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NCBC DAVISVILLE
5090.3a

Phase II Remedial Investigation Report
IR Program Site 16
Volume II: Appendices A through K
NCBC Davisville, North Kingstown, Rhode Island

Contract No. N62472-92-D-1296
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Prepared for

Department of the Navy
Engineering Field Activity Northeast
Naval Facilities Engineering Command
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Appendix A

Pertinent Historical Data

N09901 D4464

FINAL ARCHAEOLOGICAL SENSITIVITY ASSESSMENT AND ARCHAEOLOGICAL SURVEY FOR BASE CLOSURE AND REALIGNMENT, REDEVELOPMENT, AND REUSE AT THE NAVAL CONSTRUCTION BATTALION CENTER DAVISVILLE, RHODE ISLAND

October 1994

Prepared by:

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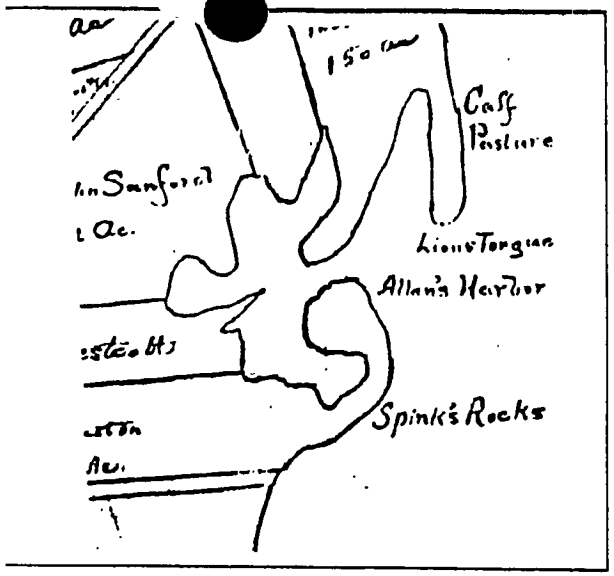
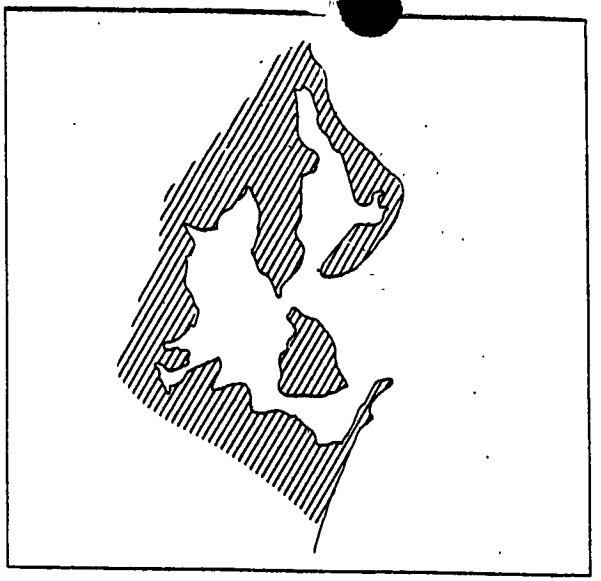
Prepared for:

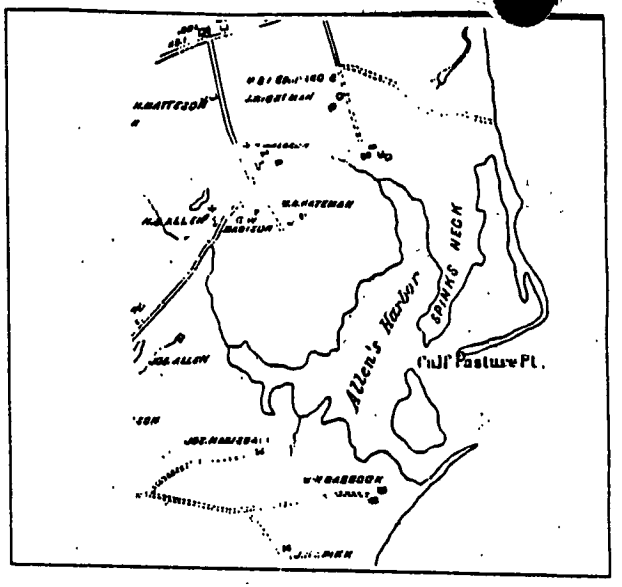
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
Lester, Pennsylvania



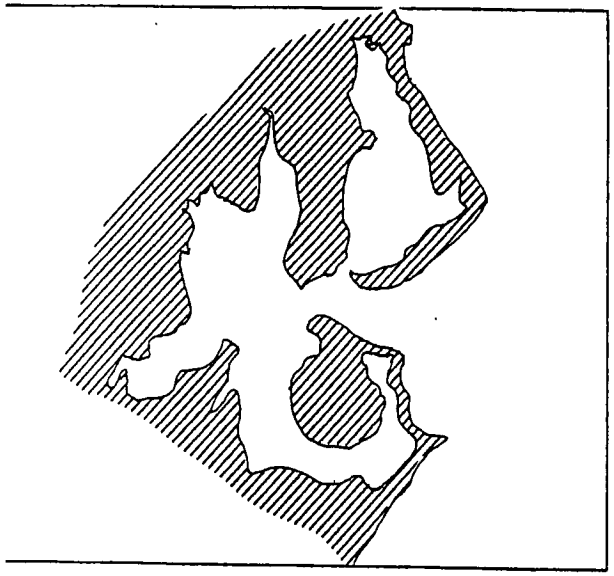
1 CIRCA 1717



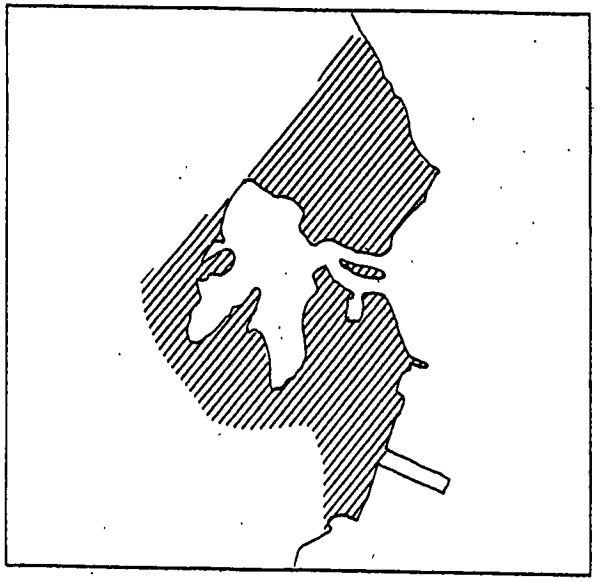
2 CIRCA 1793



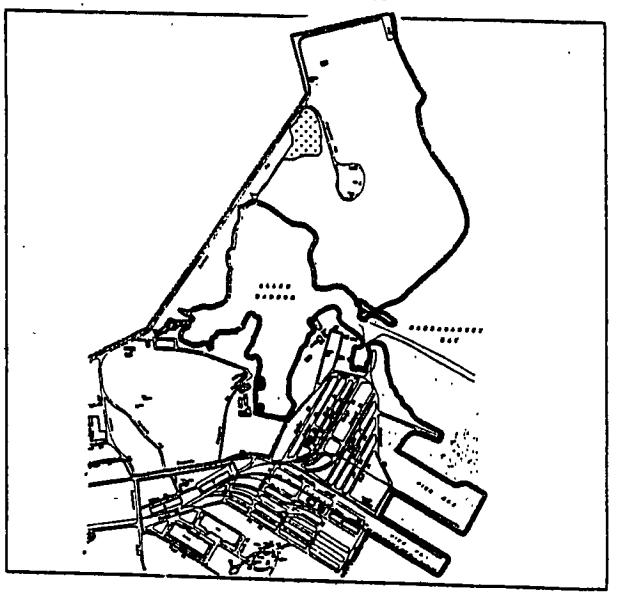
3 CIRCA 1885



4 CIRCA 1939

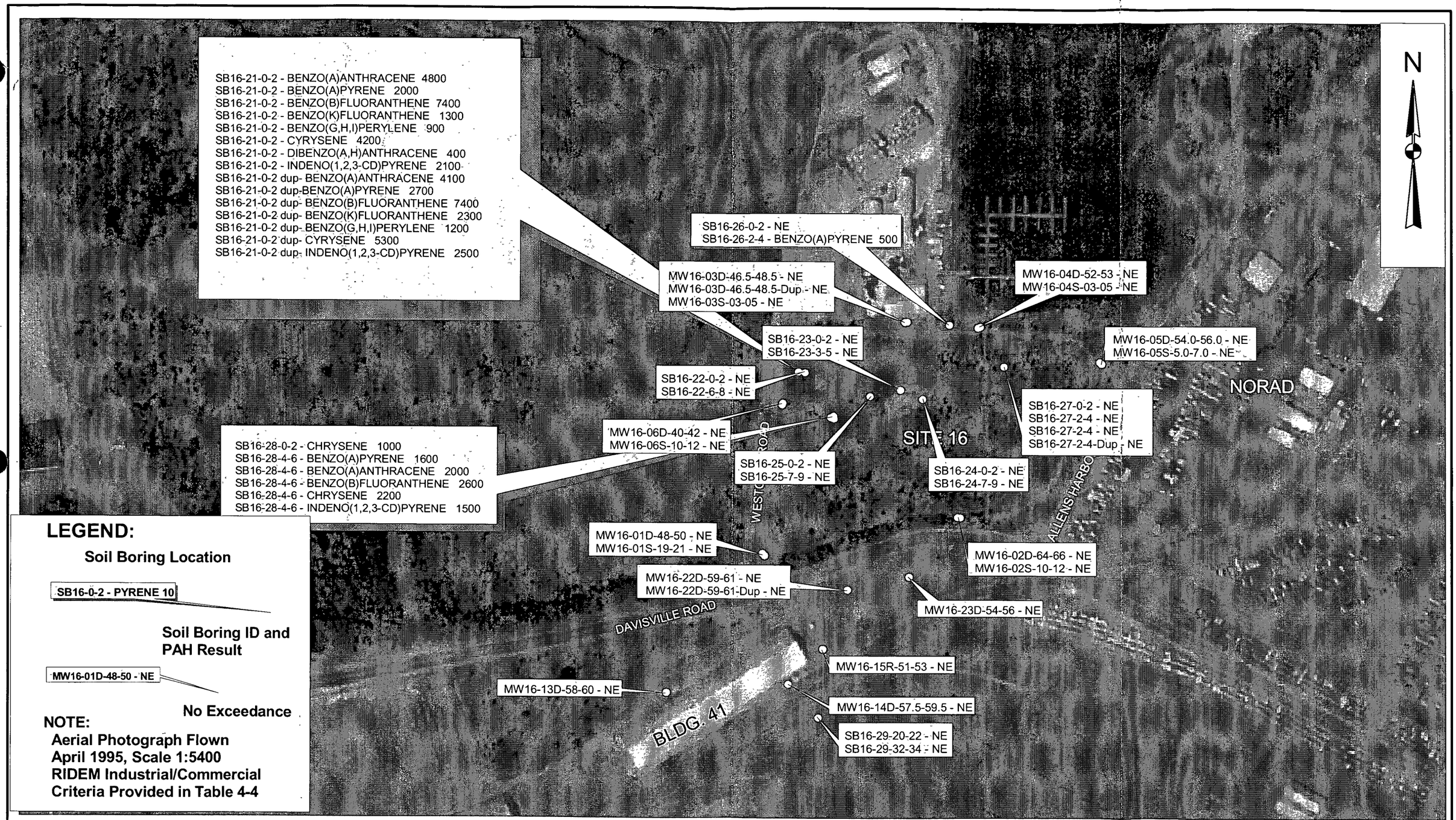


5 CIRCA 1951



6 CIRCA 1993

Figure 5-8
HISTORICAL EVOLUTION OF
ALLEN'S HARBOR AREA, NCBC DAVISVILLE, RI



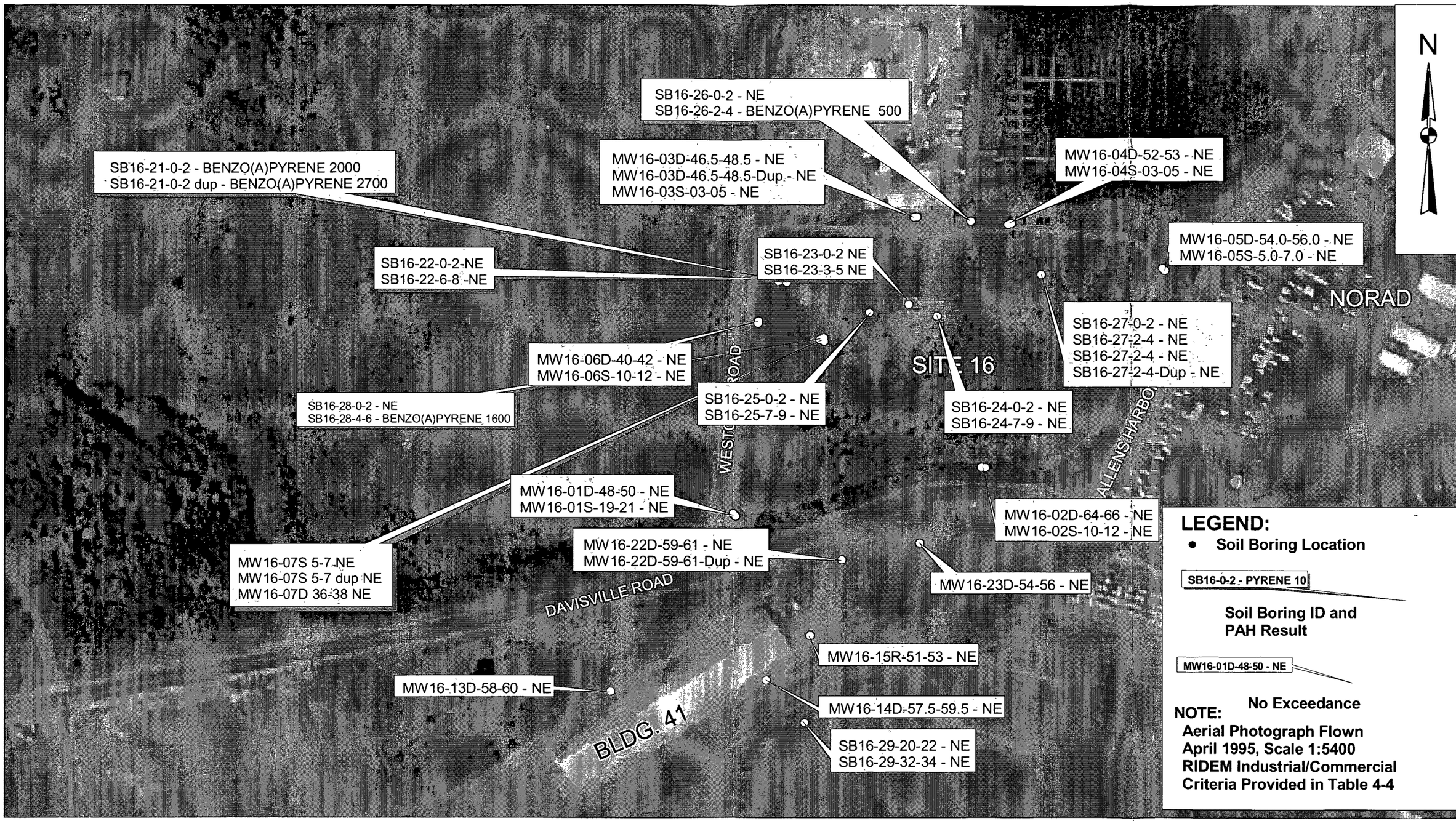
EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

PAH COMPOUNDS (UG/KG) DETECTED IN SOIL SAMPLES IN EXCEEDANCE OF RIDEM RESIDENTIAL EXPOSURE CRITERIA (MAY 2000 AND JANUARY 2001)

FIGURE 4-6



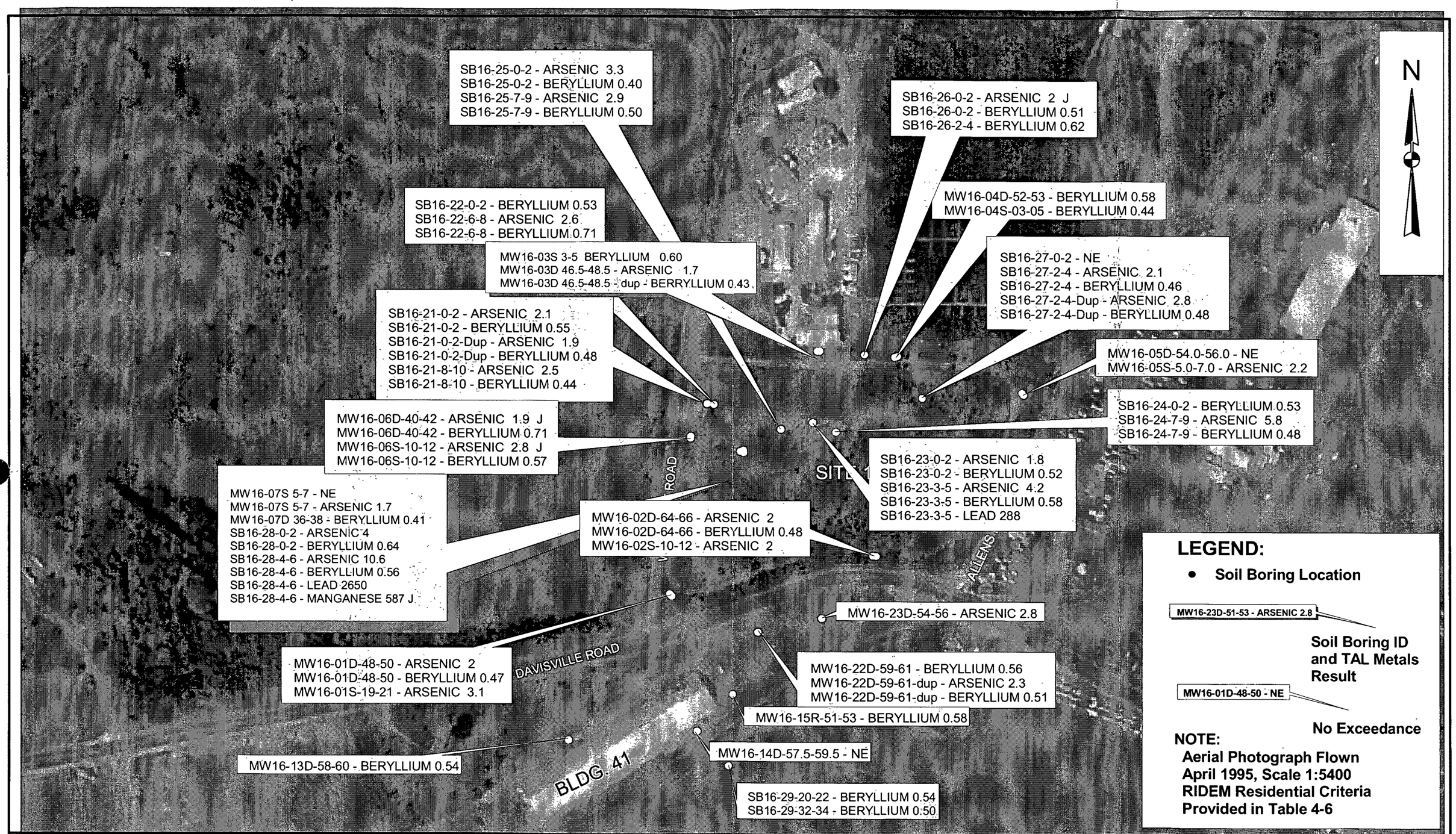
EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

PAH COMPOUNDS (UG/KG) DETECTED IN SOIL SAMPLES IN EXCEEDANCE OF RIDEM COMMERCIAL EXPOSURE CRITERIA (MAY 2000 AND JANUARY 2001)

FIGURE 4-7



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
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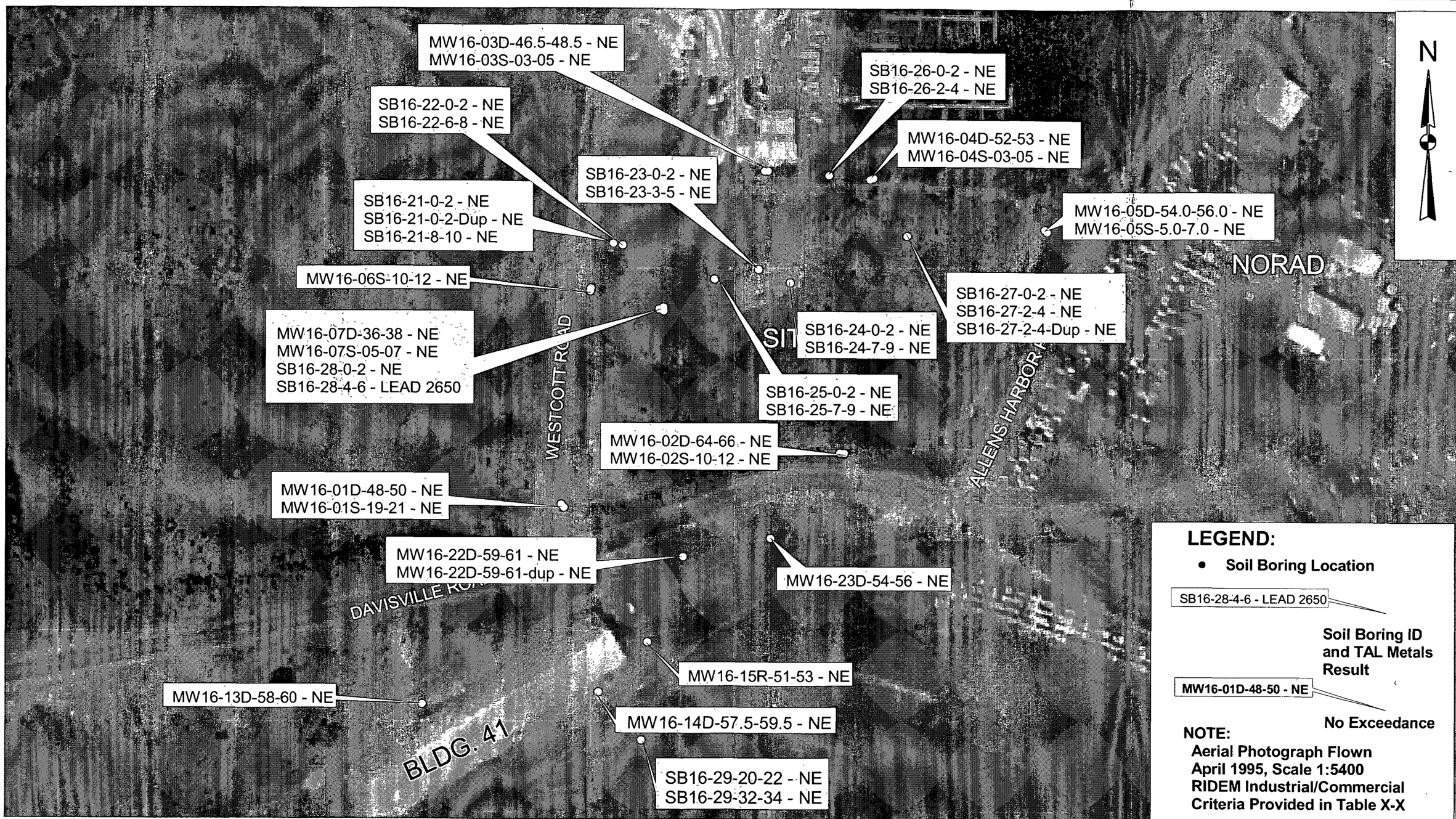
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

TAL METALS (MG/KG) DETECTED IN SOIL SAMPLES IN EXCEEDANCE OF RIDEM RESIDENTIAL EXPOSURE CRITERIA (MAY 2000 AND JANUARY 2001)

FIGURE 4-12



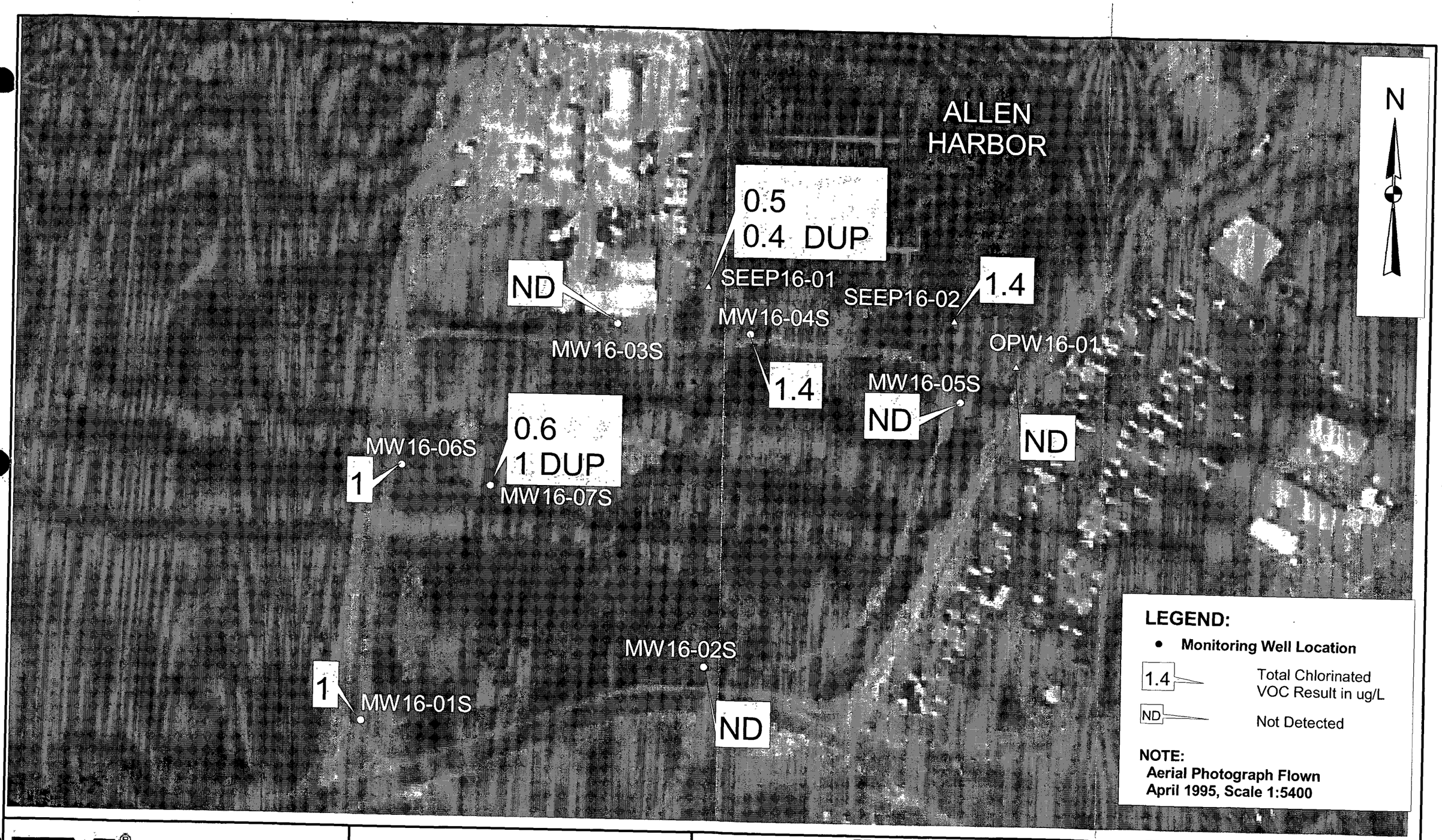
EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

TAL METALS (MG/KG) DETECTED IN SOIL SAMPLES IN EXCEEDANCE OF RIDEM INDUSTRIAL/COMMERCIAL EXPOSURE CRITERIA (MAY 2000 AND JANUARY 2001)

FIGURE 4-13



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

100 0 100 200 Feet

EFANE
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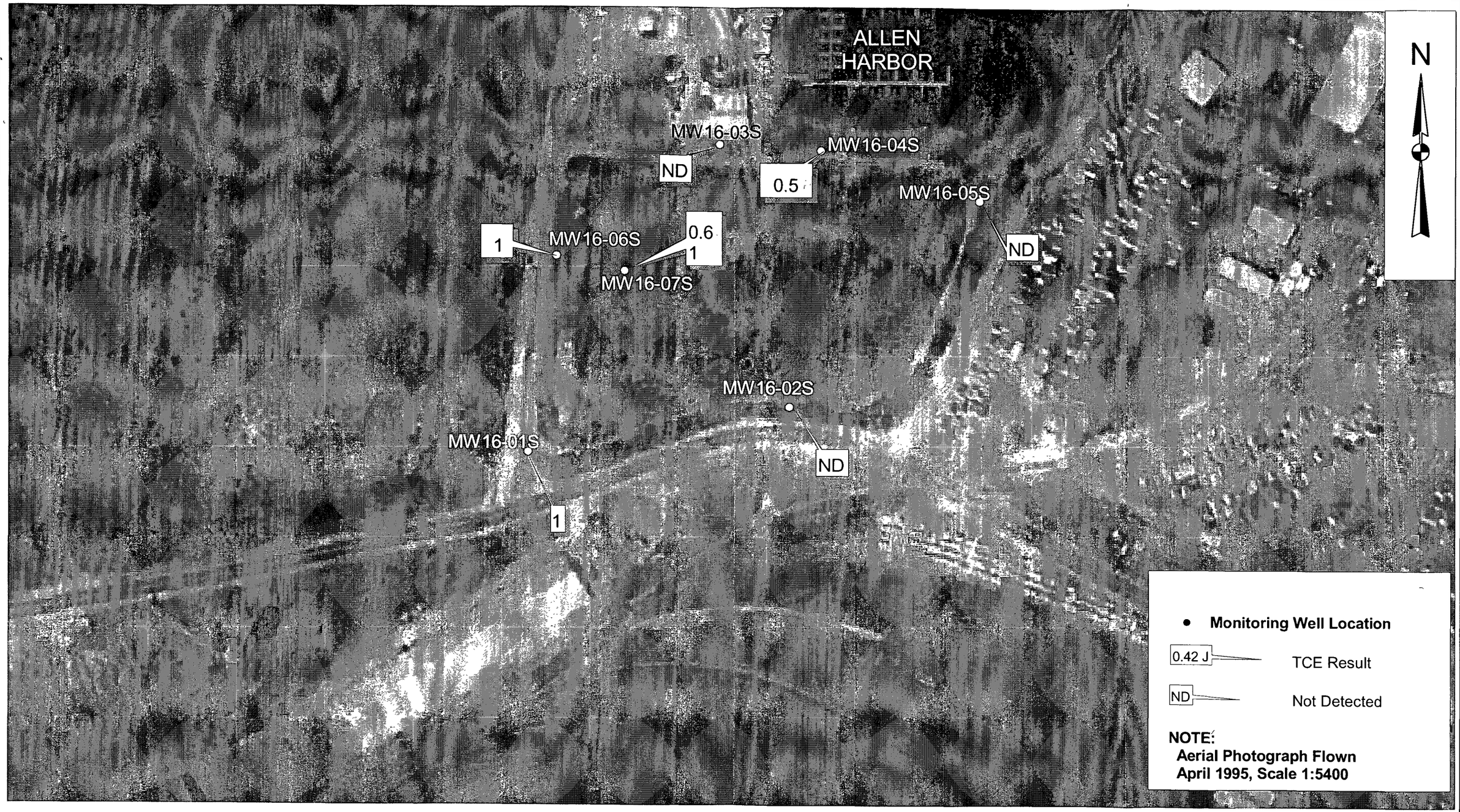
NORTH KINGSTOWN, RHODE ISLAND

TOTAL CVOC (UG/L) DETECTED IN SHALLOW GROUND-WATER AND SEEP SAMPLES
MARCH 2001

FIGURE 4-21



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
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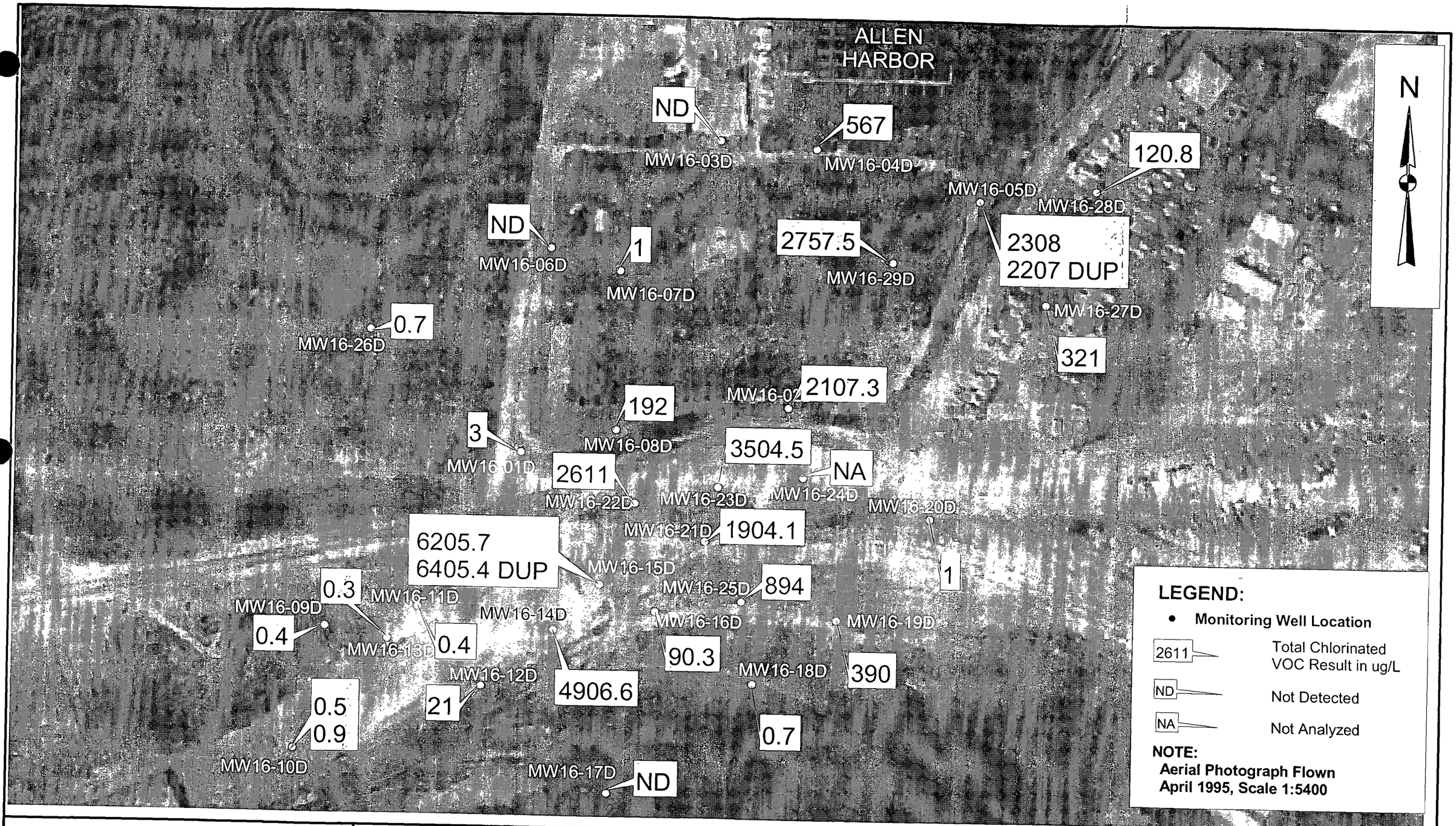
TRICHLOROETHENE (UG/L) DETECTED IN SHALLOW GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-28



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

100 0 100 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

TOTAL CVOC (UG/L) DETECTED
IN DEEP GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-31

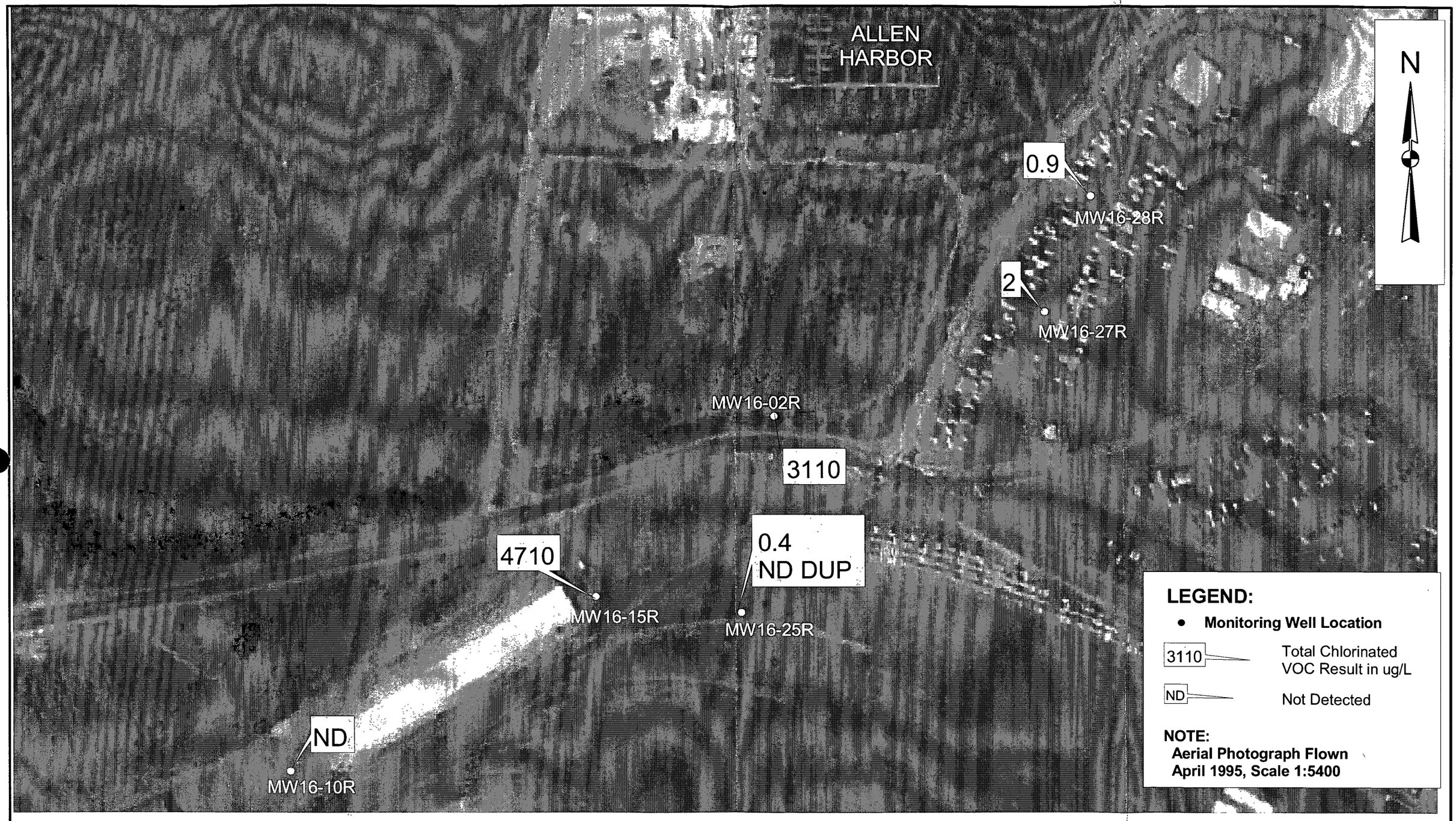
EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

TRICHLOROETHENE (UG/L) DETECTED IN DEEP GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-32



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
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NORTH KINGSTOWN, RHODE ISLAND

TOTAL CVOC (UG/L) DETECTED IN BEDROCK GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-34

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

TRICHLOROETHENE (UG/L) DETECTED
IN BEDROCK GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-35

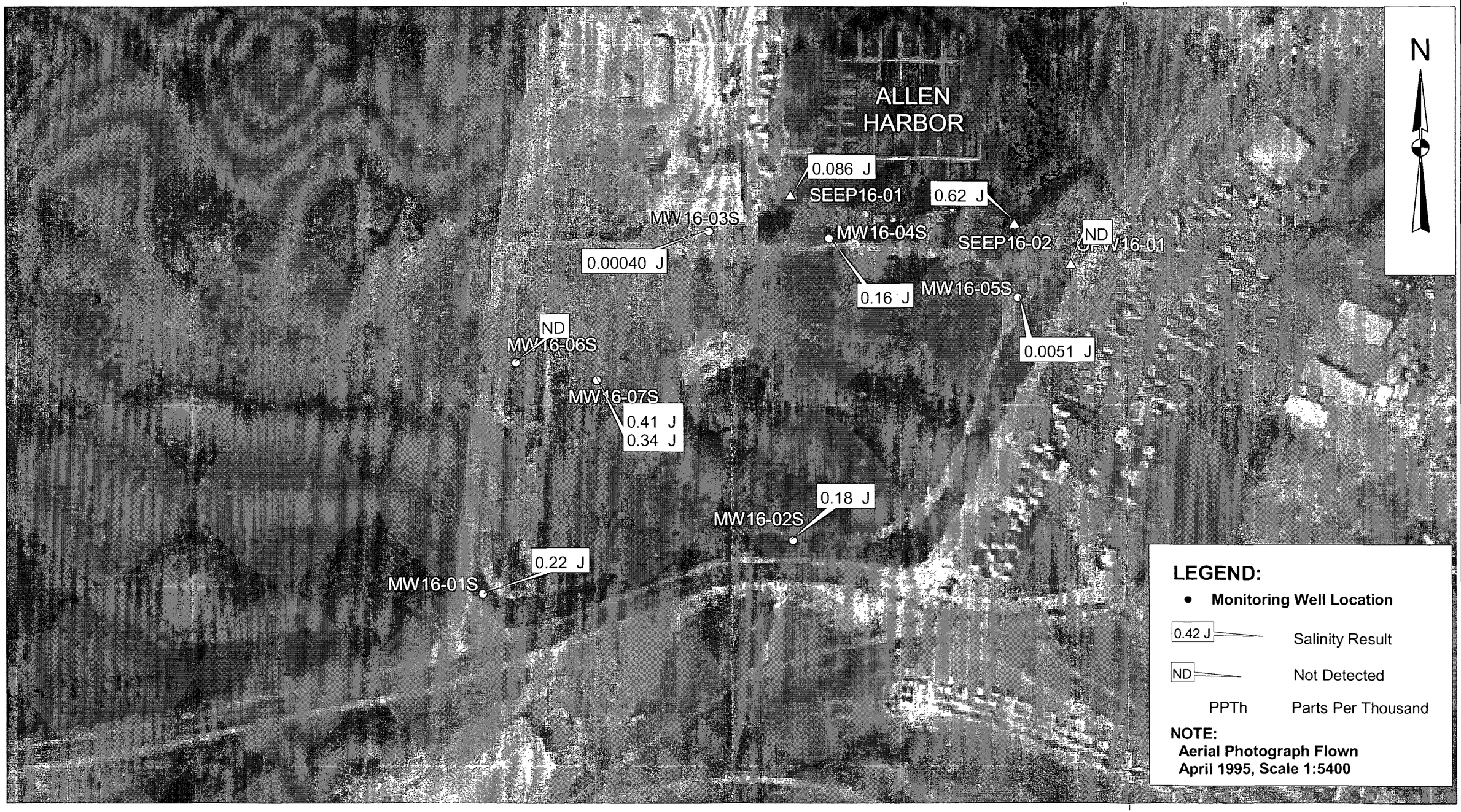
EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

SEMIVOLATILE ORGANIC COMPOUNDS (UG/L)
EXCEEDANCE OF RIDEM GA STANDARDS
DETECTED IN GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-37



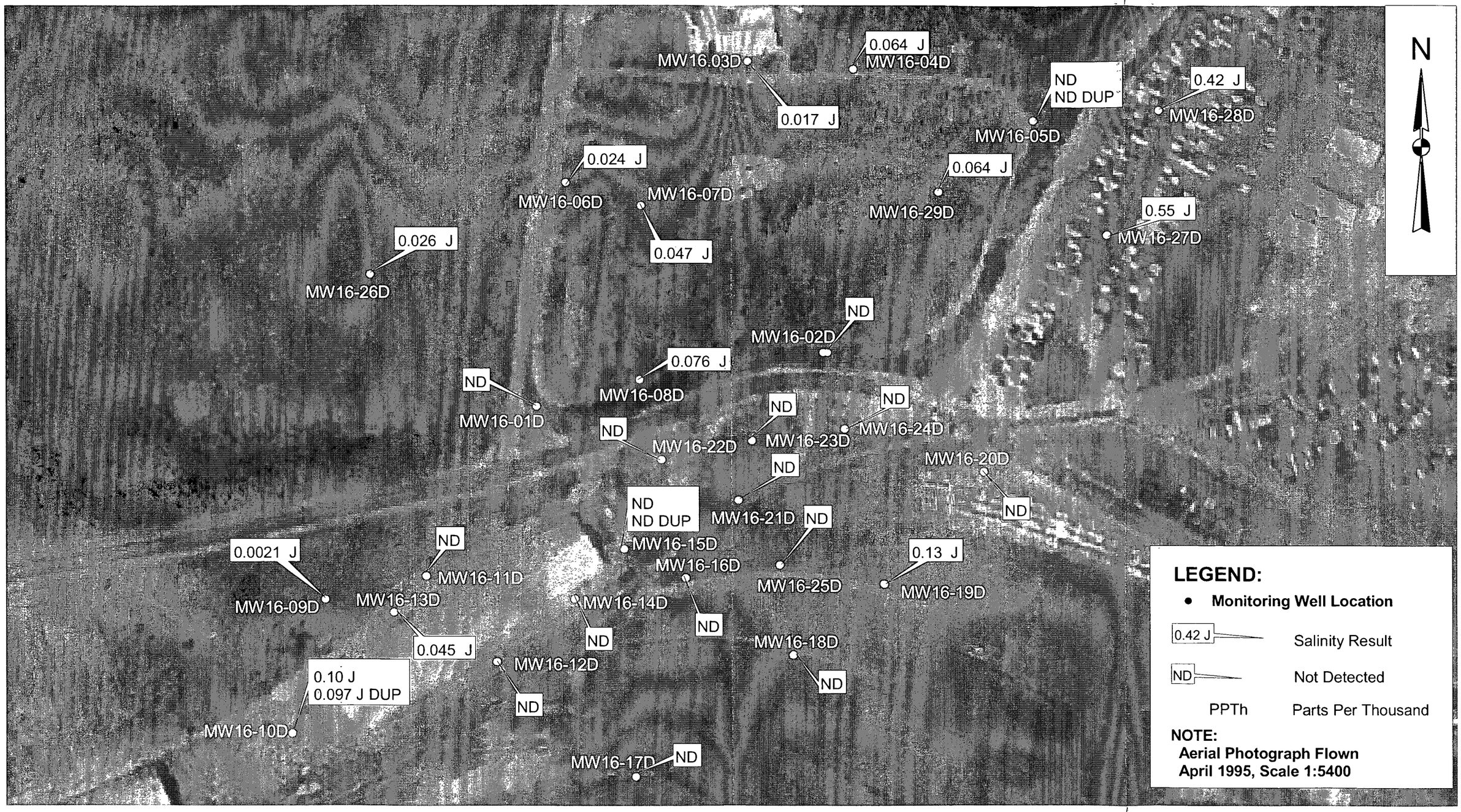
EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

SALINITY (PPTh) DETECTED IN SEEPS AND SHALLOW GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-45



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

SALINITY (PPTh) DETECTED
IN DEEP GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-46

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

200 0 200 Feet

EFANE
PHASE I REMEDIAL INVESTIGATION
IR PROGRAM SITE 16
NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

SALINITY (PPTh) DETECTED IN BEDROCK GROUND-WATER SAMPLES
MARCH 2001

FIGURE 4-47

Appendix B

Seismic Refraction Geophysical Investigation Report From Geophysical Applications Inc., 2002

Appendix C

Boring Logs

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193203 E 523072
Surface Elevation	20 54 FT MSL
Well Riser Elevation	22.51 FT MSL

Job No	29600 97 3202
Client	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61
	4-in diameter drive and wash in overburden and 3 7/8-in rollerbit in rock
	Core Barrel used
Boring No	**MW16-36R**
	Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	08/29/02 1435	08/30/02 0930

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
						70 75 ft- light gray quartzite cuttings			
				71			18	3 35	71
				72			19	4 18	72
				73			20	5 24	73
				74			21	8 21	74
				75			22	6.14	75
				76			23	7 11	76
				77			24	8.33	77
				78		light gray cuttings	25	6 57	78 5
						bottom of boring			
				79					
				80					
				81					
				82					
				83					
				84					
				85					
				86					
				87					
				88					
				89					

NOTES:

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: J Haliburta

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193203 E: 523072
Surface Elevation	20 54 FT MSL
Well Riser Elevation	22 51 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method		Boring No
Mobile Drill B61		**MW16-36R**
4-in diameter drive and wash in overburden		
and 3 7/8-in rollerbit in rock		
Core Barrel used.		Sheet 1 of 2

Packer Test		
Tested	NA	
Interval	NA	
See packer test log if applicable		

Drilling Times	
Start	Finish
08/29/02	08/30/02
1435	0930

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
						(Based on observation of drill cuttings and fluid)			
				52					
				53					
						drill cuttings light gray, small chips	0	0:00	53 5
				54		driller notes hard rock	1	8:02	54
				55		drill cuttings slightly darker and larger fragments	2	6 27	55
				56			3	5 36	56
				57		drill cuttings dark gray	4	5 16	57
						drill cuttings dark gray phyllite and larger fragments			
				58		drill cuttings slightly lighter, driller notes harder	5	6:52	58
						drill cuttings are smaller chips			
				59		58.5-63 5 cuttings mixture of light and dark gray,	6	7 08	59
						driller notes harder rock			
				60			7	7.30	60
				61			8	6 04	61
				62			9	5 22	62
				63			10	5:30	63
						dark gray phyllite			
				64			11	4 35	64
				65			12	4 54	65
				66			13	5 34	66
						traces of light gray color cuttings			
				67			14	11:29	67
						mixture of light and dark gray cuttings			
				68		phyllite	15	4:30	68
				69			16	3 54	69
				70			17	3 55	70

NOTES:
first gear, constant down pressure

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: J Haliburta

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193203 E 523072
Surface Elevation:	20.54 FT MSL
Well Riser Elevation:	22.51 FT MSL

Job. No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61		Boring No. MW16-36R
Sampling Method		Sheet 1 of 1
Drilling Water Level		Start / Drilling Date/Times / Finish
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
						1			Refer to boring log of MW16-36D for overburden description
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S Sheer Date: 08/30/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser:	4 in	Screen Interval	53 5-78 5 ft bgs	Sandpack	NA	Grout	53 5 ft bgs - grade
Bottom of Hole	78 5 ft bgs	Riser Interval	53 5 ft bgs -32 in ags	Bentonite	NA	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193204 E 523078
Surface Elevation	20 44 FT MSL
Well Riser Elevation.	23 60 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI	
Drilling Method Mobile Drill B61 coring		Boring No **MW16-36D**	
Core Barrel used NX		Sheet 1 of 1	
Packer Test		Drilling Times	
Tested	NA	Start	Finish
Interval	NA	**08/15/02**	**08/15/02**
See packer test log if applicable		**1442**	**1508**

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
100%	87%				54			1	8 10	55 5
							light gray quartzite			
					55		fractures at 2, 13, 15, 17, 25 5, 33 5, 41, and 43 in	2	4.15	56 5
							mostly low angle			
					56		some fractures have polished	3	2 55	57 5
							surfaces (possible slickensides)			
					57			4	3.28	58 5
					58			5	4:17	59 5
					59					
					60					
					61					
					62					
					63					
					64					
					65					
					66					
					67					
					68					
					69					
					70					
					71					
					72					

NOTES:

Logged by: J Gatherer

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwait

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193204 E 523078
Surface Elevation	20 44 FT MSL
Well Riser Elevation	23 60 FT MSL

Job. No 29600.97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-36D
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 3 of 3
Drilling Water Level		Start 08/14/02 0836
Date		Drilling Date/Times
Time		Finish 08/15/02
Surface Conditions.		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 15	38	40-42	0/ 0	3 5	40		SP	brown to dark brown very fine to fine SAND, trace silt, laminated, wet
					3 3	41			
2 in SS	24 14	38	42-44	0/ 0	5 7	42			same as above
					9 15	43			
2 in SS	23 12	44	44-45.9	0/ 0	30 92	44		SM	dark gray brown silty very fine to coarse SAND, little fine subangular gravel; wet
					24 100/5	45			
2 in SS	24 8	44	46-48	0/ 0	89 85	46			0-5 in. dark gray silty very fine to coarse SAND, little fine to coarse gravel; wet
					31 21	47		WTHR RX	5-8 in. dark gray angular rock fragments (PHYLLITE), wet
2 in SS	15 9	48\	48-49.3	1.1 0	22 64	48			dark gray silty very fine to coarse SAND, trace fine gravel, wet
					100/3	49			refusal
						50			driller notes hard drilling from 50-52.5 ft, then softer to 53 ft, then harder again
						51			
						52			
2 in SS	3 3	50	53-53 3	0/ 0	100/3	53			dark gray very silty fine to coarse SAND, trace fine angular gravel, trace silt, wet
						54		RX	driller notes very hard drilling at 54 ft, rollerbit to 54.5 ft; cored from 54.5 to 59 5 ft bgs
						55			
						56			
						57			
						58			
						59			bottom of boring

Logged by: J. Gatherer Date 08/14/02

Drilling Contractor Subsurface Drilling Driller: J. Goldthwait

WELL SPECIFICATIONS.

Diam of Riser:	2"	Screen Interval	39 5-49 5 ft bgs	Sandpack:	38.5-50 ft bgs	Grout:	35 5 ft bgs - grade
Bottom of Hole	59 5 ft bgs	Riser Interval:	35.5 ft bgs - 3 ft ags	Bentonite	35 5-38.5 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 193204 E 523078
Surface Elevation.	20.44 FT MSL
Well Riser Elevation:	23.60 FT MSL

Job No 29600.97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61 4-in diameter casing, drive and wash		Boring No MW16-36D
Sampling Method 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 2 of 3
Drilling Water Level		Start 37482 0836 / Drilling Date/Times / Finish 37483
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 9	18	20-22	0/ 0	8 9	20		SP	same as above
					10 12	21			
2 in SS	24 17	18	22-24	0/ 0	9 10	22			0-8 in: same as above 8-17 in: tan fine to medium SAND, little iron staining throughout, wet
					9 8	23			
2 in SS	24 11	24	24-26	0/ 0	15 9	24			brown to dark brown very fine to fine SAND, trace medium sand, thinly banded, wet
					8 7	25			
2 in SS	24 12	24	26-28	0/ 0	4 8	26			same as above
					7 8	27			
2 in SS	24 0	28	28-30	NA	16 18	28			no recovery
					16 21	29			
2 in SS	24 8	28	30-32	0/ 0	17 25	30			0-3 in: tan brown fine to medium SAND 3-8 in: gray brown very fine to fine SAND, trace silt, laminated with iron
					21 21	31			stained bands, wet
2 in SS	24 12	28	32-34	0/ 0	10 14	32			gray brown very fine to fine SAND, laminated with iron stained bands wet
					11 8	33			
2 in SS	24 12	34	34-36	0/ 0	8 7	34			brown to dark brown very fine to fine SAND, trace medium sand, laminated with iron staining in bottom 6 in , wet
					8 18	35			
2 in SS	24 14	34	36-38	0/ 0	11 8	36			brown to dark brown very fine to medium SAND, laminated with iron stained bands throughout, wet
					6 7	37			
2 in SS	24 10	38	38-40	0/ 0	6 4	38		SM	brown to dark brown very fine to fine SILTY SAND, laminated, wet
					3 4	39			

Logged by J Gatherer Date 08/14/02

illing Contractor Subsurface Drilling Driller: J. Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2"	Screen Interval	39 5-49 5 ft bgs	Sandpack:	38 5-50 ft bgs	Grout:	35 5 ft bgs - grade
Bottom of Hole	59 5 ft bgs	Riser Interval	35 5 ft bgs - 3 ft ags	Bentonite:	35 5-38 5 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 193204 E: 523078
Surface Elevation:	20.44 FT MSL
Well Riser Elevation:	23.60 FT MSL

Job. No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-36D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 3
Drilling Water Level / Date / Time		Start 08/14/02 0836; Drilling Date/Times; Finish 08/15/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 / 6	0	0-2	0/ 0	7, 10				brown fine to coarse SAND and SILT, dry (fill)
					9, 11	1			
2 in SS	24 / 13	0	2-4	0/ 0	13, 9	2			0-3 in: same as above; 3-13 in. tan fine SAND, trace medium sand, dry to moist
					7, 7	3			
2 in SS	24 / 6	0	4-6	0/ 0	8, 7	4			tan fine to medium SAND, dry to moist (3-6 in also iron staining)
					7, 8	5			
2 in SS	24 / 15	0	6-8	0/ 0	9, 9	6			alternating bands of: brown very fine to fine SAND and tan fine to medium SAND. Iron stained bands throughout, dry to moist
					10, 9	7			
2 in SS	24 / 7	0	8-10	0/ 0	5, 7	8		▼	0-1 in: tan brown fine to medium SAND, trace coarse sand; 1-7 in: brown very fine to fine SAND, moist to wet
					8, 9	9			
2 in SS	24 / 14	0	10-12	0/ 0	11, 8	10			brown very fine to fine SAND with 1-in bands of tan fine to medium SAND, moist to wet
					9, 8	11			
2 in SS	24 / 22	0	12-14	0/ 0	6, 7	12			0-10 in: tan fine to medium SAND, moist to wet; 10-22 in: brown very fine to fine SAND thin iron stained bands throughout, wet
					13, 14	13			
2 in SS	24 / 11	14	14-16	0/ 0	15, 10	14			tan brown fine to medium SAND, wet
					12, 12	15			
2 in SS	24 / 13	14	16-18	0/ 0	10, 10	16			tan brown fine to medium SAND, thin banding, wet
					11, 11	17			
2 in SS	24 / 18	18	18-20	0/ 0	8, 8	18			brown fine to medium SAND, wet, iron staining in the top 6 in, thin banding
					11, 3	19			

Logged by: J Gatherer Date: 08/14/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwait

WELL SPECIFICATIONS

Diam of Riser:	2"	Screen Interval:	39 5-49 5 ft bgs	Sandpack:	38 5-50 ft bgs	Grout:	35 5 ft bgs - grade
Bottom of Hole	59 5 ft bgs	Riser Interval	35 5 ft bgs - 3 ft ags	Bentonite	35 5-38.5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193560 E 522970
Surface Elevation	23 59 FT MSL
Well Riser Elevation	25 79 FT MSL

Job No	29600 97 3202
Client	EFANE
Drilling Method	Mobile Drill B61 coring
Core Barrel used	NX

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Location	Site 16 NCBC Davisville, North Kingstown, RI
Boring No	**MW16-35D**
Sheet	1 of 1

Drilling Times	Start	Finish
	08/15/02 1200	08/15/02 1200

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
100%	15%				66		0-24 in: dark gray quartzite with occasional phyllite and quartz veins	1	3 06	67
					67			2	7·11	68
					68		24-31 in: healed breccia of quartzite, phyllite, and quartz 31-38 in metaconglomerate	3	6·30	69
					69		38-51 in fractured phyllite with iron staining on surfaces, gray quartzite at 47-49 in, and possible	4	37 20	70
					70		slickensides at 47 in. 51-60 in fractured light gray quartzite	5	20 43	71
					71			core barrel jammed at 69 5 ft bgs, timing is off		
					72					
					73					
					74					
					75					
					76					
					77					
					78					
					79					
					80					
					81					
					82					
					83					
					84					

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P. Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N. 193560 E: 522970
Surface Elevation:	23.59 FT MSL
Well Riser Elevation:	25.79 FT MSL

Job No 29600.97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61 4-in diameter casing, drive and wash		Boring No MW16-35D
Sampling Method. 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 4 of 4
Drilling Water Level		Start 08/14/02 1530 / Drilling Date/Times / Finish 08/15/02 1700
Date		
Time		
Surface Conditions: Asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
	24	58	60-62	0 /	50	60			olive gray fine to coarse SAND, some subangular to subrounded fine gravel,
	18			0	51				wet
					100/5	61			refusal, rollerbit to 62 ft 5 in.
									rollerbit and drove casing to 63 ft, rollerbit to 66 ft
						62			
						63			
						64			
						65			
						66			cored 66-71 ft bgs
						67			
						68			
						69			
						70			
						71			bottom of boring
						72			
						73			
						74			
						75			
						76			
						77			
						78			
						79			

Logged by: S Sheer Date: 08/15/02

illing Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	51 5-61.5 ft bgs	Sandpack:	50 5-61 ft bgs	Grout	47 ft bgs - grade
Bottom of Hole	71 ft bgs	Riser Interval	51.5 ft bgs -29 in ags	Bentonite.	47-50 5 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 193560 E: 522970
Surface Elevation	23.59 FT MSL
Well Riser Elevation	25.79 FT MSL

Job No 29600.97	Client: EFANE	Location	SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No	MW16-35D
Sampling Method. 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 3 of 4	
Drilling Water Level		Start 08/14/02 1530	Drilling Date/Times	Finish 08/15/02 1700
Date			
Time			
Surface Conditions: Asphalt			

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
	24 20	38	40-42	00 00	6 7	40		SM	olive gray SILTY very fine to fine SAND, wet
					11 12	41			
2 in SS	24 24	38	42-44	0 / 0	8 8	42			same as above
					7 10	43			
2 in SS	24 12	44	44-46	0 / 0	4 5	44		SP	olive gray very fine to fine SAND, trace silt, wet
					5 8	45			
2 in SS	24 24	44	46-48	0 / 0	9 4	46		SM	olive gray silty very fine to fine SAND, wet
					5 5	47			
2 in SS	24 2	48	48-50	0 / 0	1 2	48			same as above
					3 4	49			
2 in SS	24 24	48	50-52	0 / 0	4 4	50		SP	olive gray very fine to fine SAND, trace silt, wet
					8 14	51			
2 in SS	24 12	48	52-54	0 / 0	16 34	52			olive gray very fine to fine SAND, trace subangular to subrounded fine gravel saturated
					36 38	53			
2 in SS	24 12	54	54-56	4.6 / 0	9 12	54			olive gray fine to very fine SAND, wet
					19 20	55			
2 in SS	24 12	54	56-58	0 / 0	24 28	56			olive gray fine SAND, trace very fine sand, moist
					31 91	57			
2 in SS	24 4	58	58-60	0 / 0	21 28	58			olive gray fine SAND, some subangular to subrounded fine to coarse gravel trace medium sand
					48 45	59			

Logged by: S Sheer Date: 08/15/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser:	2 in	Screen Interval	51 5-61 5 ft bgs	Sandpack:	50 5-61 ft bgs	Grout.	47 ft bgs - grade
Bottom of Hole	71 ft bgs	Riser Interval:	51 5 ft bgs -29 in ags	Bentonite	47-50 5 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N 193560 E 522970
Surface Elevation.	23.59 FT MSL
Well Riser Elevation.	25 79 FT MSL

Job. No. 29600 97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61 4-in diameter casing, drive and wash		Boring No MW16-35D
Sampling Method. 2" split spoon Driven 24 in with 140 lb hammer		Sheet 2 of 4
Drilling Water Level		
Date		
Time		
Surface Conditions. Asphalt		

Start	Drilling Date/Times	Finish
37482		37483
1530		1700

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 12	18	20-22	0 / 0	5 6	20		SP	olive gray fine SAND, trace very fine sand, wet
					9 10	21			
2 in SS	24 24	18	22-24	0 / 0	4 4	22			olive gray very fine to fine SAND, wet
					6 9	23			
2 in SS	24 10	24	24-26	0 / 0	2 5	24			olive gray fine to very fine SAND, moist
					5 5	25			
2 in SS	24 22	24	26-28	0 / 0	7 8	26			same as above, wet
					9 12	27			
2 in SS	24 18	28	28-30	0 / 0	9 12	28			olive gray fine to very fine SAND, wet
					9 10	29			
2 in SS	24 24	28	30-32	0 / 0	4 5	30			same as above
					8 7	31			
2 in SS	24 24	28	32-34	0 / 0	5 7	32			light brown to olive gray very fine to fine SAND, moist, iron staining at end
					12 22	33			
2 in SS	24 2	34	34-36	0 / 0	1 5	34			olive gray and rusty brown very fine to fine SAND, trace silt, wet
					5 6	35			
2 in SS	24 24	34	36-38	0 / 0	11 18	36			0-14 in: olive gray very fine to fine SAND, trace silt, wet 14-24 in: olive gray fine to very fine SAND, wet
					21 28	37			
2 in SS	24 14	38	38-40	0 / 0	3 4	38		SM	olive gray very fine to fine SILTY SAND, wet
					4 7	39			

Logged by: S. Sheer Date: 08/15/02

lling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	51.5-61 5 ft bgs	Sandpack:	50 5-61 ft bgs	Grout:	47 ft bgs - grade
Bottom of Hole	71 ft bgs	Riser Interval	51 5 ft bgs -29 in ags	Bentonite	47-50 5 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600.97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method:	Mobile Drill B61; 4-in diameter casing, drive and wash
Boring No	MW16-35D
Sampling Method:	2" split spoon
	Driven 24 in with 140 lb hammer
Sheet	1 of 4
Coordinates:	N: 193560 E. 522970
Surface Elevation:	23 59 FT MSL
Well Riser Elevation:	25.79 FT MSL
Drilling Water Level	
Date	
Time	
Surface Conditions:	Asphalt
Start	08/14/02 1530
Drilling Date/Times	
Finish	08/15/02 1700

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 18	0	0-2	0 / 0	18 8				0-6 in: asphalt; 6-18 in: light brown to olive gray fine to medium SAND, dry
					12 12	1			
2 in SS	24 18	0	2-4	0 / 0	18 18	2			0-8 in: same as above; 8-18 in: olive gray fine SAND, trace medium sand, dry
					20 20	3			
2 in SS	24 14	0	4-6	0 / 0	7 8	4			light brown to light gray fine to medium SAND, dry
					7 10	5			
2 in SS	24 16	0	6-8	0 / 0	8 10	6			same as above, light gray
					11 12	7			
2 in SS	24 16	0	8-10	0 / 0	1 5	8			light brown fine to medium SAND, dry to wet at bottom
					7 8	9		▼	
2 in SS	24 18	0	10-12	0 / 0	7 7	10			0-12 in: olive gray fine SAND and light brown medium SAND, wet; 12-18 in: light brown medium to coarse SAND, wet
					8 6	11			
2 in SS	24 24	0	12-14	0 / 0	6 7	12			0-12 in: light brown medium to coarse SAND, wet; 12-24 in: olive gray fine SAND, trace very fine sand, damp
					10 18	13			
2 in SS	24 10	14	14-16	0 / 0	3 4	14			olive gray fine SAND, trace very fine sand, damp
					6 8	15			
2 in SS	24 18	14	16-18	0 / 0	7 7	16			same as above
					11 10	17			
2 in SS	24 10	18	18-20	0 / 0	2 3	18			olive gray very fine SAND, trace fine sand, wet
					3 5	19			

Logged by: S Sheer Date: 08/15/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS.

Diam of Riser:	2 in	Screen Interval.	51.5-61 5 ft bgs	Sandpack:	50.5-61 ft bgs	Grout.	47 ft bgs - grade
Bottom of Hole:	71 ft bgs	Riser Interval.	51 5 ft bgs -29 in ags	Bentonite:	47-50.5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193555 E 522967
Surface Elevation.	23.55 FT MSL
Well Riser Elevation	25.82 FT MSL

Job No 29600.97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-35I
Sampling Method: 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 10/01/02; Drilling Date/Times; Finish 10/01/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-35D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by	V. Deleone	Date	10/01/02
Drilling Contractor	Subsurface Drilling	Driller	J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	28-38 ft bgs	Sandpack:	27-38 ft bgs	Grout	24 ft bgs - grade
Bottom of Hole	38 ft bgs	Riser Interval	28 ft bgs -2 4 ft ags	Bentonite	24-27 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193560 E 522966
Surface Elevation	23 73 FT MSL
Well Riser Elevation	26.22 FT MSL

Job No 29600 97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-35S
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 08/20/02; Drilling Date/Times; Finish 08/20/02
Surface Conditions		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-35D for overburden description
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S. Sheer Date: 08/20/02

Drilling Contractor. Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	6-16 ft bgs	Sandpack	5-16 ft bgs	Grout	3 1 ft bgs - grade
Bottom of Hole	16 ft bgs	Riser Interval	6 ft bgs -2 9 ft ags	Bentonite.	3.1-5 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193555 E 522732
Surface Elevation	26 54 FT MSL
Well Riser Elevation	29 33 FT MSL

Job No 29600.97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method		Boring No
Mobile Drill B61	coring	**MW16-34D**
Core Barrel used	NX	Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	12/12/00 1200	12/12/00 1200

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
97%	75%				61		light gray fine grained quartzite, low angle	1	6 40	62
							fractures at 16, 23, 29, 36, 42, 43, 46, 49, and			
					62		52 in	2	6 52	63
							pyrite mineralization on fracture surface			
					63		silt on fracture surface at 42 in.	3	6 05	64
							quartz vein from 43 - 52 in at 70 degrees			
					64			4	5 19	65
					65			5	5 52	66
					66					
					67					
					68					
					69					
					70					
					71					
					72					
					73					
					74					
					75					
					76					
					77					
					78					
					79					

NOTES:

Logged by: J Gatherer

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwait

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193555 E: 522732
Surface Elevation:	26.54 FT MSL
Well Riser Elevation:	29 33 FT MSL

Job No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-34D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 4 of 4
Drilling Water Level		Start 08/19/02 0957
Date		Drilling Date/Times
Time		Finish 08/22/02 1500
Surface Conditions gravel		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
						60			rollerbit to 61 ft
						61			cored from 61-66 ft bgs
						62			
						63			
						64			
						65			
						66			bottom of boring
						67			
						68			
						69			
						70			
						71			
						72			
						73			
						74			
						75			
						76			
						77			
						78			
						79			

Logged by: J. Gatherer Date: 08/20/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwait

WELL SPECIFICATIONS.

Diam of Riser:	2"	Screen Interval:	44-58 ft bgs	Sandpack.	43-58 5 ft bgs	Grout	39 ft bgs - grade
Bottom of Hole	66 ft bgs	Riser Interval.	44 ft bgs - 3 ft ag	Bentonite.	39-43 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193555 E 522732
Surface Elevation	26 54 FT MSL
Well Riser Elevation	29 33 FT MSL

Job No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-34D
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 3 of 4
Drilling Water Level / Date / Time		Start 08/19/02 0957; Drilling Date/Times; Finish 08/22/02 1500
Surface Conditions gravel		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 20	38	40-42	0 / 0	21 37	40		SP	same as above
					31 28	41			
2 in SS	24 12	38	42-44	0 / 0	22 18	42			gray brown very fine to fine SAND, laminated with some silty very fine sand lenses, moist
					16 15	43			
2 in SS	24 16	44	44-46	0 / 0	6 6	44			dark gray very fine SAND with some siltyvery fine sand lenses, laminated, wet
					5 7	45			
2 in SS	24 6	44	46-48	0 / 0	7 8	46			dark gray very fine to fine SAND, wet
					8 9	47			
2 in SS	24 4	48	48-50	0 / 0	5 7	48			dark gray very fine to fine SAND, with 2-in lenses of very fine to coarse sand, and little fine gravel, wet
					7 8	49			
2 in SS	24 13	48	50-52	0 / 0	6 11	50			0-2 in dark gray very fine SILTY SAND; 2-6 in gray very fine to coarse SAND, some fine gravel, iron staining
					14 32	51			6-11 in. gray fine to coarse SAND; 11-13 in: dark gray very fine to coarse SAND, little fine gravel, wet
2 in SS	13 7	48	52-53 1	0 / 0	64 51	52			dark gray very fine SAND, some angular rock fragments (phyllite and quartzite, wet
					100/1	53		WTHR RX	rollerbit to 55 5 ft (soft from 54-55 5 ft)
						54			
						55			
2 in SS	24 13	55 5	55.5-57 5	0 / 0	11 23	56			0-1 in gray fine to coarse SAND, little fine to coarse subangular quartzite frag; 1-2 in dark gray very fine to fine SAND, little subangular fine to coarse gravel
					25 26	57			2-6 in gray fine to coarse SAND, little subangular fine to coarse GRAVEL; 6-13 in dark gray very fine to fine SAND, little subangular fine gravel, wet
									rollerbit to 58 ft
						58			rollerbit to 61 ft
						59			

Logged by: J Gatherer Date: 08/19/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2"	Screen Interval	44-58 ft bgs	Sandpack	43-58 5 ft bgs	Grout	39 ft bgs - grade
Bottom of Hole	66 ft bgs	Riser Interval	44 ft bgs - 3 ft ag	Bentonite	39-43 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N 193555 E 522732
Surface Elevation:	26 54 FT MSL
Well Riser Elevation	29.33 FT MSL

Job. No 29600.97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61 4-in diameter casing, drive and wash		Boring No. MW16-34D
Sampling Method: 2" split spoon Driven 24 in with 140 lb hammer		Sheet 2 of 4
Drilling Water Level / Date / Time		Start 08/19/02 0957 — Drilling Date/Times — Finish 08/22/02 1500
Surface Conditions: gravel		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 / 8	18	20-22	0 / 0	6 / 6	20		SP	0-6 in: same as above; 6-8 in: gray brown very fine to fine SAND, trace silt, wet
					5 / 6	21			
2 in SS	24 / 9	18	22-24	0 / 0	6 / 6	22			gray brown very fine to fine SAND, laminated, wet
					9 / 9	23			
2 in SS	24 / 16	24	24-26	0 / 0	9 / 6	24			0-9 in: gray brown fine to very fine SAND; 9-16 in: gray brown very fine to fine SAND, laminated, wet
					6 / 8	25			
2 in SS	24 / 0	24	26-28		3 / 4	26			no recovery
					4 / 5	27			
2 in SS	24 / 3	28	28-30	0 / 0	3 / 4	28			gray brown very fine to fine SAND, wet
					4 / 4	29			
2 in SS	24 / 10	28	30-32	0 / 0	3 / 5	30			0-6 in: gray brown fine to very fine SAND, some iron staining; 6-10 in: gray brown very fine to fine SAND, laminated, wet
					5 / 6	31			
2 in SS	24 / 17	28	32-34	0 / 0	5 / 6	32			gray brown very fine to fine SAND, laminated, wet
					7 / 6	33			
2 in SS	24 / 3	34	34-36	0 / 0	9 / 7	34			gray brown very fine to fine SAND, wet
					4 / 7	35			
2 in SS	24 / 15	34	36-38	0 / 0	7 / 9	36			gray brown fine to fine very SAND, wet
					11 / 15	37			
2 in SS	24 / 12	38	38-40	0 / 0	18 / 27	38			gray brown fine to very fine SAND, moist to wet
					27 / 36	39			

Logged by: J Gatherer — Date: 08/19/02

Drilling Contractor: Subsurface Drilling — Driller: J Goldthwait

WELL SPECIFICATIONS:

Diam. of Riser.	2"	Screen Interval.	44-58 ft bgs	Sandpack:	43-58.5 ft bgs	Grout	39 ft bgs - grade
Bottom of Hole	66 ft bgs	Riser Interval	44 ft bgs - 3 ft ag	Bentonite	39-43 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No	MW16-34D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 4	
Drilling Water Level / Date / Time		Start 08/19/02 0957	Drilling Date/Times	Finish 08/22/02 1500
Surface Conditions gravel			

Coordinates. N. 193555 E: 522732
Surface Elevation: 26.54 FT MSL
Well Riser Elevation 29.33 FT MSL

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 9	0	0-2	0 / 0	2				tan to gray very fine to coarse SAND, trace fine gravel and silt, dry (fill)
					10				
					15	1			
					20				
2 in SS	24 19	0	2-4	0 / 0	19	2			same as above
					25				
					33	3			
					31				
2 in SS	24 8	4	4-6	0 / 0	19	4			0-5 in: dark gray very fine to fine SAND
					16				5-8 in: tan gray fine to coarse SAND, moist to wet
					19	5			
					15				
2 in SS	24 11	4	6-8	0 / 0	10	6			0-6 in: dark gray very fine to coarse SAND, trace coarse gravel
					15				6-11 in: tan gray fine to coarse SAND, iron stained from 10-11 in., moist to wet
					12	7			
					11				
2 in SS	24 6	8	8-10	0 7 / 0.6	10	8			0-3 in: dark gray fine to very fine SAND
					8				3-6 in: tan fine to coarse SAND, trace fine gravel, iron staining, wet
					8	9			
					10				
2 in SS	24 6	8	10-12	3 2 / 5.1	10	10		▼	tan fine to coarse SAND, iron stained from 0-2 in, moist to wet
					8				
					8	11			
					8				
2 in SS	24 11	8	12-14	0.7 0 7	6	12			tan gray fine to coarse SAND, trace fine gravel, wet
					6				
					6	13			
					6				
2 in SS	24 6	14	14-16	0 / 0	6	14			gray brown very fine to medium SAND, wet
					5				
					6	15			
					6				
2 in SS	24 10	14	16-18	0 / 0	6	16			0-3 in: gray fine SAND, trace fine gravel
					8				3-10 in gray brown very fine to fine SAND, wet
					8	17			
					8				
2 in SS	24 7	18	18-20	0 / 0	7	18			gray brown very fine to fine SAND, wet
					6				
					7	19			
					5				

Logged by. J. Gatherer Date. 08/19/02

Drilling Contractor Subsurface Drilling Driller: J Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2"	Screen Interval:	44-58 ft bgs	Sandpack:	43-58 5 ft bgs	Grout	39 ft bgs - grade
Bottom of Hole	66 ft bgs	Riser Interval	44 ft bgs - 3 ft ag	Bentonite	39-43 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N:193551 E 522732
Surface Elevation	29 16 FT MSL
Well Riser Elevation:	29.21 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method. Drive and Wash 4-in diameter casing		Boring No. MW16-34I
Sampling Method: 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 10/07/02
Date		Drilling Date/Times
Time		Finish 10/07/02
Surface Conditions: asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	LEL / PID	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
										Refer to broing log of MW16-34D for overburden description
							1			
							2			
							3			
							4			
							5			
							6			
							7			
							8			
							9			
							0			
							1			
							2			
							3			
							4			
							5			
							6			
							7			
							8			
							9			

Logged by V Deleone Date: 10/07/02

Drilling Contractor: Subsurface Drilling Driller. J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	25-35 ft bgs	Sandpack.	22-35 ft bgs	Grout	19 ft bgs - grade
Bottom of Hole	35 ft bgs	Riser Interval:	25 ft bgs-3 in bgs	Bentonite:	19-22 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 193555 E: 522728
Surface Elevation	26 76 FT MSL
Well Riser Elevation	29 06 FT MSL

Job No. 29600 97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-34S
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level; Date; Time		Start 09/13/02; Drilling Date/Times; Finish 09/13/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-34D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S. Sheer Date: 09/13/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser:	2 in	Screen Interval:	5-15 ft bgs	Sandpack	4-15 ft bgs	Grout	grade
Bottom of Hole:	15 ft bgs	Riser Interval	5 ft bgs -2 ft ags	Bentonite:	grade-4 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193399 E 522515
Surface Elevation	28 43 FT MSL
Well Riser Elevation	27 85 FT MSL

Job No. 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI	
Drilling Method Diedrich D-50 coring		Boring No **MW16-33D**	
Core Barrel used NX		Sheet 1 of 1	
Packer Test		Drilling Times	
Tested	NA	Start 08/26/02 1200	Finish 08/26/02 1200
Interval	NA		
See packer test log if applicable			

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min.sec)	Total Depth (ft bgs)
					74			1	6 51	75
100%	35%						0-24 in: fractured black phyllite and gray quartzite			
					75		with 0-8 in very fractured with probable	2	10 58	76
							slickensides and iron staining on some fracture			
					76		surfaces	3	9.13	77
					77		24-60 in: fractured dark to light gray quartzite	4	7 50	78
							with occasional phyllite, quartz veins, and iron			
					78		staining	5	7.37	79
					79					
					80					
					81					
					82					
					83					
					84					
					85					
					86					
					87					
					88					
					89					
					90					
					91					
					92					

NOTES:

Logged by: V. Deleone

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwait

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N:193399 E 522515
Surface Elevation:	28.43 FT MSL
Well Riser Elevation:	27.85 FT MSL

Job No. 29600 97	Client. EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Diedrich D-50, 4-in diameter casing, drive and wash		Boring No MW16-33D
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 4 of 4
Drilling Water Level / Date / Time		Start 08/23/02 0740; Drilling Date/Times; Finish
Surface Conditions: gravel/brokenup asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
	24 / 24	58	60-62	0 / 0	5, 9	60	SP/GP	fine SAND and fine to coarse GRAVEL
					11, 27	61		
2 in SS	21 / 10	58	62-64	0 / 0	32, 34	62		very fine SAND to GRAVEL; rollerbit to 64 ft
					61, 100/3	63		
2 in SS	1 / 0	58	64-66		100/1	64		no recovery; rollerbit to 66 ft
						65		
2 in SS	0 / 0	62	66-68		100/0	66	B	refusal, rollerbit to 68 ft; BOULDER from 66-68 ft
						67		
2 in SS	8 / 8	68	68-70	0 / 0	13, 21	68	GP	fine to coarse gravel, some fine sand; weathered rock in sampler tip
					100/2	69	WTHR RX	rollerbit to 74
						70		
						71		
						72		
						73		
						74		cored 74-79 ft bgs
						75		
						76		
						77		
						78		
						79		bottom of boring

Logged by: V Deleone Date: 08/26/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwait

WELL SPECIFICATIONS:

Diam of Riser:	2 in	Screen Interval:	61 - 71 ft bgs	Sandpack:	60 - 71 ft bgs	Grout:	57 ft bgs - grade
Bottom of Hole:	79 ft bgs	Riser Interval:	61 ft bgs - 0.5 ft ags	Bentonite.	57 - 60 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N:193399 E. 522515
Surface Elevation	28.43 FT MSL
Well Riser Elevation.	27.85 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Diedrich D-50; 4-in diameter casing, drive and wash		Boring No	MW16-33D
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 3 of 4	
Drilling Water Level / Date / Time		Start 08/23/02 0740	Drilling Date/Times	Finish . .
Surface Conditions. gravel/brokenup asphalt			

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
	24 / 15	38	40-42	0 / 0	7, 7	40		SP	gray very fine SAND
					7, 7	41			
2 in SS	24 / 8	38	42-44	0 / 0	6, 5	42			same as above
					4, 4	43			
2 in SS	24 / 10	44	44-46	0 / 0	7, 4	44		ML	gray SILT, trace very fine sand
					2, 3	45			
2 in SS	24 / 15	44	46-48	0 / 0	1, 2	46			same as above
					3, 4	47			
2 in SS	24 / 8	48	48-50	0 / 0	8, 9	48		SP	gray fine to medium SAND, some fine to coarse gravel
					11, 7	49			
2 in SS	24 / 20	48	50-52	0 / 0	5, 7	50			0-14 in: medium SAND, trace gravel 14-20 in: fine SAND
					6, 4	51			
2 in SS	24 / 20	48	52-54	0 / 0	7, 9	52			same as above
					10, 7	53			
2 in SS	24 / 3	54	54-56	0 / 0	11, 9	54		GP	subangular to subrounded fine to coarse GRAVEL, trace fine to medium sand
					12, 13	55			
2 in SS	24 / 20	54	56-58	0 / 0	17, 10	56		SP	0-14 in: fine to medium SAND 14-20 in: GRAVEL, some very fine to medium sand
					9, 5	57		GP	
2 in SS	24 / 5	58	58-60	0 / 0	9, 5	58			gray fine GRAVEL, some very fine to medium sand
					7, 9	59			

Logged by: V. DeLeone Date: 08/26/02

Drilling Contractor. Subsurface Drilling Driller J Goldthwait

WELL SPECIFICATIONS.

Diam of Riser:	2 in	Screen Interval:	61 - 71 ft bgs	Sandpack.	60 - 71 ft bgs	Grout:	57 ft bgs - grade
Bottom of Hole:	79 ft bgs	Riser Interval:	61 ft bgs - 0 5 ft ags	Bentonite:	57 - 60 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N:193399 E: 522515
Surface Elevation:	28 43 FT MSL
Well Riser Elevation	27.85 FT MSL

Job No. 29600.97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Diedrich D-50, 4-in diameter casing, drive and wash		Boring No. MW16-33D
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 4
Drilling Water Level		Start 08/23/02 0740
Date		Drilling Date/Times
Time		Finish
Surface Conditions. gravel/brokenup asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 10	18	20-22	0 / 0	9 10	20			same as above
					7 7	21			
2 in SS	24 7	18	22-24	0 / 0	7 6	22			olive brown very fine to fine SAND, wet
					7 7	23			
2 in SS	24 8	24	24-26	0 / 0	5 4	24			0-1 in: gray brown very fine to fine SILTY SAND; 1-8 in: gray brown very fine to fine SAND laminated, wet
					10 13	25			
2 in SS	24 0	24	26-28		12 11	26			no recovery
					11 12	27			
2 in SS	24 14	28	28-30	0 / 0	13 16	28			0-11 in: gray brown fine to very fine SAND, laminated with iron stained bands; 11-14 in: gray very fine to fine SAND, wet
					17 19	29			
2 in SS	24 12	28	30-32	0 / 0	20 26	30		SP	dark gray very fine to fine SAND, wet
					28 25	31			
2 in SS	24 19	28	32-34	0 / 0	30 31	32			same as above
					35 32	33			
2 in SS	24 12	34	34-36	0 / 0	20 28	34			same as above
					33 35	35			
2 in SS	24 17	34	36-38	0 / 0	17 19	36			0-15 in: same as above; 15-17 in: olive gray very fine to fine SILTY SAND, wet
					19 17	37			
2 in SS	24 12	38	38-40	0 / 0	8 7	38			gray very fine SAND
					8 7	39			

Logged by: J. Gatherer Date: 08/23/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwait

WELL SPECIFICATIONS

Diam of Riser.	2 in	Screen Interval.	61 - 71 ft bgs	Sandpack.	60 - 71 ft bgs	Grout.	57 ft bgs - grade
Bottom of Hole.	79 ft bgs	Riser Interval.	61 ft bgs - 0 5 ft ags	Bentonite	57 - 60 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N 193399 E: 522515
Surface Elevation:	28.43 FT MSL
Well Riser Elevation:	27 85 FT MSL

Job. No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Diedrich D-50 4-in diameter casing, drive and wash		Boring No. MW16-33D
Sampling Method· 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 1 of 4
Drilling Water Level		Start 08/23/02 0740 / Drilling Date/Times / Finish
Date		
Time		
Surface Conditions: gravel/brokenup asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 12	0	0-2	0 / 0	8 21				0-2 in: tan very fine to coarse SAND
					28 47	1			2-12 in: brown gray very fine to coarse SAND, little fine to coarse gravel dry
2 in SS	18 11	0	2-4	0 / 0	41 43	2			brown gray very fine to coarse SAND, little fine to coarse gravel, dry to moist
					100	3			
2 in SS	24 15	4	4-6	0 / 0	43 41	4			brown gray very fine to coarse SAND, trace fine gravel, little iron staining, moist
					43 48	5			
2 in SS	24 10	4	6-8	0 / 0	37 39	6			brown gray very fine to coarse SAND, little fine gravel, little iron staining, moist
					40 48	7			
2 in SS	24 10	8	8-10	0 / 0	19 20	8			0-2 in: gray brown very fine to fine SAND 2-10 in: gray brown very fine to coarse SAND, little fine gravel, moist
					21 27	9		▼	
2 in SS	24 7	8	10-12	0 / 0	16 12	10			tan fine to coarse SAND, trace fine gravel, wet
					21 25	11			
2 in SS	24 14	8	12-14	0 / 0	20 20	12			0-4 in: gray brown fine to coarse SAND 4-9 in. gray brown fine to coarse SAND, little fine gravel
					50 15	13			9-14 in: tan fine to coarse SAND, trace fine gravel, moist to wet
2 in SS	24 8	14	14-16	0 / 0	7 8	14			0-4 in. tan brown fine to medium SAND 4-8 in: tan brown very fine to coarse SAND, trace fine gravel, wet
					10 12	15			
2 in SS	24 12	14	16-18	0 / 0	9 8	16			0-9 in: tan brown fine to coarse SAND, little fine gravel 9-12 in: tan brown fine to very fine SAND, wet
					7 8	17			
2 in SS	24 9	18	18-20	0 / 0	8 9	18			olive brown fine to very fine SAND, wet
					10 10	19			

Logged by: J. Gatherer Date: 08/23/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwait

WELL SPECIFICATIONS·

Diam of Riser	2 in	Screen Interval	61 - 71 ft bgs	Sandpack.	60 - 71 ft bgs	Grout	57 ft bgs - grade
Bottom of Hole	79 ft bgs	Riser Interval:	61 ft bgs - 0 5 ft ags	Bentonite	57 - 60 ft bgs	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193406 E. 522515
Surface Elevation:	28.63 FT MSL
Well Riser Elevation:	28 29 FT MSL

Job. No. 29600 97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-33I
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 10/03/02
Date		Drilling Date/Times
Time		Finish 10/03/02
Surface Conditions.		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-33D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V Deleone Date: 10/03/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	34-44 ft bgs	Sandpack	33-44 ft bgs	Grout	30 ft bgs - grade
Bottom of Hole:	44 ft bgs	Riser Interval	34 ft bgs -0.5 ft bgs	Bentonite	30-33 ft bgs	Cover	roadbox

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N. 193400 E· 522520
Surface Elevation	28.41 FT MSL
Well Riser Elevation·	28.12 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-33S
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/12/02
Date		Drilling Date/Times
Time		Finish 09/12/02
Surface Conditions·		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-33D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S Sheer Date 09/12/02

Drilling Contractor· Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser·	2 in	Screen Interval	6 5-16 5 ft bgs	Sandpack	5 5-16 5 ft bgs	Grout.	grade
Bottom of Hole·	16 5 ft bgs	Riser Interval·	6.5 ft bgs -2 5 ft ags	Bentonite.	grade-5 5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N. 193770 E 522736
Surface Elevation	30 64 FT MSL
Well Riser Elevation	30.14 FT MSL

Job No 29600 97	Client EFANE	Location Site 16 - Building 41 NCBC Davisville, North Kingstown, RI
Drilling Method Dietrich DSO coring		Boring No **MW16-32D**
Core Barrel used NQ		Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
02/14/02 1307	02/14/02 1502

Core Run Run #	REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
						66		gray quartzite			
								45 degree fracture at 14 in			
								near horizontal fractures or partings at 25.5 and 47 in			
						67			1	10:40	67
	102%	100%				68			2	9.45	68
						69			3	10.05	69
						70			4	29 30	70
						71			5	43:08	71 ft 2 in

NOTES:

Logged by: Vincent DeLeone

Drilling Contractor: Subsurface Drilling and Remediation

Driller: Jim Goldthwait

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193770 E: 522736
Surface Elevation	30 64 FT MSL
Well Riser Elevation	30 14 FT MSL

Job No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No MW16-32D
Sampling Method 2" or 3" split spoon driven 24-in with 140 lb hammer		Sheet 4 of 4
Drilling Water Level Date Time		Start 02/11/02 1046 / Drilling Date/Times / Finish 02/14/02 1502
Surface Conditions: concrete floor (Bldg 41)		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	21/6	56	60-61.8	0.0	123	60		WTHR	Gray gravelly (angular) fine SAND	
					24			RX		
					49	61				
					100/3					
						62			Refusal at 61.8, Rollerbit to 66 ft	
						63				
						64				
						65				
						66				
						67				
						68				
						69				
						70				
						71			Cored to 71 ft 2 in	
						72				
						73				
						74				
						75				
						76				
						77				
						78				
						79				

Logged by	Vincent DeLeone	Date.	2/11-2/14/02
Drilling Contractor	Subsurface Drilling and Remediation	Driller:	Jim Goldthwait

WELL SPECIFICATIONS.

Diam of Riser	2 in	Screen Interval	50-62 ft bgs	Sandpack	48-62 ft bgs	Grout	45-0 ft bgs
Bottom of Hole	71 ft bgs	Riser Interval	50-0 ft bgs	Bentonite	45-48 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193770 E 522736
Surface Elevation.	30 64 FT MSL
Well Riser Elevation	30 14 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No	MW16-32D
Sampling Method 2" or 3" split spoon driven 24-in with 140 lb hammer		Sheet 3 of 4	
Drilling Water Level Date Time		Start 02/11/02 1046	Drilling Date/Times — Finish 02/14/02 1502
Surface Conditions concrete floor (Bldg 41)			

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	24/18	38	40-42	0 0	24	40		ML	Olive green to gray very fine SAND and SILT	
					22					
					24	41				
					20					
2" SS	24/18	38	42-44	0 0	10	42			Olive green to gray SILT	
					11					
					13	43				
					15					
2" SS	24/18	44	44-46	0 7	6	44			Olive green to gray SILT trace clay	
					7					
					5	45				
					6					
2" SS	24/24	44	46-48	0.0	5	46			same as above	
					8					
					8	47				
					5					
2" SS	24/8	44	48-50	0.0	6	48			same as above	
					17					
					18	49				
					20					
2" SS	24/16	50	50-52	20.0	17	50		SP	Olive green to gray very fine SAND	
					20					
					23	51				
					14					
2" SS	24/10	50	52-54	4 0	13	52			same as above	
					15					
					11	53				
					17					
2" SS	24/6	50	54-56	4 0	17	54			same as above	
					14					
					12	55				
					18					
2" SS	24/18	56	56-58	3.5	8	56			same as above	Sample submitted
					9					to laboratory for VOC
					8	57				analysis
					10					TCE = 4,000 ug/kg
2" SS	24/6	56	58-60	0 0	8	58			0-5 in Brown to gray fine to medium SAND	TCVOC = 4,000 ug/kg
					10				5-6 in medium SAND	
					13	59				
					72					

Logged by	Vincent DeLeone	Date	2/11-2/14/02
Drilling Contractor	Subsurface Drilling and Remediation	Driller:	Jim Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	50-62 ft bgs	Sandpack	48-62 ft bgs	Grout	45-0 ft bgs
Bottom of Hole	71 ft bgs	Riser Interval	50-0 ft bgs	Bentonite	45-48 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 193770 E: 522736
Surface Elevation:	30 64 FT MSL
Well Riser Elevation	30 14 FT MSL

Job No 29600 97	Client EFANE	Location. SITE 16 NCBC Davisville
Drilling Method Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No MW16-32D
Sampling Method: 2" or 3" split spoon driven 24-in with 140 lb hammer		Sheet 2 of 4
Drilling Water Level		Start 2/11/2002 1046
Date		Drilling Date/Times
Time		Finish 2/14/2002 1502
Surface Conditions concrete floor (Bldg 41)		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	24/12	18	20-22	0.0	8	20	SP	Olive green to gray very fine to fine sand, trace coarse	
					7			SAND, wet	
					9	21			
					11				
2" SS	24/12	18	22-24	0 0	11	22		same as above	
					12				
					11	23			
					13				
2" SS	24/12	24	24-26	0 0	8	24		Olive green to gray very fine to fine SAND	
					10				
					11	25			
					13				
2" SS	24/16	24	26-28	0.0	10	26		same as above	
					11				
					11	27			
					10				
2" SS	24/15	28	28-30	0 0	9	28		same as above	
					8				
					7	29			
					8				
2" SS	24/15	28	30-32	0 0	8	30		same as above	
					6				
					5	31			
					5				
2" SS	24/16	28	32-34	0 0	6	32		0-2 in. Olive green to gray very fine SAND	
					6			2-3 in: rusty orange color very fine SAND	
					7	33		3-16 in same as 0-2 in	
					7				
2" SS	24/14	28	34-36	0 0	10	34	ML	Olive gray to gray SILT trace very fine sand.	
					7				
					6	35			
					7				
2" SS	24/12	28	36-38	5 0	8	36		same as above	Sample submitted
					13				to laboratory for VOC
					17	37			analysis
					18				TCVOC = ND
2" SS	24/12	38	38-40	3 8	23	38		same as above	
					21				
					22	39			
					30				

Logged by Vincent DeLeone Date 2/11-2/14/02

Drilling Contractor. Subsurface Drilling and Remediation Driller Jim Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	50-62 ft bgs	Sandpack	48-62 ft bgs	Grout	45-0 ft bgs
Bottom of Hole	71 ft bgs	Riser Interval	50-0 ft bgs	Bentonite	45-48 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N. 193770 E. 522736
Surface Elevation	30 64 FT MSL
Well Riser Elevation·	30 14 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No MW16-32D
Sampling Method 2" or 3" split spoon driven 24-in with 140 lb hammer		Sheet 1 of 4
Drilling Water Level		Start 02/11/02 1046
Date		Drilling Date/Times
Time		Finish 02/14/02 1502
Surface Conditions: concrete floor (Bldg 41)		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	24/12	0	0-2	0 0	7	0			4 in concrete	
					20			Fill	Brown/ gray silty SAND, trace coarse sand and fine	
					15	1			angular gravel, dry	
					16					
2" SS	24/14	0	2-4	0.0	17	2			Brown/ gray silty gravelly (subrounded) SAND, dry	
					24					
					25	3				
					23					
2" SS	24/15	4	4-6	0 0	14	4			Brown/ gray silty gravelly (subrounded to subangular)	
					15				SAND, dry	
					16	5				
					15					
2" SS	24/14	4	6-8	0 0	18	6			same as above	
					26					
					26	7				
					21					
2" SS	24/14	4	8-10	0 0	19	8			Brown/ gray gravelly (angular to subrounded) fine to	
					15				coarse silty SAND, dry	
					21	9				
					17					
2"SS	24/12	10	10-12	4 0	18	10			same as above	Sample submitted
					16					to laboratory for VOC
					23	11				analysis.
					24					TCVOC = ND
2"SS	24/14	10	12-14	0.0	24	12			same as above	
					24					
					16	13				
					13					
2" SS	24/10	14	14-16	0.0	15	14		SP	Olive gray very fine SAND, trace silt, damp	
					15					
					14	15				
					10					
2" SS	24/5	14	16-18	0 0	9	16			same as above	
					8					
					9	17				
					8					
2"SS	24/4	18	18-20	0 0	10	18			Olive gray fine to medium SAND, trace silt and coarse	
					7				sand, wet.	
					7	19				
					8					

Logged by	Vincent DeLeone	Date	2/11-2/14/02
Drilling Contractor.	Subsurface Drilling and Remediation	Driller	Jim Goldthwait

WELL SPECIFICATIONS·

Diam of Riser	2 in	Screen Interval	50-62 ft bgs	Sandpack	48-62 ft bgs	Grout	45-0 ft bgs
Bottom of Hole	71 ft bgs	Riser Interval	50-0 ft bgs	Bentonite	45-48 ft bgs	Cover	4 in steel

Notes Photovac MicroFID response factor set to 2.8 for TCE.

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193744 E 522637
Surface Elevation	30 86 FT MSL
Well Riser Elevation	30 29 FT MSL

Job No 29600 97 3201	Client EFANE	Location Site 16 - Building 41 NCBC Davisville, North Kingstown, RI	
Drilling Method Dietrich DSO coring		Boring No **MW16-31D**	
Core Barrel used NQ		Sheet 1 of 1	
Packer Test		Drilling Times	
Tested	NA	Start 02/25/02	Finish 02/28/02
Interval	NA		
See packer test log if applicable			

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
					67		Dark gray phyllite			
							45 to 60 degree fractures 2, 8-10 and 11-13 in			
							near horizontal fracture or parting at 7, 10.5, 15			
							22 5, 24, 34 5, 45.5, 47.5, and 54.5 in			
					68			1	6.14	68
					69			2	4.57	69
97%	72%									
					70			3	4 57	70
					71			4	5 10	71
					71'10"			5	4 56	71ft 10 in

NOTES:

Logged by: Vincent DeLeone

Drilling Contractor: Subsurface Drilling and Remediation

Driller: Jim Goldthwait

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193744 E 522637
Surface Elevation	30 86 FT MSL
Well Riser Elevation	30 29 FT MSL

Job No. 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method. Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No.	MW16-31D
Sampling Method 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 4 of 4	
Drilling Water Level		Start 02/25/02 0900	Drilling Date/Times	Finish 02/28/02 1100
Date			
Time			
Surface Conditions Asphalt floor (Bldg 41)			

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	3/0	58	60-60 3	NS	120/3	60		No Sample	
						61			
2" SS	2/0	58	62-62 2	NS	120/2	62		No Sample.	
						63			
						64		Rollerbit to 67'.	
						65			
						66			
						67			
						68			
						69			
						70			
						71			
						72		Cored to 71' 10".	
						73			
						74			
						75			
						76			
						77			
						78			
						79			

Logged by: Vincent DeLeone Date: 2/25-2/28/02

Drilling Contractor: Subsurface Drilling and Remediation Driller: Jim Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	54-64 ft bgs	Sandpack	52-64	Grout	49-0 ft bgs
Bottom of Hole	71'10" bgs	Riser Interval	54-0 ft bgs	Bentonite	52-49 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193744 E 522637
Surface Elevation	30 86 FT MSL
Well Riser Elevation	30 29 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No	MW16-31D
Sampling Method 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 3 of 4	
Drilling Water Level Date Time		Start 02/25/02 0900	Drilling Date/Times — Finish 02/28/02 1100
Surface Conditions Asphalt floor (Bldg 41)			

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	24/14	38	40-42	0 0	6	40	ML	Gray SILT, moist.	
					8				
					7	41			
					8				
2" SS	24/12	38	42-44	0 0	37	42		Gray SILT, trace subangular gravel, moist	
					61				
					69	43			
					42				
2" SS	24/12	38	44-46	0.0	47	44	ML/GM	Gray SILT and GRAVEL, trace medium to coarse sand,	
					52			moist	
					55	45			
					59				
2" SS	24/12	38	46-48	0.0	67	46		same as above	
					65				
					53	47			
					44				
2" SS	5/1	48	48-48.4	0 0	100/5	48		Gray SILT and subangular fine GRAVEL wet	
						49			
2" SS	24/12	48	50-52	0 0	50	50		Gray gravelly (subrounded to subangular) SILT, trace	
					60			fine sand	
					40	51			
					60				
2" SS	24/12	48	52-54	0 0	27	52		same as above	
					15				
					13	53			
					24				
2" SS	24/2	54	54-56	0 0	7	54		same as above	
					11				
					9	55			
					14				
2" SS	24/12	54	56-58	0 0	27	56	ML	Gray SILT, trace subangular to subrounded gravel, trace clay.	Sample submitted
					22				for laboratory analysis
					43	57			of VOC
					129				TCE = 830 UG/KG
2" SS	11/1	54	58-58 9	0 0	47	58		same as above	TCVOC = 830 ug/kg
					120/5				not enough soil for
						59			% moisture sample

Logged by	Vincent DeLeone	Date	2/25-2/28/02
Drilling Contractor	Subsurface Drilling and Remediation	Driller	Jim Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	54-64 ft bgs	Sandpack	52-64	Grout	49-0 ft bgs
Bottom of Hole	71'10" bgs	Riser Interval	54-0 ft bgs	Bentonite	52-49 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N. 193744 E 522637
Surface Elevation	30.86 FT MSL
Well Riser Elevation	30 29 FT MSL

Job No 29600 97	Client. EFANE	Location. SITE 16 NCBC Davisville
Drilling Method· Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No MW16-31D
Sampling Method 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 2 of 4
Drilling Water Level / Date / Time		Start 2/25/2002 0900 — Drilling Date/Times — Finish 2/28/2002 1100
Surface Conditions: Asphalt floor (Bldg 41)		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	24/18	18	20-22	0 0	13	20	SP	Gray gravelly (subrounded) fine SAND, moist.	
					14				
					11	21			
					12				
2" SS	24/18	18	22-24	0 0	12	22		0-16 in· Gray fine SAND, trace rounded gravel (R)	
					11			16-18 in rust colored fine SAND, moist	
					13	23			
					10				
2" SS	24/10	24	24-26	0 0	7	24		Gray very fine SAND, trace silt, moist.	
					5				
					5	25			
					10				
2" SS	24/12	24	26-28	0 0	6	26		same as above	
					6				
					9	27			
					7				
2" SS	24/12	28	28-30	0.0	6	28		Gray fine SAND, moist	
					6				
					7	29			
					8				
2" SS	24/18	28	30-32	0.0	6	30		Gray fine SAND, trace silt, moist	
					4				
					5	31			
					7				
2" SS	24/14	28	32-34	0.0	8	32		same as above	
					8				
					8	33			
					13				
2" SS	24/10	34	34-36	1 0	15	34		same as above	
					15				
					21	35			
					25				
2" SS	24/16	34	36-38	1 4	13	36		same as above	Sample submitted
					11				for laboratory analysis
					14	37			of VOC
					15				TCVOC = ND
2" SS	24/16	38	38-40	0.0	8	38		Gray very fine SAND, trace silt, moist.	
					5				
					7	39			
					6				

Logged by: Vincent DeLeone — Date: 2/25-2/28/02

Drilling Contractor: Subsurface Drilling and Remediation — Driller: Jim Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	54-64 ft bgs	Sandpack	52-64	Grout	49-0 ft bgs
Bottom of Hole	71'10" bgs	Riser Interval	54-0 ft bgs	Bentonite	52-49 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193744 E 522637
Surface Elevation	30 86 FT MSL
Well Riser Elevation:	30 29 FT MSL

Job. No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Dietrich DSO 4 1/4-in Hollow Stem and 4-in diameter steel casing drive and wash		Boring No	MW16-31D
Sampling Method 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 1 of 4	
Drilling Water Level		Start 02/25/02 0900	Drilling Date/Times / Finish 02/28/02 1100
Date			
Time			
Surface Conditions: Asphalt floor (Bldg 41)			

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	24/16	0	0-2	0 0	6	0	Fill	Brown fine grain SAND trace subangular to	
					11			subrounded gravel	
					13	1			
					12				
2" SS	24/14	0	2-4	0 0	7	2		same as above	
					11				
					10	3			
					11				
2" SS	24/16	0	4-6	0 0	27	4		same as above	
					13				
					5	5			
					7				
3" SS	24/18	0	6-8	0 0	11	6		same as above	
					12				
					12	7			
					16				
2" SS	24/18	0	8-10	1 2	5	8		same as above	Sample submitted
					7				for laboratory analysis
					7	9			of oil and grease
					9				1.3 MG/KG
2"SS	3/3	0	10-10 3	3 0	60/3	10	Boulder or Concrete	Gray very fine SAND, no odor	
						11			
NS	NS	NS	NS	NS		12		No sample, concrete fragments, auger moved 2' while	
								drilling Pull out of hole and re-drill hole 2' south	
						13			
3" SS	24/18	0	14-16	10.5	51	14	SP	Gray fine SAND, trace gravel, moist	Sample submitted
					53				for laboratory analysis
					37	15			of oil and grease and
					44				VOC.
3" SS	24/18	0	16-18	2 4	22	16		same as above	TCVOC = ND
					25				Oil and grease = ND
					33	17			
					29				
2"SS	24/18	18	18-20	0 0	15	18		Gray fine SAND, trace silt and gravel, moist	
					16				
					16	19			
					21				

Logged by: Vincent DeLeone Date: 2/25-2/28/02

Drilling Contractor: Subsurface Drilling and Remediation Driller: Jim Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	54-64 ft bgs	Sandpack	52-64	Grout	49-0 ft bgs
Bottom of Hole	71'10" bgs	Riser Interval	54-0 ft bgs	Bentonite	52-49 ft bgs	Cover	4 in steel

Note Photovac MicroFID response factor set to 2 8 for TCE

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates:	N E
Surface Elevation.	NA
Well Riser Elevation	NA

Job No 29600 97 3201	Client EFANE	Location Site 16 - Building 41 NCBC Davisville, North Kingstown, RI
Drilling Method Dietrich DSO Hollow Stem/drive and wash		Boring No **MW16-30D**
Core Barrel used NQ		Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
02/18/02	02/20/02

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
4'6" = 90%	80%				68		Light gray, fine to medium grained quartzite			
					69		1'4 5" - 1'5.5", 75 degree fracture	1	7 48	69
							1'6" - 1'7", 75 degree fracture, approx 5" wide.			
					70			2	8 19	70
							2' 9 5" - 3'.5", 3 90 degree fractures and two hozizontal fractures.			
					71			3	7:28	71
							3'6 5", 90 degree fracture 3'6 5" - 3'9", 135 degree fracture 3'10", 90 degree fracture.			
					72			4	7 23	72
					73			5	7:23	73

NOTES: 4'6" Recovery
RQD = 80%

Logged by: Vincent DeLeone

Drilling Contractor: Sub Surface Drilling and Remediation

Driller: Jim Goldthwait

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N. 193681 E: 522484
Surface Elevation	30.47 FT MSL
Well Riser Elevation	30.22 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Dietrich DSO 4 1/4-in Hollow Stem auger and 4-in diameter steel casing drive and wash		Boring No	MW16-30D
Sampling Method: 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 4 of 4	
Drilling Water Level		Start 02/18/02	Drilling Date/Times / Finish 02/20/02
Date			
Time			
Surface Conditions: Asphalt floor (Bldg 41)			

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION	COMMENTS
					14	60				
					21					
2"SS	24/10	59	61-63	1 2	32	61		ML	Gray gravelly (subrounded to subangular) SILT,	
					26				trace coarse sand, wet	
					32	62				
					10					
2"SS	24/18	63	63-65	0.0	37	63			same as above	
					33					
					41	64				
					109					
2"SS	1/0	63	65-65.1	NS	120/1	65				
									Rollerbit 65-68 ft bgs	
						66				
						67				
						68			Cored from 68-73'.	
						69				
						70				
						71				
						72			Bottom of boring at 73 ft bgs	
						73				
						74				
						75				
						76				
						77				
						78				
						79				

Logged by	Vincent DeLeone	Date	02/20/02
Drilling Contractor	Sub Surface Drilling and Remediation	Driller	Jim Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	55-65 ft bgs	Sandpack	53-65	Grout	50-0 ft bgs
Bottom of Hole:	73 ft bgs	Riser Interval	55-0 ft bgs	Bentonite:	50-53 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N. 193681 E: 522484
Surface Elevation	30 47 FT MSL
Well Riser Elevation:	30 22 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Dietrich DSO 4 1/4-in Hollow Stem auger and 4-in diameter steel casing drive and wash		Boring No	MW16-30D
Sampling Method: 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 3 of 4	
Drilling Water Level Date Time		Start 02/18/02	Drilling Date/Times — Finish 02/20/02
Surface Conditions: Asphalt floor (Bldg 41)			

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION	COMMENTS
2"SS	24/18	38	40-42	0 6	20	40	ML	Gray SILT, Moist	
					15				
					17	41			
					33				
2"SS	24/16	38	42-44	0 7	14	42	SM	Gray silty very fine SAND, moist	
					19				
					23	43			
					28				
2"SS	24/10	44	44-46	6.0	25	44	ML	0-5 in: gray SILT, wet	Sample submitted to
					33			5-10 in: gray very fine grain SAND, moist	laboratory for analysis
					35	45			of VOC
					38		SP		TCVOC = ND
2"SS	24/12	44	46-48	2.2	53	46		Gray gravelly (angular to rounded) very fine SAND	
					52			trace silt	
					47	47			
					52				
						48	B	48-49' - boulder, no sample.	
2"SS	8/4	48	49-49.7	1.9	108	49	GP	subangular to subrounded GRAVEL, trace gray silt.	
					120/2				
						50			
2"SS	5/0	48	51-51 4	NA	120/5	51		no sample	
						52			
2"SS	10/2	53	53-53 8	1.0	59	53	SP	gravelly very fine gray SAND	
					120/4				
						54			
2"SS	24/6	53	55-57	0.0	73	55		Gray very fine SAND, trace silt, trace subangular to	
					52			subrounded gravel	
					14	56			
					59				
2"SS	5/4	53	57-57.4	2.0	125/5	57	ML	Gray gravelly (rounded) SILT	Sample submitted to
									laboratory for analysis
						58			of VOC.
									TCVOC = ND
2"SS	24/8	59	59-61	0 0	44	59		same as above	
					24				

Logged by: Vincent DeLeone Date: 02/20/02

Drilling Contractor: Sub Surface Drilling and Remediation Driller: Jim Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	55-65 ft bgs	Sandpack.	53-65	Grout	50-0 ft bgs
Bottom of Hole	73 ft bgs	Riser Interval	55-0 ft bgs	Bentonite	50-53 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N 193681 E 522484
Surface Elevation	30 47 FT MSL
Well Riser Elevation	30 22 FT MSL

Job. No 29600.97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method· Dietrich DSO 4 1/4-in Hollow Stem auger and 4-in diameter steel casing drive and wash		Boring No MW16-30D
Sampling Method 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 2 of 4
Drilling Water Level / Date / Time		Start 2/18/2002 · Drilling Date/Times · Finish 2/20/2002
Surface Conditions· Asphalt floor (Bldg 41)		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION	COMMENTS
2"SS	24/8	18	20-22	3 6	47	20		SP	0-4 in: alternating bands of reddish brown very fine to	
					40				fine SAND and gray to black SAND	
					40	21			(layer approx .25" thick)	
					43				4-8 in· light brown very fine to fine SAND	
2"SS	24/16	18	22-24	13.4	22	22			Light brown very fine to fine SAND	
					20					
					22	23				
					21					
2"SS	24/16	24	24-26	5 9	10	24			Gray very fine SAND	
					12					
					11	25				
					13					
2"SS	24/16	24	26-28	4 8	13	26			same as above	
					16					
					19	27				
					23					
2"SS	24/18	28	28-30	5.0	22	28		SM	Gray silty very fine SAND, moist	
					48					
					44	29				
					62					
2"SS	24/18	28	30-32	1.0	53	30			same as above	
					38					
					33	31				
					52					
2"SS	24/18	28	32-34	7.0	27	32			same as above	
					33					
					37	33				
					52					
2"SS	24/12	34	34-36	10 3	23	34			same as above	Sample submitted to
					32					laboratory for analysis
					42	35				of VOC
					40					TCVOC = ND
2"SS	24/12	34	36-38	2 0	34	36			same as above	
					37					
					32	37				
					33					
2"SS	24/18	38	38-40	4 0	9	38			same as above	
					11					
					14	39				
					22					

Logged by· Vincent DeLeone Date: 02/20/02

Drilling Contractor: Sub Surface Drilling and Remediation Driller Jim Goldthwaite

WELL SPECIFICATIONS·

Diam of Riser	2 in	Screen Interval	55-65 ft bgs	Sandpack.	53-65	Grout	50-0 ft bgs
Bottom of Hole:	73 ft bgs	Riser Interval	55-0 ft bgs	Bentonite:	50-53 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 193681 E: 522484
Surface Elevation	30 47 FT MSL
Well Riser Elevation.	30 22 FT MSL

Job No. 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Dietrich DSO 4 1/4-in Hollow Stem auger and 4-in diameter steel casing drive and wash		Boring No.	MW16-30D
Sampling Method 2" or 3" split spoon driven 24 in with 140 lb hammer		Sheet 1 of 4	
Drilling Water Level Date Time		Start 02/18/02 0900	Drilling Date/Times	Finish 02/20/02 1430
Surface Conditions Asphalt floor (Bldg 41)			

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION	COMMENTS
2" SS	24/8		0-2	3 0	3	0	Fill	Light Brown medium SAND, trace subangular to rounded	
					7			gravel	
					6	1			
					4				
2" SS	24/8		2-4	2 0	3	2		same as above	
					3				
					2	3			
					3				
						4		4.5' - apparent bottom of the former vapor degreaser vault	
							Concrete	8-10 in concrete, No sample	
						5			
							Fill		
3" SS	24/20		6-8	2 0	45	6		Brown gravelly (subangular to rounded) medium SAND,	Sample submitted to
					84			no odor	laboratory for analysis
					77	7			of oil and grease
					102				3 8 mg/g
2"SS	24/18		8-10	0 0	53	8		Brown to dark gray gravelly (subangular to subrounded)	
					61			fine to medium SAND, no odor	
					62	9			
					81				
2"SS	24/12		10-12	1 1	26	10	SP	Dark gray very fine SAND, No odor	
					32				
					77	11			
					42				
2"SS	24/12		12-14	1 5	34	12		Gray to black gravelly very fine SAND	
					37				
					44	13			
					39				
2"SS	24/14	14	14-16	3 2	34	14		0-12 in: Dark gray medium SAND, trace gravel.	Sample submitted to
					49			12-13 in: light gray very fine SAND	laboratory for analysis
					34	15		13-14 in: same as 0-12 in.	of oil and grease.
					42				1 3 mg/g
2"SS	24/14	14	16-18	2.2	35	16		same as above 0-12 in	
					15				
					25	17			
					13				
2"SS	24/8	18	18-20	2.4	9	18		0-3 in gray fine SAND, trace gravel	
					10			3-6 in brown medium SAND	
					12	19			
					17				

Logged by: Vincent DeLeone Date: 02/20/02

Drilling Contractor: Sub Surface Drilling and Remediation Driller: Jim Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	55-65 ft bgs	Sandpack	53-65	Grout	50-0 ft bgs
Bottom of Hole	73 ft bgs	Riser Interval	55-0 ft bgs	Bentonite	50-53 ft bgs	Cover	4 in steel

Note Photovac MicroFID response factor set to 2 8 for TCE

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600.97	Client. EFANE
Location	SITE 16 NCBC Davisville
Drilling Method.	Mobile Drill B61
	4-in diameter casing, drive and wash
Boring No.	MW16-25I
Sampling Method:	2" split spoon
	Driven 24 in. with 140 lb hammer
Sheet	1 of 1
Drilling Water Level	
Date	
Time	
Surface Conditions:	
Start	09/12/02
Drilling Date/Times	
Finish	09/12/02

Coordinates: N. 193805 E 523154
Surface Elevation: 21.66 FT MSL
Well Riser Elevation: 23.57 FT MSL

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-25D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S. Sheer Date: 09/12/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser.	2 in	Screen Interval	32-42 ft bgs	Sandpack:	31-42 ft bgs	Grout	28 ft bgs - grade
Bottom of Hole:	42 ft bgs	Riser Interval:	32 ft bgs -2 ft ags	Bentonite:	28-31 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 194039 E 523257
Surface Elevation.	21.43 FT MSL
Well Riser Elevation	21.22 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No. MW16-24I
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/11/02; Drilling Date/Times; Finish 09/11/02
Surface Conditions		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-24D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S. Sheer Date: 09/11/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser.	2 in	Screen Interval:	18-28 ft bgs	Sandpack.	17-28 ft bgs	Grout:	14 ft bgs - grade
Bottom of Hole.	28 ft bgs	Riser Interval:	18 ft bgs - 0.3 ft bgs	Bentonite:	14-17 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193984 E. 522941
Surface Elevation:	30.06 FT MSL
Well Riser Elevation:	29.77 FT MSL

Job No. 29600 97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No. MW16-22I
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/10/02; Drilling Date/Times; Finish 09/10/02
Surface Conditions		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-22D for overburden description
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S Sheer Date 09/10/02

Drilling Contractor Subsurface Drilling Driller P Thornsbury

WELL SPECIFICATIONS.

Diam of Riser	2 in	Screen Interval	34-44 ft bgs	Sandpack	33-44 ft bgs	Grout.	30 ft bgs - grade
Bottom of Hole	44 ft bgs	Riser Interval	34 ft bgs - 0 3 ft bgs	Bentonite	30-33 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193921 E: 523070
Surface Elevation:	22.49 FT MSL
Well Riser Elevation:	22 16 FT MSL

Job. No 29600.97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No. MW16-21I
Sampling Method. 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/10/02 / Drilling Date/Times / Finish 09/10/02
Surface Conditions:		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-21D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S. Sheer Date: 09/10/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser.	2 in	Screen Interval	26.5-36 5 ft bgs	Sandpack	25 5-36 5 ft bgs	Grout.	22.5 ft bgs - grade
Bottom of Hole:	36 5 ft bgs	Riser Interval	26 5 ft bgs - 0 5 ft bgs	Bentonite	22 5-25 5 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193958 E 523484
Surface Elevation	17 99 FT MSL
Well Riser Elevation.	17 67 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drill ng Method		Boring No
Mobile Drill B61		MW16-20I
4-in diameter casing drive and wash		
Sampling Method 2" split spoon		Sheet 1 of 1
Driven 24 in with 140 lb hammer		
Drilling Water Level		Start 09/06/02
Date		Drilling Date/Times
Time		Finish 09/06/02
Surface Conditions		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-20D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by V Deleone Date 09/06/02

Drilling Contractor Subsurface Drilling Driller J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	24-34 ft bgs	Sandpack	23-34 ft bgs	Grout	grade
Bottom of Hole	34 ft bgs	Riser Interval	24 ft bgs -0 5 ft bgs	Bentonite	0 5-23 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193774 E. 523311
Surface Elevation.	20.32 FT MSL
Well Riser Elevation:	22.78 FT MSL

Job. No. 29600 97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61, 4-in diameter casing, drive and wash		Boring No. MW16-19I
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/05/02
Date		Drilling Date/Times
Time		Finish 09/05/02
Surface Conditions:		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-19D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: V. Deleone Date: 09/05/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval:	30-40 ft bgs	Sandpack	29-40 ft bgs	Grout:	26 ft bgs - grade
Bottom of Hole.	40 ft bgs	Riser Interval.	30 ft bgs -2.8 ft ags	Bentonite.	26-29 ft bgs	Cover.	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193650 E. 523170
Surface Elevation:	21.57 FT MSL
Well Riser Elevation:	24.05 FT MSL

Job No. 29600 97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-18I
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/04/02 / Drilling Date/Times / Finish 09/04/02
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-18D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V Deleone Date: 09/04/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser.	2 in	Screen Interval:	22-34 ft bgs	Sandpack:	21-34 ft bgs	Grout.	18 ft bgs - grade
Bottom of Hole:	34 ft bgs	Riser Interval.	22 ft bgs -2 8 ft ags	Bentonite:	18-21 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193438 E 522896
Surface Elevation	24.11 FT MSL
Well Riser Elevation	26 07 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in rollerbit		Boring No **MW16-17R**
Core Barrel used:		Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
09/18/02 1423	09/18/02 1530

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
				93			20	2:18	93
				94			21	2 05	94
				95			22	2:51	95
				96			23	3:39	96
				97			24	3.00	97
				98		bottom of boring	25	3 30	98
				99					
				100					
				101					
				102					
				103					
				104					
				105					
				106					
				107					
				108					
				109					
				110					
				111					

NOTES:

Logged by: V. Deleone

Drilling Contractor: Subsurface Drilling

Driller: B Haase

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193438 E 522896
Surface Elevation	24 11 FT MSL
Well Riser Elevation	26 07 FT MSL

Job. No. 29600.97.3202	Client EFANE	Location. Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in rollerbit		Boring No **MW16-17R**
Core Barrel used.		Sheet 1 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	09/18/02 1423	09/18/02 1530

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
						(Based on observations of the drill cuttings and fluid)			
				74		phyllite chips	1	4 00	74
				75			2	3 32	75
				76			3	2 45	76
				77			4	1:13	77
				78			5	2 19	78
				79			6	1 50	79
				80			7	2:23	80
				81			8	1 08	81
				82			9	2:35	82
				83			10	2.32	83
				84			11	1:50	84
				85			12	2 17	85
				86			13	2.39	86
				87			14	3 39	87
				88			15	1 48	88
				89			16	2 00	89
				90			17	2 43	90
				91			18	2:48	91
				92			19	2 36	92

NOTES:

Logged by: V Deleone

Drilling Contractor: Subsurface Drilling

Driller: B Haase

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No. 29600 97	Client. EFANE
Location:	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61
Boring No	MW16-17R
Sampling Method	
Sheet 1 of 1	
Drilling Water Level	
Date	
Time	
Start	09/18/02
Drilling Date/Times	
Finish	09/18/02
Surface Conditions:	

Coordinates: N: 193438 E: 522896
Surface Elevation: 24.11 FT MSL
Well Riser Elevation: 26.07 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
						1			Refer to boring log of MW16-17D for overburden description
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V. Deleone Date: 09/18/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS.

Diam of Riser	4 in	Screen Interval	73-98 ft bgs	Sandpack:	NA	Grout.	73 ft bgs - grade
Bottom of Hole:	98 ft bgs	Riser Interval	73 ft bgs -2 ft ags	Bentonite:	NA	Cover:	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193434 E: 522895
Surface Elevation:	24.12 FT MSL
Well Riser Elevation:	25.72 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-17I
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/19/02
Date		Drilling Date/Times
Time		Finish 09/19/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-17D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: V Deleone Date: 09/19/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	28-40 ft bgs	Sandpack	27.5-40 ft bgs	Grout	24 5 ft bgs - grade
Bottom of Hole.	40 ft bgs	Riser Interval	28 ft bgs - 1.6 ft ags	Bentonite:	24 5-27.5 ft bgs	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600.97
Client	EFANE
Location:	SITE 16 NCBC Davisville
Drilling Method:	Mobile Drill B61; 4-in diameter casing, drive and wash
Boring No.	MW16-17S
Sampling Method	2" split spoon
	Driven 24 in. with 140 lb hammer
Sheet	1 of 1
Coordinates.	N 193437 E. 522901
Surface Elevation:	23 92 FT MSL
Well Riser Elevation	26.08 FT MSL
Drilling Water Level	
Date	
Time	
Surface Conditions:	
Start	09/18/02
Drilling Date/Times	
Finish	09/18/02

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-17D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: V. Deleone Date: 09/18/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam. of Riser	2 in	Screen Interval:	6-16 ft bgs	Sandpack	5-16 ft bgs	Grout:	grade
Bottom of Hole	16 ft bgs	Riser Interval	6 ft bgs -2 1 ft ag	Bentonite	grade-5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193769 E 522963
Surface Elevation.	23 49 FT MSL
Well Riser Elevation	25 67 FT MSL

Job. No 29600 97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61 4-in diameter casing, drive and wash		Boring No MW16-16I
Sampling Method. 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/09/02 / Drilling Date/Times / Finish 09/09/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-16D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by. V. Deleone Date: 09/09/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam. of Riser	2 in	Screen Interval	32-42 ft bgs	Sandpack	31-42 ft bgs	Grout	28 ft bgs - grade
Bottom of Hole	42 ft bgs	Riser Interval.	32 ft bgs -2 8 ft ags	Bentonite.	28-31 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates.	N 193828 E 522876
Surface Elevation	29 39 FT MSL
Well Riser Elevation	28 72 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in rollerbit		Boring No **MW16-15R2**
Core Barrel used.		Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
09/17/02 1440	09/18/02 1500

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
				104			18	3 59	104
				105			19	3:43	105
				106			20	3:25	106
				107			21	3 05	107
				108		drill cuttings mix of light and dark gray	22	6.18	108
				109		drill cuttings dark gray	23	3:02	109
				110			24	2:11	110
				111		bottom of boring	25	3.49	111
				112					
				113					
				114					
				115					
				116					
				117					
				118					
				119					
				120					
				121					
				122					

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates.	N 193828 E 522876
Surface Elevation	29 39 FT MSL
Well Riser Elevation	28 72 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61 3 7/8-in rollerbit		Boring No **MW16-15R2**
Core Barrel used		Sheet 1 of 2

Packer Test		
Tested	NA	
Interval	NA	
See packer test log if applicable		

Drilling Times	Start	Finish
	09/17/02 1440	09/18/02 1500

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
						(Based on observations of the drill cuttings and fluid)			
				85					
				86		mixture of dark and light gray cuttings	0	0 00	86
				87		dark gray to light gray cuttings	1	8:17	87
				88			2	9.49	88
				89			3	10 38	89
				90			4	7:58	90
				91		a few more dark gray cuttings than light gray	5	8 52	91
				92			6	9:17	92
				93			7	10:39	93
				94			8	14 45	94
				95			9	7 56	95
				96			10	7.39	96
				97			11	8:09	97
				98		drill cuttings light gray with rust colored cuttings (seams / fractures?)	12	5.33	98
				99			13	3 54	99
				100			14	2 46	100
				101		rust color gone	15	3 55	101
				102			16	3:48	102
				103			17	4.19	103

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N 193828 E 522876
Surface Elevation	29 39 FT MSL
Well Riser Elevation	28 72 FT MSL

Job No. 29600.97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61		Boring No. MW16-15R2
Sampling Method		Sheet 1 of 1
Drilling Water Level		Start 09/17/02
Date		Drilling Date/Times
Time		Finish 09/18/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
						1			Refer to boring log of MW16-15D for overburden description
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S Sheer Date: 09/18/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser.	4 in	Screen Interval	86-111 ft bgs	Sandpack:	NA	Grout:	86 ft bgs - grade
Bottom of Hole:	111 ft bgs	Riser Interval	86 ft bgs - 2 ft ags	Bentonite:	NA	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193743 E: 522789
Surface Elevation:	29.98 FT MSL
Well Riser Elevation:	29.80 FT MSL

Job No 29600.97	Client EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-14I
Sampling Method: 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/13/02; Drilling Date/Times; Finish 09/13/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-14D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V. Deleone Date: 09/13/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser:	2 in	Screen Interval.	26-36 ft bgs	Sandpack.	25-36 ft bgs	Grout.	22 ft bgs - grade
Bottom of Hole	36 ft bgs	Riser Interval.	26 ft bgs -0.5 ft bgs	Bentonite:	22-25 ft bgs	Cover.	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates: ,	N 193725 E· 522480
Surface Elevation:	29.89 FT MSL
Well Riser Elevation·	29 71 FT MSL

Job No 29600 97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No MW16-13I
Sampling Method 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/11/02 · Drilling Date/Times · Finish 09/11/02 ·
Surface Conditions: .		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-13D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by. V. Deleone Date: 09/11/02

Drilling Contractor· Subsurface Drilling Driller· B Haase

WELL SPECIFICATIONS·

Diam of Riser.	2 in	Screen Interval	24-34 ft bgs	Sandpack	23-34 ft bgs	Grout	20 ft bgs - grade
Bottom of Hole	34 ft bgs	Riser Interval	24 ft bgs - 0 5 ft bgs	Bentonite.	20-23 ft bgs	Cover·	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 193783 E: 522536
Surface Elevation:	29 76 FT MSL
Well Riser Elevation:	29 43 FT MSL

Job No 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No. MW16-11S
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/11/02
Date		Drilling Date/Times
Time		Finish 09/11/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-11D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V. Deleone Date: 09/11/02

Drilling Contractor Subsurface Drilling Driller: B. Haase

WELL SPECIFICATIONS.

