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Site Investigation Report
Tanks 38, 42, 45, and 48
Tank Farm 4

Volume II - Appendices

Naval Education and Training Center
Newport, Rhode Island

Northern Division
Naval Facilities Engineering Command
Contract Number N62472-90-D-1298
Contract Task Order 0143

April 1996

Brown & Root Environmental

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SITE INVESTIGATION REPORT
TANKS 38, 42, 45, AND 48
TANK FARM 4

VOLUME II - APPENDICES

NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Northern Division
Environmental Branch, Code 1812PFB
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop No. 2
Lester, Pennsylvania 19113-2090

Submitted by:
Brown & Root Environmental
993 Old Eagle School Road, Suite 415
Wayne, Pennsylvania 19087

CONTRACT NUMBER N62472-90-D-1298
"CLEAN" Contract Task Order No. 0143

April 1996

TABLE OF CONTENTS
VOLUME II - APPENDICES

APPENDICES

A FLOOR PLAN, TANK 42

B SOIL BORING AND SOIL PROBING LOGS

C WELL CONSTRUCTION LOGS

D ANALYTICAL DATA

E RELEVANT SECTIONS OF THE MASSACHUSETTS CONTINGENCY PLAN

F HYDRAULIC CONDUCTIVITY DATA

APPENDIX A

FLOOR PLAN, TANK 42

STONE & WEBSTER ENGINEERING CORPORATION
245 SUMMER STREET
BOSTON, MA

TRIP REPORT
TANK CONTENT REMOVAL
TANK FARM #4 NETC, NEWPORT, RHODE ISLAND
CONTRACT N62472-94-C-0808

J.O. No. 04657.31.04

Trip to Tank No. 42 - Tank Farm No. 4
NETC, Newport, Rhode Island
November 28, 1995

Present for:

Stone & Webster Engineering Corporation (SWEC)

Peter M. Veneto, P.E.

PURPOSE

The purpose of this trip was to inspect the interior concrete of Tank No. 42.

DISCUSSION

Tank No. 42 is a buried, cylindrical, reinforced concrete oil storage tank, approximately 116 ft in diameter, and 35 ft high. The concrete roof is supported internally by 32 reinforced concrete columns. The tank was built around 1942.

The interior of the tank had been cleaned of most of the oil residue, so that a large portion of the interior concrete surface was exposed to view. Several minor (< 1/8 in. wide) random cracks were visible in the concrete floor. Also visible were very intermittent parallel hairline cracks running circumferentially around the tank wall, up to approximately 8 ft above the floor. These cracks are not considered significant and do not require sealing. Additionally, very minor pitting, probably formed during construction, was observed in the walls and columns.

All of the cracks in the floor were inspected more closely, and were determined to be of minor structural significance. It could not be determined definitively from this inspection if these cracks had leaked at any time, since the groundwater was being lowered to below the floor elevation. However, it did appear from this closer observation that these cracks are of little concern and need not be sealed.

From observation of the large portion of the tank that had been cleaned, the concrete is in good condition with no major structural distress apparent.

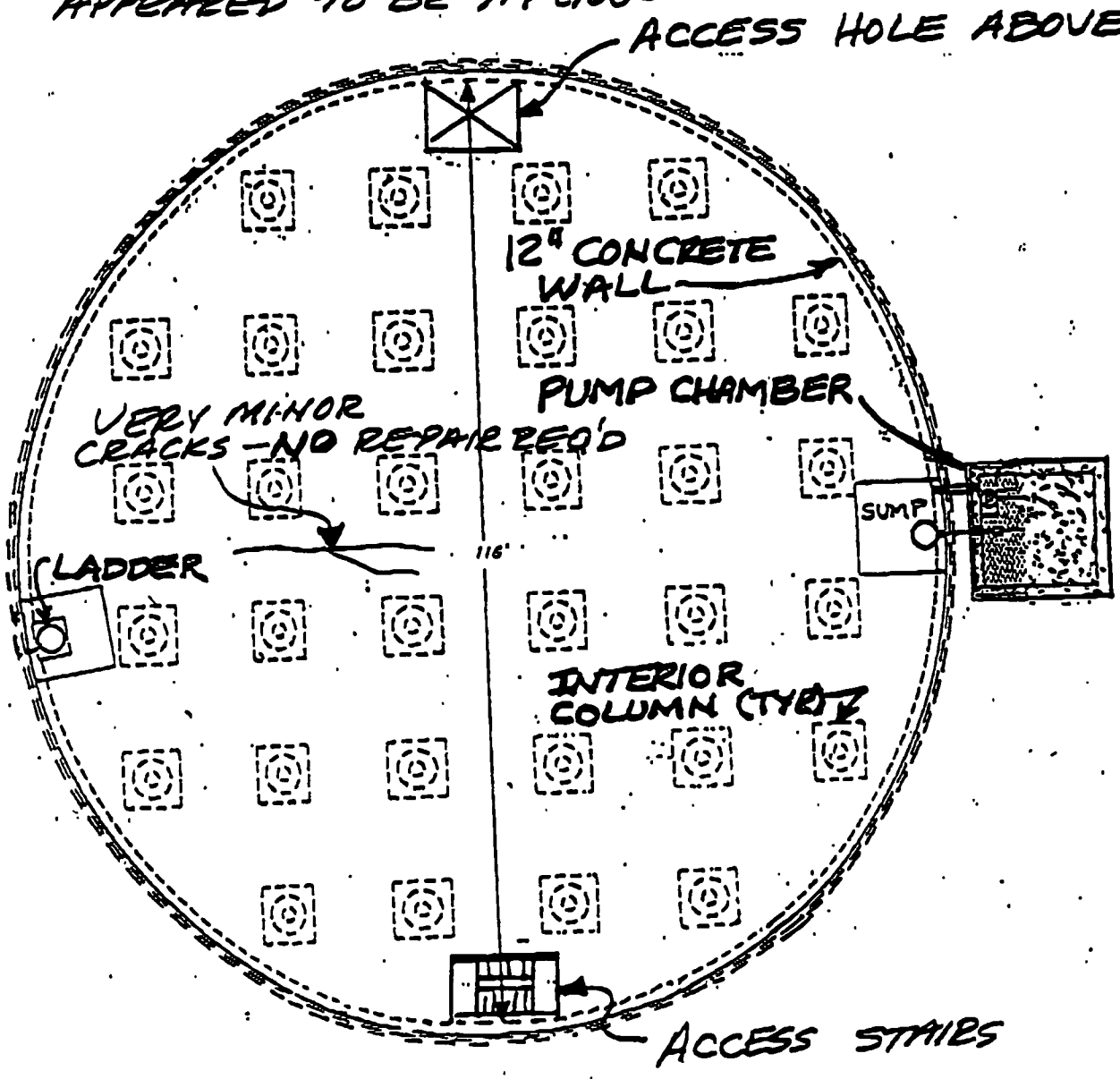
Peter M. Veneto, P.E.

245 SUMMER STREET
BOSTON, MA

J.O. No. 04657.31.04

TRIP REPORT
TANK CONTENT REMOVAL
TANK FARM #4 NETC, NEWPORT, RHODE ISLAND
CONTRACT N62472-94-C-0808

NOTE: TANK STILL CONTAINED SOME OIL RESIDUE ON THE WALL AND FLOOR WHICH OBSCURED VISIBILITY OF SOME AREAS. HOWEVER THE TANK GENERALL APPEARED TO BE IN GOOD CONDITION.



FLOOR: VERY MINOR CRACKS IN SOME AREAS, NO REPAIRS ARE REQUIRED.

COLUMNS: VERY MINOR SPALLS IN SOME COLUMNS, NO REPAIRS REQ'D.

WALL: VERY MINOR SPALLS AND CIRCUMFERENTIAL CRACKS IN SOME AREAS, NO REPAIRS REQ'D

FLOOR PLAN
TANK # 42
11/28/95

APPENDIX B

SOIL BORING AND SOIL PROBING LOGS

100 SERIES BORING LOGS

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJAY CARON	BORING NO: TF4-B-38
DATE START: 11/17/1994	DEPTH TO WATER: --	LOGGED BY: T Dargan	GROUND EL.: 0.00
DATE COMPLETED: 11/17/1994	DATE & TIME: -- /	CHECKED BY: mn 5/12	TOTAL DEPTH: 39 00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0							
							Begin sampling at 26 ft bgs	
	24							

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

No samples 0-26', continous soil sampling 26' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer
TF4-B-38 = TF4-MW-125, Set well 33-38'

ACAD NAME:C:\TEMP\josh\38A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJAY CARON	BORING NO: TF4-B-38
DATE START: 11/17/1994	DEPTH TO WATER: --	LOGGED BY: T Dorgan	GROUND EL.: 0.00
DATE COMPLETED: 11/17/1994	DATE & TIME: -- /	CHECKED BY: MJDZ.	TOTAL DEPTH: 39.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	24						Begin sampling at 26 ft bgs	
	26	S-1	3 6 4 6 10 6 5 6	24	6	saturated	S-1 (6) silty sandy GRAVEL, mostly ang gravel up to 1", few f-med sand, tr-few silt, sat, brown no odor or stains	GM
	28	S-2	2 6 4 6 1 6 1 6	24	24		S-2 (24) silty gravelly SAND, mostly f-crs sand, some gravel (ang), few silt, crs sand is ang, gravel is crs up to 1", brown no odor or stains	SM
	30	S-3	wor 6 wor 6 1 6 1 6	24	1	poor recovery	S-3 (1) silty sandy GRAVEL, mostly ang gravel up to 15, tr f sand, tr silt very poor recovery, total rec. in driller jar	GM
	32	S-4	1 6 2 6 10 6 9 6	24	18	free phase oil in mid of spoon	S-4 (18) silty sandy GRAVEL, mostly ang gravel up to 1", few f sand, tr silt, brown, free phase oil in middle of spoon, saturated layer	GM
	34	S-5	5 6 3 6 2 6 5 6	24	12	pet odor	S-5 (12) silty gravelly SAND, mostly f sand, few ang to s-ang gravel up to 1", few silt, grey, noticible odor of petroleum, but no free phase noticed	SM
	36	S-6	9 6 120 5	11	13		S-6 (13) silty sandy GRAVEL, mostly ang to s-ang gravel up to 15", few f sand, tr-few silt, grey	GM
	39	S-7	120 3	3	3	37 - 39' gap in log	S-7 (3) BEDROCK, dark grey schist, oil saturated free phase	

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

No samples 0-26', continous soil sampling 26' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer
TF4-B-38 = TF4-MW-125, Set well 33-38'

ACAD NAME:C:\TEMP\josh\38b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJAY CARON	BORING NO: TF4-B-42
DATE START: 11/15/1994	DEPTH TO WATER: --	LOGGED BY: T. Dorgan	GROUND EL.: 0.00
DATE COMPLETED: 11/16/1994	DATE & TIME: ---- / --	CHECKED BY: mind	TOTAL DEPTH: 39 00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0							
							Begin sampling at 26 ft bgs	
	24							

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

No samples 0-26', continous soil sampling 26' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer
TF4-B-42 = TF4-MW-123, Set well 33-38'

ACAD NAME:C:\TEMP\josh\42A DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	AJAY CARON	BORING NO:	TF4-B-42
DATE START:	11/15/1994	DEPTH TO WATER:	--	LOGGED BY:	T Dargan	GROUND EL.:	0.00
DATE COMPLETED:	11/16/1994	DATE & TIME:	---- / --	CHECKED BY:	MRJ	TOTAL DEPTH:	39.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	24						Begin sampling at 26 ft bgs	
	26	S-1	23 6 23 6 14 6 10 6	24	14		S-1 silty sandy GRAVEL, mostly ang gravel up to 15", some f sand, few silt, brown, no odor or stains, dry	GM
	28	S-2	18 6 8 6 26 6 15 6	24	12		S-2 (12) silty sandy GRAVEL, Similar to S-1, dry, gravel = rock frags up to 2" diam = rock wafers	GM
	30	S-3	16 6 15 6 16 6 13 6	24	15		S-3 (15) silty sandy GRAVEL, Similar to S-2, mostly ang gravel up to 2", rock wafers, few f sand, few silt, grey, no odor or staining, dry but moist in last 2"	GM
	32	S-4	8 6 50 6 60 6 15 6	24	10		S-4 (10) GRAVEL, mostly gravel, ang up to 2", tr f sand, tr silt, brown, sat, igneous rock in nose, s-rnd 2"	GM
	34	S-5	23 6 25 6 19 6 13 6	24	7	poss ring drain	S-5 (7) GRAVEL, mostly f - crs gravel, few sand,tr silt, 3 pieces of quartzite which make 1 piece 3.5 "rnd gravel, no stains	GM
	36	S-6	16 6 14 6 23 6 21 6	24	15	poss ring drain	S-6 (15) GRAVEL, similar to S-5, free phase oil saturated throughout where sample	GM
	38	S-7	97 6 120 3	9	9		S-7a (1) GRAVEL, similar to S-6, oil free phase S-7b (2) weathered ROCK, tan S-7c (1) weathered ROCK, orange oxidized S-7d (5) light grey soft weathered ROCK, rock is dissimilar to dark grey slates + schists that have been predominant at site. difficult to I.D due to poor condition. very weathered annd incompetent	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES.

No samples 0-26', continous soil sampling 26' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer
TF4-B-42 = TF4-MW-123, Set well 33-38'

ACAD NAME:C:\TEMP\josh\42b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	S LAMARCHE	BORING NO:	TF4-B-45
DATE START:	11/15/1994	DEPTH TO WATER:	--	LOGGED BY:	K Jalkut	GROUND EL.:	0.00
DATE COMPLETED:	11/15/1994	DATE & TIME:	---- / --	CHECKED BY:	MSN	TOTAL DEPTH:	40.00

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0							
							Begin sampling at 26 ft bgs	
	24							

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

No samples 0-26', continous soil sampling 26' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer, 3' split spoon
TF4-B-45 = TF4-MW-122, Set well 34-39'

ACAD NAME:C:\TEMP\josh\45A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	S LAMARCHE	BORING NO:	TF4-B-45
DATE START:	11/15/1994	DEPTH TO WATER:	--	LOGGED BY:	K Jalkut	GROUND EL.:	0.00
DATE COMPLETED:	11/15/1994	DATE & TIME:	---- / --	CHECKED BY:	MSM	TOTAL DEPTH:	40.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	24						Begin sampling at 26 ft bgs	
	26	S-1	11 6 17 6 15 6 11 6	24	19	Above wt	S-1 (19) sandy gravelly SILT, p-graded, mostly silt, some crs s-ang gravel up to 2", s-rnd gravel up to .75", rock frags of slate-like rock, crs s-ang up to 1.25", ltl f sand, few med sand, brown, dry	ML
	28	S-2	7 6 5 6 6 6 8 6	24	19	pet odor	S-2 (19) sandy gravelly SILT, Similar top S-1, w/ crs s-ang gravel up to 1.75", rounded layers of gravel (platy-like) up to 2" diam, rock frags, moist throughout	ML
	30	S-3	5 6 4 6 5 6 10 6	24	15	pet odor	S-3 (195 sandy gravelly SILT, mostly silt, p-grad some crs ang to s-ang gravel up to 1.75" and crs s-rnd to rnd gravel up to 1.75", lit f sand, few med sand, brown, very moist, rock frag, other gravel, 2x1.5" s-ang	ML
	32	S-4	3 6 4 6 4 6 5 6	24	21	pet odor oil stain	S-4 (21) sandy gravelly SILT, p-graded, mostly silt, some crs ang to s-ang gravel up to 2x1.75", s-rnd gravel up to 1". ltl f sand, tr med sand, rock frag, visible oil stain on gravels, not free-phase	ML
	34	S-5	11 6 13 6 11 6 32 6	24	18	free-phase sat w/visible oil	S-5 (18) sandy gravelly SILT, Similar to S-4 w/ free phase oil	ML
	36	S-6	14 6 20 6 18 6 21 6	24	10	free phase oil saturated poss ring drain	S-6 (10) GRAVEL, p-graded, mostly gravel, crs rnd to s-rnd gravel up to 3x2.5", ang crs gravel up to 1", few ang f gravel up to .5", free phase oil on gravels	GP
	38	S-7	63 6 100 4	10	10	free phase oil pet odor	S-7 (10) sandy silty GRAVEL, poorly graded mostly crs rnd gravel to well rnd gravel up to 2.5", fewer crs ang to s-ang gravels same size, fewer f ang gravel up to 5/6", some silt, ltl f sand, rock frags, bedrock fine grained platy/fissile met rk - slate/phyllite	GM MM

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

No samples 0-26', continous soil sampling 26' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer, 3" split spoon
TF4-B-45 = TF4-MW-122, Set well 34-39'

ACAD NAME:C:\TEMP\josh\45b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: S LAMARCHE	BORING NO: TF4-B-48
DATE START: 11/10/1994	DEPTH TO WATER: --	LOGGED BY: K Jalkut	GROUND EL.: 0.00
DATE COMPLETED: 11/11/1994	DATE & TIME: ---- /--	CHECKED BY: MMA	TOTAL DEPTH: 39.67

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0							
							Begin sampling at 25 ft bgs	
	25							

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

No samples 0-25', continous soil sampling 25' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer, 3" split spoon
TF4-B-48 = TF4-MW-119, Set well 33.5-38.5'

ACAD NAME:C:\TEMP\josh\48A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	S LAMARCHE	BORING NO:	TF4-B-48
DATE START:	11/10/1994	DEPTH TO WATER:	--	LOGGED BY:	K Jalkut	GROUND EL.:	0.00
DATE COMPLETED:	11/11/1994	DATE & TIME:	---- / --	CHECKED BY:	MIM	TOTAL DEPTH:	39.67

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	25	S-1	18 6 16 6 6 6 16 6	24	13	pet odor	S-1 (13) sandy SILT, p-graded, mostly silt, some f sand, few med sand, few crs gravel up to 1.25x1", dry, brown, petroleum odor	ML
	27	S-2	18 6 17 6 18 6 15 6	24	23	free phase oil	S-2 (23) sandy gravelly SILT, p-graded, mostly silt, some crs s-ang gravel up to 2.5x2", ltl f sand, few med sand, brown, free phase oil present, sat, 2 pieces gravel up to 3x2.5"	ML
	29	S-3	5 6 7 6 9 6 12 6	24	21	free phase oil	S-3 (21) sandy gravelly SILT, p-graded, mostly silt, some crs ang to s-ang gravel up to 2x1.5", rock frags, slate-like or phyllite, free phase oil in and on sample, brown to black, pet like odor, saturated	ML
	31	S-4	10 6 11 6 11 6 13 6	24	15	free phase oil	S-4 (15) silty GRAVEL, p-graded, mostly crs ang to s-ang gravel up to 2.5x1.5", some f ang gravel up to 5", lots of rock frags, slate-like bedrock brown to black, free phase petroleum visible throughout sample, saturated, some silt, few f sand, tr med sand	GM
	33	S-5	6 6 7 6 7 6 11 6	24	20	free phase oil	S-5 (20) silty GRAVEL, similar to above w/ few sand, gravels are slate like, layers, altered up to 2.75x2", 1 piece s-rnd gravel up to 1x.5"	GM
	35	S-6	11 6 14 6 16 6 17 6	24	18	free phase oil poss ring drain	S-6 (20) silty GRAVEL, similar to S-5 w/non slate like gravels - crs s-ang up to 3x2". 1 s-rnd igneous gravel up to 2"	GM
	37	S-7	21 6 28 6 36 6 41 6	24	14	free phase oil poss ring drain	S-7 (14) GRAVEL, p-graded mostly crs ang to s-ang gravel up to 3.5x2", 1 piece crs rnd gravel up to 2.5x2", rock chips, concrete piece elongated up to 2" diam, free phase oil saturated few f ang gravel up to 0.5"	GP
	39	S-8	6 6 50 2	8	8	free phase oil poss ring drain	S-8 (8) sandy silty GRAVEL, p-graded, mostly crs s-ang to ang gravel up to 2x1.5", 1 piece s-rnd gravel up to 2", rock frags, saturated, free phase oil, black Rock at 39'8"	GP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

No samples 0-25', continous soil sampling 25' - EOB
HSA 6 1/4 ID, 10 1/4 OD
140 lb hammer, 3" split spoon
TF4-B-48 = TF4-MW-119, Set well 33.5-38.5'

ACAD NAME:C:\TEMP\josh\48b.DWG

PROBING LOGS

BORING LOG

NUS CORPORATION

PROJECT: CTO 143 LOCATION: NETC Newport DRILLED BY: S. Lamanche BORING NO.: TF4-P1-38

DATE STARTED: 11-17-94 INCLINATION: Vertical LOGGED BY: K. Jalkut GROUND ELEV.: NM

DATE COMPLETED: 11-17-94 BEARING: CHECKED BY: TOTAL DEPTH: 8'

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.		BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0								NO SAMPLES 0-4'
	2								
	4	S-1	X	21-20 24-25	24	14	1140 hrs TPH-S TPH-L DS		S-1 (14 in) sandy SILT - poorly graded, mostly silt, some fine sand, few med sand, few coarse subangular gravels up to 1 1/2 in x 3/4 in, few fine angular gravels up to 5/16" diameter, rock fragments, brown, loose, dry (ML)
	6	S-2	X	31-28 35-33	24	15	1146 hrs TPH-L TPH-S DS		S-2 (15 in) Sandy silty GRAVEL - poorly graded mostly coarse subangular to angular gravel up to 1 1/2 in x 1 in, few fine subrounded to subangular gravel up to 1/2 in diameter, ~~few angular fines~~ some silt, little fine sand, few med sand, tr. coarse sand, brown, loose, dry (GM).
	8			EOB @ 8'					backfilled w/ natural soil.

GEND:
PE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler; coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
Z - Natural ground water table

NOTES. Solid Stem Auger 3 7/8" ID
No samples 0-4'
Continuous soil samples 4-8'
140 lb hammer
2" barrel.

No instrument

DATE: 11-17-94 PROJECT NO.: 0278
PAGE: 1 OF 1 BORING NO.: TF4-P1-38

TF4-P1-42

BORING LOG

NUS CORPORATION

PROJECT: TO-145	LOCATION: 151-42	DRILLED BY: ASAY (CARCO)	BORING NO.: P-1
DATE STARTED: 11-15-94	INCLINATION: VERT.	LOGGED BY: TRACY DORGAN	GROUND ELEV.: NONE
TE COMPLETED: 11-15-94	BEARING:	CHECKED BY:	TOTAL DEPTH: 8'

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
								0804 - NO SAMPLES TAKEN
	4	S-1	16,12 12,11	24	18	1350		0406 SM SILTY GRAVELLY SAND MOSTLY F. SAND. ~~FE~~ SOME GRAVEL (SUBANGULAR, ~3/4" DIAM.) FEW SILT. GREY. NO ODOR OR STAINING. DRY
	6	S-2	8,26 33,35	24	14	1356		0606 2A - 2" SIMILAR TO ABOVE. 2B - 12" ROCK CORE - SOLID PLATTY ROCK CUTTERS. GREY SLATTY MATERIAL VERY EASILY BROKEN BOTH ∥ TO & ⊥ TO ~~FOLIATION~~ CLEAVAGE DIRECTION. EOB @ 8' SHAKE THE LINES BACK INTO HOLD STICE

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler; boring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
Z - Natural ground water table

NOTES.
140 LB Hammer
2" DRIVE FT. +
2" S.S.

DATE: PROJECT NO.:
PAGE: OF BORING NO.:

TF4-P2-42

BORING LOG — **NUS CORPORATION**

PROJECT: CTO-143	LOCATION: UST-42	DRILLED BY: ADAM CARCON	BORING NO.: P-2
DATE STARTED: 11-15-94	INCLINATION: VERT	LOGGED BY: TRACY DORGAN	GROUND ELEV.: N/M
DATE COMPLETED: 11-15-94	BEARING: N/M	CHECKED BY:	TOTAL DEPTH: 8'

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
								0004 - NO SAMPLES TAKEN
	4	S-1	9,12 12,12	24	17	1328		0406 SILTY, ~~SAND~~ GRAVELLY, SAND (SM) MOSTLY F-M. SAND, FEW SILT. FEW GRAVEL (SUB ANGULAR TO ANGULAR.) ~1/2-1" DIAM. MED. BROWN. NO ODOR OR STAINS PRESENT. DRY
	6	S-2	12,57 31,39	24	14	1332		0608 SIMILAR TO ABOVE. MOSTLY F. SAND FEW SILT. FEW-TRACE GRAVEL ~1/2-3/4" DIAM MED BROWN. NO ODOR OR STAINS DRY
								BOB @ 8' - SHOVEL THUNGS BACK INTO HOLE SPACE.

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler; coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural ground water table

NOTES: DUP - BOTH.
140 LB. HAMMER 1 FT. 2" DRIVE 2" S.S.

DATE: _____ PROJECT NO.: _____
PAGE: _____ OF _____ BORING NO.: _____

BORING LOG

NUS CORPORATION

PROJECT: CTO 143 LOCATION: NETC - Newport DRILLED BY: S. LaMarche BORING NO.: TFS-P1-48

DATE STARTED: 11/14/94 INCLINATION: Vertical LOGGED BY: K. Jalbert GROUND ELEV.: NM

DATE COMPLETED: 11/14/94 BEARING: CHECKED BY: TOTAL DEPTH: 8'

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.		BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0								NO SAMPLES 0-4'
	2								
TPH-S TPH-L VOJ	4	S-1	X	4-4 4-8	24	13	1126 hrs 2ppm on sample		S-1 (13 in) sandy SILT - mostly silt, poorly graded, little fine sand trace med sand, few coarse angular gravels up to 1in x 1/2 in, brownish black, dry, loose (ML)
TPH-S TPH-L VOJ	6	S-2	X	8-5 5-6	24	20	1128 hrs ND on sample		S-2 (20 in) sandy gravelly SILT - mostly silt, some coarse subangular to angular gravel up to 2in x 1in (slate like/phyllite) little fine sand trace med sand, black-brown dry, loose (ML)
	8			EOB @ 8'					Backfilled w/ natural surrounding soil.

LEGEND:
PE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler
Boring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
Z - Natural ground water table

NOTES. SSA
3 7/8 ID auger
No Samples 0-4'
Continuous 4-8'
140 lb hammer
2" barrel

DATE 11-14-94 PROJECT NO.:
PAGE 1 OF 1 BORING NO.:

BORING LOG **NUS CORPORATION**

PROJECT: CTO 143 LOCATION: NETC Newport DRILLED BY: S. LaMarche - EDI BORING NO.: TFS-PD-48

DATE STARTED: 11/14/94 INCLINATION: Vertical LOGGED BY: K. Jackert GROUND ELEV.:

DATE COMPLETED: 11/14/94 BEARING: CHECKED BY: TOTAL DEPTH: 8'

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							
								NO SAMPLES 0-4'
	2							
	4							
1TPH-S 1TPH-L DS		S-1	6-6 10-9	24	17	1140 hrs ND on sample		S-1 (17in) sandy gravelly SILT - mostly silt, poorly graded, little coarse angular to subrounded gravel up to 1'4in x 1in, little fine sand trace med sand, brown dry, loose (ML)
	6							
same as above		S-2	21-20 18-9	24	17	1143 hrs ND on sample		S-2 (17in) sandy gravelly SILT - similar to S-1, dry, loose, (ML)
	8							
			EOB @ 8'					

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler
Coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
∇ - Natural ground water table

NOTES. SSA 3 7/2 ID Continuous 4-8'
No Samples 0-4'
140 lb hammer
2" barrel

DATE: 11/14/94 PROJECT NO.: 0288
PAGE: 1 OF 1 BORING NO.: TFS-PD-96

BORING LOG

NUS CORPORATION

PROJECT: CTO 143 LOCATION: NETC Newport DRILLED BY: LaMarche BORING NO.: TF4-B3-48

DATE STARTED: 11/14/94 INCLINATION: Vertical LOGGED BY: K. Jackert GROUND ELEV.: NM

TE COMPLETED: 11/14/94 BEARING: CHECKED BY: TOTAL DEPTH: 8'

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							NO SAMPLES 0-4'
	2							
(TPH-S, TPH-L, DJ)	4	S-1 X	4-6, 6-6	24	13	1159 hrs ND on sample		S-1 (13 in) sandy gravelly SILT - poorly graded, mostly silt, ~~some~~ little coarse subangular gravel up to 1 in diameter, ~~brown~~ little fine sand few med sand, rock fragments, brown, dry, loose (ML)
	6	S-2 X	18-48, 32-18	24	17	1203 hrs ND on sample		S-2 (17 in) sandy gravelly SILT - similar to S-1 w/ some gravel (ML)
	8							Backfilled w/ surrounding soil

EDB @ 8'

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler; boring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
∇ - Natural ground water table

NOTES. SSA 3 7/8 ID
No samples 0-4'
Continuous 4-8'
140 lb hammer
2" barrel

DATE: 11-14-94 PROJECT NO.: 0288
PAGE: 1 OF 1 BORING NO.: TF4-B3-08

BORING LOG **NUS CORPORATION**

PROJECT: CTO 143	LOCATION: Newport RI	DRILLED BY: EDI	BORING NO.: TF4-P1-45
DATE STARTED: 11-14-94	INCLINATION: Vertical	LOGGED BY: K. Jalkut	GROUND ELEV.:
TE COMPLETED: 11-14-94	BEARING:	CHECKED BY:	TOTAL DEPTH: 8 ft

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							Advanced augers 0 to 4 feet. No soil samples were collected 0 to 4 feet
	2							
	4	S-1	4-4 7-20	24	20	1557 hrs		S-1 (20 in) sandy gravelly SILT - poorly graded, mostly silt, some coarse subangular gravel up to 1 1/4 in diameter, few subangular fine gravel up to 5/16 in, little fine sand, few medium sand, brownish-black, dry, loose (ML)
	6	S-2	9-12 12-14	24	10	1600 hrs		S-2 (10 in) sandy SILT - poorly graded, mostly silt, some fine sand, trace medium sand, trace coarse angular gravel (1 piece) up to 1 inch by 1/2 in diameter, brown, dry, loose (ML).
	8		EOP @ 8'					End of Probing @ 8'
	10							~~Note~~
	12							

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 40 lb hammer falling 30" to drive a split barrel sampler
Coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
∇ - Natural ground water table

NOTES.
- Advanced ~~auger~~ probing with 0 to 4 feet with a rotary driven 3 7/8 in inside diameter solid stem auger
- Used 2-in split barrel, advanced with a 140 lb hammer
- Collected soil samples continuously 6 to 8 feet
- Backfilled probing with surrounding soil
- OVA not working - no FID readings

DATE: 11-14-94 PROJECT NO.: 0288
PAGE: 1 OF 1 BORING NO.: P1-45

BORING LOG **NUS CORPORATION**

PROJECT: CTC 143	LOCATION: Newport, RI	DRILLED BY: EDI	BORING NO.: TF4-P2-45
DATE STARTED: 11-14-94	INCLINATION: Vertical	LOGGED BY: K. Jalkut	GROUND ELEV.:
TE COMPLETED: 11-14-94	BEARING:	CHECKED BY:	TOTAL DEPTH: 6 ft

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							Advanced augers to 4 feet No soil samples were collected 0 to 4 ft
	2							
	4	S-1	6-17 21-43	24	11	1529 hrs		S-1 (11in) sandy SILT- poorly graded, mostly silt, some fine sand, few medium sand, few coarse subangular to subrounded gravels up to 3/4 in diameter, rock fragments. brown, loose, dry (ML)
	6					Refusal with split barrel @ 6 ft -		End of Probing @ 6 ft
			EOP @ 6'					
	8							Note: Relocated probing location due to refusal. See other log for P2-45, 6-8 ft. for completion of description
	10							OVA not working no FID readings collected
	12							

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler
Boring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
Z - Natural ground water table

NOTES. • Advanced probing with a rotary driven 3 7/8 inch inside diameter solid stem auger
• Used 2-in split barrel advanced w/a 140 lb hammer
• Refusal @ 6', pulled tools, backfilled w/surrounding soil and relocated probing within 5 feet of original location. See P2

DATE: 11-14-94 PROJECT NO.: 0288
PAGE: 1 OF 1 BORING NO.: P2-45

BORING LOG **NUS CORPORATION**

PROJECT: CTO 143	LOCATION: Newport, RI	DRILLED BY: EDI	BORING NO.: IF4-P2 -45
DATE STARTED: 11-14-94	INCLINATION: Vertical	LOGGED BY: K. Jalkut	GROUND ELEV.:
TE COMPLETED: 11-14-94	BEARING:	CHECKED BY:	TOTAL DEPTH: 8 ft

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							Advanced augers to 6 feet. No soil samples were collected. 0 to 6 feet
	2							
	4							
	6	S-	17-14 8-8	24	23	1542 hrs		S- (23 in) sandy gravelly SILT - poorly graded, mostly silt, some coarse subangular gravel up to 1 inch diameter, few fine subangular to angular gravels up to 5/16 in, little fine sand, few medium sand, brown, dry, loose (ML)
	8							End of Probing @ 8 ft
	10							Represents a relocated probing. Refusal at original P2-45 location at 6 feet. Relocated probing within 5 feet of original location and collected a sample 6 to 8 feet. See other log for P2-45, 4 to 6 ft for complete description
	12							

ECP @ 8'

No FID readings - OVA not working

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler; coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
Z - Natural ground water table

NOTES.
- Advanced probing 0 to 6 feet with a rotary driven 3 7/8 in inside diameter solid stem auger
- Used 2-inch split barrel and collected a soil sample 6 to 8 ft
- Advanced split barrel with a 140 lb hammer
- Backfilled probing with surrounding soil

DATE: 11-14-94 PROJECT NO.: 0288
PAGE: 1 OF 1 BORING NO.: P2 -45

BORING LOG **NUS CORPORATION**

PROJECT: RTO 143	LOCATION: Newport RI	DRILLED BY: EDI	BORING NO.: TF4-P3-45
DATE STARTED: 11-14-94	INCLINATION: Vertical	LOGGED BY: K. Jalkut	GROUND ELEV.:
TE COMPLETED: 11-14-94	BEARING:	CHECKED BY:	TOTAL DEPTH: 8 FT

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							Advanced augers to 4 feet No soil samples were collected 0 to 4 feet
	2							
	4	S-1	4-4 9-17	24	16	1505 hrs		S-1 (16 in) sandy SILT- poorly graded, mostly silt, some fine sand, few medium sand, few coarse gravels up to 1 inch, few fine gravels up to 1/2 inch – both subangular, rock fragments, brown, loose, dry (ML)
	6	S-2	13-10 18-20	24	16	1508 hrs		S-2 (16 in) sandy gravelly SILT- poorly graded, mostly silt, some coarse subangular gravel up to 2 in by 1 in, few fine gravels up to 1/2 in (subangular), little fine sand, few medium sand, oxidized rock fragments (reddish-brown), brown fines, loose, dry (ML)
	8							End of probing @ 8'
	10							End of probing @ 8 ft
	12							Note: OVA not working - no FID readings collected

LEGEND:
YPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 40 lb hammer
falling 30" to drive
a split barrel sampler
oring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
∇ - Natural ground water table

NOTES.
- Advanced probing with a rotary driven 3 7/8" inside diameter solid stem auger 0 to 4 feet.
- Used 2-in split barrel; continuous soil sampling 4 to 8 feet
- Advanced sampler with a 140 lb hammer
- Backfilled probing with surrounding soil

DATE: 11-14-94 PROJECT NO.: 0288
PAGE: 1 OF 1 BORING NO.: P3-45

BORING LOG **NUS CORPORATION**

PROJECT: CTC143	LOCATION: Newport RI	DRILLED BY: EDI	BORING NO.: TF4-P4-45
DATE STARTED: 11-14-94	INCLINATION: Vertical	LOGGED BY: K. Jalkut	GROUND ELEV.:
TE COMPLETED: 11-14-94	BEARING:	CHECKED BY:	TOTAL DEPTH: 8 FT

ELEV. feet	DEPTH feet	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							Advanced auger to 4 feet. No soil samples were collected 0 to 4 ft.
	2							
	4	S-1	5-6 6-11	24	16	1430 hrs		S-1 (16 in) sandy SILT- poorly graded, mostly silt, some fine sand, few medium sand, few coarse subangular gravels up to 1 in diameter, few fine subangular gravels up to 1/4 in diameter, rock fragments, brown, loose, dry (ML)
	6	S-2	17-19 10-11	24	19	1437 hrs		S-2 (19 in) sandy gravelly SILT- poorly graded, mostly silt, some coarse angular to subangular gravels up to 3/4 in diameter, few fine angular gravels up to ~~1/2 in~~ 5/16 in, little fine sand, few medium sand, rock fragments, brown, loose, dry (ML)
	8		EOP @ 8'					End of probing @ 8 feet
	10							
	12							Note OVA not working - no FID readings collected

LEGEND:
TYPE-NO - Type of sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler
Coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
∇ - Natural ground water table

NOTES.
- Advanced probing with a rotary driven 3 7/8" inside diameter solid stem auger 0 to 4 feet
- Used 2-in split barrel; continuous soil sampling 4 to 8 feet
- Advanced barrel with a 140 lb hammer
- Backfilled probing w/ surrounding soil

DATE: 11-14-94 PROJECT NO.: 0288
PAGE: 1 OF 1 BORING NO.: P4-45

300 SERIES BORING LOGS

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	S. Lamarche	BORING NO:	330
DATE START:	10/02/1995	DEPTH TO WATER:	33 00	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	10/03/1995	DATE & TIME:	10/02/1995 1510	CHECKED BY:	MND	TOTAL DEPTH:	39.66

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	20 6 21 6 19 6 30 6	24	21	samp int 0002 HS	S-1 (21) silty SAND, mostly f-m sand, some silt, little gravel (up to 15°), brown, poorly graded	SM
	2	S-2	38 6 101 3	9	6	samp int 0204 HS	S-2a (3) silty SAND, similar to S-1 S-2b (3) rock fragment, gray phyllite	SM
	4	S-3	18 6 38 6 38 6 37 6	24	20	samp int 0406 HS	S-3 (20) gravelly silty SAND, mostly fine sand, some silt, little fine-coarse gravel, dry, brown	SM
	6	S-4	14 6 19 6 24 6 28 6	24	10	samp int 0608 HS	S-4 (10) gravelly silty SAND, similar to S-3, black	SM
	8	S-5	31 6 26 6 30 6 29 6	24	21	samp int 0810 HS	S-5 (21) silty SAND, mostly fine sand, some silt, trace fine gravel, trace coarse sand, dry, black, dense	SM
	10	S-6	13 6 26 6 29 6 26 6	24	20	samp int 1012 HS	S-6 (20) silty gravelly SAND, f-m sand, some fine gravel, dense, damp, black-brown	SM
	12	S-7	13 6 19 6 17 6 13 6	24	18	samp int 1214 HS	S-7 (18) silty gravelly SAND, similar to S-6, fine gravel varies from subrounded to subangular	SM
	14	S-8	10 6 9 6 8 6 9 6	24	14	samp int 1416 HS	S-8 (14) silty gravelly SAND, similar to S-7	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 39'
Conducted standard + continous soil sampling from 5' to 39'
3" ID split barrel advanced with 300 lb. hammer
Set Well MW330 with screen at 38' to 28' bgs, 20 slot
Tank 45

ACAD NAME:D\DWG\NETC\BORINGS\330A DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	S Lamarche	BORING NO:	330
DATE START:	10/02/1995	DEPTH TO WATER:	33.00	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	10/03/1995	DATE & TIME:	10/02/1995 /1510	CHECKED BY:	MJA	TOTAL DEPTH:	39.66

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-9	5 6 / 12 6 / 12 6 / 9 6	24	15	samp int 1618 HS	S-9 (15) gravelly silty SAND, mostly fine sand, some silt, some fine gravel, trace coarse sand, black-brown, firm, moist, 1 piece coarse gravel	SM
	18	S-10	3 6 / 3 6 / 3 6 / 6 6	24	15	samp int 1820 HS	S-10 (15) gravelly silty SAND, fine-coarse sand, some silt, little fine gravel, moist, black, poorly graded	SM
	20	S-11	13 6 / 15 6 / 11 6 / 6 6	24	22	samp int 2022 HS	S-11 (22) gravelly silty SAND, similar to S-10	SM
	22	S-12	13 6 / 15 6 / 15 6 / 17 6	24	14	samp int 2224 HS	S-12 (14) silty SAND, fine-coarse sand, some silt, trace coarse gravel, moist, black-brown	SM
	24	S-13	9 6 / 6 6 / 6 6 / 8 6	24	17	samp int 2426 HS	S-13 (17) gravelly silty SAND, mostly fine sand, some silt, little fine gravel, trace coarse gravel trace coarse sand, damp, black-brown	SM
	26	S-14	12 6 / 9 6 / 14 6 / 11 6	24	12	samp int 2628 HS	S-14 (12) gravelly silty SAND, similar to S-13 smells of petroleum	SM
	28	S-15	6 6 / 6 6 / 4 6 / 5 6	24	15	samp int 2830 HS	S-15 (15) gravelly silty SAND, similar to S-13 petroleum impacted	SM
	30	S-16	5 6 / 5 6 / 6 6 / 6 6	24	13	samp int 3032 TPH, ENG, BIO, HS	S-16 (13) silty gravelly SAND, mostly fine-coarse sand, some fine-coarse gravel, subrounded to sub-angular, moist, brown-black, visually impacted	SM

LEGEND.

TYPE-NO. – Type of Sample
C – Rock core sample
S – Split barrel sample
BLOWS PER 6" – 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN – Penetration length of sampler
REC – Length of sample recovered
▽ – Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 39'
Conducted standard + continous soil sampling from 5' to 39'
3" ID split barrel advanced with 300 lb hammer
Set Well MW330 with screen at 38' to 28' bgs, 20 slot
Tank 45

ACAD NAME:D:\DWG\NETC\BORINGS\330B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	S. Lamarche	BORING NO:	330
DATE START:	10/02/1995	DEPTH TO WATER:	33.00	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	10/03/1995	DATE & TIME:	10/02/1995 /1510	CHECKED BY:	mJD	TOTAL DEPTH:	39.66

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	32	S-17	6 6 18 23 / 6 6 6 6	24	5	samp int 3234 HS	S-17 (5) silty sandy GRAVEL, mostly fine-coarse gravel, some fine-coarse sand, little silt, wet, brown-black, visually impacted	GM
	34	S-18	13 16 19 26 / 6 6 6 6	24	4	samp int 3436 HS	S-18 (4) sandy GRAVEL, fine-coarse gravel, sub-angular to subrounded, some fine-coarse sand, wet, black-gray, visually impacted, poss. ring drain	GM
	36	S-19	16 21 19 16 / 6 6 6 6	24	8	samp int 3638 HS	S-19 (8) sandy GRAVEL, similar to S-18, poss. ring drain	GM
	39	S-20	31 120 / 6 2	8	10	samp int 3940 TPH, HS	S-20a (5) silty SAND, mostly fine sand, trace med.-coarse sand, little silt, wet, loose, visually impacted S-20b (5) altered-weathered bedrock, light gray, phyllite EOB @ 39.66'	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 39'
Conducted standard + continous soil sampling from 5' to 39'
3" ID split barrel advanced with 300 lb. hammer
Set Well MW330 with screen at 38' to 28' bgs, 20 slot
Tank 45

ACAD NAME:D:\DWG\NETC\BORINGS\330C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	AJ Caron (EDI)	BORING NO:	331
DATE START:	10/02/1995	DEPTH TO WATER:	35 52	LOGGED BY:	T Dorgan	GROUND EL.:	0 00
DATE COMPLETED:	10/03/1995	DATE & TIME:	10/04/1995/1137	CHECKED BY:	MJN	TOTAL DEPTH:	38 75

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	5 6 9 6 5 6 6 6	24	14	Sample interval =0507 Used 2in split-barrel	S-1(14in) silty SAND. Mostly fine sand, trace to few medium to coarse sand, some silt, trace fine gravel. Poorly graded, dry, loose, gray No petroleum impact noted.	SM-SP
	10	S-2	6 6 9 6 6 6 9 6	24	19	Sample interval =1012 Used 2in split-barrel.	S-2(19in) silty SAND. Similar to S-1 with trace to few, subangular phyllitic gravel Soil more compact than S-1. No petroleum impact noted.	SM-SP
	15	S-3	4 6 9 6 9 6 11 6	24	16	Sample interval =1517 Used 2in split-barrel	S-3A(5in) silty SAND. Similar to S-2. S-3B(3in) Phyllite, fissile, easily breaks along foliation plane, red to orange color (possibly oxidized). S-3C(8in) silty SAND. Mostly fine to coarse sand,	SM-SP SM-SW

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler· coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 34ft. Conducted stnd sampling from 5ft to 24ft bgs; continuous sampling 24 to 38.75ft bgs Used 2in & 3in OD split-barrels. Advanced samplers w/a 140lb hammer Refusal @ 38 75ft. Likely bedrock surface Set MW-331, screen @ 37 5 to 27.5ft B-331 = MW-331 location at Tank 45, Tank Farm 4. See log.

ACAD NAME:D:\DWG\NETC\BORINGS\331A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	AJ Caron (EDI)	BORING NO:	331
DATE START:	10/02/1995	DEPTH TO WATER:	35 52	LOGGED BY:	T Dorgan	GROUND EL.:	0 00
DATE COMPLETED:	10/03/1995	DATE & TIME:	10/04/1995/1137	CHECKED BY:	MJA	TOTAL DEPTH:	38.75

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
							some silt, trace subangular gravel. Well graded, brown to gray. No petroleum impact noted.	
	20	S-4	9 5 10 16	6 6 6 6	24	14	Sample interval =2022 Used 2in split-barrel.	S-4A(3in) silty SAND. Similar to S-3A S-4B(11in) Phyllite, fissile, altered (easily breaks into sand-silt sized particles), dry, yellow-red color (possibly oxidized). No petroleum impact noted	SM-SP
	24	S-5	24 16 11 11	6 6 6 6	24	10	Sample interval =2426 Used 3in split-barrel.	S-5(10in) gravelly silty SAND. Mostly fine sand, some silt, some subangular to angular, slightly oxidized, phyllitic gravel Poorly graded, moist (not saturated), gray. No petroleum impact noted	SM-GM
	26	S-6	18 12 8 12	6 6 6 6	24	17	Sample interval =2628. Used 3in split-barrel	S-6(17in) gravelly silty SAND. Similar to S-5, but gray. Soil in nose of barrel is moist to saturated Water table @ 28ft bgs Slight petroleum odor detected.	SM-GM
	28	S-7	28 30 27 19	6 6 6 6	24	14	Sample interval =2830 Used 3in split barrel	S-7(14in) gravelly silty SAND. Mostly fine sand, few medium to coarse sand, some silt, little fine, angular, phyllitic gravel Well graded, SATURATED Petroleum odor detected.	SM-GM
	30	S-8	8 7 9 6	6 6 6 6	24	13	Sample interval =3032. Used 3in split-barrel.	S-8(13in) gravelly silty SAND. Mostly fine sand, few medium to coarse sand, some silt, little angular, slightly oxidized, phyllitic gravel, trace clay Well graded, saturated. Slight petroleum odor detected, less concentrated in comparison to S-7.	SM-GM

LEGEND:

TYPE-NO. – Type of Sample
C – Rock core sample
S – Split barrel sample
BLOWS PER 6" – 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN – Penetration length of sampler
REC – Length of sample recovered
▽ – Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 34ft
Conducted stnd. sampling from 5ft to 24ft bgs; continuous sampling 24 to 38 75ft bgs. Used 2in & 3in OD split-barrels
Advanced samplers w/a 140lb hammer. Refusal @ 38 75ft
Likely bedrock surface Set MW-331, screen @ 37 5 to 27 5ft
B-331 = MW-331 location at Tank 45, Tank Farm 4. See log.

ACAD NAME·D:\DWG\NETC\BORINGS\331B DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	AJ Caron (EDI)	BORING NO:	331
DATE START:	10/02/1995	DEPTH TO WATER:	35 52	LOGGED BY:	T Dorgan	GROUND EL.:	0 00
DATE COMPLETED:	10/03/1995	DATE & TIME:	10/04/1995/1137	CHECKED BY:	MSD	TOTAL DEPTH:	38.75

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	32	S-9	7 6 10 6 7 6 7 6	24	15	Sample interval =3234. Used 3in split-barrel	S-9A(4in) gravelly silty SAND. Similar to S-8. S-9B(11in) silty gravelly SAND Mostly fine sand, few medium to coarse sand, some angular phyllitic gravel, some silt Well graded, saturated. Petroleum odor detected. Free-phase oil observed throughout sample.	SM-GM SM-GM
	34	S-10	14 6 17 6 21 6 19 6	24	5	Sample interval =3436. Used 3in split barrel	S-10(5in) GRAVEL. Mostly coarse, rounded gravel, few medium to coarse sand, trace silt Poorly graded Possible ring-drain material. Petroleum impacted. Free-phase petroleum observed coating gravels throughout sample.	GP
	36	S-11	16 6 17 6 21 6 28 6	24	9	Sample interval =3638. Used 3in split-barrel.	S-11(9in) GRAVEL. Similar to S-10. Petroleum impacted. Free-phase petroleum coating gravel surface throughout sample.	GP
	38	S-12	42 6 120 3 0 0	9	9	Sample interval =38 to 38.75ft Used 3in split	S-12A(6in) sandy GRAVEL. Mostly fine to coarse, subangular to subrounded gravel, some fine to coarse sand, trace to few silt. Well graded. Free-phase oil observed throughout sample. S-12B(3in) Phyllite Fissile, more competent than gravels in S-11, gray Petroleum in foliation planes. End of boring @ 38.75ft bgs. Set MW-331.	GW

LEGEND:

TYPE-NO – Type of Sample
C – Rock core sample
S – Split barrel sample
BLOWS PER 6" – 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN – Penetration length of sampler
REC – Length of sample recovered
▽ – Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 34ft
Conducted stnd sampling from 5ft to 24ft bgs; continuous sampling 24 to 38 75ft bgs Used 2in & 3in OD split-barrels.
Advanced samplers w/a 140lb hammer Refusal @ 38.75ft
Likely bedrock surface Set MW-331, screen @ 37 5 to 27 5ft
B-331 = MW-331 location at Tank 45, Tank Farm 4 See log

ACAD NAME:D:\DWG\NETC\BORINGS\331C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	S Lamarche	BORING NO:	332
DATE START:	10/03/1995	DEPTH TO WATER:	33 00	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	10/04/1995	DATE & TIME:	10/03/1995/1420	CHECKED BY:	MJD	TOTAL DEPTH:	39.00 mlt 2 3

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	21 13 18 17 / 6 6 6 6	24	22	samp int 0507 HS	S-1 (22) gravelly silty SAND, mostly f-m sand, some silt, little fine gravel, black, loose, poorly graded, dry mlt	SM
	10	S-2	7 7 11 12 / 6 6 6 6	24	21	samp int 1012 HS	S-2 (21) gravelly silty SAND, similar to S-1, trace coarse gravel	SM
	15	S-3	8 12 10 10 / 6 6 6 6	24	17	samp int 1517	S-3 (17) gravelly silty SAND, mostly fine-coarse sand, some silt, little fine angular gravel up to 75°, moist, firm, black	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 39'
Conducted standard + continous soil sampling from 5' to 39'
3" ID split barrel advanced with 300 lb hammer
Set Well MW332 with screen at 38' to 28' bgs, 20 slot
Tank 45

ACAD NAME:D:\DWG\NETC\BORINGS\332A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	S. Lamarche	BORING NO:	332
DATE START:	10/03/1995	DEPTH TO WATER:	33 00	LOGGED BY:	J Holden	GROUND EL.:	0 00 mill
DATE COMPLETED:	10/04/1995	DATE & TIME:	10/03/1995/ 1420	CHECKED BY:	MJN	TOTAL DEPTH:	39 00 25

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
							SEE PREVIOUS SHEET	
	20	S-4	9 11 10 12 / 6 6 6 6	24	19	samp int 2022 HS	S-4 (19) gravelly silty SAND, similar to S-3, trace coarse angular gravel	SM
	24	S-5	12 5 5 5 / 6 6 6 6	24	17	samp int 2426 HS	S-5 (17) gravelly silty SAND, mostly fine sand, some silt, some fine angular gravel, moist, gray slight petroleum odor	SM
	26	S-6	9 7 9 9 / 6 6 6 6	24	16	samp int 2628 TPH, HS	S-6a (4) silty SAND, mostly fine sand, some silt trace coarse sand, damp S-6b (12) silty sandy GRAVEL, mostly fine gravel, some f-c sand, some silt, moist, visually impacted	SM GM
	28	S-7	3 2 2 2 / 6 6 6 6	24	12	samp int 2830 GS, HS	S-7 (12) silty sandy GRAVEL, similar to S-6b, slight petroleum odor, minor visual impact, gravel is fine-coarse	GM
	30	S-8	2 2 2 2 / 6 6 6 6	24	10	samp int 3032 HS	S-8 (10) silty sandy GRAVEL, similar to S-7, visually impacted	GM

LEGEND.

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 39'
Conducted standard + continous soil sampling from 5' to 39'
3" ID split barrel advanced with 300 lb hammer
Set Well MW332 with screen at 38' to 28' bgs, 20 slot
Tank 45

ACAD NAME D:\DWG\NETC\BORINGS\332B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	S Lamarche	BORING NO:	332
DATE START:	10/03/1995	DEPTH TO WATER:	33 00	LOGGED BY:	J Holden	GROUND EL.:	0 00
DATE COMPLETED:	10/04/1995	DATE & TIME:	10/03/1995/ 1420	CHECKED BY:	MIM	TOTAL DEPTH:	39.08

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	30	S-8	2 2 2 2 / 6 6 6 6	24	10	samp int 3032 HS	S-8 (10) silty sandy GRAVEL, similar to S-7, visually impacted	GM
	32	S-9	1 2 4 4 / 6 6 6 6	24	9	samp int 3234 HS	S-9 (9) silty SAND, mostly f-c sand, some silt, trace fine gravel, wet, loose, not visually impacted	SM
	34	S-10	WOR WOR 2 3 / 6 6 6 6	24	9	samp int 3436 TPH, ENG, BIO, HS	S-10a (4) silty SAND, similar to S-9, S-10b (5) SAND, fine-coarse sand, trace silt, trace fine gravel, visually impacted, black-gray	SM SM
	36	S-11	120 / 3	3	11	samp int 3638 HS	S-11 (11) silty SAND, similar to S-9, probably material that slid into borehole from sides, no competent bedrock in hose visually impacted	SM
	38	S-12	6 116 120 / 6 6 3	15	17	samp int 3840 HS	S-12a (10) silty SAND, similar to S-9, visually impacted. S-12b (5) weathered bedrock, gray phyllite EOB @ 39 25'	SM

LEGEND:

TYPE-NO. – Type of Sample
C – Rock core sample
S – Split barrel sample
BLOWS PER 6" – 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN – Penetration length of sampler
REC – Length of sample recovered
▽ – Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 39'
Conducted standard + continous soil sampling from 5' to 39'
3" ID split barrel advanced with 300 lb hammer
Set Well MW332 with screen at 38' to 28' bgs, 20 slot
Tank 45

ACAD NAME:D:\DWG\NETC\BORINGS\332C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288 LOCATION: NETC-Newport DRILLED BY: AJ Caron (EDI) BORING NO: 333

DATE START: 10/03/1995 DEPTH TO WATER: -- LOGGED BY: T Dorgan GROUND EL.: 0.00

DATE COMPLETED: 10/03/1995 DATE & TIME: -- / -- CHECKED BY: MJR TOTAL DEPTH: 21.80 6 mil

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	3 6 6 6 14 6 28 6	24	20	Sample interval =0002 Used 2in split-barrel.	S-1A(12in) silty SAND. Mostly fine sand, some silt trace organics (roots). Poorly graded, dry, loose, brown. S-1B(8in) Phyllite fragments. Fissile, dry, gray	SM-SP
	2	S-2	16 6 36 6 120 4 0	16	14	Sample interval =0204. Used 2in split-barrel.	S-2(14in) silty SAND Mostly fine sand, trace to few coarse sand, some silt, few fine, subangular gravel. Poorly graded, dry, loose, gray. No petroleum impact noted.	SM-SP
	4	S-3	34 6 28 6 37 6 28 6	24	13	Sample interval =0406 Used 2in split-barrel	S-3(13in) silty SAND Similar to S-2. No petroleum impact noted.	SM-SP
	6	S-4	10 6 7 6 9 6 12 6	24	17	Sample interval =0608 Used 2in split barrel.	S-4(17in) silty SAND Similar to S-3.	SM-SP
	8	S-5	11 6 14 6 16 6 18 6	24	22	Sample interval =0810 Used 2in split-barrel	S-5A(10in) silty SAND Similar to S-4 S-5B(12in) silty SAND Mostly fine sand, some silt trace fine gravel. Poorly graded, dry, tight, light brown to brown. No petroleum impact noted.	SM-SP SM-SP
	10	S-6	14 6 17 6 18 6 21 6	24	17	Sample interval =1012. Used 2in split-barrel	S-6(17in) silty SAND. Similar to S-5A.	SM-SP
	12	S-7	21 6 31 6 42 6 42 6	24	19	Sample interval =1214. Used 2in split-barrel	S-7(19in) silty SAND Mostly fine sand, trace medium to coarse sand, some silt, few fine subrounded to subangular gravel. Poorly graded, dark gray No petroleum impact noted	SM-SP
	14	S-8	27 6 34 6 39 6 36 6	24	18	Sample interval =1416 Used 2in split-barrel.	S-8(18in) silty SAND Similar to S-7 More compact than S-7 No petroleum impact noted.	SM-SP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 20ft. Conducted continuous sampling 0 to 21.8ft bgs Used 2in OD split-barrel sampler Advanced samplers with a 140lb hammer. Refusal at 21.8ft bgs. Boring backfilled with soil cuttings. No well installed. B-333 location at Tank 45, Tank Farm 4

ACAD NAME:D:\DWG\NETC\BORINGS\333A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288 LOCATION: NETC-Newport DRILLED BY: AJ Caron (EDI) BORING NO: 333

DATE START: 10/03/1995 DEPTH TO WATER: -- LOGGED BY: T Dorgan GROUND EL.: 0.00

DATE COMPLETED: 10/03/1995 DATE & TIME: -- / -- CHECKED BY: MJN TOTAL DEPTH: 21.80 6 mill

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-9	47 37 29 32 / 6 6 6 6	24	24	Sample interval =1618 Used 2in split-barrel	S-9(24in) silty SAND. Mostly fine to medium sand, few coarse sand, some silt, few to little subrounded to subangular gravel Well graded, dry, loose, brown-gray. No petroleum impact noted.	SM-SW
	18	S-10	6 27 37 36 / 6 6 6 6	24	24	Sample interval =1820. Used 2in split-barrel.	S-10A(2in) silty SAND. Similar to S-9 S-10B(22in) Phyllite fragments. Fissile, dry, altered (easily broken into fine sand size particles) No petroleum impact noted.	SM-SP
	20	S-11	47 56 73 120 / 6 6 6 2	20	18	Sample interval =20 to 21.5ft. Used 2in split	S-11A(10in) Phyllite fragments. Similar to S-10, loose. S-11B(8in) Phyllite fragments Tighter/darker than S-11A sample Altered (easily broken into sand size particles End of boring @ 21.6ft bgs. Backfilled boring with soil cuttings.	

LEGEND.

