BORING DM-11

SURFACE ELEVATION 53.72'
COORDINATES N 9071
E 8754

PERMEABILITY (cm/s)	STRENGTH TEST RESULTS			% PASSING NO 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			SAMPLING		DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
	TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)				LL (%)	PL (%)	PI (%)	BLOW COUNT	SAMPLE TYPE				
										P	U	0	■		BLACK CLAYEY SAND WITH OILY SLUDGE AND TRACES OF GRAVEL
										P	U	5	■		DARK GRAY, MEDIUM SAND
										P	U	10	■		BLACK OILY SLUDGE WITH RUBBLE
										P	U	15	■		FILL
										P	U	20	■		
										P	U	25	■		GRAY CLAY, MEDIUM STIFF FREE OIL IN NATURAL DESSICATION CRACKS
							85	28	57	P	U	30	■ ■	CH	GRADES SILTY WITH ROOT FRAGMENTS, FREE OIL IN NATURAL DESSICATION CRACKS
										P	U	35	■		INTERBEDDED GRAY SILTY CLAY AND CLAYEY SILT
7.4×10^{-6}				76	90	32				P	U	40	⊠ ■		
									N.P	P	U	45	■		
2.0×10^{-8} 3.5×10^{-7}				98	80 86	41 34				P	U	50	⊠ ■		
							27	24	4	P	U	55	■	CL/ML	
										P	U	60	■		
										P	U	65	⊠		
												70			

(CONTINUED ON FOLLOWING PLATE)

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

LOG OF BORING

BORING DM-11 (cont'd)

PERMEABILITY (cm/s)	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
1.9×10^{-8}					83	37				P	U	70	■ ■	CL/ML	
															GRAY CLAY, MEDIUM STIFF
							90	35	55	P	U	75	■	CH	
										P	U	80	■		GRAY SILTY CLAY, MEDIUM STIFF
														CL	
										P	U	85	■		
															GRAY CLAYEY SILT WITH THIN SILTY CLAY ZONES
										P	U	90	■		
														ML	
										P	U	95	■		
							55	25	29	P	U	100	⊠		GRAY SILTY CLAY WITH THIN SILT LAYERS
										P	U	105	⊠		
										P	U	110	■		
														CL	
							50	20	31	P	U	115	■		
										P	U	120	■		SILT LAYERS GRADE OUT
															OCCASIONAL WOOD FRAGMENTS
										P	U	125	⊠		
										P	U	130	□	SM	SILTY SAND, DENSE
														CL	GRAY SILTY CLAY
										P	U	135	■	SM	GRAY FINE-COARSE SAND WITH GRAVEL, DENSE
												140			

(CONTINUED ON FOLLOWING PLATE)

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

LOG OF BORING

DAMES & MOORE

BORING DM-11 (cont'd)

PERMEABILITY (cm/s)	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
												140			
2.7×10^{-4} (FIELD)										83	U	145	☒	SW	
												150			
												155			BORING TERMINATED AT A DEPTH OF 155.0 FEET ON 9/12/79
												160			
												165			
												170			
												175			
												180			
												185			
												190			
												195			
												200			
												205			
												210			

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ☒ INDICATES DISTURBED SAMPLE
- ☐ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:

THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

LOG OF BORING

DAMES & MOORE

BORING DM-12

SURFACE ELEVATION 51.86'
COORDINATES N 7489
E 8530

PERMEABILITY (cm/s)	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
										P	U	0	■		GRAY AND BLACK CLAY, SOFT, VERY OILY. OCCASIONAL RUBBLE
										P	U	5	■		
										P	U	10	⊠		
										P	U	15	■		FILL
										P	U	20	■		
										P	U	25	■		
										P	U	30	■		
										P	U	35	⊠		
										P	U	40	■	ML	GRAY SILT, VERY OILY
															GRAY, SILTY CLAY
1.6×10^{-7}					92	28				P	U	45	■	CL	
										P	U	50	■		INTERBEDDED GRAY SILT AND SILTY CLAY
									N.P	P	U	55	■	CL/ML	
										P	U	60	■		GRAY SILT
1.6×10^{-6}					98	31				P	U	65	■ ■	ML	OCCASIONAL THIN ZONE OF SILTY CLAY
												70			

(CONTINUED ON FOLLOWING PLATE)

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

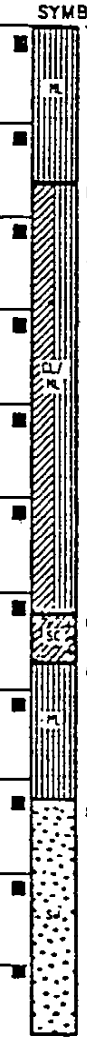
LOG OF BORING

DAMES & MOORE

BORING DM-12 (cont'd)

PERMEABILITY (cm/s)	STRENGTH TEST RESULTS: TYPE OF TEST	STRENGTH TEST RESULTS: CONFINING PRESSURE (psf)	STRENGTH TEST RESULTS: PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	ATTERBERG LIMITS: PL (%)	ATTERBERG LIMITS: PI (%)	SAMPLING: BLOW COUNT	SAMPLING: SAMPLE TYPE	DEPTH IN FEET
										P	U	70
										P	U	75
							30	28	2	P	U	80
										P	U	85
										P	U	90
									N.P.	P	U	95
										P	U	100
										P	U	105
										61	U	110
										111	U	115
4.8×10^{-3} (FIELD)										127	U	120
												125
												130
												135
												140

SAMPLING



SYMBOLS

DESCRIPTION

INTERBEDDED GRAY SILT, CLAYEY SILT AND SILTY CLAY

WOOD FRAGMENTS

GRAY FINE CLAYEY SAND

GRAY SILT WITH TRACES OF SAND

GRADES SANDY

MEDIUM TO COARSE SAND WITH GRAVEL, MEDIUM DENSE

GRADES DENSE

BORING TERMINATED AT A DEPTH OF 124.0 FEET ON 9/18/79

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE

P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:

THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

LOG OF BORING

DAMES & MOORE

BORING DM-13

SURFACE ELEVATION 41.8 FT.
COORDINATES N 11222.82
E 8628.76

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS — DESCRIPTION

FILL

BROWN SILTY CLAY WITH GRAVEL AND ORGANICS (ROOTS) (VERY STIFF)

GRADES WITH STRONG CHEMICAL ODOR

GRADES WITH INCREASING SILT CONTENT

BLACK CLAYEY SILT MIXED WITH OILY WASTE (SOFT)

GRADES BROWN IN COLOR

GRADES WITH BLACK CLAY

CL — GRAY MOTTLED BROWN SILTY CLAY WITH STRONG CHEMICAL ODOR (MEDIUM STIFF)

CH — GRAY PLASTIC CLAY WITH BLACK ORGANICS AND FAINT CHEMICAL ODOR (SOFT TO MEDIUM SOFT) AND SLICKENSIDES

GRADES WITH BROWN MOTTLING AND INCREASING SILT CONTENT (SOFT)

CL — GRAY SILTY CLAY WITH FINE SAND (MEDIUM SOFT)

GRADES WITH SAND

SM — GRAY SILTY FINE SAND (LOOSE TO MEDIUM DENSE)

GRADING WITH CLAYEY LENSES

ML — GRAY SANDY SILT (VERY SOFT)

SM — GRAY SILTY CLAYEY FINE SAND (MEDIUM DENSE)

GRADES WITH INCREASING SILT CONTENT AND SILT SEAMS (MEDIUM SOFT TO MEDIUM STIFF)

GRADES WITH TRACE OF CLAY

(CONTINUED ON FOLLOWING PLATE)

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8037-019-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-13 (cont'd)

SURFACE ELEVATION

COORDINATES

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING SYMBOLS	DESCRIPTION
										P	U	70	SM	
										P	U	75	ML	GRAY CLAYEY SILT WITH TRACE OF VERY FINE SAND (MEDIUM STIFF)
										P	U	80		GRADES WITH INCREASING SAND CONTENT (MEDIUM STIFF)
										P	U	85	SM	GRAY SILTY CLAYEY VERY FINE SAND (MEDIUM DENSE)
										P	U	90		GRADES WITH INCREASING FINE SAND
												95		GRADES WITH SILTY CLAY LENSES
										P	U	100	ML	GRAY CLAY SEAM (VERY STIFF) TO STIFF GRAY CLAYEY SILT WITH FINE SAND (MEDIUM STIFF TO STIFF)
										P	U	105		
												110	CL	GRAY SILTY CLAY WITH FINE SAND LENSES (MEDIUM STIFF) TO STIFF
										P	U	115		GRADES WITH SILT LENSES
										128	U	120	SW	FINE TO COARSE GRAVELLY SAND, WELL GRADED (DENSE)
										79	U	125		GRADES WITH CLAYEY LENSES AND SILT
												130		BORING TERMINATED AT A DEPTH OF 131.0 FEET ON 1/21/80
												135		
												140		

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:

THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8037-099-12, 0104

LOG OF BORING

48

DAMES & MOORE

BORING DM-14

SURFACE ELEVATION 37.6 FT.
COORDINATES N 9241.33
E 8655.93

OTHER TESTS	STRENGTH TEST RESULTS			% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			SAMPLING	
	TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)				LL (%)	PL (%)	PI (%)	BLOW COUNT	SAMPLE TYPE

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS DESCRIPTION

CONCRETE PAD
SILTY CLAY WITH RUBBLE

FILL

GRAY SILTY CLAY WITH LITTLE FINE SAND (STIFF)

(CONTINUED)

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8437-099-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-14 (cont'd)

SURFACE ELEVATION

COORDINATES

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140

SAMPLING

SYMBOLS

DESCRIPTION

CL

GRAY SILTY FINE SAND (DENSE)

SM

CHANGE APPROXIMATE
GRAY PLASTIC CLAY (STIFF)

CH

CHANGE APPROXIMATE
GRAY SILTY CLAY WITH CLAY STRINGERS AND TRACE VERY FINE SAND (STIFF TO VERY STIFF)

CL/CH

CHANGE APPROXIMATE
FINE TO COARSE SAND (SUBANGULAR) WITH OCCASIONAL ROUNDED PEA GRAVEL (LOOSE)

SP

BORING TERMINATED AT A DEPTH OF 112.0 FEET ON 1/25/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 0837-039-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-15

SURFACE ELEVATION 44.0 FT.
COORDINATES N 7058.52
E 8389.20

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS

DESCRIPTION

FILL

BLACK/BROWN SILTY GRAVEL COMPACT MEDIUM DENSE WITH OILY WASTE AND STRONG CHEMICAL ODOR

GRADES WITH GREEN/GRAY CLAY SEAMS

GRADES WITH RUBBLE (LOSING CIRCULATION)

GRAY PLASTIC CLAY WITH OCCASIONAL ROUNDED GRAVEL (STIFF)

CH

GRADES WITH INCREASING SILT CONTENT (STIFF). TRACE CHEMICAL ODOR

GRAY SILTY CLAY WITH TRACE OF VERY FINE SAND (MEDIUM STIFF TO STIFF) CHEMICAL ODOR

ML

GRADES TO STIFF

GRAY CLAYEY SILT WITH VERY FINE SAND SLIGHT CHEMICAL ODOR (MEDIUM DENSE)

ML/CL

GRAY, SILTY CLAY WITH OCCASIONAL ROUNDED PEBBLES SLIGHT CHEMICAL ODOR AND TRACE OF BLACK ORGANICS (MEDIUM STIFF)

CL

BROWN CLAY WITH TRACE OF SILT (SOFT TO MEDIUM STIFF)

CL

GRADES WITH SILT LENSES

GRAY, SILTY CLAY WITH TRACE FINE SAND (MEDIUM STIFF)

GRADES BROWNISH IN COLOR AND WITH TRACE OF ORGANICS (STIFF)

CL

GRADES GRAY AND WITH TRACE FINE SAND (STIFF)

GRADES STIFFER

(CONTINUED)

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 0837-099-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-15 (cont'd)

SURFACE ELEVATION

COORDINATES

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140

SAMPLING

SYMBOLS

DESCRIPTION

CL — GRADES WITH INCREASING CLAY CONTENT

CL — GRADES WITH SILTY STRINGERS AND BROWN MOTTLING (VERY STIFF)

ML/CL — GRAY AND BROWN CLAYEY SILT WITH FINE SAND (DENSE)

ML/CL — GRADES WITH SILT AND SAND LENSES (MEDIUM DENSE)

SM — GRAY SILTY FINE SAND WITH TRACE ORGANICS (MEDIUM DENSE)

ML — GRAY, SANDY SILT (MEDIUM DENSE)
GRADES WITH CLAYEY LENSES

SP — FINE TO COARSE SAND WITH OCCASIONAL ROUNDED GRAVEL (LOOSE)

CL — GRAY, SILTY CLAY WITH FINE SANDY STREAKS

SP — MEDIUM TO COARSE SAND WITH OCCASIONAL ROUNDED GRAVEL (LOOSE)
GRADES WITH CLAYEY STREAKS

BORING TERMINATED AT A DEPTH OF 117.0 FEET ON 1/15/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8837-039-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-16

SURFACE ELEVATION 50.1 FT.
COORDINATES N 7179.08
E 9309.71

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS DESCRIPTION

FILL

BROWN SILTY CLAY AND FINE SAND WITH STRONG CHEMICAL ODOR AND OILY RESIDUE (VERY STIFF TO DENSE)

GRADES WITH OCCASIONAL ROUNDED PEA GRAVEL; STRONG CHEMICAL ODOR

GRADES TO SILTY FINE SAND (DENSE) STRONG CHEMICAL ODOR

GRADES WITH RUBBLE

CL

GRAY MOTTLED BROWN SILTY CLAY WITH FINE SAND (MEDIUM STIFF) MODERATE CHEMICAL ODOR

GRADES MEDIUM STIFF AND WITH TRACE OF ORGANICS (ROOTS)

CH

GRAY MOTTLED BROWN CLAY WITH TRACE BLACK ORGANICS AND SLICKENSIDES (VERY STIFF)

BORING TERMINATED AT A DEPTH OF 32.0 FEET ON 1/15/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- ☐ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

LOG OF BORING

DAMES & MOORE

FILE 8037-099-12, 0108

BORING DM-17

SURFACE ELEVATION 52.4 FT.
COORDINATES N 7620.34
E 9365.35

OTHER TESTS	STRENGTH TEST RESULTS			% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			SAMPLING	
	TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)				LL (%)	PL (%)	PI (%)	BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS DESCRIPTION

FILL

DARK GRAY SILTY CLAY WITH SAND AND FINE GRAVEL (STIFF)
STRONG CHEMICAL ODOR

GRADES WITH INCREASING GRAY CLAY CONTENT (STIFF)
STRONG CHEMICAL ODOR

GRADES WITH ORGANICS (WOOD) AND FINE SAND (VERY DENSE)
STRONG CHEMICAL ODOR

GRADES WITH RUBBLE (VERY DENSE) STRONG CHEMICAL ODOR

CHANGE APPROXIMATE

CL — GRAY MOTTLED BROWN SILTY CLAY WITH VERY FINE SAND (STIFF)
AND MODERATE CHEMICAL ODOR

CHANGE APPROXIMATE

CH — GRAY MOTTLED BROWN CLAY (STIFF)

BORING TERMINATED AT A DEPTH OF 32.0 FEET ON 1/16/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8337-099-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-18

SURFACE ELEVATION 54.1 FT.
COORDINATES N 8377.82
E 8820.84

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
										P	U	0	■		GREENISH GRAY/BROWN CLAY GRADING TO CLAYEY SILT (STIFF) SLIGHT CHEMICAL ODOR
										P	U	5	■		BROWN SILTY FINE SAND (DENSE) STRONG CHEMICAL ODOR
										P	U	10	■		GRADES GRAY IN COLOR (VERY DENSE) STRONG CHEMICAL ODOR
										P	U	15	■		GRADES WITH FINE TO MEDIUM COARSE ROUNDED GRAVEL (STRONG CHEMICAL ODOR)
										P	U	20	■		GRADES GRAY AND BROWN (DENSE) STRONG CHEMICAL ODOR
										P	U	25	■		GRADES VERY DENSE (STRONG CHEMICAL ODOR)
										P	U	30	■		BROWN AND BLACK SILTY CLAY (MEDIUM STIFF) STRONG CHEMICAL ODOR
										P	U	35	■		GRADES GRAY AND BROWN WITH OCCASIONAL SILT STRINGERS (STIFF) STRONG CHEMICAL ODOR
										P	U	40	■	CH	GRADES WITH MODERATE CHEMICAL ODOR (STIFF)
										P	U	45	■		GRADES WITH STRONG CHEMICAL ODOR AND TRACE ORGANICS (ROOTS)
										P	U	50	■		GRAY, SILTY CLAY WITH TRACE VERY FINE SAND AND SLIGHT CHEMICAL ODOR (MEDIUM STIFF)
										P	U	55	■	CL	GRADES WITH CLAY LENSES (NO ODOR)
										P	U	60	■		(GRADES STIFF)
										P	U	65	■	ML/CL	GRAY WITH BROWN CLAYEY SILT WITH TRACE VERY FINE SAND AND STRONG CHEMICAL ODOR
												70	■	SM	GRAY SILTY FINE SAND (MEDIUM DENSE)

FILL

BORING TERMINATED AT A DEPTH OF 72.0 FEET ON 1/18/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8837-099-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-19

SURFACE ELEVATION 52.8 FT.
COORDINATES N 8741.09
E 8813.84

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS

DESCRIPTION

GRAY MOTTLED BROWN SILTY CLAY WITH OCCASIONAL SHELL AND SHELL FRAGMENTS (STIFF) (SLIGHT CHEMICAL ODOR)

GRADES DARK BROWN SILTY FINE TO MEDIUM SAND WITH OCCASIONAL ROUNDED FINE GRAVEL (LOOSE TO MEDIUM DENSE) STRONG CHEMICAL ODOR

GRADES WITH POCKETS OF BLACK SOFT CLAY (SOFT TO LOOSE) STRONG CHEMICAL ODOR

GRADES WITH FINE SILTY SAND (LOOSE) STRONG CHEMICAL ODOR

GRADES VERY LOOSE

FILL

BROWN SILTY CLAY WITH FINE SAND; STRONG CHEMICAL ODOR (MEDIUM STIFF)

CL

GRAY MOTTLED BROWN PLASTIC CLAY (STIFF) SLICKENSIDES; STRONG CHEMICAL ODOR

GRADES WITH ORGANICS (ROOTS) (STIFF) STRONG CHEMICAL ODOR

CH

GRADES MEDIUM STIFF TO STIFF; OIL FISSURES STRONG CHEMICAL ODOR

GRADES WITH GRAY SILTY CLAY AND FINE SAND STRINGERS (STIFF) ROOTS NO CHEMICAL ODOR

GRAY CLAYEY SILT WITH FINE SAND AND TRACE ORGANICS (MEDIUM STIFF)

ML/CL

GRADES STIFF

GRAY SILTY CLAY (STIFF)

CL

BORING TERMINATED AT A DEPTH OF 60.0 FEET ON 1/18/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

LOG OF BORING

56

DAMES & MOORE

FILE 8037-089-12, 0106

BORING DM-20

SURFACE ELEVATION 52.4 FT.
COORDINATES N 9117.51
E 9001.70

OTHER TESTS	STRENGTH TEST-RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
										P	U	0	■		GRAY SILTY CLAY WITH FINE SAND AND SHELLS, MODERATE CHEMICAL ODOR (STIFF)
															GRADES WITH SILT SEAMS
										P	U	5			GRADES LIGHT BROWN TO TAN WITH WOOD DEBRIS (STIFF)
										P	U	1	■		BROWN FINE TO COARSE SAND MOTTLED BLACK (DENSE TO VERY DENSE) STRONG CHEMICAL ODOR
															GRADES WITH TRACE COARSE GRAVEL
										P	U	1!			FILL
										P	U	20	■		GRADES WITH TRACE OF CLAY
										P	U	25	■		GRAY MOTTLED BROWN PLASTIC CLAY WITH FRACTURES AND ABUNDANT ORGANICS (WOOD AND ROOTS) STRONG CHEMICAL ODOR
										P	U	30	■		GRADES WITH OCCASIONAL ROUNDED GRAVEL (STRONG CHEMICAL ODOR)
										P	U	35	■	CH	CHEMICAL ODOR PERSISTS
										P	U	40	■		GRADES WITH SLIGHT CHEMICAL ODOR (STIFF)
										P	U	45	■		GRADES WITH ORGANICS (WOOD) NO CHEMICAL ODOR (STIFF)
										P	U	50	□		GRAY SILTY CLAY WITH TRACE FINE SAND AND TRACE OF ORGANICS (SOFT)
										P	U	55	■		
										P	U	60	■	CL	GRADES WITH HIGHLY PLASTIC CLAY SEAM
										P	U	65	■		GRADES STIFF
												70			(CONTINUED)

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

LOG OF BORING

DAMES & MOORE

FILE 8037-099-12, 0106

PLATE C-32

BORING DM-20 (cont'd)

SURFACE ELEVATION

COORDINATES

OTHER TESTS	STRENGTH TEST RESULTS			% PASSING NO 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			SAMPLING		DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
	TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)				LL (%)	PL (%)	PI (%)	BLOW COUNT	SAMPLE TYPE				
										P	U	70	■	CL	GRADES WITH LITTLE FINE SAND
															GRAY CLAYEY SILT WITH LITTLE FINE SAND (LOOSE TO MEDIUM DENSE)
										P	U	75	■	ML	
												80			BORING TERMINATED AT A DEPTH OF 82.0 FEET ON 1/17/80
												85			
												90			
												95			
												100			
												105			
												110			
												115			
												120			
												125			
												130			
												135			
												140			

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:

THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8037-099-12, 0106

LOG OF BORING

58

DAMES & MOORE

BORING DM-21

SURFACE ELEVATION 52.9 FT.
COORDINATES N 8734.83
E 9002.45

OTHER TESTS	STRENGTH TEST-RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS DESCRIPTION

FILL

GRAY/MOTTLED BROWN CLAY AND FINE TO COARSE SAND (STIFF) MODERATE CHEMICAL ODOR

GRAY/BROWN FINE TO MEDIUM GRAINED SAND (MEDIUM DENSE)

DRILLING BECOMES HARDER

DARK BROWN FINE TO COARSE SAND (VERY DENSE) WITH OIL AND STRONG CHEMICAL ODOR

GRADES WITH TRACE OF SILT AND COARSE GRAVEL (STRONG CHEMICAL ODOR) (DENSE)

GREEN/GRAY MOTTLED BLACK PLASTIC CLAY (SOFT) STRONG CHEMICAL ODOR

CL/CH

GRADES WITH TRACE SILT AND MODERATE CHEMICAL ODOR (SOFT)

GRAY SILTY CLAY WITH TRACE ORGANICS (SOFT)

CL

GRADES WITH TRACE OF VERY FINE SAND

CH

GRAY PLASTIC CLAY WITH OXIDIZED FRACTURES AND TRACE ORGANICS (ROOTS) STIFF (SLICKENSIDES)

BORING TERMINATED AT A DEPTH OF 51.5 FEET ON 1/18/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8837-039-11, 0106

LOG OF BORING

59

DAMES & MOORE

BORING DM-22

SURFACE ELEVATION 43.5 FT.
COORDINATES N 9360.94
E 9101.88

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS — DESCRIPTION

- GRAY/GREEN MOTTLED CLAY WITH FINE SAND AND SHELLS (STIFF) STRONG CHEMICAL ODOR
- GRADES TAN IN COLOR AND WITH POCKETS OF FINE SAND (STIFF)
- FILL
- GRAY MOTTLED BROWN SILTY CLAY WITH ORGANICS (WOOD, ROOTS) (SOFT) OIL OBSERVED IN FRACTURES, STRONG CHEMICAL ODOR
- CL
- CH
- GRADES WITH SEAM OF WOOD AND WOOD FRAGMENTS
- GRADES WITH MORE PLASTICITY (CLAYEY) (MEDIUM STIFF) STRONG CHEMICAL ODOR
- GRAY SPECKLED BROWN CLAY WITH TRACE ORGANICS (ROOTS)(MEDIUM STIFF)
- CH
- GRAY CLAYEY SILT WITH TRACE FINE SAND AND ORGANICS (ROOTS) (MEDIUM STIFF)
- ML
- GRAY, SILTY CLAY (MEDIUM STIFF)
- CL
- GRADES WITH VERY FINE TO FINE SAND (MEDIUM STIFF)
- CH
- GREENISH GRAY MOTTLED BROWN WITH TRACE ORGANICS (ROOTS) (STIFF)

BORING TERMINATED AT A DEPTH OF 66.5 FEET ON 1/22/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

LOG OF BORING

60

DAMES & MOORE

FILE 8037-099-II, 0106

BORING DM-23

SURFACE ELEVATION 46.9 FT.
COORDINATES N 9948.90
E 9414.17

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
										P	U	0	■	CH	LIGHT GRAY MOTTLED TAN AND BROWN PLASTIC CLAY WITH TRACE BLACK ORGANICS (SLICKENSIDES) (STIFF)
										P	U	5	■		GRADES MEDIUM GRAY MOTTLED BROWN CLAY (SLICKENSIDES) SLIGHT CHEMICAL ODOR (STIFF)
										P	U	10	■		GRADES TAN AND BROWN MOTTLED GRAY (VERY STIFF) (SLICKENSIDES)
										P	U	15			
												20	■		
												25			BORING TERMINATED AT A DEPTH OF 25.0 FEET ON 1/26/80
												30			
												35			
												40			
												45			
												50			
												55			
												60			
												65			
												70			

KEY

■ INDICATES UNDISTURBED SAMPLE

⊠ INDICATES DISTURBED SAMPLE

□ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY

◪ INDICATES STANDARD PENETRATION TEST SAMPLE

P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

U - DAMES & MOORE "U" BIT

T - DAMES & MOORE THIN-WALL

P - DAMES & MOORE PISTON

S - STANDARD SPLIT-SPOON

NOTE:

THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8837-099-12, 0108

LOG OF BORING

DAMES & MOORE

BORING DM-24

SURFACE ELEVATION 48.2 FT.