Diam. of Riser.	2 in	Screen Interval:	10-20 ft bgs	Sandpack	9-20 ft bgs	Grout:	grade
Bottom of Hole:	20 ft bgs	Riser Interval.	10 ft bgs -2 ft ags	Bentonite.	1-9 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N.194458 E. 522777
Surface Elevation	25 64 FT MSL
Well Riser Elevation	27.43 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in rollerbit		Boring No **MW16-06R**
Core Barrel used:		Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
				68			20	108 01	69
				69			21	110.02	70
				70			22	114 58	71
				71			23	119 00	72
				72			24	122 30	73
				73			25	126 22	74
				74		bottom of boring			
				75					
				76					
				77					
				78					
				79					
				80					
				81					
				82					
				83					
				84					
				85					
				86					

NOTES:

Logged by: V Deleone

Drilling Contractor: Subsurface Drilling

Driller: B Haase

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194458 E 522777
Surface Elevation	25 64 FT MSL
Well Riser Elevation	27 43 FT MSL

Job No	29600 97 3202
Client	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61
	3 7/8-in rollerbit
Boring No	**MW16-06R**
Core Barrel used	
Sheet	1 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times: Start / Finish

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
						(Based on observations of drill cuttings)			
				49		light gray quartzite chips	1	2 42	50
				50			2	6:15	51
				51			3	11 33	52
				52			4	18 49	53
				53			5	19.31	54
				54			6	25 20	55
				55			7	31.06	56
				56			8	36:01	57
				57			9	41.47	58
				58			10	48 36	59
				59			11	56 11	60
				60			12	63.03	61
				61			13	69 26	62
				62			14	75 24	63
				63			15	82 29	64
				64			16	87 49	65
				65			17	91 55	66
				66			18	96 14	67
				67			19	103.09	68

NOTES:

Logged by: V Deleone

Drilling Contractor: Subsurface Drilling

Driller: B Haase

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N:194458 E: 522777
Surface Elevation.	25.64 FT MSL
Well Riser Elevation:	27.43 FT MSL

Job No 29600 97	Client: EFANE	Location. SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 drive and wash		Boring No MW16-06R
Sampling Method:		Sheet 1 of 1
Drilling Water Level		Start 08/16/02 / Drilling Date/Times / Finish 08/16/02
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
						1			Refer to boring log of MW16-06D for overburden description.
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V. Deleone Date: 08/16/02

Drilling Contractor. Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser:	4 in	Screen Interval.	49-74 ft bgs	Sandpack	NA	Grout	49 ft bgs - grade
Bottom of Hole	74 ft bgs	Riser Interval	49 ft bgs - 2 ft ags	Bentonite:	NA	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N: 194564 E: 523567
Surface Elevation	13 95 FT MSL
Well Riser Elevation	15 96 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in rollerbit		Boring No **MW16-05R**
Core Barrel used		Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
08/28/02 1450	08/29/02 0910

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
				84			18	6:36	84
				85			19	6 52	85
				86			20	6 08	86
				87			21	6 58	87
				88			22	7 14	88
				89			23	5 37	89
				90			24	5:57	90
				91		bottom of boring	25	6 27	91
				92					
				93					
				94					
				95					
				96					
				97					
				98					
				99					
				100					
				101					
				102					

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N. 194564 E· 523567
Surface Elevation	13 95 FT MSL
Well Riser Elevation.	15 96 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No **MW16-05R**
Core Barrel used 3 7/8 in rollerbit		Sheet 1 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	08/28/02 1450	08/29/02 0910

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG (Based on observations of drill cuttings, and fluid.)	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
				65					
				66		cuttings are dark gray (phyllite)	0	0.00	66
				67			1	4 11	67
				68		drill wash has trace rusty color	2	3 36	68
				69		no more rusty color	3	5 44	69
				70		drill wash has trace rusty color; no more rust at 70 ft 2 in	4	4 30	70
				71			5	4·39	71
				72			6	4 15	72
				73			7	4.11	73
				74			8	4 14	74
				75			9	5·06	75
				76			10	5·02	76
				77			11	5 04	77
				78		drill cuttings had silt with dark gray phyllite	12	4 53	78
				79		drill cuttings have trace silt and rust color	13	4·39	79
				80			14	5 29	80
				81			15	6 30	81
				82			16	7 37	82
				83		no more rust color and silt	17	7 00	83

NOTES:

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 194564 E: 523567
Surface Elevation.	13 95 FT MSL
Well Riser Elevation	15.96 FT MSL

Job. No. 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No MW16-05R
Sampling Method. 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 08/20/02 / Drilling Date/Times / Finish 08/20/02
Date		
Time		
Surface Conditions		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
						1			Refer to boring log of MW16-05D for overburden description
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S Sheer Date: 08/20/02

Drilling Contractor. Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	4 in	Screen Interval.	66-91 ft bgs	Sandpack:	NA	Grout	66 ft bgs - grade
Bottom of Hole	91 ft bgs	Riser Interval	66 ft bgs -23 in ags	Bentonite.	NA	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194559 E: 523566
Surface Elevation:	13.88 FT MSL
Well Riser Elevation:	15.78 FT MSL

Job No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-05I
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level: Date / Time		Start 09/05/02; Drilling Date/Times; Finish 09/05/02
Surface Conditions:		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-05D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: R Wasserman Date: 09/05/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	22-36 ft bgs	Sandpack	20-37 ft bgs	Grout	18 ft bgs - grade
Bottom of Hole:	37 ft bgs	Riser Interval	22 ft bgs -1 5 ft ags	Bentonite:	18-20 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194654 E. 523271
Surface Elevation:	10 10 FT MSL
Well Riser Elevation:	11.76 FT MSL

Job. No. 29600.97	Client: EFANE	Location. SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No MW16-04I
Sampling Method: 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 2
Drilling Water Level / Date / Time		Start 09/06/02 / Drilling Date/Times / Finish 09/06/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-04D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V. Deleone Date: 09/06/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	22-32 ft bgs	Sandpack:	21-32 ft bgs	Grout	18 ft bgs - grade
Bottom of Hole	32 ft bgs	Riser Interval	22 ft bgs -1.4 ft ags	Bentonite:	18-21 ft bgs	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194172 E 523191
Surface Elevation.	21.24 FT MSL
Well Riser Elevation	22 78 FT MSL

Job. No 29600 97 3202	Client. EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in rollerbit		Boring No **MW16-02R2**
Core Barrel used		Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
09/18/02 1413	09/18/02 1430

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
				115			19	6 06	115
				116			20	4.51	116
				117			21	6.45	117
				118			22	5 27	118
				119			23	5 00	119
				120			24	6 02	120
				121			25	6 31	121
				122					
				123					
				124					
				125					
				126					
				127					
				128					
				129					
				130					
				131					
				132					
				133					

NOTES:

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194172 E. 523191
Surface Elevation	21 24 FT MSL
Well Riser Elevation	22 78 FT MSL

Job No	29600 97 3202
Client.	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61
	3 7/8-in rollerbit
Core Barrel used	
Boring No.	**MW16-02R2**
Sheet	1 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	09/18/02 1413	09/18/02 1430

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
				96			0	0 00	96
				97			1	4 30	97
				98			2	4.31	98
				99			3	3 34	99
				100			4	4 08	100
				101			5	4:02	101
				102			6	4:33	102
				103			7	5 07	103
				104			8	3·13	104
				105			9	4.34	105
				106			10	4·08	106
				107			11	4·39	107
				108			12	3 02	108
				109			13	3 33	109
				110			14	4 40	110
				111			15	4 50	111
				112			16	4 31	112
				113			17	5·18	113
				114			18	6 07	114

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P. Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job. No 29600 97	Client: EFANE
Location	SITE 16 NCBC Davisvill
Drilling Method:	Mobile Drill B61
Boring No	MW16-02R2
Sampling Method:	
Sheet 1 of 1	
Coordinates	N: 194172 E: 523191
Surface Elevation:	21.24 FT MSL
Well Riser Elevation:	22 78 FT MSL
Drilling Water Level	
Date	
Time	
Surface Conditions:	
Start	09/18/02
Drilling Date/Times	
Finish	09/18/02

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
						1		Refer to boring log of MW16-02D for overburden description
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S. Sheer Date: 09/18/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS.

Diam of Riser:	2 in	Screen Interval.	96-121 ft bgs	Sandpack:	NA	Grout	96 ft bgs - grade
Bottom of Hole	121 ft bgs	Riser Interval:	96 ft bgs - 2 ft ags	Bentonite:	NA	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N· 194171 E: 523199
Surface Elevation·	21 07 FT MSL
Well Riser Elevation·	23 17 FT MSL

Job No. 29600 97	Client· EFANE	Location SITE 16 NCBC Davisville
Drilling Method		Boring No MW16-02I
Mobile Drill B61		
4-in diameter casing, drive and wash		
Sampling Method. 2" split spoon		Sheet 1 of 1
Driven 24 in. with 140 lb hammer		
Drilling Water Level		Start 08/30/02 / Drilling Date/Times / Finish 08/30/02
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-02D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by· V. Deleone Date· 08/30/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser.	2 in	Screen Interval	32-37 ft bgs	Sandpack	31-37 ft bgs	Grout.	28 ft bgs - grade
Bottom of Hole	37 ft bgs	Riser Interval	32 ft bgs - 2 ft ags	Bentonite.	28-31 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600 97	Client EFANE
Location	SITE 16 NCBC Davisville
Drilling Method.	Mobile Drill B61
4-in diameter casing, drive and wash	
Boring No	MW16-37S
Sampling Method: 2" split spoon	Driven 24 in. with 140 lb hammer
Sheet 1 of 1	
Drilling Water Level	
Date	
Time	
Surface Conditions:	
Start 08/13/02	Drilling Date/Times
Finish 08/13/02	

Coordinates: N: 193663 E. 522866
Surface Elevation: 25 34 FT MSL
Well Riser Elevation: 27.53 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-37D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S Sheer Date: 08/13/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval.	7-22 ft bgs	Sandpack:	6-22 ft bgs	Grout	4 ft bgs - grade
Bottom of Hole	22 ft bgs	Riser Interval	7 ft bgs - 28 in ags	Bentonite.	4-6 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No. 29600 97	Client: EFANE
Location:	SITE 16 NCBC Davisville
Drilling Method:	Drive and Wash 4-in. diameter casing
Boring No	MW16-37I
Sampling Method:	2" split spoon
	Driven 24 in with 140 lb hammer
Sheet	1 of 1
Drilling Water Level	
Date	
Time	
Surface Conditions.	asphalt
Start	08/13/02
Drilling Date/Times	
Finish	08/13/02

Coordinates: N: 193664 E: 522863
Surface Elevation: 25.45 FT MSL
Well Riser Elevation: 27.72 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	LEL / PID	Blows per 6"	Ft bgs		USCS Log
							1		
							2		
							3		
							4		
							5		
							6		
							7		
							8		
							9		
							0		
							1		
							2		
							3		
							4		
							5		
							6		
							7		
							8		
							9		

SOIL DESCRIPTION

Refer to boring log of MW16-37D for overburden description.

Logged by: S. Sheer
Date: 08/13/02

Drilling Contractor: Subsurface Drilling
Driller: P Thornsbury

WELL SPECIFICATIONS.

Diam of Riser:	2 in	Screen Interval:	24-38 ft bgs	Sandpack	23-38.5ft bgs	Grout	19ft bgs - grade
Bottom of Hole:	39 ft bgs	Riser Interval:	24ft bgs-2.3ft ags	Bentonite:	19-23 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600 97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61; Drive and Wash 4-in diameter steel casing
Boring No	MW16-37D
Coordinates	N 193664 E 522867
Surface Elevation.	25 38 FT MSL
Well Riser Elevation	27 73 FT MSL
Sampling Method	2" split spoon
Driven 24 in with 140 lb hammer	
Sheet	1 of 3
Drilling Water Level.	
Date	
Time	
Surface Conditions	asphalt
Start Date/Times	08/09/02 0900
Drilling Date/Times	
Finish Date/Times	08/12/02 1200

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 6	0	0-2	3 2/ 0	6, 8			0-2 in: asphalt; yellowish orange fine to medium SAND, dry
					16, 15	1		
2" SS	24 / 2	0	2-4	0/ NS	13, 12	2		yellowish orange fine to medium SAND, trace coarse sand, dry
					12, 14	3		
2" SS	24 / 3	4	4-6	0/ NS	24, 28	4		same as above with subrounded fine gravel and a phyllite fragment, dry
					30, 23	5		
2" SS	24 / 6	4	6-8	0/ 0	17, 16	6		yellowish orange fine to medium SAND, trace coarse sand, trace fine sub-angular quartzite fragments, dry
					24, 20	7		
2" SS	24 / 24	8	8-10	0/ 0	16, 14	8		olive gray to yellowish orange fine to coarse SAND, little fine subrounded to subangular gravel, dry
					10, 8	9		
2" SS	24 / 14	8	10-12	0/ 0	11, 9	10		same as above, last inch wet
					8, 8	11	▼	
2" SS	24 / 8	8	12-14	0/ 0 0	10, 12	12		yellowish orange fine to coarse SAND, wet
					24, 20	13		
2" SS	24 / 0	14	14-16	NA/ NA	4, 8	14		no recovery
					9, 9	15		
2" SS	24 / 14	14	16-18	0/	9, 11	16		olive gray to greenish gray fine SAND, trace very fine sand, moist
					12, 14	17		
2" SS	24 / 0	18	18-20	NA/ NA	4, 6	18		no recovery
					7, 7	19		

Logged by: S Sheer Date: 08/09/02

ing Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	44 7-54 7ft bgs	Sandpack	42 7-54 2ft bgs	Grout	39 7 ft bgs - grade
Bottom of Hole	62 ft 1 in bgs	Riser Interval	44 7ft bgs-2 ft ags	Bentonite	39 7-42 7 ft bgs	Cover	4 in steel

NOTES: began drive and wash at 14 ft bgs

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N. 193664 E 522867
Surface Elevation	25 38 FT MSL
Well Riser Elevation	27 73 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash 4-in. diameter steel casing		Boring No MW16-37D
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 3
Drilling Water Level / Date / Time		Start 8/9/02 0900; Drilling Date/Times; Finish 08/12/02 1200
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 8	18	20-22	0/ 0	7 6	20		SP	olive gray to greenish gray fine SAND, trace very fine sand, moist
					7 8	21			
2" SS	24 0	18	22-24	NA/ NA	5 6	22			no recovery (gravel stuck in shoe)
					10 14	23			
2" SS	24 6	24	24-26	3 2/ 0	2 1	24			olive gray very fine to fine SAND, moist
					1 1	25			
2" SS	24 12	24	26-28	2.1/ NA	2 4	26			olive gray very fine to fine SAND, trace silt, wet
					4 4	27			
2" SS	24 12	28	28-30	1.9/ 0	WOR 2	28			same as above
					2 3	29			
2" SS	24 18	28	30-32	2 3/ 0	4 5	30		SM	0-6 in: olive gray very fine to fine SAND, wet; 6-18 in: olive gray very fine SILTY SAND, wet
					6 6	31			
2" SS	24 12	28	32-34	4 4/ 0 0	5 6	32		SP	olive gray very fine to fine SAND, trace silt, wet
					10 12	33			
2" SS	24 16	34	34-36	2 0/ 0	7 7	34		SM	olive gray very fine to fine SILTY SAND with bands of greenish gray very fine to fine sand, wet
					8 8	35			
2" SS	24 12	34	36-38	4 6/ 0 0	9 6	36			same as above
					10 7	37			
2" SS	24 16	38	38-40	0/ 0	5 6	38			olive gray very fine to fine SILTY SAND, wet
					4 3	39			

Logged by: S. Sheer Date 08/09/02

Drilling Contractor Subsurface Drilling Driller P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	44 7-54 7ft bgs	Sandpack	42 7-54 2ft bgs	Grout	39 7 ft bgs - grade
Bottom of Hole	62 ft 1 in bgs	Riser Interval	44 7ft bgs-2 ft ags	Bentonite	39 7-42 7 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N 193664 E. 522867
Surface Elevation.	25 38 FT MSL
Well Riser Elevation	27.73 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash 4-in diameter steel casing		Boring No	MW16-37D
Sampling Method. 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 3 of 3	
Drilling Water Level / Date / Time		Start 8/9/02 0900	Drilling Date/Times; Finish 08/12/02 1200
Surface Conditions	asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 18	38	40-42	0/ 0	5 3	40		SM	same as above
					2 5	41			
2" SS	12 6	38	42-42 5	0/ 0 0	8 100/0	42			same as above, gravel stuck in sampler bit; refusal, 2 ft boulder from 43-45 ft bgs
						43		B	
						44			
2" SS	24 12	44	45-47	6.2/ 0	11 47	45		SP	0-4 in olive gray fine to medium SAND, wet; 4-8 in: rust colored fine SAND, trace coarse subrounded gravel, wet
					37 16	46			8-12 in: olive gray fine to coarse SAND, wet
2" SS	24 12	44	47-49	1.2/ 0	26 27	47			olive gray fine to coarse SAND, little iron staining, trace fine subrounded gravel; 6-12 in
					12 11	48			
2" SS	24 10	48	49-51	0/ 0	20 18	49			olive gray fine to coarse SAND, trace fine subrounded gravel, wet
					18 12	50			
2" SS	24 12	48	51-53	0/ 0.0	8 9	51			0-6 in olive gray fine to medium SAND, trace coarse sand, wet; 6-12 in olive gray fine SAND, trace medium sand, trace subangular to sub-
					11 14	52			rounded fine gravel, wet
2" SS	20 6	53	53-54 2	1.1/ 2.1	8 11	53			same as 6-12 in above
2" SS					18 100 /2	54		RX	refusal
						55			rollerbit 54 ft 8 in to 57 ft 8 in
2" SS						56			
						57			
2" SS						58			cored from 57 ft 8 in to 62 ft 1 in; bottom of boring at 62 ft 1 in bgs
						59			

Logged by: S Sheer — Date: 08/09/02

Drilling Contractor: Subsurface Drilling — Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	44 7-54 7ft bgs	Sandpack	42 7-54 2ft bgs	Grout	39 7 ft bgs - grade
Bottom of Hole	62 ft 1 in bgs	Riser Interval	44 7ft bgs-2 ft ags	Bentonite	39 7-42 7 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193664 E 522867
Surface Elevation	25 38 FT MSL
Well Riser Elevation	27 73 FT MSL

Job No 29600 97.3202	Client EFANE
Drilling Method Mobile Drill B61 coring	
Core Barrel used NX	

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Location	Site 16 NCBC Davisville, North Kingstown, RI
Boring No	**MW16-37D**
Sheet 1 of 1	

Drilling Times	
Start	Finish
08/12/02 1052	08/12/02 1130

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
94%	40%				57			57' 8"	10 52	0
							fractured dark gray quartzite			
					58		0-20 in numerous fractures with iron staining on	58' 8"	6:12	1
							surfaces.			
					59		high angle fractures: 2-10 in and 41-50 in, with	59' 8"	7:22	2
							iron staining on surfaces			
					60		low angle fractures at 20, 26, 35, 36, 42 in with	60' 8"	10.13	3
							iron staining on surfaces			
					61			61' 8"	5:59	4
					62		core barrel clogged between 2nd and 3rd foot	62' 1"	5.46	4 4
							stopped coring at 62 ft 1 inch due to equipment			
					63		problems.			
					64					
					65					
					66					
					67					
					68					
					69					
					70					
					71					
					72					
					73					
					74					
					75					

NOTES:

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193802 E 523056
Surface Elevation	22 63 FT MSL
Well Riser Elevation	24 94 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing drive and wash		Boring No MW16-38I
Sampling Method: 2' split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 3
Drilling Water Level / Date / Time		Start 09/17/02 1030; Drilling Date/Times; Finish
Surface Conditions		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 / 12		0-2	0 / 0	1, 4				brown to gray fine to medium SAND, some subrounded to subangular gravel; dry
					8, 17	1			
2 in SS	24 / 12		2-4	0 / 0	11, 13	2			same as above
					13, 18	3			
2 in SS	24 / 12		4-6	0 / 0	22, 18	4			same as above
					15, 13	5			
2 in SS	24 / 12		6-8	0 / 0	14, 13	6			same as above
					11, 11	7			
2 in SS	24 / 16	8	8-10	0 / 0	10, 9	8			brown fine to medium SAND, trace gravel, dry
					7, 8	9			
2 in SS	24 / 16	8	10-12	0 / 0	7, 8	10			0-8 in brown medium SAND, dry; 8-12 in. gray very fine SAND, wet
					10, 29	11		▼	12-16 in: very fine SAND and GRAVEL, wet
2 in SS	24 / 17	8	12-14	0 / 0	23, 33	12			light brown to gray medium SAND, some gravel, trace silt, wet
					19, 13	13			
2 in SS	24 / 11	14	14-16	0 / 0	13, 11	14			brown to gray fine to coarse SAND, trace gravel, wet
					10, 10	15		SP	
2 in SS	24 / 16	14	16-18	0 / 0	10, 9	16			brown medium SAND, wet
					10, 11	17			
2 in SS	24 / 6	18	18-20	0 / 0	5, 6	18			gray very fine SAND, trace silt, wet
					7, 8	19			

Logged by: V De'ecne Date: 09/17/02

Drilling Contractor: Subsurface Drilling Driller: J Goldnwait

WELL SPECIFICATIONS

Diam of Riser	2-in	Screen Interval	29-39 ft bgs	Sandpack	28-39 ft bgs	Grout	25 ft bgs - grade
Bottom of Hole	42 ft bgs	Riser Interval	25 ft bgs -2 ft ags	Bentonite	25-28 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193802 E 523056
Surface Elevation.	22.63 FT MSL
Well Riser Elevation	24 94 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-38I
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 3
Drilling Water Level / Date / Time		Start 37516 1030; Drilling Date/Times; Finish
Surface Conditions		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 10	18	20-22	0 / 0	6 6	20		SP	gray very fine SAND, trace silt, wet
					8 8	21			
2 in SS	24 18	18	22-24	0 / 0	9 10	22			same as above
					12 12	23			
2 in SS	24 18	24	24-26	0 / 0	6 6	24			same as above
					6 5	25			
2 in SS	24 18	24	26-28	0 / 0	5 6	26			gray fine SAND, wet, rust colored (iron staining) from 12-18 in
					7 6	27			
2 in SS	24 11	28	28-30	0 / 0	5 2	28			gray very fine SAND, trace silt, wet
					2 3	29			
2 in SS	24 12	28	30-32	0 / 0	6 6	30			same as above
					4 7	31			
2 in SS	24 13	28	32-34	0 / 0	6 6	32			same as above
					4 7	33			
2 in SS	24 16	34	34-36	0 / 0	3 3	34			same as above
					3 5	35			
2 in SS	24 18	34	36-38	0 / 0	5 6	36			same as above
					6 5	37			
2 in SS	24 12	38	38-40	0 / 0	7 7	38		ML	SILT, some very fine sand, trace gravel
					10 11	39			

Logged by: V Deleone Date: 09/17/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwait

WELL SPECIFICATIONS:

Diam of Riser	2-in	Screen Interval	29-39 ft bgs	Sandpack	28-39 ft bgs	Grout	25 ft bgs - grade
Bottom of Hole	42 ft bgs	Riser Interval	25 ft bgs -2 ft ags	Bentonite	25-28 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N. 193802 E 523056
Surface Elevation	22.63 FT MSL
Well Riser Elevation	24 94 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-38I
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 3 of 3
Drilling Water Level / Date / Time		Start 09/17/02 1030; Drilling Date/Times; Finish
Surface Conditions		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2 in SS	24 / 12	38	40-42	0 / 0	8 / 10	40	SP	gray very fine SAND, wet
					11 / 14	41		bottom of boring
						42		
						43		
						44		
						45		
						46		
						47		
						48		
						49		
						50		
						51		
						52		
						53		
						54		
						55		
						56		
						57		
						58		
						59		

Logged by: V Deleone Date: 09/17/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwait

WELL SPECIFICATIONS

Diam of Riser	2-in	Screen Interval	29-39 ft bgs	Sandpack	28-39 ft bgs	Grout	25 ft bgs - grade
Bottom of Hole	42 ft bgs	Riser Interval	25 ft bgs -2 ft ags	Bentonite	25-28 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job. No. 29600 97	Client: EFANE	Location:	SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No	MW16-39I
Sampling Method 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 1	
Drilling Water Level		Start 10/08/02	Drilling Date/Times	Finish 10/08/02
Date			
Time			
Surface Conditions:			

Coordinates. N 193750 E: 523825
Surface Elevation: 15.83 FT MSL
Well Riser Elevation: 15.25 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-39D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V. Deleone Date: 10/08/02

illing Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	45-55 ft bgs	Sandpack.	44-55 ft bgs	Grout.	41 ft bgs - grade
Bottom of Hole.	55 ft bgs	Riser Interval	45 ft bgs - 0 5 ft bgs	Bentonite	41-44 ft bgs	Cover	roadbox

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193755 E. 523830
Surface Elevation	15.62 FT MSL
Well Riser Elevation	15 40 FT MSL

Job No. 29600.97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; Drive and Wash 4-in. diameter casing		Boring No MW16-39D
Sampling Method: 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 4
Drilling Water Level		Start 08/02/02 0850
Date		Drilling Date/Times
Time		Finish 08/05/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 12	0	0-2	0/ 0	- 12				0-6 in: asphalt; 6-8 in: light brown to cream colored fine to coarse SAND, dry
					11 19	1			8-10 in: dark brown fine to coarse SAND, trace fine subangular gravel, dry; 10-12 in: olive gray fine to coarse SAND, trace fine subrounded gravel, dry
2" SS	24 12	0	2-4	0/ 0 0	21 14	2			brown to olive gray fine to medium SAND, trace coarse sand and subrounded medium gravel, dry
					33 16	3			
2" SS	24 18	4	4-6	0/ 0	7 7	4			0-6 in: olive gray fine to coarse SAND, little fine subangular to subrounded gravel, dry
					5 6	5			6-18 in. dark brown fine to coarse SAND, trace fine subrounded gravel, dry
2" SS	24 24	4	6-8	0/ 0	9 21	6			olive gray fine to coarse SAND, some fine to medium subangular to subrounded gravel
					14 32	7			
2" SS	24 18	8	8-10	0/ 0	22 24	8			0-15 in: olive gray fine to coarse SAND, little fine subrounded gravel, dry; 15-18 in: olive gray fine to coarse SAND, wet
					21 26	9			
2" SS	24 24	8	10-12	0/ 0	19 21	10		▼	0-12 in: olive gray medium to coarse SAND, little fine subrounded gravel, wet; 12-18 in: same as above with some fine sand
					26 28	11			18-24 in: olive gray very fine to medium SAND, wet
2" SS	24 24	8	12-14	3.3/ 0.0	18 18	12			0-18 in: olive gray medium to coarse SAND, some fine subangular to subrounded gravel, wet
					27 19	13			18-24 in: olive gray fine to very fine SAND, trace coarse sand to fine gravel wet
2" SS	24 12	14	14-16	0/ 0	3 6	14			olive gray fine SAND, trace medium sand, wet
					9 12	15			
2" SS	24 22	14	16-18	0/ 0	12 13	16			0-2 in: subrounded to subangular fine GRAVEL, some coarse sand, wet; 2-22 in. olive gray fine SAND, moist
					16 18	17		SP	
2" SS	24 10	18	18-20	0/ 0	6 9	18			olive gray fine SAND, damp
					12 15	19			

Logged by: S. Sheer Date: 08/02/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	64-74 ft bgs	Sandpack	63-74 5 ft bgs	Grout:	50 ft bgs - grade
Bottom of Hole:	82 ft bgs	Riser Interval	3-64 ft bgs	Bentonite:	50-63 ft bgs	Cover	roadbox

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 193755 E 523830
Surface Elevation	15.62 FT MSL
Well Riser Elevation:	15.40 FT MSL

Job No 29600 97	Client. EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; Drive and Wash 4-in. diameter casing		Boring No. MW16-39D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 4
Drilling Water Level / Date / Time		Start 08/02/02 0850; Drilling Date/Times; Finish 08/05/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 14	18	20-22	0/ 0	14 14	20		SP	olive gray fine SAND, trace medium and coarse sand, moist
					15 21	21			
2" SS	24 22	18	22-24	0/ 0	10 12	22			same as above, trace fine subrounded gravel
					14 17	23			
2" SS	24 12	24	24-26	0/ 0	3 6	24			olive gray and rust colored fine SAND, trace very fine sand, moist
					11 16	25			
2" SS	24 18	24	26-28	0/ 0	6 9	26			0-6 in: same as above 6-18 in: olive gray very fine to fine SAND, moist
					12 17	27			
2" SS	24 6	28	28-30	0/ 0	2 5	28			olive gray fine SAND, trace very fine sand, moist
					6 10	29			
2" SS	24 18	28	30-32	0/ 0	8 8	30			olive gray fine to very fine SAND, moist
					9 14	31			
2" SS	24 22	28	32-34	0/ 0	7 11	32			same as above. from 20-20 5 in, band of rust colored fine sand
					17 19	33			
2" SS	24 11	34	34-36	0/ 0	2 7	34			olive gray fine SAND, trace rust colored fine sand, trace very fine sand moist
					9 15	35			
2" SS	24 18	34	36-38	0/ 0	9 16	36			0-12 in: olive gray fine SAND, trace very fine sand, moist rust colored fine sand at 12 in
					19 24	37			12-18 in: olive gray very fine to fine SAND, trace silt, moist
2" SS	24 12	38	38-40	0/ 0	7 9	38			olive gray very fine to fine SAND, moist
					11 16	39			

Logged by: S Sheer Date: 08/02/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	2 in.	Screen Interval:	64-74 ft bgs	Sandpack:	63-74.5 ft bgs	Grout:	50 ft bgs - grade
Bottom of Hole	82 ft bgs	Riser Interval	3-64 ft bgs	Bentonite	50-63 ft bgs	Cover	roadbox

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No. 29600.97	Client EFANE	Location.	SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61; Drive and Wash 4-in diameter casing		Boring No.	MW16-39D
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 3 of 4	
Drilling Water Level / Date / Time		Start 08/02/02 0850	Drilling Date/Times; Finish 08/05/02 1700
Surface Conditions. asphalt			

Coordinates: N. 193755 E: 523830
Surface Elevation: 15.62 FT MSL
Well Riser Elevation: 15.40 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 / 24	38	40-42	0/ 0	13 / 17	40			olive gray fine to very fine SAND, moist
					19 / 24	41			
2" SS	24 / 21	38	42-44	6.3/ 0	14 / 20	42			same as above
					27 / 41	43			
2" SS	24 / 16	44	44-46	0/ 0	7 / 7	44			same as above
					9 / 16	45			
2" SS	24 / 20	44	46-48	4.2/ 0	9 / 14	46			0-17.5 in: same as above; 17.5-20 in: dark gray fine to very fine SAND, moist
					19 / 21	47			
2" SS	24 / 18	48	48-50	3.8/ 0	5 / 9	48			olive gray very fine to fine SAND, moist
					11 / 17	49			
2" SS	24 / 8	48	50-52	18.2/ 0	11 / 17	50			same as above
					19 / 28	51			
2" SS	24 / 16	48	52-54	7.9/ 0	11 / 14	52			same as above, trace silt
					21 / 31	53			
2" SS	24 / 16	54	54-56	0/ 0	19 / 24	54			same as above
					27 / 29	55			
2" SS	24 / 24	54	56-58	0/ 0	29 / 37	56		SM	same as above, little silt
					44 / 60	57			
2" SS	24 / 18	58	58-60	0/ 0	14 / 19	58			same as above
					22 / 27	59			

Logged by: S. Sheer Date: 08/02/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	64-74 ft bgs	Sandpack:	63-74 5 ft bgs	Grout	50 ft bgs - grade
Bottom of Hole	82 ft bgs	Riser Interval	3-64 ft bgs	Bentonite.	50-63 ft bgs	Cover	roadbox

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600 97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61
	Drive and Wash 4-in diameter casing
Boring No	MW16-39D
Coordinates	N: 193755 E: 523830
Surface Elevation	15.62 FT MSL
Well Riser Elevation	15.40 FT MSL
Sampling Method	2" split spoon
	Driven 24 in. with 140 lb hammer
Sheet	4 of 4
Drilling Water Level	
Date	
Time	
Surface Conditions	asphalt
Start Date/Times	08/02/02 0850
Finish Date/Times	08/05/02 1700

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 18	58	60-62	0/ 0	11 11	60	SM	olive gray very fine to fine SILTY SAND, wet
					16 33	61		
2" SS	24 22	58	62-64	0/ 0	14 21	62		same as above, wet
					39 42	63		
2" SS	19 14	64	64-65.9	0/ 0	9 19	64		same as above
					27 100/ 5	65		refusal, rollerbit to 68 ft bgs
						66	B	boulder from 66-68 ft bgs
						67		
2" SS	24 12	64	68-70	0/ 0	13 21	68	SM	olive gray fine to very fine SILTY SAND fine to coarse subangular to subrounded gravel in sampler bit
					37 55	69		
2" SS	24 24	64	70-72	0/ 0	39 31	70	SP	olive gray coarse SAND, some fine to coarse subangular to subrounded gravel, wet
					40 40	71		
2" SS	15 14	64	72-73.3	0/ 0	47 92	72		olive gray fine to coarse SAND, some fine subangular to subrounded gravel wet
					100/ 3	73		refusal, rollerbit to 74
							B	
2" SS	6 4	74	74-76	0/ 0	110/ 6	74	WTHR RX	olive gray fine to medium SAND, some fine subangular gravel (phyllite fragments) refusal, rollerbit to 77 ft
						75		
						76		
						77		cored from 77-82 ft bgs
						78		
						79		bottom of boring at 82 ft bgs

Logged by: S Sheer Date: 08/02/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	64-74 ft bgs	Sandpack	63-74.5 ft bgs	Grout	50 ft bgs - grade
Bottom of Hole	82 ft bgs	Riser Interval	3-64 ft bgs	Bentonite	50-63 ft bgs	Cover	roadbox

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193755 E 523830
Surface Elevation	15 62 FT MSL
Well Riser Elevation	15 40 FT MSL

Job No	29600 97 3202
Client	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61 coring
Boring No	MW16-39D
Core Barrel used	NX
Sheet	1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	08/05/02 1135	08/05/02 1235

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min.sec)	Total Depth (ft bgs)
93%	33%				77		0-13 in very fractured black phyllite with quartz veins and iron staining on surfaces			77
					78		13-56 in. gray quartzite, with low angle fractures at 16 5, 26, 30, 37, 41, 46, and 53 in	1	6 18	78
					79		high angle fractures at 29-35, 31-39, and 40-51 in	2	6 20	79
					80			3	6.45	80
					81			4	8.40	81
					82			5	8 32	82
					83					
					84					
					85					
					86					
					87					
					88					
					89					
					90					
					91					
					92					
					93					
					94					
					95					

NOTES:
2nd hear, constant down pressure

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600.97	Client EFANE
Location	SITE 16 NCBC Davisville
Drilling Method:	Mobile Drill B61; 4-in diameter casing, drive and wash
Boring No.	MW16-40S
Sampling Method	2" split spoon; Driven 24 in. with 140 lb hammer
Sheet	1 of 2
Coordinates:	N: 194179 E: 523072
Surface Elevation:	23.71 FT MSL
Well Riser Elevation:	26.06 FT MSL
Drilling Water Level / Date / Time	
Start	09/20/02 0900
Drilling Date/Times	
Finish	09/23/02 1700
Surface Conditions	asphalt

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2 in SS	24 / 16		0-2	0/ 0	6, 8, 24, 20	1		brown to gray fine SAND, little gravel, dry
2 in SS	24 / 18		2-4	45 2/ 0	41, 74, 50, 35	2, 3		0-6 in: black fine SAND, dry; 6-12 in. yellow medium SAND, dry; 12-14 in: rock fragments, dry; 14-18 in. gray fine SAND, dry
2 in SS	24 / 18	4	4-6	385.8/ 138.1	14, 20, 22, 19	4, 5		dark brown fine SAND, dry
2 in SS	24 / 18	4	6-8	1105/ 1385	11, 12, 13, 10	6, 7		same as above with trace gravel, moist
2 in SS	24 / 18	8	8-10	0/ 0	9, 11, 11, 11	8, 9		alternating approx. 0.25-in bands of yellow/light brown/ gray medium SAND
2 in SS	24 / 12	8	10-12	0/ 0	11, 12, 12, 13	10, 11		same as above
2 in SS	24 / 12	8	12-14	0/ 0	11, 11, 11, 11	12, 13		same as above, also iron staining 6-12 in.
2 in SS	24 / 14	14	14-16	1.3/ 0	8, 10, 4, 8	14, 15	SP	gray to brown very fine SAND
2 in SS	24 / 18	14	16-18	860/ 266.2	5, 3, 3, 3	16, 17		gray fine SAND, trace very fine sand
2 in SS	24 / 16	18	18-20	2808/ 1189 0	3, 4, 2, 7	18, 19		black very fine SAND, trace organic material (roots)

Logged by: V. Deleone Date: 09/20/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser:	2 in	Screen Interval	6-22 ft bgs	Sandpack:	5-22 ft bgs	Grout:	pad
Bottom of Hole:	40 ft bgs	Riser Interval:	6 ft bgs - 2 ft ags	Bentonite:	grade-5 ft bgs	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 194179 E. 523072
Surface Elevation	23 71 FT MSL
Well Riser Elevation	26 06 FT MSL

Job. No. 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No	MW16-40S
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 2 of 2	
Drilling Water Level / Date / Time		Start 09/20/02 0900	Finish 09/23/02 1700
Surface Conditions: asphalt			

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2 in SS	24 / 18	18	20-22	404/ 201	14, 17, 22, 16	20, 21	SP	gray fine SAND
2 in SS	24 / 16	18	22-24	34/ 0.6	12, 13, 14, 13	22, 23	ML	gray SILT, trace very fine sand, some rust coloring
2 in SS	24 / 12	24	24-26	0 / 0	11, 8, 9, 11	24, 25		gray SILT
2 in SS	24 / 16	24	26-28	0 / 0	14, 14, 17, 19	26, 27	SM	gray very fine SAND and SILT
2 in SS	24 / 12	28	28-30	0 / 0	21, 21, 28, 26	28, 29	SP	gray very fine SAND
2 in SS	14 / 10	28	30-31.2	0 / 0	35, 25	30	SM	gray fine SILTY SAND, some medium gravel
					100/2	31	B	rollerbit to 32 ft
2 in SS	2 / 0	28	32-32.2	0 / 0	100/2	32, 33		refusal, rollerbit to 34 ft
2 in SS	24 / 12	28	34-36	0 / 0	12, 9, 10, 15	34, 35	ML	gray SILT, trace fine to medium sand
2 in SS	24 / 16	28	36-38	0 / 0	19, 19, 28, 31	36, 37	SP/GP	0-10 in: fine SAND to medium GRAVEL; 10-16 in: fine SAND
2 in SS	24 / 18	28	38-40	0 / 0	32, 46, 46, 61	38, 39	SP	gray very fine SAND; bottom of boring

Logged by: V. Deleone Date: 09/20/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	6-22 ft bgs	Sandpack	5-22 ft bgs	Grout	pad
Bottom of Hole	40 ft bgs	Riser Interval	6 ft bgs - 2 ft ags	Bentonite	grade-5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N. 194237 E: 523090
Surface Elevation:	20.73 FT MSL
Well Riser Elevation:	22.66 FT MSL

Job No. 29600 97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61, 4-in diameter casing, drive and wash		Boring No. MW16-41S
Sampling Method: 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/06/02; Drilling Date/Times; Finish 09/06/02
Surface Conditions:		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-41D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: R. Wasserman Date: 09/06/02

rilling Contractor: Subsurface Drilling Driller: B Haase

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	7 5-17 5 ft bgs	Sandpack:	5 5-17 5 ft bgs	Grout	2 5 ft bgs - grade
Bottom of Hole.	17 5 ft bgs	Riser Interval	7 5 ft bgs -2 ft ags	Bentonite	2 5-5 5 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N. 194233 E: 523085
Surface Elevation.	20.79 FT MSL
Well Riser Elevation:	22 73 FT MSL

Job. No. 29600.97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-41I
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/09/02 / Drilling Date/Times / Finish 09/09/02
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-41D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S. Sheer Date: 09/09/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval:	19 5-29 5 ft bgs	Sandpack:	19-30 ft bgs	Grout	16 ft bgs - grade
Bottom of Hole	30 ft bgs	Riser Interval	19.5 ft bgs - 20 in ags	Bentonite	16-19 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N. 194243 E 523089
Surface Elevation	20.64 FT MSL
Well Riser Elevation	22.25 FT MSL

Job. No 29600.97	Client: EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; Drive and Wash 4-in. diameter casing		Boring No.	MW16-41D
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 4	
Drilling Water Level; Date; Time		Start 08/05/02 0930	Drilling Date/Times; Finish 08/06/02 1600
Surface Conditions. woodland			

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 12	0	0-2	26/ 0.5	7 15			0-6 in. light olive gray fine SAND, trace coarse sand and silt, dry; 6-12 in.: yellow orange fine to coarse SAND, little angular to subangular
					34 52	1		gravel up to 1 in. diameter, dry
2" SS	24 12	0	2-4	20/ 0.1	25 30	2		0-4 in: brown fine SAND, trace coarse sand, silt and subrounded fine gravel; dry
					60 68	3		4-10 in: dark brown fine to very fine SAND, trace silt, organics, dry
2" SS	24 4	0	4-6	22/ 6	20 20	4		gray fine to very fine SAND, trace silt, trace fine and medium subrounded gravel
					17 14	5		
2" SS	24 9	0	6-8	1 / 0	20 25	6		gray fine to medium SAND, trace mica and angular fine gravel, moist.
					40 46	7		
2" SS	24 12	0	8-10	0 / 0	40 36	8	▼	Same as above with coarse subangular gravel at 6-7 inches, moist from 0-6 inches, wet from 6-12 inches.
					50 45	9		
2" SS	24 14	10	10-12	51.2/ 0	8 4	10		gray fine SAND, trace silt, mica, and coarse sand, wet; switch to drive and wash at approximately 10 ft bgs.
					8 8	11		
2" SS	24 13	10	12-14	277/ 0.0	8 8	12		same as above
					8 5	13		
2" SS	24 13	14	14-16	3300/ 296	2 1/ 1'	14	SM	gray very fine SILTY SAND, trace mica
					1	15		
2" SS	24 16	14	16-18	6123/ 500	WOR 2	16	ML	0-8 in: gray very fine SAND, trace silt, grading to gray SILT, trace mica; 8-16 in: black/dark brown fine SILTY SAND, some organics, few fine roots
					6 5	17	PEAT	peat
2" SS	24 12	18	18-20	554 / 0	5 8	18	SP	0-6 in: gray fine to medium SAND, trace mica and fine subrounded gravel; 6-12 in: tan fine SAND, trace silt and medium to coarse subangular gravel, trace to little iron staining
					10 13	19		

Logged by: R. Wasserman Date: 08/05/02

Drilling Contractor: Subsurface Drilling Driller: B. Haase

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	51-61 ft bgs	Sandpack:	49-61 5 ft bgs	Grout	46 5 ft bgs - grade
Bottom of Hole	69 ft bgs	Riser Interval	51ft bgs-2 ft ags	Bentonite	46 5-49 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600 97	Client EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61
Drive and Wash 4-in diameter casing	
Boring No	MW16-41D
Sampling Method: 2" split spoon	Driven 24 in. with 140 lb hammer
Sheet 2 of 4	
Drilling Water Level / Date / Time	
Start 37473 0930	Drilling Date/Times
Finish 37474 1600	
Surface Conditions	woodland

Coordinates: N. 194243 E: 523089
Surface Elevation: 20.64 FT MSL
Well Riser Elevation: 22 25 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 14	18	20-22	223 / 0	15 19	20		SP	0-3 in: same as above 6-12 in 3-14 in. gray very fine SAND, trace silt, and mica
					19 20	21			
2" SS	24 12	22	22-24	124 / 0	21 18	22			same as above 3-14 in.
					16 18	23			
2" SS	24 10	24	24-26	81/ 0.8	13 12	24			same as above
					10 8	25			
2" SS	24 11	24	26-28	101 / 0	8 10	26			0-7 in: same as above 7-11 in. tan/gray fine SAND, trace silt and mica, laminae at contact
					12 16	27			
2" SS	24 9	28	28-30	61 / 0	14 21	28			0-4 in: tan/gray fine SAND, trace silt, iron staining at base 4-7 in: tan/gray medium to coarse SAND, trace to little subrounded gravel.
					14 12	29			7-9 in: gray very fine SAND, trace silt and mica
2" SS	24 11	28	30-32	22/ 0.7	12 10	30			same as above (7-9 in) with trace to little mica and pyrite
					10 12	31			
2" SS	24 14	28	32-34	19 / 0	10 8	32			same as above (30-32 ft)
					16 24	33			
2" SS	24 12	34	34-36	72 / 4	10 8	34			same as above
					6 6	35			
2" SS	24 11	34	36-38	18 / 0	8 6	36			same as above
					5 3	37			
2" SS	24 14	38	38-40	27 / 0	17 13	38			gray fine to very fine SAND, trace silt and mica
					13 20	39			

Logged by: R. Wasserman Date: 08/05/02

Drilling Contractor: Subsurface Drilling Driller: B. Haase

WELL SPECIFICATIONS

Diam of Riser	2 in.	Screen Interval	51-61 ft bgs	Sandpack:	49-61 5 ft bgs	Grout	46 5 ft bgs - grade
Bottom of Hole:	69 ft bgs	Riser Interval.	51ft bgs-2 ft ags	Bentonite.	46 5-49 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194243 E 523089
Surface Elevation:	20 64 FT MSL
Well Riser Elevation:	22.25 FT MSL

Job. No. 29600 97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61 Drive and Wash 4-in diameter casing		Boring No MW16-41D
Sampling Method. 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 3 of 4
Drilling Water Level / Date / Time		Start 08/05/02 0930 — Drilling Date/Times — Finish 08/06/02 1600
Surface Conditions: woodland		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 9	38	40-42	12/ 1.1	13, 70, 26, 30	40, 41	SP/SM	gray very fine SAND, trace mica, trace to little silt
2" SS	24 / 17	38	42-44	19 / 0	36, 22, 30, 26	42, 43	SP	gray fine SAND, trace silt and mica
2" SS	24 / 10	44	44-46	23/ 1 7	22, 33, 20, 26	44, 45		0-6 in: same as above; 6-10 in: gray coarse to fine SAND, trace to little fine subrounded gravel, trace silt, trace coarse angular gravel
2" SS	24 / 13	44	46-48	19 / 0	16, 14, 10, 11	46, 47		gray coarse to fine SAND, trace to little fine subrounded to coarse angular gravel and silt
2" SS	24 / 1	48	48-48.1	28 / 4	100/ 1, -, -, -	48, 49	B	gray coarse to medium SAND, little to some fine to medium subrounded gravel, trace coarse angular gravel (quartzite) and silt
						50	SP	refusal at 48.1 ft bgs. Rollerbit to approximately 51 ft. boulder from 48.1 to 50.5 ft bgs. Loose below boulder Rollerbit to 54 ft bgs
						51, 52, 53		
2" SS	24 / 6	54	54-56	2.1 / 0	60, 56, 42, 30	54, 55		gray very fine to coarse SAND, trace silt and coarse angular gravel (quartzite)
2" SS	24 / 15	54	56-58	5.4 / 0	25, 42, 56, 34	56, 57		gray fine to coarse SAND, trace to little medium to coarse subangular gravel (quartzite) trace silt
2" SS	18 / 10	58	58-59.5	2.7 / 0	35, 78, 100/ 6, -	58, 59		same as above

Logged by: R. Wasserman Date: 08/05/02

Drilling Contractor: Subsurface Drilling Driller: B. Haase

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	51-61 ft bgs	Sandpack	49-61 5 ft bgs	Grout	46 5 ft bgs - grade
Bottom of Hole	69 ft bgs	Riser Interval	51ft bgs-2 ft ags	Bentonite	46.5-49 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No. 29600 97	Client EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61
Drive and Wash 4-in diameter casing	
Boring No	MW16-41D
Sampling Method. 2" split spoon	
Driven 24 in. with 140 lb hammer	
Sheet 4 of 4	
Drilling Water Level	
Date	
Time	
Surface Conditions	woodland
Start	08/05/02 0930
Drilling Date/Times	
Finish	08/06/02 1600

Coordinates: N: 194243 E 523089
Surface Elevation: 20 64 FT MSL
Well Riser Elevation: 22.25 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	12 0	58	60-62	NA/ NA	81 100/ 6	60	SP	no recovery, refusal at 61 ft bgs; rollerbit to 64 ft bgs, cuttings consistent with competent bedrock
						61		
						62		
						63		
						64		NX core from 64-69 ft bgs.
						65		
						66		
						67		
						68		
						69		bottom of boring
						70		
						71		
						72		
						73		
						74		
						75		
						76		
						77		
						78		
						79		

Logged by: R Wasserman Date: 08/05/02

Drilling Contractor: Subsurface Drilling Driller B. Haase

WELL SPECIFICATIONS

Diam of Riser.	2 in	Screen Interval.	51-61 ft bgs	Sandpack:	49-61 5 ft bgs	Grout:	46 5 ft bgs - grade
Bottom of Hole	69 ft bgs	Riser Interval.	51ft bgs-2 ft ags	Bentonite	46 5-49 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N. 194243 E 523089
Surface Elevation	20 64 FT MSL
Well Riser Elevation	22 25 FT MSL

Job. No	29600 97 3202
Client.	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61
Boring No	MW16-41D
Core Barrel used	NX
Sheet	1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	08/06/02 1620
Finish	08/06/02 1640

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
					64		64-65 ft: highly fractured phyllite, weathered, thin wafers of core from	1	4·10	65
					65		64-64 5 ft bgs, trace iron staining on fracture planes	1	5 05	66
100	58%						65-69 ft moderately fractured gray			
					66		quartzite, highly fractured from 65-66 1 ft, trace	1	3·15	67
							iron staining on fracture planes			
					67			1	3.10	68
					68			1	3 15	69
					69					
					70					
					71					
					72					
					73					
					74					
					75					
					76					
					77					
					78					
					79					
					80					
					81					
					82					

NOTES:

Logged by: R Wasserman

Drilling Contractor: Subsurface Drilling

Driller: B Haase

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N. 194281 E: 523239
Surface Elevation:	18.02 FT MSL
Well Riser Elevation	20.15 FT MSL

Job. No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61, 4-1/4-in diameter hollow stem auger		Boring No MW16-42S
Sampling Method: 2" split spoon, Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/06/02 / Drilling Date/Times / Finish 09/06/02
Surface Conditions		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-42D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: R. Wasserman Date: 09/06/02

Drilling Contractor: Subsurface Drilling Driller: B Haase

WELL SPECIFICATIONS.

Diam of Riser:	2 in	Screen Interval:	5.5-15 5 ft bgs	Sandpack:	4-15.5 ft bgs	Grout:	2 ft bgs - grade
Bottom of Hole	15.5 ft bgs	Riser Interval:	2 ft bgs -2 ft ags	Bentonite:	2-4 ft bgs	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194276 E. 523241
Surface Elevation.	18.09 FT MSL
Well Riser Elevation.	19 91 FT MSL

Job. No. 29600.97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61, 4-in diameter casing, drive and wash		Boring No. MW16-42I
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/09/02 / Drilling Date/Times / Finish 09/09/02
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-42D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S Sheer Date: 09/09/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam. of Riser:	2 in	Screen Interval:	20-30 ft bgs	Sandpack:	19.5-30 ft bgs	Grout:	16 ft bgs - grade
Bottom of Hole:	30 ft bgs	Riser Interval:	20 ft bgs -20 in ags	Bentonite:	16-19.5 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600 97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Drive and Wash 4-in diameter casing
Boring No	MW16-42D
Coordinates	N 194286 E 523235
Surface Elevation	18 01 FT MSL
Well Riser Elevation	21 11 FT MSL
Sampling Method	2" split spoon
Driven 24 in with 140 lb hammer	
Sheet	1 of 4
Drilling Water Level	
Date	
Time	
Surface Conditions	cement
Start	08/05/02
Drilling Date/Times	
Finish	

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 12	0	0-2	28/ 0	22			brown fine SAND, trace gravel, dry
					8			
					13	1		
					13			
2" SS	24 12	0	2-4	0/ 0.0	8	2		same as above
					7			
					6	3		
					7			
2" SS	24 16	0	4-6	5/ 0	6	4		0-2 in light brown fine SAND, trace gravel
					7			2-6 in light brown fine SAND,
					8	5		6-10 in black fine SAND, dry
					14			10-16 in light brown fine SAND
2" SS	24 18	0	6-8	0/ 0	20	6		0-12 in. gray fine SAND, some rounded gravel, dry
					15			12-18 in light brown fine SAND
					14	7		
					14		▼	
2" SS	24 18	8	8-10	0/ 0	16	8		gray fine SAND, trace medium and coarse sand, wet
					9			
					9	9		
					9			
2" SS	24 18	8	10-12	406/ 295	8	10		same as above
					7			
					8	11		
					7			
2" SS	24 24	8	12-14	1332/ 700	6	12		gray very fine to fine SAND, trace medium to coarse sand, shell fragments
					5		SP	wet
					5	13		
					4			
2" SS	24 10	14	14-16	36801/ 2546	3	14		0-3 in: gray fine to medium SAND
					2		OL/ML	3-7 in black SILT, some organic material
					2	15		7-10 in gray SILT
					2		ML	
2" SS	24 24	14	16-18	2217/ 1228	2	16		0-12 in gray very fine SAND, shell fragments
					2		SP	12-24 in gray SILT
					7	17		
					11		ML	
2" SS	24 22	18	18-20	5595/ 1180	10	18		gray fine SAND and SILT
					9		SM/ML	
					6	19		
					9			

Logged by: V Deleone Date: 08/05/02

ling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	58-68 ft bgs	Sandpack	57-70 ft bgs	Grout	54 ft bgs - grade
Bottom of Hole	78 ft bgs	Riser Interval	58 ft bg - 3 ft ags	Bentonite	54-57 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194286 E 523235
Surface Elevation	18.01 FT MSL
Well Riser Elevation.	21 11 FT MSL

Job No 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Drive and Wash 4-in diameter casing		Boring No MW16-42D
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 4
Drilling Water Level / Date / Time		Start 37473 / Drilling Date/Times / Finish
Surface Conditions: cement		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 / 12	18	20-22	3641/ 1072	8 / 10	20		SP	gray fine SAND
					13 / 12	21			
2" SS	24 / 12	18	22-24	1471/ 731.0	10 / 8	22			same as above
					8 / 8	23			
2" SS	24 / 14	24	24-26	1855/ 686	4 / 6	24			gray very fine SAND
					2 / 4	25			
2" SS	24 / 18	24	26-28	5148/ 2325	7 / 4	26			same as above
					3 / 5	27			
2" SS	24 / 16	28	28-30	109.1/ 114	4 / 3	28			gray fine SAND
					4 / 4	29			
2" SS	24 / 16	28	30-32	0/ 0	6 / 4	30			same as above
					4 / 4	31			
2" SS	24 / 22	28	32-34	0/ 0	4 / 4	32			same as above
					6 / 7	33			
2" SS	24 / 18	34	34-36	0/ 0	6 / 4	34			same as above
					4 / 4	35			
2" SS	24 / 18	34	36-38	0/ 0	4 / 7	36			same as above
					6 / 5	37			
2" SS	24 / 18	38	38-40	0/ 0	5 / 7	38			same as above with trace gravel
					12 / 12	39			

Logged by: V. Deleone Date. 08/05/02

Drilling Contractor: Subsurface Drilling Driller J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval.	58-68 ft bgs	Sandpack:	57-70 ft bgs	Grout.	54 ft bgs - grade
Bottom of Hole	78 ft bgs	Riser Interval	58 ft bg - 3 ft ags	Bentonite	54-57 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job. No. 29600.97	Client. EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Drive and Wash 4-in diameter casing
Boring No	MW16-42D
Sampling Method:	2" split spoon
	Driven 24 in. with 140 lb hammer
Sheet	3 of 4
Drilling Water Level	
Date	
Time	
Surface Conditions	cement
Start	08/05/02
Drilling Date/Times	
Finish	

Coordinates. N: 194286 E: 523235
Surface Elevation. 18.01 FT MSL
Well Riser Elevation: 21.11 FT MSL

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 18	38	40-42	0/ 0	14 10	40		SP	fine SAND, trace gravel
					6 7	41			
2" SS	24 24	38	42-44	0/ 0	4 5	42			same as above
					6 7	43			
NS	24 0	44	44-46	NA/ NA	13 4	44			no recovery
					7 7	45			
2" SS	24 18	44	46-48	0/ 0	9 10	46		SM	gray fine SILTY SAND, trace medium sand, wet
					12 10	47			
2" SS	24 20	48	48-50	0/ 0	9 15	48		SP	gray very fine SAND
					21 25	49			
2" SS	24 24	48	50-52	0/ 0	25 32	50			gray to brown fine SAND
					35 32	51			
2" SS	24 24	48	52-54	0/ 0	23 27	52			gray very fine to medium SAND
					33 35	53			
2" SS	24 12	54	54-56	0/ 0	13 27	54			gray very fine SAND
					22 23	55			
2" SS	24 24	54	56-58	0/ 0	27 29	56			gray fine SAND, trace silt
					31 32	57			
NS	5 0	58	58-58.4	NA/ NA	100/ 5 -	58			no recovery rollerbit to 60 ft bgs
					- -	59			

Logged by: V. Deleone Date: 08/05/02

Drilling Contractor Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser	2 in.	Screen Interval	58-68 ft bgs	Sandpack	57-70 ft bgs	Grout	54 ft bgs - grade
Bottom of Hole.	78 ft bgs	Riser Interval:	58 ft bg - 3 ft ags	Bentonite:	54-57 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 194286 E. 523235
Surface Elevation	18 01 FT MSL
Well Riser Elevation	21.11 FT MSL

Job. No. 29600.97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Drive and Wash 4-in diameter casing		Boring No.	MW16-42D
Sampling Method. 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 4 of 4	
Drilling Water Level / Date / Time		Start 08/05/02	Drilling Date/Times / Finish
Surface Conditions: cement			

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
NS	0	58		NA/	100/ 0	60		no recovery
	0			NA/	-		WTHR	rollerbit to 62
					-	61	RX	
					-			
2"	15	58	62-63.3	0/	32	62		gray WEATHERED ROCK and SILT, rock fragements (phyllite and quartzite)
SS	8			0	77			rollerbit to 64
					100/ 3	63		
					-			
2"	17	64	64-65.4	0/	52	64		gray SILT, some medium sand and subangular to subrounded gravel (till)
SS	6			0	27			rollerbit to 66
					100/ 5	65		
					-			
2"	9	64	66-66.8	0/	96	66		WEATHERED ROCK and gray silt
SS	1			0	100/ 3			rollerbit to 68 ft
					-	67		
					-			
2"	3	64	68-68.3	0/	100/ 3	68		gray WEATHERED ROCK and SILT
SS	1			0	-			rollerbit to 70 ft
					-	69		
					-			
NS	3	64	70-70.3	NA/	100/ 3	70		no recovery
	0			NA				refusal at 70 ft bgs
						71		rollerbit to 73 ft
						72		
						73		cored from 73-78 ft bgs
						74		
						75		
						76		
						77		
						78		bottom of boring
						79		

Logged by: V. Deleone Date: 08/05/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	58-68 ft bgs	Sandpack	57-70 ft bgs	Grout	54 ft bgs - grade
Bottom of Hole	78 ft bgs	Riser Interval	58 ft bg - 3 ft ags	Bentonite	54-57 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N. 194286 E 523235
Surface Elevation	18 01 FT MSL
Well Riser Elevation	21 11 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI	
Drilling Method Mobile Drill B61		Boring No **MW16-42D**	
Core Barrel used NX		Sheet 1 of 1	
Packer Test		Drilling Times	
Tested NA		Start 08/06/02 1130	Finish 08/06/02 1200
Interval NA			
See packer test log if applicable			

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
85%	7%				73		dark gray quartzite to meta-conglomerate, very fractured	1	6.30	74
					74		0 6-1 1 ft and 3 4-4 25 ft: weathered and with iron staining on fracture surfaces.	2	6:02	75
					75			3	3 52	76
					76			4	3 24	77
					77			5	3:20	78
					78					
					79					
					80					
					81					
					82					
					83					
					84					
					85					
					86					
					87					
					88					
					89					
					90					
					91					

NOTES:
cored in 2nd gear

Logged by: V Deleone

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwaite

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 194408 E: 523035
Surface Elevation:	17 79 FT MSL
Well Riser Elevation.	20.14 FT MSL

Job. No 29600.97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method: 4 1/4-in. HSA		Boring No MW16-43S
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 08/05/02; Drilling Date/Times; Finish 08/07/02
Surface Conditions: asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	LEL / PID	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
										Refer to boring log of MW16-43D for overburden description
							1			
							2			
							3			
							4			
							5			
							6			
							7			
							8			
							9			
							10			
							11			
							12			
							13			
							14			
							15			
							16			
							17			
							18			
							19			

Logged by: V. Deleone Date: 08/07/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	2 in.	Screen Interval:	6-21ft bgs	Sandpack:	5-21ft bgs	Grout.	none
Bottom of Hole	21 ft bgs	Riser Interval	6ft bgs-3.25ft ags	Bentonite	5 ft bgs-surface	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 194416 E: 523038
Surface Elevation	17.09 FT MSL
Well Riser Elevation.	18 98 FT MSL

Job. No 29600.97	Client. EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4 in casing, drive and wash		Boring No. MW16-43I
Sampling Method: 2" split spoon; Driven 30 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level; Date; Time		Start 08/15/02; Drilling Date/Times; Finish 08/15/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-43D for overburden description 0-28 ft
2 in SS	24 / 8	28	28-30	0 / 0	10, 5	28			gray GRAVELLY MEDIUM SAND, trace silt and fine sand
					4, 5	29			
2 in SS	24 / 2	28	30-32	0 / 0	3, 5	30			same as above
					3, 2	31			
2 in SS	24 / 20	32	32-34	1.6 / 0	9, 13	32			0-10 in: medium SAND; 10-20 in: very fine SAND, trace silt
					15, 15	33			
2 in SS	12 / 10	34	34-35	0 / 0	11, 10	34			very fine SAND
	12 / 8	34	35-36	0 / 0	12, 14	35			same as above
2 in SS	12 / 10	34	36-37	0 / 0	11, 14	36			fine SAND
						37			
						38			
						39			
						40			
						41			
						42			
						43			
						44			
						45			
						46			

Logged by: V. Deleone Date: 08/15/02

rilling Contractor: Subsurface Drilling Driller: B Haase

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval:	25.5 - 33 5 ft bgs	Sandpack:	24.5 - 34 ft bgs	Grout	21 5 ft bgs - grade
Bottom of Hole	37 ft bgs	Riser Interval:	25 5 ft bgs -2 ft ags	Bentonite	21 5-24 5 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194416 E. 523033
Surface Elevation	17.10 FT MSL
Well Riser Elevation	20.31 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Dietrich 4-in diameter casing drive and wash		Boring No	MW16-43D
Sampling Method 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 3	
Drilling Water Level Date Time		Start 07/16/02 0940	Drilling Date/Times	Finish 07/17/02 1000
Surface Conditions	woodland			

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 12	0	0-2	0 0	2, 4	0		brown fine SAND, trace subangular to subrounded gravel, dry
					10, 18	1		
2" SS	24 / 18	0	2-4	0 0	19, 27	2		dark brown very fine SAND, trace subangular to subrounded gravel, dry
					35, 28	3		
2" SS	24 / 16	0	4-6	0.0	6, 7	4		brown fine SAND, trace angular to rounded gravel up to 1 in diameter, dry
					10, 10	5		
2" SS	24 / 8	0	6-8	78	7, 9	6		same as above, moist
					18, 22	7	▼	
2" SS	24 / 10	8	8-10	78	22, 18	8		black very fine to fine SAND, wet
					14, 11	9		
2" SS	24 / 18	8	10-12	7 4	5, 5	10		same as above
					6, 6	11		
2" SS	24 / 18	8	12-14	615	4, 1	12		same as above
					2, 1	13		
2" SS	24 / 6	14	14-16	429	9, 5	14	SP	gray very fine SAND
					4, 1	15		
2" SS	24 / 18	14	16-18	1678	1, 3	16		0-12 in gray very fine SAND, trace silt 12-18 in PEAT, oily odor
					3, 4	17	PEAT	
2" SS	24 / 18	18	18-20	621	17, 12	18	SP	gray very fine to fine SAND
					12, 13	19		

Logged by	V Deleone	Date.	07/16/02-07/17/02
Drilling Contractor	Subsurface Drilling	Driller.	J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval:	37-43 ft bgs	Sandpack	36-43 5 ft bgs	Grout	34 ft bgs - grade
Bottom of Hole	51 ft bgs	Riser Interval	37 ft bgs - 3 ft ags	Bentonite	34-36 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194416 E 523033
Surface Elevation	17 10 FT MSL
Well Riser Elevation	20 31 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method Dietrich 4-in diameter casing drive and wash		Boring No MW16-43D
Sampling Method 2" split spoon Driven 24 in with 140 lb hammer		Sheet 2 of 3
Drilling Water Level Date Time		Start 07/16/02 0940 / Drilling Date/Times / Finish 07/17/02 1000
Surface Conditions woodland		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 18	18	20-22	1.4	7 10	20	SP	gray fine to medium SAND, wet
					12 12	21		
2" SS	24 24	18	22-24	0 0	7 13	22		gray fine to medium SAND, trace rounded gravel 16-24 in rust colored
					13 12	23		
2" SS	24 14	24	24-26	0 0	22 21	24		light brown to gray medium SAND, trace fine to coarse sand and rounded fine gravel, wet
					11 13	25		
2" SS	24 12	24	26-28	0.0	7 9	26		rusty gray very fine to fine SAND, trace silt, wet
					15 16	27		
2" SS	24 4	28	28-30	0.0	36 10	28		dark gray gravelly very fine SAND, wet
					10 5	29		
2" SS	24 0	28	30-32	0 0	7 8	30		no recovery
					5 5	31		
2" SS	24 24	28	32-34	0 0	5 7	32		0-18 in gray medium SAND, wet 18-24 in gray SILT
					11 12	33		
2" SS	24 12	34	34-36	0 0	31 19	34	ML	gray SILT
					22 20	35		
2" SS	24 20	34	36-38	0 0	9 13	36	SP	gray fine SAND, wet
					14 18	37		
2" SS	24 10	38	38-40	7.0	6 8	38		gray fine SAND, trace gravel and silt, wet
					11 9	39		

Logged by: V. Deleone Date: 07/16/02-07/17/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	37-43 ft bgs	Sandpack	36-43 5 ft bgs	Grout	34 ft bgs - grade
Bottom of Hole	51 ft bgs	Riser Interval	37 ft bgs - 3 ft ags	Bentonite	34-36 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job. No	29600 97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method:	Dietrich
	4-in diameter casing drive and wash
Boring No	MW16-43D
Coordinates	N. 194416 E 523033
Surface Elevation	17 10 FT MSL
Well Riser Elevation	20 31 FT MSL
Sampling Method	2" split spoon
	Driven 24 in with 140 lb hammer
Sheet	3 of 3
Drilling Water Level	
Date	
Time	
Surface Conditions:	woodland
Start	07/16/02 0940
Drilling Date/Times	
Finish	07/17/02 1000

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	PID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 12	38	40-42	6 1	8 9	40		gray fine SAND, trace silt, trace gravel
					14 9	41		
2" SS	15 15	38	42-43 3	6 6	17 31	42		same as above with trace medium sand
					3"/100	43		Refusal at 43 ft 3 in.
								Rollerbit to 46 ft
						44		
						45		
						46		cored from 46-51 ft bgs
						47		
						48		
						49		
						50		
						51		bottom of boring
						52		
						53		
						54		
						55		
						56		
						57		
						58		
						59		

Logged by: V Deleone

Date: 07/16/02-07/17/02

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwaite

ELL SPECIFICATIONS.

am. of Riser	2 in.	Screen Interval.	37-43 ft bgs	Sandpack	36-43 ft bgs	Grout	34ft bgs-grade
Bottom of Hole	51 ft bgs	Riser Interval	37 ft bgs-3 5 ft ags	Bentonite.	34-36 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194416 E 523033
Surface Elevation	17 10 FT MSL
Well Riser Elevation:	20 31 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method Dietrich		Boring No **MW16-43D**
Core Barrel used NX		Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
07/18/02 1029	07/18/02 1045

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
95%	95%				46		light gray fine QUARTZITE	1	3 10	47
					47			2	3 15	48
					48			3	3 20	49
					49			4	3 26	50
					50		near horizontal fracture at 40.5 in	5	3.25	51
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					
					60					

Note Coring in 3rd Gear

NOTES:

Logged by: V Deleone

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwaite

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194409 E. 523151
Surface Elevation.	16.65 FT MSL
Well Riser Elevation:	19.73 FT MSL

Job No. 29600 97	Client: EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Deidrich D50		Boring No MW16-44S
4 1/4-IN ID HSA to 14 ft bgs,		
4-in diameter casing		
Sampling Method: 2" split spoon		Sheet 1 of 1
Driven 24 in with 140 lb hammer		
Drilling Water Level		Start 07/26/02 1350 / Drilling Date/Times / Finish 07/26/02 1530
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 20	0	0-2	31/ 0	2 7	0			brown to dark brown fine to medium SILTY SAND, roots, dry
					13 25	1			light brown fine to medium SAND, some subrounded gravel, dry
2" SS	24 20	0	2-4	0/0	29 40	2			dark gray fine to medium SAND, some angular rock fragments, dry
					65 53	3			light brown fine to medium SAND, some angular gravel, dry
2" SS	24 18	4	4-6	0/0	27 22	4			olive gray fine to medium SAND, trace coarse sand, some rounded fine gravel moist
					15 12	5			
2" SS	24 22	4	6-8	5806/ 1086	13 2	6			dark gray very fine to fine SAND, moist
					4 17	7			light gray fine to medium SAND, very moist
2" SS	24 18	8	8-10	1575/ 1086	13 15	8			dark to light gray very fine to fine SAND, trace rounded gravel, wet
					16 18	9	▼		
2" SS	24 20	8	10-12	887/ 828	13 18	10			dark gray fine to medium SAND, trace silt, wet
					18 12	11		SP	
2" SS	24 22	8	12-14	1420/ 693	4 8	12			olive gray fine to medium SAND, wet
					6 11	13			
						14			no sample (material washed out after casing was driven to 14 ft bgs then casing dropped down to 16 ft bgs under own weight)
						15			
2" SS	24 18	16	16-18	14445/ 8956	5 5	16		PEAT	0-3 in: PEAT
					14 16	17		SP	3-6 in: PEAT and very fine SAND, trace silt, wet light gray to olive gray very fine to fine SAND, wet
2" SS	24 16	16	18-20	9089/ 4485	6 18	18		SM	light to dark gray silty very fine to fine SAND, wet
					20 19	19			bottom of boring at 21 ft bgs

Logged by: M. Kelly Date: 07/26/02

illing Contractor. Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser:	2 in	Screen Interval.	6-21 ft bgs	Sandpack	5-21 ft bgs	Grout	None
Bottom of Hole	21 ft bgs	Riser Interval	6ft bgs-3.25ft ags	Bentonite:	0-5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N 194417 E 523145
Surface Elevation.	16.35 FT MSL
Well Riser Elevation:	18 78 FT MSL

Job. No 29600 97	Client. EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61, 4 in diameter casing, drive and wash		Boring No. MW16-44I
Sampling Method: 2" split spoon, Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/25/02 / Drilling Date/Times / Finish 09/25/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-44D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: V. Deleone Date: 09/25/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser.	2 in	Screen Interval:	23-33 ft bgs	Sandpack:	22 5-33 ft bgs	Grout.	19 5 ft bgs - grade
Bottom of Hole	33 ft bgs	Riser Interval:	23 ft bgs -32 in ags	Bentonite:	19 5-22 5 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 194406 E 523148
Surface Elevation	16 83 FT MSL
Well Riser Elevation	18 89 FT MSL

Job No	Client	Location	
29600 97	EFANE	SITE 16 NCBC Davisville	
Drilling Method Mobile Drill B61		Boring No	
Drive and Wash 4-in diameter casing		MW16-44D	
Sampling Method 2" split spoon			
Driven 24 in with 140 lb hammer		Sheet 1 of 4	
Drilling Water Level		Start	Finish
Date		07/22/02	07/23/02
Time		1045	1700
Surface Conditions grass		Drilling Date/Times	

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 12	0	0-2	0/ 0	3 12	0			0-1 in organic material 1-12 in yellowish orange gravelly fine to coarse SAND
					15 21	1			
2" SS	24 18	0	2-4	0/ 0	39 59	2			olive gray gravelly medium to coarse SAND, damp
					63 55	3			
2" SS	24 12	4	4-6	0/ 0	30 21	4			same as above
					19 16	5			
2" SS	24 10	4	6-8	109.0	10 11	6			olive gray gravelly fine to coarse SAND, wet
					10 12	7			
2" SS	24 14	8	8-10	0	8 9	8			olive gray fine to medium SAND, trace subangular gravel, saturated
					10 13	9			
2" SS	24 18	8	10-12	0	9 9	10			same as above
					4 4	11			
2" SS	24 6	8	12-14	383.0	3 4	12		ML	olive gray SILT, trace fine sand, saturated
					7 7	13			
2" SS	24 22	8	14-16	9984	WOR	14			0-12 in: olive gray SILT, trace fine sand, wet 12-24 in: light brown PEAT, slight odor
						15		PEAT	
2" SS	24 24	8	16-18	9957 6	5 7	16		PEAT/ ML	0-18 in PEAT and SILT, wet 18-24 in fine to medium SAND, 1 in lens of peat from 21-22 in
					15 21	17			
2" SS	24 12	18	18-20	2144	11 12	18		SM	olive gray SILTY SAND, wet
					14 15	19			

Logged by: S Sheer Date: 07/22/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS.

Diam. of Riser.	2 in.	Screen Interval	49 ft 7 in - 59 ft 7 in. bgs	Sandpack:	59 ft 7 in. - 48 ft 7 in.	Grout	45 ft 7 in to grade
Bottom of Hole.	67 ft 7 in. bgs	Riser Interval:	59 ft 7 in bgs to 1 ft 10 in	Bentonite:	45 ft 7 in. - 48 ft 7 in	Cover.	4" steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194406 E: 523148
Surface Elevation	16 83 FT MSL
Well Riser Elevation	18.89 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Mobile Drill B61		Boring No	MW16-44D
Drive and Wash 4-in diameter casing			
Sampling Method 2" split spoon		Sheet 2 of 4	
Driven 24 in. with 140 lb hammer			
Drilling Water Level		Start	Drilling Date/Times / Finish
Date		7/22/02	7/23/02
Time		1045	1700
Surface Conditions grass			

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	PID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 12	18	20-22	291 0	13 12	20	SM	olive gray fine SILTY SAND, wet, with lenses of yellowish fine sand and trace medium sand
					12 15	21		
2" SS	24 22	18	22-24	0.0	14 14	22		same as above
					16 21	23		
2" SS	24 7	24	24-26	0 0	9 9	24		same as above without yellowish lenses
					9 16	25		
2" SS	24 6	24	26-28	0 0	10 8	26		olive gray fine to medium SILTY SAND, wet
					9 16	27		
2" SS	24 18	28	28-30	0.0	6 8	28		olive gray fine SILTY SAND, trace medium sand, wet
					9 11	29		
2" SS	24 24	28	30-32	0.0	9 8	30	SP	olive gray very fine to medium SAND, trace silt, wet
					9 12	31		
2" SS	24 24	28	32-34	0 0	10 12	32		olive gray fine to medium SAND with lens of very fine and coarse sand, trace silt wet
					14 16	33		
2" SS	24 10	34	34-36	0 0	4 9	34		olive gray fine SAND with lenses (bands) of rusty colored very fine sand, wet
					12 11	35		
2" SS	24 14	34	36-38	0.0	8 14	36	SM	0-4 in: olive gray very fine to medium SAND, wet 4-8 in: olive gray very fine SILTY SAND, rust colored last inch, wet
					21 26	37	SP	8-14 in olive gray fine to medium SAND, wet
2" SS	24 12	34	38-40	0 0	14 18	38		olive gray gravelly fine to coarse SAND, wet
					18 15	39		

Logged by: S. Sheer Date: 07/22/02

Drilling Contractor: Subsurface Drilling Driller: P.Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	49 ft 7 in - 59 ft 7 in bgs	Sandpack	59 ft 7 in. - 48 ft 7 in	Grout	45 ft 7 in to grade
Bottom of Hole	67 ft 7 in bgs	Riser Interval	59 ft 7 in bgs to 1 ft 10 in	Bentonite	45 ft 7 in - 48 ft 7 in	Cover	4" steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600.97	Client. EFANE
Location.	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61
	Drive and Wash 4-in diameter casing
Boring No	MW16-44D
Coordinates:	N 194406 E. 523148
Surface Elevation:	16 83 FT MSL
Well Riser Elevation	18 89 FT MSL
Sampling Method:	2" split spoon
	Driven 24 in with 140 lb hammer
Sheet	3 of 4
Drilling Water Level	
Date	
Time	
Surface Conditions:	grass
Start	7/22/02 1045
Drilling Date/Times	
Finish	7/23/02 1700

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	PID (ppm) Above bk	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 6	38	40-42	0 0	22 20	40		SP	olive gray gravelly fine to coarse SAND, some mica, wet
					18 20	41			
2" SS	24 12	38	42-44	0 0	22 26	42			alternating 1/4 in layers of rusty colored fine SAND and olive gray very fine SAND, trace silt, wet
					27 29	43			
2" SS	21 14	44	44-45 8	0 0	1 6	44			0-13 in: olive gray fine SAND, trace medium sand, wet 13-14 in: rusty colored fine SAND, trace fine subangular gravel, wet
					28 100/3	45			
2" SS	NA NA	44	NA	NA	- -	46			rollerbit through cobble (6-7 in) to 48 ft
					- -	47			
2" SS	16 12	44	48-49 3	0 0	57 89	48			olive gray gravelly (subrounded) fine and coarse SAND, wet
					100/4	49			
2" SS	16 8	49	50-51.3	0.0	45 79	50			same as above, refusal, rollerbit to 52 ft bgs
					100/4	51			
2" SS	21 10	49	52-53 8	0 0	54 79	52			0-6 in. olive gray gravelly (subrounded) coarse SAND, 6-10 in: olive gray fine SAND, trace medium sand, wet
					60 3/100	53			refusal, rollerbit to 54 ft bgs
2" SS	10 4	54	54-54 8	0 0	120 100/4	54			olive gray gravelly (subangular to subrounded) fine SAND, trace medium sand.
						55			rollerbit to 59 ft bgs
						56			
						57			
						58			
2" SS	7 7	59	59-59 6	0	90 100/1	59			gray very fine SAND, trace silt and angular fine gravel

Logged by: S Sheer Date: 07/22/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

L SPECIFICATIONS.

m of Riser	2 in	Screen Interval	49 ft 7 in - 59 ft 7 in. bgs	Sandpack	59 ft 7 in - 48 ft 7 in	Grout	45 ft 7 in to grade
Bottom of Hole	67 ft 7 in bgs	Riser Interval	59 ft 7 in bgs to 1 ft 10 in	Bentonite	45 ft 7 in - 48 ft 7 in	Cover	4" steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194406 E. 523148
Surface Elevation	16.83 FT MSL
Well Riser Elevation	18 89 FT MSL

Job No. 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Mobile Drill B61		Boring No	MW16-44D
Drive and Wash 4-in diameter casing			
0			
Sampling Method 2" split spoon		Sheet 4 of 4	
Driven 24 in with 140 lb hammer			
Drilling Water Level		Start	Drilling Date/Times	Finish
Date		7/22/02		7/23/02
Time		1045		1700
Surface Conditions grass				

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	PID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
						60		rollerbit to 62 ft 7 in
						61		
						62		cored to 67 ft 7 in
						63		
						64		
						65		
						66		
						67		
								bottom of boring
						68		
						69		
						70		
						71		
						72		
						73		
						74		
						75		
						76		
						77		
						78		
						79		

Logged by V DeLeone Date 07/23/02

Drilling Contractor Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	49 ft 7 in - 59 ft 7 in bgs	Sandpack.	59 ft 7 in - 48 ft 7 in	Grout	45 ft 7 in to grade
Bottom of Hole	67 ft 7 in bgs	Riser Interval	59 ft 7 in. bgs to 1 ft 10 in	Bentonite	45 ft 7 in - 48 ft 7 in	Cover	4" steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N: 194406 E. 523148
Surface Elevation:	16 83 FT MSL
Well Riser Elevation:	18.89 FT MSL

Job No 29600.97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61		Boring No **MW16-44D**
Drive and Wash 4-in diameter casing		
Core Barrel used: Nx		Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
07/23/02 1200	07/23/02 1200

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
							meta-conglomerate			
73%	30%				63		0-10 in = rock fragments	1	2:10	63.6
							10-30-in. only 2 mechanical breaks			
					64		30-44-in: = very weathered rock	2	2:26	64.6
							fragments, breaks easily			
					65			3	6 50	65 6
					66			4	4 04	66 6
					67			5	2:42	67.6
					68					
					69					
					70					
					71					
					72					
					73					
					74					
					75					
					76					
					77					
					78					
					79					
					80					
					81					

NOTES:

Logged by: V DeLeone

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 194414 E: 523150
Surface Elevation.	16.39 FT MSL
Well Riser Elevation.	19.17 FT MSL

Job No 29600 97	Client. EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61, 3 7/8-in diameter rollerbit		Boring No. MW16-44R
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/05/02 1345
Date		Drilling Date/Times
Time		Finish 09/05/02 1531
Surface Conditions		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-44D for overburden description
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: R Wasserman Date: 09/05/02

Drilling Contractor: Subsurface Drilling Driller: B Haase

WELL SPECIFICATIONS:

Diam of Riser.	4 in	open borehole.	62-87 ft bgs	Sandpack:	NA	Grout.	NA
Bottom of Hole:	87 ft bgs	Riser Interval	62 ft bgs - 2 ft ags	Bentonite:	NA	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N. 194414 E 523150
Surface Elevation:	16 39 FT MSL
Well Riser Elevation:	19 17 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI	
Drilling Method. Mobile Drill B61 3 7/8-in diameter rollerbit		Boring No **MW16-44R**	
Core Barrel used		Sheet 1 of 2	
Packer Test		Drilling Times	
Tested	NA	Start	Finish
Interval	NA	08/28/02 0845	08/28/02 1048
See packer test log if applicable			

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
				62		700 PSI down pressure dark gray drill water	1	4 05	63
				63			2	3:35	64
				64			3	3.15	65
				65			4	3:00	66
				66			5	3:55	67
				67			6	3.40	68
				68			7	5.25	69
				69			8	4 40	70
				70			9	4.10	71
				71			10	3:20	72
				72			11	2 30	73
				73			12	3 45	74
				74			13	3 05	75
				75			14	3:35	76
				76			15	3:25	77
				77			16	2 45	78
				78			17	3 00	79
				79			18	2 25	80
				80			19	2 35	81

NOTES:

Logged by: R Wasserman

Drilling Contractor: Subsurface Drilling

Driller: B Haase

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194414 E 523150
Surface Elevation	16 39 FT MSL
Well Riser Elevation	19 17 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in diameter rollerbit		Boring No **MW16-44R**
Core Barrel used 0		Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
08/28/02 0845	08/28/02 1048

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
				81			20	3:45	82
				82			21	4 10	83
				83			22	3 35	84
				84			23	5 00	85
				85			24	4:40	86
				86		no changes in drill fluid or downhole pressure 1 hr 32 min 25 sec	25	5:15	87
				87					
				88					
				89					
				90					
				91					
				92					
				93					

NOTES:

Logged by: R. Wasserman

Drilling Contractor: Subsurface Drilling

Driller: B Haase

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 194470 E. 523070
Surface Elevation:	14.84 FT MSL
Well Riser Elevation.	18.10 FT MSL

Job No 29600 97	Client. EFANE	Location SITE 16 NCBC Davisville
Deidrich D50		Boring No. MW16-45S
4 1/4-in HSA to 14 ft then		
drive and wash 4-in ·diameter steel casing		
Sampling Method: 2" split spoon		Sheet 1 of 1
Driven 24 in with 140 lb hammer		

Drilling Water Level			Start	Drilling Date/Times	Finish
Date			07/26/02		07/26/02
Time			0920		1120

Surface Conditions: asphalt

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 20	0	0-2	1.9/ NA	18, 20, 24, 42	0, 1	FILL	dark gray gravelly (subrounded) fine to medium SAND, slightly moist
2" SS	24 / 18	0	2-4	15.6/ NA	43, 46, 37, 43	2, 3		0-12 in: dark brown to gray brown gravelly fine to coarse SAND, slightly moist; 12-18 in. dark gray as above
2" SS	24 / 6	0	4-6	2169/ 3089	49, 38, 100, 140	4, 5		dark gray fine to very fine SAND, moist
2" SS	24 / 0	0	6-8	NA/ NA	8, 22, 27, 28	6, 7		FILL: broken glass, porcelain, leather, metal based upon drill cuttings, no spoon recovery
2" SS	24 / 0	8	8-10	NA/ NA	26, 12, 8, 7	8, 9		no recovery
2" SS	24 / 3	8	10-12	974/ 1067	3, 5, 4, 3	10, 11		dark gray gravelly fine to medium SAND, trace coarse sand, some subangular rock fragments
2" SS	24 / 16	8	12-14	635/ 1700	5, 4, 5, 5	12, 13		same as above, wet
2" SS	24 / 3	14	14-16	732/ 502	19, 13, 13, 12	14, 15		same as above, wet
2" SS	24 / 16	14	16-18	1116/ 723	7, 10, 12, 20	16, 17	PEAT	0-4 in: same as above; 4-16 in: dark brown spongy fibrous PEAT MOSS, sand at bottom of sampler
2" SS	24 / 14	18	18-20	6317/ 3023	23, 21, 17, 19	18, 19	SP SM	dark gray and yellow green very fine to fine SAND, trace medium sand; dark gray very fine SILTY SAND, rounded fine gravel

Logged by: M. Kelly Date: 07/26/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser:	2 in	Screen Interval:	6-21 ft bgs	Sandpack	5-21ft bgs	Grout	None
Bottom of Hole.	21 ft bgs	Riser Interval:	6ft bgs-3 25ft ags	Bentonite.	0-5ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job. No. 29600.97	Client: EFANE
Location	SITE 16 NCBC Davisville
Drilling Method:	Mobile Drill B61
4-in diameter casing, drive and wash	
Boring No	MW16-45I
Sampling Method. 2" split spoon	Driven 24 in with 140 lb hammer
Sheet 1 of 1	
Drilling Water Level	
Date	
Time	
Surface Conditions: asphalt	
Start 09/27/02	Drilling Date/Times	Finish 09/30/02

Coordinates: N: 194474 E. 523074
Surface Elevation: 14 70 FT MSL
Well Riser Elevation: 17 35 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 13	30	30-32	0/ 0	8 10	30			brown to gray fine SAND
					9 9	31			
2" SS	24 14	30	32-34	15/ 0	8 7	32			same as above
					9 10	33			
2" SS	24 14	34	34-36	0/ 0	7 7	34			same as above
					8 12	35			
2" SS	24 18	34	36-38	5.5/ 0	9 10	36			same as above
					10 12	37			
2" SS	24 12	38	38-40	0/ 0	10 10	38			same as above
					10 10	39			
2" SS	24 18	38	40-42	0/ 0	5 5	40			same as above
					8 9	41			
2" SS	24 18	38	42-44	0/ 0	89 42	42			same as above
					19 13	43			
						44			
						45			
						46			
						47			
						48			
						49			

Logged by: V Deleone Date: 09/27/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS.

Diam of Riser.	2 in	Screen Interval	32-42 ft bgs	Sandpack:	31-42 ft bgs	Grout:	28 ft bgs - grade
Bottom of Hole.	44 ft bgs	Riser Interval	32 ft bgs -2.6 ft ags	Bentonite	28-31 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194474 E 523068
Surface Elevation	14 67 FT MSL
Well Riser Elevation	17 64 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method Deidrick D-50		Boring No MW16-45D
drive and wash 4-in diameter casing		
Sampling Method 2" split spoon		Sheet 1 of 3
Driven 24 in with 140 lb hammer		
Drilling Water Level		Start 07/18/02 0900 / Drilling Date/Times / Finish 07/18/02 1330
Date		
Time		
Surface Conditions Asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 12	0	0-2	1.5	11 11	0	FILL	dark gray fine to medium SILTY SAND, some angular to subrounded rock fragments
					12 19	1		
2" SS	24 12	0	2-4	2.5	23 28	2		0-9 in olive gray gravelly fine SAND, dry; 9-12 in dark gray SAND, dry
					22 18	3		
2" SS	24 9	0	4-6	8967	14 18	4		0-6 in dark gray fine to medium SAND, trace coarse sand and silt, some subangular rock fragments glass, wood fragments, moist
					22 30	5	▼	6-9 in. light gray to olive gray SAND, slight sheen, no noticeable odor
2" SS	24 0	0	6-8	NS	8 28	6		no recovery, sampler wet
					27 22	7		
2" SS	24 9	8	8-10	28	34 17	8		dark gray fine to coarse, SAND, trace silt and metal fragments, sheen from 6-9 in , no noticeable odor
					11 17	9		
2" SS	24 9	8	10-12	1333	5 3	10		same as above, saturated
					2 3	11		
2" SS	24 9	8	12-14	3434	4 3	12		dark gray gravelly fine to coarse SAND, trace metal fragments slight sheen, no noticeable odor, saturated
					2 3	13		
2" SS	24 18	14	14-16	8966	7 2	14	PEAT	0-2 in: dark gray fine SAND; 2-15 in dark brown PEAT
					2 3	15	SP	15-18 in: dark gray fine to medium SAND
2" SS	24 16	14	16-18	8133	3 4	16	PEAT	0-13 in. PEAT as above with some sand mixed in; 13-16 in light gray to greenish gray fine SAND, trace medium sand, wet
					7 11	17		
2" SS	24 12	18	18-20	337	12 11	18	SP	olive gray fine to medium SAND, wet
					12 11	19		

Logged by M Kelly Date: 07/18/02

Drilling Contractor Subsurface Drilling Driller J Goldthwait

WELL SPECIFICATIONS

m of Riser	2 in	Screen Interval	48-58 ft bgs	Sandpack	46-58 5 ft bgs	Grout.	55 5 ft bgs - grade
Bottom of Hole.	66 ft bgs	Riser Interval	56 5 ft bgs - 2 ft ags	Bentonite	55 5-58 5 ft bgs	Cover.	4 in steel

NOTES: hammered split spoon 0-8 ft bgs without casing, then began drive and wash with 4-in diameter steel casing.

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N. 194474 E 523068
Surface Elevation	14.67 FT MSL
Well Riser Elevation:	17 64 FT MSL

Job No 29600 97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Deidrick D-50 drive and wash 4-in diameter casing		Boring No	MW16-45D
Sampling Method. 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 2 of 3	
Drilling Water Level / Date / Time		Start 7/18/02 0900	Drilling Date/Times	Finish 7/18/02 1330
Surface Conditions: Asphalt				

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 18	18	20-22	787	7 8	20	SP	olive gray fine to medium SAND, WET
					11 11	21		
2" SS	24 18	18	22-24	665	8 11	22		same as above with angular quartzite fragment
					9 8	23		
2" SS	24 9	24	24-26	45	16 9	24		olive gray gravelly (subrounded) fine to medium SAND, trace coarse sand, wet
					14 13	25		
2" SS	24 18	24	26-28	5.6	14 16	26	SM	olive gray to green gray fine SILTY SAND, trace medium sand, brown/orange colored sand at 12 in, some mica
					24 26	27		
2" SS	24 14	28	28-30	0	24 21	28		dark gray very fine to fine SILTY SAND, brown sand lens at 7 in, wet
					13 12	29		
2" SS	24 12	28	30-32	0	5 5	30		dark gray very fine SILTY SAND, wet
					7 6	31		
2" SS	24 16	28	32-34	0	6 7	32	ML	0-8 in: dark gray SANDY SILT 8-16 in. very fine SILTY SAND, wet
					7 8	33	SM	
2" SS	24 12	34	34-36	16.1	8 8	34	SP	olive gray fine to very fine SAND, wet brown sand at 10 in.
					8 9	35		
2" SS	24 18	34	36-38	8.3	8 11	36		olive gray to dark gray fine to very fine SAND, trace mica, wet
					13 15	37		
2" SS	24 18	38	38-40	5 2	17 14	38	SM	0-12 in dark gray very fine to fine SILTY SAND, wet 12-18 in light brown to yellow orange very fine to fine SAND, wet
					9 10	39	SP	

Logged by: M Kelly Date: 07/18/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwait

WELL SPECIFICATIONS

Diam. of Riser	2 in	Screen Interval	48-58 ft bgs	Sandpack	46-58 5 ft bgs	Grout	55 5 ft bgs - grade
Bottom of Hole	66 ft bgs	Riser Interval	56 5 ft bgs - 2 ft ags	Bentonite	55 5-58 5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194474 E 523068
Surface Elevation:	14 67 FT MSL
Well Riser Elevation	17.64 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method Deidrick D-50		Boring No MW16-45D
drive and wash 4-in diameter casing		
Sampling Method: 2" split spoon		Sheet 3 of 3
Driven 24 in with 140 lb hammer		
Drilling Water Level		Start 07/18/02 0900
Date		Drilling Date/Times
Time		Finish 07/18/02 1330
Surface Conditions. Asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	26 12	38	40-42	10 7	10	40		0-6 in red/orange to brown very fine to fine SILTY SAND, wet
					10		SM	6-12 in dark gray SANDY SILT, trace angular gravel, wet
					22	41		
					23		ML	
2" SS	24 12	38	42-44	6	10	42	SP	dark gray gravelly (subangular) fine to medium SAND, wet
					29			
					22	43		
					27			
2" SS	24 3	44	44-46	1.1	18	44		olive gray gravelly (angular) fine SAND
					22			
					24	45		
					18			
2" SS	24 9	44	46-48	0	22	46		olive gray gravelly (angular) fine to medium SAND, trace coarse sand, wet
					24			
					28	47		
					28			
2" SS	24 16	48	48-50	12	35	48		dark gray fine to medium SAND, some rock fragments, wet
					28			
					75	49		
					66			
2" SS	22 21	48	50-51.8	14 1	40	50		dark gray very fine to fine SAND, trace medium sand, angular rock fragments
					71			
					130	51		
					120/4			refusal
						52		rollerbit to 52 ft bgs, broke through rock, rollerbit to 54 ft bgs
								cobbles and boulders
						53		
2" SS	10 9	53 5	54-54 8	0.5	70	54		dark gray very fine to fine SANDY SILT, trace medium sand, wet
					180/4		ML	
						55		
2" SS	4 3	53 5	56-56 3	0 0	110/4	56		dark gray very fine to medium SANDY SILT, wet
						57		
						58		
						59		rollerbit to 61 ft bgs
								cored 61-66 ft bgs, bottom of boring 66 ft bgs.

Logged by M Kelly Date: 07/18/02

Drilling Contractor: Subsurface Drilling Driller J Goldthwait

LL SPECIFICATIONS.

Diam of Riser	2 in	Screen Interval	48-58 ft bgs	Sandpack	46-58.5 ft bgs	Grout	55.5 ft bgs - grade
Bottom of Hole	66 ft bgs	Riser Interval	56.5 ft bgs - 2 ft ags	Bentonite	55 5-58 5 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates:	N 194474 E. 523068
Surface Elevation	14 67 FT MSL
Well Riser Elevation.	17 64 FT MSL

Job No 29600 97 3202	Client EFANE
Drilling Method	Deidrick D-50
	drive and wash 4-in diameter casing
Core Barrel used:	NX

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Location	Site 16 NCBC Davisville, North Kingstown, RI
Boring No.	**MW16-45D**
Sheet 1 of 1	

Drilling Times	Start	Finish
	08/20/02 0805	08/20/02 0835

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
					61		quartzite, 45 degree fracture at 6 in, 80 degree fracture at 24 in.	1	5 00	62
96%	87%				62		near horizontal fracture at 32 in.	2	4 02	63
					63			3	5·47	64
					64			4	5·23	65
					65			5	5.15	66
					66					
					67					
					68					
					69					
					70					
					71					
					72					
					73					
					74					
					75					
					76					
					77					
					78					
					79					

NOTES:
2nd gear, constant down pressure

Logged by: V. Deleone

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwait

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194528 E: 523142
Surface Elevation:	14.30 FT MSL
Well Riser Elevation:	16.49 FT MSL

Job. No. 29600.97	Client: EFANE	Location.	SITE 16 NCBC Davisville
Drilling Method.		Boring No.	MW16-46S
4 1/4-in ID Hollow Stem Auger			
Sampling Method: 2" split spoon		Sheet 1 of 1	
Driven 24 in. with 140 lb hammer			
Drilling Water Level		Start 08/08/02	Drilling Date/Times / Finish 08/08/02
Date			
Time			
Surface Conditions.	woodlands		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	LEL / PID	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
										Refer to boring log of MW16-46D for overburden description.
							1			
							2			
							3			
							4			
							5			
							6			
							7			
							8			
							9			
							0			
							1			
							2			
							3			
							4			
							5			
							6			
							7			
							8			
							9			

Logged by: R. Wasserman Date: 08/08/02

illing Contractor: Subsurface Drilling Driller: B. Haase

WELL SPECIFICATIONS

Diam of Riser:	2 in.	Screen Interval:	6-21ft bgs	Sandpack:	5-21ft bgs	Grout.	3ft bgs - grade
Bottom of Hole	21 ft bgs	Riser Interval	6ft bgs-2ft ags	Bentonite	3-5ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N. 194531 E: 523136
Surface Elevation:	13.83 FT MSL
Well Riser Elevation:	16.16 FT MSL

Job. No 29600.97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No. MW16-46I
Sampling Method: 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/26/02 · Drilling Date/Times · Finish 09/26/02
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-46D for over burden description
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: V. Deleone Date 09/26/02

Drilling Contractor: Subsurface Drilling Driller. J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	22-32 ft bgs	Sandpack:	22-32 ft bgs	Grout	19 ft bgs - grade
Bottom of Hole:	32 ft bgs	Riser Interval:	22 ft bgs -28 in ags	Bentonite	19-22 ft bgs	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194536 E 523142
Surface Elevation:	14 33 FT MSL
Well Riser Elevation.	16.79 FT MSL

Job No. 29600 97	Client EFANE	Location. SITE 16 NCBC Davisville
Drilling Method Mobile Drill B-61		Boring No. MW16-46D
Drive and Wash		
5-in diameter casing from 0 to 47 5'		
4-in diameter casing 47.5 to 60'		
Sampling Method 2" split spoon		
Driven 24 in with 140 lb hammer		Sheet 1 of 3
Drilling Water Level		Start 07/16/02 0945 / Drilling Date/Times / Finish 07/17/02 1700
Date		
Time		
Surface Conditions grass		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 12	0	0-2	0.0	8 11	0	FILL	olive gray fine to coarse SAND and fine GRAVEL, dry
					18 26	1		
2" SS	24 12	0	2-4	0 0	36 58	2		dark gray gravelly fine SILTY SAND, dry
					69 84	3		
2" SS	24 18	0	4-6	0.0	33 29	4		same as above but with trace rock fragments, damp
					20 16	5		
2" SS	24 6	0	6-8	7 3	26 29	6		same as above but with asphalt fragments, wet wood from 7.5-8 ft bgs
					91 6	7		
2" SS	24 0	0	8-10	NS	6 4	8		No Recovery, split spoon wet.
					3 3	9		
2" SS	24 6	0	10-12	NS	2 1	10		dark gray medium SAND, some rock fragments, wet (fill)
					2 4	11		
2" SS	24 6	0	12-14	5658	5 3	12		dark gray coarse to medium SAND, some rock fragments, wood, and a rounded pebble, wet
					5 7	13		
2" SS	24 0	14	14-16	NS	7 3	14		No Sample. trace of broken glass and metal fragments
					11 13	15		
2" SS	24 2	14	16-17	5658	20 18	16	PEAT	0-9 in: trash/fill 9-12 in. black organic silty PEAT
			17-18	541	17 18	17	SM	12-24 in: dark gray very fine to fine SILTY SAND, trace rock fragments, saturated
2" SS	24 6	18	18-20	382 8	20 18	18	SP	dark gray fine to medium SAND, some rock fragments, saturated.
					19 21	19		

Logged by: S Sheer & M Kelly Date: 07/16/02 to 07/17/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam. of Riser	2 in	Screen Interval	50 5 - 59 ft bgs	Sandpack	48 5 - 59 5 ft bgs	Grout	46 ft bgs - grade
Bottom of Hole	67 ft bgs	Riser Interval	50 5 ft bgs - 2 ft ags	Bentonite	46 - 48 5 ft bgs	Cover	4 in steel

NOTES: began drive and wash at 14 ft bgs

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N 194536 E 523142
Surface Elevation	14 33 FT MSL
Well Riser Elevation.	16 79 FT MSL

Job. No 29600 97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method Mobile Drill B-61		Boring No. MW16-46D
Drive and Wash		
5-in diameter casing from 0 to 47 5'		
4" Casing 47 5-60'		
Sampling Method 2" split spoon		Sheet 2 of 3
Driven 24 in. with 140 lb hammer		
Drilling Water Level		Start 07/16/02 0945 / Drilling Date/Times / Finish 07/17/02 1700
Date		
Time		
Surface Conditions: grass		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 9	18	20-22	207 4	22 26	20	SP	dark gray coarse SAND, some rock fragments, trace silt, wet
					21 19	21		
2" SS	24 12	18	22-24	41 3	13 14	22		same as above
					18 22	23		
2" SS	24 12	24	24-26	0.7	5 10	24		dark gray fine to medium SAND, trace silt and coarse sand, wet
					13 20	25		
2" SS	24 12	24	26-28	14.6	18 19	26		olive gray medium SAND, trace silt, wet
					21 24	27		
2" SS	24 8	28	28-30	1.0	7 15	28		0-7 in: dark gray fine SAND, trace silt, wet 7-8 in. dark gray fine SILTY SAND, wet
					25 24	29		
2" SS	24 18	28	30-32	0	13 18	30	SM	dark gray fine SILTY SAND, wet
					18 20	31		
2" SS	24 24	28	32-34	0.0	17 28	32		0-12 in: dark gray fine silty SAND, wet 12-24 in dark gray fine to medium SILTY SAND, trace rounded gravel, wet
					17 21	33		
2" SS	24 16	34	34-36	0.0	4 11	34		dark gray fine SILTY SAND, trace mica, wet
					9 10	35		
2" SS	24 24	34	36-38	0.0	7 7	36		0-18 in: same as above 18-24 in. dark gray very fine SAND, trace silt, wet
					6 8	37		
2" SS	24 12	38	38-40	0 0	4 7	38	SP	dark gray very fine SAND, trace silt, wet
					10 18	39		

Logged by: S. Sheer & M Kelly Date 07/16/02 to 07/17/02

Drilling Contractor Subsurface Drilling Driller. P Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser:	2 in	Screen Interval:	50.5 - 59 ft bgs	Sandpack	48 5 - 59 5 ft bgs	Grout:	46 ft bgs - grade
Bottom of Hole	67 ft bgs	Riser Interval	50 5 ft bgs - 2 ft ags	Bentonite.	46 - 48.5 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194536 E. 523142
Surface Elevation.	14 33 FT MSL
Well Riser Elevation:	16.79 FT MSL

Job No 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method Mobile Drill B-61		Boring No MW16-46D
Drive and Wash		
5-in diameter casing from 0 to 47.5'		
4" Casing 47 5-60'		
Sampling Method 2" split spoon		Sheet 3 of 3
Driven 24 in with 140 lb hammer		
Drilling Water Level		Start 07/16/02 0945 / Drilling Date/Times / Finish 07/17/02 1700
Date		
Time		
Surface Conditions grass		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 22	38	40-42	0 0	11	40	SP	same as above
					34			
					38	41		
					44			
2" SS	24 / 24	42	42-44	0 0	22	42	SM	0-23 in dark gray fine SAND, little silt, damp
					50			23-24 in. dark gray very fine SAND, trace silt, damp
					68	43		
					81			
2" SS	24 / 12	44	44-46	0.0	12	44	SP	0-10 in. dark gray fine silty SAND, wet
					22		SM	10-12 in: yellowish orange fine SAND, trace silt, wet
					28	45	SP	
					34			
2" SS	18 / 12	44	46-48	0	22	46		olive gray very fine SAND, trace silt, damp
					58			
					100	47		
						48	B	47 5 ft Driller notes boulder from 47 5-50.5 ft bgs
						49		
						50		
						51	SP	
2" SS	14 / 10	49	51.5-52.7	12.5	47			0-1 in: olive gray fine to medium SAND, wet
					100	52		2-10 in: olive gray coarse to fine SAND, trace silt, trace subrounded to angular
					100/2		WTHR RX	gravel, wet
						53		Rollerbit to 54 ft
2" SS	5 / 5	49	54-54'5"	0 0	130/5	54		olive gray gravelly (angular) coarse to fine SAND, wet
						55		
								Rollerbit to 59 ft
						56		
						57		
						58		
2" SS	2 / <1	59	59-59'1"	0	100/2	59		Dark grey PHYLLITE fragments(<10 mm), trace of quartzite.
								rollerbit to 62 ft, and cored 62-67 ft bgs

Logged by: S. Sheer & M Kelly Date: 07/16/02 to 07/17/02

Drilling Contractor: Subsurface Drilling Driller P Thornsbury

LL SPECIFICATIONS:

am of Riser	2 in	Screen Interval:	50 5 - 59 ft bgs	Sandpack	48 5 - 59 5 ft bgs	Grout:	46 ft bgs - grade
Bottom of Hole	67 ft bgs	Riser Interval.	50 5 ft bgs - 2 ft ags	Bentonite	46 - 48 5 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194536 E. 523142
Surface Elevation	14 33 FT MSL
Well Riser Elevation:	16.79 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method. Mobile Drill B-61		Boring No.
Drive and Wash		**MW16-46D**
NX coring		
4" casing from 47 5-60'		
Core Barrel used NX		Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	
See packer test log if applicable		

Drilling Times	
Start	Finish
07/18/02 0815	07/18/02 1510

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
							Rollerbit to 62'			
95%	25%				62		0-6 in: Dark Grey Phyllite	1	7:52	63
							6-57 in: fine grained Quartzite with a phyllite lens			
					63		at 44 5 in to 45 5 in	2	6 08	64
					64		near horizontal fractures or partings at 2", 3", 4",	3	6:02	65
							4 5", 4 75", 5", 6",			
					65		10", 12", 13", 14", 15.5", 19 5", 21 5", 24",	4	7 20	66
							25 5", 43", 45", 45 25", 48", 50", 52 5"			
					66		near vertical fracture· 25"-38"	5	13 32	67
					67		45 Degree fracture at 39 5"			
					68		fractures with rusty colored surfaces: 5", 14", 24",	NOTE: between 4' and 5' time is off, drill		
							39.5", 43", 45", 45.25", 48", 50" and 52.5".	gear reduced from 3rd. Clogged @ 4 75'		
					69					
					70					
					71					
					72					
					73					
					74					
					75					
					76					
					77					
					78					
					79					
					80					

NOTES:

Logged by: S Sheer & M. Kelly

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194571 E: 522901
Surface Elevation:	18.34 FT MSL
Well Riser Elevation	20.45 FT MSL

Job. No. 29600.97	Client. EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No. MW16-47S
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/17/02
Date		Drilling Date/Times
Time		Finish 09/17/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-47D for overburden description.
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: V. Deleone Date: 09/17/02

illing Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser:	2 in	Screen Interval:	4-14 ft bgs	Sandpack:	3-14 ft bgs	Grout:	grade
Bottom of Hole.	14 ft bgs	Riser Interval.	4 ft bgs -1.7 ft ags	Bentonite:	grade-3 ft bgs	Cover:	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194569 E 522907
Surface Elevation.	18 20 FT MSL
Well Riser Elevation	20 50 FT MSL

Job No 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61drive and wash		Boring No MW16-47D
Sampling Method 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 2
Drilling Water Level		Start 07/19/02 0830 / Drilling Date/Times / Finish 07/19/02 1705
Date		
Time		
Surface Conditions: Grass		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID (ppm) Above bk	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 10	0	0-2	0 0	3 6	0	FILL	olive gray fine and coarse SAND, organics (wood), dry
					7 8	1		
2" SS	24 10	0	2-4	0.0	5 6	2		olive gray to light brown gravelly fine SAND, little coarse sand, glass fragments, dry
					16 16	3		
2" SS	24 12	0	4-6	21 9	25 9	4		0-6 in. same as above, trace mica
					5 5	5	SP	6-12 in. olive gray fine and coarse SAND, trace silt and subangular gravel, wet
2" SS	24 6	0	6-8	0.0	26 14	6		olive gray fine to coarse SAND, trace subangular gravel, wet; wet
					10 10	7		
2" SS	24 6	8	8-10	0 0	26 16	8		olive gray fine to medium SAND, trace subangular gravel, wet
					12 12	9		
2" SS	24 18	8	10-12	0.0	8 8	10		0-12 in. olive gray fine SAND, trace coarse sand, wet; 12-18 in: olive gray fine to coarse SAND, wet
					7 10	11		
2" SS	24 18	8	12-14	0.0	25 15	12		0-6 in: same as above; 6-17 5 in: olive gray fine SAND, trace silt and medium sand, wet
					16 19	13		17 5-18 in: fine to medium SAND
2" SS	24 8	14	14-16	0.0	13 7	14		olive gray gravelly (subangular to rounded) fine to coarse SAND, wet
					4 5	15		
2" SS	24 10	14	16-18	0 0	8 9	16		same as above
					9 7	17		
2" SS	24 4	18	18-20	0.0	8 8	18		olive gray medium to fine SAND, trace silt and subrounded fine gravel, wet
					10 10	19		

Logged by: S Sheer Date: 07/19/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser.	2 in	Screen Interval:	26 25-36.25 ft bgs	Sandpack:	36.75-25 25 ft bgs	Grout.	22 ft bgs - grade
Bottom of Hole	44 25 ft bgs	Riser Interval	26 25ft bgs-2.25ft ags	Bentonite:	25 25-22 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194569 E 522907
Surface Elevation.	18 20 FT MSL
Well Riser Elevation	20 50 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61drive and wash		Boring No MW16-47D
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 2 of 2
Drilling Water Level / Date / Time		Start 07/19/02 0830; Drilling Date/Times; Finish 07/19/02 1705
Surface Conditions: Grass		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID (ppm) Above bk	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 10	18	20-22	0 0	8 9	20		SP	0-6 in: same as above; 6-10 in olive gray fine to medium SAND, trace silt and little mica, wet
					16 40	21			
2" SS	4 4	18	22-22.3	0.0	100/4	22			same as above
						23		B	Rollerbit to 24 ft; Boulder ~ 14 inches thick.
2" SS	24 2	24	24-26	0 0	7 5	24		SP	dark gray fine SAND, trace silt, trace subrounded gravel (phyllite), trace mica, wet
					4 3	25			
2" SS	24 4	24	26-28	0 0	10 4	26			dark gray coarse to medium SAND, trace rounded gravel, wet
					3 7	27			
2" SS	24 6	28	28-30	0 0	7 10	28		ML	0-5 in: dark gray SILT, trace rounded gravel, saturated; 5-6 in: dark gray fine SILTY SAND, saturated
					7 11	29		SM/ML	
2" SS	24 13	28	30-32	0 0	28 10	30			0-6 in: dark gray SANDY SILT, wet; 6-8 in: dark gray fine to medium SILTY SAND, wet
					8 21	31			8-13 in: dark gray fine SANDY SILT, wet
2" SS	24 12	28	32-34	0.0	21 22	32		SM	dark gray gravelly fine to medium SILTY SAND, wet
					26 34	33			
2" SS	24 8	34	34-36	0 0	14 16	34			dark gray fine SILTY SAND, little quartzite fragments, wet
					10 11	35			
2" SS	3 3	34	36-36 25	0 0	3/100	36		ML	dark gray fine SANDY SILT, wet
						37		RX	Roller Bit 36 25-39 25 ft bgs. cored 39.3-44.3 ft bgs
						38			
						39			
									bottom of boring = 44.3 ft bgs

Logged by: S Sheer Date: 07/19/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval.	26 25-36 25 ft bgs	Sandpack	36 75-25 25 ft bgs	Grout	22 ft bgs - grade
Bottom of Hole	44.25 ft bgs	Riser Interval:	26.25ft bgs-2 25ft ags	Bentonite	25.25-22 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates:	N 194569 E 522907
Surface Elevation	18 20 FT MSL
Well Riser Elevation	20.50 FT MSL

Job No 29600 97.3202	Client. EFANE
Drilling Method	Mobile Drill B61drive and wash
Core Barrel used:	NX

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Location Site 16
NCBC Davisville, North Kingstown, RI

Boring No **MW16-47D**

Sheet 1 of 1

Drilling Times	
Start	Finish
07/19/02	07/19/02
1350	1705

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
100%	90%									
					39		0-30-in and 48-60 in: gray fine to medium grained quartzite with coarse sand to medium	1	3:50	40 30
					40		gravel grainsize throughout 30-48-in: meta-conglomerate	2	3:42	41 30
					41		fractures at 8" (rust colored surface) 12.5" and 51".	3	3:52	42 30
					42		45 Degree fractures at 22" and 45" 25 Degree fracture at 26-28" with mineralization	4	7:13	43 30
					43		of quartz crystals and rust colored surfaces.	5	7:22	44 30
					44			Note: 3rd Gear and down pressure weight of equipment		
					45					

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 194726 E: 523173
Surface Elevation:	8.66 FT MSL
Well Riser Elevation:	8.37 FT MSL

Job No 29600.97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No MW16-48S
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 09/05/02
Date		Drilling Date/Times
Time		Finish 09/05/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-48D for overburden description
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S. Sheer Date: 09/05/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS:

Diam of Riser:	2 in	Screen Interval:	4-14 ft bgs	Sandpack:	3-14 ft bgs	Grout:	grade
Bottom of Hole:	14 ft bgs	Riser Interval	4 ft bgs -4 in bgs	Bentonite:	1-3 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N 194724 E: 523173
Surface Elevation:	8.64 FT MSL
Well Riser Elevation.	8 33 FT MSL

Job. No. .29600.97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in diameter casing, drive and wash		Boring No. MW16-48I
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/05/02; Drilling Date/Times; Finish 09/05/02
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
									Refer to boring log of MW16-48D for overburden description.
						1			
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by: S Sheer Date: 09/05/02

rilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser:	2 in	Screen Interval:	20-30 ft bgs	Sandpack:	19-30 ft bgs	Grout:	18 ft bgs - grade
Bottom of Hole.	30 ft bgs	Riser Interval	20 ft bgs -4 in bgs	Bentonite	18-19 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N. 194720 E 523172
Surface Elevation	8.68 FT MSL
Well Riser Elevation	8 34 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in Diameter casing, drive and wash		Boring No MW16-48D
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 3
Drilling Water Level / Date / Time		Start 09/03/02 1335; Drilling Date/Times; Finish 09/04/02 1500
Surface Conditions	Asphalt	

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 / 10		0-2	0/ 0	4				0-6 in asphalt
					14	1			6-10 in dark gray to olive gray gravelly medium to coarse SAND, dry
					17				
2 in SS	24 / 16		2-4	0/ 0	20	2			0-6 in. light gray same as above
					16				6-10 in: light brown fine to medium SAND, trace coarse sand and fine gravel
					14	3			10-16 in olive gray fine to coarse SAND, dry
					14				
2 in SS	24 / 12	4	4-6	2287/ 235	8	4			olive gray fine to medium SAND, trace fine subrounded gravel, wet
					4				
					2	5			
					2			▼	
2 in SS	24 / 1	4	6-8	1744/ NS	2	6			same as above, wet
					1				
					1	7			
					1				
2 in SS	24 / 24	8	8-10	5599/ 1330 0	2	8			0-6 in: olive gray fine SAND, some organic material
					4				6-10 in : reddish brown organic material
					7	9			10-24 in: olive gray very fine to fine SAND and organic material (seagrass) wet
					10				
2 in SS	24 / 24	8	10-12	1125/ 76 4	9	10		SP	olive gray fine to very fine SAND, trace fine subrounded gravel, wet
					10				
					13	11			
					19				
2 in SS	24 / 24	8	12-14	442/ 29 9	14	12			same as above
					14				
					16	13			
					19				
2 in SS	24 / 12	14	14-16	9 8/ 0	6	14			0-10 in: olive gray very fine SAND, trace coarse sand, wet
					8				10-12 in cream colored fine SAND, wet
					10	15			
					12				
2 in SS	24 / 22	14	16-18	5 4/ 0	12	16			layers of olive gray very fine SAND and cream colored fine SAND, trace medium
					14				to coarse sand, wet
					16	17			
					18				
2 in SS	24 / 12	18	18-20	3 6/ 1 9	4	18			same as above
					6				
					10	19			
					11				

Logged by: S Sheer Date: 09/03/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	35 4 ft - 45 4 ft bgs	Sandpack	34 4 ft-45 9 ft bgs	Grout	29 4 ft bgs - grade
Bottom of Hole	53 4 ft bgs	Riser Interval	35 4 ft bgs - grade	Bentonite.	29 4 - 34.4 ft bgs	Cover	road box

NOTES: began drive and wash at 18 ft bgs

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194720 E: 523172
Surface Elevation	8 68 FT MSL
Well Riser Elevation	8.34 FT MSL

Job No. 29600 97	Client EFANE	Location.	SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in Diameter casing, drive and wash		Boring No	MW16-48D
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 3	
Drilling Water Level / Date / Time		Start 09/03/02 1335	Drilling Date/Times; Finish 09/04/02 1500
Surface Conditions	Asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 / 8	18	20-22	11.3/ 3.1	14 / 18	20		SP	0-4 in: olive gray very fine SAND, trace medium to fine sand; 4-6 in: rusty colored fine to medium SAND
					26 / 12	21			6-8 in: cream colored GRAVEL, wet
2 in SS	24 / 4	18	22-24	2.6/ NS	16 / 18	22			olive gray to cream colored gravelly coarse to fine SAND, wet
					14 / 12	23			
2 in SS	24 / 1	24	24-26	4.6/ NS	19 / 19	24		GP	olive gray sandy subrounded to subangular fine GRAVEL
					20 / 22	25			
2 in SS	24 / 18	24	26-28	34/ 0	16 / 18	26			0-6 in: subangular to subrounded fine GRAVEL; 6-18 in: olive gray fine to medium SAND, wet
					22 / 7	27		SP	
2 in SS	24 / 16	24	28-30	7.5/ 0	6 / 7	28			olive gray fine to coarse SAND, wet
					7 / 12	29			
2 in SS	24 / 18	24	30-32	2.8/ 0	15 / 22	30			olive gray fine SAND, trace very fine sand, wet
					28 / 50	31			
2 in SS	24 / 13	24	32-34	4.3/ 0	52 / 56	32			same as above, wet
					69 / 74	33			
2 in SS	24 / 16	34	34-36	0/ 0	14 / 20	34			olive gray very fine to fine SAND, wet; rust colored fine SAND (11-13 in)
					28 / 36	35			
2 in SS	24 / 20	34	36-38	0/ 0	25 / 25	36			olive gray very fine to fine SAND, wet
					36 / 39	37			
2 in SS	24 / 18	34	38-40	0/ 0	15 / 18	38			olive gray fine to coarse SAND, trace subangular to subrounded fine gravel
					95 / 59	39			

Logged by: S Sheer Date: 09/03/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	35 4 ft - 45 4 ft bgs	Sandpack:	34 4 ft-45 9 ft bgs	Grout	29 4 ft bgs - grade
Bottom of Hole	53 4 ft bgs	Riser Interval	35.4 ft bgs - grade	Bentonite	29.4 - 34 4 ft bgs	Cover	road box

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194720 E 523172
Surface Elevation.	8 68 FT MSL
Well Riser Elevation:	8 34 FT MSL

Job No. 29600 97	Client EFANE	Location.	SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in Diameter casing, drive and wash		Boring No.	MW16-48D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 3 of 3	
Drilling Water Level		Start 09/03/02 1335	Drilling Date/Times	Finish 09/04/02 1500
Date			
Time			
Surface Conditions.	Asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2 in SS	8 / 14	34	40-40.7	36 6/ 0	74 / 100/2	40	SP	olive gray gravelly (subrounded) fine to coarse SAND, wet; refusal at 40 ft 8 in , gravel stuck in sampler bit
						41		
2 in SS	24 / 18	39	42-44	0/ 0	30 / 100	42		olive gray gravelly (subangular to subrounded) fine to coarse SAND, wet
					120 / 59	43		
2 in SS	17 / 14	44	44-45.4	0/ 0	40 / 67	44		0-13 in same as above; 13-14 in: yellowish/white subangular to subrounded GRAVEL (crumbles
					120/5	45	RX	with hand pressure) (weathered bedrock); refusal at 45 ft 5 in. bgs
						46		rollerbit 45 ft 5 in. to 48 ft 5 in
						47		
						48		
								cored from 48 ft 5 in to 53 ft 5 in.
						49		
						50		
						51		
						52		
						53		bottom of boring 53 ft 5 in. bgs
						54		
						55		
						56		
						57		
						58		
						59		

Logged by: S. Sheer Date: 09/03/02

ing Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval:	35 4 ft - 45 4 ft bgs	Sandpack	34 4 ft-45 9 ft bgs	Grout	29 4 ft bgs - grade
Bottom of Hole	53 4 ft bgs	Riser Interval	35 4 ft bgs - grade	Bentonite	29.4 - 34 4 ft bgs	Cover	road box

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194720 E 523172
Surface Elevation	8 68 FT MSL
Well Riser Elevation	8.34 FT MSL

Job No	29600 97 3202
Client	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61
	4-in. Diameter casing, drive and wash
Boring No	MW16-48D
Core Barrel used	NX
Sheet	1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	09/04/02 1610
Finish	09/04/02 1730

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min.sec)	Total Depth (ft bgs)
					47			0	0 00	48 5
					48			1	8 02	49 5
100%	65%						gray quartzite			
					49		near horizontal fractures or partings	2	5 44	50 5
							4, 8, 11, 16, 17 5, 21.5 inches			
					50		steap to near vertical fractures:	3	6.08	51 5
							0-12, 20-30, 33-50.5 inches with some iron			
					51		staining on surfaces	4	6:12	52.5
					52			5	5.32	53 5
					53					
					54					
					55					
					56					
					57					
					58					
					59					
					60					
					61					
					62					
					63					
					64					
					65					

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600 97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobil Drill B61
	Drive and Wash 4-in diameter casing
Boring No	MW16-49D
Coordinates	N 194213 E 524095
Surface Elevation.	13 70 FT MSL
Well Riser Elevation	13 13 FT MSL
Sampling Method	2" split spoon
	Driven 24 in with 140 lb hammer
Sheet	1 of 5
Drilling Water Level	
Date	
Time	
Surface Conditions	asphalt
Start Date/Times	07/26/02 1330
Finish Date/Times	07/31/02 1700

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 12	0	0-2	0/ 0	2		FILL	0-6 in asphalt
					7			6-12 in light brown fine to coarse SAND, dry
					10	1		
					15			
2" SS	24 12	0	2-4	0/ 0	14	2		light brown to cream colored fine to medium SAND, dry
					13			
					14	3		
					18			
2" SS	24 24	4	4-6	0/ 0	8	4		same as above, but with trace coarse sand
					14			
					17	5		
					19			
2" SS	24 24	4	6-8	0/ 0	14	6		same as above
					15			
					15	7		
					18			
2" SS	24 18	8	8-10	0/ 0	4	8		light brown fine to medium SAND, trace coarse sand, wet
					5			
					6	9		
					4			
2" SS	24 24	8	10-12	3752/ 149	2	10		0-12 in olive gray fine to coarse SAND
					2			12-16 in: dark gray very fine to fine SAND, trace organic material and silt, wet
					3	11	SP	16-24 in olive gray fine SAND, trace coarse sand to fine subrounded gravel
					4			wet
2" SS	24 14	8	12-14	1012/ 328 0	4	12		olive gray fine SAND, trace medium to coarse sand
					5			
					8	13		
					13			
2" SS	24 16	14	14-16	839/ 278	7	14		olive gray fine SAND, trace medium sand, wet
					4			
					7	15		
					10			
2" SS	24 14	14	16-18	1654/ 334	8	16		same as above
					9			
					10	17		
					12			
2" SS	24 NA	18	18-20	1009/ 280	4	18		olive gray very fine to fine SAND, wet
					8			
					12	19		
					14			

Logged by. S Sheer Date: 07/26/02 - 07/31/02

Drilling Contractor. Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser.	2 in	Screen Interval	62-76 ft bgs	Sandpack.	61-77 ft bgs	Grout	51 ft bgs - grade
Bottom of Hole	101 ft bgs	Riser Interval:	101-0 63 ft bgs	Bentonite:	51-61 ft bgs	Cover.	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600 97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobil Drill B61
Drive and Wash	
Boring No	MW16-49D
Sampling Method	2" split spoon
Driven 24 in with 140 lb hammer	
Sheet	2 of 5
Drilling Water Level	
Date	
Time	
Start	7/26/02 1330
Drilling Date/Times	
Finish	07/31/02 1700
Surface Conditions	asphalt
Coordinates	N 194213 E 524095
Surface Elevation	13 70 FT MSL
Well Riser Elevation.	13 13 FT MSL

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 12	18	20-22	820/ 191	12 13	20			same as above, but with little coarse sand
					15 18	21			
2" SS	24 24	18	22-24	5 7/ 7.9	12 14	22			same as above, but with some very fine sand
					16 18	23			
2" SS	24 10	24	24-26	0/ 0	2 5	24			olive gray with orange layers (thin banding of) very fine to fine SAND, trace silt, wet
					8 9	25			
2" SS	24 24	24	26-28	0/ 0	3 8	26			same as above
					14 14	27			
2" SS	24 16	28	28-30	0/ 122	6 7	28			same as above
					9 12	29			
2" SS	24 18	28	30-32	0/ 0	9 12	30			same as above
					14 16	31			
2" SS	24 14	28	32-34	0/ 10	10 12	32			same as above
					14 16	33			
2" SS	24 16	34	34-36	0/ 0	8 8	34		SM	same as above, but with little silt
					11 14	35			
2" SS	24 12	34	36-38	0/ 0	14 13	36			same as above
					18 15	37			
2" SS	24 8	34	38-40	0/ 0	2 7	38		SP	olive gray very fine to medium SAND, trace coarse sand, wet
					13 14	39			

Logged by. S Sheer

Date 07/26/02 - 07/31/02

Drilling Contractor Subsurface Drilling

Driller P Thornsbury

WELL SPECIFICATIONS

Diam. of Riser	2 in.	Screen Interval	62-76 ft bgs	Sandpack	61-77 ft bgs	Grout	51 ft bgs - grade
Bottom of Hole	101 ft bgs	Riser Interval	101-0 63 ft bgs	Bentonite	51-61 ft bgs	Cover	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N 194213 E. 524095
Surface Elevation	13 70 FT MSL
Well Riser Elevation:	13 13 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash 4-in diameter casing		Boring No. MW16-49D
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 5
Drilling Water Level; Date; Time		Start 07/26/02 1330; Drilling Date/Times; Finish 07/31/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 12	0	0-2	0/ 0	2 / 7			0-6 in. asphalt; 6-12 in: light brown fine to coarse SAND, dry
					10 / 15	1		
2" SS	24 / 12	0	2-4	0/ 0	14 / 13	2		light brown to cream colored fine to medium SAND, dry
					14 / 18	3		
2" SS	24 / 24	4	4-6	0/ 0	8 / 14	4		same as above, but with trace coarse sand
					17 / 19	5		
2" SS	24 / 24	4	6-8	0/ 0	14 / 15	6		same as above
					15 / 18	7		
2" SS	24 / 18	8	8-10	0/ 0	4 / 5	8		light brown fine to medium SAND, trace coarse sand, wet
					6 / 4	9		
2" SS	24 / 24	8	10-12	3752/ 149	2 / 2	10		0-12 in: olive gray fine to coarse SAND; 12-16 in: dark gray very fine to fine SAND, trace organic material and silt, wet
					3 / 4	11	SP	16-24 in: olive gray fine SAND, trace coarse sand to fine subrounded gravel; wet
2" SS	24 / 14	8	12-14	1012/ 328.0	4 / 5	12		olive gray fine SAND, trace medium to coarse sand
					8 / 13	13		
2" SS	24 / 16	14	14-16	839/ 278	7 / 4	14		olive gray fine SAND, trace medium sand, wet
					7 / 10	15		
2" SS	24 / 14	14	16-18	1654/ 334	8 / 9	16		same as above
					10 / 12	17		
2" SS	24 / NA	18	18-20	1009/ 280	4 / 8	18		olive gray very fine to fine SAND, wet
					12 / 14	19		

Logged by: S Sheer Date: 07/26/02 - 07/31/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	62-76 ft bgs	Sandpack	61-77 ft bgs	Grout	51 ft bgs - grade
Bottom of Hole	101 ft bgs	Riser Interval	101-0 63 ft bgs	Bentonite	51-61 ft bgs	Cover	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194213 E: 524095
Surface Elevation.	13.70 FT MSL
Well Riser Elevation:	13.13 FT MSL

Job No. 29600.97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash		Boring No MW16-49D
Sampling Method 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 5
Drilling Water Level / Date / Time		Start 7/26/02 1330; Drilling Date/Times; Finish 07/31/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 12	18	20-22	820/ 191	12 13	20			same as above, but with little coarse sand
					15 18	21			
2" SS	24 24	18	22-24	5.7/ 7 9	12 14	22			same as above, but with some very fine sand
					16 18	23			
2" SS	24 10	24	24-26	0/ 0	2 5	24			olive gray with orange layers (thin banding of) very fine to fine SAND, trace silt, wet
					8 9	25			
2" SS	24 24	24	26-28	0/ 0	3 8	26			same as above
					14 14	27			
2" SS	24 16	28	28-30	0/ 122	6 7	28			same as above
					9 12	29			
2" SS	24 18	28	30-32	0/ 0	9 12	30			same as above
					14 16	31			
2" SS	24 14	28	32-34	0/ 10	10 12	32			same as above
					14 16	33			
2" SS	24 16	34	34-36	0/ 0	8 8	34		SM	same as above, but with little silt
					11 14	35			
2" SS	24 12	34	36-38	0/ 0	14 13	36			same as above
					18 15	37			
2" SS	24 8	34	38-40	0/ 0	2 7	38		SP	olive gray very fine to medium SAND, trace coarse sand, wet
					13 14	39			

Logged by.	S. Sheer	Date:	07/26/02 - 07/31/02
Drilling Contractor	Subsurface Drilling	Driller:	P Thornsbury

WELL SPECIFICATIONS

Diam. of Riser	2 in.	Screen Interval	62-76 ft bgs	Sandpack	61-77 ft bgs	Grout	51 ft bgs - grade
Bottom of Hole	101 ft bgs	Riser Interval	101-0 63 ft bgs	Bentonite:	51-61 ft bgs	Cover.	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N 194213 E 524095
Surface Elevation	13.70 FT MSL
Well Riser Elevation.	13 13 FT MSL

Job No 29600 97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash		Boring No. MW16-49D
Sampling Method: 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 3 of 5
Drilling Water Level		Start 7/26/02 1330
Date		Drilling Date/Times
Time		Finish 07/31/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 18	38	40-42	0/ 0	7	40		SP	olive gray very fine to fine SAND, trace silt, wet
					14				
					18	41			
					22				
2" SS	24 12	38	42-44	0/ 0	14	42			0-11 in: same as above
					18				11-12 in. olive gray very fine to coarse SAND, trace silt, wet
					26	43			
					27				
2" SS	24 12	44	44-46	0/ 0	21	44			olive gray fine SAND, trace very fine sand
					12				
					12	45			
					18				
2" SS	24 18	44	46-48	0/ 0	15	46			same as above
					18				
					28	47			
					32				
2" SS	24 14	48	48-50	0/ 0	14	48			same as above
					15				
					20	49			
					21				
2" SS	24 16	48	50-52	0/ 0	22	50			same as above
					28				
					32	51			
					44				
2" SS	24 24	48	52-54	0/ 0	15	52			same as above
					16				
					18	53			
					19				
2" SS	24 12	54	54-56	0/ 0	3	54			same as above
					5				
					5	55			
					8				
2" SS	24 24	54	56-58	0/ NA	28	56			same as above
					61				
					78	57			
					93				
2" SS	24 NA	58	58-60	0/ NA	56	58			same as above
					38				
					44	59			
					61				

Logged by: S Sheer Date: 07/26/02 - 07/31/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam. of Riser	2 in	Screen Interval	62-76 ft bgs	Sandpack	61-77 ft bgs	Grout	51 ft bgs - grade
Bottom of Hole	101 ft bgs	Riser Interval	101-0 63 ft bgs	Bentonite	51-61 ft bgs	Cover	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194213 E 524095
Surface Elevation:	13 70 FT MSL
Well Riser Elevation	13 13 FT MSL

Job. No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash		Boring No MW16-49D
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 4 of 5
Drilling Water Level / Date / Time		Start 7/26/02 1330; Drilling Date/Times; Finish 07/31/02 1700
Surface Conditions asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
NS	24 / 24	58	60-62	0/ 0	48 / 61	60	SP	same as above
					94 / 100	61		
2" SS	12 / 12	58	62-63	11/ 0	79 / 100	62		same as above
					- / -	63	B	rollerbit to 74 ft
2" SS	24 / 24	64	64-66	0/ 0	36 / 48	64	SP	0-12 in: same as above; 12-24 in olive gray very fine to fine SAND, trace silt, damp
					66 / 90	65		
2" SS	0 / 0	64	66	NA/ NA	100/0 / -	66	B	no recovery; rollerbit to 68
					- / -	67		
2" SS	24 / 16	68	68-70	0/ 0	24 / 40	68		olive gray very fine to fine SAND, trace silt, damp
					54 / 60	69		
2" SS	23 / 18	68	70-71.9	13/ 0	39 / 65	70		same as above
					60 / 100/5"	71		refusal, rollerbit to 74 ft
		73.4	72-74	NA/ NA		72	B	
						73		
2" SS	24 / 12	74	74-76	3 4/ 1 2	22 / 32	74	SP	olive gray very fine to fine SAND, trace silt and medium sand, wet
					27 / 48	75		
2" SS	2 / 2	74	76-76.2	17/ 12	100/2	76	WTHRX	same as above; rollerbit to 77 ft
						77		hard drilling at 77 ft, rollerbit to 81 ft
						78	B	
						79		

Logged by: S Sheer Date: 07/26/02 - 07/31/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	62-76 ft bgs	Sandpack	61-77 ft bgs	Grout	51 ft bgs - grade
Bottom of Hole	101 ft bgs	Riser Interval	101-0 63 ft bgs	Bentonite	51-61 ft bgs	Cover	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600 97
Client.	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method.	Mobil Drill B61
	Drive and Wash
Boring No.	MW16-49D
Coordinates	N. 194213 E 524095
Surface Elevation:	13.70 FT MSL
Well Riser Elevation:	13 13 FT MSL
Sampling Method:	2" split spoon
Surface Conditions:	
Sheet	5 of 5
Drilling Water Level	
Date	
Time	
Surface Conditions:	asphalt
Start	7/26/02 1330
Drilling Date/Times	
Finish	07/31/02 1700

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS						80		
						81	WTHR RX	olive gray gravelly (subangular to subrounded) very fine to coarse SAND
2" SS	14 5	82	82-83.2	0/ 0	72 120	82		
					120/2	83		subrounded to subangular fine quartzite fragments with very fine to fine sand, wet
2" SS	4 2	84	84-84 3	0/ 0	140/4	84		
						85		olive gray fine to mdium SAND and fine subangular to subrounded GRAVEL, damp
2" SS	12 2	86	86-87	0.8/ NS	97 140	86		
						87		same as above, platy phyllite fragments
2" SS	4 2	88	88-88.3	0/ 0	150/4	88		
						89		olive gray fine to medium SAND, with subrounded fine rock fragments that crumble with hand pressure, wet
2" SS,	6 2	89	90-90 5	0/ 0	120/6	90		
						91		olive gray fine to coarse SAND, some fine subrounded to subangular gravel
2" SS	10 6	89	92-92 8	0/ 0	67 120/4	92		rollerbit 93-96
						93		
						94		
						95		
						96		cored 96-101
						97		
						98		
						99		bottom of boring at 101 ft bgs

Logged by: S Sheer Date. 07/26/02 - 07/31/02

ng Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser:	2 in.	Screen Interval	62-76 ft bgs	Sandpack	61-77 ft bgs	Grout:	51 ft bgs - grade
Bottom of Hole	101 ft bgs	Riser Interval	101-0 63 ft bgs	Bentonite	51-61 ft bgs	Cover	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates:	N 194213 E 524095
Surface Elevation:	13.70 FT MSL
Well Riser Elevation:	13 13 FT MSL

Job No	29600 97 3202
Client	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobil Drill B61
Drive and Wash 4-in diameter casing	
Boring No	MW16-49D
Core Barrel used:	NX
Sheet	1 of 1

Packer Test

Tested	NA	
Interval	NA	
See packer test log if applicable		

Drilling Times	Start	Finish
	07/31/02 1500	07/31/02 1700

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
80%	30%				96					
					97		0-36 in: broken fine quartzite, quartz crystals in fractures, mica, and veins of quartz, some	1	5:00	97
					98		rust colored silt/clay on fractures 36-48 in: phyllite with some quartzite	2	6:00	98
					99			3	15 00	99
					100			4	15 00	100
					101			5	8.00	101
					102					
					103					
					104					
					105					
					106					
					107					
					108					
					109					
					110					
					111					
					112					
					113					
					114					

NOTES:

Recovered 48"/60" (80%)
RQD 10%

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No	29600 97
Client	EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61
	4-in diameter casing Drive and Wash
Boring No	MW16-50D
Coordinates.	N 194530 E 524267
Surface Elevation.	13 67 FT MSL
Well Riser Elevation	13 47 FT MSL
Sampling Method	2" split spoon
	Driven 24 in with 140 lb hammer
Sheet	1 of 5
Drilling Water Level	
Date	
Time	
Start	07/24/02 8 15
Drilling Date/Times	
Finish	07/25/02
Surface Conditions	asphalt

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 6	0	6-2	0.0	10, 12, 14	1	FILL	asphalt; olive gray fine to coarse SAND, asphalt fragments, damp
2" SS	24 / 18	0	2-4	0 0	14, 15, 18, 20	2, 3		cream to light brown fine to coarse SAND, dry
2" SS	24 / 18	4	4-6	0.0	12, 11, 12, 12	4, 5		same as above, but with trace fine subrounded gravel
2" SS	24 / 14	4	6-8	0.0	14, 10, 9, 9	6, 7		cream colored fine SAND, trace medium sand, dry
2" SS	24 / 24	8	8-10	0.0	4, 5, 6, 7	8, 9	▼	light brown fine to coarse SAND, damp
2" SS	24 / 24	8	10-12	0.0	5, 7, 7, 10	10, 11		same as above, wet
2" SS	24 / 24	8	12-14	0.0	6, 7, 5, 6	12, 13		light gray very fine to coarse SAND, wet
2" SS	24 / 10	14	14-16	1613	1, 2, 1/12"	14, 15		olive gray very fine SAND, trace silt, wet
2" SS	24 / 24	14	16-18	1881	1, 2, 3, 4	16, 17		olive gray very fine SAND and SILT, saturated
2" SS	24 / 0	18	18-20	NS	1, 2, 1, 2	18, 19		no recovery

Logged by: S Sheer Date: 7/24/02-7/25/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	78-88 ft bgs	Sandpack	76-88 5 ft bgs	Grout	73ft bgs - grade
Bottom of Hole	96 ft bgs	Riser Interval	78ft bgs-0ft ags	Bentonite	73-76 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194530 E 524267
Surface Elevation	13 67 FT MSL
Well Riser Elevation	13 47 FT MSL

Job No 29600 97	Client. EFANE	Location SITE 16 NCBC Davisville
Drilling Method Mobile Drill B61		Boring No MW16-50D
4-in diameter casing Drive and Wash		
Sampling Method 2" split spoon		Sheet 2 of 5
Driven 24 in with 140 lb hammer		
Drilling Water Level		Start 7/24/02 8:15 / Drilling Date/Times / Finish 7/25/02
Date		
Time		
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 24	18	20-22	3685	2	20		ML	olive gray very fine SANDY SILT, little sea shells, odor of decomposition,
					3				wet
					3	21			
					3				
2" SS	24 24	18	22-24	7932	2	22			0-12 in. same as above
					4				12-24 in: dark brown silty fine SAND, some organics (wood), wet
					7	23		SM/ WOOD	odor of decomposition
					11				
2" SS	24 10	24	24-26	2554	4	24		SP	olive gray fine to medium SAND, little organic material and sea shells, wet
					10				
					14	25			
					20				
2" SS	24 18	24	26-28	1087	16	26			0-15 in. same as above
					20				15-18 in greenish olive gray very fine to medium SAND, wet
					20	27			
					21				
2" SS	24 14	28	28-30	0 0	12	28		SM	greenish gray very fine to medium SILTY SAND, wet
					14				
					15	29			
					16				
2" SS	24 24	28	30-32	0 0	12	30			same as above
					15				
					16	31			
					16				
2" SS	24 24	28	32-34	0 0	10	32		SP	0-12 in olive gray very fine to medium SAND, wet
					12				12-24 in. greenish gray very fine SAND, trace silt, wet
					16	33			
					12				
2" SS	24 18	34	34-36	0 0	5	34			greenish gray very fine SAND, trace silt, wet
					7				
					10	35			
					10				
2" SS	24 24	34	36-38	0 0	8	36			0-21 in same as above
					8				21-24 in. same as above, but olive gray in color
					9	37			
					12				
2" SS	24 12	38	38-40	0 0	4	38			0-6 in fine to very fine SAND, wet
					4				6-12 in olive gray very fine SAND, trace silt, wet
					8	39			
					11				

Logged by.	S Sheer	Date	7/24/02-7/25/02
Drilling Contractor	Subsurface Drilling	Driller.	P. Thornsbury

WELL SPECIFICATIONS.