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 20ft. Conducted continuous sampling 0 to 21.8ft bgs Used 2in OD split-barrel sampler Advanced samplers with a 140lb hammer Refusal at 21.8ft bgs Boring backfilled with soil cuttings. No well installed. B-333 location at Tank 45, Tank Farm 4

ACAD NAME:D:\DWG\NETC\BORINGS\333B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	AJ Caron (EDI)	BORING NO:	334
DATE START:	10/04/1995	DEPTH TO WATER:	--	LOGGED BY:	T Dorgan	GROUND EL.:	0.00
DATE COMPLETED:	10/04/1995	DATE & TIME:	-- / --	CHECKED BY:	m SM	TOTAL DEPTH:	20.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	19 6 16 6 18 6 19 6	24	17	Sample interval =0002 Used 2in split-barrel.	S-1A(8in) silty SAND. Mostly fine sand, trace medium sand, some silt, trace organics (roots). Poorly graded, dry, brown. S-1B(9in) silty SAND. Mostly fine sand, trace medium sand, some silt, few fine angular gravel. Poorly graded, dry, loose, gray.	SM-SP SM-SP
	2	S-2	13 6 13 6 16 6 14 6	24	20	Sample interval =0204. Used 2in split-barrel	S-2(20in) silty SAND. Similar to S-1B No petroleum impact noted	SM-SP
	4	S-3	17 6 15 6 16 6 14 6	24	19	Sample interval =0406. Used 2in split-barrel	S-3(19in) silty SAND Similar to S-2 No visual petroleum impact noted	SM-SP
	6	S-4	19 6 27 6 30 6 32 6	24	20	Sample interval =0608 Used 2in split-barrel	S-4(20in) silty SAND Similar to S-3 No visual petroleum impact noted.	SM-SP
	8	S-5	53 6 47 6 47 6 76 6	24	16	Sample interval =0810. Used 2in split-barrel	S-5(16in) silty gravelly SAND. Mostly fine to medium sand, trace coarse sand, some subrounded to subangular gravel (phyllite/gneiss), some silt. Well graded, dry, loose, gray to brown No visual petroleum impact noted	SM-GM
	10	S-6	27 6 35 6 39 6 34 6	24	18	Sample interval =1012 Used 2in split-barrel	S-6(18in) gravelly silty SAND. Mostly fine sand, some silt, little subangular gravel (phyllite) Poorly graded, moist (not saturated), tight and compact, dark gray to black No visual petroleum impact observed.	SM-GM
	12	S-7	27 6 35 6 57 6 72 6	24	19	Sample interval =1214. Used 2in split-barrel	S-7A(8in) gravelly silty SAND. Similar to S-6. S-7B(11in) gravelly SAND Mostly fine to medium sand, few coarse sand, some subangular gravel (quartz, phyllite, and red sandstone), few to little silt. Well graded, dark gray to black. No visual petroleum impact.	SM-GM GW
	14	S-8	31 6 29 6 19 6 29 6	24	16	Sample interval =1416. Used 2in split-barrel.	S-8A(12in) sandy gravelly SILT. Mostly silt, some subrounded to subangular gravel (quartz and phyllite), little fine sand. Poorly graded, moist, tight/compact No visual petroleum impact noted. S-8B(3in) SAND. Mostly fine sand, trace silt. Poorly graded, moist, loose, tan No petro impact S-8C(1in) sandy gravelly SILT. Similar to S-8A.	ML-GM SP ML-GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 20ft. Conducted continuous sampling 0 to 20ft bgs. Used 2in OD split-barrel sampler. Advanced samplers with a 140lb hammer Refusal at 20ft bgs Boring backfilled with soil cuttings No well installed. B-334 location at Tank 45, Tank Farm 4

ACAD NAME:D:\DWG\NETC\BORINGS\334A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	AJ Caron (EDI)	BORING NO:	334
DATE START:	10/04/1995	DEPTH TO WATER:	--	LOGGED BY:	T Dorgan	GROUND EL.:	0.00
DATE COMPLETED:	10/04/1995	DATE & TIME:	-- / --	CHECKED BY:	mmt	TOTAL DEPTH:	20.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-9	40 30 40 30 / 6 6 6 6	24	2	Sample interval =1618 Used 2in split-barrel.	S-9(2in) sandy gravelly SILT. Similar to S-8C. Subrounded gravel piece (smokey quartz) in nose of barrel is 2in by 1.5in	ML-GM
	18	S-10	29 36 55 120 / 6 6 6 5	23	19	Sample interval =1820. Used 2in split-barrel	S-10A(2in) sandy gravelly SILT. Similar to S-8C. S-10B(17in) Phyllite Altered (easily crushed and broken), fragmented, fissile, gray to orange. End of boring @ 20ft bgs Augers to 18ft	ML-GM

LEGEND:

TYPE-NO – Type of Sample
C – Rock core sample
S – Split barrel sample
BLOWS PER 6" – 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN – Penetration length of sampler
REC – Length of sample recovered
▽ – Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 20ft Conducted continuous sampling 0 to 20ft bgs. Used 2in OD split-barrel sampler. Advanced samplers with a 140lb hammer Refusal at 20ft bgs Boring backfilled with soil cuttings No well installed. B-334 location at Tank 45, Tank Farm 4

ACAD NAME:D:\DWG\NETC\BORINGS\334B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-Newport	DRILLED BY: Ajay Caron	BORING NO: 335
DATE START: 10/04/1995	DEPTH TO WATER: --	LOGGED BY: J Holden	GROUND EL.: 0.00
DATE COMPLETED: 10/04/1995	DATE & TIME: -- / --	CHECKED BY: MSN	TOTAL DEPTH: 19.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	13	S-1	10 6 16 6 18 6 19 6	24	11	samp int 1315 TPH, HS	S-1 (11) gravelly silty SAND, mostly fine sand, some silt, little fine gravel, angular, rock fragments, black-brown, dry	SM
	15	S-2	10 6 9 6 12 6 12 6	24	14	samp int 1517 TPH, HS	S-1 (11) gravelly silty SAND, similar to S-1, petroleum odor, moist, visually impacted	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 13'
Conducted continous soil sampling from 13' to 19'
3" ID split barrel advanced with 300 lb hammer
Soil boring only
Tank 45

ACAD NAME:D:\DWG\NETC\BORINGS\335A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	Ajay Caron	BORING NO:	335
DATE START:	10/04/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	10/04/1995	DATE & TIME:	-- / --	CHECKED BY:	MJH	TOTAL DEPTH:	19.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
							SEE PREVIOUS SHEET	
	17	S-3	10 11 12 12 / 6 6 6 6	24	16	samp int 1719 HS	S-1 (11) gravelly silty SAND, similar to S-1, No petroleum odor, moist	SM
							End of Boring @ 19.00' bgs	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4"ID, 8"OD HSA from 0' to 13'
Conducted continous soil sampling from 13' to 19'
3" ID split barrel advanced with 300 lb. hammer
Soil boring only
Tank 45

ACAD NAME:D:\DWG\NETC\BORINGS\335B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-Newport	DRILLED BY: AJ Caron (EDI)	BORING NO: 336
DATE START: 10/04/1995	DEPTH TO WATER: --	LOGGED BY: T Dorgan	GROUND EL.: 0 00
DATE COMPLETED: 10/04/1995	DATE & TIME: -- / --	CHECKED BY: MSN	TOTAL DEPTH: 20 00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	10	S-1	35 47 120	6 6 3 0	15	14	Sample interval =1012. Used 2in split-barrel.	S-1A(4 5in) silty SAND. Mostly fine sand, few coarse sand, some silt Poorly graded (gap graded) dry, loose, brown No visual petroleum impact. S-1B(5in) SAND Mostly fine sand, few silt. Poorly graded, dry, tan. No visual petroleum impact S-1C(4 5in) silty SAND. Similar to S-1A.	SM-SP SP SM-SP
	12	S-2	12 27 28 30	6 6 6 6	24	18	Sample interval =1214. Used 2in split-barrel.	S-2A(2in) silty SAND. Similar to S-1A S-2B(4in) SAND. Similar to S-1B. S-2C(12in) silty SAND Similar to S-2A. Gray to black, brick fragment in nose of barrel No visual petroleum impact noted.	SM-SP SP SM-SP
	14	S-3	27 49 52 27	6 6 6 6	24	9	Sample interval =1416. Used 2in split-barrel.	S-3A(2in) SAND Similar to S-2B. S-3B(3in) silty SAND Similar to S-2C. S-3C(4in) Phyllite fragments Dry, fissile, gray. No visual petroleum impact	SP SM-SP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 18ft. Conducted continuous sampling 10 to 20ft bgs Used 2in OD split-barrel sampler 10 to 18ft, 3in barrel sampler 18 to 20 ft. Advanced samplers w/a 140lb hammer. Refusal @ 20ft. Possible bedrock surface Backfilled boring with soil cuttings. No well installed B-336 @ Tank 45, Tank Farm 4

ACAD NAME:D:\DWG\NETC\BORINGS\336A DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-Newport	DRILLED BY:	AJ Caron (EDI)	BORING NO:	336
DATE START:	10/04/1995	DEPTH TO WATER:	--	LOGGED BY:	T Dorgan	GROUND EL.:	0 00
DATE COMPLETED:	10/04/1995	DATE & TIME:	-- / --	CHECKED BY:	MJN	TOTAL DEPTH:	20 00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-4	35 6 120 3 0 0	9	2	Sample interval =16 to 16 75ft Used 2in split	S-4(2in) silty SAND. Similar to S-3B No evidence of a rock in nose of barrel to account for the poor recovery	SM-SP
	18	S-5	55 6 56 6 105 6 120 5	23	20	Sample interval =1820 Used 3in split barrel	S-5A(2in) silty SAND Similar to S-4 S-5B(18in) Phyllite fragments Altered (easily broken into 1/4in to 1/2in thick wafers), fissile, dry, gray. No visual petroleum impact End of boring @ 20ft Augers to 18ft No well set	SM-SP

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring with 4in ID, 8in OD HSA from 0ft to 18ft Conducted continuous sampling 10 to 20ft bgs Used 2in OD split-barrel sampler 10 to 18ft; 3in barrel sampler 18 to 20 ft Advanced samplers w/a 140lb hammer. Refusal @ 20ft. Possible bedrock surface Backfilled boring with soil cuttings No well installed B-336 @ Tank 45, Tank Farm 4

ACAD NAME D\DWG\NETC\BORINGS\336B DWG

400 SERIES BORING LOGS

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: J. ST. GEORGE	BORING NO: SB-401
DATE START: 11/28/1995	DEPTH TO WATER: --	LOGGED BY: J. Holden	GROUND EL.: 0.00
DATE COMPLETED: 11/28/1995	DATE & TIME: --/--/19--/ --	CHECKED BY: MJN	TOTAL DEPTH: 38.50

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	7 12 12 14 / 6 6 6 6	24	19		S-1a (3) organic debris S-1b (16) gravelly SILT, mostly silt, some F - CRS gravel up to 2", trace F sand, light gray	GM
	2	S-2	25 17 18 12 / 6 6 6 6	24	14		S-2 gravelly sandy SILT, mostly silt, some F gravel, little F sand, light gray-black, moist	GM
	4	S-3	20 19 12 12 / 6 6 6 6	24	20		S-3a (8) sandy SILT, mostly silt, some F sand, TR F gravel, brown S-3b (12) sandy gravelly SILT, mostly silt, some F -CRS gravel, little F-CRS sand, brown	SM GM
	6	S-4	5 7 12 18 / 6 6 6 6	24	14		S-4 silty GRAVEL, mostly CRS gravel, angular, some silt, gray, large rock fragments to 3"	GM
	8	S-5	100 / 3	3	2	Refusal @ 8' 3" Auger to 9'	S-5 rock flour and angular fragments in spoon	
	9	S-6	16 14 14 12 / 6 6 6 6	24	20		S-6 sandy gravelly SILT, mostly silt, some F gravel, angular, little F-Med sand, brown, last 3" damp	GM
	11	S-7	9 9 15 15 / 6 6 6 6	24	14		S-7 similar to S-6	GM
	13	S-8	6 8 8 20 / 6 6 6 6	24	17		S-8 silty sandy GRAVEL, mostly F-CRS gravel, angular, some F-Med sand, little silt, wet, brown	GM
	15	S-9	6 21 31 17 / 6 6 6 6	24	20		S-9 similar to S-8	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Continuous sampling w 3" spoon and 140 lb hammer
Installed MW401 @ 37-27' bgs w/ 20 slot screen

ACAD NAME:D:\DWG\NETC\BORINGS\401A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: J ST GEORGE	BORING NO: SB-401
DATE START: 11/28/1995	DEPTH TO WATER: --	LOGGED BY: J. Holden	GROUND EL.: 0.00
DATE COMPLETED: 11/28/1995	DATE & TIME: --/--/19--/ --	CHECKED BY: MMA	TOTAL DEPTH: 38.50

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	17	S-10	12 15 17 21 / 6 6 6 6	24	16		S-10 similar to S-8, oil droplets on gravel	GM
	19	S-11	11 17 21 28 / 6 6 6 6	24	13	Pet Odor	S-11 Simliar to S-8	GM
	21	S-12	11 17 25 30 / 6 6 6 6	24	10		S-12a (5) silty SAND, mostly F sand, little silt, trace F gravel, gray-black S-12b (5) silty sandy GRAVEL, CRS gravel, some F sand, some silt, black-brown	SM GM
	23	S-13	9 12 9 12 / 6 6 6 6	24	12	Pet odor	S-13a (3) similar to S-12a, light oil sheen S-13b (9) similar to S-12b, oil droplets on gravel	SM GM
	25	S-14	16 12 11 12 / 6 6 6 6	24	14	Pet Odor	S-14 pet. impacted	
	27	S-15	11 9 12 14 / 6 6 6 6	24	13	Pet. Odor	S-15a (3) silty SAND, mostly F-Med sand, some silt TR CRS sand, black/brown, pet impacted S-15b (10) similar to S-12b	SM GM
	29	S-16	52 41 12 19 / 6 6 6 6	24	13	Vis impacted	S-16 silty GRAVEL, mostly F-CRS gravel, some silt, gray, visually impacted	GM
	31	S-17	6 7 12 11 / 6 6 6 6	24	10	Vis impacted	S-17a (4) silty SAND, mostly F-Med. sand, some silt, gray, tr CRS sand S-17b (6) similar to S-16	SM GM

LEGEND:

TYPE-NO – Type of Sample
C – Rock core sample
S – Split barrel sample
BLOWS PER 6" – 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN – Penetration length of sampler
REC – Length of sample recovered
▽ – Natural groundwater table

NOTES:

Continuous sampling w 3" spoon and 140 lb hammer
Installed MW401 @ 37-27' bgs w/ 20 slot screen

ACAD NAME:D:\DWG\NETC\BORINGS\401B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: J ST. GEORGE	BORING NO: SB-401
DATE START: 11/28/1995	DEPTH TO WATER: --	LOGGED BY: J. Holden	GROUND EL.: 0.00
DATE COMPLETED: 11/28/1995	DATE & TIME: --/--/19--/ --	CHECKED BY: m M.	TOTAL DEPTH: 38 50

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	33	S-18	3 4 7 5 / 6 6 6 6	24	12	Vis impacted	S-18a (5) similar to S-17a S-18b (7) similar to S-17b	SM GM
	35	S-19	12 12 18 16 / 6 6 6 6	24	4	Vis. impacted	S-19 GRAVEL, CRS gravel, TR F gravel, TR F-CRS sand, pet. impacted, poss ring drain	GP
	37	S-20	15 17 100 / 6 6 4	16	8	Heavily Impact Refusal @ 38 5'	S-20a (6) sandy GRAVEL, mostly CRS gravel, some F-CRS sand, poss. ring drain S-20b (2) weathered bedrock, gray phyllite END OF BORING @ 38 5' BGS	GP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Continuous sampling w 3' spoon and 140 lb hammer
Installed MW401 @ 37-27' bgs w/ 20 slot screen

ACAD NAME:D:\DWG\NETC\BORINGS\401c DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J ST. GEORGE	BORING NO:	SB-404
DATE START:	11/28/1995	DEPTH TO WATER:	--	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	11/29/1995	DATE & TIME:	------ / --	CHECKED BY:	M SAL	TOTAL DEPTH:	42.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	4 6 25 6 22 6 24 6	24	21	Auger to 5' 2" spoon; 140 lb hammer	S-1 gravelly silty SAND, mostly F sand, some silt, little F gravel, gray, dry	SM-GM
	10	S-2	3 6 12 6 5 6 4 6	24	14		S-2 similar to S-1, some oxidized areas, damp	SM-GM
	15	S-3	6 6 9 6 10 6 5 6	24	9		S-3 silty SAND, mostly F-CRS sand, some silt, tr F gravel, black	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW404 @ 41-36' bgs w/20 slot screen

ACAD NAME:D:\DWG\NETC\BORINGS\404A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J ST GEORGE	BORING NO:	SB-404
DATE START:	11/28/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0 00
DATE COMPLETED:	11/29/1995	DATE & TIME:	------ / --	CHECKED BY:	MSN	TOTAL DEPTH:	42 00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN in	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	17	S-4	6 9 5 7 / 6 6 6 6	24	14	Vis Impacted	S-4 similar to S-3	SM
	19	S-5	1 1 10 12 / 6 6 6 6	24			S-5 similar to S-3	SM
	21	S-6	4 7 5 6 / 6 6 6 6	24	10	Augers @ 20 End of 11/28	S-6 similar to S-3	SM
	23	S-7	9 9 10 9 / 6 6 6 6	24	9	Vis. impacted	S-7 silty sandy GRAVEL, mostly F gravel, some F sand, some silt, black-gray	GM
	25	S-8	8 6 6 7 / 6 6 6 6	24	11	Vis impacted	S-8a (4) silty SAND, F-Med sand, some silt, black S-8b (7) similar to S-7	SM GM
	27	S-9	6 8 9 9 / 6 6 6 6	24	21	Heavily Vis. Impacted	S-9a (9) similar to S-8a S-9b (12) similar to S-8b	SM GM
	29	S-10	9 15 5 11 / 6 6 6 6	24	12	3" spoon, 140 lb hammer	S-10 similar to S-7	GM
	31	S-11	11 8 11 9 / 6 6 6 6	24	11	Vis Impacted	S-11 silty sandy GRAVEL, mostly F-CRS gravel, some F-Med sand, little silt, brown/gray	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW404 @ 41-36' bgs w/20 slot screen

ACAD NAME D:\DWG\NETC\BORINGS\404b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J. ST GEORGE	BORING NO:	SB-404
DATE START:	11/28/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	11/29/1995	DATE & TIME:	------ / --	CHECKED BY:	MJH	TOTAL DEPTH:	42.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	33	S-12	6 6 7 12 / 6 6 6 6	24	10	Heavily Impact.	S-12 similar to S-11	GM
	35	S-13	3 4 9 / 6 6 6	24	14	Heavily Impact.	S-13a (5) silty sand, mostly F-Med sand, some silt black-gray S-13b (9) similar to S-11	SM GM
	37	S-14	9 9 6 20 / 6 6 6	24	12	Heavily Impact.	S-14a (3) similar to S-13a S-14b (4) silty SAND, mostly F-Crs sand, some silt S-14c (5) similar to S-11	SM SM GM
	39	S-15	15 16 21 19 / 6 6 6 6	24	17		S-15a (7) similar to S-14a S-15b (4) similar to S-14b S-15c (6) sandy GRAVEL, mostly Crs gravel, some F-Crs sand,	SM SM GM
	41	S-16	24 24 100 / 6 6 4	18	12	Refusal @ 42 Auger to 42' Set well 41-36	S-16a (9) similar to S-15c S-16b (3) weathered bedrock END OF BORING @ ~~42.0'~~ BGS 42.3' MJH	GM

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW404 @ 41-36' bgs w/20 slot screen

ACAD NAME:D:\DWG\NETC\BORINGS\404c.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-407
DATE START: 11/29/1995	DEPTH TO WATER: 28.27	LOGGED BY: T Dorgan	GROUND EL.: 89.20
DATE COMPLETED: 11/30/1995	DATE & TIME: 01/18/1996/0735	CHECKED BY: MSN	TOTAL DEPTH: 39.30

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	40 6 42 6 42 6 40 6	24	20	Sample interval =0002	S-1A (3in) Root mat - organic material. S-1B (2in) Phyllite fragments S-1C (15in) sandy GRAVEL. Well graded, mostly fine to coarse gravel, little med sand, trace fine sand, trace organics (roots), gray	GW
	2	S-2	69 6 99 6 120 5 0	17	8	Sample interval =0204.	S-2 (8in) sandy GRAVEL. Similar to S-1C. Dry. No petroleum odor or stains observed.	GW
	4	S-3	11 6 19 6 25 6 29 6	24	15	Sample interval =0406.	S-3 (15in) gravelly SAND. Well graded, mostly fine to coarse sand, little to some angular gravel, trace silt, dry No petroleum odor Sands and gravels are phyllitic.	SW
	6	S-4	16 6 15 6 18 6 19 6	24	16	Sample interval =0608.	S-4 (16in) gravelly SAND. Similar to S-3.	SW
	8	S-5	15 6 19 6 26 6 29 6	24	9	Sample interval =0810.	S-5 (9in) gravelly SAND Similar to S-4	SW
	10	S-6	16 6 28 6 28 6 27 6	24	15	Sample interval =1012	S-6 (15in) gravelly SAND. Similar to S-5. No petroleum odor or stains. Sands and gravels are phyllitic	SW
	12	S-7	16 6 16 6 16 6 16 6	24	13	Sample interval =1214 Used 300 lb hammer.	S-7 (13in) gravelly SAND. Similar to S-6. Sands and gravels are phyllitic. Graphite sheen on cuttings.	SW
	14	S-8	5 6 5 6 5 6 5 6	24	13	Sample interval =1416. Used 300 lb hammer.	S-8 (13in) gravelly SAND. Similar to S-7. Dry.	SW

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in OD HSA from 0 to 39ft bgs Continuous sampling 0-39.3ft. Advanced 3in OD split-barrel sampler with 140lb hammer 0-12ft; 300lb hammer 12-39.3ft. Select S-16 for TPH analysis; S-20 for TPH and Plate Count analysis, S-21 for Plate Count analysis Noted petroleum

ACAD NAME D\DWG\NETC\BORINGS\407A.DWG

BORING LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-407
DATE START: 11/29/1995	DEPTH TO WATER: 28.27	LOGGED BY: T Dorgan	GROUND EL.: 89.20
DATE COMPLETED: 11/30/1995	DATE & TIME: 01/18/1996/0735	CHECKED BY: mJOK	TOTAL DEPTH: 39.30

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-9	5 5 5 5 / 6 6 6 6	24	16	Sample interval =1618. Used 300 lb hammer	S-9 (16in) sandy GRAVEL Well graded, mostly angular, coarse gravel, little fine to medium sand trace silt, moist, dark gray. No petroleum odor or sheen observed.	GW
	18	S-10	5 5 6 3 / 6 6 6 6	24	14	Sample interval =1820 Used 300 lb. hammer.	S-10 (14in) sandy GRAVEL. Similar to S-9 Moist No petroleum odor or stains	GW
	20	S-11	4 4 7 31 / 6 6 6 6	24	17	Sample interval =2022 Used 300 lb hammer	S-11 (17in) gravelly SAND. Poorly graded, mostly fine to med sand, some angular, coarse phyllitic gravel, 1 piece of quartz 1.25in diameter, moist, dark gray, no petroleum odor or stains observed	SP
	22	S-12	120	5 0 0 0	5	4	Sample interval =2224. Used 300 lb hammer	S-12 (4in) gravelly SAND Similar to S-11 No petroleum odor or stains observed	SP
	24	S-13	7 8 9 9 / 6 6 6 6	24	8	Sample interval =2426. Used 300 lb hammer.	S-13 (8in) GRAVEL. Poorly graded, mostly 1 piece coarse, phyllitic gravel 1.5in by 3in in size, few fine to medium sand No petroleum odors or stains observed	GP
	26	S-14	7 7 5 7 / 6 6 6 6	24	16	Sample interval =2628. Used 300 lb hammer	S-14 (16in) GRAVEL. Similar to S-12. No petroleum odor or stains observed.	GP
	28	S-15	6 12 8 6 / 6 6 6 6	24	20	Sample interval =2830. Used 300 lb hammer	S-15 (20in) sandy GRAVEL Poorly graded, mostly angular phyllitic gravel, little fine sand, trace medium sand, few silt, dark gray. No petroleum odor	GP
	30	S-16	4 9 12 7 / 6 6 6 6	24	9	Sample interval =3032. Used 300 lb hammer.	S-16 (9in) sandy GRAVEL. Similar to S-15. Dry.	GP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in OD HSA from 0 to 39ft bgs
Continuous sampling 0-39.3ft Advanced 3in OD split-barrel sampler with 140lb hammer 0-12ft; 300lb hammer 12-39.3ft
Select S-16 for TPH analysis; S-20 for TPH and Plate Count analysis; S-21 for Plate Count analysis Noted petroleum

ACAD NAME:D:\DWG\NETC\BORINGS\407B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-407
DATE START: 11/29/1995	DEPTH TO WATER: 28.27	LOGGED BY: T Dorgan	GROUND EL.: 89.20
DATE COMPLETED: 11/30/1995	DATE & TIME: 01/18/1996/0735	CHECKED BY: MJN	TOTAL DEPTH: 39.30

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	32	S-17	13 6 27 6 33 6 13 6	24	14	Sample interval =3234. Used 300 lb hammer	S-17 (14in) sandy GRAVEL. Similar to S-16. Gravel comprised of phyllite pieces and milky quartz. No petroleum odor or stains observed Dry	GP
	34	S-18	6 6 8 6 8 6 11 6	24	12	Sample interval =3436 Used 300 lb hammer	S-18A (8in) sandy GRAVEL. Similar to S-17 S-18B (4in) GRAVEL. Poorly graded, 2 pieces coarse rounded, igneous gravel. Gravel piece in nose of sampler greater than 3in diameter. Probable ring drain material. Observed few immiscible oil droplets	GP GP
	36	S-19	27 6 19 6 15 6 10 6	24	2	Sample interval =3638 Used 300 lb hammer	S-19 (2in) GRAVEL. Similar to S-18 Gravel in nose of sampler 2in by 3in, igneous material, trace coarse sand. Observed presence of immiscible oil droplets.	GP
	38	S-20	29 6 120 3 0 0	9	9	Sample interval =38 to 38 75ft 300lb hammer.	S-20A (3in) GRAVEL Similar to S-19 Heavily impacted with petroleum. S-20B (4in) clayey SILT. Mostly silt, few to little clay-sized particles, trace to few fine sand, petroleum stains observed. S-20C (2in) Phyllite. Altered, maleable fragments, petroleum impacted along joint or fracture	GP ML
	39	S-21	120 3 0 0 0	3	3	Sample interval =39 to 39.35ft 300lb hammer	S-21 (3in) Phyllite. Similar to S-20C. Petroleum impacted. End of boring @ 39.25 ft bgs Auger to 39 ft. Set MW 407. See well construction log.	

NOTE: INTERVAL BEGINING AT 38 AND 39 NOT TO RELATIVE SCALE DUE TO AMOUNT OF DATA PRESENTED

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4 25in ID, 8in. OD HSA from 0 to 39ft bgs Continuous sampling 0-39.3ft. Advanced 3in OD split-barrel sampler with 140lb hammer 0-12ft; 300lb hammer 12-39.3ft. Select S-16 for TPH analysis; S-20 for TPH and Plate Count analysis; S-21 for Plate Count analysis. Noted petroleum

ACAD NAME:D:\DWG\NETC\BORINGS\407C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J ST GEORGE	BORING NO:	SB-408
DATE START:	11/29/1995	DEPTH TO WATER:	--	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	11/30/1995	DATE & TIME:	------ / --	CHECKED BY:	MSNL	TOTAL DEPTH:	43.90

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	11 11 9 12 / 6 6 6 6	24	16		S-1 sandy gravelly SILT, mostly silt, some F gravel, little F sand, dry, light gray	GM
	10	S-2	7 7 5 6 / 6 6 6 6	24	12		S-2 similar to S-1	GM
	15	S-3	7 9 6 20 / 6 6 6 6	24	18		S-3 similar to S-1	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW408 @ 42-37' bgs w/20 slot screen
3" spoon and 140 lb hammer used from 39' to EOB

ACAD NAME:D:\DWG\NETC\BORINGS\408A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J. ST. GEORGE	BORING NO:	SB-408
DATE START:	11/29/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	11/30/1995	DATE & TIME:	------ / --	CHECKED BY:	MSN	TOTAL DEPTH:	43.90

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	17	S-4	9 4 6 6 / 6 6 6 6	24	8		S-4 similar to S-1, damp	GM
	19	S-5	6 5 6 8 / 6 6 6 6	24	8		S-5 similar to S-1, wet	GM
	21	S-6	7 5 5 6 / 6 6 6 6	24	10	light oil sheen Duplicate TPH	S-6 silty sandy GRAVEL, mostly F gravel, some F-Med. sand, some silt, black/gray	GM
	23	S-7	6 3 4 6 / 6 6 6 6	24	8	light oil sheen	S-7 similar to S-6	GM
	25	S-8	3 4 4 8 / 6 6 6 6	24	12	visually impact	S-8a (4) silty SAND, mostly F-Crs sand, some silt black/gray S-8b (8) silty sandy GRAVEL, mostly F angular gravel, some F sand, little silt, black/gray	SM GM
	27	S-9	10 7 9 11 / 6 6 6 6	24	14	visually impact	S-9a (5) similar to S-8a S-9b (9) similar to S-8b	SM GM
	29	S-10	5 4 9 12 / 6 6 6 6	24	16	visually impact	S-10a (7) silty SAND, mostly F sand, some silt, black/gray S-10b (9) similar to S-8b	SM GM
	31	S-11	4 3 8 5 / 6 6 6 6	24	10	visually impact	S-11 similar to S-8b	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW408 @ 42-37' bgs w/20 slot screen
3" spoon and 140 lb hammer used from 39' to EOB

ACAD NAME D:\DWG\NETC\BORINGS\408B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J ST. GEORGE	BORING NO:	SB-408
DATE START:	11/29/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	11/30/1995	DATE & TIME:	------ / --	CHECKED BY:	[illegible]	TOTAL DEPTH:	43.90

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	33	S-12	5 6 5 6 8 6 2 6	24	9	visually impact	S-12a (4) similar to S-10a S-12b (5) similar to s-8b, heavily impacted	SM GM
	35	S-13	4 6 5 6 11 6 12 6	24	10	visually impact	S-13 similar to S-8b	GM
	37	S-14	16 6 11 6 8 6 3 6	24	8	visually impact	S-14 similar to S-8b	GM
	39	S-15	13 6 19 6 27 6 15 6	24	18	visually impact	S-15a (8) silty SAND, mostly F sand,some silt,gray S-15b (6) silty sandy GRAVEL, similar to S-8b S-15c (4) sandy GRAVEL, Crs gravel, some F-Crs sand, poss ring drain, 1 piece Crs (2") gravel in nose of spoon	SM GM GP
	41	S-16	28 6 26 6 27 6 29 6	24	14	visually impact	S-16 sandy GRAVEL, F-Crs gravel, rounded and angul pieces up to 3", F-Crs sand, trace silt, poss ring drain	GW
	43	S-17	3 6 100 5	11	9	visually impact	S-17a (5) gravelly SAND, F-Crs sand, little F gravel, 1 piece Crs gravel, poss ring drain S-17b (4) weathered bedrock, black schist/phyllite END OF BORING @ 43.9 BGS	SW

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW408 @ 42-37' bgs w/20 slot screen
3" spoon and 140 lb hammer used from 39' to EOB

ACAD NAME:D:\DWG\NETC\BORINGS\408C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J ST. GEORGE	BORING NO:	SB-409
DATE START:	12/01/1995	DEPTH TO WATER:	--	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/01/1995	DATE & TIME:	---- / --	CHECKED BY:	MSN	TOTAL DEPTH:	23.30

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	9 3 5 18 / 6 6 6 6	24	13		S-1 silty gravelly SAND, mostly F sand, some F gravel, little silt, black/gray, dry	SM
	10	S-2	14 24 32 40 / 6 6 6 6	24	23	poss till?	S-2a (5) similar to S-1 S-2b (18) silty sandy GRAVEL, mostly F gravel, rounded, little F-Crs sand, little silt, brown, dry, dense	SM GM
	15	S-3	15 17 22 22 / 6 6 6 6	24	21		S-3 Similar to S-2b, but also has Crs gravel, is black, damp	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 20' bgs
Installed MW409 @ 22-17' bgs w/20 slot screen
Soil from 22-23' bgs visually impacted, spoke to C. Martin @ 0910 regarding placement of well screen, and presence of impacted soil away from socket (MW409 approx 50' outside

ACAD NAME D:\DWG\NETC\BORINGS\409A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J ST GEORGE	BORING NO:	SB-409
DATE START:	12/01/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/01/1995	DATE & TIME:	---- / --	CHECKED BY:		TOTAL DEPTH:	23.30

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16							
	20	S-4	19 6 15 6 20 6 22 6	24	20		S-4 silty sandy GRAVEL, mostly F gravel, some F sand, little silt, brown/gray, wet	GM
	22	S-5	21 6 35 6 100 4	16	14	visually Impact	S-5a (12) silty SAND, mostly F-Crs sand, little silt, visually impacted, pet. odor S-5b (8) silty sandy GRAVEL, mostly F gravel, some F-Crs sand, little silt, oil droplets on gravel	SM GM
							0900 bailed through augers, water had sheen,bailer had oil droplets, 0920 called C. Martin END OF BORING @ 23.3' BGS	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 20' bgs
Installed MW409 @ 22-17' bgs w/20 slot screen
Soil from 22-23' bgs visually impacted, spoke to C. Martin @ 0910 regarding placement of well screen, and presence of impacted soil away from socket (MW409 approx 50' outside

ACAD NAME:D:\DWG\NETC\BORINGS\409B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-410
DATE START: 12/01/1995	DEPTH TO WATER: --	LOGGED BY: T Dorgan	GROUND EL.: 86.80
DATE COMPLETED: 12/01/1995	DATE & TIME: --/--/19--/ --	CHECKED BY: MJM	TOTAL DEPTH: 22.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC in	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	9 6 12 6 12 6 16 6	24	16	Sample interval =0002. Used 2in barrel/140lb.	S-1 (16in) silty SAND. Poorly graded, mostly fine sand, some silt, few to little angular gravel, trace organics, moist (surface water), brown No petroleum odor or stains observed	SM
	5	S-2	8 6 10 6 12 6 11 6	24	18	Sample interval =0507. Used 2in barrel.	S-2 (18in) silty SAND Similar to S-1 Dry. No petroleum odor or stains observed.	SM
	10	S-3	10 6 12 6 18 6 18 6	24	14	Sample interval =1012 Used 2in barrel	S-3 (14in) silty SAND Similar to S-2 Dry No petroleum odor or stains observed	SM
	14	S-4	7 6 14 6 8 6 25 6	24	13	Sample interval =1416 Used 2in barrel	S-4 (13in) sandy GRAVEL Well graded, mostly angular, phyllitic gravel, little fine sand, few silt, moist, brown No petroleum odor	GW-GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in ID, 8in OD HSA from 0 to 20ft bgs Standard interval sampling 0-22ft Advanced 2in OD split-barrel sampler with 140lb hammer 0-22ft. Selected S-4 for TPH analysis. No petroleum impact noted during advancement. End of boring @ 22ftbgs Boring location @ Tank 42.

ACAD NAME:D:\DWG\NETC\BORINGS\407A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	AJ CARON (EDI)	BORING NO:	SB-410
DATE START:	12/01/1995	DEPTH TO WATER:	--	LOGGED BY:	T Dorgan	GROUND EL.:	86 80
DATE COMPLETED:	12/01/1995	DATE & TIME:	--/--/19--/ --	CHECKED BY:	MSH	TOTAL DEPTH:	22.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	20	S-5	16 6 38 6 68 6 120 6	24	17	Sample interval =2022 Used 2in barrel	S-5A (3in) sandy GRAVEL. Similar to S-4. S-5B (14in) Phyllite Altered phyllite fragments No petroleum odor or stains observed Possible bedrock surface @ 20.25ft bgs. End of boring @ 22ftbgs. Auger to 20ft. Backfilled boring	GW-GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4 25in ID, 8in OD HSA from 0 to 20ft bgs
Standard interval sampling 0-22ft Advanced 2in OD split-barrel sampler with 140lb hammer 0-22ft Selected S-4 for TPH analysis. No petroleum impact noted during advancement.
End of boring @ 22ftbgs Boring location @ Tank 42

ACAD NAME:D\DWG\NETC\BORINGS\410B DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-411
DATE START: 12/01/1995	DEPTH TO WATER: 34 85	LOGGED BY: T Dorgan	GROUND EL.: 95.90
DATE COMPLETED: 12/04/1995	DATE & TIME: 01/18/1996/0730	CHECKED BY: [illegible]	TOTAL DEPTH: 41 00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	5 5 8 25 / 6 6 6 6	24	19	Sample interval =0002. Used 3in barrel/300lb.	S-1A (5in) silty SAND. Poorly graded, mostly fine sand, some silt, few angular gravel, trace organic material, moist, brown.	SM
							S-1B (5in) silty SAND Similar to S-1A but is tan.	SM
							S-1C (9in) silty SAND. Similar to S-1A.	SM
	5	S-2	15 14 7 8 / 6 6 6 6	24	17	Sample interval =0507. Grinding 3.5-4.5ft.	S-2 (17in) silty SAND. Well graded, mostly fine to coarse sand, little silt, trace angular gravel, dense/tight, dry, dark gray No petroleum odor or stains observed.	SM
	10	S-3	10 8 16 7 / 6 6 6 6	24	17	Sample interval =1012. Grinding 8-9ft. 3in/300	S-3A (4in) silty SAND. Similar to S-2	SM
							S-3B (13in) sandy GRAVEL. Poorly graded, mostly angular gravel, little fine to medium sand, loose, dry, gray. No petroleum odor or stains observed.	GP
	15	S-4	14 14 8 18 / 6 6 6 6	24	19	Sample interval =1517. Used 300 lb hammer/3in	S-4A (8in) sandy GRAVEL. Similar to S-3B.	GP
							S-4B (11in) Phyllite Altered rock fragments, dry, loose, gray. No petroleum impact observed.	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in. OD HSA from 0 to 39ft bgs Standard interval sampling 0-37ft Continuous sampling 37-39 ft. Advanced 3in OD split barrel sampler w/300lb hammer
Selected S-7 for TPH analysis (MS/MSD); S-8 for grain size; S-10 for Plate Count, grain size, TPH, and engineering

ACAD NAME:D:\DWG\NETC\BORINGS\411A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	AJ CARON (EDI)	BORING NO:	SB-411
DATE START:	12/01/1995	DEPTH TO WATER:	34.85	LOGGED BY:	T Dorgan	GROUND EL.:	95.90
DATE COMPLETED:	12/04/1995	DATE & TIME:	01/18/1996/0730	CHECKED BY:	[illegible]	TOTAL DEPTH:	41.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
							SEE PREVIOUS PAGE	
	20	S-5	5 5 11 5 / 6 6 6 6	24	17	Sample interval =2022 Used 300 lb hammer/3in	S-5 (17in) sandy GRAVEL. Similar to S-4A. Moist, No petroleum impact observed	GP
	25	S-6	4 6 7 4 / 6 6 6 6	24	13	Sample interval =2527 Used 300 lb hammer/3in	S-6A (6in) sandy GRAVEL. Similar to S-5	GP
							S-6B (6in) GRAVEL Poorly graded, angular, coarse, phyllite fragments. Oxidized-like areas along breaks and fractures.	GP
							S-6C (1in) sandy GRAVEL. Similar to S-6A.	
	30	S-7	7 8 14 12 / 6 6 6 6	24	11	Sample interval =3032 300/3in MS/MSD.	S-7 (11in) sandy GRAVEL. Similar to S-6A and S-6B. Gray. Petroleum impacted. Oil in joints and fractures of gravels, as well as in soils	GP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in OD HSA from 0 to 39ft bgs
Standard interval sampling 0-37ft. Continuous sampling 37-39 ft Advanced 3in OD split barrel sampler w/300lb hammer.
Selected S-7 for TPH analysis (MS/MSD); S-8 for grain size; S-10 for Plate Count, grain size, TPH, and engineering

ACAD NAME:D:\DWG\NETC\BORINGS\411B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-411
DATE START: 12/01/1995	DEPTH TO WATER: 34.85	LOGGED BY: T Dorgan	GROUND EL.: 95.90
DATE COMPLETED: 12/04/1995	DATE & TIME: 01/18/1996/0730	CHECKED BY: DM 5/24	TOTAL DEPTH: 41.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	35	S-8	15 6 14 6 10 6 11 6	24	15	Sample interval =3537 3in/300. Grain size.	S-8 (15in) sandy GRAVEL Poorly graded, mostly angular phyllite fragments (wafer shaped), few to some fine sand, trace silt, saturated, gray. Petroleum impact observed.	GP
	37	S-9	11 6 15 6 32 6 20 6	24	21	Sample interval =3739 300/3in Photo taken.	S-9A (2in) sandy GRAVEL Similar to S-8. Petroleum impact observed S-9B (19in) Phyllite Altered, oxidized-like (orange-colored) layers, fragments (wafer-shape) petroleum impact observed in fractures.	GP
	39	S-10	11 6 15 6 16 6 120 5	23	20	Sample interval =39 to 39 9ft 300/3in.	S-10 (20in) Phyllite. Similar to S-9B. Petroleum impact observed. End of boring @ approximately 41 ftbgs. Auger to 39ft Set MW-411. See well construction log.	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4 25in. ID, 8in OD HSA from 0 to 39ft bgs
Standard interval sampling 0-37ft Continuous sampling 37-39 ft. Advanced 3in OD split barrel sampler w/300lb hammer.
Selected S-7 for TPH analysis (MS/MSD); S-8 for grain size; S-10 for Plate Count, grain size, TPH, and engineering

ACAD NAME:D:\DWG\NETC\BORINGS\411C DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J. ST. GEORGE	BORING NO:	SB-412
DATE START:	12/04/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/04/1995	DATE & TIME:	----- / --	CHECKED BY:	MSD	TOTAL DEPTH:	21.90

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	2 2 4 7 / 6 6 6 6	24	15		S-1 silty SAND, mostly F. sand, some silt, TR F gravel, dry, brown	SM
	10	S-2	4 6 3 3 / 6 6 6 6	24	14		S-2 sandy silty GRAVEL, mostly F gravel, some silt little F sand, damp, brown/black	GM
	15	S-3	2 2 2 3 / 6 6 6 6	24	11	Visually Impact Strong Pet Odor	S-3 similar to S-2, wet	GM

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW412 @ 20-10' bgs w/20 slot screen
Soil from 15-21' bgs visually impacted
Well is approx 15' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\412a.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	J ST. GEORGE	BORING NO:	SB-412
DATE START:	12/04/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/04/1995	DATE & TIME:	----- / --	CHECKED BY:	MSP	TOTAL DEPTH:	21.90

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	17	S-4	1 1 1 1 / 6 6 6 6	24	18	Visually Impact	S-4a (11) silty SAND, mostly F-Med sand, little silt, wet S-4b (7) similar to S-3	SM GM
	19	S-5	4 4 9 7 / 6 6 6 6	24	13	Visually Impact Strong Pet Odor	S-5 silty sandy gravel, mostly F gravel, some F sand, little silt, gray, wet, black oil droplets on gravel	GM
	21	S-6	18 120 / 6 4	10	10	Duplicate	S-6 weathered bedrock, black/gray phyllite END OF BORING @ 21.9' BGS	

LEGEND.

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 15' bgs
Installed MW412 @ 20-10' bgs w/20 slot screen
Soil from 15-21' bgs visually impacted
Well is approx 15' from tank

ACAD NAME:D\DWG\NETC\BORINGS\412b DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-413
DATE START: 12/05/1995	DEPTH TO WATER: 30	LOGGED BY: T Dorgan	GROUND EL.: 91.20
DATE COMPLETED: 12/05/1995	DATE & TIME: 01/18/1996/0740	CHECKED BY: M SM	TOTAL DEPTH: 39.30

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	3 3 5 11 / 6 6 6 6	24	24	Sample interval =0002. Used 3in /300lb hammer	S-1A (13in) silty SAND. Poorly graded, mostly fine sand, little to some silt, few angular to fine gravel, root mat in top 1-2inches, brown S-1B (11in) gravelly silty SAND Poorly graded, mostly fine sand, little silt, little to few angular phyllitic gravel, dense, gray.	SM SM
	5	S-2	11 7 5 7 / 6 6 6 6	24	21	Sample interval =0507. 3in/300 lb hammer	S-2 (21in) gravelly silty SAND. Similar to S-1B Dry, dense. No petroleum odor or stains observed.	SM
	10	S-3	5 9 7 8 / 6 6 6 6	24	5	Sample interval =1012 Used 3in /300lb hammer	S-3 (5in) gravelly silty SAND. Similar to S-2. Subangular gravel piece, 2in by 2.5in by 3.25in lodged in nose of sampler.	SM
	15	S-4	4 6 4 6 / 6 6 6 6	24	19	Sample interval =1517. Used 3in /300lb hammer	S-4A (6in) gravelly silty SAND. Similar to S-3. S-4B (13in) sandy GRAVEL Poorly graded, mostly angular phyllitic gravel, some fine to medium sand dry, loose, gray. No visual evidence of a petroleum impact No petroleum odor detected.	SM GP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in. OD HSA from 0 to 38ft bgs. Standard interval sampling 0ft to refusal @ 39.3ft Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 39.3ft. Selected S-7 for TPH analysis; S-8 for TPH and engineering criteria EOB @ 39.3ft bgs No petroleum impact observed

ACAD NAME D:\DWG\NETC\BORINGS\413A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-413		
DATE START: 12/05/1995	DEPTH TO WATER: 30	LOGGED BY: T Dorgan	GROUND EL.: 91 20		
DATE COMPLETED: 12/05/1995	DATE & TIME: 01/18/1996/0740	CHECKED BY: m MB	TOTAL DEPTH: 39.30		

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
							SEE PREVIOUS PAGE	
	20	S-5	5 7 8 8 / 6 6 6 6	24	20	Sample interval =2022 Used 3in /300lb hammer.	S-5 (20in) sandy GRAVEL. Similar to S-4B. Oxidized like layer, 3-4 inches thick in center of sample. Np petroleum impact observed.	GP
	25	S-6	4 4 6 8 / 6 6 6 6	24	14	Sample interval =2527 Used 3in /300lb hammer	S-6 (14in) sandy GRAVEL Similar to S-4B. Moist. No petroleum odor or stains observed.	GP
	30	S-7	3 2 3 4 / 6 6 6 6	24	17	Sample interval =3032. Used 3in 300lb hammer	S-7 (17in) sandy GRAVEL. Similar to S-6. Moist. No petroleum impact observed.	GP

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in ID, 8in OD HSA from 0 to 38ft bgs Standard interval sampling 0ft to refusal @ 39.3ft Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 39.3ft. Selected S-7 for TPH analysis; S-8 for TPH and engineering criteria. EOB @ 39.3ft bgs. No petroleum impact observed

ACAD NAME:D:\DWG\NETC\BORINGS\413B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-413
DATE START: 12/05/1995	DEPTH TO WATER: 30	LOGGED BY: T Dorgan	GROUND EL.: 9120
DATE COMPLETED: 12/05/1995	DATE & TIME: 01/18/1996/0740	CHECKED BY: MIM	TOTAL DEPTH: 39.30

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	35	S-8	4 6 12 6 120 6 0	18	17	Sample interval =35 to 36.5ft. Used 3in/300lb	S-8A (6in) sandy GRAVEL Similar to S-7. S-8B (10in) Phyllite. Altered, angular, gray phyllitic fragments with an orange-colored coating possibly result of oxidation. S-8C (1in) sandy GRAVEL. Similar to S-8A. No evidence of a petroleum impact observed.	GP
	38	S-9	17 6 75 6 120 4 0	16	14	Sample interval =38 to 39.3ft Used 3in/300lb	S-9 (14in) Phyllite. Altered, saprolitic, very poor condition Top 3in gray changing to orange-coloration (possibly result of oxidation) No petroleum odor, stains or sheen observed End of boring @ 39.3ft bgs. Auger to 38ft. Set MW-413. See well construction log	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in ID, 8in. OD HSA from 0 to 38ft bgs
Standard interval sampling 0ft to refusal @ 39.3ft. Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 39.3ft.
Selected S-7 for TPH analysis, S-8 for TPH and engineering criteria EOB @ 39.3ft bgs. No petroleum impact observed

ACAD NAME:D:\DWG\NETC\BORINGS\413C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	S LAMARCHE	BORING NO:	SB-414
DATE START:	12/05/1995	DEPTH TO WATER:	--	LOGGED BY:	J Holden	GROUND EL.:	0 00
DATE COMPLETED:	12/05/1995	DATE & TIME:	----- / --	CHECKED BY:	MM JM	TOTAL DEPTH:	17.17

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	6 8 4 8 / 6 6 6 6	24	24	Blow counts estimated	S-1a (6) silty GRAVEL, mostly F gravel,some silt, black-gray, dry	GM
							S-1b (18) silty SAND, mostly F sand, some silt, Tr M-Crs sand, Tr F gravel, brown, damp (Till?)	SM
	10	S-2	6 12 17 14 / 6 6 6 6	24	14		S-2 Similar to S-1b, wet	SM
	12	S-3	11 15 17 17 / 6 6 6 6	24	21		S-3 silty gravely SAND, mostly F-Crs sand, some F gravel, little silt, black-brown/gray, wet	SM
	14	S-4	16 17 26 31 / 6 6 6 6	24	23	Oil droplets on chech valve, no oil in spoon	S-4 silty sandy Gravel, mostly F gravel, some F sand, little silt, brown	GM

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
⊻ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 10' bgs
Boring is approx 30' from tank

ACAD NAME D\DWG\NETC\BORINGS\414A DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	S. LAMARCHE	BORING NO:	SB-414
DATE START:	12/05/1995	DEPTH TO WATER:	--	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/05/1995	DATE & TIME:	----- / --	CHECKED BY:		TOTAL DEPTH:	17.17

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-5	41 49 100 / 6 6 2	14	14	TPH	S-5 wweathered bedrock, gray phyllite, not competent END OF BORING @ 17~~7~~' BGS .17 mlt	

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2' spoon and 140lb hammer
Continuous Sampling from 10' bgs
Boring is approx 30' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\414b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 38	DRILLED BY: S. LAMARCHE	BORING NO: SB-415
DATE START: 12/05/1995	DEPTH TO WATER: --	LOGGED BY: J Holden	GROUND EL.: 0.00
DATE COMPLETED: 12/05/1995	DATE & TIME: ----- / --	CHECKED BY: MMN	TOTAL DEPTH: 20.67

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	26 6 19 6 18 6 24 6	24	22		S-1a (16) gravelly silty SAND, mostly F Sand, some silt, little F gravel, dry, gray S-1b (6) silty SAND, mostly F sand, little silt, Tr F sand and F gravel, brown, damp	SM SM
	10	S-2	14 6 21 6 20 6 18 6	24	22		S-2 Silty SAND, mostly F sand, little Silt, Tr F gravel (up to 1.5"), black, moist, dense	SM
	12	S-3	17 6 19 6 28 6 28 6	24	23		S-3 Similar to S-2, also Tr Crs sand	SM
	14	S-4	35 6 19 6 23 6 20 6	24	20		S-4 silty SAND, mostly F-Med sand, little silt, Tr Crs sand, black,moist	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 10' bgs
boring is approx 25' downgradient of tank

ACAD NAME:D:\DWG\NETC\BORINGS\415A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 38	DRILLED BY:	S. LAMARCHE	BORING NO:	SB-415
DATE START:	12/05/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/05/1995	DATE & TIME:	----- / --	CHECKED BY:		TOTAL DEPTH:	20.67

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-5	14 15 20 23 / 6 6 6 6	24	20		S-5 silty sandy GRAVEL, mostly F gravel, some F sand, little silt, wet, black-brown	GM
	18	S-6	13 23 100 / 6 6 5	17	15	TPH	S-6 similar to S-5, brown	GM
	20	S-7	96 120 / 6 2	8	6		S-7 Weathered bedrock, black phyllite END OF BORING @ 20.7' BGS	

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard and Continuous sampling w/2" spoon and 140lb hammer
Continuous Sampling from 10' bgs
boring is approx 25' downgradient of tank

ACAD NAME:D:\DWG\NETC\BORINGS\415b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 38	DRILLED BY:	S LAMARCHE	BORING NO:	SB-416
DATE START:	12/06/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/06/1995	DATE & TIME:	----- / --	CHECKED BY:	MJM	TOTAL DEPTH:	40.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"		PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	2 2 4 7	6 6 6 6	24	12		S-1 gravelly silty SAND, mostly F sand, some silt little F-Crs gravel, black/brown, moist, some root fragments	SM
	2	S-2	3 4 4 5	6 6 6 6	24	23		S-2 similar to S-1, no root fragments	SM
	4	S-3	5 6 6 7	6 6 6 6	24	20		S-3a (7) silty SAND, mostly F sand, some silt, black, dense, damp S-3b (13) similar to S-1, No root fragments	SM SM
	6	S-4	3 5 5 5	6 6 6 6	24	18		S-4 similar to S-1, no root fragments	SM
	8	S-5	6 3 5 6	6 6 6 6	24	15		S-5 silty gravelly SAND, mostly F sand, some F-Crs gravel, little silt, moist, gray/brown	SP-SM
	10	S-6	3 3 3 3	6 6 6 6	24	19	10 ft STET mill	S-6 gravelly silty SAND, mostly F sand, some silt, little F gravel, brown, damp	SM
	12	S-7	2 3 3 3	6 6 6 6	24	16		S-7 similar to S-6	SM
	14	S-8	2 3 3 3	6 6 6 6	24	8		S-8 similar to S-6, 2 pieces of Crs gravel	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Continuous sampling w/3" spoon and 300lb hammer
Installed MW416 @ 38-33'bgs w/20 slot screen
Soil from - 'bgs visually impacted
Well is approx 5' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\416A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 38	DRILLED BY: S. LAMARCHE	BORING NO: SB-416
DATE START: 12/06/1995	DEPTH TO WATER: --	LOGGED BY: J. Holden	GROUND EL.: 0.00
DATE COMPLETED: 12/06/1995	DATE & TIME: ----- / --	CHECKED BY:	TOTAL DEPTH: 40.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-9	2 3 3 4 / 6 6 6 6	24	11		S-9 gravelly silty SAND, mostly F sand, some silt, little F-Crs gravel, Tr Med-Crs sand, wet	SM
	18	S-10	3 5 5 8 / 6 6 6 6	24	12		S-10 sandy SILT, mostly silt, some F-Crs sand, Tr F gravel, wet, brown	ML
	20	S-11	1 2 2 2 / 6 6 6 6	24	6	Pet Odor	S-11 gravelly silty SAND, mostly F-Crs sand, some silt, little F gravel, brown, wet, not visually impacted	SM
	22	S-12	2 1 1 2 / 6 6 6 6	24	14		S-12 similar to S-11, also Crs gravel	SM
	24	S-13	2 2 2 3 / 6 6 6 6	24	6	very slight vis impacted	S-13 sandy silty GRAVEL, mostly fine gravel, some silt, little F-Crs sand, black, wet	GM
	26	S-14	2 2 1 2 / 6 6 6 6	24	8		S-14 silty SAND, mostly F-Med sand, some silt, black/gray	SM
	28	S-15	2 1 1 1 / 6 6 6 6	24	8		S-15a (5) similar to S-14 S-15b (3) similar to S-13	SM GM
	30	S-16	1 2 3 2 / 6 6 6 6	24	10		S-16 similar to S-13	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Continuous sampling w/3' spoon and 300lb hammer
Installed MW416 @ 38-33'bgs w/20 slot screen
Soil from - 'bgs visually impacted
Well is approx 5' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\416b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 38	DRILLED BY:	S. LAMARCHE	BORING NO:	SB-416
DATE START:	12/06/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/06/1995	DATE & TIME:	----- / --	CHECKED BY:		TOTAL DEPTH:	40.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	32	S-17	2 2 1 2 / 6 6 6 6	24	9	Visually Impact	S-17a (4) similar to S-14 S-17b (5) similar to S-13	SM GM
	34	S-18	4 5 5 7 / 6 6 6 6	24	17	Visually Impact	S-18a (9) similar to S-14 S-18b (8) sandy GRAVEL, F-Crs gravel, little F-Crs sand, poss ring drain material	SM GP
	36	S-19	5 7 7 3 / 6 6 6 6	24	8	Visually Impact	S-19 similar to S-18	GP
	38	S-20	3 4 39 100 / 6 6 6 6	24	24	Visually Impact	S-20a (5) silty SAND, similar to S-14 S-20b (8) silty SAND, mostly Med-Crs sand, little silt S-20c (11) gray saprolite END OF BORING @ 40.0' BGS	SM SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Continuous sampling w/3" spoon and 300lb hammer
Installed MW416 @ 38-33'bgs w/20 slot screen
Soil from - 'bgs visually impacted
Well is approx 5' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\416c.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-417
DATE START: 12/06/1995	DEPTH TO WATER: 16 57	LOGGED BY: T Dorgan	GROUND EL.: 68.40
DATE COMPLETED: 12/06/1995	DATE & TIME: 12/18/1995/1025	CHECKED BY: MJ Sd	TOTAL DEPTH: 40.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	3 3 3 6 / 6 6 6 6	24	24	Samp int 0002 Auger to 5' bgs No pet odor	S-1a (4) silty SAND, mostly f sand, poorly graded, some silt, tr organics (leaf + Roots), brown, wet from precipitation S-1b (14) silty SAND, mostly f-crs sand, well grad ltl-some silt, few ang gravel, grey, moist S-1c (6) silty SAND, mostly f sand, poorly graded, some silt, few s-ang - s-rnd f gravel, brown	SM SM
	5	S-2	6 9 9 8 / 6 6 6 6	24	24	Auger to 10' grinding from 7-7.5'	S-2 (24) similar to S-1c above, moist, no pet odor or stains	SM
	10	S-3	4 6 17 11 / 6 6 6 6	24	22	Begin cont samp	S-3 (22) silty gravelly SAND, mostly f sand,poorly graded, ltl ang phyllite gravel, ltl silt, tr crs sand, moist, brown to grey, no pet odor or stain	GM
	12	S-4	5 6 7 9 / 6 6 6 6	24	18		S-4 (18) similar to S-3 above. Moist, not sat. no pet odor or stains	GM
	14	S-5	4 4 4 4 / 6 6 6 6	24	16	Water table	S-5 (16) similar to S-4 above, saturated no pet odor or sheen	GM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in. OD HSA from 0 to 38ft bgs
Standard interval sampling 0 ft to 40.0 ft Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 40 ft.
EOB @ 40' w auger and spoons, running sands approx 2' into auger completed as MW-317

ACAD NAME:D:\DWG\NETC\BORINGS\417A DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-417
DATE START: 12/06/1995	DEPTH TO WATER: 16 57	LOGGED BY: T Dorgan	GROUND EL.: 68.40
DATE COMPLETED: 12/06/1995	DATE & TIME: 12/18/1995/1025	CHECKED BY: mint	TOTAL DEPTH: 40.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-6	5 5 5 5 / 6 6 6 6	24	11	Grainsize	S-6 (11) sandy GRAVEL, mostly rnd crs gravel up to 25" diam, ltl f-crs sand, tr f gravel, tr silt, brown, no pet odor or sheen	GW/GP
	18	S-7	3 4 3 3 / 6 6 6 6	24	10		S-7 similar to S-6 above, no sheen or odor	GM
	20	S-8	2 4 3 2 / 6 6 6 6	24	10		S-8 similar to S-7, no sheen or odor	GM
	22	S-9	5 9 7 1 / 6 6 6 6	24	9		S-9 similar to S-8 above, no sheen or odor	GM
	24	S-10	4 1 2 1 / 6 6 6 6	24	1	no recovery?	Poor Recovery, 1" of slough, f-med sand	
	26	S-11	4 4 4 4 / 6 6 6 6	24	0	no recovery Bend in basket, get new basket	No recovery	
	28	S-12	1 1 wor wor / 6 6 6 6	24	6		S-12 SAND, f-crs sand,well graded, few silt pet odor and sheen noticed	SW
	30	S-13	wor wor wor wor / 6 6 6 6	24	0	1/2" recovery	S-13 similar to S-12 above, pet odor and sheen	SW

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in. OD HSA from 0 to 38ft bgs
Standard interval sampling 0 ft to 40.0 ft Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 40 ft
EOB @ 40' w auger and spoons, running sands approx 2' into auger. completed as MW-317

ACAD NAME:D:\DWG\NETC\BORINGS\417B DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-417
DATE START: 12/06/1995	DEPTH TO WATER: 16.57	LOGGED BY: T Dorgan	GROUND EL.: 68.40
DATE COMPLETED: 12/06/1995	DATE & TIME: 12/18/1995/1025	CHECKED BY: m SNL	TOTAL DEPTH: 40.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	32	S-14	won 6 2 6 2 6 2 6	24	7	ENG + TPH samp	S-14 similar to S-13 above, pet odor, sheen, + stain	SW
	34	S-15	6 6 9 6 5 6 7 6	24	6	GS	S-15 similar to S-14 above, pet odor, sheen, + stain. 2 pieces rnd crs gravel, probable ring drain	SW
	36	S-16	6 6 8 6 10 6 11 6	24	8	GS	S-16 similar to S-15 above, pet odor, sheen, + stain. probable ring drain	SW
	38	S-17	9 6 9 6 14 6 12 6	24	11	TPH Photo #15+16	S-17 gravelly SAND, mostly f-crs sand, well graded grading downward from f-crs, few-ltl s-rnd crs gravel (granite) oil coated gravels and impacted sands, heavy coating + stains, Heavy pet sheen. EOB @ 40' w/auger + spoons, running sands approx 2' into auger	GW

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler. coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in. ID, 8in. OD HSA from 0 to 38ft bgs
Standard interval sampling 0 ft to 40.0 ft Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 40 ft.
EOB @ 40' w auger and spoons, running sands approx 2' into auger completed as MW-317

ACAD NAME:D:\DWG\NETC\BORINGS\417C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 38	DRILLED BY: A CARON	BORING NO: SB-418
DATE START: 12/07/1995	DEPTH TO WATER: --	LOGGED BY: J Holden	GROUND EL.: 0 00
DATE COMPLETED: 12/07/1995	DATE & TIME: ----- / --	CHECKED BY: [illegible]	TOTAL DEPTH: 43.75

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	11 23 19 22 / 6 6 6 6	24	16		S-1 gravelly silty SAND, mostly F sand, some silt, little F gravel, Tr F-Crs sand, dry, brown	SM
	5	S-2	15 15 15 22 / 6 6 6 6	24	17		S-2 Similar to S-1, but some F gravel	SM
	10	S-3	16 18 18 22 / 6 6 6 6	24	17		S-3 silty gravelly SAND, mostly F sand, some F gravel, little silt, black, damp	SM
	12	S-4	9 9 7 11 / 6 6 6 6	24	17		S-4 similar to S-3	SM
	14	S-5	7 13 5 8 / 6 6 6 6	24	10		S-5 silty gravelly SAND, mostly F-Med sand, some F gravel, little silt, black/brown, wet	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
Installed MW418 @ 42-37'bgs w/20 slot screen
Soil from 32-42' bgs visually impacted
Well is approx 5' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\418A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 38	DRILLED BY:	A CARON	BORING NO:	SB-418
DATE START:	12/07/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/07/1995	DATE & TIME:	----- / --	CHECKED BY:	MJM	TOTAL DEPTH:	43 75

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	18	S-6	11 6 8 6 6 6 6 6	24	9		S-6 similar to S-5	SM
	20	S-7	7 6 18 6 7 6 4 6	24	7		S-7a (2) silty SAND, mostly F-Med sand, little silt, black-brown S-7b (5) Similar to S-6	SM SM
	22	S-8	5 6 6 6 11 6 13 6	24	7		S-8 Similar to S-6	SM
	24	S-9	120 1	1	1	Auger to 26'	S-9 1 piece coarse gravel in nose, gravel is black schist/phyllite	
	26	S-10	14 6 7 6 5 6 13 6	24	6	Not Impacted	S-10 gravelly silty SAND, mostly F sand, some silt little F gravel, wet, brown-black	SM
	28	S-11	4 6 5 6 4 6 5 6	24	11		S-11a (5) similar to S-7 S-11b (6) Similar to S-10	SM SM
	30	S-12	WOR 6 5 6 10 6 11 6	24	9	Slight Sheen on Spoon	S-12a (1) similar to S-7 S-12b (8) similar to S-10	SM SM
	32	S-13	9 6 13 6 15 6 16 6	24	14	Slight Sheen on last 3"	S-13a (8) silty SAND, F-Med sand, Some silt, black -gray S-13b (3) Similar to S-10 S-13c (3) similar to S-13a, slight impact	SM SM SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
Installed MW418 @ 42-37'bgs w/20 slot screen
Soil from 32-42' bgs visually impacted
Well is approx 5' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\418b DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 38	DRILLED BY:	A. CARON	BORING NO:	SB-418
DATE START:	12/07/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/07/1995	DATE & TIME:	----- / --	CHECKED BY:		TOTAL DEPTH:	43.75

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	34	S-14	25 6 16 6 16 6 14 6	24	14		S-14a (5) similar to S-13a S-14b (9) similar to S-10	SM SM
	36	S-15	18 6 29 6 47 6 53 6	24	18	TPH	S-15a (10) similar to S-13a S-15b (8) similar to S-10	SM SM
	38	S-16	78 6 55 6 38 6 40 6	24	11	3" spoon, 140 lb hammer	S-16a (5) similar to S-13a S-16b (6) similar to S-10 2 pieces F gravel in nose, poss ring drain	SM SM
	40	S-17	24 6 27 6 29 6 28 6	24	12	3" spoon, 140 lb hammer Vis Impact	S-17a (4) Similar to S-13a S-17b (8) sandy GRAVEL, mostly F-Crs gravel, some F-Crs sand, trace silt, poss ring drain	SM GM
	42	S-18	20 6 25 6 29 6 120 3	21	18		S-18a (7) Similar to S-13a S-18b (7) Similar to S-10 S-18c (4) weathered bedrock END OF BORING @ 43.8' BGS	SM SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
Installed MW418 @ 42-37'bgs w/20 slot screen
Soil from 32-42' bgs visually impacted
Well is approx 5' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\418c DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: A. CARON	BORING NO: SB-419
DATE START: 12/08/1995	DEPTH TO WATER: --	LOGGED BY: J Holden	GROUND EL.: 0.00
DATE COMPLETED: 12/08/1995	DATE & TIME: ------ / ---	CHECKED BY: MJNd	TOTAL DEPTH: 20.75

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	2 6 8 6 12 6 17 6	24	13		S-1a (5) silty SAND, mostly F sand, some silt, brown, damp S-1b (8) gravelly silty SAND, mostly F sand, some silt, little F gravel, dry, black/gray	SM SM
	5	S-2	119 6 50 6 6 6 19 6	24	11		S-2a (5) silty SAND, mostly F sand, some silt, black/gray, dry S-2b (6) silty GRAVEL, mostly F gravel, some silt black/gray, dry	SM GM
	10	S-3	17 6 27 6 42 6 37 6	24	22		S-3 silty gravelly SAND, mostly F sand, some F gravel, little silt, damp in nose, black, gray	SM
	12	S-4	37 6 48 6 48 6 59 6	24	14		S-4 Similar to S-3, 1 piece subrounded Crs gravel	SM
	14	S-5	17 6 34 6 56 6 38 6	24	3		S-5 silty SAND, mostly F sand, some silt, wet, brown	SM

LEGEND:

TYPE-NO – Type of Sample
C – Rock core sample
S – Split barrel sample
BLOWS PER 6" – 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN – Penetration length of sampler
REC – Length of sample recovered
▽ – Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
No impacted soil encountered
Boring is approx 70' from tank

ACAD NAME D:\DWG\NETC\BORINGS\419a.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: A. CARON	BORING NO: SB-419
DATE START: 12/08/1995	DEPTH TO WATER: --	LOGGED BY: J. Holden	GROUND EL.: 0.00
DATE COMPLETED: 12/08/1995	DATE & TIME: ------ / ---	CHECKED BY: MIDT	TOTAL DEPTH: 20.75

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-6	27 6 28 6 29 6 27 6	24	8		S-6 sandy SILT, mostly silt, little F sand, Trc Crs sand, black, dense	
	18	S-7	15 6 15 6 21 6 20 6	24	16		S-7 silty sandy GRAVEL, mostly F gravel (angular) some F sand, little silt, black	GM
	20	S-8	97 6 120 3	9	9	TPH	S-8a (3) similar to S-7 S-8b (6) bedrock, gray schist/phyllite, weathered, wet END OF BORING @ 20.8' BGS	GM

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
No impacted soil encountered
Boring is approx 70' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\419b DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	A. CARON	BORING NO:	SB-420
DATE START:	12/08/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/08/1995	DATE & TIME:	------ / --	CHECKED BY:	MJ	TOTAL DEPTH:	19.2

ELEV IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	5 6 8 6 15 6 19 6	24	14		S-1 silty SAND, mostly F sand, little silt, brown moist	SM
	5	S-2	12 6 25 6 22 6 18 6	24	20		S-2 silty SAND, mostly F sand, little silt, gray, moist, last 3" oxidized	SM
	10	S-3	25 6 27 6 27 6 27 6	24	15		S-3a (2) similar to S-2, oxidized, wet S-3b (13) silty gravelly SAND, mostly F sand, some F gravel, little silt, wet, gray-brown, 1 piece Crs gravel up to 1.5"	SM SM
	12	S-4	26 6 32 6 38 6 109 6	24	14	TILL?	s-4 silty gravelly SAND, mostly F-Crs sand, some F gravel (rounded and angular), little silt, wet, black/brown	SM
	14	S-5	10 6 12 6 25 6 27 6	24	15		S-5 similar to S-3b	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
No impacted soil encountered
Boring is approx 100' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\420a.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: A CARON	BORING NO: SB-420
DATE START: 12/08/1995	DEPTH TO WATER: --	LOGGED BY: J. Holden	GROUND EL.: 0.00
DATE COMPLETED: 12/08/1995	DATE & TIME: ------ / --	CHECKED BY: JM/DA	TOTAL DEPTH: 19.2

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16		23 6	24	16		S-6a (5) silty SAND, mostly F-Crs sand, little silt, brown/black	SM
		S-6	37 6 44 6 95 6				S-6b (11) Similar to S-4	SM
	18		120 3	3	8	Auger to 19' take spoon	S-7a (4) silty SAND, mostly F sand, some silt, black/brown	SM
		S-7					S-7b (4) Similar to S-4	SM
	19		160 2	2	2		S-8 2' weathered bedrock in nose, black phyllite	
		S-8					END OF BORING @ 19.2' BGS	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard * Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
No impacted soil encountered
Boring is approx 100' from tank

ACAD NAME:D:\DWG\NETC\BORINGS\420b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	A. CARON	BORING NO:	SB-421
DATE START:	12/08/1995	DEPTH TO WATER:	--	LOGGED BY:	J Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/08/1995	DATE & TIME:	------ / --	CHECKED BY:	MSD	TOTAL DEPTH:	17 50

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	2 6 4 6 6 6 11 6	24	12		S-1 silty SAND, mostly F sand, little silt, brown, damp, root fragments	SM
	5	S-2	66 6 13 6 16 6 50 6	24	11		S-2 gravelly silty SAND, mostly F sand, some silt, little F gravel, dry, gray/brown	SM
	10	S-3	16 6 38 6 30 6 34 6	24	20		S-3 silty sandy GRAVEL, mostly F gravel, some F-Crs sand, little silt, wet, gray-black	GM
	12	S-4	47 6 48 6 31 6 38 6	24	23	Till?	S-4a (7) silty SAND, mostly F sand, some silt, black/gray S-4b (9) silty gravelly SAND, mostly F-Crs sand, some F gravel, little silt, black S-4c (7) silty gravelly SAND, mostly F sand, some Crs gravel, little silt, black	SM SM SM
	14	S-5	38 6 57 6 62 6 85 6	24	14		S-5 similar to S-4c	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
Installed MW421 @ 16-11'bgs w/10 slot screen
No visually impacted soils were encountered
Well is approx 75' downgradient of tank

ACAD NAME:D:\DWG\NETC\BORINGS\421A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	A. CARON	BORING NO:	SB-421
DATE START:	12/08/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/08/1995	DATE & TIME:	------ / --	CHECKED BY:		TOTAL DEPTH:	17.50

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-6	120 5	5	5		S-6 sandy SILT, mostly silt, little F sand, black/ brown, dense	
	17	S-7	38 6 120 4	10	9		S-7a (6) similar to S-6 S-7b (3) weathered bedrock END OF BORING @ 17.5' BGS	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard • Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
Installed MW421 @ 16-11'bgs w/10 slot screen
No visually impacted soils were encountered
Well is approx 75' downgradient of tank

ACAD NAME:D:\DWG\NETC\BORINGS\421B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	A CARON	BORING NO:	SB-422
DATE START:	12/11/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/11/1995	DATE & TIME:	------ / --	CHECKED BY:	MJD	TOTAL DEPTH:	25.83

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	5 16 36 40 / 6 6 6 6	24	13		S-1 silty SAND, mostly F sand, little silt, Tr F gravel, brown, damp, 1 piece Crsgravel in nose	SM
	5	S-2	2 6 8 7 / 6 6 6 6	24	15		S-2 silty sandy GRAVEL, mostly F gravel, some F sand, little silt, brown, dry	GM
	10	S-3	5 16 12 12 / 6 6 6 6	24	8		S-3 Similar to S-2	GM
	12	S-4	7 9 7 9 / 6 6 6 6	24	11	TPH	S-4 gravelly silty SAND, mostly F sand, some silt, little F gravel, damp	SM
	14	S-5	5 7 8 9 / 6 6 6 6	24	12	slight sheen Vis Impacted	S-5 Similar to S-4, wet	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard • Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
Installed MW422 @ 24-19'bgs w/20 slot screen
Soils wer visually impacted from 14-25'bgs
Well is approx 40' from tank, in the ramp area

ACAD NAME:D:\DWG\NETC\BORINGS\422A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: A CARON	BORING NO: SB-422
DATE START: 12/11/1995	DEPTH TO WATER: --	LOGGED BY: J Holden	GROUND EL.: 0.00
DATE COMPLETED: 12/11/1995	DATE & TIME: ------ / --	CHECKED BY: MJP	TOTAL DEPTH: 25.83

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-6	5 6 8 6 9 6 12 6	24	9	slight visually impacted	S-6 Similar to S-4	SM
	18	S-7	10 6 11 6 32 6 11 6	24	8	Oil droplets on water in spoon visually Impact	S-7 gravelly silty SAND, mostly F sand, some silt, little F gravel, black/gray	SM
	20	S-8	9 6 11 6 10 6 11 6	24	6	Vis impacted	S-8 similar to S-7	SM
	22	S-9	5 6 11 6 10 6 11 6	24	10	Vis impacted	S-9 Similar to S-7, also Med sand	SM
	24	S-10	58 6 80 6 78 6 120 4	22	22	Vis impacted	S-10 similar to S-7, weathered brdrock in nose of spoon END OF BORING @ 25.8' BGS	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
Installed MW422 @ 24-19'bgs w/20 slot screen
Soils wer visually impacted from 14-25'bgs
Well is approx 40' from tank, in the ramp area

ACAD NAME:D:\DWG\NETC\BORINGS\422b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: TANK 48	DRILLED BY: A CARON	BORING NO: SB-423
DATE START: 12/12/1995	DEPTH TO WATER: --	LOGGED BY: J. Holden	GROUND EL.: 0.00
DATE COMPLETED: 12/12/1995	DATE & TIME: ------ / --	CHECKED BY: [illegible]	TOTAL DEPTH: 22.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0	S-1	4 6 14 6 9 6 7 6	24	14		S-1 silty gravelly SAND, mostly F sand, some F gravel (angular), little silt, damp, brown	SM
	5	S-2	14 6 10 6 14 6 10 6	24	17		S-2 silty sandy GRAVEL, mostly F gravel, some F sand, little silt, gray, dry	GM
	10	S-3	22 6 40 6 22 6 36 6	24	16	TPH, Dup	S-3 similar to S-1	SM
	12	S-4	38 6 36 6 60 6 27 6	24	16		S-4 similar to S-1	SM
	14	S-5	26 6 21 6 32 6 31 6	24	19	Till?	S-5 silty gravelly SAND, mostly F-Crs sand, some F gravel(subangular to subrounded), little silt, black, wet	SM

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
boring is approx 45' from tank
Soils were impacted from 19-22'bgs

ACAD NAME:D:\DWG\NETC\BORINGS\423A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	TANK 48	DRILLED BY:	A CARON	BORING NO:	SB-423
DATE START:	12/12/1995	DEPTH TO WATER:	--	LOGGED BY:	J. Holden	GROUND EL.:	0.00
DATE COMPLETED:	12/12/1995	DATE & TIME:	------ / --	CHECKED BY:	MIM	TOTAL DEPTH:	22.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	16	S-6	60 43 30 40 / 6 6 6 6	24	24		S-6 gravelly silty SAND, mostly F sand, some silt, little F gravel, Tr med-Crs sand, black/brown, wet	SM
	18	S-7	7 25 36 30 / 6 6 6 6	24	21	Slight Odor	S-7 Similar to S-5	SM
	20	S-8	46 80 120 120 / 6 6 6 5	23	18	Slight Odor Visually Impact	S-8a (4) similar to S-5 S-8b (14) weathered bedrock, black/gray phyllite Oil droplets on bedrock surfaces END OF BORING @ 22.0' BGS	SM

LEGEND:

TYPE-NO - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Standard + Continuous sampling w/2" spoon and 140lb hammer
Continuous sampling from 10'bgs
boring is approx 45' from tank
Soils were impacted from 19-22'bgs

ACAD NAME:D:\DWG\NETC\BORINGS\423b.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-424
DATE START: 12/13/1995	DEPTH TO WATER: 12 27	LOGGED BY: T Dorgan	GROUND EL.: 59 40
DATE COMPLETED: 12/14/1995	DATE & TIME: 12/18/1995/0900	CHECKED BY: MSM	TOTAL DEPTH: 42.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	BLOWS PER 6"	PEN. in.	REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	5	S-1	7 19 7 19 / 6 6 6 6	24	19		S-1a (4) silty SAND, mostly f sand, some silt, tr f gravel, gray	SM
							S-1b (15) silty SAND, mostly f sand, some silt, tr med sand, brown, moist	SM
	10	S-2	48 33 38 54 / 6 6 6 6	24	20		S-2 silty gravelly SAND, mostly f-crs sand, some f gravel, ltl silt, dry, brown/black	GM
	15	S-3	17 34 44 56 / 6 6 6 6	24	20	TPH sample	S-3 similar to S-2, wet	
							Remove Augers, Set 4" casing for D&W drilling	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4 25in ID, 8in OD HSA from 0 to 17ft bgs
Standard interval sampling 0 ft to 17.0 ft. Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 17 ft.
Removed augers and advance 4" D&W casing to 21' seat 3" D&W casing Core bedrock from 21-42' 5 cores collected

ACAD NAME:D\DWG\NETC\BORINGS\424A.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-424
DATE START: 12/13/1995	DEPTH TO WATER: 12 27	LOGGED BY: T Dorgan	GROUND EL.: 59 40
DATE COMPLETED: 12/14/1995	DATE & TIME: 12/18/1995/0900	CHECKED BY: [illegible]	TOTAL DEPTH: 42.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
							SEE PREVIOUS PAGE	
	21	C-4	1 4 12 1 5 12 2.2 12 2.1 12	60	46	4-5' 1 2min RQD=30 4%	Phyllite very fissile + easily broken into thin wafers, some pieces are very soft and maleable 1 predominant fracture direction, trace calcite(soft + white) veins. No visual impact, gray to dark gray	
	26	C-5	1.8 12 1.9 12 2 1 12 3 12	60	60	4-5' 2.7min RQD=30%	C-5 similar to above, 0-2.5' of recovery is very soft + fissile. slightly more competent from 2.5-5 dense, few secondary fracture direction or machine breaks oil drop + sheen on natural break surface at end of run	
	31	C-6	1.8 12 2 5 12 2 3 12 2 8 12	60	60	4-5' 2 8 min RQD=40%	C-6 similar to above, intermittent zones of weak + soft rock surrounding more competent rock much of core is soft and porous, when squeezed water is pushed out Few silica or calcite viens in random patterns. light pet sheen on many fracture surface	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4.25in ID, 8in OD HSA from 0 to 17ft bgs
Standard interval sampling 0 ft to 17.0 ft. Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 17 ft.
Removed augers and advance 4" D&W casing to 21' seat 3" D&W casing Core bedrock from 21-42' 5 cores collected.

