA Hammer Drop NA inches

Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Shelby Tube, Water First Encountered
Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Split Spoon, Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
25								
26		2.0		Clayey sand to sandy clay			1.0/1.0	
				Total Depth - 26 ft bls (1) Capillary fringe; soil sample submitted for geotechnical analysis (2) Soil sample submitted for Appendix IX analysis * Soil sample submitted for site-specific/daughter parameter analysis				

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well MW-48 Project/No. CYTEC (LA1116.001) Page 1 of 1

Site Location Westwego, Louisiana Drilling Started 12/14/94 0815 Drilling Completed 12/14/94 0930

Land-Surface Elev. 7.1 feet ☐ Surveyed ☐ Estimated Datum NGVD

Drilling Fluid Used None Drilling Method Hollow Stem Auger

Drilling Contractor Alliance Environmental, Inc. Driller Buddy Helper Danny/Mackie

Prepared By Timothy Ratchford/John Ellis Hammer Weight NA Hammer Drop NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP (V/H)	Total/ Methane OVM (ppm)	REMARKS
0								
1		1.5		Fill, clay, brown-gray with shell material, silt, moist loosely consolidated		1.0/2.0	60/54	Soil sample*
2						1.0	250/220	Soil sample(2)
3		1.5		Clay with shell fill, some rootlets, firm, brown gray				
4				- some rootlets, firm, brown		1.0	68/68	
5		1.0						
6				- brown and maroon, some mottling, firm, some organics		1.0/1.0	150/150	
7		2.0						
8				- gray, highly mottled, brown and maroon		1.0/1.25	42/42	
9		2.0						
10				- gray, mottled, very firm, minimal silty silt organics		1.5/2.5	12/12	
11		2.0						
12				- greenish gray, slight mottling, becomes more silty		1.0/1.25	1/1	
13		2.0						
14				- greenish gray, firm (top 0.5)		0/0	1/1	Soil sample*(1)
15		2.0						
16				Silty clay, green laminated, moist to wet		0/0	1/1	
17		2.0		Silt, greenish gray, horizontal and convolute bedding, minor clay layers, wet				
18				- silt, very fine sand, highly saturated, dark minerals		0/0	0.6/0.6	Soil sample*
19		2.0						
20				Total Depth - 20 ft bls				

(1) Capillary fringe; soil sample submitted for geotechnical analysis

(2) Soil sample submitted for Appendix IX analysis due to high OVA reading

* Soil sample submitted for site-specific/daughter parameter analysis

EUSTIS ENGINEERING COMPANY, INC.
GEOTECHNICAL ENGINEERS
CONSTRUCTION QUALITY CONTROL AND MATERIALS TESTING
3011 28th Street • Metairie Louisiana 70002 • 504 834-0157

1 February 1995

FEB - 2 1995
Geraghty & Miller, Inc.
2900 West Fork Drive
Suite 540
Baton Rouge, Louisiana 70827

Attention Mr. Randall John Ellis, Jr.

Gentlemen:

Laboratory Permeability Tests
Cytec Industries
Westwego, Louisiana

Transmitted are the results of soil mechanics laboratory tests performed for the subject project.

Thank you for asking us to perform these services.

STATE OF LOUISIANA
LLOYD A. HELD, JR.
REG. NO. 11482
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

Yours very truly,

EUSTIS ENGINEERING COMPANY, INC.

LLOYD A. HELD, JR., P.E.