COORDINATES N 9524.43
E 9435.70

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	STRENGTH TEST RESULTS: CONFINING PRESSURE (psf)	STRENGTH TEST RESULTS: PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	ATTERBERG LIMITS: PL (%)	ATTERBERG LIMITS: PI (%)	SAMPLING: BLOW COUNT	SAMPLING: SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS DESCRIPTION

BROWN SILTY CLAY WITH TRACE FINE TO COARSE SAND AND ABUNDANT ORGANICS (STIFF)

GRADES WITH GRAY/GREEN MOTTLING AND POCKETS OF SOFT SILT WITH TRACE FINE GRAVEL AND SLIGHT CHEMICAL ODOR

DRILLING BECOMES HARD AND SLOW

OIL ENCOUNTERED IN DRILL WASH

FILL

GREENISH GRAY CLAYEY SILT, STRONG CHEMICAL ODOR (SOFT)

ML

GRAY AND TAN MOTTLED CLAY WITH TRACE OF SILT (MEDIUM STIFF)

CH

APPROXIMATE CHANGE

GRAY/BROWN MOTTLED TAN CLAY WITH CALCAREOUS NODULES, SLICKENSIDES AND TRACE ORGANICS (VERY STIFF TO STIFF)

CH

BORING TERMINATED AT A DEPTH OF 30.0 FEET ON 1/24/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:

THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM. PLATE A-2.

FILE - 8837-099-12, 0104

LOG OF BORING

DAMES & MOORE

BORING DM-25

SURFACE ELEVATION 37.4 FT.
COORDINATES N 10459.16
E 8570.80

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS — DESCRIPTION

- BROWN AND GRAY SILTY FINE TO MEDIUM SAND WITH ORGANICS DENSE — FILL
- CHANGE APPROXIMATE
- SM — DARK GRAY/BLACK FINE SAND WITH SILT (STRONG CHEMICAL ODOR) (MEDIUM DENSE)
- CH/CL — GRAY MOTTLED BROWN PLASTIC CLAY WITH ORGANICS (WOOD) TRACE VERY FINE SAND (MODERATE CHEMICAL ODOR) (STIFF)
- GRADES WITH TRACE OF SILT (MODERATE CHEMICAL ODOR)
- ML — GRAY CLAYEY SILT WITH TRACE ORGANICS (WOOD, ROOTS) (VERY SOFT)
- GRADES WITH INCREASING ORGANIC (WOOD) CONTENT (SOFT)
- GRADES WITH TRACE OF VERY FINE SAND
- CL — GRAY MOTTLED TAN SILTY CLAY WITH ORGANICS (ROOTS) AND VERTICAL FRACTURES (STIFF)
- ML — GRAY CLAYEY SILT WITH TRACE ORGANICS (SOFT)
- GRADES WITH TRACE OF VERY FINE SAND

BORING TERMINATED AT A DEPTH OF 46.5 FEET ON 1/20/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM. PLATE A-2.

LOG OF BORING

DAMES & MOORE

FILE 8037-099-12, D106

BORING DM-26

SURFACE ELEVATION 44.1 FT.
COORDINATES N 10607.14
E 8930.47

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS DESCRIPTION

FILL

YELLOW BROWN SILTY CLAY, TRACE COARSE TO FINE SHELL AND WOOD FRAGMENTS; WITH SLIGHT CHEMICAL ODOR

GRADING WITH DARK GRAY/BROWN MOTTLING; WITH COARSE GRAVEL-SIZED BRICK FRAGMENTS

DIFFICULT DRILLING

GRADING GREEN/GRAY IN COLOR AND WITH MODERATE CHEMICAL ODOR

CL

CHANGE APPROXIMATE
DARK GRAY SILTY CLAY, TRACE ROOT FRAGMENTS, TRACE FINE SAND

BORING TERMINATED AT A DEPTH OF 16.5 FEET ON 1/19/80 DUE TO BOREHOLD BEING DEFLECTED DUE TO RUBBLE

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ☒ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8017-099-12, 0106

LOG OF BORING

DAMES & MOORE

BORING DM-26A

SURFACE ELEVATION APPROX. 44 FT.
COORDINATES 5 FT. NORTH OF DM-26

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE	DEPTH IN FEET	SAMPLING	SYMBOLS	DESCRIPTION
												0			BOREHOLE DRILLED THROUGH FILL LAYER AS A CONTINUATION OF BORING DM-26 (TERMINATED BY RUBBLE OBSTRUCTION)
												5			FILL
												10			CHANGE APPROXIMATE
												15			DARK GRAY SILTY CLAY, TRACE ROOT FRAGMENTS, TRACE FINE SAND
										P	U		□	CL	
										P	U	20	□		GRADING WITH MODERATE CHEMICAL ODOR
										P	U		■		CHANGE APPROXIMATE
										P	U	25	■		GRAY BROWN SILTY CLAY, TRACE FINE SAND (MEDIUM STIFF); WITH SLIGHT CHEMICAL ODOR
										P	U	30	■		GRADING SOFT
														CH/CL	
										P	U	35	■		GRADES WITH DARK GRAY MOTTLING SLIGHT CHEMICAL ODOR (SOFT)
										P	U	40	■		
										P	U	45	■		GRAY, CLAYEY SILT WITH SOME VERY FINE SAND (SOFT)
														ML	
												50			BORING TERMINATED AT A DEPTH OF 52.0 FEET ON 1/29/80
												55			
												60			
												65			
												70			

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

LOG OF BORING

65

DAMES & MOORE

FILE 8037-099-12, 0108

BORING DM-27

SURFACE ELEVATION 47.7 FT.
COORDINATES N 10483.31
E 9957.98

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS DESCRIPTION

CONCRETE SLAB

GRAY MOTTLED BROWN SILTY CLAY WITH OCCASIONAL ROUNDED GRAVEL (PEBBLES) (STIFF) SLIGHT CHEMICAL ODOR

FILL

GRAY MOTTLED BLACK SILTY CLAY WITH OCCASIONAL ORGANICS (ROOTS) (STIFF) AND STRONG CHEMICAL ODOR

GRAY/BROWN SILTY CLAY WITH TRACE FINE SAND (STIFF)

CL

GRADES WITH TRACE ORGANICS AND INCREASING CLAY CONTENT (STIFF)

GRAY MOTTLED BROWN CLAY WITH SLICKENSIDES (STIFF)

CH

BORING TERMINATED AT A DEPTH OF 29.0 FEET ON 1/26/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8837-091-12, 0106

LOG OF BORING

DAMES & MOORE

BORING B-1

SURFACE ELEVATION 48.6 FT.
COORDINATES N 7064.75
E 8774.08

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										100/4"	U BAG
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS	DESCRIPTION
	DARK GRAY SANDY SILTY CLAY WITH STRONG CHEMICAL ODOR (STIFF TO VERY STIFF)
	GRADES BROWN AND BLACK WITH TRACE OF ORGANICS STRONG CHEMICAL ODOR (STIFF)
	GRAY BRITTLE GYPSUM LAYER
CH	GRAY MOTTLED BROWN PLASTIC CLAY WITH ABUNDANT ORGANICS (ROOTS) (MEDIUM STIFF)
CL	GRAY MOTTLED BROWN SILTY CLAY WITH TRACE OF VERY FINE SAND AND ORGANICS (MEDIUM STIFF)

FILL

BORING TERMINATED AT A DEPTH OF 26.5 FEET ON 3/24/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE: 8037-059-12, 0106

LOG OF BORING

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DAMES & MOORE

BORING B-2

SURFACE ELEVATION 50.5 FT.
COORDINATES N 7065.88
E 9135.30

OTHER TESTS	STRENGTH TEST RESULTS: TYPE OF TEST	CONFINING PRESSURE (psf)	PEAK SHEAR STRENGTH (psf)	% PASSING NO. 200 SIEVE	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LL (%)	PL (%)	PI (%)	SAMPLING: BLOW COUNT	SAMPLE TYPE
										P	U
										P	U
										P	U
										P	U
										P	U
										P	U

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

SAMPLING

SYMBOLS

DESCRIPTION

GRAVEL FILL

GRAY/BROWN SILTY SANDY CLAY FILL WITH OIL AND STRONG CHEMICAL ODOR (MEDIUM STIFF)

GRADES WITH RUBBLE AND GYPSUM FRAGMENTS (STRONG CHEMICAL ODOR) (STIFF)

GRADES BLACK AND GRAY/GREEN WITH STRONG CHEMICAL ODOR (STIFF)

FILL

GYPSUM LAYER (BRITTLE)

BLACK SILTY CLAY

DARK GRAY MOTTLED BLACK CLAY (MEDIUM STIFF) WEAK SLICKENSIDES AND TRACE OF GYPSUM (CHEMICAL ODOR)

GRADES WITH BROWN MOTTLING AND ORGANICS (ROOTS) (MEDIUM STIFF)

BORING TERMINATED AT A DEPTH OF 31.5 FEET ON 1/24/80

KEY

- ■ INDICATES UNDISTURBED SAMPLE
- ⊠ INDICATES DISTURBED SAMPLE
- □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- ◪ INDICATES STANDARD PENETRATION TEST SAMPLE
- P - IN BLOW COUNT COLUMN INDICATES SAMPLER HYDRAULICALLY PUSHED

SAMPLE TYPE

- U - DAMES & MOORE "U" BIT
- T - DAMES & MOORE THIN-WALL
- P - DAMES & MOORE PISTON
- S - STANDARD SPLIT-SPOON

NOTE:
THE SOIL CONDITIONS ARE DESCRIBED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, PLATE A-2.

FILE 8031-099-12, 0106

LOG OF BORING

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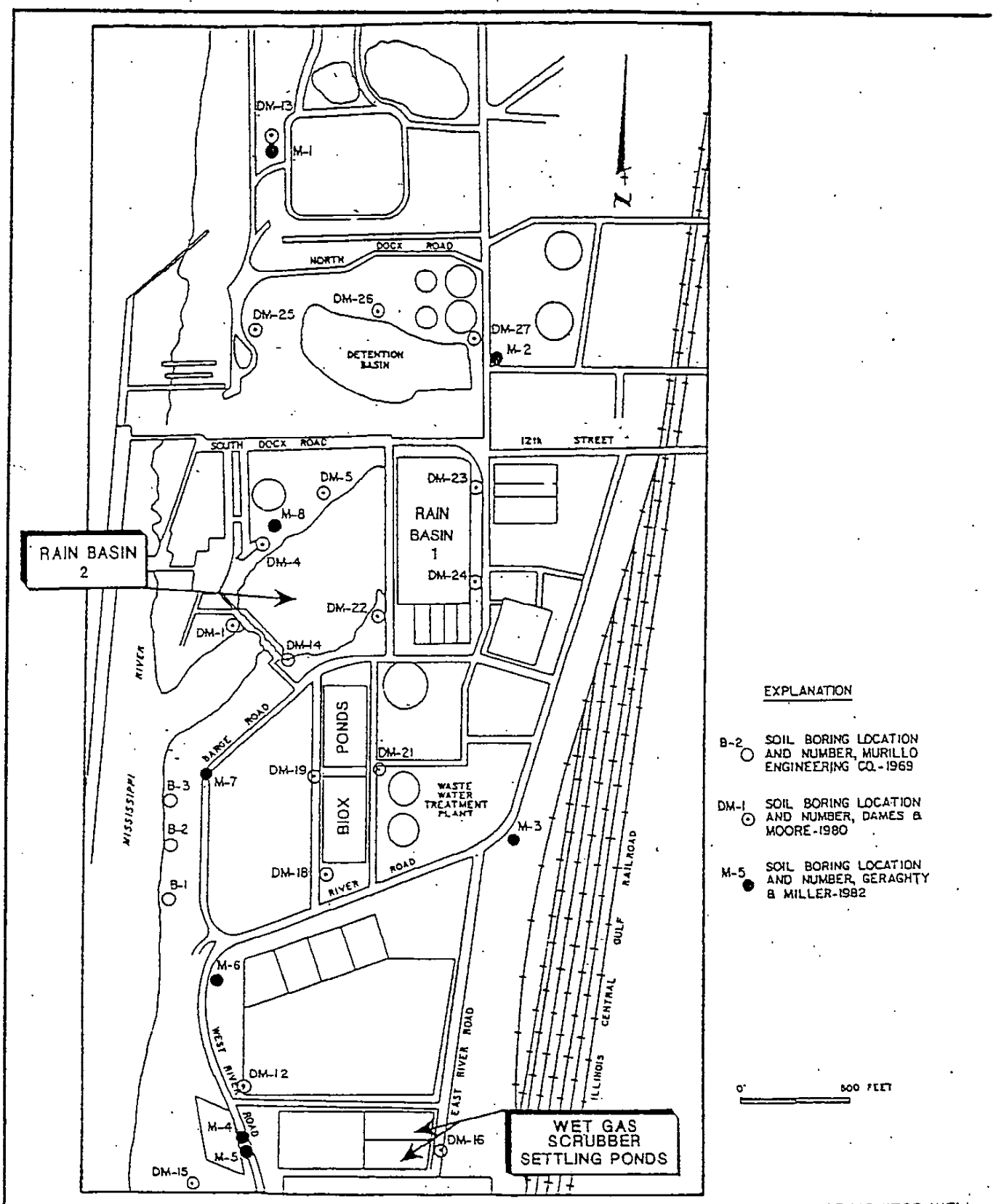
DAMES & MOORE



SOURCE: GERAGHTY & MILLER; ASSESSMENT OF GROUND WATER QUALITY AND INSTALLATION OF MONITOR WELL NETWORK AT THE WASTE TREATMENT AREA BATON ROUGE REFINERY, AUGUST 1983.

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FIGURE D-1
SOIL BORING LOCATIONS
LAC33:VII.521.D

DATE 12/93 | W.O.NO. 14-134

EXXON COMPANY U.S.A.

Geraghty & Miller, Inc.

LITHOLOGIC LOG OF BOREHOLE M-3

Description	Depth (ft)	Thickness (ft)
Rubble	0 - 16	16
Clay, tan, plastic	16 - 23	7
Clay, gray-tan, plastic	23 - 38	15
Silt, gray-tan	38 - 42	4
Silt, sandy with clay lenses, brown	42 - 47	5
Clay, tan-brown, medium	47 - 58	11
Clay, stiff, red-brown, with black organics	58 - 74	16
Clay, stiff, gray-tan	74 - 100	26
Clay, green-gray, some plasticity	100 - 138	38
Total Depth:	138 feet	

LITHOLOGIC LOG OF BOREHOLE M-4

Description	Depth (ft)	Thickness (ft)
Rubble and clay	0 - 16	16
Clay, gray, medium, stiff	16 - 30	14
Clay, silty, gray	30 - 42	12
Silt with some clay lenses, gray, soft	42 - 52	10
Not sampled	52 - 86	34
Clay, silty, gray, soft	86 - 88	2
Clay, gray-tan, stiff, with silt lenses	88 - 114	26
Wood (a log)	114 - 115	1
Sand and gravel, medium to coarse, gray, brown, black	115 - 123	8
Clay, gray, plastic	123 - 125	2
Total Depth:	125 feet	

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Geraghty & Miller, Inc.

LITHOLOGIC LOG OF BOREHOLE M-6

Description	Depth (ft)	Thickness (ft)
Rubble, silts and clay.....	0 - 16	16
Clay, blackish, with chemical odor.....	16 - 18	2
Clay, gray-brown, with black streaks, faint chemical odor.....	18 - 34	16
Clay, gray-brown, soft.....	34 - 37	3
Silt, clayey, silty clay, gray, soft.....	37 - 47	10
Silt, clayey, gray, soft.....	47 - 48	1
Total Depth:	48 feet	

LITHOLOGIC LOG OF BOREHOLE M-7

Description	Depth (ft)	Thickness (ft)
Rubble, silt and clay.....	0 - 25	25
Clay, gray, stiff (Note: Chemical odor at 36 ft).....	25 - 44	19
Silt, clayey, gray, medium.....	44 - 50	6
Total Depth:	50 feet	

LITHOLOGIC LOG OF BOREHOLE M-8

Description	Depth (ft)	Thickness (ft)
Rubble and clay.....	0 - 10	10
Clay, silty, gray, with some wood chips...	10 - 40	30
Clay, silty, gray, soft.....	40 - 44	4
Silt, clayey, gray, non-cohesive.....	44 - 46	2
Silt, sandy, clayey, gray.....	46 - 48	2
Clay, stiff, with silt lenses.....	48 - 52	4
Total Depth:	52 feet	

Attachment 1

ERM-Southwest, Inc.

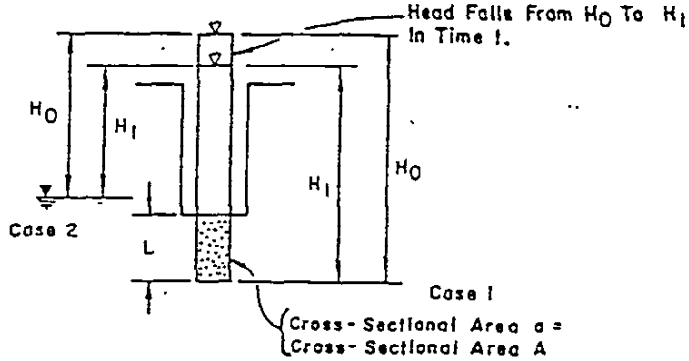
By SEM Date 7/11/86 Subject EXXON Baton Rouge : In Situ Permeability ("SLUG") Tests for Boring Sheet No. 1 of 2

Chkd By ___ Date ___ W.O. No. 14-36

METHOD

The determination of in situ hydraulic conductivity (Permeability) was accomplished by drilling an 8" ϕ hole into the soil and forcing a 2" ϕ PVC pipe 6" into the bottom of the borehole. The PVC pipe was filled with water and the drop in water level was measured over time.

The permeability is calculated by applying Darcy's LAW to a falling-head test in the field and using the equation given below.



$$K = \frac{L}{t} \ln(H_0/H_1)$$

Where a = A

Case 1: For unsaturated soils
Case 2: For saturated soils

Appendix D
Attachment 2

Measurement of Parameters: Piezometer Tests[a]

It is possible to determine in-situ hydraulic conductivity values by means of a test carried out in a single piezometer. One such test is suitable for point piezometers that are screened or slotted over the entire thickness of a confined aquifer. The test is initiated by causing an instantaneous change in the water level in a piezometer through a sudden removal of water from the well. The recovery of the water level with time is then observed. When water is removed the tests are often called bail tests.

The method of interpreting the water level versus time data that arise from a bail test is based on the Hvorslev (1951) method for a point piezometer. His initial analysis assumed a homogeneous, isotropic, infinite medium in which both soil and water are incompressible. With reference to the bail test of Figure 1a), Hvorslev reasoned that the rate of inflow, q, at the piezometer tip at any time t is proportional to the hydraulic conductivity, K, of the soil and to the unrecovered head difference, H - h, so that

$$q(t) = \pi r^2 (dh/dt) = FK(H - h) \quad \text{(Equation 1)}$$

where F is a factor that depends on the shape and dimensions of the piezometer intake. If $q = q_0$ at $t = 0$, it is clear that q(t) will decrease asymptotically toward zero as time goes on.

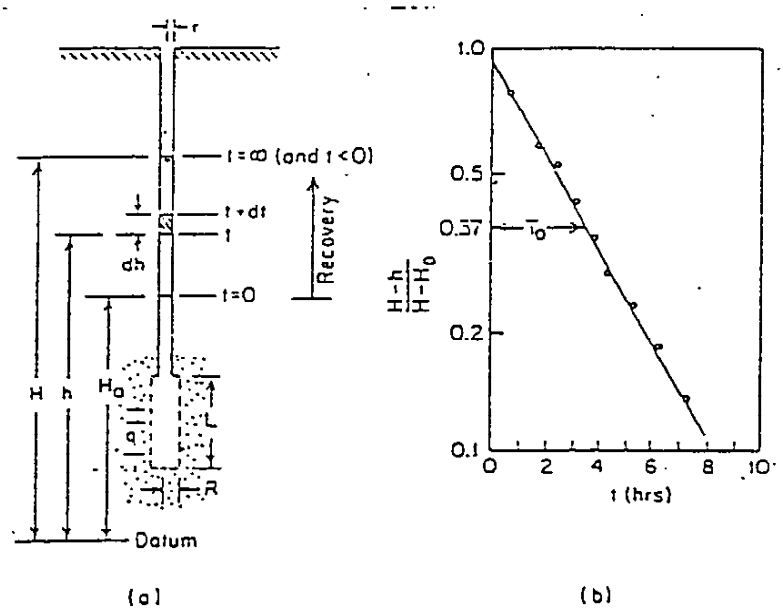


Figure - 1 Hvorslev piezometer test. (a) Geometry; (b) method of analysis.

a Reference:
Freeze, R.A. and Cherry, J.A., 1979: Ground Water; Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 604 pages.