ACAD NAME:D\DWG\NETC\BORINGS\424B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-424
DATE START: 12/13/1995	DEPTH TO WATER: 12 27	LOGGED BY: T Dorgan	GROUND EL.: 59.40
DATE COMPLETED: 12/14/1995	DATE & TIME: 12/18/1995/0900	CHECKED BY: [illegible]	TOTAL DEPTH: 42.00

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
							SEE PREVIOUS PAGE	
	36	C-7	15 12 25 12 2.3 12 2 12	60	60	4-5' 2 min RQD=67 5%	C-7 similar to above, similar pet impact	
	41	C-8	17 12 0 0 0	12	10 1'	core RQD=84 2%	C-8 similar to above, grey phyllite. dense + competent, 1 direction fracture heavily impacted heavy pet sheen + oil staining @ natural breaks EOB @ 42'	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4 25in. ID, 8in. OD HSA from 0 to 17ft bgs
Standard interval sampling 0 ft to 17.0 ft. Advanced 3in OD split-barrel sampler w/300lb hammer 0 to 17 ft.
Removed augers and advance 4" D&W casing to 21' seat 3" D&W casing. Core bedrock from 21-42' 5 cores collected

ACAD NAME·D\DWG\NETC\BORINGS\424C.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	AJ CARON (EDI)	BORING NO:	SB-425
DATE START:	12/14/1995	DEPTH TO WATER:	12.39	LOGGED BY:	T Dorgan	GROUND EL.:	59.70
DATE COMPLETED:	12/15/1995	DATE & TIME:	12/18/1995/ 901	CHECKED BY:	[illegible]	TOTAL DEPTH:	42 50

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	0							
	2							
	4							
	6						NO BORING DATA THIS PAGE	
	8							
	10							
	12							
	14							

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4 25in ID, 8in. OD HSA to refusal at 18 3 ft bgs. See boring log for SB-419 for soil descriptions. Advanced 4" D&W casing to 22 ft bgs. Roler bit to 22 5' set 3" D&W casing at 22 75' Begin coring w/NX core @ 22.5' core to 42 5' bgs. Petroeum impacted, light sheen in wash

ACAD NAME:D:\DWG\NETC\BORINGS\407A DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO:	0288	LOCATION:	NETC-NEWPORT	DRILLED BY:	AJ CARON (EDI)	BORING NO:	SB-425
DATE START:	12/14/1995	DEPTH TO WATER:	12 39	LOGGED BY:	T Dorgan	GROUND EL.:	59.70
DATE COMPLETED:	12/15/1995	DATE & TIME:	12/18/1995/ 901	CHECKED BY:	MID	TOTAL DEPTH:	42 50

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	23	C-1	23 12 2 12 18 12 2 12	60	62	4-5' 2 75 min RQD=23 5%	C-1 Dark grey PHYLLITE, 1 predom fracture direct perpendicular to core run direction. tr calcite +/ or qtz viens in random patterns. multiple highly fractured zones ranging from 1/4 to 3/4" wide heavily pet impacted throughout entire core run especially heavy in fracture zones. pet sheen on all surfaces, + oil staining on nat + machine brks	
	28	C-2	2 12 18 12 22 12 23 12	60	62	4-5' 2 3 min RQD=59%	C-2 similar to above. more competent. rock appears to grade in + out from phyllite (2-5" wide) to a schist less fractured than above but still has 2 fracture zones @ 1.5' + 4' composed of crs sand -f ang gravel fragments pet impacted in fractured zones. odor + slight sheen in nat breaks	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES.

Advanced boring w/4 25in ID, 8in OD HSA to refusal at 18.3 ft bgs See boring log for SB-419 for soil descriptions Advanced 4" D&W casing to 22 ft bgs. Roler bit to 22.5' set 3" D&W casing at 22 75' Begin coring w/NX core @ 22 5' core to 42 5' bgs. Petroeum impacted, light sheen in wash

ACAD NAME D\DWG\NETC\BORINGS\407B.DWG

BORING LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NO: 0288	LOCATION: NETC-NEWPORT	DRILLED BY: AJ CARON (EDI)	BORING NO: SB-425
DATE START: 12/14/1995	DEPTH TO WATER: 12 39	LOGGED BY: T Dorgan	GROUND EL.: 59.70
DATE COMPLETED: 12/15/1995	DATE & TIME: 12/18/1995/ 901	CHECKED BY: MSM	TOTAL DEPTH: 42.50

ELEV. IN FEET	DEPTH IN FEET	SAMPLE TYPE-NO.	SAMPLE BLOWS PER 6"	SAMPLE PEN. in.	SAMPLE REC. in.	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.
	33	C-3	1 2 12 1.3 12 2.3 12 3 12	60	59	4-5' 3 5 min RQD=55.9%	C-3 similar to above. qtz and calcite veins more prevalent than above, running both parallel and perpendicular to the bedding/fracture plane. Mod impacted w/petroleum in natural fractures, + fracture zones small amounts of oil drops floating on wash-tub water	
	38	C-4	2 3 12 2 12 3.8 12 4 6 12	60	62	4-5' 3.5 min RQD=43 5%	C-4 similar to above some area in veins are vuggy w/crystalization occuring w/in vugs difficult to define breaks (fractures) as natural or machine only a few have any weathering or clay/silt deposits. Pet impacted, light sheen END OF BORING @ 42 5' BGS	

LEGEND:

TYPE-NO. - Type of Sample
C - Rock core sample
S - Split barrel sample
BLOWS PER 6" - 140 lb. hammer falling 30" to drive a split barrel sampler: coring time per foot of rock
PEN - Penetration length of sampler
REC - Length of sample recovered
▽ - Natural groundwater table

NOTES:

Advanced boring w/4 25in. ID, 8in OD HSA to refusal at 18.3 ft bgs See boring log for SB-419 for soil descriptions Advanced 4" D&W casing to 22 ft bgs Roler bit to 22.5' set 3" D&W casing at 22 75' Begin coring w/NX core @ 22 5' core to 42.5' bgs. Petroeum impacted, light sheen in wash

ACAD NAME:D\DWG\NETC\BORINGS\425C.DWG

APPENDIX C

WELL CONSTRUCTION LOGS

100 SERIES WELL CONSTRUCTION LOGS

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	PCA	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	TF4-MW125
CLIENT:	NAVFAC	BORING NO:	TF4-B-38
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	T. Dorgan	DATE:	11/17/1994
CHECKED BY:	MSH.	DATE:	4-30-96

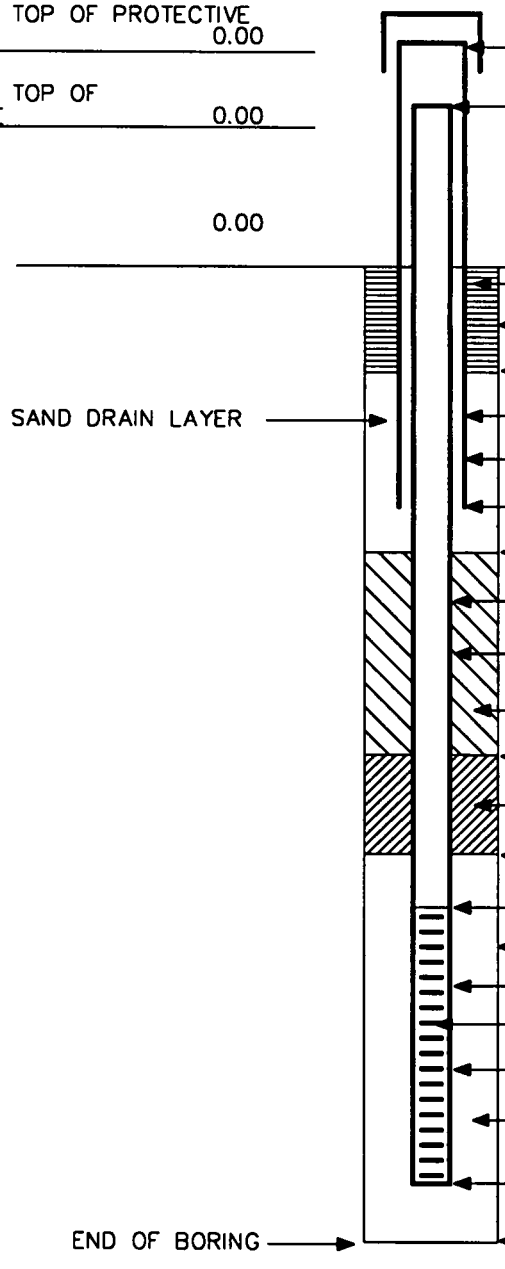
BORING LOCATION: Tank 38, Tank Farm 4

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 0.00

ELEVATION TOP OF RISER PIPE 0.00

GROUND ELEVATION 0.00



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.90
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.67
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	9 000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	6.000
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 4.000 O.D.:	4.250
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent. grout/sand
DEPTH TOP OF SEAL (Ft.)	25.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	30.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	~~38~~.00 3 msH
DIAMETER OF BOREHOLE (In.)	10.250
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 4.000 O.D.:	4.250
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft)	38.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.00

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\temp\josh\MW_125

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	PCA	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	TF4-MW123
CLIENT:	NAVFAC	BORING NO:	TF4-B-42
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	T. Dorgan	DATE:	11/16/1994
CHECKED BY:	M SDZ.	DATE:	4-30-96

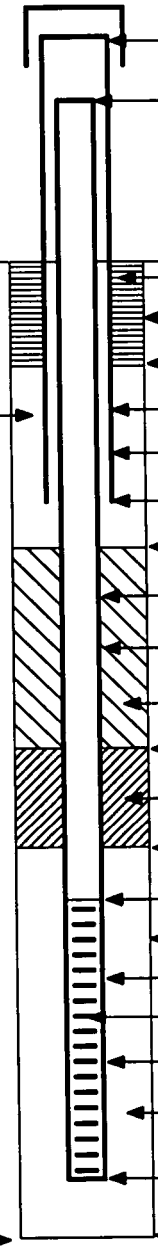
BORING LOCATION:
Tank 42
Tank Farm 4

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 0.00

ELEVATION TOP OF RISER PIPE 0.00

GROUND ELEVATION 0.00



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.40
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.95
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	9.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	6.000
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 4.000 O.D.:	4.250
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent. grout/sand
DEPTH TOP OF SEAL (Ft.)	26.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	30.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	33.00
DIAMETER OF BOREHOLE (In.)	10.250
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 4.000 O.D.:	4.250
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.00

GENERAL NOTE:

1 Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\temp\josh\MW_123

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	PCA	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	TF4–MW122
CLIENT:	NAVFAC	BORING NO:	TF4–B–45
CONTRACTOR:	EDI	DRILLER:	S. LaMarche
LOGGED BY:	K.Jalkut	DATE:	11/15/1994
CHECKED BY:	MMN	DATE:	4-30-96

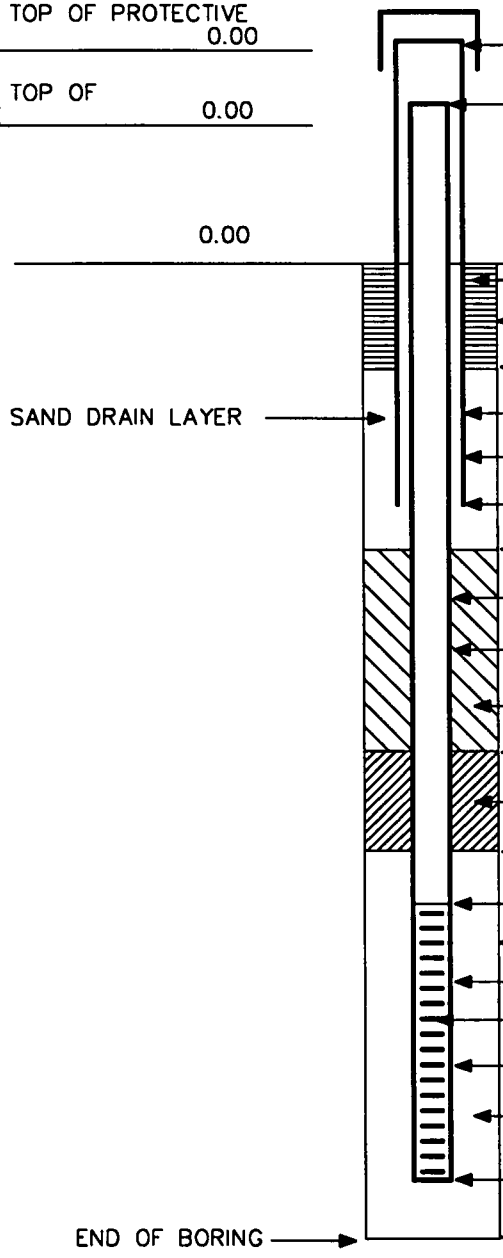
BORING LOCATION: Tank 45, Tank Farm 4

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: 0.00

ELEVATION TOP OF RISER PIPE: 0.00

GROUND ELEVATION: 0.00



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	1.75
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.41
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	9.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	3.00
I.D. OF PROTECTIVE CASING (In.)	6.000
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3.25
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 4.000 O.D.:	4.250
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent. grout/sand
DEPTH TOP OF SEAL (Ft.)	30.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	32.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	34.00
DIAMETER OF BOREHOLE (In.)	10.250
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 4 000 O D.:	4.250
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	39.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	40.00

GENERAL NOTE:

1. Entry of 0 00 for Ground Elevation, Elev Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\temp\josh\MW_122

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	PCA	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	TF4–MW119
CLIENT:	NAVFAC	BORING NO:	TF4–B–48
CONTRACTOR:	EDI	DRILLER:	S. LaMarche
LOGGED BY:	K.Jalkut	DATE:	11/11/1994
CHECKED BY:	M SN	DATE:	4-30-96

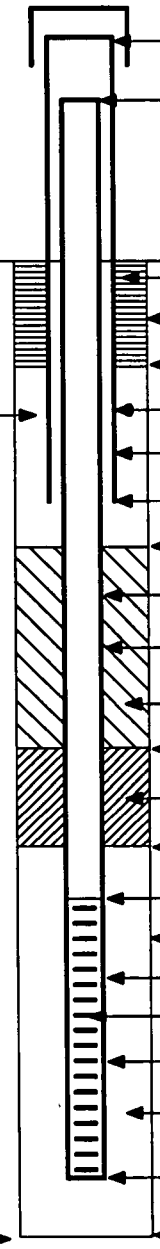
BORING LOCATION:
Tank 48
Tank Farm 4

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 0.00

ELEVATION TOP OF RISER PIPE 0.00

GROUND ELEVATION 0.00



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.00
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.65
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	9.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.80
I.D. OF PROTECTIVE CASING (In.)	6.000
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 4.000 O.D.:	4.250
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent. grout/sand
DEPTH TOP OF SEAL (Ft.)	29.50
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	31.50
DEPTH TOP OF PERVIOUS SECTION (Ft.)	33.50
DIAMETER OF BOREHOLE (In.)	10.250
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 4.000 O.D.:	4.250
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38.50
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.67

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\temp\josh\MW_119

300 SERIES WELL CONSTRUCTION LOGS

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	CTO 143 – SI TF4	PROJECT NO:	0288
PROJECT LOCATION:	NETC, Newport, RI	WELL NO:	MW-330
CLIENT:	U.S. NAVY	BORING NO:	B-330
CONTRACTOR:	ENV. DRILLING, INC.	DRILLER:	S. LAMARCHE
LOGGED BY:	J. HOLDEN	DATE:	10/3/95
CHECKED BY:		DATE:	

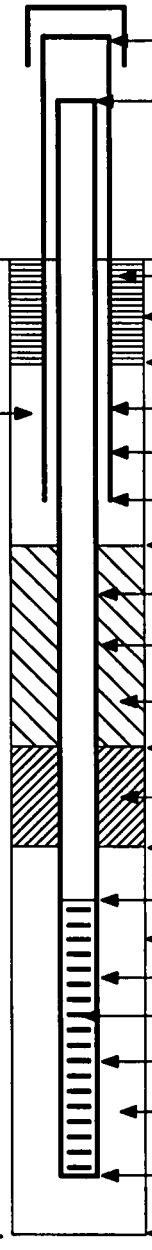
BORING LOCATION: TANK 45

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 0.00

ELEVATION TOP OF RISER PIPE 0.00

GROUND ELEVATION 0.00



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.12'
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.88'
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	~8"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.5'
I.D. OF PROTECTIVE CASING (In.)	4"
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3'
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.5'
RISER PIPE (In.) I.D.: 2" O.D.:	2-1/2"
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout
DEPTH TOP OF SEAL (Ft.)	23'
TYPE OF SEAL	Bent. Chips
DEPTH BOTTOM OF SEAL (Ft.)	26'
DEPTH TOP OF PERVIOUS SECTION (Ft.)	28'
DIAMETER OF BOREHOLE (In.)	~8"
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 slotted
PERVIOUS SECTION (In.) I.D.: 2" O.D.:	2-3/8"
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38'
DEPTH BOTTOM OF FILTER PACK (Ft.)	39'

GENERAL NOTE:

1 Entry of 0.00 for Ground Elevation, Elev Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_330

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	CTO 143 - SI TF4	PROJECT NO:	0288
PROJECT LOCATION:	NETC, NEWPORT, RI	WELL NO:	MW-331
CLIENT:	U.S. NAVY	BORING NO:	B-331
CONTRACTOR:	ENV. DRILLING, INC.	DRILLER:	AJAY CARON
LOGGED BY:	TRACY DORGEN	DATE:	10/3/95
CHECKED BY:		DATE:	

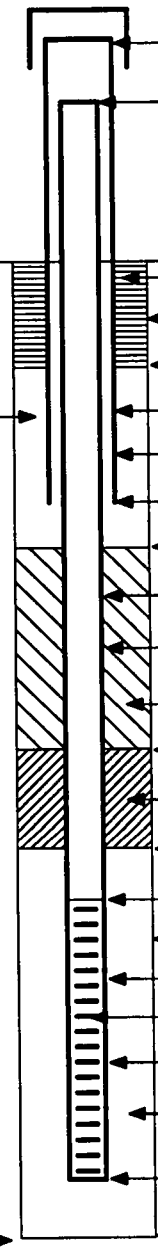
BORING LOCATION: TANK 45

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 0.00

ELEVATION TOP OF RISER PIPE 0.00

GROUND ELEVATION 0.00



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.05'
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.64'
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	~8"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2'
I.D. OF PROTECTIVE CASING (In.)	4"
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.5'
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4'
RISER PIPE (In.) I.D.: 2" O.D.:	2-3/8"
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Sand
DEPTH TOP OF SEAL (Ft.)	23'
TYPE OF SEAL	Bent. Chips
DEPTH BOTTOM OF SEAL (Ft.)	25'
DEPTH TOP OF PERVIOUS SECTION (Ft.)	27.5'
DIAMETER OF BOREHOLE (In.)	~8"
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 slotted
PERVIOUS SECTION (In.) I.D.: 2" O.D.:	2-3/8"
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	37.5'
DEPTH BOTTOM OF FILTER PACK (Ft.)	38.8'

GENERAL NOTE:

1 Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_331

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	CTO 143 – SI TF4	PROJECT NO:	0288
PROJECT LOCATION:	NETC, NEWPORT, RI	WELL NO:	MW-332
CLIENT:	U.S. NAVY	BORING NO:	B-332
CONTRACTOR:	ENV. DRILLING, INC.	DRILLER:	S. LAMARCHE
LOGGED BY:	J. HOLDEN	DATE:	10/4/95
CHECKED BY:		DATE:	

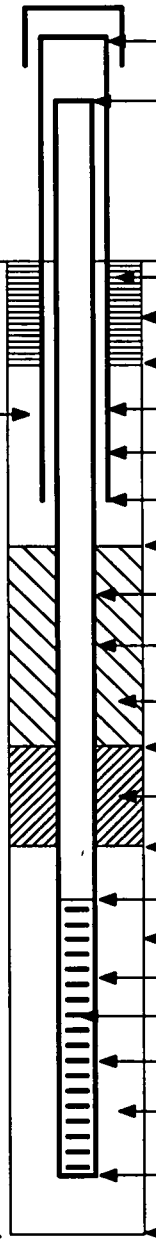
BORING LOCATION: TANK 45

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 0.00

ELEVATION TOP OF RISER PIPE 0.00

GROUND ELEVATION 0.00



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	1.82'
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.46'
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	~8"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.5'
I.D. OF PROTECTIVE CASING (In.)	4"
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3'
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.5'
RISER PIPE (In.) I.D.: 2" O.D.:	2-1/2"
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout
DEPTH TOP OF SEAL (Ft.)	23'
TYPE OF SEAL	Bent. Chips
DEPTH BOTTOM OF SEAL (Ft.)	25.8'
DEPTH TOP OF PERVIOUS SECTION (Ft.)	28'
DIAMETER OF BOREHOLE (In.)	~8"
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 slotted
PERVIOUS SECTION (In.) I.D.: 2" O.D.:	2-3/8"
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38'
DEPTH BOTTOM OF FILTER PACK (Ft.)	39'

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C.\DWG\NETC\MW-TF4\MW_332

400 SERIES WELL CONSTRUCTION LOGS

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	MW-401
CLIENT:	Nav Fac	BORING NO:	SB-401
CONTRACTOR:	EDI	DRILLER:	J. St. George
LOGGED BY:	J. Holden	DATE:	11/28/1995
CHECKED BY:	M JNL	DATE:	4-29-96

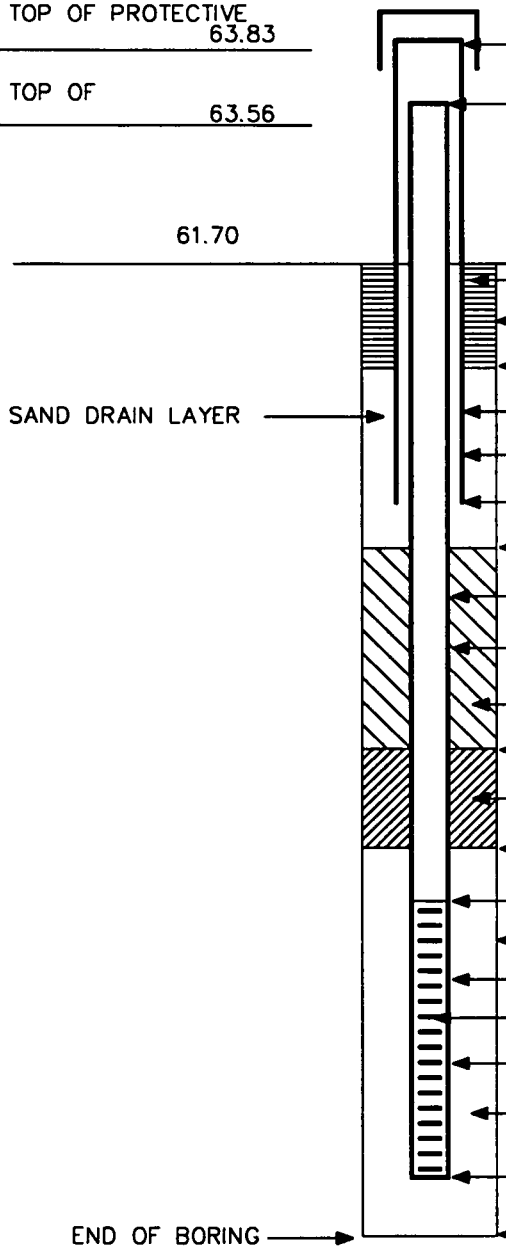
BORING LOCATION: Tank 48 downgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 63.83

ELEVATION TOP OF RISER PIPE 63.56

GROUND ELEVATION 61.70



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.13
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.86
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.50
I.D. OF PROTECTIVE CASING (In.)	5.00 ~~Steel~~ mild
TYPE OF PROTECTIVE CASING	Steel 5.000
DEPTH BOTTOM OF PROTECTIVE CASING (Ft)	3.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.83
RISER PIPE (In.) I.D.: 2.000 O.D.: 2.375	
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	23.00
TYPE OF SEAL	Bent Chips
DEPTH BOTTOM OF SEAL (Ft.)	25.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	27.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.: 2.375	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	37.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	38.00

GENERAL NOTE:

1 Entry of 0 00 for Ground Elevation, Elev. Top of Riser Pipe & Elev Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD. C:\DWG\NETC\MW-TF4\MW_401

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	MW-404
CLIENT:	Nav Fac	BORING NO:	SB-404
CONTRACTOR:	EDI	DRILLER:	J. St. George
LOGGED BY:	J. Holden	DATE:	11/29/1995
CHECKED BY:	MJN	DATE:	4-29-96

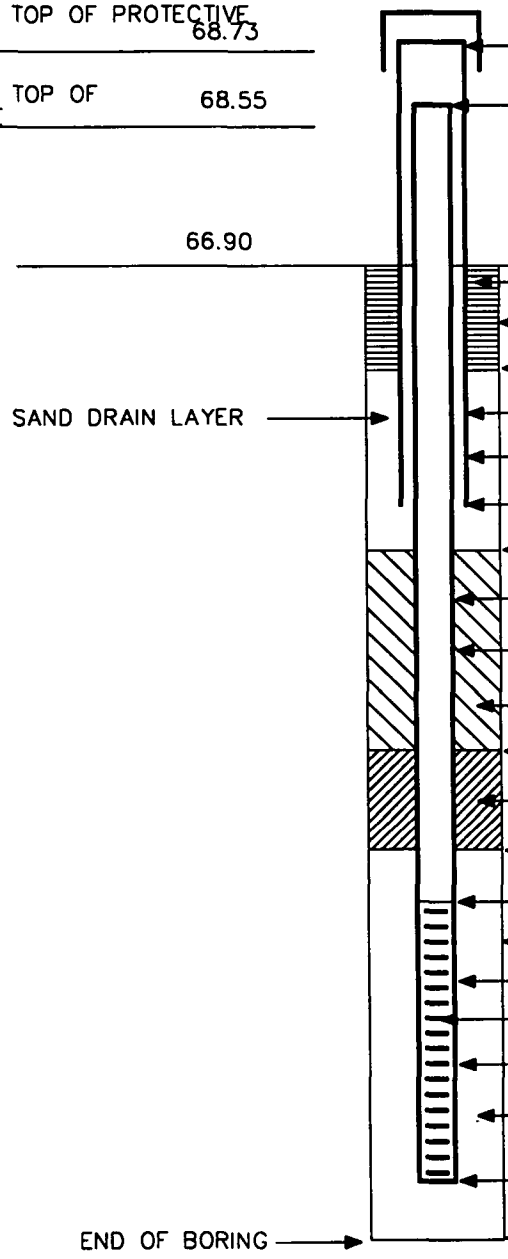
BORING LOCATION: Tank 48, cross gradient filter pack compromised

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: 68.73

ELEVATION TOP OF RISER PIPE: 68.55

GROUND ELEVATION: 66.90



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	1.83
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.65
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.50
I.D. OF PROTECTIVE CASING (In.)	5.000
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	32.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	34.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	36.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	41.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	42.00

GENERAL NOTE:

1 Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_404

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW–407
CLIENT:	Nav Fac	BORING NO:	SB–407
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	T. Dorgan	DATE:	11/30/1995
CHECKED BY:	MINA	DATE:	4-29-96

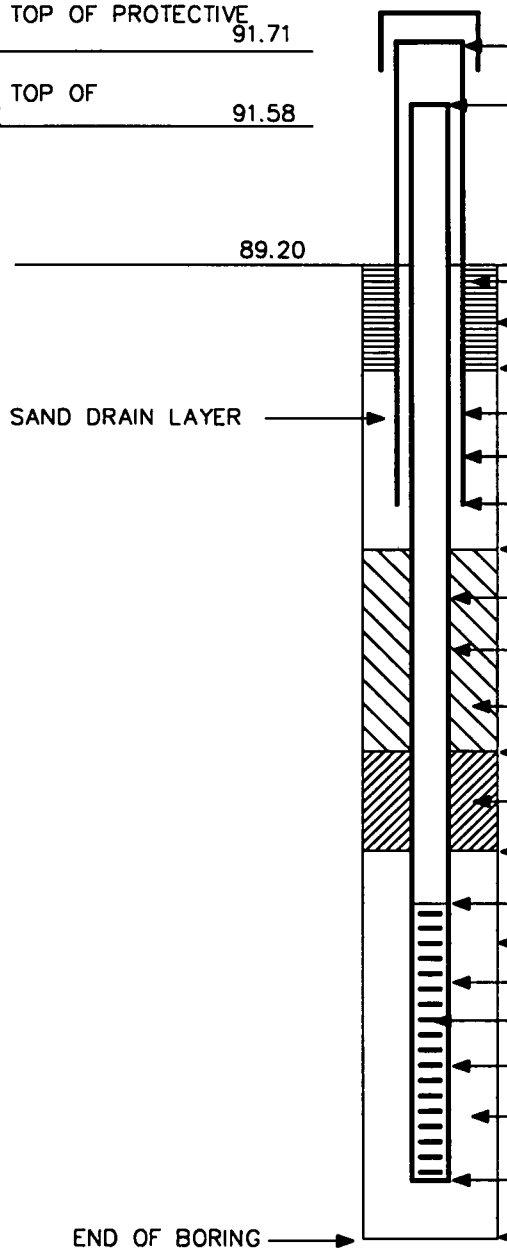
BORING LOCATION: Tank 42, downgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 91.71

ELEVATION TOP OF RISER PIPE 91.58

GROUND ELEVATION 89.20



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.51
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.38
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Volclay grout/sand
DEPTH TOP OF SEAL (Ft.)	28.00
TYPE OF SEAL	Bent Chips
DEPTH BOTTOM OF SEAL (Ft.)	30.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	33.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.25

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_407

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW–408
CLIENT:	Nav Fac	BORING NO:	SB–408
CONTRACTOR:	EDI	DRILLER:	J. St. George
LOGGED BY:	J. Holden	DATE:	11/30/1995
CHECKED BY:	MJN	DATE:	9-29-96

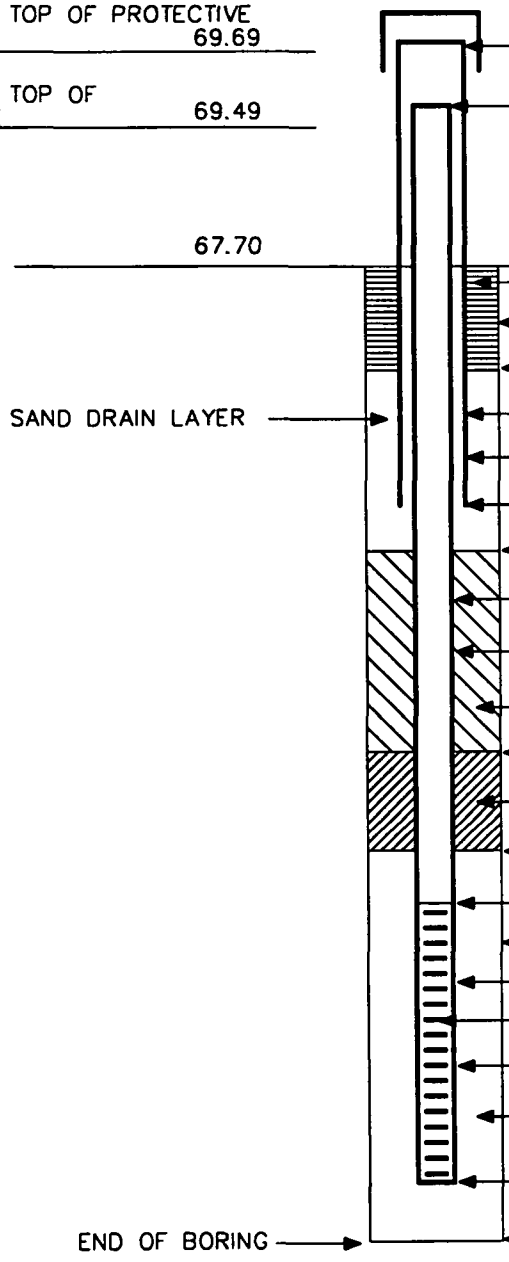
BORING LOCATION: Tank 48, upgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 69.69

ELEVATION TOP OF RISER PIPE 69.49

GROUND ELEVATION 67.70



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	1.99
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.79
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.50
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	30.50
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	35.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	37.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	42.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	43.00

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_408

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW–409
CLIENT:	Nav Fac	BORING NO:	SB–409
CONTRACTOR:	EDI	DRILLER:	J. St. George
LOGGED BY:	J. Holden	DATE:	12/01/1995
CHECKED BY:	MSN.	DATE:	4-29-96

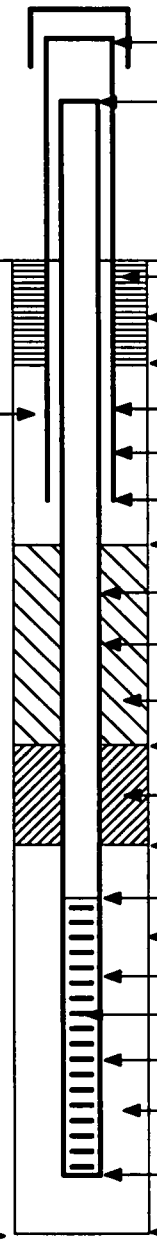
BORING LOCATION: Tank 48, downgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 63.41

ELEVATION TOP OF RISER PIPE 63.16

GROUND ELEVATION 60.60



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.81
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.56
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.50
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 2.000 O.D.: 2.375	
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	13.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	15.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	17.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.: 2.375	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	22.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	23.00

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_409

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	MW-411
CLIENT:	Nav Fac	BORING NO:	SB-411
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	T. Dorgan	DATE:	12/04/1995
CHECKED BY:	MJDA	DATE:	4-29-96

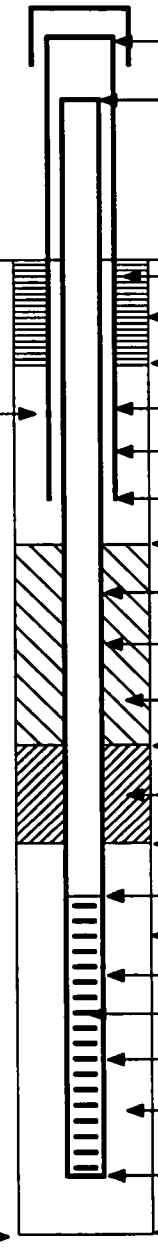
BORING LOCATION: Tank 42 upgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 98.72

ELEVATION TOP OF RISER PIPE 98.15

GROUND ELEVATION 95.90



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.82
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.25
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.50
I.D. OF PROTECTIVE CASING (In.)	5.000
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.50
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	29.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	31.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	33.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	41.00

GENERAL NOTE

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_411

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	MW-412
CLIENT:	Nav Fac	BORING NO:	SB-412
CONTRACTOR:	EDI	DRILLER:	S. Lamarche
LOGGED BY:	J. Holden	DATE:	12/04/1995
CHECKED BY:	MSN	DATE:	4-29-96

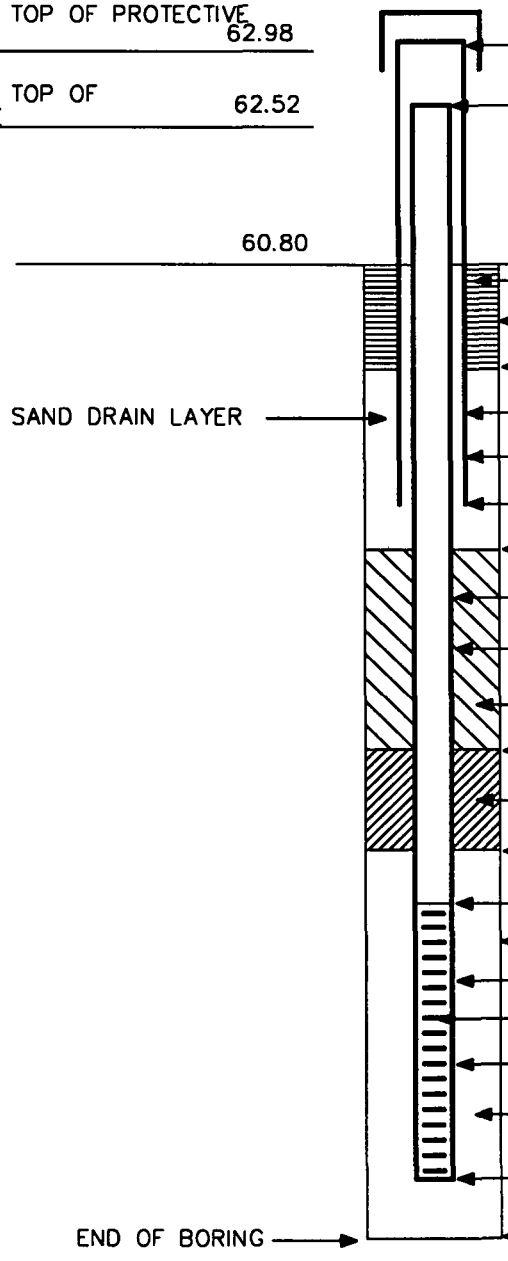
BORING LOCATION: Tank 48, downgradient 15' from tank edge

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 62.98

ELEVATION TOP OF RISER PIPE 62.52

GROUND ELEVATION 60.80



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.18
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.72
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.50
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.50
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Chips/Silica Sand
DEPTH TOP OF SEAL (Ft.)	6.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	8.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	10.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	20.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	21.00

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

ACAD. C:\DWG\NETC\MW-TF4\MW_412

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	MW413
CLIENT:	Nav Fac	BORING NO:	SB413
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	T. Dorgan	DATE:	12/05/1995
CHECKED BY:	MIN	DATE:	4-29-96

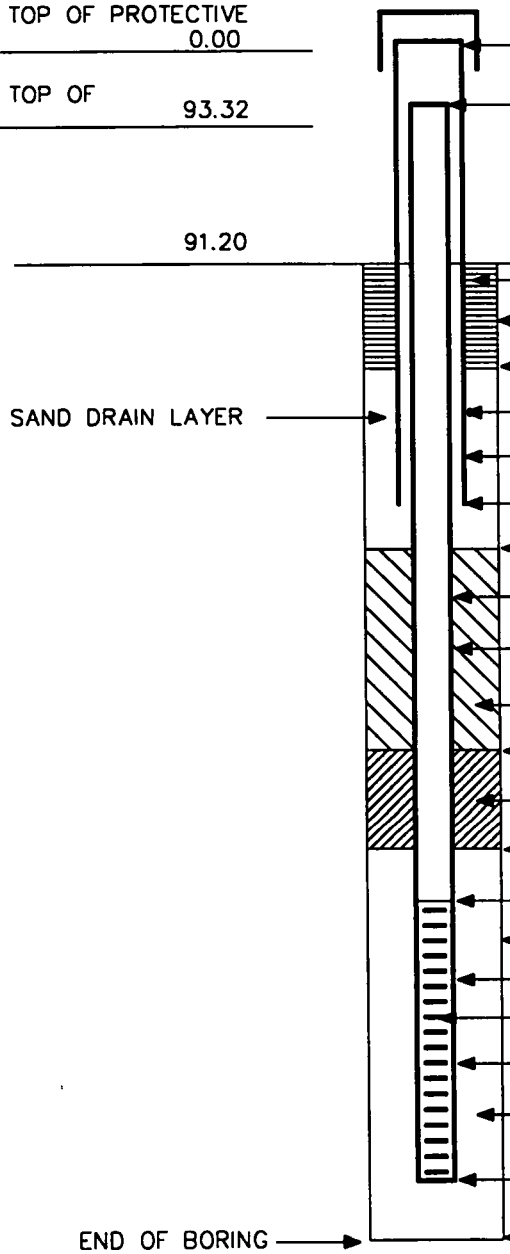
BORING LOCATION: Tank 42 crossgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 0.00

ELEVATION TOP OF RISER PIPE 93.32

GROUND ELEVATION 91.20



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	0.00
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.12
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	5.000
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	27.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	29.00 31.00 mill
DEPTH TOP OF PERVIOUS SECTION (Ft.)	33.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	36.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.33

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_413

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW416
CLIENT:	Nav Fac	BORING NO:	SB416
CONTRACTOR:	EDI	DRILLER:	S. Lamarche
LOGGED BY:	J. Holden	DATE:	12/06/1995
CHECKED BY:	MSM	DATE:	4-29-96

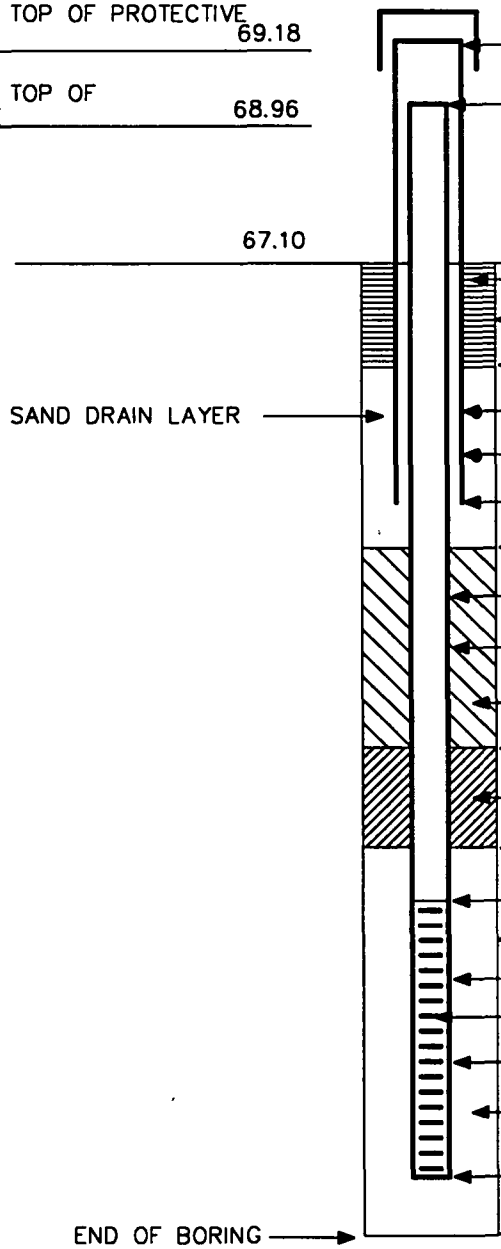
BORING LOCATION: Tank 38, downgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 69.18

ELEVATION TOP OF RISER PIPE 68.96

GROUND ELEVATION 67.10



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.08
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.86
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.50
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	mill 3 ~~2~~.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	mill 3 ~~2~~.50
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	26.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	31.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	33.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.00

GENERAL NOTE:

1 Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

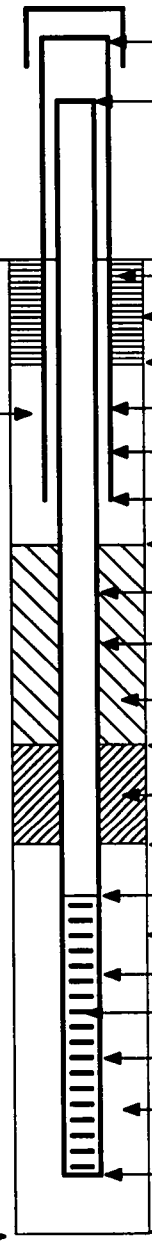
ACAD: C:\DWG\NETC\MW-TF4\MW_416

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW417
CLIENT:	Nav Fac	BORING NO:	SB417
CONTRACTOR:	EDI	BORING LOCATION:	Tank 38 – North Side
DRILLER:	A. Caron		
LOGGED BY:	Tracy Dorgan	DATE:	12/06/1995
CHECKED BY:	MJH	DATE:	7-29-96

PAGE: 1 OF 1



ELEVATION TOP OF PROTECTIVE CASING	71.43
ELEVATION TOP OF RISER PIPE	71.20
GROUND ELEVATION	68.40
LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	3.00 MJH
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.80
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	MJH 8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel Stick – Up
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Silica Sand
DEPTH TOP OF SEAL (Ft.)	30.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	32.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	34.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	39.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	40.00

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_417

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW418
CLIENT:	Nav Fac	BORING NO:	SB418
CONTRACTOR:	EDI	DRILLER:	A. Caron
LOGGED BY:	J. Holden	DATE:	12/07/1995
CHECKED BY:	MSNL	DATE:	4-29-96

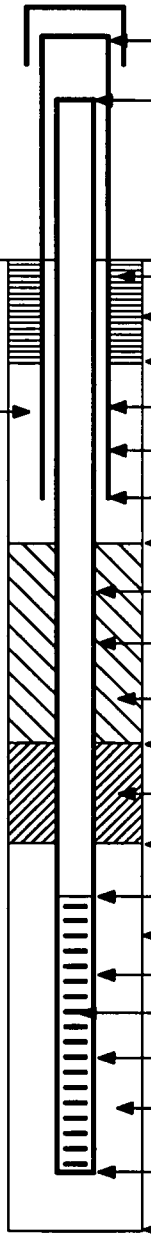
BORING LOCATION: Tank 38, downgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: 74.96

ELEVATION TOP OF RISER PIPE: 74.77

GROUND ELEVATION: 72.20



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.76
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.57
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.50
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Grout/Silica Sand
DEPTH TOP OF SEAL (Ft.)	31.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	35.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	37.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	42.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	43.00

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C \DWG\NETC\MW-TF4\MW_418

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW421
CLIENT:	Nav Fac	BORING NO:	SB421
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	J. Holden	DATE:	12/08/1995
CHECKED BY:	M. M.	DATE:	

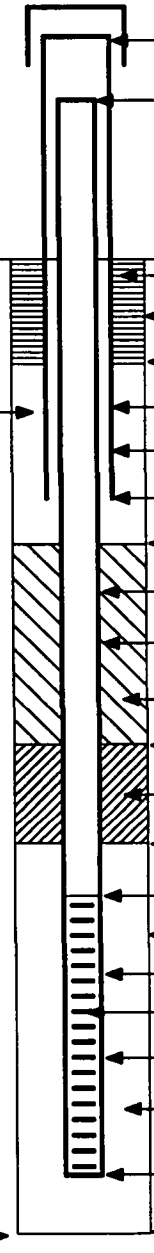
BORING LOCATION: Tank 48, downgradient

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 58.21

ELEVATION TOP OF RISER PIPE 57.68

GROUND ELEVATION 55.80



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.41
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.88
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.50
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Chips/Sand
DEPTH TOP OF SEAL (Ft.)	7.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	9.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	11.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	16.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	17.00

GENERAL NOTE:

1 Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C.\DWG\NETC\MW-TF4\MW_421

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

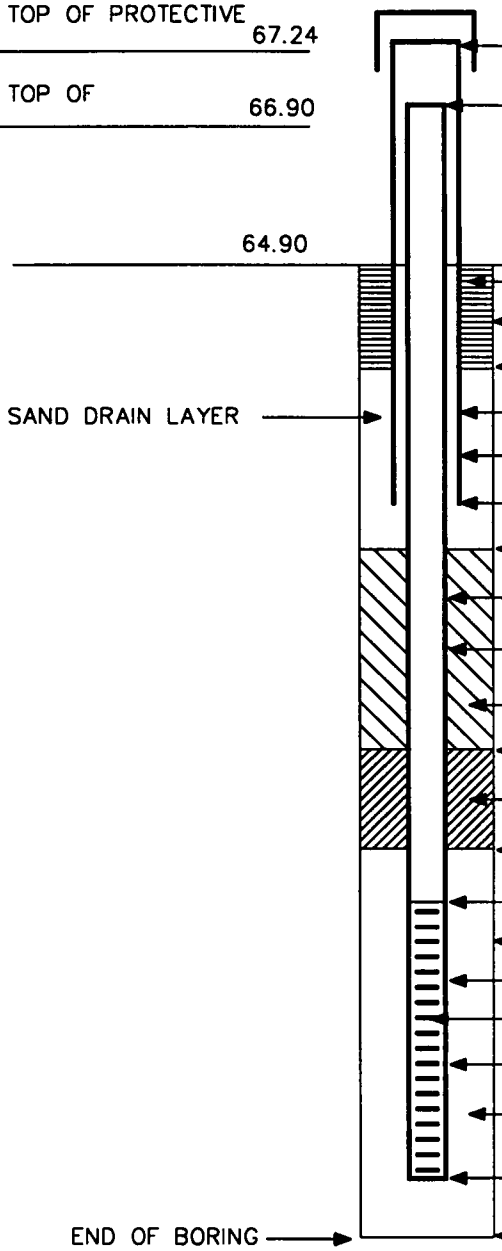
PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW422
CLIENT:	Nav Fac	BORING NO:	SB422
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	J. Holden	DATE:	12/11/1995
CHECKED BY:	MID	DATE:	4-29-96
BORING LOCATION:	Tank 48, ramp		

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING 67.24

ELEVATION TOP OF RISER PIPE 66.90

GROUND ELEVATION 64.90



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.34
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.00
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3.00
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	4.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Chips/sand
DEPTH TOP OF SEAL (Ft.)	15.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	17.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	19.00
DIAMETER OF BOREHOLE (In.)	8.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Silica Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	24.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	25.00

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

ACAD: C.\DWG\NETC\MW-TF4\MW_422

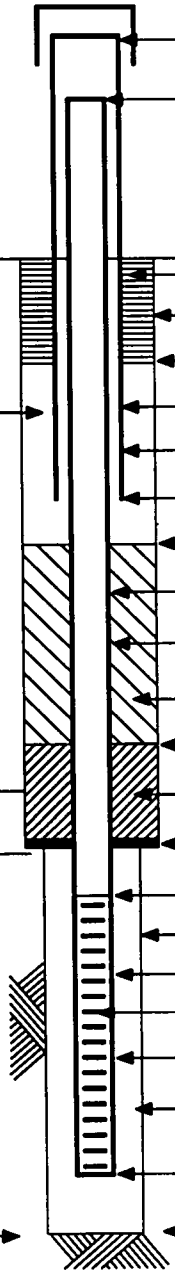
BEDROCK MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC-Newport	WELL NO:	MW424
CLIENT:	Nav Fac	BORING NO:	SB424
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	T. Dorgan	DATE:	12/14/1995
CHECKED BY:	msr	DATE:	4-29-96

BORING LOCATION: Tank 48, downgradient Bedrock well

PAGE: 1 OF 1



ELEVATION TOP OF PROTECTIVE CASING	61.87
ELEVATION TOP OF RISER PIPE	61.62
GROUND ELEVATION	59.40
DEPTH TO BEDROCK (Ft.)	21.0 mill
DEPTH TO RING (Ft.)	26.0
END OF BORING @	42.0 Ft.

SAND DRAIN LAYER

LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.47
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.22
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	mill ~~Volclay~~ Bentonite grout
DEPTH TOP OF SEAL (Ft.)	21.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	26.00
DEPTH TOP OF PERVIOUS SECTION (Ft.)	26.00
DIAMETER OF BOREHOLE (In.)	3.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	None
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	41.00
DEPTH BOTTOM OF FILTER PACK (Ft.)	N/A

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_424

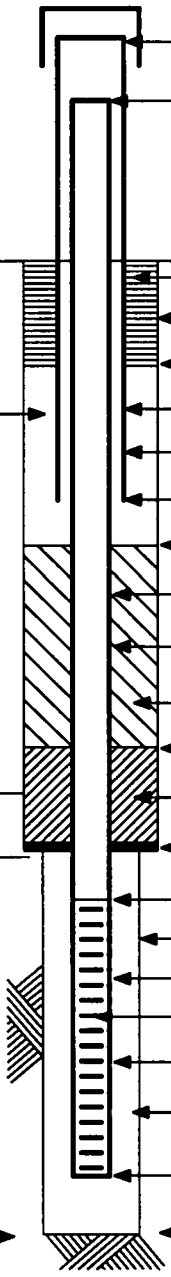
BEDROCK MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME:	SI Tank Farm 4	PROJECT NO:	0288
PROJECT LOCATION:	NETC–Newport	WELL NO:	MW425
CLIENT:	Nav Fac	BORING NO:	SB425
CONTRACTOR:	EDI	DRILLER:	Ajay Caron
LOGGED BY:	T. Dorgan	DATE:	12/15/1995
CHECKED BY:	M SM	DATE:	4-29-96

BORING LOCATION: Tank 48, downgradient Bedrock well

PAGE: 1 OF 1



ELEVATION TOP OF PROTECTIVE CASING: 61.85

ELEVATION TOP OF RISER PIPE: 61.61

GROUND ELEVATION: 59.70

SAND DRAIN LAYER

DEPTH TO BEDROCK (Ft.): 23.0 mlt

DEPTH TO RING (Ft.): 26.5

END OF BORING @ 42.5 Ft.

LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.15
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.91
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	8.000
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	2.00
I.D. OF PROTECTIVE CASING (In.)	4.250
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	2.50
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.00
RISER PIPE (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite ~~Volclay~~ grout mix
DEPTH TOP OF SEAL (Ft.)	22.00
TYPE OF SEAL	Bent.Chips
DEPTH BOTTOM OF SEAL (Ft.)	26.50
DEPTH TOP OF PERVIOUS SECTION (Ft.)	26.50
DIAMETER OF BOREHOLE (In.)	3.000
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 Slotted
PERVIOUS SECTION (In.) I.D.: 2.000 O.D.:	2.375
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	None
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	41.50
DEPTH BOTTOM OF FILTER PACK (Ft.)	N/A

GENERAL NOTE:

1 Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

ACAD: C:\DWG\NETC\MW-TF4\MW_425

APPENDIX D

ANALYTICAL DATA

100 SERIES SOIL BORINGS
(B38/MW125; B42/MW123; B45/MW122; B48/MW119)
TCL SOIL VOLATILE ORGANICS

:ASE NO CTO143

:EIMIC CORPORATION

.CL SOIL VOLATILE ORGANICS (ug/Kg)

:TATION ID:			SOTF4B373234	SOTF4B373436	SOTF4B37DUP	SOTF4B382628	SOTF4B463032
.ABORATORY ID.			940996-17	940996-18	940996-19	940996-20	940996-09
				FIELD DUPLICATE PAIR			
\NALYTE	CRQL	MDL/IDL					
:hloromethane	10	2	11 U	11 U	11 U	11 U	11 U
3romomethane	10	2	11 U	11 U	11 U	11 U	11 U
/inyl Chloride	10	2	11 U	11 U	11 U	11 U	11 U
:hloroethane	10	2	11 U	11 U	11 U	11 U	11 U
/ethylene Chloride	10	2	11 U	11 U	11 U	11 U	13 U
\cetone	10	2	11 U	11 U	19 UJ	11 U	11 U
:arbon Disulfide	10	2	11 U	11 U	11 U	11 U	11 U
1,1-Dichloroethene	10	2	11 U	11 U	11 U	11 U	11 U
1,1-Dichloroethane	10	2	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	2	11 U	11 U	11 U	11 U	11 U
:hloroform	10	2	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethane	10	2	11 U	11 U	11 U	11 U	11 U
2-Butanone	10	2	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	2	11 U	11 U	11 U	11 U	11 U
:arbon Tetrachloride	10	2	11 U	11 U	11 U	11 U	11 U
3romodichloromethane	10	2	11 U	11 U	11 U	11 U	11 U
1,2-Dichloropropane	10	2	11 U	11 U	11 U	11 U	11 U
:is-1,3-Dichloropropene	10	2	11 U	11 U	11 U	11 U	11 U
Trichloroethene	10	2	11 U	11 UJ	1 J	11 U	11 U
:ibromochloromethane	10	2	11 U	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	2	11 U	11 U	11 U	11 U	11 U
3enzene	10	2	11 U	11 U	11 U	11 U	11 U
trans-1,3-Dichloropropene	10	2	11 U	11 U	11 U	11 U	11 U
Bromoform	10	2	11 U	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	2	11 U	11 U	11 U	11 U	11 U
2-Hexanone	10	2	11 U	11 U	11 U	11 U	11 U
Tetrachloroethene	10	2	11 U	11 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10	2	11 U	11 U	11 U	11 U	11 U
Toluene	10	2	11 U	11 U	11 U	11 U	11 U
:hlorobenzene	10	2	11 U	11 U	11 U	11 U	11 U
Ethylbenzene	10	2	11 U	11 U	11 U	11 U	11 U
Styrene	10	2	11 U	11 U	11 U	11 U	2 J
Xylene (total)	10	2	11 U	11 U	11 U	11 U	11 U
DILUTION FACTOR.			1	1	1	1	1
% SOLIDS			87	88	89	88	91

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID.			940996-22		940996-21		940996-23		940996-24		940996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRQL	MDL/IDL										
Chloromethane	10	2	12	U	60	U	11	U	57	U	59	U
Br m methane	10	2	12	U	60	U	11	U	57	U	59	U
Vinyl Chloride	10	2	12	U	60	U	11	U	57	U	59	U
Chloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Methylene Chloride	10	2	12	U	60	U	11	U	57	U	59	U
Acetone	10	2	21	U	60	UJ	11	U	57	U	59	U
Carbon Disulfide	10	2	12	U	60	U	11	U	57	U	59	U
1,1-Dichloroethene	10	2	12	U	60	U	11	U	57	U	59	U
1,1-Dichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
1,2-Dichloroethene (total)	10	2	12	U	60	U	11	U	57	U	59	U
Chloroform	10	2	12	U	60	U	11	U	57	U	59	U
1,2-Dichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
2-Butanone	10	2	12	UJ	12	J	11	U	57	U	59	U
1,1,1-Trichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Carbon Tetrachloride	10	2	12	U	60	U	11	U	57	U	59	U
Brom dichloromethane	10	2	12	U	60	U	11	U	57	U	59	U
1,2-Dichloropropane	10	2	12	U	60	U	11	U	57	U	59	U
cis-1,3-Dichloropropene	10	2	12	U	60	U	11	U	57	U	59	U
Trichloroethene	10	2	12	U	60	U	11	U	57	U	59	U
Dibromochloromethane	10	2	12	U	60	U	11	U	57	U	59	U
1,1,2-Trichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Benzene	10	2	12	U	60	U	11	U	57	U	59	U
trans-1,3-Dichloropropene	10	2	12	U	60	U	11	U	57	U	59	U
Bromoform	10	2	12	U	60	U	11	U	57	U	59	U
4-Methyl-2-Pentanone	10	2	12	U	60	U	11	U	57	U	59	U
2-Hexanone	10	2	12	U	60	U	11	U	57	U	59	U
Tetrachloroethene	10	2	12	U	60	U	11	U	57	U	59	U
1,1,2,2-Tetrachloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Toluene	10	2	12	U	60	U	11	U	57	U	59	U
Chl robenzene	10	2	12	U	60	U	11	U	57	U	59	U
Ethylbenzene	10	2	12	U	60	U	11	U	57	U	59	U
Styrene	10	2	12	U	60	U	11	U	57	U	59	U
Xylene (total)	10	2	12	U	60	U	11	U	57	U	59	U
DILUTION FACTOR:			1		5		1		5		5	
% SOLIDS			86		84		90		87		85	

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF4B453436		SOTF4B45DUP	
LABORATORY ID:			940996-26		940996-27	
			FIELD DUPLICATE PAIR			
ANALYTE	CRQL	MDL/DL				
Chloromethane	10	2	60	U	58	U
Bromomethane	10	2	60	U	58	U
Vinyl Chloride	10	2	60	U	58	U
Chloroethane	10	2	60	U	58	U
Methylene Chloride	10	2	60	U	58	U
Aceton	10	2	91	U	100	U
Carbon Disulfide	10	2	60	U	58	U
1,1-Dichloroethene	10	2	60	U	58	U
1,1-Dichloroethane	10	2	60	U	58	U
1,2-Dichloroethene (total)	10	2	60	U	58	U
Chloroform	10	2	60	U	58	U
1,2-Dichloroethane	10	2	60	U	58	U
2-Butanone	10	2	60	U	58	U
1,1,1-Trichloroethane	10	2	60	U	58	U
Carbon Tetrachloride	10	2	60	U	58	U
Bromodichloromethane	10	2	60	U	58	U
1,2-Dichloropropane	10	2	60	U	58	U
cis-1,3-Dichloropropene	10	2	60	U	58	U
Trichloroethene	10	2	60	U	58	U
Dibromochloromethane	10	2	60	U	58	U
1,1,2-Trichloroethane	10	2	60	U	58	U
Benzene	10	2	60	U	58	U
trans-1,3 Dichloropropene	10	2	60	U	58	U
Bromoform	10	2	60	U	58	U
4-Methyl-2-Pentanone	10	2	60	U	58	U
2-Hexanone	10	2	60	U	58	U
Tetrachloroethene	10	2	60	U	58	U
1,1,2,2-Tetrachloroethane	10	2	60	U	58	U
Toluene	10	2	60	UJ	7	J
Chlorobenzene	10	2	60	U	58	U
Ethylbenzene	10	2	60	U	58	U
Styrene	10	2	60	U	58	U
Xylene (total)	10	2	60	U	58	U
DILUTION FACTOR.			5		5	
% SOLIDS			83		86	

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF4B443638	SOTF4B472830	SOTF4B473840	SOTF4B482729	SOTF4B483941
LABORATORY ID:			940980-23	940980-24	940980-25	940980-27	940980-28
ANALYTE	CRQL	MDL/IDL					
Chl romethane	10	2	11 U	11 U	12 U	1400 U	59 U
Bromomethane	10	2	11 U	11 U	12 U	1400 U	59 U
Vinyl Chloride	10	2	11 U	11 U	12 U	1400 U	59 U
Chloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
Methylene Chloride	10	2	11 U	11 U	12 U	1500 U	59 U
Acetone	10	2	11 U	11 U	12 U	1400 U	59 U
Carbon Disulfide	10	2	11 U	11 U	12 U	1400 U	59 U
1,1-Dichloroethene	10	2	11 U	11 U	12 U	1400 U	59 U
1,1-Dichloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
1,2-Dichloroethene (total)	10	2	11 U	11 U	12 U	1400 U	59 U
Chl roform	10	2	11 U	11 U	12 U	1400 U	59 U
1,2-Dichloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
2-Butanone	10	2	11 U	11 U	12 U	1400 U	59 U
1,1,1-Trichloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
Carbon Tetrachloride	10	2	11 U	11 U	12 U	1400 U	59 U
Bromodichloromethane	10	2	11 U	11 U	12 U	1400 U	59 U
1,2-Dichloropropane	10	2	11 U	11 U	12 U	1400 U	59 U
cis-1,3-Dichloropropene	10	2	11 U	11 U	12 U	1400 U	59 U
Trichloroethene	10	2	11 U	11 U	12 U	1400 U	59 U
Dibromochloromethane	10	2	11 U	11 U	12 U	1400 U	59 U
1,1,2-Trichloroethane	10	2	11 U	11 U	12 U	260 J	59 U
Benzene	10	2	11 U	11 U	12 U	1400 U	59 U
trans-1,3-Dichloropropene	10	2	11 U	11 U	12 U	1400 U	59 U
Bromoform	10	2	11 U	11 U	12 U	1400 U	59 U
4-Methyl-2-Pentanone	10	2	11 U	11 U	12 U	1400 U	59 U
2-Hexanone	10	2	11 U	11 U	12 U	1400 U	59 U
Tetrachloroethene	10	2	11 U	11 U	12 U	1400 U	59 U
1,1,2,2-Tetrachloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
Toluene	10	2	11 U	11 U	12 U	1400 U	59 U
Chlorobenzene	10	2	11 U	11 U	12 U	1400 U	59 U
Ethylbenzene	10	2	11 U	11 U	12 U	1400 U	59 U
Styrene	10	2	11 U	11 U	12 U	1400 U	59 U
Xylene (total)							
DILUTION FACTOR.			1	1	1	1	1
% SOLIDS			87	87	82	87	85

100 SERIES MONITORING WELLS
(MW125; MW123; MW122; MW119)
AQUEOUS TCL VOLATILE ORGANICS

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			GWTF4DUP1	GWTF4MW119	GWTF4MW120	GWTF4MW121	GWTF4MW122
LABORATORY ID			941038-08	941038-09	941038-01	941038-02	941038-10
			FIELD DUPLICATE PAIR				
ANALYTE	CRQL	MDL/IDL					
Chloromethane	10	2	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	2	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	2	10 U	10 U	10 U	10 U	10 U
Chlor ethane	10	2	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10	2	10 U	10 U	10 U	10 U	10 U
Acetone	10	2	10 UJ	10 UJ	10 U	14 U	37 U
Carbon Disulfide	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	2	10 U	10 U	10 U	10 U	10 U
Chloroform	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	2	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	2	10 U	10 U	10 U	10 U	10 U
Brom dichloromethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	2	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	2	10 U	10 U	10 U	10 U	10 U
Trichlor ethene	10	2	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
B nzene	10	2	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	2	10 U	10 U	10 U	10 U	10 U
Brom form	10	2	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	2	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	2	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Toluene	10	2	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	2	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	2	10 U	10 U	10 U	10 U	10 U
Styren	10	2	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10	2	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR.			1	1	1	1	1

CASE NO CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			GWTF4MW123	GWTF4MW124	GWTF4MW125	GWTF4TB1	GWTF5MW100
LABORATORY ID:			941038-11	941038-03	941038-12	941038-04	941038-14
ANALYTE	CRQL	MDL/IDL					
Chl romethane	10	2	10 U	10 U	10 U	10 U	10 U
Br m methane	10	2	10 U	10 U	10 U	10 U	10 U
Vinyl Chlorid	10	2	10 U	10 U	10 U	10 U	10 U
Chl roethane	10	2	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10	2	10 U	10 U	10 U	10 U	10 U
Acetone	10	2	10 U	16 U	50 U	10 U	10 U
Carbon Disulfide	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichl r ethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichl r ethene (total)	10	2	10 U	10 U	10 U	10 U	10 U
Chl r form	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichl roethane	10	2	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	2	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichlor ethane	10	2	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachlorid	10	2	10 U	10 U	10 U	10 U	10 U
Brom dichl romethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichl r propane	10	2	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichl ropr pene	10	2	10 U	10 U	10 U	10 U	10 U
Trichlor ethene	10	2	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
B nzene	10	2	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	2	10 U	10 U	10 U	10 U	10 U
Brom form	10	2	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentan ne	10	2	10 U	10 U	10 U	10 U	10 U
2-Hexan ne	10	2	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	2	10 U	10 U	1 J	10 U	10 U
T luen	10	2	10 U	10 U	10 U	10 U	10 U
Chlor benzene	10	2	10 U	10 U	10 U	10 U	10 U
Ethylbenzen	10	2	10 U	10 U	10 U	10 U	10 U
Styrene	10	2	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10	2	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR			1	1	1	1	1

100 SERIES SOIL BORINGS
(B38/MW125; B42/MW123; B45/MW122; B48/MW119)
TCL SOIL SEMI-VOLATILE ORGANICS

:ASE NO CTO143

:EIMIC CORPORATION

CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

;TATION ID:			SOTF4B373234		SOTF4B373436		SOTF4B37DUP		SOTF4B382628		SOTF4B463032	
ABORATORY ID.			940996-17		940996-18		940996-19		940996-20		940996-09	
					FIELD DUPLICATE PAIR							
NALYTE	CRQL	MDL/IDL										
HENOL	300	30	370	U	380	U	380	U	380	U	370	U
IS(2-CHLOROETHYL)ETHER	300	30	370	U	380	U	380	U	380	U	370	U
-CHLOROPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
,3-DICHLOROBENZENE	300	30	370	U	380	U	380	U	380	U	370	U
,4-DICHLOROBENZENE	300	30	370	U	380	U	380	U	380	U	370	U
,2-DICHLOROBENZENE	300	30	370	U	380	U	380	U	380	U	370	U
-METHYLPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
,2'-OXYBIS(1-CHLOROPROPANE)	300	30	370	U	380	U	380	U	380	U	370	U
-METHYLPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
-NITROSO-DI-n-PROPYLAMINE	300	30	370	U	380	U	380	U	380	U	370	U
EXACHLOROETHANE	300	30	370	U	380	U	380	U	380	U	370	U
ITROBENZENE	300	30	370	U	380	U	380	U	380	U	370	U
SOPHORONE	300	30	370	U	380	U	380	U	380	U	370	U
-NITROPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
,4-DIMETHYLPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
IS(2-CHLOROETHOXY)METHANE	300	30	370	U	380	U	380	U	380	U	370	U
,4-DICHLOROPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
,2,4-TRICHLOROBENZENE	300	30	370	U	380	U	380	U	380	U	370	U
APHTHALENE	300	30	370	U	380	U	380	U	380	U	370	U
-CHLOROANILINE	300	30	370	U	380	U	380	U	380	U	370	U
EXACHLOROBUTADIENE	300	30	370	U	380	U	380	U	380	U	370	U
-CHLORO-3-METHYLPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
-METHYLNAPHTHALENE	300	30	370	U	380	U	380	U	380	U	370	U
EXACHLOROCYCLOPENTADIENE	300	30	370	U	380	U	380	U	380	U	370	U
,4,6-TRICHLOROPHENOL	300	30	370	U	380	U	380	U	380	U	370	U
,4,5-TRICHLOROPHENOL	800	80	890	U	920	U	910	U	910	U	890	U
-CHLORONAPHTHALENE	300	30	370	U	380	U	380	U	380	U	370	U
-NITROANILINE	800	80	890	U	920	U	910	U	910	U	890	U
IMETHYLPHTHALATE	300	30	370	U	380	U	380	U	380	U	370	U
CENAPHTHYLENE	300	30	370	U	380	U	380	U	380	U	370	U
,6-DINITROTOLUENE	300	30	370	U	380	U	380	U	380	U	370	U
-NITROANILINE	800	80	890	U	920	U	910	U	910	U	890	U

SE NO CTO143

IMIC CORPORATION

L SOIL SEMI-VOLATILE ORGANICS (ug/kg)

ATION ID			SOTF4B373234		SOTF4B373436		SOTF4B37DUP		SOTF4B382628		SOTF4B463032	
BORATORY ID:			940996-17		940996-18		940996-19		940996-20		940996-09	
					FIELD DUPLICATE PAIR							
ALYTE	CRQL	MDL/IDL										
ENAPHTHENE	300	30	370	U	380	U	380	U	380	U	370	U
-DINITROPHENOL	800	80	890	U	920	U	910	U	910	U	890	U
ITROPHENOL	800	80	890	U	920	U	910	U	910	U	890	U
ENZOFURAN	300	30	370	U	380	U	380	U	380	U	370	U
-DINITROTOLUENE	300	30	370	U	380	U	380	U	380	U	370	U
THYL PHTHALATE	300	30	370	U	380	U	380	U	380	U	370	U
HLOROPHENYL-PHENYL ETHER	300	30	370	U	380	U	380	U	380	U	370	U
UORENE	300	30	370	U	380	U	380	U	380	U	370	U
ITROANILINE	800	80	890	U	920	U	910	U	910	U	890	U
-DINITRO-2-METHYLPHENOL	800	80	890	U	920	U	910	U	910	U	890	U
NITROSODIPHENYLAMINE	300	30	370	U	380	U	380	U	380	U	370	U
ROMOPHENYL-PHENYL ETHER	300	30	370	U	380	U	380	U	380	U	370	U
XACHLOROBENZENE	300	30	370	U	380	U	380	U	380	U	370	U
NTACHLOROPHENOL	800	80	890	U	920	U	910	U	910	U	890	U
ENANTHRENE	300	30	370	U	380	U	380	U	380	U	370	U
THRACENE	300	30	370	U	380	U	380	U	380	U	370	U
n-BUTYLPHTHALATE	300	30	370	U	380	U	380	U	380	U	370	U
UORANTHENE	300	30	370	U	380	U	380	U	380	U	370	U
RBAZOLE	300	30	370	U	380	U	380	U	380	U	370	U
RENE	300	30	370	U	380	U	380	U	380	U	370	U
TYLBENZYLPHTHALATE	300	30	370	U	380	U	380	U	380	U	370	U
'-DICHLOROBENZIDINE	300	30	370	U	380	U	380	U	380	U	370	U
NZO(a)ANTHRACENE	300	30	370	U	380	U	380	U	380	U	370	U
RYSENE	300	30	370	U	380	U	380	U	380	U	370	U
S(2-ETHYLHEXYL)PHTHALATE	300	30	66	J	380	UJ	39	J	74	J	41	J
-n-OCTYLPHTHALATE	300	30	370	U	380	U	380	U	380	U	370	U
NZO(b)FLUORANTHENE	300	30	370	U	380	U	380	U	380	U	370	U
NZO(k)FLUORANTHENE	300	30	370	U	380	U	380	U	380	U	370	U
NZO(a)PYRENE	300	30	370	U	380	U	380	U	380	U	370	U
DENO(1,2,3-cd)PYRENE	300	30	370	U	380	U	380	U	380	U	370	U
BENZO(a,h)ANTHRACENE	300	30	370	U	380	U	380	U	380	U	370	U
NZO(g,h,i)PERYLENE	300	30	370	U	380	U	380	U	380	U	370	U
LUTION FACTOR			1		1		1		1		1	
SOLIDS			88		86		87		87		89	

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID.			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID:			940996-22		940996-21		940996-23		940996-24		940996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRQL	MDL/IDL										
PHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	390	U	370	U	1900	U	390	U
2-CHLOROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
1,3-DICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
1,4-DICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
1,2-DICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
2-METHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	390	U	370	U	1900	U	390	U
4-METHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROETHANE	300	30	380	U	390	U	370	U	1900	U	390	U
NITROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
ISOPHORONE	300	30	380	U	390	U	370	U	1900	U	390	U
2-NITROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DIMETHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DICHLOROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
1,2,4-TRICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
NAPHTHALENE	300	30	380	U	390	U	370	U	1900	U	390	U
4-CHLOROANILINE	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROBUTADIENE	300	30	380	U	390	U	370	U	1900	U	390	U
4-CHLORO-3-METHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2-METHYLNAPHTHALENE	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	390	U	370	U	1900	U	390	U
2,4,6-TRICHLOROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2,4,5-TRICHLOROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
2-CHLORONAPHTHALENE	300	30	380	U	390	U	370	U	1900	U	390	U
2-NITROANILINE	800	80	930	U	940	U	910	U	4600	U	950	U
DIMETHYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
ACENAPHTHYLENE	300	30	380	U	390	U	370	U	1900	U	390	U
2,6-DINITROTOLUENE	300	30	380	U	390	U	370	U	1900	U	390	U
3-NITROANILINE	800	80	930	U	940	U	910	U	4600	U	950	U

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID.			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID:			940996-22		940996-21		940996-23		940996-24		940996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DINITROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
4-NITROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
DIBENZOFURAN	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DINITROTOLUENE	300	30	380	U	390	U	370	U	1900	U	390	U
DIETHYL PHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	390	U	370	U	1900	U	390	U
FLUORENE	300	30	380	UJ	40	J	370	U	1900	U	52	J
4-NITROANILINE	800	80	930	U	940	U	910	U	4600	U	950	U
4,6-DINITRO-2-METHYLPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
N-NITROSODIPHENYLAMINE	300	30	380	U	390	U	370	U	1900	U	390	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
PENTACHLOROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
PHENANTHRENE	300	30	380	U	390	U	370	U	1900	U	130	J
ANTHRACENE	300	30	380	U	390	U	370	U	1900	U	390	U
DI-n-BUTYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
FLUORANTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
CARBAZOLE	300	30	380	U	390	U	370	U	1900	U	390	U
PYRENE	300	30	380	U	390	U	370	U	440	J	59	J
BUTYLBENZYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(a)ANTHRACENE	300	30	380	U	390	U	370	U	1900	U	390	U
CHRYSENE	300	30	380	U	390	U	370	U	1900	U	390	U
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	380	U	390	U	93	J	1900	U	830	
DI-n-OCTYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(b)FLUORANTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(k)FLUORANTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(a)PYRENE	300	30	380	U	390	U	370	U	1900	U	390	U
INDENO(1,2,3-cd)PYRENE	300	30	380	U	390	U	370	U	1900	U	390	U
DIBENZO(a,h)ANTHRACENE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(g,h,i)PERYLENE	300	30	380	U	390	U	370	U	1900	U	390	U
DILUTION FACTOR			1		1		1		5		1	
% SOLIDS			86		85		88		87		83	

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID.			SOTF4B443638		SOTF4B472830		SOTF4B473840		SOTF4B482729		SOTF4B483941	
LABORATORY ID:			940980-23		940980-24		940980-25		940980-27		940980-28	
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	300	30	380	U	370	U	390	U	290	J	110	J
2,4-DINITROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
4-NITROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
DIBENZOFURAN	300	30	380	U	370	U	390	U	210	J	370	U
2,4-DINITROTOLUENE	300	30	380	U	370	U	390	U	380	U	370	U
DIETHYL PHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	370	U	390	U	380	U	370	U
FLUORENE	300	30	380	U	370	U	390	U	570		240	J
4-NITROANILINE	800	80	930	U	900	U	950	U	920	U	900	U
4,6-DINITRO-2-METHYLPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
N-NITROSODIPHENYLAMINE	300	30	380	U	370	U	390	U	1100		370	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	370	U	390	U	380	U	370	U
HEXACHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
PENTACHLOROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
PHENANTHRENE	300	30	380	U	370	U	390	U	1400		560	
ANTHRACENE	300	30	380	U	370	U	390	U	270	J	290	J
DI-n-BUTYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
FLUORANTHENE	300	30	380	U	370	U	390	U	120	J	81	J
CARBAZOLE	300	30	380	U	370	U	390	U	380	U	370	U
PYRENE	300	30	380	U	370	U	390	U	620		1300	
BUTYLBENZYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(a)ANTHRACENE	300	30	380	U	370	U	390	U	96	J	370	U
CHRYSENE	300	30	380	U	370	U	390	U	150	J	160	J
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	73	J	370	U	87	J	71	J	640	
DI-n-OCTYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(b)FLUORANTHENE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(k)FLUORANTHENE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(a)PYRENE	300	30	380	U	370	U	390	U	76	J	76	J
INDENO(1,2,3-cd)PYRENE	300	30	380	U	370	U	390	U	380	U	370	U
DIBENZO(a,h)ANTHRACENE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(g,h,i)PERYLENE	300	30	380	U	370	U	390	U	380	U	64	J
DILUTION FACTOR.			1		1		1		1		1	
% SOLIDS			86		88		83		87		87	

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID.			SOTF4B443638		SOTF4B472830		SOTF4B473840		SOTF4B482729		SOTF4B483941	
LABORATORY ID:			940980-23		940980-24		940980-25		940980-27		940980-28	
ANALYTE	CRQL	MDL/IDL										
PHENOL	300	30	380	U	370	U	390	U	380	U	370	U
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	370	U	390	U	380	U	370	U
2-CHLOROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
1,3-DICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
1,4-DICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
1,2-DICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
2-METHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	370	U	390	U	380	U	370	U
4-METHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	370	U	390	U	380	U	370	U
HEXACHLOROETHANE	300	30	380	U	370	U	390	U	380	U	370	U
NITROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
ISOPHORONE	300	30	380	U	370	U	390	U	380	U	370	U
2-NITROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2,4-DIMETHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	370	U	390	U	380	U	370	U
2,4-DICHLOROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
1,2,4-TRICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
NAPHTHALENE	300	30	380	U	370	U	390	U	380	U	370	U
4-CHLOROANILINE	300	30	380	U	370	U	390	U	380	U	370	U
HEXACHLOROBUTADIENE	300	30	380	U	370	U	390	U	380	U	370	U
4-CHLORO-3-METHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2-METHYLNAPHTHALENE	300	30	380	U	370	U	390	U	1200		71	J
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	370	U	390	U	380	U	370	U
2,4,6-TRICHLOROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2,4,5-TRICHLOROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
2-CHLORONAPHTHALENE	300	30	380	U	370	U	390	U	380	U	370	U
2-NITROANILINE	800	80	930	U	900	U	950	U	920	U	900	U
DIMETHYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
ACENAPHTHYLENE	300	30	380	U	370	U	390	U	380	U	43	J
2,6-DINITROTOLUENE	300	30	380	U	370	U	390	U	380	U	370	U
3-NITROANILINE	800	80	930	U	900	U	950	U	920	U	900	U

:ASE NO CTO143

:EIMIC CORPORATION

'CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

;TATION ID:			TF4B482729RE		TF4B483941RE	
.ABORATORY ID:			940980-27RE		940980-28RE	
ANALYTE	CRQL	MDL/IDL				
ACENAPHTHENE	300	30	270	J	110	J
2,4-DINITROPHENOL	800	80	920	U	900	U
4-NITROPHENOL	800	80	920	U	900	U
DIBENZOFURAN	300	30	210	J	100	J
2,4-DINITROTOLUENE	300	30	380	U	370	U
DIETHYL PHTHALATE	300	30	380	U	370	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	370	U
FLUORENE	300	30	500		230	J
4-NITROANILINE	800	80	920	U	900	U
4,6-DINITRO-2-METHYLPHENOL	800	80	920	U	900	U
N-NITROSODIPHENYLAMINE	300	30	380	U	370	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	370	U
HEXACHLOROBENZENE	300	30	380	U	370	U
PENTACHLOROPHENOL	800	80	920	U	900	U
PHENANTHRENE	300	30	1300		590	
ANTHRACENE	300	30	340	J	280	J
DI-n-BUTYLPHTHALATE	300	30	380	U	370	U
FLUORANTHENE	300	30	78	J	93	J
CARBAZOLE	300	30	380	U	370	U
PYRENE	300	30	1200		940	
BUTYLBENZYLPHTHALATE	300	30	380	U	370	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	370	U
BENZO(a)ANTHRACENE	300	30	99	J	92	J
CHRYSENE	300	30	150	J	150	J
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	84	J	450	
DI-n-OCTYLPHTHALATE	300	30	380	U	370	U
BENZO(b)FLUORANTHENE	300	30	380	U	370	U
BENZO(k)FLUORANTHENE	300	30	380	U	370	U
BENZO(a)PYRENE	300	30	69	J	79	J
INDENO(1,2,3-cd)PYRENE	300	30	380	U	45	J
DIBENZO(a,h)ANTHRACENE	300	30	380	U	370	U
BENZO(g,h,i)PERYLENE	300	30	61	J	40	J
DILUTION FACTOR:			1		1	
% SOLIDS			87		87	

ASE NO CTO143

EIMIC CORPORATION

CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

·TATION ID.			TF4B482729RE		TF4B483941RE	
ABORATORY ID.			940980-27RE		940980-28RE	
·NALYTE	CRQL	MDL/IDL				
·HENOL	300	30	380	U	370	U
·IS(2-CHLOROETHYL)ETHER	300	30	380	U	370	U
·-CHLOROPHENOL	300	30	380	U	370	U
·,3-DICHLOROBENZENE	300	30	380	U	370	U
·,4-DICHLOROBENZENE	300	30	380	U	370	U
·,2-DICHLOROBENZENE	300	30	380	U	370	U
·-METHYLPHENOL	300	30	380	U	370	U
·,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	370	U
·-METHYLPHENOL	300	30	380	U	370	U
·-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	370	U
·EXACHLOROETHANE	300	30	380	U	370	U
·ITROBENZENE	300	30	380	U	370	U
·SOPHORONE	300	30	380	U	370	U
·-NITROPHENOL	300	30	380	U	370	U
·,4-DIMETHYLPHENOL	300	30	380	U	370	U
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	370	U
2,4-DICHLOROPHENOL	300	30	380	U	370	U
1,2,4-TRICHLOROBENZENE	300	30	380	U	370	U
NAPHTHALENE	300	30	380	U	370	U
4-CHLOROANILINE	300	30	380	U	370	U
HEXACHLOROBUTADIENE	300	30	380	U	370	U
4-CHLORO-3-METHYLPHENOL	300	30	380	U	370	U
2-METHYLNAPHTHALENE	300	30	440		72	J
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	370	U
2,4,6-TRICHLOROPHENOL	300	30	380	U	370	U
2,4,5-TRICHLOROPHENOL	800	80	920	U	900	U
2-CHLORONAPHTHALENE	300	30	380	U	370	U
2-NITROANILINE	800	80	920	U	900	U
DIMETHYLPHTHALATE	300	30	380	U	370	U
ACENAPHTHYLENE	300	30	380	U	40	J
2,6-DINITROTOLUENE	300	30	380	U	370	U
3-NITROANILINE	800	80	920	U	900	U

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID.			SOTF4B453436		B453436RE		SOTF4B45DUP	
LABORATORY ID.			940996-26		940996-26RE		940996-27	
					FIELD DUPLICATE PAIR			
ANALYTE	CRQL	MDL/IDL						
PHENOL	300	30	2000	U	2000	U	380	U
BIS(2-CHLOROETHYL)ETHER	300	30	2000	U	2000	U	380	U
2-CHLOROPHENOL	300	30	2000	U	2000	U	380	U
1,3-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
1,4-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
1,2-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
2-METHYLPHENOL	300	30	2000	U	2000	U	380	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	2000	U	2000	U	380	U
4-METHYLPHENOL	300	30	2000	U	2000	U	380	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	2000	U	2000	U	380	U
HEXACHLOROETHANE	300	30	2000	U	2000	U	380	U
NITROBENZENE	300	30	2000	U	2000	U	380	U
ISOPHORONE	300	30	2000	U	2000	U	380	U
2-NITROPHENOL	300	30	2000	U	2000	U	380	U
2,4-DIMETHYLPHENOL	300	30	2000	U	2000	U	380	U
BIS(2-CHLOROETHOXY)METHANE	300	30	2000	U	2000	U	380	U
2,4-DICHLOROPHENOL	300	30	2000	U	2000	U	380	U
1,2,4-TRICHLOROBENZENE	300	30	2000	U	2000	UJ	70	J
NAPHTHALENE	300	30	2000	U	2000	U	380	U
4-CHLOROANILINE	300	30	2000	U	2000	U	380	U
HEXACHLOROBUTADIENE	300	30	2000	U	2000	U	380	U
4-CHLORO-3-METHYLPHENOL	300	30	2000	U	2000	U	380	U
2-METHYLNAPHTHALENE	300	30	2000	U	2000	U	380	U
HEXACHLOROCYCLOPENTADIENE	300	30	2000	U	2000	U	380	U
2,4,6-TRICHLOROPHENOL	300	30	2000	U	2000	U	380	U
2,4,5-TRICHLOROPHENOL	800	80	4800	U	4800	U	920	U
2-CHLORONAPHTHALENE	300	30	2000	U	2000	U	380	U
2-NITROANILINE	800	80	4800	U	4800	UJ	56	J
DIMETHYLPHTHALATE	300	30	2000	U	2000	U	380	U
ACENAPHTHYLENE	300	30	2000	U	2000	U	380	U
2,6-DINITROTOLUENE	300	30	2000	U	2000	U	380	U
3-NITROANILINE	800	80	4800	U	4800	U	920	U

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID.			SOTF4B453436		B453436RE		SOTF4B45DUP	
LABORATORY ID.			940996-26		940996-26RE		940996-27	
					FIELD DUPLICATE PAIR			
ANALYTE	CRQL	MDL/IDL						
ACENAPHTHENE	300	30	2000	U	2000	U	380	U
2,4-DINITROPHENOL	800	80	4800	U	4800	U	920	U
4-NITROPHENOL	800	80	4800	U	4800	U	920	U
DIBENZOFURAN	300	30	2000	U	2000	U	380	U
2,4-DINITROTOLUENE	300	30	2000	U	2000	U	380	U
DIETHYL PHTHALATE	300	30	2000	U	2000	UJ	1000	J
4-CHLOROPHENYL-PHENYL ETHER	300	30	2000	U	2000	U	380	U
FLUORENE	300	30	600	J	590	J	380	UJ
4-NITROANILINE	800	80	4800	U	4800	U	920	U
4,6-DINITRO-2-METHYLPHENOL	800	80	4800	U	4800	U	920	U
N-NITROSODIPHENYLAMINE	300	30	2000	U	2000	U	380	U
4-BROMOPHENYL-PHENYL ETHER	300	30	2000	U	2000	U	380	U
HEXACHLOROBENZENE	300	30	2000	U	2000	U	380	U
PENTACHLOROPHENOL	800	80	4800	U	4800	U	920	U
PHENANTHRENE	300	30	390	J	340	J	380	UJ
ANTHRACENE	300	30	390	J	290	J	380	UJ
DI-n-BUTYLPHTHALATE	300	30	2000	U	2000	UJ	75	J
FLUORANTHENE	300	30	2000	U	2000	UJ	39	J
CARBAZOLE	300	30	2000	U	2000	U	380	U
PYRENE	300	30	1300	J	980	J	380	UJ
BUTYLBENZYLPHTHALATE	300	30	2000	U	2000	U	380	U
3,3'-DICHLOROBENZIDINE	300	30	2000	U	2000	U	380	U
BENZO(a)ANTHRACENE	300	30	2000	U	2000	U	380	U
CHRYSENE	300	30	390	J	310	J	380	UJ
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	2000	U	2000	UJ	110	J
DI-n-OCTYLPHTHALATE	300	30	2000	U	2000	U	380	U
BENZO(b)FLUORANTHENE	300	30	2000	U	2000	U	380	U
BENZO(k)FLUORANTHENE	300	30	2000	U	2000	U	380	U
BENZO(a)PYRENE	300	30	2000	U	2000	U	380	U
INDENO(1,2,3-cd)PYRENE	300	30	2000	U	2000	U	380	U
DIBENZO(a,h)ANTHRACENE	300	30	2000	U	2000	U	380	U
BENZO(g,h,i)PERYLENE	300	30	2000	U	2000	U	380	U
DILUTION FACTOR			5		5		1	
% SOLIDS			83		83		87	

100 SERIES MONITORING WELLS
(MW125; MW123; MW122; MW119)
AQUEOUS TCL SEMI-VOLATILE ORGANICS

CASE NO CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID			GW-TF4-DUP1	GW-TF4-MW119	GW-TF4-MW120	GW-TF4-MW121	GW-TF4-MW122
LABORATORY ID			941038-08	941038-09	941038-01	941038-02	941038-10
			FIELD DUPLICATE PAIR				
ANALYTE	CRQL	MDL/IDL					
PHENOL	10	1	10 U	10 U	10 U	10 U	100 U
BIS(2-CHLOROETHYL)ETHER	10	1	10 U	10 U	10 U	10 U	100 U
2-CHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
1,3-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100 U
1,4-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100 U
1,2-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100 U
2-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10 U	10 U	10 U	10 U	100 U
4-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10 U	10 U	10 U	10 U	100 U
HEXACHLOROETHANE	10	1	10 U	10 U	10 U	10 U	100 U
NITROBENZENE	10	1	10 U	10 U	10 U	10 U	100 U
ISOPHORONE	10	1	10 U	10 U	10 U	10 U	100 U
2-NITROPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
2,4-DIMETHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
BIS(2-CHLOROETHOXY)METHANE	10	1	10 U	10 U	10 U	10 U	100 U
2,4-DICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
1,2,4-TRICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100 U
NAPHTHALENE	10	1	1 J	1 J	10 U	10 U	100 U
4-CHLOROANILINE	10	1	10 U	10 U	10 U	10 U	100 U
HEXACHLOROBUTADIENE	10	1	10 U	10 U	10 U	10 U	100 U
4-CHLORO-3-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
2-METHYLNAPHTHALENE	10	1	7 J	7 J	10 U	10 U	100 U
HEXACHLOROCYCLOPENTADIENE	10	1	10 U	10 U	10 U	10 U	100 U
2,4,6-TRICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	100 U
2,4,5-TRICHLOROPHENOL	25	2 5	25 U	25 U	25 U	25 U	250 U
2-CHLORONAPHTHALENE	10	1	10 U	10 U	10 U	10 U	100 U
2-NITROANILINE	25	2 5	25 U	25 U	25 U	25 U	250 U
DIMETHYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	100 U
ACENAPHTHYLENE	10	1	10 U	10 U	10 U	10 U	100 U
2,6-DINITROTOLUENE	10	1	10 U	10 U	10 U	10 U	100 U
3-NITROANILINE	25	2 5	25 U	25 U	25 U	25 U	250 U

CASE NO CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID.			GW-TF4-DUP1	GW-TF4-MW119	GW-TF4-MW120	GW-TF4-MW121	GW-TF4-MW122
LABORATORY ID.			941038-08	941038-09	941038-01	941038-02	941038-10
			FIELD DUPLICATE PAIR				
ANALYTE	CRQL	MDL/IDL					
ACENAPHTHENE	10	1	1 J	1 J	10 U	10 U	100 U
2,4-DINITROPHENOL	25	2 5	25 U	25 U	25 U	25 U	250 U
4-NITROPHENOL	25	2 5	25 U	25 U	25 U	25 U	250 U
DIBENZOFURAN	10	1	1 J	1 J	10 U	10 U	100 U
2,4-DINITROTOLUENE	10	1	10 U	10 U	10 U	10 U	100 U
DIETHYL PHTHALATE	10	1	10 U	10 U	10 U	10 U	100 U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10 U	10 U	10 U	10 U	100 U
FLUORENE	10	1	2 J	2 J	10 U	10 U	16 J
4-NITROANILINE	25	2 5	25 U	25 U	25 U	25 U	250 U
4,6-DINITRO-2-METHYLPHENOL	25	2 5	25 U	25 U	25 U	25 U	250 U
N-NITROSODIPHENYLAMINE	10	1	10 U	10 U	10 U	10 U	100 U
4-BROMOPHENYL-PHENYL ETHER	10	1	10 U	10 U	10 U	10 U	100 U
HEXACHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100 U
PENTACHLOROPHENOL	25	2 5	25 U	25 U	25 U	25 U	250 U
PHENANTHRENE	10	1	3 J	3 J	10 U	10 U	15 J
ANTHRACENE	10	1	1 J	10 UJ	10 U	10 U	100 U
DI-n-BUTYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	100 U
FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	100 U
CARBAZOLE	10	1	10 U	10 U	10 U	10 U	100 U
PYRENE	10	1	2 J	2 J	10 U	10 U	15 J
BUTYLBENZYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	100 U
3,3'-DICHLOROBENZIDINE	10	1	10 U	10 U	10 U	10 U	100 U
BENZO(a)ANTHRACENE	10	1	10 U	10 U	10 U	10 U	100 U
CHRYSENE	10	1	10 U	10 U	10 U	10 U	100 U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10 U	10 UJ	10 U	10 U	100 U
DI-n-OCTYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	100 U
BENZO(b)FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	100 U
BENZO(k)FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	100 U
BENZO(a)PYRENE	10	1	10 U	10 U	10 U	10 U	100 U
INDENO(1,2,3-cd)PYRENE	10	1	10 U	10 U	10 U	10 U	100 U
DIBENZO(a,h)ANTHRACENE	10	1	10 U	10 U	10 U	10 U	100 U
BENZO(g,h,i)PERYLENE	10	1	10 U	10 U	10 U	10 U	100 U
DILUTION FACTOR			1	1	1	1	10

CASE NO CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID.			GW-TF4-MW123	GW-TF4-MW124	GW-TF4-MW125	GW-TF5-MW100	GW-TF5-MW101
LABORATORY ID			941038-11	941038-03	941038-12	941038-14	941038-05
ANALYTE	CRQL	MDL/IDL					
PHENOL	10	1	10 U	10 U	200 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10	1	10 U	10 U	200 U	10 U	10 U
2-CHLOROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
1,3-DICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
1,4-DICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
1,2-DICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
2-METHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10 U	10 U	200 U	10 U	10 U
4-METHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10 U	10 U	200 U	10 U	10 U
HEXACHLOROETHANE	10	1	10 U	10 U	200 U	10 U	10 U
NITROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
ISOPHORONE	10	1	10 U	10 U	200 U	10 U	10 U
2-NITROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2,4-DIMETHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10	1	10 U	10 U	200 U	10 U	10 U
2,4-DICHLOROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
NAPHTHALENE	10	1	10 U	10 U	200 U	10 U	10 U
4-CHLOROANILINE	10	1	10 U	10 U	200 U	10 U	10 U
HEXACHLOROBUTADIENE	10	1	10 U	10 U	200 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2-METHYLNAPHTHALENE	10	1	10 U	10 U	200 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10	1	10 U	10 U	200 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25	2 5	25 U	25 U	500 U	25 U	25 U
2-CHLORONAPHTHALENE	10	1	10 U	10 U	200 U	10 U	10 U
2-NITROANILINE	25	2 5	25 U	25 U	500 U	25 U	25 U
DIMETHYLPHTHALATE	10	1	10 U	10 U	200 U	10 U	10 U
ACENAPHTHYLENE	10	1	10 U	10 U	200 U	10 U	10 U
2,6-DINITROTOLUENE	10	1	10 U	10 U	200 U	10 U	10 U
3-NITROANILINE	25	2 5	25 U	25 U	500 U	25 U	25 U

CASE NO CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF4-MW123	GW-TF4-MW124	GW-TF4-MW125	GW-TF5-MW100	GW-TF5-MW101
LABORATORY ID:			941038-11	941038-03	941038-12	941038-14	941038-05
ANALYTE	CRQL	MDL/IDL					
ACENAPHTHENE	10	1	10 U	10 U	200 U	10 U	10 U
2,4-DINITROPHENOL	25	2 5	25 U	25 U	500 U	25 U	25 U
4-NITROPHENOL	25	2.5	25 U	25 U	500 U	25 U	25 U
DIBENZOFURAN	10	1	10 U	10 U	200 U	10 U	10 U
2,4-DINITROTOLUENE	10	1	10 U	10 U	200 U	10 U	10 U
DIETHYL PHTHALATE	10	1	10 U	10 U	200 U	10 U	10 U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10 U	10 U	200 U	10 U	10 U
FLUORENE	10	1	10 U	10 U	20 J	10 U	10 U
4-NITROANILINE	25	2 5	25 U	25 U	500 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25	2 5	25 U	25 U	500 U	25 U	25 U
N-NITROSODIPHENYLAMINE	10	1	10 U	10 U	200 U	10 U	10 U
4-BROMOPHENYL-PHENYL ETHER	10	1	10 U	10 U	200 U	10 U	10 U
HEXACHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
PENTACHLOROPHENOL	25	2 5	25 U	25 U	500 U	25 U	25 U
PHENANTHRENE	10	1	10 U	10 U	48 J	10 U	10 U
ANTHRACENE	10	1	10 U	10 U	200 U	10 U	10 U
DI-n-BUTYLPHTHALATE	10	1	10 U	10 U	200 U	10 U	10 U
FLUORANTHENE	10	1	10 U	10 U	200 U	10 U	10 U
CARBAZOLE	10	1	10 U	10 U	200 U	10 U	10 U
PYRENE	10	1	10 U	10 U	28 J	10 U	10 U
BUTYLBENZYLPHTHALATE	10	1	10 U	10 U	200 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10	1	10 U	10 U	200 U	10 U	10 U
BENZO(a)ANTHRACENE	10	1	10 U	10 U	200 U	10 U	10 U
CHRYSENE	10	1	10 U	10 U	23 J	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10 U	10 U	200 U	10 U	10 U
DI-n-OCTYLPHTHALATE	10	1	10 U	10 U	200 U	10 U	10 U
BENZO(b)FLUORANTHENE	10	1	10 U	10 U	200 U	10 U	10 U
BENZO(k)FLUORANTHENE	10	1	10 U	10 U	200 U	10 U	10 U
BENZO(a)PYRENE	10	1	10 U	10 U	200 U	10 U	10 U
INDENO(1,2,3-cd)PYRENE	10	1	10 U	10 U	200 U	10 U	10 U
DIBENZO(a,h)ANTHRACENE	10	1	10 U	10 U	200 U	10 U	10 U
BENZO(g,h,i)PERYLENE	10	1	10 U	10 U	200 U	10 U	10 U
DILUTION FACTOR			1	1	20	1	1

100 SERIES SOIL BORINGS
(B38/MW125; B42/MW123; B45/MW122; B48/MW119)
RCRA SOIL METALS

:ASE NO CTO143

:EIMIC CORPORATION
OTAL
(CRA SOIL METALS (mg/Kg)

;TATION ID:			SOTF4B373234		SOTF4B373436		SOTF4B37DUP		SOTF4B382628		SOTF4B463032		SOTF4B463840	
.ABORATORY ID:			940996-17		940996-18		940996-19		940996-20		940996-09		940996-10	
\NALYTE	CRDL	IDL												
\RSENIC	1	0 2	12.2		12 3		12 9		12 2		10 5		10 8	
3ARIUM	20	0 1	15 6		7 9		10 3		12 1		2 8	U	16 1	
:ADMIUM	0 5	0 3	2 6		2 6		2 7		2 5		2 3		3 2	
:HROMIUM	1	0 5	14 1		14 1		15 0		13 7		13 6		15 9	
.EAD	0 3	0 1	13.2		9 5		13 3		10 5		7 6		7 1	
/ERCURY	0 1	0.05	0 09	UJ	0 08	UJ	0 08	UJ	0 09	UJ	0 05	U	0 05	U
3ELENIUM	0 5	0 2	0 16	U	0 15	U	0 18	U	0 16	U	0 21	U	0 21	U
3ILVER	1	0 4	0 89	UJ	1 3	U	1 3	U	0 84	UJ	1 9	U	1 8	U
% SOLIDS			84 4		83 8		84 7		84 6		86		83 7	

:ASE NO CTO143

:EIMIC CORPORATION
OTAL
:CRA SOIL METALS (mg/Kg)

:TATION ID.			SOTF4B433638		SOTF4B442224		SOTF4B443638		SOTF4B472830		SOTF4B473840		SOTF4B482729	
ABORATORY ID.			940980-21		940980-22		940980-23		940980-24		940980-25		940980-27	
NALYTE	CRDL	IDL												
RSENIC	1	0 2	9 4		13 3		12 9		19 2		16 5		10 4	
BARIUM	20	0 3	19 3		6.6		6 9		8 9		14 6		11 5	
CADMIUM	0 5	0 4	1 4		1 7		2 4		2 2		2 3		1 8	
CHROMIUM	1	0 7	9 0		11 9		10 8		11 1		15 1		12 6	
LEAD	0 3	0 1	10 4		6 9		4 8		5 8		7 8		9 0	
MERCURY	0 1	0 05	0 05	U	0.05	U	0 05	U	0.05	U	0 05	U	0 05	U
SELENIUM	0.5	0 2/0.4	0 38	U	0 21	U	0 33	U	0 18	U	0 32	U	0 19	U
SILVER	1	0 4	0 38	UJ	1 1	U	1 8	U	1 2	U	1 4	U	0 81	UJ
% SOLIDS			81 3		86 6		85 8		87 8		83 7		84	

CASE NO CTO143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF4B483941	
LABORATORY ID:			940980-28	
ANALYTE	CRDL	IDL		
ARSENIC	1	0 2	10 6	
BARIUM	20	0 3	11.5	
CADMIUM	0 5	0 4	1 7	
CHROMIUM	1	0 7	15 1	
LEAD	0 3	0.1	6 1	
MERCURY	0 1	0 05	0 05	U
SELENIUM	0 5	0 2/0 4	0 19	U
SILVER	1	0 4	0 65	UJ
% SOLIDS			84	

CASE NO CTO143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID.			941996-22		941996-21		941996-23		941996-24		941996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRDL	IDL										
ARSENIC	1	0 2	14 9		17 8		31 5		11 4		9 0	
BARIUM	20	0 3	9 3		12 3		6 0		6 4		14 4	
CADMIUM	0.5	0 4	2 8		3 1		4 7		2 8		1 8	
CHROMIUM	1	0 7	8 9		8 9		15 9		16 0		11 0	
LEAD	0 3	0 1	8.9		7 2		10 6		6 6		8 0	
MERCURY	0 1	0.05	0 09	UJ	0 09	UJ	0 08	UJ	0 08	UJ	0 09	UJ
SELENIUM	0 5	0.2	0 15	U	0 19	U	0 19	U	0 19	U	0 18	U
SILVER	1	0 4	1 2	U	1 7	U	2 8	U	1 7	U	0 65	UJ
% SOLIDS			85.1		84.7		84 3		82 9		82	

CASE NO CTO143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF4B453436		SOTF4B45DUP	
LABORATORY ID:			941996-26		941996-27	
			FIELD DUPLICATE PAIR			
ANALYTE	CRDL	IDL				
ARSENIC	1	0 2	11 1		11 7	
BARIUM	20	0.3	12.3		6 1	
CADMIUM	0 5	0 4	2 3		1 8	
CHROMIUM	1	0 7	12.0		9 4	
LEAD	0 3	0 1	8 2		7.1	
MERCURY	0 1	0.05	0 10	UJ	0.08	UJ
SELENIUM	0 5	0 2	0 18	U	0 16	U
SILVER	1	0 4	0 79	UJ	0 84	UJ
% SOLIDS			83		84 1	

100 SERIES MONITORING WELLS
(MW125; MW123; MW122; MW119)
RCRA AQUEOUS METALS

TOTAL RCRA METALS
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE ID

GW-TF4-MW119

Lab Name: CEIMIC CORPORATION Contract: HNUS

Lab Code: CEIMIC Case No.: CT0143 SAS No.: SDG No.: GWTF4M_

Matrix (soil/water): WATER Lab Sample ID: 941038-09 S

Level (low/med): LOW Date Received: 12/02/94

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	7.5	B		P
7440-39-3	Barium	20.8	B		P
7440-43-9	Cadmium	3.0	U		P
7440-47-3	Chromium	5.0	U		P
7439-92-1	Lead	5.2			P
7439-97-6	Mercury	0.42		*	AV
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	4.0	U	N	P

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

TOTAL RCRA METALS
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE ID

GW-TF4-MW122

Lab Name: CEIMIC CORPORATION Contract: HNUS

Lab Code: CEIMIC Case No.: CTO143 SAS No.: SDG No.: GWTF4M_

Matrix (soil/water): WATER Lab Sample ID: 941038-10 S

Level (low/med): LOW Date Received: 12/02/94

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	656			P
7440-39-3	Barium	1530			P
7440-43-9	Cadmium	3.0	U		P
7440-47-3	Chromium	496			P
7439-92-1	Lead	722			P
7439-97-6	Mercury	0.52		*	AV
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	29.0		N	P

Color Before: BLACK Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

TOTAL RCRA METALS
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE ID

GW-TF4-MW123

Lab Name: CEIMIC CORPORATION Contract: HNUS

Lab Code: CEIMIC Case No.: CTO143 SAS No.: SDG No.: GWTF4M_

Matrix (soil/water): WATER Lab Sample ID: 941038-11 S

Level (low/med): LOW Date Received: 12/02/94

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	33.0			P
7440-39-3	Barium	37.9	B		P
7440-43-9	Cadmium	3.0	U		P
7440-47-3	Chromium	25.8			P
7439-92-1	Lead	16.0			P
7439-97-6	Mercury	0.13	U	*	AV
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	4.0	U	N	P

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

TOTAL RCRA METALS
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE ID

GW-TF4-MW125

Lab Name: CEIMIC CORPORATION Contract: HNUS

Lab Code: CEIMIC Case No.: CTO143 SAS No.: SDG No.: GWTF4M_

Matrix (soil/water): WATER Lab Sample ID: 941038-12 S

Level (low/med): LOW Date Received: 12/02/94

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	9.8	B		P
7440-39-3	Barium	18.4	B		P
7440-43-9	Cadmium	3.0	U		P
7440-47-3	Chromium	5.0	U		P
7439-92-1	Lead	1.8	B		P
7439-97-6	Mercury	0.13	U	*	AV
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	4.0	U	N	P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

C lor After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

100 SERIES SOIL BORINGS
(B38/MW125; B42/MW123; B45/MW122; B48/MW119)
TOTAL PETROLEUM HYDROCARBONS (TPH)
SOIL EPA METHOD 8015B

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-38-2628

Laboratory ID: 940996-20

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ = dry weigh basis, solids = 87%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

335A

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-38-3234

Laboratory ID: 940996-21

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.9
Residual Range Organics (C28 to C40)	ND	5.9

ND = Not detected
+ = dry weigh basis, solids = 85%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-38-DUP

Laboratory ID: 940996-22

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ = dry weigh basis, solids = 86%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-42-3234

Laboratory ID: 940996-23

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ = dry weigh basis, solids = 88%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-42-3638

Laboratory ID: 940996-24

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/02/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	110
JP-4 Jet Fuel	ND	110
Kerosene	ND	110
Jet Fuel A	ND	110
JP-5 Jet Fuel	ND	110
JP-8 Jet Fuel	ND	110
Mineral Oil	ND	110
Naphtha	ND	110
Diesel Fuel	ND	110
Fuel Oil #2	ND	110
Fuel Oil #4	ND	110
Fuel Oil #5	ND	110
Fuel Oil #6	ND	110
Bunker Oil	5,700	110
Motor Oil	ND	110
Hydraulic Jack Oil	ND	110
Transmission Fluid	ND	110
Lubricating Oil	ND	110
Compressor Oil	ND	110
Creosote	ND	110
Diesel Range Organics (C10 to C28)	PM	57
Residual Range Organics (C28 to C40)	PM	57

ND = Not detected
PM = Pattern matches target analyte
+ = dry weigh basis, solids = 87%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-3234

Laboratory ID: 940996-25

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	1,200	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	PM	6.0
Residual Range Organics (C28 to C40)	PM	6.0

ND = Not detected
PM = Pattern matches target analyte
+ = dry weigh basis, solids = 83%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-3436

Laboratory ID: 940996-26

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/02/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	120
JP-4 Jet Fuel	ND	120
Kerosene	ND	120
Jet Fuel A	ND	120
JP-5 Jet Fuel	ND	120
JP-8 Jet Fuel	ND	120
Mineral Oil	ND	120
Naphtha	ND	120
Diesel Fuel	ND	120
Fuel Oil #2	ND	120
Fuel Oil #4	ND	120
Fuel Oil #5	ND	120
Fuel Oil #6	ND	120
Bunker Oil	11,000 J	120
Motor Oil	ND	120
Hydraulic Jack Oil	ND	120
Transmission Fluid	ND	120
Lubricating Oil	ND	120
Compressor Oil	ND	120
Creosote	ND	120
Diesel Range Organics (C10 to C28)	PM	60
Residual Range Organics (C28 to C40)	PM	60

ND = Not detected
PM = Pattern matches target analyte
+ = dry weigh basis, solids = 83%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-DUP

Laboratory ID: 940996-27

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Di sel Fuel	ND	11
Fu l Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11 WJ
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ = dry weigh basis, solids = 87%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-48-2729

Laboratory ID: 940980-27

Date Sample Received: 11/10/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	110
JP-4 Jet Fuel	ND	110
Kerosene	ND	110
Jet Fuel A	ND	110
JP-5 Jet Fuel	ND	110
JP-8 Jet Fuel	ND	110
Mineral Oil	ND	110
Naphtha	ND	110
Diesel Fuel	ND	110
Fuel Oil #2	ND	110
Fuel Oil #4	ND	110
Fuel Oil #5	ND	110
Fuel Oil #6	ND	110
Bunker Oil	5,300	110
Motor Oil	ND	110
Hydraulic Jack Oil	ND	110
Transmission Fluid	ND	110
Lubricating Oil	ND	110
Compressor Oil	ND	110
Creosote	ND	110
Diesel Range Organics (C10 to C28)	PM	57
Residual Range Organics (C28 to C40)	PM	57

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 87%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-48-3941

Laboratory ID: 940980-28

Date Sample Received: 11/11/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	110
JP-4 Jet Fuel	ND	110
Kerosene	ND	110
Jet Fuel A	ND	110
JP-5 Jet Fuel	ND	110
JP-8 Jet Fuel	ND	110
Mineral Oil	ND	110
Naphtha	ND	110
Diesel Fuel	ND	110
Fuel Oil #2	ND	110
Fuel Oil #4	ND	110
Fuel Oil #5	ND	110
Fuel Oil #6	ND	110
Bunker Oil	3,000	110
Motor Oil	ND	110
Hydraulic Jack Oil	ND	110
Transmission Fluid	ND	110
Lubricating Oil	ND	110
Compressor Oil	ND	110
Creosote	ND	110
Diesel Range Organics (C10 to C28)	PM	57
Residual Range Organics (C28 to C40)	PM	57

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis. solid = 87%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

SOIL PROBINGS
TOTAL PETROLEUM HYDROCARBONS (TPH)
SOIL EPA METHOD 8015B

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P1-38-0608

Laboratory ID: 940996-30

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.4
Residual Range Organics (C28 to C40)	ND	5.4

ND = Not detected
+ = dry weigh basis, solids = 93%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P1-42-0406

Laboratory ID: 940996-31

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/02/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.4
Residual Range Organics (C28 to C40)	ND	5.4

ND = Not detected
+ = dry weigh basis, solids = 92%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: KL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P2-42-0406

Laboratory ID: 940996-34

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	6.2
Residual Range Organics (C28 to C40)	ND	6.2

ND = Not detected
+ = dry weigh basis, solids = 81%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P1-45-0608

Laboratory ID: 940996-04

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.6
Residual Range Organics (C28 to C40)	ND	5.6

ND = Not detected
+ = dry weight basis, solids = 89%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

304

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P2-45-0608

Laboratory ID: 940996-05

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.4
Residual Range Organics (C28 to C40)	ND	5.4

ND = Not detected
+ = dry weight basis, solids = 92%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P3-45-0406

Laboratory ID: 940996-06

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.5
Residual Range Organics (C28 to C40)	ND	5.5

ND = Not detected
+ = dry weight basis, solids = 91%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P4-45-0406

Laboratory ID: 940996-07

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.4
Residual Range Organics (C28 to C40)	ND	5.4

ND = Not detected
+ = dry weight basis, solids = 93%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P1-48-0608

Laboratory ID: 940996-12

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 11/30/94

Concentration in: mg/kg*

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.5
Residual Range Organics (C28 to C40)	ND	5.5

ND = Not detected
* = dry weight basis, solids = 91%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P2-48-0608

Laboratory ID: 940996-13

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 11/30/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.4
Residual Range Organics (C28 to C40)	ND	5.4

ND = Not detected
+ = dry weight basis. solids = 93%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-P3-48-0406

Laboratory ID: 940996-14

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 11/30/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.5
Residual Range Organics (C28 to C40)	ND	5.5

ND = Not detected
+ = dry weight basis. solids = 91%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

100 SERIES SOIL BORINGS AND SOIL PROBING
(B38/MW125; B42/MW123; B45/MW122; B48/MW119)
TOTAL PETROLEUM HYDROCARBONS (TPH)
FIELD SCREENING DATA

Tabu

Data Sheet for PETRO RISC® SamplePro Test

Operator: Gary Glenn Date: 4/18/94 Location: CTU 143

Sample ID	Low Test Level ΔOD	Low Test Level OD sample	Low Test Level Interpretation	High Test Level ΔOD	High Test Level OD sample	High Test Level Interpretation	Comments
Replicate stds	Standards	25 ppm		Standards	100 ppm		
~~SO-TF4-P2-0405-0406~~	0.07		QC OK	-0.01		QC OK	
SO-TF4-P2-0405-0406	-0.34		>25 ppm	-0.22		>100 ppm	Send to lab
↓ -0608	-0.18		>25 ppm	0.03		<100 ppm	Discard
SO-TF4-P1-38-0406	0.05		<25 ppm	0.06		<100 ppm	Discard
↓ -0608	0.17		<25 ppm	-0.05		>100 ppm	Send to lab
Replicate stds ~~P1-42-0406~~	~~0.0150~~ 0.10		QC OK	0.12		QC OK	
SO-TF4-P1-42-0406 ~~0608~~	0.07		<25 ppm	0.30		<100 ppm	Send to lab
↓ ~~P2-42~~ -0608	0.22		<25 ppm	0.49		<100 ppm	Discard
SO-TF4-P2-42-0406	-0.35		>25 ppm	1.36		<100 ppm	Send to lab
↓ -0608	0.12		<25 ppm	0.29		<100 ppm	Discard
SO-TF4-P2-47-0406	-0.18		>25 ppm	0.32		<100 ppm	Send to lab
↓ -0608	-0.18		>25 ppm	0.63		<100 ppm	Discard
SO-TF4-P1-0405-0406	0.11		<25 ppm	0.42		<100 ppm	Discard
↓ -0608	0.20		<25 ppm	0.07		>100 ppm	Send to lab
Replicate stds	0.18		QC OK	0.05		QC OK	
Replicate stds	0.10		QC OK	0.21			QC OK
SO-TF4-B-37-3234	-0.39		>25 ppm	0.49		<100 ppm	
↓ 3840	-0.18		>25 ppm	-0.01		>100 ppm	
SO-TF4-B-38-3628	-0.00		>25 ppm	-0.15		>100 ppm	
↓ ~~38~~ 3638	-0.67		>25 ppm	-0.71		>100 ppm	

Data Sheet for PETRO RISC® SamplePro Test

Operator: Gary Glenn Date: 11/18/94 Location: CRD 143

Sample ID	Low Test Level ΔOD	Low Test Level OD sample	Low Test Level Interpretation	High Test Level ΔOD	High Test Level OD sample	High Test Level Interpretation	Comments
	Standards	25 ppm		Standards	100 ppm		
Replicate std	0.07		QC OK	-0.06		QC OK ~~>100 ppm~~ on	
SO-TF4-B-42-2628	-0.49		>25 ppm	0.08		<100 ppm	
SO-TF4-B-45-3032	-0.62		>25 ppm	-0.08		>100 ppm	
SO-TF4-B-46-3032	0.03		<25 ppm	0.13		<100 ppm	~~Send to lab~~ on
SO-TF4-B-46-3840	0.25		<25 ppm	0.49		<100 ppm	~~Discard~~ CB

Data Sheet for PETRO RISC® SamplePro Test

Operator: Gary Glennon Date: 11/14/94 11/15/94 Location: CTD 143

	Sample ID	Low Test Level ΔOD Standards	Low Test Level OD sample 25 ppm	Low Test Level Interpretation	High Test Level ΔOD Standards	High Test Level OD sample 100 ppm	High Test Level Interpretation	Comments
11/14/94 1400	Replicate stds	0.19		QC OK	0.23		QC OK*	
	SO-TF4-P1-43-0406	-0.01		>25 ppm	0.09		<100 ppm	Discard
	↓ -0608	-0.09		>25 ppm	-0.15		>100 ppm	Send to lab ✓
	SO-TF4-P2-46-0406	-0.08		>25 ppm	0.05		<100 ppm	Discard
	↓ -0608	-0.01		>25 ppm	-0.13		>100 ppm	Send to lab ✓
11/14/94 1530	SO-TF4-P1-41-0406	~~0.35~~ -0.18		~~QC OUT~~ NA-QC OUT	0.29		<100 ppm	Discard
	↓ -0608	-0.12		NA-QC OUT	0.22		<100 ppm	Send to lab ✓
	SO-TF4-P2-41-0406	0.20		NA-QC OUT	0.41		<100 ppm	Discard
	↓ -0608	-0.34		NA-QC OUT	0.47		<100 ppm	Send to lab. ✓
	Replicate stds	0.40		QC OUT*	-0.00		QC OK*	
11/15/94 0745	Replicate stds	-0.23		QC OK*	0.03		QC OK*	
	SO-TF4-P1-48-0406	-0.10		>25 ppm	0.53		<100 ppm	Discard
	↓ -0608	-0.05		>25 ppm	0.48		<100 ppm	Send to lab ✓
	SO-TF4-P2-48-0406	-0.03		>25 ppm	0.76		<100 ppm	Discard
	↓ -0608	-0.29		>25 ppm	-0.15		>100 ppm	Send to lab Matrix Spike
11/15/94 0930	Replicate stds	0.10		QC OK*	0.12		QC OK*	
	SO-TF4-P3-48-0406	-0.12		>25 ppm	0.22		<100 ppm	Send to lab ✓
	↓ 0608	0.09		<25 ppm	0.20		<100 ppm	Discard
	SO-TF4-P1-45-0406	-0.33		>25 ppm	0.25		<100 ppm	Discard
	↓ -0608	-0.42		>25 ppm	0.20		<100 ppm	Send to lab ✓

* criteria $-0.3 < \Delta OD < 0.3$

Data Sheet for PETRO RISC® SamplePro Test

Operator: Gary Clemmer Date: 11/15/94 Location: CSD 143

	Sample ID	Low Test Level ΔOD Standards	Low Test Level OD sample 25 ppm	Low Test Level Interpretation	High Test Level ΔOD Standards	High Test Level OD sample 100 ppm	High Test Level Interpretation	Comments
11/15/94 1345	Replicate stds	0.17		QC OK*	0.24		QC OK*	
	SO-TF4-P2-45-0406	-0.02		> 25 ppm	0.22		< 100 ppm	Discard
	-P2-45-0608	0.07		< 25 ppm	-0.18		> 100 ppm	Send to lab
	-P3-45-0406	0.04		< 25 ppm	-0.31		> 100 ppm	Send to lab
	-P3-45-0608	0.39		< 25 ppm	-0.16		> 100 ppm	Discard.
11/15/94 1500	Replicate stds	-0.03		QC OK*	0.01		QC OK*	
	SO-TF4-P4-45-0406	-0.21		> 25 ppm	0.38		< 100 ppm	Send to lab
	0608	0.39		< 25 ppm	Lost Tube during washing			Discard
	SO-TF4-P1-47-0406	0.01		< 25 ppm	0.06		< 100 ppm	Send to lab
	-0608	0.23		< 25 ppm	0.37		< 100 ppm	Discard.