A.S. Elkins:ejg

EE 13281

CYTEC INDUSTRIES
WESTWEGO, LOUISIANA

RESULTS OF LABORATORY PERMEABILITY TESTS

BORING NO.	SAMPLE NO.	DEPTH IN FEET	CLASSIFICATION	USC	INITIAL MOISTURE CONTENT PERCENT	DRY DENSITY PCF		ATTERBERG LIMITS			COEFFICIENT OF PERMEABILITY AT 20°C	INITIAL VOID RATIO	INITIAL SATURATION PERCENT
						DRY	WET	LL	PL	PI			
SB/MW	40CF	14-16	Soft gray & tan silty clay w/clay layers, small vertical roots	CL	39.0	83.2	115.6	39	23	16	2.5×10^{-7} (V)	1.024	100
SB/MW	40CF	14-16	Soft gray & tan silty clay w/alternating layers of sandy silt and clayey silt	CL	33.9	86.4	115.7	-	-	-	4.7×10^{-6} (H)	0.950	96
SB/MW	41CF	8-10	Soft tan & gray silty clay w/trace of concretions	CL	33.6	-	-	42	23	19	-		
SB/MW	42CF	8-10	Soft to medium stiff gray & tan clay w/silt pockets	CH	40.4	81.1	113.9	70	24	46	1.0×10^{-8} (V)	1.093	100
SB/MW	42CF	8-10	Medium stiff gray clay w/silt pockets, & trace of organic matter	CH	39.4	81.5	113.6	-	-	-	2.8×10^{-8} (H)	1.083	99
SB/MW	43CF	10-12	Soft gray silty clay w/sandy silt layers, & trace of organic matter	CL	32.8	89.0	118.2	47	20	27	6.1×10^{-7} (V)	0.892	99
SB/MW	43CF	10-12	Soft gray silty clay w/sandy silt layers	CL	28.2	96.0	123.1	-	-	-	1.8×10^{-6} (H)	0.736	100
SB/MW	44CF	8-10	Very soft tan & gray silty clay w/clay layers, organic matter & roots	CL	39.2	84.9	118.2	47	22	25	1.0×10^{-7} (H)	0.985	100

Remarks: Flexible wall permeability tests perform on undisturbed samples in a vertical (V) and horizontal (H) direction, ASTM D 5084.

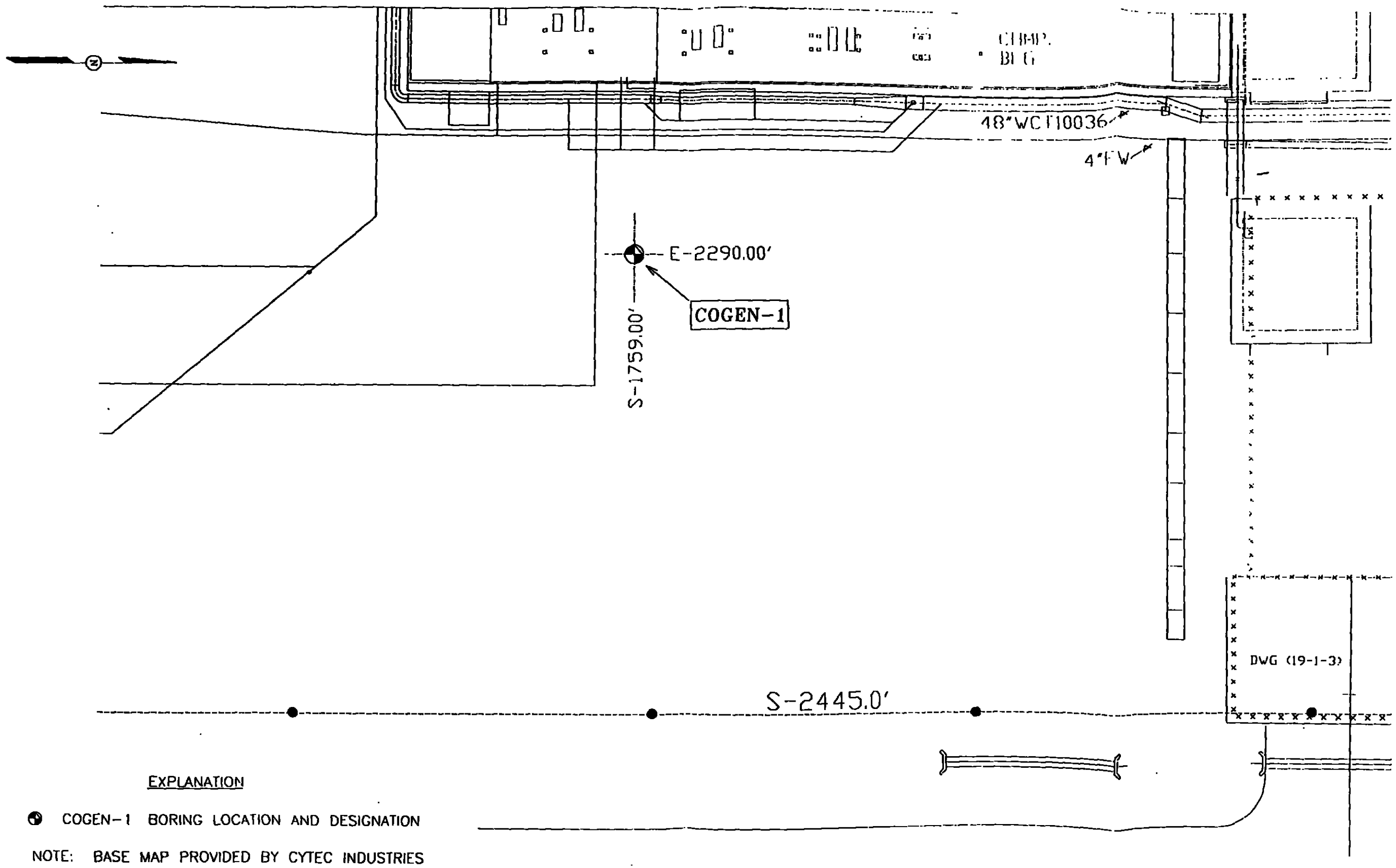
Note: Sample No. 41CF was disturbed, and Sample No. 44CF was too short for vertical permeability.