Diam of Riser	2 in	Screen Interval	78-88 ft bgs	Sandpack	76-88 5 ft bgs	Grout	73ft bgs - grade
Bottom of Hole	96 ft bgs	Riser Interval	78ft bgs-0ft ags	Bentonite	73-76 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 194530 E 524267
Surface Elevation:	13 67 FT MSL
Well Riser Elevation.	13 47 FT MSL

Job No 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing Drive and Wash		Boring No MW16-50D
Sampling Method: 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 3 of 5
Drilling Water Level / Date / Time		Start 7/24/02 8.15 / Drilling Date/Times / Finish 7/25/02
Surface Conditions: asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 24	38	40-42	0.0	8 10	40	SP	same as above
					12 15	41		
2" SS	24 24	38	42-44	0 0	6 12	42		same as above, but with little fine sand
					18 21	43		
2" SS	24 24	44	44-46	0.0	12 14	44		same as above
					10 14	45		
2" SS	24 24	44	46-48	0.0	12 14	46		0-12 in: olive gray fine to very fine SAND, trace silt, wet 12-24 in: olive gray very fine SILTY SAND, wet
					18 20	47	SM	
2" SS	24 18	48	48-50	0.0	14 16	48		0-16 in. same as above 16-18 in: olive gray fine to coarse SAND, wet
					15 16	49	SP	
2" SS	24 24	48	50-52	0.0	17 23	50		0-10 in: olive gray fine to medium SAND, wet 10-14 in: olive gray very fine to fine SAND, wet
					27 24	51		
2" SS	24 12	48	52-54	0.0	27 29	52		olive gray fine to very fine SAND, trace coarse sand, wet
					31 40	53		
2" SS	24 6	54	54-56	0 0	8 19	54		olive gray gravelly (subrounded) very fine to fine SAND, wet
					31 32	55		
2" SS	24 24	54	56-58	0.0	24 16	56		0-18 in olive gray fine to coarse SAND, wet 18-22 in olive gray very fine to fine SAND, wet
					13 14	57		22-24 in. olive gray medium to fine SAND, wet
2" SS	24 4	58	58-60	0.0	9 11	58		yellowish orange gravelly (subangular) coarse to fine SAND, wet
					8 7	59		

Logged by: S Sheer Date: 7/24/02-7/25/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	78-88 ft bgs	Sandpack	76-88 5 ft bgs	Grout	73ft bgs - grade
Bottom of Hole	96 ft bgs	Riser Interval	78ft bgs-0ft ags	Bentonite	73-76 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No. 29600 97	Client EFANE
Location	SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61	
4-in diameter casing Drive and Wash	
Boring No	MW16-50D
Coordinates	N: 194530 E 524267
Surface Elevation.	13.67 FT MSL
Well Riser Elevation.	13.47 FT MSL
Sampling Method: 2" split spoon	
Driven 24 in. with 140 lb hammer	
Sheet 4 of 5	
Drilling Water Level	
Date	
Time	
Start 7/24/02 8:15	Drilling Date/Times	Finish 7/25/02
Surface Conditions: asphalt	

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 6	58	60-62	0.0	8 8	60	SP	olive gray medium to fine SAND, trace coarse sand, trace subrounded fine gravel, wet
					31 14	61		
2" SS	24 24	58	62-64	0.0	8 9	62		0-21 in: olive gray fine to coarse SAND, trace rounded fine gravel 21-24 in: olive gray very fine to fine SAND
					14 26	63		
2" SS	24 3	64	64-66	0.0	3 5	64		olive gray gravelly (subrounded to subangular) fine SAND, wet
					24 19	65		
2" SS	24 10	64	66-68	0 0	34 40	66		olive gray gravelly (subrounded) fine to coarse SAND, damp
					79 59	67		
2" SS	24 6	68	68-70	0.0	28 45	68		olive gray gravelly (subrounded) fine to coarse SAND, damp
					58 39	69		
2" SS	24 10	70	70-72	0.0	28 31	70		same as above, wet
					42 44	71		
2" SS	24 6	70	72-74	0.0	51 77	72		same as above
					81 56	73		
2" SS	24 14	74	74-76	0.0	39 29	74	SP	olive gray gravelly (subangular to subrounded) fine to coarse SAND, wet
					28 37	75		
2" SS	16 16	74	76-77.3	0.0	32 49	76		same as above
					100/4	77		
						78		
2" SS	23 14	78	79-80.9	0	77 115	79		same as above

Logged by: S Sheer Date 7/24/02-7/25/02

Drilling Contractor Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	78-88 ft bgs	Sandpack	76-88 5 ft bgs	Grout	73ft bgs - grade
Bottom of Hole.	96 ft bgs	Riser Interval	78ft bgs-0ft ags	Bentonite	73-76 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600 97	Client. EFANE
Location	SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61	Boring No. MW16-50D
4-in diameter casing Drive and Wash	
Sampling Method 2" split spoon	
Date	Sheet 5 of 5
Drilling Water Level	
Date	
Time	
Surface Conditions asphalt	

Start	Drilling Date/Times	Finish
7/24/02		7/25/02

Coordinates N 194530 E 524267
Surface Elevation: 13.67 FT MSL
Well Riser Elevation. 13 47 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	23.5 14	78	79-81	0/ 0	135 140/5	80	SP	rollerbit to 84 through rock
						81		
						82		
						83		
2" SS	24 18	84	84-86	87	99 136	84		olive gray fine to medium SAND, trace fine subangular to subrounded gravel; wet
					110 155	85		
2" SS	17 14	84	86-87.4	2342	33 69	86		same as above
					140/5	87		rollerbit to 91
						88		
						89		
						90		
						91		cored from 91-96 ft bgs.
						92		
						93		
						94		
						95		bottom of boring
						96		
						97		
						98		
						99		

Logged by S Sheer Date: 7/24/02-7/25/02

ing Contractor: Subsurface Drilling Driller P Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	78-88 ft bgs	Sandpack	76-88 5 ft bgs	Grout	73ft bgs - grade
Bottom of Hole	96 ft bgs	Riser Interval	78ft bgs-0ft ags	Bentonite.	73-76 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates:	N 194530 E 524267
Surface Elevation:	13.67 FT MSL
Well Riser Elevation.	13.47 FT MSL

Job. No. 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method Mobile Drill B61 4-in diameter casing Drive and Wash		Boring No. **MW16-50D**
Core Barrel used 3 875		Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
07/25/02 1200	07/25/02 1700

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min.sec)	Total Depth (ft bgs)
100%	40%				91					
					92		gray quartzite	1	6:00	92
							15.5-60 in numerous fractures			
					93			2	3 30	93
					94			3	5:00	94
					95			4	8:00	95
					96			5	8:30	96
					97					
					98					
					99					
					100					
					101					
					102					
					103					
					104					
					105					
					106					
					107					
					108					

NOTES: 3rd gear, constant down pressure

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No 29600.97	Client EFANE	Location	SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash-4 in.diameter casing		Boring No	MW16-51D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 4	
Drilling Water Level / Date / Time		Start 08/06/02 1140	Drilling Date/Times	Finish 08/08/02
Surface Conditions: soil			

Coordinates: N: 194981 E: 523889
Surface Elevation: 13.13 FT MSL
Well Riser Elevation: 15.62 FT MSL

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 / 6	0	0-2	0/ 0	4 / 10			FILL	light brown coarse to fine SAND, little fine subrounded gravel, dry
					14 / 18	1			
2" SS	18 / 18	0	2-3 5	0/ 0	10 / 14	2			0-10 in:light brown gravelly fine to medium SAND; 11-18 in. cream colored fine to coarse SAND, dry
					100/ 6"	3			rollerbit to 7 ft through boulder
						4		B	
						5			
						6			
2" SS	24 / 18	3.5	7-9	0/ 0	4 / 3	7	▼	SP	dark brown to olive gray fine to medium SAND, saturated at 8 ft bgs
					3 / 4	8			
2" SS	24 / 0	3.5	9-10	NA/ NA	3 / 3	9			no recovery
					6 / 6	10			
2" SS	24 / 20	3.5	11-13	0/ 0	12 / 9	11			olive gray fine to medium SAND, one piece subrounded medium gravel, wet
					11 / 14	12			
2" SS	12 / 12	3.5	13-14	0/ 0	11 / 15	13			olive gray fine to medium SAND, wet
						14			dark brown to light brown fine to medium SAND, trace coarse sand
2" SS	24 / 6	14	14-16	0/ 0	18 / 19	15			
					21 / 24	16			0-6 in: same as above; 6-12 in. dark brown fine to coarse SAND, trace subrounded fine gravel
2" SS	24 / 18	14	16-18	0/ 0	19 / 21	17			12-18 in: dark brown fine to very fine SAND, moist
					24 / 25	18			0-5 in: dark brown to olive gray fine to coarse SAND, moist; 5-10 in: dark brown to olive gray fine to very fine SAND, trace subangular
2" SS	24 / 10	18	18-20	0/ 0	17 / 16	19			fine gravel, moist

Logged by: S. Sheer Date: 08/08/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser:	2 in.	Screen Interval:	65 5-75 5ft bgs	Sandpack:	64.5-76 ft bgs	Grout:	54 5 ft bgs - grade
Bottom of Hole:	83ft 7in bgs	Riser Interval.	65.5ft bgs-32in ags	Bentonite:	54 5-64.5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194981 E. 523889
Surface Elevation.	13.13 FT MSL
Well Riser Elevation:	15 62 FT MSL

Job No 29600 97	Client. EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash-4 in.diameter casing		Boring No MW16-51D
Sampling Method: 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 2 of 4
Drilling Water Level / Date / Time		Start 08/06/02 1140; Drilling Date/Times; Finish 08/07/02
Surface Conditions: soil		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 24	18	20-22	0/ 0	19 / 21	20	SP	0-12 in: dark brown gravelly (subangular to subrounded) fine to coarse SAND, moist
					29 / 34	21		12-24 in: olive gray fine to very fine SAND, trace subangular fine gravel, moist
2" SS	24 / 24	18	22-24	0/ 0	18 / 19	22		0-18 in: dark brown to olive gray fine to coarse SAND, trace subrounded to subangular fine gravel, moist
					19 / 21	23		18-24 in: dark brown to rusty color very fine to medium SAND, moist
2" SS	3 / 3	24	24-26	0/ NS	100/ 3	24	B	olive gray gravelly (subangular) fine to coarse SAND, moist; rollerbit through boulder
						25		
2" SS	24 / 12	24	27-29	0/ 0	9 / 18	26		
					27 / 31	27	SP	dark brown to olive gray fine SAND, trace medium sand, moist
2" SS	24 / 22	24	29-31	0/ 0	7 / 14	28		
					17 / 19	29		dark brown fine SAND, trace medium sand, moist
						30		
2" SS	24 / 18		31-33	4.8 / 0	3 / 8	31		olive gray fine SAND, trace medium sand, moist
					14 / 6	32		
2" SS	12 / 12		33-34	0/ 0	22 / 24	33		olive gray fine SAND, trace very fine sand, moist
2" SS	24 / 16	34	34-36	0/ 0	14 / 21	34		same as above, one piece of subrounded medium gravel, moist
					24 / 28	35		
2" SS	24 / 23	34	36-38	0/ 0	16 / 31	36		olive gray fine to very fine SAND, moist
					36 / 38	37		
2" SS	24 / 14	38	38-40	0/ 0	14 / 19	38		same as above
					20 / 19	39		

Logged by: S. Sheer Date: 08/08/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS.

Diam of Riser:	2 in	Screen Interval.	65 5-75 5ft bgs	Sandpack	64 5-76 ft bgs	Grout	54 5 ft bgs - grade
Bottom of Hole	83ft 7in bgs	Riser Interval.	65 5ft bgs-32in ags	Bentonite:	54 5-64 5 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194981 E: 523889
Surface Elevation	13.13 FT MSL
Well Riser Elevation:	15.62 FT MSL

Job. No 29600 97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash-4 in.diameter casing		Boring No. MW16-51D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 3 of 4
Drilling Water Level / Date / Time		Start 08/06/02 1140; Drilling Date/Times; Finish 08/07/02
Surface Conditions: soil		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 12	38	40-42	0/ 0	14 21	40		SP	olive gray fine SAND, trace very fine sand, moist
					21 32	41			
2" SS	24 1	38	42-44	0/ NS	21 23	42			olive gray fine to very fine SAND, wet
					32 40	43			
2" SS	24 1	44	44-46	0/ NS	26 28	44			olive gray very fine to fine SAND, wet
					32 28	45			
2" SS	24 2	44	46-48	NS / NS	52 52	46			0-1 in. olive gray fine to very fine SAND, wet 1-2 in: olive gray medium to fine SAND, one piece subrounded fine gravel
					45 58	47			
2" SS	24 12	44	48-50	0/0	18 21	48			olive gray gravelly (subangular) medium to coarse SAND, trace fine sand, wet
					18 18	49			
2" SS	24 6	48	50-52	0/0	12 14	50			same as above
					11 12	51			
2" SS	24 6	48	52-54	0/0	15 16	52			olive gray fine to coarse SAND, wet
					14 12	53			
2" SS	24 4	54	54-56	0/0	7 7	54			olive gray gravelly fine to coarse SAND
					9 10	55			
2" SS	24 24	54	56-58	0/0	11 10	56			same as above
					8 11	57			
2" SS	24 4	54	58-60	0/0	14 14	58			olive gray gravelly fine to coarse SAND, moist
					26 34	59			

Logged by: S. Sheer Date: 08/08/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS.

Diam of Riser:	2 in	Screen Interval:	65.5-75.5ft bgs	Sandpack:	64 5-76 ft bgs	Grout:	54.5 ft bgs - grade
Bottom of Hole	83ft 7in bgs	Riser Interval.	65.5ft bgs-32in ags	Bentonite:	54.5-64.5 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N 194981 E: 523889
Surface Elevation:	13.13 FT MSL
Well Riser Elevation.	15.62 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Mobil Drill B61; Drive and Wash-4 in diameter casing		Boring No MW16-51D
Sampling Method: 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 4 of 4
Drilling Water Level		Start 08/06/02 1140
Date		Drilling Date/Times
Time		Finish 08/08/02
Surface Conditions. soil		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 18	58	60-62	0/0	54 / 34	60	SP	olive gray gravelly (subangular to subrounded) fine to medium SAND, moist
					43 / 84	61		
2" SS	3 / 0	58	62-62.3	NS / NS	100/ 3	62		no recovery
						63	B	rollerbit to 64 ft
2" SS	24 / 12	63	64-66	0/0	54 / 117	64	SP	olive gray gravelly medium to fine SAND, some phyllite fragments, moist
					47 / 63	65		
2" SS	18 / 14	63	66-67.5	0/0	47 / 36	66		olive gray gravelly (subrounded to subangular) fine to coarse SAND
					37 / 100/ 0	67		rollerbit to 69 ft
						68	B	
2" SS	24 / 12	68	69-71	0/0	28 / 30	69	SP	olive gray gravelly (subangular) fine to medium SAND, wet
					18 / 17	70		
2" SS	24 / 24	68	71-73	0/0	25 / 26	71		olive gray gravelly (subangular to subrounded) fine to medium SAND, , moist
					21 / 19	72		
2" SS	24 / 18	68	73-75	0/0	54 / 78	73		olive gray gravelly (subangular to subrounded) fine to coarse SAND, wet
					124 / 82	74		
2" SS	7 / 4	74	75-75.6	0/0	69 / 100/ 1	75		same as above
						76	RX	rollerbit to 78 ft 7 in
						77		
						78		cored 78 ft 7 in to 83 ft 7 in
						79		

Logged by. S Sheer Date: 08/08/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam. of Riser:	2 in.	Screen Interval.	65.5-75.5ft bgs	Sandpack:	64.5-76 ft bgs	Grout.	54 5 ft bgs - grade
Bottom of Hole:	83ft 7in bgs	Riser Interval.	65 5ft bgs-32in ags	Bentonite	54 5-64 5 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N: 194981 E. 523889
Surface Elevation.	13 13 FT MSL
Well Riser Elevation	15 62 FT MSL

Job. No 29600 97.3202	Client EFANE
Drilling Method	Mobil Drill B61
Core Barrel used	NX

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Location Site 16
NCBC Davisville, North Kingstown, RI

Boring No **MW16-51D**

Sheet 1 of 1

Drilling Times	
Start	Finish
08/08/02 0940	08/08/02 1700

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
100%	92%				77					
					78			0	0:00	78' 7"
					79		gray quartzite with flecks of mica	1	7:36	79' 7"
							45 degree fractures at 2 in, 14 in, 17.5 in,			
					80		40 in, 49 in, 55 in	2	6.42	80' 7"
					81		near horizontal fractures at 12 and 36 in.	3	6.52	81' 7"
					82			4	7:03	82' 7"
					83			5	7:36	83' 7"
					84					
					85					
					86					
					87					
					88					
					89					
					90					
					91					
					92					
					93					
					94					
					95					

NOTES:
2nd gear, constant down pressure
4 in casing driven to 75 ft 7 in
before coring began.

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 194979 E: 523896
Surface Elevation:	12.88 FT MSL
Well Riser Elevation:	14.92 FT MSL

Job No 29600 97	Client EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61 drive and wash 5-in and 4-in diameter casing		Boring No MW16-51R
Sampling Method: 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start 08/22/02 / Drilling Date/Times / Finish 08/22/02
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
						1			Refer to boring log of MW16-51D for overburden description
									(bedrock encountered at 75.5 ft bgs)
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			

Logged by S Sheer Date: 08/22/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS.

Diam of Riser	2 in	Screen Interval	78.5-103.5 ft bgs	Sandpack:	NA	Grout:	78 5 ft bgs - grade
Bottom of Hole.	103.5 ft bgs	Riser Interval:	78.5 ft bgs -22 in ags	Bentonite:	NA	Cover:	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates:	N. 194979 E: 523896
Surface Elevation:	12.88 FT MSL
Well Riser Elevation:	14.92 FT MSL

Job No 29600.97 3202	Client. EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61 drive and wash; 3 7/8-in diameter rollerbit
Boring No.	**MW16-51R**
Core Barrel used	
	Sheet 1 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	08/28/02 0845	08/28/02 1048

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min.sec)	Total Depth (ft bgs)
						(Based upon observation of drill cuttings and fluid)			
				77					
				78			0	0:00	78.5
						cuttings are dark gray, some light gray			
				79			1	4:24	79 5
				80			2	3:46	80 5
				81			3	3:45	81 5
				82		few rusty pieces (fracture?) and mica flakes	4	3:20	82 5
						cuttings are larger			
				83		cuttings are smaller at 82.5 ft	5	6:16	83 5
				84		cuttings are light gray	6	5 10	84 5
				85			7	6 33	85 5
				86			8	3:39	86 5
				87			9	3 40	87 5
				88			10	3:50	88 5
				89			11	4.20	89 5
				90			12	4:12	90 5
				91		cuttings are slightly darker in color	13	3:42	91 5
						cuttings are slightly larger			
				92		cuttings are small and dark gray (phyllite)	14	3 55	92 5
				93			15	3 43	93 5
				94			16	4 15	94 5
				95			17	3:54	95 5

NOTES:
drilling in first gear
cream color most likely grout in pipe

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: J Haliburta

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 194979 E 523896
Surface Elevation:	12.88 FT MSL
Well Riser Elevation:	14.92 FT MSL

Job No	29600.97 3202
Client	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method:	Mobile Drill B61 drive and wash
	3 7/8-in diameter rollerbit
Boring No	**MW16-51R**
Core Barrel used	0
	Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
08/28/02 0845	08/28/02 1048

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
				96		cuttings have cream color, very soft cutting	18	3 09	96 5
						(some can be crushed by hand)			
				97		dark gray and small cuttings	19	3:53	97 5
				98			20	3:44	98.5
				99			21	3:35	99 5
						cuttings are light gray and small			
				100			22	3.39	100 5
				101		cuttings are dark gray and larger	23	3 52	101 5
						cuttings are small			
				102			24	3:54	102 5
						slightly lighter gray color cuttings			
				103			25	4:42	103 5
						bottom of boring			
				104					
				105					
				106					
				107					
				108					
				109					
				110					
				111					
				112					
				113					
				114					

NOTES:

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: J Haliburta

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 195066 E 524406
Surface Elevation	12.94 FT MSL
Well Riser Elevation	12.70 FT MSL

Job No 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method Mobile Drill B61 4 1/4-in HSA to 14 ft, then 4-in diameter casing Drive and Wash		Boring No MW16-52D
Sampling Method 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 5
Drilling Water Level		
Date		
Time		
Surface Conditions: asphalt		

Start	Drilling Date/Times	Finish
07/22/02 1500		07/24/02 1606

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	18 / 9	0	0-2	44.9	7 / 50	0		asphalt / gray to dark gray fine to medium SAND, trace coarse sand and rock fragments
					22 / -	1		dry
NS	0 / 0	0	2-4	NA	- / -	2		no sample, boulders
					- / -	3		
2" SS	24 / 9	4	4-6	0.0	10 / 10	4		gray to dark gray with some orange fine to medium SAND, some asphalt fragments, dry
					11 / 11	5		
2" SS	24 / 9	4	6-8	0.0	10 / 11	6		same as above
					12 / 10	7		
2" SS	24 / 12	4	8-10	0.0	12 / 12	8		gray to dark gray fine to medium SAND, dry
					13 / 13	9		
2" SS	24 / 12	10	10-12	0 0	12 / 11	10		dark gray fine to medium SAND, trace rounded fine gravel, wet
					12 / 12	11		
2" SS	24 / 16	10	12-14	0.0	6 / 8	12		dark gray with yellow fine to medium SAND, wet
					10 / 10	13		
2" SS	24 / 12	14	14-16	11 9	12 / 12	14		0-6 in olive gray (some yellow) very fine to fine SAND, wet / 6-12 in dark gray fine to medium SAND, trace rounded fine gravel, wet
					13 / 11	15		
2" SS	24 / 16	14	16-18	15.4	11 / 17	16		yellow to light brown fine to medium SAND, wet
					20 / 15	17		
2" SS	24 / 12	18	18-20	9.3	11 / 13	18		dark gray fine to medium SAND, wet
					18 / 19	19		

Logged by: M Kelly Date: 7/22/02-7/24/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval.	60-74 ft bgs	Sandpack	59-74.5 ft bgs	Grout	56 ft bgs - grade
Bottom of Hole	83 ft bgs	Riser Interval	0.25-60 ft bgs	Bentonite	56-59 ft bgs	Cover	6 in steel

drilled through asphalt, hammered split spoon 0-2 ft bgs, met resistance, used 4 3/4 ID HSA to drill through boulder at 18 in bgs. ncountered second boulder at 24 in bgs, drilled out with augers to 4 ft bgs and hammered split spoon to sample from 4 to 10 ft Advanced HSA to 10 ft, sampled 10-12 ft bgs and 12-14 ft.bgs, pulled HSA and continued drilling with 4 in steel casing.

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 195066 E. 524406
Surface Elevation:	12.94 FT MSL
Well Riser Elevation	12.70 FT MSL

Job No. 29600 97	Client EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61		Boring No MW16-52D
4 1/4-in HSA to 14 ft, then 4-in diameter		
casing Drive and Wash		
Sampling Method. 2" split spoon		
Driven 24 in with 140 lb hammer		Sheet 2 of 5
Drilling Water Level		Start 7/22/02 1500 / Drilling Date/Times / Finish 7/24/02 1606
Date		
Time		
Surface Conditions. asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 18	18	20-22	53.2	13 15	20		SP	dark gray gravelly (subangular to rounded) fine to medium SAND, wet
					16 20	21			
2" SS	24 24	18	22-24	16.6	16 23	22			dark gray gravelly (subangular to rounded) fine to coarse SAND, wet
					31 33	23			
2" SS	24 14	24	24-26	36.7	20 22	24			same as above
					22 25	25			
2" SS	24 20	24	26-28	43.0	18 23	26			same as above
					26 21	27			
2" SS	24 14	28	28-30	30 3	21 18	28			dark gray gravelly (rounded to subangular) fine to medium SAND, some rock fragments, wet
					24 25	29			
2" SS	24 18	28	30-32	21.2	15 17	30			dark gray to olive gray fine to medium SAND, some rounded to subangular rock fragments, wet
					17 19	31			
2" SS	24 24	28	32-34	15 1	16 15	32			olive gray to dark gray fine to medium SAND, some rounded to subangular rock fragments, saturated
					24 24	33			
2" SS	24 14	34	34-36	33.5	20 27	34			0-7 in: dark gray fine to medium SAND, wet 7-14 in: light brown gravelly (subrounded) fine to medium SAND, wet
					33 31	35			
2" SS	24 18	34	36-38	34.4	12 22	36			yellow to yellow orange fine to medium SAND, wet
					24 24	37			
2" SS	24 14	34	38-40	52.7	12 17	38			olive gray very fine to fine SAND, wet
					21 24	39			

Logged by:	M. Kelly	Date:	7/22/02-7/24/02
Drilling Contractor:	Subsurface Drilling	Driller:	J Goldthwaite

WELL SPECIFICATIONS.

Diam of Riser	2 in	Screen Interval:	60-74 ft bgs	Sandpack:	59-74 5 ft bgs	Grout.	56 ft bgs - grade
Bottom of Hole:	83 ft bgs	Riser Interval.	0 25-60 ft bgs	Bentonite:	56-59 ft bgs	Cover:	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 195066 E 524406
Surface Elevation:	12 94 FT MSL
Well Riser Elevation	12 70 FT MSL

Job No - 29600 97	Client: EFANE	Location	SITE 16 NCBC Davisville
Drilling Method Mobile Drill B61 4 1/4-in HSA to 14 ft, then 4-in diameter casing Drive and Wash		Boring No.	MW16-52D
Sampling Method: 2" split spoon Driven 24 in with 140 lb hammer		Sheet 3 of 5	
Drilling Water Level		Start	Finish
Date		7/22/02	7/24/02
Time		1500	1606
Surface Conditions. asphalt		Drilling Date/Times	

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 22	38	40-42	77.9	9 14	40		SP	olive gray very fine to fine SAND, wet
					23 24	41			
2" SS	24 24	38	42-44	30.3	8 9	42			0-12 in same as above
					18 31	43		SM	12-24 in: dark gray very fine SILTY SAND, wet
2" SS	24 18	44	44-46	16 6	16 27	44		SP	0-9 in dark gray fine to very fine SAND, wet 9-18 in dark gray very fine SAND, trace silt, wet
					27 21	45			
2" SS	24 20	44	46-48	13.5	14 17	46			0-10 in: same as above
					21 21	47		ML	10-20 in dark gray SANDY SILT, wet
2" SS	24 9	48	48-50	20 2	13 13	48		SP	dark gray very fine SAND, trace silt, wet
					16 25	49			
2" SS	24 6	48	50-52	0 0	8 11	50			dark gray very fine to fine SAND, wet
					16 20	51			
2" SS	24 24	48	52-54	0.0	16 20	52			dark gray fine to medium SAND, wet
					24 31	53			
2" SS	24 9	54	54-56	1.7	4 2	54			olive gray very fine to fine SAND, wet
					6 16	55			
2" SS	24 18	54	56-58	14.3	9 15	56		SP	medium to dark gray gravelly (subrounded) fine to medium SAND, trace sand, some subangular rock fragments, wet
					24 35	57			
2" SS	24 0	58	58-60		16 23	58			no recovery
					27 28	59			

Logged by: M Kelly Date: 7/22/02-7/24/02

Drilling Contractor: Subsurface Drilling Driller: J. Goldthwaite

WELL SPECIFICATIONS.

Diam of Riser	2 in	Screen Interval:	60-74 ft bgs	Sandpack	59-74 5 ft bgs	Grout	56 ft bgs - grade
Bottom of Hole	83 ft bgs	Riser Interval:	0 25-60 ft bgs	Bentonite	56-59 ft bgs	Cover.	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N 195066 E 524406
Surface Elevation	12 94 FT MSL
Well Riser Elevation:	12.70 FT MSL

Job No. 29600.97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method Mobile Drill B61 4 1/4-in. HSA to 14 ft, then 4-in diameter casing Drive and Wash		Boring No MW16-52D
Sampling Method. 2" split spoon Driven 24 in with 140 lb hammer		Sheet 4 of 5
Drilling Water Level		Start 7/22/02 1500 / Drilling Date/Times / Finish 7/24/02 1606
Date		
Time		
Surface Conditions: asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 12	60	60-62	36 9	25 27	60		SP	dark gray fine to coarse SAND, some subangular rock fragments, wet
					23 40	61			
2" SS	24 15	60	62-64	41 0	33 37	62			0-12 in: same as above 12-14 in: dark gray very fine SAND and SILT
					57 75	63			14-15 in angular ROCK FRAGMENT (quartzite)
2" SS	24 15	64	64-66	19.9	23 24	64			dark gray gravelly (subrounded) very fine to medium SAND, some sub-angular rock fragments, trace silt, wet
					50 44	65			
2" SS	24 24	64	66-68	13 8	39 25	66			0-6 in: same as above 6-24 in: dark gray very fine SAND, trace silt, some angular rock fragments
					17 27	67			wet
2" SS	24 20	68	68-70	11 4	16 23	68		ML	dark gray very fine SANDY SILT, wet
					26 32	69			
2" SS	24 18	68	70-72	22 1	15 30	70		SM	dark gray SILTY gravelly (subrounded) fine to medium SAND, some rock fragments
					27 33	71			
2" SS	24 24	68	72-74	13.8	35 43	72		SP	dark gray gravelly (subrounded) fine to medium SAND, angular rock fragments
					35 31	73			
		74				74		ROCK	(when casing advanced to 74 ft bgs, driller stated that rock was very hard at 74 ft bgs Therefore, rollerbit to 78 ft bgs)
						75			
		74				76			
						77			
						78			cored 78-83 ft bgs - However, about 2 ft of core remained in the borehole. Because the recovered portion of the core was comprised of pieces 3 in or less
						79			in length, the split spoon sampler was driven from 81 5 to 83 ft to try to recover more of the core

Logged by: M. Kelly Date: 7/22/02-7/24/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser:	2 in	Screen Interval	60-74 ft bgs	Sandpack.	59-74 5 ft bgs	Grout	56 ft bgs - grade
Bottom of Hole.	83 ft bgs	Riser Interval	0 25-60 ft bgs	Bentonite:	56-59 ft bgs	Cover	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 195066 E: 524406
Surface Elevation:	12.94 FT MSL
Well Riser Elevation:	12.70 FT MSL

Job No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method Mobile Drill B61		Boring No. MW16-52D
4 1/4-in HSA to 14 ft, then 4-in diameter casing Drive and Wash		
Sampling Method: 2" split spoon		
Time		Sheet 5 of 5
Drilling Water Level		Start 7/22/02 1500 / Drilling Date/Times / Finish 7/24/02 1606
Date		
Time		
Surface Conditions: asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID w/o filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
NS	0 / 0	74	NS	NS	- / -	80		rollerbit and recirculate to clean out rock fragments and sediment from coring
					-	81		
2" SS	18 / 13	74	81.5-83	NS	14 / 16	82		rock fragments from the cored interval
					126			
					100/0	83		bottom of boring
					- / -	84		
						85		
						86		
						87		
						88		
						89		
						90		
						91		
						92		
						93		
						94		
						95		
						96		
						97		
						98		
						99		

Logged by. M Kelly Date. 7/22/02-7/24/02

Drilling Contractor. Subsurface Drilling Driller J. Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval.	60-74 ft bgs	Sandpack	59-74 5 ft bgs	Grout	56 ft bgs - grade
Bottom of Hole	83 ft bgs	Riser Interval	0 25-60 ft bgs	Bentonite:	56-59 ft bgs	Cover	6 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates.	N: 195066 E 524406
Surface Elevation.	12 94 FT MSL
Well Riser Elevation:	12 70 FT MSL

Job No 29600 97 3202	Client. EFANE	Location. Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method Mobile Drill B61		Boring No **MW16-52D**
Core Barrel used NX		Sheet 1 of 1

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
07/24/02 1545	07/24/02 1606

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
40%	0%				78		recovered only 2 ft of core	1	2:15	79
							0-10 in: dark gray quartzite			
					79		10-24 in light gray quartzite	2	3:54	80
					80			3	2 32	81
					81			4	4:53	82
					82			5	7:01	83
					83					
					84		(About 2 ft of the core remained in the borehole and some was recovered later using a split spoon sampler, but is not in the core box.)			
					85					
					86					
					87					
					88					
					89					
					90					
					91					
					92					
					93					
					94					
					95					
					96					

NOTES:

Logged by: M. Kelly

Drilling Contractor: Subsurface Drilling

Driller: J. Goldthwaite

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N: 195069 E 524400
Surface Elevation:	12.87 FT MSL
Well Riser Elevation:	12.54 FT MSL

Job No 29600.97	Client EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Deidrich D50		Boring No. MW16-52R
Drive and Wash 5-in. and 4-in. diameter steel casing		
Sampling Method: 2" split spoon		Sheet 1 of 1
Driven 24 in. with 140 lb hammer		
Drilling Water Level		Start 08/02/02 / Drilling Date/Times / Finish 08/02/02
Date		
Time		
Surface Conditions. asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	LEL / PID	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
							1		Refer to boring log of MW16-52D for overburden description
							2		Drilled to 90 ft to encounter competent bedrock 4-in ID steel casing set to 93 ft bgs.
							3		
							4		
							5		
							6		
							7		
							8		
							9		
							0		
							1		
							2		
							3		
							4		
							5		
							6		
							7		
							8		
							9		

Logged by V Deleone Date. 08/05/02

illing Contractor Subsurface Drilling Driller J Goldthwaite

WELL SPECIFICATIONS

Diam Of Steel Casing	4 in.	Screen Interval:	93-118 ft bgs	Sandpack:	NA	Grout	93 ft bgs - grade
Bottom of Hole:	118 ft bgs	Riser Interval:	93 ft bgs -grade	Bentonite	NA	Cover:	6 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No. 29600.97	Client: EFANE
Location.	SITE 16 NCBC Davisville
Drilling Method:	4 1/4-in ID Hollow Stem Auger
Boring No.	MW16-53S
Coordinates:	N: 194449 E: 523510
Surface Elevation	15.02 FT MSL
Well Riser Elevation:	16.99 FT MSL
Sampling Method:	2" split spoon
	Driven 24 in. with 140 lb hammer
Sheet	1 of 1
Drilling Water Level	
Date	
Time	
Surface Conditions:	grass/soil
Start	08/01/02 1000
Drilling Date/Times	
Finish	08/01/02 1120

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 18	0	0-2	5.6/0	4 12				brown fine SAND, trace subangular to subrounded gravel, dry
					21 36	1			
2" SS	24 12	0	2-4	0/0	64 16	2			0-2 in:brown fine SAND, trace subangular to subrounded gravel, dry 2-4 in: black SAND and ORGANIC MATTER
					15 8	3			4-12 in: brown fine SAND, trace subangular to subrounded gravel, dry
2" SS	24 22	4	4-6	221/0	6 11	4			0-14 in: black very fine SAND, dry 14-22 in: alternating bands of gray/yellow/brown SAND
					25 23	5			
2" SS	24 20	4	6-8	932/0	21 18	6			0-10 in: light brown very fine SAND and ORGANIC MATTER, moist at 6.5 in 10-20 in: light brown fine SAND
					16 11	7		▼	
2" SS	24 24	8	8-10	93.4/0	6 6	8		SP	0-18 in: brown fine SAND, wet 18-24 in: gray to black very fine SAND, wet
					12 21	9			
2" SS	24 20	8	10-12	831/ 2.4	11 14	10			gray fine to coarse SAND, wet
					11 16	11			
2" SS	24 20	12	12-14	41.8/0	7 17	12			very fine SAND, trace coarse sand (0-12 in), wet
					18 21	13			
2" SS	24 0	14	14-16	NA	23 30	14		ML	no recovery, sampler covered in wet silt
					31 38	15			
2" SS	24 24	14	16-18	0/0	8 9	16			gray SILT, trace fine sand, wet
					9 9	17			
						18			Bottom of boring at 18 ft bgs
						19			

Logged by: V. Deleone Date: 08/01/02

Drilling Contractor: Subsurface Drilling Driller: B. Haase

WELL SPECIFICATIONS:

Diam. of Riser: 2 in. Screen Interval: 4-14 ft bgs Sandpack: 3-14 ft bgs Grout. 2 ft bgs - grade

Bottom of Hole: 14 ft bgs Riser Interval 4ft bgs-1.75ft ags Bentonite 2-3 ft bgs Cover: 4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 192946 E 522462
Surface Elevation	27 80 FT MSL
Well Riser Elevation	27 57 FT MSL

Job No 29600 97	Client EFANE	Location. SITE 16 NCBC Davisville
Drilling Method: Drive and Wash 4-in diameter casing		Boring No MW16-54D
Sampling Method 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 1 of 4
Drilling Water Level / Date / Time		Start 08/08/02 1300; Drilling Date/Times; Finish 08/13/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 / 8	0	0-2	0/0	10, 15			black fine SAND, trace gravel, dry
					19, 27	1		
2" SS	24 / 16	0	2-4	0/0	19, 19	2		brown fine SAND, trace gravel, dry
					23, 37	3		
2" SS	24 / 18	4	4-6	0/0	21, 36	4		banded black/yellow/gray fine SAND, dry
					27, 14	5		
2" SS	24 / 18	4	6-8	0/0	19, 11	6	SP	brown fine to medium SAND, trace gravel, dry
					11, 11	7		
2" SS	24 / 20	4	8-10	0/0	8, 9	8		brown fine to coarse SAND, trace gravel, damp
					9, 10	9		
2" SS	24 / 20	4	10-12	0/0	8, 5	10		brown fine to medium SAND, wet
					5, 5	11		
2" SS	24 / 18	4	12-14	0/0	12, 11	12		brown fine SAND, wet
					11, 11	13		
2" SS	24 / 24	14	14-16	0/0	9, 10	14		same as above
					11, 11	15		
2" SS	24 / 20	14	16-18	0/0	9, 8	16		same as above
					10, 13	17		
2" SS	24 / 8	18	18-20	0/0	6, 6	18		gray very fine to fine SAND, wet
					7, 8	19		

Logged by: V Deleone Date 08/08/02

ing Contractor. Subsurface Drilling Driller J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	64-74ft bgs	Sandpack	63-74 ft bgs	Grout	60 ft bgs - grade
Bottom of Hole	82 ft bgs	Riser Interval	6-64 ft bgs	Bentonite	60-63 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 192946 E. 522462
Surface Elevation:	27 80 FT MSL
Well Riser Elevation:	27.57 FT MSL

Job. No. 29600 97	Client EFANE	Location SITE 16 NCBC Davisville
Drilling Method: Drive and Wash 4-in diameter casing		Boring No MW16-54D
Sampling Method. 2" split spoon; Driven 24 in with 140 lb hammer		Sheet 2 of 4
Drilling Water Level / Date / Time		Start 08/08/02 1300; Drilling Date/Times; Finish 08/13/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2" SS	24 / 8	18	20-22	0/0	4 / 6	20		SP	gray very fine SAND, wet
					6 / 9	21			
2" SS	24 / 12	18	22-24	0/0	8 / 8	22			same as above
					7 / 7	23			
2" SS	24 / 13	24	24-26	0/0	15 / 25	24			brown very fine SAND, wet
					27 / 33	25			
2" SS	24 / 18	24	26-28	0/0	17 / 18	26			same as above
					24 / 29	27			
2" SS	24 / 20	28	28-30	0/0	10 / 11	28			gray fine SAND
					11 / 14	29			
2" SS	24 / 24	28	30-32	0/0	9 / 9	30			same as above
					12 / 13	31			
2" SS	24 / 18	28	32-34	1.1/0	14 / 17	32			same as above
					14 / 14	33			
2" SS	24 / 10	34	34-36	0/0	10 / 10	34			same as above
					11 / 13	35			
2" SS	24 / 15	34	36-38	0/0	11 / 12	36			same as above
					13 / 13	37			
2" SS	24	38	38-40	0/0	10 / 9	38			gray very fine to fine SAND, wet
					8 / 9	39			

Logged by: V Deleone Date: 08/08/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser	2 in.	Screen Interval	64-74ft bgs	Sandpack	63-74 ft bgs	Grout	60 ft bgs - grade
Bottom of Hole	82 ft bgs	Riser Interval	6-64 ft bgs	Bentonite	60-63 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N 192946 E 522462
Surface Elevation:	27.80 FT MSL
Well Riser Elevation.	27 57 FT MSL

Job No 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method. Drive and Wash 4-in diameter casing		Boring No. MW16-54D
Sampling Method: 2" split spoon Driven 24 in. with 140 lb hammer		Sheet 3 of 4
Drilling Water Level		Start 08/08/02 1300 / Drilling Date/Times / Finish 08/13/02 1700
Date		
Time		
Surface Conditions asphalt		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 10	38	40-42	0/0	10 10	40	SP	gray very fine to fine SAND, wet
					12 14	41		
2" SS	24 12	38	42-44	0/0	9 7	42		same as above
					9 7	43		
2" SS	24 12	44	44-46	0/0	10 12	44		same as above
					8 8	45		
2" SS	24 12	44	46-48	0/0	6 8	46		gray fine SAND, wet
					8 9	47		
2" SS	24 6	44	48-50	0/0	8 5	48		gray very fine SAND, wet
					5 1	49		
2" SS	24 12	48	50-52	0/0	6 7	50		gray fine SAND, trace very fine sand, wet
					9 10	51		
2" SS	24 18	48	52-54	0/0	7 7	52		gray very fine to fine SAND, wet
					11 13	53		
2" SS	24 12	54	54-56	0/0	13 13	54		same as above
					12 12	55		
2" SS	24 12	54	56-58	0/0	10 10	56	SM	SILTY very fine SAND, wet
					12 11	57		
2" SS	24 18	58	58-60	0/0	13 13	58	ML	gray SILT, wet
					13 13	59		

Logged by: V Deleone Date: 08/08/02

Drilling Contractor Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval	64-74ft bgs	Sandpack	63-74 ft bgs	Grout	60 ft bgs - grade
Bottom of Hole	82 ft bgs	Riser Interval	6-64 ft bgs	Bentonite.	60-63 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N. 192946 E: 522462
Surface Elevation:	27 80 FT MSL
Well Riser Elevation	27 57 FT MSL

Job No. 29600 97	Client. EFANE	Location: SITE 16 NCBC Davisville
Drilling Method. Drive and Wash 4-in diameter casing		Boring No MW16-54D
Sampling Method: 2" split spoon Driven 24 in with 140 lb hammer		Sheet 4 of 4
Drilling Water Level		Start 08/08/02 1300
Date		Drilling Date/Times
Time		Finish 08/13/02 1700
Surface Conditions: asphalt		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2" SS	24 20	58	60-62	0/0	12 20 25 25	60 61	SP	gray very fine SAND, trace silt
2" SS	24 20	58	62-64	0/0	21 25 31 27	62 63		same as above
2" SS	24 20	64	64-66	0/0	22 28 22 26	64 65		gray very fine SAND
2" SS	24 22	64	66-68	0/0	47 36 25 26	66 67		gray gravelly fine SAND, trace silt
2" SS	24 4	68	68-70	0/0	30 11 25 25	68 69		same as above
2" SS	24 20	68	70-72	0/0	21 41 52 91	70 71		gray fine to medium SAND, trace gravel
2" SS	15 10	68	72-73.25	10.9/0	65 107 100/ 3 -	72 73		same as above
2" SS	2 0	74	74-74.2	NS	100/ 2 -	74	WTHR RX	no recovery
						75	WTHR /FRAC	rollerbit to 77 ft bgs
						76	PHYLLITE	
						77		cored from 77 - 82 ft bgs
						78	PHYLLITE	78'4"
						79		bottom of boring at 82 ft bgs.

Logged by: V. Deleone Date: 08/08/02

Drilling Contractor: Subsurface Drilling Driller: J Goldthwaite

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	64-74ft bgs	Sandpack	63-74 ft bgs	Grout	60 ft bgs - grade
Bottom of Hole	82 ft bgs	Riser Interval	6-64 ft bgs	Bentonite	60-63 ft bgs	Cover	4 in steel

EA Engineering, Science, and Techn logy, Inc.

LOG OF CORE BORING

Coordinates	N: 192946 E 522462
Surface Elevation	27 80 FT MSL
Well Riser Elevation.	27.57 FT MSL

Job No 29600 97 3202	Client EFANE
Drilling Method	Mobile Drill B-61
Core Barrel used	NX
Location	Site 16 NCBC Davisville, North Kingstown, RI
Boring No	**MW16-54D**
Sheet 1 of 1	

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	
Start	Finish
08/13/02 1430	08/13/02 1455

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
93%	0%				77		black phyllite with many fractures	1	6 18	78
					78			2	5 15	79
					79			3	5.04	80
					80			4	4 41	81
					81			5	4·35	82
					82					
					83					
					84					
					85					
					86					
					87					
					88					
					89					
					90					
					91					
					92					
					93					
					94					
					95					

NOTES:
2nd gear, constant down pressure

Logged by: V Deleone

Drilling Contractor: Subsurface Drilling

Driller: J Goldthwaite

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job. No 29600.97	Client EFANE
Location:	SITE 16 NCBC Davisville
Drilling Method:	Mobile Drill B61; 4-in. diameter casing, drive and wash
Boring No.	MW16-55D
Sampling Method:	2" split spoon; Driven 24 in. with 140 lb hammer
Sheet	1 of 6
Coordinates.	N: 193792 E: 521553
Surface Elevation:	42.49 FT MSL
Well Riser Elevation:	44.78 FT MSL
Drilling Water Level	
Date	
Time	
Surface Conditions:	grass
Start	09/19/02 1045
Drilling Date/Times	
Finish	09/24/02 1000

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 18	0	0-2	0/ 0	1 3				light brown fine SAND, dry
					6 5	1			
2 in SS	24 12	0	2-4	0/ 0	4 6	2			0-6 in: light brown fine to medium SAND, dry; 6-12 in: cream colored fine SAND, trace medium sand, dry
					5 7	3			
2 in SS	24 22	0	4-6	0/ 0	6 15	4			0-12 in: cream colored fine SAND, dry; 12-22 in: salt and pepper fine to medium SAND, dry
					21 19	5			
2 in SS	24 18	0	6-8	0/ 0	18 19	6			greenish gray to olive gray fine SAND, trace medium sand, dry
					11 26	7			
2 in SS	24 18	8	8-10	0/ 0	11 14	8			same as above
					14 24	9			
2 in SS	24 12	8	10-12	0/ 0	20 33	10			0-4 in: cream colored fine SAND, dry; 4-12 in: olive gray very fine to medium SAND, dry
					24 40	11			
2 in SS	24 8	8	12-14	0/ 0	34 36	12			olive gray gravelly (subrounded) very fine to fine SAND, dry
					28 40	13			
2 in SS	24 18	14	14-16	0/ 0	16 24	14			0-16 in same as above; 16-18 in: olive gray very fine to fine SAND, moist
					38 80	15			
2 in SS	24 18	14	16-18	0/ 0	13 30	16		▼	olive gray very fine SAND, trace medium sand, wet
					19 21	17			
2 in SS	24 10	18	18-20	0/ 0	10 20	18			light brown to olive gray gravelly (subangular to subrounded) fine to medium SAND, wet
					22 23	19			

Logged by: S. Sheer Date: 09/19/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS

Diam of Riser	2 in	Screen Interval:	90-105 ft bgs	Sandpack:	89-105 ft 3 in	Grout	85 ft bgs - grade
Bottom of Hole	108 ft 3 in. bgs	Riser Interval:	90 ft bgs - 2 ft ags	Bentonite	85-89 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193792 E: 521553
Surface Elevation:	42 49 FT MSL
Well Riser Elevation:	44.78 FT MSL

Job. No 29600.97	Client. EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in. diameter casing, drive and wash		Boring No MW16-55D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 2 of 6
Drilling Water Level		
Date		
Time		
Surface Conditions: grass		

Start	Drilling Date/Times	Finish
09/19/02 1045		09/24/02 1000

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 6	18	20-22	0/ 0	25 27	20		SP	0-4 in: olive gray fine to medium SAND, trace fine subangular to subrounded gravel, wet
					30 33	21			4-6 in: light brown fine SAND, trace medium sand, damp/wet
2 in SS	24 12	18	22-24	0/ 0	34 27	22			olive gray gravelly (subangular to subrounded) coarse to fine SAND, wet
					29 37	23			
2 in SS	24 10	24	24-26	0/ 0	10 12	24			light brown fine SAND, trace medium sand, wet
					14 16	25			
2 in SS	24 12	24	26-28	0/ 0	10 14	26			light brown fine SAND, trace medium to coarse sand, wet
					16 18	27			
2 in SS	24 10	28	28-30	0/ 0	5 4	28			olive gray fine SAND, trace very fine sand, wet
					8 12	29			
2 in SS	24 12	28	30-32	0/ 0	12 18	30			olive gray fine to medium SAND, trace very fine sand, wet
					19 21	31			
2 in SS	24 18	28	32-34	0/ 0	14 16	32			olive gray fine to medium SAND, trace coarse sand, wet
					19 21	33			
2 in SS	24 6	34	34-36	0/ 0	14 12	34			olive gray fine to very fine SAND, wet
					12 11	35			
2 in SS	24 12	34	36-38	0/ 0	11 16	36			same as above
					34 29	37			
2 in SS	24 10	38	38-40	0/ 0	22 24	38			same as above
					23 22	39			

Logged by: S Sheer Date: 09/19/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser:	2 in.	Screen Interval:	90-105 ft bgs	Sandpack:	89-105 ft 3 in.	Grout:	85 ft bgs - grade
Bottom of Hole:	108 ft 3 in. bgs	Riser Interval:	90 ft bgs - 2 ft ags	Bentonite:	85-89 ft bgs	Cover:	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates.	N: 193792 E. 521553
Surface Elevation:	42.49 FT MSL
Well Riser Elevation:	44.78 FT MSL

Job No 29600.97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in. diameter casing, drive and wash		Boring No. MW16-55D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 3 of 6
Drilling Water Level		Start 09/19/02 1045
Date		Drilling Date/Times
Time		Finish 09/24/02 1000
Surface Conditions: grass		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 14	38	40-42	0/ 0	13 15	40		SP	layered olive gray fine SAND and dark gray very fine SAND, trace coarse sand, wet
					17 17	41			
2 in SS	24 18	38	42-44	0/ 0	17 19	42			same as above, saturated
					30 34	43			
2 in SS	24 13	44	44-46	0/ 0	14 16	44			olive gray fine SAND, wet
					20 21	45			
2 in SS	24 18	44	46-48	2200/ 500	20 24	46			olive gray fine SAND, trace fine subrounded gravel, wet
					28 31	47			
2 in SS	24 12	44	48-50	0/ 0	3 6	48			olive gray fine SAND, wet (top 2 in rust colored)
					19 20	49			
2 in SS	24 22	44	50-52	0/ 0	8 15	50			olive gray fine SAND, wet
					19 24	51			
2 in SS	24 18	44	52-54	0/ 0	5 10	52			olive gray fine to very fine SAND, trace silt, wet
					1 2	53			
2 in SS	24 12	54	54-56	0/ 0	5 11	54			olive gray fine SAND, wet
					17 23	55			
2 in SS	24 15	54	56-58	0/ 0	2 17	56			same as above
					25 26	57			
2 in SS	24 0	54	58-60	NS/ NS	1 3	58			no recovery
					5 4	59			

Logged by: S. Sheer Date: 09/19/02

Drilling Contractor: Subsurface Drilling Driller P. Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser	2 in	Screen Interval:	90-105 ft bgs	Sandpack:	89-105 ft 3 in.	Grout	85 ft bgs - grade
Bottom of Hole.	108 ft 3 in. bgs	Riser Interval.	90 ft bgs - 2 ft ags	Bentonite:	85-89 ft bgs	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193792 E: 521553
Surface Elevation:	42.49 FT MSL
Well Riser Elevation:	44.78 FT MSL

Job. No. 29600.97	Client: EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in. diameter casing, drive and wash		Boring No: MW16-55D
Sampling Method: 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 4 of 6
Drilling Water Level / Date / Time		Start 09/19/02 1045; Drilling Date/Times; Finish 09/24/02 1000
Surface Conditions: grass		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 / 18	58	60-62	0/ 0	2, 2, 2, 3	60, 61		SP	olive gray fine to very fine SAND, wet
2 in SS	24 / 24	58	62-64	0/ 0	2, 1, 4, 12	62, 63			same as above
2 in SS	24 / 12	64	64-66	0/ 0	2, 1, 2, 2	64, 65			same as above, but with trace silt, wet
2 in SS	24 / 18	64	66-68	0/ 0	5, 5, 11, 12	66, 67			same as above, but with no silt
2 in SS	24 / 8	68	68-70	0/ 0	6, 1, 3, 5	68, 69		SM	olive gray very fine SILTY SAND, wet
2 in SS	24 / 15	68	70-72	0/ 0	2, 3, 13, 18	70, 71		SP	olive gray very fine to fine SAND, trace silt
2 in SS	24 / 14	68	72-74	0/ 0	8, 15, 21, 26	72, 73			olive gray fine SAND, wet
2 in SS	24 / 14	74	74-76	0/ 0	5, 10, 25, 28	74, 75			olive gray very fine SAND and light gray fine SAND, damp
2 in SS	24 / 22	74	76-78	0/ 0	28, 49, 50, 39	76, 77			same as above, wet
2 in SS	24 / 18	78	78-80	0/ 0	9, 12, 17, 28	78, 79		ML/SM	olive gray SILT and very fine SAND, wet

Logged by: S. Sheer Date: 09/19/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	90-105 ft bgs	Sandpack	89-105 ft 3 in	Grout	85 ft bgs - grade
Bottom of Hole	108 ft 3 in. bgs	Riser Interval	90 ft bgs - 2 ft ags	Bentonite	85-89 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates	N 193792 E 521553
Surface Elevation:	42 49 FT MSL
Well Riser Elevation	44.78 FT MSL

Job No. 29600 97	Client EFANE	Location: SITE 16 NCBC Davisville
Drilling Method: Mobile Drill B61; 4-in. diameter casing, drive and wash		Boring No MW16-55D
Sampling Method. 2" split spoon		
Drilling Water Level		Sheet 5 of 6
Drilling Water Level / Date / Time		Start 09/19/02 1045; Drilling Date/Times; Finish 09/24/02 1000
Surface Conditions. grass		

Sample Type	Inches Driven/In Recvrd	Dpth Csg.	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs		USCS Log	SOIL DESCRIPTION
2 in SS	24 24	78	80-82	0/ 0	28 40	80		ML/SM	same as above, wet
					58 48	81			
2 in SS	24 24	78	82-84	0/ 0	12 33	82			same as above
					40 48	83			
2 in SS	24 20	84	84-86	0/ 0	16 14	84		SM	olive gray SILTY very fine SAND, wet
					21 22	85			
2 in SS	24 18	84	86-88	0/ 0	28 30	86			0-17 in same as above; 17-18 in: coarse sand
					48 52	87			
in SS	24 20	84	88-90	0/ 0	40 42	88			olive gray SILTY fine to coarse SAND, rock fragments, trace subrounded fine gravel, saturated
					92 66	89			
2 in SS	24 20	84	90-92	4.3/ 3.0	88 130	90		SP	olive gray very fine to coarse GRAVELLY (subangular to subrounded) SAND, wet
					85 65	91			
2 in SS	2 2	84	92-92 2	8.2/ 4.2	120/2	92			same as above
						93			rollerbit to 94 ft
2 in SS	24 6	94	94-96	0/ 0	60 48	94			same as above
					36 52	95			
2 in SS	18 18	94	96-98	0/ 0	60 77	96			olive gray fine to coarse SAND, little rock fragments, wet
					160	97			rollerbit to 98 ft bgs
2 in SS	9 6	94	98-98.8	0/ 0	60 120/3	98			same as above, wet; refusal, rollerbit to 100 ft bgs
						99			

Logged by: S Sheer Date 09/19/02

ing Contractor: Subsurface Drilling Driller P. Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	2 in	Screen Interval	90-105 ft bgs	Sandpack:	89-105 ft 3 in	Grout	85 ft bgs - grade
Bottom of Hole	108 ft 3 in bgs	Riser Interval	90 ft bgs - 2 ft ags	Bentonite	85-89 ft bgs	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Job No. 29600.97	Client EFANE
Location	SITE 16 NCBC Davisville
Drilling Method	Mobile Drill B61
	4-in. diameter casing, drive and wash
Boring No	MW16-55D
Sampling Method.	2" split spoon
Date	
Sheet	6 of 6
Drilling Water Level	
Date	
Time	
Surface Conditions	grass
Start	09/19/02 1045
Drilling Date/Times	
Finish	09/24/02 1000

Coordinates: N: 193792 E: 521553
Surface Elevation: 42 49 FT MSL
Well Riser Elevation: 44.78 FT MSL

Sample Type	Inches Driven/In Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
2 in SS	3 / 2	94	100-102	0/ / 0	100/3	100	WTHR RX	olive gray to dark gray WEATHERED ROCK (PHYLLITE) and fine SAND
								saturated
						101		refusal at 100 ft 3 in
								rollerbit to 103 ft 3 in.
						102		
						103		cored from 103 ft 3 in. to 108 ft 3 in.
						104		
						105		105 ft 3 in
						106		
						107		
						108		bottom of boring at 108 ft 3 in.
						109		
						110		
						111		
						112		
						113		
						114		
						115		
						116		
						117		
						118		
						119		

Logged by: S Sheer Date: 09/19/02

Drilling Contractor: Subsurface Drilling Driller: P Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser:	2 in	Screen Interval	90-105 ft bgs	Sandpack:	89-105 ft 3 in	Grout.	85 ft bgs - grade
Bottom of Hole	108 ft 3 in bgs	Riser Interval	90 ft bgs-- 2 ft ags	Bentonite	85-89 ft bgs	Cover.	4 in steel

EA Engineering, Science, and Techn logy, Inc.

LOG OF CORE BORING

Coordinates.	N 193792 E 521553
Surface Elevation	42.49 FT MSL
Well Riser Elevation	44 78 FT MSL

Job No 29600 97 3202	Client EFANE
Drilling Method Mobile Drill B61	
Core Barrel used	NX

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Location Site 16 NCBC Davisville, North Kingstown, RI

Boring No **MW16-55D**

Sheet 1 of 1

Drilling Times	
Start	Finish
09/24/02 0830	09/24/02 1000

Core Run Run # REC	RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
100%	32%				103		black phyllite			
							with numerous fractures and many rusty colored			
					104		surfaces	1	8 59	104 2
							(0-24-in. core pieces are typically 0 5-in or less)			
					105			2	8 22	105 2
					106			3	10 02	106 2
					107			4	12 15	107 2
					108			5	11·22	108 2
					109					
					110					
					111					
					112					
					113					
					114					
					115					
					116					
					117					
					118					
					119					
					120					
					121					

NOTES:
core barrel clogged during first 2 ft
continuous coring from 3-5 ft

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193796 E: 521549
Surface Elevation	42.70 FT MSL
Well Riser Elevation.	44.56 FT MSL

Job. No. 29600 97	Client: EFANE	Location SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61 4-in diameter casing, drive and wash		Boring No. **MW16-55R**
Sampling Method 2" split spoon Driven 24 in with 140 lb hammer		Sheet 1 of 1
Drilling Water Level / Date / Time		Start 09/25/02 · Drilling Date/Times · Finish 09/30/02
Surface Conditions: grass		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-55D for overburden description
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		

Logged by: S Sheer Date: 09/30/02

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam. of Riser:	4 in	Screen Interval	108-133 ft bgs	Sandpack:	NA	Grout:	108 ft bgs - grade
Bottom of Hole	133 ft bgs	Riser Interval:	108 ft bgs - 2 ft ags	Bentonite:	NA	Cover	4 in. steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N: 193796 E: 521549
Surface Elevation	42.70 FT MSL
Well Riser Elevation	44 56 FT MSL

Job No 29600.97.3202	Client. EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method: Mobile Drill B61; 3 7/8-in diameter rollerbit		Boring No. **MW16-55R**
Core Barrel used:		Sheet 1 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	09/30/02 1200	09/30/02 1600

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
						(Based on observation of drill cuttings and fluid)			
				108		108-117 ft are phyllite and silt	0	0:00	108
				109			1	5 15	109
				110			2	5 06	110
				111			3	7:36	111
				112			4	7·43	112
				113			5	9·07	113
				114			6	8·05	114
				115			7	7 44	115
				116			8	9·44	116
				117		117-118 ft: phyllite cuttings, light gray, soft	9	10.32	117
				118		118-128 ft cuttings are a mix of light and dark gray	10	8.52	118
				119			11	4·23	119
				120			12	4 56	120
				121			13	4 33	121
				122		122-128 ft: cuttings are phyllite, fragments of quartz, silt, rusty color	14	5·24	122
				123			15	7·13	123
				124			16	6 32	124
				125			17	5 26	125
				126			18	6 42	126

NOTES:

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Techn logy, Inc.

LOG OF CORE BORING

Coordinates	N 193796 E 521549
Surface Elevation	42 70 FT MSL
Well Riser Elevation.	44 56 FT MSL

Job No	29600.97.3202
Client	EFANE
Location	Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method	Mobile Drill B61
	3 7/8-in diameter rollerbit
Boring No	**MW16-55R**
Core Barrel used	0
	Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	09/30/02 1200	09/30/02 1600

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min.sec)	Total Depth (ft bgs)
				127			19	7·49	127
				128			20	8:10	128
				129			21	8:08	129
				130			22	7·16	130
				131			23	7 40	131
				132			24	8·30	132
						very soft phyllite			
				133		bottom of boring	25	8 58	133
				134					
				135					
				136					
				137					
				138					
				139					
				140					
				141					
				142					
				143					
				144					
				145					

NOTES:

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: P. Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:	N: 193792 E: 521546
Surface Elevation:	42.48 FT MSL
Well Riser Elevation:	44.08 FT MSL

Job. No 29600.97	Client. EFANE	Location. SITE 16 NCBC Davisville
Drilling Method. Mobile Drill B61; 6-in diameter casing, drive and wash; 3 7/8-in rollerbit to 133 ft		Boring No. MW16-55R2
Sampling Method. 2" split spoon; Driven 24 in. with 140 lb hammer		Sheet 1 of 1
Drilling Water Level		Start / Drilling Date/Times / Finish
Date		
Time		
Surface Conditions:		

Sample Type	Inches Driven/In. Recvrd	Dpth Csg	Samp # / depth (ft)	FID / FID w/ filter	Blows per 6"	Ft bgs	USCS Log	SOIL DESCRIPTION
								Refer to boring log of MW16-55D for overburden description to 43 ft and
								beyond 51 ft bgs.
						42		The 43-51 ft interval was sampled to confirm the 46-48 ft interval soil sample
								vapor headspace FID detection.
2" SS	24 6	39	43-45	13.4/ 0.0	5 11	43		gray fine SAND, wet
					12 12	44		
2" SS	24 6	39	45-47	0.3/ 0.0	19 21	45		same as above
					28 34	46		
2" SS	24 8		47-49	0.0/ 0.0	2 4	47		same as above
					7 12	48		
2" SS	24 12		49-51	1.8/ 0.0	15 17	49		gray and rust colored fine SAND, wet
					19 21	50		
						51		
						52		
						53		
						54		
						55		
						56		
						57		
						58		
						59		
						60		

Logged by: V. Deleone Date:

Drilling Contractor: Subsurface Drilling Driller: P. Thornsbury

WELL SPECIFICATIONS:

Diam of Riser	4-in	Screen Interval:	133-158 ft bgs	Sandpack	NA	Grout:	133 ft bgs - grade
Bottom of Hole	158 ft bgs	Riser Interval	133 ft bgs-2 ft ags	Bentonite	NA	Cover	4 in steel

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N: 193792 E 521546
Surface Elevation	42 48 FT MSL
Well Riser Elevation	44 08 FT MSL

Job. No. 29600.97.3202	Client EFANE	Location. Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method. Mobil Drill B61 3 7/8-in rollerbit		Boring No. **MW16-55R2**
Core Barrel used NX		Sheet 1 of 2

Packer Test

Tested	NA	
Interval	NA	

See packer test log if applicable

Drilling Times	Start	Finish
	10/10/02 1010	10/10/02 1410

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG (Based on observations of drill cuttings and fluid)	DRILLING LOG Core run Length (ft)	Drill Time/ft (min:sec)	Total Depth (ft bgs)
				133		light gray and dark gray cuttings with silt	0	0 00	133
				134			1	7:38	134
				135		dark gray cuttings (phyllite) with silt	2	7.50	135
				136			3	8.31	136
				137			4	8 04	137
				138		light gray soft phyllite with silt	5	7 20	138
				139			6	6 33	139
				140			7	6.09	140
				141		dark gray phyllite	8	7.13	141
				142		dark gray phyllite with rusty color	9	7:29	142
				143			10	6 01	143
				144		dark gray and light gray cuttings	11	6.03	144
				145			12	6:12	145
				146			13	4:24	146
				147			14	5 11	147
				148		light gray quartzite	15	4 43	148
				149			16	5 18	149
				150			17	4 36	150
				151			18	5:21	151

NOTES:
first gear throughout rollerbit interval
constant down pressure

Logged by: S. Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

EA Engineering, Science, and Technology, Inc.

LOG OF CORE BORING

Coordinates	N 193792 E 521546
Surface Elevation:	42 48 FT MSL
Well Riser Elevation:	44 08 FT MSL

Job No 29600 97 3202	Client EFANE	Location Site 16 NCBC Davisville, North Kingstown, RI
Drilling Method 3 7/8-in rollerbit		Boring No **MW16-55R2**
0		
Core Barrel used NX		Sheet 2 of 2

Packer Test

Tested	NA	
Interval	NA	
See packer test log if applicable		

Drilling Times	Start	Finish
	10/10/02 1010	10/10/02 1410

Core Run Run # REC RQD	Strat-igraphy	Bedding / Fractures (dip & angle)	Filling	Depth in feet	Graphic Log	LITHOLOGIC LOG	DRILLING LOG: Core run Length (ft)	Drill Time/ft (min sec)	Total Depth (ft bgs)
				152			19	6 28	152
				153			20	6 45	153
				154			21	6·23	154
				155		light gray, very soft	22	6 22	155
				156			23	4.43	156
				157			24	7.01	157
				158		bottom of boring	24	5 02	158
				159					
				160					
				161					
				162					
				163					
				164					
				165					
				166					
				167					
				168					
				169					
				170					

NOTE weight of the drilling rods was the only down pressure during drilling.

NOTES:

Logged by: S Sheer

Drilling Contractor: Subsurface Drilling

Driller: P Thornsbury

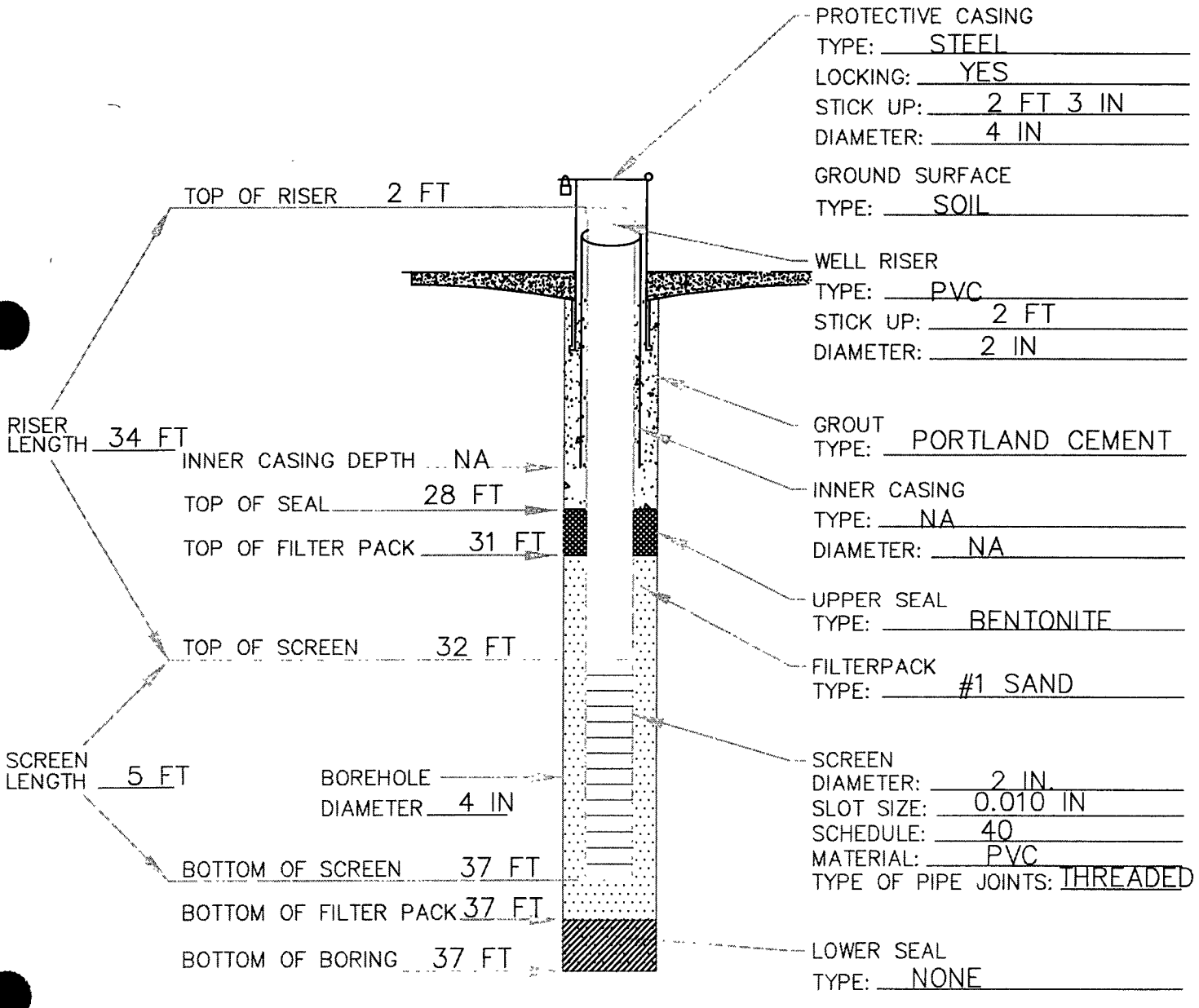
Appendix D

Monitoring Well Construction Diagrams

MONITORING WELL CONSTRUCTION

MW16-02I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/30/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 21.07' MSL ELEVATION TOP OF WELL RISER: 2.10' MSL	COORDINATES: N: 194171 E: 523199
DEPTH TO WATER: 14.57 (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1021	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING	



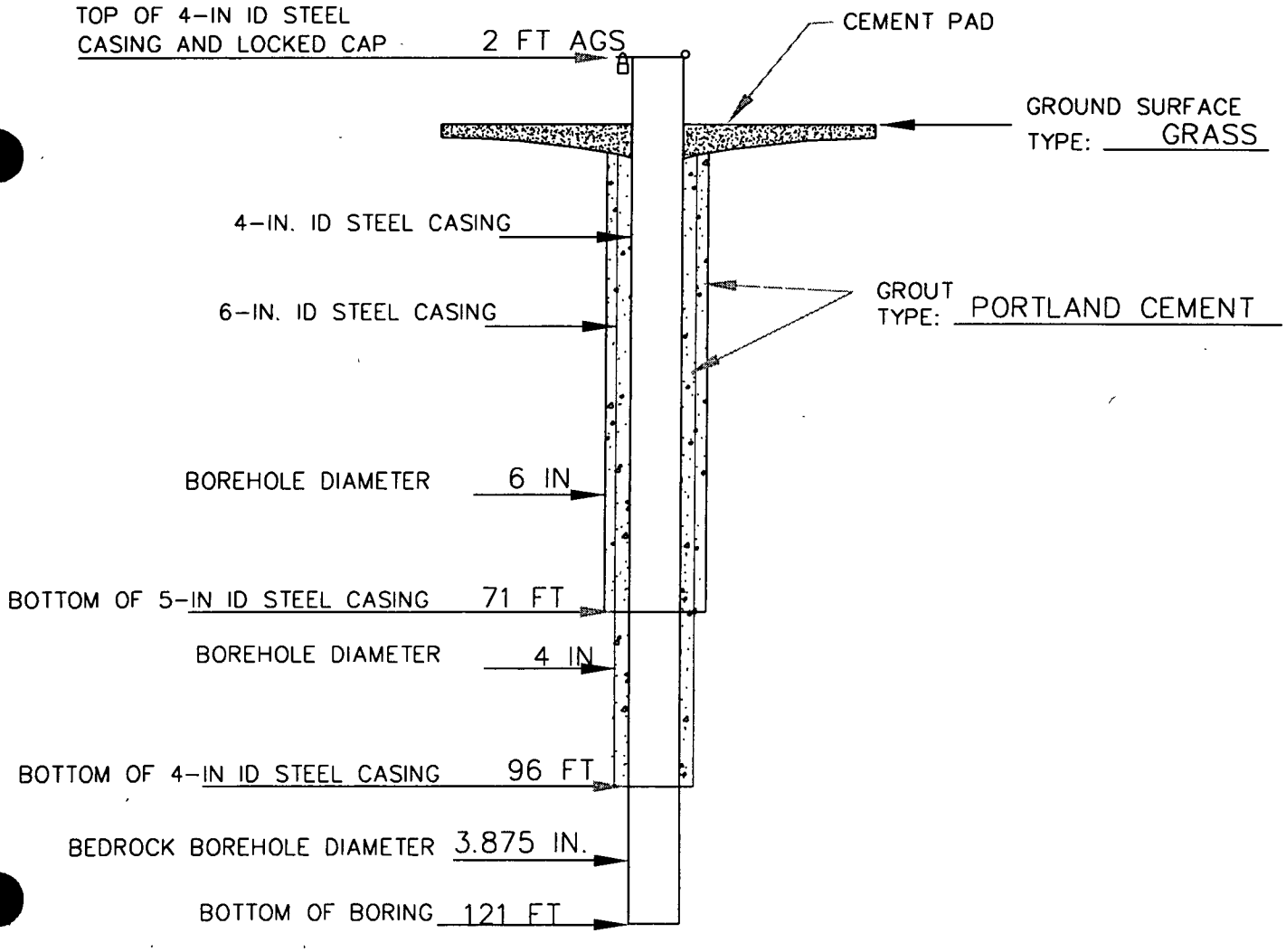
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-02R2

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16 PHASE II RI	
DATE INSTALLED: 9/18/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 21.24' MSL ELEVATION TOP OF WELL RISER: 22.78' MSL	COORDINATES: N: 194172 E: 523191
DEPTH TO WATER: 13.03' (BELOW TOP OF RISER) DATE/TIME 11/22/02 / 1019	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 5-IN ID TEMPORARY STEEL CASING TO 71 FT 4-IN ID TEMPORARY STEEL CASING TO 96 FT 3 7/8 IN ROLLERBIT TO 121 FT	



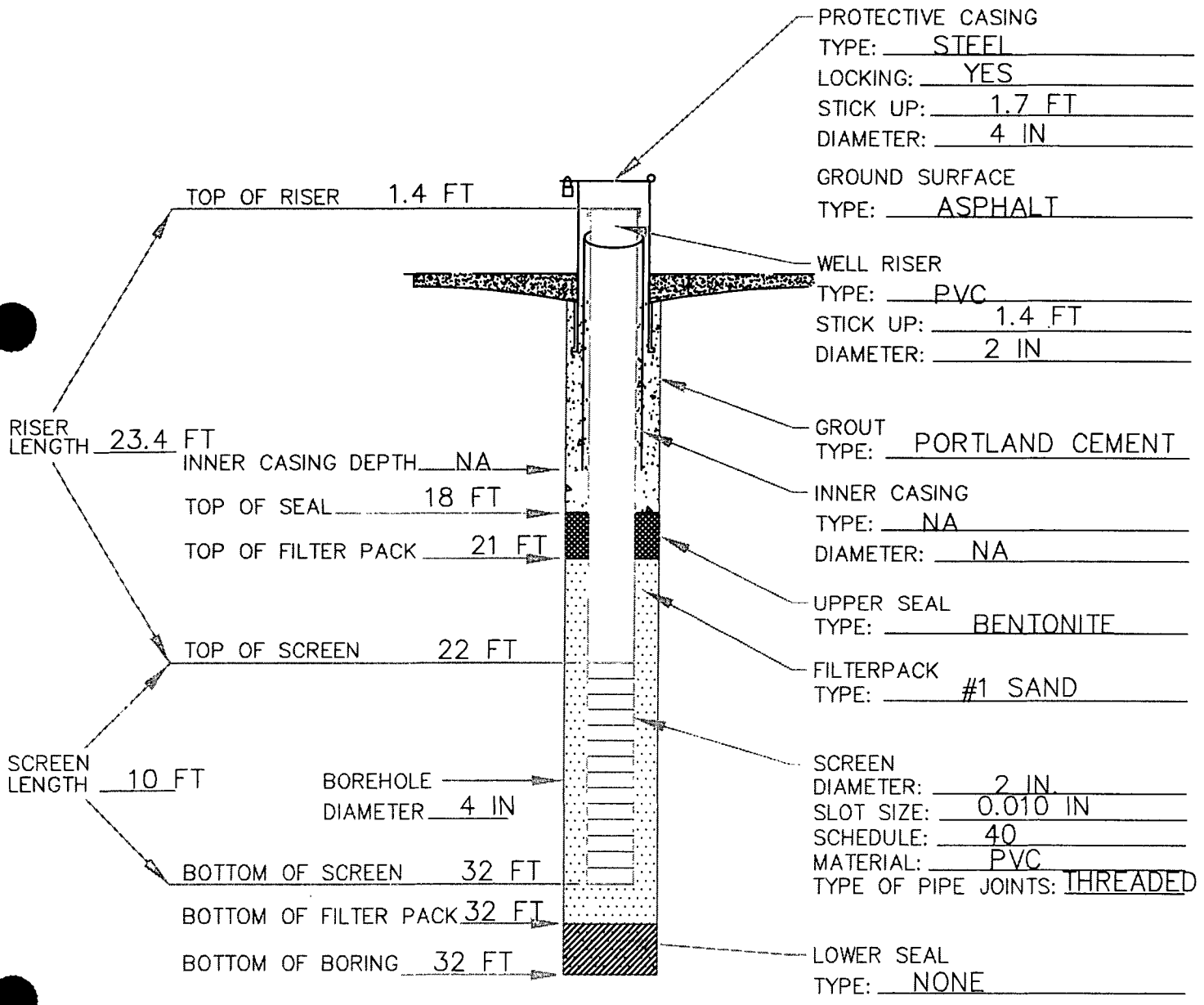
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-04I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/6/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 10.10' MSL ELEVATION TOP OF WELL RISER: 11.76' MSL	COORDINATES: N: 194654 E: 523271
DEPTH TO WATER: 8.02' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1020	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 32 FT	



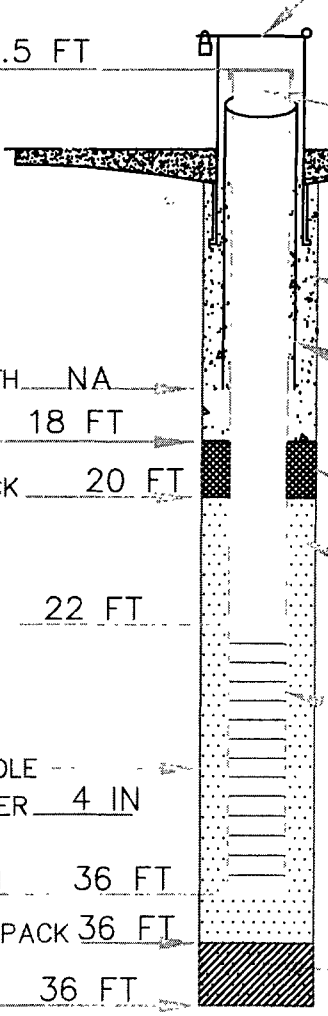
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-05I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/5/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 13.88' MSL ELEVATION TOP OF WELL RISER: 15.78' MSL	COORDINATES: N: 194559 E: 523566
DEPTH TO WATER: 13.52' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1010	EA INSPECTOR: R. WASSERMAN
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 36 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2 FT
DIAMETER: 4 IN

GROUND SURFACE
TYPE: WOODLAND

WELL RISER
TYPE: PVC
STICK UP: 1.5 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 1.5 FT

RISER LENGTH 23.5 FT

INNER CASING DEPTH NA

TOP OF SEAL 18 FT

TOP OF FILTER PACK 20 FT

TOP OF SCREEN 22 FT

SCREEN LENGTH 14 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 36 FT

BOTTOM OF FILTER PACK 36 FT

BOTTOM OF BORING 36 FT

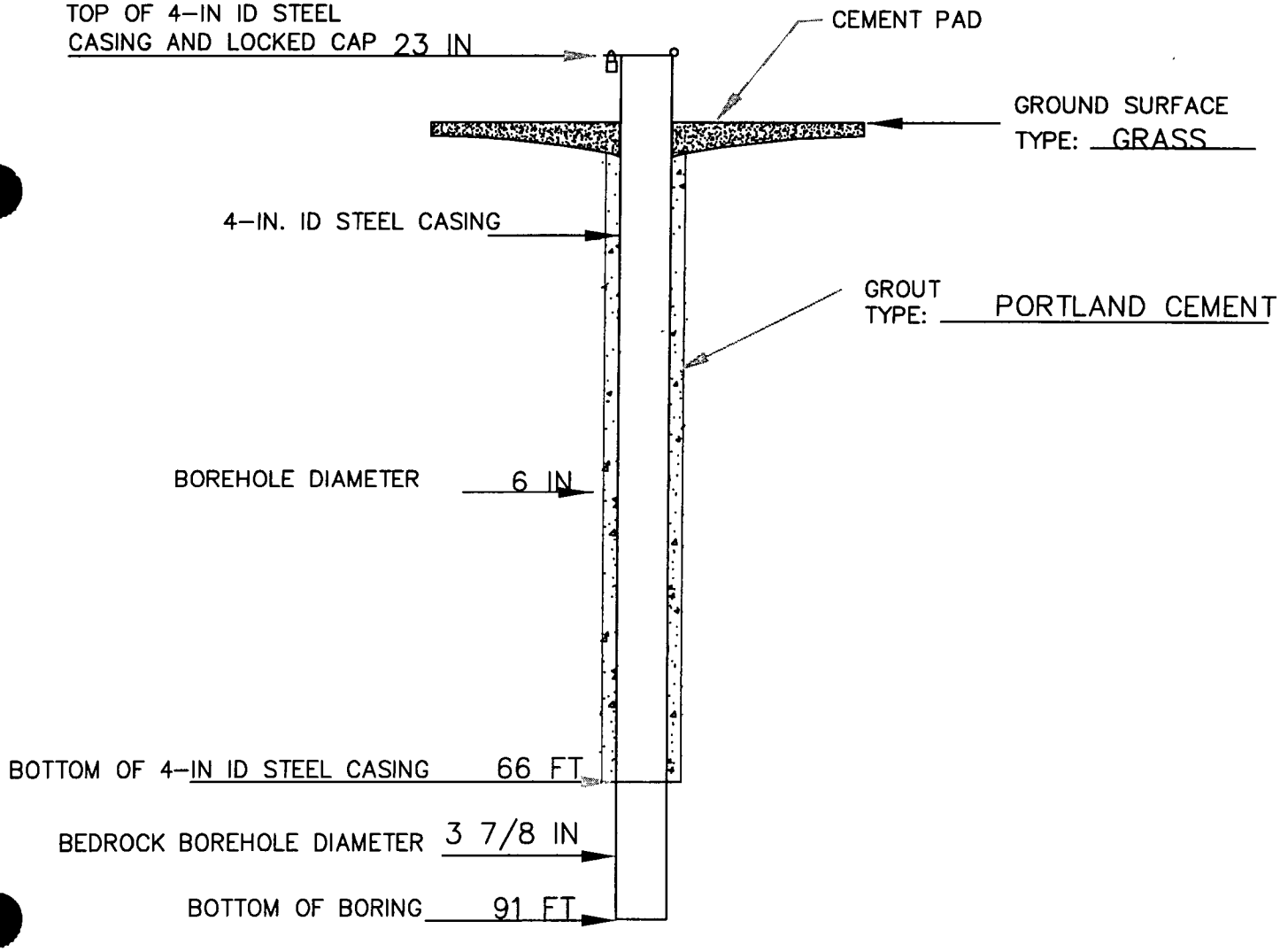
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-05R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 8/20/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 13.95' MSL ELEVATION TOP OF WELL RISER: 15.96' MSL	COORDINATES: N: 194564 E: 523567
DEPTH TO WATER: 12.95' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1013	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 6-IN ID TEMPORARY STEEL CASING TO 53 FT 4-IN ID STEEL CASING TO 66 FT 3 7/8-IN DIAMETER ROLLERBIT TO 91 FT	



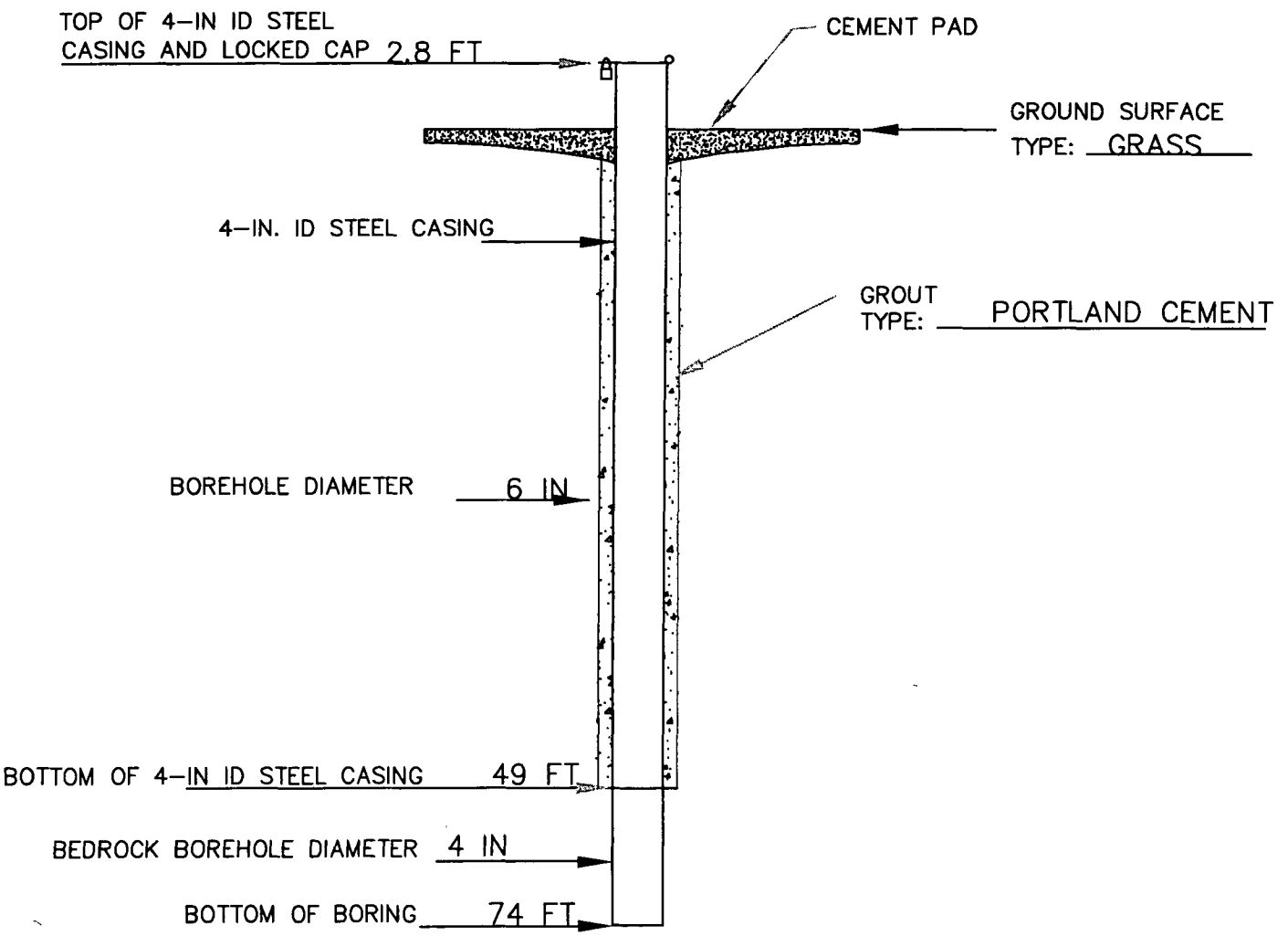
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-06R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 8/16/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 25.64' MSL ELEVATION TOP OF WELL RISER: 27.43' MSL	COORDINATES: N: 194458 E: 522777
DEPTH TO WATER: 16.21' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1000	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 6-IN ID TEMPORARY STEEL CASING TO 45 FT 4-IN ID STEEL CASING TO 49 FT 3 7/8-IN ROLLERBIT TO 74 FT	



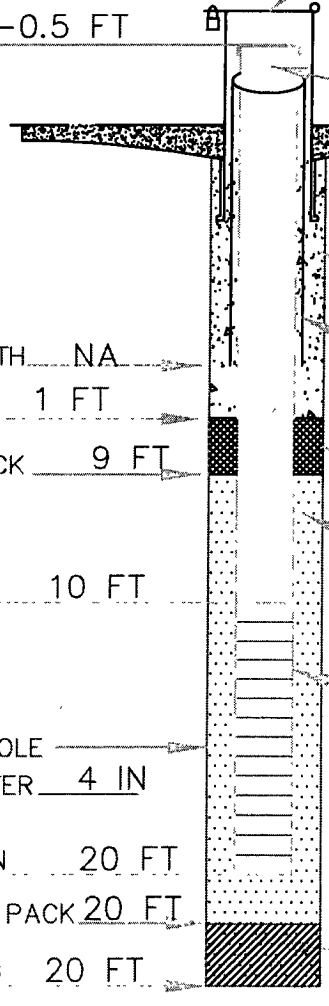
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-11S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/11/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 29.76' MSL ELEVATION TOP OF WELL RISER: 29.43' MSL	COORDINATES: N: 193783 E: 522536
DEPTH TO WATER: 13.64' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 0855	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 20 FT	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: NO
STICK UP: NA
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -0.5 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER -0.5 FT

RISER LENGTH 9.5 FT

INNER CASING DEPTH NA

TOP OF SEAL 1 FT

TOP OF FILTER PACK 9 FT

TOP OF SCREEN 10 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 20 FT

BOTTOM OF FILTER PACK 20 FT

BOTTOM OF BORING 20 FT

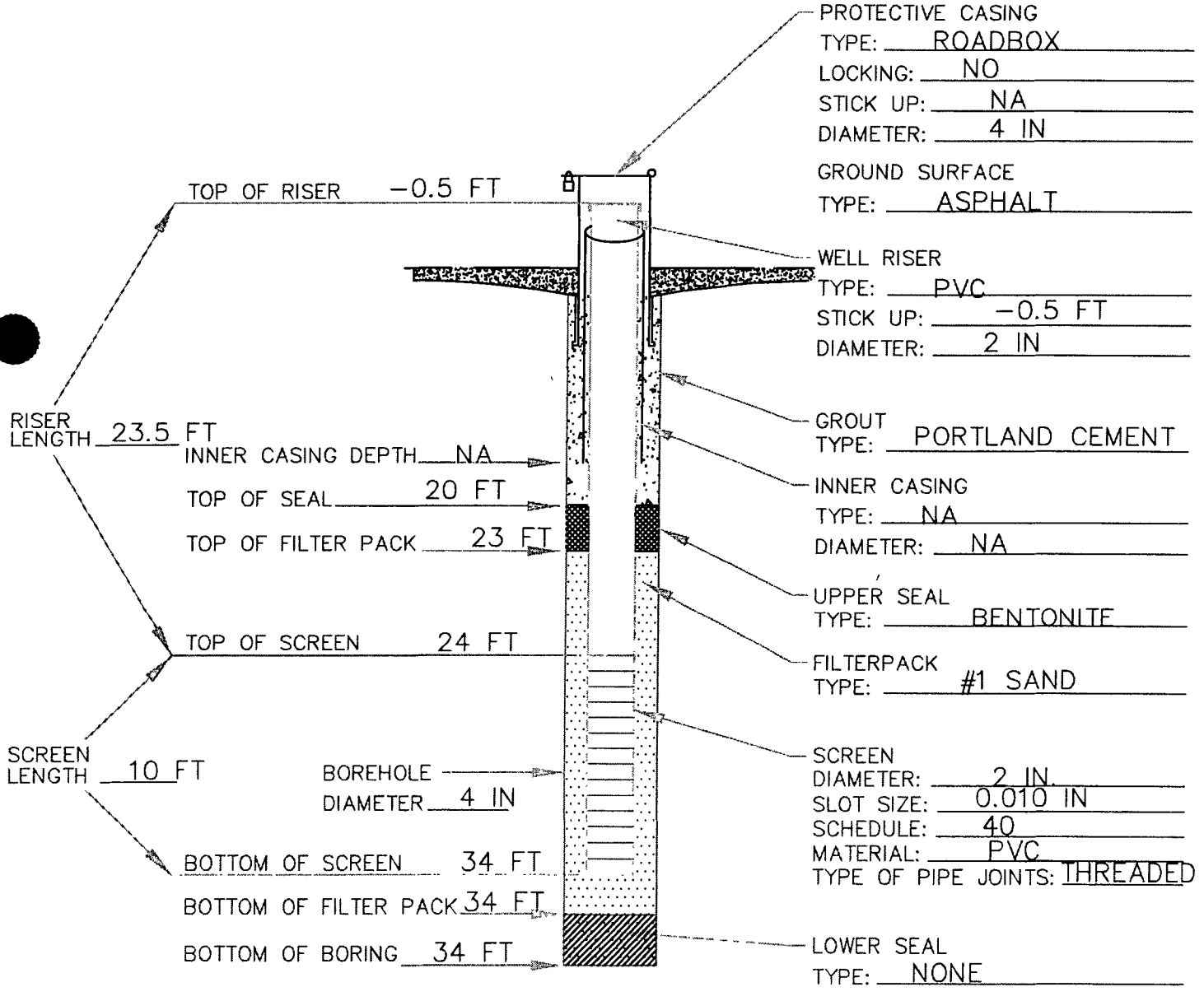
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-13I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/11/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 29.89' MSL ELEVATION TOP OF WELL RISER: 29.71' MSL	COORDINATES: N: 193725 E: 522480
DEPTH TO WATER: 14.02' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 0853	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 34 FT	



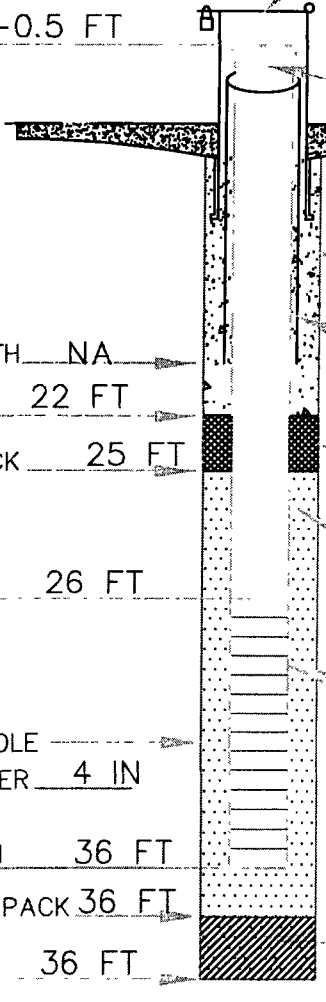
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-14I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/13/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 29.98' MSL ELEVATION TOP OF WELL RISER: 29.80' MSL	COORDINATES: N: 193743 E: 522789
DEPTH TO WATER: 15.42' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 0915	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 36 FT	



TOP OF RISER -0.5 FT

RISER LENGTH 21.5 FT

INNER CASING DEPTH NA

TOP OF SEAL 22 FT

TOP OF FILTER PACK 25 FT

TOP OF SCREEN 26 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 36 FT

BOTTOM OF FILTER PACK 36 FT

BOTTOM OF BORING 36 FT

PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: NO
STICK UP: NA
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -0.5 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

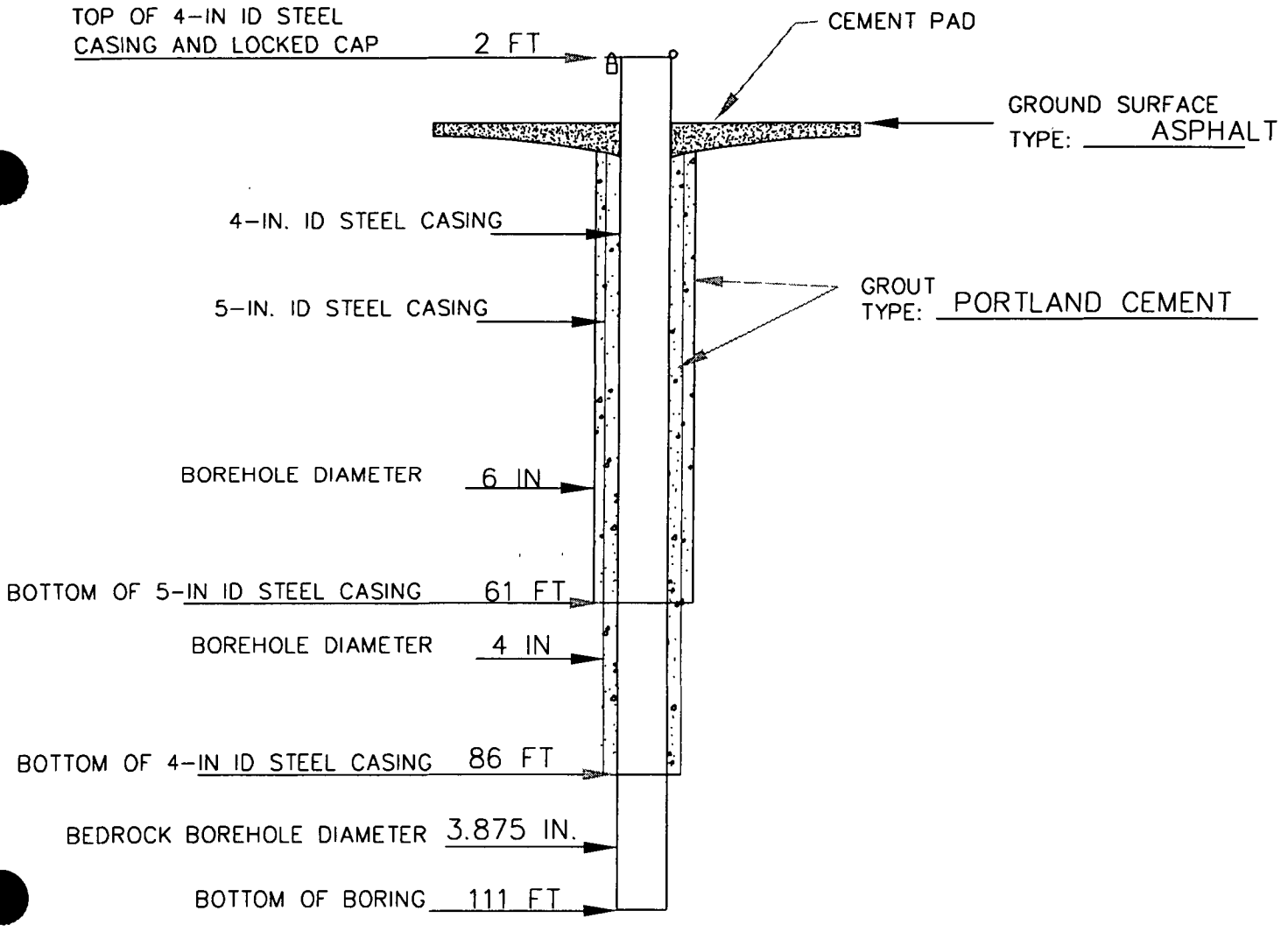
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-15R2

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16 PHASE II RI	
DATE INSTALLED: 9/18/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 29.39'MSL ELEVATION TOP OF WELL RISER: 28.72'MSL	COORDINATES: N: 193828 E: 522876
DEPTH TO WATER: 17.53' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 0929	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 5-IN DIAMETER TEMPORARY STEEL CASING TO 61 FT 4-IN ID TEMPORARY STEEL CASING TO 86 FT 3 7/8 - IN DIAMETER ROLLERBIT TO 111 FT	



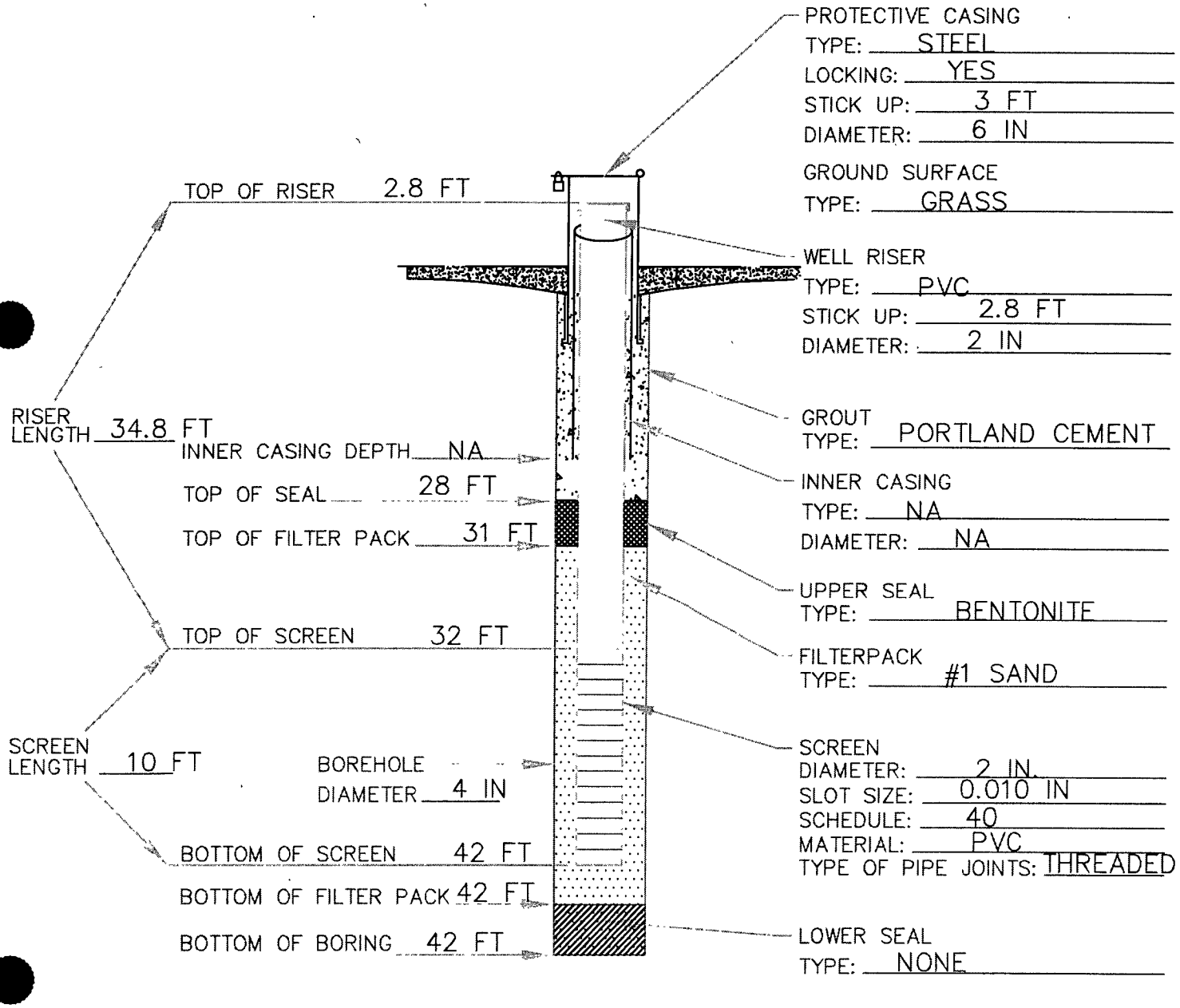
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-16I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/9/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 23.49' MSL ELEVATION TOP OF WELL RISER: 25.67' MSL	COORDINATES: N: 193769 E: 522963
DEPTH TO WATER: 13.17' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1214	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 42 FT	



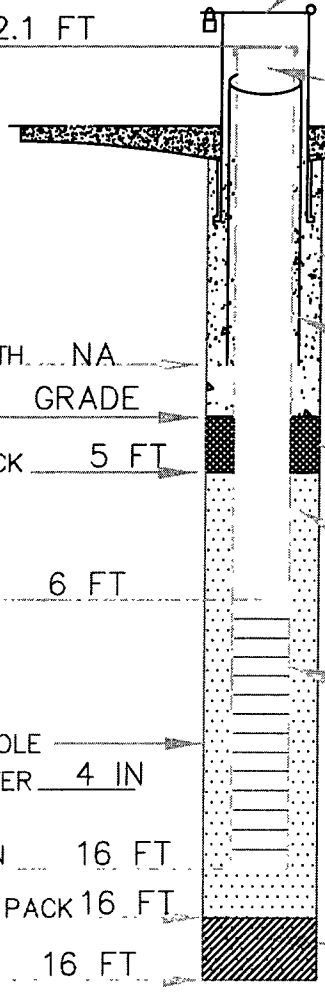
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-17S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/18/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 23.92' MSL ELEVATION TOP OF WELL RISER: 26.08' MSL	COORDINATES: N: 193437 E: 522901
DEPTH TO WATER: 11.52' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1155	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 16 FT	



TOP OF RISER 2.1 FT

RISER LENGTH 8.1 FT

INNER CASING DEPTH NA

TOP OF SEAL GRADE

TOP OF FILTER PACK 5 FT

TOP OF SCREEN 6 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 16 FT

BOTTOM OF FILTER PACK 16 FT

BOTTOM OF BORING 16 FT

PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2.3 FT
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: 2.1 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

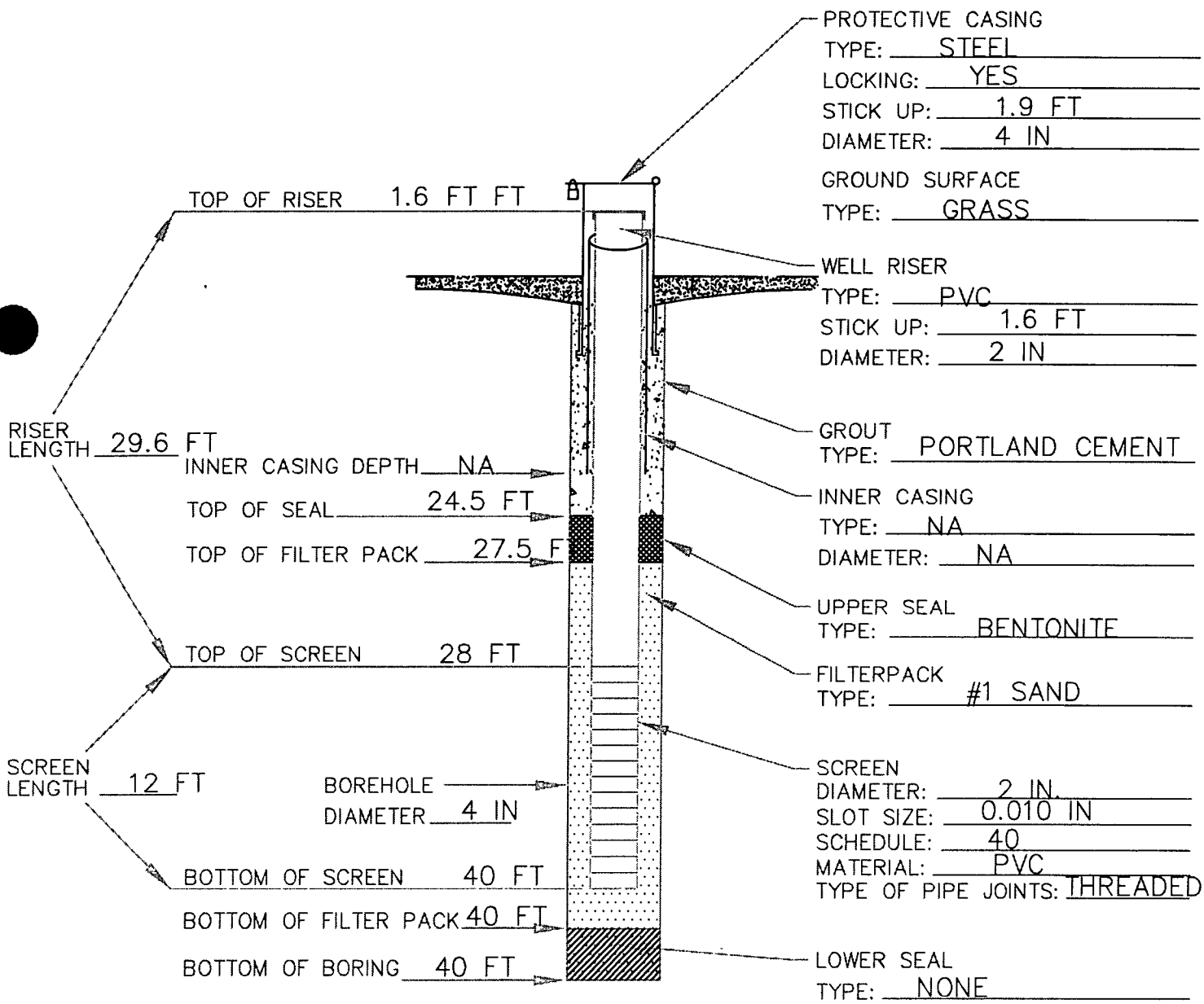
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-17I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/19/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 24.12 ' MSL ELEVATION TOP OF WELL RISER: 25.72 ' MSL	COORDINATES: N: 193434 E: 522895
DEPTH TO WATER: 11.41' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1155	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 40 FT	



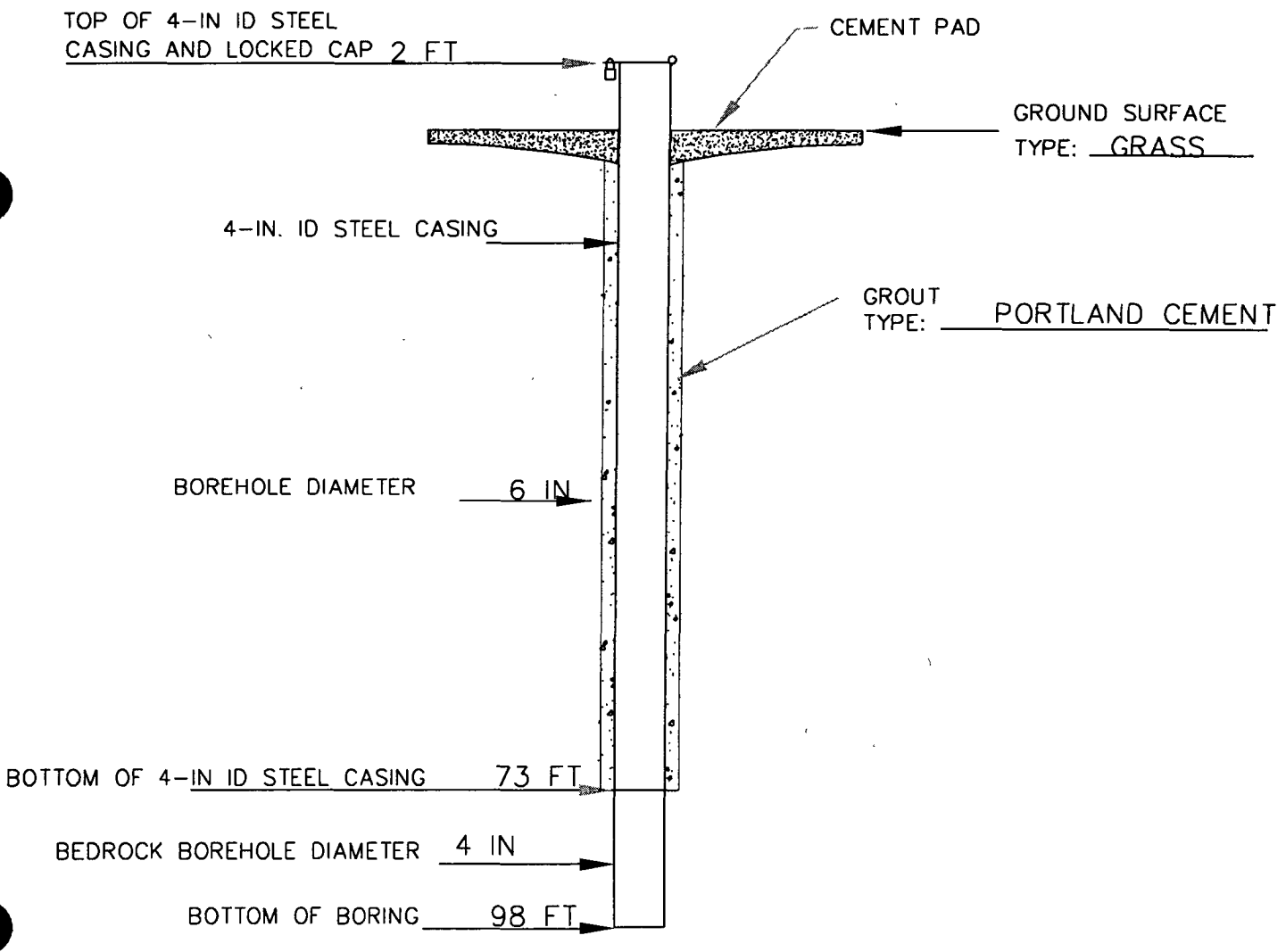
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-17R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 9/18/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 24.11' MSL ELEVATION TOP OF WELL RISER: 26.07' MSL	COORDINATES: N: 193438 E: 522896
DEPTH TO WATER: 12.22' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1155	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 7-IN DIAMETER TEMPORARY STEEL CASING TO 70 FT 4-IN ID TEMPORARY STEEL CASING TO 73 FT 3 7/8-IN ROLLERBIT TO 98 FT	



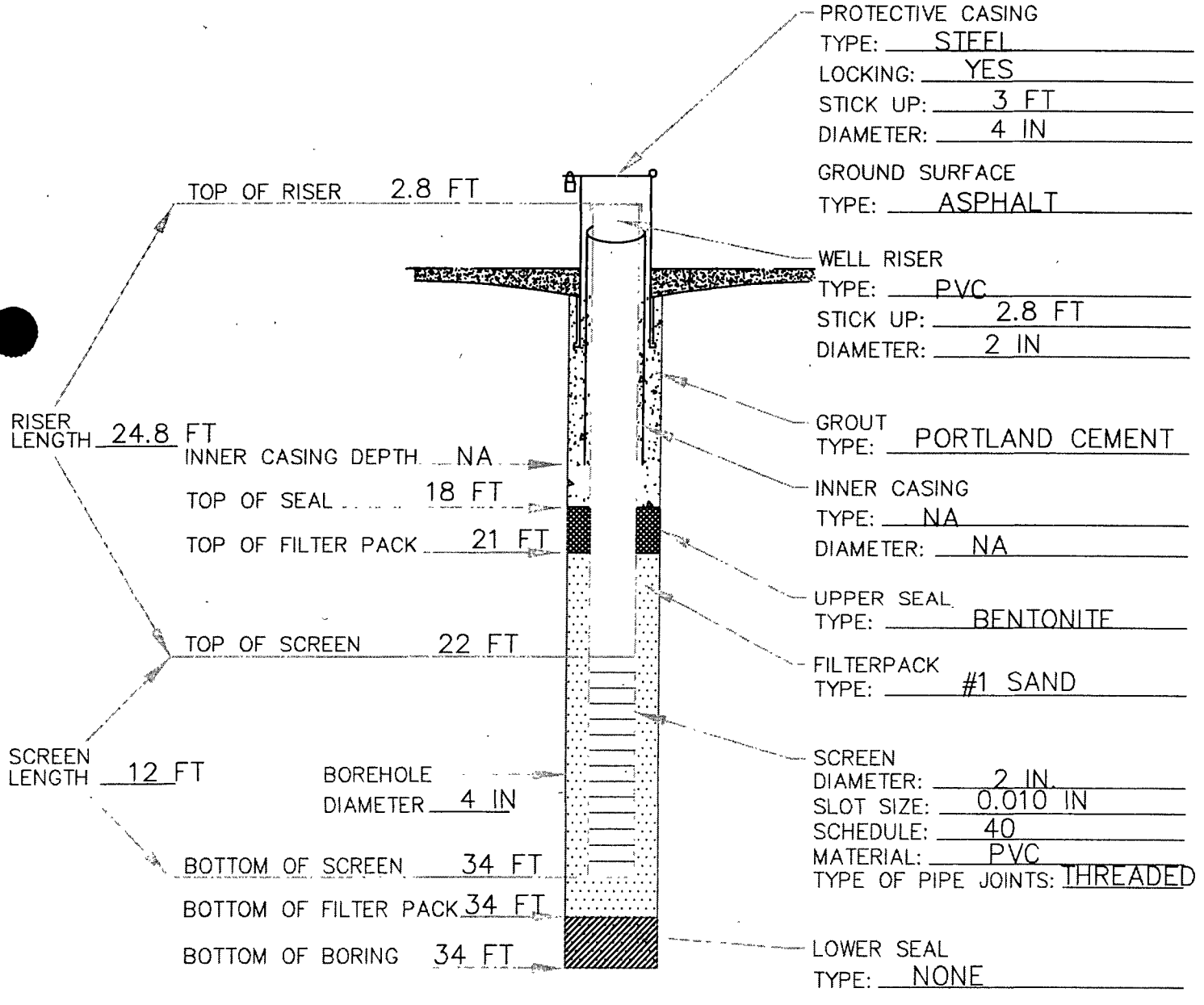
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-18I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/4/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 21.57' MSL ELEVATION TOP OF WELL RISER: 24.05' MSL	COORDINATES: N: 193650 E: 523170
DEPTH TO WATER: 12.45' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1210	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 34 FT	



