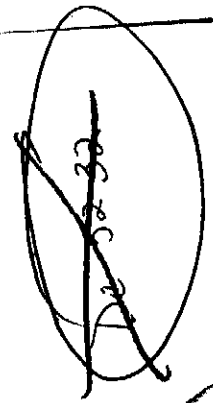


LOCATION NO 1

HOLE I-D INTERMITTENT CORES

D.B.G.	ELEV. MSL. 0	DRILLERS LOG	COMMENTS BY I. PFALSER
	+20		
GRADE		EL. 12.1'	1
		BRN. FINE SILTY SAND	
		LT. BRN. FINE SILTY SAND	2
	D	LT. BRN. & DK. BRN. FINE TO COARSE SAND	
20'			
		BRN. MEDIUM SAND SOME GRAVEL	
	-20	BRN. FINE TO MED. SAND	
40'		BRN. MEDIUM SAND SOME MED. GRAVEL	
		LT. BLK. & BRN. MEDIUM SAND SOME MED. GRAVEL	
	40	BRN. MEDIUM TO COARSE SAND & MED. GRAVEL	
60'			
	-60		
80'		BRN. MED. SAND WITH SEAMS OF SILTY CLAY.	
	-80		3
		LT. GRAY SILTY FINE SAND	
100'		LT. GRAY SILTY SAND & CLAY	4 5
		YELLOW & GRAY SILTY FINE SAND.	
	-100		
120'		BRN. & ORANGE FINE TO MEDIUM SILTY SAND. RED & GRAY CLAY	
	-120	LT. BRN. SILTY FINE SAND RED & GRAY CLAY	
140'			
	140		
160'		GRAY, GREEN & RED CLAY.	
		LT. GRAY & DK. GRAY SILTY CLAY.	
	160	LT. GRAY SILTY FINE SAND	
		LT. GRAY FINE SANDY SILT.	
	-180	RED & GRAY SANDY SILT & CLAY	
200'		LT. GRAY FINE SILTY SAND.	
		LT. GRAY & LT. BROWN SILTY SANDY.	6
	-200	RED & GRAY CLAY	
		HOLE COMPLETED AT 220'	
	220		



ECB-15

Page 1 of 4 FOUNDATION TESTING and SOIL SAMPLING RECORD

NAME: Lidewater Refinery LOCATION: Delaware City, Del.  
HOLE NO. 1-D SURFACE ELEVATION 12.0 RIG NO. \_\_\_\_\_ DATE: From 4-27 To 5-11 19 64

BORING LOG		SPOON SAMPLE AND CORE DATA					BLOWS ON CASING	
DEPTH FROM-TO	DESCRIPTION OF MATERIAL Based On Samples Recovered Plus Observation Of Material Returned Between Samples	SAMPLE NUMBER	DEPTH FROM-TO	BLOWS PER FT. ON SAMPLES	SAMPLE Recovered ROCK CORE RECOV'D	D=DRY U=UNDISTURBED T=TRAP W=WASH R=ROD C=CORE CORE RECOV'D — NO. PCS. REMARKS *	0-1	51-52
0 / 6"	BROWN SANDY TOP SOIL							
6" / 4'	brown FINE SILTY SAND	1	0'-1'6"	1-3 / 4	6"	bag		
4' / 8'	Light BROWN FINE SILTY SAND	2	5'-6'6"	3-6 / 8	18"	"		
8' / 12'	BROWN FINE TO COARSE SILTY SAND	3	10'-11'6"	2-4 / 7	15"	"		
2' / 24'	Light BR. & DARK BR. FINE TO COARSE SAND	4	13'-16'6"	6-10 / 14	14"	"		
24' / 30'	brown medi. SAND some GRAVEL	5	20'-21'6"	3-7 / 11	6"	"		
30' / 34'	brown medi. SAND	6	25'-26'6"	7-8 / 12	8"	"		
34' / 45'	brown medi. SAND some med. GRAVEL	7	30'-31'6"	10-12 / 17	13"	"		
45' / 50'	Light BR. & brown medi. SAND some med. GRAVEL	8	35'-36'6"	3-7 / 9	8 1/8"	"		
50' / 80'	brown medi. TO COARSE SAND & medi. GRAVEL	9	40'-41'6"	10-16 / 27	11"	"		
		10	45'-46'6"	14-16 / 17	12 1/2"	"		
		11	50'-51'6"	12-14 / 16	12"	"		
		12	55'-56'6"	6-12 / 19	11 1/2"	CONT. ON PAGE 2		

USE IN PLACE OF CASING

GROUND WATER		
DEPTH	HOUR	DATE

PIPE AND CASING LEFT IN HOLE		
SIZE	AMOUNT	REASON

Distance Hammer Drop	_____ Inch
Drive Hammer	_____ Lbs.
Spoon Hammer	300 Lbs.
Casing Size	6 in
Spoon Size	2 in
Size of Core Bit	2 in

NOTE: \*classification of soil has been made by the driller and has not been checked by a soils engineer. Classification of rock has been made by the driller and has not been checked by a geologist.