CYTEC INDUSTRIES
WESTWEGO, LOUISIANA

RESULTS OF LABORATORY PERMEABILITY TESTS

BORING NO.	SAMPLE NO.	DEPTH IN FEET	CLASSIFICATION	USC	INITIAL MOISTURE CONTENT PERCENT	DRY DENSITY PCF		ATTERBERG LIMITS			COEFFICIENT OF PERMEABILITY AT 20°C	INITIAL VOID RATIO	INITIAL SATURATION PERCENT
						DRY	WET	LL	PL	PI			
SB/MW	45CF	14-15	Soft gray flocculated clay w/silt pockets, & small roots	CH	43.5	76.3	109.5	58	21	37	6.0×10^{-7} (V)	1.223	97
SB/MW	45CF	14-15	Soft gray flocculated clay w/silt pockets, & roots	CH	52.2	67.0	102.0	-	-	-	3.3×10^{-7} (H)	1.534	93
SB/MW	46CF	16-18	Soft gray silty clay w/sandy silt layers, & roots	CL	27.9	95.8	122.5	41	22	19	1.7×10^{-7} (V)	0.740	100
SB/MW	46CF	16-18	Soft gray silty clay w/sandy silt layers, & roots	CL	27.9	95.1	121.6	-	-	-	2.2×10^{-7} (H)	0.772	98
SB/MW	47CF	16-18	Soft gray silty clay w/sandy silt layers, & roots	CL	36.1	85.7	116.6	42	20	22	3.4×10^{-7} (V)	0.966	100
SB/MW	47CF	16-18	Soft gray silty clay w/sandy silt layers, & roots	CL	34.4	87.6	117.7	-	-	-	3.8×10^{-7} (H)	0.924	100
SB/MW	48CF	14-16	Soft gray clay w/silt lenses	CH	50.1	72.3	108.5	55	26	29	1.3×10^{-7} (V)	1.364	100
SB/MW	48CF	14-16	Soft gray clay w/sandy silt lenses, & pocket	CH	34.3	86.7	116.4	-	-	-	4.0×10^{-7} (H)	0.957	98

Remarks: Flexible wall permeability tests perform on undisturbed samples in a vertical (V) and horizontal (H) direction, ASTM D 5084.