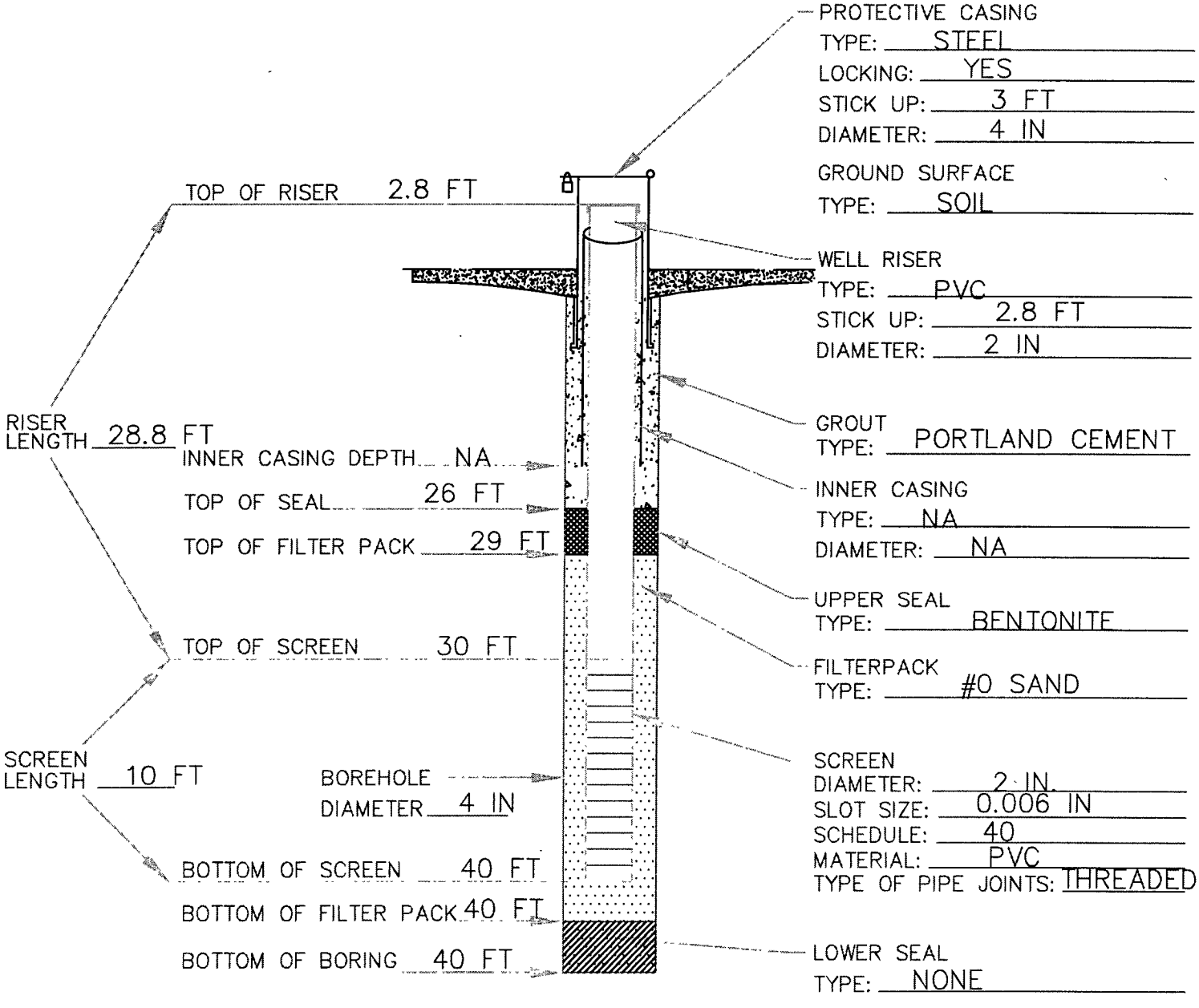
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-19I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/5/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 20.32' MSL ELEVATION TOP OF WELL RISER: 22.78' MSL	COORDINATES: N: 193774 E: 523311
DEPTH TO WATER: 12.09' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1223	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 32 FT	



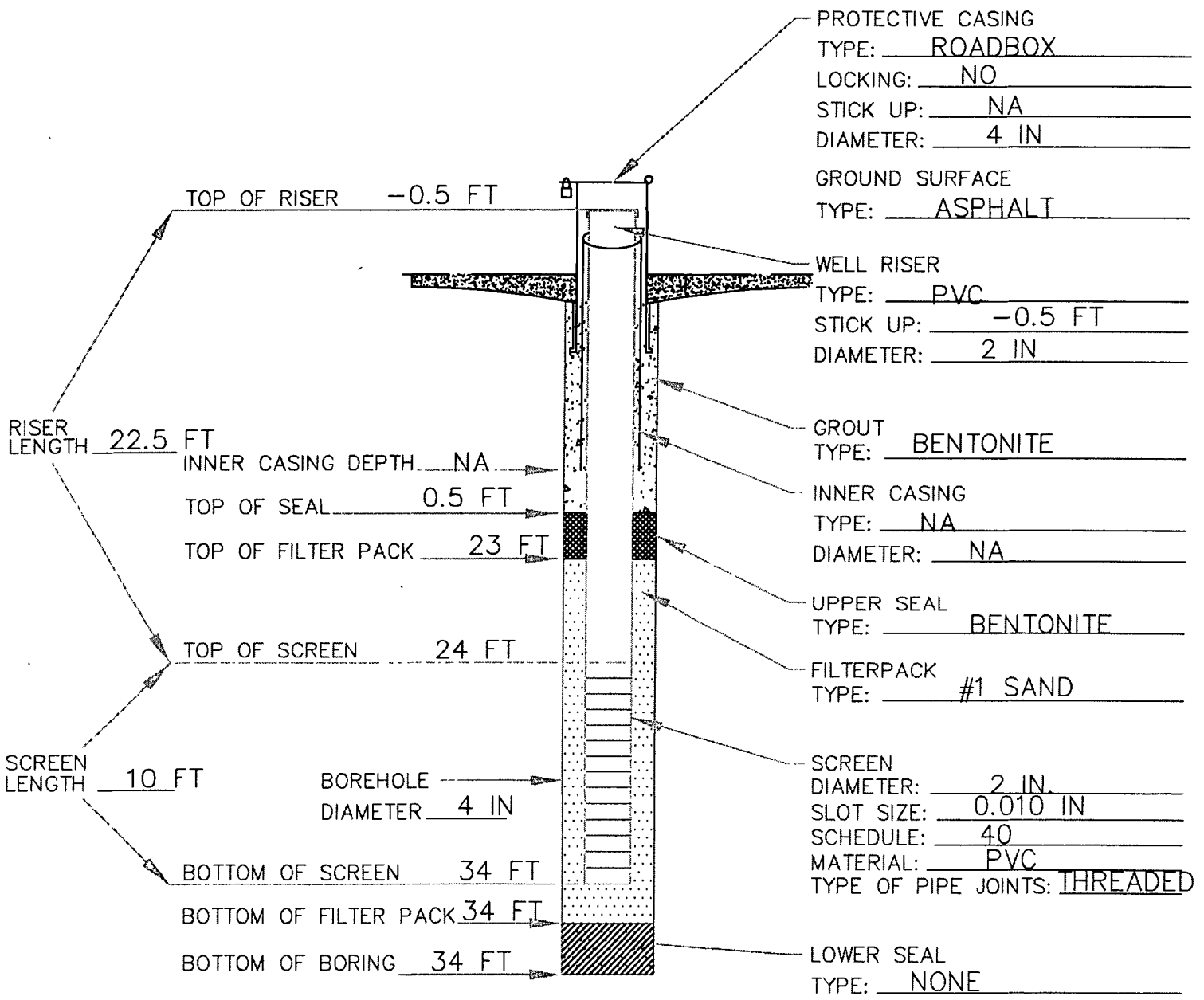
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-20I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/6/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 17.99' MSL ELEVATION TOP OF WELL RISER: 17.67' MSL	COORDINATES: N: 193958 E: 523484
DEPTH TO WATER: 8.41' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1017	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 34 FT	



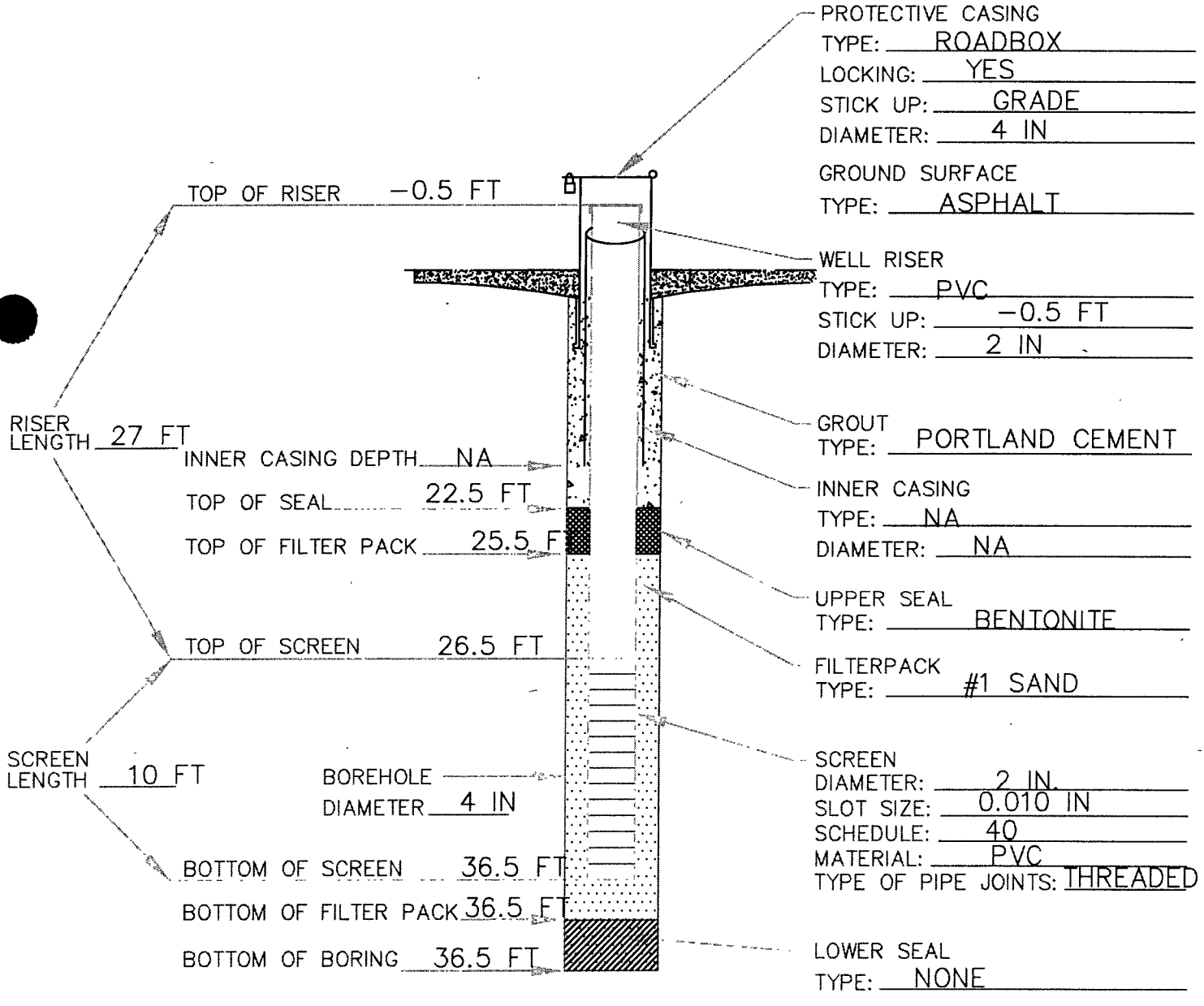
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-21I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/10/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 22.49' MSL ELEVATION TOP OF WELL RISER: 22.16' MSL	COORDINATES: N: 193921 E: 523070
DEPTH TO WATER: 10.60' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1040	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 36.5 FT	



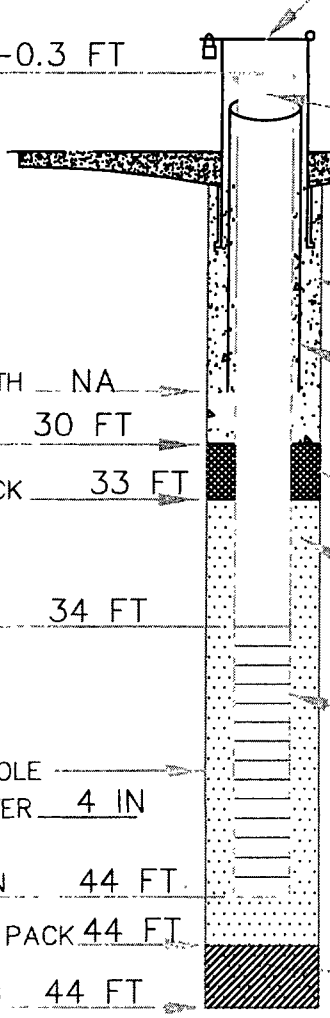
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-22I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/10/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 30.06' MSL ELEVATION TOP OF WELL RISER: 29.77' MSL	COORDINATES: N: 193984 E: 522941
DEPTH TO WATER: 18.72' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1050	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 44 FT	



TOP OF RISER -0.3 FT

RISER LENGTH 34.3 FT

INNER CASING DEPTH NA

TOP OF SEAL 30 FT

TOP OF FILTER PACK 33 FT

TOP OF SCREEN 34 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 44 FT

BOTTOM OF FILTER PACK 44 FT

BOTTOM OF BORING 44 FT

PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: YES
STICK UP: NA
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -0.3 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

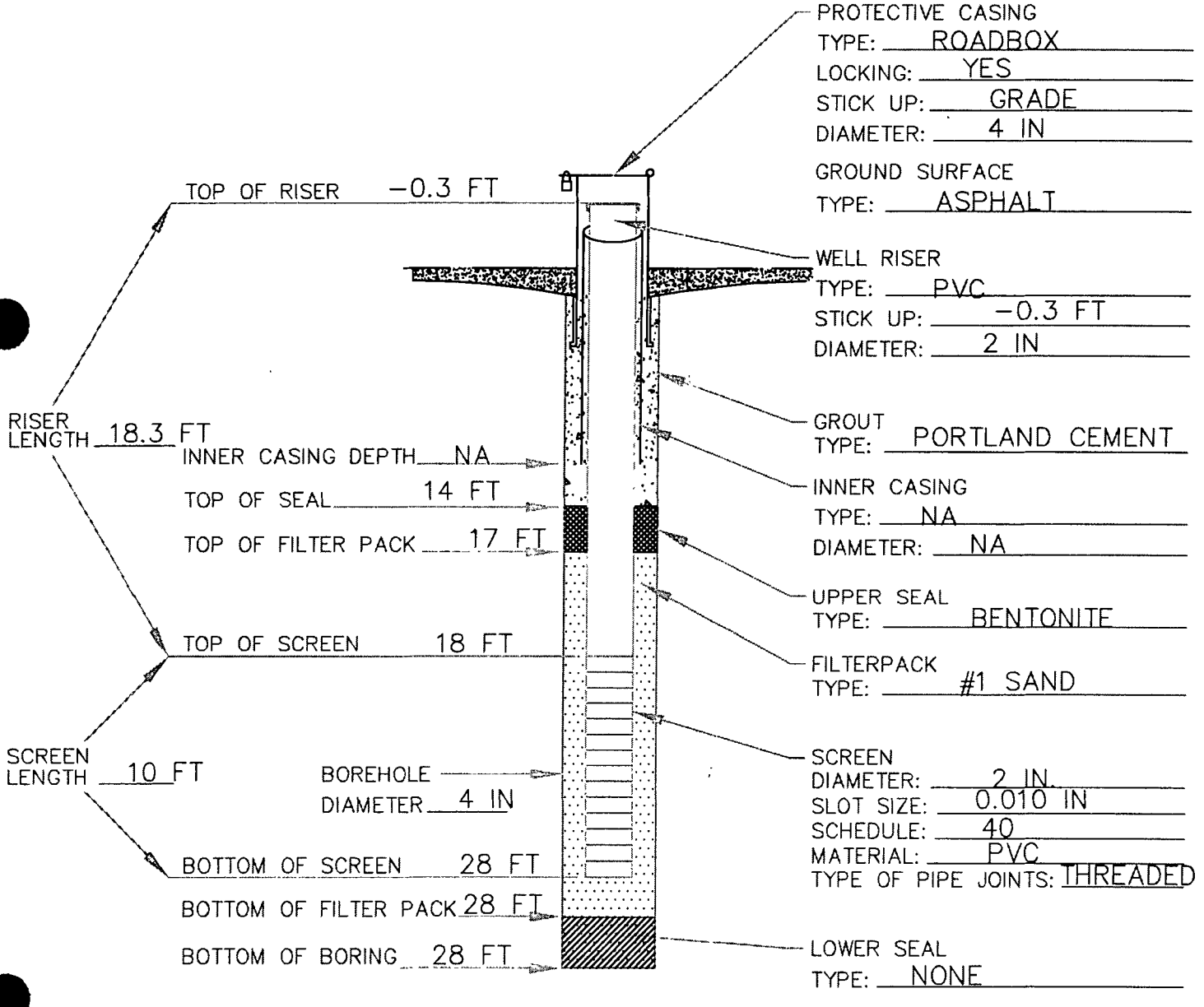
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-24I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/11/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 21.43' MSL ELEVATION TOP OF WELL RISER: 21.22' MSL	COORDINATES: N: 194039 E: 523257
DEPTH TO WATER: 10.83' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1033	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 28 FT	



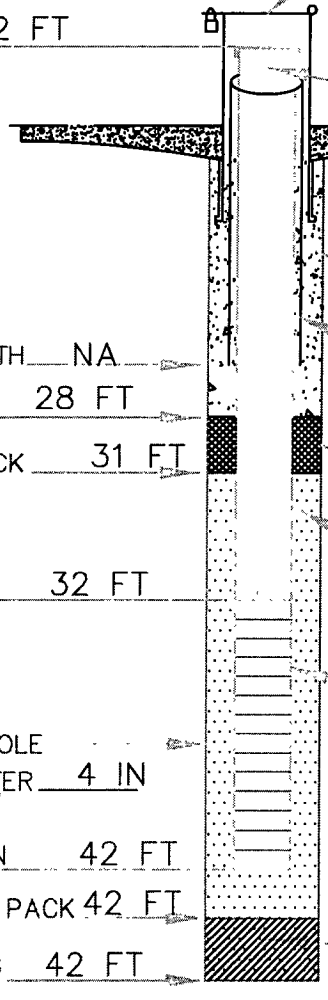
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-25I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/12/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 21.66' MSL ELEVATION TOP OF WELL RISER: 23.57' MSL	COORDINATES: N: 193805 E: 523154
DEPTH TO WATER: 11.98' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1219	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 42 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2 FT
DIAMETER: 4 IN

GROUND SURFACE
TYPE: GRASS

WELL RISER
TYPE: PVC
STICK UP: 2 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 2 FT

RISER LENGTH 34 FT

INNER CASING DEPTH NA

TOP OF SEAL 28 FT

TOP OF FILTER PACK 31 FT

TOP OF SCREEN 32 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 42 FT

BOTTOM OF FILTER PACK 42 FT

BOTTOM OF BORING 42 FT

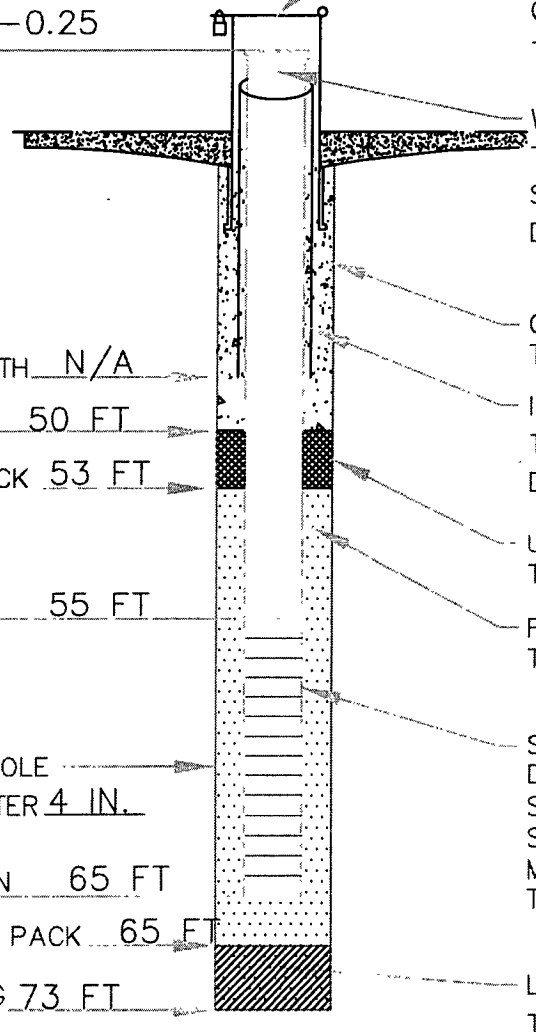
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-30D

CLIENT/SITE NAME: EFANE, NAVFAC NCBC DAVISVILLE, SITE 16, PHASE I RI	
DATE INSTALLED: 2/18 – 2/20/02	PROJECT No. 29600.97.3201
ELEVATION OF GROUND SURFACE: 30.22' MSL ELEVATION TOP OF WELL RISER: 29.95' MSL	COORDINATES: N: 193681 E: 522484
DEPTH TO WATER: N.A. (BELOW TOP OF RISER) DATE/TIME	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN. ID TEMPORARY STEEL CASING TO 65 FT 3 7/8-IN. DIAMETER ROLLERBIT 65 TO 68 FT NX-CORE FROM 68 TO 73 FT	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: YES
STICK UP: GRADE
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: --
DIAMETER: 2" ID

GROUT
TYPE: CEMENT/BENTONITE

INNER CASING
TYPE: N/A
DIAMETER: N/A

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #2 SAND

SCREEN
DIAMETER: 2 IN. ID
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

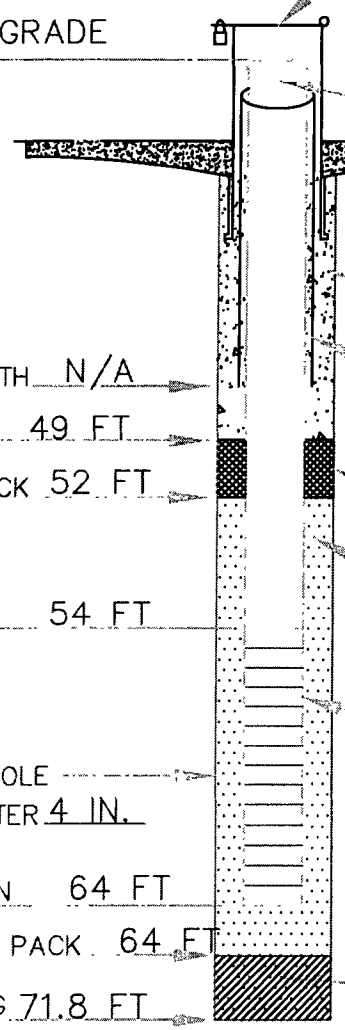
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASURMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-31D

CLIENT/SITE NAME: EFANE, NAVFAC NCBC DAVISVILLE, SITE 16, PHASE I RI	
DATE INSTALLED: 2/28/02	PROJECT No. 29600.97.3201
ELEVATION OF GROUND SURFACE: 30.29' MSL ELEVATION TOP OF WELL RISER: 29.72' MSL	COORDINATES: N: 193744 E: 522637
DEPTH TO WATER: 15.81 (BELOW TOP OF RISER) DATE/TIME 11/20/02	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: 4 1/4-IN. ID HOLLOW STEM AUGER TO 18 FT DRIVE AND WASH 4-IN. ID TEMPORARY STEEL CASING TO 62.2 FT 3 7/8-IN. DIAMETER ROLLERBIT 62.2 TO 67 FT NX-CORE FROM 67 TO 71.8 FT	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: YES
STICK UP: GRADE
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: --
DIAMETER: 2" ID

GROUT
TYPE: CEMENT/BENTONITE

INNER CASING
TYPE: N/A
DIAMETER: N/A

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #2 SAND

SCREEN
DIAMETER: 2 IN. ID
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

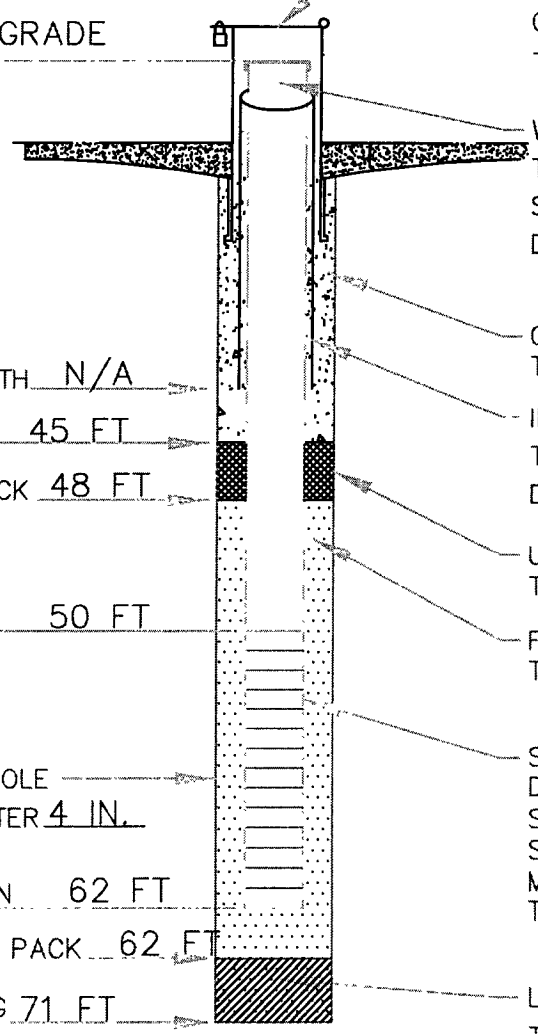
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASURMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-32D

CLIENT/SITE NAME: EFANE, NAVFAC NCBC DAVISVILLE, SITE 16, PHASE I RI	
DATE INSTALLED: 2/14/02	PROJECT No. 29600.97.3201
ELEVATION OF GROUND SURFACE: 30.14' MSL ELEVATION TOP OF WELL RISER: 29.60' MSL	COORDINATES: N: 193770 E: 522736
DEPTH TO WATER: 16.59 (BELOW TOP OF RISER) DATE/TIME 11/20/02	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: 4 1/4-IN. ID HOLLOW STEM AUGER TO 10 FT DRIVE AND WASH 4-IN. ID TEMPORARY STEEL CASING TO 61.8 FT 3 7/8-IN. ID ROLLERBIT 61.8 TO 66 FT, NX-CORE FROM 66 TO 71.2 FT	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: YES
STICK UP: GRADE
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: --
DIAMETER: 2 IN. ID

GROUT
TYPE: CEMENT/BENTONITE

INNER CASING
TYPE: N/A
DIAMETER: N/A

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #2 SAND

SCREEN
DIAMETER: 2 IN. ID
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

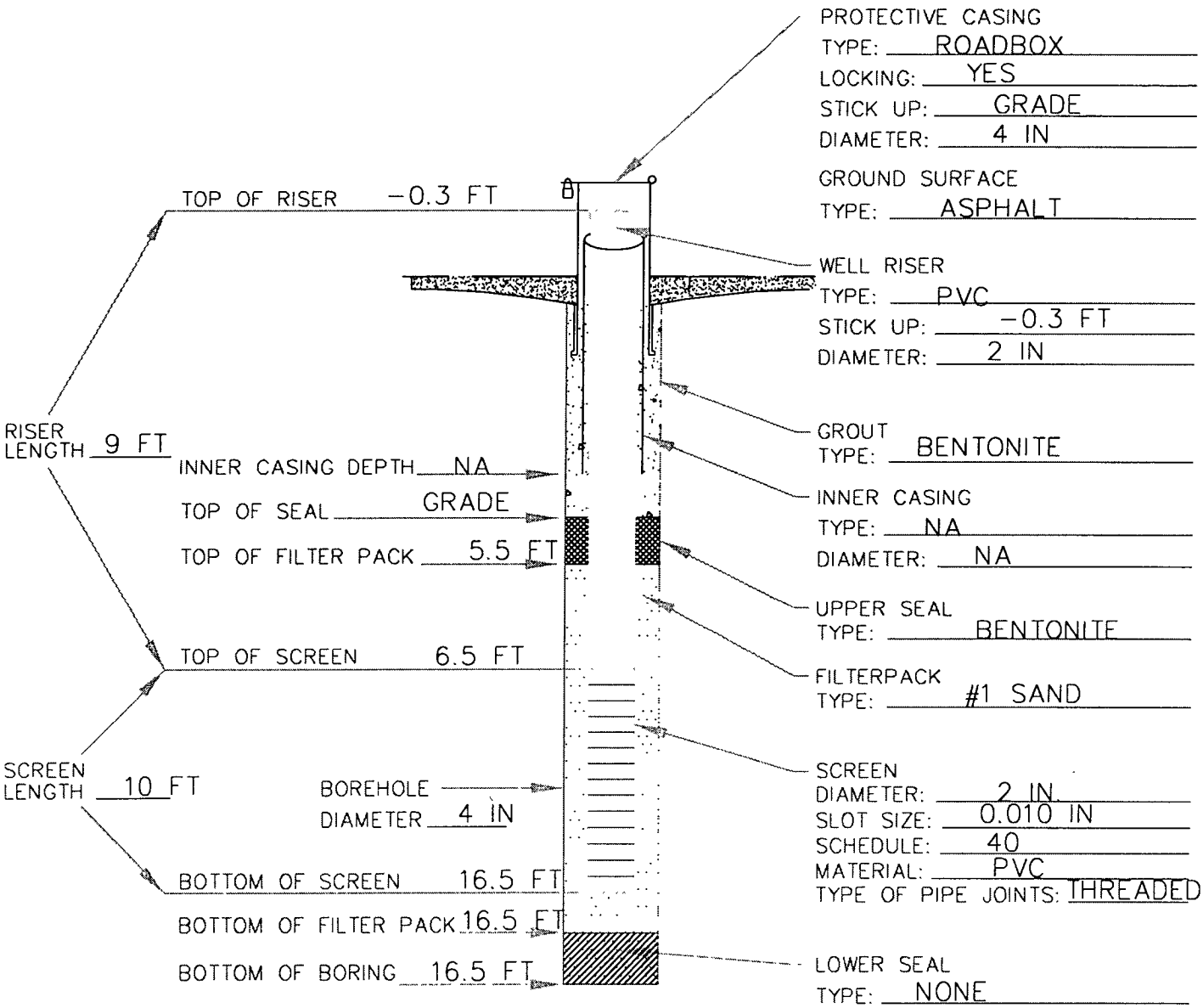
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASURMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-33S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED 9/12/02	PROJECT No 29600.97.3202
ELEVATION OF GROUND SURFACE 28.41' MSL ELEVATION TOP OF WELL RISER 28.12' MSL	COORDINATES. N: 193400 E: 522520
DEPTH TO WATER. NA (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1145	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: 4 1/4-IN DIAMETER HOLLOW STEM AUGER TO 16.5 FT	



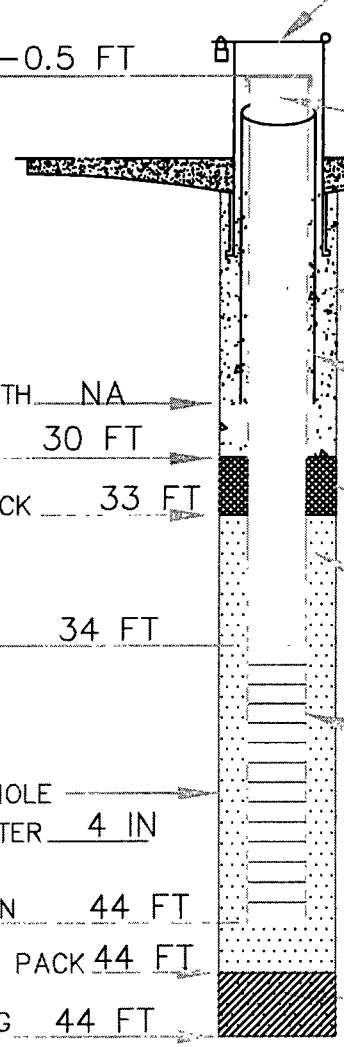
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-33I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 10/3/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 28.63' MSL ELEVATION TOP OF WELL RISER: 28.29' MSL	COORDINATES: N: 193406 E: 522515
DEPTH TO WATER: 13.26' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1145	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 44 FT	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: NO
STICK UP: GRADE
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -0.5 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #0 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.006 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER -0.5 FT

RISER LENGTH 29.5 FT

INNER CASING DEPTH NA

TOP OF SEAL 30 FT

TOP OF FILTER PACK 33 FT

TOP OF SCREEN 34 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 44 FT

BOTTOM OF FILTER PACK 44 FT

BOTTOM OF BORING 44 FT

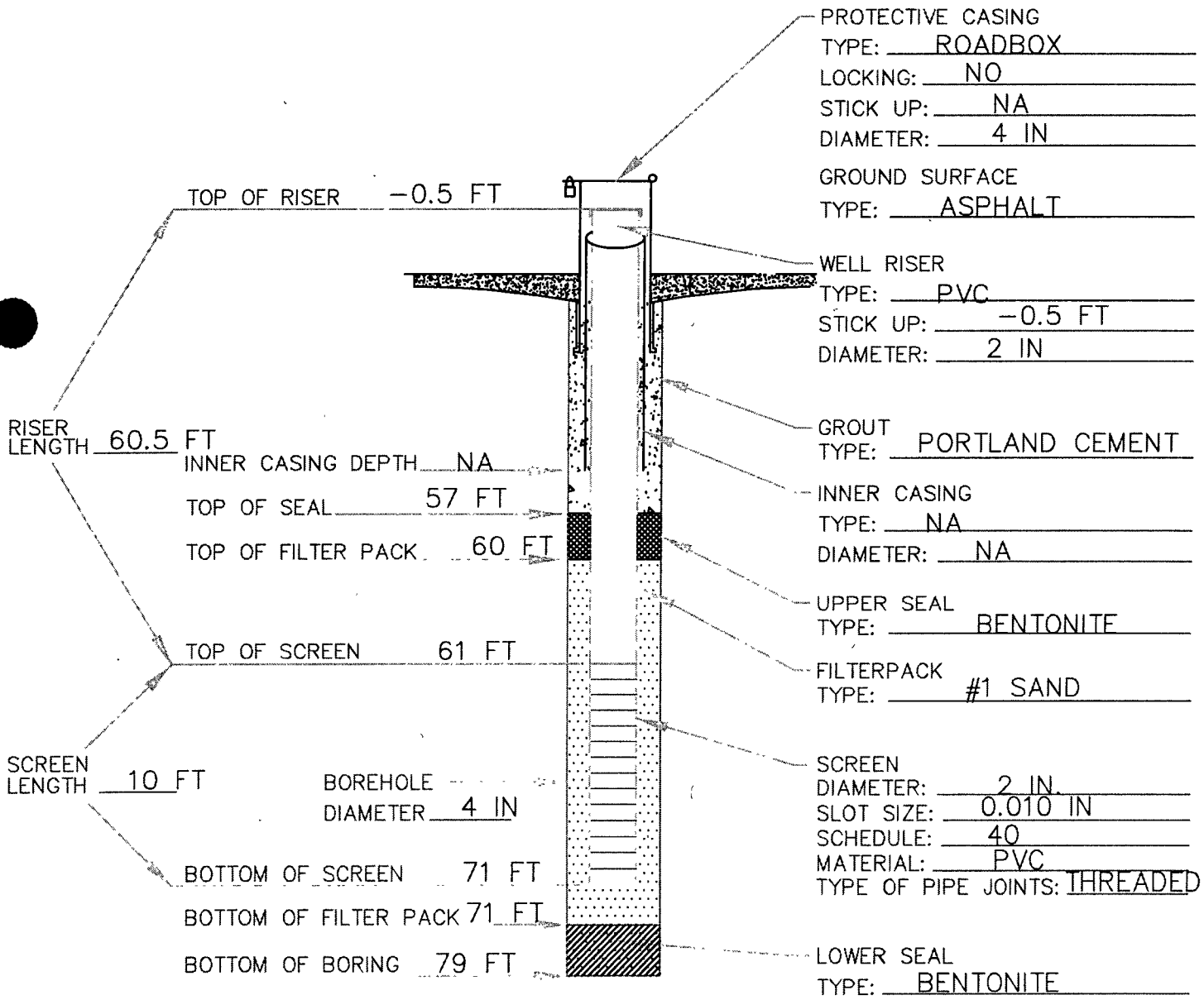
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-33D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/30/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 28.43' MSL ELEVATION TOP OF WELL RISER: 27.85' MSL	COORDINATES: N: 193399 E: 522515
DEPTH TO WATER: 13.04' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1145	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 68 FT 3 7/8-IN DIAMETER ROLLERBIT TO 74 FT NX CORE TO 79 FT	



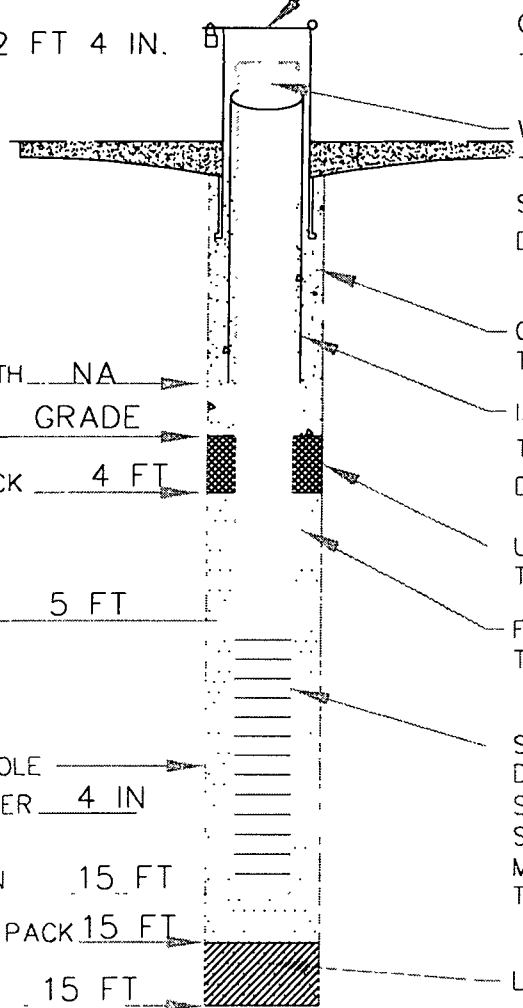
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-34S

CLIENT/SITE NAME. NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/13/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 26.76' MSL ELEVATION TOP OF WELL RISER: 29.06' MSL	COORDINATES: N: 193555 E: 522728
DEPTH TO WATER: NA (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1200	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: 4 1/4 IN HSA TO 15 FT BGS	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2 FT
DIAMETER: 7 IN

GROUND SURFACE
TYPE: ASPHALT/SOIL

WELL RISER
TYPE: PVC
STICK UP: 2 FT 4 IN.
DIAMETER: 2 IN

GROUT
TYPE: BENTONITE

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 2 FT 4 IN.

RISER LENGTH 7 FT

INNER CASING DEPTH NA

TOP OF SEAL GRADE

TOP OF FILTER PACK 4 FT

TOP OF SCREEN 5 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 15 FT

BOTTOM OF FILTER PACK 15 FT

BOTTOM OF BORING 15 FT

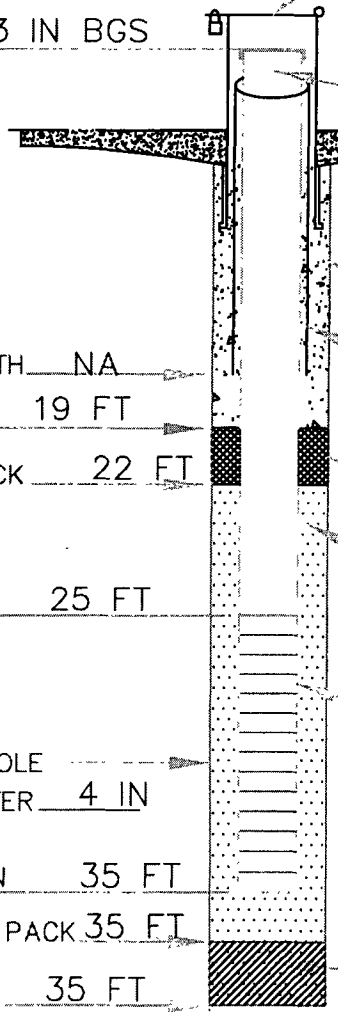
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-34I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 10/7/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 29.16' MSL ELEVATION TOP OF WELL RISER: 29.21' MSL	COORDINATES: N: 193551 E: 522732
DEPTH TO WATER: 14.50' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1200	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 35 FT	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: NO
STICK UP: GRADE
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -3 IN
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #0 SAND

SCREEN
DIAMETER: 2 IN
SLOT SIZE: 0.006 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 3 IN BGS

RISER LENGTH 24.8 FT

INNER CASING DEPTH NA

TOP OF SEAL 19 FT

TOP OF FILTER PACK 22 FT

TOP OF SCREEN 25 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 35 FT

BOTTOM OF FILTER PACK 35 FT

BOTTOM OF BORING 35 FT

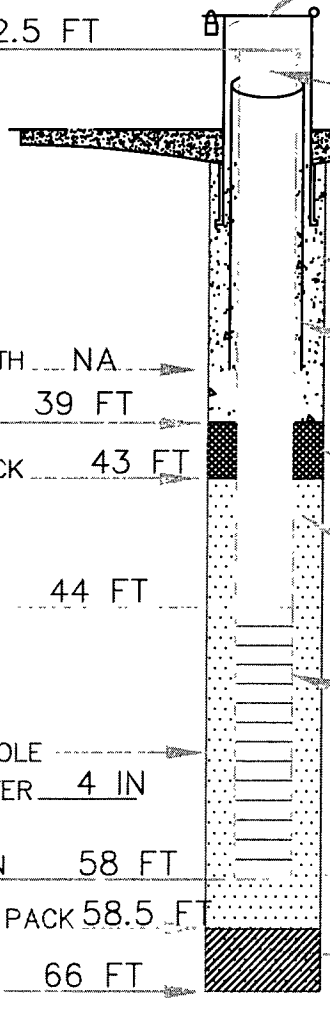
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-34D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/22/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 26.54' MSL ELEVATION TOP OF WELL RISER: 29.33' MSL	COORDINATES: N: 193555 E: 522732
DEPTH TO WATER: 15.21 (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1200	EA INSPECTOR: J. GATHERER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 55.5 FT 3 7/8-IN DIAMETER ROLLERBIT TO 57.5 FT NX-CORE TO 66 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 3 FT
DIAMETER: 4 IN

GROUND SURFACE
TYPE: GRAVEL

WELL RISER
TYPE: PVC
STICK UP: 2.5 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 2.5 FT

RISER LENGTH 46.5 FT

INNER CASING DEPTH NA

TOP OF SEAL 39 FT

TOP OF FILTER PACK 43 FT

TOP OF SCREEN 44 FT

SCREEN LENGTH 14 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 58 FT

BOTTOM OF FILTER PACK 58.5 FT

BOTTOM OF BORING 66 FT

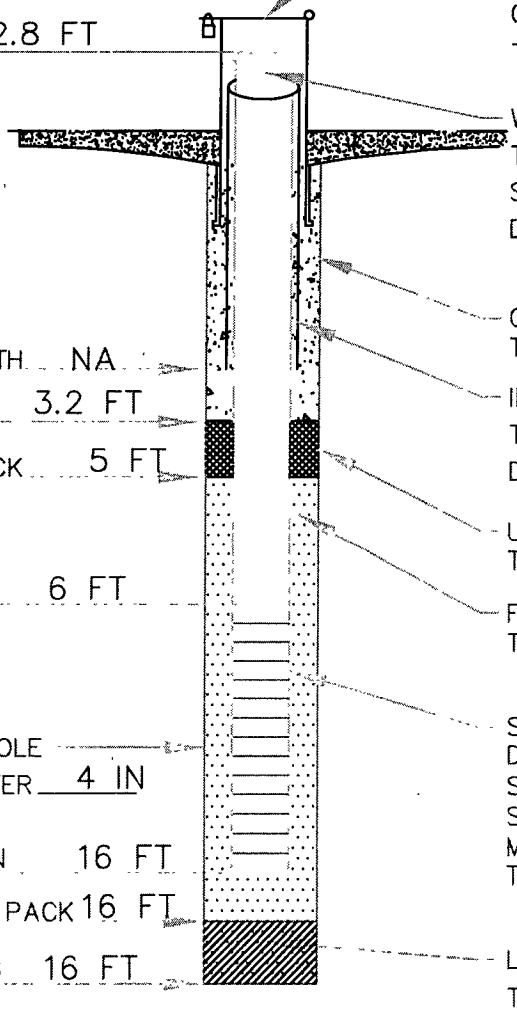
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-35S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/20/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 23.73' MSL ELEVATION TOP OF WELL RISER: 26.22' MSL	COORDINATES: N: 193560 E: 522966
DEPTH TO WATER: 12.28' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1203	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 16 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2.8 FT
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: 2.6 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 2.8 FT

RISER LENGTH 8.8 FT

INNER CASING DEPTH NA

TOP OF SEAL 3.2 FT

TOP OF FILTER PACK 5 FT

TOP OF SCREEN 6 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 16 FT

BOTTOM OF FILTER PACK 16 FT

BOTTOM OF BORING 16 FT

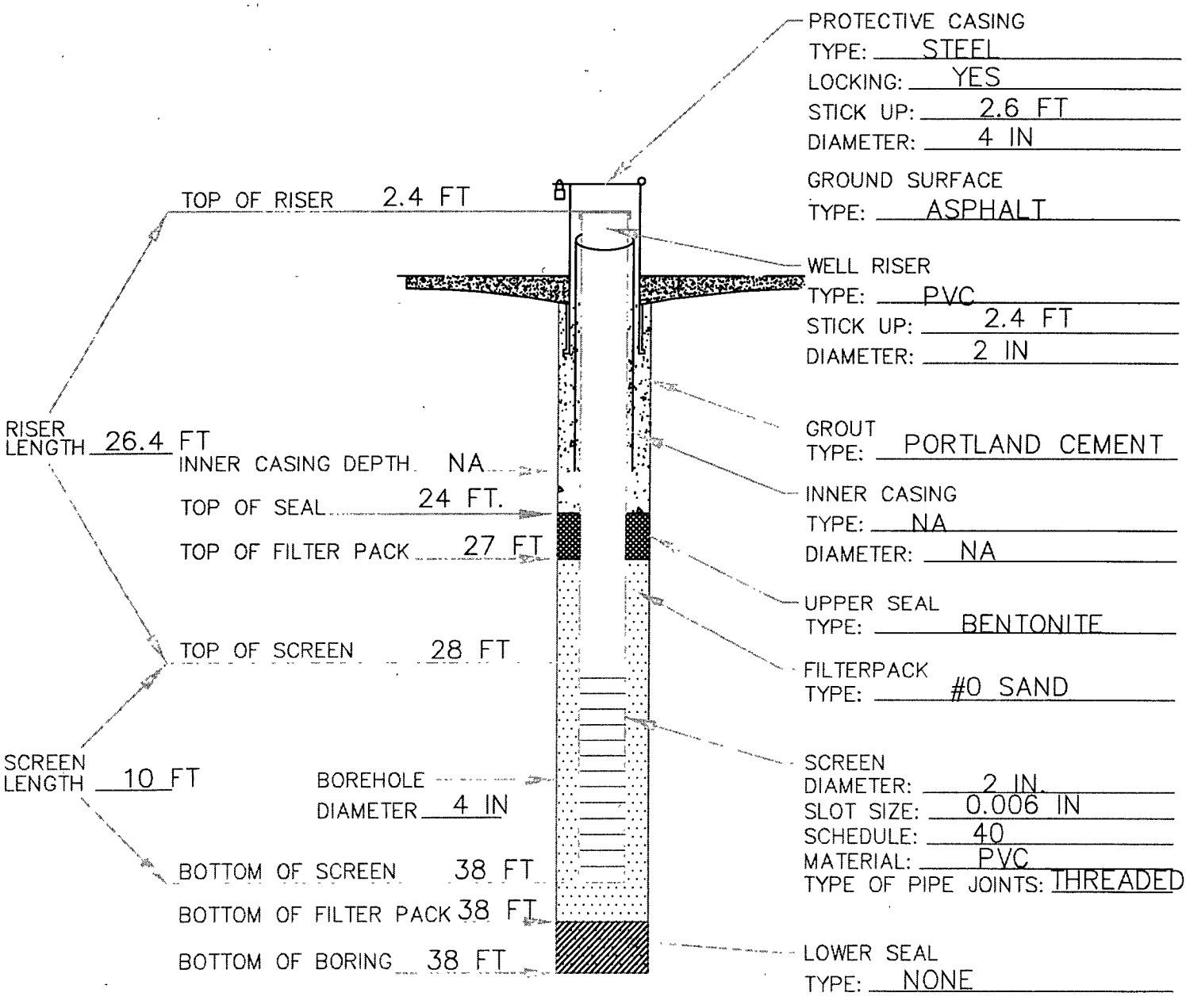
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-35I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 10/01/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 23.55' MSL ELEVATION TOP OF WELL RISER: 25.82' MSL	COORDINATES: N: 193555 E: 522967
DEPTH TO WATER: 12.21' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1203	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 38 FT	



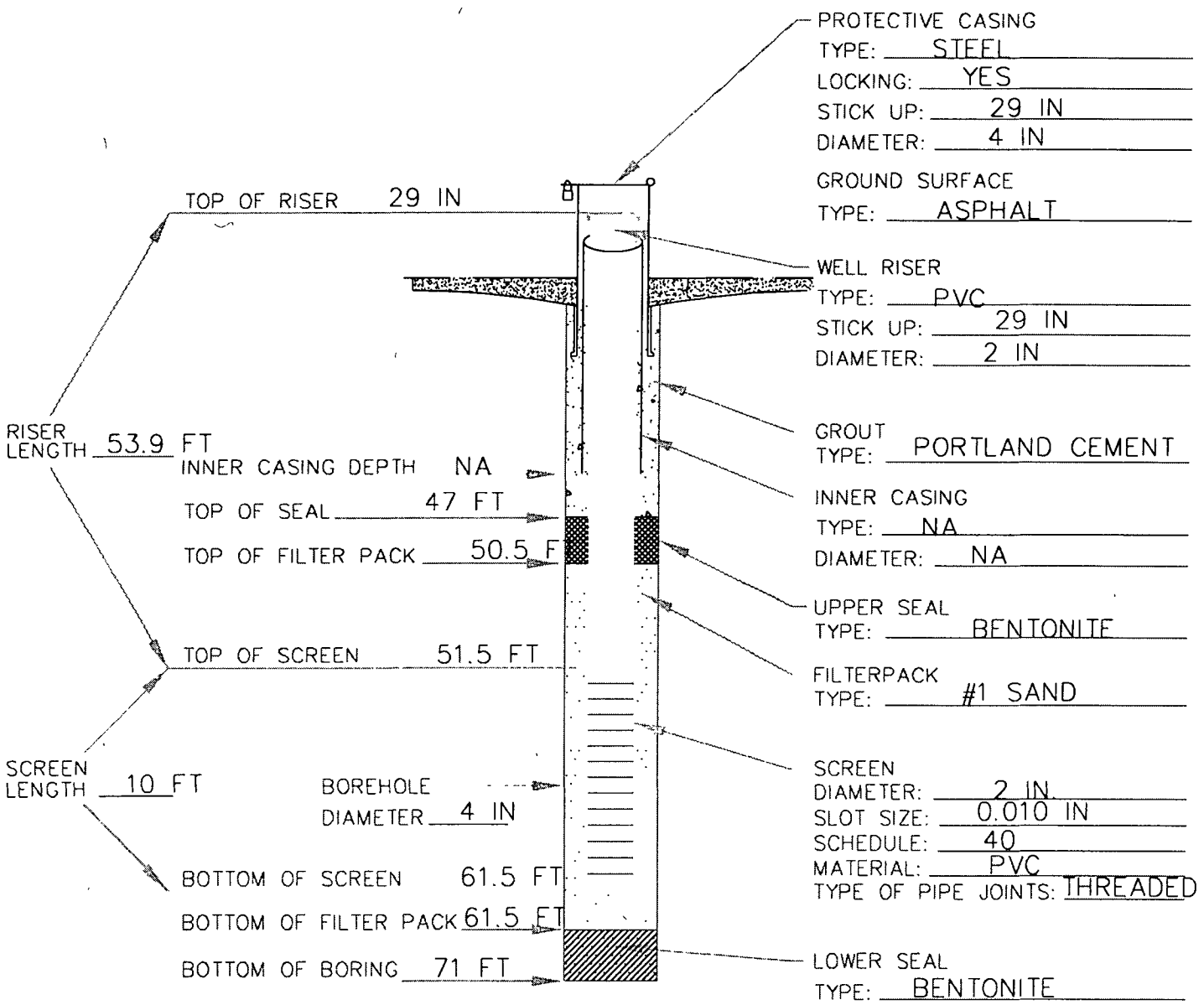
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-35D

CLIENT/SITE NAME. NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/15/02	PROJECT No 29600.97.3202
ELEVATION OF GROUND SURFACE: 23.59' MSL ELEVATION TOP OF WELL RISER: 25.79' MSL	COORDINATES. N. 193560 E: 522970
DEPTH TO WATER: 12.41' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1203	EA INSPECTOR. S. SHEER
DRILLING METHOD & DEPTH DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 63 FT 3 7/8-IN DIAMETER ROLLERBIT TO 66 FT NX CORE TO 71 FT	



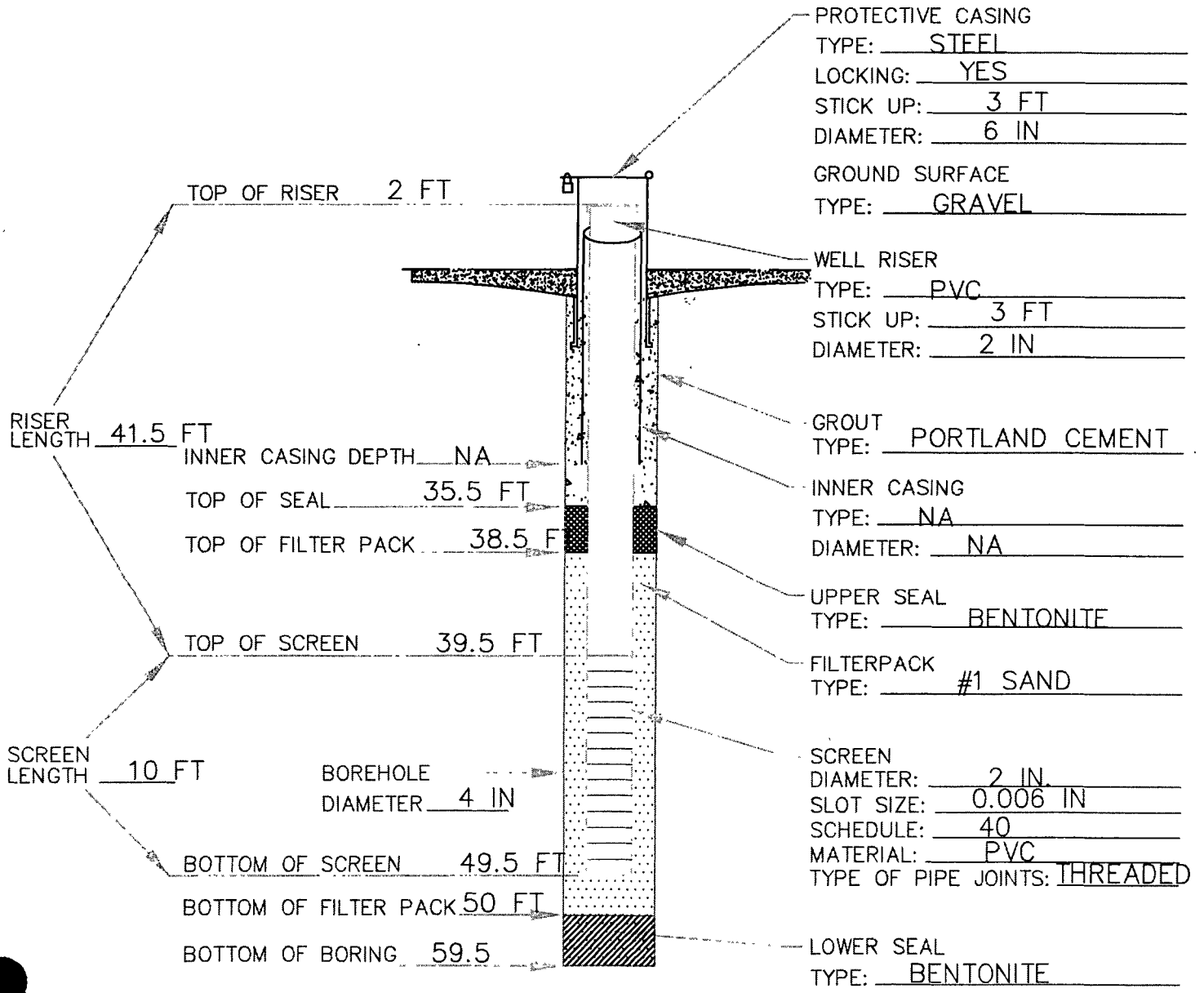
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-36D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/15/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 20.44' MSL ELEVATION TOP OF WELL RISER: 23.60' MSL	COORDINATES: N: 193204 E: 523078
DEPTH TO WATER: 11.42' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1153	EA INSPECTOR: J. GATHERER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 50 FT 3-IN ID TEMPORARY STEEL CASING TO 54 FT NX CORE TO 59.5 FT	



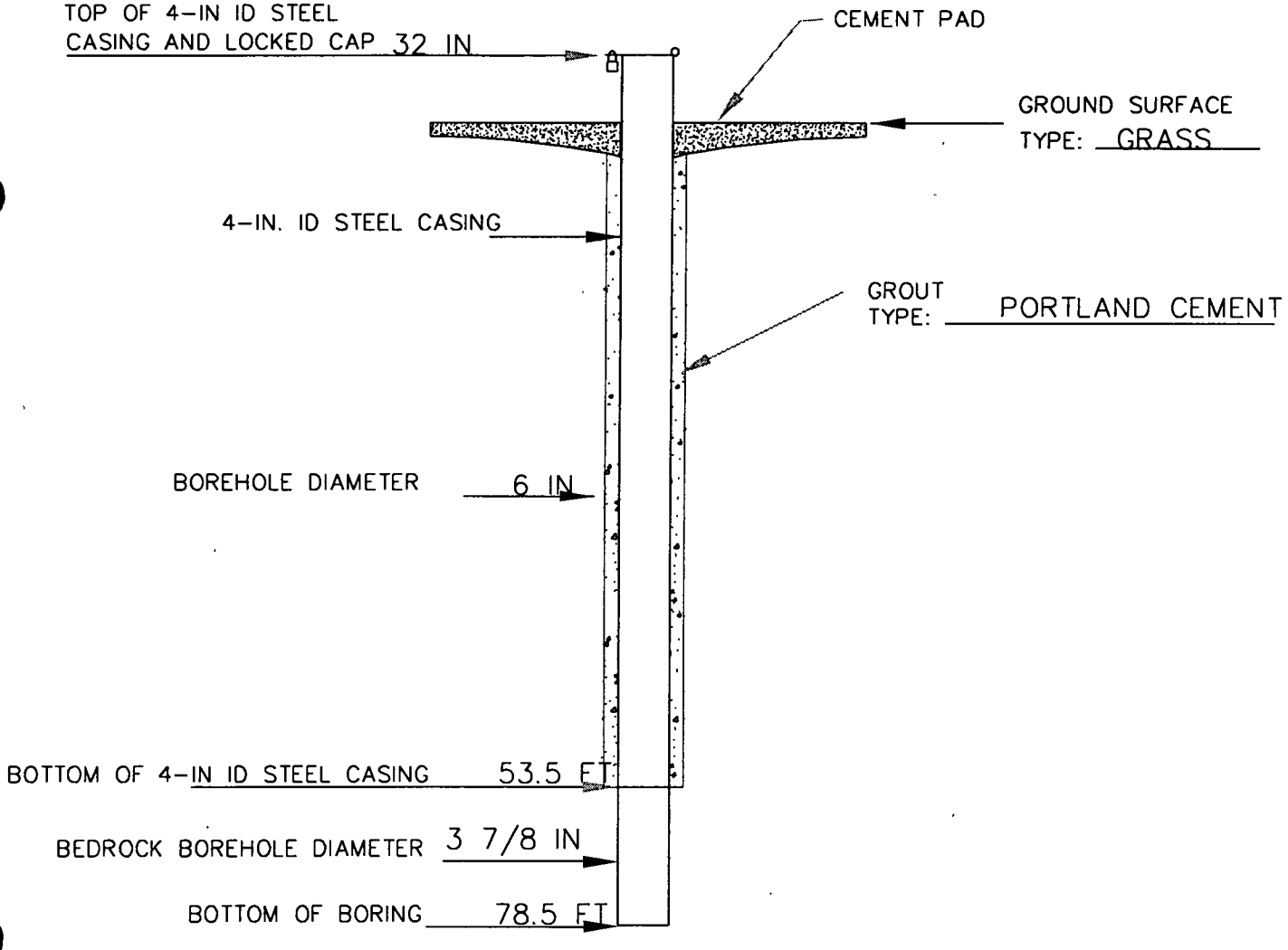
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-36R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 8/30/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 20.54' MSL ELEVATION TOP OF WELL RISER: 22.51' MSL	COORDINATES: N: 193203 E: 523072
DEPTH TO WATER: 10.44' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1153	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 6-IN DIAMETER TEMPORARY STEEL CASING TO 50.5 FT 4-IN ID TEMPORARY STEEL CASING TO 53.5 FT 3 7/8-IN DIAMETER ROLLERBIT TO 78.5 FT	



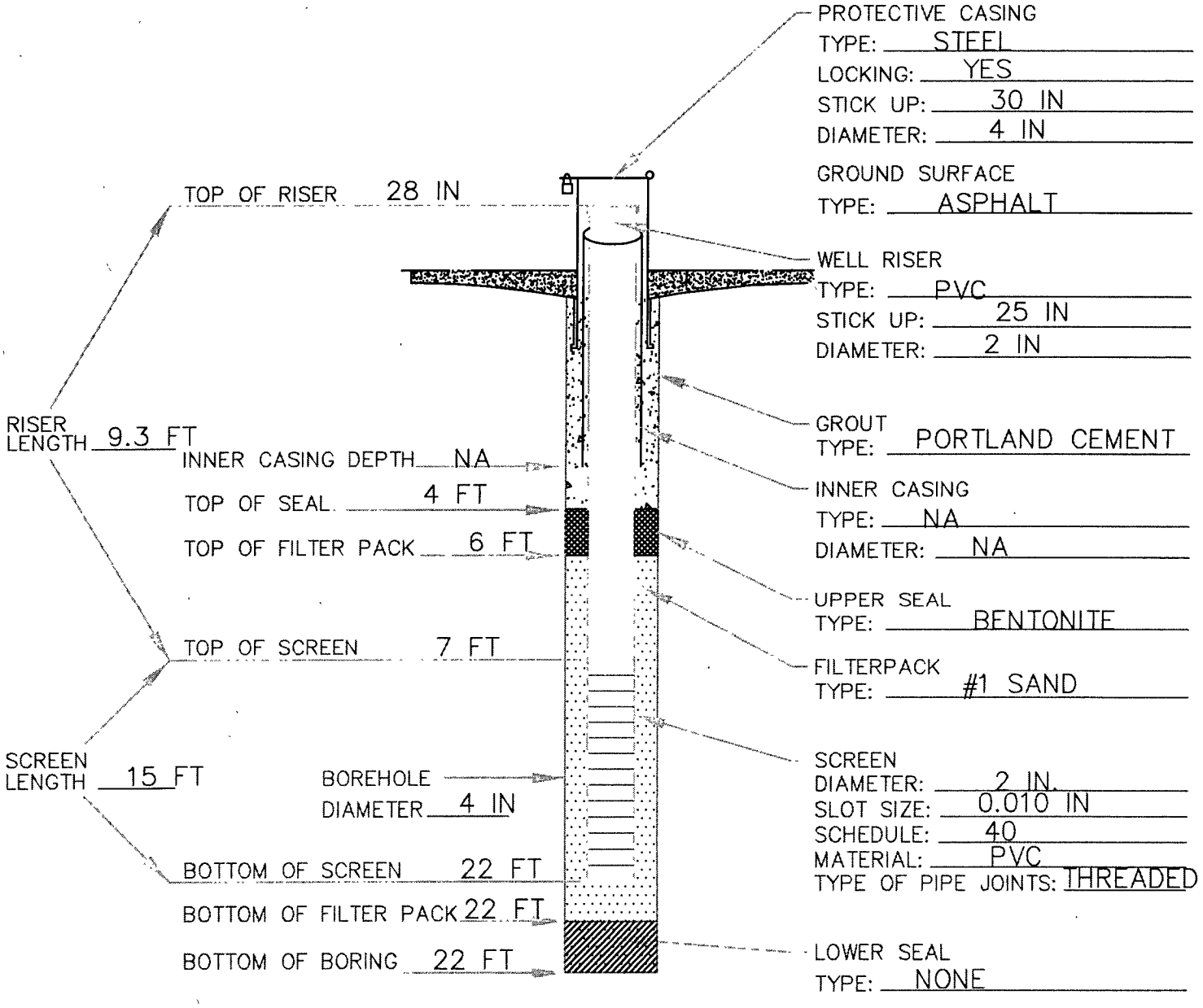
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-37S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/13/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 25.34' MSL ELEVATION TOP OF WELL RISER: 27.53' MSL	COORDINATES: N: 193663 E: 522866
DEPTH TO WATER: 15.23' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1206	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 22 FT	



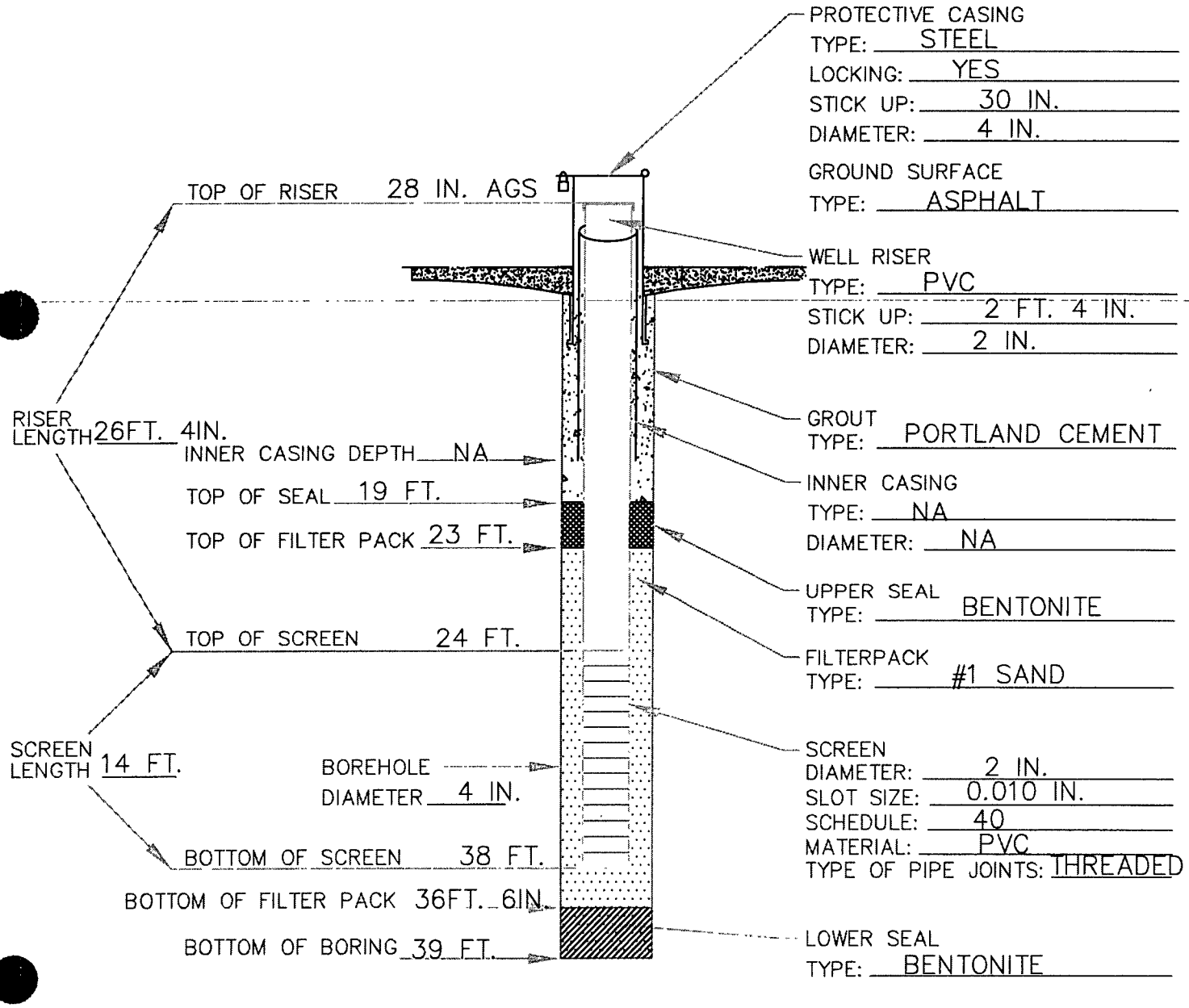
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-37I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/13/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 25.45' MSL ELEVATION TOP OF WELL RISER: 27.72' MSL	COORDINATES: N: 193664 E: 522863
DEPTH TO WATER: 13.53' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1206	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 38 FT	



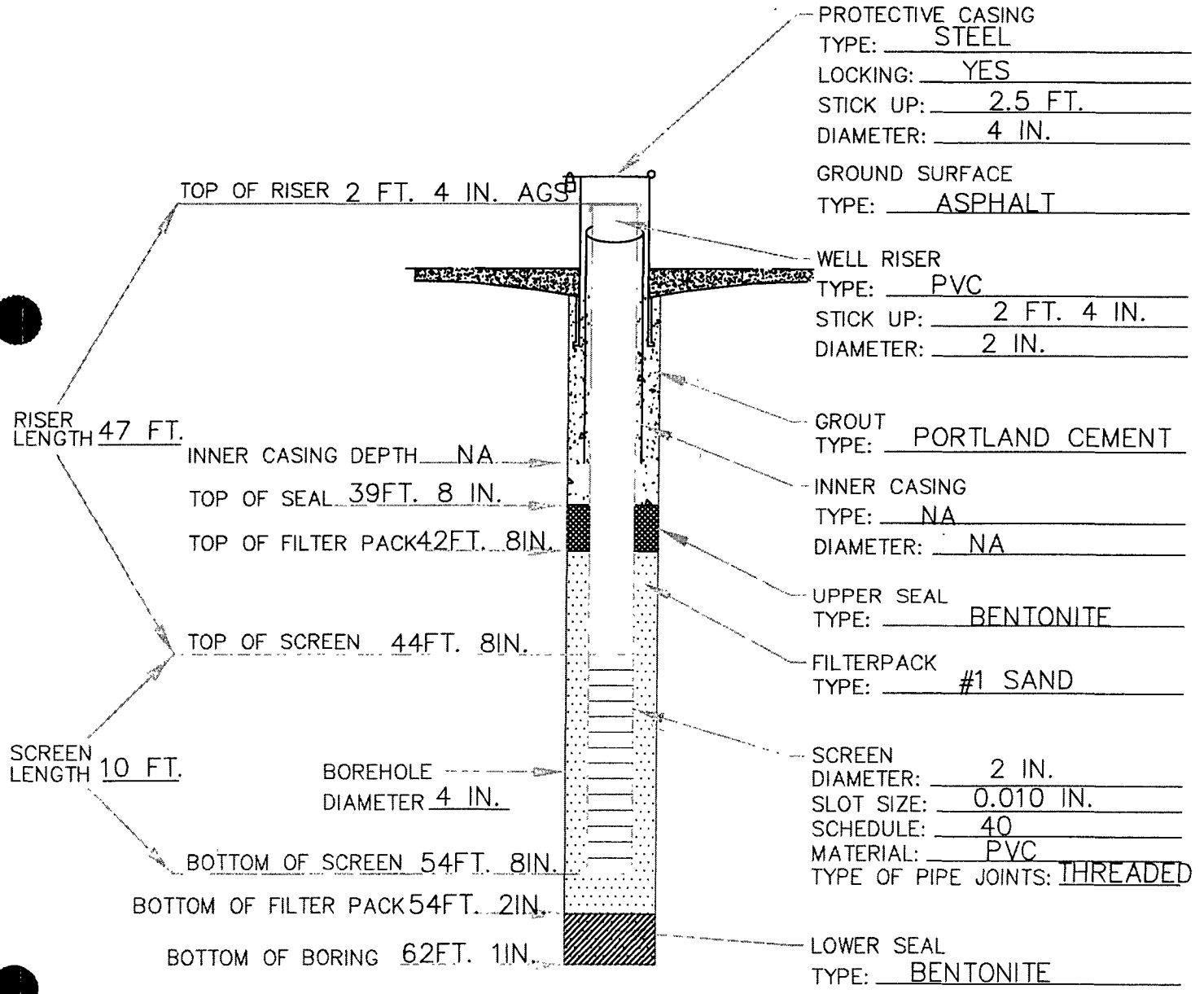
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-37D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/12/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 25.38' MSL ELEVATION TOP OF WELL RISER: 27.73' MSL	COORDINATES: N: 193664 E: 522867
DEPTH TO WATER: 14.14' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1206	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 53 FT 3 7/8-IN DIAMETER ROLLERBIT TO 57 FT. 8 IN. NX CORE 57 FT. 8 IN. TO 62 FT. 1 IN.	



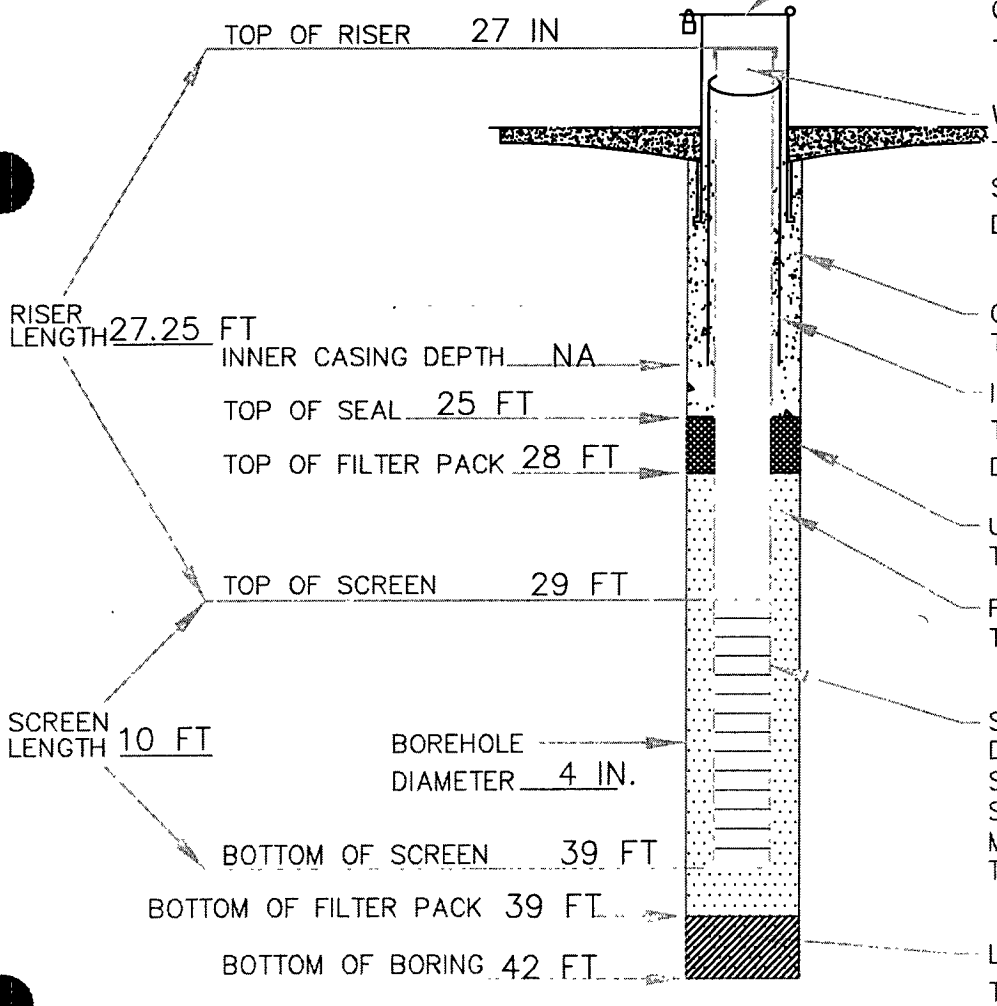
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-38I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/17/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 22.63' MSL ELEVATION TOP OF WELL RISER: 24.94' MSL	COORDINATES: N: 193802 E: 523056
DEPTH TO WATER: 13.03' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1218	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 42 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 30 IN.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: SOIL

WELL RISER
TYPE: PVC
STICK UP: 27 IN
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

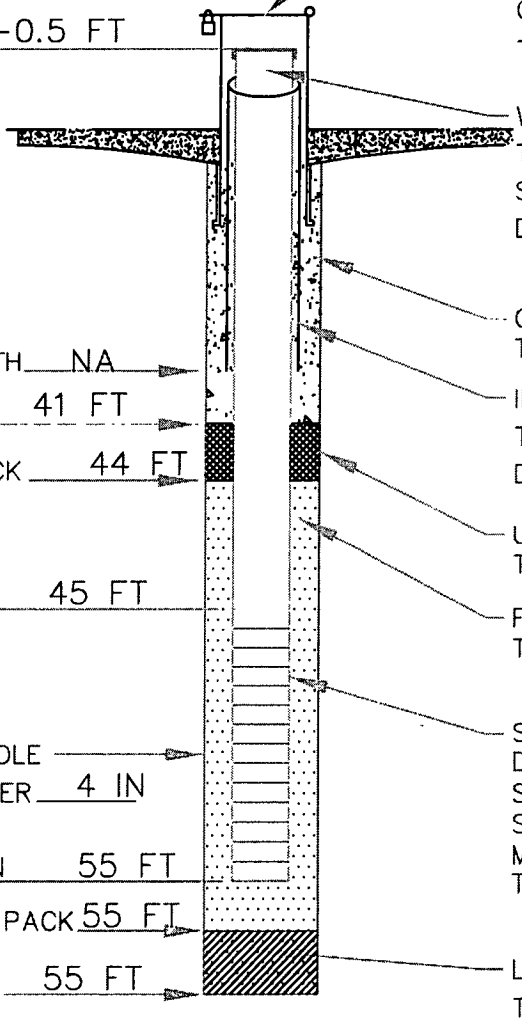
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-39I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 10/8/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 15.83' MSL ELEVATION TOP OF WELL RISER: 15.25' MSL	COORDINATES: N: 193750 E: 523825
DEPTH TO WATER: 8.12' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1027	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 55 FT	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: NO
STICK UP: GRADE
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -0.5 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #0 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.006 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER -0.5 FT

RISER LENGTH 40.5 FT

INNER CASING DEPTH NA

TOP OF SEAL 41 FT

TOP OF FILTER PACK 44 FT

TOP OF SCREEN 45 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 55 FT

BOTTOM OF FILTER PACK 55 FT

BOTTOM OF BORING 55 FT

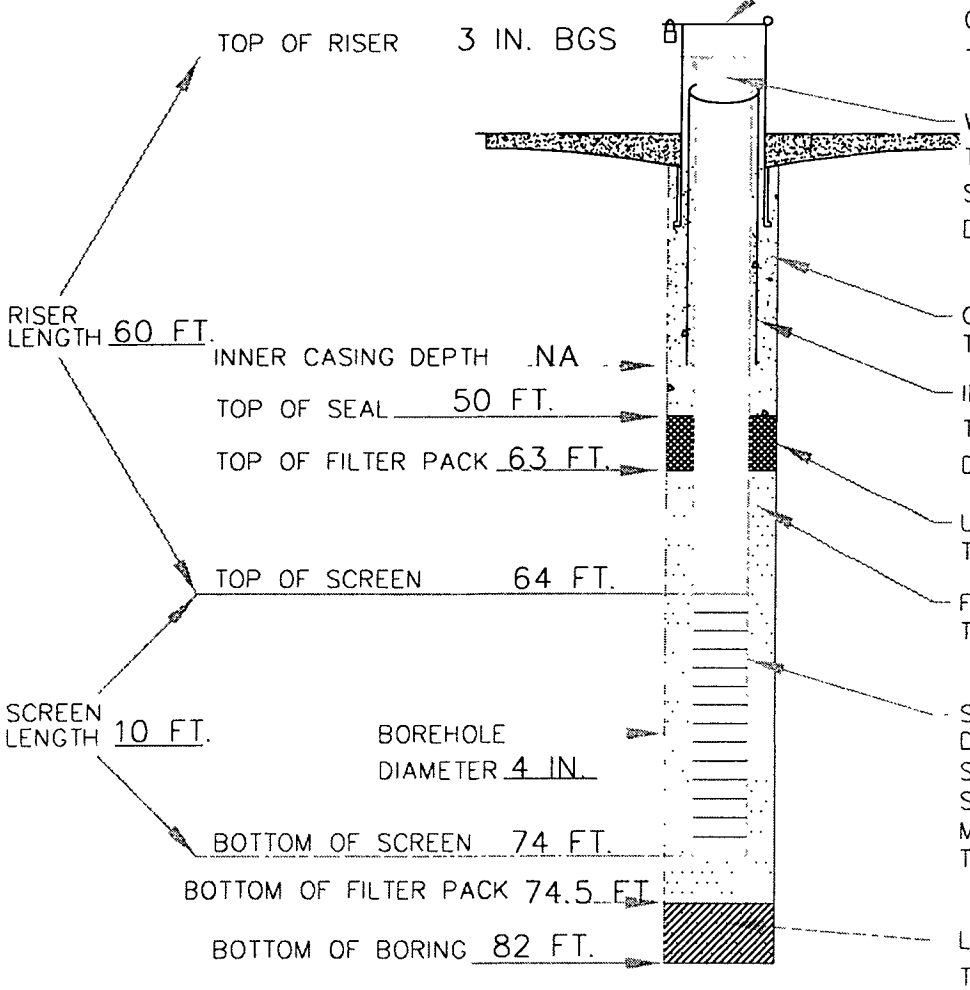
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-39D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/5/02	PROJECT No 29600.97.3202
ELEVATION OF GROUND SURFACE: 15.62' MSL ELEVATION TOP OF WELL RISER: 15.40' MSL	COORDINATES: N: 193755 E: 523830
DEPTH TO WATER: 8.42' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1027	EA INSPECTOR S. SHEER
DRILLING METHOD & DEPTH. DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 74 FT 3 7/8-IN DIAMETER ROLLERBIT TO 77 FT. NX-CORE 77 TO 82 FT.	



PROTECTIVE CASING
TYPE: STEEL ROADBOX
LOCKING: YES
STICK UP: FLUSHMOUNT
DIAMETER: 6 IN.

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -3 IN.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

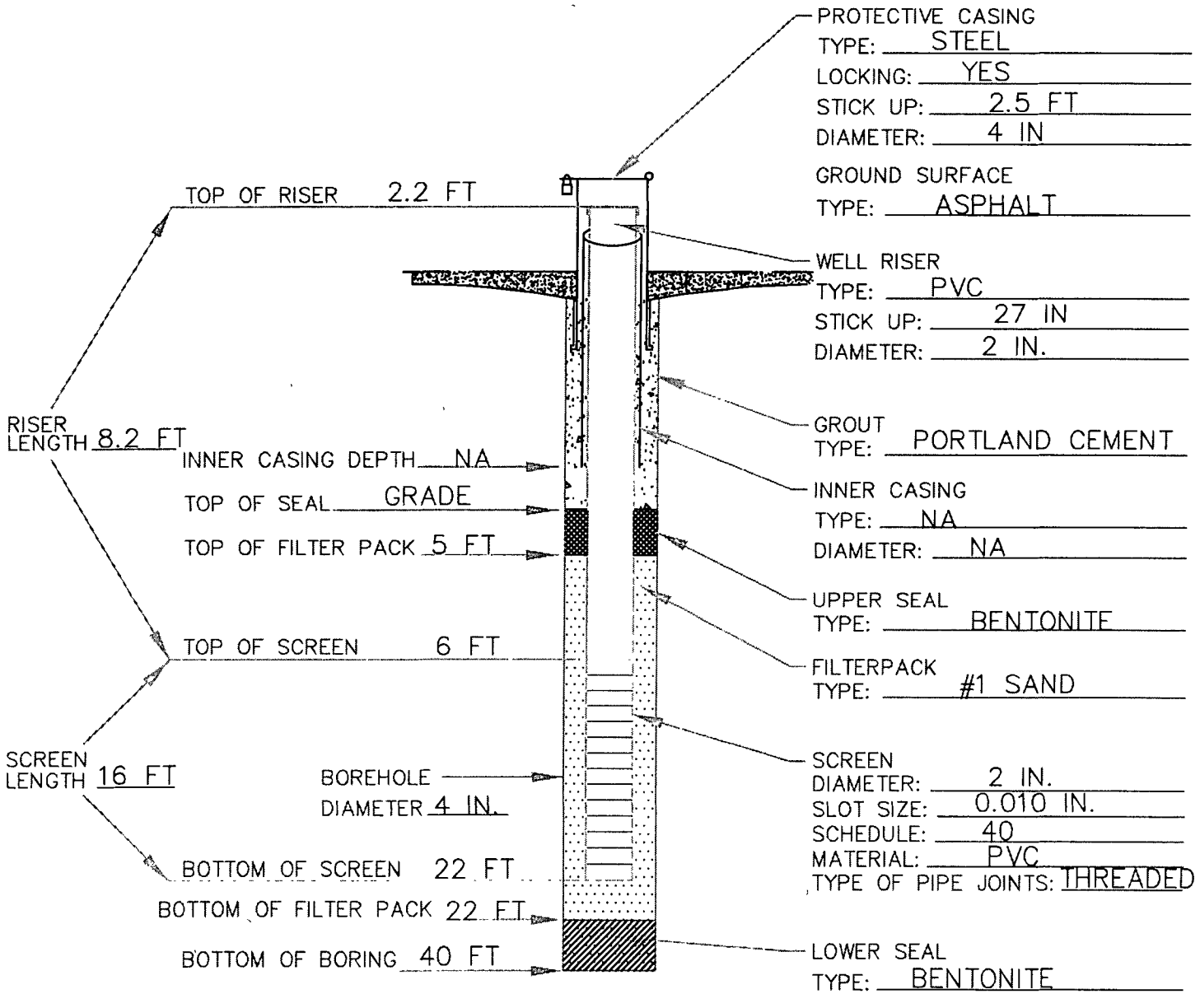
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-40S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/23/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 23.71' MSL ELEVATION TOP OF WELL RISER: 26.06' MSL	COORDINATES: N: 194179 E: 523072
DEPTH TO WATER: 16.58' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1008	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 40 FT	



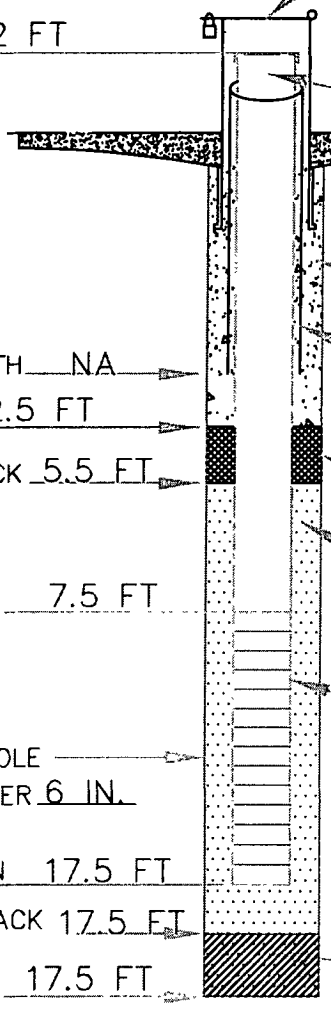
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-41S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/6/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 20.73' MSL ELEVATION TOP OF WELL RISER: 22.66' MSL	COORDINATES: N: 194237 E: 523090
DEPTH TO WATER: 13.07' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1012	EA INSPECTOR: R. WASSERMAN
DRILLING METHOD & DEPTH: 4 1/4-IN DIAMETER HOLLOW STEM AUGER TO 17.5 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2.5 FT
DIAMETER: 4 IN

GROUND SURFACE
TYPE: WOODLAND

WELL RISER
TYPE: PVC
STICK UP: 2 FT
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 2 FT

RISER LENGTH 9.5 FT

INNER CASING DEPTH NA

TOP OF SEAL 2.5 FT

TOP OF FILTER PACK 5.5 FT

TOP OF SCREEN 7.5 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 6 IN.

BOTTOM OF SCREEN 17.5 FT

BOTTOM OF FILTER PACK 17.5 FT

BOTTOM OF BORING 17.5 FT

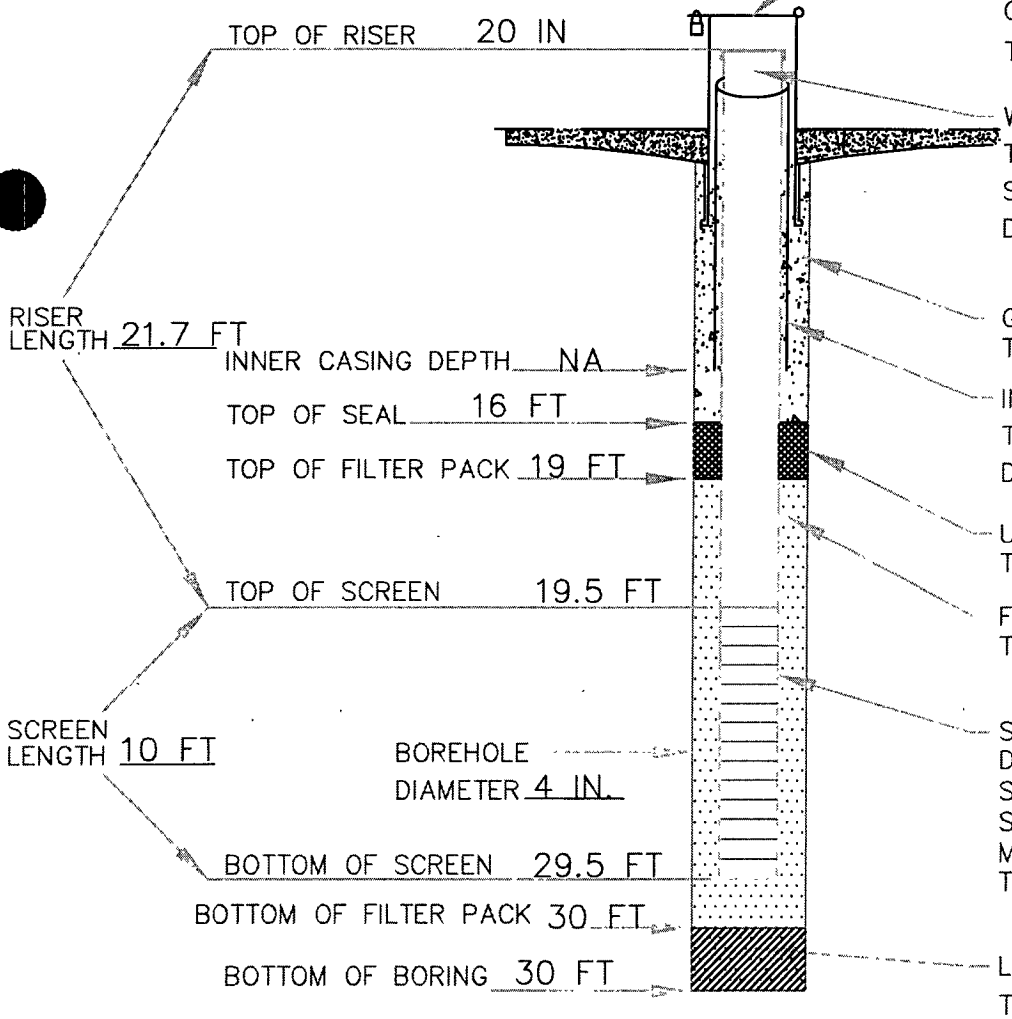
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-41I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/9/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 20.79' MSL ELEVATION TOP OF WELL RISER: 22.73' MSL	COORDINATES: N: 194233 E: 523085
DEPTH TO WATER: 13.02' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1014	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 30 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 25 IN
DIAMETER: 4 IN

GROUND SURFACE
TYPE: SOIL

WELL RISER
TYPE: PVC
STICK UP: 20 IN
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

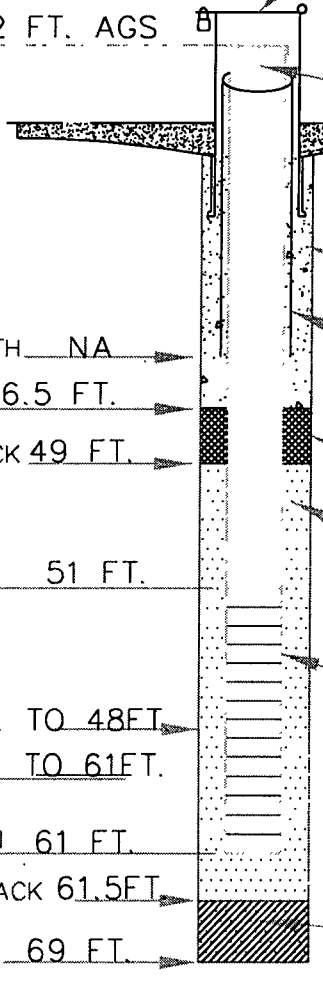
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-41D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/7/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 20.64' MSL ELEVATION TOP OF WELL RISER: 22.25' MSL	COORDINATES: N: 194243 E: 523089
DEPTH TO WATER: 12.25' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1010	EA INSPECTOR: R. WASSERMAN
DRILLING METHOD & DEPTH: DRIVE AND WASH 6-IN DIAMETER TEMPORARY STEEL CASING TO 48 FT 4-IN DIAMETER TEMPORARY STEEL CASING TO 61 FT. 3 7/8-IN DIAMETER ROLLERBIT TO 64 FT, NX CORE 64-69 FT.	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2.5 FT.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: WOODLANDS

WELL RISER
TYPE: PVC
STICK UP: 2 FT.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 2 FT. AGS

RISER LENGTH 53 FT.

INNER CASING DEPTH NA

TOP OF SEAL 46.5 FT.

TOP OF FILTER PACK 49 FT.

TOP OF SCREEN 51 FT.

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 6IN. TO 48FT 4IN. TO 61FT.

BOTTOM OF SCREEN 61 FT.

BOTTOM OF FILTER PACK 61.5FT.

BOTTOM OF BORING 69 FT.

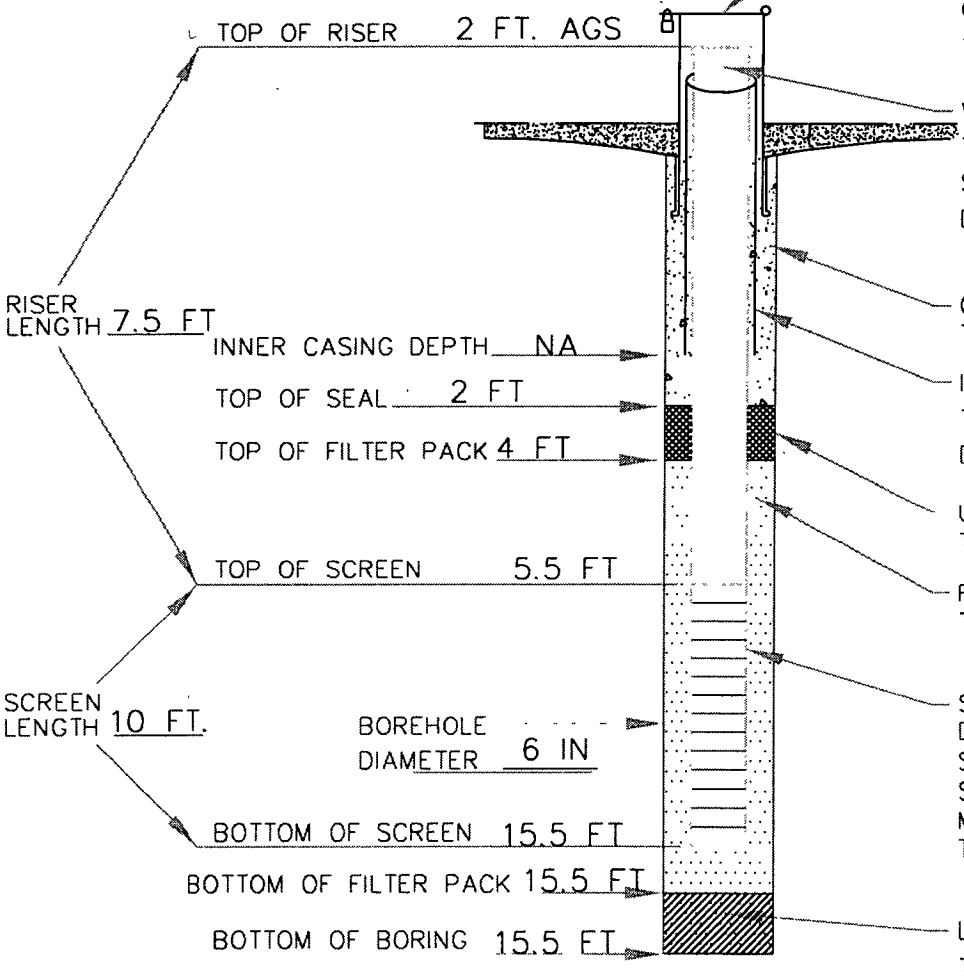
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-42S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/6/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 18.02' MSL ELEVATION TOP OF WELL RISER: 20.15' MSL	COORDINATES: N: 194281 E: 523239
DEPTH TO WATER: 10.72' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1031	EA INSPECTOR: R. WASSERMAN
DRILLING METHOD & DEPTH: 4 1/4-IN DIAMETER HOLLOW STEM AUGER TO 15.5 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 3 FT
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: WOODLANDS

WELL RISER
TYPE: PVC
STICK UP: 2 FT.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

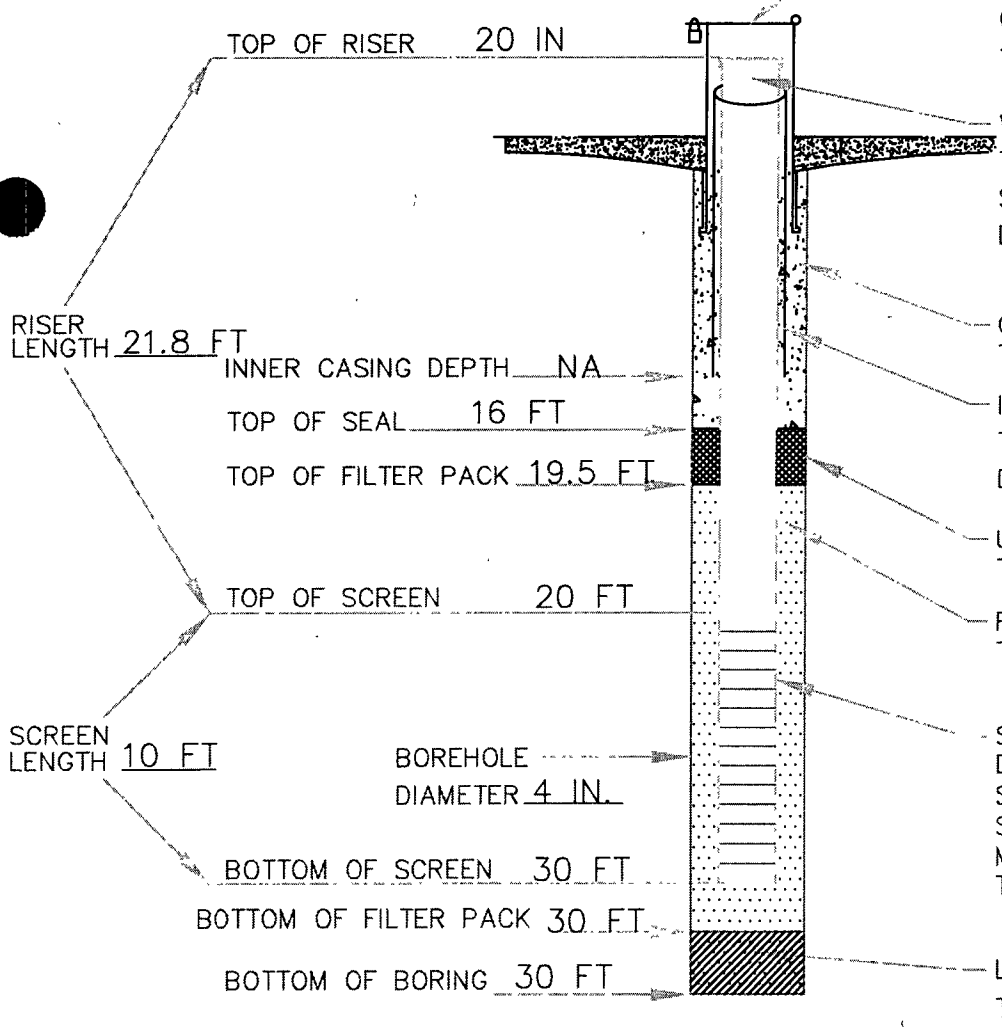
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-42I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/9/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 18.09' MSL ELEVATION TOP OF WELL RISER: 19.91' MSL	COORDINATES: N: 194276 E: 523241
DEPTH TO WATER: 12.84' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1030	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 30 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 25 IN
DIAMETER: 4 IN

GROUND SURFACE
TYPE: SOIL

WELL RISER
TYPE: PVC
STICK UP: 20 IN
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

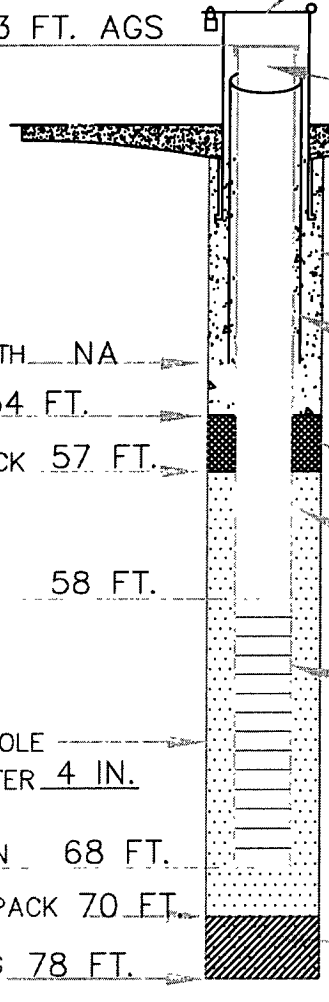
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-42D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/8/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 18.01' MSL ELEVATION TOP OF WELL RISER: 21.11' MSL	COORDINATES: N: 194286 E: 523235
DEPTH TO WATER: 14.12' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1033	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 64 FT 3 7/8-IN DIAMETER ROLLERBIT 70 TO 73 FT. NX CORE 73 TO 78 FT.	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 3 FT. 3 IN.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: CEMENT

WELL RISER
TYPE: PVC
STICK UP: 3 FT.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #0 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.006 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 3 FT. AGS

RISER LENGTH 61 FT.

INNER CASING DEPTH NA

TOP OF SEAL 54 FT.

TOP OF FILTER PACK 57 FT.

TOP OF SCREEN 58 FT.

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 68 FT.

BOTTOM OF FILTER PACK 70 FT.

BOTTOM OF BORING 78 FT.

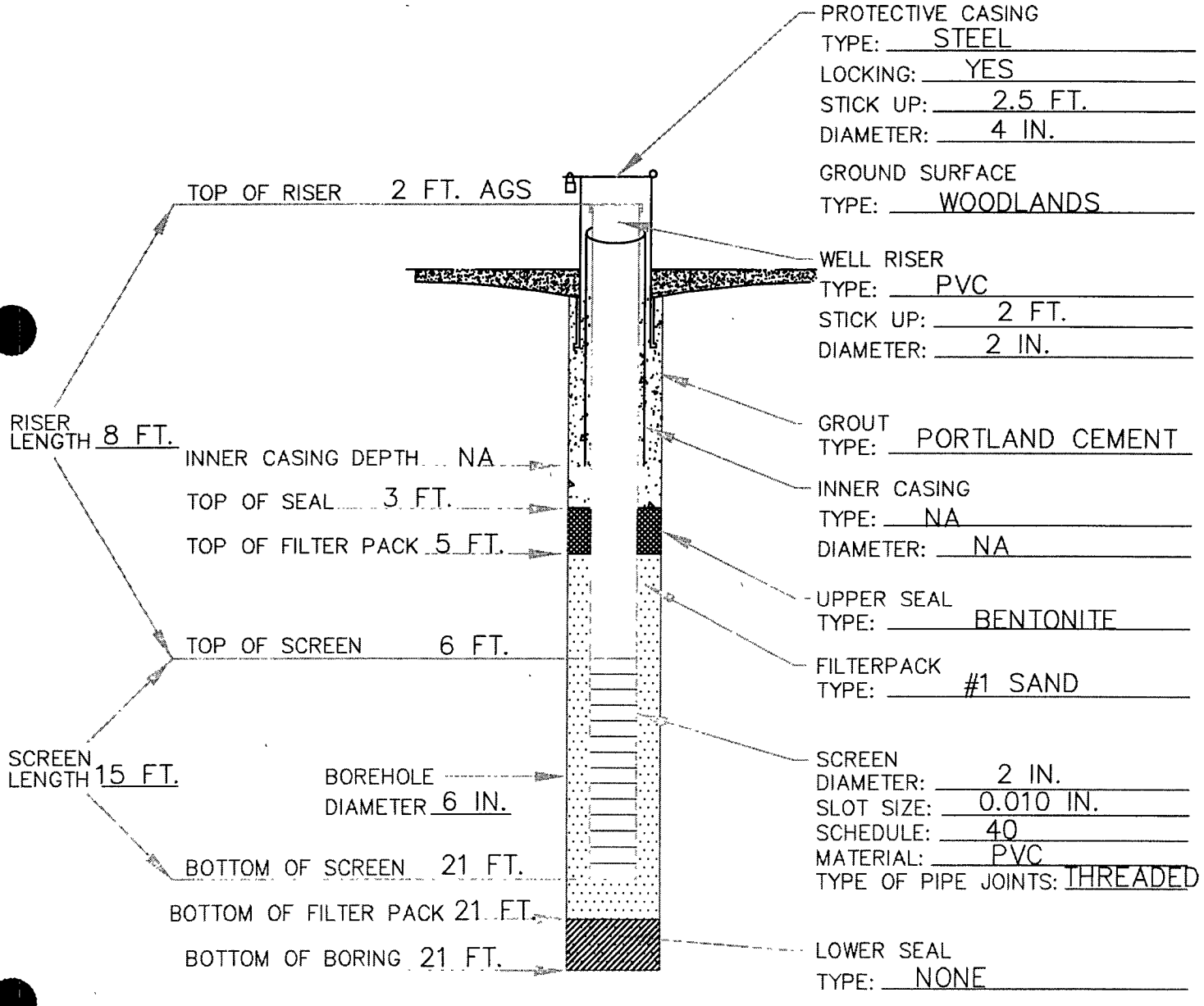
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-43S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/7/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 17.79' MSL ELEVATION TOP OF WELL RISER: 20.14' MSL	COORDINATES: N: 194408 E: 523035
DEPTH TO WATER: 9.87' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1053	EA INSPECTOR: R. WASSERMAN
DRILLING METHOD & DEPTH: 4.24-IN. HOLLOW STEM AUGER TO 21 FT. BGS	



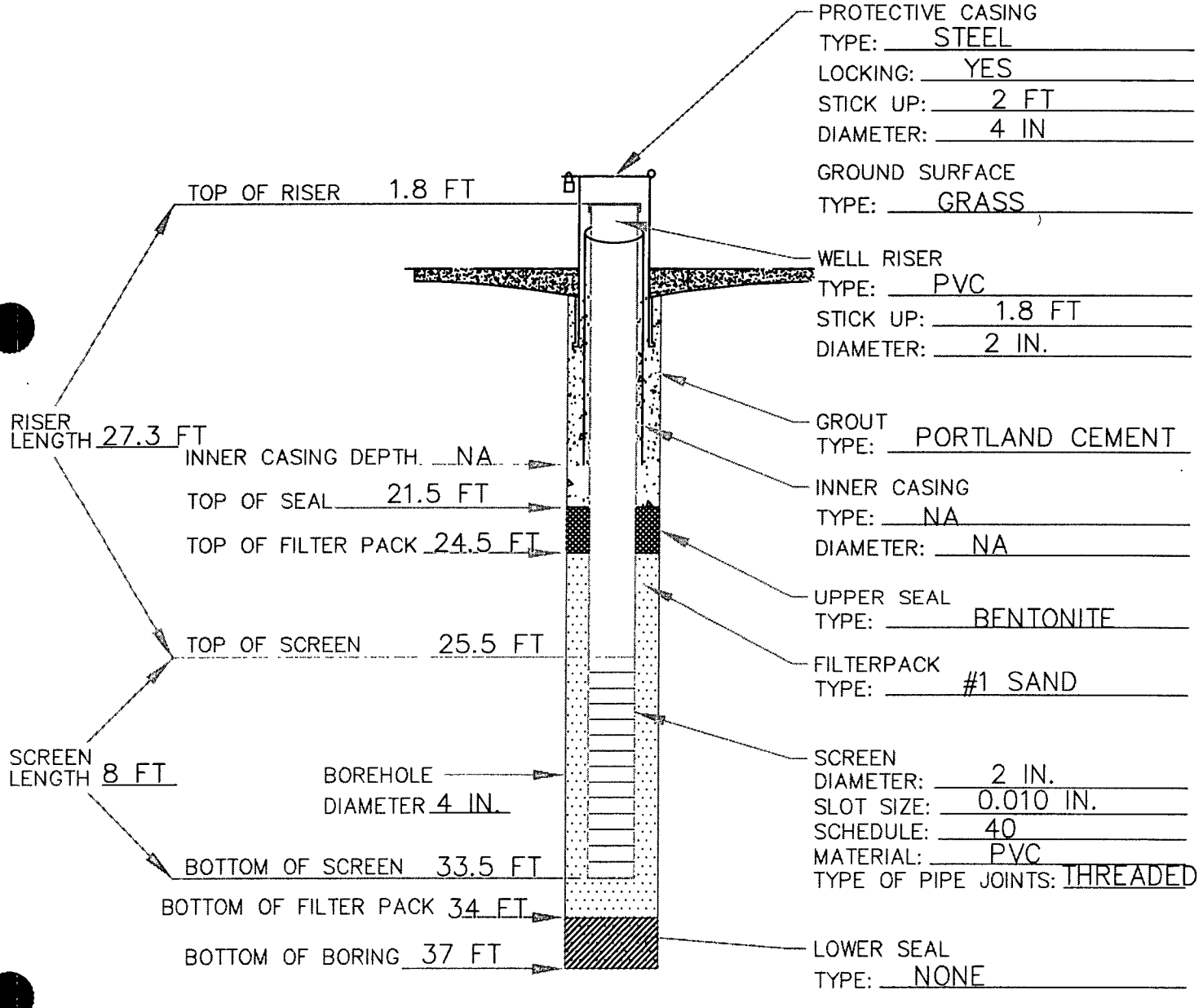
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-43I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/15/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 17.09' MSL ELEVATION TOP OF WELL RISER: 18.98' MSL	COORDINATES: N: 194416 E: 523038
DEPTH TO WATER: 9.83' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1029	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 37 FT	



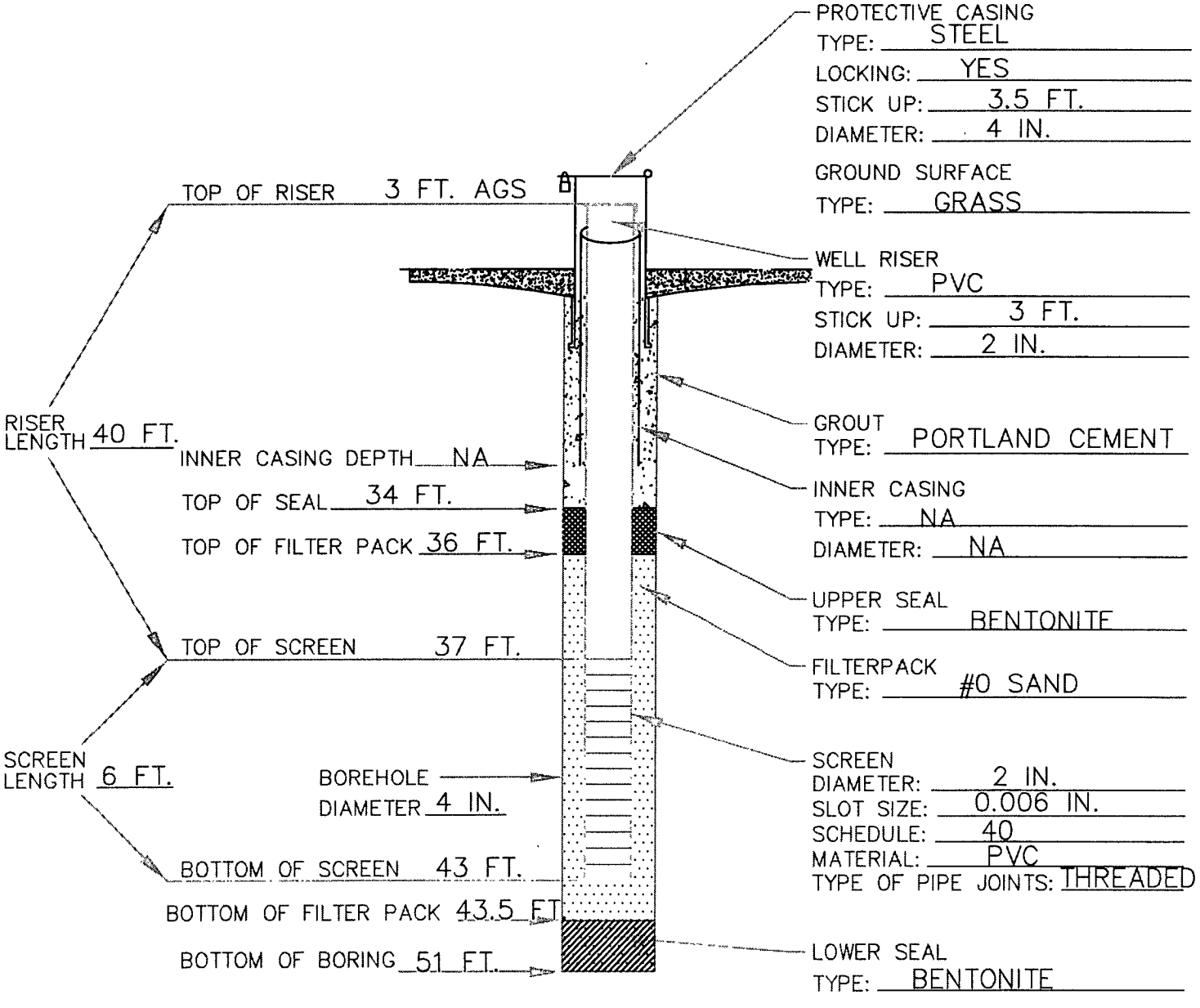
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-43D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 7/17/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 17.10' MSL ELEVATION TOP OF WELL RISER: 20.31' MSL	COORDINATES: N: 194416 E: 523033
DEPTH TO WATER: 11.44' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1031	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 43 FT 3 7/8- IN DIAMETER ROLLERBIT TO 46 FT. NX- CORE TO 51 FT.	



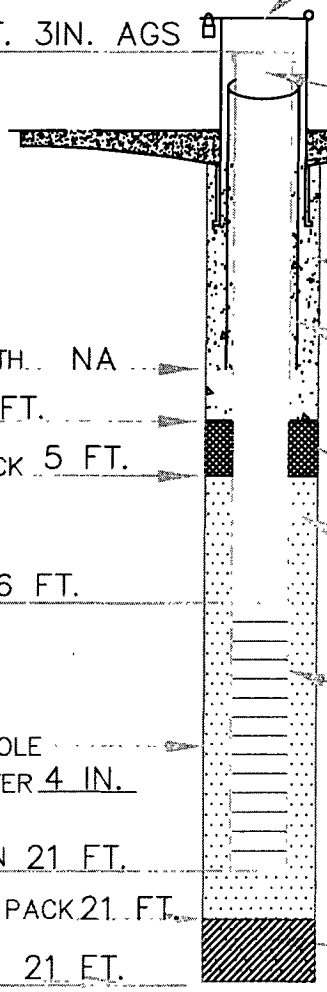
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-44S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/5/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 16.65' MSL ELEVATION TOP OF WELL RISER: 19.73' MSL	COORDINATES: N: 194409 E: 523151
DEPTH TO WATER: 9.87' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1053	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 21 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 3 FT. 5 IN.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: GRASS

WELL RISER
TYPE: PVC
STICK UP: 3 FT. 3 IN.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 3FT. 3IN. AGS

RISER LENGTH 9FT. 3IN.

INNER CASING DEPTH NA

TOP OF SEAL 0 FT.

TOP OF FILTER PACK 5 FT.

TOP OF SCREEN 6 FT.

SCREEN LENGTH 15 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 21 FT.

BOTTOM OF FILTER PACK 21 FT.

BOTTOM OF BORING 21 FT.

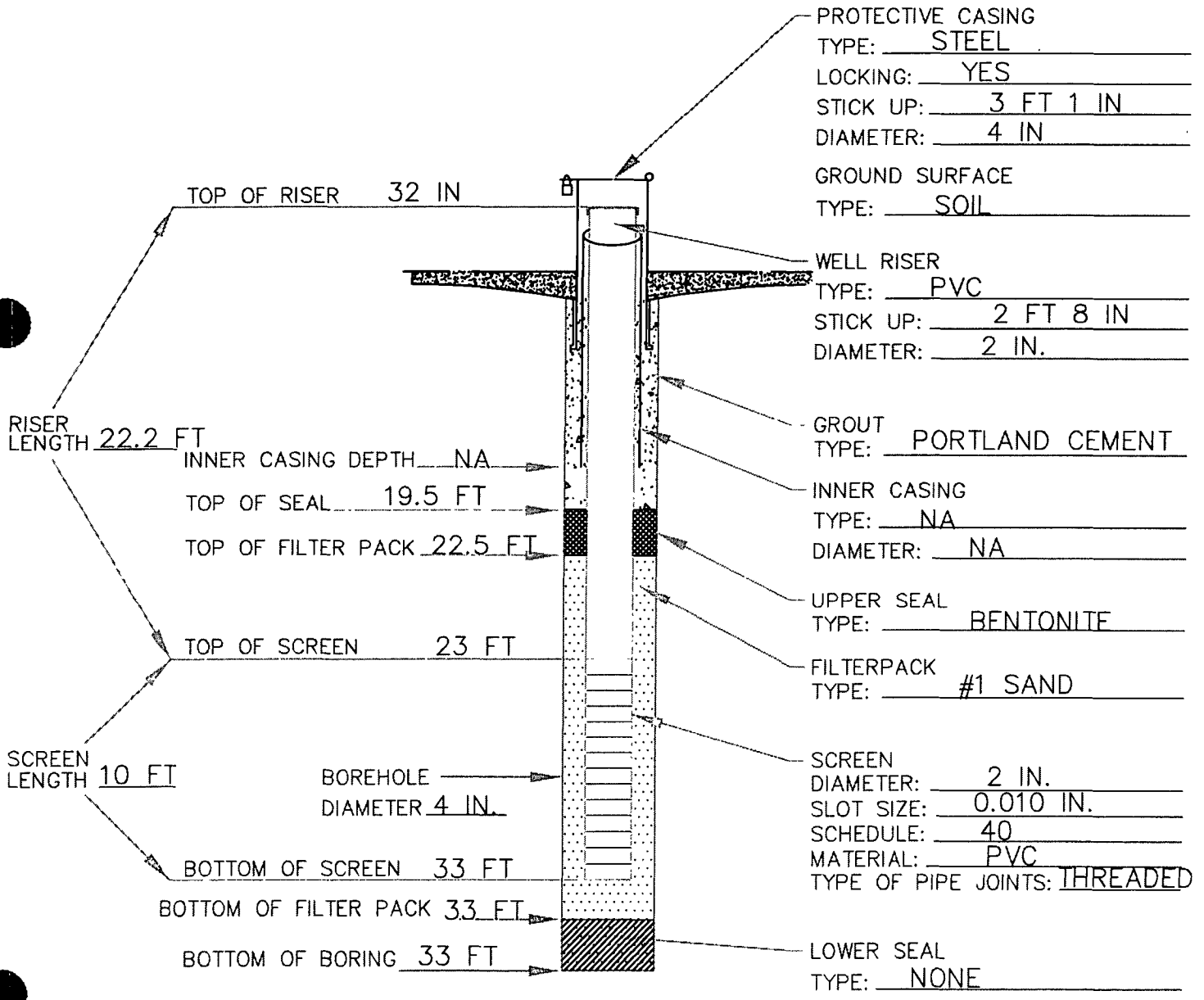
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-44I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/25/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 16.35' MSL ELEVATION TOP OF WELL RISER: 18.78' MSL	COORDINATES: N: 194417 E: 523145
DEPTH TO WATER: 10.76' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1058	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 33 FT	



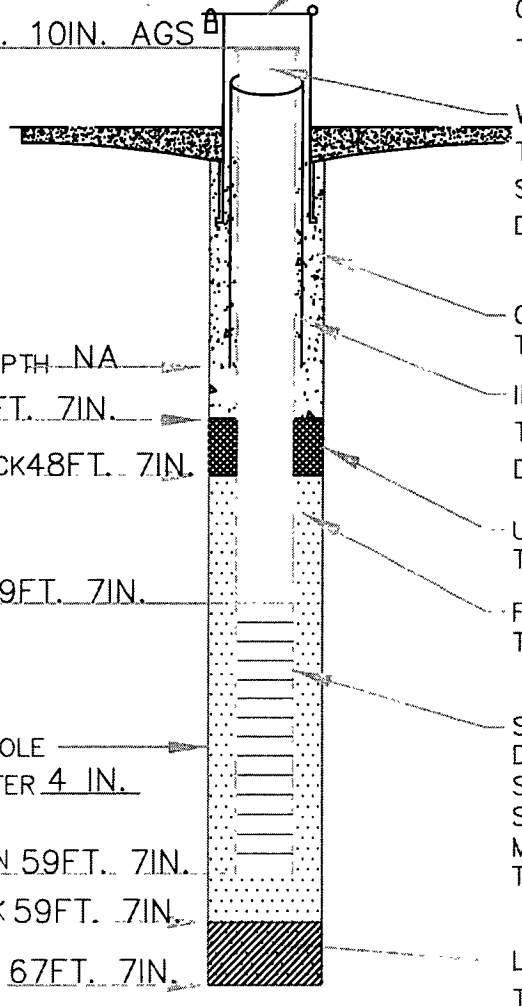
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-44D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 7/23/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 16.83' MSL ELEVATION TOP OF WELL RISER: 18.89' MSL	COORDINATES: N: 194406 E: 523148
DEPTH TO WATER: 11.99' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1057	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 59 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 62 FT. 7 IN. NX- CORE TO 67 FT. 7 IN.	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2 FT. 3 IN.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: GRASS

WELL RISER
TYPE: PVC
STICK UP: 1 FT. 10 IN.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 1FT. 10IN. AGS

RISER LENGTH 51FT. 5 IN.

INNER CASING DEPTH NA

TOP OF SEAL 45FT. 7IN.

TOP OF FILTER PACK 48FT. 7IN.

TOP OF SCREEN 49FT. 7IN.

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 59FT. 7IN.

BOTTOM OF FILTER PACK 59FT. 7IN.

BOTTOM OF BORING 67FT. 7IN.

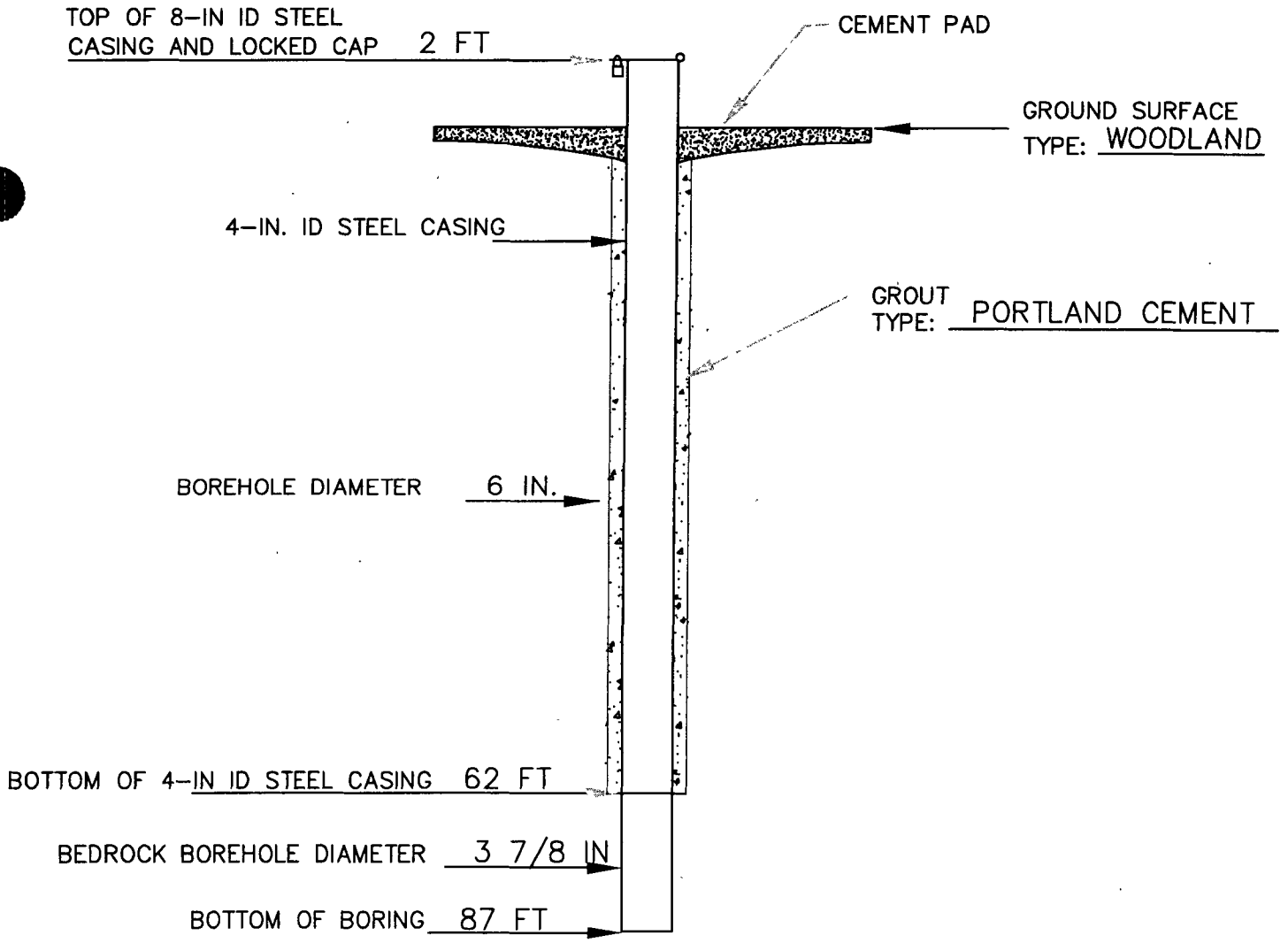
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-44R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 9/5/02	PROJECT No. 29600.97
ELEVATION OF GROUND SURFACE: 16.39' MSL ELEVATION TOP OF WELL RISER: 19.17' MSL	COORDINATES: N: 194414 E: 523150
DEPTH TO WATER: 12.17' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1051	EA INSPECTOR: R. WASSERMAN
DRILLING METHOD & DEPTH: DRIVE AND WASH 6-IN DIAMETER TEMPORARY STEEL CASING TO 58 FT 5 7/8-IN DIAMETER ROLLERBIT TO 62 FT 3 7/8-IN DIAMETER ROLLERBIT TO 87 FT	



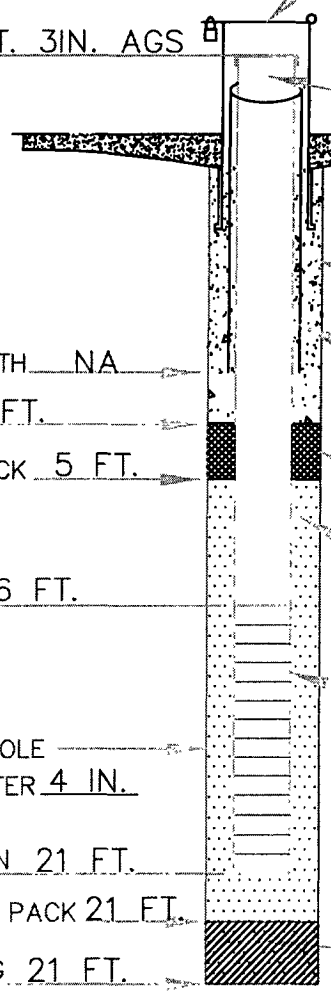
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-45S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/5/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 14.84' MSL ELEVATION TOP OF WELL RISER: 18.10' MSL	COORDINATES: N: 194470 E: 523070
DEPTH TO WATER: 10.57' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1048	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER, TEMPORARY STEEL CASING TO 21 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 3 FT. 4 IN.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: ASPHALT

TOP OF RISER 3FT. 3IN. AGS

WELL RISER
TYPE: PVC
STICK UP: 3 FT. 3IN.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

RISER LENGTH 9FT. 3IN.