Hvorslev (1951) as given in Freeze and Cherry (1979): Ground Water.

Attachment C (Cont

Hvorslev defined the basic time lag, T_0, as

$$T_0 = (\pi r^2/FK) \qquad \text{(Equation 2)}$$

When this parameter is substituted in Equation 1, the solution to the resulting ordinary differential equation, with the initial condition, $h = H_0$ at $t = 0$, is

$$(H - h/H - H_0) = e^{-t/To} \qquad \text{(Equation 3)}$$

A plot of field recovery data, $H - h$ versus t, should therefore show an exponential decline in recovery rate with time. If, as shown on Figure 1(b), the recovery is normalized to $H - H_0$ and plotted on a logarithmic scale, a straight-line plot results. Note that for $H - h/H - H_0 = 0.37$, $n\ (H - h/H - H_0) = -1$, and from Equation 3, $T_0 = t$. The basic time lag, T_0, can be defined by this relation; or if a more physical definition is desired, it can be seen, by multiplying both top and bottom of Equation 2 by $H - H_0$, that T_0 is the time that would be required for the complete equalization of the head difference if the original rate of inflow were maintained. That is, $T_0 = V/q_0$, where V is the volume of water removed or added.

To interpret a set of field recovery data, the data are plotted in the form of Figure 1(b). The value of T_0 is measured graphically, and K is determined from Equation 2. For piezometer intake of length L and radius R (Figure 1(a)), with $L/R > 8$, Hvorslev (1951) has evaluated the shape factor, F. The resulting expression for K is

$$K = [r^2 \ln(L/R)]/(2LT_0) \qquad \text{(Equation 4)}$$

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By SEM Date 7/10/86 Subject Exxon - Baton Rouge Sheet No. ____ of ____

Chkd By ____ Date ____ M.W. Recovery Tests W.O. No. 14-36

MW-A: Initial Water Level = 18.04'
TOTAL Depth of Well = 28'

ELAPSED TIME (MIN)	DEPTH (h) (ft)	DEPTH (H) (ft)	DEPTH (H_o) (ft)	$\frac{H-h}{H-H_o}$
t_o	0	9.96	0	1.0
0.82	0.5			0.95
1.93	1.0			0.90
3.03	1.5			0.85
4.18	2.0			0.80
5.43	2.5			0.75
6.93	3.0			0.70
8.65	3.5			0.65
11.03	4.0			0.60
14.65	4.5			0.55
19.82	5.0			0.50

MW-B: Initial Water Level = 12.54'
TOTAL Depth of Well = 13'
(NOT A Sufficient Amount of WATER To Perform TEST)

MW-C: Initial Water Level = 12'
TOTAL Depth of Well = 24'

t_o	0	12.0'	0	1.0
0.65	0.5			0.96
1.40	1.0			0.92
2.13	1.5			0.88
2.78	2.0			0.83
3.83	2.5			0.79
4.58	3.0			0.75
5.53	3.5			0.71
6.72	4.0			0.67
7.95	4.5			0.63
9.73	5.0			0.58
11.62	5.5			0.54
13.63	6.0			0.50
15.97	6.5			0.46
18.12	7.0			0.42

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By _____ Date _____ Subject _____ Sheet No. _____ of _____

Chkd By _____ Date _____ _____ W.O. No. _____

MW-D: Initial Water Level = Dry well
TOTAL Depth of Well = 14'
(Recovery Test NOT Possible)

MW-E: Initial Water Level = 6.42'
TOTAL Depth of Well = 17'

ELAPSED TIME (MIN)	DEPTH (h) (ft)	DEPTH (H) (ft)	DEPTH (H_0) (ft)	$\frac{H-h}{H-H_0}$
t_0	5.0	10.58	5.0	1.0
0.25	5.5			0.91
0.58	6.0			0.82
0.95	6.5			0.73
1.40	7.0			0.64
1.90	7.5			0.55
2.62	8.0			0.46
3.52	8.5			0.37
4.70	9.0			0.28
10.00	9.12			0.26

MW-F: Initial Water Level = 11.75'
TOTAL Depth of Well = 22'

t_0	2.5	10.25	2.5	1.0
0.37	3.0			0.94
0.67	3.5			0.87
1.08	4.0			0.81
1.63	4.5			0.74
2.17	5.0			0.68
2.73	5.5			0.61
3.43	6.0			0.55
4.20	6.5			0.48
5.22	7.0			0.42
6.78	7.5			0.36
9.53	8.0			0.29

ERM-Southwest, inc.

By _____ Date _____ Subject _____ Sheet No. _____ of _____

Chkd By _____ Date _____ _____ W.O. No. _____

MW-G: Initial Water Level = 6.13'
TOTAL Depth of Well = 18'

ELAPSED TIME (MIN)	DEPTH (h) (ft)	DEPTH (H) (ft)	DEPTH (H_0) (ft)	$\frac{H-h}{H-H_0}$
t_0	9.0	11.87	9.0	1.0
0.03	9.5			0.83
0.10	10.0			0.65
0.53	10.5			0.48
1.57	11.0			0.30
8.00	11.5			0.13

MW-H: Initial Water Level = 11.08'
TOTAL Depth of Well = 22'

t_0	0.5	10.92	0.5	1.0
0.73	1.0			0.95
1.47	1.5			0.90
2.12	2.0			0.86
2.72	2.5			0.81
3.48	3.0			0.76
4.33	3.5			0.71
5.15	4.0			0.66
6.20	4.5			0.62
7.33	5.0			0.57
8.65	5.5			0.52
10.55	6.0			0.47
13.63	6.5			0.42
19.50	7.0			0.38

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By SEM Date 7/11/86 Subject Calculation of EFFECTIVE Radius Sheet No. ____ of ____

Chkd By ____ Date ____ W.O. No. ____

$$R = V_B = V_B - V_W$$

$$V_W = \pi r^2 = \pi (0.083)^2 = 0.022\ ft^2$$

$$V_B = \pi r^2 = \pi (0.33)^2 = 0.34\ ft^2 - 0.022\ ft^2 = 0.32\ ft^2$$

$$R = \sqrt{\frac{(.40)(0.32)ft^2 + 0.022\ ft^2}{\pi}}$$

$$R = \sqrt{0.048} = 0.22\ ft = \boxed{6.66\ cM}$$

ERM-Southwest, inc.

By SEM Date 7/11/86 Subject Calculations of Sheet No. ____ of ____

Chkd By ____ Date ____ Hydraulic Conductivity W.O. No. ____

METHOD: USING Hvorslev's Equation

$$K = \frac{r^2 \ln(4/R)}{2 L T_0}$$

MW-A:

r = well radius = 1" = 2.54 CM

L = length of Screen = 305 CM (used 10' vs 15' DUE TO initial water level)

R = EFFECTIVE Radius = 6.66 CM

T_0 = from graph = 1584 SEC

$\ln(4/R) = \ln(\ /6.66\text{ cm})$

$$\therefore K = \frac{(2.54\text{ cm})^2 \ln(305/6.66)}{2(305)(1584\text{ SEC})} = \frac{24.7}{966{,}240} = 2.6\times10^{-5}\ \text{cm/sec}$$

MW-C:

r = 1" = 2.54 cm

L = 305 cm

R = 6.66 cm

T_0 = 1194

$$\therefore K = \frac{(2.54\text{ cm})^2 \ln(305/6.66)}{2(305)(1194\text{ SEC})} = \frac{24.7}{728{,}340} = 3.4\times10^{-5}\ \text{cm/sec}$$

ERM-Southwest, inc.

By _____ Date _____ Subject _____ Sheet No. _____ of _____

Chkd By _____ Date _____ _____ W.O. No. _____

MW-E:

$r = 1'' = 2.54$ cm

$L = 305$ cm

$R = 6.66$ cm

$T_0 = 318$ SEC

$$\therefore K = \frac{(2.54\text{ cm})^2 \ln(305\text{cm}/6.66\text{cm})}{2(305\text{ cm})(318\text{ SEC})}$$

$$= \frac{24.7}{193,980} = 1.3 \times 10^{-4}\text{ cm/SEC}$$

MW-F:

$r = 1'' = 2.54$ cm

$L = 305$ cm

$R = 6.66$

$T_0 = 405$ SEC

$$\therefore K = \frac{(2.54)^2 \ln(305/6.66)}{2(305)(405)} = \frac{24.7}{247,050} = 1 \times 10^{-4}\text{ cm/SEC}$$

ERM-Southwest, inc.

By _____ Date _____ Subject _____ Sheet No. ____ of ____

Chkd By ____ Date _____ _____ W.O. No. _____

MW-G: $r = 1'' = 2.54$ cm

$L = 10' = 305$ cm

$R = 6.66$ cm

$T_0 = 165$ SEC

$$\therefore \quad K = \frac{(2.54)^2 \ln(305/6.66)}{2(305)(165)} = \frac{24.7}{100,650} = 2.5 \times 10^{-4} \text{ (cm/sec)}$$

MW-H: $r = 1'' = 2.54$ cm

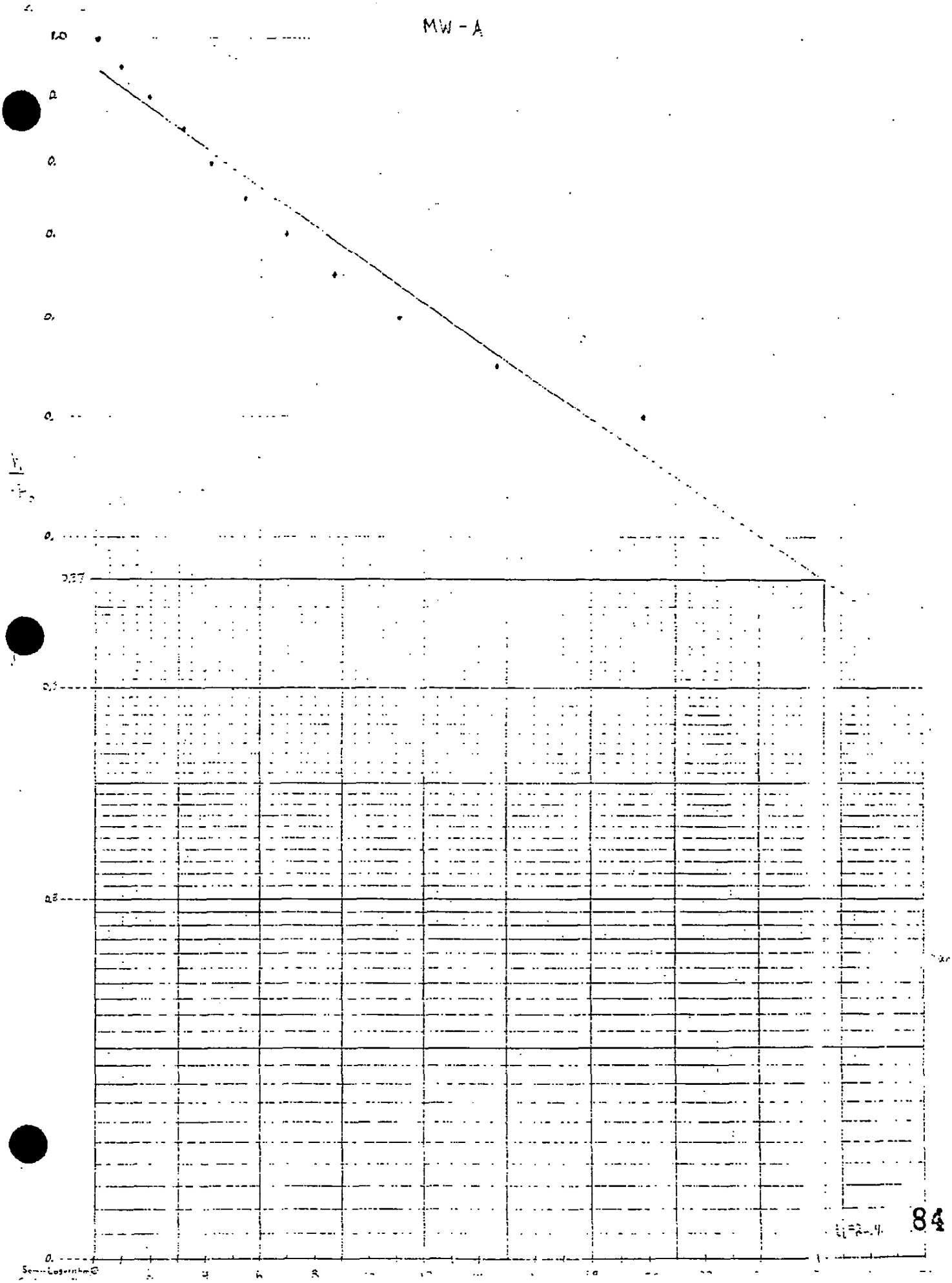
$L = 10' = 305$ cm

$R = 6.66$ cm

$T_0 = 1002$ SEC

$$\therefore \quad K = \frac{(2.54)^2 \ln(305/6.66)}{2(305)(1002)} = \frac{24.7}{611,220} = 4 \times 10^{-5} \text{ cm/sec}$$

BEST COPY OF THE NEXT 06 PAGES



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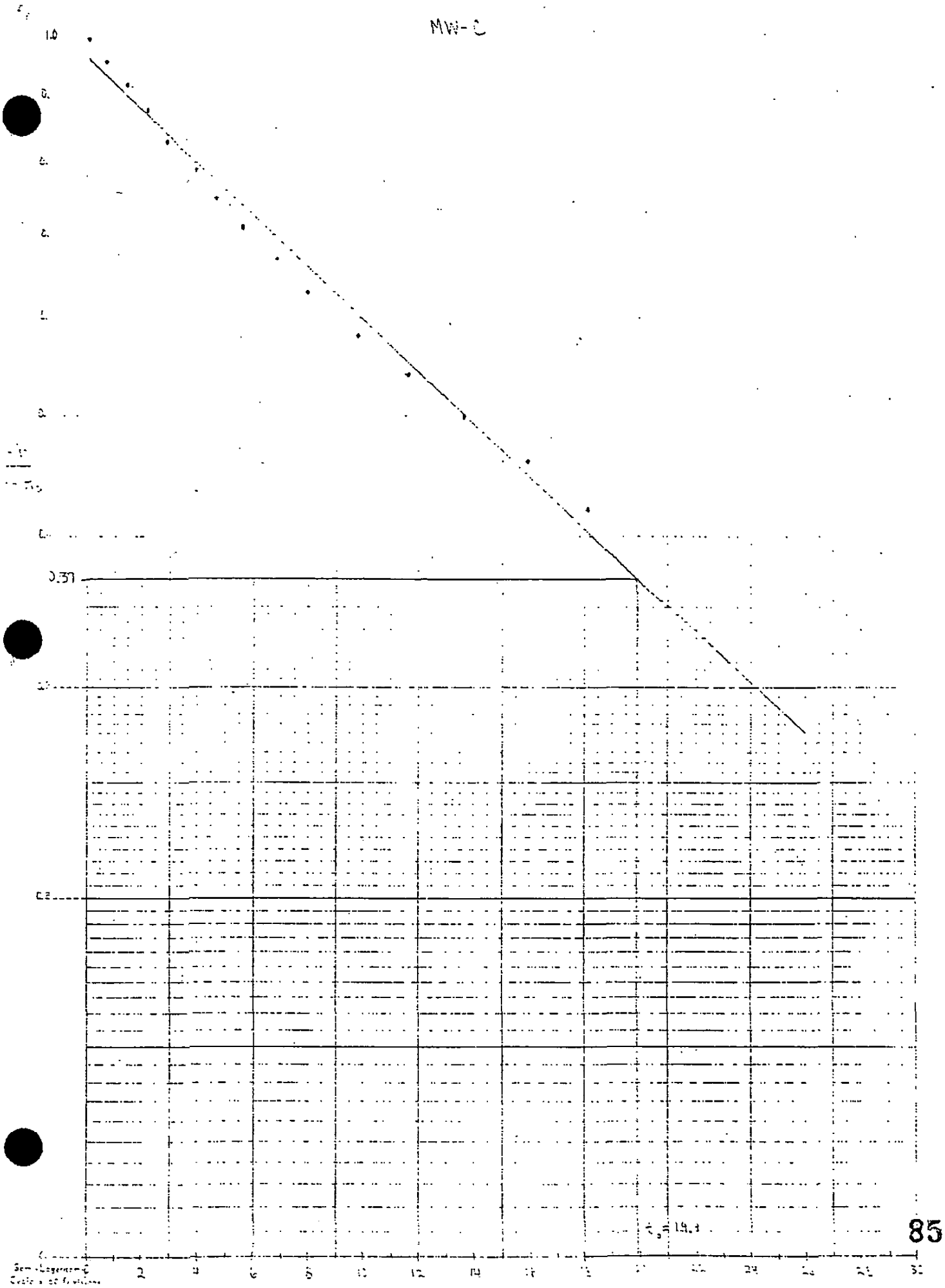
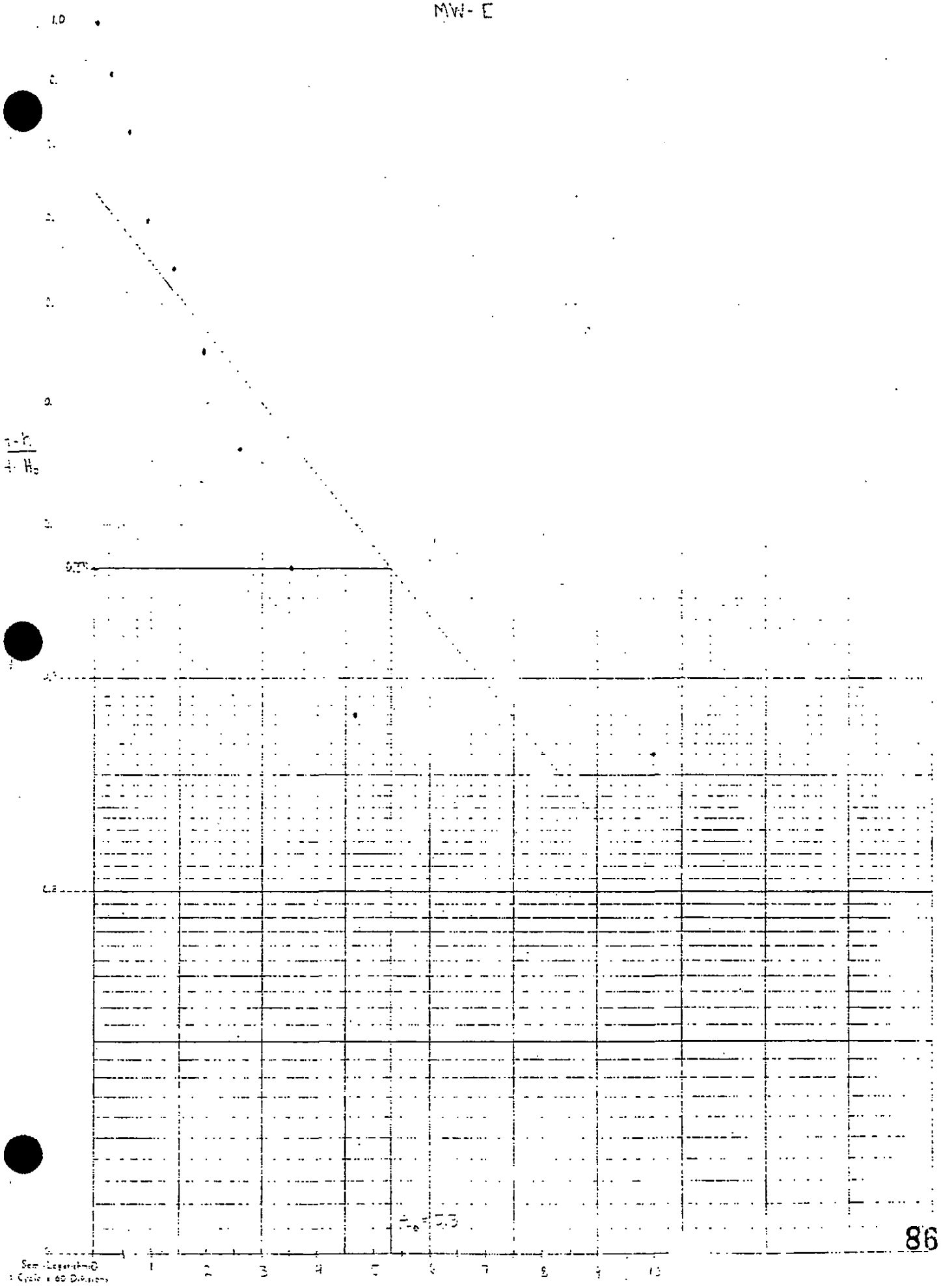

MW-C
1.0
0.37
0.2
0.1
t_o = 14.4
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30