300 SERIES SOIL BORINGS
(SB-330 - SB-336)
TOTAL PETROLEUM HYDROCARBONS (TPH)
EPA SOIL METHOD 418.1

Case No. CTO #143
SDG: 51SB31
CEIMIC CORPORATION

Total Petroleum Hydrocarbon (TPH)
Soil (mg/Kg*) Method 418.1

STATION ID:	50-SB-329-0608	45-SB-330-3840	45-SB-330-3032
LABORATORY ID	950773-18	950773-20	950773-19
ANALYTE			
Total Petroleum Hydrocarbon	8400	23000	1400 J
% SOLIDS	94	86	87

*Reported as dry weight

Case No. CTO #143
SDG: 312628
CEIMIC CORPORATION

Total Petroleum Hydrocarbon (TPH)
Soil (mg/Kg*) Method 418.1

STATION ID:	45-SB-331-2628	45-SB-331-3638	45-SB-332-2628	45-SB-332-3436	50-SB-DUP6
LABORATORY ID.	950793-01	950793-02	950793-03	950793-04	950793-05
					Field Dup (6)
ANALYTE					
Total Petroleum Hydrocarbon	3900	2100	33 U	2700	1600 J
% SOLIDS	87	86	92	86	90

* Reported as dry weight

Case No. CTO #143
SDG: 312628
CEIMIC CORPORATION

Total Petroleum Hydrocarbon (TPH)
Soil (mg/Kg*) Method 418 1

STATION ID:	45-SB-333-2022	45-SB-334-1820	45-SB-335-1315	45-SB-335-1517	45-SB-336-1416
LABORATORY ID:	950793-06	950793-08	950793-09	950793-10	950793-11
ANALYTE					
Total Petroleum Hydrocarbon	32 U	31 U	32 U	7100	32 U
% SOLIDS	93	96	94	91	94

*Reported as dry weight

300 SERIES MONITORING WELLS
(MW-330 - MW-331)
TOTAL PETROLEUM HYDROCARBONS (TPH)
AQUEOUS EPA METHOD 418.1

Case No CTO #143
SDG: 2MW315
CEIMIC CORPORATION

Total Petroleum Hydrocarbon (TPH) Aqueous (mg/L) Method 418.1	TANK 52 MW315	TANK 52 MW316	TANK 51 MW317	TANK 51 MW318	TANK 45 MW330	TANK 45 MW331
STATION ID.	GW-52-MW315	GW-52-MW316	GW-51-MW317	GW-51-MW318	GW-45-MW330	GW-45-MW331
LABORATORY ID:	950809-01	950809-02	950809-03	950809-04	950809-05	950809-06
			Field Dup (1)			
ANALYTE						
Total Petroleum Hydrocarbon	99	15	1 U	1 U	63	93

300 SERIES SOIL BORINGS
(SB-330 - SB-336)
PERCENT MOISTURE AND GRAIN SIZE ANALYSES

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MOISTURE CONTENT DETERMINATION

Client	BROWN & ROOT	Tested By	TO	Date	10-16-95
Client Project	0288-CTO-143	Checked By		Date	10-26-95
Project No.	95307				

MOISTURE CONTENT

	TANK 52 SB-315-2830	TANK 52 SB-316-2628	TANK 52 SB-316-3032	TANK 51 SB-317-2426	TANK 51 SB-318-2022
Boring No.	NA	NA	NA	NA	NA
Depth(ft).	NA	NA	NA	NA	NA
Sample No.	011	012	013	014	015
Tare Number	1139	1340	869	1624	1345
Wt. Tare & WS(gm.)	1196.00	1120.70	825.50	664.20	1101.90
Wt. Tare & DS(gm.)	1050.10	998.50	742.10	591.50	979.60
Wt. Water(gm.)	145.90	122.20	83.40	72.70	122.30
Wt. Tare(gm.)	105.74	104.48	111.18	102.26	104.63
Wt. DS(gm.)	944.36	894.02	630.92	489.24	874.97
Moisture Content(%)	15.4	13.7	13.2	14.9	14.0

	TANK 51 SB-320-3436	TANK 51 SB-320-3638	TANK 45 SB-332-2230	TANK 45 SB-330-1416	TANK 45 SB-331-2628
Boring No.	NA	NA	NA	NA	NA
Depth(ft).	NA	NA	NA	NA	NA
Sample No.	016	017	018	019	020
Tare Number	1644	1671	1068	1021	839
Wt. Tare & WS(gm.)	1342.90	1412.00	1129.70	1404.30	1102.30
Wt. Tare & DS(gm.)	1254.20	1309.10	1029.80	1270.90	996.70
Wt. Water(gm.)	88.70	102.90	99.90	133.40	105.60
Wt. Tare(gm.)	104.78	100.79	106.62	102.49	105.47
Wt. DS(gm.)	1149.42	1208.31	923.18	1168.41	891.23
Moisture Content(%)	7.7	8.5	10.8	11.4	11.8

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MOISTURE CONTENT DETERMINATION

Client	BROWN & ROOT	Tested By	TO	Date	10-16-95
Client Project	0288-CT0-143	Checked By		Date	10-26-95
Project No.	95307				

MOISTURE CONTENT

	TANK 45 SB-331-3840
Boring No.	NA
Depth(ft).	NA
Sample No.	021
Tare Number	1627
Wt. Tare & WS(gm.)	1564.90
Wt. Tare & DS(gm.)	1463.10
Wt. Water(gm.)	101.80
Wt. Tare(gm.)	102.04
Wt. DS(gm.)	1361.06
Moisture Content(%)	7.5

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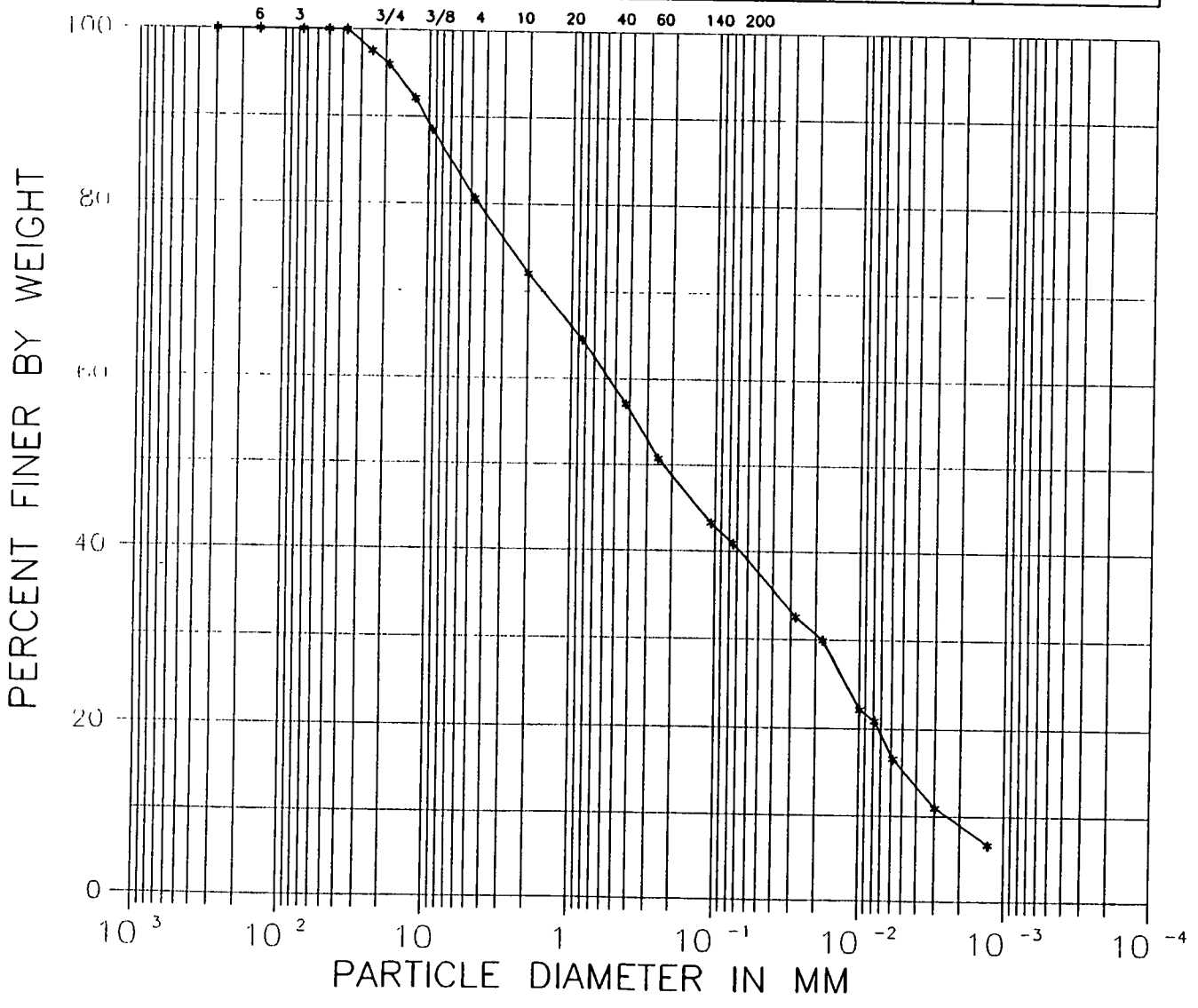
Client BROWN & ROOT
Client Project 0288-CTO-143
Project No. 95307
USCS Classification sc
Soil Description GRAY CLAYEY SAND WITH GRAVEL

Boring No. NA TANK 45
Depth(ft) NA
Sample No. 019 SB-330-1416
USDA Classification LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	DB	Date	10-13-95
Client Project	0288-CTO-143	Checked By		Date	10-26-95
Project No.	95307				
Boring No.	NA TANK 45				
Depth(ft.)	NA				
Sample No.	019 SB-330-1416				
Soil Description	GRAY CLAYEY SAND WITH GRAVEL				

Wt. of Total Sample(dry)	1168.41 gm.
Wt. of + #200 Sample	690.75 gm.
Wt. of -#200 Sample	477.66 gm.

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)	Percent Retained	Accumulated Percent Retained	Percent Finer
12"	300.00	0.00	0.0	0.0	100.0
6"	150.00	0.00	0.0	0.0	100.0
3"	75.00	0.00	0.0	0.0	100.0
2"	50.00	0.00	0.0	0.0	100.0
1 1/2"	37.50	0.00	0.0	0.0	100.0
1"	25.00	28.45	2.4	2.4	97.6
3/4"	19.00	18.19	1.6	4.0	96.0
1/2"	12.50	44.69	3.8	7.8	92.2
3/8"	9.50	43.36	3.7	11.5	88.5
#4	4.75	91.41	7.8	19.4	80.6
#10	2.00	99.87	8.5	27.9	72.1
#20	0.85	88.63	7.6	35.5	64.5
#40	0.425	86.74	7.4	42.9	57.1
#60	0.250	74.04	6.3	49.2	50.8
#140	0.106	87.51	7.5	56.7	43.3
#200	0.075	27.86	2.4	59.1	40.9
Pan	-	477.66	40.9	100.0	-

Water Content	
Tare No.	1021
Wgt. Tare + WS.	1404.30
Wgt. Tare + DS.	1270.90
Wgt. Tare	102.49
Wgt. Of Water	133.40
Wgt. Of DS.	1168.41
% Water	11.4

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	10-13-95
Client Project	0288-CTO-143	Checked By		Date	10-26-95
Project No.	95307				
Boring No.	NA TANK 45				
Depth(ft.)	NA				
Sample No.	019 SB-330-1416				

Soil Sample Weight

Container No.	1001		
Wt. Contain. & Dry Soil	156.30 gm.	K Factor	0.01297
		Composite Correction	6.29
Wt. Contain.	104.38 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	46.92 gm.	% Finer Than No. 200	40.88

Temperature C	23.0
Specific Gravity	2.70 Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	43.0	44.0	37.7	79.6	0.0276	32.5
5		41.0	34.7	73.2	0.0180	29.9
19		32.0	25.7	54.3	0.0099	22.2
31		30.5	24.2	51.1	0.0078	20.9
60		25.5	19.2	40.5	0.0058	16.6
250		19.0	12.7	26.8	0.0030	11.0
1440		14.0	7.7	16.3	0.0013	6.7

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Client	BROWN & ROOT
Client Project	0288-CTO-143
Project No.	95307
Boring No.	NA TANK 45
Depth(ft.)	NA
Sample No.	019 SB-330-1416

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	100.0
25.000	97.6
19.000	96.0
12.500	92.2
9.5000	88.5
4.7500	80.6
2.0000	72.1
0.8500	64.5
0.4250	57.1
0.2500	50.8
0.1060	43.3
0.0750	40.9
0.0276	32.5
0.0180	29.9
0.0099	22.2
0.0078	20.9
0.0058	16.6
0.0030	11.0
0.0013	6.7

SIEVE OPENING (mm)	PERCENT FINER	PERCENT OF EACH COMPONENT		CORRECTED PERCENT OF -2.0 mm MATERIAL FOR USDA DETERMINATION
100.00	100.00			
		GRAVEL	27.90	0.00
2.00	72.10			
		SAND	34.61	48.01
0.05	37.49			
		SILT	28.55	39.60
0.002	8.93			
		CLAY	8.93	12.39

USDA CLASSIFICATION LOAM

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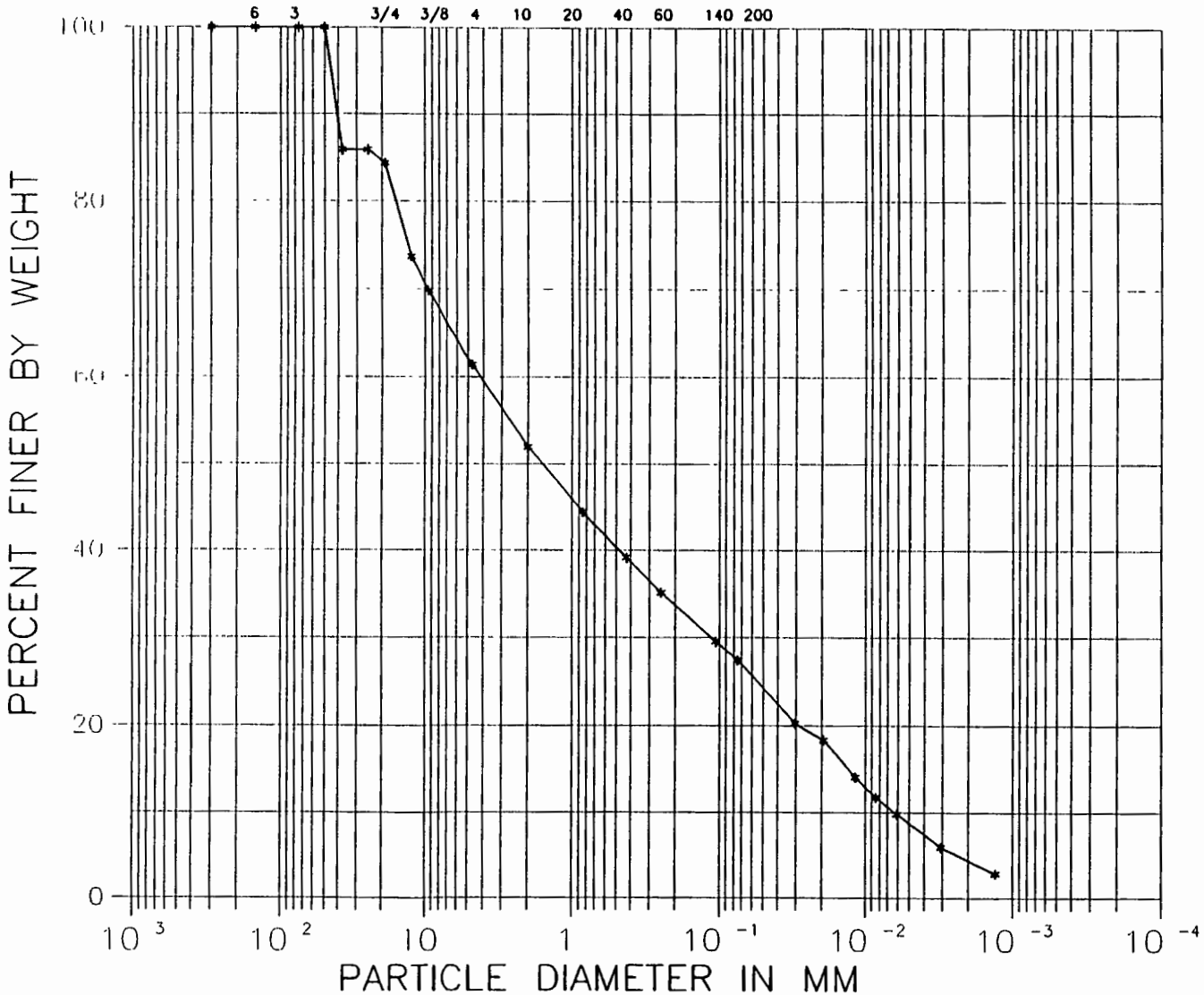
Client BROWN & ROOT
Client Project 0288-CTO-143
Project No. 95307
USCS Classification gc
Soil Description GRAY CLAYEY GRAVEL WITH SAND

Boring No. NA TANK 45
Depth(ft) NA
Sample No. 020 SB-331-2628
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	DB	Date	10-13-95
Client Project	0288-CTO-143	Checked By		Date	10-26-95
Project No.	95307				
Boring No.	NA TANK 45				
Depth(ft.)	NA				
Sample No.	020 SB-331-2628				
Soil Description	GRAY CLAYEY GRAVEL WITH SAND				

Wt. of Total Sample(dry)	891.23 gm.
Wt. of +#200 Sample	646.66 gm.
Wt. of -#200 Sample	244.57 gm.

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)	Percent Retained	Accumulated Percent Retained	Percent Finer
12"	300.00	0.00	0.0	0.0	100.0
6"	150.00	0.00	0.0	0.0	100.0
3"	75.00	0.00	0.0	0.0	100.0
2"	50.00	0.00	0.0	0.0	100.0
1 1/2"	37.50	125.80	14.1	14.1	85.9
1"	25.00	0.00	0.0	14.1	85.9
3/4"	19.00	13.54	1.5	15.6	84.4
1/2"	12.50	94.79	10.6	26.3	73.7
3/8"	9.50	34.48	3.9	30.1	69.9
#4	4.75	75.10	8.4	38.6	61.4
#10	2.00	84.32	9.5	48.0	52.0
#20	0.85	66.97	7.5	55.5	44.5
#40	0.425	47.41	5.3	60.9	39.1
#60	0.250	35.38	4.0	64.8	35.2
#140	0.106	50.18	5.6	70.5	29.5
#200	0.075	18.69	2.1	72.6	27.4
Pan	-	244.57	27.4	100.0	-

Water Content	
Tare No.	839
Wgt. Tare + WS.	1102.30
Wgt. Tare + DS.	996.70
Wgt. Tare	105.47
Wgt. Of Water	105.60
Wgt. Of DS.	891.23
% Water	11.8

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	10-13-95
Client Project	0288-CTO-143	Checked By		Date	10-26-95
Project No.	95307				
Boring No.	NA TANK 45				
Depth(ft.)	NA				
Sample No.	020 SB-331-2628				

Soil Sample Weight

Container No.	1657		
Wt. Contain. & Dry Soil	141.00 gm.	K Factor	0.01297
		Composite Correction	6.29
Wt. Contain.	100.90 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	35.10 gm.	% Finer Than No. 200	27.44
Temperature C	23.0		
Specific Gravity	2.70 Assumed		

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	32.0	32.5	26.2	73.9	0.0304	20.3
5		30.0	23.7	66.9	0.0196	18.4
15		24.5	18.2	51.4	0.0117	14.1
30		21.5	15.2	42.9	0.0085	11.8
60		19.0	12.7	35.9	0.0061	9.8
250		14.0	7.7	21.8	0.0031	6.0
1440		10.0	3.7	10.5	0.0013	2.9

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Client	BROWN & ROOT
Client Project	0288-CTO-143
Project No.	95307
Boring No.	NA TANK 45
Depth(ft.)	NA
Sample No.	020 SB-331-2628

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	85.9
25.000	85.9
19.000	84.4
12.500	73.7
9.5000	69.9
4.7500	61.4
2.0000	52.0
0.8500	44.5
0.4250	39.1
0.2500	35.2
0.1060	29.5
0.0750	27.4
0.0304	20.3
0.0196	18.4
0.0117	14.1
0.0085	11.8
0.0061	9.8
0.0031	6.0
0.0013	2.9

SIEVE OPENING (mm)	PERCENT FINER	PERCENT OF EACH COMPONENT		CORRECTED PERCENT OF -2.0 mm MATERIAL FOR USDA DETERMINATION
100.00	100.00			
		GRAVEL	48.03	0.00
2.00	51.97			
		SAND	27.74	53.37
0.05	24.23			
		SILT	19.82	38.13
0.002	4.41			
		CLAY	4.41	8.49

USDA CLASSIFICATION SANDY LOAM

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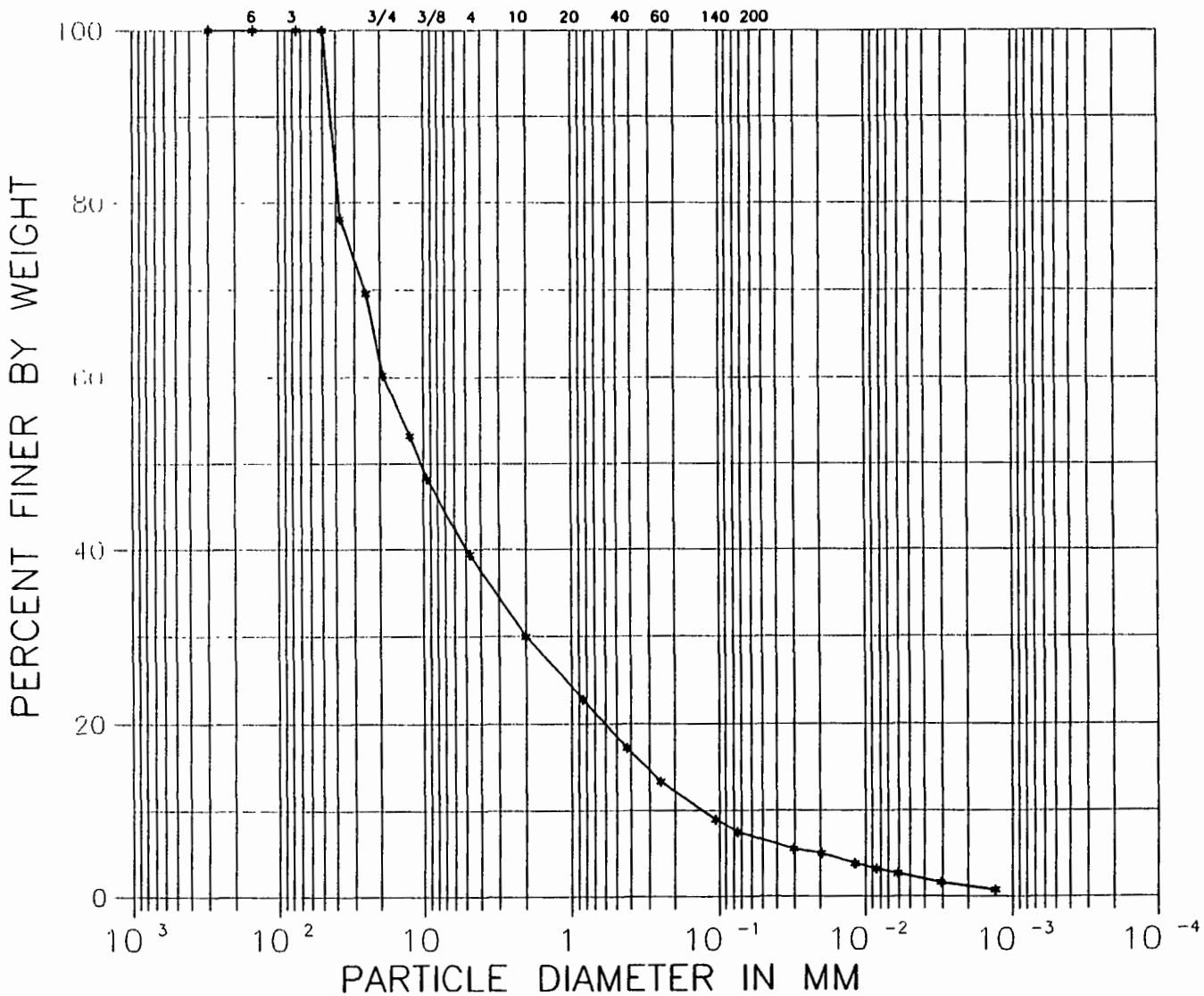
Client BROWN & ROOT
Client Project 0288-CTO-143
Project No. 95307
USCS Classification gw-gc
Soil Description GRAY WELL-GRADED GRAVEL WITH CLAY AND SAND

Boring No. NA TANK 45
Depth(ft) NA
Sample No. 021 SB-331-3840
USDA Classification LOAMY SAND

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	DB	Date	10-13-95
Client Project	0288-CTO-143	Checked By	EJM	Date	10-26-95
Project No.	95307				
Boring No.	NA TANK 45				
Depth(ft.)	NA				
Sample No.	021 SB-331-3040				
Soil Description	GRAY WELL-GRADED GRAVEL WITH CLAY AND SAND				

Wt. of Total Sample(dry)	1361.06 gm.
Wt. of +#200 Sample	1258.95 gm.
Wt. of -#200 Sample	102.11 gm.

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)	Percent Retained	Accumulated Percent Retained	Percent Finer
12"	300.00	0.00	0.0	0.0	100.0
6"	150.00	0.00	0.0	0.0	100.0
3"	75.00	0.00	0.0	0.0	100.0
2"	50.00	0.00	0.0	0.0	100.0
1 1/2"	37.50	297.30	21.8	21.8	78.2
1"	25.00	116.97	8.6	30.4	69.6
3/4"	19.00	126.61	9.3	39.7	60.3
1/2"	12.50	95.58	7.0	46.8	53.2
3/8"	9.50	67.42	5.0	51.7	48.3
#4	4.75	120.90	8.9	60.6	39.4
#10	2.00	128.55	9.4	70.0	30.0
#20	0.85	96.87	7.1	77.2	22.8
#40	0.425	76.50	5.6	82.8	17.2
#60	0.250	52.47	3.9	86.6	13.4
#140	0.106	60.05	4.4	91.0	9.0
#200	0.075	19.73	1.4	92.5	7.5
Pan	-	102.11	7.5	100.0	-

Water Content	
Tare No.	1627
Wgt. Tare + WS.	1564.90
Wgt. Tare + DS.	1463.10
Wgt. Tare	102.04
Wgt. Of Water	101.80
Wgt Of DS.	1361.06
% Water	7.5

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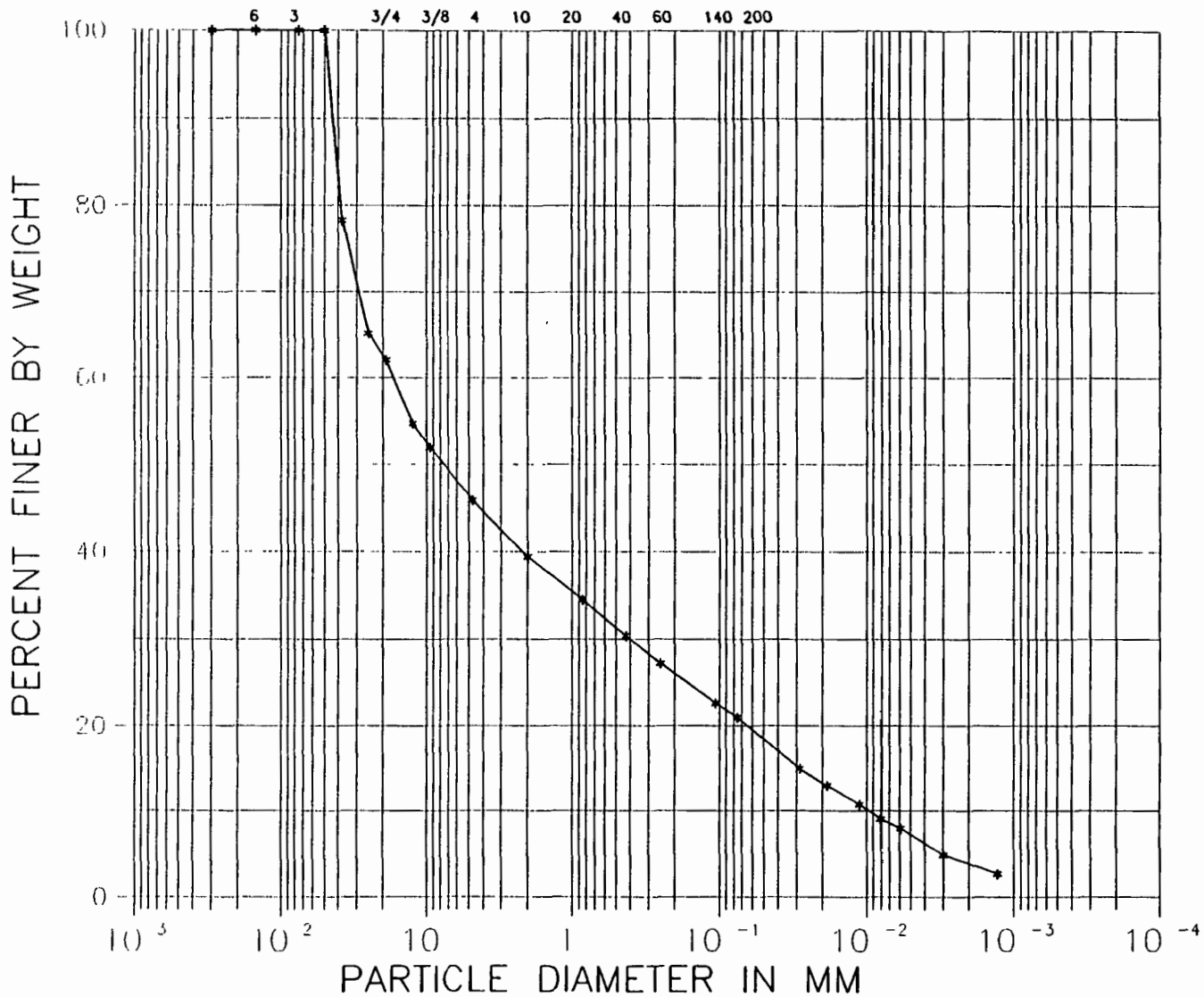
Client BROWN & ROOT
Client Project 0288-CTO-143
Project No. 95307
USCS Classification gc
Soil Description GRAY CLAYEY GRAVEL WITH SAND

Boring No. NA TANK 45
Depth(ft) NA
Sample No. 018 SB-332-2830
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	DB	Date	10-13-95
Client Project	0288-CTO-143	Checked By		Date	10-26-95
Project No.	95307				
Boring No.	NA TANK 45				
Depth(ft.)	NA				
Sample No.	018 SB-332-2830				
Soil Description	GRAY CLAYEY GRAVEL WITH SAND				

Wt. of Total Sample(dry)	923.18 gm.
Wt. of +#200 Sample	729.49 gm.
Wt. of -#200 Sample	193.69 gm.

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)	Percent Retained	Accumulated Percent Retained	Percent Finer
12"	300.00	0.00	0.0	0.0	100.0
6"	150.00	0.00	0.0	0.0	100.0
3"	75.00	0.00	0.0	0.0	100.0
2"	50.00	0.00	0.0	0.0	100.0
1 1/2"	37.50	200.73	21.7	21.7	78.3
1"	25.00	121.11	13.1	34.9	65.1
3/4"	19.00	28.42	3.1	37.9	62.1
1/2"	12.50	67.77	7.3	45.3	54.7
3/8"	9.50	25.25	2.7	48.0	52.0
#4	4.75	55.95	6.1	54.1	45.9
#10	2.00	60.02	6.5	60.6	39.4
#20	0.85	44.77	4.8	65.4	34.6
#40	0.425	38.47	4.2	69.6	30.4
#60	0.250	29.26	3.2	72.8	27.2
#140	0.106	42.28	4.6	77.3	22.7
#200	0.075	15.46	1.7	79.0	21.0
Pan	-	193.69	21.0	100.0	-

Water Content	
Tare No.	1068
Wgt. Tare + WS.	1129.70
Wgt. Tare + DS.	1029.80
Wgt. Tare	106.62
Wgt. Of Water	99.90
Wgt. Of DS.	923.18
% Water	10.8

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	10-13-95
Client Project	0288-CTO-143	Checked By		Date	10-26-95
Project No.	95307				
Boring No.	NA TANK 45				
Depth(ft.)	NA				
Sample No.	018 SB-332-2830				

Soil Sample Weight

Container No.	1090		
Wt. Contain. & Dry Soil	157.47 gm.	K Factor	0.01297
		Composite Correction	6.29
Wt. Contain.	104.88 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	47.59 gm.	% Finer Than No. 200	20.98
Temperature C	23.0		
Specific Gravity	2.70 Assumed		

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	40.5	40.5	34.2	71.2	0.0285	14.9
5		36.0	29.7	61.8	0.0187	13.0
15		31.0	24.7	51.4	0.0112	10.8
31		27.0	20.7	43.1	0.0080	9.0
60		24.5	18.2	37.9	0.0059	7.9
250		17.5	11.2	23.3	0.0030	4.9
1440		12.5	6.2	12.9	0.0013	2.7

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Client	BROWN & ROOT
Client Project	0288-CTO-143
Project No.	95307
Boring No.	NA TANK 45
Depth(ft.)	NA
Sample No.	018 SB-332-2830

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	78.3
25.000	65.1
19.000	62.1
12.500	54.7
9.5000	52.0
4.7500	45.9
2.0000	39.4
0.8500	34.6
0.4250	30.4
0.2500	27.2
0.1060	22.7
0.0750	21.0
0.0285	14.9
0.0187	13.0
0.0112	10.8
0.0080	9.0
0.0059	7.9
0.0030	4.9
0.0013	2.7

SIEVE OPENING (mm)	PERCENT FINER	PERCENT OF EACH COMPONENT		CORRECTED PERCENT OF -2.0 mm MATERIAL FOR USDA DETERMINATION
100.00	100.00			
		GRAVEL	60.58	0.00
2.00	39.42			
		SAND	20.98	53.21
0.05	18.45			
		SILT	14.60	37.04
0.002	3.84			
		CLAY	3.84	9.75

USDA CLASSIFICATION SANDY LOAM

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300 SERIES SOIL BORINGS
(SB-330 - SB-336)
SUMMARY OF ENGINEERING CRITERIA
(TOC, COD, N, SOD, P)

Case No. CTO #143
SDG: 51SB31
CEIMIC CORPORATION

Total Organic Carbon (TOC)
Soil (mg/Kg*) Method 415.1/9060

STATION ID:	45-SB-330-3032
LABORATORY ID:	950773-19

ANALYTE	
Total Organic Carbon	9640
% SOLIDS	86 8

*Reported as dry weight

Case No. CTO #143
SDG: 312628
CEIMIC CORPORATION

Total Organic Carbon (TOC)
Soil (mg/Kg*) Method 415.1/9060

STATION ID:	45-SB-331-2628	45-SB-332-3436
LABORATORY ID.	950793-02	950793-04
ANALYTE		
Total Organic Carbon	8750	13600
% SOLIDS	93.7	82 7

* Reported as dry weight

Case No. CTO #143
SDG: 51SB31
CEIMIC CORPORATION

SOIL WET CHEMISTRY

STATION ID:		45-SB-330-3032	
LABORATORY ID:		950773-19	
ANALYTE	Units		
Chemical Oxygen Demand (COD)	mg/Kg*	520	
Nitrate-Nitrite (as N)	mg/Kg*	2.1	U
Biological Oxygen Demand (BOD)	mg/Kg*	179	
Total Phosphorous (as P)	mg/Kg*	1.4	U
% Solids		86.8	

* Reported as dry weight

Case No. CTO #143
SDG: 312628
CEIMIC CORPORATION

SOIL WET CHEMISTRY

STATION ID:		45-SB-331-2628		45-SB-332-3436	
LABORATORY ID.		950793-02		950793-04	
ANALYTE	Units				
Chemical Oxygen Demand (COD)	mg/Kg*	348		931	
Nitrate-Nitrite (as N)	mg/Kg*	1.1	U	1.2	U
Biological Oxygen Demand (BOD)	mg/Kg*	2160		2510	
Total Phosphorous (as P)	mg/Kg*	1.3	U	1.5	U
% Solids		93.7		82.7	

* Reported as dry weight

300 SERIES SOIL BORINGS
(SB-330 - SB-332)
HETEROTROPHIC PLATE COUNT ANALYSIS

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 25199

We find as follows :

	Sample Identification	
	TANK 45 SB-330	
Lab ID :	2519901	
Client ID :	330-30	Method Blank
Parameter(s)		
Heterotrophic Plate Count, cfu/g	2400	1.0 U

Collected and shipped for analysis. 10/2/95 (RS)

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 25215

We find as follows :

	Sample Identification		
	TANK 45 SB-331	TANK 45 SB 332	
Lab ID :	2521501	2521502	
Client ID :	331-36	332-34	Method Blank
Parameter(s)			
Heterotrophic Plate Count, COL/g	2400	3600	1.00 U

Collected & shipped for analysis: 10/3/95 (4)

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

SURFACE SOIL SAMPLE DATA
(SS-01 - SS-02 @ TANKS 38, 42, 45, 48)
TOTAL PETROLEUM HYDROCARBONS (TPH)
SOIL METHOD EPA 418.1

Case No. CTO #143
SDG: 312628
CEIMIC CORPORATION

Total Petroleum Hydrocarbon (TPH)
Soil (mg/Kg*) Method 418.1

STATION ID:	45-SS-01		45-SS-02		50-SB-337-1315		50-SB-338-0709		45-SS-DUPL-07		50-SB-DUP8	
LABORATORY ID:	950793-12		950793-13		950793-14		950793-15		950793-16		950793-17	
	Field Dup (7)						Field Dup (8)		Field Dup (7)		Field Dup (8)	
ANALYTE												
Total Petroleum Hydrocarbon	34	U	33	U	31	U	970	J	33	U	460	J
% SOLIDS	87		90		96		92		90		94	

* Reported as dry weight

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 083941

Client ID	38-SB-415-1820	38-SS-01-0102	48-SS-01-0102	48-SS-02-0102
Laboratory ID:	951000-15	951000-16	951000-17	951000-18
QC Identifier:				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	39 U	89	37 U	54
% SOLIDS	86	85	89	85
DATE SAMPLED:	12/05/95	12/05/95	12/05/95	12/05/95

* Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418 1
SDG: 083941

Client ID.	38-SS-02-0102
Laboratory ID.	951000-19
QC Identifier:	

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE	
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	41
% SOLIDS.	86
DATE SAMPLED:	12/05/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418.1
SDG· 161214

Client ID:	42-SS-01-0102	42-SS-02-0102	48-SB-421-1719	48-SB-421-0507
Laboratory ID:	951033-04	951033-05	951033-07	951033-08
QC Identifier:				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	39 U	39 U	37 U	45
% SOLIDS:	84	85	89	89
DATE SAMPLED:	12/08/95	12/08/95	12/08/95	12/08/95

*Reported as dry weight

400 SERIES SOIL BORINGS
(SB-400 - SB-424)
TOTAL PETROLEUM HYDROCARBONS (TPH)
EPA SOIL METHOD 418.1

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 083941

Client ID.	48-SB-408-3941	42-SB-407-3032	42-SB-407-3840	48-SB-409-2223
Laboratory ID:	951000-01	951000-02	951000-03	951000-04
QC Identifier:				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	2100	220	4900	810
% SOLIDS:	86	92	83	89
DATE SAMPLED:	11/30/95	11/30/95	11/30/95	12/01/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418.1
SDG· 083941

Client ID·	42-SB-410-1416	48-SB-411-3032	48-SB-412-2122	48-SB-DUPL-02
Laboratory ID:	951000-05	951000-08	951000-09	951000-10
QC Identifier.				Field Duplicate of 48-SB-412-2122

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	36 U	3900	1500	1100
% SOLIDS	92	87	91	90
DATE SAMPLED:	12/01/95	12/04/95	12/04/95	12/04/95

* Reported as dry weight

CTO 143
NETC - NEWPORT, R.I
CEIMIC CORPORATION
METHOD 418.1
SDG: 083941

Client ID.	42-SB-411-3941	48-SB-414-1618	42-SB-413-3032	42-SB-413-3537
Laboratory ID:	951000-11	951000-12	951000-13	951000-14
QC Identifier:				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	1800	37 U	38 U	38 U
% SOLIDS	93	90	88	88
DATE SAMPLED:	12/04/95	12/05/95	12/05/95	12/05/95

* Reported as dry weight

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 083941

Client ID:	38-SB-415-1820	38-SS-01-0102	48-SS-01-0102	48-SS-02-0102
Laboratory ID:	951000-15	951000-16	951000-17	951000-18
QC Identifier				
WET CHEMISTRY ANALYSIS SOIL (mg/KG*)				
ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	39 U	89	37 U	54
% SOLIDS.	86	85	89	85
DATE SAMPLED:	12/05/95	12/05/95	12/05/95	12/05/95

* Reported as dry weight

CTO 143
NETC - NEWPORT, R I
CEIMIC CORPORATION
METHOD 418.1
SDG 083941

Client ID	38-SS-02-0102
Laboratory ID:	951000-19
QC Identifier:	

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE	
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	41
% SOLIDS:	86
DATE SAMPLED:	12/05/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418 1
SDG: 161214

Client ID.	38-SB-416-1214	38-SB-417-1416	38-SB-416-3032	38-SB-417-3234
Laboratory ID:	951023-01	951023-02	951023-03	951023-04
QC Identifier.				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	39 U	38 U	150	940 J
% SOLIDS:	85	87	90	88
DATE SAMPLED:	12/06/95	12/06/95	12/06/95	12/06/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418 1
SDG. 161214

Client ID.	38-SB-DUPL-03	38-SB-417-3840	38-SB-416-3436	38-SB-418-4244
Laboratory ID:	951023-05	951023-06	951023-07	951023-08
QC Identifier:	Field Duplicate of 38-SB-417-3234			

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	2300 J	600	2100	160
% SOLIDS:	83	87	89	89
DATE SAMPLED:	12/06/95	12/06/95	12/06/95	12/07/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R.I
CEIMIC CORPORATION
METHOD 418 1
SDG: 161214

Client ID:	38-SB-418-1618	38-SB-418-3638	48-SB-419-1012	48-SB-419-2022
Laboratory ID:	951023-09	951023-10	951023-13	951023-14
QC Identifier:				
WET CHEMISTRY ANALYSIS SOIL (mg/KG*)				
ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	39 U	130	36 U	39 U
% SOLIDS:	85	84	91	86
DATE SAMPLED.	12/07/95	12/07/95	12/08/95	12/08/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418 1
SDG: 161214

Client ID:	48-SB-420-0507	48-SB-DUPL-04	48-SB-420-1819
Laboratory ID.	951023-15	951023-16	951023-17
QC Identifier:		Field Duplicate of 48-SB-420-0507	

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE			
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	41 U	40 U	38 U
% SOLIDS:	81	82	86
DATE SAMPLED:	12/08/95	12/08/95	12/08/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 161214

Client ID.	42-SS-01-0102	42-SS-02-0102	48-SB-421-1719	48-SB-421-0507
Laboratory ID.	951033-04	951033-05	951033-07	951033-08
QC Identifier:				
WET CHEMISTRY ANALYSIS SOIL (mg/KG*)				
ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	39 U	39 U	37 U	45
% SOLIDS:	84	85	89	89
DATE SAMPLED.	12/08/95	12/08/95	12/08/95	12/08/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG· 161214

Client ID:	48-SB-422-1214	48-SB-422-1618	48-SB-422-2426	48-SB-423-1012
Laboratory ID:	951033-09	951033-10	951033-11	951033-12
QC Identifier:				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	38 U	2000	2100	36 U
% SOLIDS.	87	86	85	93
DATE SAMPLED:	12/11/95	12/11/95	12/11/95	12/12/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 161214

Client ID:	48-SB-DUPL-05	48-SB-423-2022	48-SB-DUPL-06
Laboratory ID:	951033-13	951033-14	951033-15
QC Identifier:	Field Duplicate of 48-SB-423-1012		Field Duplicate of 48-SB-423-2022

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE			
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	36 U	1700	2400
% SOLIDS:	91	90	87
DATE SAMPLED:	12/12/95	12/12/95	12/12/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 48SB42

Client ID 48-SB-424-1517
Laboratory ID: 951060-01

QC Identifier:

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE	
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	37 U
% SOLIDS:	89
DATE SAMPLED:	12/13/95

*Reported as dry weight

CTO 143
NETC - NEWPORT, R I
CEIMIC CORPORATION
METHOD 418.1
SDG: 52SB40

Client ID.	52-SB-400-1012	52-SB-402-0002	52-SB-403-1012	52-SB-405-1416
Laboratory ID.	950986-01	950986-02	950986-03	950986-04
QC Identifier.				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	38 U	38 U	38 U	37 U
% SOLIDS	87	87	87	90
DATE SAMPLED:	11/28/95	11/28/95	11/28/95	11/28/95

* Reported as dry weight

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 52SB40

Client ID	52-SB-406-1416	48-SB-401-1113	48-SB-401-1719	48-SB-401-3335
Laboratory ID:	950986-05	950986-06	950986-07	950986-08
QC Identifier:				

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	37 U	38 U	2700	1400
% SOLIDS:	91	87	84	84
DATE SAMPLED:	11/29/95	11/28/95	11/28/95	11/28/95

* Reported as dry weight

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 52SB40

Client ID	48-SB-404-1719	48-SB-404-3537	48-SB-408-2123	48-SB-DUPL-01
Laboratory ID:	950986-09	950986-10	950986-11	950986-12
QC Identifier:				Field Duplicate of 48-SB-408-2123

WET CHEMISTRY ANALYSIS SOIL (mg/KG*)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	2800	4600	1200	1800
% SOLIDS:	87	87	82	89
DATE SAMPLED:	11/28/95	11/29/95	11/29/95	11/29/95

* Reported as dry weight

400 SERIES MONITORING WELLS
(MW-400 - MW-425)
TOTAL PETROLEUM HYDROCARBONS (TPH)
AQUEOUS EPA METHOD 418.1

TOTAL PETROLEUM HYDROCARBON

BY IR

EPA Method 418.1

Client: Brown & Root Environmental

Project No.: 960049 Date Samples Received: 1/23/96

Concentration in: mg/L (ppm) Date Analyzed: 1/26/96

Client ID	Laboratory ID	Sample Concentration	Method Reporting Limit
42-RINS-01	960049-01	ND	1
42-GW-413	960049-02	ND	1
42-GW-411	960049-03	1.3	1
42-GW-407	960049-04	10	5
<u>QA/QC</u>			
Method Blank	I0124-B1	ND	1
Laboratory Control Spike	I0124-LCS1	79% Recovery	
Independent Calibration Standard	I0126-ICS1	88% Recovery	
	I0126-ICS2	78% Recovery	

ND = Not detected

Report d by: MZ Approved by: HL

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418.1
SDG· 161214

Client ID	RINS-03	RINS-04	48-GW-401	48-GW-404
Laboratory ID.	951023-11	951023-12	951023-18	951023-19
QC Identifier:	RINSATE BLANK	RINSATE BLANK		

WET CHEMISTRY ANALYSIS AQUEOUS (mg/L)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	1 U	1 U	18	87
DATE SAMPLED:	12/07/95	12/07/95	12/08/95	12/08/95

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418 1
SDG: 161214

Client ID: 48-GW-408
Laboratory ID: 951023-20

QC Identifier:

WET CHEMISTRY ANALYSIS AQUEOUS (mg/L)

ANALYTE	
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	3.9
DATE SAMPLED	12/08/95

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 161214

Client ID:	48-GW-DUPL-01	48-GW-412	48-GW-RINS-01	48-GW-409
Laboratory ID:	951033-01	951033-02	951033-03	951033-06
QC Identifier:	Field Duplicate of 48-GW-412		RINSATE BLANK	

WET CHEMISTRY ANALYSIS AQUEOUS (mg/L)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	15	12	1 U	4.7
DATE SAMPLED.	12/08/95	12/08/95	12/08/95	12/08/95

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418.1
SDG. 161214

Client ID:	48-GW-421	48-SB-RINS-05	48-GW-RINS-02
Laboratory ID:	951033-16	951033-17	951033-18
QC Identifier.		RINSATE BLANK	RINSATE BLANK

WET CHEMISTRY ANALYSIS AQUEOUS (mg/L)

ANALYTE			
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	1 U	1 U	1 U
DATE SAMPLED:	12/12/95	12/12/95	12/12/95

CTO 143
NETC - NEWPORT, R.I.
CEIMIC CORPORATION
METHOD 418 1
SDG: 48SB42

Client ID:	38-GW-416	38-GW-DUPL-02	38-GW-417	38-GW-418
Laboratory ID	951060-02	951060-03	951060-04	951060-05
QC Identifier:		FIELD DUP OF 38-GW-416		

WET CHEMISTRY ANALYSIS AQUEOUS (mg/L)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	19 J	5.4 J	24	1.6
DATE SAMPLED:	12/13/95	12/13/95	12/13/95	12/15/95

CTO 143
NETC - NEWPORT, R.I
CEIMIC CORPORATION
METHOD 418.1
SDG: 48SB42

Client ID:	48-GW-422	48-SB-RINS-06	48-GW-RINS-03	48-GW-RINS-04
Laboratory ID:	951060-06	951060-07	951060-08	951060-09
QC Identifier.		RINSATE BLANK	RINSATE BLANK	RINSATE BLANK

WET CHEMISTRY ANALYSIS AQUEOUS (mg/L)

ANALYTE				
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	3.3	1 U	1 U	1 U
DATE SAMPLED.	12/15/95	12/15/95	12/15/95	12/19/95

CTO 143
NETC - NEWPORT, R I.
CEIMIC CORPORATION
METHOD 418.1
SDG: 48SB42

Client ID.	48-GW-425	48-GW-RINS-05	48-GW-424
Laboratory ID:	951060-10	951060-11	951060-12
QC Identifier.		RINSATE BLANK	

WET CHEMISTRY ANALYSIS AQUEOUS (mg/L)

ANALYTE			
TOTAL RECOVERABLE PETROLEUM HYDROCARBON	1 U	1 U	440
DATE SAMPLED:	12/19/95	12/19/95	12/19/95

400 SERIES SOIL BORINGS
(SB-400 - SB-424)
PERCENT MOISTURE AND GRAIN SIZE ANALYSES

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MOISTURE CONTENT DETERMINATION

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	12-28-95
Project No.	95307-01				

MOISTURE CONTENT

Boring No.	TF4+5SI	TF4+5SI	TF4+5SI	TF4+5SI	TF4+5SI
Depth(ft).	12/6	12/6	12/6	12/6	11/28
Sample No.	38-SB-416-2224	38-SB-416-3438	38-SB-417-1618	38-SB-417-3438	48-SB-401-1315
Tare Number	1065	1328	1644	887	1024
Wt. Tare & WS(gm.)	1447.60	719.50	1342.70	1853.60	1407.90
Wt. Tare & DS(gm.)	1282.80	684.20	1204.50	1598.50	1259.10
Wt. Water(gm.)	164.80	35.30	138.20	255.10	148.80
Wt. Tare(gm.)	106.46	104.05	104.49	103.58	100.23
Wt. DS(gm.)	1176.34	580.15	1100.01	1494.92	1158.87
Moisture Content(%)	14.0	6.1	12.6	17.1	12.8

Boring No.	TF4+5SI	TF4+5SI	TF4+5SI	TF4+5SI	TF4+5SI
Depth(ft).	11/28	11/29	11/30	11/30	11/30
Sample No.	48-SB-401-2527	48-SB-404-2931	48-SB-408-4143	48-SB-407-2830	42-SB-407-3840
Tare Number	1058	843	1092	1303	841
Wt. Tare & WS(gm.)	1356.30	1288.10	589.40	1701.30	1373.80
Wt. Tare & DS(gm.)	1213.80	1153.80	563.60	1570.30	1222.30
Wt. Water(gm.)	142.50	134.30	25.80	131.00	151.50
Wt. Tare(gm.)	104.57	98.82	106.05	104.80	93.56
Wt. DS(gm.)	1109.23	1054.98	457.55	1465.50	1128.74
Moisture Content(%)	12.8	12.7	5.6	8.9	13.4

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MOISTURE CONTENT DETERMINATION

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	12-28-95
Project No.	95307-01				

MOISTURE CONTENT

Boring No.	TF4+5SI	TF4+5SI
Depth(ft).	12/4	12/4
Sample No.	42-SB-411-3537	42-SB-411-3941
Tare Number	1316	1321
Wt. Tare & WS(gm.)	1467.70	1465.90
Wt. Tare & DS(gm.)	1353.90	1349.20
Wt. Water(gm.)	113.80	116.70
Wt. Tare(gm.)	104.98	103.84
Wt. DS(gm.)	1248.92	1245.36
Moisture Content(%)	9.1	9.4

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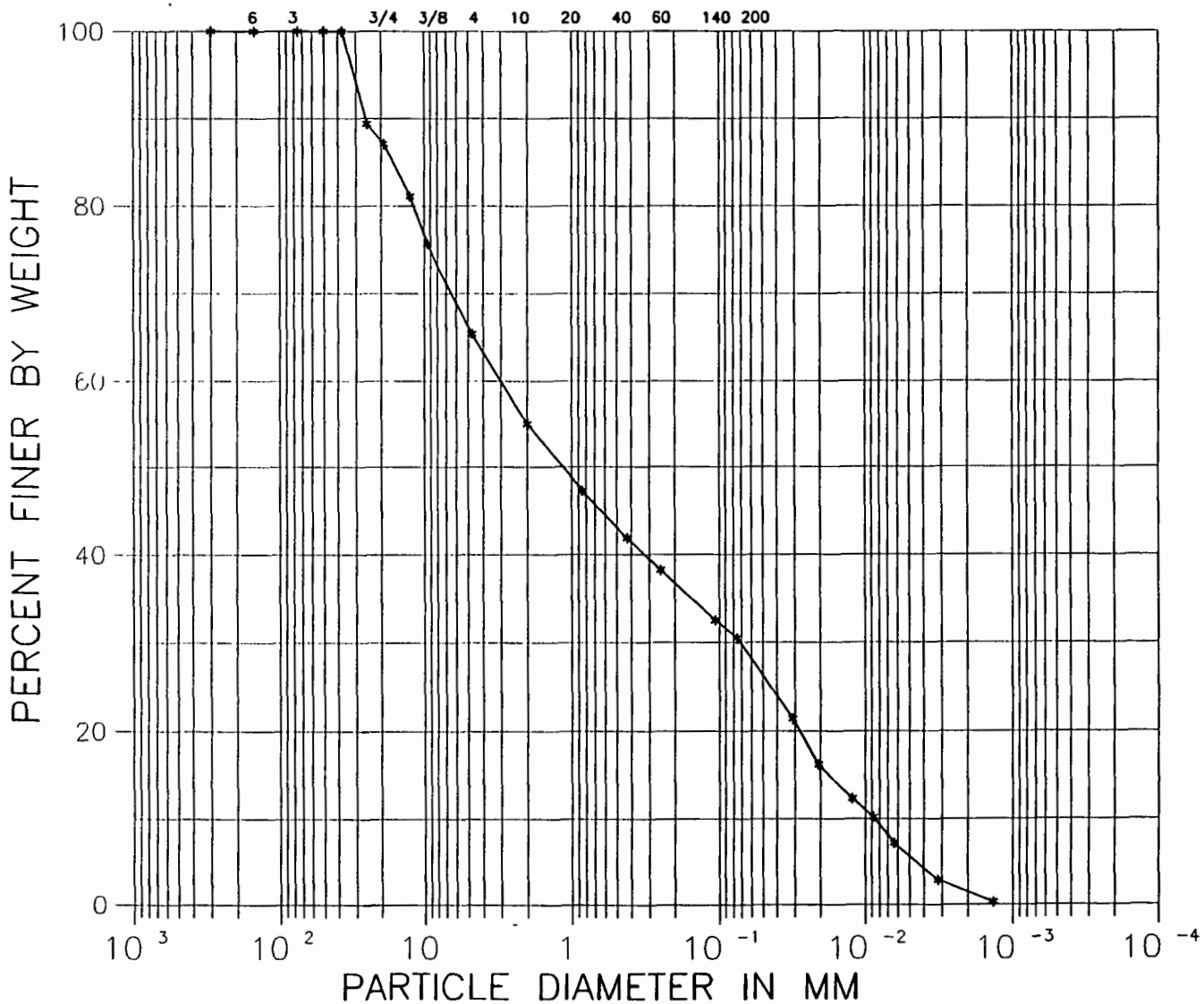
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification sc
Soil Description BROWN CLAYEY SAND WITH GRAVEL

Boring No. TF 4+5 S1
Depth(ft) 12/6
Sample No. 38-SB-416-2224
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/6				
Sample No.	38-SB-416-2224				
Soil Description	BROWN CLAYEY SAND WITH GRAVEL				

Wt. of Total Sample(dry) (2)	1176.3 gm.	Wt of Grand Total (1)	1613.73
Wt. of +#200 Sample	765.0 gm.		
Wt. of -#200 Sample	411.4 gm.	J Factor	0.8707
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00	+ 3/4"	0.00	0.00	100.00	**100.0**
1"	25.0	171.78	SIEVE	10.64	10.64	89.36	**89.4**
3/4"	19.0	36.80	ANALYSIS	2.28	12.93	87.07	**87.1**
1/2"	12.5	80.45	- 3/4"	6.84	6.84	93.16	**81.1**
3/8"	9.5	73.58	SIEVE	6.25	13.09	86.91	**75.7**
#4	4.75	138.52	ANALYSIS	11.78	24.87	75.13	**65.4**
#10	2.00	140.04		11.90	36.77	63.23	**55.1**
#20	0.85	104.36		8.87	45.65	54.35	**47.3**
#40	0.425	73.65		6.26	51.91	48.09	**41.9**
#60	0.250	49.09		4.17	56.08	43.92	**38.2**
#140	0.106	77.53		6.59	62.67	37.33	**32.5**
#200	0.075	27.73		2.36	65.03	34.97	**30.5**
Pan	-	411.39		34.97	100.00	-	-

Water Content

Tare No.	1065
Wgt. Tare + WS.	1447.60
Wgt. Tare + DS.	1282.80
Wgt. Tare	106.46
Wgt. Of Water	164.80
Wgt. Of DS.	1176.34
% Water	14.0

TOTAL WET WGHT. -3/4 SIEVE
1602

TOTAL DRY WGHT. -3/4 SIEVE
1405

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines th two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/6				
Sample No.	38-SB-416-2224				

Soil Sample Weight

Container No.	1685		
Wt. Contain. & Dry Soil	146.51 gm.	K Factor	0.01324
		Composite Correction	7.12
Wt. Contain.	106.46 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	35.05 gm.	% Finer Than No. 200	30.45

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	30.0	32.0	24.9	70.3	0.0311	21.4
5		26.0	18.9	53.3	0.0205	16.2
15		21.5	14.4	40.6	0.0122	12.4
30		19.0	11.9	33.6	0.0088	10.2
60		15.5	8.4	23.7	0.0063	7.2
250		10.5	3.4	9.6	0.0032	2.9
1440		7.5	0.4	1.1	0.0014	0.3

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	12/6
Sample No.	38-SB-416-2224

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	100.0
25.000	89.4
19.000	87.1
12.500	81.1
9.5000	75.7
4.7500	65.4
2.0000	55.1
0.8500	47.3
0.4250	41.9
0.2500	38.2
0.1060	32.5
0.0750	30.5
0.0311	21.4
0.0205	16.2
0.0122	12.4
0.0088	10.2
0.0063	7.2
0.0032	2.9
0.0014	0.3

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	55.05
0.05	26.28
0.002	1.50

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	44.95	0.00
SAND	28.77	52.26
SILT	24.78	45.01
CLAY	1.50	2.72

USDA CLASSIFICATION SANDY LOAM

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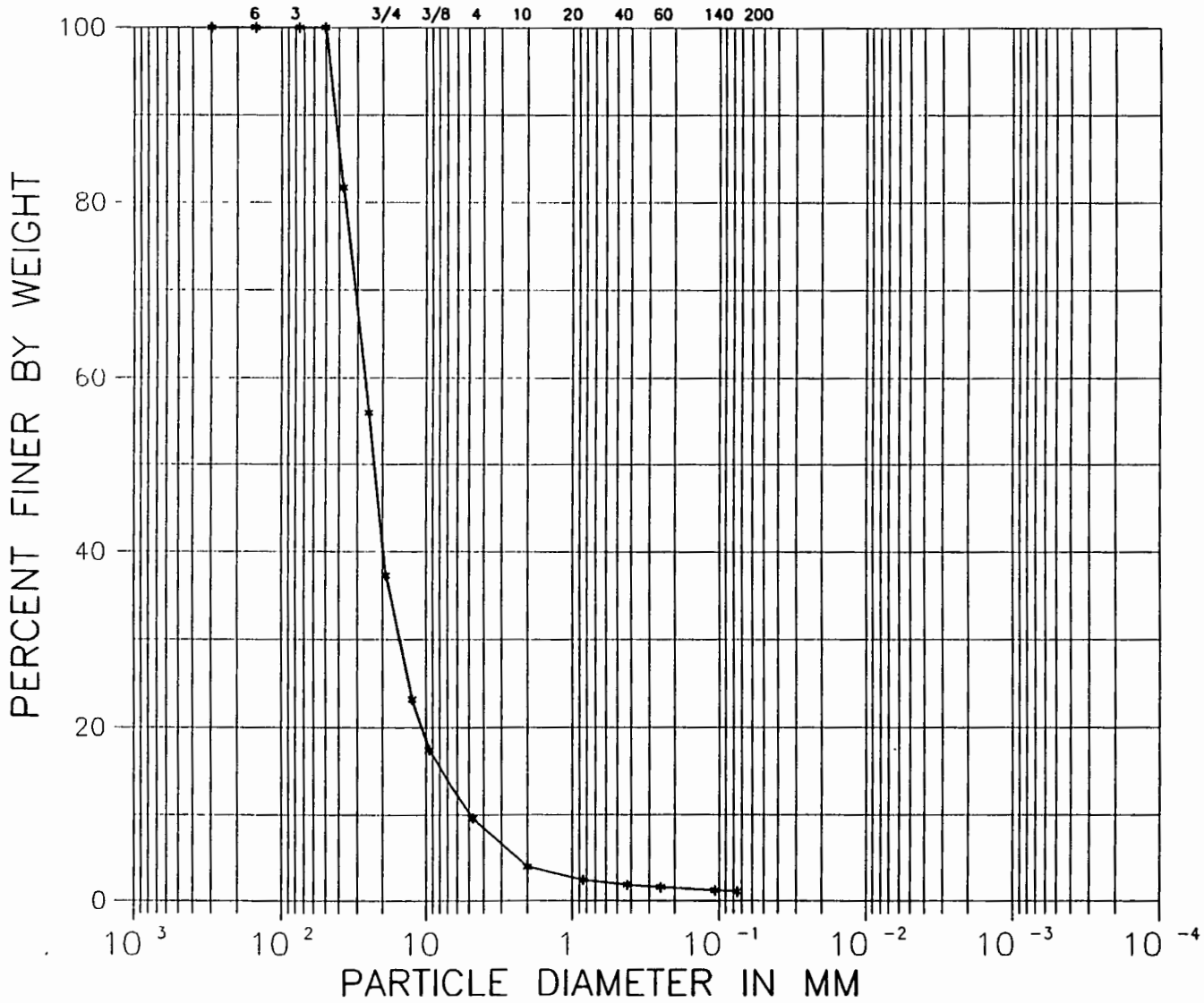
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gw
Soil Description BROWN WELL-GRADED GRAVEL

Boring No. TF 4+5 S1
Depth(ft) 12/6
Sample No. 38-SB-416-3438
USDA Classification NA

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/6				
Sample No.	38-SB-416-3438				
Soil Description	BROWN WELL-GRADED GRAVEL				

Wt. of Total Sample(dry) (2)	580.2 gm.	Wt of Grand Total (1)	1614.51
Wt. of +#200 Sample	563.6 gm.		
Wt. of -#200 Sample	16.6 gm.	J Factor	0.3731
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Perc nt Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	295.66	+ 3/4"	18.31	18.31	81.69	**81.7**
1"	25.0	414.90	SIEVE	25.70	44.01	55.99	**56.0**
3/4"	19.0	301.60	ANALYSIS	18.68	62.69	37.31	**37.3**
1/2"	12.5	219.16	- 3/4"	37.78	37.78	62.22	**23.2**
3/8"	9.5	89.55	SIEVE	15.44	53.21	46.79	**17.5**
#4	4.75	121.94	ANALYSIS	21.02	74.23	25.77	**9.6**
#10	2.00	87.71		15.12	89.35	10.65	**4.0**
#20	0.85	24.54		4.23	93.58	6.42	**2.4**
#40	0.425	8.45		1.46	95.04	4.96	**1.9**
#60	0.250	4.27		0.74	95.77	4.23	**1.6**
#140	0.106	5.92		1.02	96.79	3.21	**1.2**
#200	0.075	2.05		0.35	97.15	2.85	**1.1**
Pan	-	16.56		2.85	100.00	-	-

Water Content		
Tare No.	1328	TOTAL WET WGHT. -3/4 SIEVE
Wgt. Tare + WS.	719.50	639
Wgt. Tare + DS.	684.20	
Wgt. Tare	104.05	TOTAL DRY WGHT. -3/4 SIEVE
Wgt. Of Water	35.30	602
Wgt. Of DS.	580.15	
% Water	6.1	