INNER CASING DEPTH NA

INNER CASING
TYPE: NA
DIAMETER: NA

TOP OF SEAL 0 FT.

TOP OF FILTER PACK 5 FT.

UPPER SEAL
TYPE: BENTONITE

TOP OF SCREEN 6 FT.

FILTERPACK
TYPE: #1 SAND

SCREEN LENGTH 15 FT.

BOREHOLE DIAMETER 4 IN.

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

BOTTOM OF SCREEN 21 FT.

BOTTOM OF FILTER PACK 21 FT.

BOTTOM OF BORING 21 FT.

LOWER SEAL
TYPE: NONE

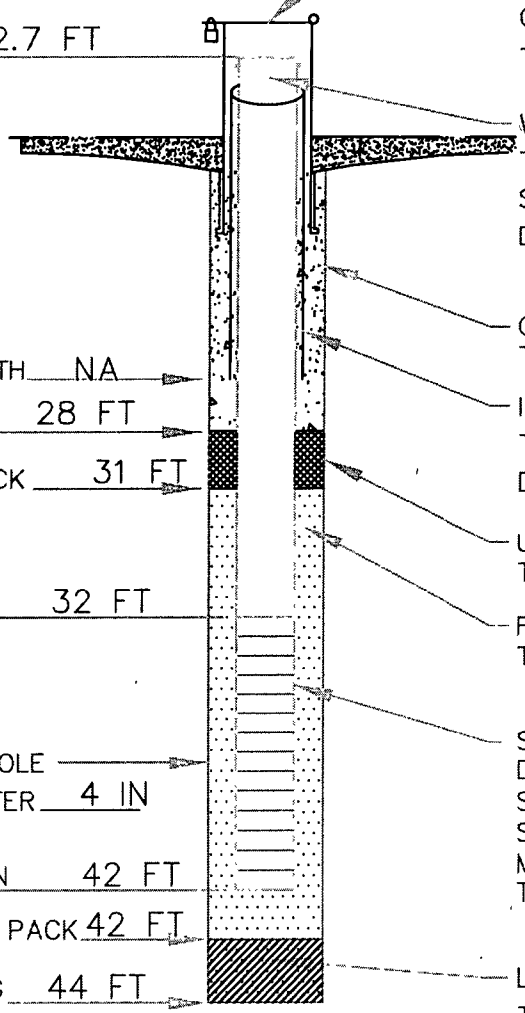
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-45I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/30/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 14.70' MSL ELEVATION TOP OF WELL RISER: 17.35' MSL	COORDINATES: N: 194474 E: 523074
DEPTH TO WATER: 9.48' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1046	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 44 FT	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2.9 FT
DIAMETER: 4 IN

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: 2.7 FT
DIAMETER: 2 IN

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 2.7 FT

RISER LENGTH 30.7 FT

INNER CASING DEPTH NA

TOP OF SEAL 28 FT

TOP OF FILTER PACK 31 FT

TOP OF SCREEN 32 FT

SCREEN LENGTH 10 FT

BOREHOLE DIAMETER 4 IN

BOTTOM OF SCREEN 42 FT

BOTTOM OF FILTER PACK 42 FT

BOTTOM OF BORING 44 FT

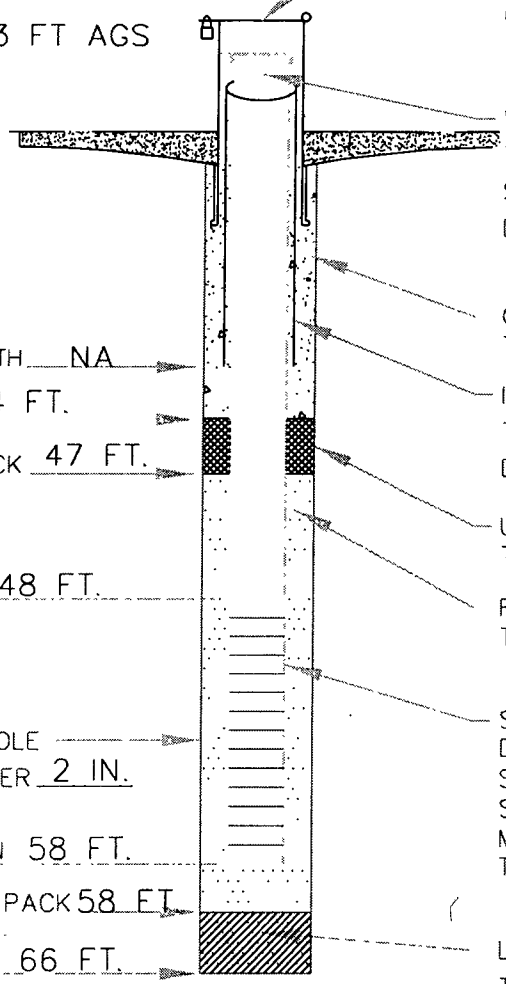
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-45D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 7/22/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 14.67' MSL ELEVATION TOP OF WELL RISER: 17.64' MSL	COORDINATES: N: 194474 E. 523068
DEPTH TO WATER: 9.67' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1044	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 53.5 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 61 FT. NX CORE TO 66 FT.	



PROTECTIVE CASING
TYPE: STICKUP
LOCKING: YES
STICK UP: FLUSHMOUNT
DIAMETER: NA

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: 3 FT
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #0 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.006 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 3 FT AGS

RISER LENGTH 48 FT.

INNER CASING DEPTH NA

TOP OF SEAL 44 FT.

TOP OF FILTER PACK 47 FT.

TOP OF SCREEN 48 FT.

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 2 IN.

BOTTOM OF SCREEN 58 FT.

BOTTOM OF FILTER PACK 58 FT.

BOTTOM OF BORING 66 FT.

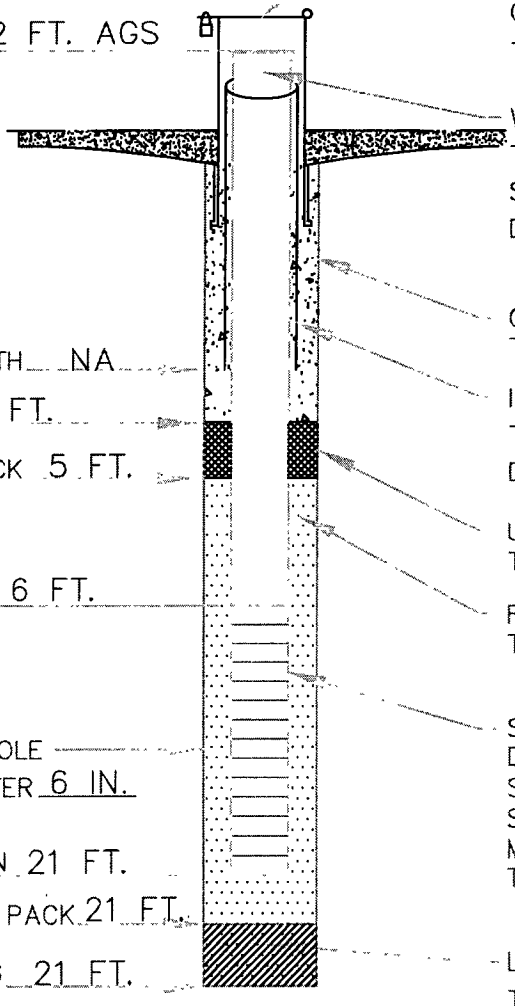
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-46S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/8/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 14.30' MSL ELEVATION TOP OF WELL RISER: 16.49' MSL	COORDINATES: N: 194528 E: 523142
DEPTH TO WATER: 9.14' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1053	EA INSPECTOR: R. WASSERMAN
DRILLING METHOD & DEPTH: 4.25-IN. ID HOLLOW STEM AUGER TO 21 FT. BGS	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2.5 FT.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: WOODLANDS

WELL RISER
TYPE: PVC
STICK UP: 2 FT.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 2 FT. AGS

RISER LENGTH 8 FT.

INNER CASING DEPTH NA

TOP OF SEAL 3 FT.

TOP OF FILTER PACK 5 FT.

TOP OF SCREEN 6 FT.

SCREEN LENGTH 15 FT.

BOREHOLE DIAMETER 6 IN.

BOTTOM OF SCREEN 21 FT.

BOTTOM OF FILTER PACK 21 FT.

BOTTOM OF BORING 21 FT.

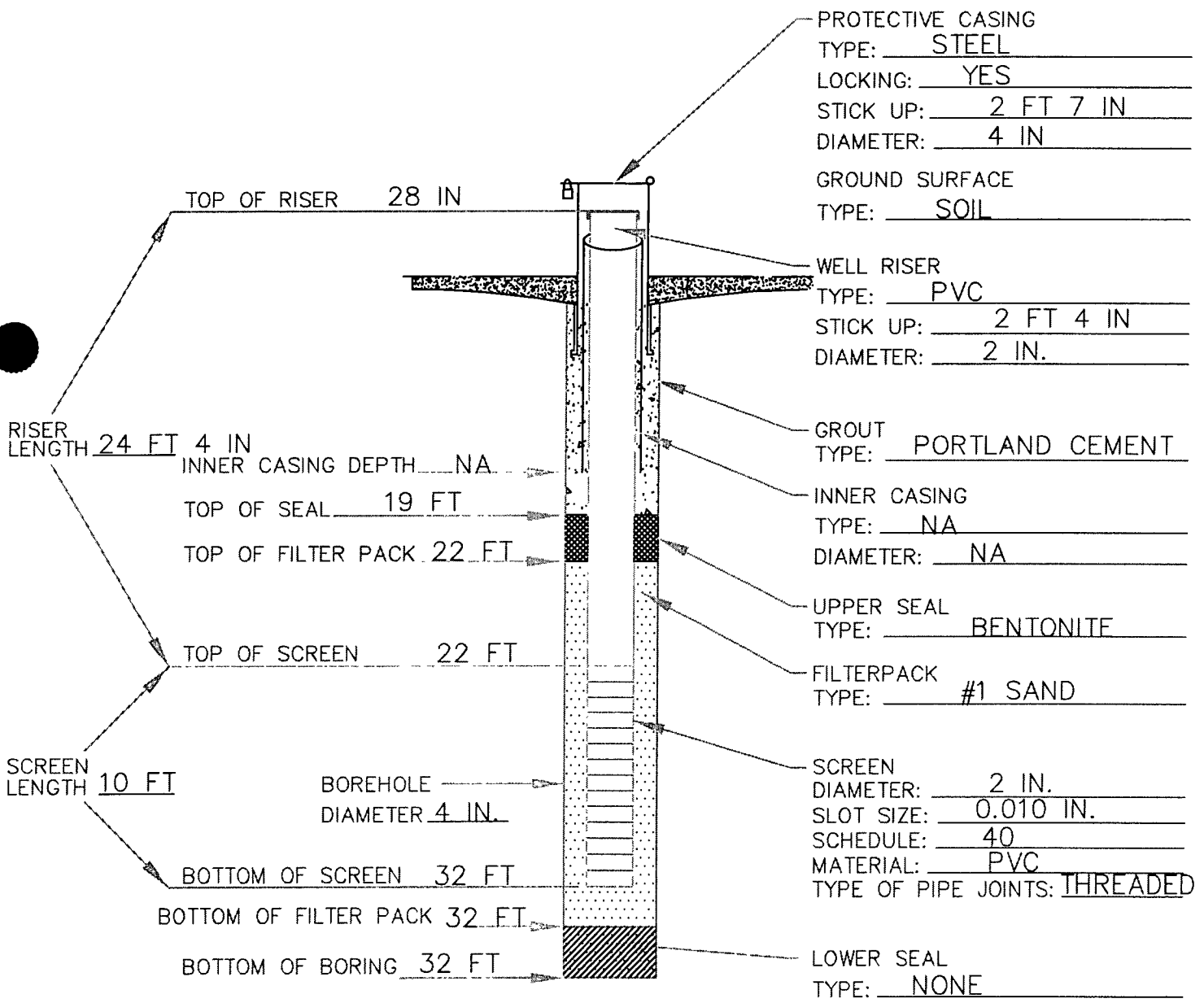
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-46I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/26/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 13.83' MSL ELEVATION TOP OF WELL RISER: 16.16' MSL	COORDINATES: N: 194531 E: 523136
DEPTH TO WATER: 8.81' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1054	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 32 FT	



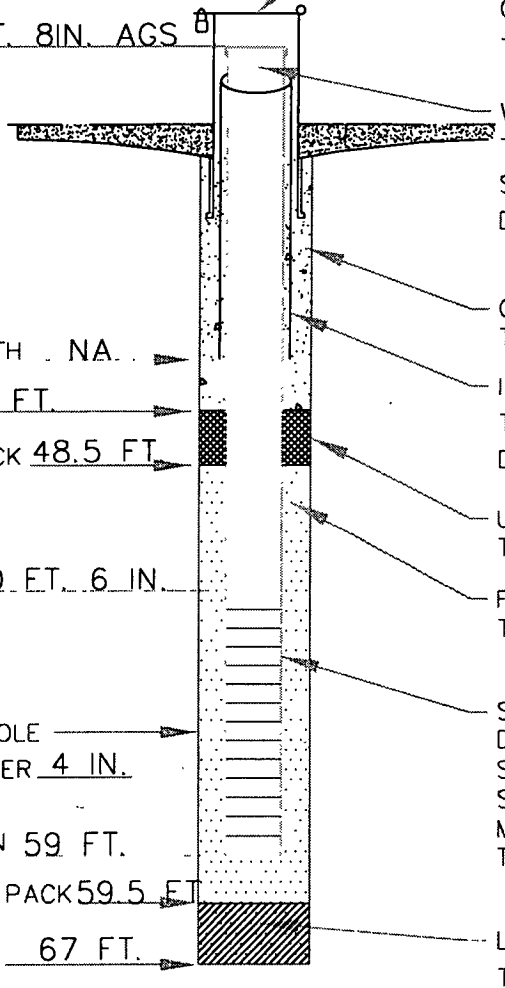
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-46D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 7/18/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 14.33' MSL ELEVATION TOP OF WELL RISER: 16.79' MSL	COORDINATES: N: 194536 E: 523142
DEPTH TO WATER: 10.70' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1055	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 5-IN DIAMETER TEMPORARY STEEL CASING TO 47.5 FT 4-IN. ID TEMPORARY STEEL CASING TO 59 FT. 3 7/8-IN. ROLLERBIT TO 62 FT, NX-CORE BARREL TO 67 FT.	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 32 IN. AGS
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: GRASS

WELL RISER
TYPE: PVC
STICK UP: 30 IN. AGS
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 2FT. 8IN. AGS

RISER LENGTH 53 FT.

INNER CASING DEPTH NA.

TOP OF SEAL 46 FT.

TOP OF FILTER PACK 48.5 FT.

TOP OF SCREEN 50 FT. 6 IN.

SCREEN LENGTH 8.5 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 59 FT.

BOTTOM OF FILTER PACK 59.5 FT.

BOTTOM OF BORING 67 FT.

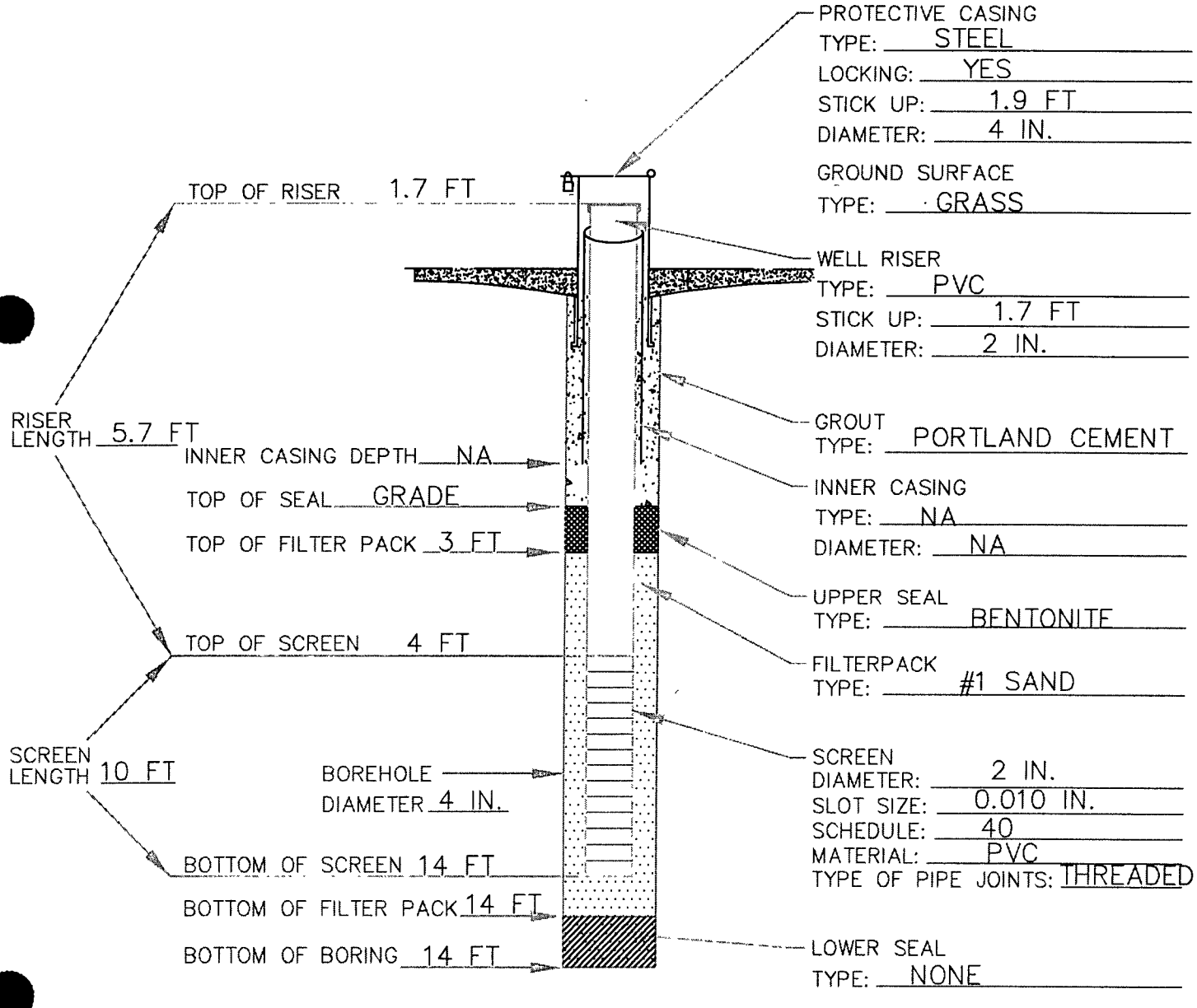
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-47S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/17/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 18.34' MSL ELEVATION TOP OF WELL RISER: 20.45' MSL	COORDINATES: N: 194571 E: 522901
DEPTH TO WATER: 9.45' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1014	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 14 FT	



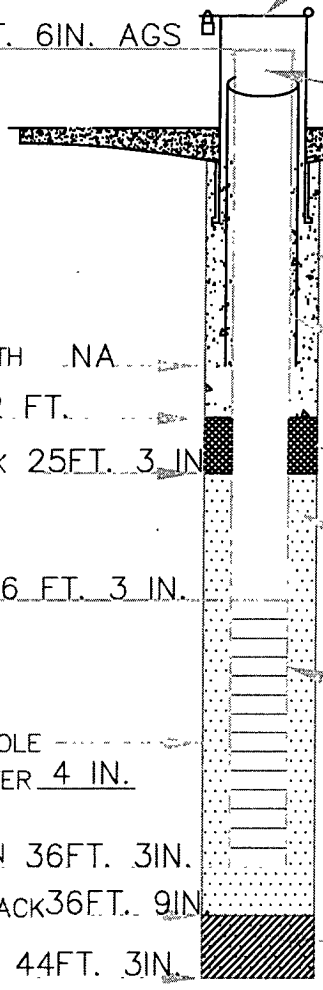
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-47D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 7/19/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 18.20' MSL ELEVATION TOP OF WELL RISER: 20.50' MSL	COORDINATES: N: 194569 E: 522907
DEPTH TO WATER: 10.70' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1055	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 36 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 39 FT. 3 IN. NX-CORE TO 44 FT. 3 IN.	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2 FT. 8 IN.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: GRASS

WELL RISER
TYPE: PVC
STICK UP: YES
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #0 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.006 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 2FT. 6IN. AGS

RISER LENGTH 28FT. 9IN.

INNER CASING DEPTH NA

TOP OF SEAL 22 FT.

TOP OF FILTER PACK 25FT. 3 IN.

TOP OF SCREEN 26 FT. 3 IN.

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 36FT. 3IN.

BOTTOM OF FILTER PACK 36FT. 9IN.

BOTTOM OF BORING 44FT. 3IN.

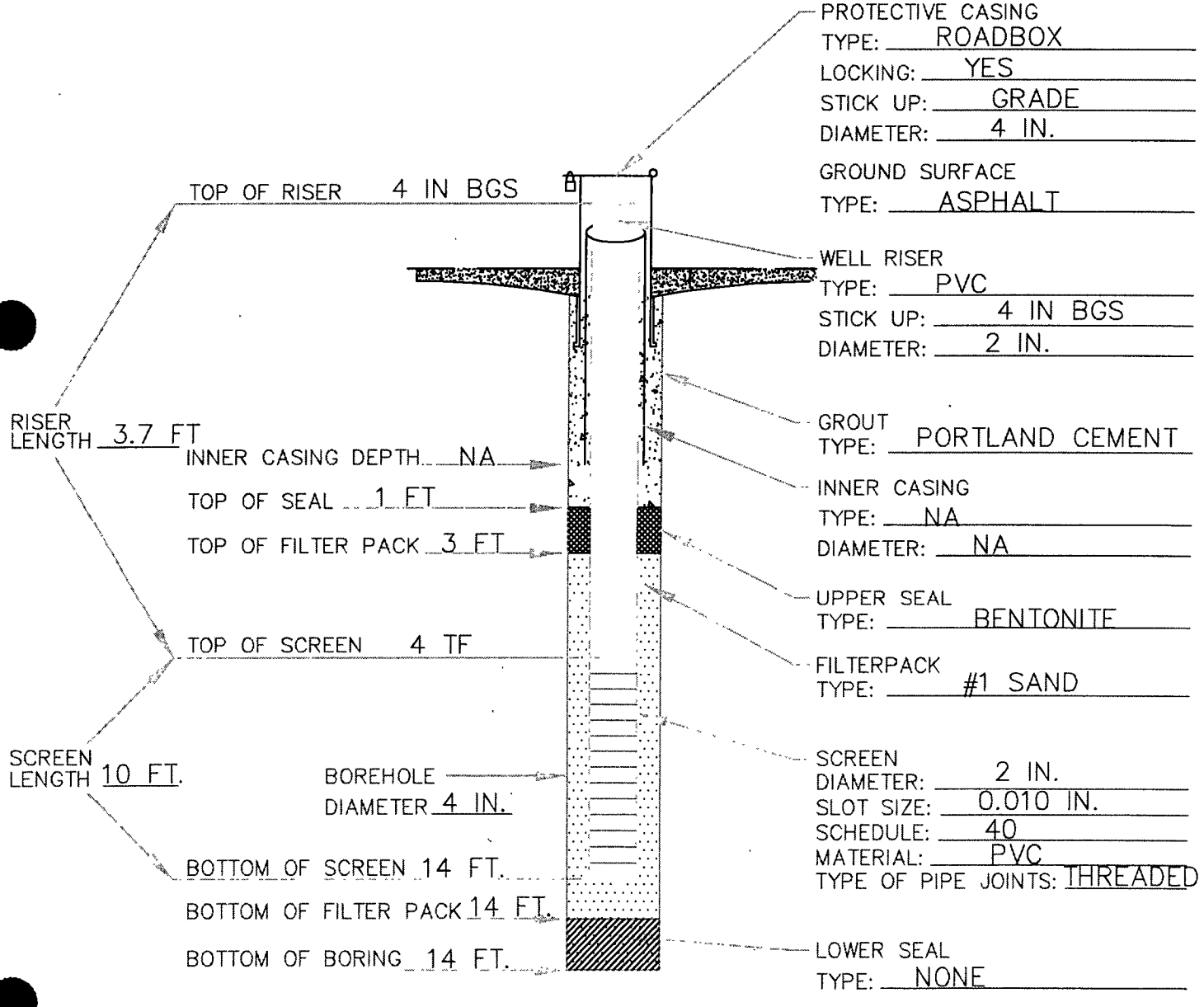
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-48S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/5/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 8.66' MSL ELEVATION TOP OF WELL RISER: 8.37' MSL	COORDINATES: N: 194726 E: 523173
DEPTH TO WATER: 3.81' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1035	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 14 FT	



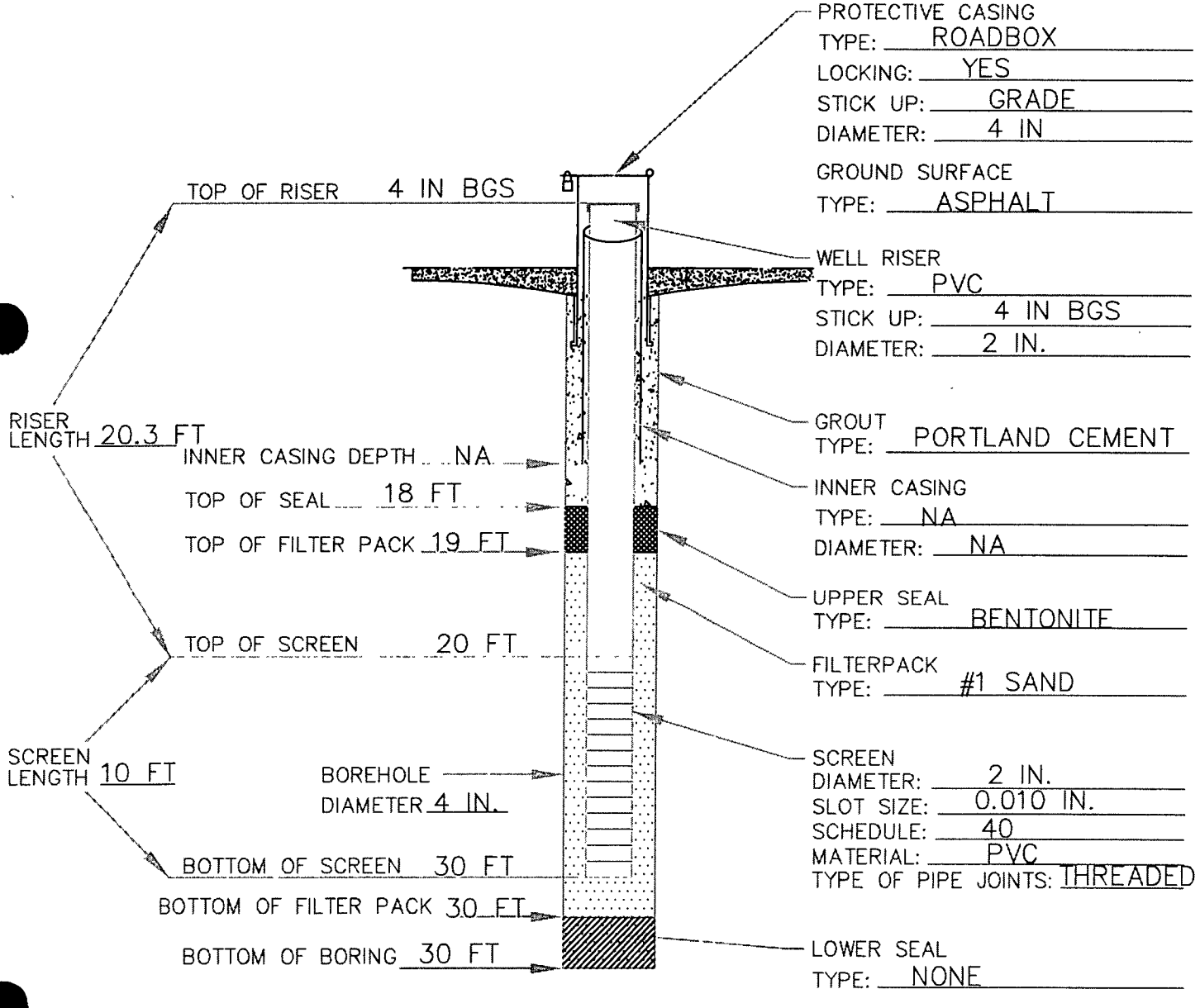
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-48I

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/5/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 8.64' MSL ELEVATION TOP OF WELL RISER: 8.33' MSL	COORDINATES: N: 194724 E: 523173
DEPTH TO WATER: 3.13' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1036	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 30 FT	



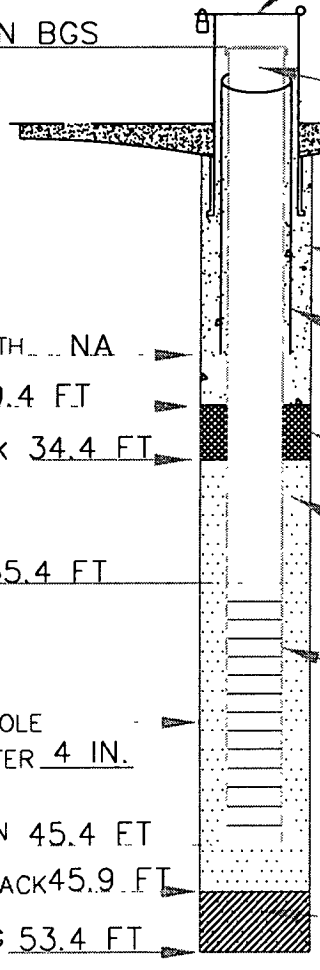
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-48D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/5/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 8.68' MSL ELEVATION TOP OF WELL RISER: 8.34' MSL	COORDINATES: N: 194720 E: 523172
DEPTH TO WATER: 3.60' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1038	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 44 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 48.4 FT NX-CORE TO 53 FT 5 IN	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: YES
STICK UP: GRADE
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: 4 IN BGS
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 4 IN BGS

RISER LENGTH 35.8 FT

INNER CASING DEPTH NA

TOP OF SEAL 29.4 FT

TOP OF FILTER PACK 34.4 FT

TOP OF SCREEN 35.4 FT

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 45.4 FT

BOTTOM OF FILTER PACK 45.9 FT

BOTTOM OF BORING 53.4 FT

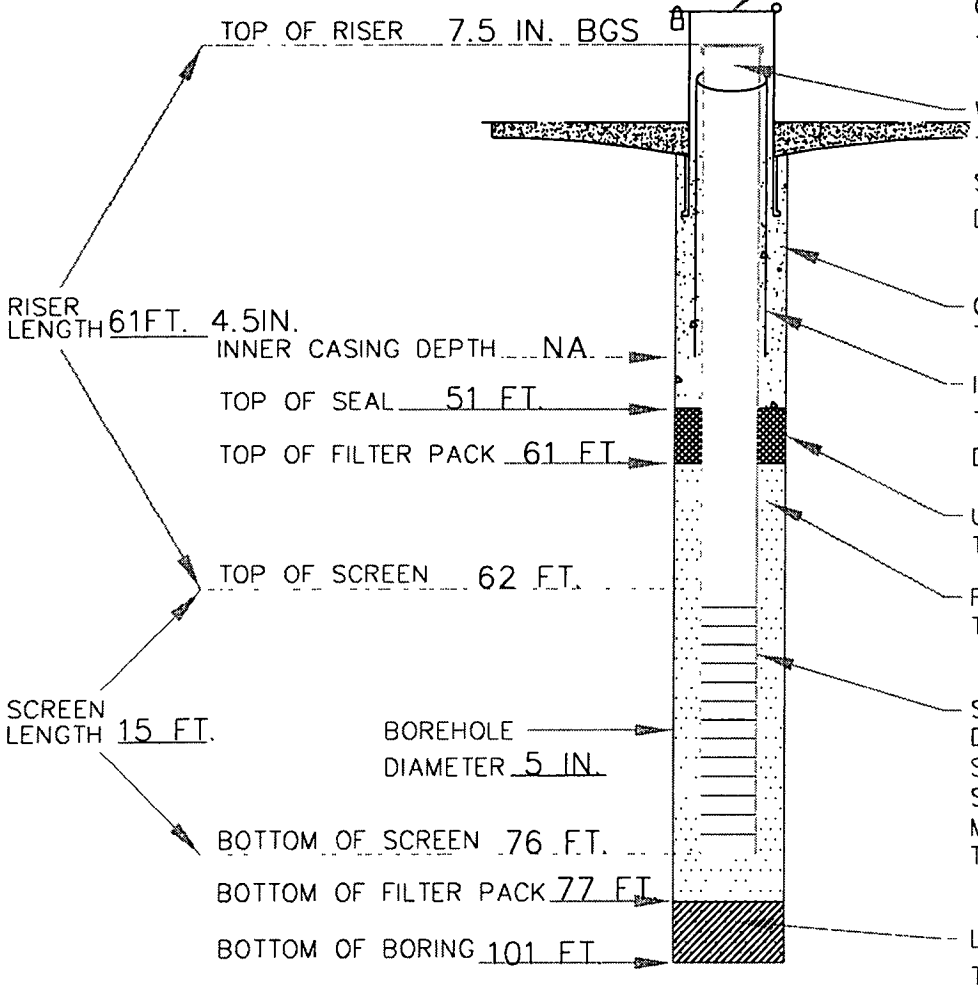
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-49D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/1/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 13.70' MSL ELEVATION TOP OF WELL RISER: 13.13' MSL	COORDINATES: N: 194213 E: 524095
DEPTH TO WATER: 9.01' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1015	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 89 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 96 FT. NX-CORE 96 TO 101 FT.	



PROTECTIVE CASING
TYPE: STEEL ROADBOX
LOCKING: YES
STICK UP: FLUSHMOUNT
DIAMETER: 6 IN.

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -7.5 IN.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

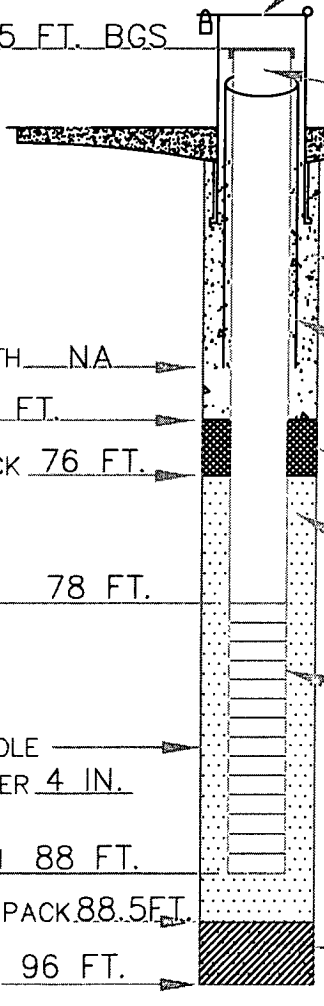
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-50D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 7/25/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 13.67' MSL ELEVATION TOP OF WELL RISER: 13.47' MSL	COORDINATES: N: 194530 E: 524267
DEPTH TO WATER: 10.41' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1020	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN DIAMETER TEMPORARY STEEL CASING TO 88 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 91 FT. NX-CORE 91 TO 96 FT.	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: FLUSHMOUNT
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: ASPHALT

WELL RISER
TYPE: PVC
STICK UP: -0.25 FT.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: BENTONITE

TOP OF RISER 0.25 FT. BGS

RISER LENGTH 77.25FT.

INNER CASING DEPTH NA

TOP OF SEAL 73 FT.

TOP OF FILTER PACK 76 FT.

TOP OF SCREEN 78 FT.

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 88 FT.

BOTTOM OF FILTER PACK 88.5FT.

BOTTOM OF BORING 96 FT.

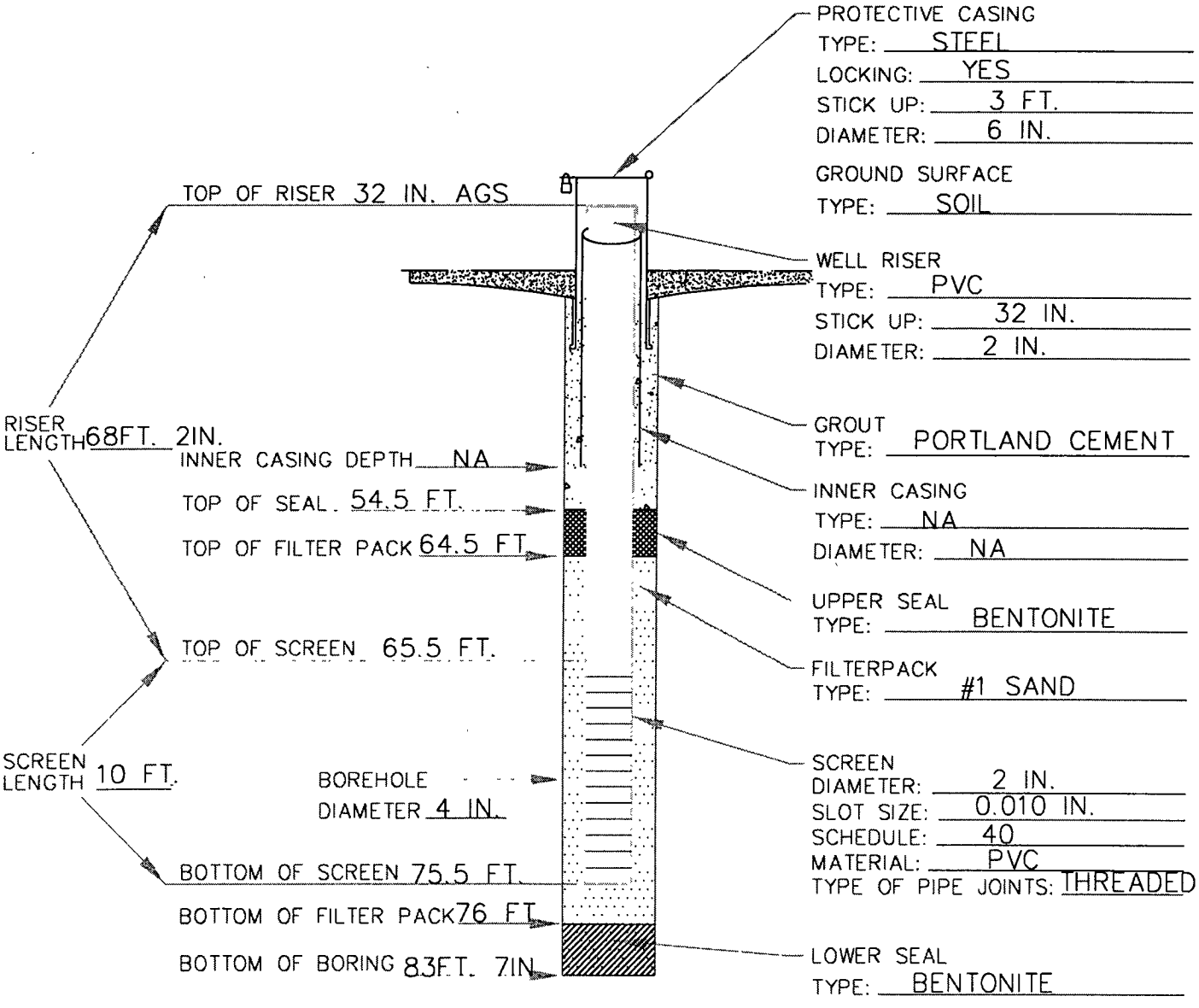
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-51D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED. 8/8/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 13.13' MSL ELEVATION TOP OF WELL RISER: 15.62' MSL	COORDINATES: N: 194981 E: 523889
DEPTH TO WATER: 12.86' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1008	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN TEMPORARY STEEL CASING TO 74 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 78 FT. 7 IN. NX-CORE 83 FT 7 IN.	



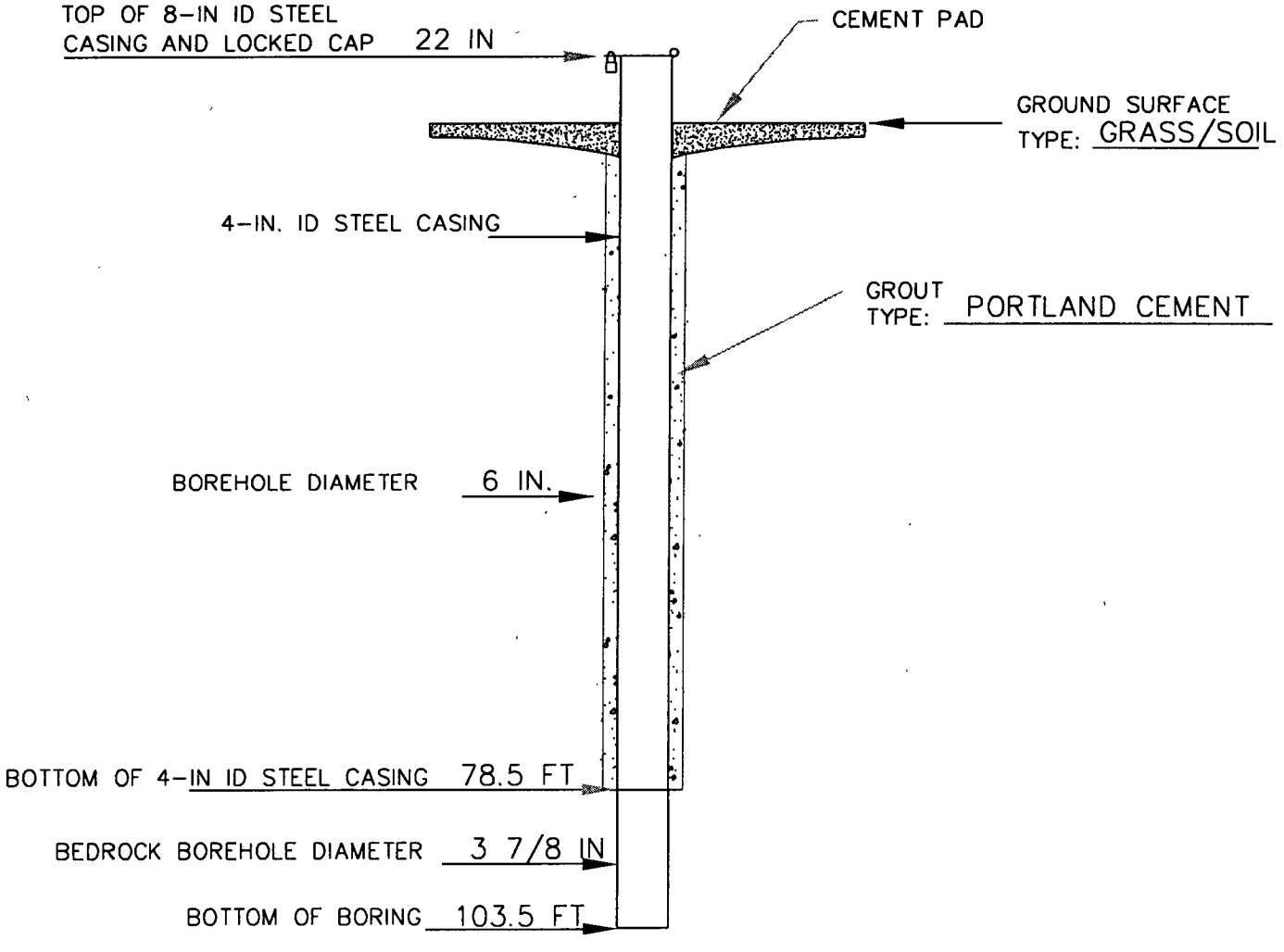
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-51R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 8/22/02	PROJECT No. 29600.97
ELEVATION OF GROUND SURFACE: 12.88' MSL ELEVATION TOP OF WELL RISER: 14.92' MSL	COORDINATES: N: 194979 E: 523896
DEPTH TO WATER: 12.75' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1008	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN. DIAMETER TEMPORARY STEEL CASING TO 78.5 FT 3 7/8-IN ROLLERBIT TO 103.5 FT	



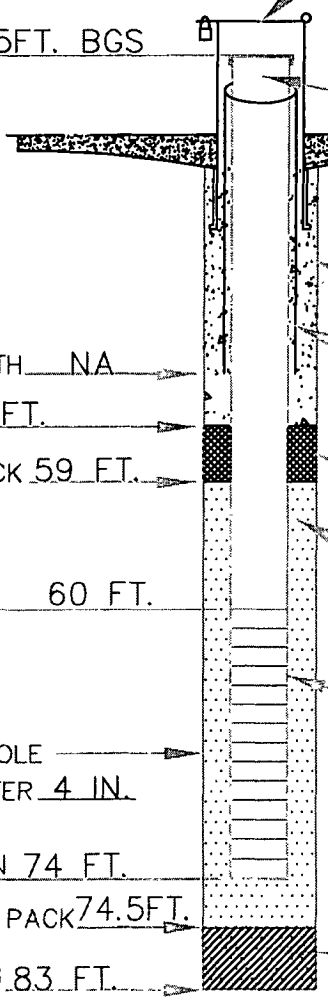
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-52D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 7/25/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 12.94' MSL ELEVATION TOP OF WELL RISER: 12.70' MSL	COORDINATES: N: 195066 E: 524406
DEPTH TO WATER: 9.49' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1025	EA INSPECTOR: M. KELLY
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN. TEMPORARY STEEL CASING TO 74 FT. 3 7/8-IN. ROLLERBIT TO 78 FT. NX-CORE TO 83 FT.	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: YES
STICK UP: FLUSHMOUNT
DIAMETER: 6 IN.

GROUND SURFACE
TYPE: ASPHALT

TOP OF RISER 0.25FT. BGS

WELL RISER
TYPE: PVC
STICK UP: -0.25 FT.
DIAMETER: 2 IN.

RISER LENGTH 59.75FT.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING DEPTH NA

INNER CASING
TYPE: NA
DIAMETER: NA

TOP OF SEAL 56 FT.

TOP OF FILTER PACK 59 FT.

UPPER SEAL
TYPE: BENTONITE

TOP OF SCREEN 60 FT.

FILTERPACK
TYPE: #0 SAND

SCREEN LENGTH 14 FT.

BOREHOLE DIAMETER 4 IN.

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.006 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

BOTTOM OF SCREEN 74 FT.

BOTTOM OF FILTER PACK 74.5FT.

BOTTOM OF BORING 83 FT.

LOWER SEAL
TYPE: BENTONITE

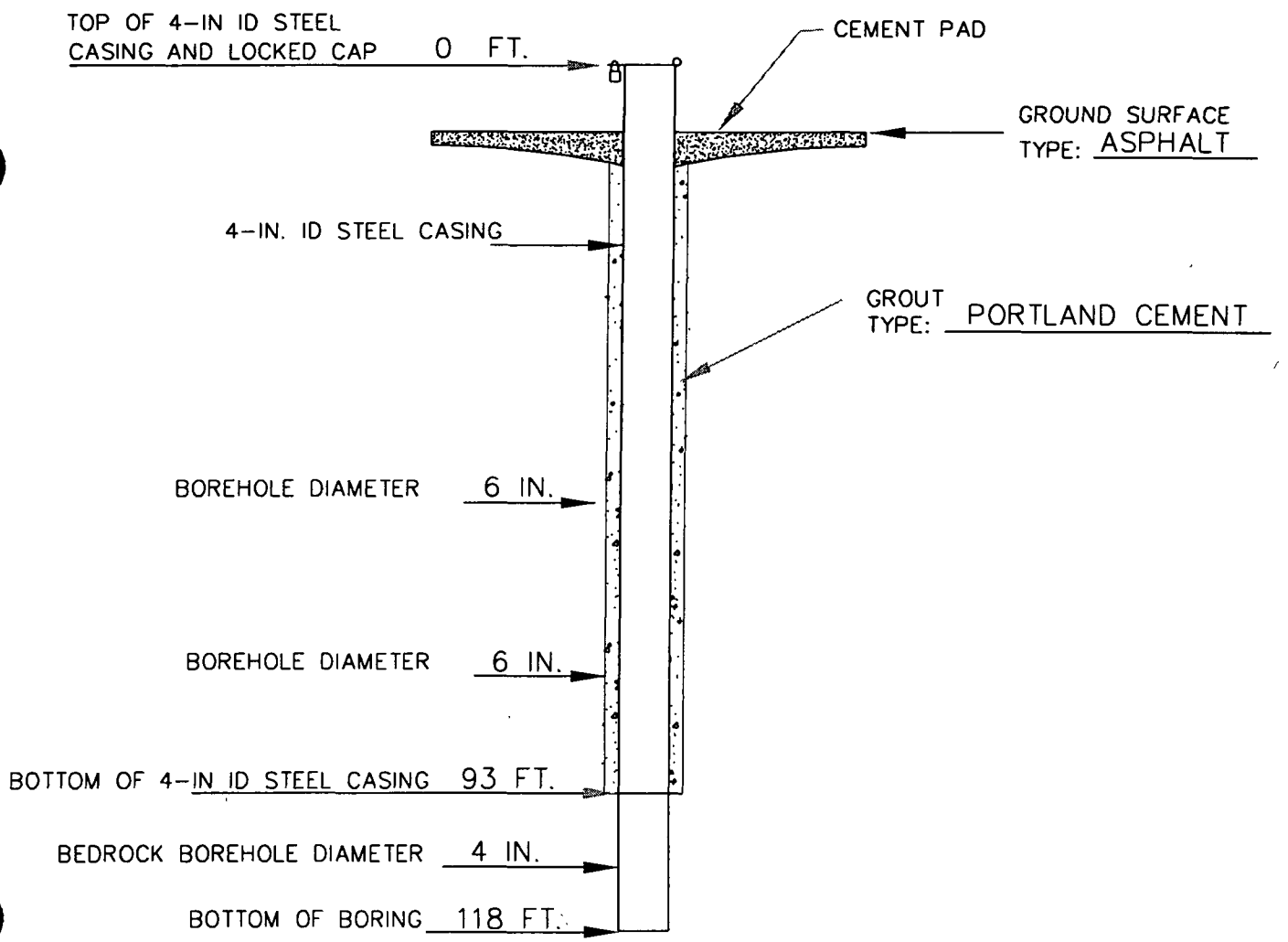
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-52R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 8/2/02	PROJECT No. 29600.97
ELEVATION OF GROUND SURFACE: 12.87' MSL ELEVATION TOP OF WELL RISER: 12.54' MSL	COORDINATES: N: 195069 E: 524400
DEPTH TO WATER: 10.19' (BELOW TOP OF RISER) DATE/TIME 11-20-02 / 1025	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 5-IN. TEMPORARY STEEL CASING TO 90 FT 4-IN ID TEMPORARY STEEL CASING TO 93 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 118 FT	



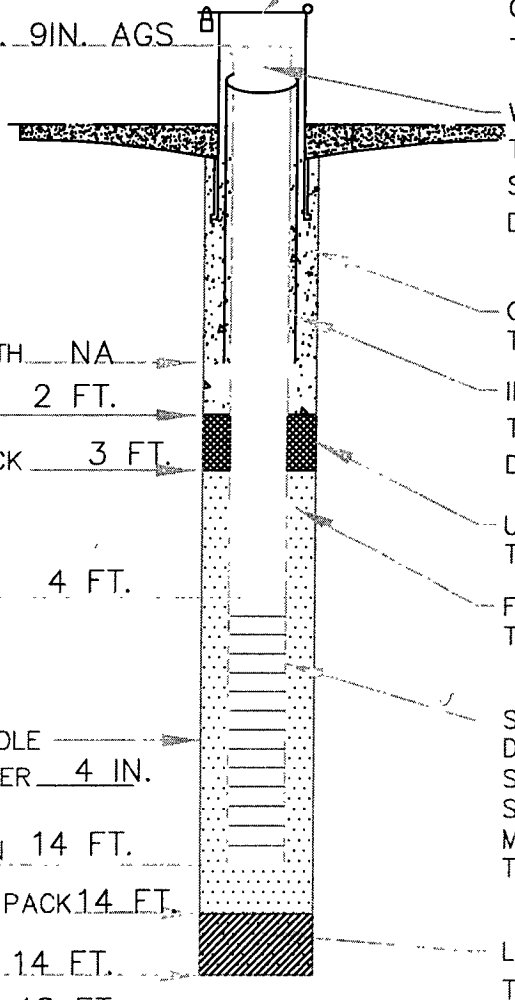
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-53S

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/1/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 15.02' MSL ELEVATION TOP OF WELL RISER: 16.99' MSL	COORDINATES: N: 194449 E: 523510
DEPTH TO WATER: 8.62' (BELOW TOP OF RISER) DATE/TIME 11-22-02 / 1040	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: 4.25-IN. ID HOLLOW STEM AUGER TO 14 FT. BGS AND SAMPLED TO 18 FT BGS	



PROTECTIVE CASING
TYPE: STEEL
LOCKING: YES
STICK UP: 2 FT. 2.5 IN.
DIAMETER: 4 IN.

GROUND SURFACE
TYPE: GRASS/SOIL

WELL RISER
TYPE: PVC
STICK UP: 1FT. 9 IN.
DIAMETER: 2 IN.

GROUT
TYPE: PORTLAND CEMENT

INNER CASING
TYPE: NA
DIAMETER: NA

UPPER SEAL
TYPE: BENTONITE

FILTERPACK
TYPE: #1 SAND

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

LOWER SEAL
TYPE: NONE

TOP OF RISER 1FT. 9IN. AGS

RISER LENGTH 5FT. 9IN.

INNER CASING DEPTH NA

TOP OF SEAL 2 FT.

TOP OF FILTER PACK 3 FT.

TOP OF SCREEN 4 FT.

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 4 IN.

BOTTOM OF SCREEN 14 FT.

BOTTOM OF FILTER PACK 14 FT.

BOTTOM OF BORING 14 FT.

COLLECTED SOIL SAMPLES 18 FT.

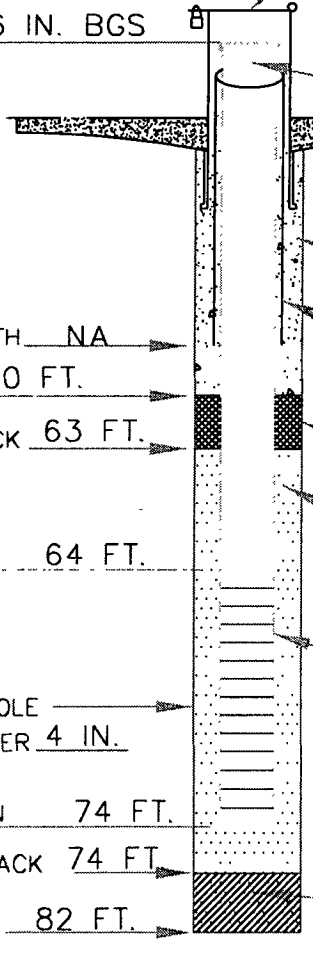
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-54D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 8/13/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 27.80' MSL ELEVATION TOP OF WELL RISER: 27.57' MSL	COORDINATES: N: 192946 E. 522462
DEPTH TO WATER: 13.35' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1141	EA INSPECTOR: V. DELEONE
DRILLING METHOD & DEPTH: DRIVE AND WASH 4 IN. ID TEMPORARY STEEL CASING TO 74 FT. 3 7/8-IN. DIAMETER ROLLERBIT TO 77 FT. NX-CORE 77 TO 82 FT.	



PROTECTIVE CASING
TYPE: ROADBOX
LOCKING: NO
STICK UP: FLUSHMOUNT
DIAMETER: NA

GROUND SURFACE
TYPE: ASPHALT

TOP OF RISER 6 IN. BGS

WELL RISER
TYPE: PVC
STICK UP: -6 IN.
DIAMETER: 2 IN.

RISER LENGTH 63.5 FT.

INNER CASING DEPTH NA

GROUT
TYPE: PORTLAND CEMENT

TOP OF SEAL 60 FT.

INNER CASING
TYPE: NA
DIAMETER: NA

TOP OF FILTER PACK 63 FT.

UPPER SEAL
TYPE: BENTONITE

TOP OF SCREEN 64 FT.

FILTERPACK
TYPE: #1 SAND

SCREEN LENGTH 10 FT.

BOREHOLE DIAMETER 4 IN.

SCREEN
DIAMETER: 2 IN.
SLOT SIZE: 0.010 IN.
SCHEDULE: 40
MATERIAL: PVC
TYPE OF PIPE JOINTS: THREADED

BOTTOM OF SCREEN 74 FT.

BOTTOM OF FILTER PACK 74 FT.

BOTTOM OF BORING 82 FT.

LOWER SEAL
TYPE: BENTONITE

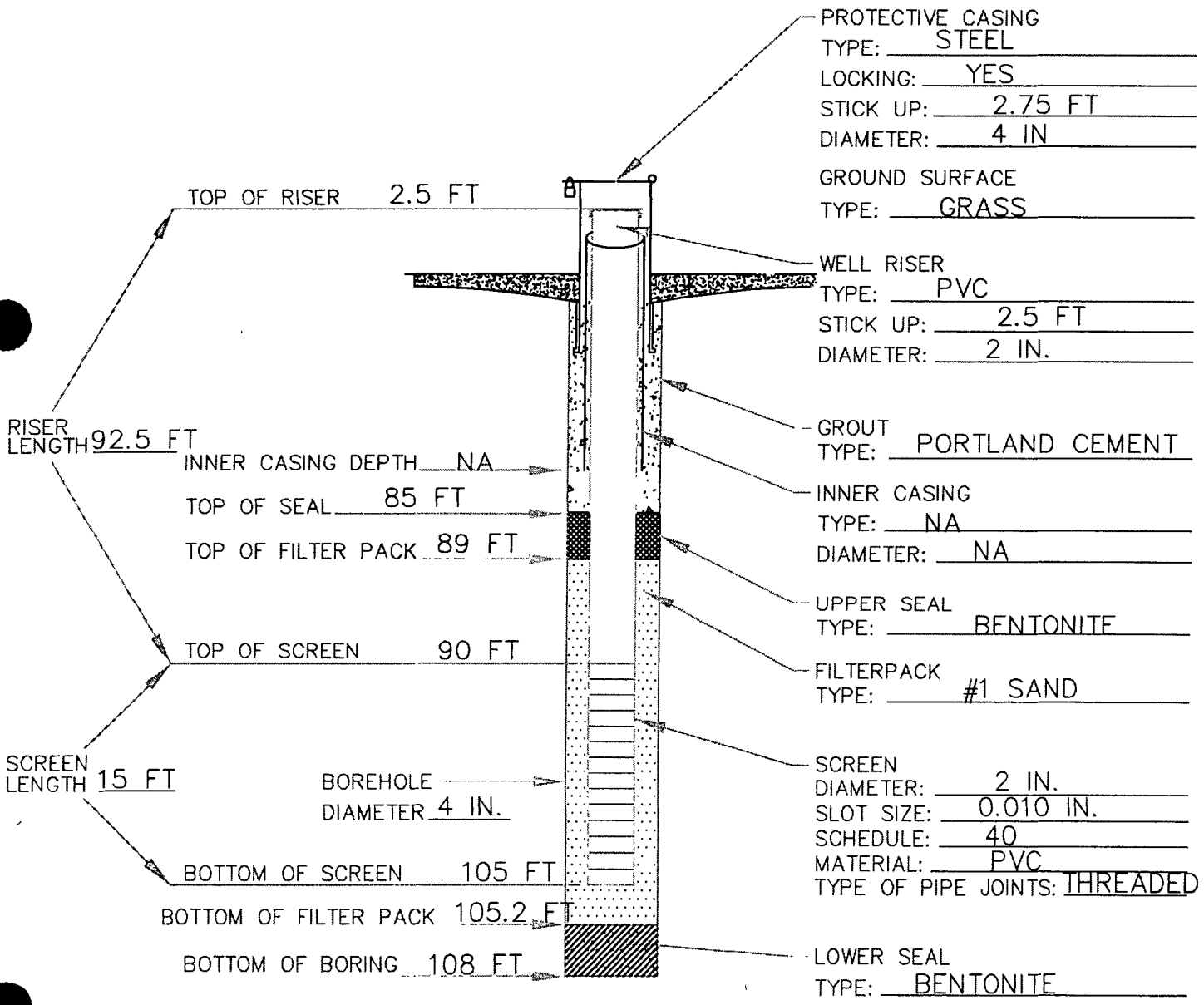
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-55D

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16, PHASE II RI	
DATE INSTALLED: 9/24/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 42.49' MSL ELEVATION TOP OF WELL RISER: 44.78' MSL	COORDINATES: N: 193792 E: 521553
DEPTH TO WATER: 28.52' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1247	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 4-IN. DIAMETER TEMPORARY STEEL CASING TO 94 FT AND SAMPLED TO 100 FT 3 IN 3 7/8-IN. DIAMETER ROLLERBIT TO 103 FT 3 IN. NX-CORE TO 108 FT 3 IN.	



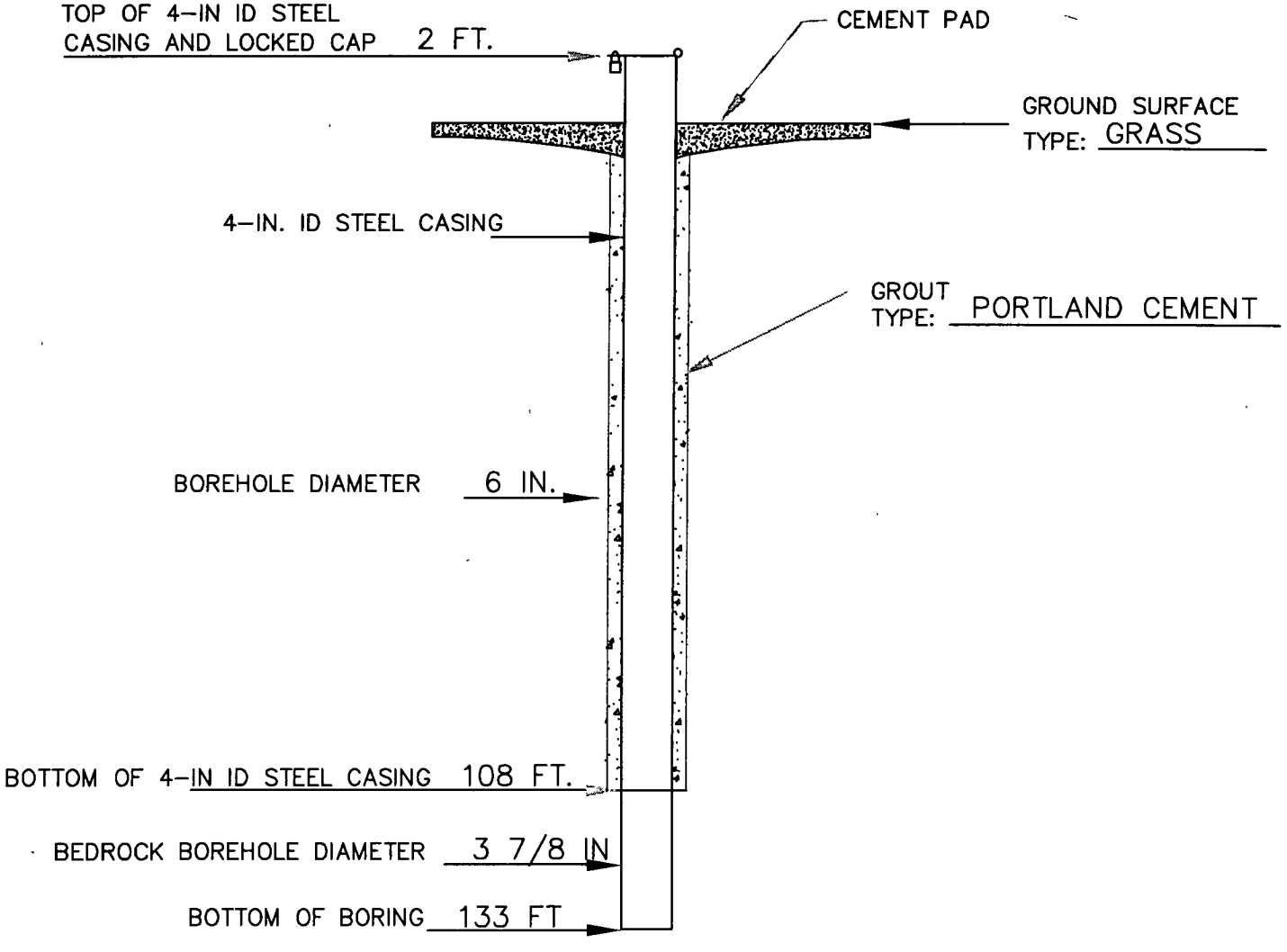
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-55R

CLIENT/SITE NAME: NCBC DAVISVILLE SITE 16, PHASE II RI	
DATE INSTALLED: 9/30/02	PROJECT No. 29600.97
ELEVATION OF GROUND SURFACE: 42.70' MSL ELEVATION TOP OF WELL RISER: 44.56' MSL	COORDINATES: N: 193796 E: 521549
DEPTH TO WATER: 28.52' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1247	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 5-IN. TEMPORARY STEEL CASING TO 105 FT 4-IN ID STEEL CASING TO 108 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 133 FT	



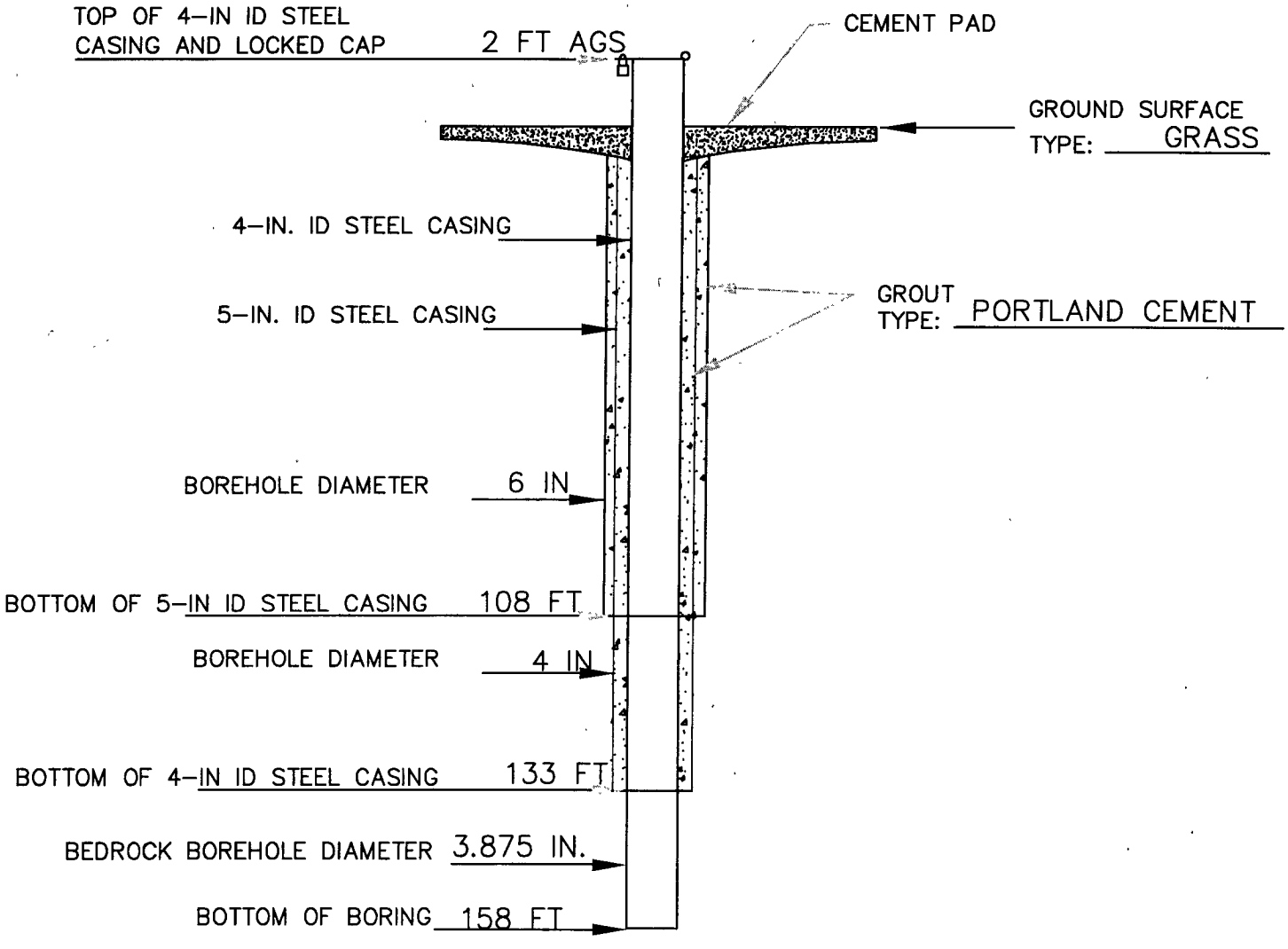
MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

MONITORING WELL CONSTRUCTION

MW16-55R2

CLIENT/SITE NAME: NCBC DAVISVILLE, SITE 16 PHASE II RI	
DATE INSTALLED: 10/10/02	PROJECT No. 29600.97.3202
ELEVATION OF GROUND SURFACE: 42.48' MSL ELEVATION TOP OF WELL RISER: 44.08' MSL	COORDINATES: N: 193792 E: 521546
DEPTH TO WATER: 27.98' (BELOW TOP OF RISER) DATE/TIME 11-19-02 / 1247	EA INSPECTOR: S. SHEER
DRILLING METHOD & DEPTH: DRIVE AND WASH 6-IN. TEMPORARY STEEL CASING TO 105 FT 5-IN ID STEEL CASING TO 108 FT, 4-IN ID STEEL CASING TO 133 FT 3 7/8-IN. DIAMETER ROLLERBIT TO 158 FT	



MONITORING WELL CONSTRUCTION
(ALL DEPTH MEASUREMENTS IN FT. BELOW GROUND SURFACE)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

Appendix E

Well Development Forms

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Cackowski	**Date:** 10/02/02

Well No.: **MW16-02I**

1. Total Riser and Screen Length (ft)	38.4
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	15.59
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.6

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See white Calibration Log for instrument calibration information	

NOTES: Due to late start, will purge w/o parameters and continue tomorrow

Estimated water lost during well installation: 0

Total gallons purged from well during development: 20

pid BG = 0.0 ppm at open well casing 2.3 ppm at 1540 pid BG 0.0 at well casing 0.0

start surge 1530

20 gal out, well dry at 1555

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Cackowski	**Date:** 10/03/02

Well No.: **MW16-02I**

1. Total Riser and Screen Length (ft)	38.4
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	15.59
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.4

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See white Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 300

pid BG = 0.0 ppm at open well casing 0.0 ppm

Start surge 0930. Stop surge 280 gal out, 7 drums. Total out today 283 gal.

Stop surge 1500

*** = cleared flow-through cell**

flow rate ~0.5 liters per minute

WELL DEVELOPMENT LOG

Well No.: MW16-02I

Parameters

Total Gallons									
Time	1300	1305	1310	1315	1320	1325*	1330	1335	1340
Temperature (°C)	14.85	14.74	14.63	14.75	14.69	14.68	14.81	14.82	14.96
Conductivity (mS/cm)	0.117	0.120	0.123	0.120	0.124	0.126	0.122	0.124	0.124
pH	6.25	5.98	5.87	5.84	5.79	5.78	5.78	5.78	5.80
Turbidity (NTU)	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100
Dissolved Oxygen (mg/L)	2.17	1.22	0.98	0.92	0.73	0.57	0.76	0.72	0.78
Salinity (ppth)	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Water Level (FT BTOC)	21.65	21.48	21.29	21.10	21.02	21.30	19.41	20.31	20.37

Total Gallons				283					
Time	1345	1350	1355	1400					
Temperature (°C)	14.84	14.89	14.90	14.98					
Conductivity (mS/cm)	0.123	0.122	0.123	0.123					
pH	5.79	5.79	5.80	5.81					
Turbidity (NTU)	>1,100	>1,100	>1,100	>1,100					
Dissolved Oxygen (mg/L)	0.79	0.80	0.79	0.80					
Salinity (ppth)	0.06	0.06	0.06	0.06					
Water Level (FT BTOC)	20.35	20.35	20.35	20.35					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Anderson	**Date:** 09/20/02

Well No.: **MW16-02R2**

1. Total Riser and Screen Length (ft)	122.70
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	13.90
4. Volume of Water in Well (gal) V = (1-3)*(5)	70.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See white Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development: 180
Purge water is dark gray

WELL DEVELOPMENT LOG

Well No.: MW16-02R2

Parameters

Total Gallons	18	36	55	80	90	110	135	145	150
Time	0850	0905	0910	0920	0936	0944	1000	1010	1015
Temperature (°C)	14.63	14.33	14.34	14.34	14.26	14.54	14.31	14.87	15.06
Conductivity (mS/cm)	2.418	0.780	0.678	0.602	0.456	0.455	0.388	0.382	0.373
pH	13.12	12.66	12.36	12.24	11.80	11.73	11.14	11.11	11.05
Turbidity (NTU)	>1000	>1000	>1000	>1000	77	84	73	35	18
Dissolved Oxygen (mg/L)	3.06	10.43	5.66	3.52	5.08	4.76	6.44	5.01	1.76
Salinity (ppth)	1.25	0.38	0.33	0.29	0.22	0.22	0.19	0.18	0.18
Water Level (FT BTOC)	17.25	18.76	18.70	17.90	17.90	17.90	16.04	16.42	15.74

Total Gallons	155	160	165	170	175	180			
Time	1020	1025	1030	1035	1040	1045			
Temperature (°C)	15.98	15.96	15.86	15.79	15.79	15.73			
Conductivity (mS/cm)	0.370	0.370	0.368	0.366	0.365	0.364			
pH	11.04	11.03	11.01	10.98	10.96	10.96			
Turbidity (NTU)	15	12	12	10	9	10			
Dissolved Oxygen (mg/L)	1.71	1.81	1.76	1.70	1.66	1.61			
Salinity (ppth)	0.18	0.18	0.18	0.18	0.18	0.18			
Water Level (FT BTOC)	15.37	15.25	15.23	15.20	15.05	15.03			

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/02/02

Well No.: **MW16-04I**

1. Total Riser and Screen Length (ft)	33.77
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	9.48
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.9

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 70

PID background: 0.0 ppm; headspace: 0.0 ppm

10/2 – 1510: started purging. Stopped at 1615.

10/3 – 0900: started purging/surging. Stopped at 0955. 60 gallons

Stopped parameter reading at 1025. 10 gallons

WELL DEVELOPMENT LOG

Well No.: MW16-04I

Parameters

Total Gallons	60	62	64	65	67	69	70		
Time	0955	1000	1005	1010	1015	1020	1025		
Temperature (°C)	13.29	13.30	13.35	13.30	13.33	13.33	13.35		
Conductivity (mS/cm)	0.277	0.305	0.306	0.307	0.304	0.303	0.304		
pH	6.65	6.52	6.46	6.44	6.44	6.43	6.43		
Turbidity (NTU)	19.8	13.2	6.07	5.21	2.73	2.52	2.05		
Dissolved Oxygen (mg/L)	2.39	1.73	1.77	1.59	1.48	1.43	1.41		
Salinity (ppth)	0.14	0.15	0.16	0.16	0.16	0.16	0.16		
Water Level (FT BTOC)	13.95	13.78	13.49	13.51	13.55	13.58	13.59		

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin/J. Parrett	**Date:** 09/09/02

Well No.: **MW16-05I**

1. Total Riser and Screen Length (ft)	38.5
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.75
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.0

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 70

Began purging at 1445 at 1 gpm.

Technical difficulties with generators. Ended pumping after 70 gal with turbidity of 2.98 NTU.

WELL DEVELOPMENT LOG

Well No.: **MW16-05I**

Parameters

Total Gallons	45	60	65	70					
Time	1530	1545	1550	1555					
Temperature (°C)	13.22	13.3	13.4	13.4					
Conductivity (mS/cm)	0.318	0.313	0.315	0.316					
pH	6.29	6.27	6.27	6.26					
Turbidity (NTU)	108.5	458	144	2.98					
Dissolved Oxygen (mg/L)	-0.05	-0.04	-0.05	-0.05					
Salinity (ppth)	0.15	0.15	0.15	0.15					
Water Level (FT BTOC)	14.25	14.25	14.25	14.25					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin/J. Parrett	**Date:** 09/09/02

Well No.: **MW16-05R**

1. Total Riser and Screen Length (ft)	95.5
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	9.15
4. Volume of Water in Well (gal) V = (1-3)*(5)	56.13

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development: 76
Begin pumping 1430

WELL DEVELOPMENT LOG

Well No.: MW16-05R

Parameters

Total Gallons	6	35	37.5	40	42.5	45	47.5	50	52.5
Time	1445	1610	1615	1620	1625	1630	1635	1640	1645
Temperature (°C)	13.96	13.73	13.88	13.61	13.64	13.64	13.98	13.57	13.67
Conductivity (mS/cm)	0.952	0.822	0.795	0.791	0.791	0.797	0.800	0.791	0.775
pH	11.40	9.26	9.70	9.81	9.77	9.73	9.90	9.70	9.67
Turbidity (NTU)	>999	344	>999	385	213	139	142	96	78
Dissolved Oxygen (mg/L)	1.90	0.98	2.06	1.68	1.04	1.21	3.58	0.93	0.76
Salinity (ppth)	0.47	0.41	0.39	0.39	0.39	0.39	0.39	0.39	0.38
Water Level (FT BTOC)	26.13	26.40	26.23	26.42	26.25	30.50	30.75	30.52	31.43

Total Gallons	55	57.5	61	63.5	66	68.5	71	73.5	76
Time	1650	1655	1700	1705	1710	1715	1720	1725	1730
Temperature (°C)	13.68	13.68	13.72	13.94	13.74	13.68	13.69	13.69	13.66
Conductivity (mS/cm)	0.766	0.747	0.729	0.715	0.702	0.705	0.708	0.722	0.730
pH	9.71	9.75	9.81	9.88	9.86	9.89	9.87	9.85	9.82
Turbidity (NTU)	81	83	197	529	545	518	496	397	315
Dissolved Oxygen (mg/L)	0.72	0.68	0.62	0.60	0.48	0.53	0.59	0.58	0.60
Salinity (ppth)	0.38	0.37	0.36	0.35	0.34	0.34	0.35	0.36	0.36
Water Level (FT BTOC)	32.53	33.16	34.32	34.50	34.50	34.52	34.47	34.42	34.53

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/B. Haras	**Date:** 08/20/02

Well No.: **MW16-06R**

1. Total Riser and Screen Length (ft)	75.75
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	18.12
4. Volume of Water in Well (gal) V = (1-3)*(5)	37.5

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See green Calibration Log for instrument calibration information	

NOTES:

Estimated Water lost during well installation: 0

Total gallons purged from well during development: 85

Well mouth PID = 0.0ppm

WELL DEVELOPMENT LOG

Well No.: **MW16-06R**

Parameters

Total Gallons	0	2.5	5	7.5	10	12.5	15	17.5	20
Time	1415	1420	1425	1430	1435	1440	1445	1450	1455
Temperature (°C)	13.06	13.63	14.00	14.06	13.93	13.97	14.08	14.10	14.02
Conductivity (mS/cm)	0.330	0.328	0.328	0.325	0.327	0.327	0.328	0.328	0.329
pH	8.35	8.30	8.37	8.41	8.47	8.44	8.45	8.46	8.42
Turbidity (NTU)	146	218	826	263	310	216	274	266	266
Dissolved Oxygen (mg/L)	7.52	6.41	5.95	5.51	4.87	4.80	4.63	4.19	2.58
Salinity (ppth)	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Water Level (FT BTOC)	20.06	23.03	24.00	24.95	26.04	26.98	26.66	26.69	27.20

Total Gallons	22.5	25	27.5	30	32.5	35	40	42.5	45
Time	1500	1505	1510	1515	1520	1525	1530	1535	1540
Temperature (°C)	14.01	14.47	13.87	13.94	13.99	14.09	14.02	13.96	14.00
Conductivity (mS/cm)	0.328	0.327	0.328	0.324	0.317	0.314	0.309	0.305	0.303
pH	8.42	8.44	8.39	8.35	8.34	8.29	8.25	8.22	8.24
Turbidity (NTU)	258	311	319	355	361	345	282	292	285
Dissolved Oxygen (mg/L)	2.22	5.08	2.06	1.42	1.21	0.94	0.74	0.65	0.58
Salinity (ppth)	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.15
Water Level (FT BTOC)	28.01	26.20	27.85	28.71	29.30	29.52	29.95	30.25	30.49

Total Gallons	47.5	50	52.5	55	56	57	58	58.5	59
Time	1545	1550	1555	1600	1605	1610	1615	1620	1625
Temperature (°C)	14.01	14.00	13.93	13.75	13.78	13.83	13.47	13.64	13.35
Conductivity (mS/cm)	0.302	0.298	0.298	0.294	0.291	0.290	0.290	0.288	0.290
pH	8.23	8.24	8.18	8.18	8.16	8.15	8.10	8.12	8.17
Turbidity (NTU)	265	294	318	382	351	350	258	217	244
Dissolved Oxygen (mg/L)	0.41	0.38	0.33	0.30	0.26	0.24	0.22	0.20	0.17
Salinity (ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Water Level (FT BTOC)	30.56	30.55	30.60	31.22	31.60	31.91	32.78	33.80	36.90

WELL DEVELOPMENT LOG

Well No.: MW16-06R

Parameters

Total Gallons	60	61	62	63	64	65	67.5	75	80
Time	1630	1635	1640	1645	1650	1655	1700	1705	1710
Temperature (°C)	13.35	13.42	13.51	13.44	13.55	13.58	13.50	13.23	13.15
Conductivity (mS/cm)	0.289	0.291	0.290	0.288	0.282	0.277	0.277	0.274	0.273
pH	8.23	8.49	8.48	8.43	8.30	8.18	8.13	8.10	8.00
Turbidity (NTU)	593	>999	>999	>999	>999	>999	1021	>999	859
Dissolved Oxygen (mg/L)	0.70	0.35	0.26	0.20	0.16	0.16	0.12	0.12	0.13
Salinity (ppth)	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.13	0.13
Water Level (FT BTOC)	40.58	40.21	40.63	41.92	42.60	43.15	43.20	45.00	49.35

Total Gallons	85								
Time	1715								
Temperature (°C)	13.29								
Conductivity (mS/cm)	0.291								
pH	8.83								
Turbidity (NTU)	872								
Dissolved Oxygen (mg/L)	0.08								
Salinity (ppth)	0.14								
Water Level (FT BTOC)	59.50								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Anderson	**Date**: 09/17/02

Well No.: **MW16-11S**

1. Total Riser and Screen Length (ft)	19.20
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	14.99
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.67

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated Water lost during well installation:

Total gallons purged from well during development: 55

*** = Low flow**

WELL DEVELOPMENT LOG

Well No.: MW16-11S

Parameters

Total Gallons	8	18	28*	40	50*	51	52	53	54
Time	0940	1005	1015	1030	1045	1047	1050	1055	1100
Temperature (°C)	17.32	17.00	16.68	17.06	17.16	17.43	17.59	18.42	19.29
Conductivity (mS/cm)	0.187	0.259	0.252	0.257	0.234	0.236	0.237	0.232	0.232
pH	7.12	5.49	5.33	5.32	5.23	5.21	5.20	5.22	5.24
Turbidity (NTU)	>1000	>1000	>1000	>1000	287	30	3	2	0
Dissolved Oxygen (mg/L)	9.44	9.04	8.94	8.84	9.11	9.05	9.07	8.91	8.81
Salinity (ppth)	0.09	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	18.11	15.75	15.73	15.45	15.10	15.10	15.10	15.10	15.10

Total Gallons	55+								
Time	1105								
Temperature (°C)	19.50								
Conductivity (mS/cm)	0.230								
pH	5.25								
Turbidity (NTU)	0								
Dissolved Oxygen (mg/L)	8.76								
Salinity (ppth)	0.11								
Water Level (FT BTOC)	15.10								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Clark	**Date**: 09/17/02

Well No.: **MW16-13I**

1. Total Riser and Screen Length (ft)	33.50
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	15.12
4. Volume of Water in Well (gal) V = (1-3)*(5)	2.94

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: ~332 gal

Pumping 1.07 gpm, 139.4 Hz

*** = Slowed speed to 109.4 Hz**

WELL DEVELOPMENT LOG

Well No.: MW16-13I

Parameters

Total Gallons	0	~115	~170	~240	~245	~250	~255	~260	~265
Time	0940	1040	1140	1240	1245	1250	1255	1300	1305
Temperature (°C)	15.26	15.47	15.46	15.87	15.04	14.68	14.75	14.60	14.64
Conductivity (mS/cm)	0.242	0.114	0.100	0.101	0.098	0.098	0.097	0.098	0.098
pH	6.61	6.33	6.15	6.12	6.03	5.93	5.87	5.88	5.87
Turbidity (NTU)	>999	>999	>999	>999	850	550	300	200	180
Dissolved Oxygen (mg/L)	5.14	2.78	3.15	3.32	3.22	0.80	0.70	0.62	0.58
Salinity (ppth)	0.12	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Water Level (FT BTOC)	15.12	18.38	18.61	18.65	18.65	18.50	18.51	18.52	18.52

Total Gallons	~270	~275	~280	~285	~300	~310	~313*	~316	~318
Time	1310	1315	1320	1325	1340	1355	1410	1415	1420
Temperature (°C)	14.63	14.69	14.72	14.75	14.66	14.61	15.01	15.46	15.55
Conductivity (mS/cm)	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.099	0.099
pH	5.84	5.79	5.83	5.89	5.88	5.90	5.91	5.93	5.92
Turbidity (NTU)	110	160	200	500	270	260	140	140	110
Dissolved Oxygen (mg/L)	0.55	0.53	0.52	0.50	0.49	0.39	0.35	0.34	0.35
Salinity (ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Water Level (FT BTOC)	18.52	18.52	18.52	18.52	17.87	17.53	16.87	16.18	16.13

Total Gallons	~320	~322	~324	~326	~328	~330	~332		
Time	1425	1430	1435	1440	1445	1450	1455		
Temperature (°C)	15.58	15.50	15.54	15.56	15.52	15.51	15.52		
Conductivity (mS/cm)	0.099	0.099	0.099	0.099	0.099	0.099	0.099		
pH	5.91	5.90	5.89	5.89	5.88	5.88	5.87		
Turbidity (NTU)	100	85	85	70	70	60	55		
Dissolved Oxygen (mg/L)	0.35	0.34	0.33	0.34	0.33	0.33	0.34		
Salinity (ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05		
Water Level (FT BTOC)	16.12	16.12	16.12	16.12	16.12	16.12	16.12		

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Anderson	**Date:** 09/17/02

Well No.: **MW16-14I**

1. Total Riser and Screen Length (ft)	35.35
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	16.10
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.1

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated Water lost during well installation:
Total gallons purged from well during development: 200
Pumping at approximately ~1 gpm
Water grey color
*** = Low flow**

WELL DEVELOPMENT LOG

Well No.: MW16-14I

Parameters

Total Gallons	2	15	30	50	65	80	95	100	115
Time	1300	1315	1330	1345	1400	1415	1430	1435	1445
Temperature (°C)	17.76	15.88	16.10	15.62	15.97	15.39	15.59	15.52	15.63
Conductivity (mS/cm)	0.241	2.254	3.258	2.192	2.198	2.168	1.214	1.130	1.961
pH	6.63	5.92	5.79	5.82	5.90	5.80	5.85	5.82	5.84
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	13.10	10.81	7.68	5.92	9.33	6.59	6.82	6.88	6.08
Salinity (ppth)	0.62	1.17	1.17	1.13	1.13	1.12	0.61	0.56	1.01
Water Level (FT BTOC)	22.57	24.90	24.75	24.76	24.71	24.43	24.13	24.11	24.10

Total Gallons	130	145	150	170	180*	182	184	186	188
Time	1500	1515	1520	1530	1545	1547	1550	1555	1600
Temperature (°C)	15.27	15.40	15.27	15.24	15.46	15.47	15.61	16.31	16.24
Conductivity (mS/cm)	2.212	1.974	2.216	1.995	1.580	2.159	2.202	2.185	2.296
pH	5.75	5.85	5.79	5.79	5.98	5.71	5.68	5.65	5.58
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	95	45	20	23
Dissolved Oxygen (mg/L)	6.23	6.13	6.09	6.26	6.62	6.18	6.42	6.45	6.68
Salinity (ppth)	1.14	1.01	1.14	1.02	0.75	1.12	1.14	1.12	1.19
Water Level (FT BTOC)	24.10	24.10	24.10	24.10	24.00	19.10	19.00	19.00	19.00

Total Gallons	190	192	195	197	200				
Time	1605	1610	1615	1620	1625				
Temperature (°C)	16.31	16.37	16.43	16.23	16.35				
Conductivity (mS/cm)	2.263	2.268	2.295	2.237	2.233				
pH	5.54	5.52	5.57	5.59	5.63				
Turbidity (NTU)	15	14	13	12	12				
Dissolved Oxygen (mg/L)	6.84	7.32	7.75	7.67	7.55				
Salinity (ppth)	1.17	1.17	1.19	1.15	1.16				
Water Level (FT BTOC)	17.91	17.90	17.90	17.89	17.89				

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman/B. Anderson	**Date:** 09/18/02

Well No.: **MW16-15R2**

1. Total Riser and Screen Length (ft)	116
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	21.02
4. Volume of Water in Well (gal) V = (1-3)*(5)	61.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See white Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: ~78

WELL DEVELOPMENT LOG

Well No.: MW16-15R2

Parameters

Total Gallons	1	21	39	45	47.5	50	52.5	55	57.2
Time	1405	1420	1445	1455	1500	1505	1510	1515	1525
Temperature (°C)	17.71	15.66	15.94	15.62	15.48	15.39	15.42	15.43	15.59
Conductivity (mS/cm)	1.357	0.616	0.379	0.403	0.349	0.354	0.367	0.373	0.375
pH	11.89	11.43	9.61	9.81	9.30	9.55	9.87	10.04	10.00
Turbidity (NTU)	>999	469	50	29	22	18	37	42	59
Dissolved Oxygen (mg/L)	3.35	0.53	3.34	0.41	0.06	0.14	0.18	0.20	0.31
Salinity (ppth)	0.68	0.30	0.18	0.18	0.17	0.17	0.19	0.18	0.18
Water Level (FT BTOC)	23.25	24.07	24.99	24.35	24.21	24.10	24.0	23.99	24.01

Total Gallons	60	62.5	65	61.5	70	72.5	75	77.2	
Time	1530	1535	1540	1545	1550	1555	1600	1605	
Temperature (°C)	15.42	15.40	15.37	15.33	15.35	15.30	15.30	15.30	
Conductivity (mS/cm)	0.353	0.354	0.362	0.364	0.383	0.368	0.366	0.365	
pH	9.74	9.77	9.98	10.01	10.07	10.11	10.09	10.10	
Turbidity (NTU)	21	18	23	20	31	28	33	29	
Dissolved Oxygen (mg/L)	0.27	0.24	0.19	0.20	0.24	0.22	0.20	0.21	
Salinity (ppth)	0.17	0.17	0.17	0.18	0.18	0.19	0.18	0.18	
Water Level (FT BTOC)	24.00	23.99	24.00	24.00	23.99	23.98	23.97	23.97	

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman	**Date:** 09/19/02

Well No.: **MW16-16I**

1. Total Riser and Screen Length (ft)	44.30
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.55
4. Volume of Water in Well (gal) V = (1-3)*(5)	5.4

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See red Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 330

I only surged during the first drum collection. The well did not clean up at all.

Had to stop pumping at 1620 – no more drums.

WELL DEVELOPMENT LOG

Well No.: MW16-16I

Parameters

Total Gallons	8	55	110	165	220	275	290	295	300
Time	0915	1025	1125	1235	1340	1445	1540	1545	1550
Temperature (°C)	15.13	14.72	14.92	15.37	15.15	16.40	14.37	14.35	14.34
Conductivity (mS/cm)	0.197	0.137	0.136	0.126	0.122	0.119	0.110	0.108	0.106
pH	7.61	6.66	5.33	6.38	6.44	5.92	5.89	5.88	5.87
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	1.60	3.66	4.74	4.20	5.01	3.46	1.94	1.97	2.01
Salinity (ppth)	0.09	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05
Water Level (FT BTOC)	25.35	23.95	24.00	24.30	24.80	24.31	23.98	23.95	23.91

Total Gallons	305	310	315	320	325	330			
Time	1555	1600	1605	1610	1615	1620			
Temperature (°C)	14.37	14.35	14.39	14.41	14.39	14.41			
Conductivity (mS/cm)	0.099	0.097	0.096	0.110	0.100	0.097			
pH	5.90	5.91	5.91	5.90	5.92	5.93			
Turbidity (NTU)	>999	>999	>999	>999	>999	>999			
Dissolved Oxygen (mg/L)	2.10	1.90	1.75	1.99	1.92	1.77			
Salinity (ppth)	0.05	0.05	0.05	0.05	0.05	0.05			
Water Level (FT BTOC)	23.87	23.85	23.78	23.73	23.68	23.65			

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: R. Clark	**Date:** 09/30/02

Well No.: **MW16-17S**

1. Total Riser and Screen Length (ft)	17.80
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.71
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development: ~20
Bailed dry 5 or 6 times. No YSI readings.

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: P. Probasco	**Date**: 09/30/02

Well No.: **MW16-17I**

1. Total Riser and Screen Length (ft)	41.95
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.34
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See white Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development: 126
Pump rate = 1 gal/1.27 minutes
Pump rate slowed to 1/gal/2.43 min. during collection of water quality parameters.

WELL DEVELOPMENT LOG

Well No.: MW16-17I

Parameters

Total Gallons	~100	~110	~113	~116	~120	~123	~126		
Time	1719	1738	1745	1752	1800	1807	1814		
Temperature (°C)	14.93	14.90	14.83	14.82	14.80	14.79	14.74		
Conductivity (mS/cm)	0.088	0.078	0.076	0.076	0.076	0.076	0.075		
pH	6.38	6.04	6.00	5.98	5.97	5.97	5.96		
Turbidity (NTU)	4.75	36.7	14.0	10.46	9.01	9.04	6.33		
Dissolved Oxygen (mg/L)	3.55	4.03	4.09	4.14	4.11	4.15	4.13		
Salinity (ppth)	0.04	0.04	0.04	0.04	0.04	0.04	0.03		
Water Level (FT BTOC)	16.3	16.3	16.4	16.4	16.35	16.4	16.35		

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Cackowski	**Date:** 09/30/02

Well No.: **MW16-17R**

1. Total Riser and Screen Length (ft)	98.62
2. Screen Internal Diameter (in.)	3 7/8 open rock
3. Water Level Below Measuring Point (ft)	12.93
4. Volume of Water in Well (gal) V = (1-3)*(5)	55.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See blue Calibration Log for instrument calibration information	

NOTES: PID at casing upon opening 0.0 ppm, BG = 0.0 ppm
Estimated water lost during well installation:
Total gallons purged from well during development: 140
Start purge 1545, 1725 end purge. Slow flow rate. Purge at 1 gpm.
Stopped taking readings and purging at 1835 due to end of daylight. Will continue tomorrow.

WELL DEVELOPMENT LOG

Well No.: MW16-17R

Parameters

Total Gallons	105	105.25	105.5	105.75	106	106.5	107	107.5	108
Time	1730	1735	1740	1745	1750	1755	1800	1805	1810
Temperature (°C)	14.61	14.46	14.35	14.29	14.29	14.25	14.19	14.18	14.16
Conductivity (mS/cm)	0.142	0.142	0.140	0.139	0.136	0.130	0.130	0.130	0.130
pH	6.91	6.78	6.73	6.70	6.67	6.64	6.62	6.62	6.62
Turbidity (NTU)	42.9	35.7	30.0	26.0	13	11	11	13	15
Dissolved Oxygen (mg/L)	1.07	1.34	0.06	0.06	0.29	0.23	0.34	0.39	0.09
Salinity (ppth)	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06
Water Level (FT BTOC)	41.40	39.15	37.49	36.51	35.81	34.95	33.90	33.55	33.35

Total Gallons	109	110	111	112	113				
Time	1815	1820	1825	1830	1835				
Temperature (°C)	14.13	14.48	14.48	14.50	Stopped due to darkness				
Conductivity (mS/cm)	0.135	0.130	0.131	0.133					
pH	6.62	6.62	6.64	6.53					
Turbidity (NTU)	19	20	29	27					
Dissolved Oxygen (mg/L)	0.08	0.11	0.10	0.13					
Salinity (ppth)	0.06	0.06	0.06	0.06					
Water Level (FT BTOC)	33.15	31.90	29.20	28.40					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Cackowski	**Date**: 10/02/02

Well No.: **MW16-17R**

1. Total Riser and Screen Length (ft)	98.62
2. Screen Internal Diameter (in.)	3 7/8 open rock
3. Water Level Below Measuring Point (ft)	12.93
4. Volume of Water in Well (gal) V = (1-3)*(5)	55.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See white Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 225 (Total 9/30/02: 140, 10/02/02: 85)

PID BG = 0.0 ppm at open well casing 0.0 ppm

Start surge 1030 at 2 gpm. End surge 1140 Total out 65 gal

Adjust flow to 0.5 liters per minute, start readings

WELL DEVELOPMENT LOG

Well No.: MW16-17R

Parameters

Total Gallons	65	67	70	72		74	75	77	78
Time	1140	1145	1150	1155	1200	1205	1210	1215	1220
Temperature (°C)	15.63	14.91	14.86	15.55		14.85	14.78	14.73	14.83
Conductivity (mS/cm)	0.515	0.500	0.488	0.477	missed – drum run	0.458	0.453	0.446	0.442
pH	6.39	6.32	6.31	6.33		6.24	6.21	6.17	6.15
Turbidity (NTU)	357	150	117	76.5		32.9	23.8	14.0	7.75
Dissolved Oxygen (mg/L)	0.71	0.25	0.19	0.16		0.14	0.13	0.11	0.12
Salinity (ppth)	0.25	0.24	0.24	0.23		0.22	0.22	0.22	0.21
Water Level (FT BTOC)	37.68	35.78	34.33	32.45		27.61	27.13	26.65	26.15

Total Gallons	79	80	82	84	85				
Time	1225	1230	1235	1240	1245				
Temperature (°C)	14.90	15.10	14.98	14.91	14.87				
Conductivity (mS/cm)	0.440	0.440	0.439	0.438	0.438				
pH	6.14	6.14	6.12	6.11	6.09				
Turbidity (NTU)	5.26	3.88	2.69	2.72	2.53				
Dissolved Oxygen (mg/L)	0.12	0.14	0.13	0.13	0.12				
Salinity (ppth)	0.21	0.21	0.21	0.21	0.21				
Water Level (FT BTOC)	25.83	24.20	23.81	23.27	23.08				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date**: 09/19/02

Well No.: **MW16-18I**

1. Total Riser and Screen Length (ft)	36.0
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.89
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.5

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 270

WELL DEVELOPMENT LOG

Well No.: **MW16-18I**

Parameters

Total Gallons	Initial	55	85	135	185	240	245	250	255
Time	0900	0930	1000	1030	1100	1130	1135	1140	1145
Temperature (°C)	14.93	15.35	15.66	16.30	16.33	14.46	14.52	14.59	14.58
Conductivity (mS/cm)	0.080	0.079	0.80	0.104	0.104	0.074	0.076	0.071	0.074
pH	7.44	7.08	7.00	6.79	6.62	5.86	5.77	5.82	5.85
Turbidity (NTU)	>1,100	>1,100	>1,100	>1,100	>1,100	150	120	70	50
Dissolved Oxygen (mg/L)	10.97	10.05	--	8.17	7.67	6.53	6.06	5.85	5.77
Salinity (ppth)	0.04	0.04	0.04	0.05	0.05	0.03	0.03	0.03	0.03
Water Level (FT BTOC)	16.61	16.38	16.33	16.18	16.18	15.59	15.59	15.59	15.59

Total Gallons	260	265	270						
Time	1150	1155	1200						
Temperature (°C)	14.58	14.57	14.55						
Conductivity (mS/cm)	0.073	0.074	0.073						
pH	5.87	5.88	5.88						
Turbidity (NTU)	39.4	32.2	37.6						
Dissolved Oxygen (mg/L)	5.70	5.65	5.63						
Salinity (ppth)	0.03	0.03	0.03						
Water Level (FT BTOC)	15.59	15.59	15.59						

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Anderson	**Date:** 09/18/02

Well No.: **MW16-19I**

1. Total Riser and Screen Length (ft)	
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.60
4. Volume of Water in Well (gal) V = (1-3)*(5)	

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 140

Gray water cleared up quickly beginning at 1015.

WELL DEVELOPMENT LOG

Well No.: **MW16-19I**

Parameters

Total Gallons	5	18	26	40	55	70	80	110	113
Time	0920	0930	0940	0950	1000	1015	1030	1045	1055
Temperature (°C)	15.64	14.07	13.94	14.27	14.69	14.24	14.75	14.94	14.63
Conductivity (mS/cm)	0.334	0.274	0.262	0.252	0.254	0.250	0.251	0.241	0.241
pH	6.16	6.66	6.35	6.22	6.19	6.12	6.07	5.91	5.82
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	38
Dissolved Oxygen (mg/L)	5.96	8.07	8.45	7.80	8.06	8.42	8.06	7.05	7.44
Salinity (ppth)	0.16	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Water Level (FT BTOC)	15.95	15.97	15.97	15.97	15.97	15.97	15.97	15.97	15.97

Total Gallons	117	120	123	127	130	133	137	140	
Time	1100	1105	1110	1115	1120	1125	1130	1135	
Temperature (°C)	15.38	14.63	15.54	15.98	16.33	16.28	16.34	16.46	
Conductivity (mS/cm)	0.228	0.237	0.235	0.242	0.248	0.248	0.248	0.249	
pH	5.72	5.70	5.72	5.74	5.73	5.73	5.80	5.81	
Turbidity (NTU)	57	69	68	80	57	44	47	43	
Dissolved Oxygen (mg/L)	7.47	7.81	8.33	9.25	9.25	8.95	9.23	9.16	
Salinity (ppth)	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	
Water Level (FT BTOC)	14.70	14.32	14.05	14.00	14.00	14.00	14.00	14.00	

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Anderson	**Date:** 09/17/02

Well No.: **MW16-20I**

1. Total Riser and Screen Length (ft)	33.28
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	9.70
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development: 150
PID = 0.0 background/breathing zone, 0.5 well head
Purging rate = ~1.5 gpm
*** = surge – take read after 5 min**
**** = 2 min after surge**

WELL DEVELOPMENT LOG

Well No.: MW16-20I

Parameters

Total Gallons	0	10	35	55	75	80	85	100	110
Time	0935	0945	1000	1010	1030	1035*	1045*	1055	1105
Temperature (°C)	16.72	15.94	15.68	15.82	15.90	16.10	16.38	16.62	15.87
Conductivity (mS/cm)	0.270	0.258	0.265	0.264	0.261	0.269	0.272	0.277	0.274
pH	7.82	7.22	5.87	5.83	5.84	5.75	5.72	5.85	5.77
Turbidity (NTU)	>1000	>1000	>1000	>1000	79	44	368	278**	66**
Dissolved Oxygen (mg/L)	6.83	6.16	7.35	6.83	6.28	6.52	6.68	7.23	6.80
Salinity (ppth)	0.13	0.12	0.13	0.13	0.12	0.13	0.13	0.13	0.13
Water Level (FT BTOC)	10.80	10.75	10.70	10.70	10.70	10.70	10.70	10.70	10.70

Total Gallons	140	141	142	143	144	145	146	146.5	147
Time	1115	1120*	1125	1130	1135	1140	1145	1150	1155
Temperature (°C)	15.94	16.94	17.47	18.35	18.31	18.38	18.52	18.47	18.79
Conductivity (mS/cm)	0.270	0.265	0.268	0.267	0.269	0.270	0.270	0.268	0.269
pH	5.74	5.70	5.68	5.66	5.67	5.68	5.65	5.63	5.63
Turbidity (NTU)	84	35	17	36	122	129	125	75	72
Dissolved Oxygen (mg/L)	6.70	6.57	6.52	6.52	6.50	6.63	6.37	6.43	6.42
Salinity (ppth)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Water Level (FT BTOC)	10.70	10.70	10.50	9.90	9.90	9.90	9.90	9.90	9.90

Total Gallons	148	148.5	149	150					
Time	1200	1205	1210	1215					
Temperature (°C)	19.03	19.74	19.11	18.82					
Conductivity (mS/cm)	0.267	0.267	0.273	0.269					
pH	5.64	5.65	5.62	5.62					
Turbidity (NTU)	51	49	40	23					
Dissolved Oxygen (mg/L)	6.42	6.30	6.54	6.39					
Salinity (ppth)	0.13	0.13	0.13	0.13					
Water Level (FT BTOC)	9.90	9.90	9.90	9.90					

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Clark	**Date:** 09/18/02

Well No.: **MW16-21I**

1. Total Riser and Screen Length (ft)	36.0
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.85
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 480

Pumping at ~1.15 gpm, 146.4 Hz

*** = Reduced flow slightly at 1315, then again at 1427**

WELL DEVELOPMENT LOG

Well No.: MW16-21I

Parameters

Total Gallons	0	~70	~140	~210	~280*	~340	~400	~452	455
Time	0915	1015	1115	1215	1315	1415	1515	1615	1625
Temperature (°C)	16.42	16.94	18.21	16.95	16.79	16.85	17.33	17.42	16.34
Conductivity (mS/cm)	0.152	0.122	0.131	0.138	0.145	0.161	0.177	0.185	0.182
pH	7.80	6.56	6.31	6.29	6.31	6.23	6.21	6.20	6.25
Turbidity (NTU)	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000
Dissolved Oxygen (mg/L)	2.99	2.68	2.04	2.30	3.24	3.55	2.80	2.84	4.40
Salinity (ppth)	0.07	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09
Water Level (FT BTOC)	11.85	21.48	20.92	20.91	20.62	19.12	17.79	17.74	17.77

Total Gallons	460	465	470	475	~480				
Time	1630	1635	1640	1645	1650				
Temperature (°C)	16.20	16.26	16.17	16.12	16.11				
Conductivity (mS/cm)	0.184	0.188	0.185	0.184	0.185				
pH	6.22	6.22	6.23	6.20	6.20				
Turbidity (NTU)	>1,000	>1,000	>1,000	>1,000	>1,000				
Dissolved Oxygen (mg/L)	3.83	3.94	3.92	3.76	3.98				
Salinity (ppth)	0.09	0.09	0.09	0.09	0.09				
Water Level (FT BTOC)	17.77	17.77	17.77	17.77	17.77				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date**: 09/18/02

Well No.: **MW16-22I**

1. Total Riser and Screen Length (ft)	44
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	18.13
4. Volume of Water in Well (gal) V = (1-3)*(5)	20.70

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 315

Due to sediment-laden water, filled cup w/water and inserted ysi for readings from start (0910) until 1605.

Then used flow through cell w/ysi 1625-1645

1220-1305 pump stuck in well (24.96 ft btoc @ restart)

WELL DEVELOPMENT LOG

Well No.: MW16-22I

Parameters

Total Gallons	Initial	15	40	55	80	105	130	165	185
Time	0910	0940	1010	1040	1110	1140	1210	1335	1405
Temperature (°C)	17.03	17.52	16.59	17.26	17.27	18.12	17.50	18.08	16.83
Conductivity (mS/cm)	0.449	0.326	0.202	0.162	0.146	0.137	0.129	0.128	0.122
pH	7.64	7.29	7.28	7.09	7.07	6.54	6.55	6.25	6.48
Turbidity (NTU)	600	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100
Dissolved Oxygen (mg/L)	4.54	5.74	5.34	4.71	4.68	3.72	4.78	3.54	4.84
Salinity (ppth)	0.22	0.16	0.10	0.08	0.07	0.06	0.06	0.06	0.06
Water Level (FT BTOC)	26.52	27.52	28.33	28.39	28.83	--	31.89	27.32	27.68

Total Gallons	205	240	260	285	295	300	305	310	315
Time	1435	1505	1535	1605	1625	1630	1635	1640	1645
Temperature (°C)	17.53	17.15	17.75	16.94	15.32	15.32	15.33	15.31	15.29
Conductivity (mS/cm)	0.123	0.123	0.123	0.121	0.117	0.117	0.117	0.117	0.117
pH	6.67	6.73	6.20	6.33	6.01	5.95	5.93	5.92	5.93
Turbidity (NTU)	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100
Dissolved Oxygen (mg/L)	5.47	5.56	4.51	4.35	2.35	2.28	2.26	2.27	2.35
Salinity (ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05
Water Level (FT BTOC)	27.83	28.42	32.51	32.86	32.40	32.38	--	32.38	32.38

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman	**Date:** 09/18/02

Well No.: **MW16-24I**

1. Total Riser and Screen Length (ft)	27.39
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.06
4. Volume of Water in Well (gal) V = (1-3)*(5)	2.5

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See red Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: ~68 gal

*** = Don't know why the big difference in ??? – did not change flow**

WELL DEVELOPMENT LOG

Well No.: MW16-24I

Parameters

Total Gallons	1	30	32.5	35	37.5	40	42.5	45	47.5
Time	0925	1015	1020	1025	1030	1035	1040	1045	1050
Temperature (°C)	17.27	17.01	17.10	17.12	17.04	17.07	17.13	17.15	17.03
Conductivity (mS/cm)	0.263	0.104	0.090	0.100	0.094	0.097	0.102	0.100	0.107
pH	8.17	7.24	6.37	6.20	6.14	6.08	6.07	6.05	6.07
Turbidity (NTU)	>999	29	12	11	27	19	24	20	16
Dissolved Oxygen (mg/L)	3.29	7.11	6.77	6.47	6.47	6.42	6.36	6.36	6.24
Salinity (ppth)	0.13	0.05	0.04	0.05	0.04	0.05	0.05	0.05	0.05
Water Level (FT BTOC)	21.13	18.82	19.20	19.18	19.10	19.05	19.01	18.97	18.86

Total Gallons	50	52.5	55	57.5	60	62.5	65	67.5	
Time	1055	1100	1105	1110	1115	1120	1125	1130	
Temperature (°C)	17.01	16.95	17.49	17.09	17.10	17.12	17.15	17.14	
Conductivity (mS/cm)	0.111	0.100	0.108	0.099	0.094	0.097	0.099	0.100	
pH	6.08	6.03	6.05	5.99	5.94	5.95	5.98	5.98	
Turbidity (NTU)	14	10	10	9	7	3	2	1	
Dissolved Oxygen (mg/L)	6.42	6.40	6.02	6.13	6.42	6.38	6.39	6.38	
Salinity (ppth)	0.05	0.05	0.05	0.04	0.04	0.05	0.05	0.05	
Water Level (FT BTOC)	18.91	19.00*	18.65*	18.25*	18.20	18.21	18.22	18.23	

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Clark	**Date:** 09/19/02

Well No.: **MW16-25I**

1. Total Riser and Screen Length (ft)	44
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.55
4. Volume of Water in Well (gal) V = (1-3)*(5)	5.2

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: ~310, 6 drums

*** = Generator ran out of gas at 1505, ran to trailer for gas, restarted at 1522**

WELL DEVELOPMENT LOG

Well No.: **MW16-25I**

Parameters

Total Gallons	~15	~53	~95	~140	~183	~230*	~270	275	280
Time	0930	1030	1130	1230	1330	1430	1530	1600	1605
Temperature (°C)	14.90	14.85	15.59	15.55	15.08	15.31	15.53	14.98	14.33
Conductivity (mS/cm)	0.197	0.172	0.151	0.147	0.141	0.137	0.129	0.137	0.126
pH	7.07	6.62	6.40	6.37	6.36	6.31	6.29	6.23	6.27
Turbidity (NTU)	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000	>1,000
Dissolved Oxygen (mg/L)	2.28	2.71	1.36	2.45	2.72	2.88	2.66	2.30	3.22
Salinity (ppth)	0.09	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.06
Water Level (FT BTOC)	20.27	19.58	18.95	19.25	19.18	19.09	19.05	18.43	18.78

Total Gallons	285	290	295	300	~310				
Time	1610	1615	1620	1625	1630				
Temperature (°C)	14.26	14.11	14.13	13.91	14.07				
Conductivity (mS/cm)	0.126	0.127	0.127	0.126	0.126				
pH	6.20	6.19	6.19	6.19	6.18				
Turbidity (NTU)	>1,000	>1,000	>1,000	>1,000	>1,000				
Dissolved Oxygen (mg/L)	3.45	3.85	3.93	4.26	4.29				
Salinity (ppth)	0.06	0.06	0.06	0.06	0.06				
Water Level (FT BTOC)	18.76	18.76	18.76	18.75	18.75				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

CLIENT: EFANE
PROJECT TITLE: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation
PROJECT NUMBER: 29600.97.3201
STAFF: VD/JP
DATE: 5/8/02

Well Number: **MW16-30D**

1. Total Riser and Screen Length (ft) before well development.	62.05
2. Total Riser and Screen Length (ft) after well development	62.05
3. Water Level Below Measuring Point (ft)	15.48
4. Volume of Water in Well (gal)	7.45

Equipment

Equipment used	Decontamination Procedure
2 in. Grundfos RediFlo3 Submersible Pump (Pine S/N 116)	Alconox, Isopropyl, DI
RediFlo Control Box (Pine S/N 1649)	NA
Lamotte 2020 Turbidimeter (S/N 1680-0900)	Alconox, Isopropyl, DI
Solinst Water Level Indicator	Alconox, Isopropyl, DI
YSI 600XL Water Quality Meter with Flow-Thru Cell	Alconox, Isopropyl, DI
Thermo 580B PID with 11.7 eV	NA
Poly tubing	Dedicated
Generator	NA

Parameters

Total Gallons	0	2	4	6	8	10	17.5	25	27
Time	1435	1440	1445	1450	1455	1500	1505	1510	1515
Temperature (°C)	14.14	13.24	13.69	13.78	13.66	13.42	14.60	13.83	13.89
Conductivity (mS/cm)	1.444	1.049	0.634	0.532	0.385	0.436	0.544	0.718	0.959
pH	6.45	7.26	7.27	7.36	7.47	7.32	7.13	7.09	7.09
Turbidity (NTU)	Er3	Er3	Er3	Er3	Er3	Er3	Er3	Er3	Er3
DO (mg/L)	-5.78	-7.26	-6.27	-6.14	-7.13	-6.11	-5.06	-4.05	1.53
Water Level (ft from TOR)	17.22	18.45	18.56	17.32	18.73	18.76	27.86	32.85	20.95

Total Gallons Purged at End of Development = 81
Location and Number of Drums = 2
Notes: Er3 = Turbidity over scale (>1000 NTU)
IDW Purge Headspace = 1.7 ppm
No significant drop in turbidity after 3 hrs of purging and surging.
Measuring point from ground surface.
Note – DO readings are negative, although YSI was calibrated prior to well development

WELL DEVELOPMENT LOG

CLIENT: EFANE
PROJECT TITLE: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation
PROJECT NUMBER: 29600.97.3201
STAFF: VD/JP
DATE: 5/8/02

Well Number: **MW16-30D**

Total Gallons	29	31	33	35	37	39	41	43	45
Time	1520	1525	1530	1535	1540	1545	1550	1555	1600
Temperature (°C)	13.95	14.00	14.04	14.03	14.00	14.31	13.96	13.99	14.15
Conductivity (mS/cm)	0.457	0.565	0.569	0.565	0.536	0.399	0.432	0.376	0.307
pH	7.42	7.33	7.33	7.35	7.35	7.41	7.37	7.38	7.47
Turbidity (NTU)	Er3	Er3	Er3	Er3	Er3	Er3	Er3	Er3	Er3
DO (mg/L)	-4.50	-4.88	-4.84	-5.37	-5.40	-5.12	-4.62	-4.67	-3.81
Water Level (ft from TOR)	20.70	20.35	20.72	20.84	20.57	20.23	20.01	18.05	17.57

Total Gallons	47	49	51	53	55	57	59	61	63
Time	1605	1610	1615	1620	1625	1630	1635	1640	1645
Temperature (°C)	13.95	13.86	13.86	13.95	13.58	13.69	13.60	13.60	13.67
Conductivity (mS/cm)	0.441	0.408	0.404	0.367	0.393	0.314	0.340	0.350	0.331
pH	7.36	7.38	7.38	7.39	7.39	7.41	7.37	7.37	7.36
Turbidity (NTU)	Er3	Er3	Er3	Er3	Er3	Er3	Er3	Er3	Er3
DO (mg/L)	-3.64	-3.82	-4.03	-3.87	-4.32	-4.86	-4.80	-4.81	-5.14
Water Level (ft from TOR)	20.80	20.95	21.03	20.95	20.92	20.87	20.72	20.60	20.65

Total Gallons	65	67	69	71	73	75	77	79	81
Time	1650	1655	1700	1705	1710	1715	1720	1725	1730
Temperature (°C)	13.58	13.60	13.61	13.59	13.58	13.56	13.57	13.57	13.56
Conductivity (mS/cm)	0.324	0.313	0.313	0.312	0.306	0.307	0.297	0.298	0.297
pH	7.37	7.37	7.37	7.37	7.36	7.36	7.36	7.36	7.35
Turbidity (NTU)	Er3	Er3	Er3	994	Er3	883	879	806	721
DO (mg/L)	-6.00	-6.49	-6.51	-6.59	-6.63	-6.63	-6.70	-6.37	-6.22
Water Level (ft from TOR)	20.55	20.71	20.73	20.70	20.86	21.05	20.95	21.05	21.05

WELL DEVELOPMENT LOG

CLIENT: EFANE
PROJECT TITLE: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation
PROJECT NUMBER: 29600.97.3201
STAFF: JP/VD
DATE: 5/8/02

Well Number: **MW16-31D**

1. Total Riser and Screen Length (ft) before well development.	62.70
2. Total Riser and Screen Length (ft) after well development	62.70
3. Water Level Below Measuring Point (ft)	11.28
4. Volume of Water in Well (gal)	8.23

Equipment

Equipment used	Decontamination Procedure
2 in. Grundfos RediFlo3 Submersible Pump (Pine S/N 116)	Alconox, Isopropyl, DI
RediFlo Control Box (Pine S/N 1649)	NA
Lamotte 2020 Turbidimeter (S/N 1680-0900)	Alconox, Isopropyl, DI
Solinst Water Level Indicator	Alconox, Isopropyl, DI
YSI 600XL Water Quality Meter with Flow-Thru Cell	Alconox, Isopropyl, DI
Thermo 580B PID with 11.7 eV	NA
Poly tubing	Dedicated
Generator	NA

Parameters

Total Gallons	0	1.5	3	4.5	6	7.5	9	10.5	12
Time	1020	1025	1030	1035	1040	1045	1050	1055	1100
Temperature (°C)	13.95	13.61	13.90	14.00	15.22	14.50	14.70	14.71	14.22
Conductivity (mS/cm)	0.343	0.465	0.480	0.472	0.521	0.409	0.412	0.478	0.367
pH	6.48	6.64	6.65	6.72	7.37	6.89	6.89	7.18	6.94
Turbidity (NTU)	Er3	Er3	Er3	Er3	Er3	943	326	Er3	649
DO (mg/L)	-2.41	-7.34	-5.98	-5.67	-5.58	-6.47	-6.55	-7.40	-7.30
Water Level (ft from TOR)	17.05	19.07	19.35	19.52	18.57	19.40	19.36	19.05	19.30

Total Gallons Purged at End of Development = 46.5
Location and Number of Drums = 1
Notes: Er3 = Turbidity over scale (>1000 NTU).

Note – DO readings are negative, although YSI was calibrated prior to well development

WELL DEVELOPMENT LOG

CLIENT: EFANE
PROJECT TITLE: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation
PROJECT NUMBER: 29600.97.3201
STAFF: JP/VD
DATE: 5/8/02

Well Number: **MW16-31D**

Total Gallons	13.5	14	15.5	17	18.5	20	21.5	23	24.5
Time	1105	1110	1115	1120	1125	1130	1135	1140	1145
Temperature (°C)	14.24	14.22	14.12	14.20	14.46	14.62	14.03	14.02	14.04
Conductivity (mS/cm)	0.364	0.359	0.439	0.360	0.345	0.334	0.324	0.317	0.315
pH	6.93	6.94	7.41	6.99	6.98	6.98	6.95	6.95	6.96
Turbidity (NTU)	281	158	Er3	Er3	Er3	Er3	Er3	Er3	Er3
DO (mg/L)	-6.83	-6.28	-5.82	-5.93	-5.84	-5.84	-3.30	-5.93	-6.69
Water Level (ft from TOR)	19.35	19.37	17.50	17.55	17.75	17.82	19.40	19.43	19.47

Total Gallons	26	27.5	29	30.5	32	33.5	35	36.5	38
Time	1150	1155	1200	1230	1235	1240	1245	1250	1255
Temperature (°C)	14.09	14.16	14.14	14.05	14.20	14.40	14.45	14.20	14.50
Conductivity (mS/cm)	0.310	0.305	0.307	0.314	0.311	0.302	0.305	0.307	0.293
pH	6.96	6.97	6.98	6.98	6.94	6.93	6.93	6.93	6.95
Turbidity (NTU)	Er3	Er3	631	Er3	Er3	Er3	Er3	Er3	
DO (mg/L)	-6.71	-7.09	-7.40	-6.48	-7.38	-6.13	-6.28	-6.19	-6.03
Water Level (ft from TOR)	19.80	19.92	19.73	17.88	18.22	18.44	18.51	18.02	18.51

Total Gallons	39.5	41	43.5	45	46.5				
Time	1300	1305	1310	1315	1320				
Temperature (°C)	14.22	14.32	14.46	14.45	14.87				
Conductivity (mS/cm)	0.281	0.277	0.285	0.268	0.270				
pH	6.97	6.95	6.99	6.96	6.93				
Turbidity (NTU)									
DO (mg/L)	-6.25	-6.21	-6.20	-6.12	-5.87				
Water Level (ft from TOR)	18.41	18.30	18.25	18.41	18.36				

Notes: from 1200-1230 - pulled tubing off pump, took 15 minutes to fix, reset. Pumped stopped working, called Pine, pump started to work again 15 minutes later.
1320 – Water still very dirty, gray, has not cleared up in 3 hours of surging and purging.
H2S odor on purge water in drum.

WELL DEVELOPMENT LOG

CLIENT: EFANE
PROJECT TITLE: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation
PROJECT NUMBER: 29600.97.3201
STAFF: VD
DATE: 5/8/02

Well Number: **MW16-32D**

1. Total Riser and Screen Length (ft) before well development.	56
2. Total Riser and Screen Length (ft) after well development	56
3. Water Level Below Measuring Point (ft)	16.50
4. Volume of Water in Well (Gal)	6.32

Equipment

Equipment used	Decontamination Procedure
2 in. Grundfos RediFlo3 Submersible Pump	Alconox, Isopropyl, DI
RediFlo Control Box	NA
Lamotte 2020 Turbidimeter	Alconox, Isopropyl, DI
Solinst Water Level Indicator	Alconox, Isopropyl, DI
YSI 600XL Water Quality Meter with Flow-Thru Cell	Alconox, Isopropyl, DI
Thermo 580B PID with 11.7 eV	NA
Poly tubing	Dedicated
Generator	NA

Parameters

Total Gallons	1.5	3.0	4.5	6.0	7.5	9	10.5		
Time	0950	1000	1010	1020	1740	1745	1750		
Temperature (°C)	14.79	14.88	15.26	15.47	13.43	12.27	14.54		
Conductivity (mS/cm)	24.52	7.63	1.37	0.80	3.38	3.35	3.53		
pH	13.03	12.63	10.95	NR	12.28	12.28	12.31		
Turbidity (NTU)	Er3	70.1	24.0	NR	248	103	37		
DO (mg/L)	3.2%	0.4%	0.77	NR	0.98	1.52	0.76		
Water Level (ft from TOR)	20.95	24.05	27.65	37.4	37.6	45.5	48.1		

Total Gallons Purged at End of Development = 10.5
Location and Number of Drums = 1
Notes: Well pumped dry at 1020. Water level at 50.4 ft at 1115.
Well pumped dry for second time at 1155.
Well pumped dry for third time at 1752.
According to Work Plan, well development is completed when well is purged dry 3 times.
Er3 = Turbidity over scale (>1000 NTU).
NR = No Reading

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date**: 09/17/02

Well No.: **MW16-33S**

1. Total Riser and Screen Length (ft)	15.75
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.65
4. Volume of Water in Well (gal) V = (1-3)*(5)	1.68

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 37.50

Bailed from 1430-1555, then purged with pump @ 0.25 gpm

WELL DEVELOPMENT LOG

Well No.: MW16-33S

Parameters

Total Gallons	30	31.25	32.5	33.75	35.0	36.25	37.5		
Time	1555	1600	1605	1610	1615	1620	1625		
Temperature (°C)	20.89	20.24	20.09	20.05	19.91	20.02	19.87		
Conductivity (mS/cm)	0.042	0.040	0.036	0.036	0.037	0.036	0.037		
pH	6.34	6.12	5.90	5.74	5.72	5.71	5.76		
Turbidity (NTU)	6.57	5.34	2.35	2.10	1.89	1.35	1.06		
Dissolved Oxygen (mg/L)	8.71	8.65	8.64	8.36	8.31	8.65	8.73		
Salinity (ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02		
Water Level (FT BTOC)	13.65	13.65	13.65	13.65	13.65	13.65	13.65		

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/07/02

Well No.: **MW16-33I**

1. Total Riser and Screen Length (ft)	42.9
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.1
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development:
PID: Background 0.0 ppm, headspace 0.0 ppm
Started purging/surging at 0855.

WELL DEVELOPMENT LOG

Well No.: MW16-33I

Parameters

Total Gallons	40	45	50	55	60	65	70	72	
Time	1140	1145	1150	1155	1200	1205	1210	1215	
Temperature (°C)	15.68	17.02	15.80	15.52	15.54	15.45	15.42	15.39	
Conductivity (mS/cm)	0.088	0.089	0.082	0.092	0.090	0.088	0.087	0.087	
pH	7.02	6.94	6.90	6.66	6.56	6.45	6.39	6.36	
Turbidity (NTU)	30	17	16	6.6	4.7	3.0	2.5	1.9	
Dissolved Oxygen (mg/L)	0.89	5.28	3.80	1.14	0.92	0.87	0.86	0.85	
Salinity (ppth)	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Water Level (FT BTOC)	16.10	16.20	16.18	16.18	16.20	16.19	16.19	16.19	

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman	**Date:** 09/17/02

Well No.: **MW16-33D**

1. Total Riser and Screen Length (ft)	69.83
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.68
4. Volume of Water in Well (gal) V = (1-3)*(5)	9

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See red Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0 gal

Total gallons purged from well during development: 165

*** = At 1615, slowed flow to 1 gpm**

WELL DEVELOPMENT LOG

Well No.: MW16-33D

Parameters

Total Gallons	2	110	115	120	125*	130	135	140	145
Time	1355	1600	1605	1610	1615	1620	1625	1630	1635
Temperature (°C)	17.48	14.85	14.79	14.71	14.68	14.68	14.63	14.65	14.59
Conductivity (mS/cm)	0.279	0.232	0.232	0.230	0.228	0.226	0.224	0.226	0.226
pH	9.15	7.90	7.76	7.62	7.55	7.52	7.47	7.47	7.47
Turbidity (NTU)	>999	67	39	27	23	26	19	20	22
Dissolved Oxygen (mg/L)	2.75	1.97	0.34	0.11	0.01	0.00	0.00	0.00	0.00
Salinity (ppth)	0.13	0.11	0.11	0.12	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	21.17	21.54	21.60	21.69	21.15	21.15	21.15	21.14	21.13

Total Gallons	150	155	160	165					
Time	1640	1645	1650	1655					
Temperature (°C)	14.63	14.62	14.60	14.61					
Conductivity (mS/cm)	0.225	0.225	0.224	0.224					
pH	7.45	7.47	7.47	7.47					
Turbidity (NTU)	18	16	18	18					
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00					
Salinity (ppth)	0.11	0.11	0.10	0.10					
Water Level (FT BTOC)	21.12	21.12	21.11	21.11					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date**: 09/20/02

Well No.: **MW16-34S**

1. Total Riser and Screen Length (ft)	16.78
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	15.22
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.2

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See red Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development:
Bailed from 0835-0920 (10 gal) then well went dry.
Bailed from 0940-1050

WELL DEVELOPMENT LOG

Well No.: MW16-34S

Parameters

Total Gallons	0	12	15						
Time	0835	0915	1050						
Temperature (°C)	16.80	17.76	17.26						
Conductivity (mS/cm)	0.038	0.034	0.033						
pH	8.71	6.07	5.81						
Turbidity (NTU)	>999	>999	>999						
Dissolved Oxygen (mg/L)	13.26	9.30	9.51						
Salinity (ppth)	0.02	0.01	0.01						
Water Level (FT BTOC)	dry	dry	dry						

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: V. Deleone	**Date:** 10/18/02

Well No.: **MW16-34I**

1. Total Riser and Screen Length (ft)	37.5
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	14.95
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.6

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
HACH Turbidimeter	NA

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 55

WELL DEVELOPMENT LOG

Well No.: **MW16-34I**

Parameters

Total Gallons	45	46	47	48	49	50	51	52	53
Time	1300	1305	1310	1315	1320	1325	1330	1335	1340
Temperature (°C)	15.18	14.98	16.04	15.14	14.97	15.20	15.15	15.12	15.09
Conductivity (mS/cm)	0.106	0.105	0.105	0.103	0.101	0.098	0.098	0.097	0.095
pH	9.01	8.90	7.81	7.49	7.08	6.84	6.77	6.68	6.62
Turbidity (NTU)	110	85.3	66.1	320	48.2	156	27.6	14.2	6.1
Dissolved Oxygen (mg/L)	3.61	3.60	4.34	3.88	3.66	3.68	3.62	3.65	3.65
Salinity (ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Water Level (FT BTOC)	16.95	16.92	17.10	17.05	16.97	16.95	16.96	16.89	16.92

Total Gallons	54	55							
Time	1345	1350							
Temperature (°C)	15.12	15.12							
Conductivity (mS/cm)	0.094	0.094							
pH	6.59	6.58							
Turbidity (NTU)	5.80	4.97							
Dissolved Oxygen (mg/L)	3.66	3.67							
Salinity (ppth)	0.05	0.05							
Water Level (FT BTOC)	16.91	16.91							

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: P. Probasco	**Date:** 10/02/02

Well No.: **MW16-34D**

1. Total Riser and Screen Length (ft)	
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	16.00
4. Volume of Water in Well (gal) V = (1-3)*(5)	

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See blue Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development: 135, 3 drums
Surged 100 gal from 1028-1300. Stopped pumping: 1527
Blue PID: Breathing zone 0. Below top of well casing 13.2.
Green PID: Breathing zone 0.0. Below top of well casing 298
Solvent odor detected at 1326.