• Under Remarks, mention kind of bit, loss of sample, loss of drilling water, soft seamy or broken rock, caving, cavities, unusual ground water conditions, etc., at depth encountered.

Driller Joseph Wouda  
Helper John Penninger  
Helper \_\_\_\_\_

SPRAGUE & HENWOOD, Inc.  
SCRANTON, PA.

Page 2 of 4 FOUNDATION TESTING and SOIL SAMPLING RECORD

PROJECT: Delaware City Refinery LOCATION: Delaware City, Del.  
HOLE NO. 1-D SURFACE ELEVATION 12.0 RIG NO. \_\_\_\_\_ DATE: From 4-27 To 5-17 19 64

BORING LOG		SPOON SAMPLE AND CORE DATA					BLOWS ON CASING		
DEPTH FROM-TO	DESCRIPTION OF MATERIAL Based On Samples Recovered Plus Observation Of Material Returned Between Samples	SAMPLE NUMBER	DEPTH FROM-TO	BLOWS PER FT. ON SAMPLES	SAMPLE RECOVERED ROCK CORE RECOV'D	D=DRY U=UNDISTURBED T=TRAP W=WASH R=ROD C=CORE	CORE RECOV'D — NO. PCS. REMARKS *	0-1	51-52
50' / 80'	BROWN MED. TO COARSE SAND & MED. GRAVEL	13	60'-61'	10-14	14 1/2"		bag		
		14	65'-66'	12-18	13 1/2"		"		
		15	70'-71'	18-20	13"		"		
		16	75'-76'	17-17	10 1/2"		"		
80' / 89'	BROWN MED. SAND WITH SCAMS OF SILTY CLAY	18	80'-81'	10-67	14"		"		
		19	85'-86'	49-78	10 1/2"		"		
89' / 91'	YELLOW & LIGHT GRAY SILTY SAND SOME CLAY	20	90'-91'				PUSH SPLIT SPOON tube		
		21	91'-93'				PUSH Shelby tube		
91' / 93'	LIGHT GRAY SILTY FINE SAND	22	93'-95'				SPLIT SPOON tube		
93' / 95'	LIGHT GRAY SILTY SAND & CLAY	23	95'-97'				Shelby tube		
		24	97'-99'				" "		
99' / 100'	YELLOW SILTY SAND	25	99'-101'				" "		
100' / 101'	GRAY SILTY SAND								
101' / 114'	YELLOW & GRAY SILTY FINE SAND	26	105'-107'				" "		
		27	110'-112'				" "		
114' / 119'	BROWN & ORANGE FINE TO MED. SILTY SAND	28	115'-116'	30-68	14"		bag		

well  
 sand  
 not  
 below  
 of  
 casing

GROUND WATER

DEPTH	HOUR	DATE
		5-11-64

PIPE AND CASING LEFT IN HOLE

SIZE	AMOUNT	REASON
1 1/2" N.C.		

Distance Hammer Drop

Drive Hammer	.....	Inch
24" Kop Spoon Hammer	300	Lbs.
Casing Size	3	Inch
Spoon Size	3	Inch
Size of Core Bit	1	Inch

NOTE: \*Classification of soil has been made by the driller and has not been checked by a soils engineer. Classification of rock has been made by the driller and has not been checked by a geologist.

\* Under Remarks, mention kind of bit, loss of sample, loss of Drilling water, soft seamy or broken Rock, caving, cavities, unusual Ground water conditions, etc., at depth encountered.