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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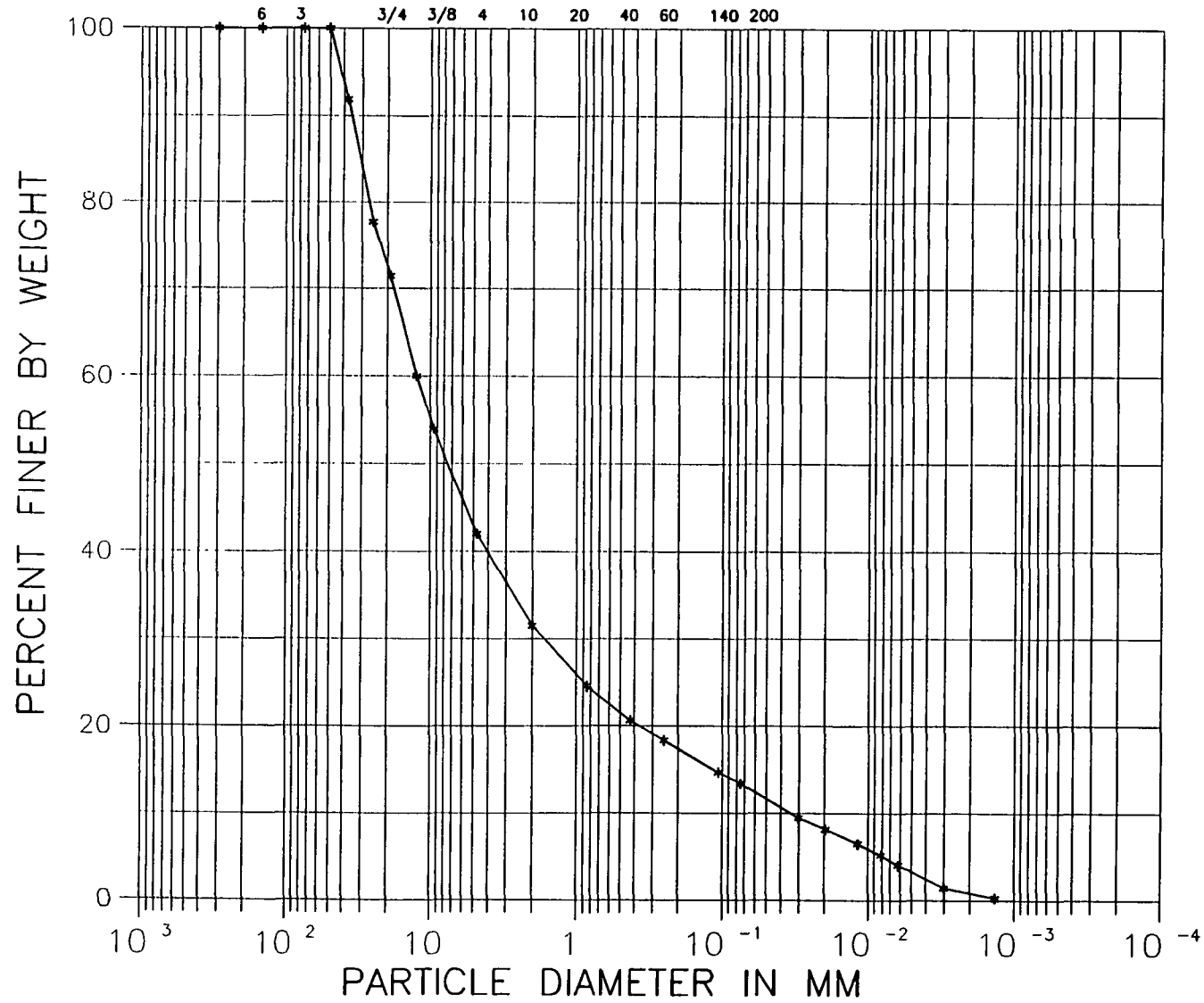
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gc
Soil Description BROWN CLAYEY GRAVEL, WITH SAND

Boring No. TF 4+5 S1
Depth(ft) 12/6
Sample No. 38-SB-417-1618
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/6				
Sample No.	38-SB-417-1618				
Soil Description	BROWN CLAYEY GRAVEL WITH SAND				

Wt. of Total Sample(dry) (2)	1100.0 gm.	Wt of Grand Total (1)	1565.79
Wt. of +#200 Sample	893.0 gm.		
Wt. of -#200 Sample	207.0 gm.	J Factor	0.7143
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final P rcent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	126.89	+ 3/4"	8.10	8.10	91.90	**91.9**
1"	25.0	222.04	SIEVE	14.18	22.28	77.72	**77.7**
3/4"	19.0	98.38	ANALYSIS	6.28	28.57	71.43	**71.4**
1/2"	12.5	175.66	- 3/4"	15.97	15.97	84.03	**60.0**
3/8"	9.5	93.58	SIEVE	8.51	24.48	75.52	**53.9**
#4	4.75	183.64	ANALYSIS	16.69	41.17	58.83	**42.0**
#10	2.00	161.90		14.72	55.89	44.11	**31.5**
#20	0.85	107.39		9.76	65.65	34.35	**24.5**
#40	0.425	60.34		5.49	71.14	28.86	**20.6**
#60	0.250	35.11		3.19	74.33	25.67	**18.3**
#140	0.106	56.31		5.12	79.45	20.55	**14.7**
#200	0.075	19.11		1.74	81.18	18.82	**13.4**
Pan	-	206.97		18.82	100.00	-	-

Water Content

Tare No.	1644
Wgt. Tare + WS.	1342.70
Wgt. Tare + DS.	1204.50
Wgt. Tare	104.49
Wgt. Of Water	138.20
Wgt. Of DS.	1100.01
% Water	12.6

TOTAL WET WGHT. -3/4 SIEVE
1259

TOTAL DRY WGHT. -3/4 SIEVE
1118

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/6				
Sample No.	38-SB-417-1618				

Soil Sample Weight

Container No.	1666		
Wt. Contain. & Dry Soil	147.27 gm.	K Factor	0.01324
Wt. Contain.	101.71 gm.	Composite Correction	7.12
Wt. Dispers.	5.00 gm.	a Factor	0.99
Wt. Dry Soil	40.56 gm.	% Finer Than No. 200	13.44

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	35.0	36.0	28.9	70.5	0.0302	9.5
5		32.0	24.9	60.7	0.0197	8.2
15		27.0	19.9	48.5	0.0118	6.5
33		23.0	15.9	38.8	0.0082	5.2
60		19.5	12.4	30.2	0.0062	4.1
278		11.5	4.4	10.7	0.0030	1.4
1440		8.0	0.9	2.2	0.0014	0.3

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	12/6
Sample No.	38-SB-417-1618

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	91.9
25.000	77.7
19.000	71.4
12.500	60.0
9.5000	53.9
4.7500	42.0
2.0000	31.5
0.8500	24.5
0.4250	20.6
0.2500	18.3
0.1060	14.7
0.0750	13.4
0.0302	9.5
0.0197	8.2
0.0118	6.5
0.0082	5.2
0.0062	4.1
0.0030	1.4
0.0014	0.3

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	31.51
0.05	11.67
0.002	0.85

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	68.49	0.00
SAND	19.84	62.95
SILT	10.82	34.35
CLAY	0.85	2.70

USDA CLASSIFICATION SANDY LOAM

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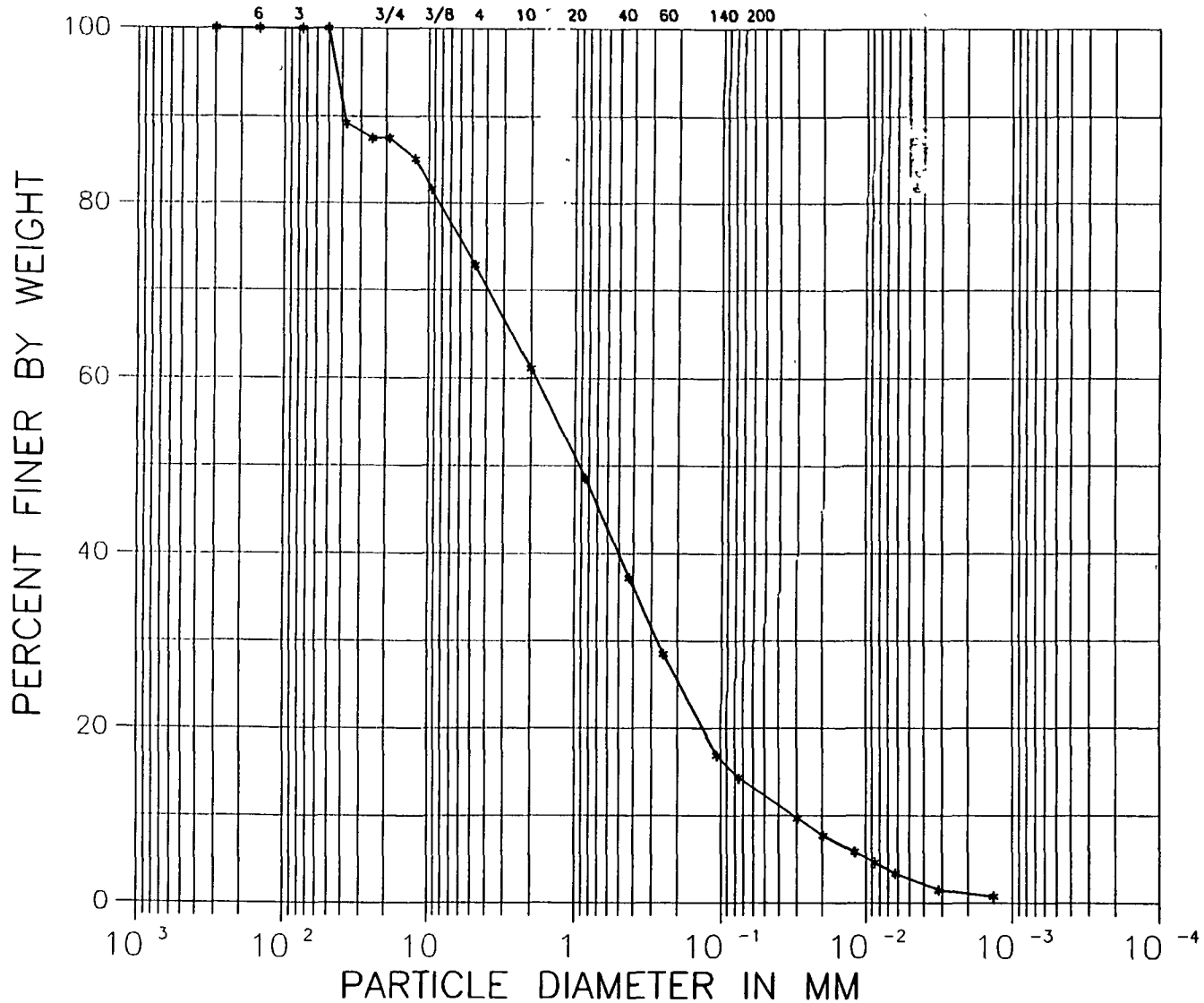
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification sc
Soil Description BROWN CLAYEY SAND WITH GRAVEL

Boring No. TF 4+5 S1
Depth(ft) 12/6
Sample No. 38--SB-417-3438
USDA Classification LOAMY SAND

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/6				
Sample No.	38-SB-417-3438				
Soil Description	BROWN CLAYEY SAND WITH GRAVEL				

Wt. of Total Sample(dry) (2)	1494.9 gm.	Wt of Grand Total (1)	2335.75
Wt. of +#200 Sample	1250.4 gm.		
Wt. of -#200 Sample	244.5 gm.	J Factor	0.8752
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final P rcent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	252.07	+ 3/4"	10.79	10.79	89.21	**89.2**
1"	25.0	39.51	SIEVE	1.69	12.48	87.52	**87.5**
3/4"	19.0	0.00	ANALYSIS	0.00	12.48	87.52	**87.5**
1/2"	12.5	41.77	- 3/4"	2.79	2.79	97.21	**85.1**
3/8"	9.5	59.19	SIEVE	3.96	6.75	93.25	**81.6**
#4	4.75	148.94	ANALYSIS	9.96	16.72	83.28	**72.9**
#10	2.00	200.91		13.44	30.16	69.84	**61.1**
#20	0.85	214.78		14.37	44.52	55.48	**48.6**
#40	0.425	193.68		12.96	57.48	42.52	**37.2**
#60	0.250	148.90		9.96	67.44	32.56	**28.5**
#140	0.106	198.65		13.29	80.73	19.27	**16.9**
#200	0.075	43.60		2.92	83.64	16.36	**14.3**
Pan	-	244.50		16.36	100.00	-	-

Water Content		
Tare No.	887	TOTAL WET WGHT. -3/4 SIEVE
Wgt. Tare + WS.	1853.60	2393
Wgt. Tare + DS.	1598.50	
Wgt. Tare	103.58	TOTAL DRY WGHT. -3/4 SIEVE
Wgt. Of Water	255.10	2044
Wgt. Of DS.	1494.92	
% Water	17.1	

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/6				
Sample No.	38-SB-417-3438				

Soil Sample Weight			
Container No.	1019		
Wt. Contain.		K Factor	0.01324
& Dry Soil	153.89 gm.	Composite Correction	7.12
Wt. Contain.	103.08 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	45.81 gm.	% Finer Than No. 200	14.31

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	37.0	38.5	31.4	67.8	0.0296	9.7
5		32.0	24.9	53.8	0.0197	7.7
15		26.0	18.9	40.8	0.0119	5.8
30		22.0	14.9	32.2	0.0086	4.6
60		18.0	10.9	23.5	0.0062	3.4
250		12.0	4.9	10.5	0.0032	1.5
1440		9.5	2.4	5.1	0.0013	0.7

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	12/6
Sample No.	38-SB-417-3438

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	89.2
25.000	87.5
19.000	87.5
12.500	85.1
9.5000	81.6
4.7500	72.9
2.0000	61.1
0.8500	48.6
0.4250	37.2
0.2500	28.5
0.1060	16.9
0.0750	14.3
0.0296	9.7
0.0197	7.7
0.0119	5.8
0.0086	4.6
0.0062	3.4
0.0032	1.5
0.0013	0.7

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	61.13
0.05	12.31
0.002	1.10

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	38.87	0.00
SAND	48.82	79.87
SILT	11.21	18.34
CLAY	1.10	1.79

USDA CLASSIFICATION LOAMY SAND

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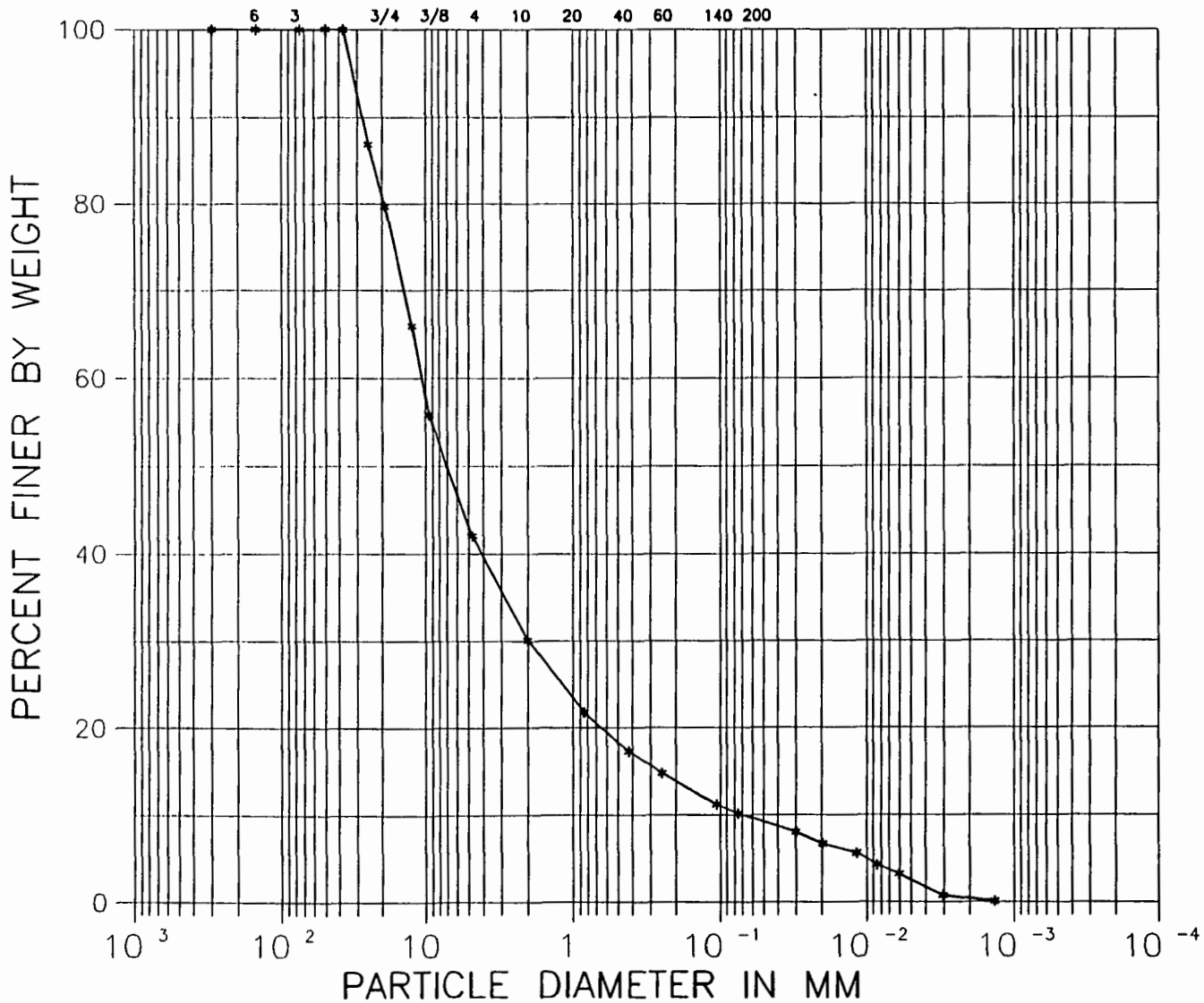
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gp-gc
Soil Description BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND

Boring No. TF 4+5 S1
Depth(ft) 11/30
Sample No. 42-SB-407-2830
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/30				
Sample No.	42-SB-407-2830				
Soil Description	BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND				

Wt. of Total Sample(dry) (2)	1465.5 gm.	Wt of Grand Total (1)	2555.42
Wt. of +#200 Sample	1278.9 gm.		
Wt. of -#200 Sample	186.6 gm.	J Factor	0.7971
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00	+ 3/4"	0.00	0.00	100.00	**100.0**
1"	25.0	335.60	SIEVE	13.13	13.13	86.87	**86.9**
3/4"	19.0	182.90	ANALYSIS	7.16	20.29	79.71	**79.7**
1/2"	12.5	253.27	- 3/4"	17.28	17.28	82.72	**65.9**
3/8"	9.5	185.59	SIEVE	12.66	29.95	70.05	**55.8**
#4	4.75	253.52	ANALYSIS	17.30	47.25	52.75	**42.1**
#10	2.00	219.85		15.00	62.25	37.75	**30.1**
#20	0.85	152.90		10.43	72.68	27.32	**21.8**
#40	0.425	82.87		5.65	78.34	21.66	**17.3**
#60	0.250	44.51		3.04	81.37	18.63	**14.8**
#140	0.106	66.83		4.56	85.93	14.07	**11.2**
#200	0.075	19.57		1.34	87.27	12.73	**10.1**
Pan	-	186.59		12.73	100.00	-	-

Water Content		
Tare No.	1303	TOTAL WET WGHT. -3/4 SIEVE
Wgt. Tare + WS.	1701.30	2219
Wgt. Tare + DS.	1570.30	
Wgt. Tare	104.80	TOTAL DRY WGHT. -3/4 SIEVE
Wgt. Of Water	131.00	2037
Wgt. Of DS.	1465.50	
% Water	8.9	

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/30				
Sample No.	42-SB-407-2830				

Soil Sample Weight			
Container No.	1665		
Wt. Contain.		K Factor	0.01324
& Dry Soil	143.70 gm.	Composite Correction	7.12
Wt. Contain.	101.32 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	37.38 gm.	% Finer Than No. 200	10.15

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	34.5	37.0	29.9	79.1	0.0299	8.0
5		32.0	24.9	65.9	0.0197	6.7
15		28.0	20.9	55.3	0.0117	5.6
30		23.0	15.9	42.1	0.0086	4.3
63		19.0	11.9	31.5	0.0061	3.2
275		10.0	2.9	7.6	0.0031	0.8
1440		7.5	0.4	1.0	0.0014	0.1

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	11/30
Sample No.	42-SB-407-2830

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	100.0
25.000	86.9
19.000	79.7
12.500	65.9
9.5000	55.8
4.7500	42.1
2.0000	30.1
0.8500	21.8
0.4250	17.3
0.2500	14.8
0.1060	11.2
0.0750	10.1
0.0299	8.0
0.0197	6.7
0.0117	5.6
0.0086	4.3
0.0061	3.2
0.0031	0.8
0.0014	0.1

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	30.09
0.05	9.21
0.002	0.42

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	69.91	0.00
SAND	20.88	69.38
SILT	8.79	29.21
CLAY	0.42	1.41

USDA CLASSIFICATION SANDY LOAM

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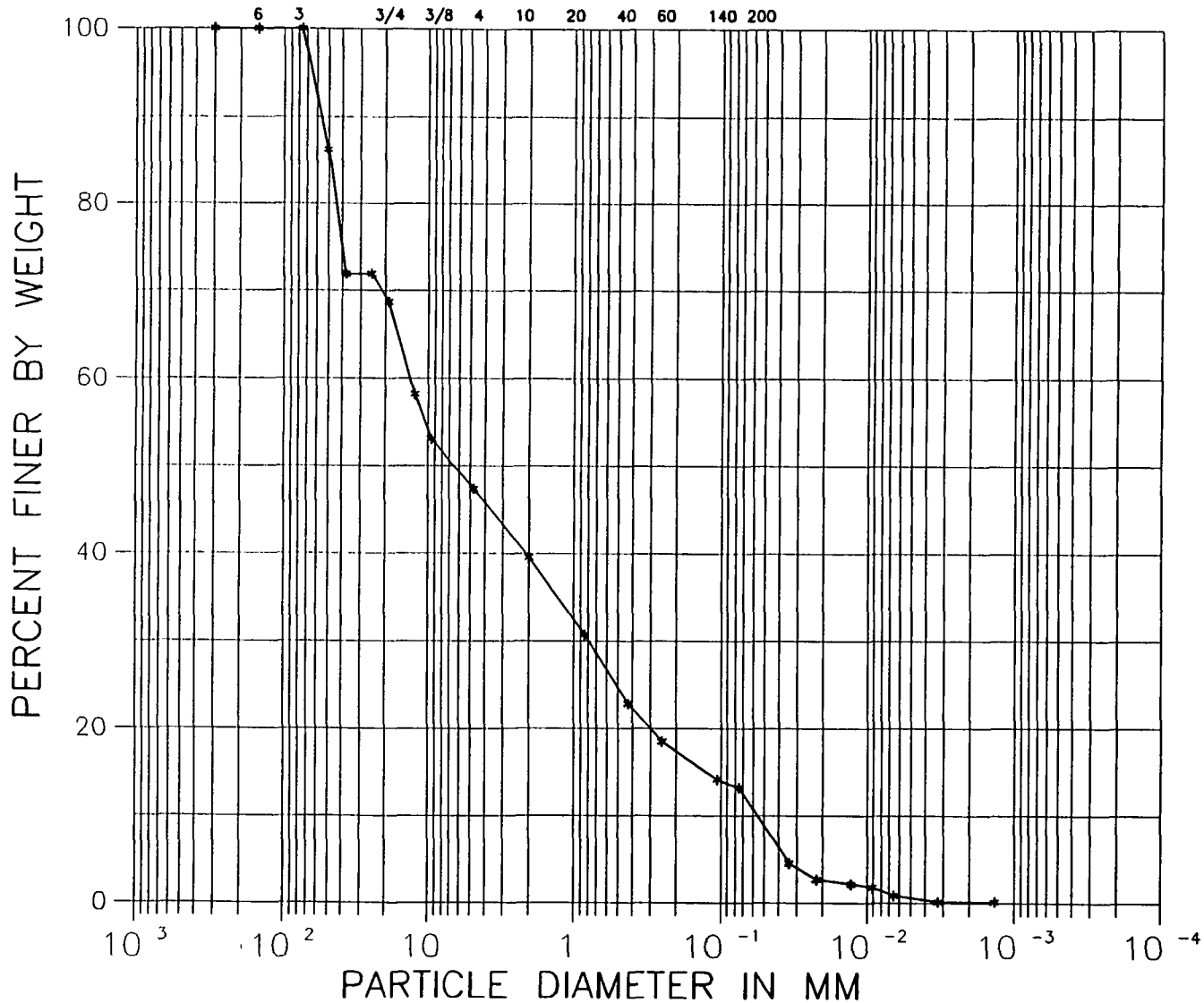
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gc
Soil Description BROWN CLAYEY GRAVEL WITH SAND

Boring No. TF 4+5 S1
Depth(ft) 11/30
Sample No. 42-SB-407-3840
USDA Classification LOAMY SAND

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/30				
Sample No.	42-SB-407-3840				
Soil Description	BROWN CLAYEY GRAVEL WITH SAND				

Wt. of Total Sample(dry) (2)	1128.7 gm.	Wt of Grand Total (1)	1656.64
Wt. of +#200 Sample	911.2 gm.		
Wt. of -#200 Sample	217.6 gm.	J Factor	0.6871
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	228.30		13.78	13.78	86.22	**86.2**
1 1/2"	37.5	237.71	+ 3/4"	14.35	28.13	71.87	**71.9**
1"	25.0	0.00	SIEVE	0.00	28.13	71.87	**71.9**
3/4"	19.0	52.40	ANALYSIS	3.16	31.29	68.71	**68.7**
1/2"	12.5	172.69	- 3/4"	15.30	15.30	84.70	**58.2**
3/8"	9.5	84.24	SIEVE	7.46	22.76	77.24	**53.1**
#4	4.75	93.82	ANALYSIS	8.31	31.07	68.93	**47.4**
#10	2.00	127.91		11.33	42.41	57.59	**39.6**
#20	0.85	145.05		12.85	55.26	44.74	**30.7**
#40	0.425	129.91		11.51	66.77	33.23	**22.8**
#60	0.250	70.92		6.28	73.05	26.95	**18.5**
#140	0.106	71.11		6.30	79.35	20.65	**14.2**
#200	0.075	15.52		1.37	80.72	19.28	**13.2**
Pan	-	217.57		19.28	100.00	-	-

Water Content

Tare No.	841
Wgt. Tare + WS.	1373.80
Wgt. Tare + DS.	1222.30
Wgt. Tare	93.56
Wgt. Of Water	151.50
Wgt. Of DS.	1128.74
% Water	13.4

TOTAL WET WGHT. -3/4 SIEVE
1291

TOTAL DRY WGHT. -3/4 SIEVE
1138

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/30				
Sample No.	42-SB-407-3840				

Soil Sample Weight

Container No.	1072		
Wt. Contain. & Dry Soil	147.58 gm.	K Factor	0.01324
		Composite Correction	7.12
Wt. Contain.	107.08 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	35.50 gm.	% Finer Than No. 200	13.24

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	20.0	19.5	12.4	34.5	0.0339	4.6
5		14.5	7.4	20.6	0.0221	2.7
15		13.0	5.9	16.4	0.0129	2.2
30		12.0	4.9	13.6	0.0091	1.8
60		9.5	2.4	6.6	0.0066	0.9
250		7.5	0.4	1.1	0.0032	0.1
1440		7.5	0.4	1.1	0.0014	0.1

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	11/30
Sample No.	42-SB-407-3840

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	86.2
37.500	71.9
25.000	71.9
19.000	68.7
12.500	58.2
9.5000	53.1
4.7500	47.4
2.0000	39.6
0.8500	30.7
0.4250	22.8
0.2500	18.5
0.1060	14.2
0.0750	13.2
0.0339	4.6
0.0221	2.7
0.0129	2.2
0.0091	1.8
0.0066	0.9
0.0032	0.1
0.0014	0.1

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	39.57
0.05	8.82
0.002	0.14

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	60.43	0.00
SAND	30.75	77.71
SILT	8.68	21.93
CLAY	0.14	0.36

USDA CLASSIFICATION LOAMY SAND

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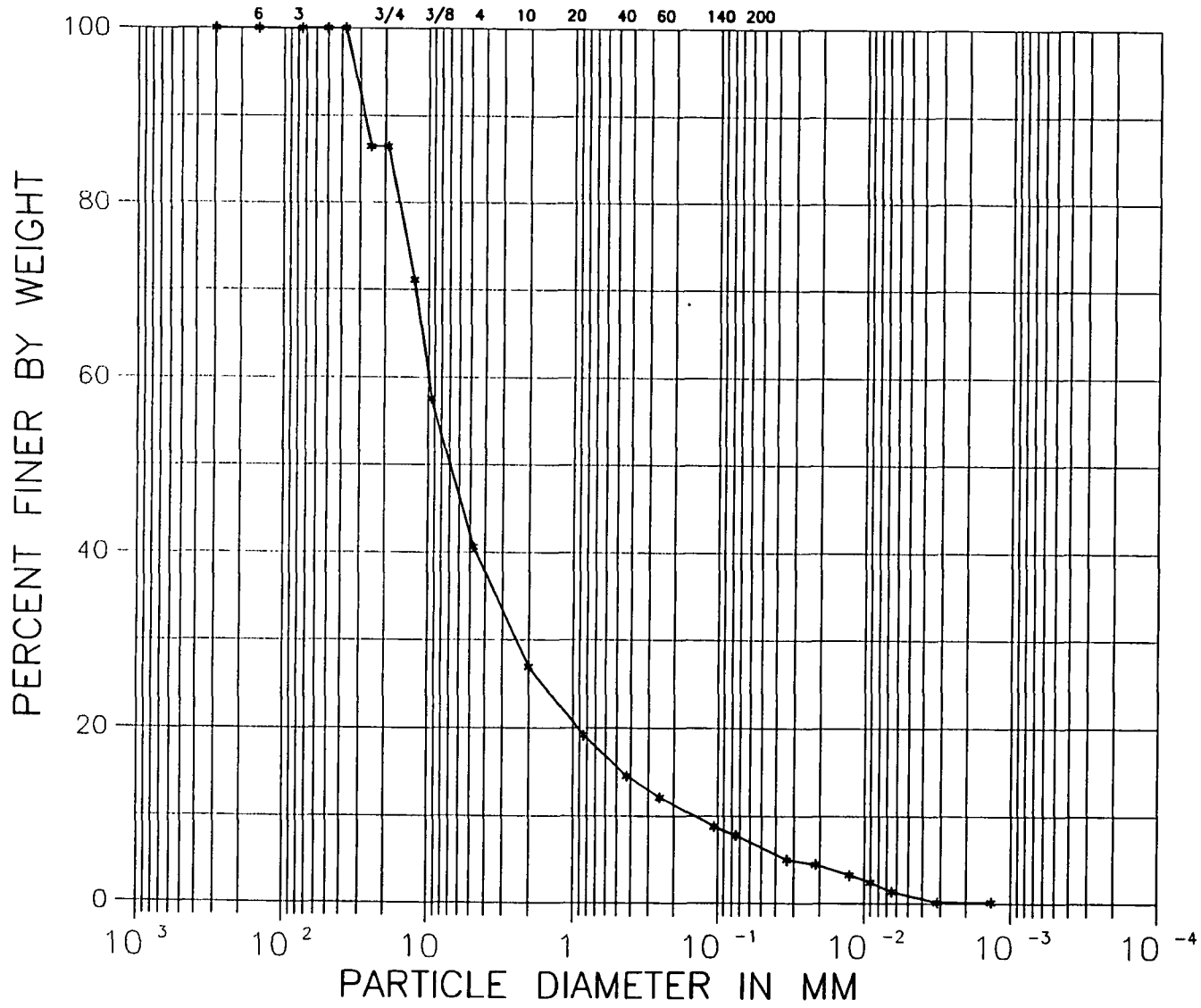
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gp-gc
Soil Description BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND

Boring No. TF 4+5 S1
Depth(ft) 12/4
Sample No. 42-SB-411-3537
USDA Classification LOAMY SAND

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/4				
Sample No.	42-SB-411-3537				
Soil Description	BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND				

Wt. of Total Sample(dry) (2)	1248.9 gm.	Wt of Grand Total (1)	2136.94
Wt. of +#200 Sample	1135.9 gm.		
Wt. of -#200 Sample	113.0 gm.	J Factor	0.8646
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final P rcent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00	+ 3/4"	0.00	0.00	100.00	**100.0**
1"	25.0	289.30	SIEVE	13.54	13.54	86.46	**86.5**
3/4"	19.0	0.00	ANALYSIS	0.00	13.54	86.46	**86.5**
1/2"	12.5	221.60	- 3/4"	17.74	17.74	82.26	**71.1**
3/8"	9.5	195.72	SIEVE	15.67	33.41	66.59	**57.6**
#4	4.75	245.24	ANALYSIS	19.64	53.05	46.95	**40.6**
#10	2.00	197.95		15.85	68.90	31.10	**26.9**
#20	0.85	110.94		8.88	77.78	22.22	**19.2**
#40	0.425	66.86		5.35	83.14	16.86	**14.6**
#60	0.250	34.97		2.80	85.94	14.06	**12.2**
#140	0.106	47.84		3.83	89.77	10.23	**8.8**
#200	0.075	14.80		1.19	90.95	9.05	**7.8**
Pan	-	113.00		9.05	100.00	-	-

Water Content		
Tare No.	1316	TOTAL WET WGHT. -3/4 SIEVE
Wgt. Tare + WS.	1467.70	2016
Wgt. Tare + DS.	1353.90	
Wgt. Tare	104.98	TOTAL DRY WGHT. -3/4 SIEVE
Wgt. Of Water	113.80	1848
Wgt. Of DS.	1248.92	
% Water	9.1	

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By	EJM	Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/4				
Sample No.	42-SB-411-3537				

Soil Sample Weight			
Container No.	1301		
Wt. Contain. & Dry Soil	132.62 gm.	K Factor	0.01324
		Composite Correction	7.12
Wt. Contain.	105.35 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	22.27 gm.	% Finer Than No. 200	7.82

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	22.0	21.5	14.4	63.9	0.0334	5.0
5		20.0	12.9	57.3	0.0214	4.5
15		16.5	9.4	41.7	0.0126	3.3
30		14.0	6.9	30.6	0.0090	2.4
60		11.0	3.9	17.3	0.0065	1.3
266		7.5	0.4	1.7	0.0032	0.1
1440		7.5	0.4	1.7	0.0014	0.1

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	12/4
Sample No.	42-SB-411-3537

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	100.0
25.000	86.5
19.000	86.5
12.500	71.1
9.5000	57.6
4.7500	40.6
2.0000	26.9
0.8500	19.2
0.4250	14.6
0.2500	12.2
0.1060	8.8
0.0750	7.8
0.0334	5.0
0.0214	4.5
0.0126	3.3
0.0090	2.4
0.0065	1.3
0.0032	0.1
0.0014	0.1

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	26.89
0.05	6.41
0.002	0.13

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	73.11	0.00
SAND	20.48	76.18
SILT	6.27	23.33
CLAY	0.13	0.49

USDA CLASSIFICATION LOAMY SAND

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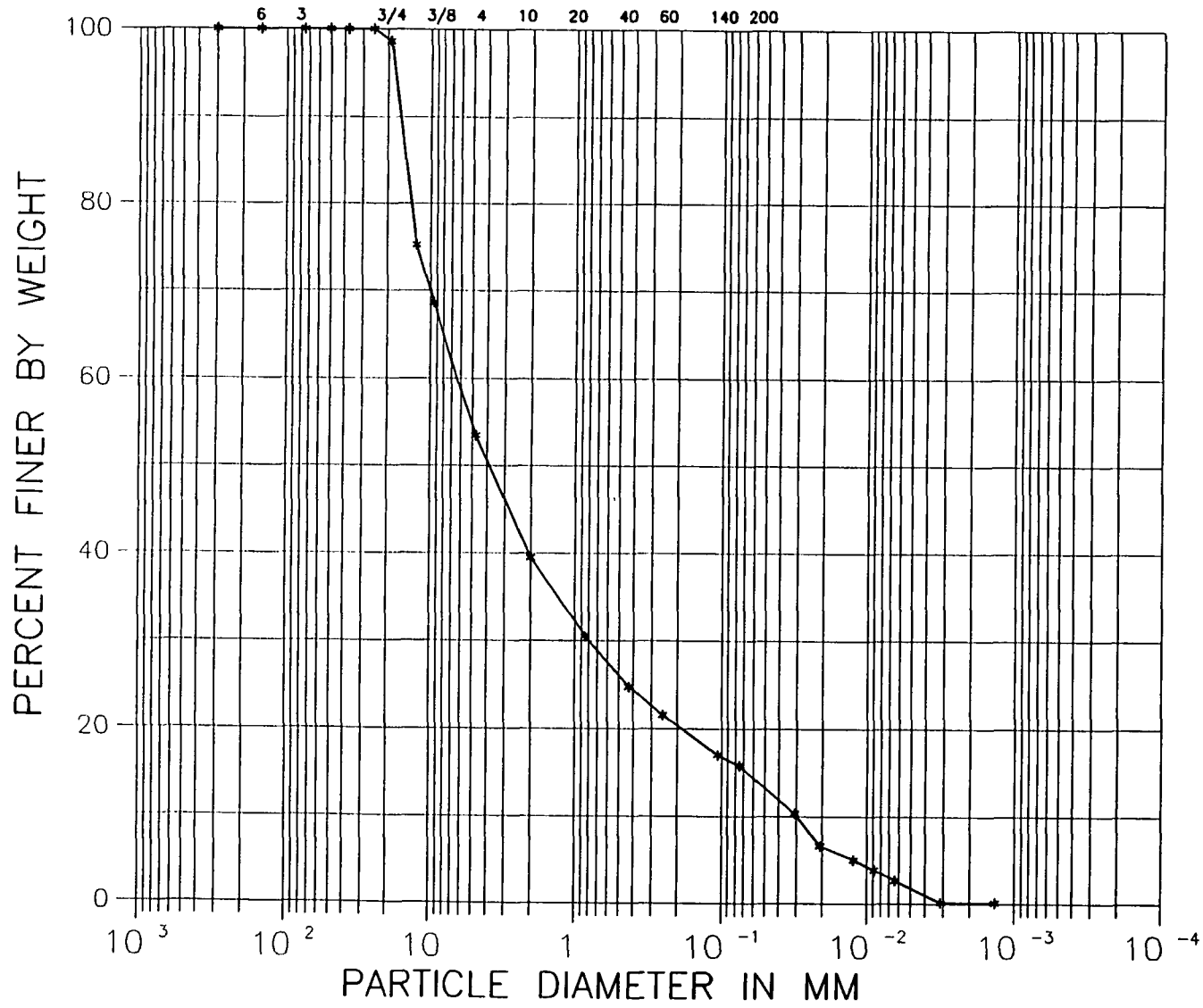
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gc
Soil Description BROWN CLAYEY GRAVEL WITH SAND

Boring No. TF 4+5 S1
Depth(ft) 12/4
Sample No. 42-SB-411-3941
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/4				
Sample No.	42-SB-411-3941				
Soil Description	BROWN CLAYEY GRAVEL WITH SAND				

Wt. of Total Sample(dry) (2)	1245.4 gm.	Wt of Grand Total (1)	2016.10
Wt. of +#200 Sample	1045.5 gm.		
Wt. of -#200 Sample	199.9 gm.	J Factor	0.9864
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00	+ 3/4"	0.00	0.00	100.00	**100.0**
1"	25.0	0.00	SIEVE	0.00	0.00	100.00	**100.0**
3/4"	19.0	27.45	ANALYSIS	1.36	1.36	98.64	**98.6**
1/2"	12.5	295.57	- 3/4"	23.73	23.73	76.27	**75.2**
3/8"	9.5	83.54	SIEVE	6.71	30.44	69.56	**68.6**
#4	4.75	191.32	ANALYSIS	15.36	45.80	54.20	**53.5**
#10	2.00	176.13		14.14	59.95	40.05	**39.5**
#20	0.85	113.43		9.11	69.06	30.94	**30.5**
#40	0.425	72.53		5.82	74.88	25.12	**24.8**
#60	0.250	40.75		3.27	78.15	21.85	**21.6**
#140	0.106	56.61		4.55	82.70	17.30	**17.1**
#200	0.075	15.61		1.25	83.95	16.05	**15.8**
Pan	-	199.87		16.05	100.00	-	-

Water Content

Tare No.	1321
Wgt. Tare + WS.	1465.90
Wgt. Tare + DS.	1349.20
Wgt. Tare	103.84
Wgt. Of Water	116.70
Wgt. Of DS.	1245.36
% Water	9.4

TOTAL WET WGHT. -3/4 SIEVE
2175

TOTAL DRY WGHT. -3/4 SIEVE
1989

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	12/4				
Sample No.	42-SB-411-3941				

Soil Sample Weight			
Container No.	1642		
Wt. Contain.		K Factor	0.01324
& Dry Soil	147.22 gm.	Composite Correction	7.12
Wt. Contain.	102.32 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	39.90 gm.	% Finer Than No. 200	15.83

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	31.5	33.5	26.4	65.5	0.0308	10.4
5		24.0	16.9	41.9	0.0208	6.6
15		20.0	12.9	32.0	0.0123	5.1
30		17.0	9.9	24.5	0.0089	3.9
60		14.0	6.9	17.1	0.0064	2.7
269		7.5	0.4	0.9	0.0031	0.1
1440		7.5	0.4	0.9	0.0014	0.1

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	12/4
Sample No.	42-SB-411-3941

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	100.0
25.000	100.0
19.000	98.6
12.500	75.2
9.5000	68.6
4.7500	53.5
2.0000	39.5
0.8500	30.5
0.4250	24.8
0.2500	21.6
0.1060	17.1
0.0750	15.8
0.0308	10.4
0.0208	6.6
0.0123	5.1
0.0089	3.9
0.0064	2.7
0.0031	0.1
0.0014	0.1

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	39.51
0.05	13.34
0.002	0.15

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	60.49	0.00
SAND	26.16	66.23
SILT	13.19	33.39
CLAY	0.15	0.38

USDA CLASSIFICATION SANDY LOAM

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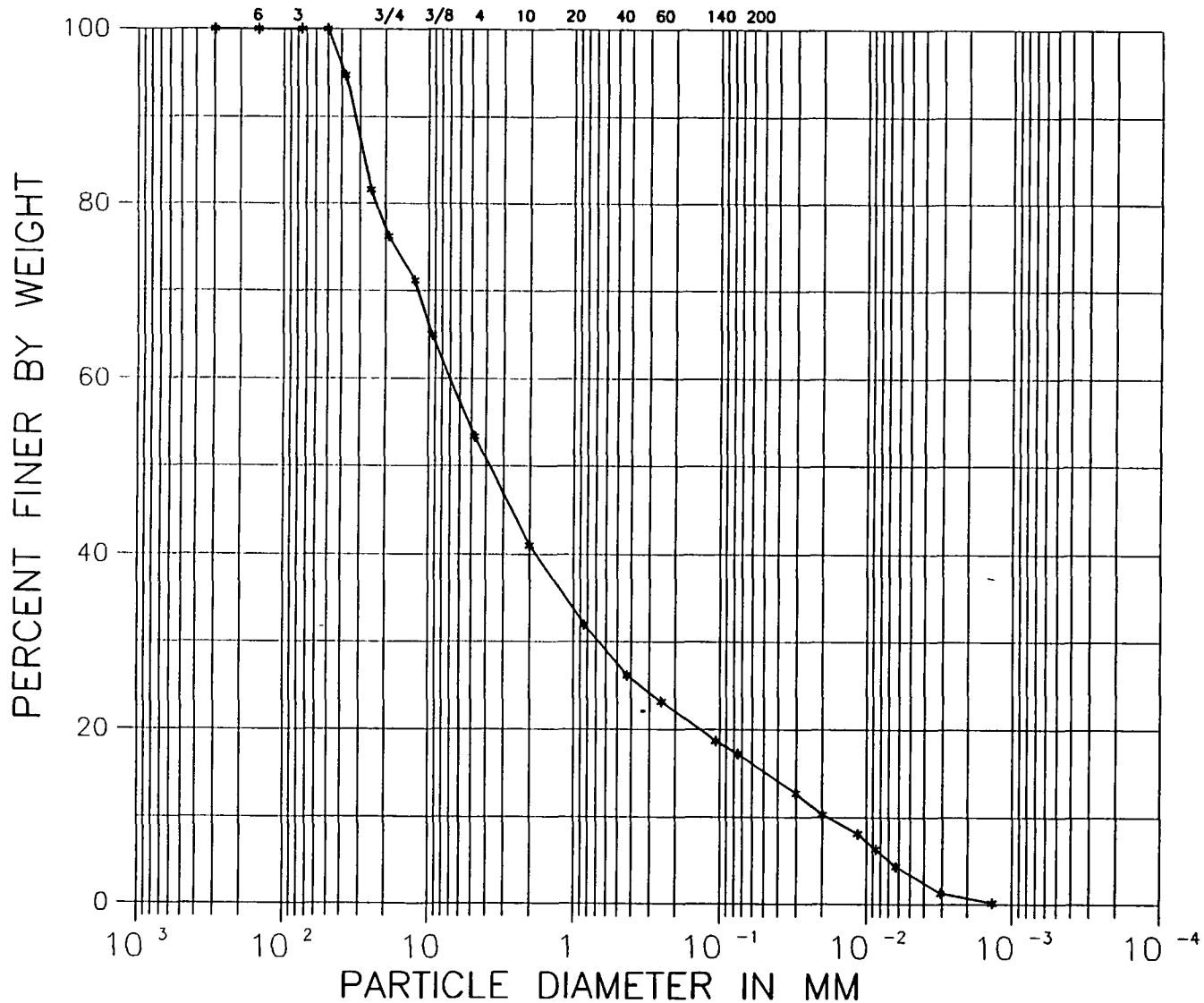
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gc
Soil Description BROWN CLAYEY GRAVEL WITH SAND

Boring No. TF 4+5 S1
Depth(ft) 11/28
Sample No. 48-SB-401-1315
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/28				
Sample No.	48-SB-401-1315				
Soil Description	BROWN CLAYEY GRAVEL WITH SAND				

Wt. of Total Sample(dry) (2)	1158.9 gm.	Wt of Grand Total (1)	2235.96
Wt. of +#200 Sample	896.9 gm.		
Wt. of -#200 Sample	262.0 gm.	J Factor	0.7622
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	117.30	+ 3/4"	5.25	5.25	94.75	**94.8**
1"	25.0	294.88	SIEVE	13.19	18.43	81.57	**81.6**
3/4"	19.0	119.60	ANALYSIS	5.35	23.78	76.22	**76.2**
1/2"	12.5	77.18	- 3/4"	6.66	6.66	93.34	**71.1**
3/8"	9.5	93.53	SIEVE	8.07	14.73	85.27	**65.0**
#4	4.75	177.24	ANALYSIS	15.29	30.02	69.98	**53.3**
#10	2.00	187.12		16.15	46.17	53.83	**41.0**
#20	0.85	137.69		11.88	58.05	41.95	**32.0**
#40	0.425	88.31		7.62	65.67	34.33	**26.2**
#60	0.250	45.74		3.95	69.62	30.38	**23.2**
#140	0.106	67.72		5.84	75.46	24.54	**18.7**
#200	0.075	22.36		1.93	77.39	22.61	**17.2**
Pan	-	261.98		22.61	100.00	-	-

Water Content

Tare No.	1024
Wgt. Tare + WS.	1407.90
Wgt. Tare + DS.	1259.10
Wgt. Tare	100.23
Wgt. Of Water	148.80
Wgt. Of DS.	1158.87
% Water	12.8

TOTAL WET WGHT. -3/4 SIEVE
1923

TOTAL DRY WGHT. -3/4 SIEVE
1704

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" si ve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/28				
Sample No.	48-SB-401-1315				

Soil Sample Weight

Container No.	1621		
Wt. Contain. & Dry Soil	147.02 gm.	K Factor	0.01324
		Composite Correction	7.12
Wt. Contain.	103.36 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	38.66 gm.	% Finer Than No. 200	17.23

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	34.5	36.0	28.9	74.0	0.0302	12.7
5		30.5	23.4	59.9	0.0199	10.3
16		25.5	18.4	47.1	0.0115	8.1
30		21.5	14.4	36.8	0.0086	6.3
60		17.0	9.9	25.3	0.0063	4.4
272		10.0	2.9	7.4	0.0031	1.3
1440		7.5	0.4	1.0	0.0014	0.2

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	11/28
Sample No.	48-SB-401-1315

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	94.8
25.000	81.6
19.000	76.2
12.500	71.1
9.5000	65.0
4.7500	53.3
2.0000	41.0
0.8500	32.0
0.4250	26.2
0.2500	23.2
0.1060	18.7
0.0750	17.2
0.0302	12.7
0.0199	10.3
0.0115	8.1
0.0086	6.3
0.0063	4.4
0.0031	1.3
0.0014	0.2

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	41.03
0.05	15.23
0.002	0.69

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	58.97	0.00
SAND	25.79	62.87
SILT	14.54	35.44
CLAY	0.69	1.69

USDA CLASSIFICATION SANDY LOAM

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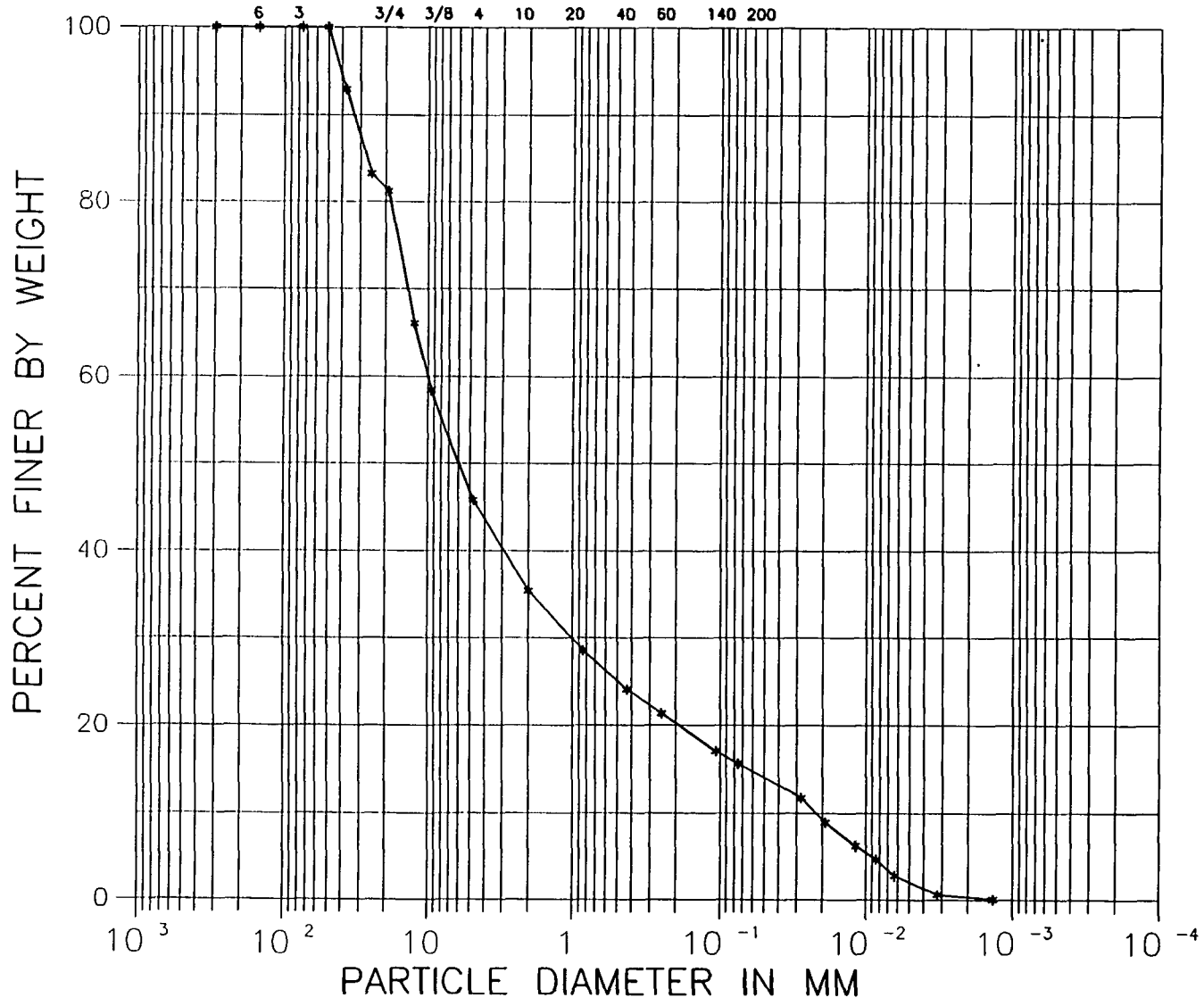
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gc
Soil Description BROWN CLAYEY GRAVEL WITH SAND

Boring No. TF 4+5 S1
Depth(ft) 11/28
Sample No. 48-SB-401-2527
USDA Classification SANDY LOAM

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By	EJM	Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/28				
Sample No.	48-SB-401-2527				
Soil Description	BROWN CLAYEY GRAVEL WITH SAND				

Wt. of Total Sample(dry) (2)	1109.2 gm.	Wt of Grand Total (1)	1602.23
Wt. of +#200 Sample	895.5 gm.		
Wt. of -#200 Sample	213.8 gm.	J Factor	0.8119
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	112.42	+ 3/4"	7.02	7.02	92.98	**93.0**
1"	25.0	156.38	SIEVE	9.76	16.78	83.22	**83.2**
3/4"	19.0	32.55	ANALYSIS	2.03	18.81	81.19	**81.2**
1/2"	12.5	206.50	- 3/4"	18.62	18.62	81.38	**66.1**
3/8"	9.5	104.86	SIEVE	9.45	28.07	71.93	**58.4**
#4	4.75	172.17	ANALYSIS	15.52	43.59	56.41	**45.8**
#10	2.00	141.59		12.76	56.36	43.64	**35.4**
#20	0.85	93.90		8.47	64.82	35.18	**28.6**
#40	0.425	60.99		5.50	70.32	29.68	**24.1**
#60	0.250	37.12		3.35	73.67	26.33	**21.4**
#140	0.106	59.01		5.32	78.99	21.01	**17.1**
#200	0.075	19.31		1.74	80.73	19.27	**15.6**
Pan	-	213.78		19.27	100.00	-	-

Water Content

Tare No.	1058
Wgt. Tare + WS.	1356.30
Wgt. Tare + DS.	1213.80
Wgt. Tare	104.57
Wgt. Of Water	142.50
Wgt. Of DS.	1109.23
% Water	12.8

TOTAL WET WGHT. -3/4 SIEVE
1468

TOTAL DRY WGHT. -3/4 SIEVE
1301

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/28				
Sample No.	48-SB-401-2527				

Soil Sample Weight

Container No.	1611		
Wt. Contain. & Dry Soil	155.62 gm.	K Factor	0.01324
		Composite Correction	7.12
Wt. Contain.	101.44 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	49.18 gm.	% Finer Than No. 200	15.65

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	43.0	44.5	37.4	75.2	0.0281	11.8
5		35.5	28.4	57.1	0.0192	8.9
15		27.0	19.9	40.0	0.0118	6.3
31		22.0	14.9	30.0	0.0085	4.7
60		16.0	8.9	17.9	0.0063	2.8
250		9.0	1.9	3.8	0.0032	0.6
1440		7.5	0.4	0.8	0.0014	0.1

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	11/28
Sample No.	48-SB-401-2527

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	93.0
25.000	83.2
19.000	81.2
12.500	66.1
9.5000	58.4
4.7500	45.8
2.0000	35.4
0.8500	28.6
0.4250	24.1
0.2500	21.4
0.1060	17.1
0.0750	15.6
0.0281	11.8
0.0192	8.9
0.0118	6.3
0.0085	4.7
0.0063	2.8
0.0032	0.6
0.0014	0.1

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	35.44
0.05	14.05
0.002	0.33

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	64.56	0.00
SAND	21.39	60.35
SILT	13.72	38.71
CLAY	0.33	0.94

USDA CLASSIFICATION SANDY LOAM

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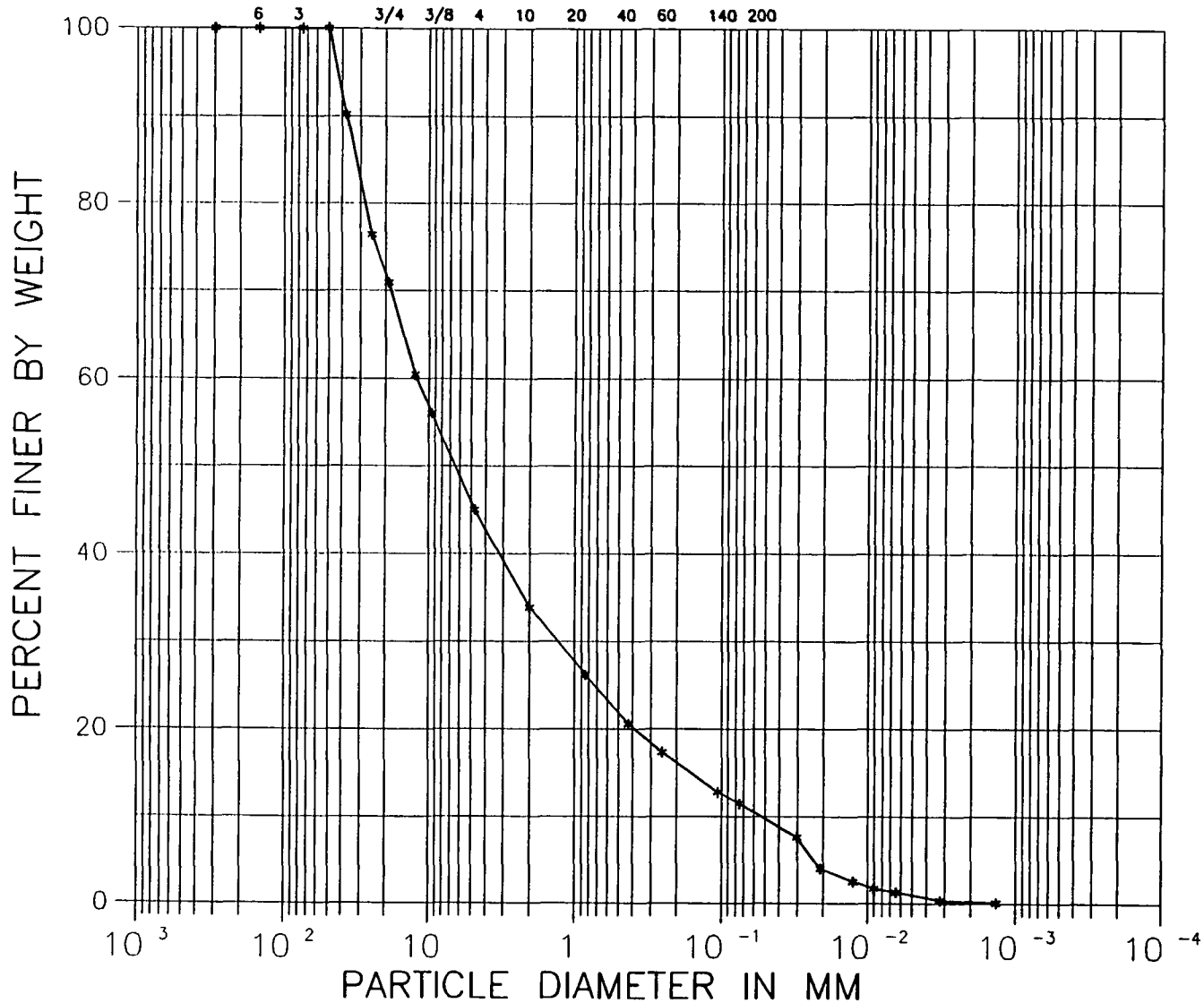
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gp-gc
Soil Description BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND

Boring No. TF 4+5 S1
Depth(ft) 11/29
Sample No. 48-SB-404-2931
USDA Classification LOAMY SAND

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/29				
Sample No.	48-SB-404-2931				
Soil Description	BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND				

Wt. of Total Sample(dry) (2)	1055.0 gm.	Wt of Grand Total (1)	1514.73
Wt. of +#200 Sample	883.5 gm.		
Wt. of -#200 Sample	171.5 gm.	J Factor	0.7092
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	0.00		0.00	0.00	100.00	**100.0**
1 1/2"	37.5	147.74	+ 3/4"	9.75	9.75	90.25	**90.2**
1"	25.0	209.77	SIEVE	13.85	23.60	76.40	**76.4**
3/4"	19.0	82.97	ANALYSIS	5.48	29.08	70.92	**70.9**
1/2"	12.5	155.67	- 3/4"	14.76	14.76	85.24	**60.5**
3/8"	9.5	66.07	SIEVE	6.26	21.02	78.98	**56.0**
#4	4.75	163.61	ANALYSIS	15.51	36.53	63.47	**45.0**
#10	2.00	165.38		15.68	52.20	47.80	**33.9**
#20	0.85	114.71		10.87	63.08	36.92	**26.2**
#40	0.425	83.55		7.92	71.00	29.00	**20.6**
#60	0.250	47.97		4.55	75.54	24.46	**17.3**
#140	0.106	67.67		6.41	81.96	18.04	**12.8**
#200	0.075	18.89		1.79	83.75	16.25	**11.5**
Pan	-	171.46		16.25	100.00	-	-

Water Content		
Tare No.	843	TOTAL WET WGHT. -3/4 SIEVE
Wgt. Tare + WS.	1288.10	1211
Wgt. Tare + DS.	1153.80	
Wgt. Tare	98.82	TOTAL DRY WGHT. -3/4 SIEVE
Wgt. Of Water	134.30	1074
Wgt. Of DS.	1054.98	
% Water	12.7	

Note: 1) The +3/4" sieve analysis is based on the grand total dry weight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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HYDROMETER ANALYSIS

Client	BROWN & ROOT	Tested By	TO	Date	12-21-95
Client Project	CTO 143	Checked By	EJM	Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/29				
Sample No.	48-SB-404-2931				

Soil Sample Weight

Container No.	1622		
Wt. Contain. & Dry Soil	149.72 gm.	K Factor	0.01324
		Composite Correction	7.12
Wt. Contain.	102.49 gm.	a Factor	0.99
Wt. Dispers.	5.00 gm.		
Wt. Dry Soil	42.23 gm.	% Finer Than No. 200	11.53

Temperature C	21.3	Measured
Specific Gravity	2.70	Assumed

Elapsed Time (min.)	R Measured		R Corrected	N (%)	D (mm)	N' (%)
0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	33.0	35.5	28.4	66.5	0.0303	7.7
5		22.0	14.9	34.9	0.0211	4.0
15		16.5	9.4	22.0	0.0126	2.5
30		13.5	6.4	15.0	0.0091	1.7
60		12.0	4.9	11.4	0.0065	1.3
250		8.5	1.4	3.2	0.0032	0.4
1440		7.5	0.4	0.9	0.0014	0.1

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Client	BROWN & ROOT
Client Project	CTO 143
Project No.	95307-01
Boring No.	TF 4+5 S1
Depth(ft.)	11/29
Sample No.	48-SB-404-2931

DIAMETER (mm)	PERCENT FINER
300.00	100.0
150.00	100.0
75.000	100.0
50.000	100.0
37.500	90.2
25.000	76.4
19.000	70.9
12.500	60.5
9.5000	56.0
4.7500	45.0
2.0000	33.9
0.8500	26.2
0.4250	20.6
0.2500	17.3
0.1060	12.8
0.0750	11.5
0.0303	7.7
0.0211	4.0
0.0126	2.5
0.0091	1.7
0.0065	1.3
0.0032	0.4
0.0014	0.1

SIEVE OPENING (mm)	PERCENT FINER
100.00	100.00
2.00	33.90
0.05	9.80
0.002	0.22

PERCENT OF EACH COMPONENT		CORRECTED PERCENT -2.0 mm MATERIAL FOR USDA DETERMINATION
GRAVEL	66.10	0.00
SAND	24.10	71.09
SILT	9.58	28.25
CLAY	0.22	0.66

USDA CLASSIFICATION LOAMY SAND

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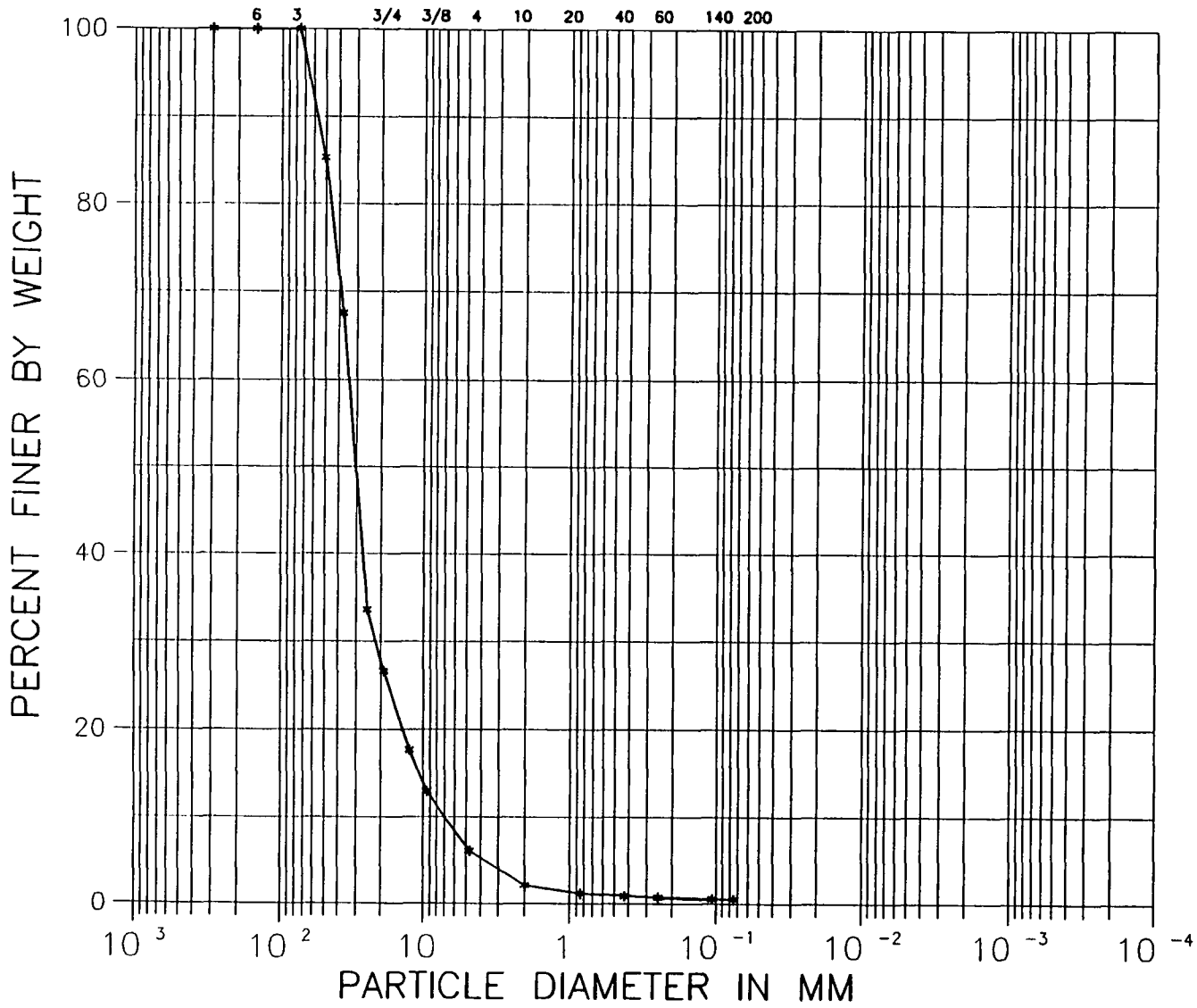
Client BROWN & ROOT
Client Project CTO 143
Project No. 95307-01
USCS Classification gw
Soil Description BROWN WELL-GRADED GRAVEL

Boring No. TF 4+5 S1
Depth(ft) 11/30
Sample No. 48-SB-408-4143
USDA Classification NA

	SIEVE ANALYSIS		HYDROMETER	
USCS	GRAVEL	SAND	SILT AND CLAY FRACTION	
USDA	GRAVEL	SAND	SILT	CLAY



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WASH SIEVE ANALYSIS

Client	BROWN & ROOT	Tested By	BS	Date	12-21-95
Client Project	CTO 143	Checked By		Date	1-3-96
Project No.	95307-01				
Boring No.	TF 4+5 S1				
Depth(ft.)	11/30				
Sample No.	48-SB-408-4143				
Soil Description	BROWN WELL-GRADED GRAVEL				

Wt. of Total Sample(dry) (2)	457.6 gm.	Wt of Grand Total (1)	1801.00
Wt. of +#200 Sample	448.7 gm.		
Wt. of -#200 Sample	8.8 gm.	J Factor	0.2665
		(Percent finer than 3/4")	

Sieve	Sieve Opening (mm)	Wt. of Soil Retained (gm.)		Percent Retained	Accumulate Percent Retained	Percent Finer	**Final Percent Finer (3)**
12"	300.0	0.00		0.00	0.00	100.00	**100.0**
6"	150.0	0.00		0.00	0.00	100.00	**100.0**
3"	75.0	0.00		0.00	0.00	100.00	**100.0**
2"	50.0	265.38		14.74	14.74	85.26	**85.3**
1 1/2"	37.5	318.70	+ 3/4"	17.70	32.43	67.57	**67.6**
1"	25.0	611.40	SIEVE	33.95	66.38	33.62	**33.6**
3/4"	19.0	125.58	ANALYSIS	6.97	73.35	26.65	**26.6**
1/2"	12.5	153.66	- 3/4"	33.58	33.58	66.42	**17.7**
3/8"	9.5	81.11	SIEVE	17.73	51.31	48.69	**13.0**
#4	4.75	117.88	ANALYSIS	25.76	77.07	22.93	**6.1**
#10	2.00	68.44		14.96	92.03	7.97	**2.1**
#20	0.85	15.80		3.45	95.48	4.52	**1.2**
#40	0.425	4.88		1.07	96.55	3.45	**0.9**
#60	0.250	2.51		0.55	97.10	2.90	**0.8**
#140	0.106	3.45		0.75	97.85	2.15	**0.6**
#200	0.075	1.01		0.22	98.07	1.93	**0.5**
Pan	-	8.81		1.93	100.00	-	-

Water Content		
Tare No.	1092	TOTAL WET WGHT. -3/4 SIEVE
Wgt. Tare + WS.	589.40	507
Wgt. Tare + DS.	563.60	
Wgt. Tare	106.05	TOTAL DRY WGHT. -3/4 SIEVE
Wgt. Of Water	25.80	480
Wgt. Of DS.	457.55	
% Water	5.6	

Note: 1) The +3/4" sieve analysis is based on the grand total dry w ight of material.
2) The -3/4" sieve analysis is based on the total dry weight of the split portion of sample.
3) The final percent finer combines the two analysis.