WELL DEVELOPMENT LOG

Well No.: **MW16-34D**

Parameters

Total Gallons	100	102	104	106	108	110	112	113	115
Time	1305	1310	1315	1325	1335	1340	1345	1350	1355
Temperature (°C)	17.57	17.56	17.43	17.05	16.35	16.24	16.11	16.15	16.16
Conductivity (mS/cm)	0.279	0.279	0.273	0.256	0.232	0.228	0.225	0.224	0.224
pH	6.51	6.47	6.46	6.42	6.38	6.38	6.38	6.39	6.38
Turbidity (NTU)	>1100	>1100	>1100	>1100	798	450	270	240	160
Dissolved Oxygen (mg/L)	0.13	0.10	0.08	0.09	0.04	0.03	0.03	0.05	0.03
Salinity (ppth)	0.13	0.13	0.13	0.12	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	16.21	16.20	16.19	16.16	16.16	16.17	16.16	16.15	16.14

Total Gallons	116	117	118	119	120	121	123	124	125
Time	1400	1405	1410	1415	1420	1425	1430	1435	1440
Temperature (°C)	16.26	16.10	16.18	15.99	16.18	16.05	16.13	16.11	16.15
Conductivity (mS/cm)	0.225	0.226	0.226	0.225	0.225	0.224	0.223	0.222	0.223
pH	6.40	6.38	6.38	6.38	6.39	6.38	6.38	6.37	6.37
Turbidity (NTU)	140	100	90	85	70	40	38	35	36
Dissolved Oxygen (mg/L)	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	16.14	16.15	16.15	16.14	16.13	16.13	16.13	16.13	16.13

Total Gallons	126	127	129	130	132	134	135		
Time	1445	1450	1455	1500	1505	1510	1515		
Temperature (°C)	16.11	16.06	15.95	16.05	15.90	15.91	15.89		
Conductivity (mS/cm)	0.224	0.223	0.222	0.221	0.214	0.215	0.215		
pH	6.37	6.36	6.36	6.35	6.36	6.36	6.34		
Turbidity (NTU)	32	28	29	20	20	19	20		
Dissolved Oxygen (mg/L)	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Salinity (ppth)	0.11	0.11	0.11	0.11	0.10	0.10	0.10		
Water Level (FT BTOC)	16.13	16.13	16.13	16.13	16.13	16.13	16.13		

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman	**Date:** 8/22/02

Well No.: **MW16- 35S**

1. Total Riser and Screen Length (ft)	18.40
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.06
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.9

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See yellow Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 55

WELL DEVELOPMENT LOG

Well No.: MW16-35S

Parameters

Total Gallons	2	4	6	8	10	12	15	17	20
Time	1345	1350	1355	1400	1405	1410	1415	1420	1425
Temperature (°C)	17.35	17.19	17.10	17.28	17.04	17.41	17.88	18.04	17.99
Conductivity (mS/cm)	0.035	0.034	0.036	0.034	0.034	0.036	0.034	0.033	0.033
pH	6.19	6.05	5.89	5.80	5.79	5.82	5.81	5.73	5.73
Turbidity (NTU)	>999	>999	>999	>999	107	14.6	3.89	4.94	23.6
Dissolved Oxygen (mg/L)	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.01	0.01
Water Level (FT BTOC)	13.56	13.52	13.45	13.45	13.34	13.35	13.20	13.17	13.15

Total Gallons	22	24	26	28	30	32	35	37	40
Time	1430	1435	1440	1445	1450	1455	1500	1505	1510
Temperature (°C)	18.03	18.18	18.22	17.92	17.94	17.63	18.23	17.88	18.07
Conductivity (mS/cm)	0.033	0.033	0.034	0.033	0.033	0.033	0.033	0.033	0.034
pH	5.72	5.76	5.76	5.75	5.73	5.72	5.75	5.74	5.78
Turbidity (NTU)	24.5	16.3	9.88	14.9	64	17.8	11.2	6.55	5.02
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.10	0.20	0.22	0.18
Salinity (ppth)	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01
Water Level (FT BTOC)	13.13	13.11	13.12	13.15	13.15	13.16	13.15	13.15	13.15

Total Gallons	42	44	46	48	50	52	55		
Time	1515	1520	1525	1530	1535	1540	1545		
Temperature (°C)	18.12	18.71	17.88	17.89	18.30	17.35	17.47		
Conductivity (mS/cm)	0.033	0.033	0.033	0.036	0.033	0.033	0.033		
pH	5.73	5.75	--	5.74	5.75	5.73	5.73		
Turbidity (NTU)	14.2	7.14	4.89	3.34	2.98	3.48	3.01		
Dissolved Oxygen (mg/L)	0.20	0.25	0.29	0.27	0.26	0.24	0.24		
Salinity (ppth)	0.01	0.01	0.01	0.01	0.02	0.02	0.01		
Water Level (FT BTOC)	13.15	13.15	13.15	13.15	13.15	13.15	13.15		

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/07/02

Well No.: **MW16-35I**

1. Total Riser and Screen Length (ft)	39.79
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.3
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.2

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 100

PID: Background 0.0 ppm, headspace 0.0 ppm

Start purging/surging at 1400, stopped at 1600. Purged 75 gal.

Started parameter readings at 1600

WELL DEVELOPMENT LOG

Well No.: MW16-35I

Parameters

Total Gallons	75	78	80	85	90	95	100		
Time	1605	1610	1615	1620	1625	1630	1635		
Temperature (°C)	14.71	14.73	14.73	14.71	14.70	14.69	14.69		
Conductivity (mS/cm)	0.073	0.074	0.071	0.072	0.072	0.072	0.071		
pH	6.48	6.45	6.40	6.36	6.36	6.36	6.35		
Turbidity (NTU)	18	14	9.5	7.1	4.8	4.3	3.1		
Dissolved Oxygen (mg/L)	3.21	3.12	3.02	2.88	2.74	2.71	2.68		
Salinity (ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
Water Level (FT BTOC)	16.35	16.36	16.34	16.34	16.34	16.34	16.32		

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Andersen	**Date:** 8/22/02

Well No.: **MW16- 35D**

1. Total Riser and Screen Length (ft)	63.71
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.18
4. Volume of Water in Well (gal) V = (1-3)*(5)	8.1

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Red Calibration Log for instrument calibration information	

NOTES:

Estimated Water lost during well installation: 0

Total gallons purged from well during development: ~220

WELL DEVELOPMENT LOG

Well No.: **MW16-35D**

Parameters

Total Gallons	5	10	15	20	25	30	35	40	43
Time	1345	1350	1355	1400	1405	1410	1415	1420	1425
Temperature (°C)	15.11	15.36	15.05	14.66	14.60	14.51	14.78	15.00	14.55
Conductivity (mS/cm)	0.303	0.209	0.200	0.180	0.176	0.170	0.161	0.159	0.183
pH	7.81	7.41	7.13	6.90	6.86	6.64	6.69	6.70	6.55
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	0.76	0.39	0.36	0.35	0.19	0.11	0.12	0.15	0.15
Salinity (ppth)	0.15	0.10	0.10	0.09	0.09	0.08	--	0.07	0.09
Water Level (FT BTOC)	17.99	15.95	15.96	17.83	17.99	18.06	18.25	18.47	20.91

Total Gallons	47	50	55	60	65	70	75	80	85
Time	1430	1435	1440	1445	1450	1455	1500	1505	1510
Temperature (°C)	14.52	14.43	14.35	14.33	14.32	14.31	14.34	14.38	14.67
Conductivity (mS/cm)	0.192	0.167	0.164	0.133	0.134	0.131	0.126	0.171	0.144
pH	6.54	6.54	6.55	6.54	6.53	6.42	6.42	6.46	6.46
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	0.15	0.13	0.13	0.09	0.08	0.07	0.09	0.08	0.07
Salinity (ppth)	0.09	0.09	0.08	0.07	0.06	0.06	0.06	0.07	0.07
Water Level (FT BTOC)	24.62	24.56	24.01	22.89	22.75	22.65	24.28	25.40	25.62

Total Gallons	90	95	100	105	110	120	130	140	150
Time	1515	1520	1525	1530	1535	1540	1545	1550	1555
Temperature (°C)	14.63	14.41	14.67	14.78	14.89	14.26	14.44	14.19	14.20
Conductivity (mS/cm)	0.131	0.124	0.117	0.119	0.116	0.116	0.113	0.115	0.114
pH	6.44	6.43	6.42	6.40	6.43	6.41	6.39	6.36	6.36
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	0.05	0.05	0.05	0.05	0.07	0.14	0.09	0.11	0.12
Salinity (ppth)	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.06
Water Level (FT BTOC)	25.55	25.64	25.58	25.48	25.35	25.35	25.67	26.40	26.65

WELL DEVELOPMENT LOG

Well No.: MW16-35D

Parameters

Total Gallons	155	160	165	170	180	190	195	200	210
Time	1600	1605	1610	1615	1620	1625	1630	1635	1640
Temperature (°C)	15.14	14.53	14.37	14.32	14.29	14.25	14.29	14.26	14.22
Conductivity (mS/cm)	0.110	0.111	0.109	0.110	0.109	0.108	0.115	0.107	0.107
pH	6.35	6.35	6.37	6.38	6.35	6.37	6.36	6.37	6.37
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	0.13	0.10	0.11	0.07	0.11	0.20	0.38	0.40	0.38
Salinity (ppth)	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Water Level (FT BTOC)	26.70	26.70	27.05	27.25	27.89	27.95	29.50	29.99	29.72

Total Gallons	220								
Time	1645								
Temperature (°C)	14.20								
Conductivity (mS/cm)	0.106								
pH	6.35								
Turbidity (NTU)	>1000								
Dissolved Oxygen (mg/L)	0.32								
Salinity (ppth)	0.05								
Water Level (FT BTOC)	29.61								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date:** 09/10/02

Well No.: **MW16-36D**

1. Total Riser and Screen Length (ft)	52
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.8
4. Volume of Water in Well (gal) V = (1-3)*(5)	31.36

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation: 50

Total gallons purged from well during development: 180

1 gpm

Attached flow-through cell at 1140 and stopped surging after generator ran out of gas. Switched to other generator and restarted pump.

WELL DEVELOPMENT LOG

Well No.: MW16-36D

Parameters

Total Gallons	Initial	30	60	90	120	155	170	175	180
Time	0855	0925	0955	1025	1055	1130	1145	1150	1155
Temperature (°C)	15.00	15.18	15.61	15.15	15.37	16.48	14.80	15.00	15.01
Conductivity (mS/cm)	0.092	0.108	0.109	0.109	0.109	0.106	0.101	0.101	0.101
pH	6.87	6.76	6.55	6.45	6.33	6.21	6.20	6.32	6.37
Turbidity (NTU)	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	170	34	15
Dissolved Oxygen (mg/L)	5.84	4.04	3.75	4.69	3.12	3.86	0.19	0.16	0.02
Salinity (ppth)	0.04	0.05	0.03	0.05	0.05	0.05	0.05	0.05	0.05
Water Level (FT BTOC)	13.08	13.18	13.18	13.18	13.18	13.18	13.09	13.09	13.09

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/J. Martin	**Date:** 09/10/02

Well No.: **MW16-36R**

1. Total Riser and Screen Length (ft)	80.45
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	12.50
4. Volume of Water in Well (gal) V = (1-3)*(5)	44.2

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 50

Begin pumping 0855

WELL DEVELOPMENT LOG

Well No.: **MW16-36R**

Parameters

Total Gallons	5	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5
Time	0900	0915	0920	0925	0930	0935	0940	0945	0950
Temperature (°C)	14.20	15.11	15.29	15.66	16.43	17.87	18.01	17.27	15.84
Conductivity (mS/cm)	0.518	0.517	0.508	0.503	0.505	0.498	0.492	0.483	0.473
pH	11.63	11.70	11.79	11.81	11.80	11.76	11.80	11.75	11.76
Turbidity (NTU)	23	83	80	118	78	123	158	102	186
Dissolved Oxygen (mg/L)	3.53	1.79	0.44	0.15	0.08	0.09	0.06	0.04	0.03
Salinity (ppth)	0.25	0.25	0.25	0.24	0.24	0.24	0.24	0.23	0.22
Water Level (FT BTOC)	23.20	31.10	33.08	34.01	34.29	34.21	34.25	34.30	34.52

Total Gallons	20.5	21.5	22.5	23.5	24.5	25.5	26.5	27.5	28.5
Time	0955	1000	1005	1010	1015	1020	1025	1030	1035
Temperature (°C)	16.40	16.18	15.36	15.65	15.92	15.68	16.11	16.30	16.43
Conductivity (mS/cm)	0.466	0.433	0.385	0.345	0.346	0.357	0.360	0.344	0.352
pH	11.71	11.69	11.52	11.35	11.37	11.41	11.41	11.39	11.36
Turbidity (NTU)	149	126	88	76	80	66	63	66	67
Dissolved Oxygen (mg/L)	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.23	0.22	0.18	0.17	0.16	0.17	0.17	0.17	0.17
Water Level (FT BTOC)	34.97	35.53	35.82	39.32	43.25	47.65	47.50	47.90	48.50

Total Gallons	29.5	30.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5
Time	1040	1045	1050	1055	1100	1105	1110	1115	1120
Temperature (°C)	15.48	15.61	15.94	16.28	16.58	16.39	16.73	15.66	15.73
Conductivity (mS/cm)	0.338	0.323	0.316	0.309	0.326	0.328	0.325	0.296	0.284
pH	11.33	11.25	11.21	11.25	11.27	11.27	11.22	11.13	11.05
Turbidity (NTU)	71	61	57	52	51	52	54	55	67
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.16	0.15	0.15	0.15	0.15	0.16	0.16	0.14	0.14
Water Level (FT BTOC)	51.61	53.72	55.00	57.60	58.15	58.70	59.79	61.83	65.53

WELL DEVELOPMENT LOG

Well No.: MW16-36R

Parameters

Total Gallons	40	45	50						
Time	1125	1130	1135						
Temperature (°C)	15.06	15.40	dry						
Conductivity (mS/cm)	0.342	0.435	dry						
pH	11.44	11.70	dry						
Turbidity (NTU)	52	58	dry						
Dissolved Oxygen (mg/L)	0.00	0.00	dry						
Salinity (ppth)	0.17	0.21	dry						
Water Level (FT BTOC)	72.57	top of pump	dry						

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/02/02

Well No.: **MW16-37S**

1. Total Riser and Screen Length (ft)	24.5
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	14.14
4. Volume of Water in Well (gal) V = (1-3)*(5)	1.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 80

PID – background 0.0 ppm, well 810 ppm

Purge water in drum = 237 ppm at 1010, purge water in drum = 0.0 ppm at 1020

Started surging at 1000, stopped surging at 1230

WELL DEVELOPMENT LOG

Well No.: MW16-37S

Parameters

Total Gallons	80	82	85	87	90				
Time	1235	1240	1245	1250	1255				
Temperature (°C)	17.48	17.50	17.66	17.61	17.59				
Conductivity (mS/cm)	0.145	0.149	0.150	0.151	0.150				
pH	6.18	5.60	5.35	5.27	5.21				
Turbidity (NTU)	9.45	4.22	2.91	2.27	1.97				
Dissolved Oxygen (mg/L)	8.07	7.44	7.20	6.68	6.77				
Salinity (ppth)	0.07	0.07	0.07	0.07	0.07				
Water Level (FT BTOC)	14.25	14.23	14.23	14.23	14.23				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/B. Haras	**Date:** 08/19/02

Well No.: **MW16-37I**

1. Total Riser and Screen Length (ft)	40.21
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	14.42
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.13

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Red Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 120

Well mouth PID = 0.0 ppm

Surged 30 sec for every 5 min. (after every reading)

*** = Flow cell emptied of sediment**

WELL DEVELOPMENT LOG

Well No.: MW16-37I

Parameters

Total Gallons	0	3	7	10	12	14	16	18	20
Time	1500	1505	1510	1515	1520	1525	1530	1535	1540
Temperature (°C)	15.25	14.84	14.84	14.83	14.76	14.98	15.06	15.06	14.90
Conductivity (mS/cm)	0.096	0.079	0.075	0.075	0.074	0.074	0.073	0.074	0.073
pH	7.29	6.53	6.35	6.24	6.13	6.08	6.07	6.02	5.97
Turbidity (NTU)	355	960	309	294	286	>999	577	>999	418
Dissolved Oxygen (mg/L)	2.57	6.53	6.34	7.02	7.04	7.08	7.05	7.04	7.03
Salinity (ppth)	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Water Level (FT BTOC)	15.65	15.80	15.95	15.87	15.93	15.96	15.98	15.93	15.90

Total Gallons	22	25*	27	30	32*	35	37	40	42
Time	1545	1555	1600	1605	1610	1615	1620	1625	1630
Temperature (°C)	14.94	14.66	14.79	14.79	15.19	14.37	14.66	14.39	14.39
Conductivity (mS/cm)	0.074	0.071	0.075	0.073	0.071	0.072	0.072	0.072	0.070
pH	6.00	5.92	5.91	5.93	6.08	5.82	5.91	5.82	5.84
Turbidity (NTU)	>999	871	>999	>999	>999	954	>999	638	>999
Dissolved Oxygen (mg/L)	7.03	7.31	6.89	6.90	7.78	6.94	6.90	6.94	6.89
Salinity (ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Water Level (FT BTOC)	15.87	15.85	15.85	15.85	15.82	15.84	15.84	15.92	16.05

Total Gallons	45	47	50	52	55	57	60	75	70
Time	1635	1640	1645	1650	1655	1700	1705	1710	1715
Temperature (°C)	14.29	14.31	14.24	14.93	14.22	14.17	14.37	14.17	14.17
Conductivity (mS/cm)	0.071	0.072	0.070	0.072	0.072	0.071	0.069	0.072	0.072
pH	5.83	5.84	5.89	5.88	5.81	5.82	5.89	5.82	5.81
Turbidity (NTU)	>999	>999	>999	>999	5.81	>999	>999	>999	776
Dissolved Oxygen (mg/L)	6.88	6.88	6.99	6.91	6.88	6.90	6.83	6.87	6.86
Salinity (ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Water Level (FT BTOC)	16.52	16.75	16.92	17.00	17.50	17.56	17.27	17.36	17.35

WELL DEVELOPMENT LOG

Well No.: MW16-37I

Parameters

Total Gallons	80	85	90	95	100	107	114	120*	125
Time	1720	1725	1729	1735	1740	1745	1750	1755	1800
Temperature (°C)	14.43	14.26	14.37	14.22	14.11	14.16	14.14	14.82	14.07
Conductivity (mS/cm)	0.069	0.072	0.072	0.070	0.071	0.070	0.070	0.072	0.071
pH	5.87	5.79	5.82	5.79	5.78	5.78	5.79	5.95	5.77
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	6.83	6.85	6.84	6.86	6.90	6.89	6.87	6.89	6.94
Salinity (ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Water Level (FT BTOC)	17.31	17.22	17.25	17.34	17.32	17.35	17.42	17.33	17.35

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Haras	**Date:** 8/19/02

Well No.: **MW16-37D**

1. Total Riser and Screen Length (ft)	57.13
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	14.75
4. Volume of Water in Well (gal) V = (1-3)*(5)	6.78

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See blue Calibration Log for instrument calibration information	

NOTES: 1438 removed two bailers for surge 44.8 ft to 45 ft.

Estimated water lost during well installation: 0

Total gallons purged from well during development: 150

Heavy grey sediment in flow-through cell.

Well pump surged 30 seconds every 5 minutes.

1520 pump stopped, sediment in cup, empty cup.

1532 heavy grey sediment in flow-through cell.

1535 stopped pump to empty flow-through cell.

1540 pump on.

WELL DEVELOPMENT LOG

Well No.: MW16-37D

Parameters

Total Gallons	0	2.5	5	7.5	10	12.5	15	17.5	20
Time	1459	1505	1510	1515	1520	1525	1530	1540	1545
Temperature (°C)	14.89	14.82	15.07	15.02	15.10	15.01	14.97	14.87	14.80
Conductivity (mS/cm)	0.150	0.136	0.136	0.137	0.139	0.137	0.136	0.138	0.137
pH	5.94	6.30	6.02	5.97	6.02	6.51	6.87	6.98	5.92
Turbidity (NTU)	900	899	1090	575	662	995	1053	216	474
Dissolved Oxygen (mg/L)	0.64	0.20	0.04	0.05	0.33	0.21	0.09	0.30	0.07
Salinity (ppth)	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.08
Water Level (FT BTOC)	14.75	15.15	15.20	15.15	15.10	15.12	15.15	15.15	15.15

Total Gallons	22.5	25	27.5	30	32.25	35	37.5	40	44.3
Time	1550	1555	1600	1605	1610	1615	1620	1625	1630
Temperature (°C)	14.90	14.95	14.82	14.86	14.95	14.85	14.88	14.88	14.74
Conductivity (mS/cm)	0.138	0.137	0.139	0.140	0.139	0.140	0.141	0.140	0.140
pH	5.92	5.92	5.90	5.86	5.88	5.83	5.87	5.86	5.91
Turbidity (NTU)	>999	>999	577	182	>999	>999	850	180	>999
Dissolved Oxygen (mg/L)	0.06	0.06	0.04	0.08	0.06	0.07	0.06	0.06	0.06
Salinity (ppth)	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Water Level (FT BTOC)	15.13	15.15	15.15	15.15	15.13	15.15	15.15	15.15	15.31

Total Gallons	48.4	52.6	56.8	61	65.2	71.7	78.2	84.7	91.2
Time	1635	1640	1645	1653	1655	1700	1705	1710	1715
Temperature (°C)	14.71	14.65	14.73	14.70	14.66	14.58	14.47	14.47	14.41
Conductivity (mS/cm)	0.140	0.141	0.145	0.144	0.142	0.145	0.145	1.46	0.146
pH	5.90	5.91	5.89	5.89	5.90	5.89	5.92	5.96	5.96
Turbidity (NTU)	>999	380	>999	>999	>999	550	750	195	190
Dissolved Oxygen (mg/L)	0.04	0.03	0.03	0.11	0.07	0.04	0.04	0.05	0.05
Salinity (ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Water Level (FT BTOC)	15.31	15.32	15.35	15.34	15.33	15.50	15.55	15.55	15.56

WELL DEVELOPMENT LOG

Well No.: MW16-37D

Parameters

Total Gallons	97.7	104.2	110.7	117.2	123.7	130.2	136.7	143.2	149.7
Time	1720	1725	1730	1735	1740	1745	1750	1755	1800
Temperature (°C)	14.42	14.44	14.41	14.45	14.44	14.40	14.39	14.40	14.42
Conductivity (mS/cm)	1.40	0.136	0.142	0.141	0.143	0.143	0.142	0.142	0.142
pH	5.92	5.90	5.89	5.88	5.89	5.88	5.92	5.93	5.94
Turbidity (NTU)	759	800	650	450	220	100	110	80	40
Dissolved Oxygen (mg/L)	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.04	0.05
Salinity (ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Water Level (FT BTOC)	15.56	15.54	15.53	15.54	15.55	15.55	15.55	15.51	15.52

Total Gallons	143.2	149.7							
Time	1755	1800							
Temperature (°C)	14.40	14.42							
Conductivity (mS/cm)	0.142	.142							
pH	5.93	5.94							
Turbidity (NTU)	80	40							
Dissolved Oxygen (mg/L)	0.04	.05							
Salinity (ppth)	0.07	0.07							
Water Level (FT BTOC)	15.51	15.52							

NOTES:
1618 empty sediment from flow-through cell again.
1625 rate increased to 4.25 gal/5 min.
1655 flow rate increased from 0.75 to 1.5 gpm (7.5 gal/5 min.)

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date**: 10/02/02

Well No.: **MW16-38I**

1. Total Riser and Screen Length (ft)	41.09
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	14.75
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.2

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 300

Begin pumping (on bottom): 1000/Stop pumping: 1630

*** = Readings suspended – continue surge for 1 hr+**

WELL DEVELOPMENT LOG

Well No.: MW16-38I

Parameters

Total Gallons	160	165*	220	225	230	235	240	245	250
Time	1325	1330	1500	1505	1510	1515	1520	1525	1530
Temperature (°C)	14.05	14.03	13.95	14.03	13.99	13.98	13.96	13.96	13.97
Conductivity (mS/cm)	0.481	0.491	0.540	0.477	0.477	0.477	0.471	0.469	0.476
pH	6.37	6.06	5.75	5.95	5.97	5.98	5.99	6.00	6.01
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.79	0.54	0.07	0.04	0.04	0.04	0.03	0.02	0.03
Salinity (ppth)	0.24	0.24	0.26	0.23	0.23	0.23	0.23	0.23	0.23
Water Level (FT BTOC)	17.29	17.42	17.82	17.84	17.84	17.85	17.87	17.75	17.72

Total Gallons	255	260	265	270	275	280	285	290	295
Time	1535	1540	1545	1550	1555	1600	1605	1610	1615
Temperature (°C)	13.95	13.91	13.85	13.92	13.93	13.93	13.95	13.96	13.93
Conductivity (mS/cm)	0.478	0.464	0.462	0.468	0.465	0.467	0.467	0.460	0.461
pH	6.02	6.01	6.01	6.01	6.01	6.02	6.03	6.03	6.03
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Salinity (ppth)	0.23	0.22	0.22	0.23	0.23	0.23	0.23	0.22	0.22
Water Level (FT BTOC)	17.69	17.62	17.58	17.52	17.55	17.54	17.53	17.49	17.48

Total Gallons	300								
Time	1620								
Temperature (°C)	13.92								
Conductivity (mS/cm)	0.464								
pH	6.04								
Turbidity (NTU)	>999								
Dissolved Oxygen (mg/L)	0.00								
Salinity (ppth)	0.23								
Water Level (FT BTOC)	17.46								

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date**: 10/18/02

Well No.: **MW16-39I**

1. Total Riser and Screen Length (ft)	52.61
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	8.21
4. Volume of Water in Well (gal) V = (1-3)*(5)	7.1

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 162
Start time: 0915
PID: Background, 0.0 ppm, headspace, 0.0 ppm

WELL DEVELOPMENT LOG

Well No.: MW16-39I

Parameters

Total Gallons	142	144	146	148	150	152	154	156	158
Time	1320	1325	1330	1335	1340	1345	1350	1355	1400
Temperature (°C)	14.80	14.65	14.66	14.65	14.65	14.65	14.64	14.64	14.64
Conductivity (mS/cm)	0.124	0.121	0.120	0.119	0.120	0.119	0.120	0.118	0.118
pH	7.62	7.34	6.93	6.80	6.72	6.68	6.65	6.64	6.63
Turbidity (NTU)	43.1	20.6	11.9	11.4	7.07	5.94	5.71	5.69	4.02
Dissolved Oxygen (mg/L)	2.66	1.37	1.11	0.72	0.64	0.63	0.64	0.62	0.61
Salinity (ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Water Level (FT BTOC)	10.65	10.65	10.65	10.65	10.65	10.65	10.65	10.65	10.65

Total Gallons	160	162							
Time	1405	1410							
Temperature (°C)	14.64	14.68							
Conductivity (mS/cm)	0.118	0.120							
pH	6.62	6.60							
Turbidity (NTU)	3.50	4.01							
Dissolved Oxygen (mg/L)	0.58	0.53							
Salinity (ppth)	0.06	0.06							
Water Level (FT BTOC)	10.65	10.65							

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/B. Haras	**Date:** 8/21/02

Well No.: **MW16-39D**

1. Total Riser and Screen Length (ft)	71.87
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	9.52
4. Volume of Water in Well (gal) V = (1-3)*(5)	9.98

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Blue Calibration Log for instrument calibration information	

NOTES:
Estimated Water lost during well installation: 0
Total gallons purged from well during development: 146
0.0 ppm well mouth PID
*** = Pump problem-stopped working-see log book for details**

WELL DEVELOPMENT LOG

Well No.: **MW16-39D**

Parameters

Total Gallons	0	2.5	5	8.75	16.25	23.75	28.75	32.5	36.25
Time	1425	1430	1435	1440	1445	1450	1455	1500	1505
Temperature (°C)	15.03	15.06	15.44	14.25	14.31	14.32	14.38	14.30	14.35
Conductivity (mS/cm)	1.419	1.060	1.164	0.402	0.373	0.358	0.347	0.364	0.364
pH	10.87	11.22	11.27	8.97	8.14	7.80	7.58	7.45	7.32
Turbidity (NTU)	754	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	3.99	0.84	0.31	0.18	0.11	0.08	0.05	0.04	0.02
Salinity (ppth)	0.71	0.52	0.63	0.20	0.18	0.17	0.17	0.18	0.18
Water Level (FT BTOC)	14.22	15.89	14.49	14.65	14.62	14.73	14.85	14.96	14.95

Total Gallons	40	43.75	47.5	49	51.5	54	56.5	60.25	64
Time	1510	1515	1520	1525	1530	1535	1540	1545	1550
Temperature (°C)	14.35	14.38	16.20	15.10	14.64	14.45	14.56	14.48	14.33
Conductivity (mS/cm)	0.373	0.368	*	0.359	0.354	0.356	0.349	0.346	0.344
pH	7.28	7.19		8.44	7.83	7.61	7.46	7.24	7.09
Turbidity (NTU)	>999	>999		>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.03	0.02		0.03	0.02	0.02	0.02	0.00	0.02
Salinity (ppth)	0.18	0.18		0.17	0.17	0.17	0.17	0.17	0.17
Water Level (FT BTOC)	14.92	14.92	14.89	14.21	15.13	14.95	15.20	15.21	15.05

Total Gallons	67.75	71.50	75.25	79	82.75	86.5	90.25	94	97.75
Time	1555	1600	1605	1610	1615	1620	1625	1630	1635
Temperature (°C)	14.37	14.36	14.45	14.37	14.51	14.47	14.40	14.42	14.30
Conductivity (mS/cm)	0.344	0.362	0.339	0.334	0.339	0.335	0.334	0.334	0.338
pH	6.98	6.99	6.91	6.88	6.86	6.86	6.82	6.76	6.73
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Salinity (ppth)	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Water Level (FT BTOC)	15.05	15.00	15.00	15.00	15.25	15.30	15.12	15.16	15.10

WELL DEVELOPMENT LOG

Well No.: MW16-39D

Parameters

Total Gallons	101.5	116.5	120.25	124	127.75	131.5	135.25	139	142.75
Time	1640	1645	1650	1655	1700	1705	1710	1715	1720
Temperature (°C)	14.11	14.15	14.22	14.18	14.26	14.32	14.39	14.33	14.33
Conductivity (mS/cm)	0.338	0.339	0.337	0.332	0.333	0.336	0.336	0.333	0.335
pH	6.67	6.65	6.66	6.66	6.67	6.67	6.68	6.71	6.72
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Salinity (ppth)	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Water Level (FT BTOC)	15.69	15.40	14.66	14.65	14.66	14.55	14.65	14.77	14.79

Total Gallons	146.5								
Time	1725								
Temperature (°C)	14.36								
Conductivity (mS/cm)	0.335								
pH	6.73								
Turbidity (NTU)	>999								
Dissolved Oxygen (mg/L)	0.01								
Salinity (ppth)	0.16								
Water Level (FT BTOC)	15.90								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: P. Probasco	**Date:** 10/03/02

Well No.: **MW16-40S**

1. Total Riser and Screen Length (ft)	
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	16.92
4. Volume of Water in Well (gal) V = (1-3)*(5)	

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See blue Calibration Log for instrument calibration information	

NOTES: MW16-40S has drums labeled 40I next to it from drilling.

Estimated water lost during well installation:

Total gallons purged from well during development: ~73

PID: Breathing zone, 0. Well casing, 0.

Surge end: 1521. Surge volume collected: ~50 gal.

Time pumping stopped: 1617. Total gal collected: ~73, 2 drums

Before pumping, volume of water in well equal to ~6 ft depth. Well pumped dry after ~10 minutes.

Time pumping began: 0944. Time well is dry: 0955. Time for recharge to 18 ft below casing: 1025.

WELL DEVELOPMENT LOG

Well No.: MW16-40S

Parameters

Total Gallons	50	53	57	60	63	67	70	73	
Time	1535	1540	1545	1550	1555	1600	1605	1610	
Temperature (°C)	15.15	15.18	15.12	15.22	15.20	15.19	15.19	15.19	
Conductivity (mS/cm)	0.752	0.766	0.737	0.765	0.780	0.747	0.759	0.750	
pH	6.37	6.41	6.44	6.42	6.42	6.42	6.42	6.42	
Turbidity (NTU)	2.4	2.9	1.5	1.2	0.90	1.00	4.2	2.1	
Dissolved Oxygen (mg/L)	0.12	0.28	0.36	0.32	0.26	0.23	0.23	0.20	
Salinity (ppth)	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	
Water Level (FT BTOC)	18.86	18.81	18.88	18.65	18.67	18.67	18.69	18.70	

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date:** 09/12/02

Well No.: **MW16-41S**

1. Total Riser and Screen Length (ft)	19.37
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.57
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.9

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 100

Begin pumping 1335

WELL DEVELOPMENT LOG

Well No.: MW16-41S

Parameters

Total Gallons	2.5	50	52.5	55	57.5	60	62.5	65	67.5
Time	1340	1450	1455	1500	1505	1510	1515	1520	1525
Temperature (°C)	13.48	13.79	14.21	13.71	13.87	13.85	13.75	13.83	13.79
Conductivity (mS/cm)	0.629	0.678	0.653	0.674	0.665	0.657	0.658	0.660	0.655
pH	6.34	6.36	6.48	6.44	6.45	6.43	6.43	6.43	6.42
Turbidity (NTU)	105	136	8	19	15	7	8	21	4
Dissolved Oxygen (mg/L)	0.32	0.33	0.32	0.43	0.32	0.40	0.43	0.41	0.39
Salinity (ppth)	0.31	0.58	0.83	0.33	0.33	0.32	0.32	0.32	0.32
Water Level (FT BTOC)	14.94	17.65	17.81	18.15	18.02	18.17	18.09	18.00	17.95

Total Gallons	70	72.5	75	77.5	80	82.5	85	87.5	90
Time	1530	1535	1540	1545	1550	1555	1600	1605	1610
Temperature (°C)	13.80	13.69	13.67	13.71	13.83	13.78	13.68	13.78	13.78
Conductivity (mS/cm)	0.649	0.649	0.643	0.657	0.655	0.653	0.650	0.650	0.651
pH	6.44	6.44	6.45	6.46	6.46	6.45	6.45	6.45	6.45
Turbidity (NTU)	2	0	9	19	8	1	0	1	0
Dissolved Oxygen (mg/L)	0.25	0.27	0.29	0.40	0.39	0.38	0.37	0.37	0.37
Salinity (ppth)	0.32	0.32	0.31	0.32	0.32	0.33	0.32	0.32	0.32
Water Level (FT BTOC)	18.11	18.10	18.06	17.97	17.92	17.97	17.95	17.95	17.98

Total Gallons	92.5	95	97.5	100					
Time	1615	1620	1625	1630					
Temperature (°C)	13.77	13.76	13.81	13.74					
Conductivity (mS/cm)	0.651	0.653	0.653	0.650					
pH	6.45	6.46	6.46	6.46					
Turbidity (NTU)	2	1	1	0					
Dissolved Oxygen (mg/L)	0.36	0.37	0.36	0.36					
Salinity (ppth)	0.32	0.32	0.32	0.32					
Water Level (FT BTOC)	18.05	18.10	18.12	18.17					

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date**: 09/12/02

Well No.: **MW16-41I**

1. Total Riser and Screen Length (ft)	32.0
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.18
4. Volume of Water in Well (gal) V = (1-3)*(5)	15.86

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 152

Surged for 2.5 hrs then stopped surging at 1610 and collected stabilization readings for 0.5 hr

1 gpm

WELL DEVELOPMENT LOG

Well No.: MW16-41I

Parameters

Total Gallons	Initial	30	50	70	100	125	129	133	137
Time	1340	1410	1440	1510	1540	1610	1615	1620	1625
Temperature (°C)	13.08	12.67	12.48	12.08	12.45	11.85	12.14	12.16	12.18
Conductivity (mS/cm)	0.269	0.215	0.219	0.220	0.220	0.208	0.220	0.220	0.226
pH	8.03	3.08	7.76	7.76	7.61	6.50	6.22	6.15	6.13
Turbidity (NTU)	672	>1,100	>1,100	>1,100	>1,100	1069	4.50	2.15	1.36
Dissolved Oxygen (mg/L)	8.80	9.41	8.46	8.02	7.76	7.38	7.93	7.08	7.84
Salinity (ppth)	0.13	0.10	0.10	0.10	0.11	0.10	0.10	0.10	0.11
Water Level (FT BTOC)	21.69	20.63	18.29	18.39	18.28	17.38	17.13	17.13	17.13

Total Gallons	142	147	152						
Time	1630	1635	1640						
Temperature (°C)	12.19	12.20	12.19						
Conductivity (mS/cm)	0.226	0.224	0.226						
pH	6.10	6.08	6.07						
Turbidity (NTU)	3.59	2.94	2.46						
Dissolved Oxygen (mg/L)	7.41	7.39	7.92						
Salinity (ppth)	0.10	0.11	0.11						
Water Level (FT BTOC)	17.09	17.09	17.08						

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Anderson/L. Sparkman	**Date:** 8/23/02

Well No.: **MW16- 41D**

1. Total Riser and Screen Length (ft)	62.30
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.87
4. Volume of Water in Well (gal) V = (1-3)*(5)	7.9

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See yellow Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 165

WELL DEVELOPMENT LOG

Well No.: MW16-41D

Parameters

Total Gallons	3	6	10	12	17	20	23	26	30
Time	0745	0750	0755	0800	0805	0810	0815	0820	0825
Temperature (°C)	12.62	12.47	12.46	12.25	12.32	12.42	12.55	12.34	12.70
Conductivity (mS/cm)	0.262	0.257	0.257	0.242	0.243	0.245	0.251	0.247	0.251
pH	6.17	6.26	6.27	6.29	6.40	6.41	6.48	6.53	6.51
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	1.40	0.97	0.85	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Water Level (FT BTOC)	13.65	14.69	15.48	15.41	15.33	15.30	15.39	15.42	15.44

Total Gallons	33	37	40	43	47	50	53	57	60
Time	0830	0835	0840	0845	0850	0855	0900	0905	0910
Temperature (°C)	12.63	12.42	12.48	12.44	12.45	12.36	12.32	12.53	12.37
Conductivity (mS/cm)	0.253	0.270	0.274	0.287	0.288	0.292	0.282	0.274	0.277
pH	6.54	6.51	6.56	6.53	6.53	6.53	6.54	6.55	6.52
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.12	0.13	0.13	0.14	0.14	0.14	0.14	0.13	0.13
Water Level (FT BTOC)	15.28	17.05	17.02	16.99	16.96	17.21	18.01	18.01	18.01

Total Gallons	62	65	70	78	84	95	100	105	110
Time	0915	0920	0925	0930	0935	0940	0945	0950	0955
Temperature (°C)	12.32	12.33	12.21	12.31	12.35	12.30	12.35	12.30	12.30
Conductivity (mS/cm)	0.268	0.266	0.263	0.262	0.260	0.257	0.256	0.257	0.255
pH	6.52	6.52	6.54	6.51	6.51	6.50	6.54	6.52	6.50
Turbidity (NTU)	>999	265	329	769	180	399	>999	221	138
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Water Level (FT BTOC)	18.17	18.26	18.25	19.35	19.47	19.65	19.51	19.55	19.78

WELL DEVELOPMENT LOG

Well No.: MW16-41D

Parameters

Total Gallons	120	125	130	135	140	145	150	155	160
Time	1000	1005	1010	1015	1020	1025	1030	1035	1040
Temperature (°C)	12.31	12.27	12.26	12.27	12.38	12.30	12.49	12.68	12.38
Conductivity (mS/cm)	0.245	0.252	0.251	0.255	0.252	0.248	0.247	0.248	0.245
pH	6.49	6.50	6.50	6.48	6.48	6.48	6.48	6.48	6.48
Turbidity (NTU)	177	152	221	195	65	69	165	129	117
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Water Level (FT BTOC)	19.69	19.63	19.34	19.31	19.29	19.25	19.21	19.20	18.61

Total Gallons	165								
Time	1045								
Temperature (°C)	12.62								
Conductivity (mS/cm)	0.247								
pH	6.40								
Turbidity (NTU)	123								
Dissolved Oxygen (mg/L)	0.00								
Salinity (ppth)	0.12								
Water Level (FT BTOC)	17.49								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date:** 09/12/02

Well No.: **MW16-42S**

1. Total Riser and Screen Length (ft)	17.33
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.42
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.9

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 165

PID = 0.0 ppm at well mouth

*** = surge continually for 10 minutes**

**** = pumping stopped to get another drum at trailer**

WELL DEVELOPMENT LOG

Well No.: MW16-42S

Parameters

Total Gallons	3	6	11	16	21	26	31	36	41
Time	0840	0845	0850	0855	0900	0905	0910	0915	0920
Temperature (°C)	13.86	14.13	14.78	14.04	14.10	14.12	14.13	14.08	14.20
Conductivity (mS/cm)	0.577	0.697	0.710	0.707	0.706	0.707	0.704	0.703	0.702
pH	6.56	6.66	6.69	6.72	6.72	6.73	6.74	6.74	6.75
Turbidity (NTU)	22	63	95	36	13	8	4	5	2
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.28	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.34
Water Level (FT BTOC)	12.12	12.00	12.36	12.40	12.43	12.42	12.45	12.47	12.45

Total Gallons	46	51	56	61*	71	76*	86	91	96
Time	0925	0930	0935	0940	0950	0955	1005	1010	1015
Temperature (°C)	14.08	14.10	14.88	14.03	13.97	14.00	14.05	14.02	14.16
Conductivity (mS/cm)	0.702	0.699	0.700	0.703	0.707	0.702	0.700	0.700	0.698
pH	6.75	6.75	6.76	6.76	6.76	6.76	6.76	6.76	6.76
Turbidity (NTU)	3	1	2	8	5	4	4	4	0
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.34	0.34	0.34	0.35	0.35	0.34	0.34	0.34	0.34
Water Level (FT BTOC)	12.45	12.44	12.45	12.45	12.50	12.51	12.52	12.50	12.54

Total Gallons	101**	106	111	116	121	126	131	136	141
Time	1030	1035	1040	1045	1050	1055	1100	1105	1110
Temperature (°C)	14.02	14.16	14.17	14.14	14.36	14.04	14.33	14.30	14.19
Conductivity (mS/cm)	0.696	0.701	0.700	0.698	0.693	0.695	0.696	0.696	0.696
pH	6.74	6.74	6.75	6.75	6.75	6.75	6.75	6.75	6.75
Turbidity (NTU)	0	1	1	2	1	1	1	2	0
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Water Level (FT BTOC)	12.53	12.56	12.52	12.51	12.55	12.56	12.58	12.55	12.57

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date:** 09/12/02

Well No.: **MW16-42I**

1. Total Riser and Screen Length (ft)	32
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	9.10
4. Volume of Water in Well (gal) V = (1-3)*(5)	18.32

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 129

Pump rate: 1 gpm from 0850-0920; 0.75 gpm 0920-1130; 0.5 gpm 1130-1150

WELL DEVELOPMENT LOG

Well No.: MW16-42I

Parameters

Total Gallons	Initial	22.5	45	67.5	90	111.5	115.25	119	121.5
Time	0850	0920	0950	1020	1050	1120	1125	1130	1135
Temperature (°C)	13.15	12.90	12.78	12.42	12.83	12.30	12.32	12.25	12.34
Conductivity (mS/cm)	0.723	0.686	0.971	1.004	0.946	0.921	0.893	0.915	0.912
pH	6.62	6.71	6.71	6.73	6.70	6.47	6.78	6.95	7.05
Turbidity (NTU)	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	>1,100	257	268
Dissolved Oxygen (mg/L)	5.64	4.46	4.71	4.14	3.29	1.40	0.82	0.59	0.55
Salinity (ppth)	0.36	0.34	0.48	0.50	0.47	0.46	0.45	0.45	0.45
Water Level (FT BTOC)	19.95	20.90	20.75	23.63	23.93	21.69	20.83	21.14	20.13

Total Gallons	124	126.5	129						
Time	1140	1145	1150						
Temperature (°C)	12.34	12.31	12.36						
Conductivity (mS/cm)	0.911	0.906	0.908						
pH	7.09	7.10	7.10						
Turbidity (NTU)	108.7	113	117						
Dissolved Oxygen (mg/L)	0.53	0.57	0.57						
Salinity (ppth)	0.45	0.45	0.45						
Water Level (FT BTOC)	20.05	20.03	20.01						

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date:** 10/03/02

Well No.: **MW16-42D**

1. Total Riser and Screen Length (ft)	60.31
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.62
4. Volume of Water in Well (gal) V = (1-3)*(5)	7.5

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 150

Pumping begins 0925, 0935 pump stops – silted – must pull up and clean, start 0945

Start surge ~3 ft off bottom – work up and then do bottom 3 ft

Surge continually for 30 seconds, begin again when water clears; repeat several times, then move pump to next level of screen

WELL DEVELOPMENT LOG

Well No.: MW16-42D

Parameters

Total Gallons	100	103	106	108	110	112	114	116	118
Time	1220	1225	1230	1235	1240	1245	1250	1255	1300
Temperature (°C)	13.51	13.17	13.20	13.22	13.22	13.21	13.18	13.07	13.12
Conductivity (mS/cm)	0.229	0.222	0.224	0.225	0.225	0.226	0.226	0.227	0.225
pH	7.61	6.69	6.46	6.41	6.40	6.39	6.39	6.37	6.39
Turbidity (NTU)	206	82	45	39	25	25	24	37	30
Dissolved Oxygen (mg/L)	1.01	1.16	0.98	0.74	0.56	0.39	0.26	0.21	0.21
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	25.52	24.22	24.16	24.05	24.01	23.98	24.81	26.90	27.12

Total Gallons	120	122	124	126	128	130	132	134	136
Time	1305	1310	1315	1320	1325	1330	1335	1340	1345
Temperature (°C)	13.11	13.11	13.10	13.10	13.11	13.10	13.11	13.10	13.10
Conductivity (mS/cm)	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
pH	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39
Turbidity (NTU)	27	32	40	42	40	28	25	23	27
Dissolved Oxygen (mg/L)	0.11	0.12	0.08	0.01	0.01	0.00	0.02	0.01	0.01
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	27.28	27.16	27.08	27.05	27.07	27.10	27.09	27.11	27.13

Total Gallons	138	140	142	144	146	148	150		
Time	1350	1355	1400	1405	1410	1415	1420		
Temperature (°C)	13.09	13.10	13.10	13.09	13.09	13.09	13.09		
Conductivity (mS/cm)	0.224	0.225	0.225	0.225	0.225	0.225	0.225		
pH	6.39	6.39	6.39	6.39	6.39	6.39	6.39		
Turbidity (NTU)	24	28	26	25	24	25	25		
Dissolved Oxygen (mg/L)	0.01	0.00	0.01	0.01	0.01	0.01	0.01		
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11		
Water Level (FT BTOC)	27.08	27.10	27.10	27.10	27.09	27.09	27.07		

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman	**Date**: 08/20/02

Well No.: **MW16-43S**

1. Total Riser and Screen Length (ft)	22.16
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.32
4. Volume of Water in Well (gal) V = (1-3)*(5)	1.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See yellow Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 89 gallons

WELL DEVELOPMENT LOG

Well No.: **MW16-43S**

Parameters

Total Gallons	0	2	5	7	10	12	15	17	20
Time	0920	0925	0930	0935	0940	0945	0950	0955	1000
Temperature (°C)	14.60	14.33	14.25	14.14	14.19	14.14	14.09	14.11	14.05
Conductivity (mS/cm)	516	526	525	520	525	518	519	515	520
pH	5.36	5.13	4.86	4.92	4.94	5.66	5.61	5.53	5.54
Turbidity (NTU)	>999	387	177	149	136	125	139	143	141
Dissolved Oxygen (mg/L)	2.67	3.19	2.59	2.64	2.52	2.57	2.93	2.72	2.33
Salinity (ppth)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Water Level (FT BTOC)	12.25	12.61	12.82	12.85	12.83	12.82	12.85	12.86	12.86

Total Gallons	22	25	27	30	32	35	37	40	42
Time	1005	1010	1015	1020	1025	1030	1035	1040	1045
Temperature (°C)	13.99	13.95	14.35	13.98	14.35	14.16	14.28	14.06	13.99
Conductivity (mS/cm)	518	514	529	526	519	517	520	521	523
pH	5.76	5.63	6.02	6.14	6.12	6.15	6.19	6.20	6.19
Turbidity (NTU)	82	52	37	19	27	23	31	36	32
Dissolved Oxygen (mg/L)	3.68	3.51	3.29	3.06	3.01	3.20	3.15	3.34	3.05
Salinity (ppth)	0.25	0.25	0.26	0.25	0.25	0.25	0.25	0.25	0.25
Water Level (FT BTOC)	12.86	12.86	12.86	12.86	12.86	12.86	12.86	12.86	12.86

Total Gallons	45	47	50	52	55	57	60	62	64
Time	1050	1055	1100	1105	1110	1115	1120	1125	1130
Temperature (°C)	13.95	13.96	13.90	13.93	13.94	14.00	13.94	14.00	14.00
Conductivity (mS/cm)	519	519	517	515	517	519	517	514	513
pH	6.20	6.20	6.24	6.26	6.23	6.28	6.26	6.29	6.26
Turbidity (NTU)	34	29	27	26	29	29	31	26	33
Dissolved Oxygen (mg/L)	2.31	3.60	2.15	3.70	3.43	3.27	3.92	3.62	3.67
Salinity (ppth)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Water Level (FT BTOC)	12.86	12.86	12.86	12.86	12.86	12.86	12.86	12.86	12.86

WELL DEVELOPMENT LOG

Well No.: **MW16-43S**

Parameters

Total Gallons	66	68	69	70	72	75	77	80	85
Time	1135	1140	1145	1150	1155	1200	1205	1210	1215
Temperature (°C)	14.02	14.10	14.06	14.15	14.17	14.20	14.17	14.19	14.20
Conductivity (mS/cm)	522	531	523	535	521	527	523	525	527
pH	6.24	6.23	6.22	6.21	6.20	6.18	6.18	6.20	6.19
Turbidity (NTU)	32	41	39	37	21	27	26	32	30
Dissolved Oxygen (mg/L)	3.64	3.82	3.72	3.55	3.68	3.78	3.89	3.66	3.54
Salinity (ppth)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Water Level (FT BTOC)	12.86	12.86	12.86	12.86	12.86	12.86	12.86	12.86	12.86

Total Gallons	89								
Time	1220								
Temperature (°C)	14.17								
Conductivity (mS/cm)	526								
pH	6.18								
Turbidity (NTU)	26								
Dissolved Oxygen (mg/L)	3.62								
Salinity (ppth)	0.25								
Water Level (FT BTOC)	12.86								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Andersen/L.Sparkman	**Date:** 8/22/02

Well No.: **MW16-43I**

1. Total Riser and Screen Length (ft)	34.87
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.95
4. Volume of Water in Well (gal) V = (1-3)*(5)	3.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Blue Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 137

WELL DEVELOPMENT LOG

Well No.: **MW16-43I**

Parameters

Total Gallons	3	6	10	13	16	20	23	26	30
Time	0900	0905	0910	0915	0920	0925	0930	0935	0940
Temperature (°C)	12.14	12.09	12.09	12.16	12.27	11.74	11.82	11.70	11.77
Conductivity (mS/cm)	0.485	0.441	0.484	0.474	0.460	0.469	0.445	0.467	0.467
pH	6.73	6.49	6.49	6.50	6.51	6.50	6.52	6.51	6.53
Turbidity (NTU)	>999	>999	>999	>999	791	>999	>999	351	>999
Dissolved Oxygen (mg/L)	2.71	0.69	1.02	1.93	1.08	0.25	0.07	0.04	0.16
Salinity (ppth)	0.23	0.21	0.24	0.23	0.23	0.21	0.23	0.23	0.23
Water Level (FT BTOC)	12.42	12.51	12.65	12.72	12.46	13.91	14.29	14.31	14.39

Total Gallons	34	37	40	45	50	55	60	62	65
Time	0945	0950	0955	1000	1005	1010	1015	1020	1025
Temperature (°C)	11.70	11.75	11.74	11.61	11.67	11.73	11.64	11.63	11.63
Conductivity (mS/cm)	0.464	0.461	0.465	0.461	0.462	0.453	0.455	0.449	0.454
pH	6.51	6.51	6.51	6.52	6.51	6.51	6.52	6.51	6.51
Turbidity (NTU)	237	499	175	297	303	172	417	177	252
Dissolved Oxygen (mg/L)	0.02	0.02	0.01	0.14	0.01	0.01	0.01	0.01	0.01
Salinity (ppth)	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Water Level (FT BTOC)	14.35	14.31	14.46	14.53	14.52	14.65	14.65	14.55	14.73

Total Gallons	67	70	73	77	80	83	87	90	93
Time	1030	1035	1040	1045	1050	1055	1100	1105	1110
Temperature (°C)	11.86	11.79	11.71	11.75	11.76	11.77	11.90	11.72	11.76
Conductivity (mS/cm)	0.451	0.450	0.451	0.451	0.450	0.453	0.458	0.456	0.458
pH	6.51	6.50	6.50	6.51	6.50	6.50	6.51	6.51	6.50
Turbidity (NTU)	220	268	236	156	138	158	264	126	--
Dissolved Oxygen (mg/L)	0.01	0.01	0.02	0.02	0.03	0.02	0.03	0.03	0.03
Salinity (ppth)	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Water Level (FT BTOC)	14.62	14.45	14.45	14.48	14.15	14.00	13.90	13.79	13.70

WELL DEVELOPMENT LOG

Well No.: MW16-43I

Parameters

Total Gallons	97	100	105	110	112	117	120	128	132
Time	1115	1120	1125	1130	1135	1140	1145	1150	1155
Temperature (°C)	11.99	11.96	12.10	11.95	12.19	12.01	12.05	11.80	11.90
Conductivity (mS/cm)	0.458	0.453	0.453	0.452	0.455	0.458	0.453	0.459	0.452
pH	6.58	6.50	6.50	6.51	6.54	6.53	6.52	6.52	6.50
Turbidity (NTU)	151	134	141	214	153	124	136	308	222
Dissolved Oxygen (mg/L)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.02
Salinity (ppth)	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Water Level (FT BTOC)	13.80	13.76	13.68	13.69	13.67	13.55	13.51	13.47	13.43

Total Gallons	137								
Time	1200								
Temperature (°C)	11.88								
Conductivity (mS/cm)	0.453								
pH	6.50								
Turbidity (NTU)	207								
Dissolved Oxygen (mg/L)	0.03								
Salinity (ppth)	0.22								
Water Level (FT BTOC)	13.41								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Andersen	**Date:** 08/20/02

Well No.: **MW16-43D**

1. Total Riser and Screen Length (ft)	45.63
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.56
4. Volume of Water in Well (gal) V = (1-3)*(5)	5.3

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See red Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 100

WELL DEVELOPMENT LOG

Well No.: MW16-43D

Parameters

Total Gallons	5	8	10	12	15	17	20	22	25
Time	0910	0915	0920	0925	0930	0935	0940	0945	0950
Temperature (°C)	11.42	11.49	11.67	11.73	11.80	11.83	12.18	11.81	11.82
Conductivity (mS/cm)	0.262	0.263	0.263	0.283	0.288	0.291	0.291	0.295	0.298
pH	7.75	7.68	7.63	7.20	6.99	6.93	6.89	6.83	6.80
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	0.29	0.22	0.17	0.10	0.14	0.08	0.07	0.06	0.06
Salinity (ppth)	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14
Water Level (FT BTOC)	12.84	14.92	16.25	16.31	16.30	16.30	16.31	16.14	16.10

Total Gallons	27	30	32	35	37	40	42	45	47
Time	0955	1000	1005	1010	1015	1020	1025	1030	1035
Temperature (°C)	11.86	11.84	11.91	11.94	11.90	11.95	11.83	11.87	11.85
Conductivity (mS/cm)	0.300	0.300	0.300	0.300	0.300	0.303	0.303	0.303	0.303
pH	6.75	6.74	6.73	6.72	6.73	6.70	6.70	6.70	6.70
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	764	200	112	162
Dissolved Oxygen (mg/L)	0.04	0.05	0.38	0.58	0.06	0.04	0.04	0.04	0.04
Salinity (ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Water Level (FT BTOC)	16.10	16.10	16.11	16.10	16.10	16.09	16.12	16.11	16.14

Total Gallons	50	52	55	57	60	62	65	67	70
Time	1040	1045	1050	1055	1100	1105	1110	1115	1120
Temperature (°C)	11.82	11.92	11.99	12.02	12.04	12.05	12.05	12.06	12.00
Conductivity (mS/cm)	0.303	0.303	0.303	0.304	0.304	0.304	0.305	0.305	0.305
pH	6.69	6.69	6.68	6.68	6.69	6.68	6.68	6.67	6.67
Turbidity (NTU)	148	190	540	163	77	78	73	78	67
Dissolved Oxygen (mg/L)	0.06	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
Salinity (ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Water Level (FT BTOC)	16.14	16.14	16.13	16.13	16.14	16.10	16.13	16.13	16.14

WELL DEVELOPMENT LOG

Well No.: MW16-43D

Parameters

Total Gallons	72	75	77	80	82	85	87	90	95
Time	1125	1130	1135	1140	1145	1150	1155	1200	1205
Temperature (°C)	12.01	12.03	12.03	12.00	12.04	11.97	12.17	12.17	12.13
Conductivity (mS/cm)	0.303	0.303	0.303	0.304	0.306	0.309	0.306	0.305	0.306
pH	6.67	6.67	6.67	6.69	6.67	6.67	6.68	6.67	6.66
Turbidity (NTU)	63	60	52	50	62	59	52	42	38
Dissolved Oxygen (mg/L)	0.04	0.03	0.04	0.13	0.04	0.05	0.19	0.16	0.06
Salinity (ppth)	0.14	0.15	0.15	0.15	0.14	0.15	0.15	0.15	0.15
Water Level (FT BTOC)	16.11	16.10	16.14	16.11	16.11	16.11	16.11	16.12	16.11

Total Gallons	100								
Time	1210								
Temperature (°C)	12.14								
Conductivity (mS/cm)	0.306								
pH	6.67								
Turbidity (NTU)	30								
Dissolved Oxygen (mg/L)	0.05								
Salinity (ppth)	0.15								
Water Level (FT BTOC)	16.00								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman	**Date:** 08/19/02

Well No.: **MW16-44S**

1. Total Riser and Screen Length (ft)	23.78
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.99
4. Volume of Water in Well (gal) V = (1-3)*(5)	2.0

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See yellow Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 55 gallons

WELL DEVELOPMENT LOG

Well No.: MW16-44S

Parameters

Total Gallons	5	10	15	20	25	30	35	40	45
Time	1520	1525	1530	1535	1540	1545	1550	1555	1600
Temperature (°C)	14.60	14.45	14.34	14.24	14.53	14.41	14.37	14.33	14.47
Conductivity (MS/cm)	525	544	550	556	550	529	524	532	524
pH	6.06	6.10	6.13	6.16	6.15	6.16	6.15	6.16	6.15
Turbidity (NTU)	413	459	15.6	20.2	19	47	42	28.2	11.3
Dissolved Oxygen (mg/L)	2.60	2.11	1.95	2.13	2.31	2.99	2.92	2.14	2.20
Salinity (ppth)	0.26	0.26	0.27	0.26	0.27	0.26	0.25	0.26	0.26
Water Level (FT BTOC)	13.31	13.35	13.37	13.35	13.36	13.35	13.35	13.35	13.34

Total Gallons	50	55							
Time	1605	1610							
Temperature (°C)	14.22	14.55							
Conductivity (MS/cm)	540	531							
pH	6.16	6.15							
Turbidity (NTU)	25.1	8.91							
Dissolved Oxygen (mg/L)	2.05	2.31							
Salinity (ppth)	0.26	0.26							
Water Level (FT BTOC)	13.33	13.33							

Total Gallons									
Time									
Temperature (°C)									
Conductivity (MS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: P. Probasco	**Date:** 10/01/02

Well No.: **MW16-44I**

1. Total Riser and Screen Length (ft)	
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	12.10
4. Volume of Water in Well (gal) V = (1-3)*(5)	

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See blue Calibration Log for instrument calibration information	

NOTES: Instrument (YSI) shut off by itself between 1436-1451.
Pump rate during water quality readings: 1 gal/3 min. 8 sec.
Estimated water lost during well installation:
Total gallons purged from well during development: 155 (3 drums)
Surged 115 gallons from 1030-1340
PID: background air = 0, well casing = 0
Purge pump rate = 1 gal/58 sec. Purge pump rate at 1134 = 1 gal/1 min. 26 sec. Slower pump rate used.
Rough estimate of volume after surging: 115 gal

WELL DEVELOPMENT LOG

Well No.: MW16-44I

Parameters

Total Gallons	~117	~122	124	126	128	130	133	135	137
Time	1344	1351	1400	1405	1413	1418	1423	1428	1436
Temperature (°C)	13.15	13.23	13.21	13.29	13.31	13.27	13.30	13.24	13.27
Conductivity (mS/cm)	0.326	0.328	0.329	0.330	0.329	0.329	0.329	0.328	0.328
pH	5.71	5.74	5.76	5.75	5.76	5.76	5.77	5.78	5.77
Turbidity (NTU)	18	18	14	13	9.2	7.7	7.7	7.6	6.4
Dissolved Oxygen (mg/L)	4.27	4.23	3.83	3.29	3.24	3.12	3.11	3.06	3.10
Salinity (ppth)	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Water Level (FT BTOC)	13.69	13.69	13.64	13.61	13.59	13.59	13.59	13.56	13.55

Total Gallons	140	143	147	150	152	155			
Time	1451	1457	1503	1512	1517	1522			
Temperature (°C)	13.20	13.17	13.24	13.11	13.16	13.17			
Conductivity (mS/cm)	0.328	0.329	0.329	0.328	0.328	0.327			
pH	5.56	5.72	5.78	5.79	5.79	5.80			
Turbidity (NTU)	3.6	3.1	2.5	2.6	1.6	1.4			
Dissolved Oxygen (mg/L)	3.07	2.99	2.81	2.62	2.53	2.45			
Salinity (ppth)	0.16	0.16	0.16	0.16	0.16	0.16			
Water Level (FT BTOC)	13.51	13.51	13.50	13.56	13.46	13.45			

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Andersen	**Date**: 8/19/02

Well No.: **MW16-44D**

1. Total Riser and Screen Length (ft)	62.08
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.10
4. Volume of Water in Well (gal) V = (1-3)*(5)	7.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Red Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 165

WELL DEVELOPMENT LOG

Well No.: MW16-44D

Parameters

Total Gallons	10	20	25	30	35	40	45	50	55
Time	1505	1515	1520	1525	1530	1535	1540	1545	1550
Temperature (°C)	12.18	12.28	12.93	12.27	12.53	12.60	12.66	13.47	12.40
Conductivity (mS/cm)	0.258	0.249	0.247	0.238	0.238	0.232	0.227	0.223	0.229
pH	8.72	8.26	7.77	7.43	7.28	7.17	7.08	7.11	6.71
Turbidity (NTU)	>1000	>1000	>1000	660	>1000	>1000	>1000	928	608
Dissolved Oxygen (mg/L)	0.42	2.13	4.16	1.07	2.13	0.56	0.59	0.55	0.69
Salinity (ppth)	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	25.30	25.05	25.10	25.10	25.00	25.01	24.98	24.80	24.75

Total Gallons	60	65	70	75	80	85	90	95	100
Time	1555	1600	1605	1610	1615	1620	1625	1630	1635
Temperature (°C)	12.36	12.25	12.32	12.34	12.35	12.35	12.35	12.31	12.28
Conductivity (mS/cm)	0.229	0.231	0.230	0.226	0.227	0.224	0.224	0.223	0.226
pH	6.62	6.57	6.48	6.46	6.39	6.35	6.36	6.33	6.34
Turbidity (NTU)	495	358	205	183	177	127	85	262	207
Dissolved Oxygen (mg/L)	0.45	0.46	0.39	0.40	0.39	0.41	0.41	0.34	0.38
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	24.75	24.75	24.50	24.48	24.40	24.40	24.38	24.35	24.33

Total Gallons	105	110	112	115	117	120	121	122	124
Time	1640	1645	1650	1655	1700	1705	1710	1715	1720
Temperature (°C)	12.34	12.33	12.23	12.28	12.23	12.26	12.20	12.26	12.25
Conductivity (mS/cm)	0.223	0.223	0.223	0.222	0.221	0.221	0.222	0.219	0.219
pH	6.32	6.31	6.31	6.34	6.37	6.38	6.38	6.38	6.37
Turbidity (NTU)	164	75	148	55	46	30	42	46	45
Dissolved Oxygen (mg/L)	0.42	0.43	0.33	0.30	0.30	0.31	0.31	0.31	0.31
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10
Water Level (FT BTOC)	24.33	24.32	24.28	24.28	24.17	24.12	24.07	24.03	23.96

WELL DEVELOPMENT LOG

Well No.: MW16-44D

Parameters

Total Gallons	125	130	135	140	145	150	155	160	165
Time	1725	1730	1735	1740	1745	1750	1755	1800	1805
Temperature (°C)	12.26	12.28	12.30	12.25	12.22	12.23	12.23	12.22	12.22
Conductivity (mS/cm)	0.219	0.219	0.220	0.219	0.218	0.218	0.218	0.218	0.218
pH	6.36	6.37	6.39	6.38	6.36	6.36	6.36	6.36	6.36
Turbidity (NTU)	42	42	40	38	36	27	19	17	17
Dissolved Oxygen (mg/L)	0.31	0.30	0.31	0.31	0.31	0.31	0.31	0.31	0.30
Salinity (ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Water Level (FT BTOC)	23.94	23.91	23.07	23.93	23.91	23.98	24.03	24.07	24.10

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/J. Martin	**Date**: 09/11/02

Well No.: **MW16-44R**

1. Total Riser and Screen Length (ft)	
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	13.23
4. Volume of Water in Well (gal) V = (1-3)*(5)	

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 190

Begin pumping 0845

WELL DEVELOPMENT LOG

Well No.: MW16-44R

Parameters

Total Gallons	5	165	170	175	180	185	190		
Time	0850	1305	1310	1315	1320	1325	1330		
Temperature (°C)	12.34	13.23	13.71	12.86	12.97	12.77	12.70		
Conductivity (mS/cm)	0.367	0.179	0.170	0.167	0.165	0.167	0.165		
pH	10.01	8.10	7.04	6.86	6.77	6.71	6.68		
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999		
Dissolved Oxygen (mg/L)	0.20	3.16	1.00	0.69	0.48	0.15	0.16		
Salinity (ppth)	0.18	0.09	0.08	0.08	0.08	0.08	0.08		
Water Level (FT BTOC)	17.06	32.77	32.53	32.47	32.91	33.03	33.41		

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman/J. Martin	**Date**: 09/17/02

Well No.: **MW16-44R**

1. Total Riser and Screen Length (ft)	77.00
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	13.17
4. Volume of Water in Well (gal) V = (1-3)*(5)	41.5

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 76

*** = 0925 – stopped pump – silted up – 0933 restarted with second pump**

1000-1010 – stopped pump – out of gas

Initial pump rate = 2 gpm

WELL DEVELOPMENT LOG

Well No.: MW16-44R

Parameters

Total Gallons	0	30	47	51	55	59	61	63	65
Time	0920	0950	1030	1035	1040	1045	1050	1055	1100
Temperature (°C)	12.83	13.01	12.73	12.52	12.51	12.35	12.41	12.38	12.38
Conductivity (mS/cm)	0.211	0.185	0.178	0.177	0.177	0.176	0.176	0.176	0.177
pH	7.83	7.26	6.71	6.68	6.68	6.67	6.67	6.67	6.68
Turbidity (NTU)	711	>1,100	419	402	253	165	153	126	132
Dissolved Oxygen (mg/L)	5.05	4.29	0.66	0.43	0.36	0.33	0.33	0.32	0.30
Salinity (ppth)	0.10	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Water Level (FT BTOC)	18.29	20.20	19.07	19.15	19.22	19.25	19.31	19.32	19.34

Total Gallons	67	70	73	76					
Time	1105	1110	1115	1120					
Temperature (°C)	12.22	12.24	12.26	12.31					
Conductivity (mS/cm)	0.177	0.177	0.177	0.177					
pH	6.69	6.71	6.71	6.72					
Turbidity (NTU)	162	171	168	138					
Dissolved Oxygen (mg/L)	0.28	0.26	0.25	0.25					
Salinity (ppth)	0.08	0.08	0.08	0.08					
Water Level (FT BTOC)	19.37	19.39	19.41	19.40					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: V. Deleone	**Date**: 10/16/02

Well No.: **MW16-44R**

1. Total Riser and Screen Length (ft)	90*
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	13.51
4. Volume of Water in Well (gal) V = (1-3)*(5)	50.4

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 110

*** = Measured from top of 4 in. casing, ~2.5 ags**

Water did not clear up until 1600

WELL DEVELOPMENT LOG

Well No.: MW16-44R

Parameters

Total Gallons	90	92.5	95	97.5	100	102.5	105	107.5	110
Time	1550	1555	1600	1605	1610	1615	1620	1625	1630
Temperature (°C)	12.53	12.52	12.54	12.55	12.55	12.58	12.57	12.57	12.56
Conductivity (mS/cm)	0.228	0.227	0.226	0.222	0.221	0.203	0.203	0.216	0.210
pH	6.96	6.81	6.70	6.53	6.50	6.46	6.43	6.41	6.40
Turbidity (NTU)	852	703	521	502	457	315	246	202	151
Dissolved Oxygen (mg/L)	4.03	3.67	3.41	2.93	2.82	2.67	2.54	2.49	2.46
Salinity (ppth)	0.11	0.10	0.10	0.11	0.11	0.10	0.10	0.10	0.11
Water Level (FT BTOC)	19.65	19.65	19.65	19.60	19.55	19.55	19.55	19.60	19.60

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date**: 8/22/02

Well No.: **MW16-45S**

1. Total Riser and Screen Length (ft)	22.81
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.94
4. Volume of Water in Well (gal) V = (1-3)*(5)	1.9

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Green Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 110
0.0 well mouth PID
*** = Cleared flow cell**
**** = Suspended readings to concentrate on surging well.**

WELL DEVELOPMENT LOG

Well No.: MW16-45S

Parameters

Total Gallons	0	2.5	3.75	5	6.25	8.75*	10.25	11.5	12.75
Time	0910	0915	0920	0925	0930	0935	0940	0945	0950
Temperature (°C)	16.51	16.33	14.37	14.33	15.38	14.21	14.46	14.21	13.76
Conductivity (mS/cm)	0.698	0.644	0626	0.637	0.614	0.681	0.630	0.656	0.644
pH	6.58	6.86	6.89	6.89	6.91	6.88	6.80	6.81	6.84
Turbidity (NTU)	>999	>999	>999	290	>999	160	>999	290	500
Dissolved Oxygen (mg/L)	1.29	1.58	0.80	0.26	0.06	0.03	5.86	0.39	0.09
Salinity (ppth)	0.34	0.32	0.31	0.31	0.30	0.34	0.31	0.32	0.31
Water Level (FT BTOC)	15.45	16.11	15.80	16.40	15.15	15.92	16.48	16.00	16.22

Total Gallons	14	1525	16.5	17.75*	19	24	29	34	39*
Time	0955	1000	1005	1010	1015	1020	1025	1030	1035
Temperature (°C)	13.71	13.66	13.60	13.57	13.59	13.49	13.39	13.40	13.35
Conductivity (mS/cm)	0.656	0.657	0.657	0.657	0.656	0.657	0.631	0.637	0.636
pH	6.85	6.85	6.84	6.85	6.79	6.79	6.80	6.79	6.79
Turbidity (NTU)	350	130	90	120	60	40	65	35	45
Dissolved Oxygen (mg/L)	0.03	0.01	0.00	0.00	0.30	0.11	0.05	0.00	0.00
Salinity (ppth)	0.32	0.32	0.32	0.32	0.32	0.32	0.31	0.31	0.31
Water Level (FT BTOC)	16.13	15.85	15.60	15.32	14.80	15.53	15.45	15.45	15.40

Total Gallons	44	49	54	69	74	79	84	89	91.5
Time	1040	1045	1050	1105	1110	1115	1120	1125	1130
Temperature (°C)	13.49	13.41	**	13.44	13.32	13.32	13.32	13.31	13.36
Conductivity (mS/cm)	0.655	0.648		0.662	0.635	0.638	0.640	0.641	0.641
pH	6.71	6.72		6.65	6.62	6.61	6.59	6.58	6.55
Turbidity (NTU)	65	50		60	65	27	17	17	15
Dissolved Oxygen (mg/L)	0.61	0.16		0.05	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.32	0.32		0.32	0.31	0.31	0.31	0.31	0.31
Water Level (FT BTOC)	15.00	15.05		15.40	15.42	15.40	14.93	14.45	14.31

WELL DEVELOPMENT LOG

Well No.: MW16-45S

Parameters

Total Gallons	94	96.5	99						
Time	1135	1140	1145						
Temperature (°C)	13.34	13.33	13.33						
Conductivity (mS/cm)	0.647	0.646	0.465						
pH	6.51	6.49	6.48						
Turbidity (NTU)	6	6	5						
Dissolved Oxygen (mg/L)	0.02	0.02	0.03						
Salinity (ppth)	0.32	0.32	0.32						
Water Level (FT BTOC)	14.35	14.30	14.30						

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Cackowski	**Date:** 10/01/02

Well No.: **MW16-45I**

1. Total Riser and Screen Length (ft)	
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.84
4. Volume of Water in Well (gal) V = (1-3)*(5)	

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See white Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development:
PID: BG = 0.0 ppm at well casing
Surge start: 1025, Surge stop: 1300, Gal removed: 165
200 gal – 4 drums; 1 drum w/sludge. No water, no close lid.
*** = Adjust flow rate to ~0.2 lpm**
(a) = Flow rate adjust to ~0.5 lpm
(b) = Flow rate checked: ~0.5 lpm
(c) = Flow rate checked: ~0.5 lpm

WELL DEVELOPMENT LOG

Well No.: MW16-45I

Parameters

Total Gallons	165	166	167	168	169	170	171	172	173
Time	1300	1305	1310	1315	1320	1325	1330	1335	1340
Temperature (°C)	14.58	14.67	14.41	14.28	14.30	14.26	14.46	14.42	14.39
Conductivity (mS/cm)	0.323	0.328	0.334	0.336	0.336	0.336	0.336	0.337	0.337
pH	6.33	6.31	6.28	6.27	6.28	6.27	6.29	6.31	6.31
Turbidity (NTU)	70.8	47.6	89.5	75.5	96.7	148	98.1	106.2	105.3
Dissolved Oxygen (mg/L)	0.36	0.32	0.25	0.23	0.20	0.19	0.17	0.17	0.16
Salinity (ppth)	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Water Level (FT BTOC)	12.24	11.92	12.00	11.96	11.93	11.90	11.83	11.83	11.81

Total Gallons	174	175	176	177	177.5	178	178.5	179	180
Time	1345	1355	1400	1410*	1415	1420	1425[a]	1430	1435
Temperature (°C)	14.42	14.39	14.72	16.11	16.43	16.59	16.15	16.22	16.28
Conductivity (mS/cm)	0.338	0.336	0.337	0.337	0.339	0.340	0.345	0.342	0.342
pH	6.30	6.27	6.29	6.36	6.38	6.39	6.40	6.40	6.40
Turbidity (NTU)	135	106.3	112.0	77.7	96.8	136	139	159	174
Dissolved Oxygen (mg/L)	0.15	0.14	0.14	0.14	0.15	0.16	0.15	0.15	0.15
Salinity (ppth)	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.16	0.16
Water Level (FT BTOC)	11.79	11.76	11.63	11.26	11.26	11.25	11.26	11.26	11.24

Total Gallons	181	182	183	184	185	186	187	188	189
Time	1440	1445	1450[b]	1455	1500	1505	1510	1515	1520[c]
Temperature (°C)	16.34	16.26	16.38	16.45	16.47	16.16	16.14	16.12	16.01
Conductivity (mS/cm)	0.343	0.344	0.343	0.343	0.343	0.344	0.344	0.345	0.345
pH	6.41	6.41	6.41	6.41	6.41	6.39	6.40	6.40	6.40
Turbidity (NTU)	208	180	186	179	168	156	158	151	145
Dissolved Oxygen (mg/L)	0.15	0.14	0.15	0.14	0.14	0.14	0.14	0.14	0.14
Salinity (ppth)	0.16	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.17
Water Level (FT BTOC)	11.23	11.21	11.21	11.19	11.19	11.20	11.20	11.20	11.21

WELL DEVELOPMENT LOG

Well No.: MW16-45I

Parameters

Total Gallons	190	191	192	193	194	195	196	197	197.5
Time	1525	1530	1535	1540	1545	1550	1555	1600	1605
Temperature (°C)	15.86	15.81	15.71	15.73	15.78	15.90	15.69	15.56	15.66
Conductivity (mS/cm)	0.345	0.345	0.344	0.345	0.345	0.344	0.345	0.345	0.343
pH	6.40	6.40	6.38	6.37	6.37	6.39	6.41	6.40	6.38
Turbidity (NTU)	135	128	125	115	112	108.2	101.2	110	83.5
Dissolved Oxygen (mg/L)	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12
Salinity (ppth)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16
Water Level (FT BTOC)	11.21	11.21	11.21	11.20	11.21	11.20	11.21	11.20	11.19

Total Gallons	198	198.5	199	199.5	200	End well development per Task Manager			
Time	1610	1615	1620	1625	1630				
Temperature (°C)	15.58	15.61	15.54	15.49	15.44				
Conductivity (mS/cm)	0.344	0.344	0.344	0.345	0.345				
pH	6.40	6.41	6.42	6.43	6.45				
Turbidity (NTU)	78.7	73.2	76.8	74.7	63.4				
Dissolved Oxygen (mg/L)	0.12	0.11	0.12	0.11	0.11				
Salinity (ppth)	0.17	0.17	0.17	0.17	0.17				
Water Level (FT BTOC)	11.19	11.19	11.18	11.18	11.18				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Haras	**Date**: 8/22/02

Well No.: **MW16-45D**

1. Total Riser and Screen Length (ft)	58.67
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.79
4. Volume of Water in Well (gal) V = (1-3)*(5)	7.66

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Blue Calibration Log for instrument calibration information	

NOTES: Surged well 30 seconds per 5 minute interval
Estimated water lost during well installation: 0
Total gallons purged from well during development: 70
Water is gray and silty, no odor
0.0 ppm = well mouth PID
0911 pump rate 1 qt per min, 0922 pump turned up to purge dry 1.0 gal per min.
0911 water level at 50 ft, pump turned off (well dry) await recharge. See log book

WELL DEVELOPMENT LOG

Well No.: MW16-45D

Parameters

Total Gallons	0	1.25	2.5	3.75	5	6.25	56.25	57.5	58.75
Time	0900	0905	0910	0915	0920	0922	1110	1115	1120
Temperature (°C)	17.51	13.93	13.34	13.30	13.39	12.81	13.51	13.77	13.73
Conductivity (mS/cm)	0.448	0.374	0.413	0.401	0.376	0.401	0.317	0.320	0.317
pH	9.76	9.23	9.69	9.21	8.94	9.02	6.87	6.90	6.87
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	228	163	179
Dissolved Oxygen (mg/L)	4.63	0.84	0.30	0.20	0.20	0.11	0.51	0.36	0.82
Salinity (ppth)	0.22	0.18	0.20	0.19	0.18	0.18	0.15	0.16	0.16
Water Level (FT BTOC)	10.79	12.65	20.15	21.18	21.28	38.3	20.75	20.97	20.81

Total Gallons	60	61.25	62.5	63.75	65	66.25	67.5	68.75	
Time	1125	1130	1135	1140	1145	1150	1155	1200	
Temperature (°C)	13.74	13.67	13.69	13.86	13.67	13.86	13.79	13.76	
Conductivity (mS/cm)	0.312	0.312	0.312	0.313	0.317	0.315	0.312	0.311	
pH	6.87	6.84	6.82	6.83	6.80	6.80	6.83	6.81	
Turbidity (NTU)	160	76.8	109.3	113	41	85.80	65.5	54.5	
Dissolved Oxygen (mg/L)	0.70	0.50	0.46	0.78	0.42	0.31	0.27	0.26	
Salinity (ppth)	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
Water Level (FT BTOC)	20.80	20.91	20.97	20.77	20.87	20.55	20.77	20.82	

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date**: 8/20/02

Well No.: **MW16-46S**

1. Total Riser and Screen Length (ft)	22.00
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.82
4. Volume of Water in Well (gal) V = (1-3)*(5)	1.79

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See green Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 165 (3 drums full)
0.0 ppm = well mouth PID
*** = Cleared flow cell due to sand build-up**

WELL DEVELOPMENT LOG

Well No.: MW16-46S

Parameters

Total Gallons	0	4	8	16	20	24	28	32	36
Time	0930	0935	0940*	0950	1010	1015	1020	1025	1030
Temperature (°C)	12.38	12.68	13.12	12.89	13.78	13.31	13.43	13.60	13.59
Conductivity (mS/cm)	0.702	0.653	0.584	0.624	0.628	0.604	0.598	0.586	0.590
pH	6.19	6.93	7.00	6.95	6.98	6.98	6.99	6.99	6.98
Turbidity (NTU)	>999	70	>999	383	>999	189	>999	298	407
Dissolved Oxygen (mg/L)	0.54	0.43	1.11	0.18	1.25	0.36	0.07	0.02	0.00
Salinity (ppth)	0.34	0.32	0.29	0.31	0.30	0.29	0.29	0.29	0.31
Water Level (FT BTOC)	11.15	11.25	11.33	11.15	11.15	11.15	11.20	11.22	11.15

Total Gallons	40	44 *	48	52 *	56	60	64	68	72
Time	1035	1040	1050	1055	1105	1110	1115	1120	1125
Temperature (°C)	13.56	13.50	13.61	13.57	13.70	13.77	14.19	13.78	14.12
Conductivity (mS/cm)	0.556	0.584	0.529	0.504	0.635	0.594	0.597	0.582	0.593
pH	6.99	16.98	6.97	6.97	6.91	6.94	6.94	6.96	6.94
Turbidity (NTU)	>999	81	>999	581	81	63	618	288	681
Dissolved Oxygen (mg/L)	0.03	0.00	0.35	0.27	0.86	0.00	0.03	0.01	0.01
Salinity (ppth)	0.27	0.28	0.25	0.24	0.31	0.31	0.29	0.28	0.29
Water Level (FT BTOC)	11.15	11.15	11.18	11.19	11.12	11.15	11.15	11.17	11.17

Total Gallons	76 *	80	84	88	92	96 *	100	104	108
Time	1130	1140	1145	1150	1155	1200	1210	1215	1220
Temperature (°C)	13.91	13.73	13.97	13.82	13.88	13.86	13.90	13.87	13.88
Conductivity (mS/cm)	0.597	0.592	0.583	0.596	0.594	0.595	0.596	0.595	0.596
pH	6.94	6.91	6.93	6.91	6.91	6.90	6.91	6.90	6.90
Turbidity (NTU)	209	79	378	39	29	0.12	0.12	0.15	0.13
Dissolved Oxygen (mg/L)	0.02	0.08	0.10	0.08	0.11	18	19	20	17
Salinity (ppth)	0.29	0.29	0.28	0.29	0.29	0.29	0.29	0.29	0.29
Water Level (FT BTOC)	11.17	11.20	11.22	11.23	11.20	11.20	11.21	11.20	11.22

WELL DEVELOPMENT LOG

Well No.: MW16-46S

Parameters

Total Gallons	118	130							
Time	1225	1230							
Temperature (°C)	13.90	13.91							
Conductivity (mS/cm)	0.595	0.595							
pH	6.91	6.90							
Turbidity (NTU)	15	18							
Dissolved Oxygen (mg/L)	0.20	0.18							
Salinity (ppth)	0.28	0.29							
Water Level (FT BTOC)	11.25	11.21							

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/01/02

Well No.: **MW16-46I**

1. Total Riser and Screen Length (ft)	~34
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	8.97
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.0

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 100

Breathing zone: 0.0 ppm (with white PID) Well: 0.0 ppm (with white PID)

1000 – Start purging. 1230 – Stop surge.

80 gal removed (surge). 20 gal removed during parameter readings.

WELL DEVELOPMENT LOG

Well No.: MW16-46I

Parameters

Total Gallons	80	82	84	85	87	89	90	91	93
Time	1230	1235	1240	1245	1250	1255	1300	1305	1310
Temperature (°C)	13.49	13.50	13.52	13.48	13.59	13.48	13.62	13.56	13.58
Conductivity (mS/cm)	0.596	0.598	0.597	0.600	0.596	0.599	0.592	0.586	0.591
pH	6.44	6.52	6.56	6.58	6.59	6.61	6.62	6.63	6.63
Turbidity (NTU)	14.1	10.18	13.9	9.65	10.48	10.11	6.71	6.05	5.83
Dissolved Oxygen (mg/L)	0.49	0.27	0.12	0.08	0.06	0.06	0.06	0.06	0.06
Salinity (ppth)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Water Level (FT BTOC)	11.28	11.31	11.32	11.32	11.28	11.28	11.28	11.28	11.28

Total Gallons	95	97	98	100					
Time	1315	1320	1325	1330					
Temperature (°C)	13.58	13.55	13.58	13.58					
Conductivity (mS/cm)	0.589	0.589	0.588	0.587					
pH	6.63	6.64	6.64	6.64					
Turbidity (NTU)	5.08	4.71	4.70	4.49					
Dissolved Oxygen (mg/L)	0.06	0.06	0.06	0.06					
Salinity (ppth)	0.29	0.29	0.29	0.29					
Water Level (FT BTOC)	11.28	11.28	11.28	11.28					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Haras	**Date:** 08/20/02

Well No.: **MW16-46D**

1. Total Riser and Screen Length (ft)	60.10
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.52
4. Volume of Water in Well (gal) V = (1-3)*(5)	7.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See blue Calibration Log for instrument calibration information	

NOTES: 0915 start purge

Estimated water lost during well installation: 200

Total gallons purged from well during development: 90

0915-0918 water level drop from 11.52 to 25 ft at 1 qt every 8 sec. Pump off

Start AA 0.5, 0.0 ppm well mouth PID

See log book, 3 well volumes removed, well produces a little over .5 gal min.

80 gal removed by third purge, 1155 flow rate 0.5 gal per min.

WELL DEVELOPMENT LOG

Well No.: MW16-46D

Parameters

Total Gallons	82.5	85	87.5	90					
Time	1155	1200	1205	1210					
Temperature (°C)	13.09	13.33	13.43	13.42					
Conductivity (mS/cm)	0.339	0.333	0.334	0.334					
pH	7.20	6.94	6.82	6.82					
Turbidity (NTU)	11	12	6.3	3.4					
Dissolved Oxygen (mg/L)	0.97	0.37	0.94	1.00					
Salinity (ppth)	0.16	0.16	0.16	0.16					
Water Level (FT BTOC)	22.65	23.15	23.25	23.41					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/03/02

Well No.: **MW16-47S**

1. Total Riser and Screen Length (ft)	15.93
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.91
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.6

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 40

PID 0.0 ppm, background 0.0 ppm

Start at 1155, stopped at 1225

Hand bailed for 3 hours 40 gallons. No parameters taken.

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman/B. Anderson	**Date:** 08/20/02

Well No.: **MW16-47D**

1. Total Riser and Screen Length (ft)	38.50
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.83
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.3

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See yellow Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 84

WELL DEVELOPMENT LOG

Well No.: MW16-47D

Parameters

Total Gallons	0	2.5	5	7.5	10	12.5	15	17.5	20
Time	1420	1425	1430	1435	1440	1445	1450	1455	1500
Temperature (°C)	12.30	12.81	12.98	12.98	1300	13.09	12.94	12.95	--
Conductivity (µS/cm)	249	249	249	248	246	243	244	244	241
pH	6.16	6.16	6.07	6.04	5.98	5.91	5.88	5.91	5.91
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	5.05	1.95	0.87	0.44	0.49	0.47	0.45	0.47	0.44
Salinity (ppth)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.12
Water Level (FT BTOC)	16.48	17.82	17.99	18.05	18.07	18.05	18.02	18.03	18.03

Total Gallons	22.5	25	27.5	29	30	32.5	35	37.5	40
Time	1505	1510	1515	1520	1525	1530	1535	1540	1545
Temperature (°C)	13.12	13.18	12.82	13.25	13.05	12.96	13.15	13.19	13.24
Conductivity (µS/cm)	241	242	237	241	241	237	241	236	235
pH	5.88	5.89	5.86	5.85	5.89	5.83	5.85	5.84	5.80
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.40	0.41	0.39	0.47	0.43	0.39	0.37	0.30	0.37
Salinity (ppth)	0.12	0.12	0.12	0.12	0.11	0.11	0.12	0.11	0.11
Water Level (FT BTOC)	18.03	18.03	18.03	18.03	18.03	18.03	18.03	18.03	18.03

Total Gallons	41	42	45	47	50	52.5	55	57.5	60
Time	1550	1555	1600	1605	1610	1615	1620	1625	1630
Temperature (°C)	12.85	13.12	13.08	12.81	12.91	12.95	12.92	12.97	12.95
Conductivity (µS/cm)	237	237	242	239	239	240	237	242	237
pH	5.79	5.78	5.78	5.76	5.77	5.73	5.79	5.76	5.76
Turbidity (NTU)	>999	>999	172	770	292	170	134	79	54
Dissolved Oxygen (mg/L)	0.33	0.32	0.32	0.31	0.33	0.39	0.33	0.33	0.34
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	18.03	18.03	18.03	18.03	18.03	18.03	18.03	18.03	18.03

WELL DEVELOPMENT LOG

Well No.: MW16-47D

Parameters

Total Gallons	61	62	65	67	70	72	75	77	80
Time	1635	1640	1645	1650	1655	1700	1705	1710	1715
Temperature (°C)	12.95	12.91	13.09	13.07	12.85	12.85	12.86	12.84	12.86
Conductivity (µS/cm)	237	239	240	246	241	242	241	243	241
pH	5.72	5.78	5.76	5.77	5.74	5.81	5.81	5.75	5.81
Turbidity (NTU)	64	165	303	294	287	194	123	106	129
Dissolved Oxygen (mg/L)	0.45	0.37	0.34	0.36	0.39	0.33	0.37	0.39	0.38
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.11
Water Level (FT BTOC)	18.03	18.03	18.03	18.03	18.03	18.03	18.03	18.03	18.03

Total Gallons	84								
Time	1720								
Temperature (°C)	12.86								
Conductivity (µS/cm)	240								
pH	5.80								
Turbidity (NTU)	136								
Dissolved Oxygen (mg/L)	0.44								
Salinity (ppth)	0.11								
Water Level (FT BTOC)	18.03								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (µS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Clark	**Date:** 09/20/02

Well No.: **MW16-48S**

1. Total Riser and Screen Length (ft)	12.5
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	4.59
4. Volume of Water in Well (gal) V = (1-3)*(5)	1.3

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: ~35 gal, 1 drum

Pumped well dry twice, had to pull pump and clean intake twice. Really low flow needed to avoid drying well (moderate recharge). Very silty. At low flow, sediment building up in lines, causing pump flow rate to fluctuate. Water would clear up, and then get very turbid. Stopped pumping at 1127 (pumped dry prior)

WELL DEVELOPMENT LOG

Well No.: MW16-48S

Parameters

Total Gallons	0	~12	~15	17					
Time	0920	1020	1120	1125					
Temperature (°C)	26.07	28.21	26.06	24.51					
Conductivity (mS/cm)	0.294	0.276	0.294	0.293					
pH	6.49	6.24	6.16	6.20					
Turbidity (NTU)	>1,000	>1,000	>1,000	450					
Dissolved Oxygen (mg/L)	1.30	2.18	2.08	2.27					
Salinity (ppth)	0.14	0.13	0.14	0.14					
Water Level (FT BTOC)	4.59	9.11	9.20	10.06					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date**: 09/13/02

Well No.: **MW16-48I**

1. Total Riser and Screen Length (ft)	29.57
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	4.80
4. Volume of Water in Well (gal) V = (1-3)*(5)	4.0

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 200

Well mouth PID = 2.1 ppm

Begin pumping 0850, stopped pumping 1030-1055, waiting for drums.

Began flow cell readings at 1200.

WELL DEVELOPMENT LOG

Well No.: MW16-48I

Parameters

Total Gallons	5	35	65	95	105	135	165	170	175
Time	0855	0925	0955	1025	1058	1125	1155	1200	1205
Temperature (°C)	14.91	14.80	14.74	14.93	15.12	15.22	15.34	14.57	14.62
Conductivity (mS/cm)	0.204	0.207	0.209	0.214	0.213	0.209	0.214	0.210	0.207
pH	7.73	6.87	6.92	6.74	6.58	6.59	6.43	6.39	6.29
Turbidity (NTU)	389	232	157	362	709	1060	>999	>999	775
Dissolved Oxygen (mg/L)	5.27	4.35	5.99	5.01	5.00	4.91	2.38	1.50	0.95
Salinity (ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Water Level (FT BTOC)	9.87	10.67	9.78	9.48	9.49	9.45	7.36	7.39	7.30

Total Gallons	180	185	190	195					
Time	1210	1215	1220	1225					
Temperature (°C)	14.71	14.61	14.64	14.62					
Conductivity (mS/cm)	0.208	0.208	0.207	0.208					
pH	6.31	6.32	6.31	6.32					
Turbidity (NTU)	613	534	751	593					
Dissolved Oxygen (mg/L)	0.83	0.75	0.69	0.63					
Salinity (ppth)	0.10	0.10	0.10	0.10					
Water Level (FT BTOC)	7.28	7.25	7.15	7.12					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date:** 09/13/02

Well No.: **MW16-48D**

1. Total Riser and Screen Length (ft)	45.14
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	4.99
4. Volume of Water in Well (gal) V = (1-3)*(5)	6.4

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 104

Purged for 1 hr 55 minutes – short of drums, but well was clear.

Pump rate 1 gpm from start to 1030, then 0.5 gpm.

WELL DEVELOPMENT LOG

Well No.: MW16-48D

Parameters

Total Gallons	Initial	30	60	90	94	96.5	99	101.5	104
Time	0850	0920	0950	1020	1025	1030	1035	1040	1045
Temperature (°C)	13.89	15.14	16.25	14.80	13.56	13.92	13.95	13.98	13.99
Conductivity (mS/cm)	0.346	0.255	0.247	0.234	0.225	0.224	0.224	0.227	0.225
pH	8.96	8.71	8.64	8.13	6.61	6.26	6.16	6.11	6.03
Turbidity (NTU)	820	>1,100	>1,100	512	70.7	37.3	21.7	18.8	13.9
Dissolved Oxygen (mg/L)	8.19	4.15	4.46	4.04	1.14	1.10	1.14	1.13	1.13
Salinity (ppth)	0.17	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11
Water Level (FT BTOC)	8.72	8.35	8.23	7.48	7.44	6.42	6.38	6.26	6.24

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/B. Haras	**Date:** 8/21/02

Well No.: **MW16-49D**

1. Total Riser and Screen Length (ft)	76.40
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	9.65
4. Volume of Water in Well (gal) V = (1-3)*(5)	10.68

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See green Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 185
Well mouth PID = 110 ppm
Very silty - no accumulation of sediment in flowcell (i.e., very fine-grained sediment, no sand, all silt)
1000: adjusted flow rate to 1 gpm.

WELL DEVELOPMENT LOG

Well No.: **MW16-49D**

Parameters

Total Gallons	0	2.5	5.0	7.5	11.25	15	18.75	22.5	27.5
Time	0850	0855	0900	0905	0910	0915	0920	0925	0930
Temperature (°C)	15.98	16.97	15.72	15.74	15.79	15.54	15.63	15.50	15.43
Conductivity (mS/cm)	0.696	0.591	0.526	0.578	0.658	0.870	1.129	1.307	1.406
pH	10.17	10.55	10.30	9.87	9.51	8.97	8.28	7.71	7.40
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	9.95	6.83	6.13	3.81	2.01	0.97	3.16	0.88	0.50
Salinity (ppth)	0.33	0.29	0.25	0.28	0.34	0.44	0.58	0.66	0.71
Water Level (FT BTOC)	12.02	16.65	17.15	16.95	17.07	16.80	16.75	16.69	16.92

Total Gallons	32.5	37.5	42.5	47.5	52.5	57.5	62.5	67.5	72.5
Time	0935	0940	0945	0950	0955	1000	1005	1010	1015
Temperature (°C)	15.42	15.37	15.36	15.36	15.15	15.40	15.34	15.32	15.33
Conductivity (mS/cm)	1.507	1.656	1.774	1.902	1.943	1.997	2.071	2.106	2.151
pH	7.21	7.04	6.95	6.89	6.87	6.85	6.82	6.81	6.78
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.60	1.12	1.03	0.98	0.86	0.79	0.78	063	0.99
Salinity (ppth)	0.76	0.84	0.91	0.97	1.00	1.03	1.07	1.09	1.11
Water Level (FT BTOC)	16.90	16.90	16.90	16.89	16.95	17.20	17.06	17.15	17.11

Total Gallons	77.5	82.5	87.5	92.5	97.5	100	102.5	105	110
Time	1020	1025	1030	1035	1040	1045	1050	1055	1100
Temperature (°C)	15.37	15.20	15.19	15.32	15.27	15.26	15.21	15.18	15.12
Conductivity (mS/cm)	2.207	2.210	2.260	2.295	2.315	2.337	2.342	2.362	2.377
pH	6.78	6.78	6.76	6.73	6.72	6.72	6.71	6.71	6.70
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.73	0.06	0.59	0.10	0.12	0.01	0.26	0.23	0.44
Salinity (ppth)	1.17	1.14	1.17	1.19	1.20	1.21	1.21	1.19	1.23
Water Level (FT BTOC)	17.01	16.95	16.92	17.02	17.02	17.00	16.85	16.90	16.87

WELL DEVELOPMENT LOG

Well No.: MW16-49D

Parameters

Total Gallons	115	120.5	126	131.5	137	144.5	152	159.5	167
Time	1105	1110	1115	1120	1125	1130	1135	1140	1145
Temperature (°C)	15.32	15.35	15.30	15.77	15.18	15.04	15.11	15.93	15.20
Conductivity (mS/cm)	2.403	2.404	2.414	2.413	2.333	2.447	2.457	2.460	2.511
pH	6.70	6.68	6.68	6.69	6.72	6.69	6.70	6.70	6.68
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	1.24	1.24	1.22	1.24	1.21	1.27	1.28	1.31	1.29
Water Level (FT BTOC)	16.90	17.25	17.12	17.00	18.25	18.60	18.71	18.65	18.67

Total Gallons	172.5								
Time	1150								
Temperature (°C)	15.23								
Conductivity (mS/cm)	2.492								
pH	6.67								
Turbidity (NTU)	>999								
Dissolved Oxygen (mg/L)	0.00								
Salinity (ppth)	1.29								
Water Level (FT BTOC)	18.88								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman/B. Andersen	**Date:** 08/21/02

Well No.: **MW16-50D**

1. Total Riser and Screen Length (ft)	87.50
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.31
4. Volume of Water in Well (gal) V = (1-3)*(5)	12.2

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See yellow Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: ~147
3 drums

WELL DEVELOPMENT LOG

Well No.: MW16-50D

Parameters

Total Gallons	3	6	10	12	15	17	20	22	25
Time	1410	1415	1420	1425	1430	1435	1440	1445	1450
Temperature (°C)	19.27	17.44	15.81	15.56	15.50	15.01	15.80	15.87	16.14
Conductivity (mS/cm)	0.65	18.83	22.77	23.92	21.40	13.27	16.37	16.51	16.39
pH	10.39	9.12	8.70	8.39	8.16	8.91	8.23	7.92	7.82
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	5.13	0.86	0.77	0.56	0.18	0.38	1.25	0.01	1.38
Salinity (ppth)	0.35	12.10	14.14	14.57	10.83	7.73	11.34	11.25	8.89
Water Level (FT BTOC)	11.94	12.61	13.14	14.78	15.28	16.64	17.39	17.49	17.61

Total Gallons	27	30	32	35	37	40	42	45	47
Time	1455	1500	1505	1510	1515	1520	1525	1530	1535
Temperature (°C)	15.61	15.79	15.43	15.43	15.15	15.36	15.30	15.77	15.45
Conductivity (mS/cm)	15.83	17.51	15.20	14.14	13.45	13.27	14.05	16.47	14.82
pH	7.62	7.47	7.47	7.59	7.77	7.68	7.57	7.45	7.46
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.11	0.14	0.22	0.11	0.07	0.05	0.04	0.03	0.07
Salinity (ppth)	8.56	9.19	7.92	8.24	7.83	7.76	8.16	8.87	8.66
Water Level (FT BTOC)	16.47	16.93	16.81	17.21	17.64	17.93	18.28	18.67	18.95

Total Gallons	50	52	55	60	65	70	75	83	90
Time	1540	1545	1550	1555	1600	1605	1610	1615	1620
Temperature (°C)	15.46	15.35	15.87	15.13	15.05	15.03	15.07	14.90	14.94
Conductivity (mS/cm)	16.69	15.60	17.54	16.02	14.05	16.34	17.48	16.91	17.17
pH	7.36	7.38	7.31	7.38	7.44	7.50	7.32	7.33	7.33
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.11	0.02	0.05	0.04	0.06	0.10	0.02	0.09	0.06
Salinity (ppth)	10.12	9.16	10.32	9.30	8.04	9.16	10.33	9.99	10.04
Water Level (FT BTOC)	18.86	18.74	18.60	20.20	22.14	23.18	24.13	25.13	25.16

WELL DEVELOPMENT LOG

Well No.: MW16-50D

Parameters

Total Gallons	95	100	105	110	115	120	128	130	140
Time	1625	1630	1635	1640	1645	1650	1655	1700	1705
Temperature (°C)	15.01	15.05	14.99	15.03	14.84	14.90	14.81	14.75	14.84
Conductivity (mS/cm)	17.48	19.87	20.60	20.27	20.46	20.96	20.16	21.78	22.25
pH	7.30	7.24	7.25	7.18	7.19	7.19	7.19	7.18	7.17
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.00	0.04	0.08	0.05	0.03	0.03	0.07	0.02	0.04
Salinity (ppth)	10.37	11.91	11.96	11.09	12.13	13.13	13.22	13.23	13.41
Water Level (FT BTOC)	25.08	26.67	27.59	28.20	28.33	28.41	28.58	28.63	28.96

Total Gallons	147								
Time	1710								
Temperature (°C)	14.89								
Conductivity (mS/cm)	22.36								
pH	7.17								
Turbidity (NTU)	>999								
Dissolved Oxygen (mg/L)	0.08								
Salinity (ppth)	13.56								
Water Level (FT BTOC)	29.19								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett	**Date:** 09/10/02

Well No.: **MW16-51D**

1. Total Riser and Screen Length (ft)	77.83
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.25
4. Volume of Water in Well (gal) V = (1-3)*(5)	10.3

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 220

1340 - Begin pumping.

Readings collected every 15 minutes during surging, then every 5 minutes when NTU < 100.

WELL DEVELOPMENT LOG

Well No.: MW16-51D

Parameters

Total Gallons	5	75	82.25	89.5	96.75	118.5	140.25	162	181.75
Time	1345	1445	1450	1455	1500	1515	1530	1545	1600
Temperature (°C)	14.87	14.48	14.48	14.47	14.46	14.47	14.51	14.53	14.51
Conductivity (mS/cm)	8.983	9.022	9.124	9.141	8.829	9.136	9.179	9.012	9.169
pH	7.68	6.96	6.96	6.95	6.96	6.95	6.94	6.93	6.93
Turbidity (NTU)	>999	299	314	266	943	786	428	493	160
Dissolved Oxygen (mg/L)	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	5.07	5.09	5.13	5.15	5.01	5.11	5.19	5.08	5.16
Water Level (FT BTOC)	17.12	17.02	17.04	17.10	17.08	16.80	16.75	16.83	16.92

Total Gallons	200	205	210	215	220				
Time	1615	1630	1635	1640	1645				
Temperature (°C)	14.50	14.49	14.50	14.55	14.48				
Conductivity (mS/cm)	9.153	9.136	9.095	9.114	9.094				
pH	6.91	6.91	6.90	6.90	6.91				
Turbidity (NTU)	141	70	52	78	39				
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00				
Salinity (ppth)	5.13	5.11	5.12	5.13	5.10				
Water Level (FT BTOC)	16.90	16.83	16.85	16.87	16.90				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Martin	**Date:** 09/10/02

Well No.: **MW16-51R**

1. Total Riser and Screen Length (ft)	107
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	12.00
4. Volume of Water in Well (gal) V = (1-3)*(5)	61.8

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 73

Completed pumping when pump failed due to pinch in tubing.

Missing well cap.

After 30 gal, pump rate slowed to 0.25 gpm at same Hz setting (see other notes on pumping rate)

*** = 0.75 gpm at 173 Hz**

**** = 0.5 gpm**

***** = 0.25 gpm**

WELL DEVELOPMENT LOG

Well No.: MW16-51R

Parameters

Total Gallons	Initial	10	15	20	25	30	32.5	35.0	38.75*
Time	1340	1350	1355	1400	1405	1410	1415	1420	1425
Temperature (°C)	14.95	14.67	14.86	15.13	15.11	15.49	15.70	15.87	15.04
Conductivity (mS/cm)	10.97	11.57	11.68	10.62	7.74	6.95	5.65	4.41	3.56
pH	7.20	8.26	8.47	8.50	9.40	9.63	10.05	10.29	10.27
Turbidity (NTU)	32	140	400	110	65	90	50	37	37
Dissolved Oxygen (mg/L)	3.53	1.33	1.28	0.89	0.38	0.15	0.12	0.10	0.08
Salinity (ppth)	6.23	6.64	6.70	5.93	4.29	3.82	3.03	2.37	1.89
Water Level (FT BTOC)	23.45	25.35	28.30	31.25	33.57	35.50	36.64	37.55	41.00

Total Gallons	42.5	46.25	50	53.75	56.25**	58.75	60.25	61.5***	61.75
Time	1430	1435	1440	1445	1450	1455	1500	1505	1510
Temperature (°C)	15.14	15.25	15.14	15.31	15.41	15.58	15.76	15.84	16.01
Conductivity (mS/cm)	4.38	5.25	6.33	4.38	4.55	5.04	4.55	4.74	5.25
pH	10.05	9.91	9.80	10.05	9.99	9.84	9.88	9.81	9.70
Turbidity (NTU)	35	36	33	40	40	45	45	45	45
Dissolved Oxygen (mg/L)	0.03	0.03	0.02	0.03	0.01	0.01	0.03	0.02	0.02
Salinity (ppth)	2.36	2.86	3.47	2.35	2.43	2.73	2.44	2.60	2.85
Water Level (FT BTOC)	46.18	49.35	55.39	59.73	61.48	65.50	67.95	70.20	71.84

Total Gallons	63.0	64.25	65.50	66.75	68.00	69.25	70.50	71.75	73.00
Time	1515	1520	1525	1530	1535	1540	1545	1550	1555
Temperature (°C)	16.21	16.45	16.20	16.03	16.22	16.33	16.59	16.70	17.04
Conductivity (mS/cm)	6.03	6.51	7.64	8.68	10.25	10.90	12.06	12.61	
pH	9.53	9.43	9.28	9.14	8.95	8.87	8.74	8.69	
Turbidity (NTU)	45	42.1	40.4	35.3	31.7	29.6	23.8	22.2	25.2
Dissolved Oxygen (mg/L)	0.02	0.01	0.01	0.00	0.00	0.01	0.00	0.00	
Salinity (ppth)	3.30	3.58	4.26	4.92	5.80	6.23	6.95	7.27	
Water Level (FT BTOC)	73.57	73.93	76.32	78.5	81.25	82.39	84.00	85.15	

Dry – pump shut off

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/16/02

Well No.: **MW16-55R2**

1. Total Riser and Screen Length (ft)	158
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	89.7
4. Volume of Water in Well (gal) V = (1-3)*(5)	44.4

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 115
Start time: 0915, Stop time: 1400
PID – background 0.0 ppm; headspace 0.0 ppm

WELL DEVELOPMENT LOG

Well No.: MW16-55R2

Parameters

Total Gallons	94	95.5	97	98.5	100	101.5	103	104.5	106
Time	1250	1255	1300	1305	1310	1315	1320	1325	1330
Temperature (°C)	14.29	14.03	13.94	14.19	14.67	14.67	14.80	14.76	14.84
Conductivity (mS/cm)	1.933	2.001	1.976	1.368	0.947	0.979	1.003	1.033	0.903
pH	11.63	12.04	12.06	11.88	11.70	11.72	11.76	11.74	11.70
Turbidity (NTU)	37	24.3	47.1	44.3	32.4	27.8	24.2	24.4	28.4
Dissolved Oxygen (mg/L)	-0.11	-0.08	-0.07	-0.04	-0.03	-0.04	-0.03	-0.04	-0.04
Salinity (ppth)	0.99	1.03	1.01	0.67	0.47	0.49	0.51	0.49	0.46
Water Level (FT BTOC)	90.5	91.0	91.5	91.5	91.6	91.62	91.61	91.62	91.62

Total Gallons	107.5	109	110.5	113	115				
Time	1335	1340	1345	1350	1355				
Temperature (°C)	14.82	14.93	15.19	14.80	14.88				
Conductivity (mS/cm)	0.864	0.742	0.620	0.611	0.608				
pH	11.67	11.59	11.49	11.48	11.48				
Turbidity (NTU)	30.7	31.7	25.4	27.6	29.4				
Dissolved Oxygen (mg/L)	-0.04	-0.03	-0.01	-0.03	-0.03				
Salinity (ppth)	0.42	0.36	0.30	0.30	0.30				
Water Level (FT BTOC)	91.62	91.62	89.26	90.62	89.98				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: L. Sparkman	**Date:** 08/21/02

Well No.: **MW16-52D**

1. Total Riser and Screen Length (ft)	71.60
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	10.65
4. Volume of Water in Well (gal) V = (1-3)*(5)	9.7

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See yellow Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: ~140

3 drums

*** = had to slow down flow - no more drums at site. Only have 3 for this well**

**** = not sure why DO dropped**

WELL DEVELOPMENT LOG

Well No.: MW16-52D

Parameters

Total Gallons	10	20	30	33	36	40	43	46	50
Time	0920	0925	0930	0935	0940	0945	0950	0955	1000
Temperature (°C)	15.24	15.13	15.32	15.71	15.25	15.49	15.99	15.30	15.26
Conductivity (mS/cm)	9.51	8.26	8.50	9.04	9.20	9.28	9.18	9.41	9.25
pH	7.06	7.02	6.83	6.77	6.68	6.66	6.72	6.65	6.64
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	1.70	1.21	2.15	0.75	1.84	1.97	1.67	2.23	2.22
Salinity (ppth)	4.91	4.76	5.03	5.04	5.21	5.21	5.17	5.27	5.20
Water Level (FT BTOC)	10.93	10.59	10.98	10.95	10.94	10.92	10.91	10.91	10.90

Total Gallons	52	55	60*	63	66	70	73	76	80
Time	1005	1010	1015	1020	1025	1030	1035	1040	1045
Temperature (°C)	15.85	15.91	15.97	15.96	16.03	15.99	16.17	16.09	16.12
Conductivity (mS/cm)	9.21	9.26	9.23	8.99	9.06	8.75	8.79	8.73	8.97
pH	6.66	6.63	6.65	6.66	6.63	6.64	6.66	6.63	6.63
Turbidity (NTU)	245	217	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	2.60	2.61	2.61	2.57	2.69	2.70	2.80	2.81	2.85
Salinity (ppth)	5.16	5.20	5.07	5.10	5.09	4.92	5.06	4.97	5.12
Water Level (FT BTOC)	10.91	10.90	10.90	10.86	10.85	10.85	10.85	10.85	10.84

Total Gallons	83	86	90	93	96	100	103	106	110
Time	1050	1055	1100	1105	1110	1115	1120	1125	1130
Temperature (°C)	16.13	16.00	16.12	16.00	16.16	15.95	16.04	16.15	15.96
Conductivity (mS/cm)	8.83	9.02	9.06	9.07	9.03	9.02	8.89	8.83	9.15
pH	6.63	6.63	6.63	6.62	6.62	6.61	6.61	6.62	6.61
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	2.86	2.91	2.91	2.88	2.95	2.98	3.00	2.96	2.99
Salinity (ppth)	4.93	5.05	5.08	5.09	5.06	5.08	5.12	4.95	5.15
Water Level (FT BTOC)	10.84	10.84	10.84	10.84	10.84	10.84	10.84	10.84	10.84

WELL DEVELOPMENT LOG

Well No.: MW16-52D

Parameters

Total Gallons	112	115	117	120	123	126	130	133	136
Time	1135	1140	1145	1150	1155	1200	1205	1210	1215
Temperature (°C)	15.91	16.08	16.03	16.13	16.06	16.01	16.06	16.08	16.10
Conductivity (mS/cm)	8.91	8.99	9.01	9.04	8.95	8.98	8.92	9.04	9.05
pH	6.61	6.62	6.61	6.61	6.62	6.61	6.62	6.61	6.62
Turbidity (NTU)	>999	>999	762	845	453	629	484	472	644
Dissolved Oxygen (mg/L)	0.03**	0.08	0.05	0.00	0.03	0.08	0.08	0.10	0.06
Salinity (ppth)	5.06	5.05	5.06	5.14	4.97	5.11	4.99	5.10	5.08
Water Level (FT BTOC)	10.84	10.84	10.84	10.84	10.84	10.84	10.84	10.84	10.84

Total Gallons	140								
Time	1220								
Temperature (°C)	16.10								
Conductivity (mS/cm)	9.02								
pH	6.62								
Turbidity (NTU)	501								
Dissolved Oxygen (mg/L)	0.02								
Salinity (ppth)	5.05								
Water Level (FT BTOC)	10.84								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: B. Andersen	**Date:** 08/21/02

Well No.: **MW16-52R**

1. Total Riser and Screen Length (ft)	120
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	9.79
4. Volume of Water in Well (gal) V = (1-3)*(5)	17.6

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See red Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: ~100
*** = Before surge**

WELL DEVELOPMENT LOG

Well No.: MW16-52R

Parameters

Total Gallons	0	5	10	13	16	18	20	23	26
Time	0910	0915	0920	0925	0930	0935	0940	0945	0950
Temperature (°C)	14.62	14.90	15.09	15.03	15.24	15.41	16.60	16.02	16.14
Conductivity (mS/cm)	26.92	26.88	9.72	7.51	7.68	9.376	15.82	16.03	16.14
pH	5.99	5.93	6.40	6.53	6.70	6.75	6.43	6.31	6.26
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	1.63	0.92	0.40	0.08	0.11	0.09	0.72	0.12	0.08
Salinity (ppth)	16.08	15.12	5.08	4.08	4.23	5.33	10.34	10.28	10.35
Water Level (FT BTOC)	16.92	18.25	27.30	29.78	33.76	39.58	41.25	43.00	44.45

Total Gallons	28	30	32	34	36	39	42	45	47
Time	0955	1000	1005	1010	1015	1020	1025	1030	1035
Temperature (°C)	16.42	16.39	16.57	16.66	16.90	17.05	16.68	16.36	16.43
Conductivity (mS/cm)	19.27	16.99	17.84	24.85	27.13	28.63	24.02	23.02	23.53
pH	6.25	6.25	6.25	6.03	5.99	5.93	6.03	6.05	6.04
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000
Dissolved Oxygen (mg/L)	0.87	0.09	0.09	0.08	0.08	0.08	0.08	0.04	0.03
Salinity (ppth)	11.66	10.71	10.96	15.22	16.02	17.79	14.62	13.98	14.32
Water Level (FT BTOC)	45.98	46.59	46.88	47.51	47.63	48.19	49.01	50.25	50.81

Total Gallons	50	52	55	57	60	62	65	70	72
Time	1040	1045	1050	1055	1100	1105	1110	1115	1120
Temperature (°C)	15.85	15.74	15.92	16.02	16.31	16.32	16.35	16.34	16.41
Conductivity (mS/cm)	24.31	18.94	15.60	16.03	24.32	24.26	23.29	23.06	25.19
pH	6.05	6.23	6.20	6.12	6.06	6.05	6.06	6.14	6.10
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	323 *
Dissolved Oxygen (mg/L)	0.61	0.16	0.10	0.07	0.07	0.05	0.05	0.04	0.34
Salinity (ppth)	14.81	11.31	10.88	13.48	14.86	14.84	14.26	14.25	14.55
Water Level (FT BTOC)	52.70	56.35	58.35	60.70	61.05	62.60	63.86	64.01	64.72

WELL DEVELOPMENT LOG

Well No.: MW16-52R

Parameters

Total Gallons	75	77	80	82	85	89	91	94	98
Time	1125	1130	1135	1140	1145	1150	1155	1200	1205
Temperature (°C)	16.59	16.62	16.50	16.72	16.72	16.64	16.69	16.65	16.68
Conductivity (mS/cm)	28.35	28.78	28.64	30.67	30.14	28.64	30.89	32.25	31.59
pH	5.92	5.90	5.91	5.89	5.87	5.92	5.85	5.84	5.84
Turbidity (NTU)	157*	393*	168*	359*	212*	783*	222*	504*	129*
Dissolved Oxygen (mg/L)	0.15	0.10	0.08	0.31	0.13	0.09	0.09	0.06	0.06
Salinity (ppth)	17.52	17.82	17.72	19.13	18.74	17.79	19.26	20.19	19.72
Water Level (FT BTOC)	55.34	65.61	65.95	66.16	66.32	66.48	66.59	66.60	--

Total Gallons	100								
Time	1210								
Temperature (°C)	16.67								
Conductivity (mS/cm)	31.81								
pH	5.84								
Turbidity (NTU)	113								
Dissolved Oxygen (mg/L)	0.05								
Salinity (ppth)	19.88								
Water Level (FT BTOC)	--								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/B. Haras	**Date:** 08/22/02

Well No.: **MW16-53S**

1. Total Riser and Screen Length (ft)	15.50
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	11.66
4. Volume of Water in Well (gal) V = (1-3)*(5)	0.6

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See green Calibration Log for instrument calibration information	

NOTES:

Estimated water lost during well installation: 0

Total gallons purged from well during development: 20

0.0 ppm = well mouth PID

Stickup 2 ft 4 in.