MW-E



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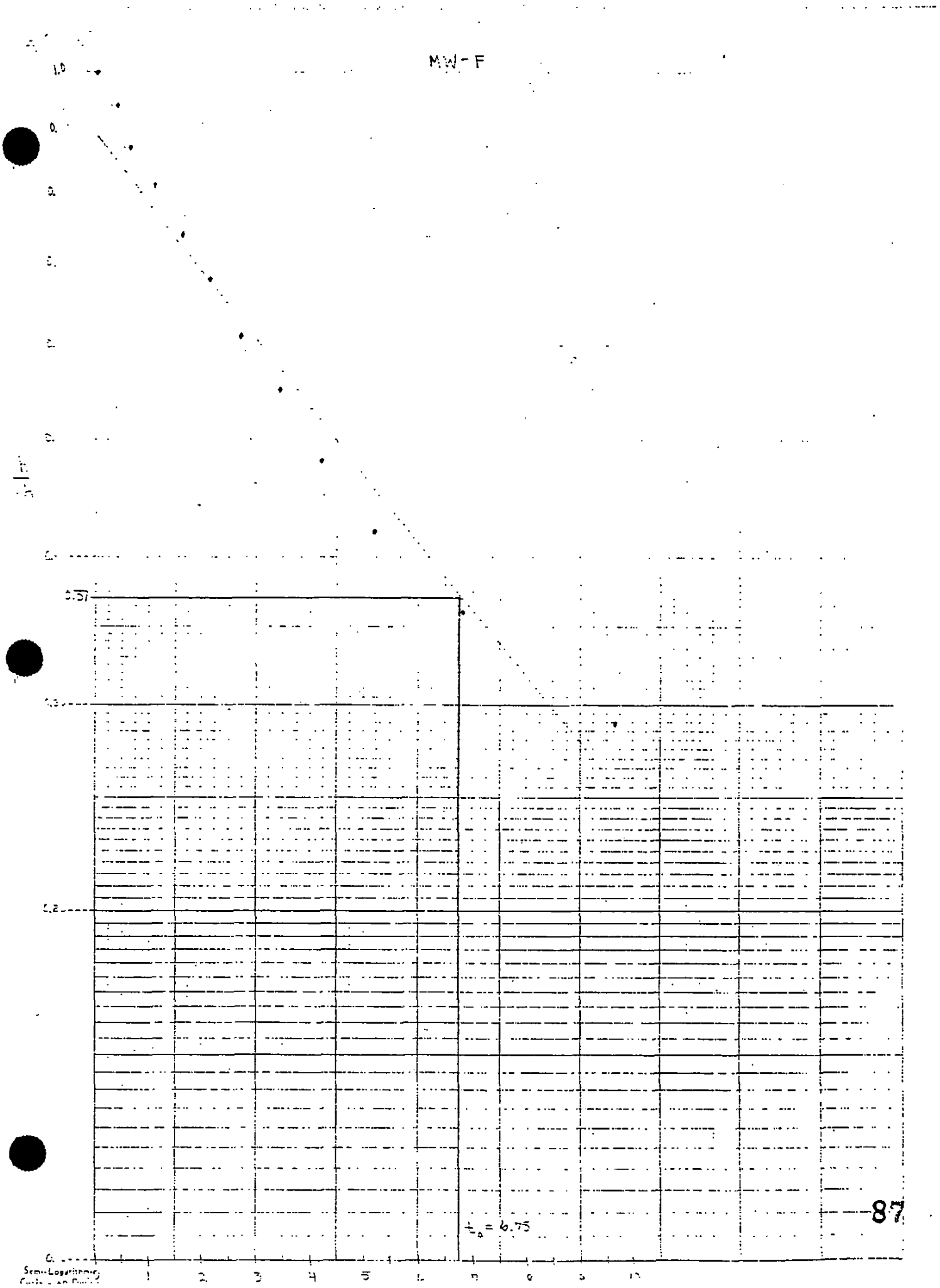
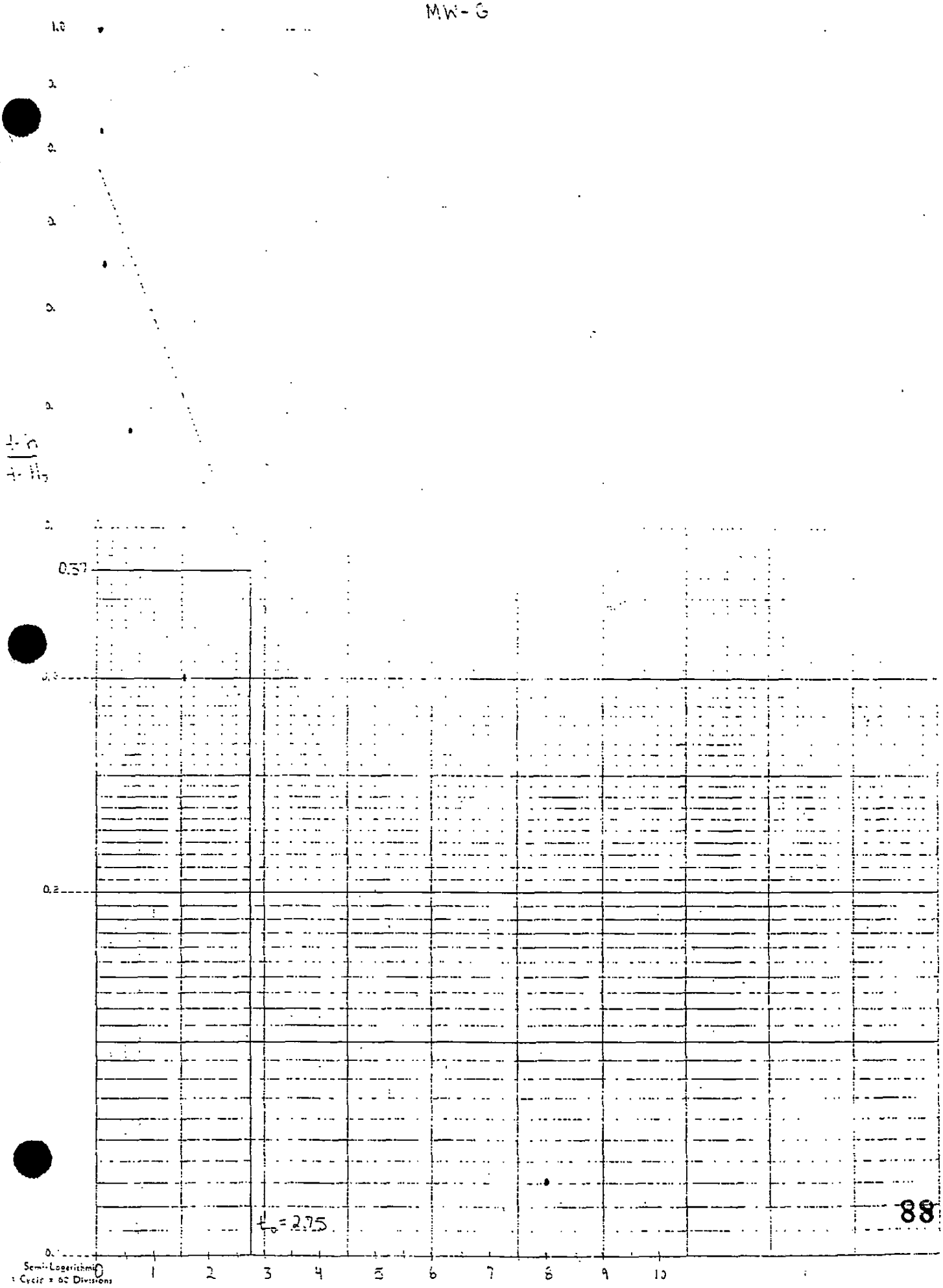
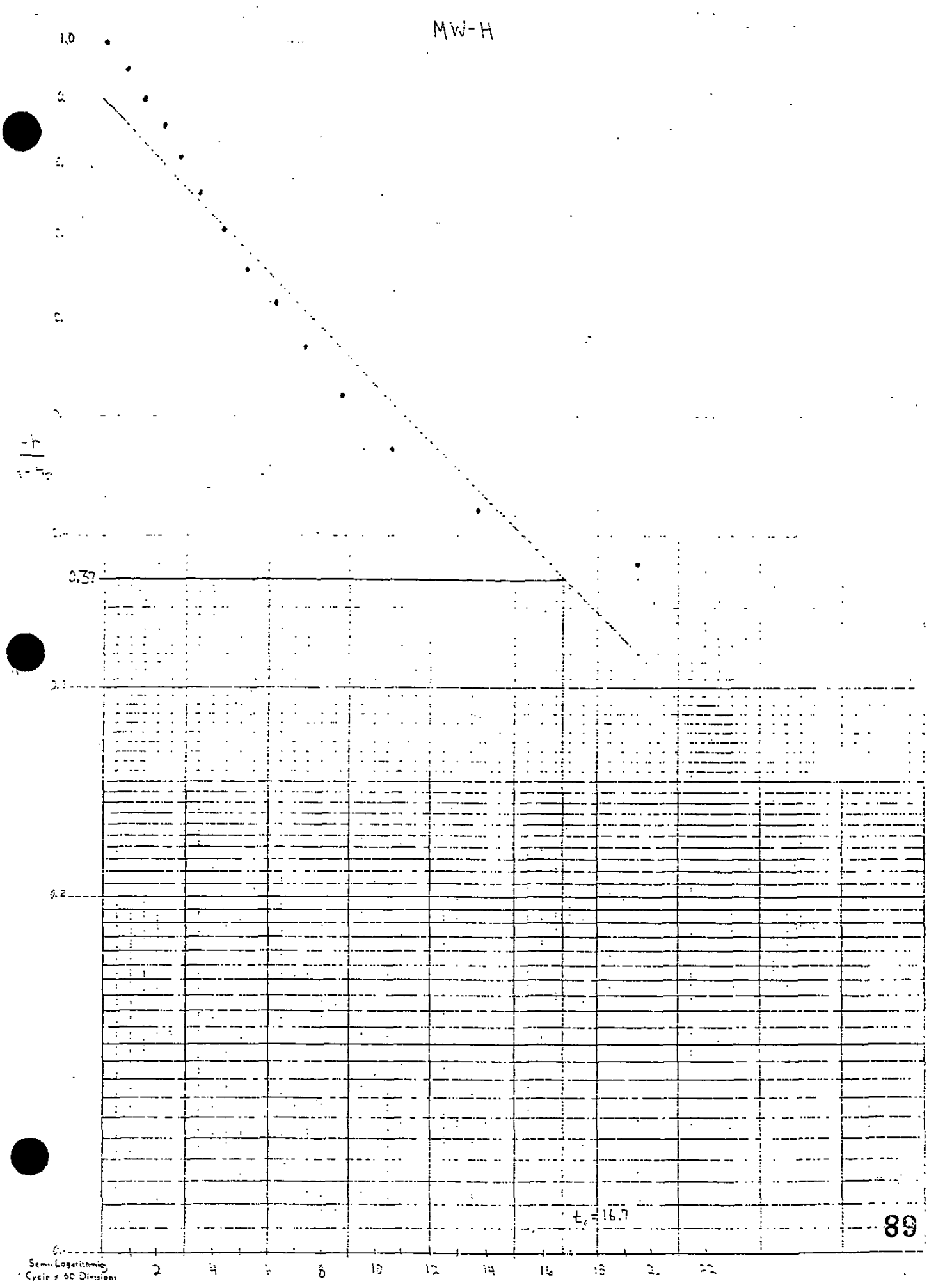

MW-F
1.0
0.8
0.6
0.4
0.2
0.0
0.57
0.3
0.2
t_D = 6.75
1
2
3
4
5
6
7
8
9
10
Semi-Logarithmic

87

MW-6


1.0
0.57
0.3
0.2
0.1
$t_0 = 2.75$
88
0
1
2
3
4
5
6
7
8
9
10
Semi-Logarithmic
1 Cycle x 60 Divisions


MW-H
1.0
0.37
0.1
0.2
$t_1 = 16.7$
89
Semi-Logarithmic
Cycle x 60 Divisions
2
4
6
8
10
12
14
16
18
20
22

RECEIVED AUG 26 1985

August 21, 1985

Mr. Charles Feerick
Groundwater Specialist
Exxon Company, USA
P. O. Box 551
Baton Rouge, Louisiana 70821

Project No. 846126-01

Report
Plug and Abandon
Twenty Monitor Wells
Exxon Company, USA
Baton Rouge, Louisiana

Dear Mr. Feerick:

IT Corporation (IT) was contracted by Exxon Company, USA, under Contract No. PH 21008-X-17542, to plug and abandon twenty (20) groundwater monitor wells located within the Exxon Waste Water Treatment Plant at the Baton Rouge Refinery (See Figure 1). A site visit was made on April 26, 1985, to gather construction details and determine locations and access problems, if any, of the twenty (20) monitor wells. The casing extension of monitor well DM-17 could not be found during the site visit. Locations of monitor wells are indicated in Figure 2.

The twenty (20) groundwater monitor wells ranged in depth from 30 feet to 129 feet and were constructed using 5 feet, 10 feet or 20 feet (DM-9) of slotted well screen (Table 1). The wells were constructed using three (3) inch ABS pipe (M-1 and M-3 were two (2) inch steel pipe) with approximately two and one half (2.5) feet of stickup, a two foot by two foot concrete pad, and two to four bump posts depending upon location.

Prior to plugging, each well was sounded to confirm that the casing was clear for the total depth of the well and the cement pad and bump posts were removed. An attempt was made at each well to pull the casing from the borehole using the "sand line" on a Failing 1500 truck mounted drill rig. All attempts were unsuccessful. The ABS casing sheared at the ground surface or insufficient force was available.

Drill stem was then tripped into the well to within approximately one (1) foot of the bottom of the well. A cement/bentonite grout was then prepared by mixing one bag of Portland cement with 1/4 bag of bentonite gel powder per ten (10) gallons of water. The cement/bentonite slurry was then pumped down the drill stem until surface returns were

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IT Corporation • 8116 One Calais Avenue • Suite 2D • Baton Rouge, Louisiana 70809 • 504-769-9700

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observed. Several lengths of drill stem were removed and the cement/bentonite slurry again pumped into the well. This continued until all the drill stem was removed from the well.

A specially designed cap was then placed on the well stand pipe and a hose connection made to the cap. This cap allowed additional grout to be pumped into the well under pressure, insuring that the cement/bentonite was injected through the well screen and into the sand pack. The well casing was then cut off approximately three (3) inches below ground surface. After the cement/bentonite grout was allowed to cure for 24 hours, additional grout was placed in the casing to finish to ground surface elevation.

Monitor Well DM-17 could not be found by IT during the original Plug and Abandonment effort. A rubber tire backhoe was used to excavate an area approximately 60 feet long by 20 feet wide by 2 feet deep in an unsuccessful attempt to locate the casing. Exxon personnel subsequently researched completion documentation and located the well using plant coordinates. IT returned on July 10, 1985, and plugged DM-17 using the procedures stated above.

The twenty (20) groundwater monitor wells at the Exxon Refinery Waste Water Treatment plant were plugged in accordance with drilling procedures acceptable to the Department of Environmental Quality, Hazardous Waste Division, in order to assure that any potential vertical contaminant migration is prevented. The State of Louisiana Department of Transportation and Development (DOTD), Office of Public Works, Water Resources Division regulations applicable to this work were also followed during the Plug and Abandonment operations.

DOTD form LDPW-GW-2 for Water-Well Abandonment and Plugging, was prepared for each monitor well and filed with the Louisiana DOTD Office of Public Works. Copies of these documents are included in Attachment A.

IT appreciates the opportunity to complete this project for Exxon. Should you have any questions please do not hesitate to call.

Very truly yours,

Russell E. Blom

Russell E. Blom
Group Project Manager

REB:gfw

cc: Mr. Bo Bolourchi, Louisiana DOTD, Office of Public Works

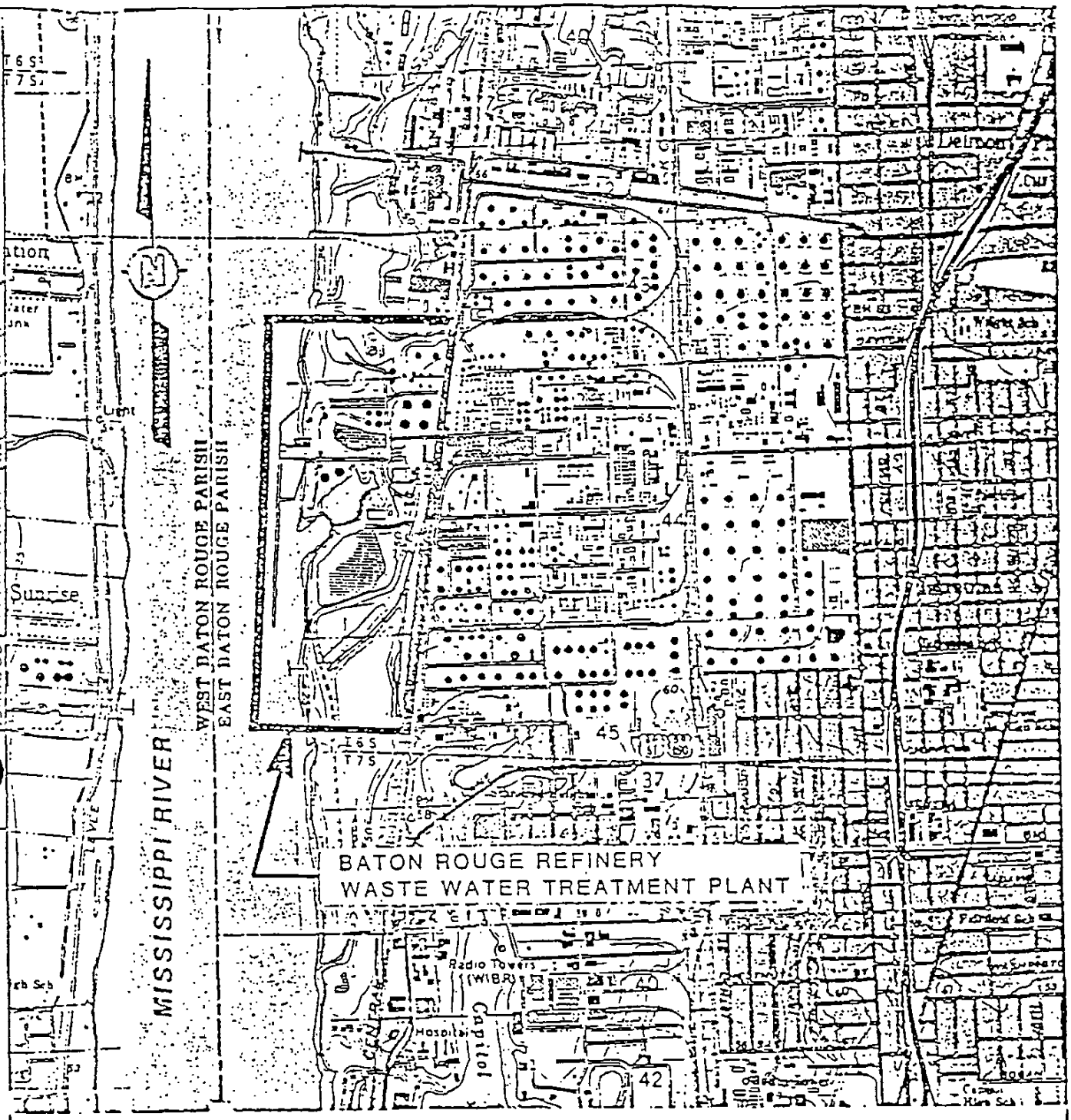
TABLES

TABLE I

WELL COMPLETION DATA
MONITOR WELL PLUG AND ABANDONMENT
EXXON BATON ROUGE REFINERY
BATON ROUGE, LOUISIANA

Monitor Well	Total Depth, Feet	Screened Interval Feet below Ground Surface
M-1	48	41-46
M-8	50	40-50
DM-1	80	70-80
DM-5	25	15-25
DM-8	50	40-50
DM-9	93	70-90
DM-13	129	119-129
DM-14	110	100-110
DM-15	115	105-115
DM-16	30	18-28
DM-17	30	18-28
DM-20	80	68-78
DM-21	53	40-50
DM-22	64	54-64
DM-23	25	13-23
DM-24	30	18.5-28.5
DM-25	46.5	30-40
DM-26	52	40-50
DM-27	29	17-27
DM-28	50	40-50

FIGURES



2000 0 2000 FEET
SCALE

FIGURE 1

SITE LOCATION MAP

REFERENCE: U.S.G.S. 7.5 MINUTE BATON ROUGE WEST QUADRANGLE, 1963, PHOTOREVISED 1971.

PREPARED FOR

EXXON COMPANY, U.S.A.
BATON ROUGE, LOUISIANA

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... Creating a Safer Tomorrow

Do Not Scale This Drawing

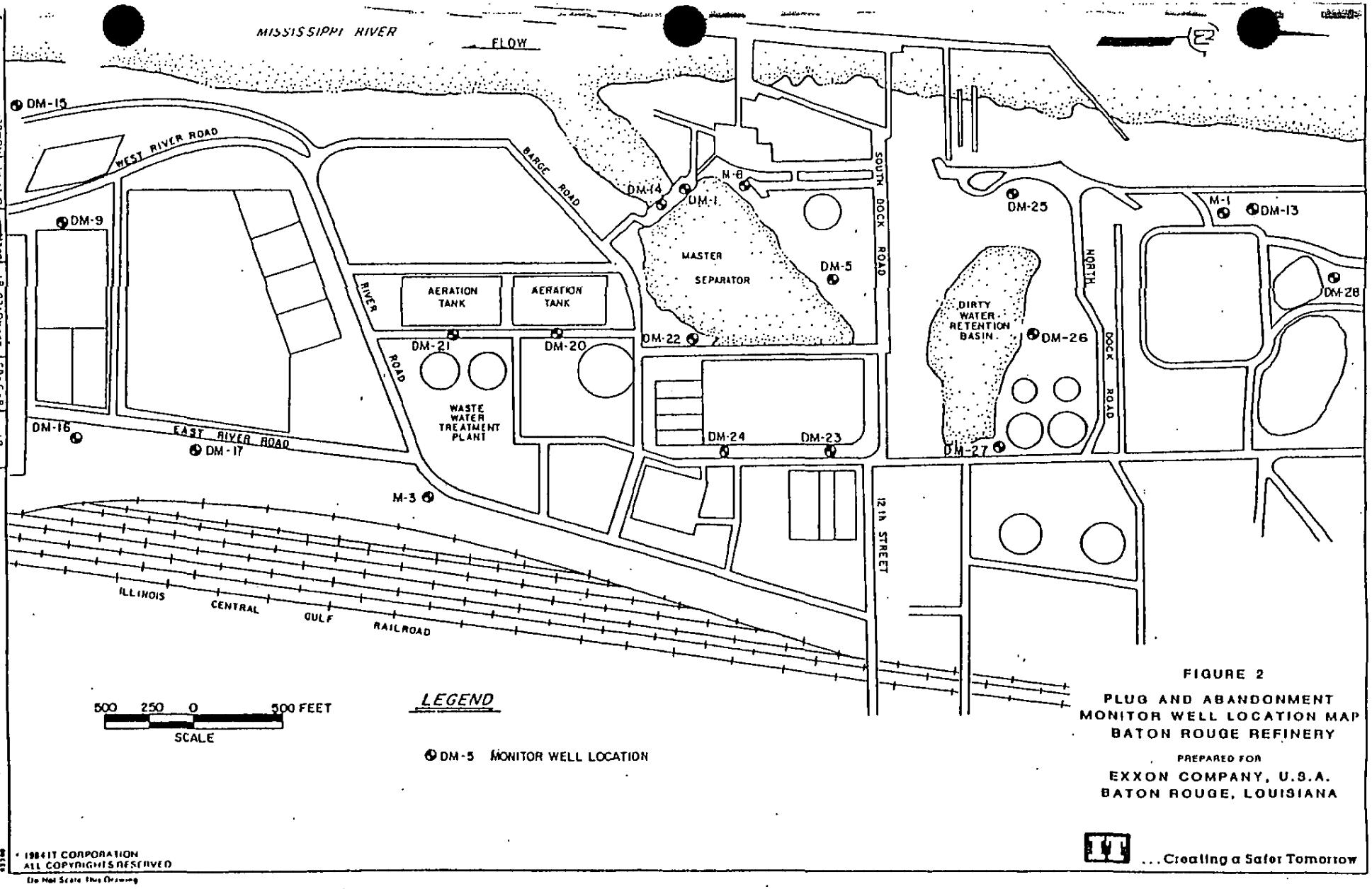

FIGURE 2

PLUG AND ABANDONMENT
MONITOR WELL LOCATION MAP
BATON ROUGE REFINERY

PREPARED FOR

EXXON COMPANY, U.S.A.
BATON ROUGE, LOUISIANA

ATTACHMENT A

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING
FORM LDPW-GW-2

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

FORM [illegible] REV. 1/71

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY BR., LA
OWNERS WELL NUMBER (if any) M-1