EXPLANATION

COGEN-1 BORING LOCATION AND DESIGNATION

NOTE: BASE MAP PROVIDED BY CYTEC INDUSTRIES
CYTEC DRAWING NO. AC-7136-10051

0 30 60 FEET
SCALE

GERAGHTY & MILLER, INC.
Environmental Services

PLOT 1 = 30

BORING LOCATION MAP

CYTEC INDUSTRIES
FORTIER PLANT
Westwego, Louisiana

FIGURE 3

DWG DATE: 5-10-96 | PROJ'T NO. LA1361.001 | FILE NO.: CAD-B1 | DRAWING CY1361F3 | CHECKED: RJE | APPROVED: RGE | DRAFTER: GRM

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: Cogen-1 Project/No.: CYTEC INDUSTRIES (LA1361.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 3/25/96 0855 Drilling Completed: 3/25/96 1030

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: None Drilling Method: Hollow Stem

Drilling Contractor: Eustis Engineering Driller: Pharoah Helper: Rev/Jason

Prepared By: R. John Ellis Hammer Weight: NA Hammer Drop: NA inches

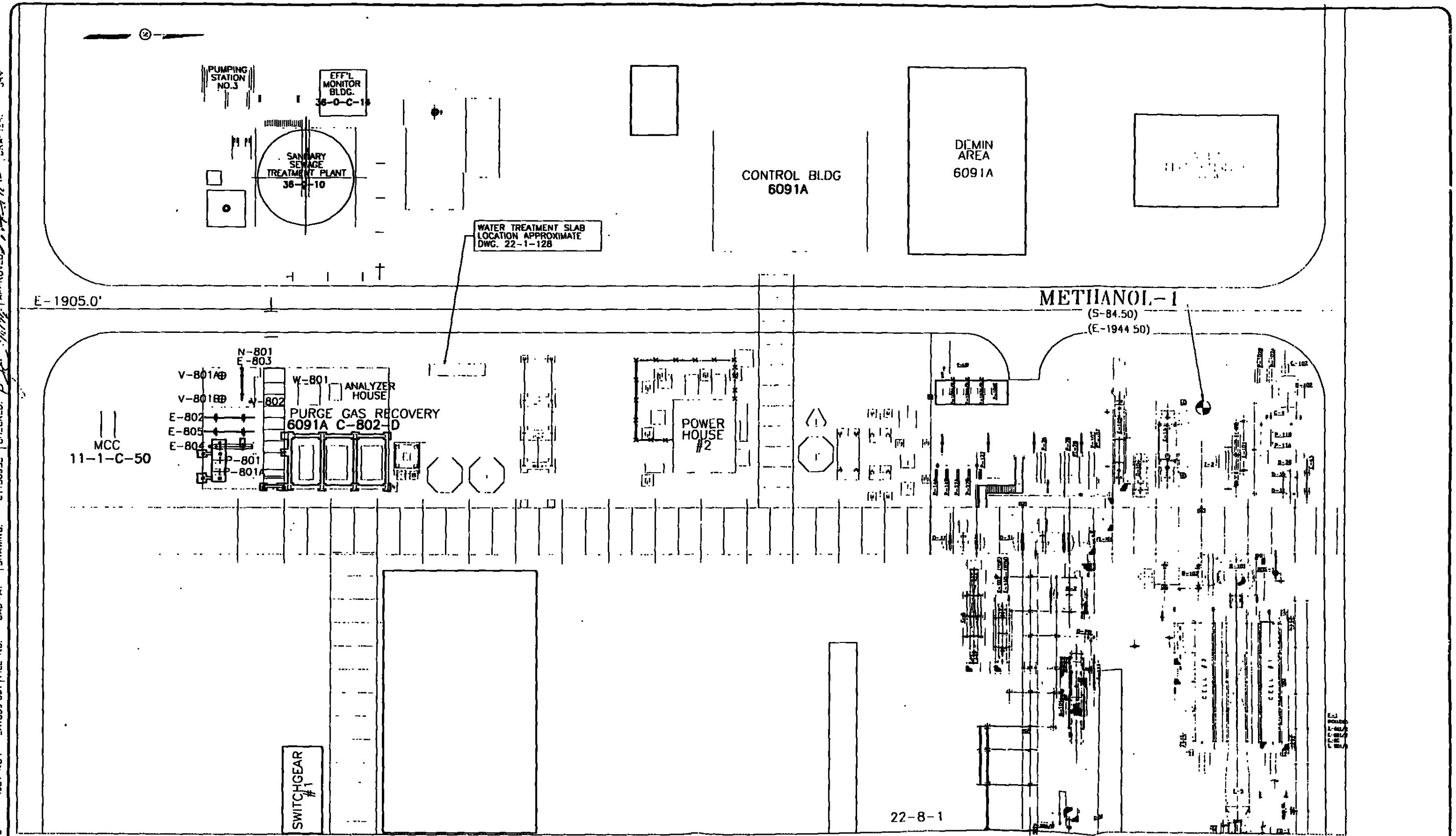
Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Shelby Tube | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP or BLOWS V/H	OVA (ppm) w/wo	REMARKS
0								
				Fill, sand, brown, wet				
1				Clay, dark gray, moist, very stiff, rootlets		2.25/3.0	0.0	
2		3.0						▼
3				- becoming brown, minor iron oxide staining		1.0/1.0	0.0	
4								
5		2.5		Silty clay, brown and gray, very moist, iron oxide staining		0.0	0.0	
6								
7						0.0	0.0	Soil Sample
8		2.5		Clayey silt, brown and gray, very moist to wet, iron oxide staining				▽
9						0.0	0.0	
10				- decreasing amount of silt				
11		3.0		- clay layer (2"), gray, firm		0.0	0.0	
12				- dark gray to gray, heavy iron oxide staining				