*** = Well dry - stopped pumping to allow recharge**

WELL DEVELOPMENT LOG

Well No.: MW16-53S

Parameters

Total Gallons	0	2.5	5	5*	5.5*	7*	10*	12*	15*
Time	1345	1350	1355	1400	1405	1410	1420	1532	1541
Temperature (°C)	17.81	16.59	16.08	16.13	15.58	15.55	15.88	--	--
Conductivity (mS/cm)	0.209	0.212	0.236	0.220	0.216	0.224	0.220	--	--
pH	6.60	6.22	6.16	6.23	6.25	6.27	6.29	--	--
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	950	750
Dissolved Oxygen (mg/L)	1.12	1.29	0.86	3.87	2.36	2.60	2.73	--	--
Salinity (ppth)	0.10	0.11	0.11	0.10	0.10	0.11	0.11	--	--
Water Level (FT BTOC)	12.26	13.43	13.95	13.50	13.30	13.45	13.55	--	--

Total Gallons	20*								
Time	1550								
Temperature (°C)	--								
Conductivity (mS/cm)	--								
pH	--								
Turbidity (NTU)	75								
Dissolved Oxygen (mg/L)	--								
Salinity (ppth)	--								
Water Level (FT BTOC)	--								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/B. Haras	**Date**: 08/23/02

Well No.: **MW16-54D**

1. Total Riser and Screen Length (ft)	70.61
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	13.45
4. Volume of Water in Well (gal) V = (1-3)*(5)	9.1

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA
See Blue Calibration Log for instrument calibration information	

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 117

WELL DEVELOPMENT LOG

Well No.: MW16-54D

Parameters

Total Gallons	0	2.5	5	8.75	12.5	16.25	20	23.75	27.5
Time	0750	0755	0800	0805	0810	0815	0820	0825	0830
Temperature (°C)	15.77	15.64	15.70	15.68	15.65	15.61	15.57	15.62	15.57
Conductivity (mS/cm)	0.904	0.729	0.427	0.264	0.249	0.237	0.214	0.215	0.199
pH	8.70	7.88	7.39	7.05	6.98	6.93	6.91	6.87	6.84
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	3.00	0.20	0.16	0.14	0.09	0.07	0.00	0.00	-0.02
Salinity (ppth)	0.46	0.30	0.20	0.12	0.12	0.11	0.10	0.10	0.09
Water Level (FT BTOC)	15.41	16.42	16.64	16.45	16.43	16.45	16.35	16.33	16.25

Total Gallons	31.25	35	38.75	42.5	46.25	50	52.5	55	57.5
Time	0835	0840	0845	0850	0855	0900	0905	0910	0915
Temperature (°C)	15.62	15.65	15.65	15.62	15.59	15.58	15.71	15.71	15.59
Conductivity (mS/cm)	0.192	0.192	0.179	0.187	0.183	0.182	0.183	0.168	0.168
pH	6.82	6.82	6.81	6.80	6.80	6.77	6.77	6.77	6.76
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	-0.02	-0.04	-0.05	-0.06	-0.07	-0.06	-0.06	-0.05	-0.05
Salinity (ppth)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08
Water Level (FT BTOC)	16.23	16.21	16.11	16.15	16.10	16.13	16.11	16.09	16.30

Total Gallons	60	62.5	65	67.5	71	73.5	76	78.5	81
Time	0920	0925	0930	0935	0940	0945	0950	0955	1000
Temperature (°C)	15.59	15.55	15.72	15.70	15.59	15.76	15.71	15.93	15.69
Conductivity (mS/cm)	0.200	0.198	0.180	0.169	0.175	0.154	0.154	0.150	0.161
pH	6.77	6.77	6.76	6.75	6.75	6.74	6.74	6.72	6.74
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	0.00	-0.06	-0.07	-0.07	-0.07	-0.09	-0.06	-0.09	-0.05
Salinity (ppth)	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.08
Water Level (FT BTOC)	16.40	16.45	16.50	16.49	16.35	16.13	16.10	16.08	16.27

WELL DEVELOPMENT LOG

Well No.: MW16-54D

Parameters

Total Gallons	83.5	86	89.75	93.5	98.5	103.5	106.5	109.5	112.5
Time	1005	1010	1015	1020	1025	1030	1035	1040	1045
Temperature (°C)	15.54	15.58	15.57	15.53	15.56	15.63	15.56	15.55	15.52
Conductivity (mS/cm)	0.182	0.190	0.179	0.171	0.164	0.157	0.160	0.166	0.166
pH	6.75	6.75	6.74	6.72	6.71	6.71	6.72	6.72	6.72
Turbidity (NTU)	>999	>999	>999	>999	>999	>999	>999	>999	>999
Dissolved Oxygen (mg/L)	-0.10	-0.07	-0.06	-0.07	-0.05	-0.07	-0.07	-0.04	-0.08
Salinity (ppth)	0.09	0.09	0.08	0.08	0.08	0.07	0.08	0.08	0.08
Water Level (FT BTOC)	16.55	16.60	16.58	16.50	16.50	16.52	16.61	16.69	16.67

Total Gallons	117.5								
Time	1050								
Temperature (°C)	15.54								
Conductivity (mS/cm)	0.165								
pH	6.71								
Turbidity (NTU)	>999								
Dissolved Oxygen (mg/L)	-0.08								
Salinity (ppth)	0.08								
Water Level (FT BTOC)	16.71								

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/04/02

Well No.: **MW16-55D**

1. Total Riser and Screen Length (ft)	105
2. Screen Internal Diameter (in.)	2
3. Water Level Below Measuring Point (ft)	29.04
4. Volume of Water in Well (gal) V = (1-3)*(5)	12.2

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:

Estimated water lost during well installation:

Total gallons purged from well during development: 90

PID – background 0.0 ppm, headspace 0.0 ppm

Start time: 0920 (purging/surging)

Stopped at 1305 70 gallons

Started parameter readings

WELL DEVELOPMENT LOG

Well No.: MW16-55D

Parameters

Total Gallons	70	72	75	77	80	82	85	87	90
Time	1305	1310	1315	1320	1325	1330	1335	1340	1345
Temperature (°C)	14.27	14.28	14.72	14.49	14.46	14.43	14.41	14.39	14.38
Conductivity (mS/cm)	0.241	0.233	0.224	0.221	0.224	0.224	0.220	0.212	0.210
pH	7.52	7.91	8.03	8.07	8.08	8.10	8.11	8.11	8.11
Turbidity (NTU)	477	490	364	178	73.9	67.2	89.4	92.8	115
Dissolved Oxygen (mg/L)	0.36	0.11	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Salinity (ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10
Water Level (FT BTOC)	45.28	45.73	45.77	46.26	47.46	47.30	47.30	47.32	47.34

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: J. Parrett/S. Sheer	**Date:** 10/04/02

Well No.: **MW16-55R**

1. Total Riser and Screen Length (ft)	133
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	28.99
4. Volume of Water in Well (gal) V = (1-3)*(5)	67.6

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation:
Total gallons purged from well during development: 66
Begin pumping 0910/stopped 1345
Surge continually 30s; when clears, surge again...repeat until surge is no longer productive
Move pump up 1 ft (repeat for 25 ft of rock)
Pump keeps slowing down and is running hot.
*** = turn pump up**
**** = turn pump off**

WELL DEVELOPMENT LOG

Well No.: MW16-55R

Parameters

Total Gallons	40*	42	44	46	48**	50	52	54*	56
Time	1240	1245	1250	1255	1300	1305	1310	1315	1320
Temperature (°C)	14.20	14.65	14.91	15.12	15.29	15.44	15.07	15.13	15.34
Conductivity (mS/cm)	0.294	0.306	0.356	0.418	0.437	0.444	0.553	0.632	0.626
pH	11.11	11.36	11.73	12.00	12.11	12.09	12.37	12.55	12.54
Turbidity (NTU)	202	190	207	197	171	171	123	109	105
Dissolved Oxygen (mg/L)	1.27	0.48	0.33	0.13	0.17	1.46	0.20	0.13	0.11
Salinity (ppth)	0.14	0.15	0.17	0.20	0.21	0.22	0.27	0.32	0.31
Water Level (FT BTOC)	74.91	76.96	78.54	79.88	80.98	82.31	84.27	86.39	87.60

Total Gallons	58*	60	62	64					
Time	1325	1330	1335	1340					
Temperature (°C)	15.83	16.15	15.24	15.48					
Conductivity (mS/cm)	0.545	0.446	0.548	0.630					
pH	12.44	12.25	12.37	12.52					
Turbidity (NTU)	81	80	78	82					
Dissolved Oxygen (mg/L)	0.06	0.10	0.09	0.06					
Salinity (ppth)	0.27	0.21	0.27	0.30					
Water Level (FT BTOC)	88.21	90.03	92.70	95.88					

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

WELL DEVELOPMENT LOG

Client: EFANE	
Project Title: NCBC Davisville, IR Program Site 16, Phase II Remedial Investigation	
Project No.: 29600.97.3202	
Staff: S. Sheer	**Date:** 10/16/02

Well No.: **MW16-55R2**

1. Total Riser and Screen Length (ft)	158
2. Screen Internal Diameter (in.)	4
3. Water Level Below Measuring Point (ft)	89.7
4. Volume of Water in Well (gal) V = (1-3)*(5)	44.4

Screen ID	5. Volume/Ft (gal/ft)
1 in.	0.04
2 in.	0.16
4 in.	0.65
6 in.	1.47
8 in.	2.61

Equipment Decontamination Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

Equipment Used (serial number)	Decon Method
Water Level Indicator	Alconox, isopropyl, DI
YSI 6-Series Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
Grundfos Pump	Alconox, isopropyl, DI
Lamotte Turbidimeter	NA

NOTES:
Estimated water lost during well installation: 0
Total gallons purged from well during development: 115
Start time: 0915, Stop time: 1400
PID – background 0.0 ppm; headspace 0.0 ppm

WELL DEVELOPMENT LOG

Well No.: MW16-55R2

Parameters

Total Gallons	94	95.5	97	98.5	100	101.5	103	104.5	106
Time	1250	1255	1300	1305	1310	1315	1320	1325	1330
Temperature (°C)	14.29	14.03	13.94	14.19	14.67	14.67	14.80	14.76	14.84
Conductivity (mS/cm)	1.933	2.001	1.976	1.368	0.947	0.979	1.003	1.033	0.903
pH	11.63	12.04	12.06	11.88	11.70	11.72	11.76	11.74	11.70
Turbidity (NTU)	37	24.3	47.1	44.3	32.4	27.8	24.2	24.4	28.4
Dissolved Oxygen (mg/L)	-0.11	-0.08	-0.07	-0.04	-0.03	-0.04	-0.03	-0.04	-0.04
Salinity (ppth)	0.99	1.03	1.01	0.67	0.47	0.49	0.51	0.49	0.46
Water Level (FT BTOC)	90.5	91.0	91.5	91.5	91.6	91.62	91.61	91.62	91.62

Total Gallons	107.5	109	110.5	113	115				
Time	1335	1340	1345	1350	1355				
Temperature (°C)	14.82	14.93	15.19	14.80	14.88				
Conductivity (mS/cm)	0.864	0.742	0.620	0.611	0.608				
pH	11.67	11.59	11.49	11.48	11.48				
Turbidity (NTU)	30.7	31.7	25.4	27.6	29.4				
Dissolved Oxygen (mg/L)	-0.04	-0.03	-0.01	-0.03	-0.03				
Salinity (ppth)	0.42	0.36	0.30	0.30	0.30				
Water Level (FT BTOC)	91.62	91.62	89.26	90.62	89.98				

Total Gallons									
Time									
Temperature (°C)									
Conductivity (mS/cm)									
pH									
Turbidity (NTU)									
Dissolved Oxygen (mg/L)									
Salinity (ppth)									
Water Level (FT BTOC)									

Appendix F

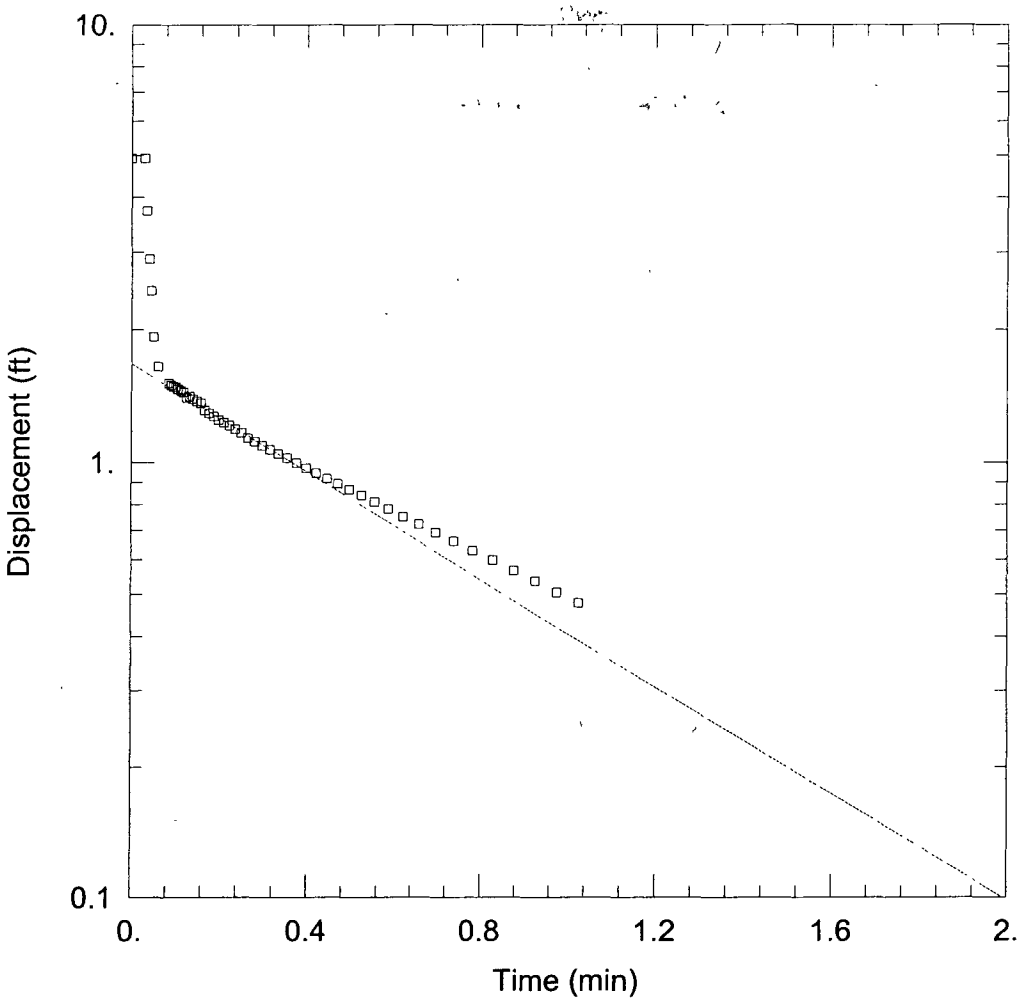
Phase I and II
Slug Test Data and Analysis

Appendix F.1

Phase I
Slug Test Data and Analysis

SUMMARY OF COLLECTION OF SLUG TEST DATA
PHASE I RI, SITE 16, NCBC DAVISVILLE

Well Number	Date	Start Time	Finish Time	Notes
MW16-01D	7/19/00	0845	1000	
MW16-01S	2/14/01			Not enough water to run test.
MW16-02D	7/19/00	1010	1100	
MW16-02S	2/20/01	1430	1435	Not enough water to run test.
MW16-03D	2/13/01	1510	1515	
MW16-03S	2/13/01	1520	1530	
MW16-04D	2/15/01	1410	1424	
MW16-04S	2/15/01	1428	1444	
MW16-05D	2/16/01	1240	1304	
MW16-05S	2/16/01	1305	1312	
MW16-06D	2/20/01	1330	1338	
MW16-06S	2/20/01	1349	1400	Not enough water to run test.
MW16-07D	2/20/01	1144	1207	
MW16-07S	2/20/01	1209	1216	Not enough water to run test.
MW16-08D	2/16/01	1146	1155	
MW16-09D	2/16/01	1055	1124	
MW16-10D	2/16/01	1035	1045	
MW16-11D	2/15/01	1255	1306	
MW16-12D	2/15/01	1230	1247	
MW16-13D	2/15/01	1350	1359	
MW16-14D	2/15/01	1130	1140	
MW16-15D	2/15/01	0820	0838	
MW16-16D	2/14/01	0900	0933	
MW16-17D	2/14/01	1220	1247	
MW16-18D	2/14/01	1255	1314	
MW16-19D	2/14/01	1045	1116	
MW16-20D	2/13/01	1540	1615	
MW16-21D	2/13/01	1345	1400	
MW16-22D	2/13/01	1028	1115	
MW16-23D	2/13/01	1130	1210	
MW16-24D	2/13/01	1415	1445	
MW16-25D	2/14/01	0938	1005	
MW16-26D	2/20/01	1439	1500	
MW16-27D	2/15/01	1514	1520	
MW16-28D	2/20/01	1108	1120	
MW16-29D	2/13/01	1630	1640	



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\01D_Rise.aqt
Date: 05/20/03 Time: 14:59:44

PROJECT INFORMATION

Test Well: 01D_Rise

AQUIFER DATA

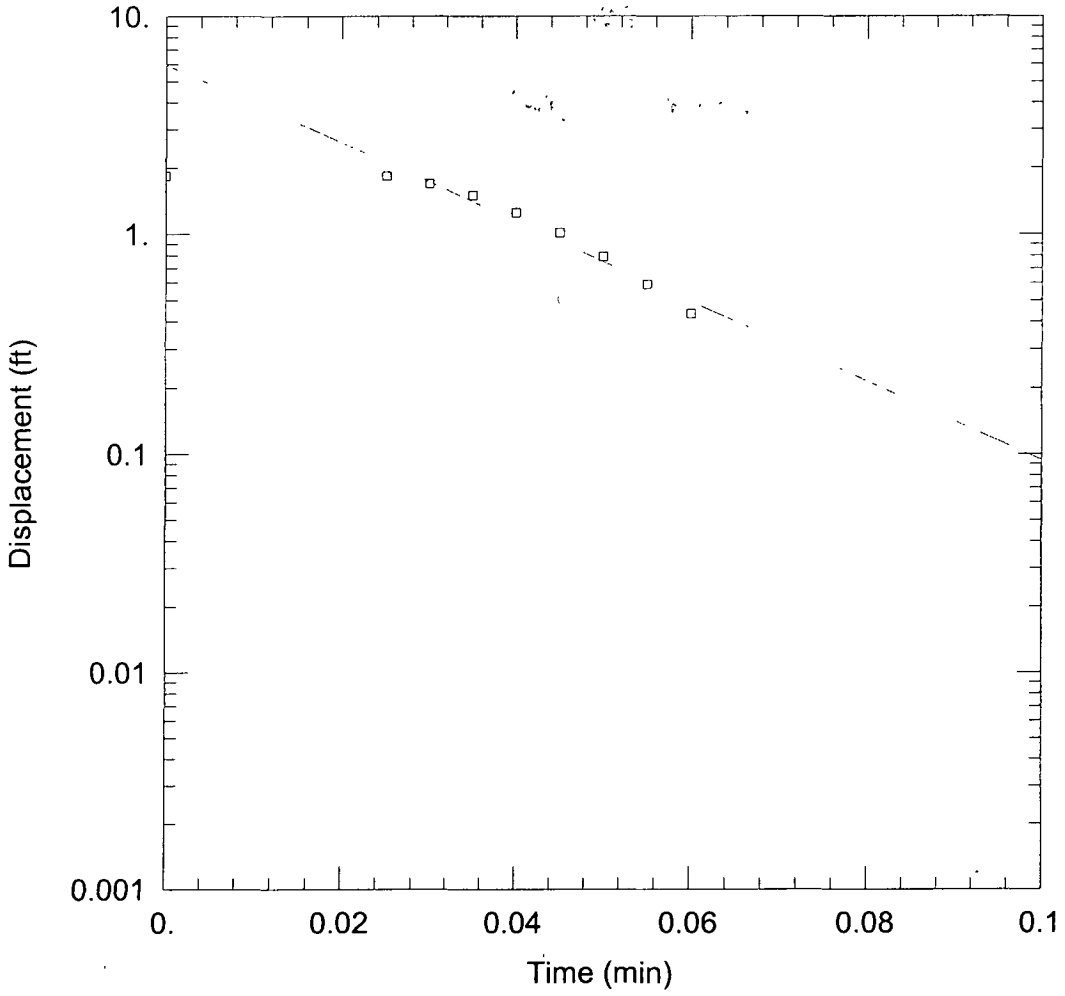
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (01D_Rise)

Initial Displacement: 4.927 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.593 ft/day
y0 = 1.672 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\02D_Rise.aqt
Date: 05/21/03 Time: 07:57:28

PROJECT INFORMATION

Test Well: 02D_Rise

AQUIFER DATA

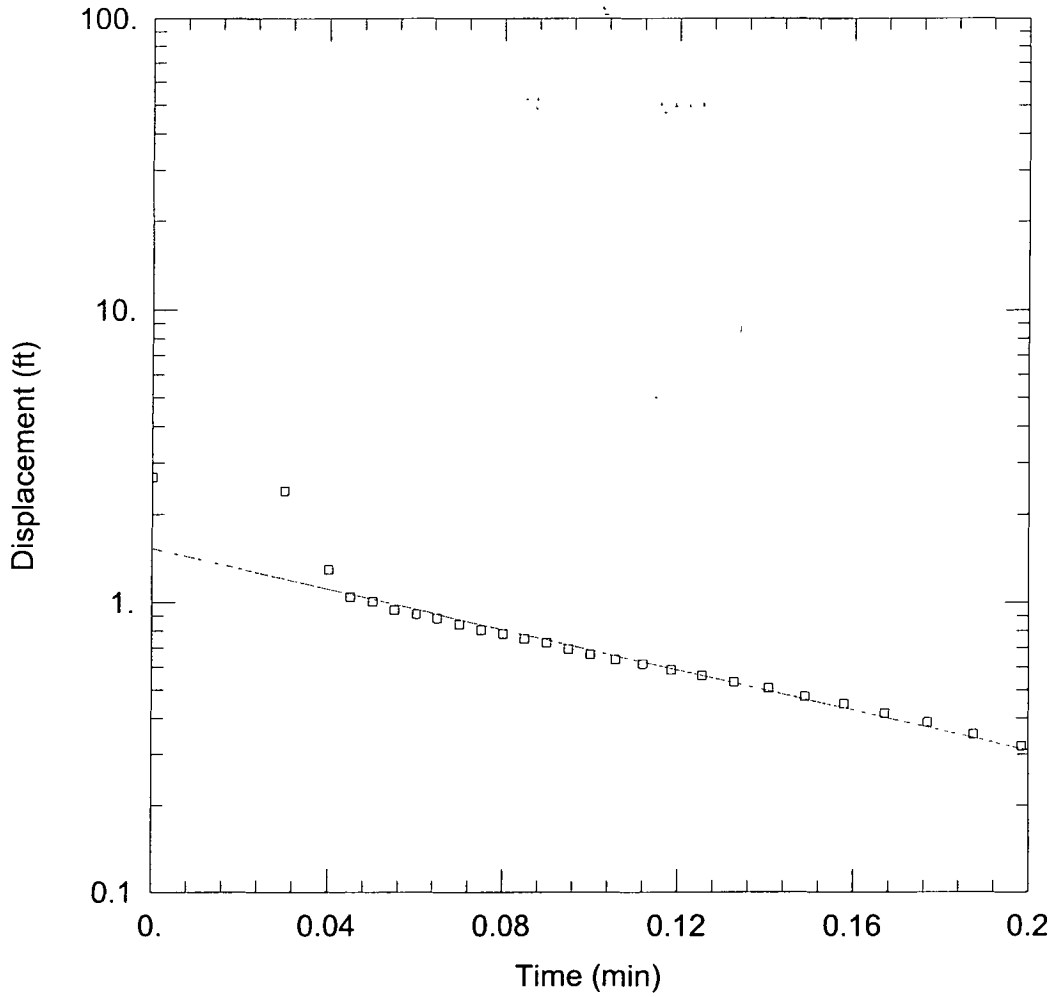
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (02D_Rise)

Initial Displacement: 1.83 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 76.1 ft/day
y0 = 5.96 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\03S_Rise.aqt
Date: 05/21/03 Time: 07:58:07

PROJECT INFORMATION

Test Well: 03S_Rise

AQUIFER DATA

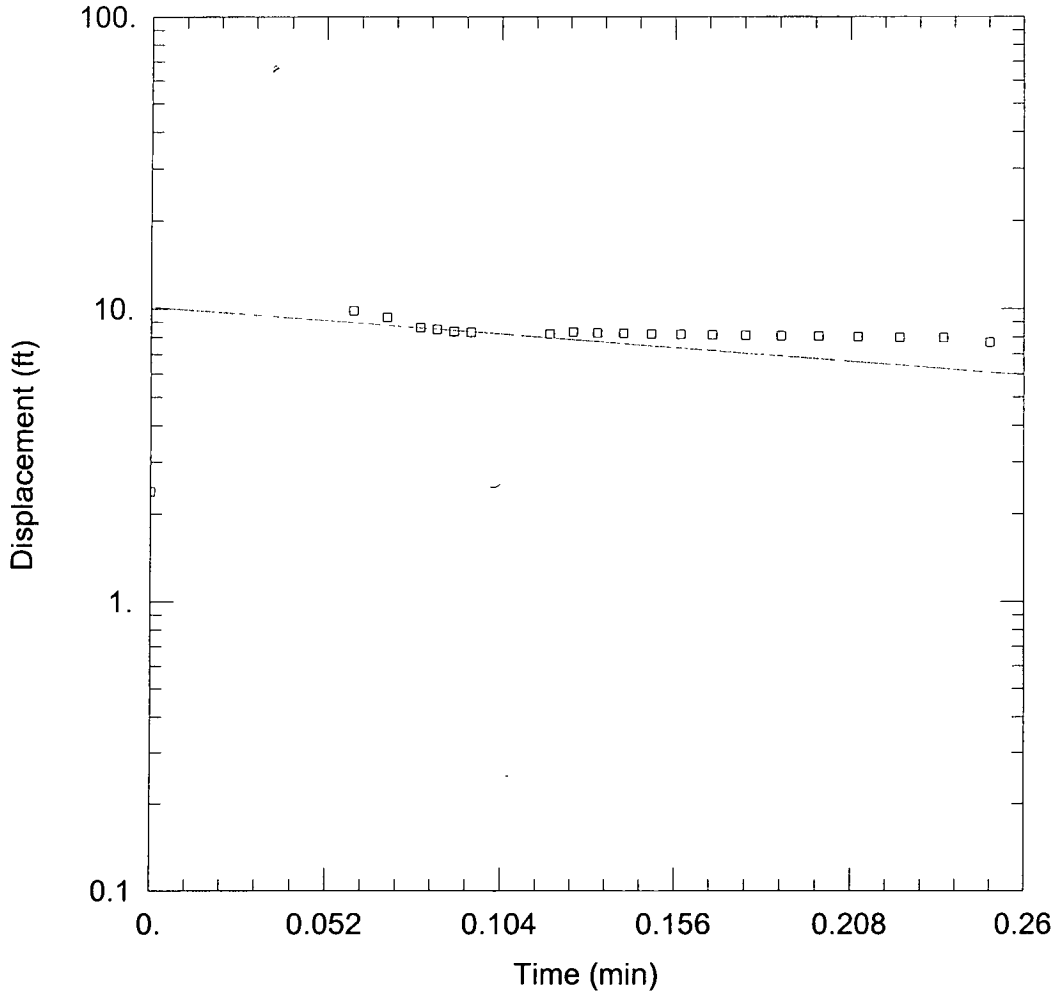
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (03S_Rise)

Initial Displacement: 2.68 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 14.61 ft/day y0 = 1.527 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\03S_Fall.aqt
Date: 05/21/03 Time: 07:57:55

PROJECT INFORMATION

Test Well: 03S_Fall

AQUIFER DATA

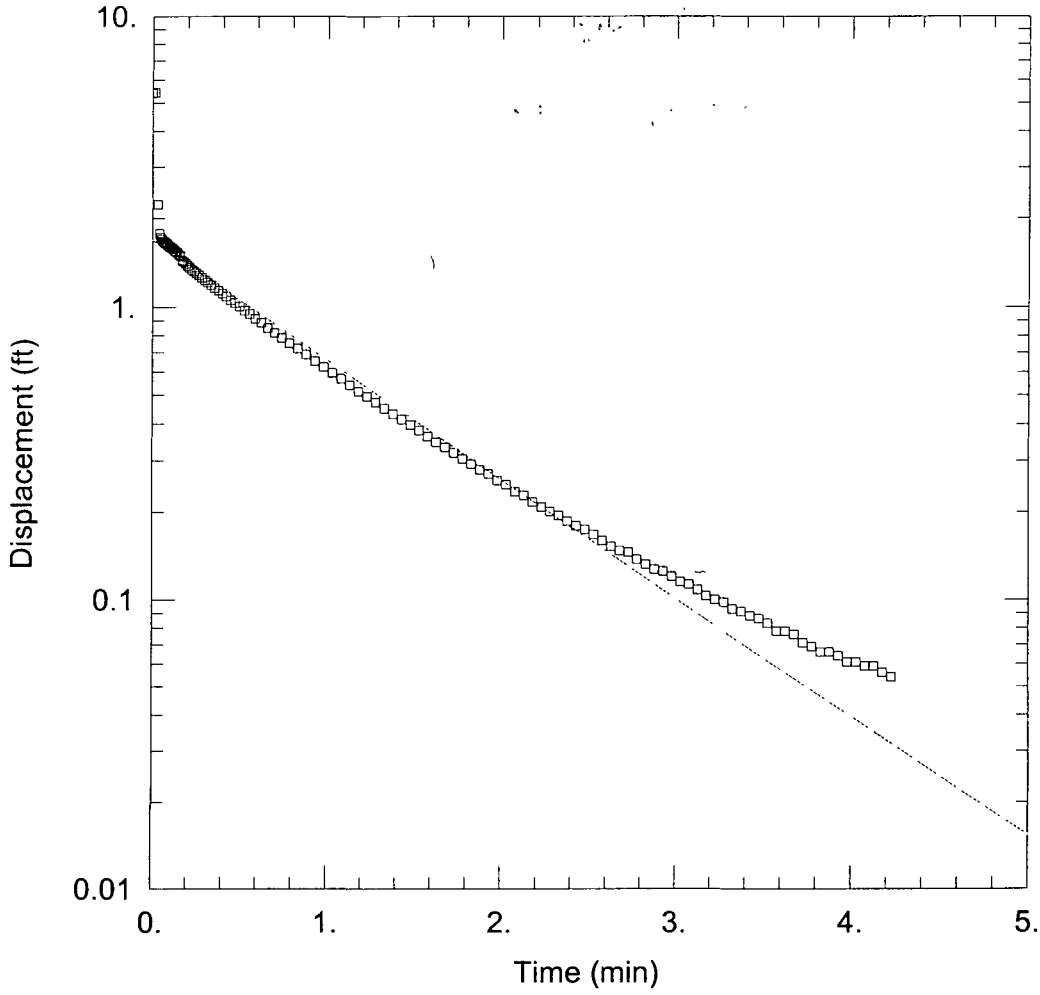
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (03S_Fall)

Initial Displacement: 2.38 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.746 ft/day
y0 = 10.13 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\03D_Rise.aqt
Date: 05/21/03 Time: 07:57:41

PROJECT INFORMATION

Test Well: 03D_Rise

AQUIFER DATA

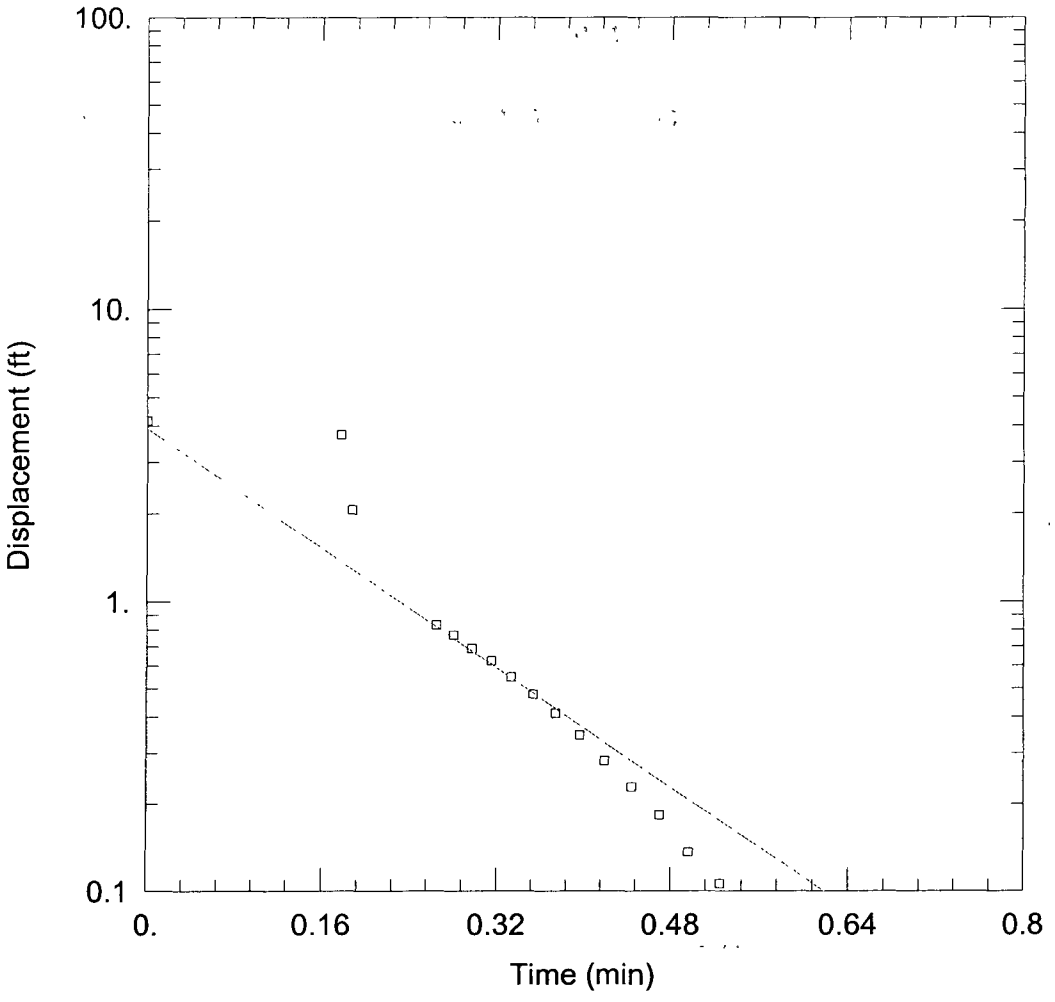
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (03D_Rise)

Initial Displacement: 5.4 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.72 ft/day
y0 = 1.684 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\04S_Rise.aqt
Date: 05/21/03 Time: 07:59:12

PROJECT INFORMATION

Test Well: 04S_Rise

AQUIFER DATA

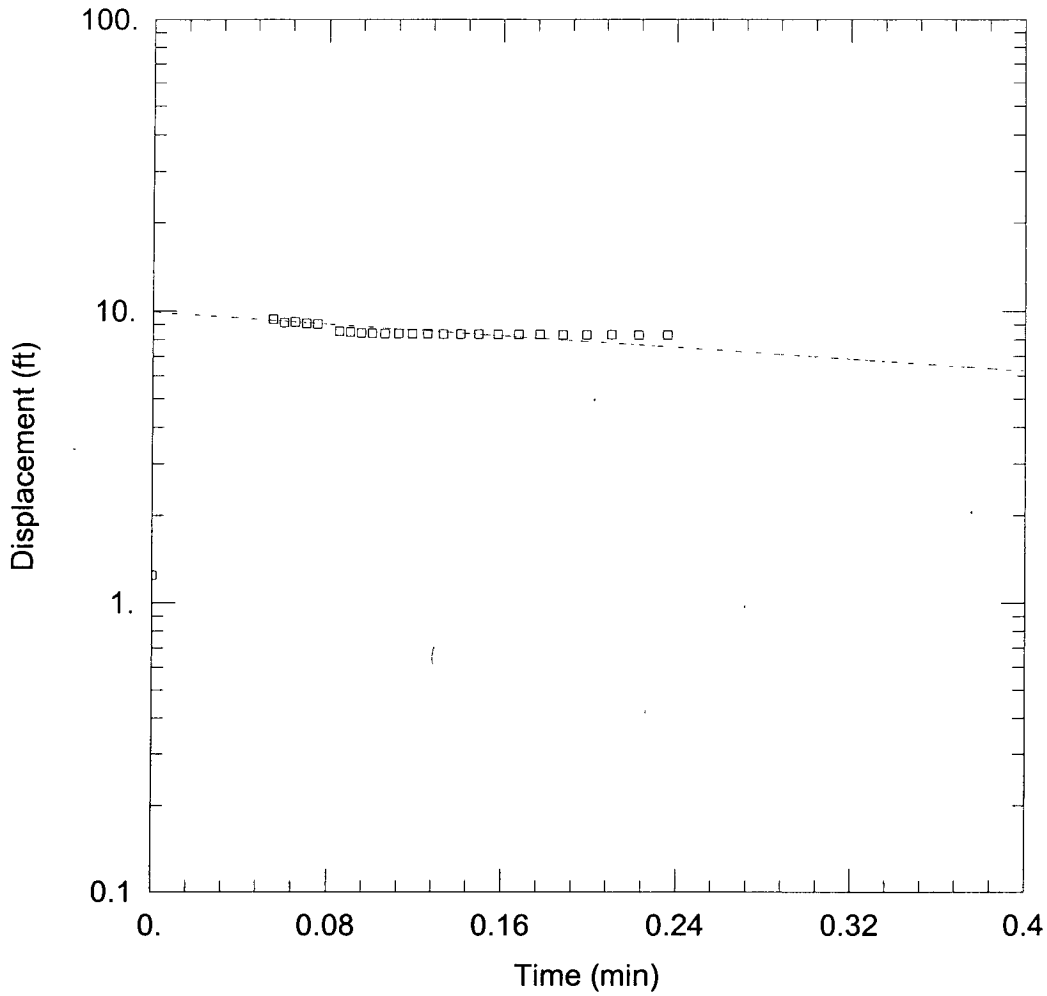
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (04S_Rise)

Initial Displacement: 4.164 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 10.86 ft/day
y0 = 3.917 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\04S_Fall.aqt
Date: 05/21/03 Time: 07:58:55

PROJECT INFORMATION

Test Well: 04S_Fall

AQUIFER DATA

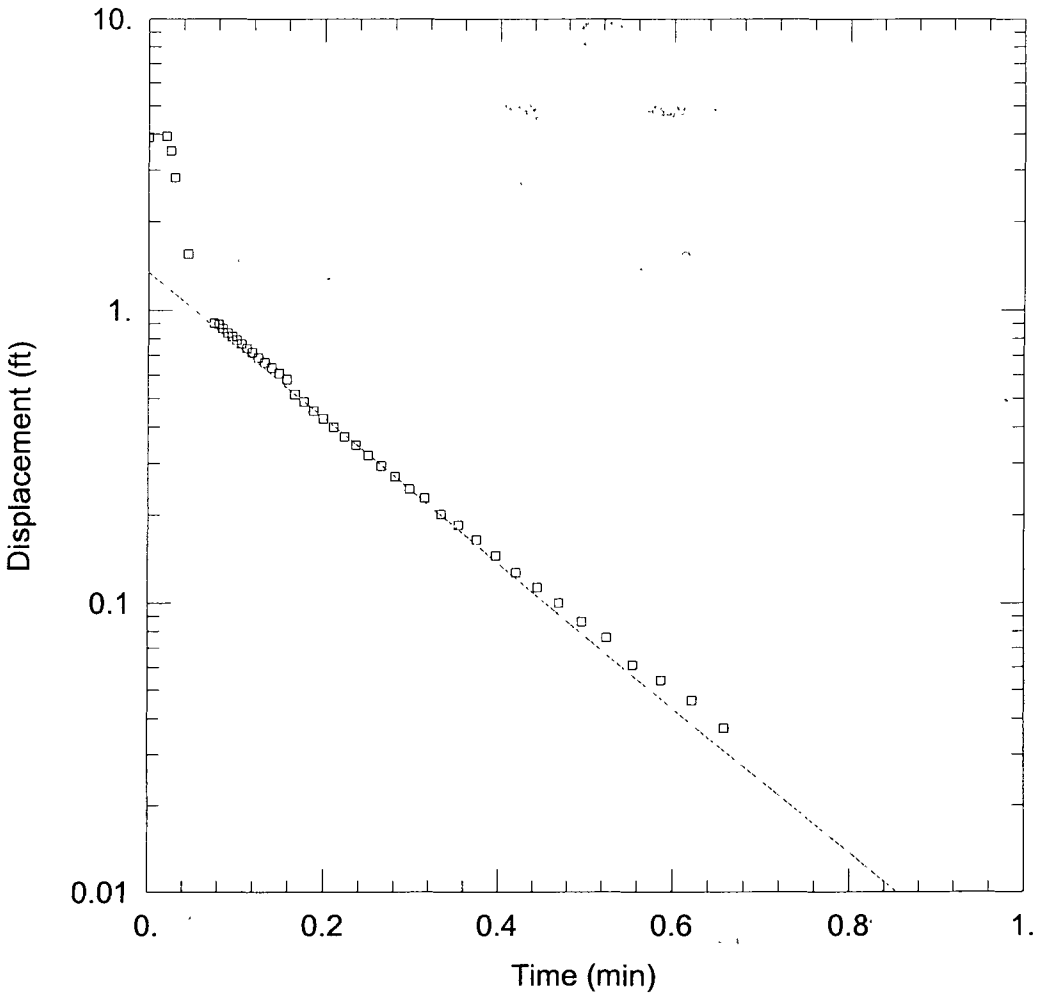
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (04S_Fall)

Initial Displacement: 1.24 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 2.11 ft/day y0 = 9.91 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\04D_Rise.aqt
Date: 05/21/03 Time: 07:58:39

PROJECT INFORMATION

Test Well: 04D_Rise

AQUIFER DATA

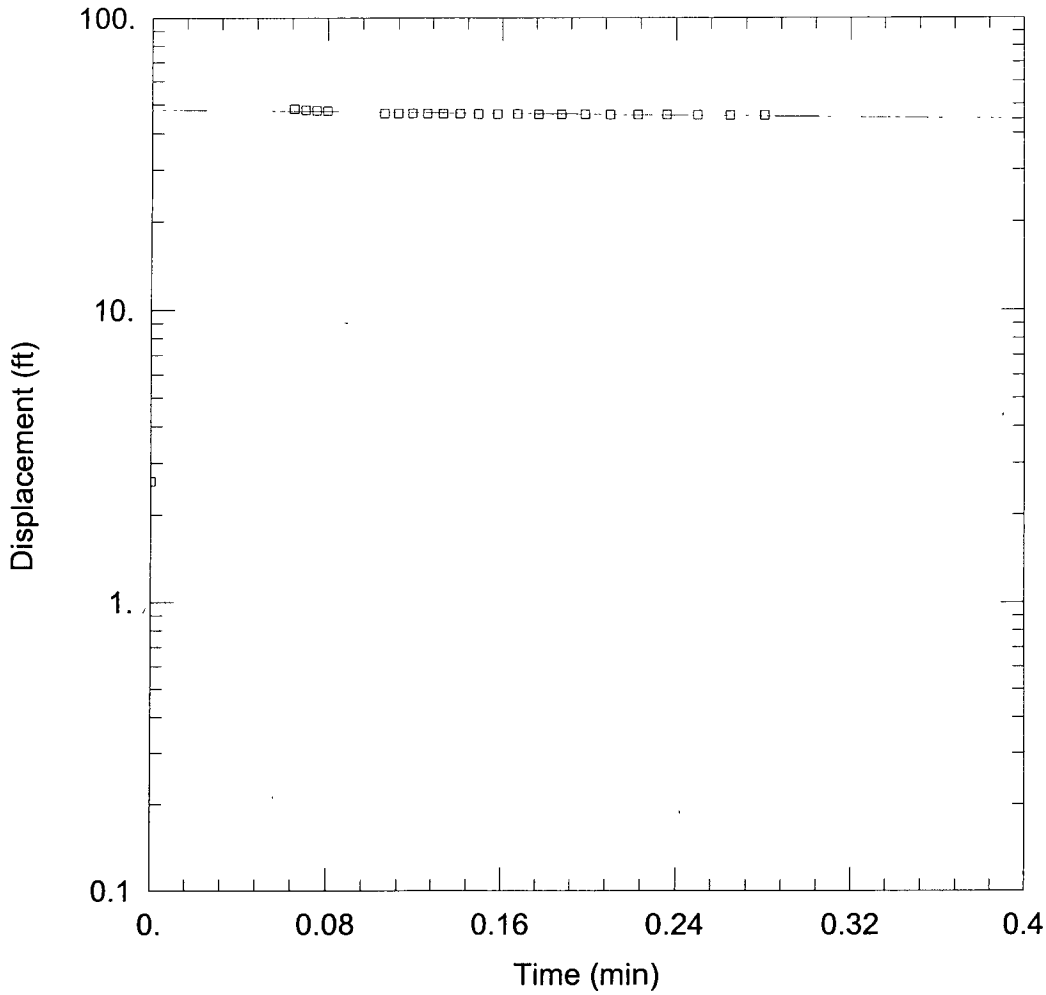
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (04D_Rise)

Initial Displacement: 3.9 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 10.52 ft/day y0 = 1.349 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\04D_Fall.aqt
Date: 05/21/03 Time: 07:58:20

PROJECT INFORMATION

Test Well: 04D_Fall

AQUIFER DATA

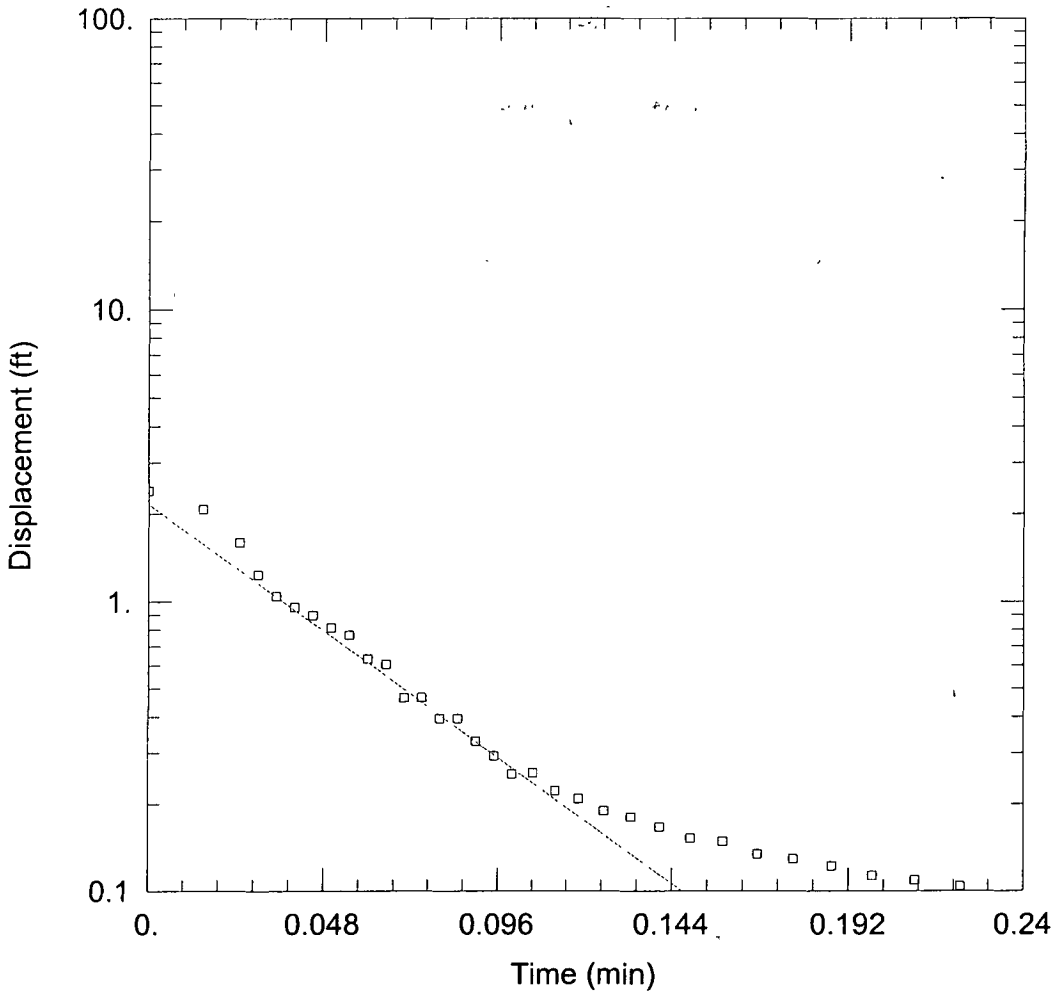
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (04D_Fall)

Initial Displacement: 2.6 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3403 ft/day
y0 = 47.97 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\05S_Rise.aqt
Date: 05/21/03 Time: 08:00:03

PROJECT INFORMATION

Test Well: 05S_Rise

AQUIFER DATA

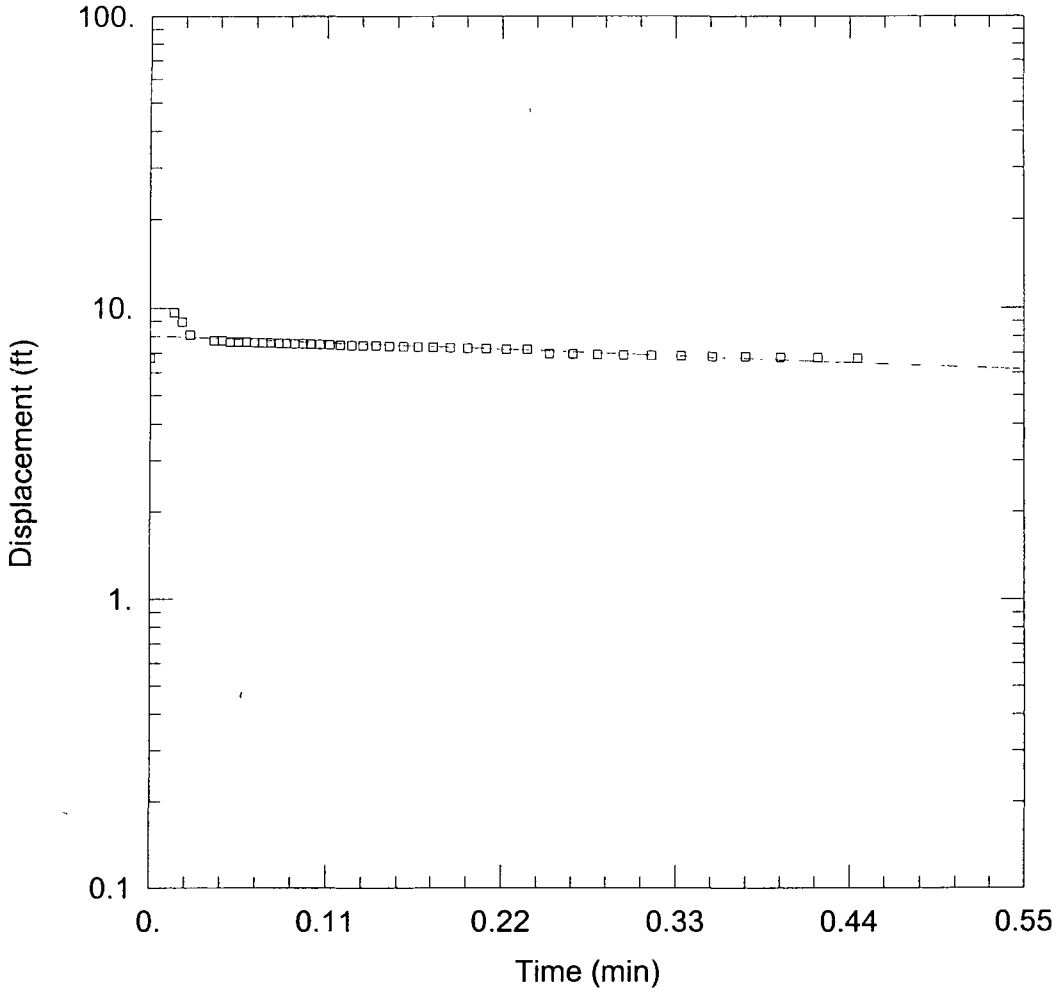
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (05S_Rise)

Initial Displacement: 2.4 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 38.31 ft/day
y0 = 2.156 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\05S_Fall.aqt
Date: 05/21/03 Time: 07:59:48

PROJECT INFORMATION

Test Well: 05S_Fall

AQUIFER DATA

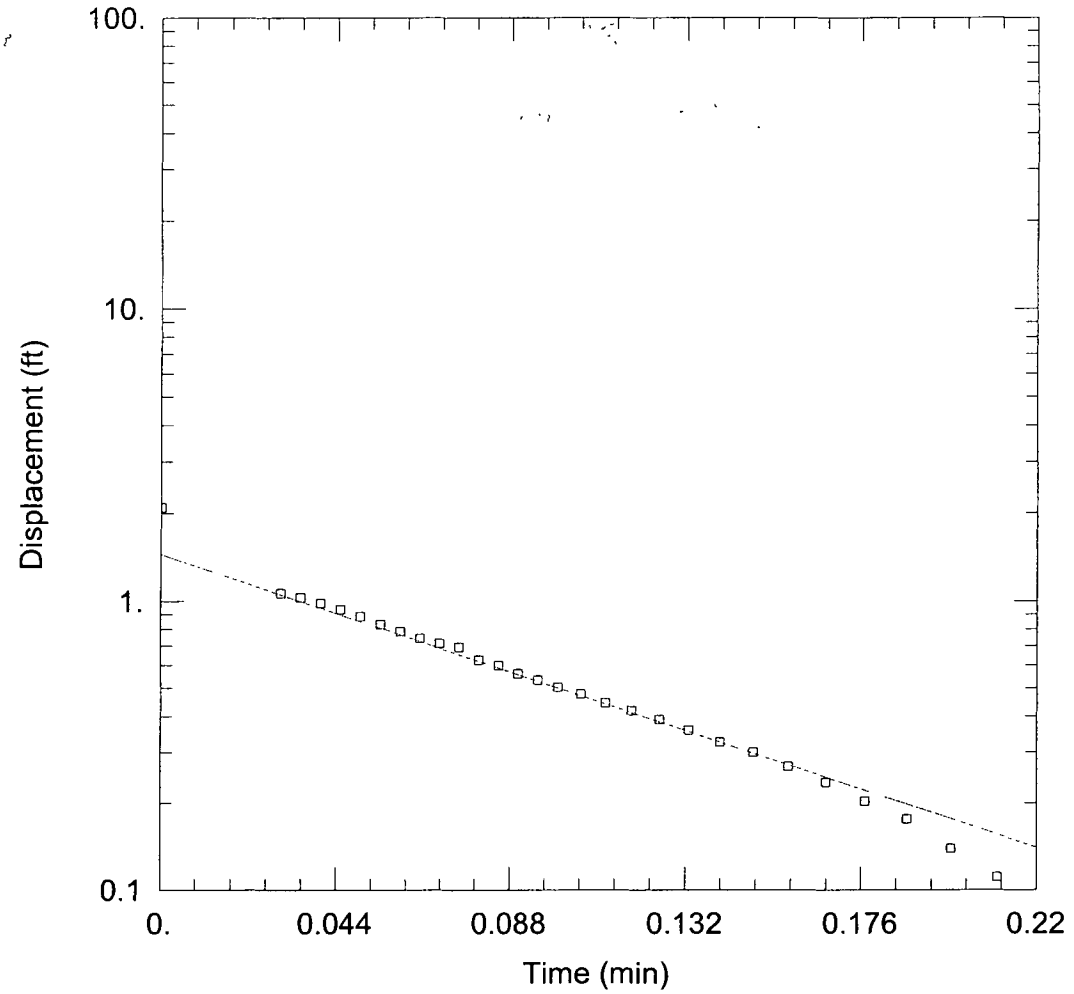
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (05S_Fall)

Initial Displacement: 6.73 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.8782 ft/day
y0 = 8.021 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\05D_Rise.aqt
Date: 05/21/03 Time: 07:59:34

PROJECT INFORMATION

Test Well: 05D_Rise

AQUIFER DATA

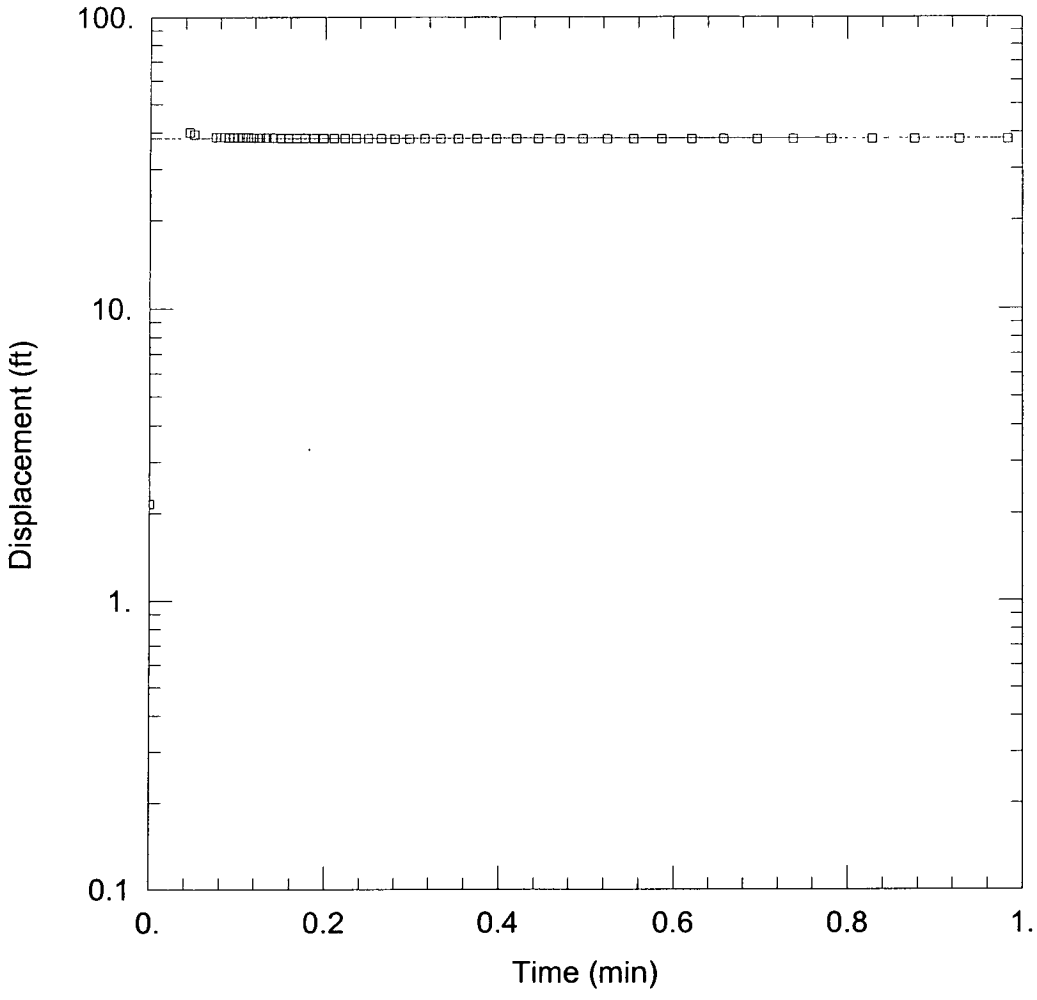
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (05D_Rise)

Initial Displacement: 2.09 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 19.43 ft/day
y0 = 1.446 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\05D_Fall.aqt
Date: 05/21/03 Time: 08:01:57

PROJECT INFORMATION

Test Well: 05D_Fall

AQUIFER DATA

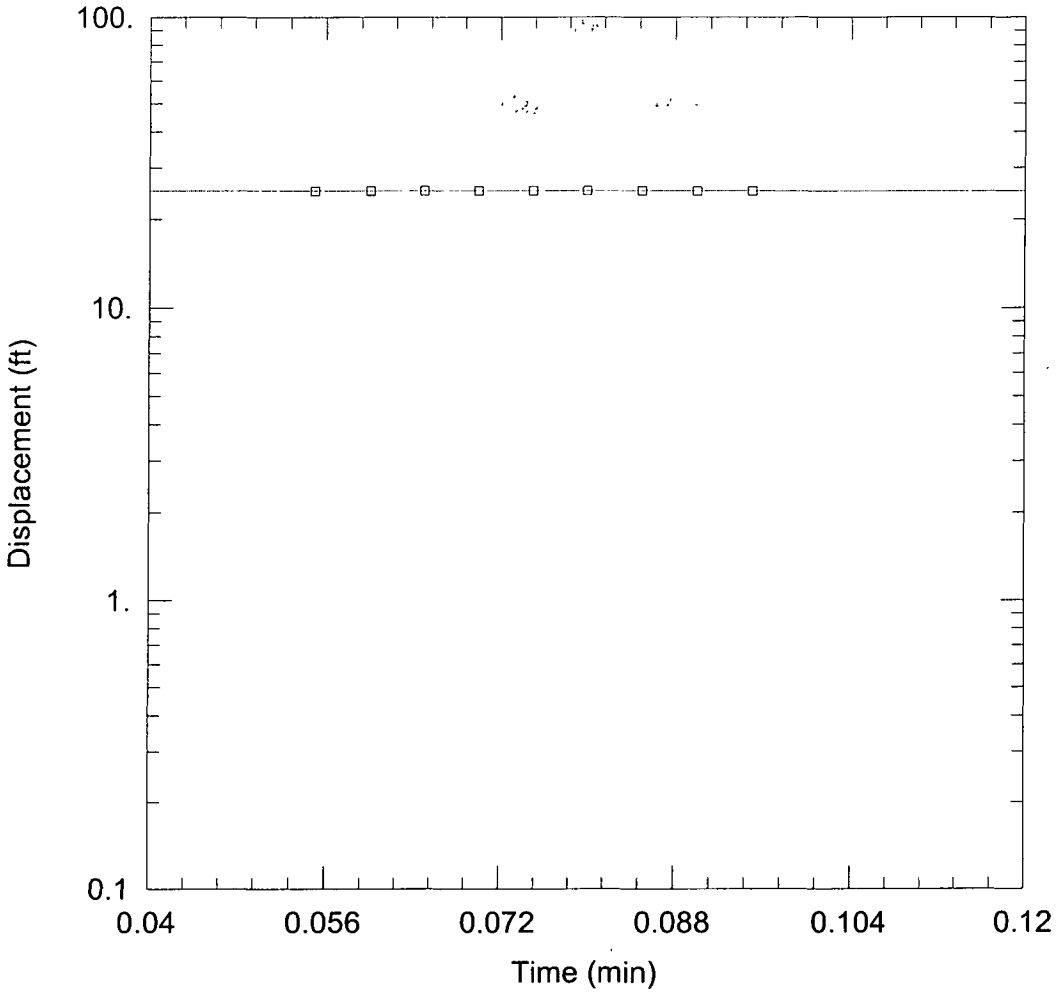
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (05D_Fall)

Initial Displacement: 2.15 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.007103 ft/day
y0 = 38.23 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\06S_Fall.aqt
Date: 05/21/03 Time: 08:02:41

PROJECT INFORMATION

Test Well: 06S_Fall

AQUIFER DATA

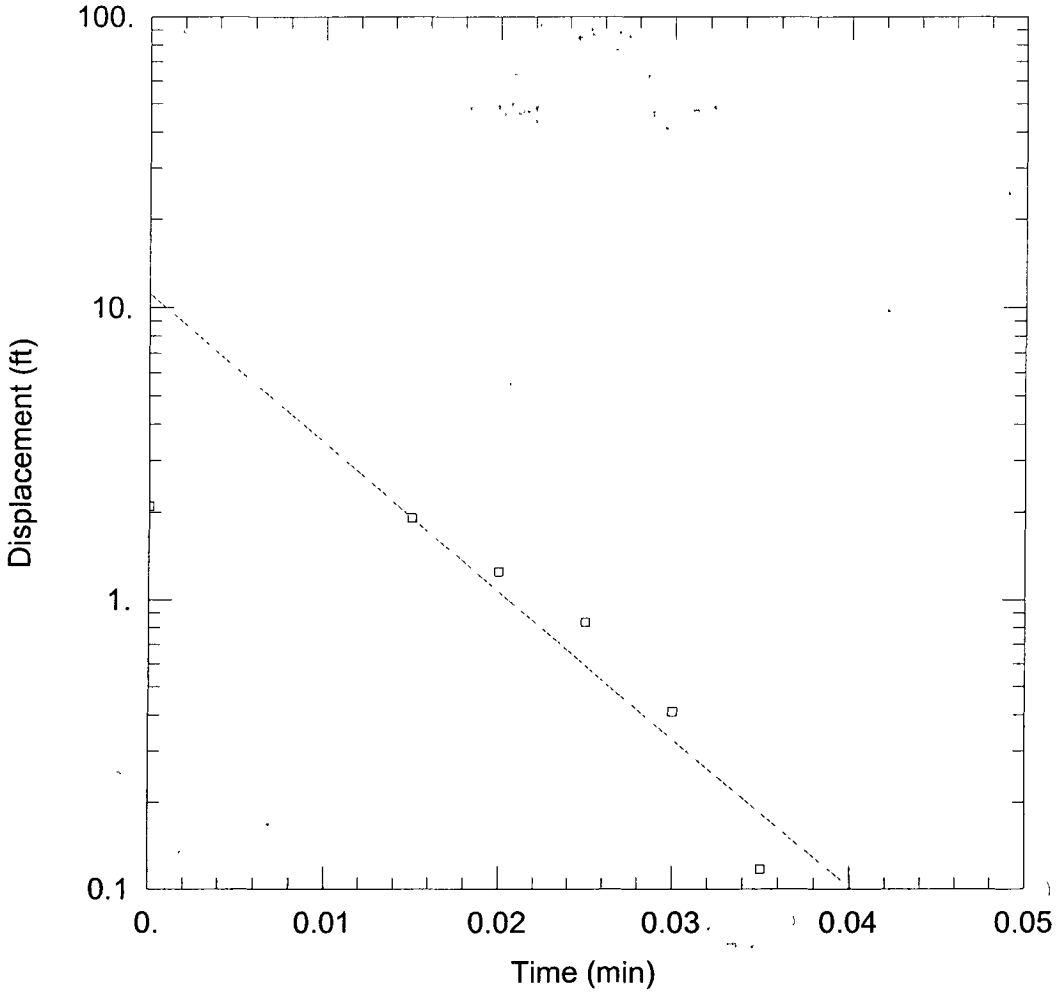
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (06S_Fall)

Initial Displacement: 0.1 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02867 ft/day
y0 = 24.96 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\06D_Rise.aqt
Date: 05/21/03 Time: 08:02:54

PROJECT INFORMATION

Test Well: 06D_Rise

AQUIFER DATA

Saturated Thickness: 6. ft
Anisotropy Ratio (Kz/Kr): 1.

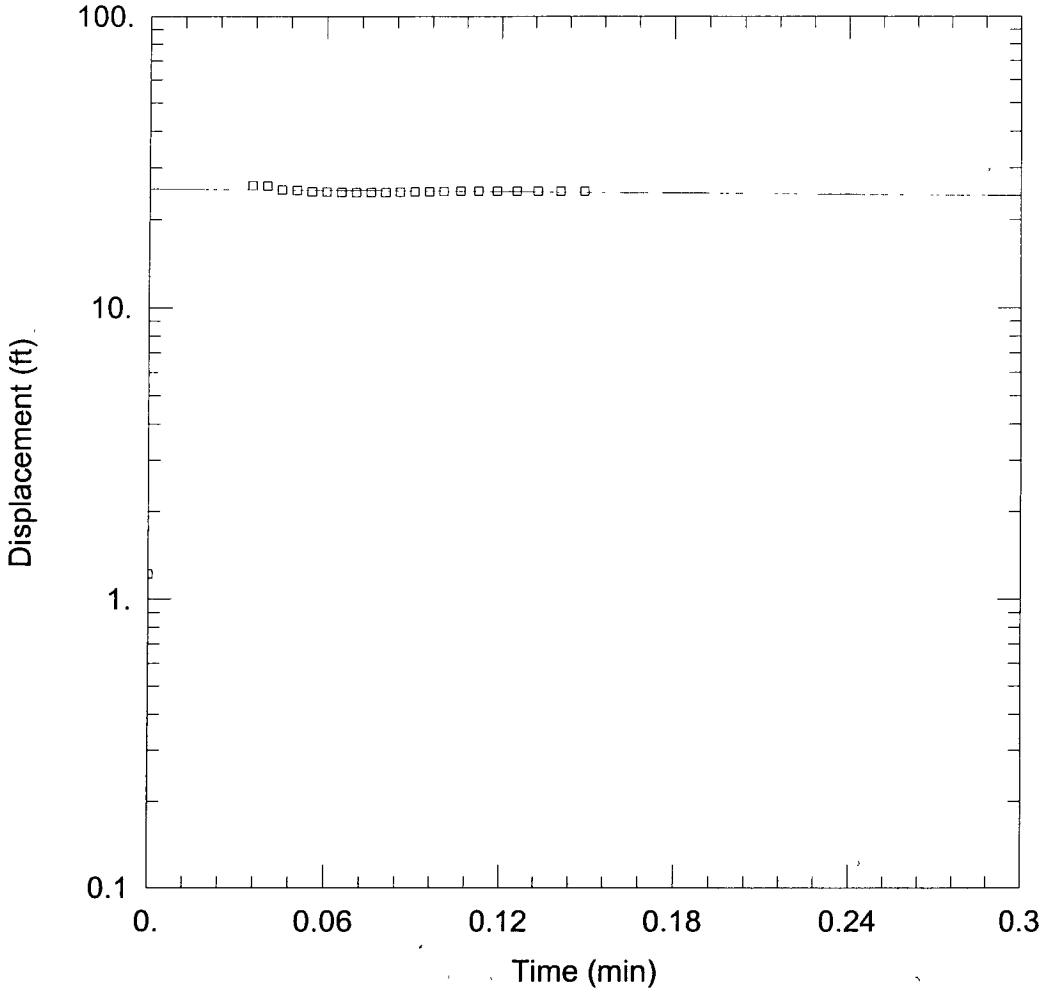
WELL DATA (06D_Rise)

Initial Displacement: 2.1 ft
Wellbore Radius: 0.083 ft
Screen Length: 6. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 6. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 319.1 ft/day
y0 = 11.14 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\06D_Fall.aqt
Date: 05/21/03 Time: 08:03:09

PROJECT INFORMATION

Test Well: 06D_Fall

AQUIFER DATA

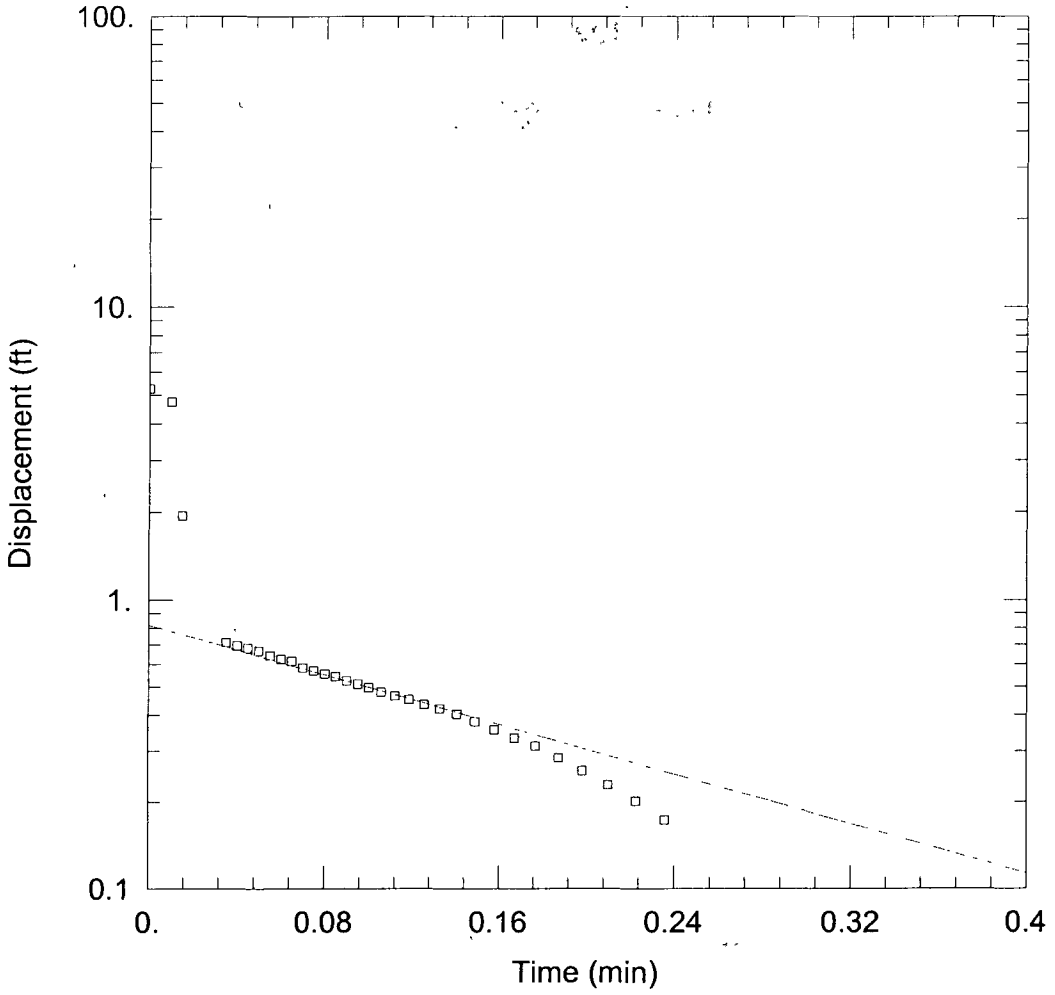
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (06D_Fall)

Initial Displacement: 1.22 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.332 ft/day
y0 = 25.4 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\07D_Rise.aqt
Date: 05/21/03 Time: 08:03:22

PROJECT INFORMATION

Test Well: 07D_Rise

AQUIFER DATA

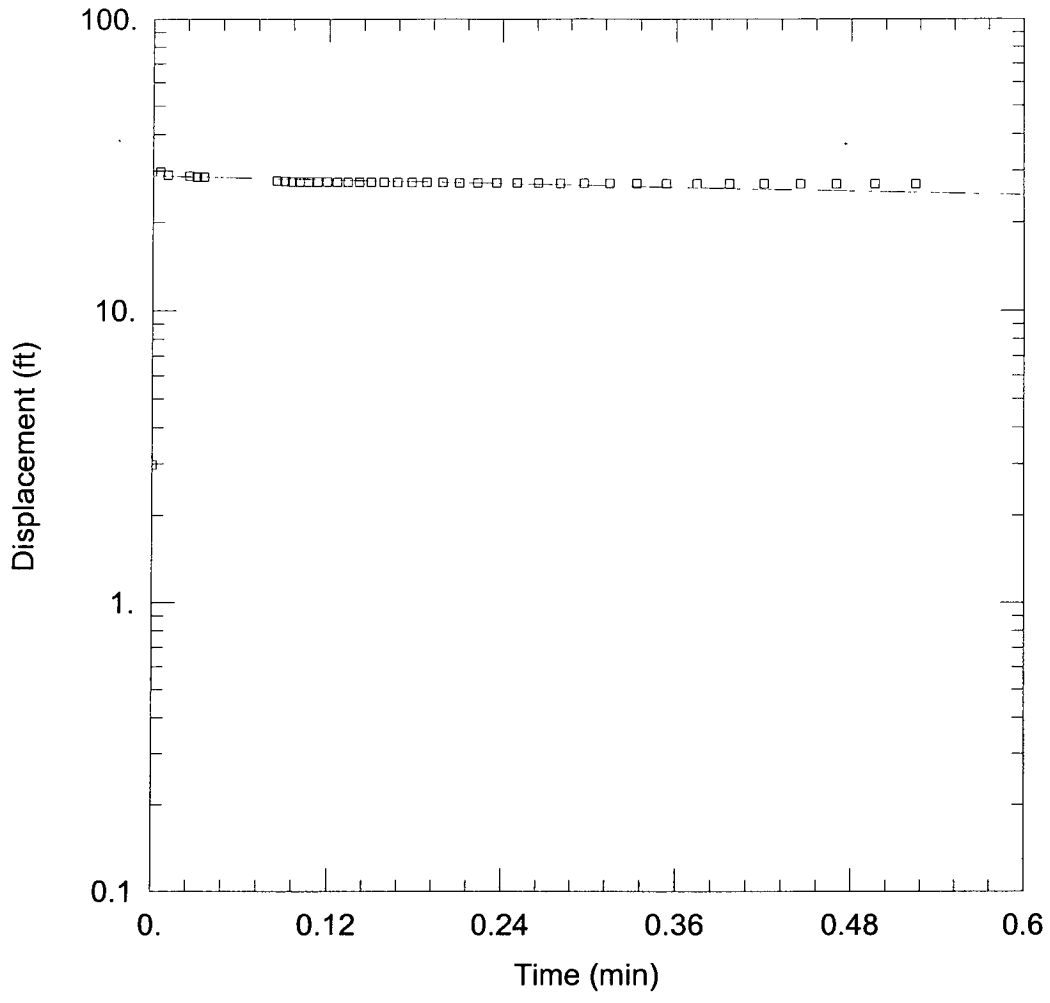
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (07D_Rise)

Initial Displacement: 5.27 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 9.075 ft/day y0 = 0.819 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\07D_Fall.aqt
Date: 05/21/03 Time: 08:03:38

PROJECT INFORMATION

Test Well: 07D_Fall

AQUIFER DATA

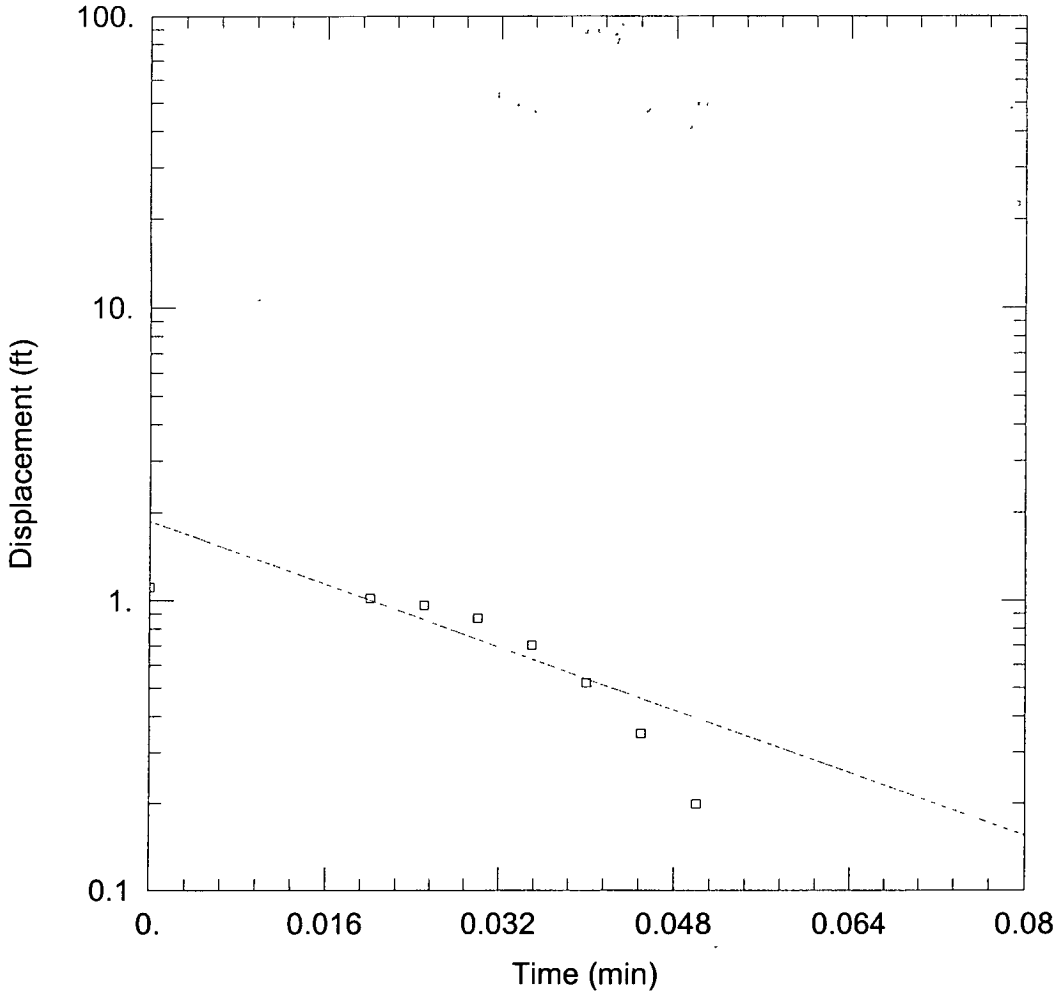
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (07D_Fall)

Initial Displacement: 2.98 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.4588 ft/day
y0 = 28.81 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\08D_Rise.aqt
Date: 05/21/03 Time: 08:03:51

PROJECT INFORMATION

Test Well: 08D_Rise

AQUIFER DATA

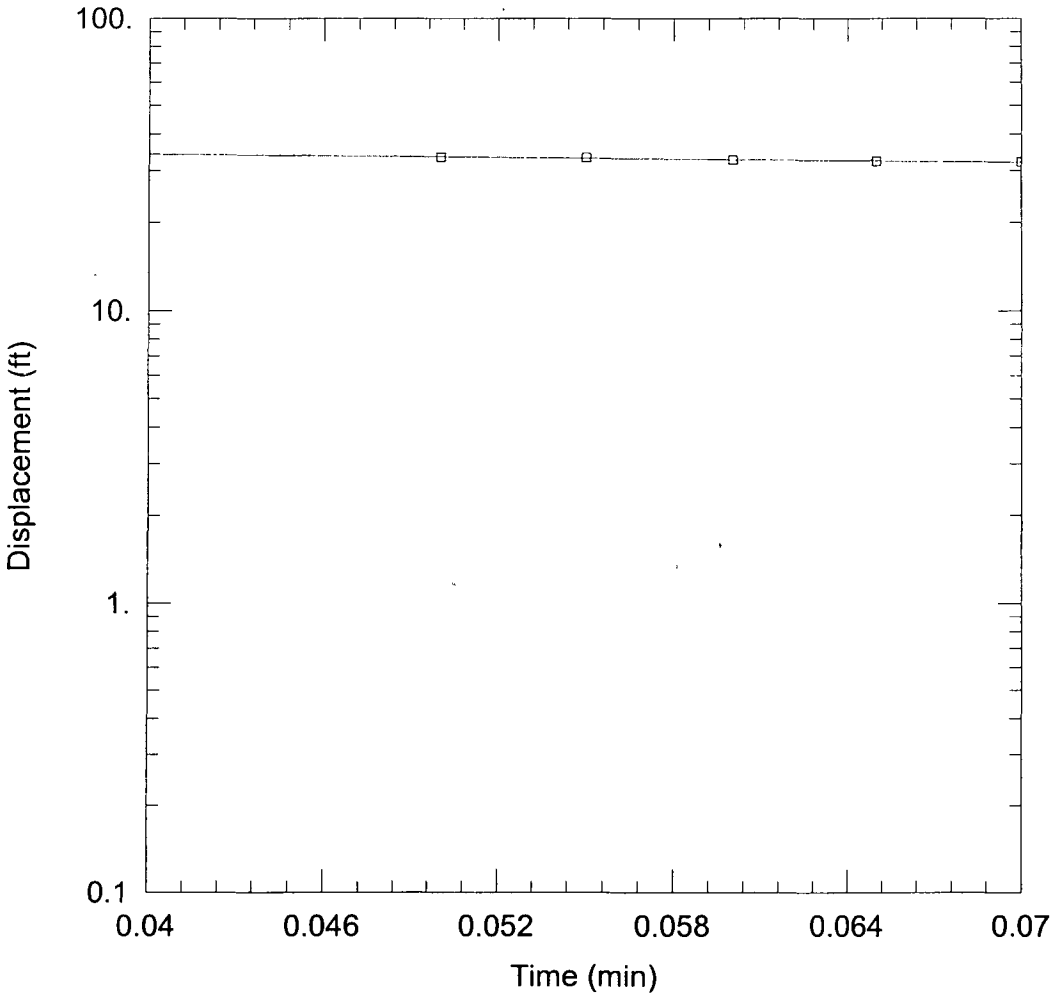
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (08D_Rise)

Initial Displacement: 1.11 ft
Wellbore Radius: 0.083 ft
Screen Length: 15. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 41.53 ft/day
y0 = 1.866 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\08D_Fall.aqt
Date: 05/21/03 Time: 08:04:10

PROJECT INFORMATION

Test Well: 08D_Fall

AQUIFER DATA

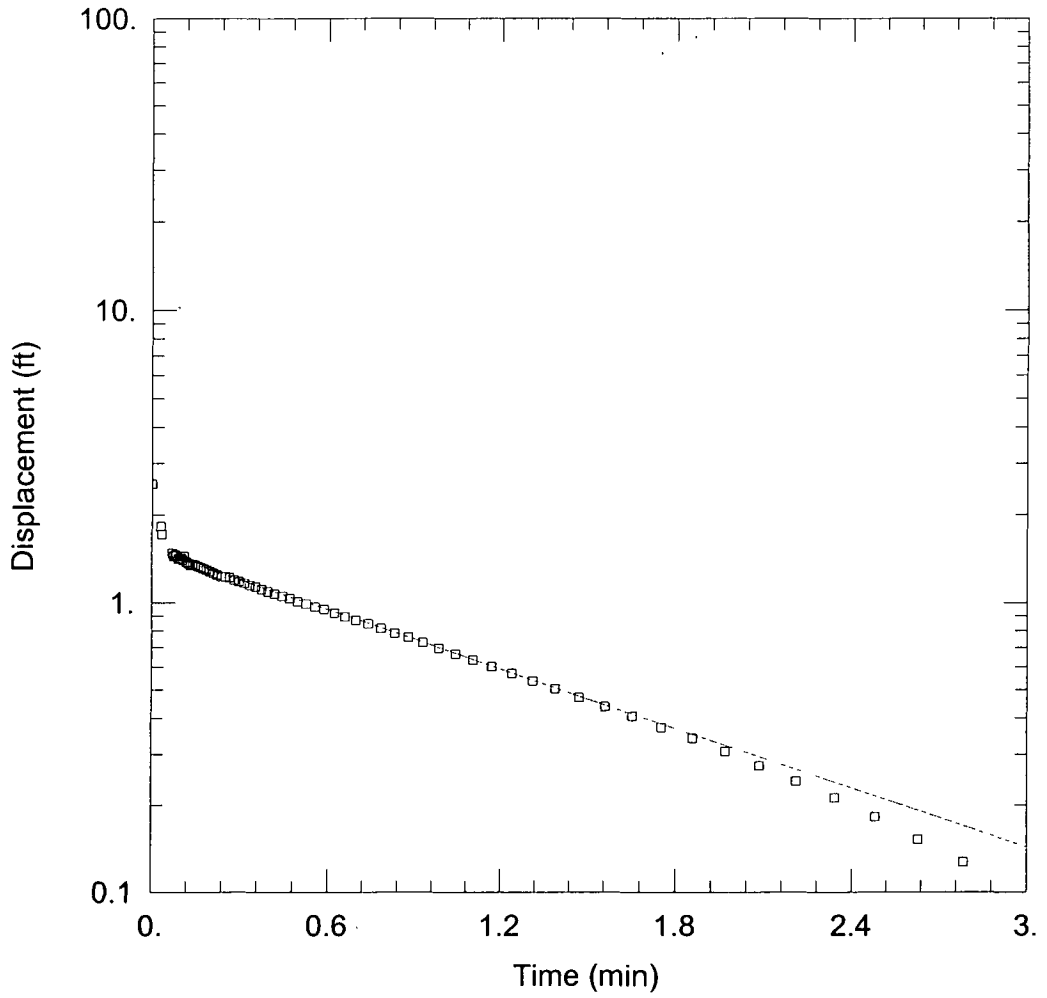
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (08D_Fall)

Initial Displacement: 1.36 ft
Wellbore Radius: 0.083 ft
Screen Length: 15. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.791 ft/day
y0 = 37.06 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\09D_Rise.aqt
Date: 05/21/03 Time: 08:04:54

PROJECT INFORMATION

Test Well: 09D_Rise

AQUIFER DATA

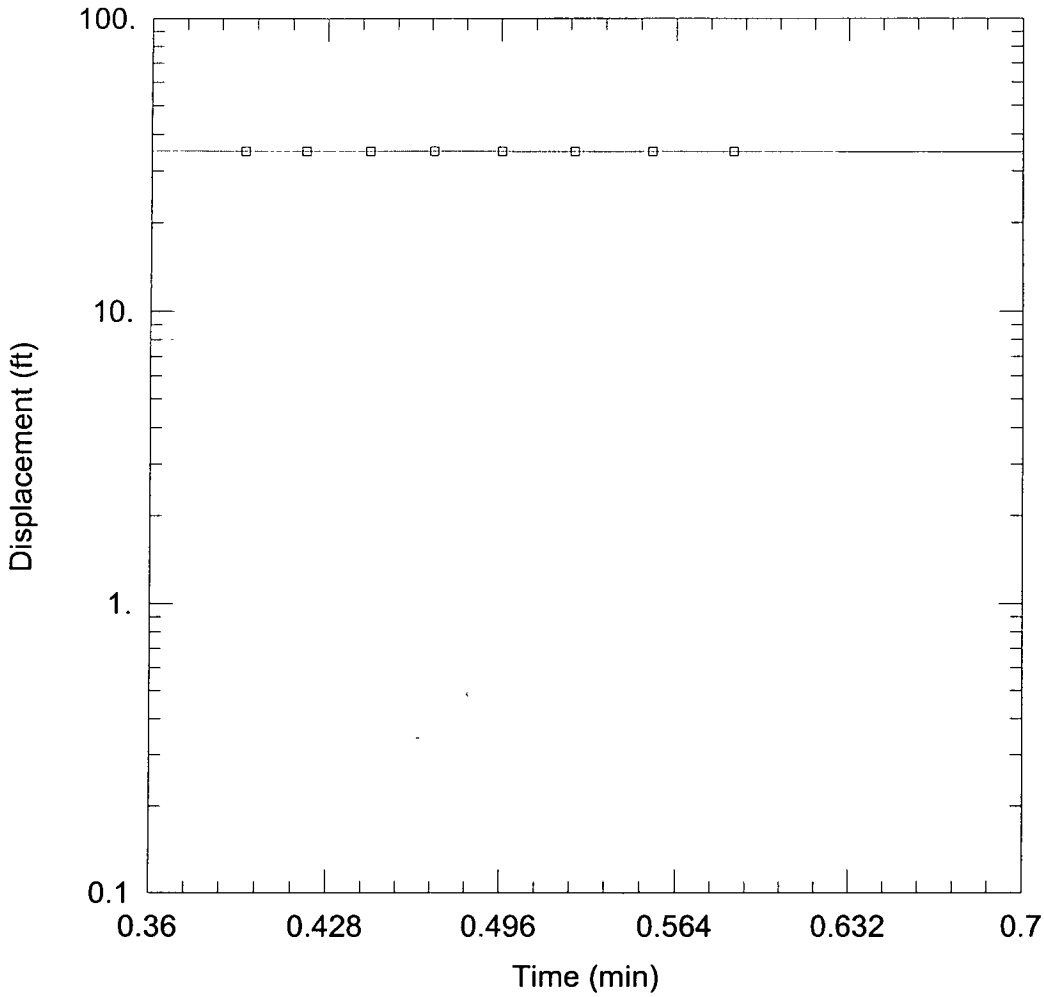
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (09D_Rise)

Initial Displacement: 2.55 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.441 ft/day
y0 = 1.516 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\09D_Fall.aqt
Date: 05/21/03 Time: 08:05:07

PROJECT INFORMATION

Test Well: 09D_Fall

AQUIFER DATA

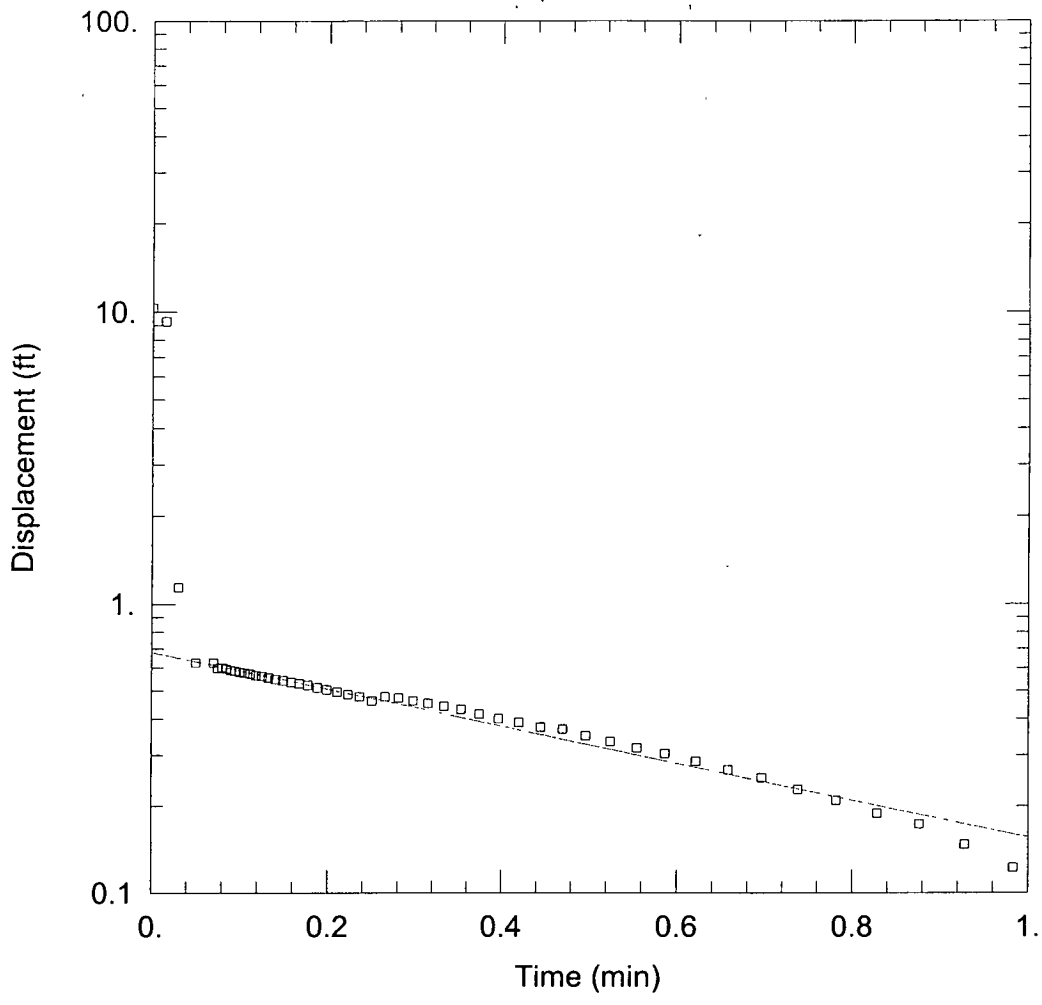
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (09D_Fall)

Initial Displacement: 1.14 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03697 ft/day
y0 = 35.3 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\10D_Rise.aqt
Date: 05/21/03 Time: 08:05:21

PROJECT INFORMATION

Test Well: 10D_Rise

AQUIFER DATA

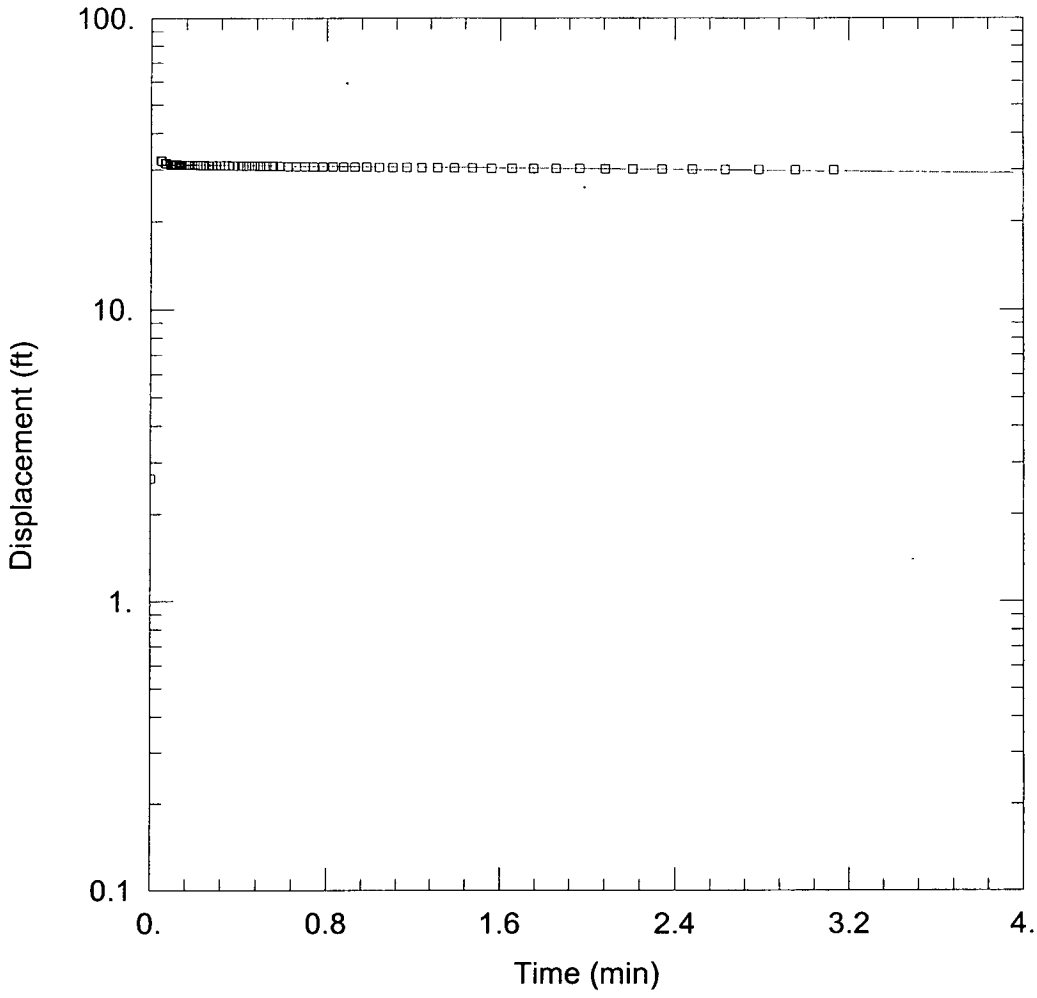
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (10D_Rise)

Initial Displacement: 10.29 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.701 ft/day
y0 = 0.6804 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\10D_Fall.aqt
Date: 05/21/03 Time: 08:05:35

PROJECT INFORMATION

Test Well: 10D_Fall

AQUIFER DATA

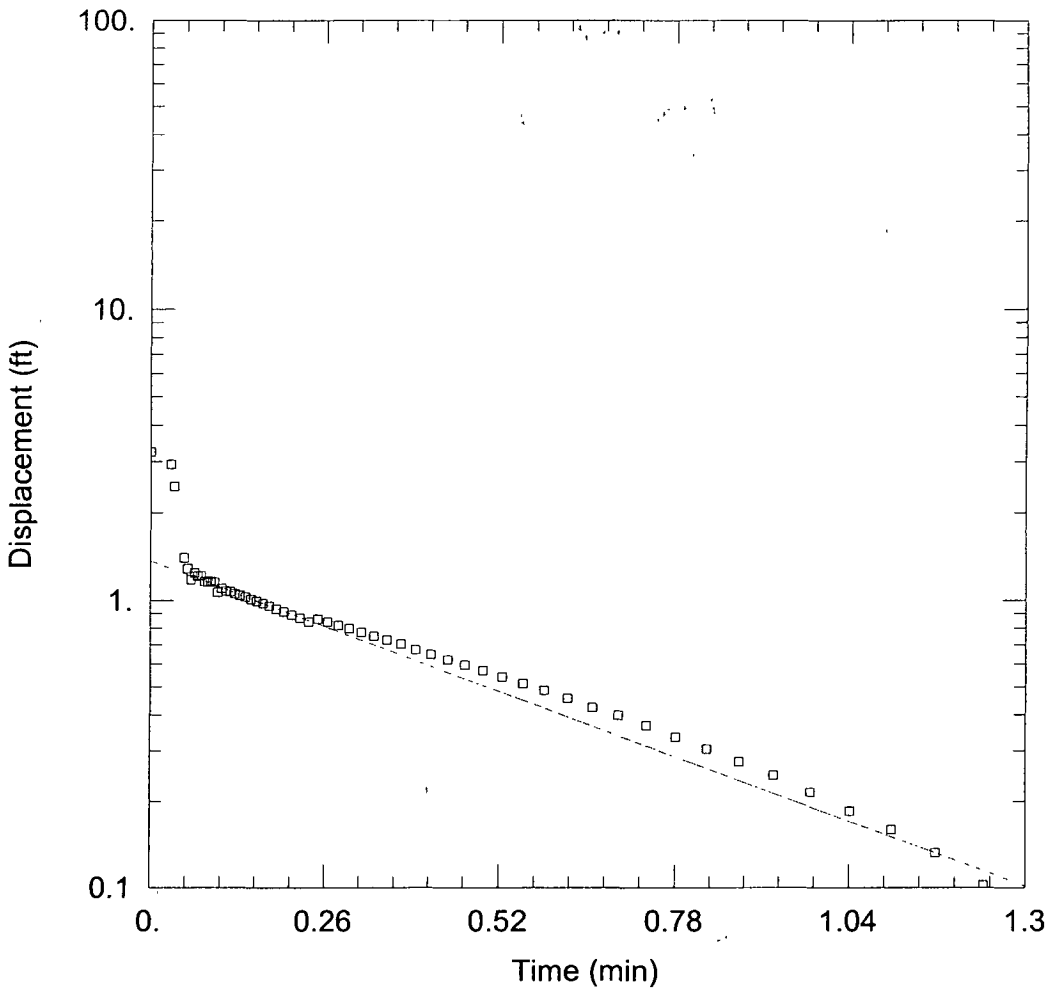
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (10D_Fall)

Initial Displacement: 2.64 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03126 ft/day
y0 = 31.25 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\11D_Rise.aqt
Date: 05/21/03 Time: 08:05:57

PROJECT INFORMATION

Test Well: 11D_Rise

AQUIFER DATA

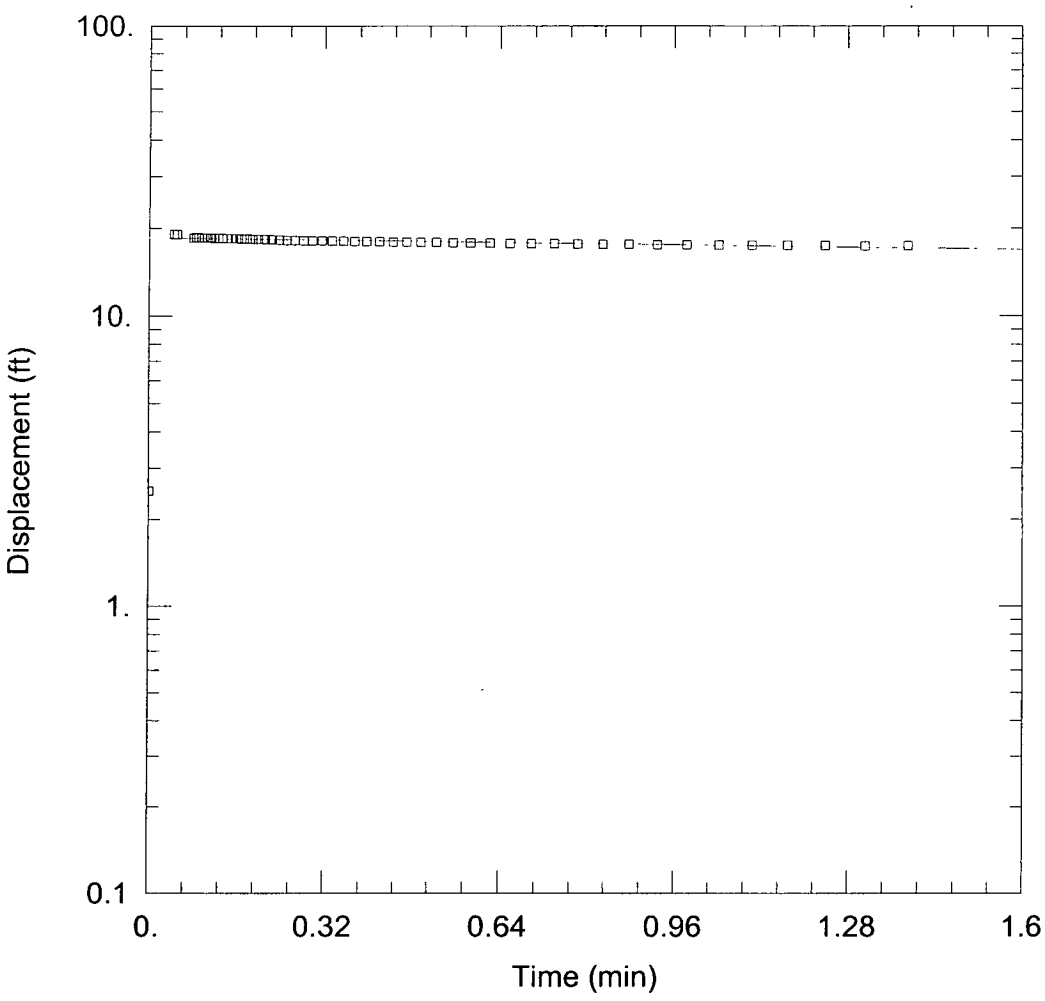
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (11D_Rise)

Initial Displacement: 3.24 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.665 ft/day
y0 = 1.365 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\11D_Fall.aqt
Date: 05/21/03 Time: 08:06:19

PROJECT INFORMATION

Test Well: 11D_Fall

AQUIFER DATA

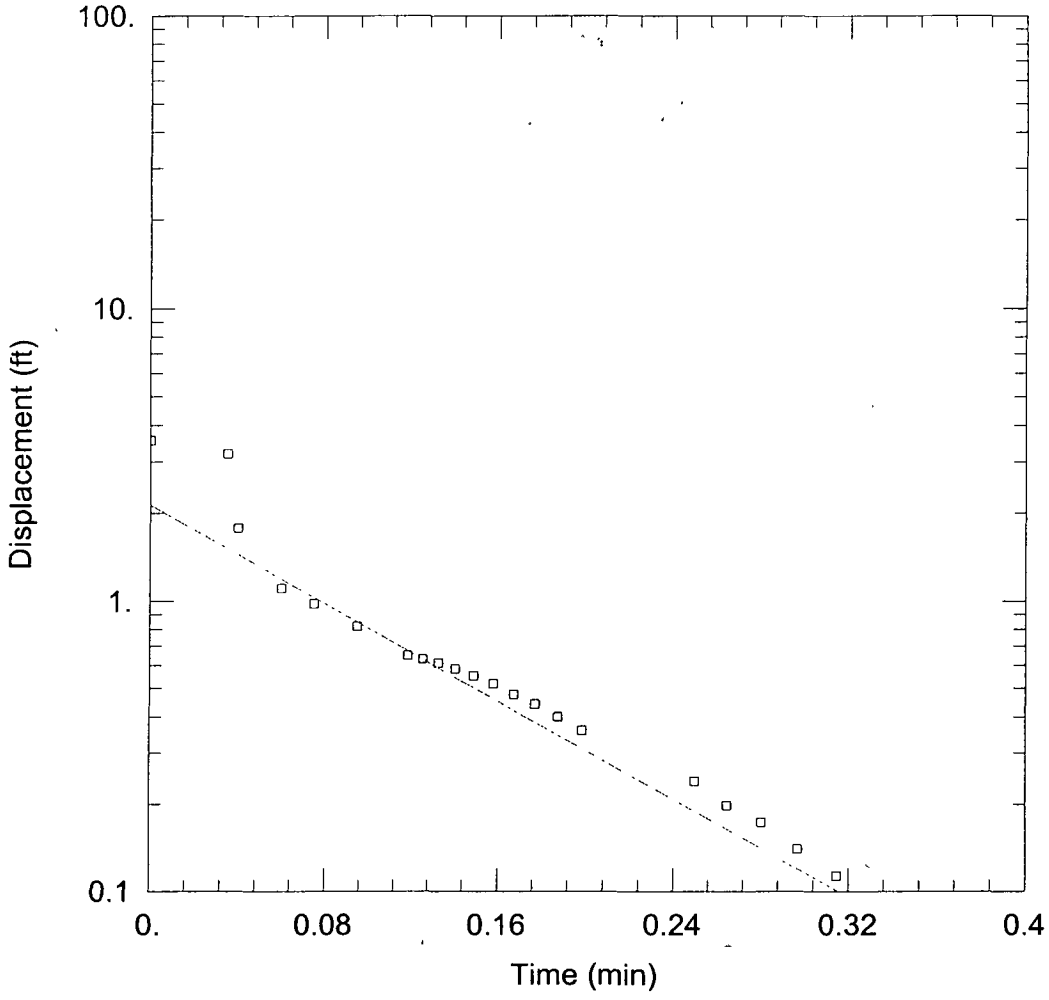
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (11D_Fall)

Initial Displacement: 2.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1077 ft/day
y0 = 18.54 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\12D_Rise.aqt
Date: 05/21/03 Time: 08:07:01

PROJECT INFORMATION

Test Well: 12D_Rise

AQUIFER DATA

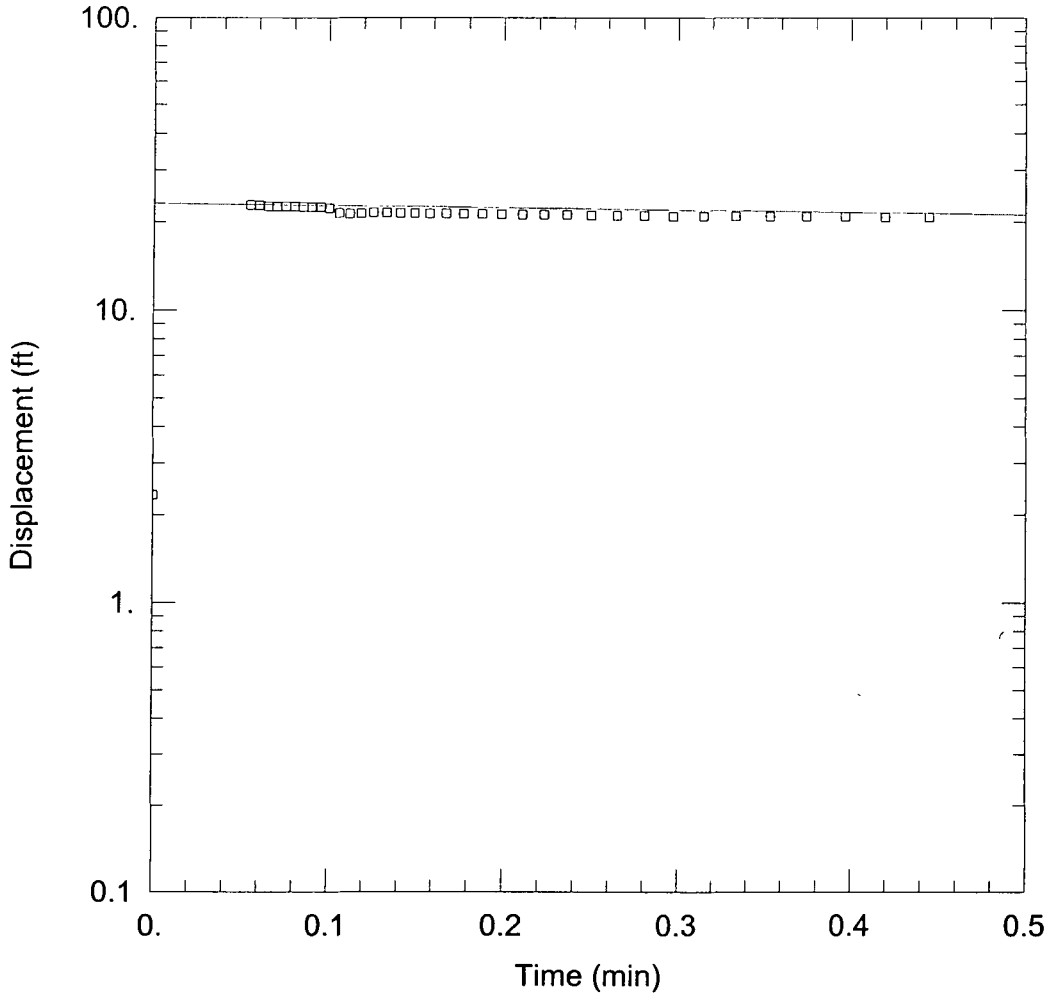
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (12D_Rise)

Initial Displacement: 3.55 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 17.76 ft/day
y0 = 2.127 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\12D_Fall.aqt
Date: 05/21/03 Time: 08:07:24

PROJECT INFORMATION

Test Well: 12D_Fall

AQUIFER DATA

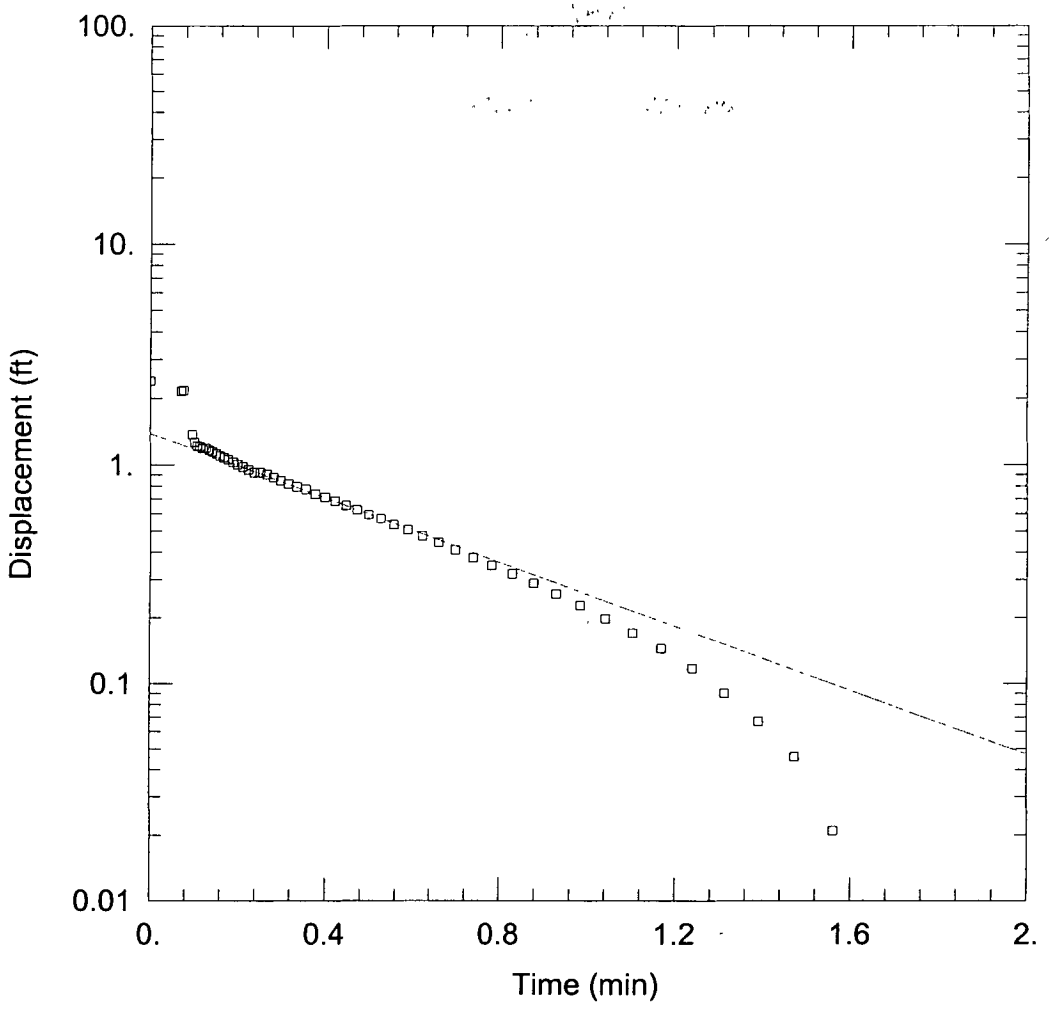
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (12D_Fall)

Initial Displacement: 2.34 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.323 ft/day
y0 = 23.11 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\13D_Rise.aqt
Date: 05/21/03 Time: 08:07:46

PROJECT INFORMATION

Test Well: 13D_Rise

AQUIFER DATA

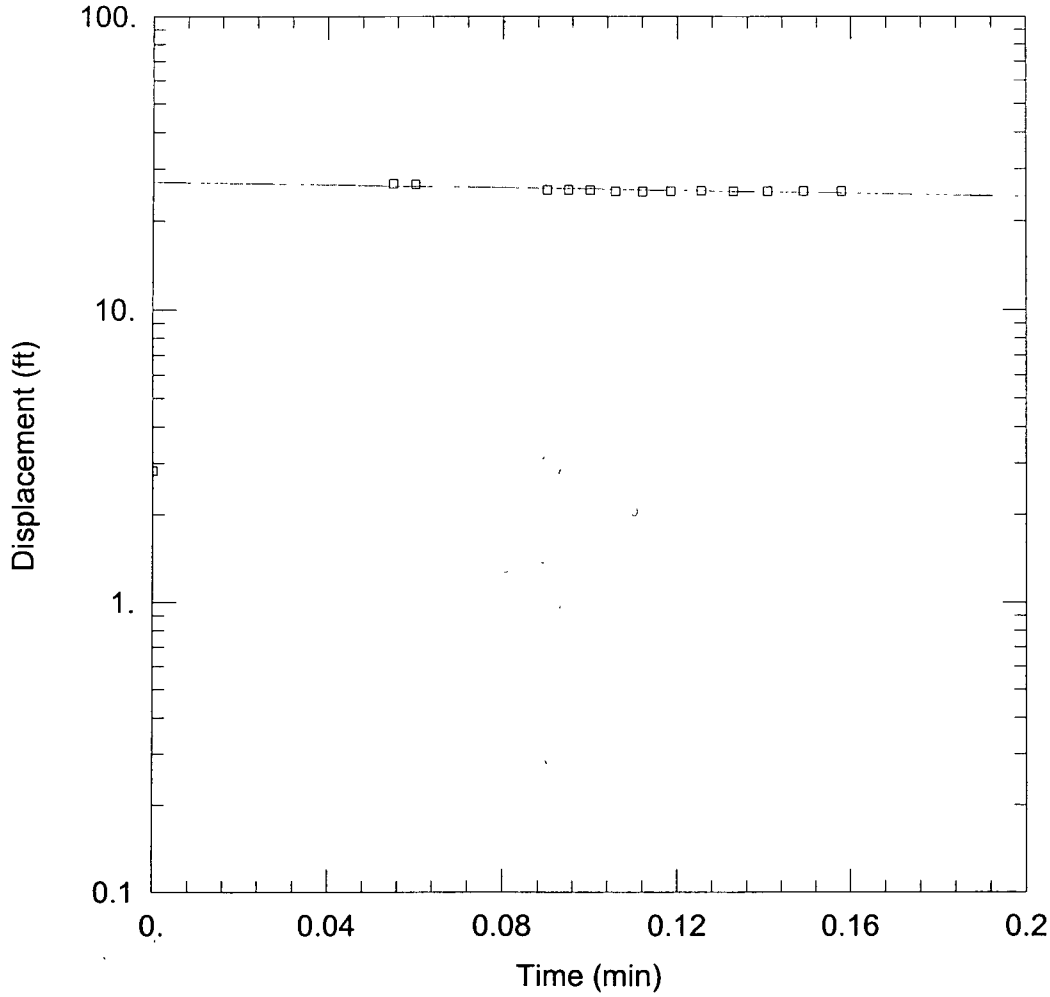
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (13D_Rise)

Initial Displacement: 2.4 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.097 ft/day
y0 = 1.387 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\13D_Fall.aqt
Date: 05/21/03 Time: 08:08:06

PROJECT INFORMATION

Test Well: 13D_Fall

AQUIFER DATA

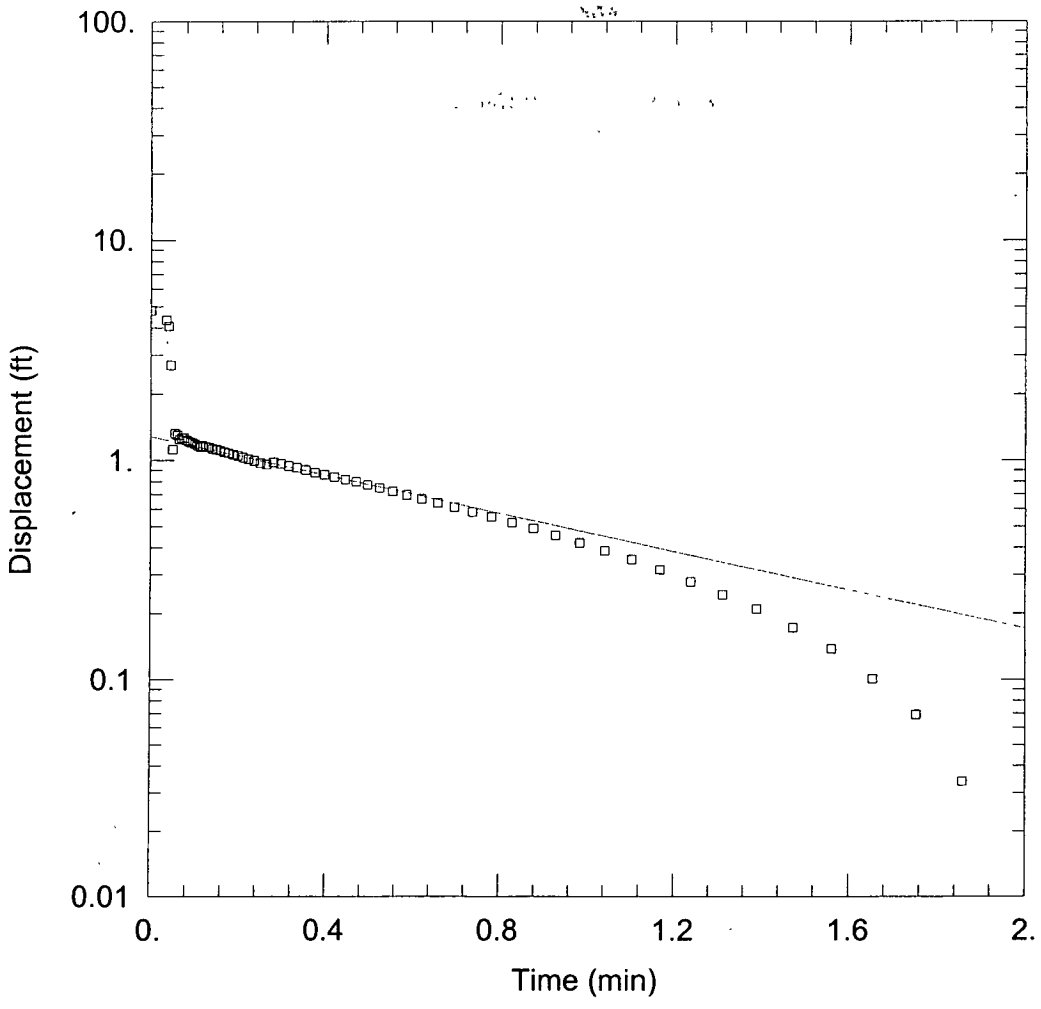
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (13D_Fall)

Initial Displacement: 2.83 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.014 ft/day
y0 = 27.04 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\14D_Rise.aqt
Date: 05/21/03 Time: 08:08:22

PROJECT INFORMATION

Test Well: 14D_Rise

AQUIFER DATA

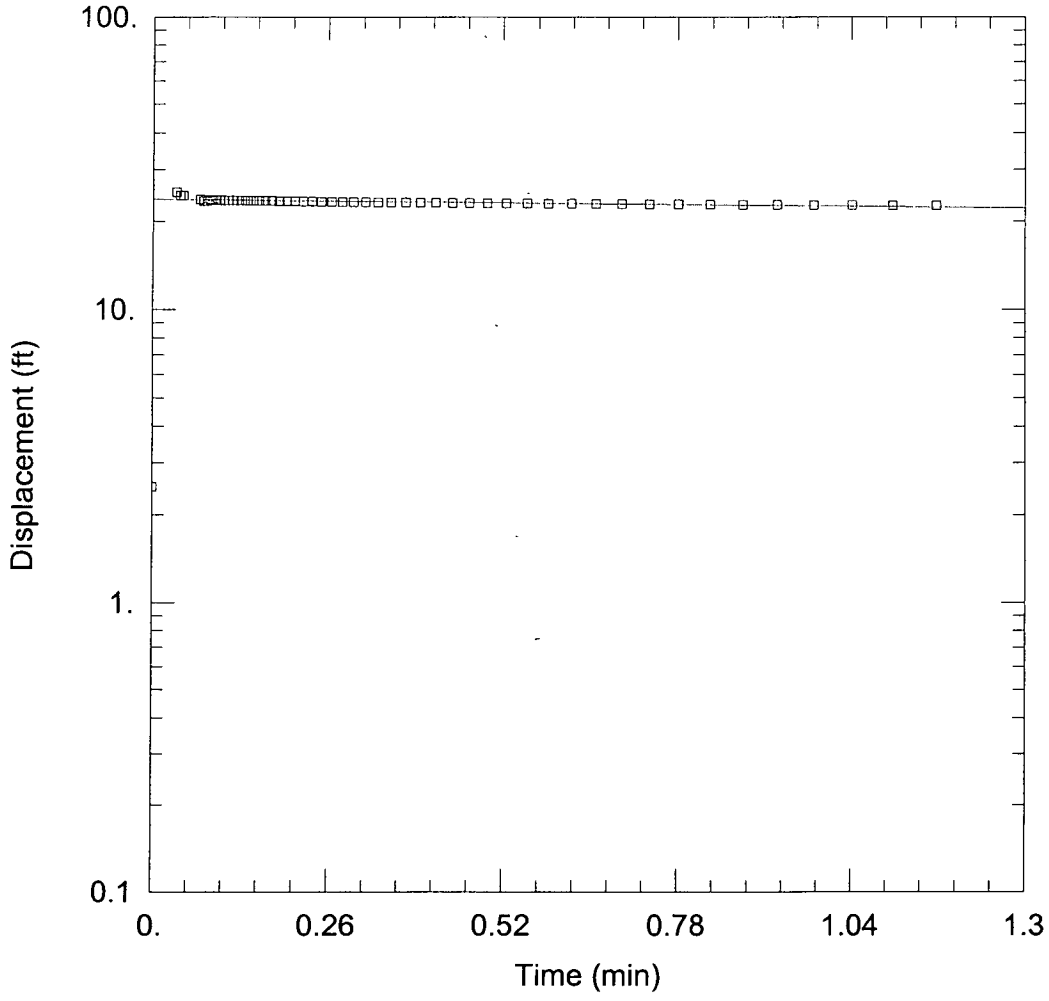
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (14D_Rise)

Initial Displacement: 4.8 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.84 ft/day
y0 = 1.278 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\14D_Fall.aqt
Date: 05/21/03 Time: 08:08:39

PROJECT INFORMATION

Test Well: 14D_Fall

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

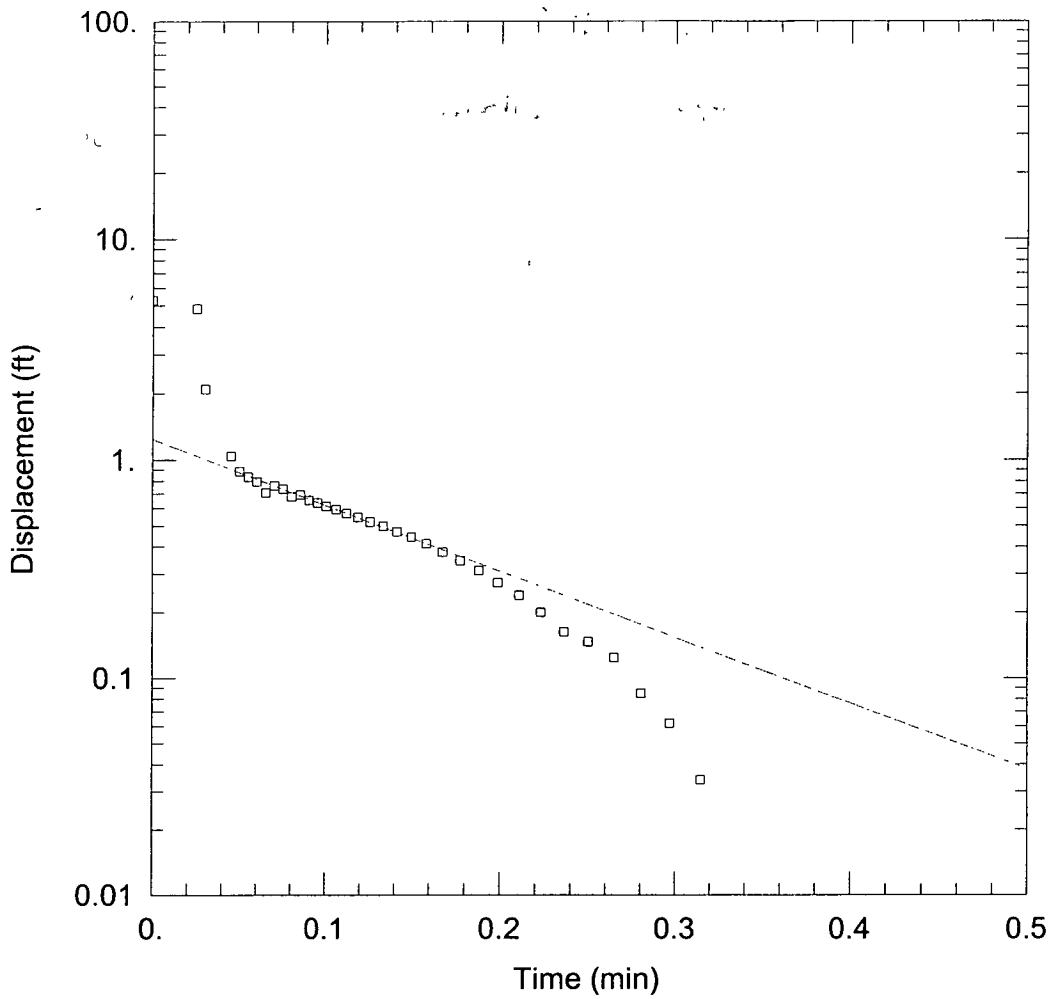
WELL DATA (14D_Fall)

Initial Displacement: 2.49 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.09669 ft/day
y0 = 23.74 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\15D_Rise.aqt
Date: 05/21/03 Time: 08:08:53

PROJECT INFORMATION

Test Well: 15D_Rise

AQUIFER DATA

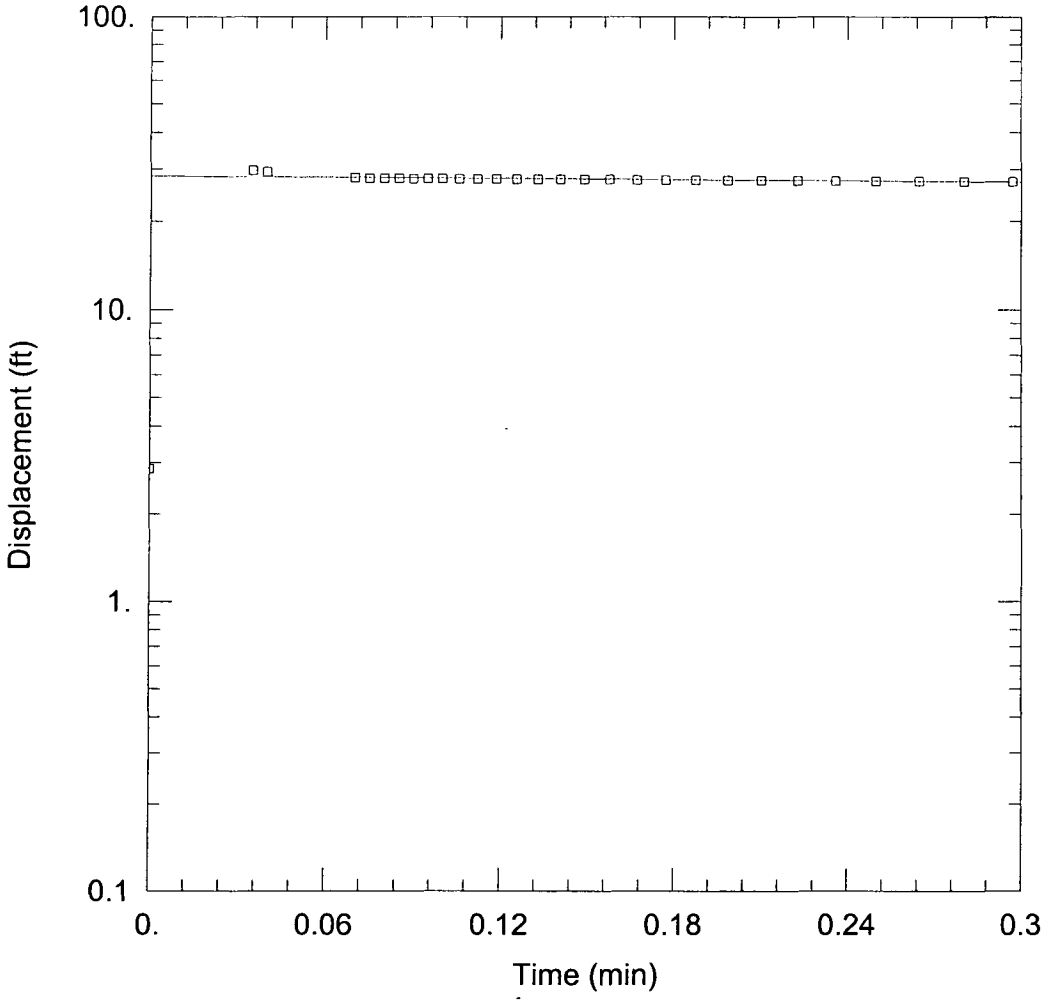
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (15D_Rise)

Initial Displacement: 5.3 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 12.77 ft/day
y0 = 1.24 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\15D_Fall.aqt
Date: 05/21/03 Time: 08:09:06

PROJECT INFORMATION

Test Well: 15D_Fall

AQUIFER DATA

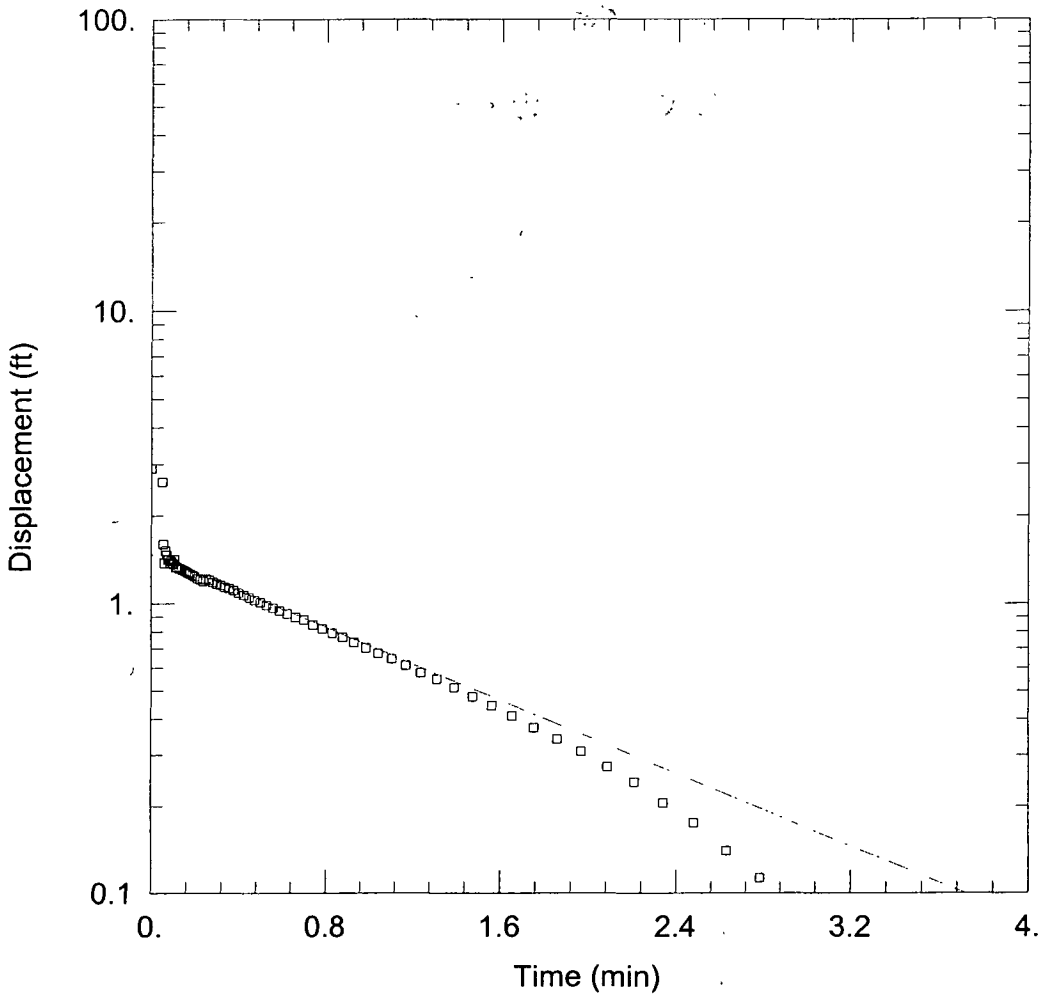
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (15D_Fall)

Initial Displacement: 2.86 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2837 ft/day
y0 = 28.46 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\17D_Rise.aqt
Date: 05/21/03 Time: 08:09:23

PROJECT INFORMATION

Test Well: 17D_Rise

AQUIFER DATA

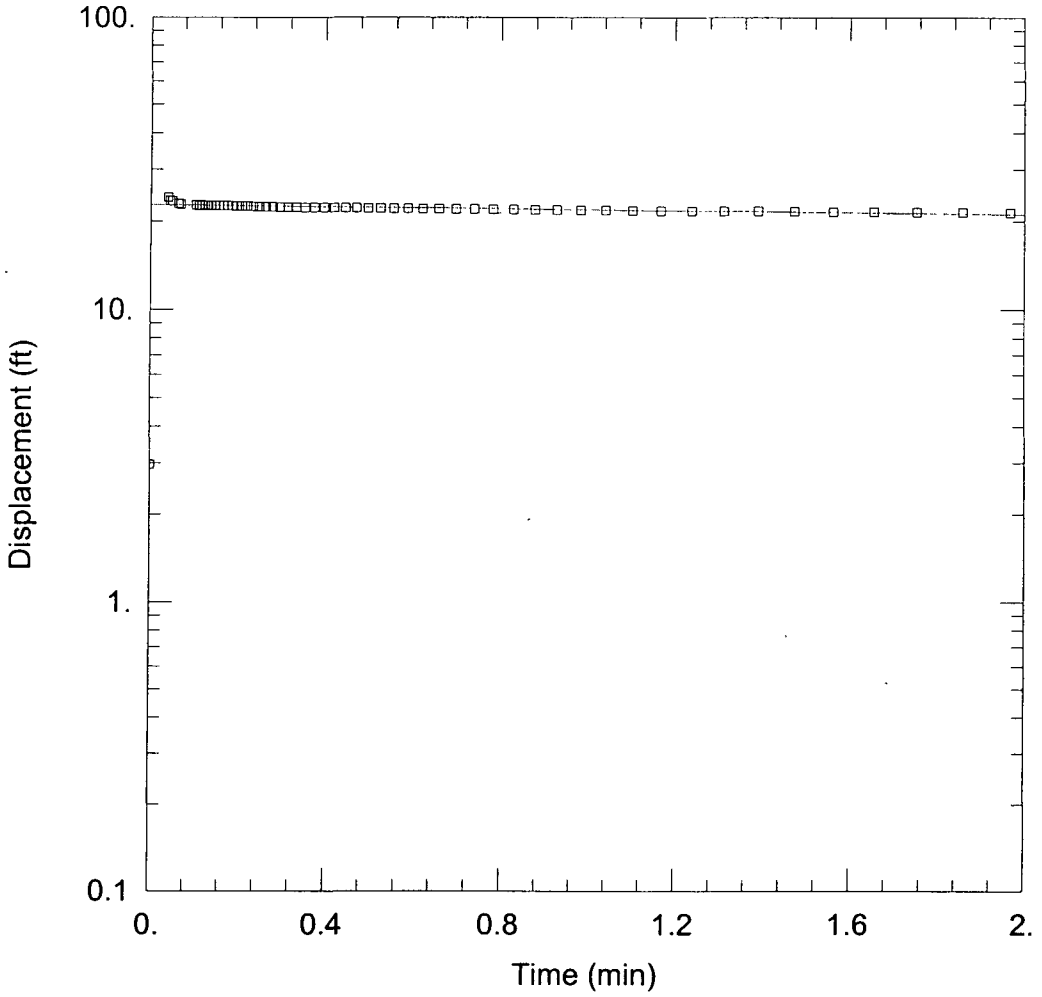
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (17D_Rise)