2. LOCATION OF WELL: Parish: EBR in SECTION 43
TOWNSHIP 6S RANGE: 1W (N or S of well's base) approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 48 ft., Depth of completed well, 46 ft., Date completed 1982 by (Give name and address of water well contractor who installed well or hole): GERRATY & MILLER

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD CUT CASING 3" BELOW GROUND SURFACE, ALLOW CEMENT TO CURE, TOP OFF TO GROUND SURFACE 46 FEET OF CASING AND SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) JT CORP. 8116 ODE CALAIS STREET BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2		–	0
1 2	3 5	6 11	12 20

[signature] (SIGNATURE) 8/20/85 (DATE)

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

FORM [illegible] REV. 1/71

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY BR. LA.
OWNERS WELL NUMBER (if any) M-3

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W (N or S of well's base) approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 49 ft., Depth of completed well, 47 ft., Date completed 1982 by (Give name and address of water well contractor who installed well or hole): GERRATY & MILLER

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD CUT CASING 3" BELOW GROUND SURFACE ALLOW CEMENT TO CURE, TOP OFF TO GROUND SURFACE 47 FT OF CASING & SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) JT CORP. 8116 ODE CALAIS STREET BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2			0

[signature] [signature]

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Ash Date Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER WELL ABANDONMENT AND PLUGGING (STATE ACT 635 (1972))

This form is used for an abandoned hole or well

Form Lr-Rev. 11

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 6)
EXXON USA
ADDRESS: 4045 SCENIC HWY B.R. LA
OWNERS WELL NUMBER (if any) DM-1

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W miles near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 80 ft., Depth of completed well, 80 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cement and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING TO 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE, TOP OFF TO GROUND SURFACE LEFT 80 FEET OF CASING & SCREEN IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 15, 19 85 by (name and address of contractor or owner) JT CORP 8116 ONE CALAIS STE 2 BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
22		–	0
1 2	3 8	6 11	12 28

(SIGNATURE) 8/20/85 (DATE)

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Ash Date Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER WELL ABANDONMENT AND PLUGGING (STATE ACT 635 (1972))

This form is used for an abandoned hole or well

Form Lr-Rev. 11

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER (if different from owner when drilled, note in item 5)
EXXON USA
ADDRESS: 4045 SCENIC HWY, BR. LA
OWNERS WELL NUMBER (if any) M-8

2. LOCATION OF WELL: Parish: EBR in SECTION 41
TOWNSHIP 6S RANGE: 1W miles near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 50 ft., Depth of completed well, 48 ft., Date completed 1982 by (Give name and address of water-well contractor who installed well or hole) GEHLKAY & MILLER

4. Describe in detail how well or hole was plugged: (materials used, amount of cement and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CONCRETE PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE ALLOW CEMENT TO CURE AND TOP OFF TO GROUND SURFACE 50 FEET OF CASING & SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) JT CORP 8116 ONE CALAIS STE 2 BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number

8/20/85

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER WELL ABANDONMENT AND PLUGGING (STATE ACT 535 (1972))

This form is used for an abandoned hole or well

FORM LAPWA REV. 11
LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON, USA
ADDRESS: 4045 SCENIC HWY BATON ROUGE LA
OWNERS WELL NUMBER (if any) DM-9

2. LOCATION OF WELL: Parish: EBR in SECTION 45
TOWNSHIP 6S RANGE: 1W approximately Miles from SEE ATTACHED MAP (CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)
(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 93 ft., Depth of completed well, 90 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): JAMES E. MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cast and/or screen removed, or left in hole, etc.) GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING AT GROUND SURFACE, ALLOW GROUT TO CURE, TOP OFF TO GROUND SURFACE. LEFT 90 FEET OF CASING AND SCREEN IN HOLE

5. REMARKS: UNABLE TO ATTEMPT TO PULL CASING DUE TO PIPELINE AND CONDUIT OVER WELL LOCATION

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) IT CORP. 8116 ONE CALAIS STE 2D BATON ROUGE, LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
22		–	0
1 2	3 5	6 11	12 28

(SIGNATURE) (DATE) 8/20/85

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER WELL ABANDONMENT AND PLUGGING (STATE ACT 535 (1972))

This form is used for an abandoned hole or well

FORM LAPWA REV. 11
LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY BR, LA
OWNERS WELL NUMBER (if any) DM-5

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W approximately Miles from SEE ATTACHED MAP (CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)
(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 25 ft., Depth of completed well, 25 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): JAMES E. MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cast and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CONCRETE PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 8" BELOW GROUND SURFACE, ALLOW CEMENT TO CURE AND TOP OFF TO GROUND SURFACE 25 FEET OF CASING & SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 17, 19 85 by (name and address of contractor or owner) IT CORP 8116 ONE CALAIS STE 2D BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
			0

8/20/85

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 635 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY B.R. LA.
OWNERS WELL NUMBER (if any) DM-14

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from SEE ATTACHED MAP
(CROSSROAD, TOWN, RAILROAD, ANY LANDMARK, ETC)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 110 ft., Depth of completed well, 108 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): JAMES A. MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cement and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD CUT CASING 3" BELOW GROUND SURFACE, ALLOW CEMENT TO CURE, TOP OFF TO GROUND SURFACE 108 FT OF CASING AND SCREEN LEFT IN HOLE.

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) IT CORP 8116 ONE CALAIS STE 3 BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2		–	0
1 2	3 6	8 11	12 28

(SIGNATURE) 8/20/85 (DATE)

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 635 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY BR, LA
OWNERS WELL NUMBER (if any) DM-13

2. LOCATION OF WELL: Parish: EBR in SECTION 43
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 129 ft., Depth of completed well, 129 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): JAMES A MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cement and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW CEMENT TO CURE, TOP OFF TO GROUND SURFACE, 129 FEET OF CASING AND SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 15, 19 85 by (name and address of contractor or owner) IT CORP 8116 ONE CALAIS STE 3 BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number

12

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 635 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (If different from owner when drilled, note in item 6)
EXXON USA
ADDRESS: 4045 SCENIC HWY. BR, LA
OWNERS WELL NUMBER (if any) DM-16

2. LOCATION OF WELL: Parish: EBR in SECTION 45
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 30 ft., Depth of completed well, 28 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE PUMP POSTS AND CONCRETE PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE TOP OFF TO GROUND SURFACE LEFT 28 FEET OF CASING AND SCREEN IN HOLE

6. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) JT CORP 8116 ODE CALAIS STE 2D BATON ROUGE LA 70809

(SIGNATURE) (DATE) 8/20/85

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2		–	0
1 2	3 5	6 11	12 26

SEE REVERSE SIDE OF 3RD COPY FOR INSTRUCTIONS

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 635 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (If different from owner when drilled, note in item 6)
EXXON USA
ADDRESS: 4045 SCENIC HWY BATON ROUGE, LA
OWNERS WELL NUMBER (if any) DM-15

2. LOCATION OF WELL: Parish: EBR in SECTION 45
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 115 ft., Depth of completed well, 115 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE PUMP POSTS AND CONCRETE PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD CUT CASING TO 3" BELOW GROUND SURFACE, ALLOW CEMENT TO CURE, TOP OFF TO GROUND SURFACE 115 FEET CASING AND SCREEN LEFT IN HOLE

6. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) JT CORP. 8116 ODE CALAIS STE 2D BATON ROUGE LA 70809

(SIGNATURE) 8/20/85

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2			0

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 535 (1972))

This form is used for an abandoned hole or well

FORM APPROVED REV. 1/71

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (If different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY, B.R., LA
OWNERS WELL NUMBER (If any) DM-20

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W ... feet from nearest ... approximately ... Miles from SEE ATTACHED MAP (CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION. Depth of hole 25 ft., Depth of completed well, 23 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CONCRETE PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING TO 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE, TOP OFF TO GROUND SURFACE, LEFT 23 FEET OF CASING AND SCREEN IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16 19 85 by (name and address of contractor or owner) IT CORP 8116 ONE CALAIS STE 2 BATON ROUGE, LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2		–	0
1 2	3 6	8 11	12 28

(SIGNATURE) (DATE) 8/20/85

SEE REVERSE SIDE OF 3RD COPY FOR INSTRUCTIONS

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 535 (1972))

This form is used for an abandoned hole or well

FORM APPROVED REV. 1/71

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (If different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY BR, LA
OWNERS WELL NUMBER (If any) DM-17

2. LOCATION OF WELL: Parish: EBR in SECTION 45
TOWNSHIP 6S RANGE: 1W ... feet from nearest ... approximately ... Miles from SEE ATTACHED MAP (CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 30 ft., Depth of completed well, 28 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole) DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE ALLOW CEMENT TO CURE AND TOP OFF TO GROUND SURFACE, LEAVE 28 FEET OF CASING AND SCREEN IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on JULY 10 19 85 by (name and address of contractor or owner) IT CORP. 8116 ONE CALAIS STE 2 BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2		–	0

(SIGNATURE) 8/20/85

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LDEQ-EDMS Document 36002082, Page 311 of 356

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 6) EXXON USA
ADDRESS: 4045 SCENIC HWY B.R., LA
OWNERS WELL NUMBER (if any) DM-22

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 64 ft., Depth of completed well, 64 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CONCRETE PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD. CUT CASING 3" BELOW GROUND SURFACE, ALLOW CEMENT TO CURE, TOP OFF TO GROUND SURFACE 64' OF CASING & SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 16, 19 85 by (name and address of contractor or owner) JT CORP 8116 OLD CALAIS STE 2D BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
22		–	0
1 2	3 5	6 11	12 26

(SIGNATURE) (DATE) 8/20/85

SEE REVERSE SIDE OF 3RD COPY FOR INSTRUCTIONS

Ash Data Products, Inc., Chalmette, LA

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LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY, BR, LA.
OWNERS WELL NUMBER (if any) DM-21

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 53 ft., Depth of completed well, 50 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE, TOP OFF TO GROUND SURFACE, 50 FEET OF CASING AND SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 13, 19 85 by (name and address of contractor or owner) JT CORP 8116 OLD CALAIS STE 2D BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number

8/20/85

Ash Data Products, Inc., Chalmette, LA

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

FORM LOPW-1 REV. 11

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 6) EXXON USA
ADDRESS: 4045 SCENIC HWY BR, LA
OWNERS WELL NUMBER (if any) DM-24

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W well is near _____ approximately _____ Miles from SEE ATTACHED MAP (CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 30 ft., Depth of completed well, 28.5 ft., Date completed 1980 by (Give name and address of water well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cap and/or screen removed, or left in hole, etc.) REMOVED BUMP POSTS AND CONC PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE TOP OFF TO GROUND SURFACE LEFT 28.5 FEET OF CASING AND SCREEN IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 14, 1985 by (name and address of contractor or owner) IT CORP 8116 ONE CALAIS STE 2 BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
2 2		–	0
1 2	3 5	6 11	12 28

(SIGNATURE) 8/20/85 (DATE)

SEE REVERSE SIDE OF 3RD COPY FOR INSTRUCTIONS

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

FORM LOPW-1 REV.

LA. OFFICE OF PUBLIC WORK

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY BR., LA.
OWNERS WELL NUMBER (if any) DM-23

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W well is near _____ approximately _____ Miles from SEE ATTACHED MAP (CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 25 ft., Depth of completed well, 23 ft., Date completed 1980 by (Give name and address of water well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of ca and/or screen removed, or left in hole, etc.) REMOVE BUMP POSTS AND CONC PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE TOP OFF TO GROUND SURFACE LEFT 23 FEET OF CASING AND SCREEN IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 14, 1985 by (name and address of contractor or owner) IT CORP. 8116 ONE CALAIS STE BATON ROUGE LA. 70809

OFFICE USE ONLY

State	Parish	Local Well No	Identification Number
2 2			0

8/20/85

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

FORM LAPWW REV. 11

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 6) EXXON USA
ADDRESS: 4045 SCENIC HWY B.R., LA
OWNERS WELL NUMBER (if any) DM-26

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W ... mi. (or) is near ____ approximately ____ Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 52 ft., Depth of completed well, 50 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cas and/or screen removed, or left in hole, etc.) REMOVE BUMPER POSTS AND CEMENT PAD ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE. TOP OFF TO GROUND SURFACE, 50 FEET OF CASING AND SCREEN LEFT IN HOLE.

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 15, 19 85 by (name and address of contractor or owner) IT CORP. 8116 ONE CALAIS STE 2 BATON ROUGE, LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
22		–	0
1 2	3 4	5 11	12 28

D.M. Dorsey (SIGNATURE) 8/20/85 (DATE)

SEE REVERSE SIDE OF 3RD COPY FOR INSTRUCTIONS

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 636 (1972))

This form is used for an abandoned hole or well

FORM LAPWW REV. 1

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (if different from owner when drilled, note in item 5) EXXON USA
ADDRESS: 4045 SCENIC HWY B.R., LA
OWNERS WELL NUMBER (if any) DM-25

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W ... mi. (or) is near ____ approximately ____ Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 46.5 ft., Depth of completed well, 40 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of cas and/or screen removed, or left in hole, etc.) REMOVE BUMPER POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE, TOP OFF TO GROUND SURFACE 40 FEET OF CASING AND SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 15, 19 85 by (name and address of contractor or owner) IT CORP 8116 ONE CALAIS STE 20 BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
22		–	0

D.M. Dorsey Sister

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 535 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (If different from owner when drilled, note in item 5)
EXXON USA
ADDRESS 4045 SCENIC HWY BR LA
OWNERS WELL NUMBER (If any) DM-28

2. LOCATION OF WELL: Parish: EBR in SECTION 43
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 50 ft., Depth of completed well, 50 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole): DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE PUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING, GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW CEMENT TO CURE TOP OF TO GROUND SURFACE
50 FEET OF CASING & SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 15, 19 85 by (name and address of contractor or owner) IT CORP 8116 ODE CALAIS STE 2D BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
22		–	0
1 2	3 6	6 11	12 26

(SIGNATURE) 8/20/85 (DATE)

SEE REVERSE SIDE OF 3RD COPY FOR INSTRUCTIONS

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Ash Data Products, Inc., Chalmette, LA

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
WATER-WELL ABANDONMENT AND PLUGGING (STATE ACT 535 (1972))

This form is used for an abandoned hole or well

LA. OFFICE OF PUBLIC WORKS

1. WELL OWNER: (If different from owner when drilled, note in item 5)
EXXON USA
ADDRESS 4045 SCENIC HWY BR, LA
OWNERS WELL NUMBER (If any) DM-27

2. LOCATION OF WELL: Parish: EBR in SECTION 44
TOWNSHIP 6S RANGE: 1W well is near approximately
Miles from SEE ATTACHED MAP
(CROSSROADS, TOWN, RAILROAD, ANY LANDMARK, ETC.)

(IF POSSIBLE PLEASE ATTACH MAP OR PLAT SHOWING LOCATION)

3. WELL INFORMATION: Depth of hole 29 ft., Depth of completed well, 27 ft., Date completed 1980 by (Give name and address of water-well contractor who installed well or hole) DAMES & MOORE

4. Describe in detail how well or hole was plugged: (materials used, amount of casing and/or screen removed, or left in hole, etc.) REMOVE PUMP POSTS AND CEMENT PAD, ATTEMPT TO PULL CASING GROUT WITH 4:1 CEMENT/BENTONITE BY TREMIE METHOD, CUT CASING 3" BELOW GROUND SURFACE, ALLOW GROUT TO CURE TOP OFF TO GROUND SURFACE
27 FEET OF CASING & SCREEN LEFT IN HOLE

5. REMARKS:

I certify that this work was done and completed in accordance with Rules and Regulations of the State on MAY 15, 19 85 by (name and address of contractor or owner) IT CORP 8116 ONE CALAIS STE 2D BATON ROUGE LA 70809

OFFICE USE ONLY

State	Parish	Local Well No.	Identification Number
22		–	0
1 2	3 6	6 11	12 26

(SIGNATURE) 8/20/85 (DATE)

SEE REVERSE SIDE OF 3RD COPY FOR INSTRUCTIONS

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Historical Potentiometric Data

Appendix E

July 2004
W.O. #0016262

Environmental Resources Management
3029 South Sherwood Forest Boulevard, Suite 300
Baton Rouge, Louisiana 70816
(225) 292-3001

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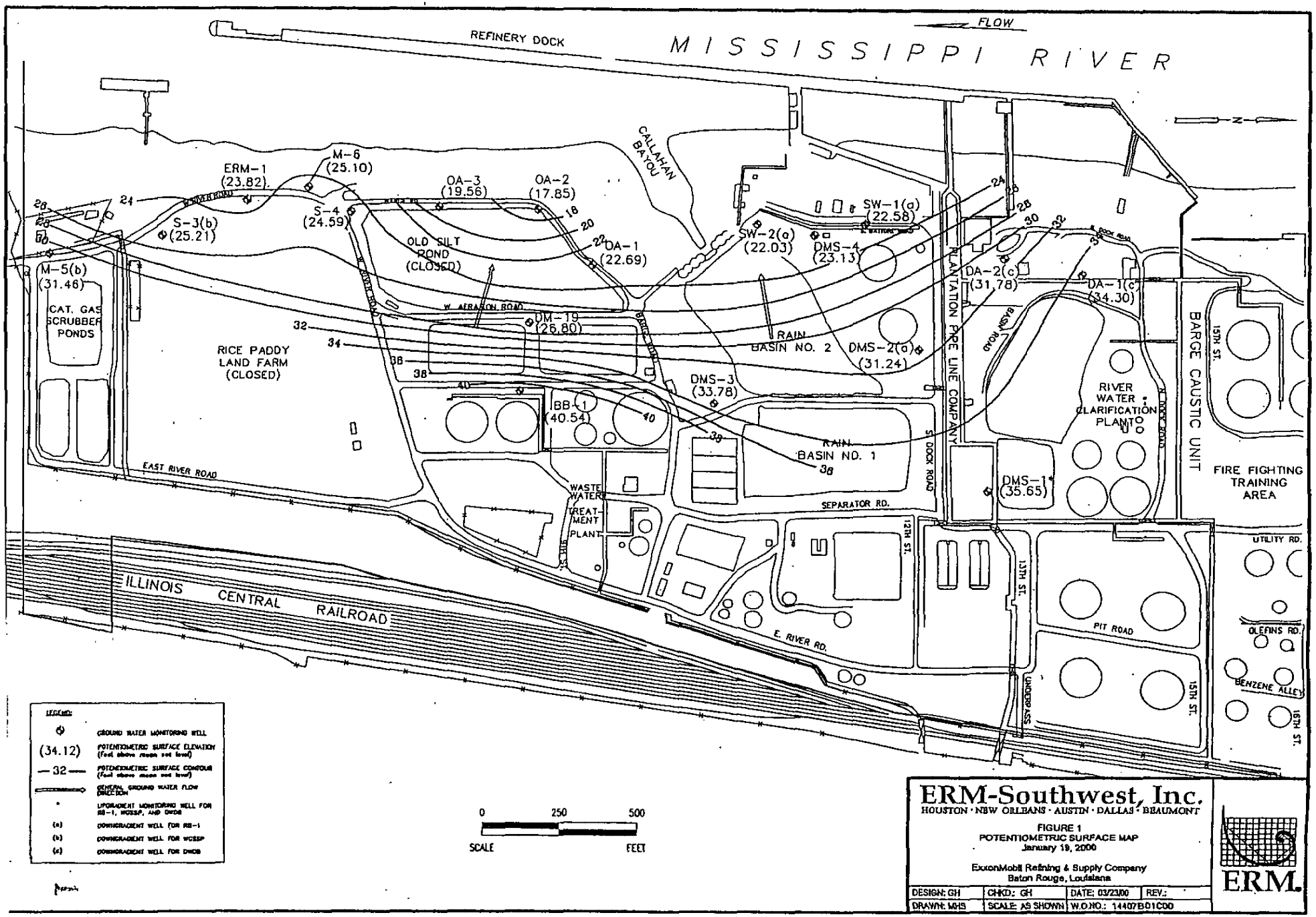

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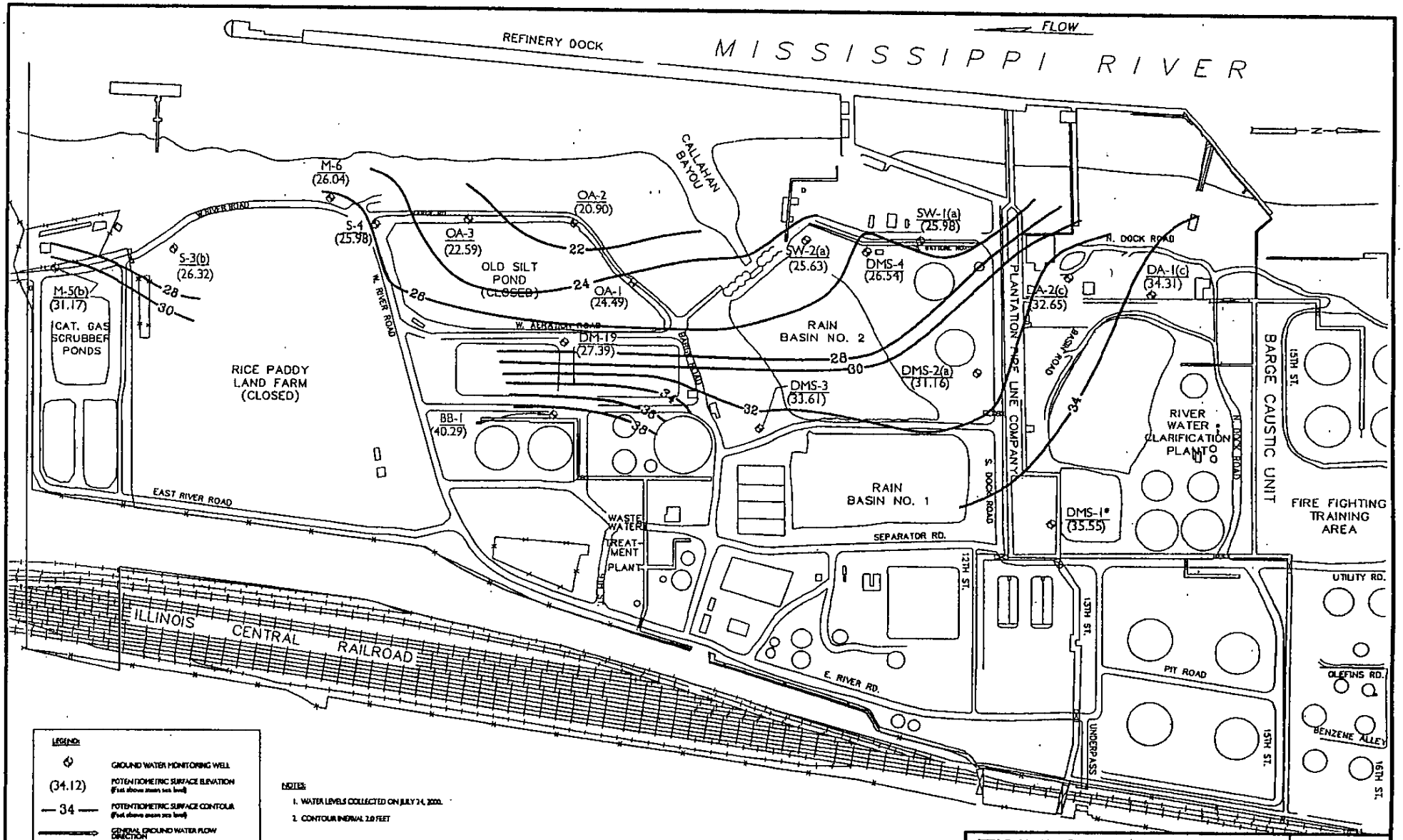
TABLE 2