Driller Joseph Howard  
 Helper John P. ...  
 Helper \_\_\_\_\_

FOUNDATION TESTING and SOIL SAMPLING RECORD

Page 3 of 4

E: Tidewater Refinery LOCATION: Dela. City 7 Del

HOLE NO. L-2 SURFACE ELEVATION 12.0 RIG NO. \_\_\_\_\_ DATE: From 4-27 To 5-11 1964

BORING LOG		SPOON SAMPLE AND CORE DATA					BLOWS ON CASING	
DEPTH FROM-TO	DESCRIPTION OF MATERIAL Based On Samples Recovered Plus Observation Of Material Returned Between Samples	SAMPLE NUMBER	DEPTH FROM-TO	BLOWS PER FT. ON SAMPLES	ROCK CORE RECOV'D	D=DRY U=UNDISTURBED T=TRAP W=WASH R=ROD C=CORE	0-1	51-52
						CORE RECOV'D — NO. PCS. REMARKS *	1-2	52-53
							2-3	53-54
							3-4	54-55
							4-5	55-56
							5-6	56-57
							6-7	57-58
							7-8	58-59
							8-9	59-60
							9-10	60-61
							10-11	61-62
							11-12	62-63
							12-13	63-64
							13-14	64-65
							14-15	65-66
							15-16	66-67
							16-17	67-68
							17-18	68-69
							18-19	69-70
							19-20	70-71
							20-21	71-72
							21-22	72-73
							22-23	73-74
							23-24	74-75
							24-25	75-76
							25-26	76-77
							26-27	77-78
							27-28	78-79
							28-29	79-80
							29-30	80-81
							30-31	81-82
							31-32	82-83
							32-33	83-84
							33-34	84-85
							34-35	85-86
							35-36	86-87
							36-37	87-88
							37-38	88-89
							38-39	89-90
							39-40	90-91
							40-41	91-92
							41-42	92-93
							42-43	93-94
							43-44	94-95
							44-45	95-96
							45-46	96-97
							46-47	97-98
							47-48	98-99
							48-49	99-100
							49-50	100-101
							50-51	101-102

DEPTH	HOUR	DATE

SIZE	AMOUNT	REASON

Distance Hammer Drop	Inch
Drive Hammer	200
Spoon Hammer	200
Casing Size	2 1/2
Spoon Size	2
Size of Core Bit	2

NOTE: \*classification of soil has been made by the driller and has not been checked by a soils engineer. Classification of rock has been made by the driller and has not been checked by a geologist.

\* Under Remarks, mention kind of Bit, loss of Sample, loss of Drilling Water, soft seamy or broken Rock, Caving, Cavities, unusual Ground Water Conditions, etc., at Depth encountered.

Driller Joseph Powell  
 Helper John Permuter  
 Helper \_\_\_\_\_

SPRAGUE & HENWOOD, Inc.  
SCRANTON, PA.

Page 4 of 4 FOUNDATION TESTING and SOIL SAMPLING RECORD

NAME: Lidewater Refinery LOCATION: Delaware City, Del.  
HOLE NO. 1-D SURFACE ELEVATION 12.0 RIG NO. \_\_\_\_\_ DATE: From 4-27 To 5-11 19 64

BORING LOG		SPOON SAMPLE AND CORE DATA					BLOWS ON CASING	
DEPTH FROM-TO	DESCRIPTION OF MATERIAL Based On Samples Recovered Plus Observation Of Material Returned Between Samples	SAMPLE NUMBER	DEPTH FROM-TO	BLOWS PER FT. ON SAMPLES	ROCK CORE RECOV'D	D=DRY U=UNDISTURBED T=TRAP W=WASH R=ROD C=CORE	NO. PCS.	REMARKS *
2016"	Light GRAY & Light brown SILTY SAND	46	2016"-203'	30-38 47	BAG		1	LOST SAMPLE USE TRAP
2076"		47	203'-2046"	31 49-82	BAG		1	USE TRAP
		48	2046"-206'	28 61-76	BAG		1	" "
		49	206'-2076"	31 46-90	BAG		1	" "
2076"	Redish brown SILTY CLAY some med. SAND	50	2076"-209'	19 39-68	BAG		1	" "
2096"	Red & GRAY CLAY	51	209'-2106"				1	USE TRAP SPLIT SPOON TUBE
220	"	52	2106"-212'				1	" " "
	"	53	212'-2136"				1	" " "
	"	54	2136"-215'				1	" " "
	"	55	215'-2166"				1	" " "
	"	56	2166"				1	" " "
	"	56	2166"-218'				1	" " "
	"	57	218'-220'				1	shelby
bottom of hole 220'							1	

GROUND WATER			PIPE AND CASING LEFT IN HOLE		
DEPTH	HOUR	DATE	SIZE	AMOUNT	REASON

Distance Hammer Drop	.....	Inch
Drive Hammer	.....	Lbs.
Spoon Hammer	300	Lbs.
Casing Size	3.0	Inch
Spoon Size	3	Inch
Size of Core Bit	2	Inch

NOTE: \*Classification of soil has been made by the driller and has not been checked by a soils engineer. Classification of rock has been made by the driller and has not been checked by a geologist.

• Under Remarks, mention kind of Bit, loss of Sample, loss of Drilling water, soft seamy or broken Rock, caving, cavities, unusual Ground water conditions, etc., at depth encountered.

Driller Joseph P. ...  
Helper John ...  
Helper \_\_\_\_\_