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400 SERIES SOIL BORINGS
(SB-400 - SB-424)
SUMMARY OF ENGINEERING CRITERIA
(TOC, COD, N, SOD, P)

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 38-SB-416-3032

Date Sampled: 12/06/95

Laboratory ID: 951023-03

Date Sample Received: 12/07/95

Percent Solids: 85.5

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	162	mg/Kg+	117	12/17/95	12/27/95
Nitrate-Nitrite (as N)	2.3	mg/Kg+	1.2	12/17/95	12/22/95
Sediment Oxygen Demand	265	mg/Kg+	140	12/08/95	12/13/95
Total Organic Carbon	4670	mg/Kg+	58.5	12/29/95	12/29/95
Total Phosphorous (as P)	ND	mg/Kg+	1.4	12/18/95	12/18/95

ND = Not Detected
+ Dry weight basis.

Reported by: Jeffrey D. Maymon

Approved by: Alan Chance

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 38-SB-416-3436

Date Sampled: 12/06/95

Laboratory ID: 951023-07

Date Sample Received: 12/07/95

Percent Solids: 87.5

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	391	mg/Kg+	113	12/17/95	12/27/95
Nitrate-Nitrite (as N)	1.3	mg/Kg+	1.1	12/17/95	12/22/95
Sediment Oxygen Demand	1760	mg/Kg+	136	12/08/95	12/13/95
Total Organic Carbon	10400	mg/Kg+	57.1	12/29/95	12/29/95
Total Phosphorous (as P)	14.5	mg/Kg+	1.3	12/18/95	12/18/95

+ Dry weight basis.

Reported by: Jeffrey D. Maymon

Approved by: Alan Chang

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 38-SB-417-3234

Date Sampled: 12/06/95

Laboratory ID: 951023-04

Date Sample Received: 12/07/95

Percent Solids: 85.5

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	313	mg/Kg+	117	12/17/95	12/27/95
Nitrate-Nitrite (as N)	1.7	mg/Kg+	1.2	12/17/95	12/22/95
Sediment Oxygen Demand	1340	mg/Kg+	139	12/08/95	12/13/95
Total Organic Carbon	5970	mg/Kg+	58.5	12/29/95	12/29/95
Total Phosphorous (as P)	7.6	mg/Kg+	1.4	12/18/95	12/18/95

+ Dry weight basis.

Reported by: Jeffrey D. Maymon

Approved by: Alan Chang

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 42-SB-407-3840

Date Sampled: 11/30/95

Laboratory ID: 951000-03

Date Sample Received: 12/01/95

Percent Solids: 84.6

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	311	mg/Kg+	117	12/03/95	12/05/95
Nitrate-Nitrite (as N)	2.1	mg/Kg+	1.2	12/03/95	12/05/95
Sediment Oxygen Demand	1540	mg/Kg+	133	12/02/95	12/07/95
Total Organic Carbon	9660	mg/Kg+	59.1	12/26/95	12/26/95
Total Phosphorous (as P)	6.9	mg/Kg+	1.4	12/18/95	12/18/95

+ Dry weight basis.

Reported by: Jeffrey D. Maynor

Approved by: Alan Chang

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 42-SB-411-3941

Date Sampled: 12/04/95

Laboratory ID: 951000-11

Date Sample Received: 12/05/95

Percent Solids: 88.8

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	ND	mg/Kg+	112	01/02/96	01/03/96
Nitrate-Nitrite (as N)	1.3	mg/Kg+	1.1	01/02/96	01/03/96
Sediment Oxygen Demand	ND	mg/Kg+	133	12/06/95	12/11/95
Total Organic Carbon	4070	mg/Kg+	56.3	12/26/95	12/26/95
Total Phosphorous (as P)	849	mg/Kg+	1.3	12/18/95	12/18/95

ND = Not Detected
+ Dry weight basis.

Reported by: Jeffrey D. Maymon

Approved by: Alan Chang

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 42-SB-413-3537

Date Sampled: 12/05/95

Laboratory ID: 951000-14

Date Sample Received: 12/05/95

Percent Solids: 88.9

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	1400	mg/Kg+	112	01/02/96	01/03/96
Nitrate-Nitrite (as N)	ND	mg/Kg+	1.1	01/02/96	01/03/96
Sediment Oxygen Demand	ND	mg/Kg+	134	12/06/95	12/11/95
Total Organic Carbon	1330	mg/Kg+	56.2	12/26/95	12/26/95
Total Phosphorous (as P)	ND	mg/Kg+	1.3	12/18/95	12/18/95

ND = Not Detected
+ Dry weight basis.

Reported by: Jeffrey D. Maymon

Approved by: Alan Chang

32

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 48-SB-401-1719

Date Sampled: 11/28/95

Laboratory ID: 950986-07

Date Sample Received: 11/29/95

Percent Solids: 83.6

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	300	mg/Kg+	119	12/05/95	12/05/95
Nitrate-Nitrite (as N)	2.6	mg/Kg+	1.2	12/03/95	12/05/95
Sediment Oxygen Demand	673	mg/Kg+	142	11/29/95	12/04/95
Total Phosphorous (as P)	285	mg/Kg+	1.5	12/18/95	12/18/95

+ Dry weight basis.

33

Reported by: Debbie D. Maymon

Approved by: Alan Chang

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 48-SB-401-3335

Date Sampled: 11/28/95

Laboratory ID: 950986-08

Date Sample Received: 11/29/95

Percent Solids: 82.1

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	381	mg/Kg+	122	12/05/95	12/05/95
Nitrate-Nitrite (as N)	9.0	mg/Kg+	1.2	12/03/95	12/05/95
Sediment Oxygen Demand	268	mg/Kg+	145	11/29/95	12/04/95
Total Phosphorous (as P)	7.3	mg/Kg+	1.5	12/18/95	12/18/95

+ Dry weight basis.

34

Reported by: Jeffrey D. Maymon

Approved by: Alan Chang

INORGANIC ANALYTES

Client: Brown & Root Environmental

Client Sample ID: 48-SB-404-1719

Date Sampled: 11/28/95

Laboratory ID: 950986-09

Date Sample Received: 11/29/95

Percent Solids: 89.0

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Chemical Oxygen Demand	451	mg/Kg+	112	12/05/95	12/05/95
Nitrate-Nitrite (as N)	2.2	mg/Kg+	1.1	12/03/95	12/05/95
Sediment Oxygen Demand	1720	mg/Kg+	133	11/29/95	12/04/95
Total Phosphorous (as P)	2.3	mg/Kg+	1.2	12/18/95	12/18/95

+ Dry weight basis.

35

Reported by: Jeffrey D. Maymon

Approved by: Stan Chang

400 SERIES SOIL BORINGS
(SB-400 - SB-424)
HETEROTROPHIC PLATE COUNT ANALYSIS

Analysis Report

Lancaster Laboratories
Where quality is a science.

LLI Sample No. SW 2429416
Collected: 12/ 6/95 at 10:35 by TD

Submitted: 12/ 7/95 Reported: 12/13/95
Discard: 2/12/96

38-SB-416-3032 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

Received
DEC 18 1995
Brown & Root Environmental
Wilmington, Massachusetts
01887

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	30,000.	10,000.	cfu/g

Sample was greater than 24 hours old when analyzed.

The heterotrophic plate count is estimated since all counts are outside the 30 - 300/ plate range.

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
04:48:47 D 0001 3 123812 495302
050 45.00 00004500 ASR000

Respectfully Submitted
Erik Frederiksen, BA
Group Leader, Water Quality

MEMBER ACIL

Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 FAX 717-656-2681

See reverse side for explanation of symbols and abbreviations

#2216

Analysis Report

Lancaster Laboratories
Where quality is a science.

LLI Sample No. SW 2429417
Collected: 12/ 6/95 at 10:50 by TD

Submitted: 12/ 7/95 Reported: 12/13/95
Discard: 2/12/96

38-SB-416-3436 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

Received
DEC 18 1995
Brown & Root Environmental
Wilmington, Massachusetts

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	10,000.	10,000.	cfu/g

Sample was greater than 24 hours old when analyzed.

The heterotrophic plate count is estimated since all counts are outside the 30 - 300/ plate range. Spreader type colony growth also interfered with accurate colony enumeration.

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
04:48:56 D 0001 3 123812 495302
050 45.00 00004500 ASR000

Respectfully Submitted
Erik Frederiksen, BA
Group Leader, Water Quality

MEMBER ACIL

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2425 New Holland Pike
PO Box 12425
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717-656-2300 FAX 717-656-2681

See reverse side for explanation of symbols and abbreviations

#2216

Analysis Report

Lancaster Laboratories
Where quality is a science.

LLI Sample No. SW 2429418
Collected: 12/ 6/95 at 10:36 by TD

Submitted: 12/ 7/95 Reported: 12/13/95
Discard: 2/12/96

38-SB-417-3234 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

Received
DEC 18 1995
Brown & Root Environmental
Wilmington, Massachusetts

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	70,000.	10,000.	cfu/g

Sample was greater than 24 hours old when analyzed.

The heterotrophic plate count is estimated since all counts are outside the 30 - 300/ plate range. Spreader type colony growth also interfered with accurate colony enumeration.

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
04:49:03 D 0001 3 123812 495302
050 45.00 00004500 ASR000

Respectfully Submitted
Erik Frederiksen, BA
Group Leader, Water Quality

MEMBER ACIL

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Analysis Report

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Received
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Wilmington, Massachusetts
01887

LLI Sample No. SW 2425225
Collected: 11/30/95 at 10:33 by KJ

Submitted: 12/ 1/95 Reported: 12/ 7/95
Discard: 2/ 6/96

42-SB-407-3840 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	6,000.	1,000.	cfu/ml

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
04:12:15 D 0001 2 123812 494364
050 45.00 00004500 ASR000

Respectfully Submitted
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Analysis Report

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Received
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Brown & Root Environmental
Wilmington, Massachusetts
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LLI Sample No. SW 2425226
Collected: 11/30/95 at 10:55 by KJ

Submitted: 12/ 1/95 Reported: 12/ 7/95
Discard: 2/ 6/96

42-SB-407-3941 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	7,000.	1,000.	cfu/ml

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
04:12:22 D 0001 2 123812 494364
050 45.00 00004500 ASR000

Respectfully Submitted
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MEMBER ACIL

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#2216

Analysis Report

Lancaster Laboratories
Where quality is a science.

LLI Sample No. SW 2427010
Collected: 12/ 4/95 at 12:40 by TD

Submitted: 12/ 5/95 Reported: 12/12/95
Discard: 2/11/96

42-SB-411-3941 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCD8-95-360-1298
Rel. 0288

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	3,000.	1,000.	cfu/g

The heterotrophic plate count is estimated since all counts are outside the 30 - 300/ plate range.

Sample was greater than 24 hours old when analyzed.

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
13:46:12 D 0001 1 123812 494764
885 45.00 00004500 ASR000

Respectfully Submitted
Erik Frederiksen, BA
Group Leader, Water Quality

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Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
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717-656-2300 FAX 717-656-2681

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#2216

Analysis Report

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Received
DEC 11 1995

Brown & Root Environmental
Wilmington, Massachusetts
01887

LLI Sample No. SW 2423857
Collected: 11/28/95 at 09:20 by JBH

Submitted: 11/29/95 Reported: 12/ 6/95
Discard: 2/ 5/96

48-B-401-1719 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	800.	100.	cfu/g

The heterotrophic plate count is estimated since all counts are outside the 30 - 300/ plate range.

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
05:06:35 D 0001 3 123812 493997
925 45.00 00004500 ASR000

Respectfully Submitted
Erik Frederiksen, BA
Group Leader, Water Quality

MEMBER ACIL

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2425 New Holland Pike
PO Box 12425
Lancaster PA 17605-2425
717-656-2300 FAX 717-656-2681

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Analysis Report

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Received
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Wilmington, Massachusetts
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LLI Sample No. SW 2423858
Collected: 11/28/95 at 10:35 by JBH

Submitted: 11/29/95 Reported: 12/ 6/95
Discard: 2/ 5/96

48-B-401-3335 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	10,000.	10,000.	cfu/g

The heterotrophic plate count is estimated since all counts are outside the 30 - 300/ plate range.

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
05:06:46 D 0001 3 123812 493997
925 45.00 00004500 ASR000

Respectfully Submitted
Erik Frederiksen, BA
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Analysis Report

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Where quality is a science.

Received
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Brown & Root Environmental
Wilmington, Massachusetts
01887

LLI Sample No. SW 2423859
Collected: 11/28/95 at 14:40 by JBH

Submitted: 11/29/95 Reported: 12/ 6/95
Discard: 2/ 5/96

48-8-404-1517 Composite Soil Sample

NETC Newport, RI CTO-143

Account No: 07558
Halliburton NUS
Brown & Root Environmental
993 Old Eagle Sch. Rd. Ste 415
Wayne PA 19087-1710

P.O. GCDB-95-360-1298
Rel. 0288

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	LIMIT OF QUANTITATION	UNITS
0307	Heterotrophic Plate Count	50,000.	10,000.	cfu/g

The heterotrophic plate count is estimated since all counts are outside the 30 - 300/ plate range.

1 COPY TO Halliburton NUS ATTN: Mr. Walter Martin

Questions? Contact your Client Services Representative
Katherine A. Klinefelter at (717) 656-2300
05:06:55 D 0001 3 123812 493997
925 45.00 00004500 ASR000

Respectfully Submitted
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See reverse side for explanation of symbols and abbreviations

#2216

JAR HEADSPACE ANALYSIS LOGS
300 AND 400 SERIES SOIL BORINGS

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TANK FARM 4
SITE LOCATION: NETC Newport RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: TANK 38-SB-415
INSTRUMENT: CENTURY OVA
SERIAL NO.: (KJ) 12/5/95 ~~128~~ A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A)
HEADSPACE ANALYST: J. HOLDEN / K. JALKUT
DATE: 12/5/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0507	0	
	1012	0.4	
	1214	0.3	
	1416	4 ppm	
	1618	4.6 ppm	
	1820	8 ppm	
	2022	5 ppm	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sampl
GW Gr undwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0255/143
SAMPLE LOCATION: 38-SB-416
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: J Holden
DATE: 12/6/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB-416	0002	0	
	0204	0	
	0406	N/A	
	0608	0	
	0810	1	
	1012	1	
	1214	1	
	1416	0	
	1618	4	
	1820	2	
	2022	28	
	2224	10	
SB	2426	30	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sampl
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0258/143
SAMPLE LOCATION: 38-SB-416
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: A Holden
DATE: 12/6/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	26 28	8	
	28 30	10	
	30 32	95	
	32 34	95	
	34 36	80	
	36 38	N/A	
SB	38 40	20	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

pg 1 of 2

SITE NAME: TANK FARM 4
SITE LOCATION: NETC-Newport RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: TANK 38-SB-417
INSTRUMENT: Century OVA
SERIAL NO.: ~~A42254e~~ (A) 12/6/95 A42220
MODEL NO.: 128
SAMPLE PREP METHOD[1] (A) outside temp - 35-45°F
HEADSPACE ANALYST: T. Dorgan
DATE: 12/6/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0 ppm	
	0507		
	1012		
	1214		
	1416		
	1618		
	1820		
	2022		
	2224	0 ppm	
	2426	12 ppm	POOR RECOVERY
	2628	—	NO RECOVERY
	2830	15 ppm	1st visual evidence of petroleum
SB	3032	35 ppm	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

Pg 2 of 2

SITE NAME: TANK FARM 4
SITE LOCATION: NETC - NEWPORT RI
PROJECT NO./CTO NO.: 0278 / CTO 143
SAMPLE LOCATION: TANK 38 - SB - 417
INSTRUMENT: CENTURY OVA
SERIAL NO.: A42220
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) outside temps ~35°F-45°F
HEADSPACE ANALYST: T. Dorgan
DATE: 12/6/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	3234		
↑	3436	80 ppm	
↓	3638	125 ppm	
SB	3840	80 ppm	EDB @ 40' w/ augers + samplers - running sands.

K. Jackut 12/6/95

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

pg 1 of 2

SITE NAME: TANK FARM 4

SITE LOCATION: ~~TANK 38~~ NETC Newport RI

PROJECT NO./CTO NO.: 0288 / CTO 143

SAMPLE LOCATION: TANK 38-SB-418

INSTRUMENT: Century OVA

SERIAL NO.: A42220

MODEL NO.: 128

SAMPLE PREP METHOD[1]: (A) inside temp of truck ~40°F

HEADSPACE ANALYST: K. Jalkut

DATE: 12/7/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0 ppm	
	0507	0 ppm	
	1012	0	
	1416	0	
	1618	0	
	1820	5	
	2022	2	
	2224	1	
	2426	NR	
	2628	0	
	2830	0	
	3032	8	
SB	3234	110	
	3436	43	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sampl
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

pg 2 of 2

SITE NAME: Tank Farm 4
SITE LOCATION: NETC Newport RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: Tank 38 - SB 418
INSTRUMENT: Century OVA
SERIAL NO.: A42220
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) inside temp of truck ~40°F
HEADSPACE ANALYST: K Jalkut
DATE: 12/7/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	3638	70	
	3840	30	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG pg 1 of 2

SITE NAME: TANK FARM 4
SITE LOCATION: NETC NEWPORT RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: 42-SB-407
INSTRUMENT: CENTURY OVA
SERIAL NO.: A4 2220
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) - headspace analyzed in outside ambient temp after sitting in sun
HEADSPACE ANALYST: T. Dargan
DATE: 11/30/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0 ppm	
	0204	2	
	0406	0	
	0608	0	
	0810	0	
	1012	0	
	1214	0	
	1416	0	
	1618	0	
	1820	0	
	2022	2	
	2224	0	
SB	2426	0 ppm	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

pg 2 of 2

SITE NAME: TANK FARM 4
SITE LOCATION: NETC NEWPORT RI
PROJECT NO./CTO NO.: 0288/CTO 143
SAMPLE LOCATION: TANK 42 SB L117
INSTRUMENT: CENTURY OVA
SERIAL NO.: A42220
MODEL NO.: 128
SAMPLE PREP METHOD[1] (A)
HEADSPACE ANALYST: T. Dorgan
DATE: 11/30/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	2628	5 ppm	
	2830	0	
	3032	2	
	3234	4	
	3436	0	1st observance of oil. No odor.
	3638	0	Petroleum impacted
	3840	35 ppm	Petroleum impacted
SB	3941	Not enough sample for analysis.	EOB @ 39.25' Petroleum impacted
		K. Jarkut 11/30/95	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TANK 42 TANK FARM 4
SITE LOCATION: NETC NEWPORT RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: TANK 42 - SB - 410
INSTRUMENT: OVA
SERIAL NO.: A42220
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) outside temp - 40°F
HEADSPACE ANALYST: T. Dorgan
DATE: 12/1/95 HEAVY RAIN TODAY

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0	
↑	0507	0	
	1012	5 ppm	
↓	1416	5 ppm	
SB	2022	?	EOB @ 22' Possible rock surface at 20'3"
			No petroleum odor or impact observed
		K. Jackert 12/1/95	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TANK 42 TANK FARM 4
SITE LOCATION: NETC NEWPORT RI
PROJECT NO./CTO NO.: 0288 / CTO143
SAMPLE LOCATION: 42-SB-411
INSTRUMENT: Century OVA
SERIAL NO.: A42220
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) outside temp 40°F
HEADSPACE ANALYST: T. Dorgan
DATE: 12/4/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0	
	0507	0	
	1012	0	
	1517	0	
	2022	0	
	2527	0	
	3032	10	1st sign of petroleum impact
	3537	5	
	3739	?	
SB	3941	?	EOB ~41' Possible rock surface @ 37-38'
	K. Jackert 12/4/95		

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TANK FARM 4
SITE LOCATION: NETC - NEWPORT RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: TANK 42 - SB - 413
INSTRUMENT: CENTURY OVA
SERIAL NO.: A42220
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) temp outside 38-45°F
HEADSPACE ANALYST: T. Dorgan
DATE: 12/5/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	42-SB-413-0002	0	
	42-SB-413-0507	0	
	42-SB 413-1012	2	
	42-SB-413-1517	0	
	42-SB-413-2022	0	
	42-SB-413-2527	0	
	42-SB-413-3032	5 ppm	
	42-SB-413 3537	0	
SB	42-SB 413-3840	4 ppm	EOB @ 39.3 ft bgs No petroleum impact observed
		K. Jackson 12/5/95	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

1/2

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME:
SITE LOCATION: NETC- NEWPORT, RI
PROJECT NO./CTO NO.: 0288 / 143
SAMPLE LOCATION: 45-SB-330
INSTRUMENT: OVA
SERIAL NO.:
MODEL NO.:
SAMPLE PREP METHOD[1] a
HEADSPACE ANALYST: J Holder
DATE: 10/2/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	00 02	0	
	02 04	0	
	04 06	0	
	06 08	0	
	08 10	0	
	10 12	0	
	12 14	0	
	14 16	0	
	16 18	0	
	18 20	0	
	20 22	0	
	22 24	0	
SB	24 26	0	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

2/2

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME:
SITE LOCATION: NETC - Newport, RI
PROJECT NO./CTO NO.: 0288/143
SAMPLE LOCATION: 45-SB-330
INSTRUMENT: OVA
SERIAL NO.:
MODEL NO.:
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: [illegible]
DATE: 10/3/95 - 10/3/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	26 28	0	
	28 30	260	Usually impacted Soil
	30 32	170	
	32 34	100	
	34 36	0	
	36 38	0	
	38 40	320	Usually impacted
SB	~~40~~		

10/3/95

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sampl
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4-SI
SITE LOCATION: TANK 45
PROJECT NO./CTO NO.: 02866 / CTO143
SAMPLE LOCATION: 45-SB-331
INSTRUMENT: CENTURY OVA 128 GC
SERIAL NO.: NU10265
MODEL NO.:
SAMPLE PREP METHOD[1]: A
HEADSPACE ANALYST: T. Dargan
DATE: 10-2/10-3-95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0507	0	
	1012	0	
	1517	0	
	2022	0	
	2426	0	
	2628	15	
	2830	15	
	3032	15	
	3234	12	
	3436	15	
	3638	20	
	3840	12	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME:
SITE LOCATION: NETC - Newport, RF
PROJECT NO./CTO NO.: 0288 / 143
SAMPLE LOCATION: 45-SB-332
INSTRUMENT: OVA
SERIAL NO.:
MODEL NO.:
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: J. Holden
DATE: 10/3/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0507	2	
	1012	0	
	1517	0	
	2022	0	
	2426	0	
	2628	55	
	2830	10	
	3032	6	
	3234	14	
	3436	No Sample	
	3638	23	
SB	3840	58	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4-5I
SITE LOCATION: TANK 45
PROJECT NO./CTO NO.: 02866 / CT0143
SAMPLE LOCATION: B 45-SB-533
INSTRUMENT: CENTURY OVA128 GC
SERIAL NO.: N010265
MODEL NO.:
SAMPLE PREP METHOD[1] A
HEADSPACE ANALYST: T. Dragen
DATE: 10-3-95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0	
	0204	0	
	0406	0	
	0608	0	
	0810	1	
	1012	2	
	1214	1	
	1416	2	
	1618	1	
	1820	2	
	2022	1	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TANK FARM 4 - NETC - NEWPORT, RI
SITE LOCATION: NEWPORT, RI
PROJECT NO./CTO NO.: 02588 | CTO143
SAMPLE LOCATION: TANK 45 - SB-33
INSTRUMENT: CENTURY OVA 128 GC
SERIAL NO.: NV10265
MODEL NO.:
SAMPLE PREP METHOD[1]: A
HEADSPACE ANALYST: TRACY DURGAN
DATE: 10-4-95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	5 PPM	
	0204	0	
	0406	0	
	0608	0	
	0810	0	
	1012	0	
	1214	0	
	1416	0	
	1618	5	
	1820	0	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4+5 SI
SITE LOCATION: NETC- Newport, RI
PROJECT NO./CTO NO.: 0288/ 143
SAMPLE LOCATION: 45-50-335
INSTRUMENT: OVA
SERIAL NO.: Nu10265
MODEL NO.:
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: [illegible]
DATE: 10/4/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	1315	0	
↓	1517	>50	
SB	1719	30	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 - SI
SITE LOCATION: TANK 45
PROJECT NO./CTO NO.: 02586 | CTO143
SAMPLE LOCATION: 45-SB-336
INSTRUMENT: CENTURY OVA/128 GC
SERIAL NO.: NU10265
MODEL NO.:
SAMPLE PREP METHOD[1] A
HEADSPACE ANALYST: T. Dougan
DATE: 10-4-95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	1012	0	
	1214	0	
	1416	0	
	1618	0	
	1820	0	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

pg 1 of 2

(400 SERIES)

SITE NAME: SITE INVESTIGATIONS TANK FARMS 4+5

SITE LOCATION: NETC Newport RI

PROJECT NO./CTO NO.: 0288 / CTO 143

SAMPLE LOCATION: TANK 48 Boring 401

INSTRUMENT: ORGANIC VAPOR ANALYZER

SERIAL NO.: A42254

MODEL NO.: ~~RGA-75e~~ OVA 128

SAMPLE PREP METHOD[1]: (A)

HEADSPACE ANALYST: J HOLDEN / K JALKUT

DATE: 11/28/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	8	possibly due to presence of organic material (roots etc)
	0204	0.5	
	0406	4	
	0608	—	NO SAMPLE
	0809	2	
	0911	0	
	1113	0	possible water table
	1315	0	
	1517	2	
	1719	5	1st observance of petroleum impact (visual)
	1921	50	petroleum impacted
	2123	60	
SB	2325	47	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG pg 2 of 2

(400 SERIES)

SITE NAME: SITE INVESTIGATIONS TF4 + TF5
SITE LOCATION: NETC Newport RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: Tank 48 B401
INSTRUMENT: Organic Vapor Analyzer
SERIAL NO.: A42254
MODEL NO.: OVA-128
SAMPLE PREP METHOD[1]: (A)
HEADSPACE ANALYST: K JALKUT / J. HOLDEN
DATE: 11/28/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	2527	56	petroleum impacted
	2729	64	
	2931	53	
	3133	58	
	3335	41	
	3537	22	Large gravel in split barrel.
SB	37-38.5	300	END OF BORING - REFUSAL @ 38.5 POSSIBLE BEDROCK SURFACE

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

p1/2

SITE NAME: SI TF4
SITE LOCATION: NETC Newport
PROJECT NO./CTO NO.: 0288 /143
SAMPLE LOCATION: 48-SB404
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: @
HEADSPACE ANALYST: [illegible]
DATE: 11/28/95 –

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0507	0	
	1012	0	
	1517	20	
	1719	34	
	1921	2	
end of 11/28/95	2123	64	

11/28/95

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

p 2/2

SITE NAME: Tank 48 Tank Farm 4 Site Investigations 400 Series
SITE LOCATION: NETC Newport RI
PROJECT NO./CTO NO.: 0238/CTO 143
SAMPLE LOCATION: 48-SB-404-
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A)+(H) - Snowing heavily - ambient temp 30°F 55-
HEADSPACE ANALYST: K Jalkut temp in vehicle ~60°F
DATE: 11/29/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	2325	60 ppm	warmed sample up in vehicle
	2527	120 ppm	Sample heated in vehicle 5 min - allowed 5 min wait prior to measuring
	2729	>1000 ppm	Sample heated in vehicle 5 min - allowed 5 min. wait prior to measuring
	2931	>1000 ppm	Same as above
	3133	900 ppm	Same as above
	3335	>1000 ppm	Same as above
	3537	200 ppm	Ambient temp - not heated (in truck)
	3739	340 ppm	Ambient temp (in truck)
SB	3941	120 ppm	Ambient temp in truck
SB	4142	200 ppm	Ambient temp in truck
	End of boring at 42 feet.		

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TANK 48 Boring 408 Tank Farm 4 SI
SITE LOCATION: NETC Newport RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: 48-SB-408
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A)
HEADSPACE ANALYST: K. JALKUT
DATE: 11/29/95 + 11/30/95 11/29/95 - Temp outside 30-35°F SNOW
Truck temp - 50-60°F

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB 11/29	0507	0	warmed sample in warm truck - not on heat
	1012	0	sample warmed up in warm truck
	1517	0.6	Same as above
	1719	0	Same as above
	1921	1	Same as above
	2123	2.7	Same as above
SB 11/29	2325	20	Same as above

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

Continued from p 1

SITE NAME: Tank 48 Tank Farm 4
SITE LOCATION: NETC Newport RI
PROJECT NO./CTO NO.: 6268 / CTO 143
SAMPLE LOCATION: 48-SB-408
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) inside warm truck @ 55°F
HEADSPACE ANALYST: K. Jalkut
DATE: 11/30/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	2527	60 ppm	
	2729	75 ppm	
	~~3133~~ 2931	56 ppm	
	3133	52 ppm	
	3335	44 ppm	
	3537	140 ppm	
	3739	90 ppm	
	3941	42 ppm	
	4143	10 ppm	Gravelly sample
	4344	100 ppm	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TANK FARM 4
SITE LOCATION: NETC-NEWPORT RI
PROJECT NO./CTO NO.: 0288 / CTO 143
SAMPLE LOCATION: TANK 48 SB-409
INSTRUMENT: CENTURY OVA
SERIAL NO.: A42254
MODEL NO.: 128
SAMPLE PREP METHOD[1]: (A) Warmed in back of truck - temp is ~50°F
HEADSPACE ANALYST: K. JALKUT
DATE: 12/1/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0507	0.8 ppm	
↑	1012	0 ppm	
	1517	0.5 ppm	
↓	2022	22 ppm	Petroleum impacted (visual)
SB	2224 12/1/95	42 ppm	EOB @ ~29' Possible rock surface
		NOTE: DOWNGRADIENT BORING @ TNK 48	
		~40-50' downslope and likely	
		downgradient of tank.	
		K. Jalkut 12/1/95	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0255 / 143
SAMPLE LOCATION: 48-SB-412
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: OVA 128
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: J Holden
DATE: 12/4/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0507	1	
	1012	4	
	1517	56	strong odor
	1921	~~10~~ 54	oil droplets
	2122	NA	no volume for HS duplicate collected
	1719	10	UIS impact

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI NETC
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0258 / 143
SAMPLE LOCATION: 45-SB-419
INSTRUMENT: Century OVA
SERIAL NO.: A42254
MODEL NO.: OVA 128
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: J Holden
DATE: 12/8/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	3	
	0507	0	
	1012	1	
	1214	1	
	1416	2	
	1618	2	
	1820	6	
SB	2022	2	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI - NETC
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 6288/143
SAMPLE LOCATION: 48-SB-420
INSTRUMENT: Century OVA
SERIAL NO.:
MODEL NO.: 128
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: J Holden
DATE: 12/8/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	12	
	0507	2	
	1012	0	
	1214	1	
	1416	5	
	1618	6	
	1820	NA	not enough volume

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI NETC
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0288 /143
SAMPLE LOCATION: 48-SB-421
INSTRUMENT: Century OVA
SERIAL NO.:
MODEL NO.: 128
SAMPLE PREP METHOD[1] a
HEADSPACE ANALYST: J Holden
DATE: 12/8/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	1	
	0507	0	
	1012	0	
	1214	1	
	1416	12	
	1619	No Hs	
SB	1219	12	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI NETC
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0288 1143
SAMPLE LOCATION: 48-SB-422
INSTRUMENT: OVA
SERIAL NO.:
MODEL NO.: 128
SAMPLE PREP METHOD[1]: a
HEADSPACE ANALYST: J Holden
DATE: 12/11/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0	
	0507	0	
	1012	8	
	1214	0	
	1416	15	slight steam
	1618	5	UCS impact
	1820	20	
	2022	32	
	2224	21	
SB	2426	6	UCS impact

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 SI NETC
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0285 / 143
SAMPLE LOCATION: 48-SB-423
INSTRUMENT: Century OVA
SERIAL NO.:
MODEL NO.: 128
SAMPLE PREP METHOD[1] a
HEADSPACE ANALYST: J Holder
DATE: 12/12/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0002	0	
	0507	0	
	1012	0	
	1214	0	
	1416	0	
	1618	1	
	1820	4	odor
SB	2022	18	UIS impact

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sample
GW Groundwater Sample
TP Test Pit Sample

Halliburton NUS CORPORATION

JAR HEADSPACE ANALYSIS LOG

SITE NAME: TF4 NETC
SITE LOCATION: Newport RI
PROJECT NO./CTO NO.: 0288 /143
SAMPLE LOCATION: 48-SB-425
INSTRUMENT: Century OVA
SERIAL NO.:
MODEL NO.: 128
SAMPLE PREP METHOD[1] a
HEADSPACE ANALYST: [illegible]
DATE: 12/13/95

SAMPLE TYPE[2]	SAMPLE DEPTH (FEET)	READING (ppm)	COMMENTS
SB	0907	0	
↓	1012	0	
SB	1517	No sample	

1) (a) ambient temp
(h) heated (air)
(w) how water bath

2) Type of Sample
SB Soil Boring
SD Sediment Sample
SS Surface Soil Sampl
GW Groundwater Sample
TP Test Pit Sample

APPENDIX E

RELEVANT SECTIONS OF THE MASSACHUSETTS CONTINGENCY PLAN

Section: continued

40.0833: Performance Standards
40.0834: Phase II Scope of Work
40.0835: Phase II Report
40.0836: Phase II Completion Statement
40.0839: Public Involvement
40.0840: Possible Outcomes
40.0850: Phase III - Identification, Evaluation, and Selection of Comprehensive Remedial Action Alternatives
40.0852: General Provisions
40.0853: Performance Standards
40.0855: Identification and Evaluation of Remedial Action Alternatives
40.0856: Initial Screening of Likely Remedial Action Alternatives
40.0857: Detailed Evaluation of Remedial Action Alternatives
40.0858: Detailed Evaluation Criteria
40.0859: Selection of Remedial Action Alternative
40.0860: Feasibility of Permanent Solutions; Feasibility of Restoration to Background
40.0861: Remedial Action Plan
40.0862: Phase III Completion Statement
40.0863: Public Involvement
40.0864: Possible Outcomes
40:0870: Phase IV - Implementation of the Selected Remedial Action Alternativ
40.0871: General Provisions
40.0872: Performance Standards
40.0874: Remedy Implementation Plan (RIP)
40.0875: As-Built Construction Report
40.0878: Final Inspection Report
40.0879: Phase IV Completion Statement
40.0880: Public Involvement
40.0881: Possible Outcomes
40.0890: Phase V - Operation, Maintenance, and/or Monitoring
40.0891: General Provisions
40.0892: Inspection and Monitoring Reports
40.0893: Phase V Completion Statement
40.0894: Public Involvement
40.0895: Possible Outcomes
40.0896: Post-RAO Operation, Maintenance, and/or Monitoring

SUBPART I: RISK CHARACTERIZATION

40.0900: Procedures and Standards for the Characterization of the Risk of Harm to Health, Safety, Public Welfare, and the Environment
40.0901: Applicability and General Requirements
40.0902: Purpose of the Risk Characterization

40.0903: Scope of the Risk Characterization and Supporting Documentation
40.0904: Site Information Required for Risk Characterization
40.0920: Receptor Information Required For Risk Characterization
40.0921: Identification of Human Receptors
40.0922: Identification of Environmental Receptors
40.0923: Identification of Site Activities and Uses
40.0924: Identification of Exposure Points
40.0925: Identification of Exposure Pathways
40.0926: Identification of Exposure Point Concentrations
40.0930: Identification of Site Groundwater And Soil Categories
40.0931: Purpose
40.0932: Identification of Applicable Groundwater Categories
40.0933: Identification of Applicable Soil Categories
40.0940: Methods for Characterizing Risk of Harm
40.0941: Approaches to Characterizing Risk of Harm

(e) The provisions of 310 CMR 40.0932(5)(a), (b) and (c) apply to specific criteria for the inclusion of an area in the GW-1 category. Nothing in 310 CMR 40.0932(5) shall limit the applicability of any other criteria described in 310 CMR 40.0932(4)(a) through (f) to the categorization of groundwater at a disposal site.

(6) Groundwater Category GW-2. Groundwater shall be defined to be in category GW-2 if it is located within 30 feet of an existing occupied building or structure, and the average annual depth to groundwater in that area is 15 feet or less. Category GW-2 groundwater is considered to be a potential source of vapors of oil and/or hazardous material to indoor air.

40.0933 Identification of Applicable Soil Categories

Soil shall be classified as either category S-1, S-2 or S-3. The site, receptor and exposure information identified in 310 CMR 40.0904 through 40.0929, considering both the current and reasonably foreseeable Site Activities and Uses identified in 310 CMR 40.0923, shall be used in conjunction with the criteria listed below to categorize the soil.

(1) The soil categories shall be applicable to specific volumes of soil which shall be described in written and graphic form in the documentation of the Risk Characterization.

40.0933: continued

(2) The three soil categories describe a range of the potential for exposure to that soil: Category S-1 soils are associated with the highest potential for exposure, Category S-3 soils have the lowest potential for exposure. While on and only one category is applicable to a specified volume of soil, soils in different areas of a disposal site may be classified in different categories, depending upon their exposure potential.

(3) The Table in 310 CMR 40.0933(9) contains a matrix summarizing the criteria used to categorize soil.

(4) For the purpose of soil categorization, the potential for exposur is described by a qualitative analysis of the accessibility of the soil in combination with the information about the Site Activities and Uses determined pursuant t 310 CMR 40.0923. The following definitions shall be used to describe exposure potential for the purposes of categorizing soil:

(a) Frequency of use shall indicate how often a receptor makes use of, or has access to, the disposal site. Receptor access to and use of the ar as around the disposal site are often strong indicators of potential site access and thus should be considered in determining frequency of use for th sit under investigation. Frequency of use shall be described as either "High", "Low" or "Not Present", using the following criteria:

1. Children's frequency of use shall be characterized as high if:

a. any children reside, attend school or attend day care at the disposal site; or

b. large numbers of children visit the disposal site, regardless of any one child's frequency of visitation.

2. Adults' frequency of use shall be characterized as high when they reside at the disposal site, or when they work at the disposal site on a continuing basis [*i.e.*, full days or shifts of eight or more hours per day on a continuing basis].

3. Children's or adults' frequency of use shall be characterized as low when they are present at the disposal site, but only as infrequent visitors; or when workers are present at the disposal site for only short periods of time [*i.e.*, less than two hours per day on a continuing basis, or for full days or shifts on a sporadic basis].

4. It shall be presumed that children may be present at the disposal siteunless it can be demonstrated that access by children age 15 and younger is specifically restricted or that such children are highly unlikely to be present, in which case children may be considered to be "Not Present". Disposal sites which are residential properties shall presume the presence of children unless there is clear and convincing evidence to the contrary.

5. The frequency of use for activities not described above shall be characterized in the documentation of the Risk Characterization as either

high or low.

(b) Intensity of use shall describe the nature of the Site Activities and Uses which could potentially result in exposure to the receptor. Intensity of us shall be described as either "High" or "Low", using the following criteria:

1. Site Activities and Uses which have the potential to disturb soil and thus result in either direct contact with the soil itself or inhalation of soil-derived dust shall be characterized as high intensity use. Examples of such activities include, without limitation, gardening, digging, and recreational sports.

2. Passive activities which do not disturb the soil, such as walking, shopping, and bird watching shall be characterized as low intensity use.

3. The intensity of use for each identified Site Activity and Use shall be characterized in the documentation of the Risk Characterization as either high or low with appropriate justification.

(c) Accessibility of the soil to potential receptors shall be characterized as either "accessible," "potentially accessible," or "isolated" using the following criteria:

1. Soil shall be characterized as "accessible" if it is located less than three feet below the surface, and the surface is not completely covered by pavement. For buildings having earthen floors, the floor shall be considered as the soil surface.

2. Soil shall be characterized as "potentially accessible" if it is located at a depth of three - 15 feet below the surface (with or with ut pavement), or if the soil is located less than three feet from the surface in an area completely paved.

40.0933: continued

3. Soil shall be characterized as "isolated" if it is located at a depth greater than 15 feet below the surface, or if the soil is covered completely by a building or other permanent structure which does not have earthen floors, regardless of depth. Soil located at a depth greater than three feet below the earthen floor of a building or other permanent structure shall also be characterized as "isolated."

(5) Category S-1. Soil shall be classified as category S-1 if either:

(a) the soil of concern is accessible, pursuant to 310 CMR 40.0933(4)(c)1., and either:

1. the soil is currently used for growing fruits or vegetables for human consumption, or if it is reasonably foreseeable that the soil may be put to such use; or

2. a child's frequency or intensity of use is considered to be high pursuant to 310 CMR 40.0933(4)(b) and (c); or

3. an adult's frequency and intensity of use are both considered to be high pursuant to 310 CMR 40.0933(4)(b) and (c); or

(b) the soil is potentially accessible, pursuant to 310 CMR 40.0933(4)(c)2., and a child's frequency and intensity of use are both considered to be high pursuant to 310 CMR 40.0933(4)(b) and (c).

(6) Category S-2. Soil shall be classified as category S-2 if either:

(a) the soil is accessible, pursuant to 310 CMR 40.0933(4)(c)1., and:

1. a child's frequency and intensity of use are both considered to be low pursuant to 310 CMR 40.0933(4)(b) and (c); or

2. children are not present at the disposal site and either (but not both) the adults' frequency or intensity of use is considered to b high, pursuant to 310 CMR 40.0933(4)(b) and (c); or

(b) the soil is potentially accessible, pursuant to 310 CMR 40.0933(4)(c)2., and:

1. either (but not both) a child's frequency or intensity of use is considered to be high pursuant to 310 CMR 40.0933(4)(b) and (c); or

2. children are not present at the disposal site and an adult's frequency and intensity of use are both considered to be high pursuant to 310 CMR 40.0933(4)(b) and (c).

(7) Category S-3. Soil shall be classified as category S-3 if either:

(a) the soil is accessible, pursuant to 310 CMR 40.0933(4)(c)1., and children are not present at the disposal site and an adult's frequency and intensity of use are both considered to be low pursuant to 310 CMR 40.0933(4)(b) and (c); or

(b) the soil is potentially accessible pursuant to 310 CMR 40.0933(4)(c)2., and:

1. a child's frequency and intensity of use are both considered to be low

pursuant to 310 CMR 40.0933(4)(b) and (c); or

2. a demonstration has been made that children are not present at the disposal site, and either an adult's frequency or intensity of use is considered to be low pursuant to 310 CMR 40.0933(4)(b) and (c); or

(c) the soil is isolated pursuant to 310 CMR 40.0933(4)(c)3., regardless of any receptor's frequency or intensity of use.

(8) Whenever and wherever reasonable doubts exist over the selection of the appropriate soil category, the soil category associated with the highest exposure potential (among the soil categories being considered) shall be selected.

(9) Table 40.0933(9) contains the Soil Category Selection Matrix.

Table 40.933(9)

SOIL CATEGORY SELECTION MATRIX - HUMAN EXPOSURE POTENTIAL

Accessibility ↓ of Soil ↓	RECEPTOR CHARACTERISTICS: CHILDREN PRESENT, HIGH FREQUENCY, High Intensity	CHILDREN PRESENT, HIGH FREQUENCY, Low Intensity	CHILDREN PRESENT, LOW FREQUENCY, High Intensity	CHILDREN PRESENT, LOW FREQUENCY, Low Intensity	ADULTS ONLY PRESENT, HIGH FREQUENCY, High Intensity	ADULTS ONLY PRESENT, HIGH FREQUENCY, Low Intensity	ADULTS ONLY PRESENT, LOW FREQUENCY, High Intensity	ADULTS ONLY PRESENT, LOW FREQUENCY, Low Intensity
ACCESSIBLE (SURFICIAL) SOIL 0 <= 3' (unpaved)	CATEGORY S-1			S-2	S-1	CATEGORY S-2		
POTENTIALLY ACCESSIBLE SOIL 3 <= 15' (unpaved) or 0 <= 15' (paved)		CATEGORY S-2			S-2	CATEGORY S-3		
ISOLATED SUB-SURFACE SOILS > 15' or under the footprint of a building or permanent structure	CATEGORY S-3							

* - Category S-1 also applies to any accessible soil where the current or reasonably foreseeable use of the soil is for growing fruits and vegetables for human consumption.

310 CMR 40.0975(6)(a)

TABLE 2

MCP Method 1: SOIL CATEGORY S-1 STANDARDS

APPLICABLE TO SOIL WHERE THE COMBINATION OF SOIL & GROUNDWATER CATEGORIES ARE:

Oil and/or Hazardous Material	CAS Number	S-1 SOIL & GW-1 µg/g (ppm)	S-1 SOIL & GW-2 µg/g (ppm)	S-1 SOIL & GW-3 µg/g (ppm)
SILVER	7440224	100	100	100
STYRENE	100425	2	20	20
TETRACHLOROETHANE, 1,1,1,2-	630206	0.4	0.5	4
TETRACHLOROETHANE, 1,1,2,2-	79345	0.02	0.2	0.5
TETRACHLOROETHYLENE	127184	0.5	200	200
THALLIUM	7440280	8	8	8
TOLUENE	108883	90	500	500
TOTAL PETROLEUM HYDROCARBON †	NA	500	500	500
TRICHLOROBENZENE, 1,2,4-	120821	100	400	400
TRICHLOROETHANE, 1,1,1-	71556	30	100	100
TRICHLOROETHANE, 1,1,2-	79005	0.3	2	2
TRICHLOROETHYLENE	79016	0.4	20	70
TRICHLOROPHENOL, 2,4,5-	95954	3	1,000	2
TRICHLOROPHENOL 2,4,6-	88062	3	40	40
VANADIUM	7440622	400	400	400
VINYL CHLORIDE	75014	0.3	0.3	0.3
XYLENES (mixed isomers)	1330207	500	500	500
ZINC	7440666	2,500	2,500	2,500

NOTE: All concentrations of oil and/or hazardous material in soil are calculated and presented on a dry weight/dry weight basis.

NA - Not Applicable

* - Cyanide expressed as free, or physiologically available cyanide.

** - Dioxins expressed as 2,3,7,8-TCDD equivalents.

† - Total Petroleum Hydrocarbon as measured using standard analytical methods or methods which provide toxicity-weighted concentrations, such as the MADEP TPH approach. This standard does not address and is not sufficient to evaluate specific chemicals which may be present in some petr leum products and which have promulgated MCP standards (such as benzene, toluene, ethylbenzene, xylenes and polycyclic aromatic hydrocarbons (PAHs)).

310 CMR 40.0975(6)(b)

TABLE 3

MCP Method 1: SOIL CATEGORY S-2 STANDARDS

APPLICABLE TO SOIL WHERE THE COMBINATION OF SOIL & GROUNDWATER CATEGORIES ARE:

Oil and/or Hazardous Material	CAS Number	S-2 SOIL & GW-1 µg/g (ppm)	S-2 SOIL & GW-2 µg/g (ppm)	S-2 SOIL & GW-3 µg/g (ppm)
HEXACHLOROETHANE	67721	10	10	10
INDENO(1,2,3-cd)PYRENE	193395	1	1	1
LEAD	7439921	600	600	600
MERCURY	7439976	60	60	60
METHOXYCHLOR	72435	300	300	30
METHYL ETHYL KETONE	78933	0.3	40	40
METHYL ISOBUTYL KETONE	108101	0.5	70	70
METHYL MERCURY	22967926	20	20	20
METHYL t-BUTYL ETHER	1634044	3	200	200
METHYLENE CHLORIDE	75092	0.1	200	200
METHYLNAPHTHALENE, 2-	91576	0.7	20	7
NAPHTHALENE	91203	4	1,000	1,000
NICKEL	7440020	700	700	700
PENTACHLOROPHENOL	87865	5	10	10
PHENANTHRENE	85018	700	2,500	100
PHENOL	108952	60	800	500
POLYCHLORINATED BIPHENYLS (PCBs)	1336363	2	2	2
PYRENE	129000	500	2,000	500
SELENIUM	7782492	2,500	2,500	2,500
SILVER	7440224	200	200	200
STYRENE	100425	2	20	30
TETRACHLOROETHANE, 1,1,1,2-	630206	0.4	0.5	5
TETRACHLOROETHANE, 1,1,2,2-	79345	0.02	0.2	0.6
TETRACHLOROETHYLENE	127184	0.5	300	300
THALLIUM	7440280	30	30	30
TOLUENE	108883	90	500	1,000
TOTAL PETROLEUM HYDROCARBON †	NA	2,500	2,500	2,500
TRICHLOROBENZENE, 1,2,4-	120821	100	900	800
TRICHLOROETHANE, 1,1,1-	71556	30	500	500
TRICHLOROETHANE, 1,1,2-	79005	0.3	3	3
TRICHLOROETHYLENE	79016	0.4	20	100
TRICHLOROPHENOL, 2,4,5-	95954	3	2,500	2
TRICHLOROPHENOL 2,4,6-	88062	3	60	60
VANADIUM	7440622	2,000	2,000	2,000
VINYL CHLORIDE	75014	0.4	0.3	0.[illegible]
XYLENES (mixed isomers)	1330207	800	500	1,000
ZINC	7440666	2,500	2,500	2,500

40.0975: continued

310 CMR 40.0975(6)(c)

TABLE 4

MCP Method 1: SOIL CATEGORY S-3 STANDARDS

APPLICABLE TO SOIL WHERE THE COMBINATION OF SOIL & GROUNDWATER CATEGORIES ARE:

Oil and/or Hazardous Material	CAS Number	S-3 SOIL & GW-1 µg/g (ppm)	S-3 SOIL & GW-2 µg/g (ppm)	S-3 SOIL & GW-3 µg/g (ppm)
HEXACHLOROETHANE	67721	30	30	50
INDENO(1,2,3-cd)PYRENE	193395	4	4	4
LEAD	7439921	600	600	600
MERCURY	7439976	60	60	60
METHOXYCHLOR	72435	300	300	30
METHYL ETHYL KETONE	78933	0.3	40	40
METHYL ISOBUTYL KETONE	108101	0.5	70	70
METHYL MERCURY	22967926	20	20	20
METHYL t-BUTYL ETHER	1634044	3	200	200
METHYLENE CHLORIDE	75092	0.1	700	700
METHYLNAPHTHALENE, 2-	91576	0.7	20	7
NAPHTHALENE	91203	4	1,000	1,000
NICKEL	7440020	700	700	700
PENTACHLOROPHENOL	87865	5	40	40
PHENANTHRENE	85018	700	2,500	100
PHENOL	108952	60	800	500
POLYCHLORINATED BIPHENYLS (PCBs)	1336363	2	2	2
PYRENE	129000	500	5,000	500
SELENIUM	7782492	2,500	2,500	2,500
SILVER	7440224	200	200	200
STYRENE	100425	2	20	100
TETRACHLOROETHANE, 1,1,1,2-	630206	0.4	0.5	20
TETRACHLOROETHANE, 1,1,2,2-	79345	0.02	0.2	2
TETRACHLOROETHYLENE	127184	0.5	300	500
THALLIUM	7440280	100	100	100
TOLUENE	108883	90	500	2,500
TOTAL PETROLEUM HYDROCARBON †	NA	5,000	5,000	5,000

APPENDIX F

HYDRAULIC CONDUCTIVITY DATA

CTO 143
TANK FARM 4
SITE INVESTIGATION REPORT
NETC - NEWPORT, RI
APPENDIX - F
HYDRAULIC CONDUCTIVITY CALCULATIONS

The hydraulic conductivity of the overburden and bedrock at the tank farm was estimated using slug test methods as presented by Bouwer and Rice, (1976) and updated by Bouwer, (1979). The data logger and transducer were used to measure the well response to the rapid insertion and or removal of a solid PVC slug. This is know as a slug in and slug out test, respectively. The slug used was either 2 inches or 3 inches in diameter depending on the diameter of the well casing.

Both rising and falling head slug tests were performed on nine wells. The data collected was down loaded and plotted in the field to verify that the data was collected. A review of the data for monitoring wells MW-119, MW-330, MW-331, and MW-408 indicated that the typical response, gradual return of the water level in the well to pre-test water level, was not observed. These wells had an oscillatory response to the slug test. An oscillatory response, caused by inertia effects, is when the water level fluctuates over time and does not gradually return to the initial water level. This fluctuation may occur in either highly permeable aquifers or in deep wells (Kruseman and de Ridder, 1989).

The data collected during the slug tests is presented in this appendix along with an analysis of these data. In some of the slug tests, MW-409, MW-421, MW-424, and MW-425 it appears that the data probe was disturbed during the removal of the slug, resulting in an initial drawdown value which exceeds volume of the slug. The data from these wells is valid and was used. The initial high drawdown values were screened out prior to conducting data analysis and the later time data was used.

The results of the slug test analysis is presented on Table 3-1. A review of table 3-1 indicates that tests in five wells, MW-424, MW-425, MW-1D, MW-3D, and MW-5D, were performed within the bedrock aquifer. The hydraulic conductivity calculated from these wells is referred to as the "bulk hydraulic conductivity" because one of the underlying assumptions in the analysis is that the well receives water at a uniform rate from along the entire length of the well screen. In a fractured bedrock aquifer this assumption is not met, because groundwater flow occurs along discreet fractures. The term bulk hydraulic conductivity is used here to indicate that the values calculated do not represent the hydraulic conductivity of the bedrock fractures, but the average of the aquifer thickness which was tested.

The hydraulic conductivity was calculated from each monitoring well using the Bouwer and Rice method. The calculations were performed

using a spreadsheet developed by HNUS (B&R Environmental). The spreadsheet print out and graphs of the data indicating the intercept points are also presented.

The four wells, MW-119, MW-330, MW-331, and MW-408, which exhibited the oscillatory responses were calculated using a method developed by Uffink and presented by Kruseman and de Ridder, (1989). The data plots for these wells are also presented in this appendix. Hydraulic conductivity values for two wells, MW-119 and MW-331, could not be calculated because of anomalous responses to the slug test.