GROUND WATER MONITORING DATA SUMMARY
1H2000 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5	DA-1	DA-2
Up or Downgradient:	Up	Down	Down	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2, WGSSPs, & DWDB	RB-2	RB-2	RB-2	WGSSPs	WGSSPs	DWDB	DWDB
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel
Sampling Equipment	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet msl)	48.51	46.67	48.86	42.14	55.08	50.18	43.33	41.13
Well Depth (feet below grade)	57.5	52.5	80	59.5	60	48	57.5	52.5
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68	-4.17	-1.37
to ___ feet. msl	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32	-14.17	-11.37
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"	30°29'05"	30°29'02"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"	91°11'30"	91°11'30"
Elevation of Water (msl): January 19, 2000	35.65	31.24	22.58	22.03	25.21	31.46	34.30	31.78
Gallons Purged: January 19-21, 2000	8 (d)	8 (d)	12 (d)	12 (d)	18 (d)	8 (d)	NS	NS
Date Sampled:	1/20/00	1/21/00	1/20/00	1/20/00	1/21/00	1/21/00	NS	NS

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
DWDB = Dirty Water Detention Basin
NA = Sample not analyzed for this parameter as part of the solid waste monitoring program.
ND = not detected at the concentration shown
NS = well not sampled, DWDB released from post closure monitoring requirements
(d) = purged dry


FLOW
REFINERY DOCK
MISSISSIPPI RIVER
N
CALLAHAN BAYOU
M-6 (26.04)
S-4 (25.98)
S-3(b) (26.32)
M-5(b) (31.17)
CAT. GAS SCRUBBER PONDS
W. RIVER ROAD
OA-2 (20.90)
OA-3 (22.59)
OLD SILT POND (CLOSED)
OA-1 (24.49)
SW-1(a) (25.98)
SW-2(a) (25.63)
DMS-4 (26.54)
N. DOCK ROAD
DA-1(c) (34.31)
DA-2(c) (32.65)
PLANTATION PIPE LINE COMPANY
W. AERATION ROAD
DM-19 (27.39)
RAIN BASIN NO. 2
DMS-2(a) (31.16)
DMS-3 (33.61)
RICE PADDY LAND FARM (CLOSED)
BB-1 (40.29)
EAST RIVER ROAD
WASTE WATER TREAT-MENT PLANT
RAIN BASIN NO. 1
S. DOCK ROAD
SEPARATOR RD.
DMS-1* (35.55)
RIVER WATER CLARIFICATION PLANT
BARGE CAUSTIC UNIT
15TH ST.
FIRE FIGHTING TRAINING AREA
UTILITY RD.
ILLINOIS CENTRAL RAILROAD
E. RIVER RD.
12TH ST.
13TH ST.
PIT ROAD
UNDERPASS
OLEFINS RD.
BENZENE ALLEY
16TH ST.
22
24
26
28
30
32
34
36
38
LEGEND:
GROUND WATER MONITORING WELL
(34.12) POTENTIOMETRIC SURFACE ELEVATION (Feet above mean sea level)
34 POTENTIOMETRIC SURFACE CONTOUR (Feet above mean sea level)
GENERAL GROUND WATER FLOW DIRECTION
UPGRADIENT MONITORING WELL FOR RB-1, WGSSP, AND DWDS
DOWNGRADIENT WELL FOR RB-1
DOWNGRADIENT WELL FOR WGSSP
DOWNGRADIENT WELL FOR DWDS
NOTES:
1. WATER LEVELS COLLECTED ON JULY 24, 2000.
2. CONTOUR INERVAL 2.0 FEET
0 250 500
SCALE FEET
ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT
FIGURE 2
POTENTIOMETRIC SURFACE MAP
July 24,2000
ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana
DESIGN: GDM
CHKD.: GDM
DATE: 09/26/00
REV.:
DRAWN: MMH
SCALE: AS SHOWN
W.O.NO.: 14407B01 100
ERM.

LDEQ-EDMS Document 36002082, Page 319 of 356

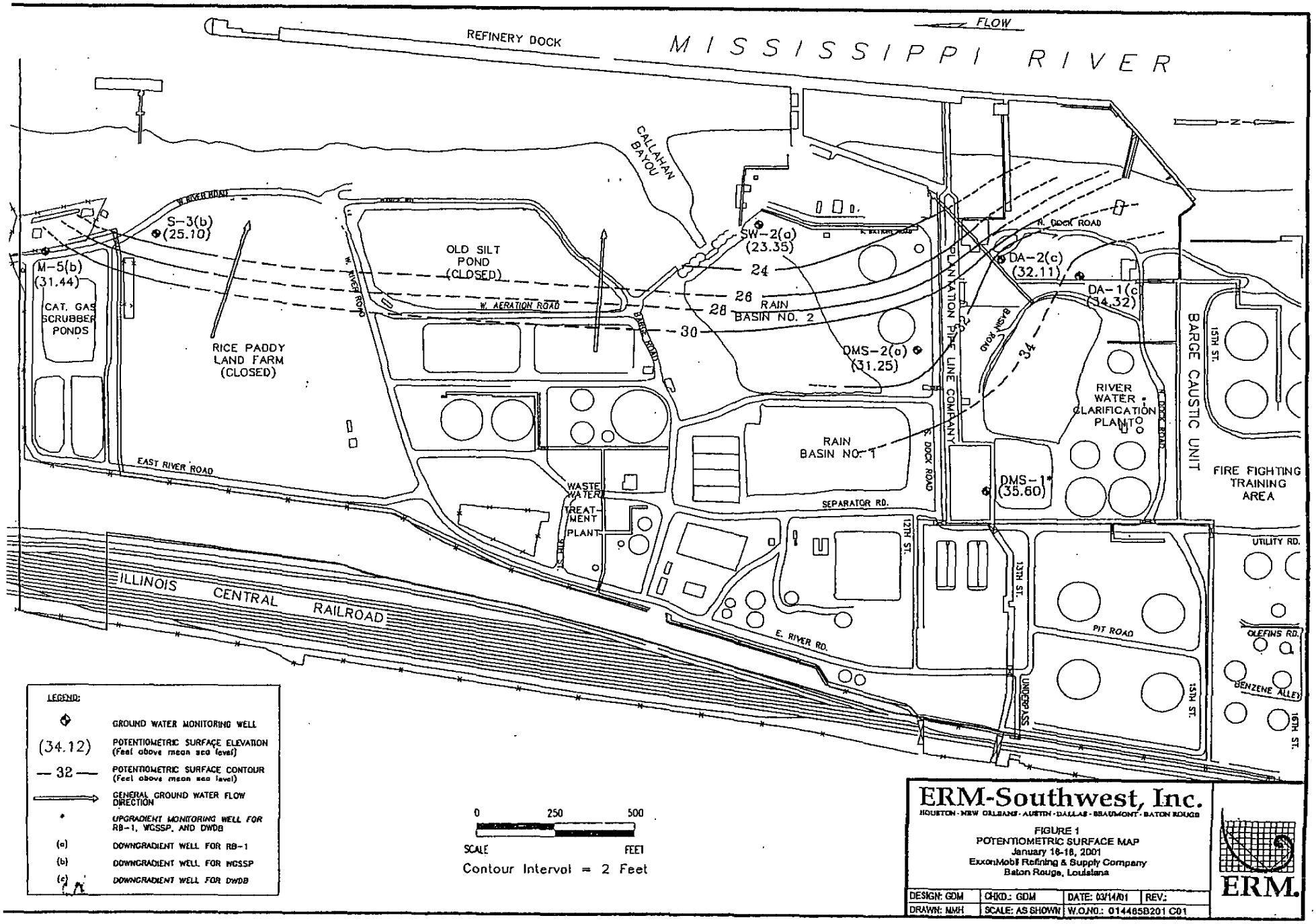
TABLE 2

GROUND WATER MONITORING DATA SUMMARY
2H2000 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5	DA-1	DA-2
Up or Downgradient:	Up	Down	Down	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2, WGSSPs, & DWDB	RB-2	RB-2	RB-2	WGSSPs	WGSSPs	DWDB	DWDB
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel
Sampling Equipment	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet msl)	48.51	46.67	48.86	42.14	55.08	50.18	43.33	41.13
Well Depth (feet below grade)	57.5	52.5	80	59.5	60	48	57.5	52.5
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68	-4.17	-1.37
to ___ feet. msl	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32	-14.17	-11.37
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"	30°29'05"	30°29'02"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"	91°11'30"	91°11'30"
Elevation of Water (msl): July 24, 2000	35.55	31.16	25.98	25.63	26.32	31.17	34.31	32.65
Gallons Purged:	8 (d)	8 (d)	15 (d)	16 (d)	22 (d)	7 (d)	NS	NS
Date Sampled:	7/26/00	7/26/00	7/25/00	7/25/00	7/28/00	7/26/00	NS	NS

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
DWDB = Dirty Water Detention Basin
NA = Sample not analyzed for this parameter as part of the solid waste monitoring program.
ND = not detected at the concentration shown
NS = well not sampled, DWDB released from post closure monitoring requirements
(d) = purged dry


FLOW
REFINERY DOCK
MISSISSIPPI RIVER
CALLAHAN BAYOU
W. RIVER ROAD
S-3(b)
(25.10)
M-5(b)
(31.44)
CAT. GAS SCRUBBER PONDS
RICE PADDY LAND FARM (CLOSED)
OLD SILT POND (CLOSED)
W. AERATION ROAD
SW-2(a)
(23.35)
24
26
28
30
RAIN BASIN NO. 2
DMS-2(a)
(31.25)
PLANTATION PIPE LINE COMPANY
N. DOCK ROAD
DA-2(c)
(32.11)
DA-1(c)
(34.32)
32
34
RIVER WATER CLARIFICATION PLANT
BARGE CAUSTIC UNIT
15TH ST.
FIRE FIGHTING TRAINING AREA
EAST RIVER ROAD
WASTE WATER TREAT-MENT PLANT
RAIN BASIN NO. 1
S. DOCK ROAD
SEPARATOR RD.
DMS-1*
(35.60)
12TH ST.
13TH ST.
UTILITY RD.
ILLINOIS CENTRAL RAILROAD
E. RIVER RD.
PIT ROAD
UNDERPASS
15TH ST.
OLEFINS RD.
BENZENE ALLEY
16TH ST.
LEGEND:
GROUND WATER MONITORING WELL
(34.12) POTENTIOMETRIC SURFACE ELEVATION (Feet above mean sea level)
— 32 — POTENTIOMETRIC SURFACE CONTOUR (Feet above mean sea level)
GENERAL GROUND WATER FLOW DIRECTION
* UPGRADIENT MONITORING WELL FOR RB-1, WGSSP, AND DWDB
(a) DOWNGRADIENT WELL FOR RB-1
(b) DOWNGRADIENT WELL FOR WGSSP
(c) DOWNGRADIENT WELL FOR DWDB
0 250 500
SCALE FEET
Contour Interval = 2 Feet
ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE
FIGURE 1
POTENTIOMETRIC SURFACE MAP
January 16-18, 2001
ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana
DESIGN: GDM
CHKD.: GDM
DATE: 03/14/01
REV.:
DRAWN: NMH
SCALE: AS SHOWN
W.O.NO.: 014465B201 C01
ERM.

LDEQ-EDMS Document 36002082, Page 321 of 356

TABLE 2

GROUND WATER MONITORING DATA SUMMARY
1H2001 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5	DA-1	DA-2
Up or Downgradient:	Up	Down	Down	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2, WGSSPs, & DWDB	RB-2	RB-2	RB-2	WGSSPs	WGSSPs	DWDB	DWDB
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel
Sampling Equipment	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet above msl)	48.51	46.67	48.86	42.14	55.08	50.18	43.33	41.13
Well Depth (feet below grade)	57.5	52.5	80	59.5	60	48	57.5	52.5
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68	-4.17	-1.37
to ___ feet. msl	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32	-14.17	-11.37
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"	30°29'05"	30°29'02"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"	91°11'30"	91°11'30"
Elevation of Water (msl):	35.60	31.25	23.90	23.35	25.10	31.44	34.32	32.11
Gallons Purged:	21	17	16 (d)	16 (d)	35 (d)	15	NS	NS
Date Sampled:	1/18/01	1/18/01	1/18/01	1/18/01	1/16/01	1/16/01	NS	NS

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
DWDB = Dirty Water Detention Basin
msl = mean sea level
NA = Sample not analyzed for this parameter as part of the solid waste monitoring program.
ND = not detected at the concentration shown
NS = well not sampled, DWDB released from post closure monitoring requirements
(d) = purged dry

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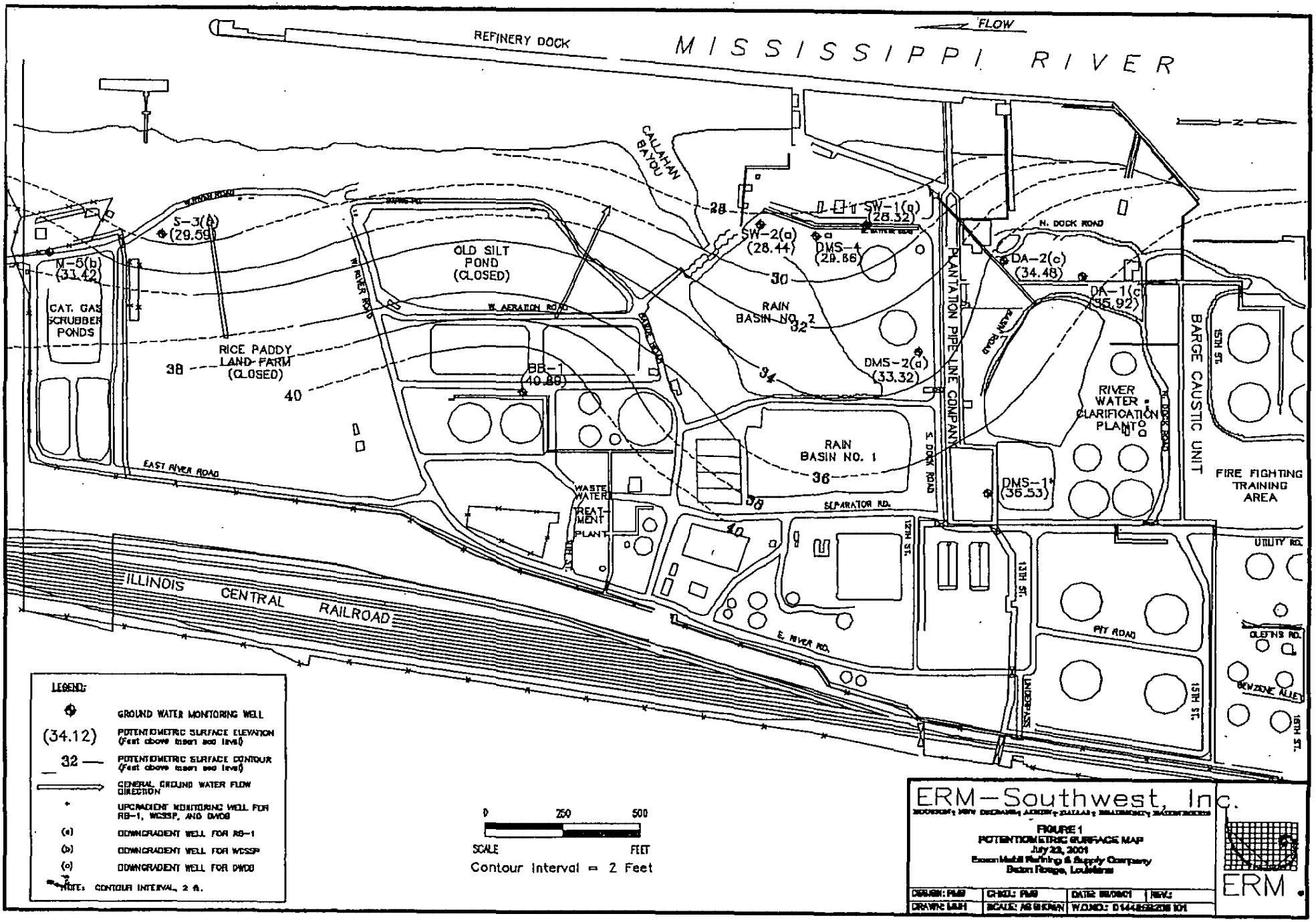

LDEQ-EDMS Document 36002082, Page 323 of 356

TABLE 2

GROUND WATER MONITORING DATA SUMMARY
2H2001 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5	DA-1	DA-2
Up or Downgradient:	Up	Down	Down	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2, WGSSPs, & DWDB	RB-2	RB-2	RB-2	WGSSPs	WGSSPs	DWDB	DWDB
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel
Sampling Equipment:	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet above msl):	48.51	46.67	48.86	42.14	55.08	50.18	43.33	41.13
Well Depth (feet below grade):	57.5	52.5	80	59.5	60	48	57.5	52.5
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68	-4.17	-1.37
to ___ feet, msl:	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32	-14.17	-11.37
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"	30°29'05"	30°29'02"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"	91°11'30"	91°11'30"
Elevation of Water (feet above msl):	36.53	33.32	28.32	28.44	29.59	33.42	35.92	34.48
Gallons Purged:	22	22	15 (d)	18	30 (d)	15	NS	NS
Date Sampled:	7/30/2001	7/30/2001	8/1/2001	7/31/2001	7/24/2001	7/24/2001	NS	NS

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
DWDB = Dirty Water Detention Basin
msl = mean sea level
NA = Sample not analyzed for this parameter as part of the solid waste monitoring program.
ND = not detected at the concentration shown
NS = well not sampled, DWDB released from post closure monitoring requirements
(d) = purged dry

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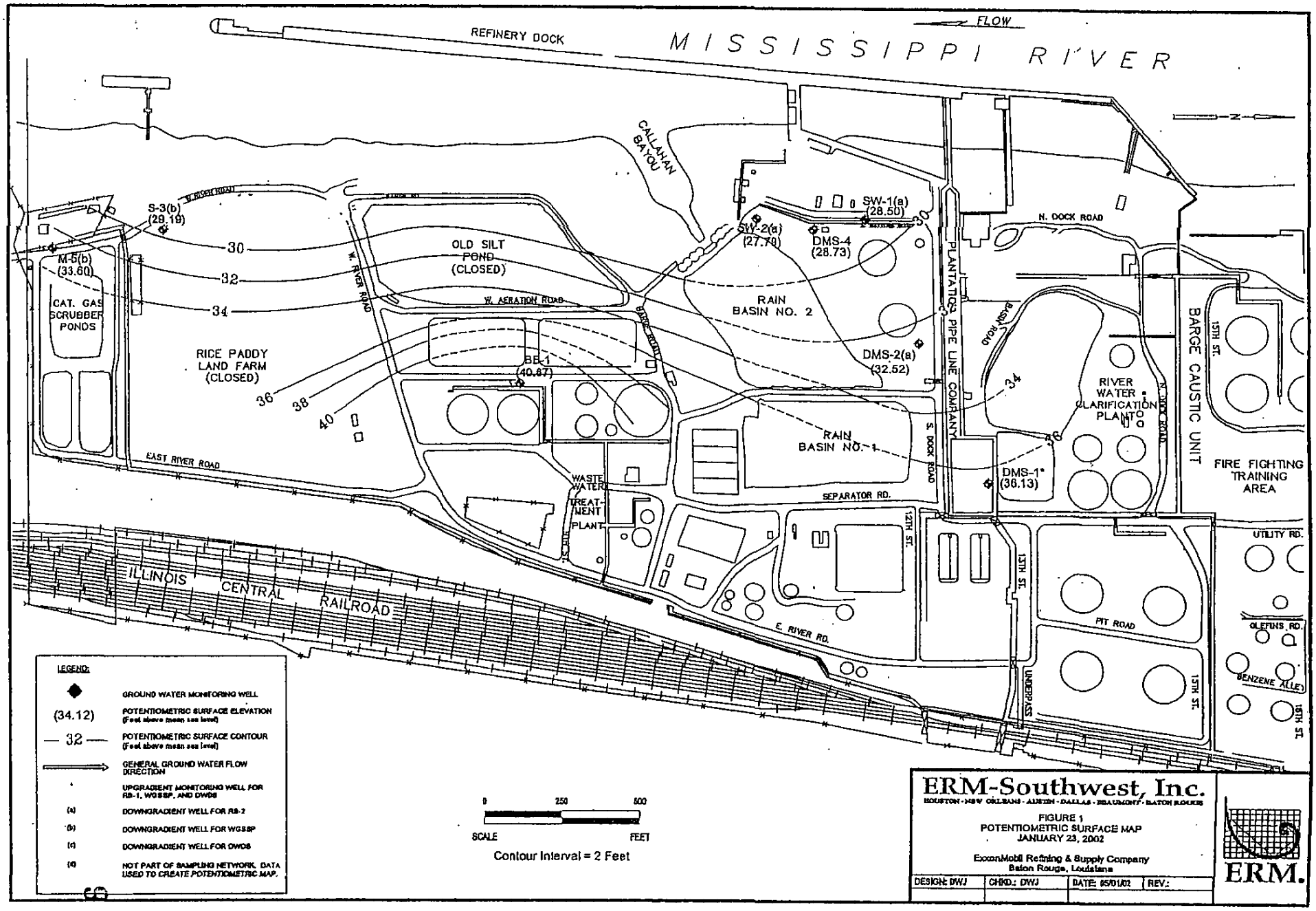

TABLE 2

GROUND WATER MONITORING DATA SUMMARY
FIRST HALF 2002 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5
Up or Downgradient:	Up	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2, WGSSPs, & DWDB	RB-2	RB-2	RB-2	WGSSPs	WGSSPs
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel
Sampling Equipment:	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet above msl):	48.51	46.67	48.86	42.14	55.08	50.18
Well Depth (feet below grade):	57.5	52.5	80	59.5	60	48
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68
to ___ feet, msl:	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"
Elevation of Water (feet above msl):	36.13	32.52	28.50	27.79	29.19	33.60
Gallons Purged:	15(d)	14(d)	15 (d)	18	18(d)	18
Date Sampled:	1/28/2002	1/28/2002	1/29/2002	1/29/2002	1/28/2002	1/28/2002

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
DWDB = Dirty Water Detention Basin
msl = mean sea level
NA = sample not analyzed for this parameter as part of the solid waste monitoring program
ND = not detected at the concentration shown
NS = well not sampled, DWDB released from post closure monitoring requirements
(d) = purged dry