Total Depth - 12 ft bls

Surface isolation casing installed to 20.0 ft bls. Boring was completed to 75.0 ft bls for geotechnical purposes via wet rotary

w = with a methane filter
wo = without a methane filter



EXPLANATION

METHANOL-1 (S-84.50) (E-1944.5) — SOIL BORING LOCATION AND DESIGNATION; PLANT COORDINATES

0 — 40 FEET
SCALE

GERAGHTY & MILLER, INC.
Environmental Services

SITE LAYOUT AND SOIL BORING LOCATION MAP FOR METHANOL EXPANSION PROJECT
CYTEC INDUSTRIES
FORMER PLANT
Westwego, Louisiana

FIGURE 3

DWG DATE: 8-6-96 | PROJECT NO.: LA1389.001 | FILE NO. CAD-A1 | DRAWING. CY1389SB | CHECKED: | APPROVED: | DRAFTER: JRV

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well: Methanol-1 Project/No.: CYTEC INDUSTRIES (LA1389.001) Page 1 of 1

Site Location: Westwego, Louisiana Drilling Started: 05/13/96 1610 Drilling Completed: 05/13/96 1640

Land-Surface Elev.: NA feet ☐ Surveyed ☐ Estimated Datum: NA

Drilling Fluid Used: None Drilling Method: Geoprobe

Drilling Contractor: Pro-Tech Driller: Scott Bergeron Helper:

Prepared By: R. John Ellis Hammer Weight: NA Hammer Drop: NA inches

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Geoprobe Sample | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Split Spoon | ▼ Water Level After 10 Min.

SAMPLE DEPTH (Feet)	SAMPLE TYPE	RECOVERY (Feet)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP or BLOWS V/H	OVA (ppm) w/o w	REMARKS
0								
1				Fill, limestone and sand			90/60	
2		3.5		Silty clay, greenish gray, moist, occasional rootlets				▼
3							110/110	Soil Sample
4				Clayey silt (3"), brown and gray, iron oxide staining, faint lamination, wet				
5							0/0	
6		4.0		- increase in clay content, 2" clay layer at 6 ft bls				
7				- becoming very silty			0/0	
8				Silty sand, gray and brown, saturated, dark grains				▽
9								No recovery saturated zone
10		0.0						
11								
12								
				Total Depth - 12 ft bls				

w = with a methane filter
wo = without a methane filter