REFERENCES

Bouwer, Herman, 1989, The Bouwer and Rice Slug Test - An Update, GROUND WATER, Vol. 27, No. 3, May-June 1989

Bouwer, Herman, and R. C. Rice, 1976, A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells, WATER RESOURCES RESEARCH, Vol. 12, No. 3, June 1979

Kruseman, G. P., and N. M. de Ridder, 1989, Analysis and Evaluation of Pumping Test Data, INTERNATIONAL INSTITUTE FOR LAND RECLAMATION AND IMPROVEMENT, Wageningen, Netherlands

TABLE 3-1
HYDRAULIC CONDUCTIVITY RESULTS
TANKS 45 and 48, TANK FARM 4
DRAFT SITE INVESTIGATION REPORT
NETC - NEWPORT, RHODE ISLAND

Well No.	Inside Diam. of Well (inches)	Well Screen Depth Interval (ft bgs)	Stratigraphic Unit Classification	Soil/Rock Description	Bulk Hydraulic Conductivity	
					ft/day	cm/sec
MW-119[1]	4	33.5-38.5	Fill (socket)	silty GRAVEL, poorly graded GRAVEL	NC	NC
MW-330[1,2]	2	28-38	Fill (socket)	gravelly silty SAND, sandy GRAVEL	17.14	6.1E-03
MW-331[1,2]	2	27.5-37.5	Fill (socket)	silty SAND, poorly graded GRAVEL	NC	NC
MW-408[1]	2	37-42	Fill (socket)	silty sandy GRAVEL, sandy GRAVEL	16.76	5.9E-03
MW-409	2	17-22	Outwash	silty sandy GRAVEL	3.71	1.4E-03
MW-421	2	11-16	Outwash	silty sandy GRAVEL, silty gravelly SAND	1.66	5.9E-04
MW-422	2	19-24	Fill (ramp)	gravelly silty SAND	7.02	2.5E-03
MW-424	2	26-41	Bedrock	thinly bedded, gray phyllite	2.95	1.0E-03
MW-425	2	26.5-41.5	Bedrock	thinly bedded, gray phyllite, with some highly fractured zones	1.32	4.7E-04
MW-1S[3]	2	2.5-12.5	Outwash	silty SAND	0.23	9.7E-04

MW-1D[3]	2	39-54	Bedrock	green-black shale, some fractures	0.06	2.5E-04
MW-3D[3]	2	39-54	Bedrock	green-black shale, some fractures	0.03	1.2E-04
MW-5S[3]	2	16-26	Outwash	Weathered shale	0.23	9.5E-04
MW-5D[3]	2	27-42	Bedrock	green-black shale, some fractures	0.04	1.8E-04

Legend:

NC - Not Calculated Because of Anomalous Response In Well
NA - Not Applicable
ft bgs - feet below ground surface
ft/day - feet per day
cm/sec - centimeters per second
1 - Wells with oscillatory responses
2 - Wells located at Tank 45
3 - Wells installed and tested by TRC (1992)

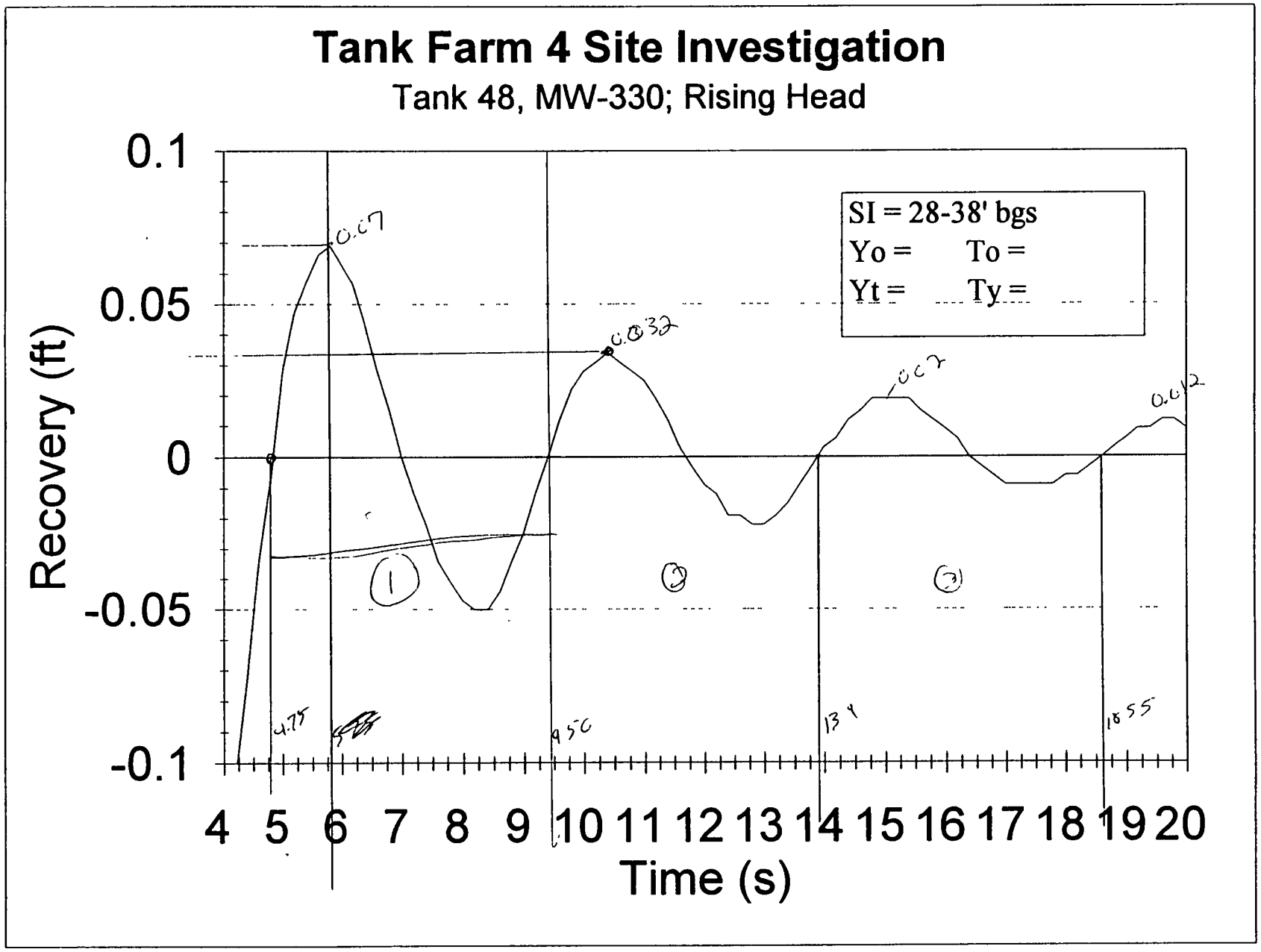
CTO 143, NETC - Newport, RI, Tank Farm 4 SI

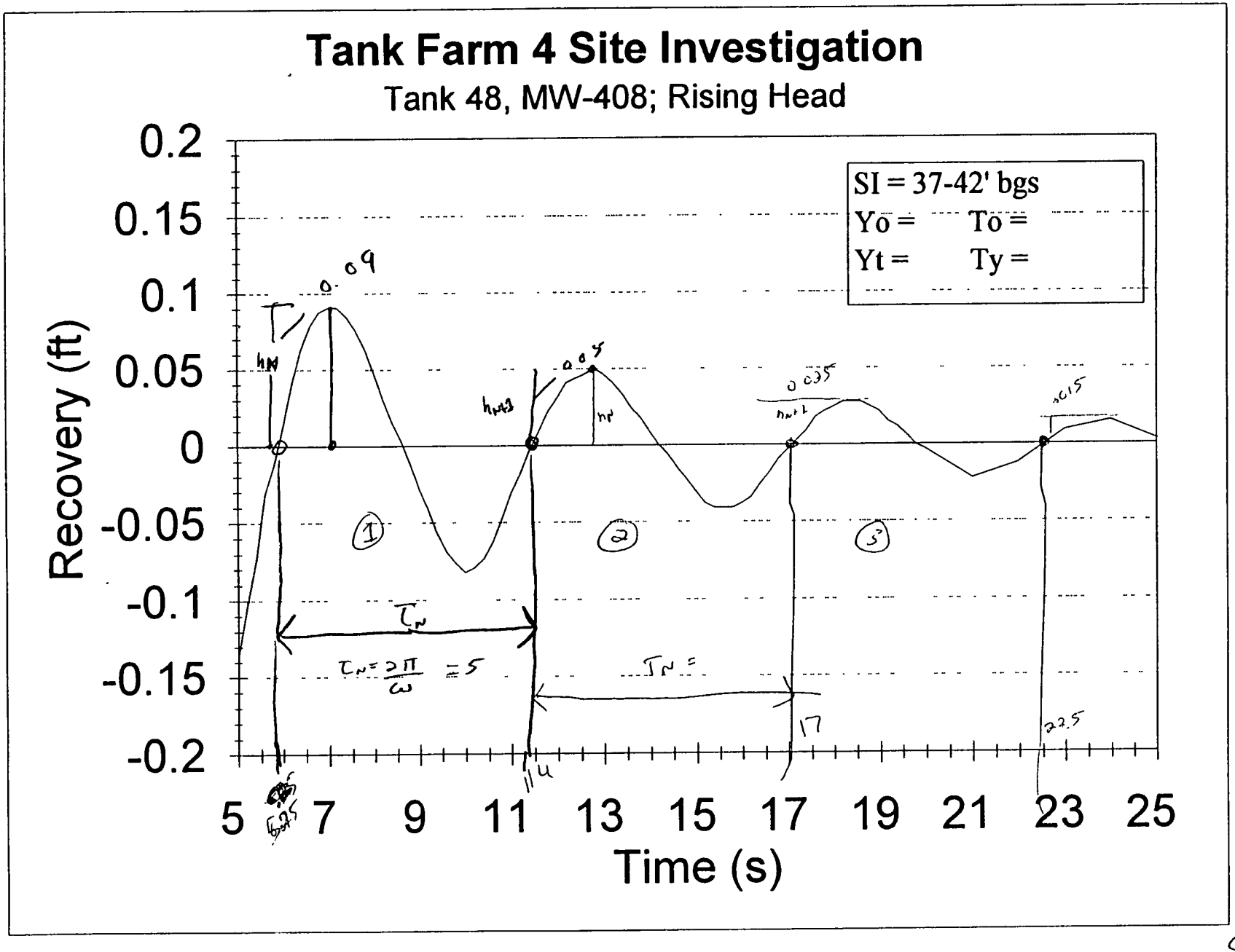
HYDRAULIC CONDUCTIVITY CALCULATIONS FROM SLUG TESTS
K calculated after Uffink 1984 (method for confined aquifer)
Table created by J. Holden

Well #	Type of Test	Oscillation Time (sec) Input	Hn (ft) Input	Hn+1 (ft) Input	δ	D^2+4pi^2	B	Wo	SQRT(1-B^2)	Theta	α	Rw Input	Rc Input
MW-408	Rising Head	5.6500	0.0900	0.0500	0.5878	39.8255	0.0931	1.1169	0.9957	3.1676	0.0017	0.0833	0.3333
		5.6000	0.0500	0.0250	0.6931	39.9605	0.1097	1.1288	0.9940	-0.3763	0.0016	0.0800	0.3300
		5.5000	0.0250	0.0150	0.5108	39.7409	0.0810	1.1462	0.9967	-0.2725	0.0016	0.0800	0.3300
Average													
MW-330	Rising Head	4.7500	0.0700	0.0320	0.7828	40.0927	0.1236	1.3330	0.9923	-5.7176	0.0016	0.0800	0.3300
		4.4000	0.0320	0.0200	0.4700	39.7009	0.0746	1.4320	0.9972	1.0343	0.0016	0.0800	0.3300
		4.6500	0.0200	0.0120	0.5108	39.7409	0.0810	1.3557	0.9967	-0.2725	0.0016	0.0800	0.3300
Average													

CTO 143, NETC - Newport, RI, Tank Farm 4 SI
HYDRAULIC CONDUCTIVITY CALCULATIONS FROM SLUG TESTS
K calculated after Uffink 1984 (method for confined aquifer)
Table created by J. Holden

Well #	S Input	Skin Input	Rw^2/Rc^2	Rw^2/Rc^2*S Calc	e^-2*Skin Calc	R^2Wo/KD From Graph	KD	Sat Thick D (ft) Input	Well #	K ft/day	K cm/sec	Comments
MW-408	0.2000	1.0000	0.0625	0.0125	0.1353	0.3000	0.0050	25.0000	MW-408	17.1897	6.06E-03	first oscillation
	0.2000	1.0000	0.0588	0.0118	0.1353	0.3000	0.0048	25.0000		16.6703	5.88E-03	second oscillation
	0.2000	1.0000	0.0588	0.0118	0.1353	0.3000	0.0048	25.0000		16.4178	5.79E-03	third oscillation
Average									Average	16.76	5.91E-03	
MW-330	0.2000	1.0000	0.0588	0.0118	0.1353	0.3000	0.0041	20.0000	MW-330	17.6458	6.23E-03	first oscillation
	0.2000	1.0000	0.0588	0.0118	0.1353	0.3000	0.0038	20.0000		16.4261	5.79E-03	second oscillation
	0.2000	1.0000	0.0588	0.0118	0.1353	0.3000	0.0040	20.0000		17.3506	6.12E-03	third oscillation
Average									Average	17.14	6.05E-03	


Tank Farm 4 Site Investigation
Tank 48, MW-330; Rising Head
SI = 28-38' bgs
Yo = To =
Yt = Ty =
Recovery (ft)
Time (s)
0.1
0.05
0
-0.05
-0.1
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
0.07
0.032
0.02
0.012
1
2
3


Tank Farm 4 Site Investigation
Tank 48, MW-408; Rising Head
SI = 37-42' bgs
Yo = To =
Yt = Ty =
Recovery (ft)
Time (s)
0.2
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
5
7
9
11
13
15
17
19
21
23
25
0.09
0.05
0.035
0.015
17
22.5

CTO 143, NETC - Newport, RI, Tank Farm 4 SI
HYDRAULIC CONDUCTIVITY CALCULATIONS FROM SLUG TESTS
K calculated after BOUWER & RICE 1976
Table created by E. McGrath Revised by M. Healey May 5, 1995

Partially Penetrating Monitoring Wells

WELL #	TYPE OF TEST	DEPTH OF WATER LEVEL (in)	LOWER AQUIFER BOUNDARY (in)	THICKNESS OF AQUIFER D (in)	DEPTH TO BOTTOM OF SCREEN (in)	HEIGHT OF WATER IN WELL H (in)	LENGTH OF SCREEN L (in)	INNER WELL RADIUS (in)	WELL RADIUS rc (in)	RADIUS TO ORIGINAL AQUIFER rw (in)
MW-409	RIS. HEAD	128.88	276	147.1	264.0	135.1	60.0	1.00	1.00	4.0
MW-409	RIS. HEAD B	128.88	276	147.1	264.0	135.1	60.0	1.00	1.00	4.0
MW-409	Average									
MW-421	RIS. HEAD	80.04	204	124.0	192.0	112 0	60.0	1.00	1.00	4.0
MW-421	RIS. HEAD B	80.04	204	124.0	192.0	112 0	60.0	1.00	1.00	4.0
MW-421	Average									
MW-422	RIS HEAD	168.72	300	131.3	288.0	119.3	60.0	1.00	1.00	4.0
MW-422	RIS. HEAD B	168.72	300	131.3	288.0	119 3	60.0	1.00	1.00	4.0
MW-422	FAL HEAD	168.72	300	131.3	288.0	119.3	60.0	1.00	1.00	4.0
MW-422	FAL HEAD B	168.72	300	131.3	288.0	119.3	60.0	1.00	1.00	4.0
MW-422	Average									
MW-424	RIS. HEAD A	120.6	500	379.4	498.0	377.4	180.0	1.00	1.50	1.5
MW-424	RIS. HEAD B	120.6	500	379.4	498.0	377.4	180.0	1.00	1.50	1.5
MW-424	FAL HEAD A	120.6	500	379 4	498.0	377.4	180.0	1.00	1.50	1.5
MW-424	FAL HEAD B	120 6	500	379.4	498.0	377 4	180.0	1.00	1.50	1 5
MW-424	Average									
MW-425	RIS. HEAD	125.76	500	374.2	492.0	366.2	180.0	1.00	1.50	1.5
MW-425	RIS. HEAD b	125.76	500	374 2	492.0	366 2	180.0	1.00	1.50	1.5
MW-425	Average									

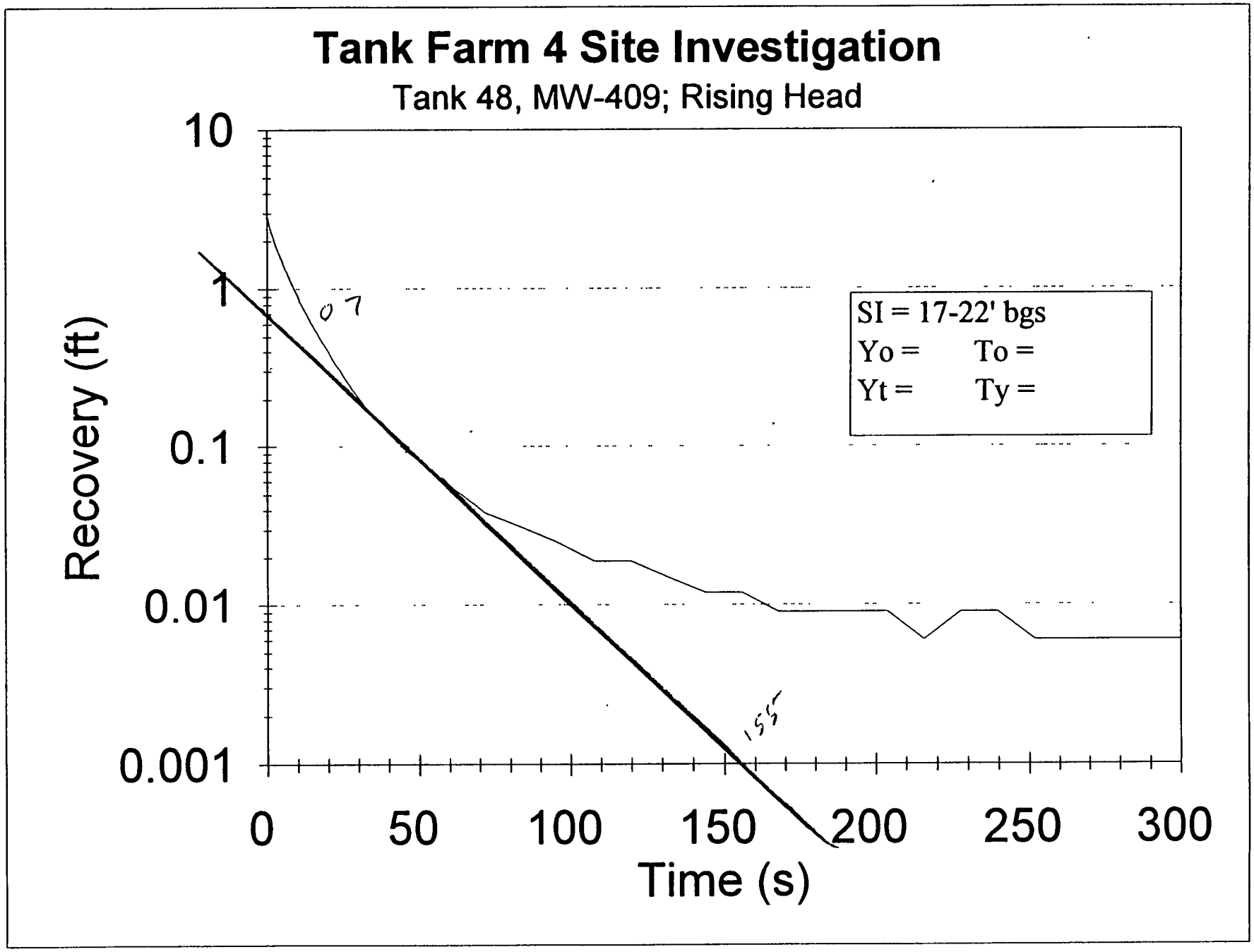
CTO 143, NETC - Newport, RI, Tank Farm 4 SI
HYDRAULIC CONDUCTIVITY CALCULATIONS FROM SLUG TESTS
K calculated after BOUWER & RICE 1976
Table created by E. McGrath Revised by M. Healey May 5, 1995

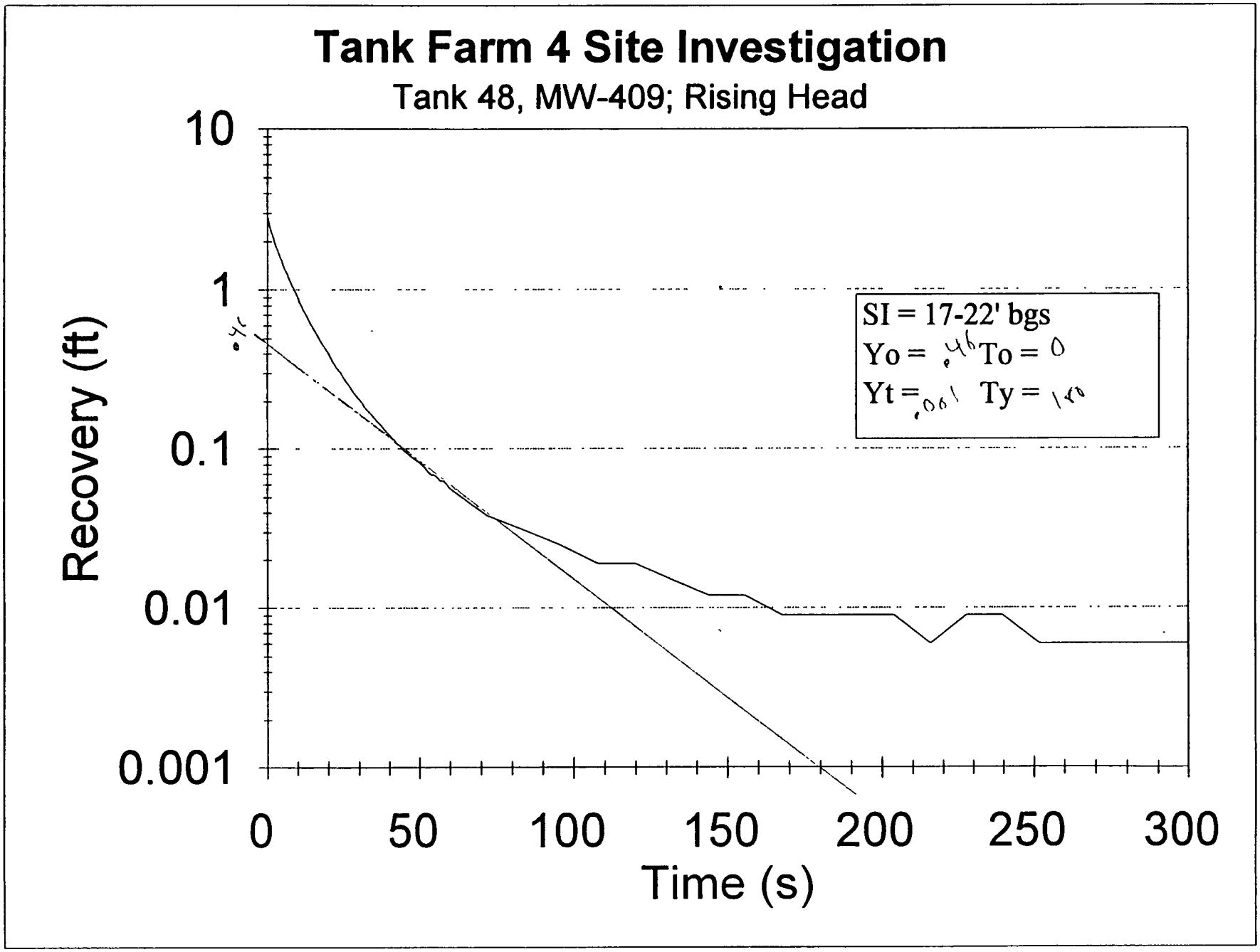
Partialy Penetrating Monitoring Wells

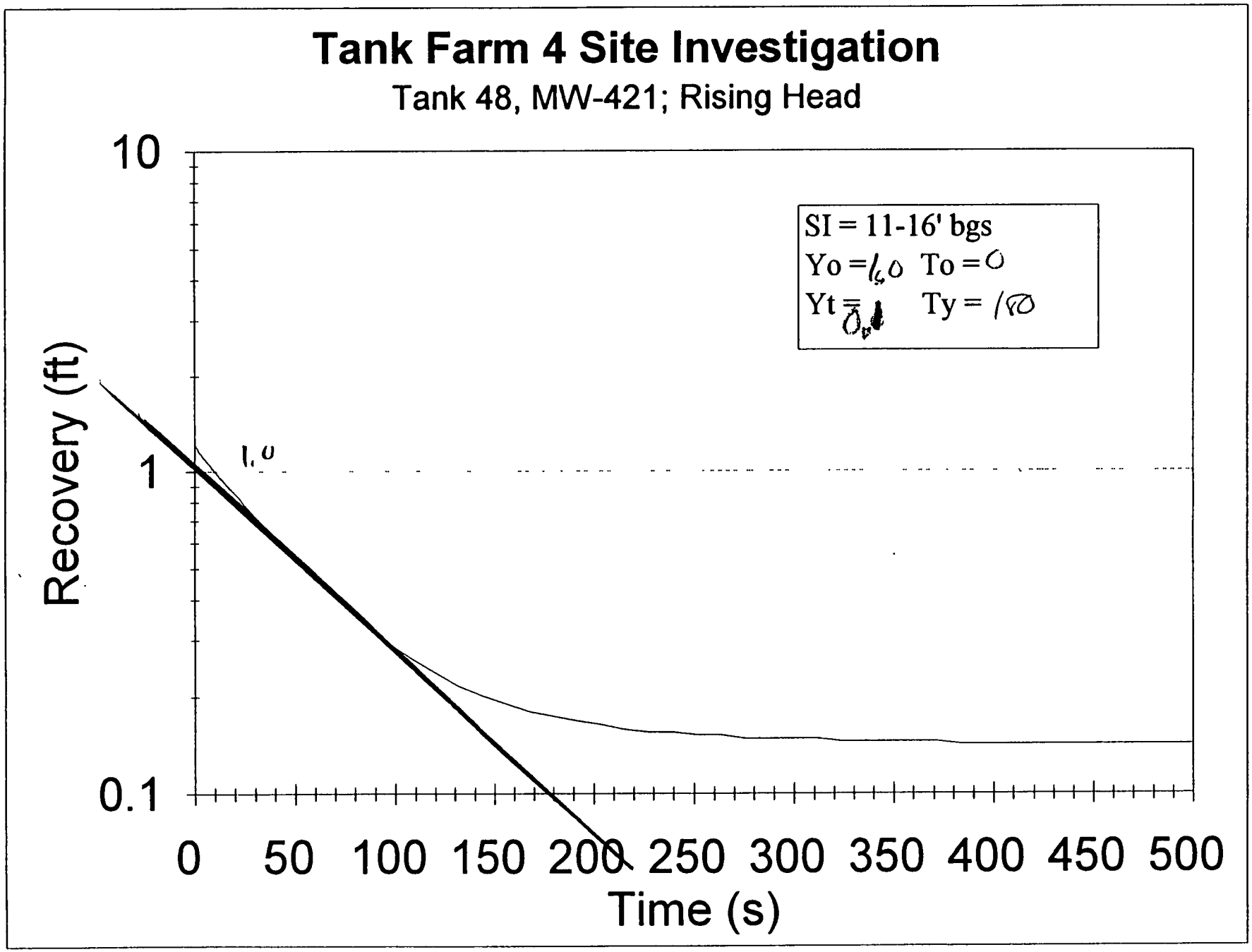
WELL #	TYPE OF TEST	START TIME OF TEST to (min)	START RECOVERY READING yo (in)	TIME OF TEST POINT t (min)	RECOVERY AT TEST POINT yt (in)	RATIO L/rw	DIMEN-SIONLESS PARAM A	DIMEN-SIONLESS PARAM B	DIMEN-SIONLESS PARAM C	VALUE OF ln(Re/rw)	EFFECTIVE RADIUS Re (in)
MW-409	RIS. HEAD	0	5.52	3.00	0.0120	15.0	1.95	0.40	1.50	2.120	33.308
MW-409	RIS. HEAD	0	0.84	2.58	0.0120	15.0	1.95	0.40	1.50	2.120	33.308
MW-421	RIS. HEAD	0	13.20	2.80	1.2000	15.0	1.95	0 40	1.50	2.043	30 859
MW-421	RIS HEAD B	0	12.00	3.00	1 2000	15 0	1.95	0.40	1.50	2.043	30.859
MW-422	RIS. HEAD	0	2.04	1.55	0.0120	15.0	1.95	0.40	1.50	2.069	31 673
MW-422	RIS. HEAD B	0	1.56	1.67	0.0120	15.0	1.95	0.40	1.50	2.069	31.673
MW-422	FAL HEAD	0	2.16	1.45	0.0120	15.0	1.95	0.40	1.50	2 069	31.673
MW-422	FAL HEAD B	0	2.28	1.40	0.0120	15.0	1.95	0.40	1.50	2.069	31.673
MW-424	RIS. HEAD	0	12.24	5.60	0.1200	120.0	5.00	0.80	4.75	4.122	92.561
MW-424	RIS. HEAD	0	28.80	4.60	0.1200	120 0	5.00	0.80	4.75	4.122	92.561
MW-424	FAL HEAD	0	24	7 50	0.0120	120 0	5.00	0.80	4.75	4.122	92 561
MW-424	FAL HEAD	0	12	8.75	0 0120	120.0	5.00	0.80	4.75	4.122	92.561
MW-425	RIS. HEAD	0	36.60	13.30	0.1200	120.0	5.00	0.80	4.75	3.954	78.219
MW-425	RIS. HEAD b	0	48 00	13.00	0.1200	120.0	5 00	0.80	4.75	3.954	78.219

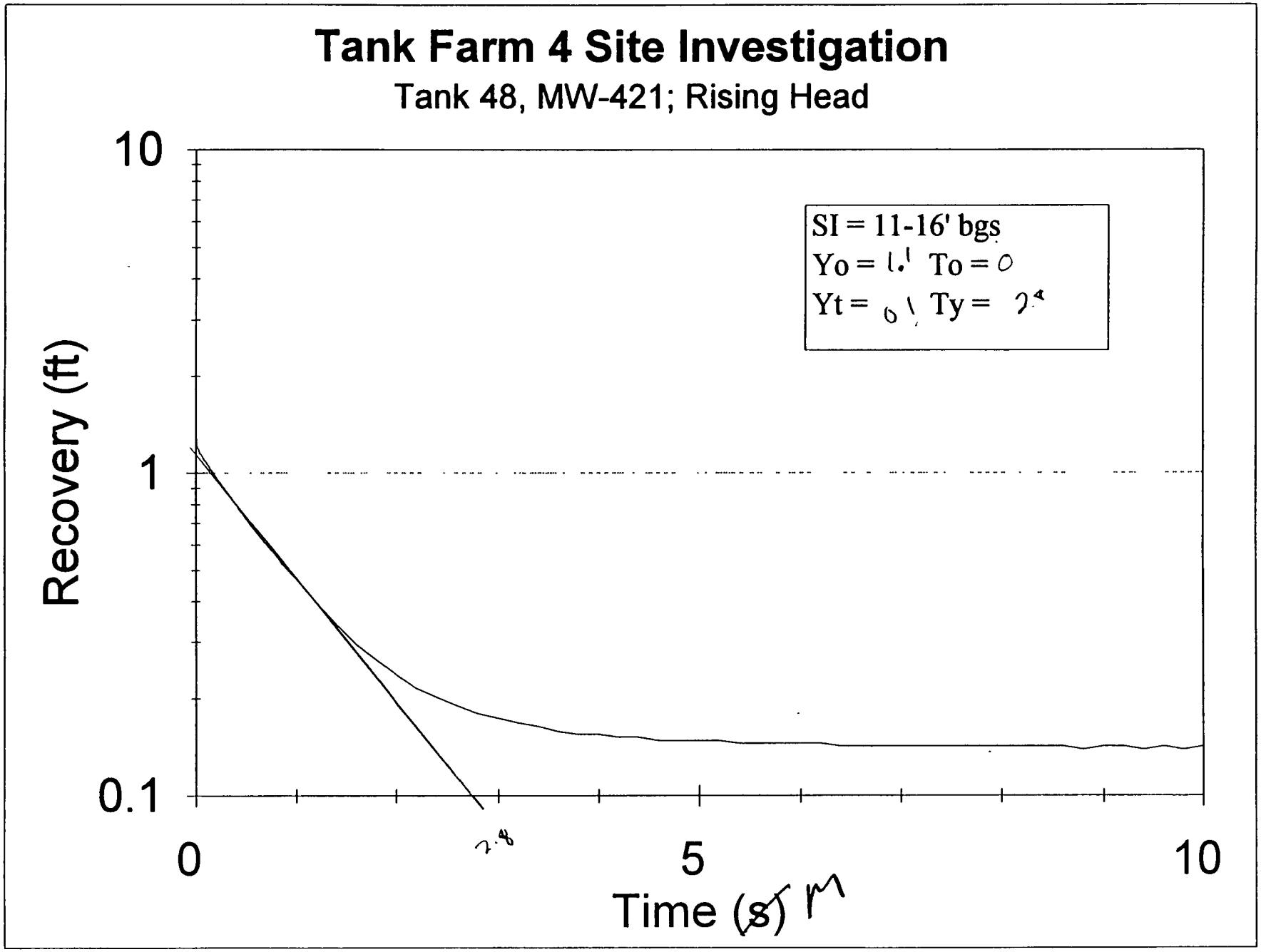
CTO 143, NETC - Newport, RI, Tank Farm 4 SI
HYDRAULIC CONDUCTIVITY CALCULATIONS FROM SLUG TESTS
K calculated after BOUWER & RICE 1976
Table created by E. McGrath Revised by M.Healey

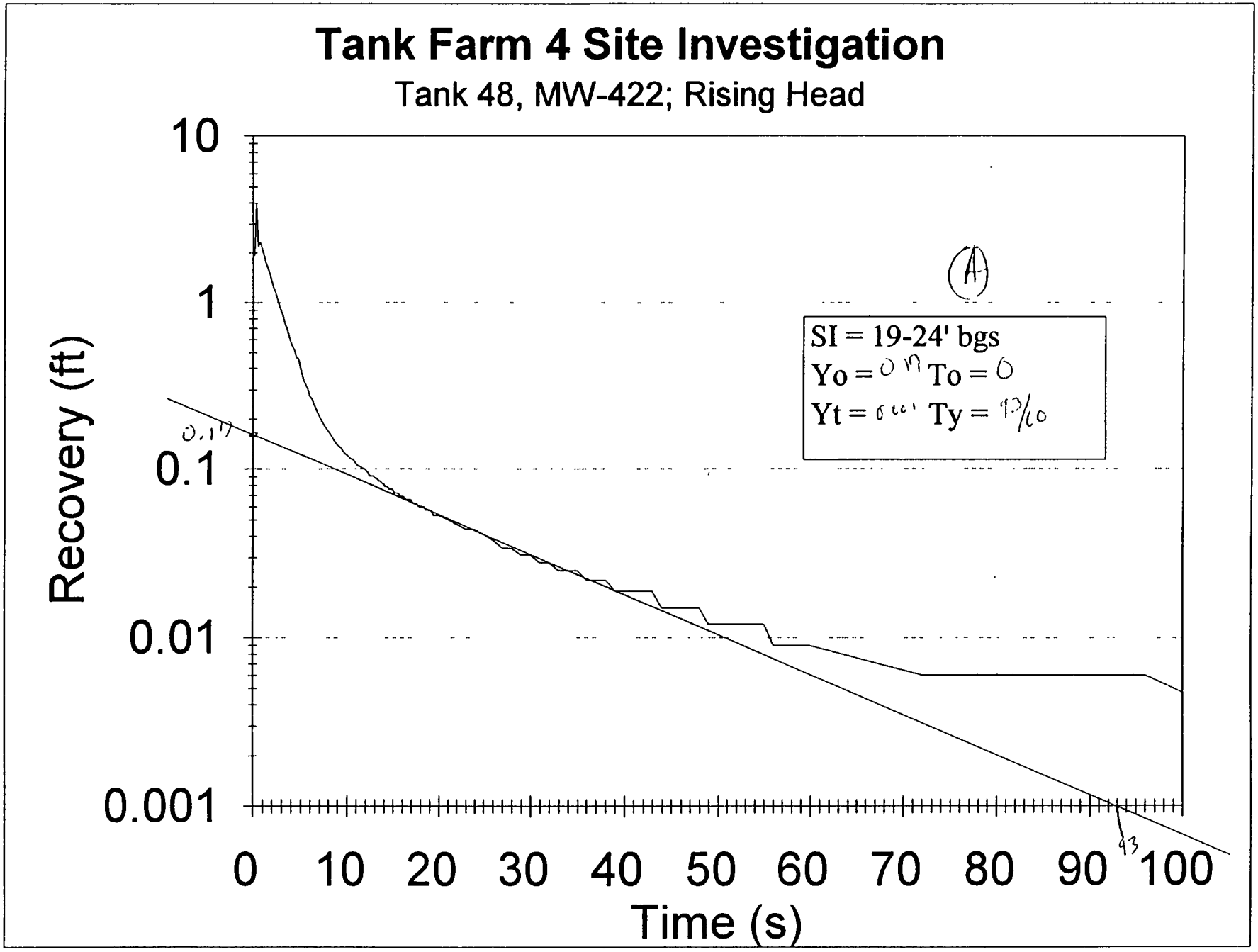
WELL #	TYPE OF TEST	HYDRAULIC CONDUC-TIVITY K (in/min)	HYDRAULIC CONDUC-TIVITY K (ft/day)	HYDRAULIC CONDUC-TIVITY K (cm/sec)
MW-409	RIS. HEAD	3.61E-02	4.33	1.53E-03
MW-409	RIS. HEAD B	2.90E-02	3.49	1.23E-03
MW-409	**Average**	**3.26E-02**	**3.91**	**1.38E-03**
MW-421	RIS. HEAD	1.46E-02	1 75.	6.17E-04
MW-421	RIS. HEAD B	1.31E-02	1.57	5.53E-04
MW-421	**Average**	**1.38E-02**	**1.66**	**5.85E-04**
MW-422	RIS. HEAD	5.71E-02	6.86	2.42E-03
MW-422	RIS. HEAD B	5.04E-02	6 04	2.13E-03
MW-422	FAL HEAD	6.18E-02	7.41	2 61E-03
MW-422	FAL HEAD B	6.46E-02	7 75	2.74E-03
MW-422	**Average**	**5.85E-02**	**7.02**	**2.48E-03**
MW-424	RIS. HEAD A	2.13E-02	2.55	9.01E-04
MW-424	RIS. HEAD B	3 07E-02	3.68	1.30E-03
MW-424	FAL HEAD A	2.61E-02	3.13	1.11E-03
MW-424	FAL HEAD B	2.03E-02	2.44	8.61E-04
MW-424	**Average**	**2.46E-02**	**2.95**	**1.04E-03**
MW-425	RIS. HEAD	1 06E-02	1.28	4.50E-04
MW-425	RIS. HEAD b	1.14E-02	1.37	4.82E-04
MW-425	**Average**	**1.10E-02**	**1.32**	**4.66E-04**

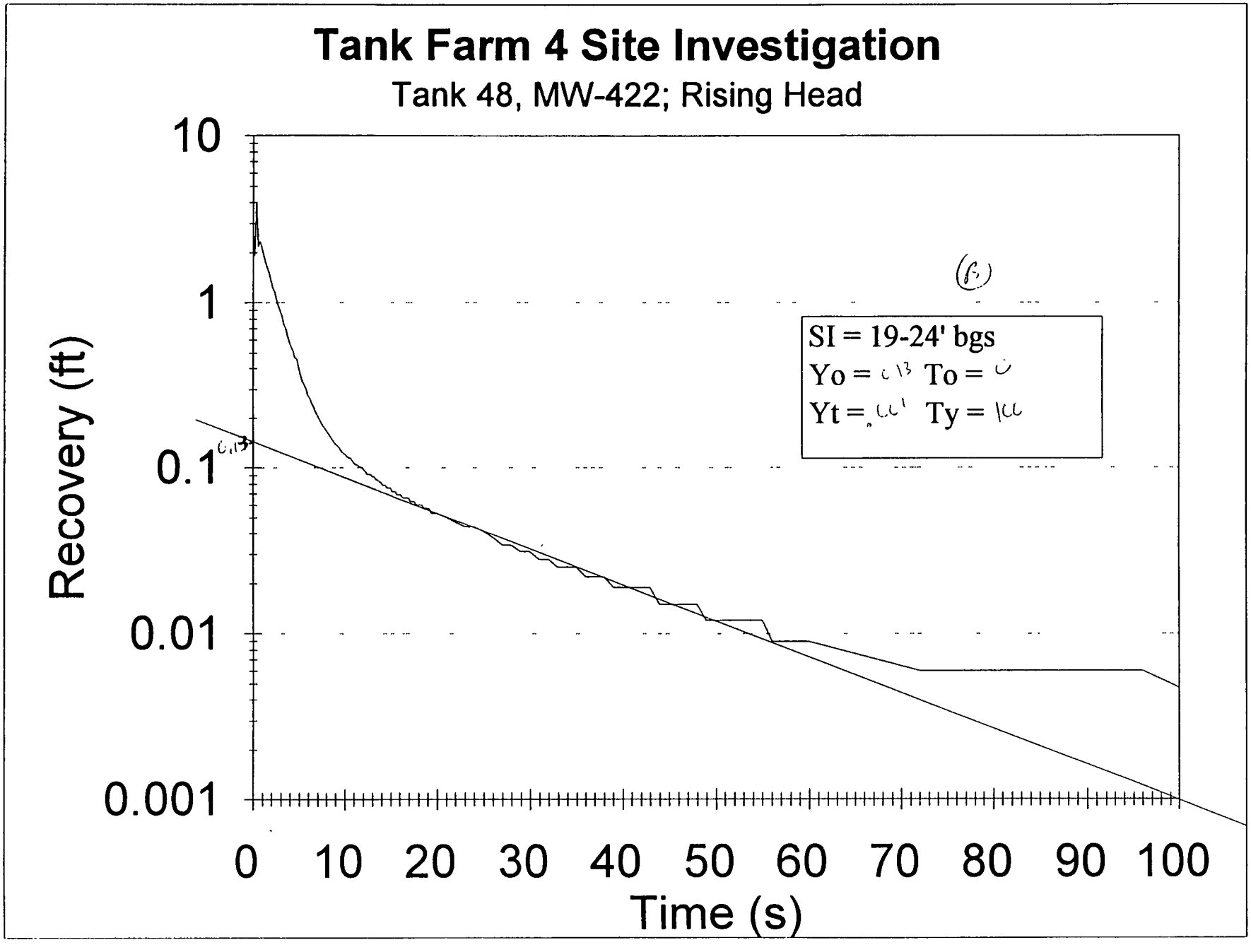

Tank Farm 4 Site Investigation
Tank 48, MW-409; Rising Head
Recovery (ft)
10
1
0.1
0.01
0.001
0
50
100
150
200
250
300
Time (s)
SI = 17-22' bgs
Yo =
To =
Yt =
Ty =
07
155

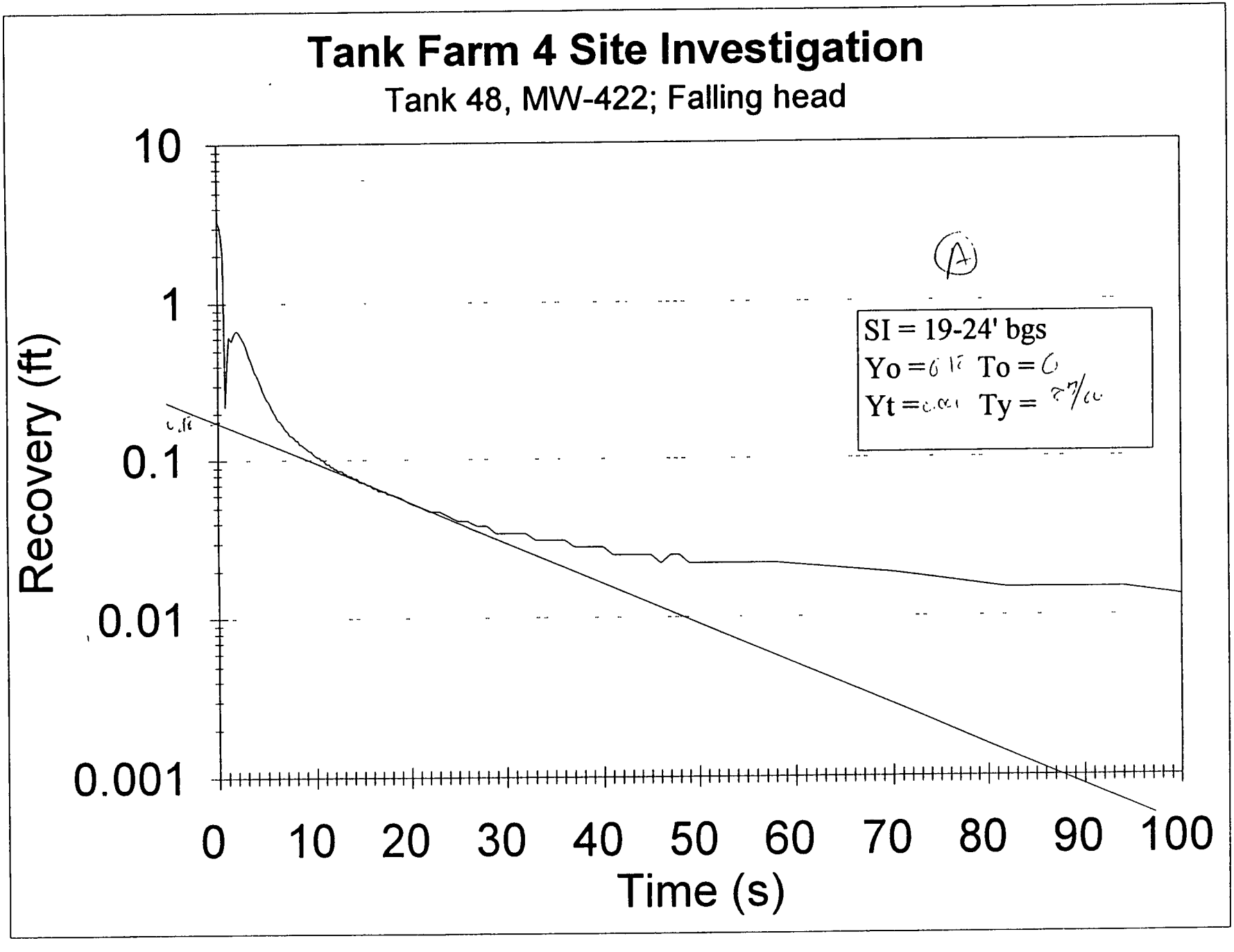

Tank Farm 4 Site Investigation
Tank 48, MW-409; Rising Head
SI = 17-22' bgs
Yo = .46 To = 0
Yt = .061 Ty = 140
Recovery (ft)
10
1
.46
0.1
0.01
0.001
0
50
100
150
200
250
300
Time (s)

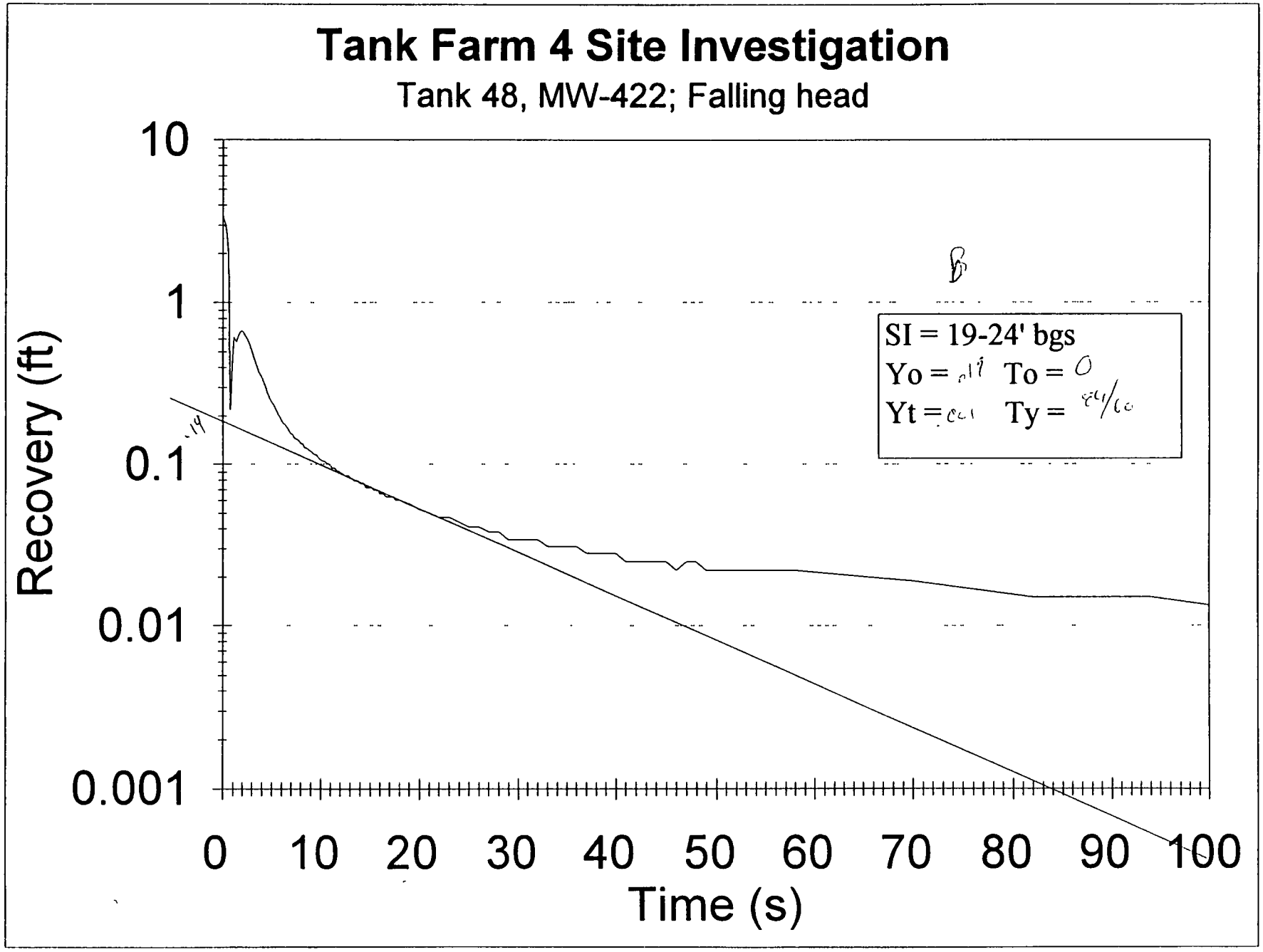

Tank Farm 4 Site Investigation
Tank 48, MW-421; Rising Head
SI = 11-16' bgs
Yo = 1.0 To = 0
Yt = 0.1 Ty = 180
1.0
10
1
0.1
Recovery (ft)
0
50
100
150
200
250
300
350
400
450
500
Time (s)

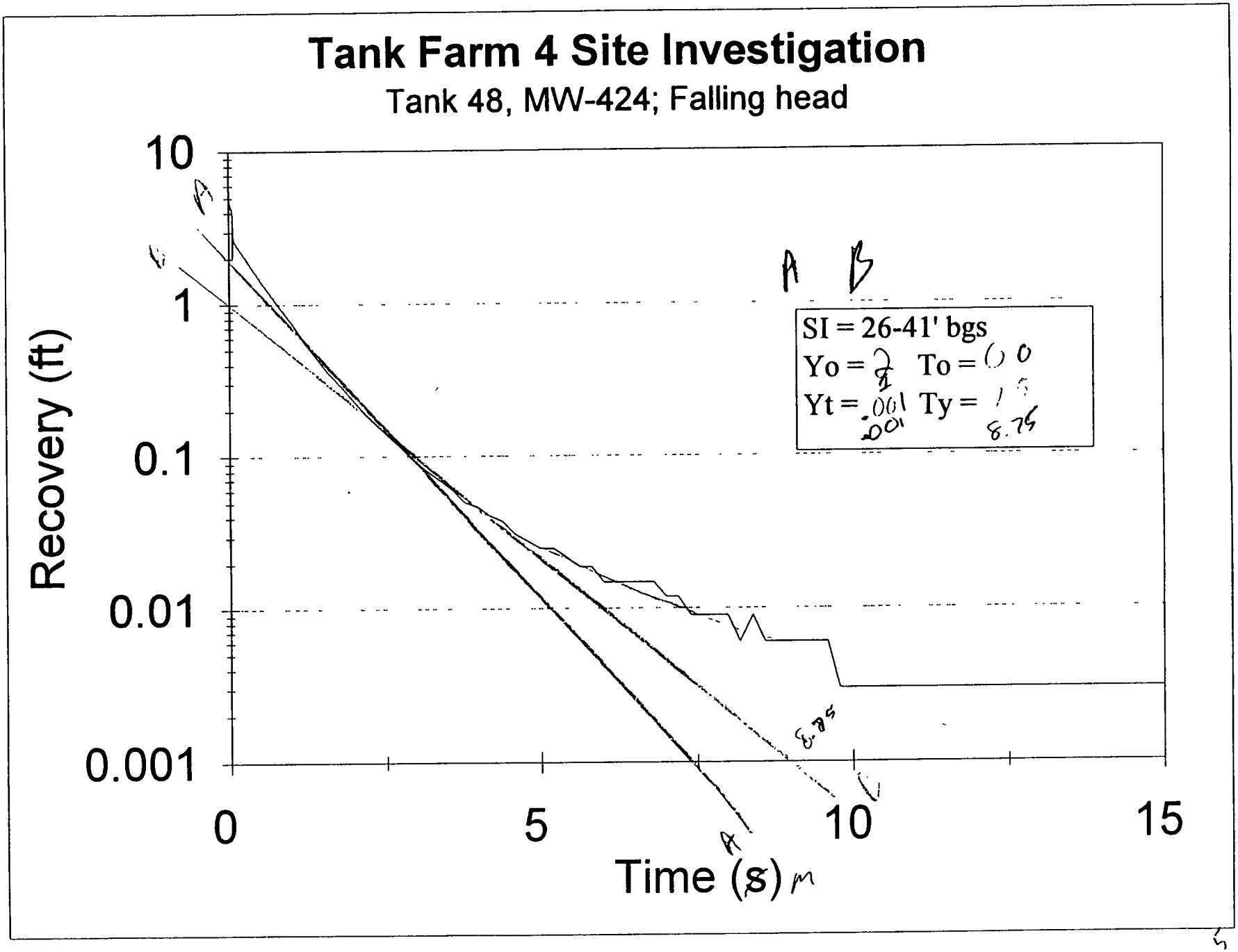

Tank Farm 4 Site Investigation
Tank 48, MW-421; Rising Head
SI = 11-16' bgs
Yo = 1.1 To = 0
Yt = 0.1 Ty = 2.4
Recovery (ft)
10
1
0.1
0
2.8
5
10
Time (s) M

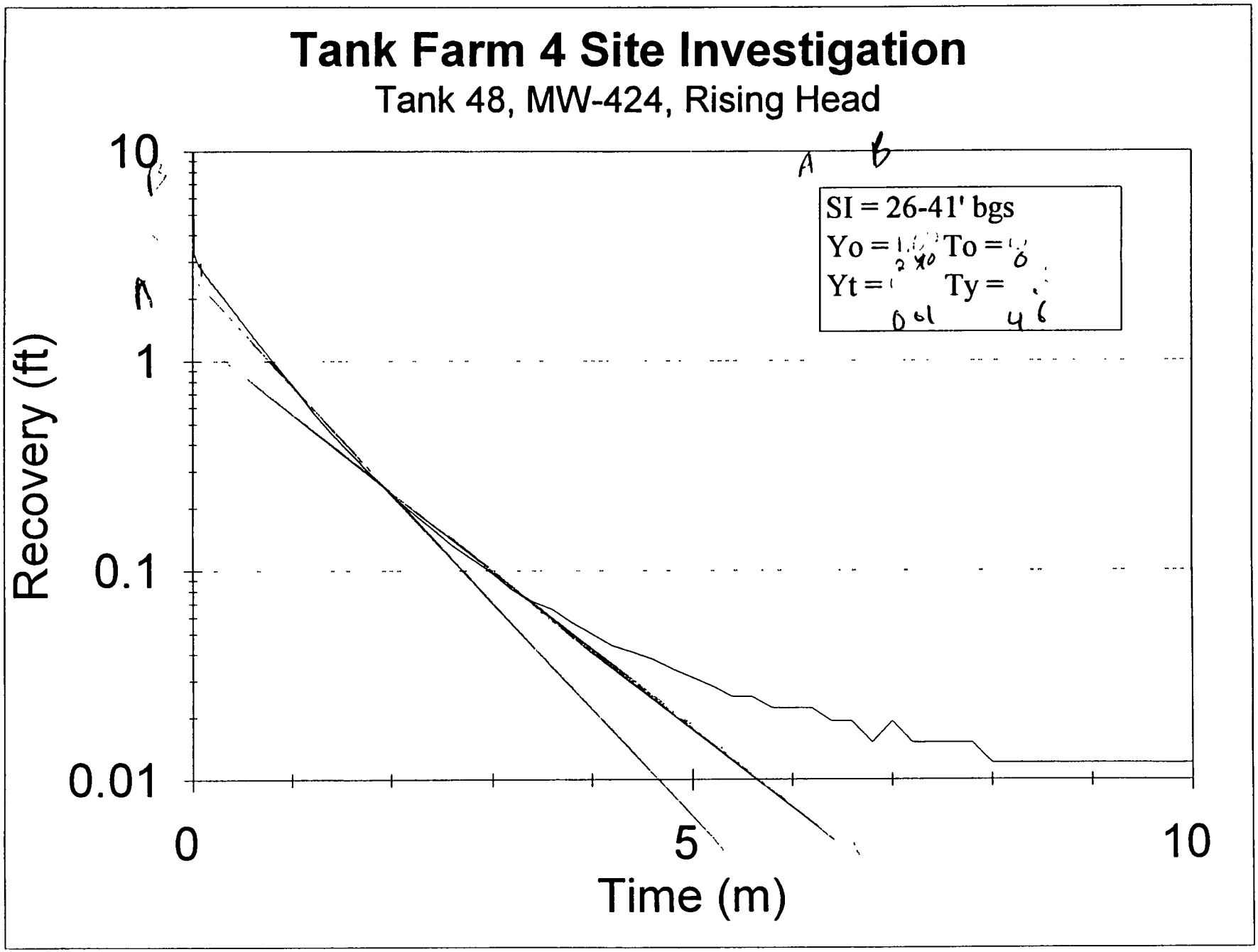

Tank Farm 4 Site Investigation
Tank 48, MW-422; Rising Head
Recovery (ft)
10
1
0.1
0.01
0.001
0
10
20
30
40
50
60
70
80
90
100
Time (s)
SI = 19-24' bgs
Yo = 0.17 To = 0
Yt = 0.00' Ty = 13/10
(A)
0.17
43

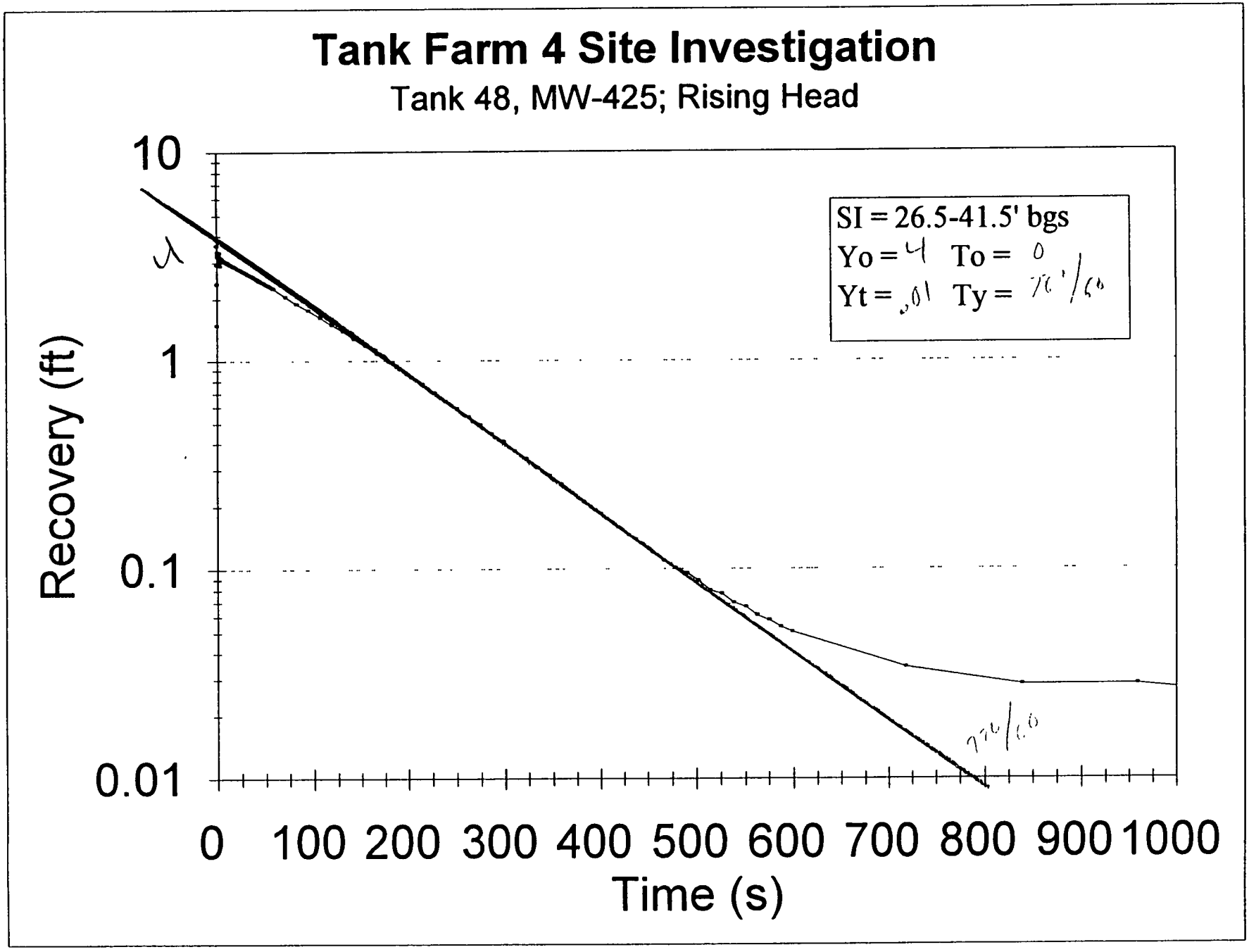

Tank Farm 4 Site Investigation
Tank 48, MW-422; Rising Head
SI = 19-24' bgs
Yo = 0.13 To = 0
Yt = 0.01 Ty = 100
Recovery (ft)
10
1
0.1
0.01
0.001
0
10
20
30
40
50
60
70
80
90
100
Time (s)

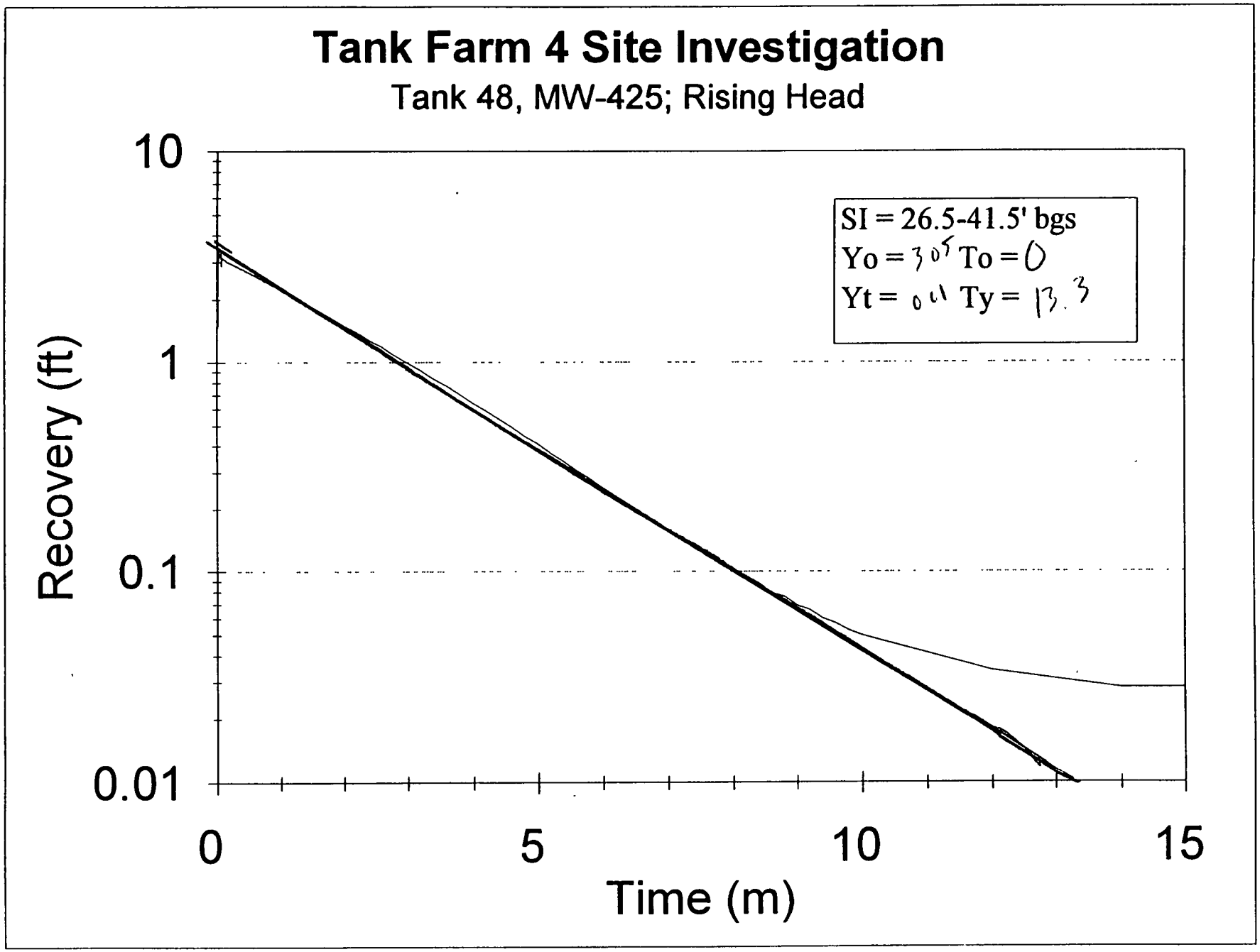

Tank Farm 4 Site Investigation
Tank 48, MW-422; Falling head
Recovery (ft)
10
1
0.1
0.01
0.001
0
10
20
30
40
50
60
70
80
90
100
Time (s)
SI = 19-24' bgs
Yo = 0.18 To = 0
Yt = 0.001 Ty = 27/00
A


Tank Farm 4 Site Investigation
Tank 48, MW-422; Falling head
SI = 19-24' bgs
Yo = .19 To = 0
Yt = .001 Ty = 84/60
Recovery (ft)
10
1
0.1
0.01
0.001
0
10
20
30
40
50
60
70
80
90
100
Time (s)


Tank Farm 4 Site Investigation
Tank 48, MW-424; Falling head
Recovery (ft)
10
1
0.1
0.01
0.001
0
5
10
15
Time (s)
SI = 26-41' bgs
Yo = 2 To = 0 0
Yt = .001 Ty = 1 5
.001 8.75
A B
A
B
8.75


Tank Farm 4 Site Investigation
Tank 48, MW-424, Rising Head
SI = 26-41' bgs
Yo = To =
Yt = Ty =
Recovery (ft)
10
1
0.1
0.01
0
5
10
Time (m)


Tank Farm 4 Site Investigation
Tank 48, MW-425; Rising Head
SI = 26.5-41.5' bgs
Yo = 4 To = 0
Yt = .01 Ty = 70'/60
Recovery (ft)
10
1
0.1
0.01
0
100
200
300
400
500
600
700
800
900
1000
Time (s)


Tank Farm 4 Site Investigation
Tank 48, MW-425; Rising Head
SI = 26.5-41.5' bgs
Yo = 3.05 To = 0
Yt = 0.01 Ty = 13.3
Recovery (ft)
10
1
0.1
0.01
0
5
10
15
Time (m)

TFU 5b

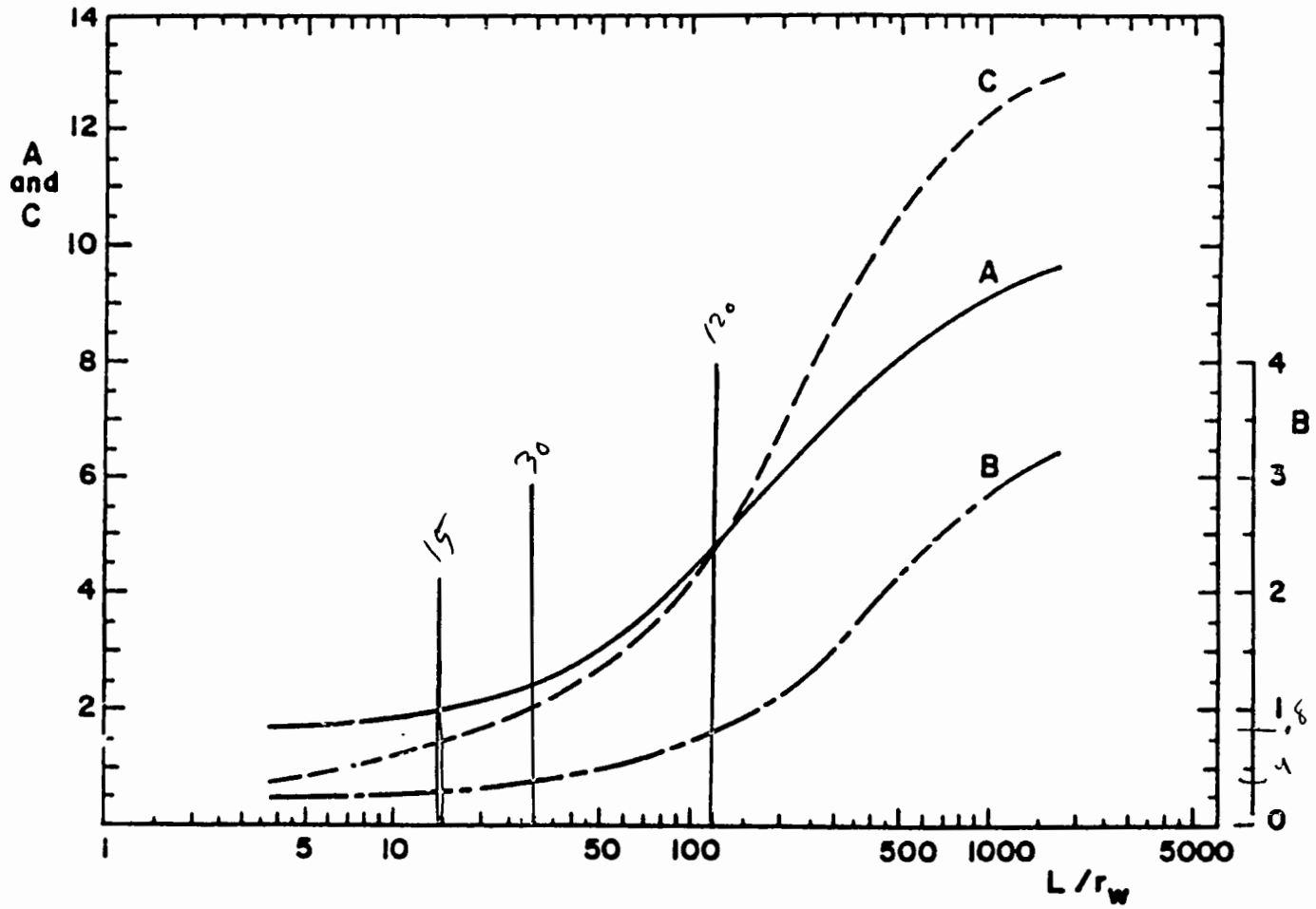


Fig. 3. Curves relating coefficients A, B, and C to L/r_w.

85% equipotential when R_c is laterally extended from the cen- rapid infiltration basins for groundwater recharge with sewage