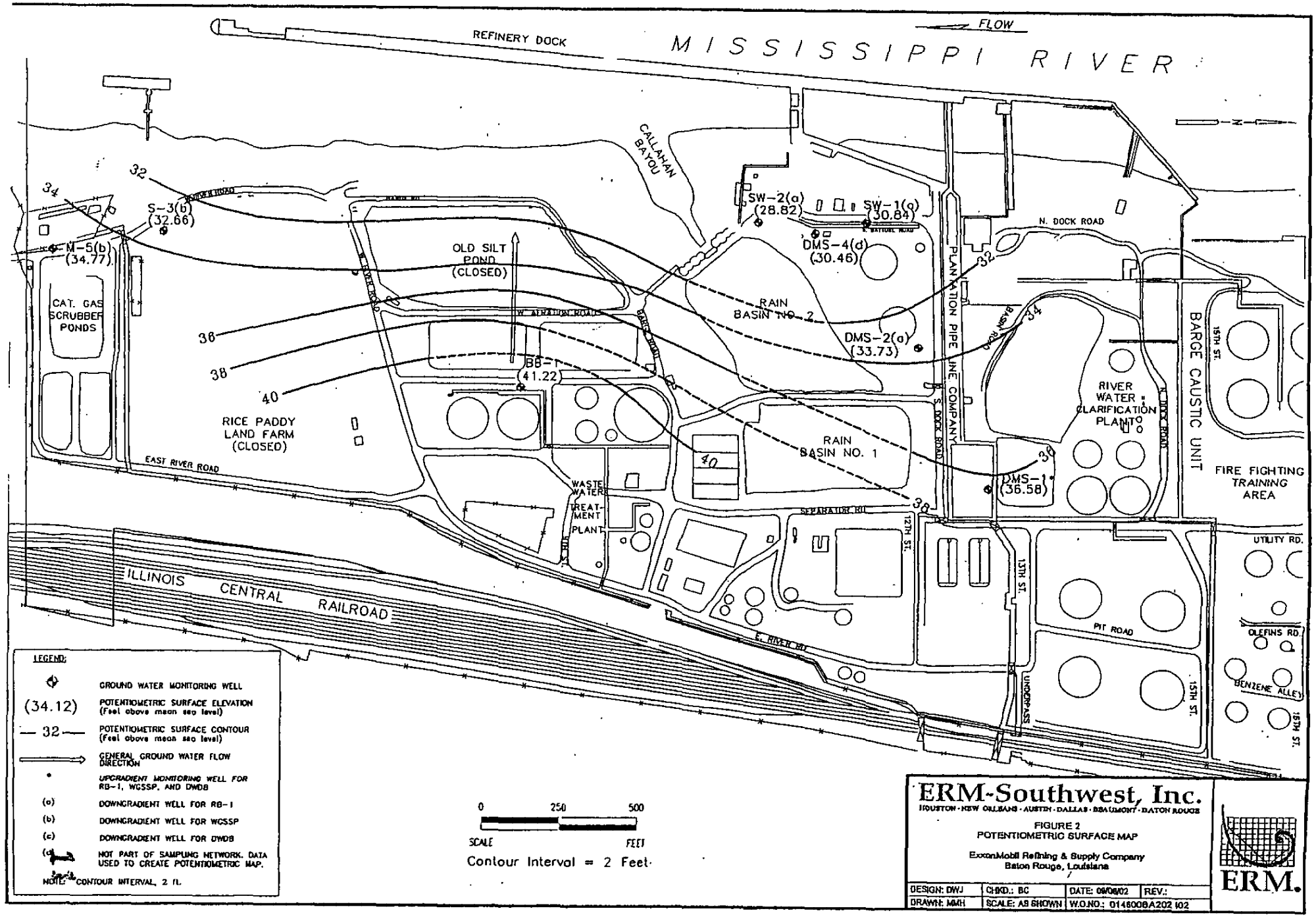
MISSISSIPPI RIVER
FLOW
REFINERY DOCK
CALLAHAN BAYOU
N. DOCK ROAD
S-3(b) (32.66)
M-5(b) (34.77)
CAT. GAS SCRUBBER PONDS
OLD SILT POND (CLOSED)
SW-2(a) (28.82)
SW-1(a) (30.84)
DMS-4(d) (30.46)
RAIN BASIN NO. 2
DMS-2(a) (33.73)
BB-1 (41.22)
RICE PADDY LAND FARM (CLOSED)
EAST RIVER ROAD
RAIN BASIN NO. 1
WASTE WATER TREATMENT PLANT
PLANTATION PIPE LINE COMPANY
S. DOCK ROAD
RIVER WATER CLARIFICATION PLANT
N. DOCK ROAD
BARGE CAUSTIC UNIT
15TH ST.
FIRE FIGHTING TRAINING AREA
DMS-1 (36.58)
SEPARATOR RD.
12TH ST.
13TH ST.
PIT ROAD
UTILITY RD.
OLEFINS RD.
BENZENE ALLEY
15TH ST.
UNDERPASS
E. RIVER RD.
ILLINOIS CENTRAL RAILROAD
32
34
36
38
40
LEGEND:
GROUND WATER MONITORING WELL
(34.12) POTENTIOMETRIC SURFACE ELEVATION (Feet above mean sea level)
— 32 — POTENTIOMETRIC SURFACE CONTOUR (Feet above mean sea level)
GENERAL GROUND WATER FLOW DIRECTION
UPGRADIENT MONITORING WELL FOR RB-1, WGSSP, AND DWDB
(a) DOWNGRADIENT WELL FOR RB-1
(b) DOWNGRADIENT WELL FOR WGSSP
(c) DOWNGRADIENT WELL FOR DWDB
(d) NOT PART OF SAMPLING NETWORK. DATA USED TO CREATE POTENTIOMETRIC MAP.
NOTE: CONTOUR INTERVAL, 2 ft.
0 250 500
SCALE FEET
Contour Interval = 2 Feet
ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE
FIGURE 2
POTENTIOMETRIC SURFACE MAP
ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana
DESIGN: DWJ
CHKD.: BC
DATE: 09/06/02
REV.:
DRAWN: MMH
SCALE: AS SHOWN
W.O.NO.: 0146008A202 I02
ERM.

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TABLE 2

GROUND WATER MONITORING DATA SUMMARY
SECOND HALF 2002 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5
Up or Downgradient:	Up	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2, WGSSPs, & DWDB	RB-2	RB-2	RB-2	WGSSPs	WGSSPs
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel
Sampling Equipment:	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet above msl):	48.51	46.67	48.86	42.14	55.08	50.18
Well Depth (feet below grade):	57.5	52.5	80	59.5	60	48
Screened Interval, from ___ feet to ___ feet, msl:	-1.49 -11.49	1.67 -8.33	-23.64 -33.64	-9.86 -19.86	-2.42 -7.42	4.68 -0.32
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"
Elevation of Water (feet above msl):	36.58	33.73	30.84	28.82	32.66	34.77
Gallons Purged:	13(d)	12.5(d)	65 (d)	18.5	25(d)	15
Date Sampled:	7/16/2002	7/16/2002	7/17/2002	7/17/2002	7/16/2002	7/16/2002

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
DWDB = Dirty Water Detention Basin
msl = mean sea level
(d) = purged dry

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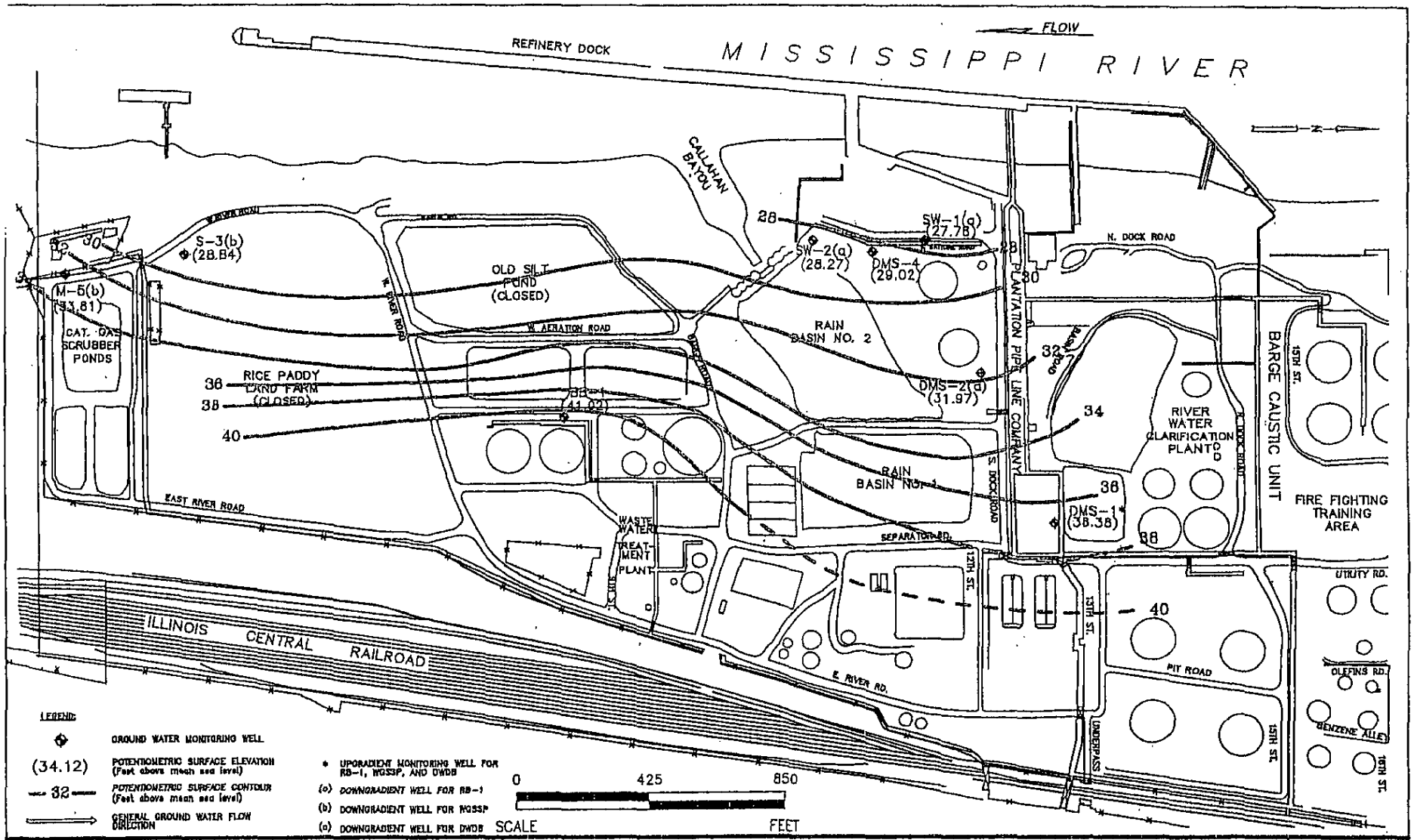

ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · MOBILE · BEAUMONT · BATON ROUGE · CORPUS CHRISTI

DESIGN: AG	DRAWN: MMH	CHKD.: AG
DATE: 03/26/03	SCALE: AS SHOWN	REV.:
W.O.NO.: 014723A219 C03		

FIGURE 2
POTENTIOMETRIC SURFACE MAP
January 14, 2003
ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

ERM.

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TABLE 2

GROUND WATER MONITORING DATA SUMMARY
FIRST HALF 2003 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5
Up or Downgradient:	Up	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2 & WGSSPs	RB-2	RB-2	RB-2	WGSSPs	WGSSPs
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel
Sampling Equipment:	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet above msl):	48.51	46.67	48.86	42.14	55.08	50.18
Well Depth (feet below grade):	57.5	52.5	80	59.5	60	48
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68
to ___ feet, msl:	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"
Elevation of Water (feet above msl):	36.38	31.97	27.78	28.27	26.84	33.81
Gallons Purged:	17.5	13.5	16 (d)	19	76	15
Date Sampled:	1/15/2003	1/15/2003	1/17/2003	1/17/2003	1/15/2003	1/15/2003

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
msl = mean sea level
(d) = purged dry

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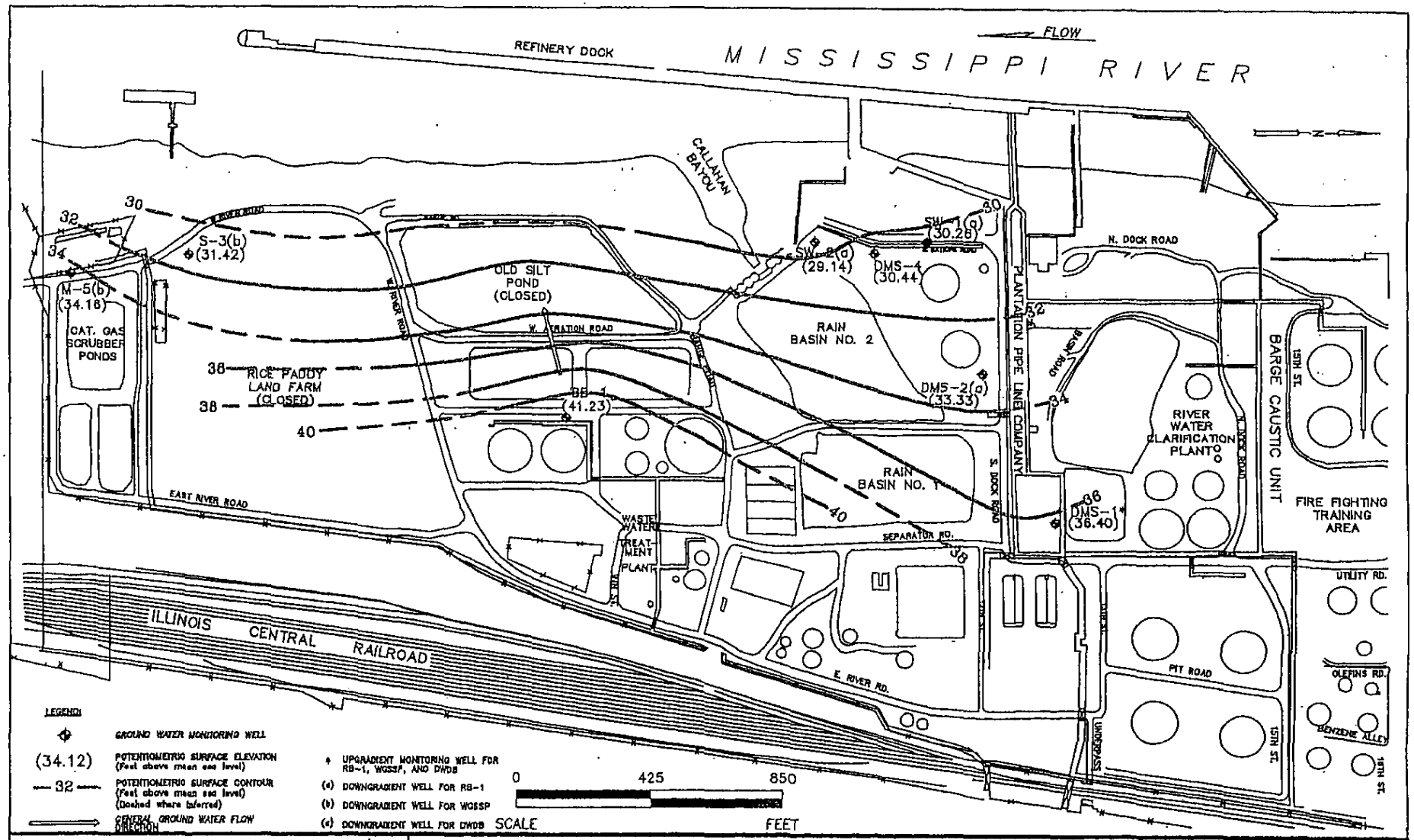

ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · MOBILE · BEAUMONT · BATON ROUGE · CORPUS CHRISTI

DESIGN: FDG	DRAWN: MMH	CHKD.: FDG
DATE: 09/25/03	SCALE: AS SHOWN	REV.:
W.O.NO.: 014723A241_1_1_0491.dwg		

FIGURE 2
POTENTIOMETRIC SURFACE MAP
July 15, 2003
ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

ERM.

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TABLE 2

GROUND WATER MONITORING DATA SUMMARY
SECOND HALF 2003 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5
Up or Downgradient:	Up	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2 & WGSSPs	RB-2	RB-2	RB-2	WGSSPs	WGSSPs
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel
Sampling Equipment:	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet above msl):	48.51	46.67	48.86	42.14	55.08	50.18
Well Depth (feet below grade):	57.5	52.5	80	59.5	60	48
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68
to ___ feet, msl:	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"
Elevation of Water (feet above msl):	36.40	33.33	30.26	29.14	31.42	34.16
Gallons Purged:	23.5	15	17.5 (d)	19.5	27 (d)	26.5
Date Sampled:	7/16/2003	7/16/2003	7/24/2003	7/24/2003	7/16/2003	7/16/2003

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
msl = mean sea level
(d) = purged dry
Water levels were measured on July 15, 2003

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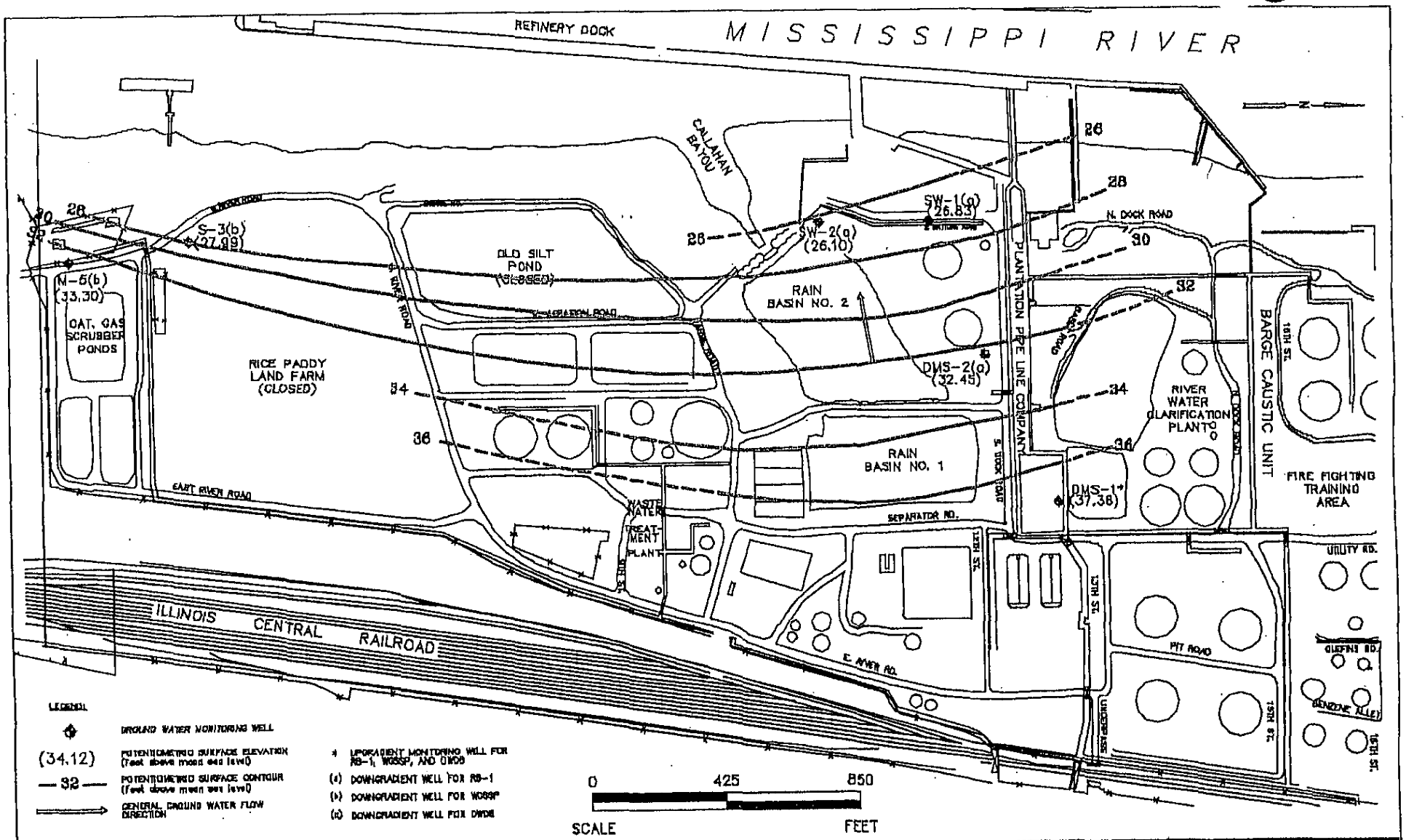

ERM-Southwest, Inc.

DESIGN: RC	DRAWN: MHB	CHKD.: RC
DATE: 03/12/04	SCALE: AS SHOWN	REV.:
W.O.NO.: 0014083A202 C04		

FIGURE 2
POTENTIOMETRIC SURFACE MAP
January 14, 2004
ExxonMobil Refining & Supply Company
Baton Rouge, Louisiana

ERM.

TABLE 2

GROUND WATER MONITORING DATA SUMMARY
FIRST HALF 2004 SAMPLING EVENT
RAIN BASIN 2 AND WET GAS SCRUBBER SETTLING PONDS

ExxonMobil Refining & Supply Company
Baton Rouge Refinery
Baton Rouge, Louisiana

Parameters/Well Number	DMS-1	DMS-2	SW-1	SW-2	S-3	M-5
Up or Downgradient:	Up	Down	Down	Down	Down	Down
Unit(s) Monitored:	RB-2 & WGSSPs	RB-2	RB-2	RB-2	WGSSPs	WGSSPs
Well Construction:	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	2" Stainless Steel	4" PVC	2" Stainless Steel
Sampling Equipment:	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump	Dedicated Pump
Top of Casing Elevation (feet above msl):	48.51	46.67	48.86	42.14	55.08	50.18
Well Depth (feet below grade):	57.5	52.5	80	59.5	60	48
Screened Interval, from ___ feet	-1.49	1.67	-23.64	-9.86	-2.42	4.68
to ___ feet, msl:	-11.49	-8.33	-33.64	-19.86	-7.42	-0.32
Latitude:	30°29'02"	30°29'00"	30°28'58"	30°28'55"	30°28'35"	30°28'31"
Longitude:	91°11'22"	91°11'27"	91°11'32"	91°11'32"	91°11'31"	91°11'30"
Elevation of Water (feet above msl):	37.36	32.45	26.83	26.10	27.99	33.30
Gallons Purged:	17	13.5	25	18	22 (d)	15
Date Sampled:	1/20/2004	1/20/2004	1/21/2004	1/21/2004	1/20/2004	1/16/2004

NOTES:
RB-2 = Rain Basin 2
WGSSPs = Wet Gas Scrubber Settling Ponds
msl = mean sea level
(d) = purged dry
Water levels were measured on January 16, 2004

Personnel Training Manual

Appendix F

July 2004
W.O. #0016262

NOTE:

This training plan was originally developed for the hazardous waste facilities but is applicable to the solid waste facilities.

Environmental Resources Management
3029 South Sherwood Forest Boulevard, Suite 300
Baton Rouge, Louisiana 70816
(225) 292-3001

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1- INTRODUCTION

Personnel training at the ExxonMobil Baton Rouge Refinery is provided to facility personnel directly associated with the operations of Rain Basin 2 and the Wet Gas Scrubber Settling Ponds. This training has been specifically designed to meet the requirements of LAC 33:VII.521.G.1.b. In addition, the water clarification unit (WCLA) personnel that operate the Solid Waste Units receive considerable additional training as required by OSHA's Hazardous Waste Operations and Emergency Response Regulations, 29 CFR 1910.120.

2 - FACILITY PERSONNEL

The job titles and individuals involved in the operation of the Solid Waste Units are described in the following section. The waste management responsibilities assigned to these individuals make up a small fraction of their overall work assignments. A description of the responsibilities relative to hazardous waste management for each position is listed below.

Solid/Hazardous Waste Management Personnel

ENVIRONMENTAL COORDINATOR: Responsible for overall environmental compliance activities and is the primary liaison between Exxon and State/Federal Regulatory agencies. The Environmental Coordinator is instrumental in making refinery technical and policy decisions involving environmental compliance.

WASTE DISPOSAL COORDINATOR: Tracks manifesting and transportation requirements. Works with Refinery personnel and contractors on waste disposal and is the primary coordinator for waste shipments. Documents the location of final waste deposition.

SOLID/HAZARDOUS WASTE ENGINEER: Follows the hazardous waste regulations and insures their compliance. Is also generally responsible for updating and revising facility documents, programs, and designs required under the 40 CFR parts 264 and 270 RCRA regulations and the Louisiana Hazardous Waste Regulations.

WCLA SECTION SUPERVISOR: Has the responsibility for the proper operation of solid/hazardous waste management facilities including the water clarification unit (WCLA).

REFINERY SUPERINTENDENT: Acts as the Refinery's emergency coordinator and supervises plant-wide activities on a 24-hour per day basis.

ZONE 3 SHIFT SUPERVISOR: Supervises the WCLA and associated facilities on the night shift. Has emergency coordinator duties delegated as needed.

WCLA DAY SUPERVISOR: Implements the instructions of the WCLA Section Supervisor including scheduled inspection activities.

WCLA OPERATOR: Continuously monitors the WCLA ensuring their proper operation as ordered by the supervisors.

WCLA ASSISTANT OPERATOR: Assists the operator as required.

PROCESS APPRENTICE: Works with the assistant operators but has not fulfilled the requirements needed to become an assistant operator.

Basic job qualifications for each of these positions are summarized in Table 2-1.

Employees eligible for these positions receive safety, fire protection, personal protective equipment, environmental control, and emergency air pack training within the first few weeks of employment. Training also includes instruction on solid/hazardous waste handling, units inspection, and contingency planning. The content of this training program is presented in Section 3. Additional training in these areas continues throughout an employee's career with special fire fighting courses and informative safety sessions being given on solid/hazardous waste identification, disposal awareness and control, and unit inspection as well as many other topics.

In addition to the training programs, on-the-job training is a major emphasis of our program. It is the designated responsibility of the supervisory personnel previously listed to provide on-the-job training and to review performance of personnel in meeting solid/hazardous waste management procedures and other requirements. In this manner training is reinforced in the particular areas of specialization as discussed below.

1) Environmental Coordinator

Training will consist of generally understanding the facility's solid/hazardous waste management practices and operating permit requirements via self-familiarization with RCRA Parts 264 and 270 regulations and guidance material, seminars, and Part II permit documents.

2) Waste Disposal Coordinator

Special on-the-job training will be provided to these individuals and those performing special tasks in the areas of manifesting and solid/hazardous waste classification, as well as other functions necessary to handle solid/hazardous waste material.

3) Solid/Hazardous Waste Engineer

Training will consist of specifically understanding facility hazardous waste management via familiarization with RCRA Part 264 regulations, regulatory guidance material, and facility solid/hazardous waste management documents.

TABLE 2-1

BASIC JOB QUALIFICATIONS FOR POSITIONS INVOLVED WITH HAZARDOUS WASTE MANAGEMENT

Position Title	Minimum Qualifications
Environmental Coordinator	College degree and experience as a refinery engineer and a demonstrated technical ability to assume-environmental coordinating responsibilities.
Solid/Hazardous Waste	College degree and in-depth Engineer understanding of state and federal solid/hazardous waste regulations.
WCLA Section Supervisor	College degree and/or extensive operations experience in the refinery as well as demonstrated supervisory ability.
Refinery Superintendent	Extensive refinery operations experience.
Shift Supervisor	Extensive refinery operations experience.
WCLA Day Supervisor	Extensive refinery operations experience.
WCLA Operator	Appropriate education and participation in apprentice training program.
WCLA Assistant Operator	Appropriate education and participation in apprentice training program.
Process Apprentice	Appropriate education

4) WCLA Section Supervisor

Section Supervisor will maintain the inspection schedule and will be familiar with the specific requirements. Special on-the-job training will be provided to ensure understanding of solid/hazardous waste handling, inspection techniques, solid/hazardous waste classification, contingency and emergency plan implementation, and information necessary to improve facilities management.

5) Refinery Superintendent, Shift Supervisor, WWTP Day Supervisor

Special on-the-job training will be provided to insure understanding of solid/hazardous waste handling, inspection techniques, solid/hazardous waste classification, contingency and emergency plan implementation, and information necessary to improve facilities management. Shift supervisors will be familiar with the types of problems that can affect the integrity of the dikes, the available freeboard and the ground water monitoring system and the corrective action required to remedy these common problems.

6) WCLA Operator, WCLA Assistant Operator, Process Apprentice

Special on-the-job training provide methods of solid/hazardous waste handling, inspection techniques, solid/hazardous waste classification, and information on improved facilities management.

The Solid/Hazardous Waste Engineer, who is most familiar with the requirements of RCRA and the Refinery's overall solid/hazardous waste management procedures, will assist the training coordinator by updating the program.

3 - TRAINING PROGRAM CONTENT-FREQUENCY, AND TECHNIQUE

3.1 Training Program Content

The Exxon Eaton Rouge Refinery training program is made up of three basic components: 1) introductory training, (2) annual review sessions, and (3) specialized on-the-job training by supervisory personnel. The introductory training consists of on-the-job and classroom training in which fundamental aspects of RCRA compliance requirements are presented and reviewed. This training is provided to refinery personnel involved with handling solid/hazardous waste. Training is conducted within six months of their employment at the Refinery.

The second component of the training program is annual review provided by the employee's supervisor or training instructor. This training is provided to solid/hazardous waste management personnel to review pertinent information from the introductory training.

The third component of the program is specialized on-the-job training. Supervisors instruct personnel in proper solid/hazardous waste handling, inspection, record keeping, contingency, and clean up activities. The performance of these duties is periodically monitored by the appropriate supervisor. This training is given under actual work conditions and provides for monitoring of normal operation and non-emergency solid/hazardous waste handling procedures.

3.2 Training for Emergency Response

The training program is designed to ensure that personnel not only handle solid/hazardous wastes in a safe manner but also properly respond to emergency situations. The program trains solid/hazardous waste handling/management personnel to maintain compliance under both normal operating conditions and emergency conditions.

Training elements addressing nonroutine and emergency situations (unscheduled shutdowns and startups related to storms, power outages, fifes, explosions, spills) include:

- Procedures for locating, using, inspecting, repairing, and replacing facility emergency and monitoring equipment.
- Key procedures for automatic waste feed cutoff systems.
- Emergency communication procedures and alarm systems.
- Response to fires or explosions.
- Response to potential ground and/or surface water contamination incidents and procedures for containing, controlling, and mitigating spills.
- Shutdown of solid/hazardous waste facility operations and power failure procedures.
- Procedures for evacuation of nearby areas.

In addition to the solid/hazardous waste management personnel, company fire brigades are on standby for response to all fires and other general plant emergencies. Fire brigades are trained with classroom training methods, field class fire fighting, and fire drills. The classroom training is essential for introductory training and is conducted frequently throughout the year for all assigned members. Fire drills are conducted periodically for each fire brigade.

3.3 Training Program Implementation

As indicated, new personnel complete this training program within six months of assignment to the solid/hazardous waste storage facility area. No employee hired to work at this facility will work unsupervised prior to completion of the training program.

Training records for those involved in the Exxon Baton Rouge Refinery solid/hazardous waste management program will be maintained. These records may consist of a single sheet for each individual each time a training session has been completed. Records on current personnel will be kept until closure of the facility, and records of former employees will be kept for three years from the date the employee last worked at the facility.

Training will be conducted as follows:

- Introductory training and the Annual Review will be conducted by a specially trained individual, typically from the Environmental Group or employee's supervisory group. This training will be completed for all individuals previously listed in this section. Training of new employees or employees newly assigned to solid/hazardous waste management/handling functions will be conducted as required, but no later than 6 months from the date of assignment. Annual reviews will be conducted for personnel who handle solid/hazardous wastes.

- Special on-the-job training will be conducted by any individual who has completed the Annual Training sessions. Typically, this training will be given by foremen and other supervisory personnel. Special training will be obtained before any individual performs a task requiring special knowledge of a material being handled, unless under direct supervision of the person trained in this task. This training will provide continuing, on-the-job experience and feedback on adherence to required procedures.

Solid Waste Notification Forms and LDEQ Order

Appendix G

July 2004
W.O. #0016262

Environmental Resources Management
3029 South Sherwood Forest Boulevard, Suite 300
Baton Rouge, Louisiana 70816
(225) 292-3001

SOLID WASTE NOTIFICATION FORM

This notification is: __X__ the first for this site

_____ a subsequent notification

Louisiana Identification Number _____

A. Name of Operator (and Company Name if Applicable):

ExxonMobil Refining & Supply Company (a division of Exxon Mobil Corporation)

B. Mailing Address: P.O. Box 551, Baton Rouge, LA 70821

C. Facility Name: ExxonMobil, Baton Rouge Refinery

D. Actual Location/Description (street address if possible):

4045 Scenic Highway Baton Rouge, Louisiana 70805

E. Location: Section 44 Township: 6 south Range: 1 west of St. Helena Meridian

Parish: East Baton Rouge

Coordinates: Latitude Degrees 30 Minutes 28 Seconds 30 North

Longitude Degrees 91 Minutes 11 Seconds 45 West

F. Contact: William D. Fellows

G. Telephone: (225) 977-8430

H. Owner: ExxonMobil Refining & Supply Company (a division of Exxon Mobil Corporation)

I. Owner's Address: P.O. Box 551, Baton Rouge, LA 70821

J. Type and Purpose of Operation: (check each applicable line)

Generator of Industrial Solid Waste __X__ (Generators must also submit supplemental Form)

Transporter _____ (Transporters must also submit supplemental form)

Type I	Industrial Landfill	___
	Industrial Surface Impoundment	___
	Industrial Landfarm	___
Type I-A	Industrial Incinerator Waste Handling Facility	___
	Industrial Shredder/Compactor/Baler	___
	Industrial Transfer Station	___
Type II	Sanitary Landfill	___
	Residential/Commercial Surface Impoundment	X.
	Residential Commercial Landfarm	___
Type II-A	Residential/Commercial Incinerator Waste Handling Facility	___
	Residential/Commercial Shredder/Compactor/Baler	___
	Residential/Commercial Transfer Station	___

	Residential/Commercial Refuse-Derived Fuel	___
Type III	Construction/Demolition-Debris Landfill	___
	Woodwaste Landfill	___
	Compost Facility	___
	Resource Recovery/Recycling Facility	___
	Other	

Describe:_____

_____

K. Total Acres 5.5 Processing Acres _____ Disposal Acres Approx. 5.5

L. Certification: I have personally examined and am familiar with the information submitted in the attached document, and I hereby certify under penalty of law that this information is true, accurate, and complete to the best of my knowledge. I am aware that there are significant -penalties for submitting false information, including the possibility of fine and/or imprisonment.

Signature WD Fellows

Date July 14, 2004

Typed Name and Title William D. Fellows/Refinery Contact

SOLID WASTE NOTIFICATION FORM - ITEM 10
SUPPLEMENTAL INFORMATION
(Generators of Industrial Solid Waste)

Name of Generator: Exxon Baton Rouge Refinery

Waste Name: Stormwater and Sediment from the Clean Master Separator

Process Description: During a major rainfall event stormwater systems are initially flushed out of the sewers and removed in the API Separators or contained in the Dirty Master Separator. After this first flush, the water is essentially clean. When as much rainfall as possible has been contained in the Dirty Master Separator, the stormwater flow is diverted to the Clean Master Separator (CMS). When the CMS becomes full it overflows into the River at NPDES Outfall 003.

Chemical, Physical and Biological Description: See Attachment 1-A

Certification: This is to certify that this waste is not listed hazardous waste, is not hazardous due to its characteristics and is not a waste within the jurisdiction of the Office of Conservation.

Signed J. Kronenberger

Title ENVIRONMENTAL COORDINATOR

Date FEB. 27, 1989

ST-PAINE Laboratories INC.
7979 GSRI AVE. • BATON ROUGE, LA 70806

CLEAN MASTER SEPARATOR SEDIMENT

EXXON COMPANY, U.S.A.
BATON ROUGE REFINERY
PETROLEUM PRODUCTS LAB

AUGUST 13, 1985

Sample Identification: CMS1 Sludge, 07-11-85

Parameter	Results	Maximum Allowable in Extract	Quality Assurance Actual/Found	Date/ Analyst
Arsenic (mg/L As)	0.11	5.0	0.050/0.047	08-05/VM
Barium (mg/L Ba)	0.21	100	2.50/2.48	08-07/VM
Cadmium (mg/L Cd)	0.010	1.0	0.250/0.257	08-06/VM
Chromium (mg/L Cr)	0.01	5.0	0.50/0.50	08-05/VM
Lead (mg/L Pb)	0.82	5.0	2.50/2.54	08-06/VM
Mercury (mg/L Hg)	<0.0002	0.2	0.0100/0.0106	08-07/VM
Selenium (mg/L Se)	<0.01	1.0	0.050/0.050	08-05/VM
Silver (mg/L Ag)	<0.01	5.0	0.50/0.50	08-06/VM

Sample Weight

102.42 grams

Sample from Exxon-2

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WEST-PAINE Laboratories INC.
7979 GSRI AVE. • BATON ROUGE, LA 70808

CLEAN MASTER SEPARATOR SEDIMENT

EXXON COMPANY, U.S.A.
BATON ROUGE REFINERY
PETROLEUM PRODUCTS LAB

AUGUST 13, 1985

Sample Identification: CMS2 Sludge, 07-11-85

Parameter	Results	Maximum Allowable in Extract	Quality Assurance Actual/Found	Date/ Analyst
Arsenic (mg/L As)	0.11	5.0	0.050/0.047	08-05/VM
Barium (mg/L Ba)	0.16	100	2.50/2.48	08-07/VM
Cadmium (mg/L Cd)	0.007	1.0	0.250/0.257	08-06/VM
Chromium (mg/L Cr)	<0.01	5.0	0.50/0.50	08-05/VM
Lead (mg/L Pb)	0.41	5.0	2.50/2.54	08-06/VM
Mercury (mg/L Hg)	0.0026	0.2	0.0100/0.0106	08-07/VM
Selenium (mg/L Se)	<0.01	1.0	0.050/0.050	08-05/VM
Silver (mg/L Ag)	<0.01	5.0	0.50/0.50	08-06/VM

Sample Weight

100.68 grams

LDEQ-EDMS Document 36002082, Page 350 of 356

WEST-PAINE Laboratories INC.
7979 GSRI AVE. • BATON ROUGE, LA 70808

CLEAN MASTER SEPARATOR SEDIMENT

EXXON COMPANY, U.S.A.
BATON ROUGE REFINERY
PETROLEUM PRODUCTS LAB

AUGUST 13, 1985

Sample Identification: CMS3 Sludge, 07-11-85

Parameter	Results	Maximum Allowable in Extract	Quality Assurance Actual/Found	Date/ Analyst
Arsenic (mg/L As)	0.11	5.0	0.050/0.047	08-05/VM
Barium (mg/L Ba)	<0.10	100	2.50/2.48	08-07/VM
Cadmium (mg/L Cd)	0.010	1.0	0.250/0.257	08-06/VM
Chromium (mg/L Cr)	<0.01	5.0	0.50/0.50	08-05/VM
Lead (mg/L Pb)	0.73	5.0	2.50/2.54	08-06/VM
Mercury (mg/L Hg)	0.0022	0.2	0.0100/0.0106	08-07/VM
Selenium (mg/L Se)	<0.01	1.0	0.050/0.050	08-05/VM
Silver (mg/L Ag)	<0.01	5.0	0.50/0.50	08-06/VM

Sample Weight

100.98 grams

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WEST-PAINE Laboratories INC.
7979 GSRI AVE. • BATON ROUGE, LA 70806

CLEAN MASTER SEPARATOR SEDIMENT

EXXON COMPANY, U.S.A.
BATON ROUGE REFINERY
PETROLEUM PRODUCTS LAB

AUGUST 13, 1985

Sample Identification: CMS4 Sludge, 07-11-85

Parameter	Results	Maximum Allowable in Extract	Quality Assurance Actual/Found	Date/ Analyst
Arsenic (mg/L As)	0.13	5.0	0.050/0.047	08-05/VM
Barium (mg/L Ba)	0.12	100	2.50/2.48	08-07/VM
Cadmium (mg/L Cd)	0.007	1.0	0.250/0.257	08-06/VM
Chromium (mg/L Cr)	0.01	5.0	0.50/0.50	08-05/VM
Lead (mg/L Pb)	0.57	5.0	2.50/2.54	08-06/VM
Mercury (mg/L Hg)	0.0028	0.2	0.0100/0.0106	08-07/VM
Selenium (mg/L Se)	<0.01	1.0	0.050/0.050	08-05/VM
Silver (mg/L Ag)	<0.01	5.0	0.50/0.50	08-06/VM

Sample Weight

101.76 grams

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ATTACHMENT 2

Louisiana Department of Environmental Quality

OPERATIONS SUPPORT DEPARTMENT
B. G. MACKLIN
CDT TAK File
FEB 25 1986
Circulate Comment Handle Info
WRB FRH MWK PMM RMP LK JPH RAC JRL MAO ERP MDY

PATRICIA L. NORTON
SECRETARY

OFFICE OF SOLID AND HAZARDOUS WASTE

JOHN KOURY
ASSISTANT SECRETARY

February 24, 1986

CERTIFIED MAIL P 247 895 690
RETURN RECEIPT REQUESTED

Mr. L. Kronenberger
Environmental Coordinator
Exxon Company, U.S.A.
Baton Rouge Refinery
Post Office Box 551
Baton Rouge, Louisiana 70821

Re: Exxon Company, USA
Baton Rouge Refinery
Wastewater Treatment System
GD-033-0596
Order No. OU-0015
Log No. S-O-86-0093
East Baton Rouge Parish

Enclosed is an Order for the above referenced solid waste facility. The Order requires the submission of a permit application and allows continued operation of the facility while the application is being prepared.

The records of the Solid Waste Division indicate that you were untimely in your submission of the required Solid Waste Notification Form which precipitated the issuance of the referenced Order. Due to the untimeliness of your notification, you have avoided paying the Annual Permit Maintenance Fee required under Section 6.4.5. of the Louisiana Solid Waste Rules and Regulations. Following this Order, we intend to issue a "Notice of Proposed Penalty" to recover at least those fees which you have avoided since 1983.

Please reference the above subject lines in all correspondence related to this matter.

Should you have any questions about this Order or the permit application, please contact the Solid Waste Division at (504) 342-1216.

Very truly yours,

Patricia L Norton

PATRICIA L. NORTON
Secretary

PLN:BT:tzc

Enclosure

SOLID WASTE DIVISION • P.O. BOX 44307 • BATON ROUGE, LOUISIANA 70804 • PHONE (504) 342-1216

STATE OF LOUISIANA

DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF	*	
	*	
WASTEWATER TREATMENT SYSTEM	*	
(Dirty Master Separator, Dirty Water	*	
Detention Basin, Two Biox Basins,	*	
Three Wet Gas Scrubber Catalyst Ponds,	*	
and All Interconnecting Ditches)	*	
GD-033-0596	*	
	*	ORDER
Mr. L. Kronenberger	*	TO
Environmental Coordinator	*	UPGRADE
Exxon Company, U.S.A.	*	
Baton Rouge Refinery	*	ORDER NO. OU-0015
Post Office Box 551	*	
Baton Rouge, Louisiana 70821	*	
	*	
PROCEEDINGS UNDER THE LOUISIANA	*	
ENVIRONMENTAL QUALITY ACT	*	
LA. R.S. 30:1051 ET SEQ.,	*	

The following ORDER is issued to Exxon Company U.S.A., Baton Rouge Refinery (hereinafter referred to as "the Respondent") by the Secretary, Department of Environmental Quality, under the authority granted by the Louisiana Environmental Quality Act (hereinafter referred to as "the Act"), La. R.S. 30:1051 et seq., and particularly Section 1061 D(6) and (14) of the Act.

FINDINGS OF FACT

I.

Respondent operates a solid waste facility known as Wastewater Treatment System and located at Range 1 West, Township 6 South, Section 44 in East Baton Rouge Parish (hereinafter referred to as "Site").

II.

Respondent's Site has not been permitted as required by Section 6.3.2. of the LSWRR. For this reason Respondent must upgrade its Site in accordance with the following directive.

ORDER

Based on the foregoing FINDINGS OF FACT, Respondent is hereby ORDERED:

I.

To submit to the Solid Waste Division within 180 days of issuance of this ORDER, three copies of a permit application complete with proposals to address LSWRR Section 6.4.2. and 6.4.3. The permit application shall include responses to Attachment A, "Permit Application Requirements," which is attached hereto and made a part of this ORDER.

II.

The permit application shall be accompanied by payment in full of the appropriate permit application fee as required by Section 6.4.5.A. of the LSWRR.

III.

To operate the Site in accordance with Attachment B, "Interim Opertional Plan," which is attached hereto and made a part of this ORDER, until such time as a Standard Permit is issued or until otherwise authorized by the Department.

IV.

To submit to the Solid Waste Division annual reports in accordance with LSWRR Section 7.3.2.A.2. The reporting period shall be from July 1, 1985 through June 30, 1986, and annually thereafter.

V.

To submit to the Solid Waste Division payment of an annual maintenance fee which shall be assessed in accordance with data submitted in the annual report referenced in Paragraph IV of this ORDER.

VI.

To be hereby notified that failure or refusal to comply with this ORDER and the provisions herein, may result in the issuance by the Department of an Order requiring immediate closure of the Site and possible enforcement procedures under Section 1073 of the Act which could result in the assessment of civil penalties in an amount not to exceed $50,000 for each day of continued non-compliance.

VII.

This ORDER is effective on receipt.

Done at Baton Rouge, Louisiana, on this 20th day of Feb., 1986.

Patricia L Norton
PATRICIA L. NORTON
Secretary