Initial Displacement: 2.9 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.327 ft/day
y0 = 1.478 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\17D_Fall.aqt
Date: 05/21/03 Time: 08:09:39

PROJECT INFORMATION

Test Well: 17D_Fall

AQUIFER DATA

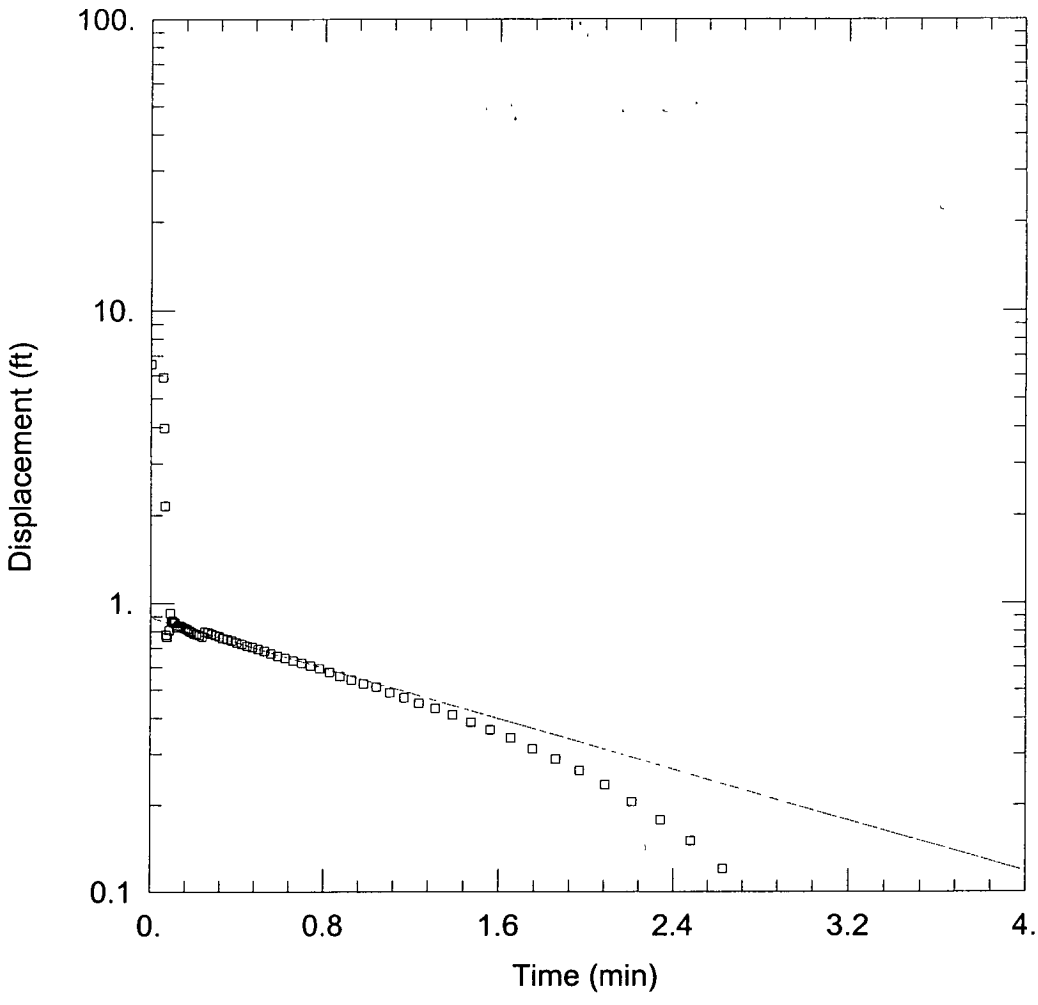
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (17D_Fall)

Initial Displacement: 2.96 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.06838 ft/day
y0 = 22.72 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\18D_Rise.aqt
Date: 05/21/03 Time: 08:10:27

PROJECT INFORMATION

Test Well: 18D_Rise

AQUIFER DATA

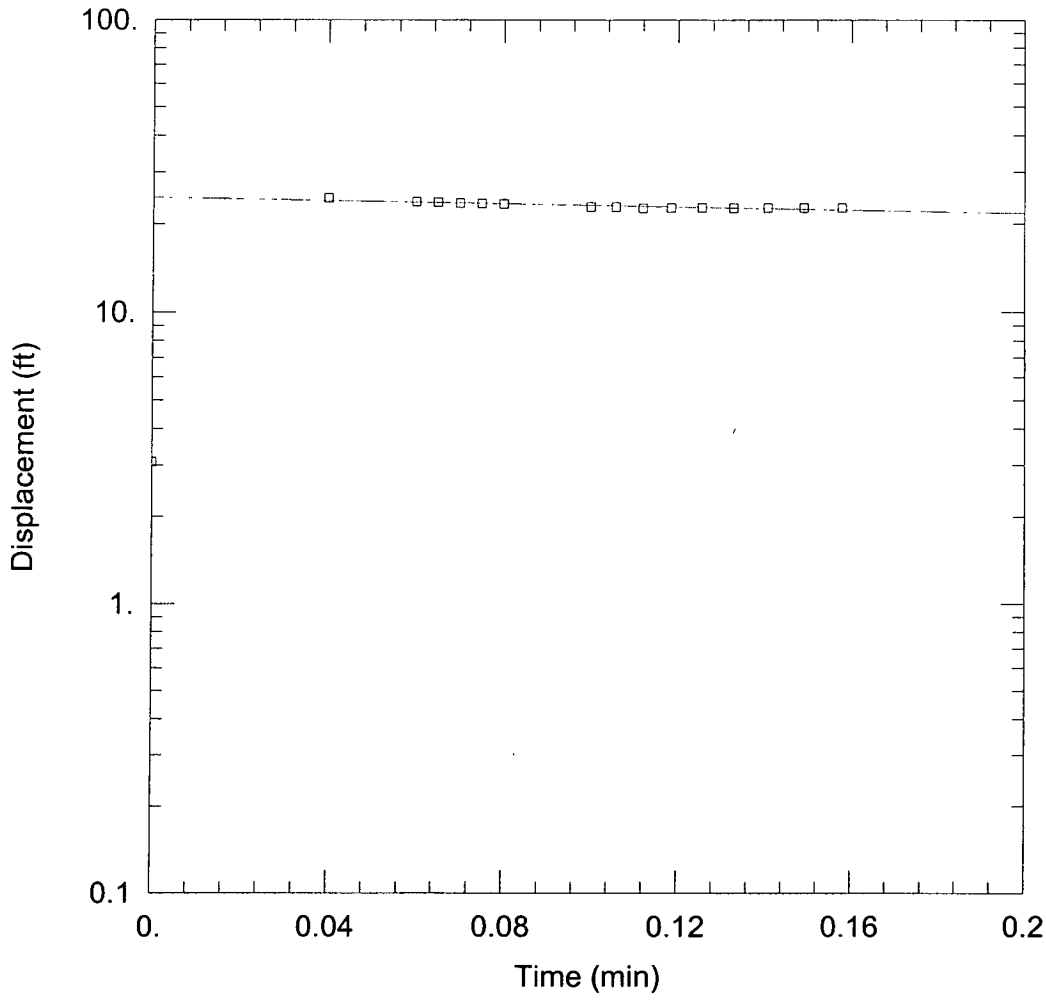
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (18D_Rise)

Initial Displacement: 6.55 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.9265 ft/day
y0 = 0.8924 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\18D_Fall.aqt
Date: 05/21/03 Time: 08:10:42

PROJECT INFORMATION

Test Well: 18D_Fall

AQUIFER DATA

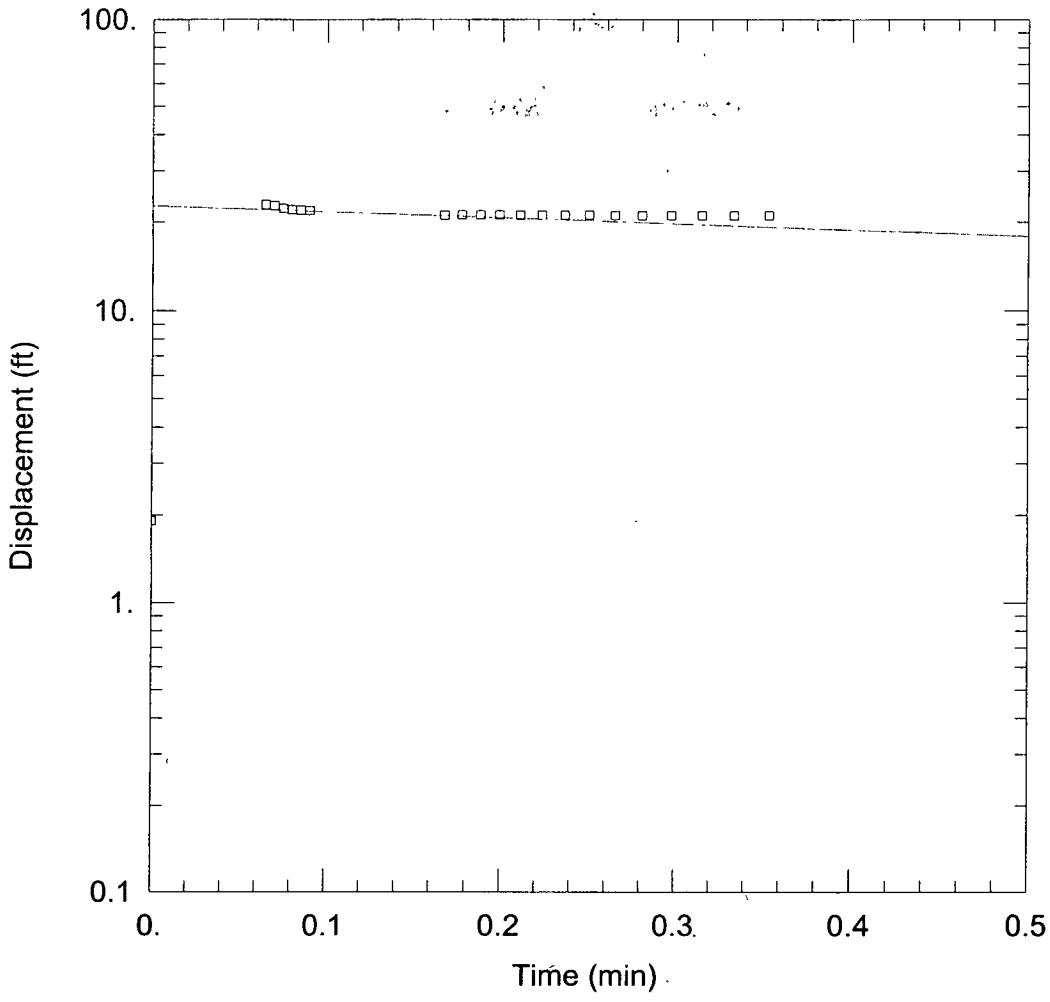
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (18D_Fall)

Initial Displacement: 3.08 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.134 ft/day
y0 = 24.57 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\19D_Rise.aqt
Date: 05/21/03 Time: 08:10:56

PROJECT INFORMATION

Test Well: 19D_Rise

AQUIFER DATA

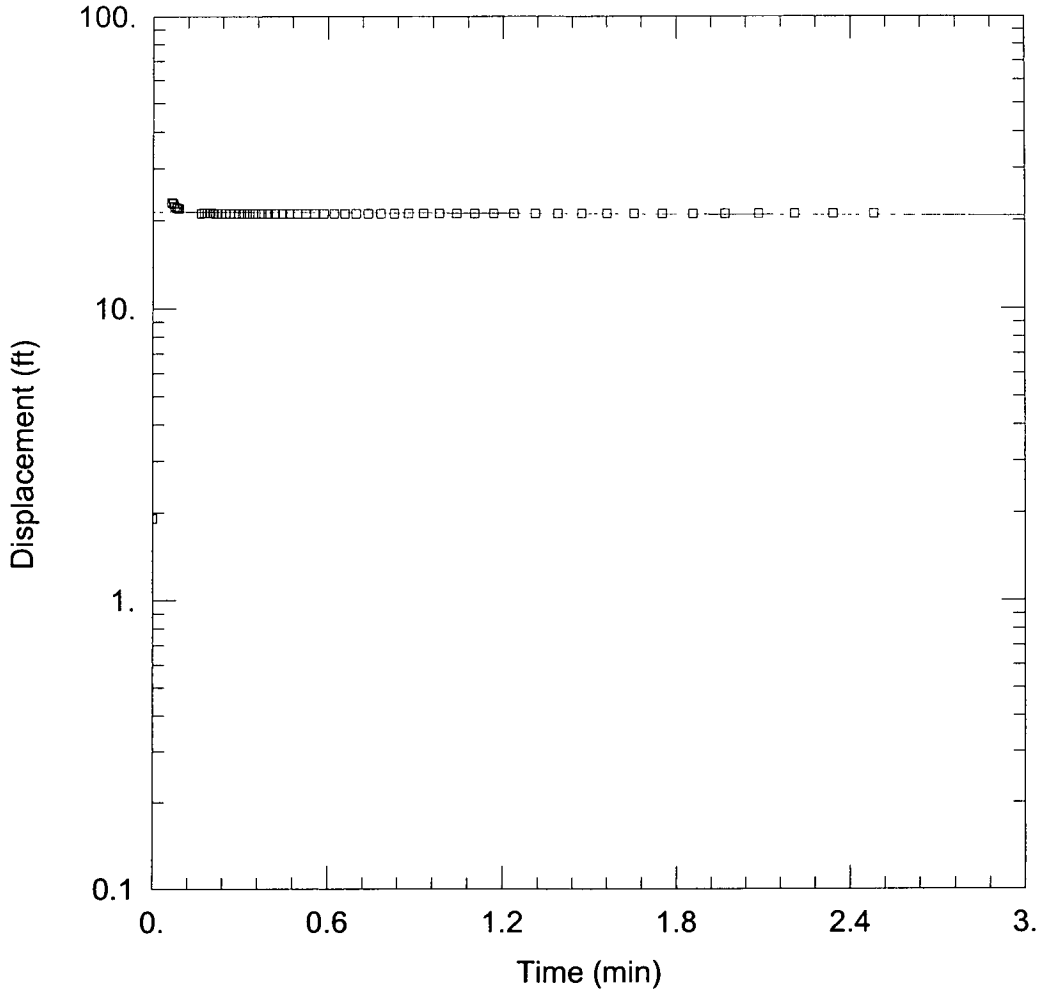
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (19D_Fall)

Initial Displacement: 1.91 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.8733 ft/day
y0 = 22.72 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\19D_Fall.aqt
Date: 05/21/03 Time: 08:11:10

PROJECT INFORMATION

Test Well: 19D_Fall

AQUIFER DATA

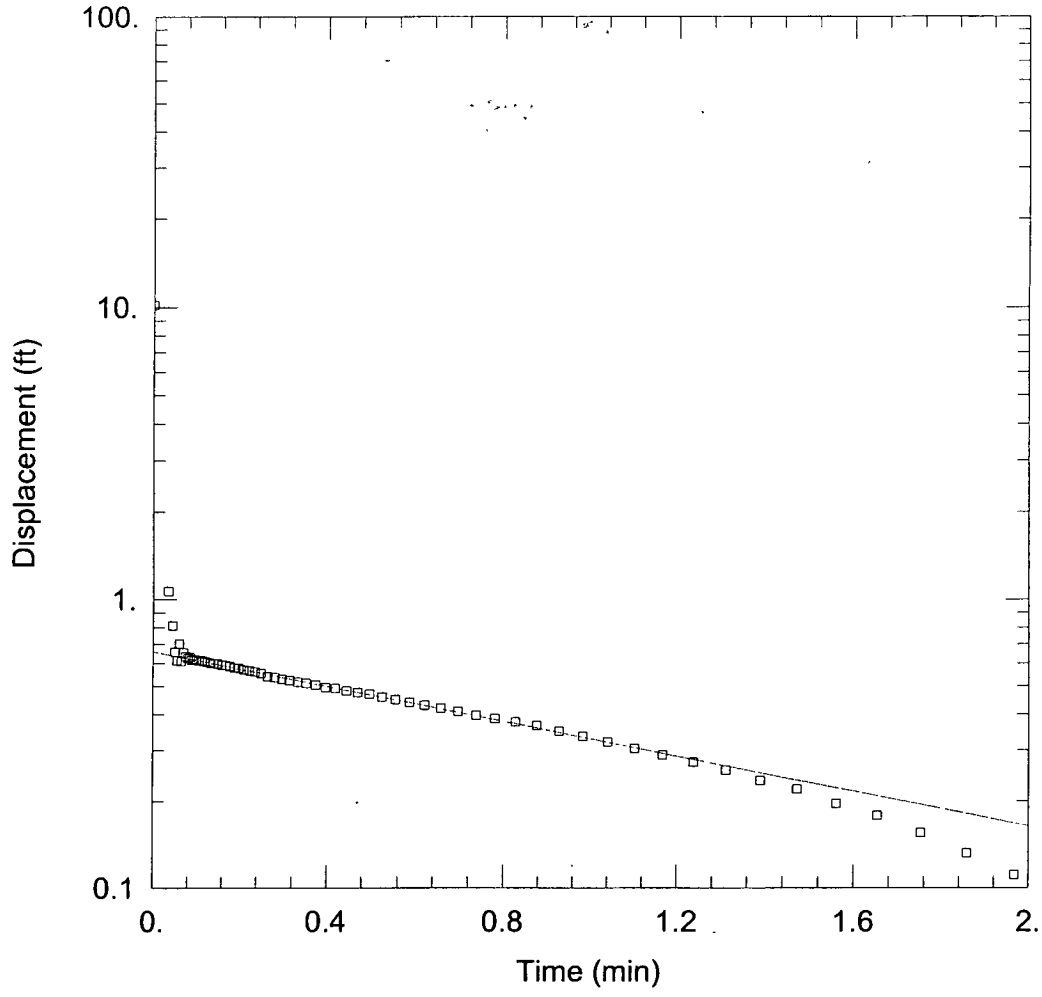
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (19D_Fall)

Initial Displacement: 1.91 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02099 ft/day
y0 = 21.36 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\20D_Rise.aqt
Date: 05/21/03 Time: 08:11:25

PROJECT INFORMATION

Test Well: 20D_Rise

AQUIFER DATA

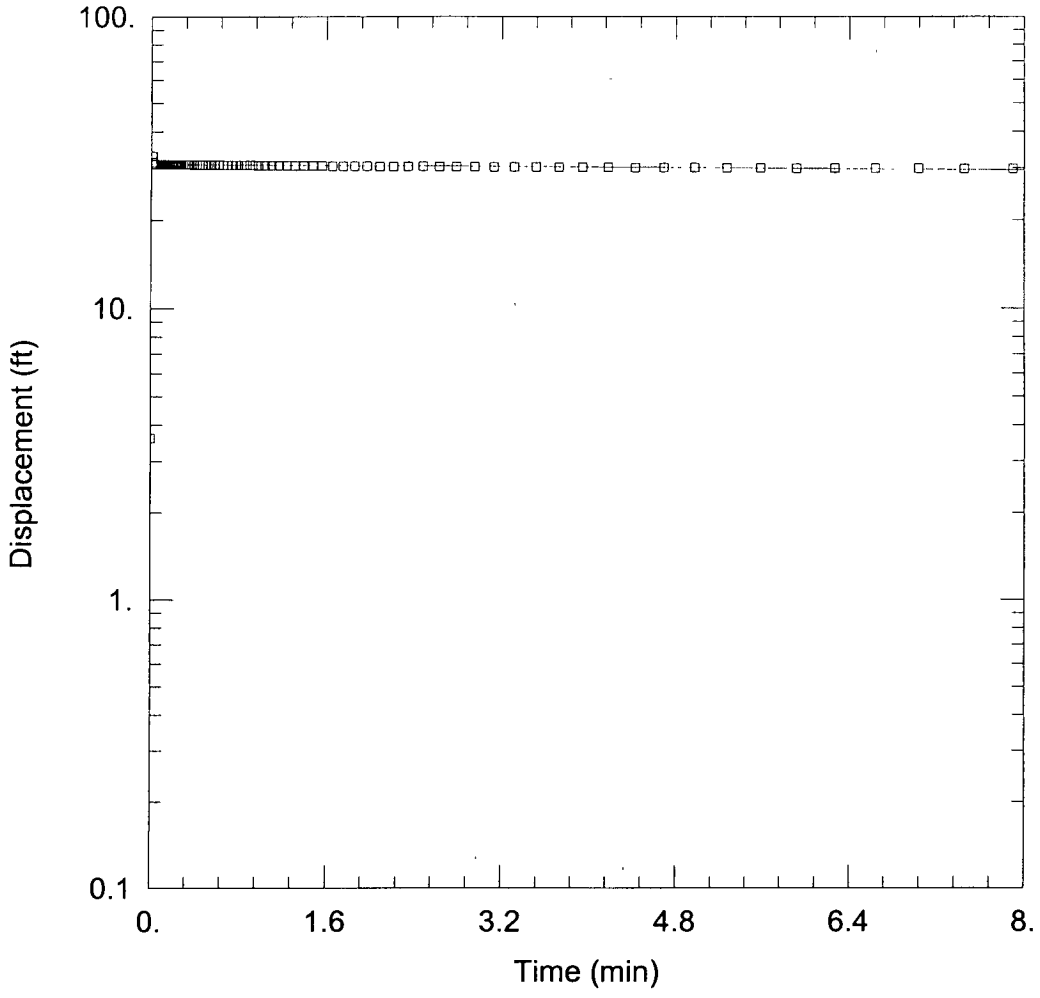
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (20D_Rise)

Initial Displacement: 10.17 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
K = 1.275 ft/day
Solution Method: Bouwer-Rice
y0 = 0.6596 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\20D_Fall.aqt
Date: 05/21/03 Time: 08:11:40

PROJECT INFORMATION

Test Well: 20D_Fall

AQUIFER DATA

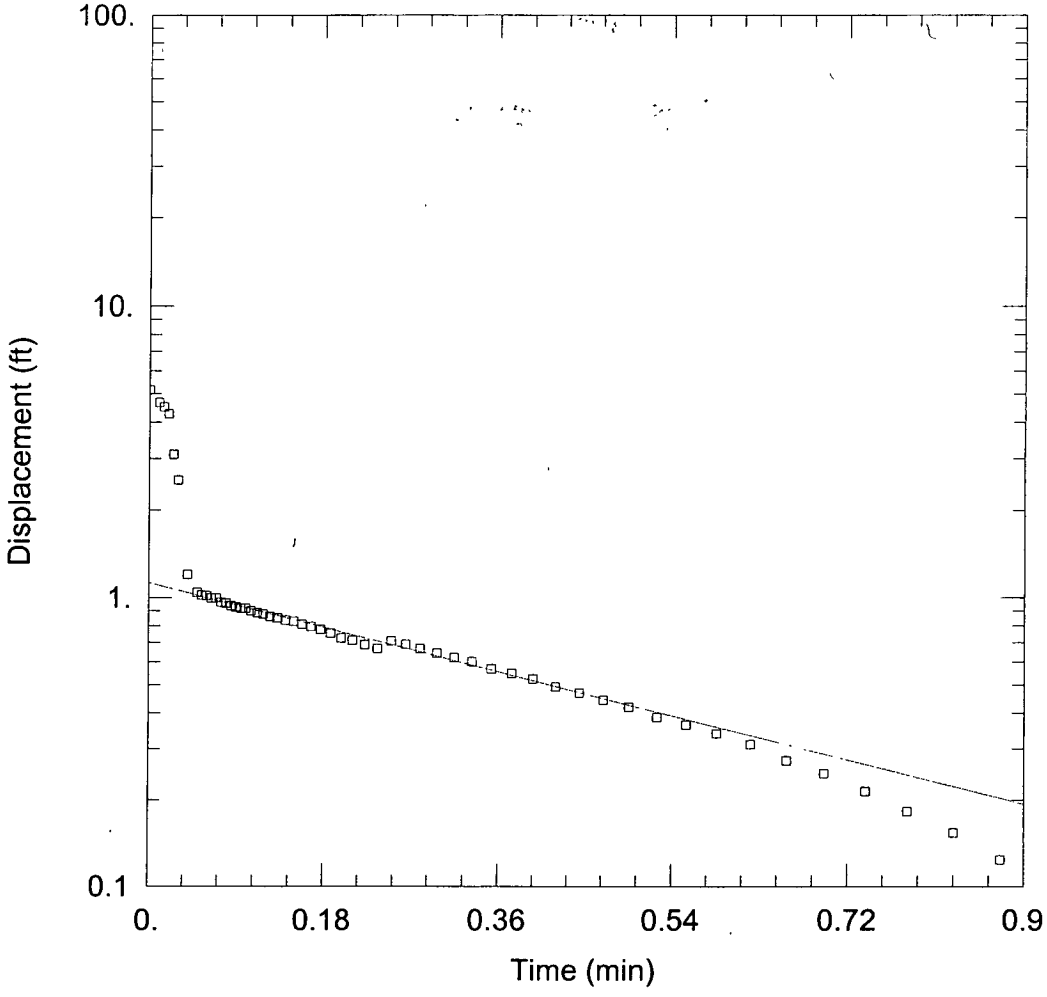
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (20D_Fall)

Initial Displacement: 3.6 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01075 ft/day
y0 = 30.95 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\21D_Rise.aqt
Date: 05/21/03 Time: 08:11:56

PROJECT INFORMATION

Test Well: 21D_Rise

AQUIFER DATA

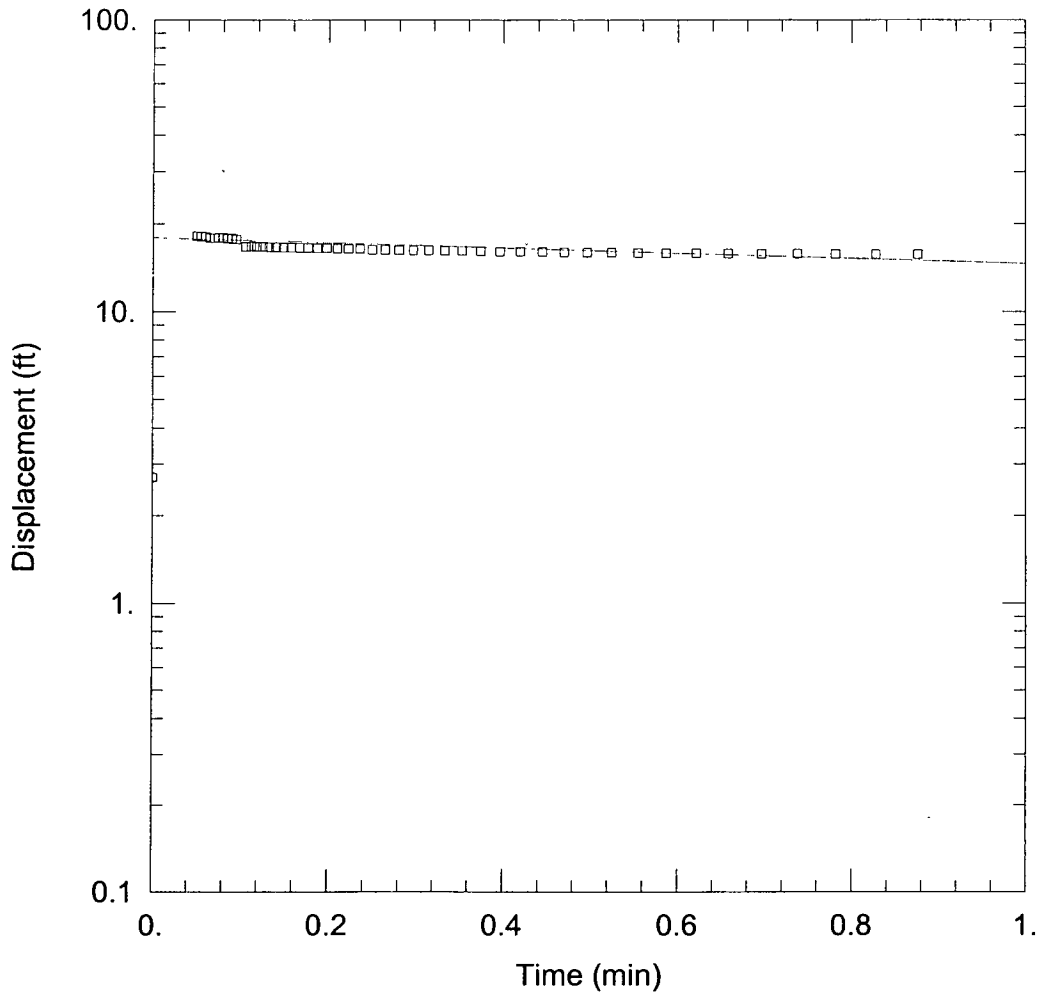
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (21D_Rise)

Initial Displacement: 5.16 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.582 ft/day
y0 = 1.124 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\21D_Fall.aqt
Date: 05/21/03 Time: 08:12:09

PROJECT INFORMATION

Test Well: 21D_Fall

AQUIFER DATA

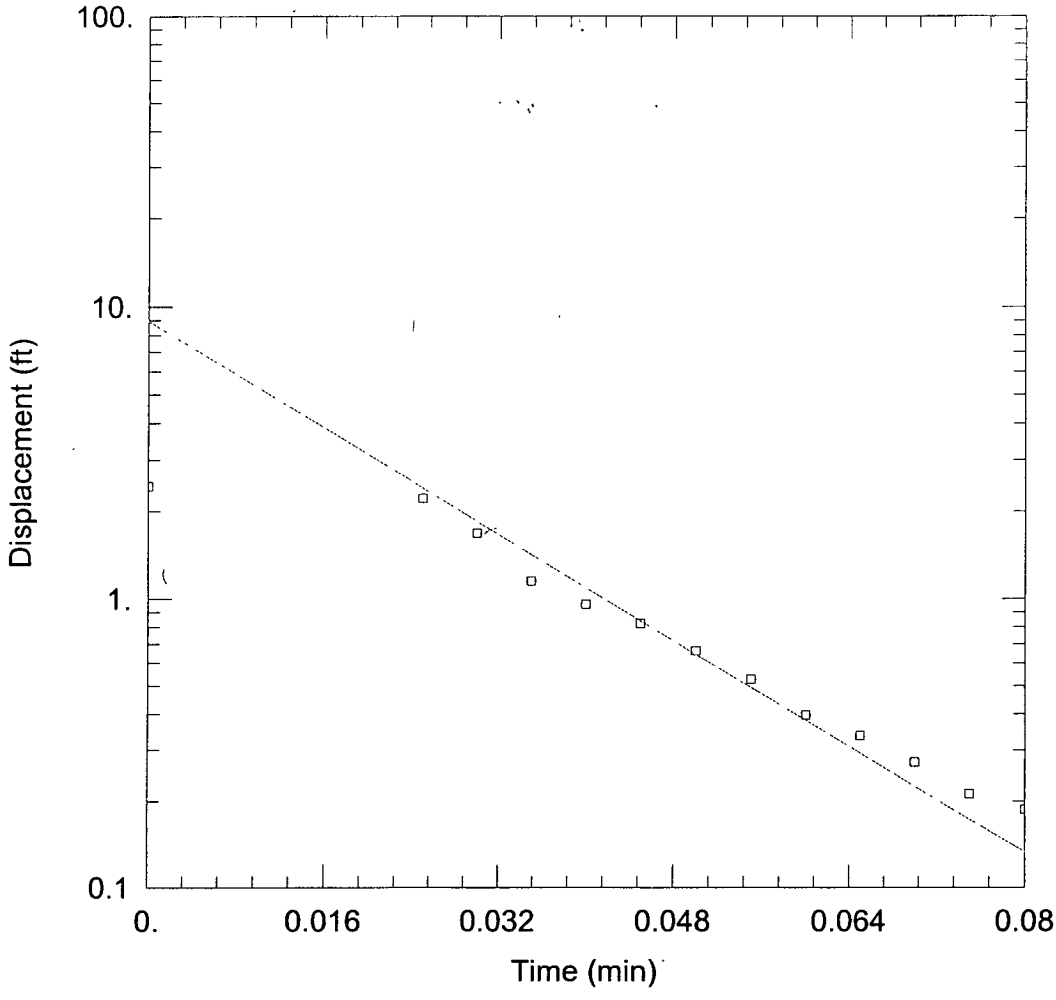
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (21D_Fall)

Initial Displacement: 2.7 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3724 ft/day
y0 = 17.92 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\22D_Rise.aqt
Date: 05/21/03 Time: 08:12:28

PROJECT INFORMATION

Test Well: 22D_Rise

AQUIFER DATA

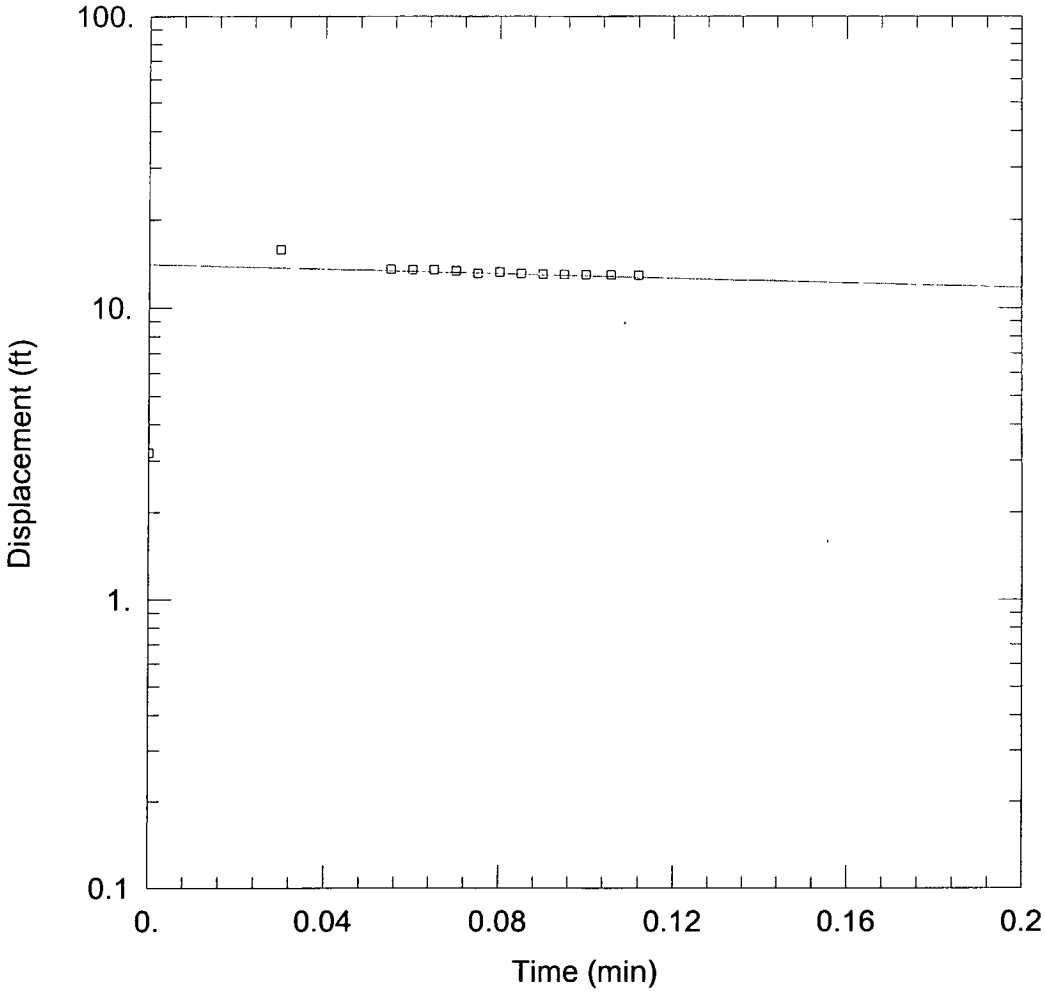
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (22D_Rise)

Initial Displacement: 2.44 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 96.36 ft/day
y0 = 8.923 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\22D_Fall.aqt
Date: 05/21/03 Time: 08:12:43

PROJECT INFORMATION

Test Well: 22D_Fall

AQUIFER DATA

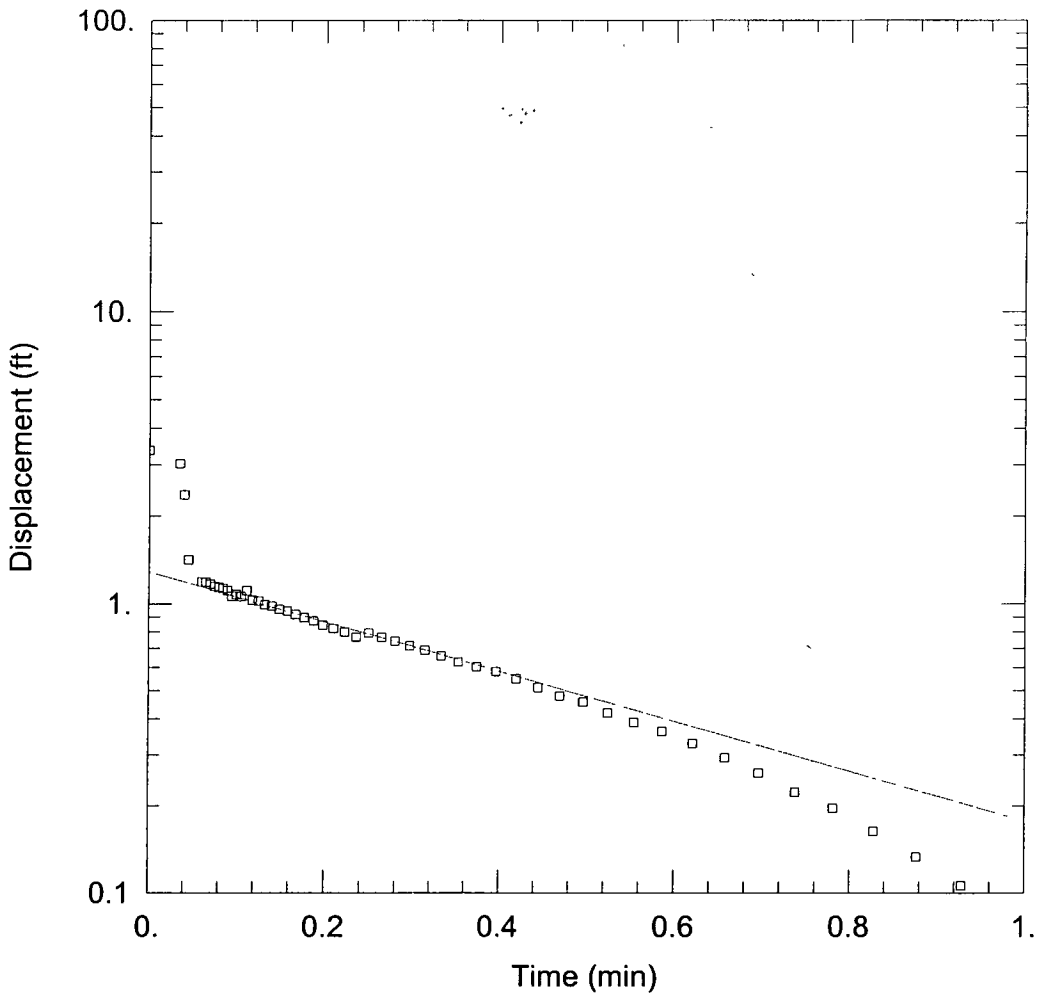
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (22D_Fall)

Initial Displacement: 3.19 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.666 ft/day
y0 = 14.05 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\23D_Rise.aqt
Date: 05/21/03 Time: 08:12:54

PROJECT INFORMATION

Test Well: 23D_Rise

AQUIFER DATA

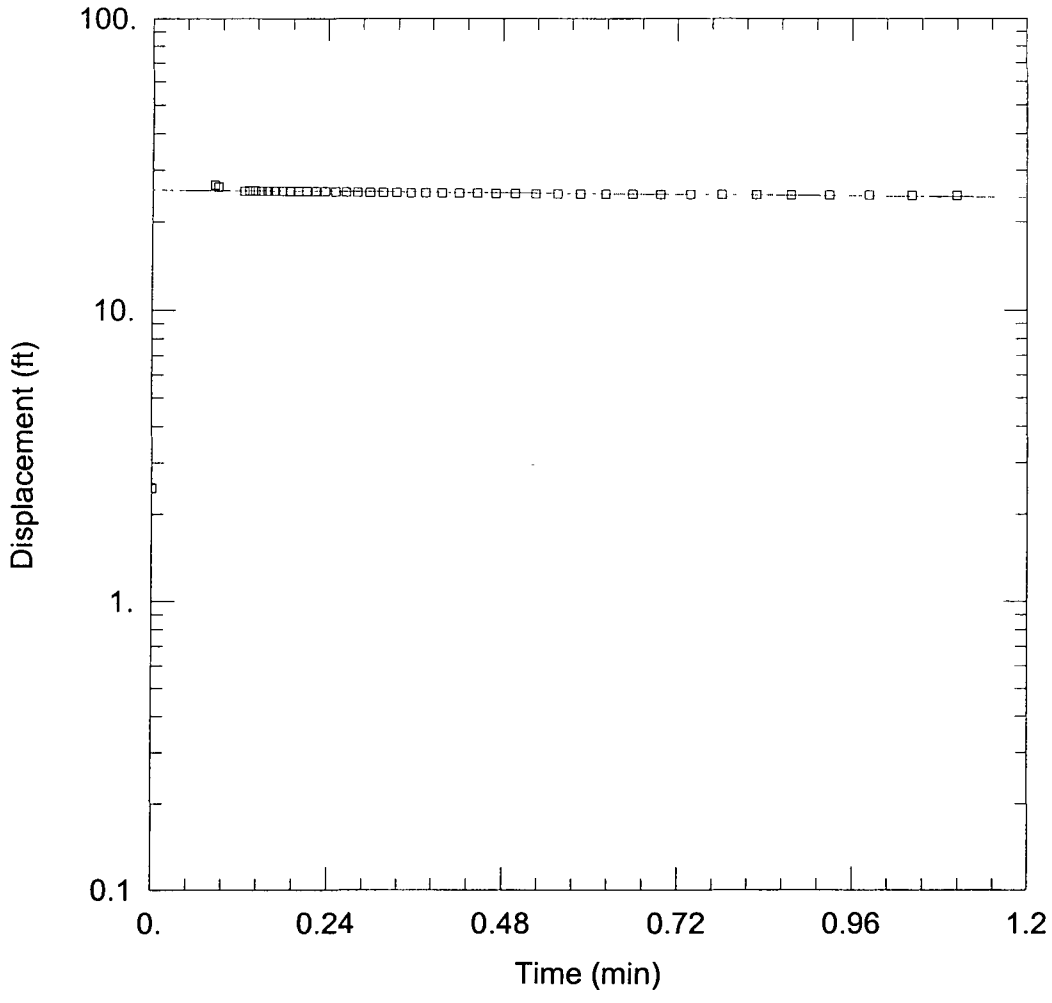
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (23D_Rise)

Initial Displacement: 3.37 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.633 ft/day
y0 = 1.288 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\23D_Fall.aqt
Date: 05/21/03 Time: 08:13:08

PROJECT INFORMATION

Test Well: 23D_Fall

AQUIFER DATA

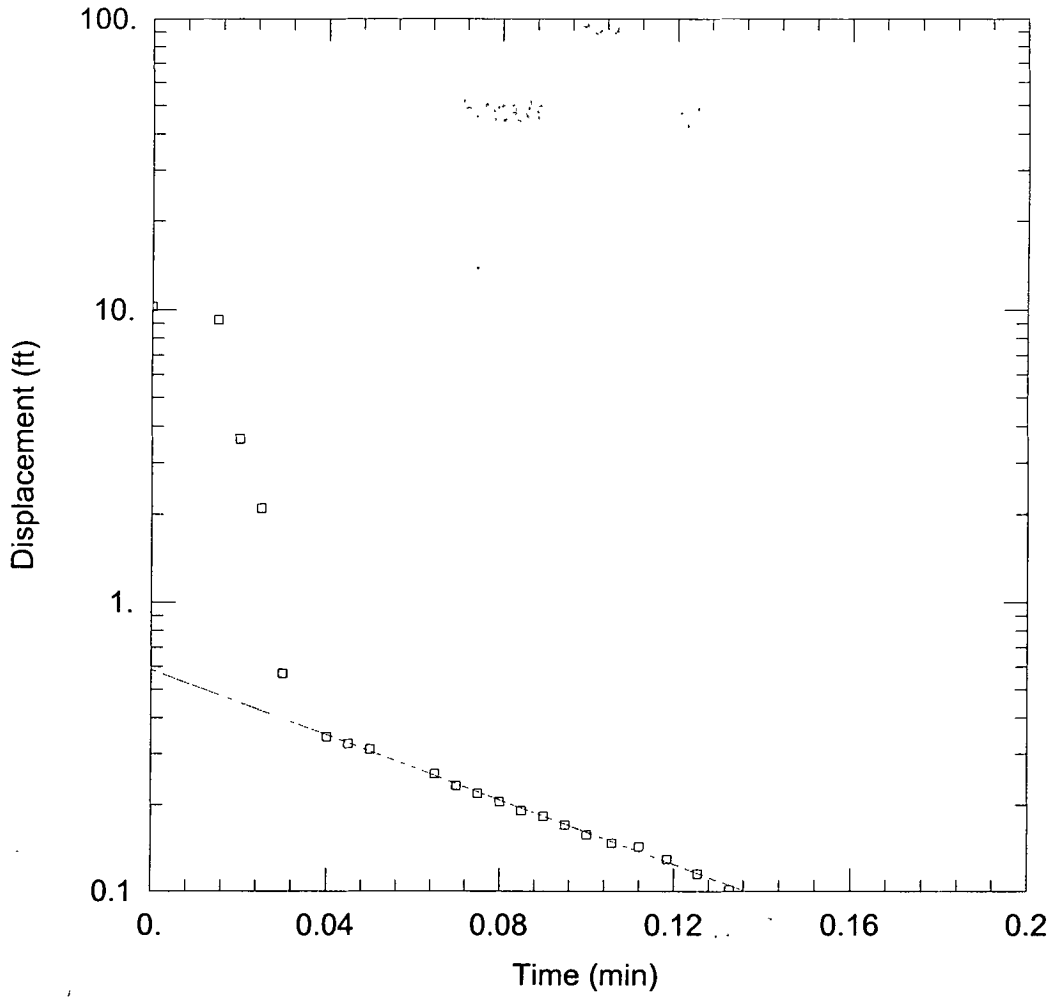
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (23D_Fall)

Initial Displacement: 2.46 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.09328 ft/day
y0 = 25.72 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\24D_Rise.aqt
Date: 05/21/03 Time: 08:13:23

PROJECT INFORMATION

Test Well: 24D_Rise

AQUIFER DATA

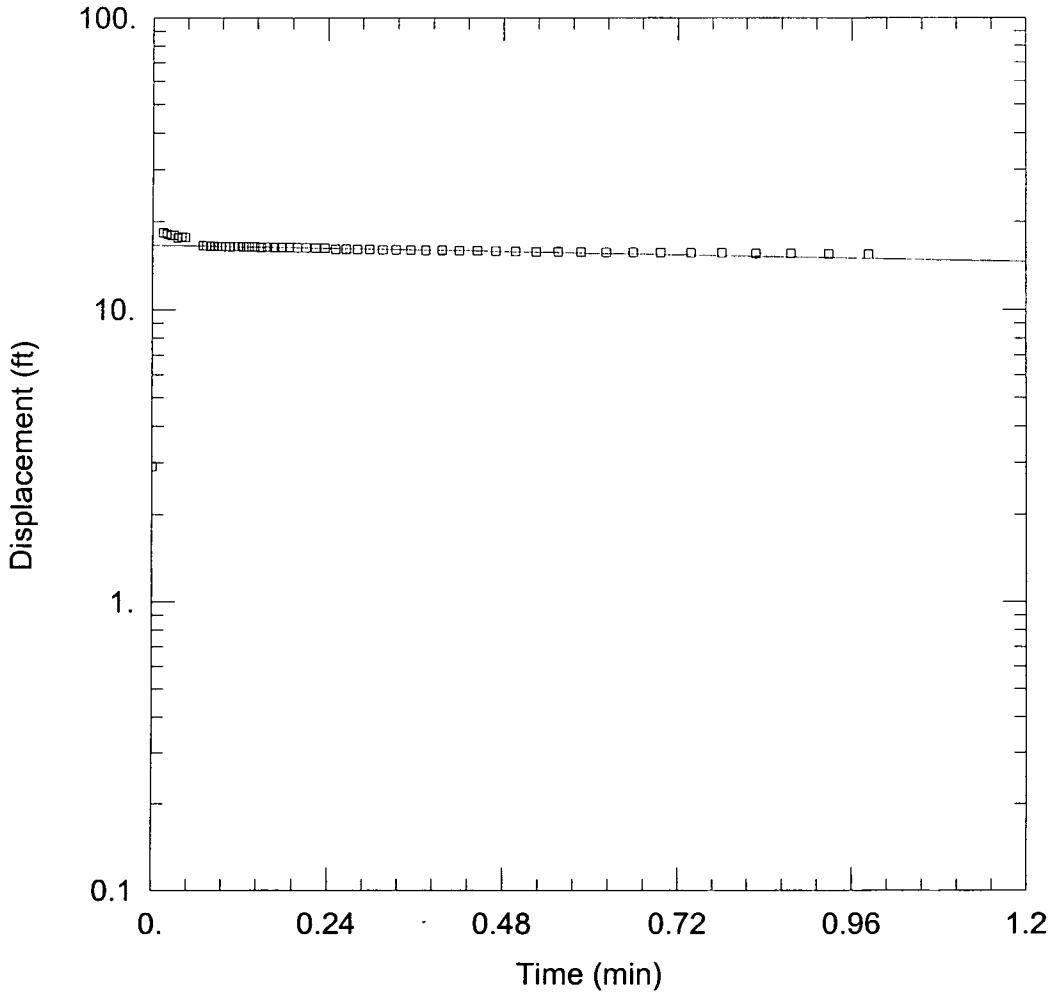
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (24D_Rise)

Initial Displacement: 10.25 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 23.74 ft/day
y0 = 0.5861 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\24D_Fall.aqt
Date: 05/21/03 Time: 08:13:36

PROJECT INFORMATION

Test Well: 24D_Fall

AQUIFER DATA

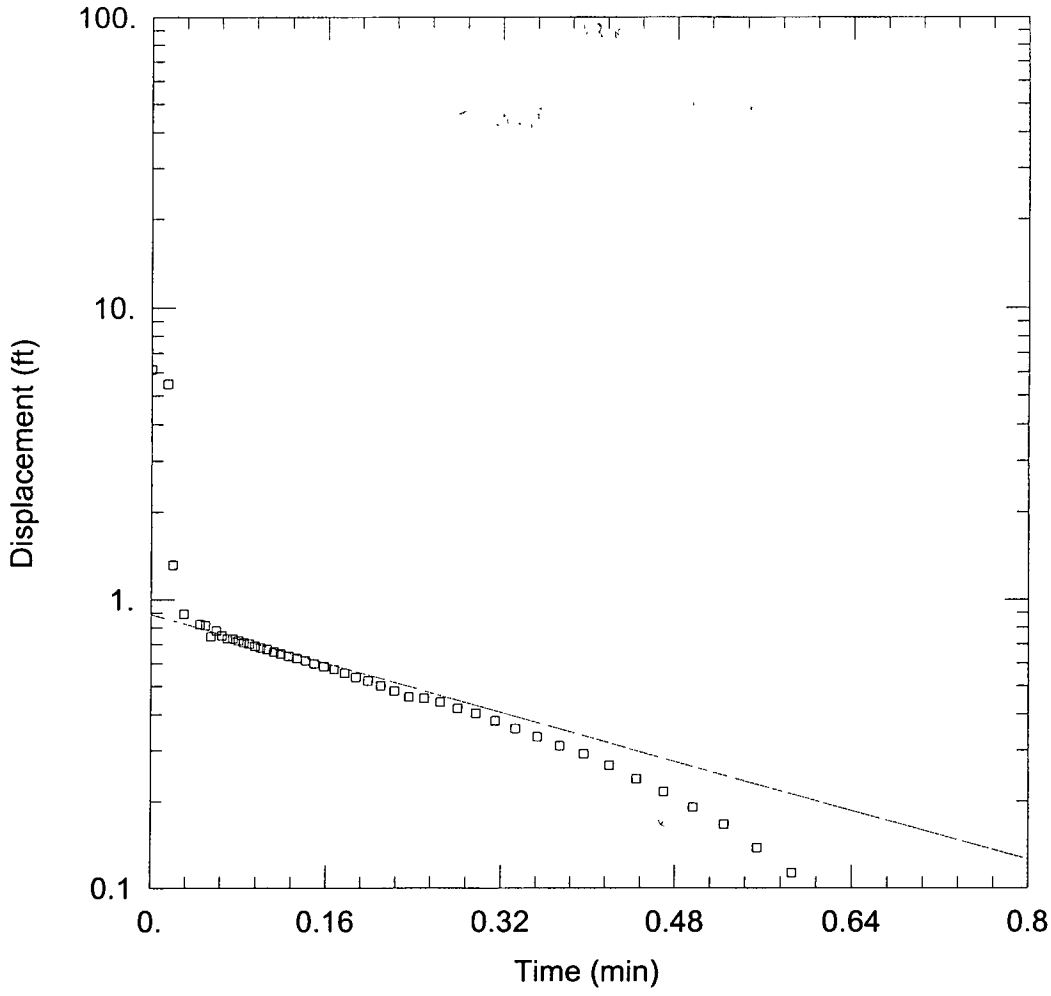
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (24D_Fall)

Initial Displacement: 2.91 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1954 ft/day
y0 = 16.59 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\25D_Rise.aqt
Date: 05/21/03 Time: 08:13:49

PROJECT INFORMATION

Test Well: 25D_Rise

AQUIFER DATA

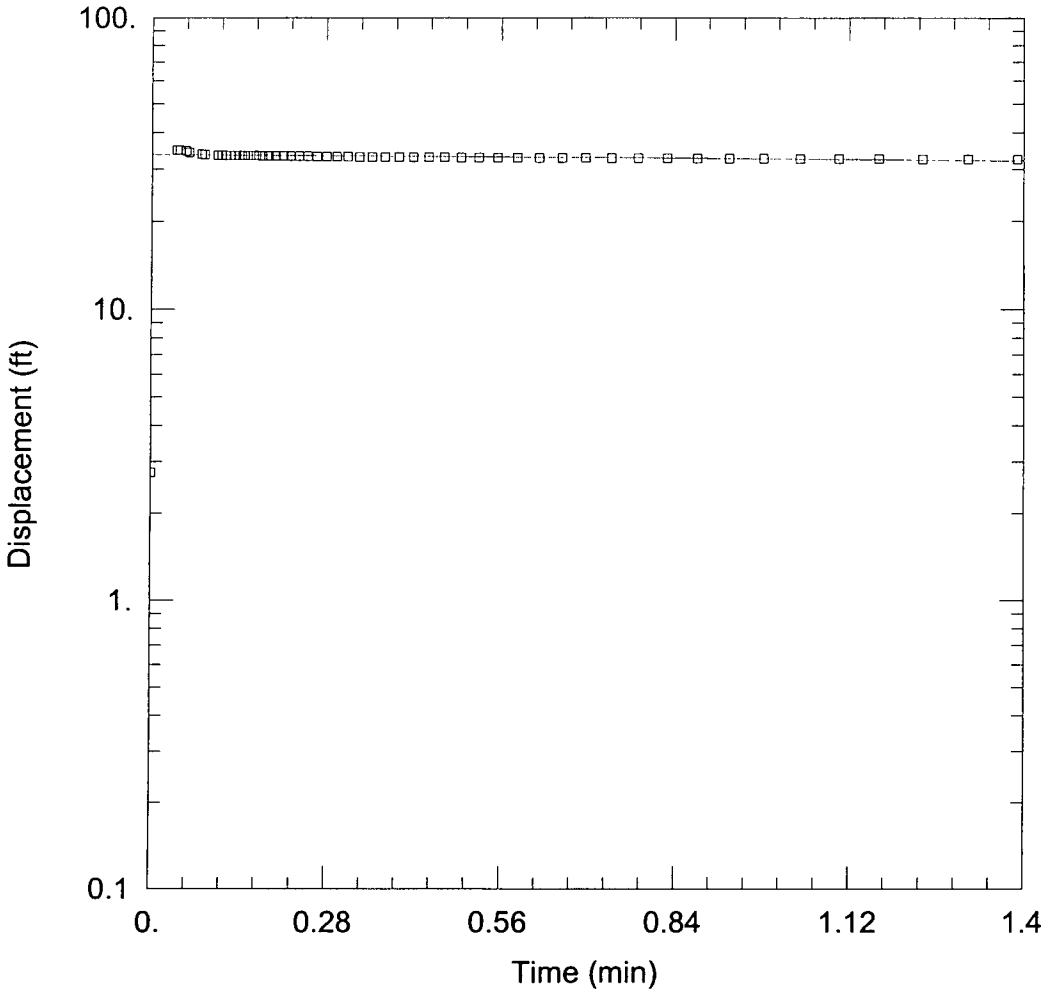
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (25D_Rise)

Initial Displacement: 6.15 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 4.48 ft/day y0 = 0.8874 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\25D_Fall.aqt
Date: 05/21/03 Time: 08:14:02

PROJECT INFORMATION

Test Well: 25D_Fall

AQUIFER DATA

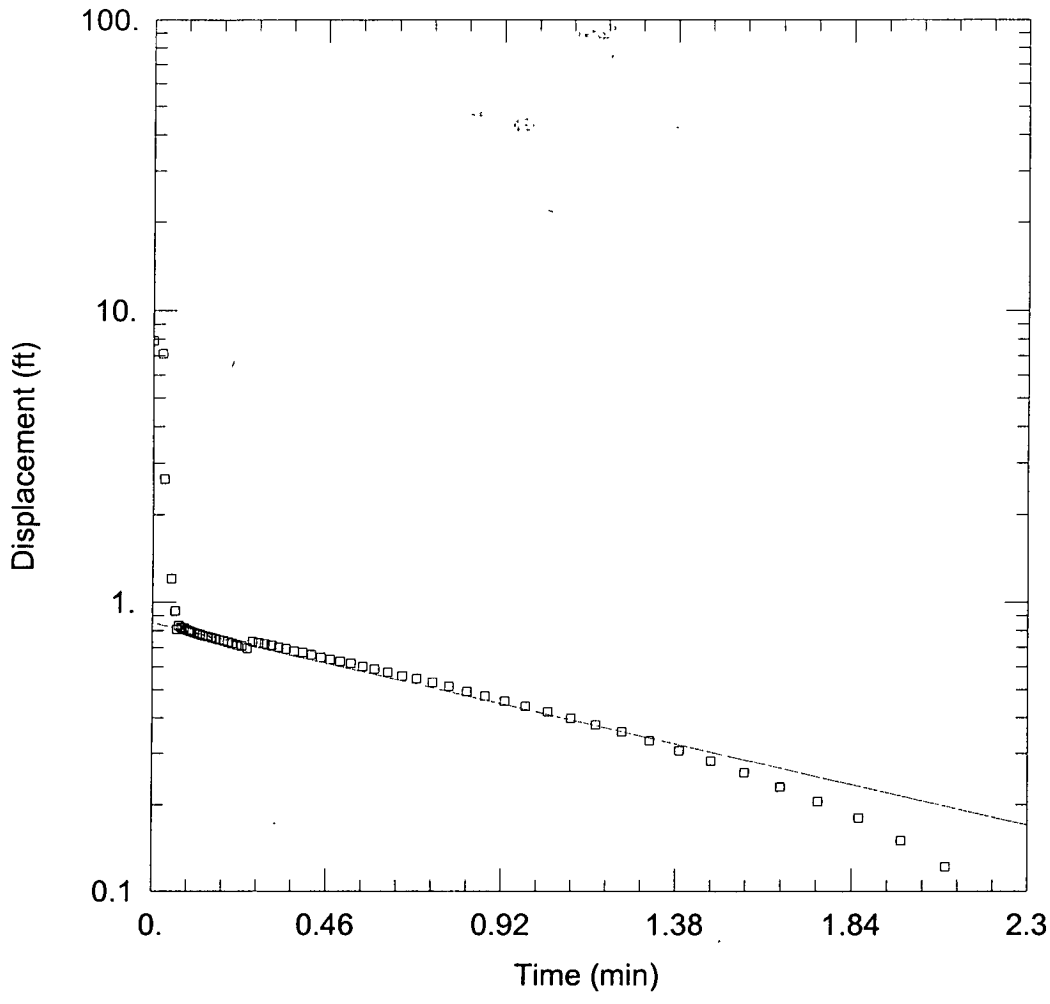
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (25D_Fall)

Initial Displacement: 2.76 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.06086 ft/day
y0 = 33.68 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\26D_Rise.aqt
Date: 05/21/03 Time: 08:14:15

PROJECT INFORMATION

Test Well: 26D_Rise

AQUIFER DATA

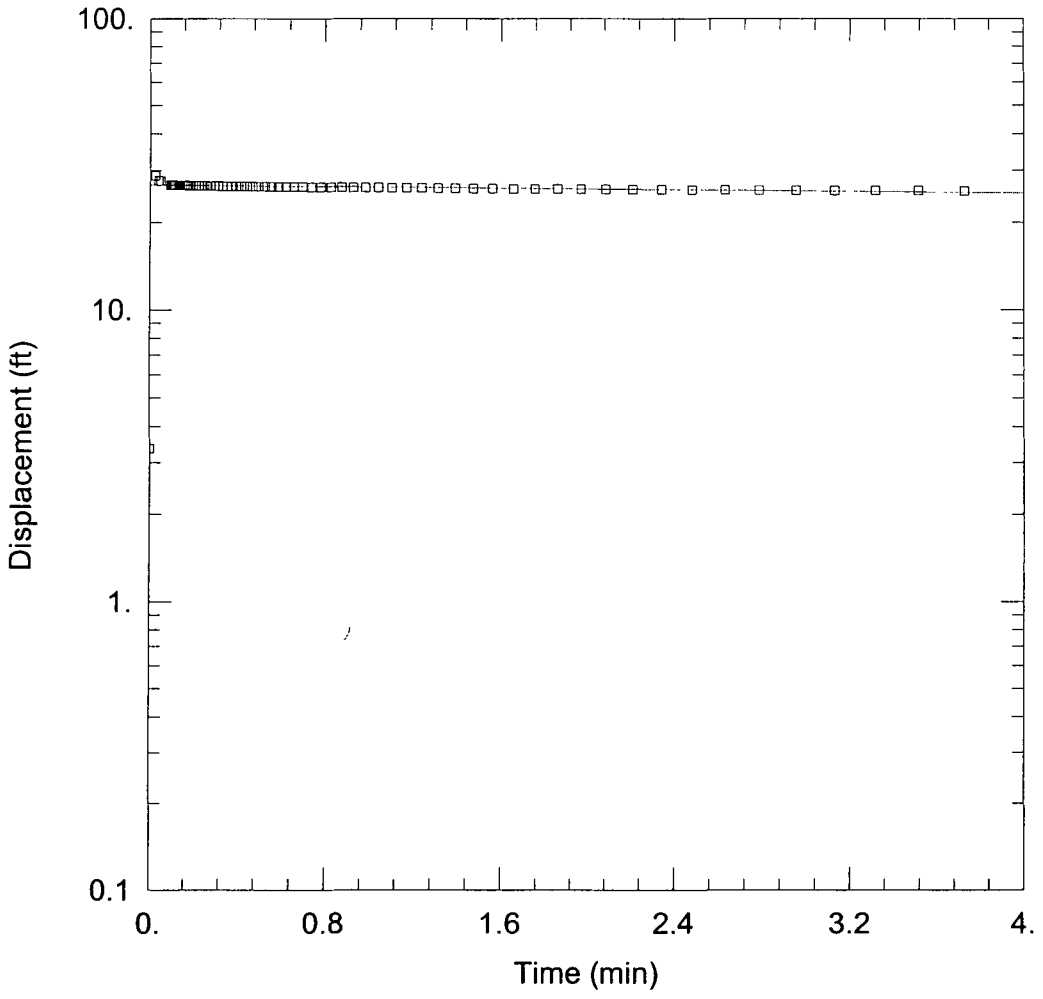
Saturated Thickness: 9. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (26D_Rise)

Initial Displacement: 7.89 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 9. ft
Total Well Penetration Depth: 9. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.394 ft/day
y0 = 0.8516 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase I RI Slug Tests\AQTESolv Files\26D_Fall.aqt
Date: 05/21/03 Time: 08:14:29

PROJECT INFORMATION

Test Well: 26D_Fall

AQUIFER DATA

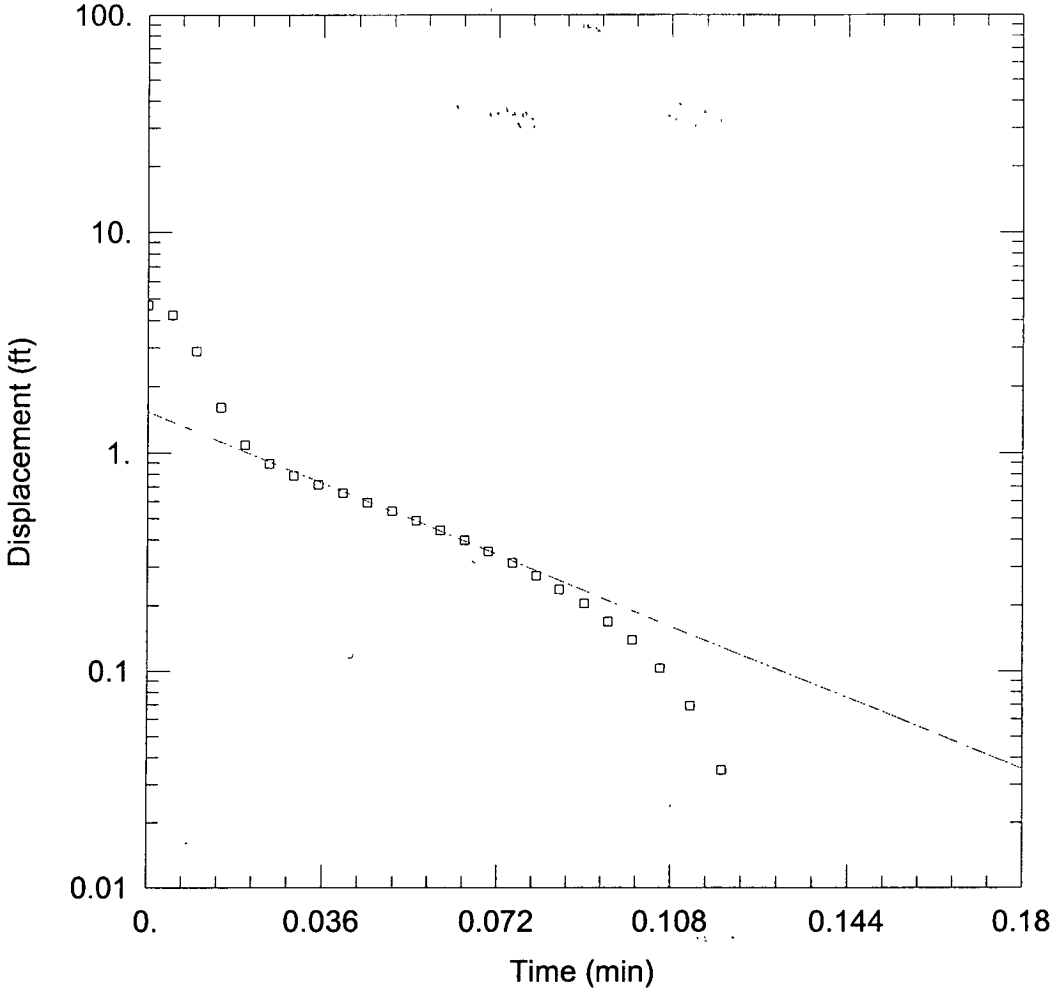
Saturated Thickness: 9. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (26D_Fall)

Initial Displacement: 3.36 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 9. ft
Total Well Penetration Depth: 9. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03038 ft/day
y0 = 26.74 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\27D_Rise.aqt
Date: 05/20/03 Time: 16:00:37

PROJECT INFORMATION

Test Well: 27D_Rise

AQUIFER DATA

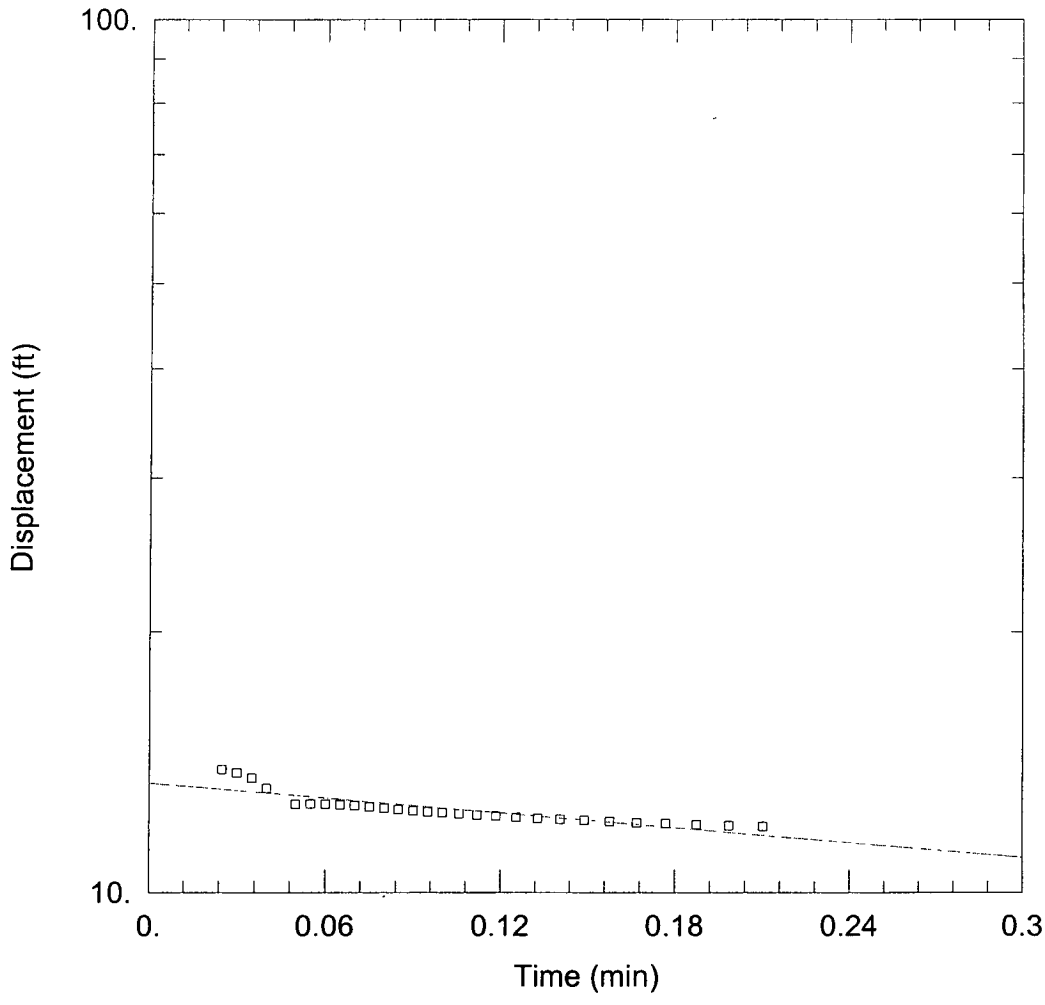
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (27D_Rise)

Initial Displacement: 4.68 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 38.37 ft/day
y0 = 1.539 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\27D_Fall.aqt
Date: 05/21/03 Time: 07:52:59

PROJECT INFORMATION

Test Well: 27D_Fall

AQUIFER DATA

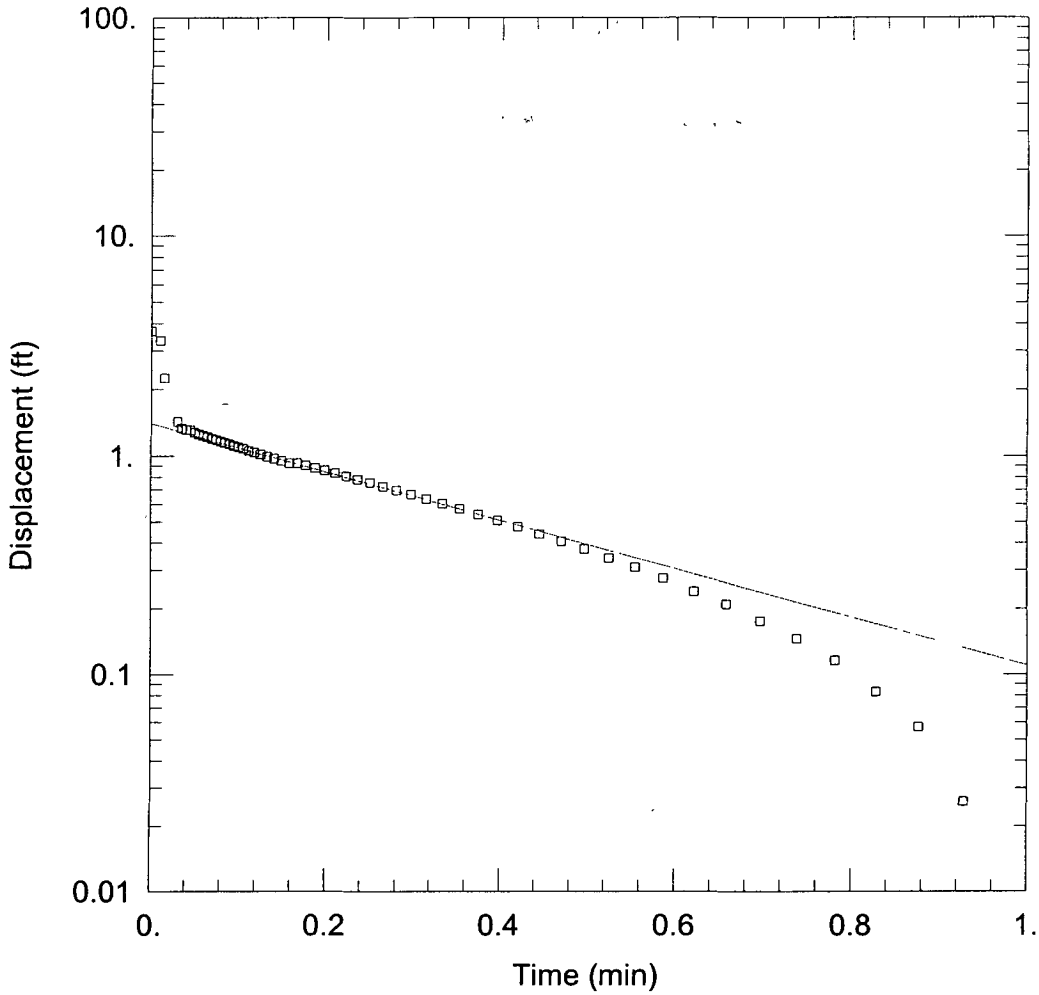
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (27D_Fall)

Initial Displacement: 2.1 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.206 ft/day
y0 = 13.37 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\28D_Rise.aqt
Date: 05/20/03 Time: 16:00:57

PROJECT INFORMATION

Test Well: 28D_Rise

AQUIFER DATA

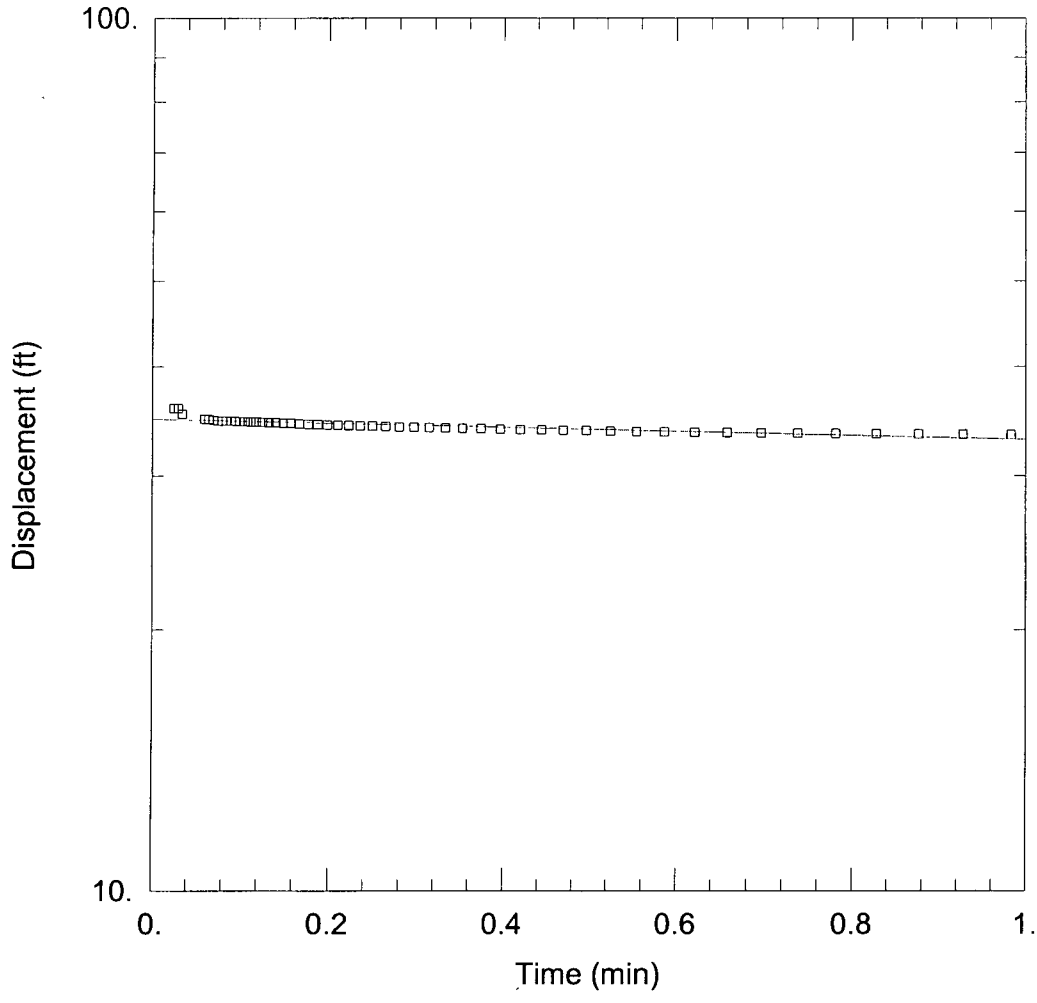
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (28D_Rise)

Initial Displacement: 3.69 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 4.662 ft/day y0 = 1.402 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\28D_Fall.aqt
Date: 05/21/03 Time: 07:53:04

PROJECT INFORMATION

Test Well: 28D_Fall

AQUIFER DATA

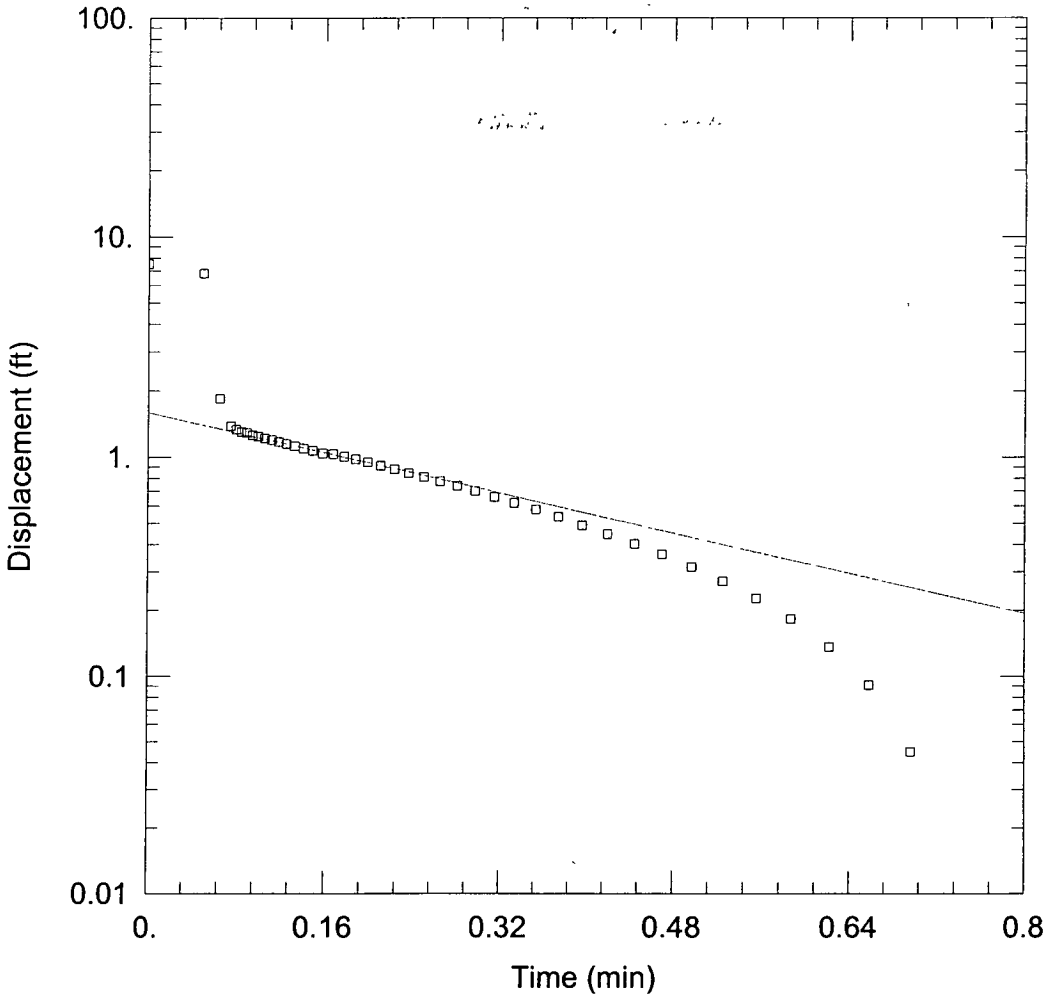
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (28D_Fall)

Initial Displacement: 5.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.09797 ft/day
y0 = 34.85 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\29D_Rise.aqt
Date: 05/20/03 Time: 16:06:30

PROJECT INFORMATION

Test Well: 29D_Rise

AQUIFER DATA

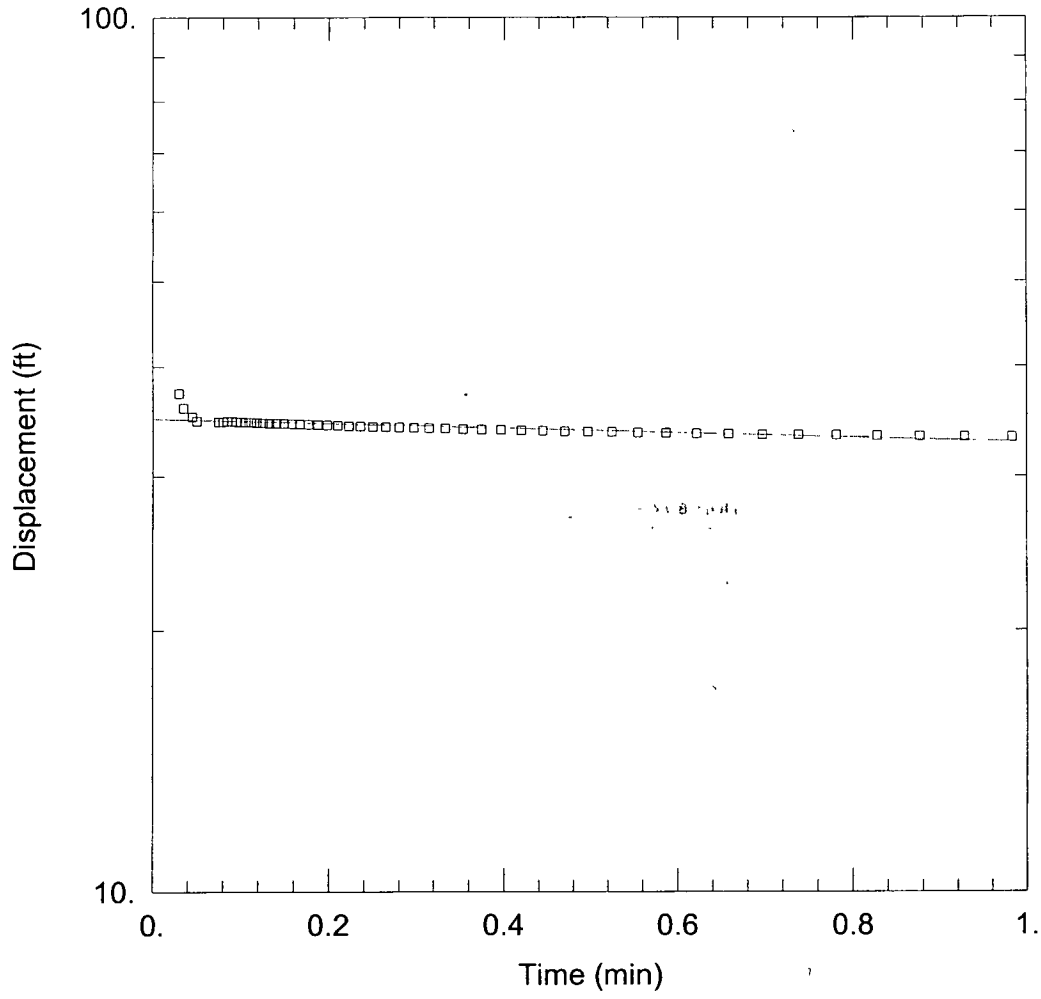
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (29D_Rise)

Initial Displacement: 7.52 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.827 ft/day
y0 = 1.594 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\29D_Fall.aqt
Date: 05/21/03 Time: 07:53:09

PROJECT INFORMATION

Test Well: 29D_Fall

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (29D_Fall)

Initial Displacement: 4.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1132 ft/day
y0 = 34.91 ft

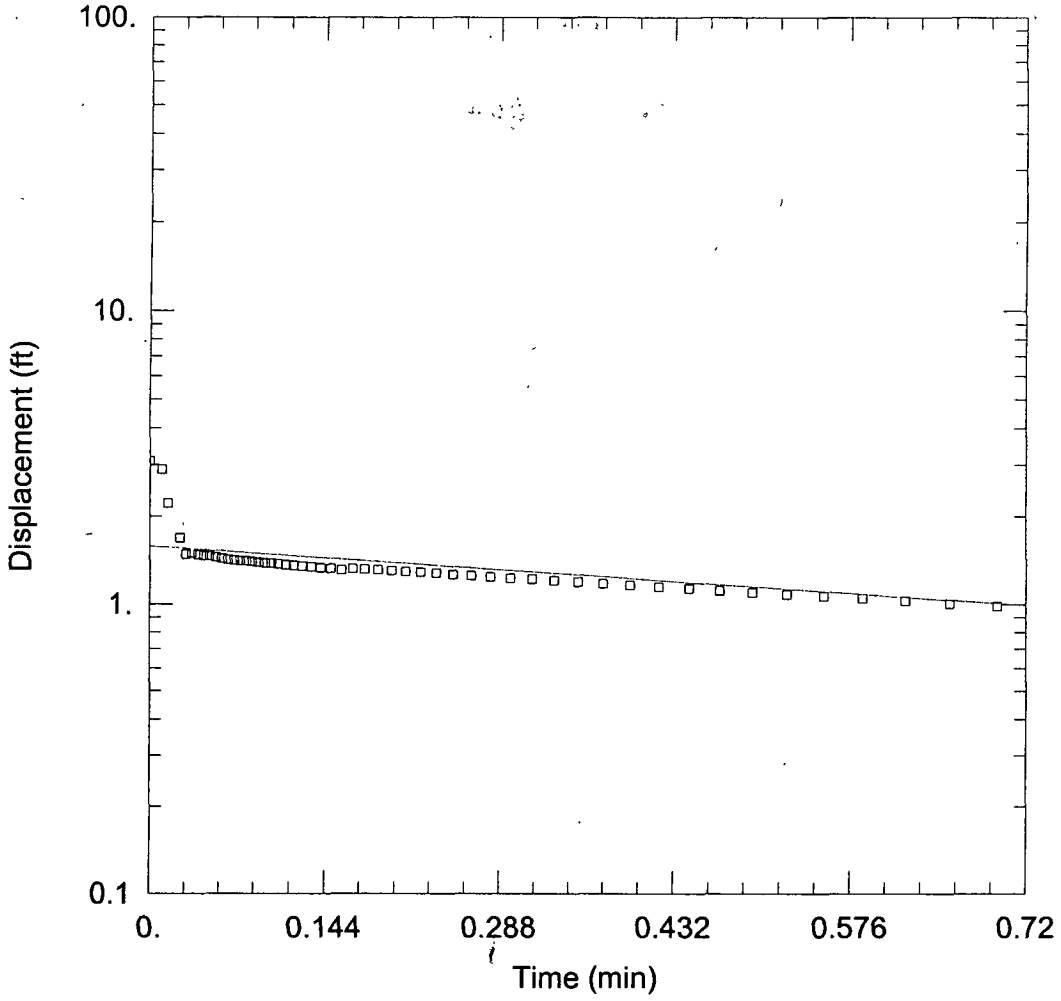
Appendix F.2

Phase II
Slug Test Data and Analysis

SUMMARY OF COLLECTION OF SLUG TEST DATA
PHASE II RI, SITE 16, NCBC DAVISVILLE

Well Number	Date	Start Time	Finish Time	Notes
MW16-01S	10/28/02			Not enough water to run test.
MW16-02I	10/28/02	0830	1115	
MW16-02S	10/28/02	1300	1400	Not enough water to run test.
MW16-04I	10/8/02	1125	1150	
MW16-05I	10/8/02	1500	1620	
MW16-07S	10/28/02	1330	1335	Not enough water to run test.
MW16-11S	10/29/02	1000	1100	
MW16-13I	10/15/02	1440	1510	
MW16-14I	10/29/02	1200	1230	
MW16-16I	10/17/02	1330	1415	
MW16-17I	10/11/02			
MW16-17S	10/11/02	0800	0900	
MW16-18I	10/22/02	1045	1115	
MW16-19I	10/22/02	0930	1030	
MW16-20I	9/26/02			
MW16-21I	10/25/02	1240	1340	
MW16-22I	10/25/02	1130	1230	
MW16-24I	10/29/02	1330	1430	
MW16-25I	10/22/02	0830	0915	
MW16-31D	10/29/02	0900	1000	
MW16-32D	10/29/02	1100	1200	
MW16-33D	10/17/02	0850	0930	
MW16-33I	10/17/02	0800	0845	
MW16-33S	10/17/02	0840	0850	Not enough water to run test.
MW16-34D	10/22/02	1315	1345	
MW16-34I	10/22/02	1400	1420	
MW16-34S	10/22/02	1425	1430	Not enough water to run test.
MW16-35D	10/9/02	1330	1435	
MW16-35I	10/9/02	0930	0950	
MW16-35S	10/9/02	1500	1515	Not enough water to run falling test.
MW16-36D	10/17/02	0940	1007	
MW16-37D	10/17/02	0945	1040	
MW16-37I	10/17/02	1100	1145	
MW16-37S	10/17/02	1115	1215	Not enough water to run falling test.
MW16-38I	10/17/02	1420	1510	
MW16-39D	9/26/02	1510	1615	
MW16-39I	10/24/02	0840	0930	
MW16-40S	10/14/02	1100	1305	Not enough water to run falling test.
MW16-41D	10/14/02	1305	1330	
MW16-41I	10/14/02	1404	1445	
MW16-41S	10/14/02	1330	1400	Not enough water to run falling test.
MW16-42D	10/15/02	1900	1040	
MW16-42I	10/14/02	1445	1535	

Well Number	Date	Start Time	Finish Time	Notes
MW16-42S	10/14/02	1540	1600	Not enough water to run falling test.
MW16-43D	9/14/02	1410	1530	
MW16-43I	9/25/02	0815	0846	
MW16-43S	9/25/02	0850	0930	Not enough water to run falling test.
MW16-44D	9/25/02	1320	1400	
MW16-44I	10/14/02	0800	0900	
MW16-44S	9/25/02	1400	1434	
MW16-45D	9/25/02	1020	1155	
MW16-45I	10/9/02	0830	0945	
MW16-45S	9/25/02	1155	1225	
MW16-46D	9/25/02	1440	1600	
MW16-46I	10/9/02	1000	1045	
MW16-46S	9/26/02	0815	0850	
MW16-47D	10/9/02	1045	1130	
MW16-47S	10/9/02	1035	1045	Not enough water to run test.
MW16-48D	9/26/02	0900	0945	
MW16-48I	9/26/02	0950	1005	
MW16-48S	9/26/02	1035	1200	
MW16-49D	10/24/02	0935	1030	
MW16-50D	10/24/02	1035	1120	
MW16-51D	10/15/02	1333	1405	
MW16-52D	10/24/02	1130	1200	
MW16-53S	10/15/02	1115	1140	Not enough water to run falling test.
MW16-54D	10/22/02	1115	1200	
MW16-55D	10/25/02	1400	1430	



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\02I_Rise.aqt
Date: 05/20/03 Time: 15:53:43

PROJECT INFORMATION

Test Well: 02I_Rise

AQUIFER DATA

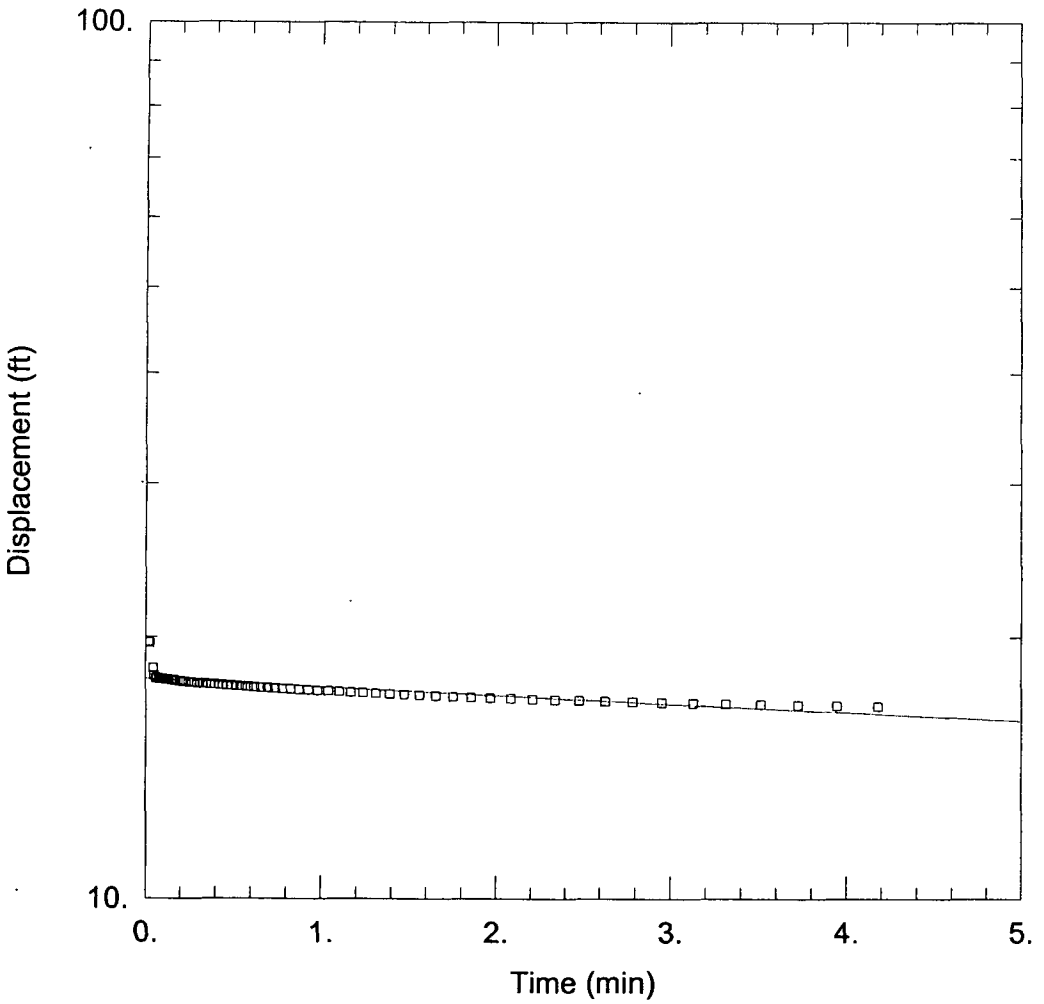
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (02I_Rise)

Initial Displacement: 3.09 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.186 ft/day
y0 = 1.58 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\02I_Fall.aqt
Date: 05/20/03 Time: 15:05:30

PROJECT INFORMATION

Test Well: 02I_Fall

AQUIFER DATA

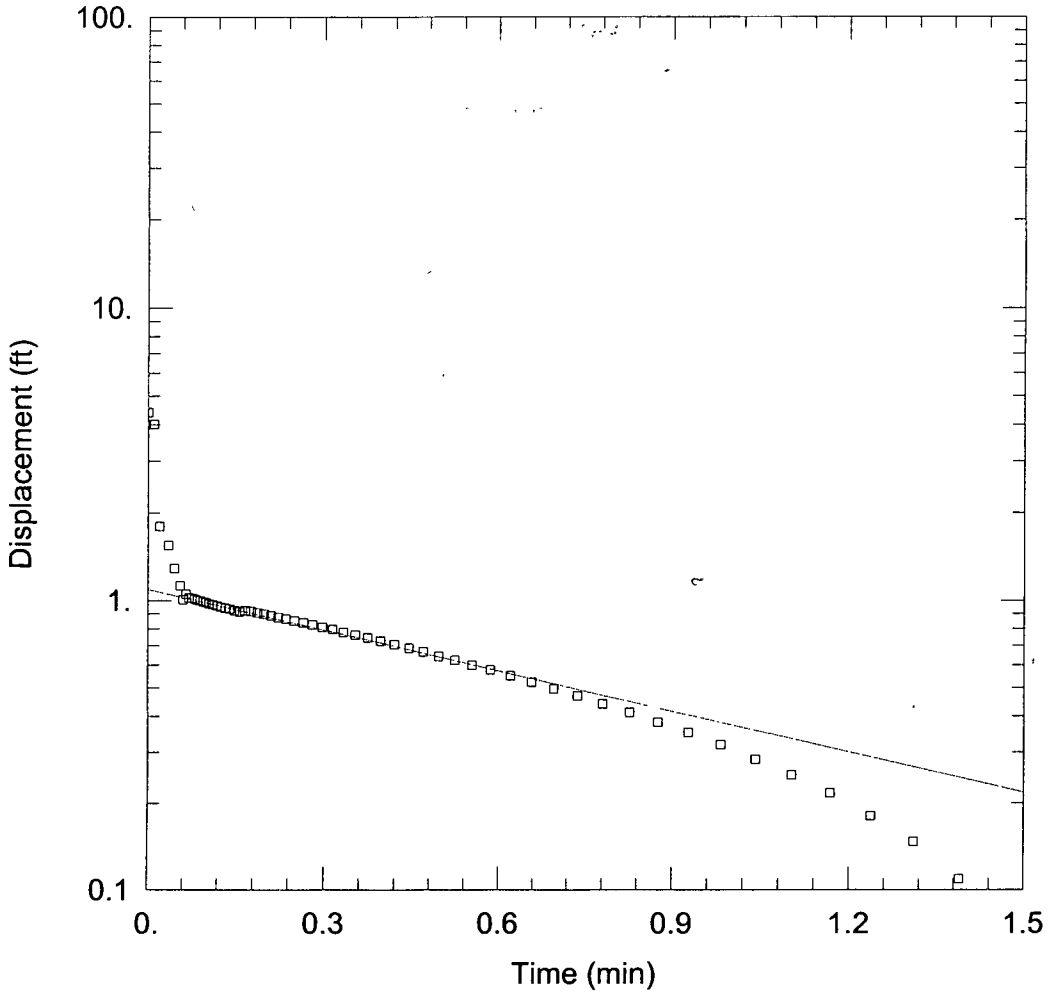
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (02I-Fall)

Initial Displacement: 3.7 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04084 ft/day
y0 = 17.9 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\04I_Rise.aqt
Date: 05/20/03 Time: 15:53:57

PROJECT INFORMATION

Test Well: 04I_Rise

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

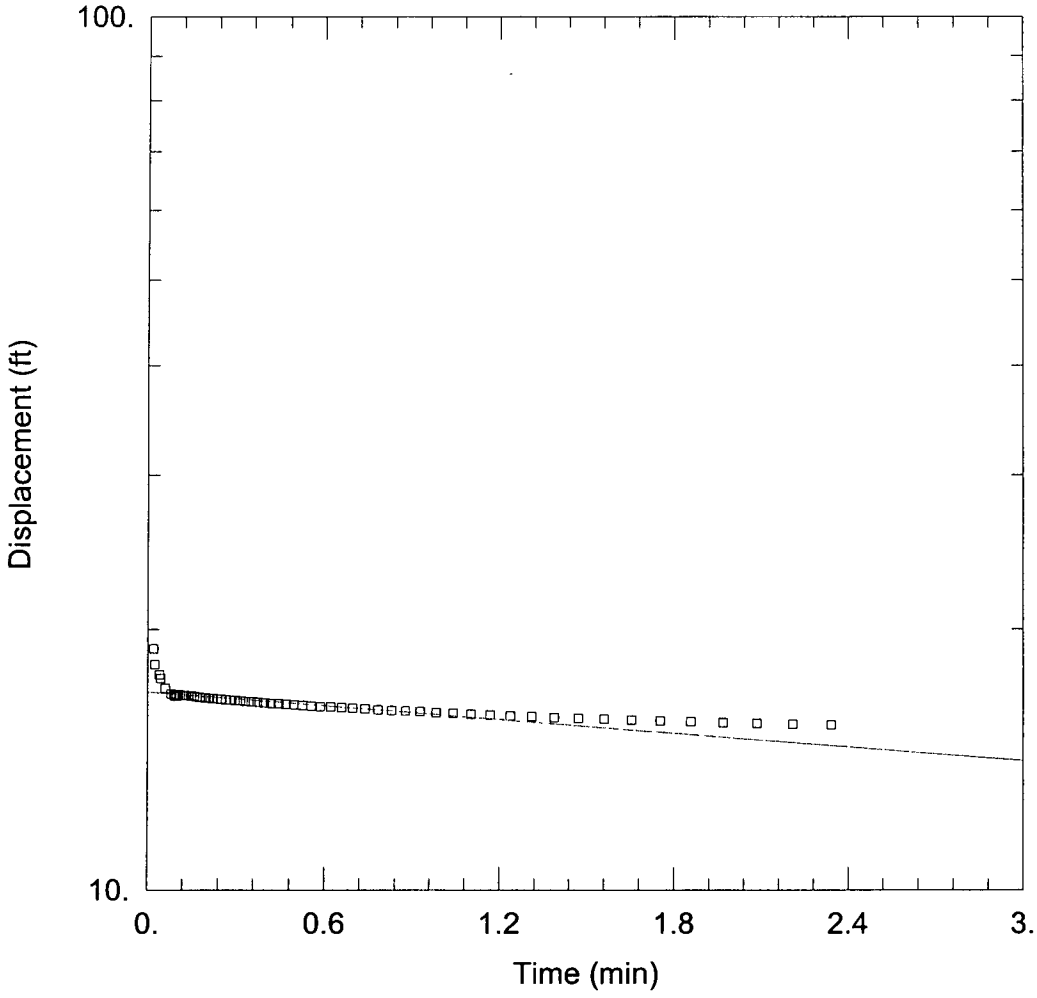
WELL DATA (04I_Rise)

Initial Displacement: 4.4 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.968 ft/day
y0 = 1.092 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\04I_Fall.aqt
Date: 05/20/03 Time: 15:08:08

PROJECT INFORMATION

Test Well: 04I_Fall

AQUIFER DATA

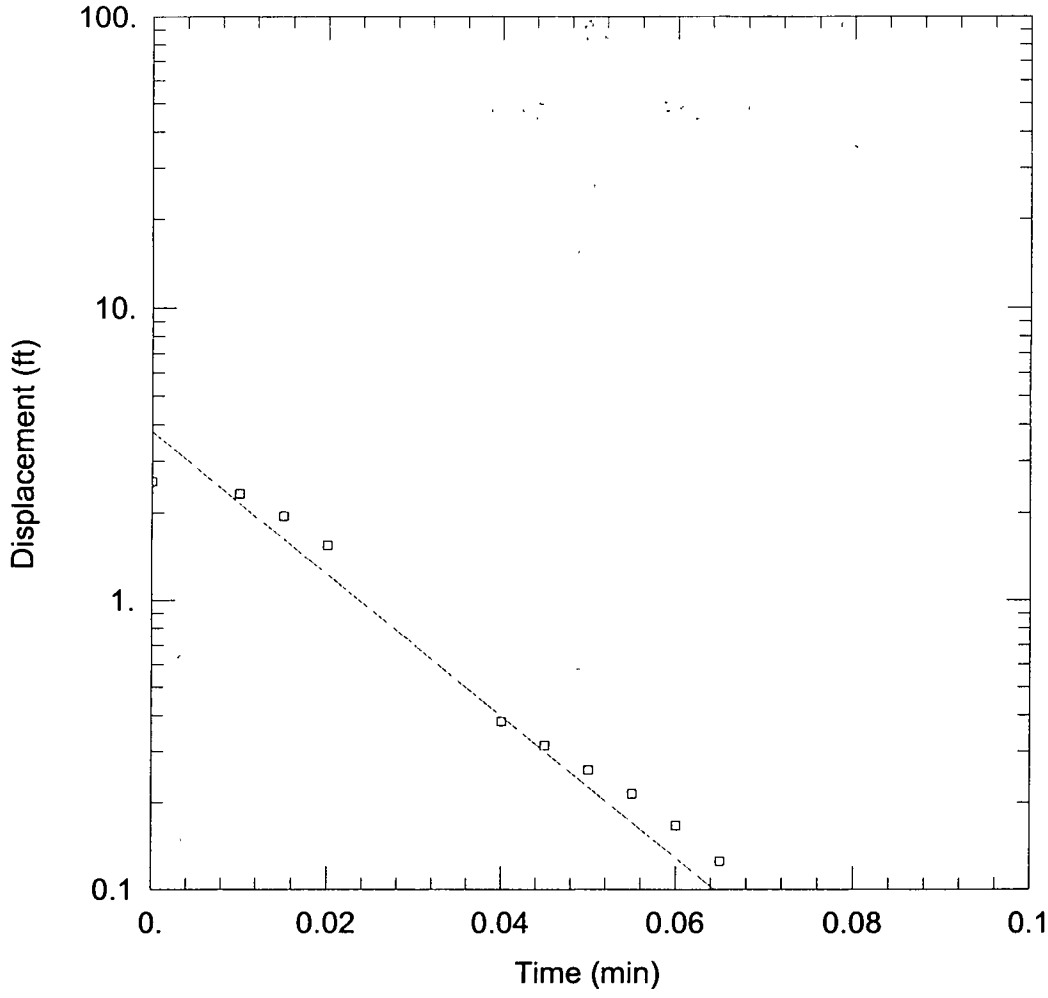
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (04I_Fall)

Initial Displacement: 3.9 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1122 ft/day
y0 = 16.94 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\05I_Rise.aqt
Date: 05/20/03 Time: 15:54:10

PROJECT INFORMATION

Test Well: 05I_Rise

AQUIFER DATA

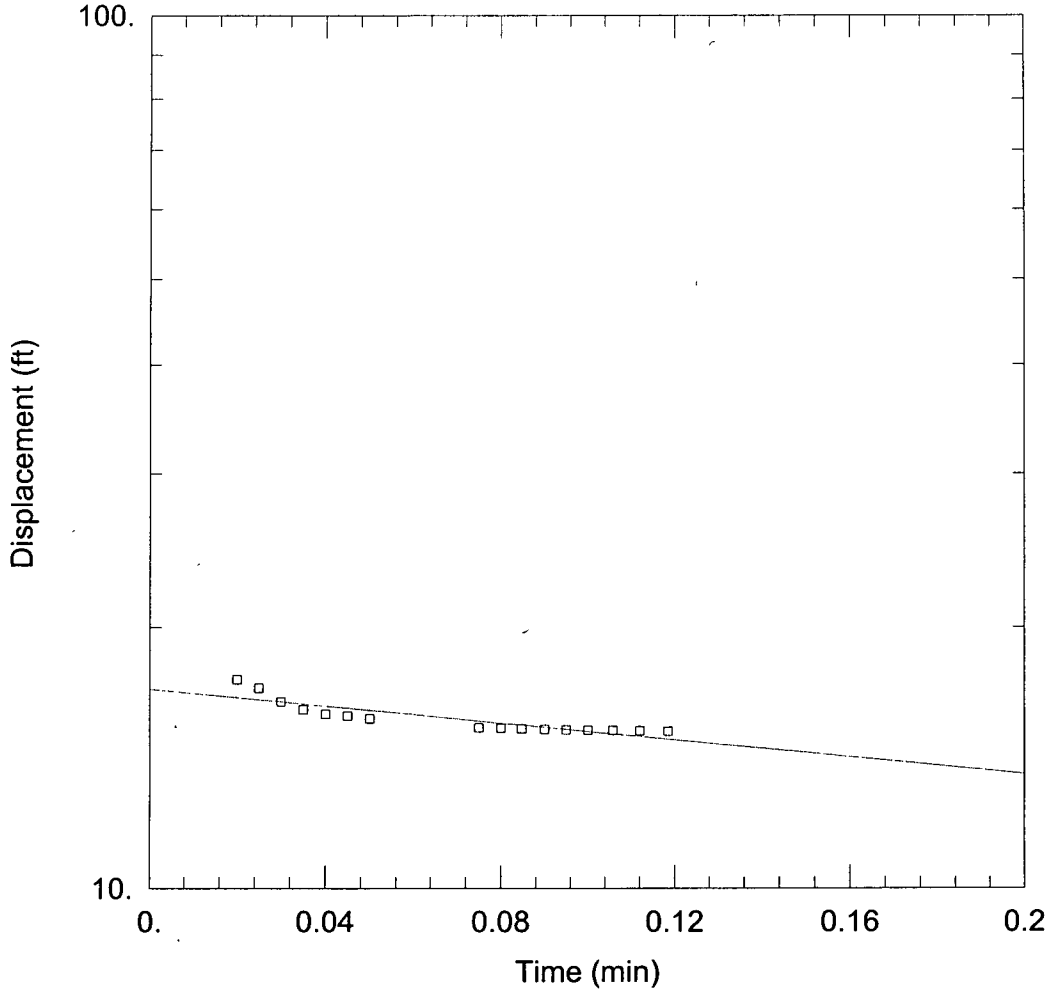
Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (05I_Rise)

Initial Displacement: 2.56 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 14. ft
Total Well Penetration Depth: 14. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 79.48 ft/day
y0 = 3.786 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\05I_Fall.aqt
Date: 05/20/03 Time: 15:08:06

PROJECT INFORMATION

Test Well: 05I_Fall

AQUIFER DATA

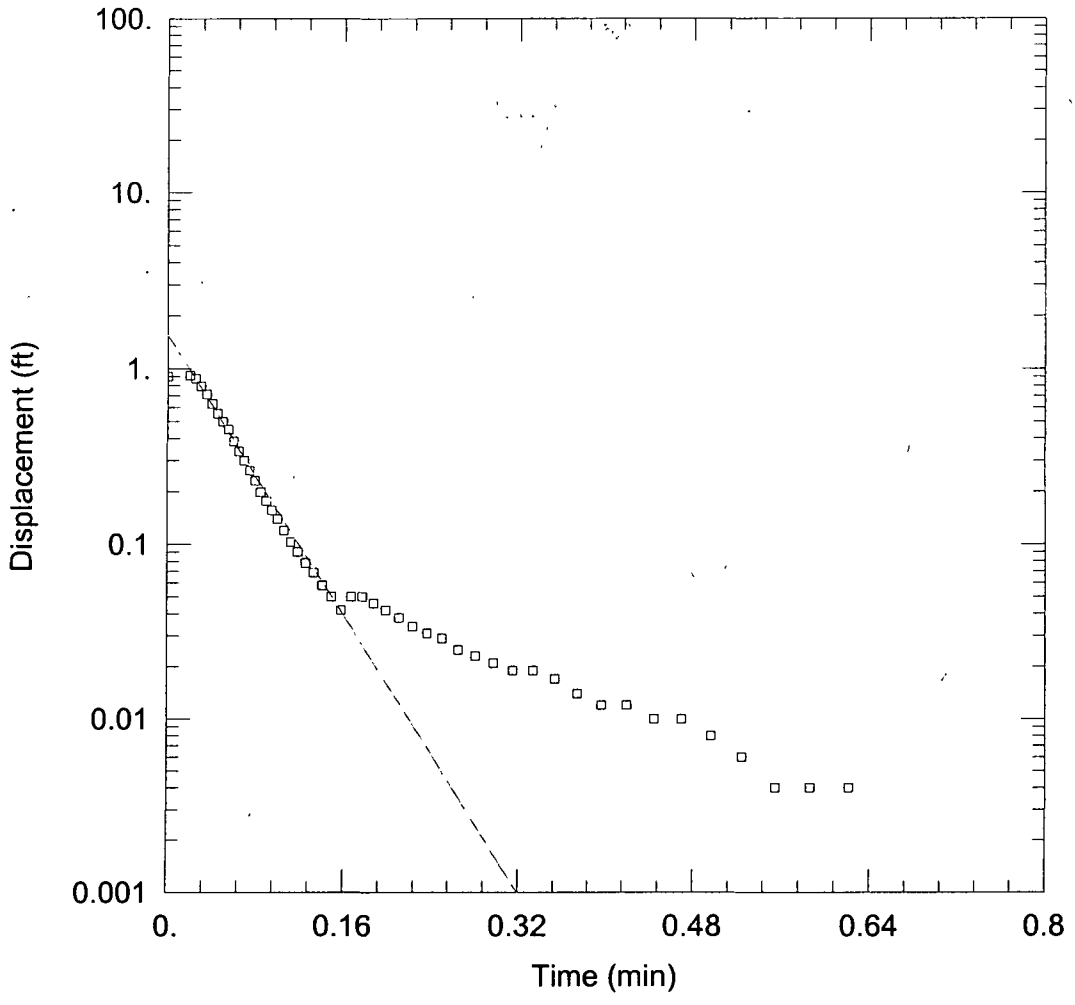
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (05I_Fall)

Initial Displacement: 2.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.071 ft/day
y0 = 17. ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\11S_Rise.aqt
Date: 05/20/03 Time: 15:47:45

PROJECT INFORMATION

Test Well: 11S_Rise

AQUIFER DATA

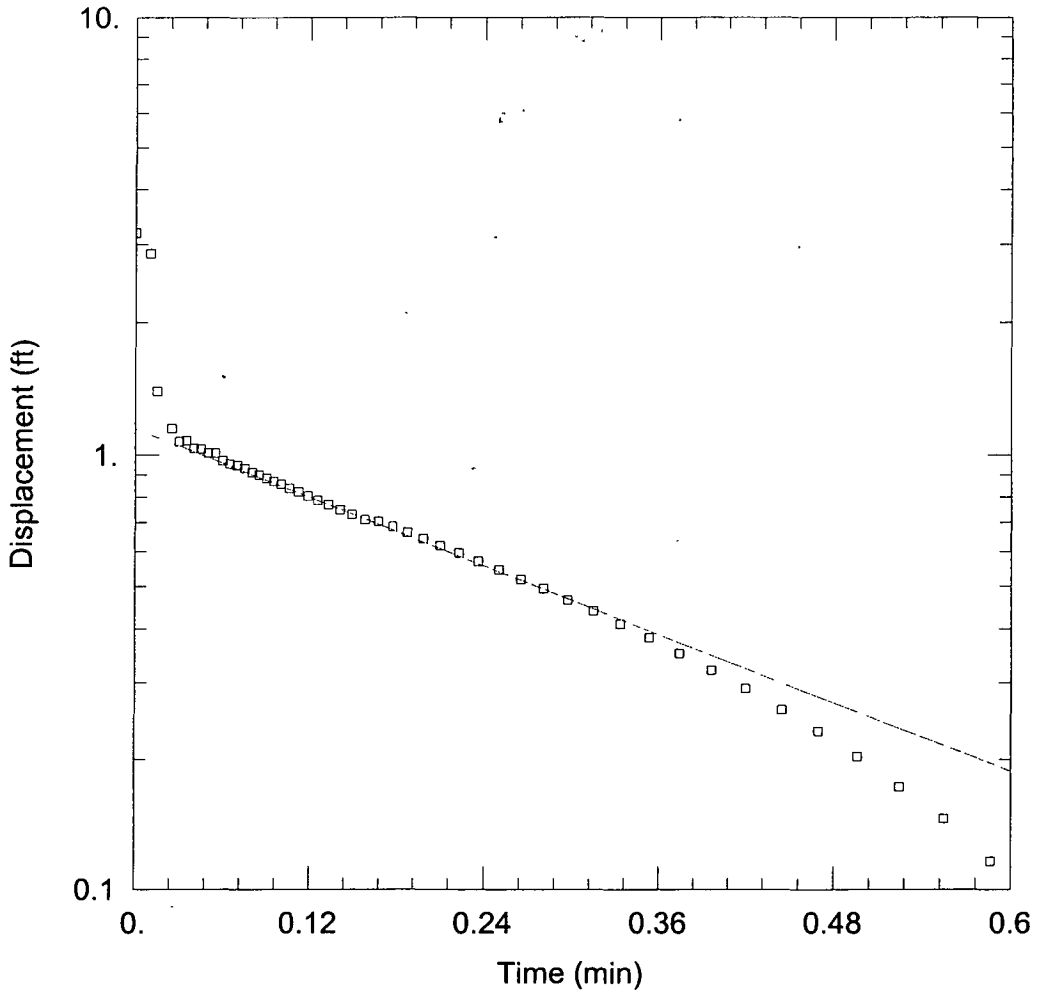
Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (11S_Rise)

Initial Displacement: 0.9 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 14. ft
Total Well Penetration Depth: 14. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 32.42 ft/day
y0 = 1.553 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\13I_Rise.aqt
Date: 05/20/03 Time: 15:48:05

PROJECT INFORMATION

Test Well: 13I_Rise

AQUIFER DATA

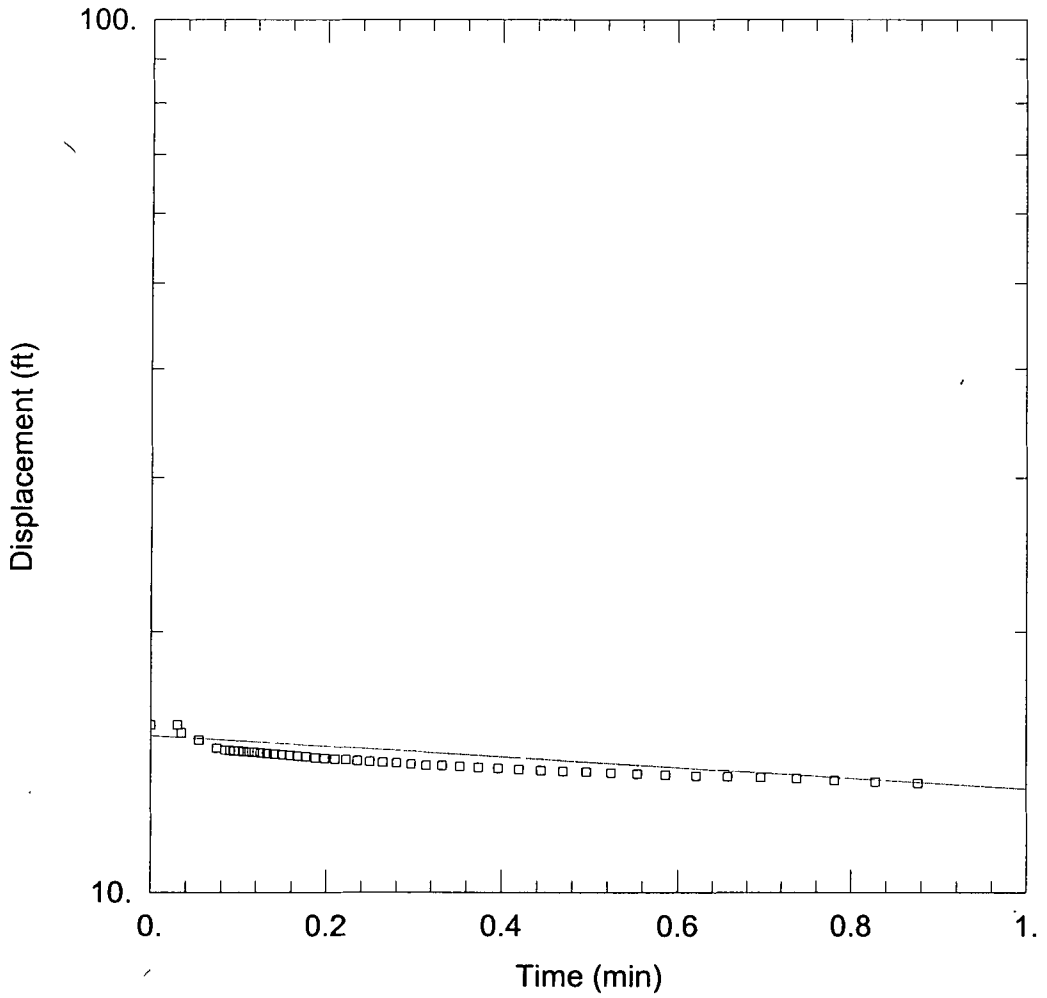
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (13I_Rise)

Initial Displacement: 3.188 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.524 ft/day
y0 = 1.147 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\13I_Fall.aqt
Date: 05/20/03 Time: 15:08:02

PROJECT INFORMATION

Test Well: 13I_Fall

AQUIFER DATA

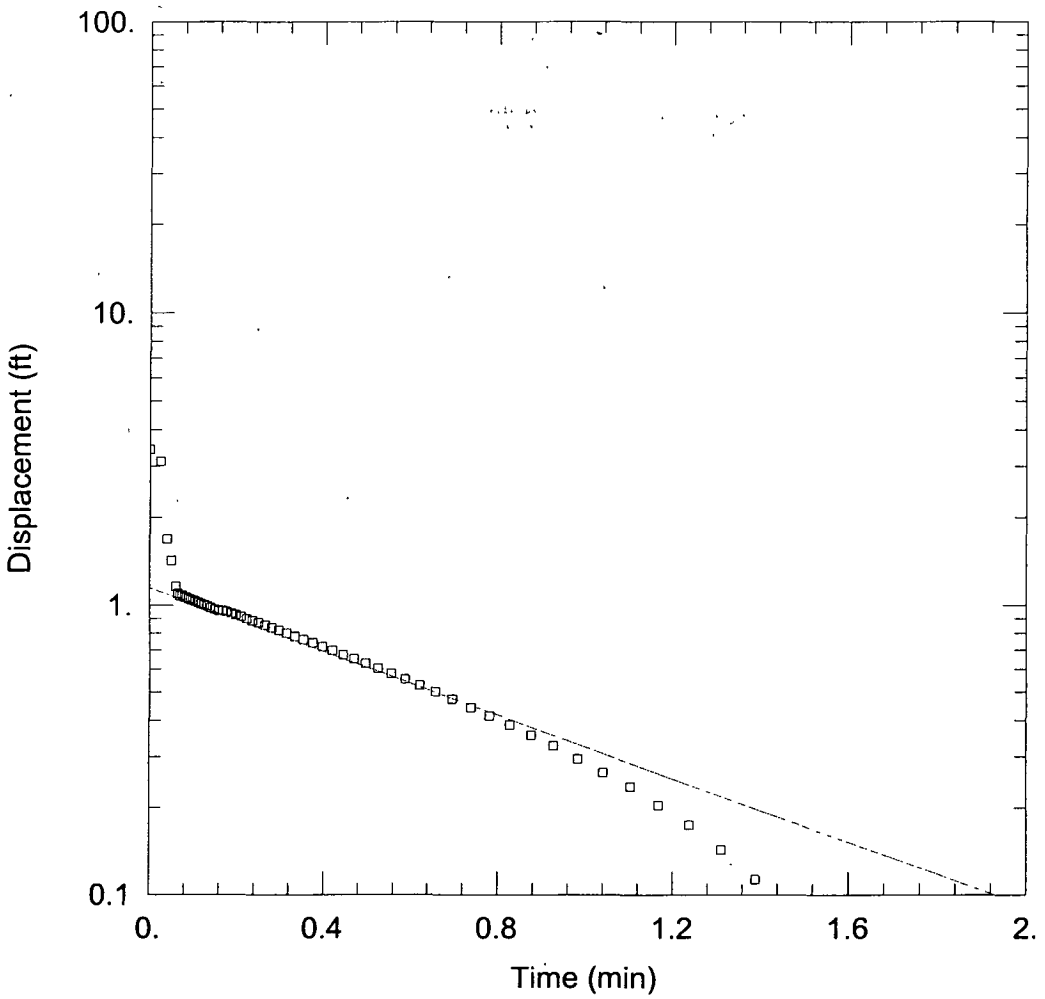
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (13I_Fall)

Initial Displacement: 15.61 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2603 ft/day
y0 = 15.17 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\14I_Rise.aqt
Date: 05/20/03 Time: 15:49:41

PROJECT INFORMATION

Test Well: 14I_Rise

AQUIFER DATA

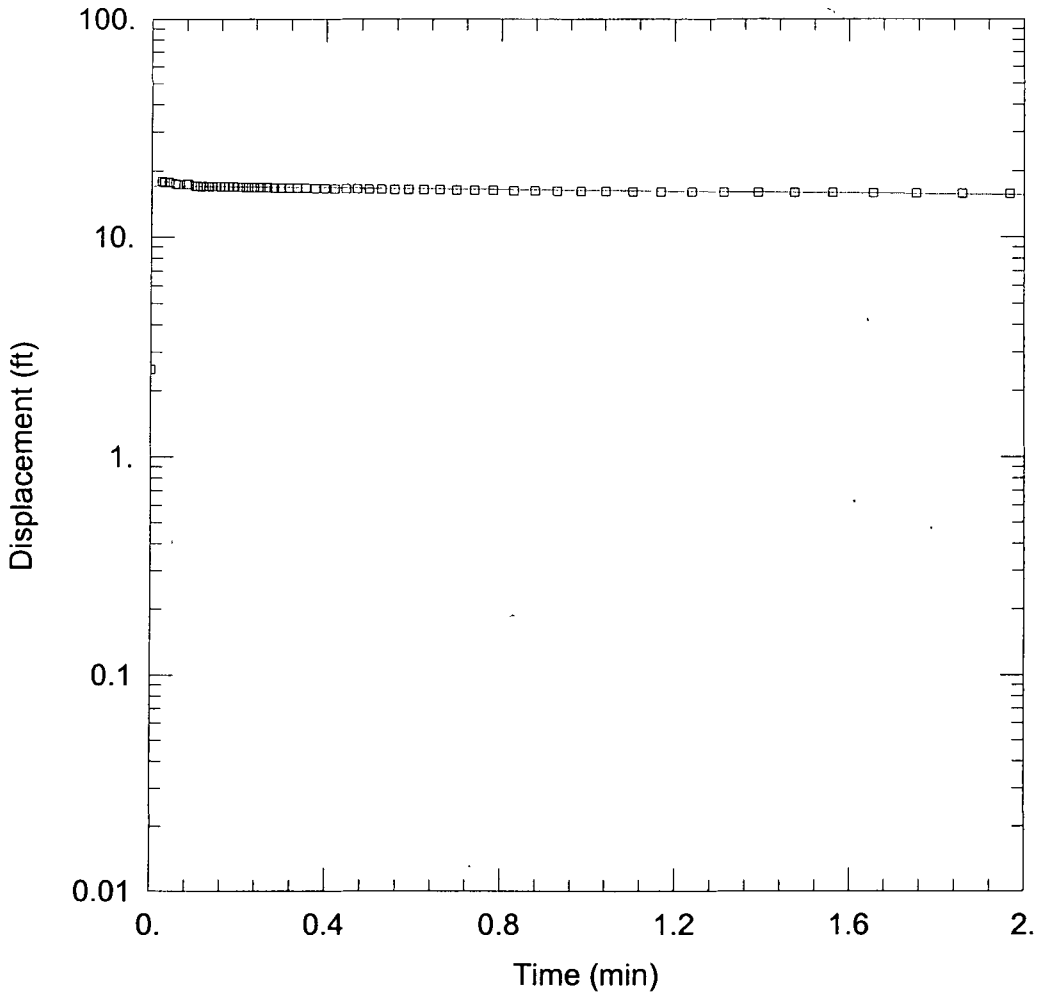
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (14I_Rise)

Initial Displacement: 3.43 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.316 ft/day
y0 = 1.146 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\14I_Fall.aqt
Date: 05/20/03 Time: 15:07:58

PROJECT INFORMATION

Test Well: 14I_Fall

AQUIFER DATA

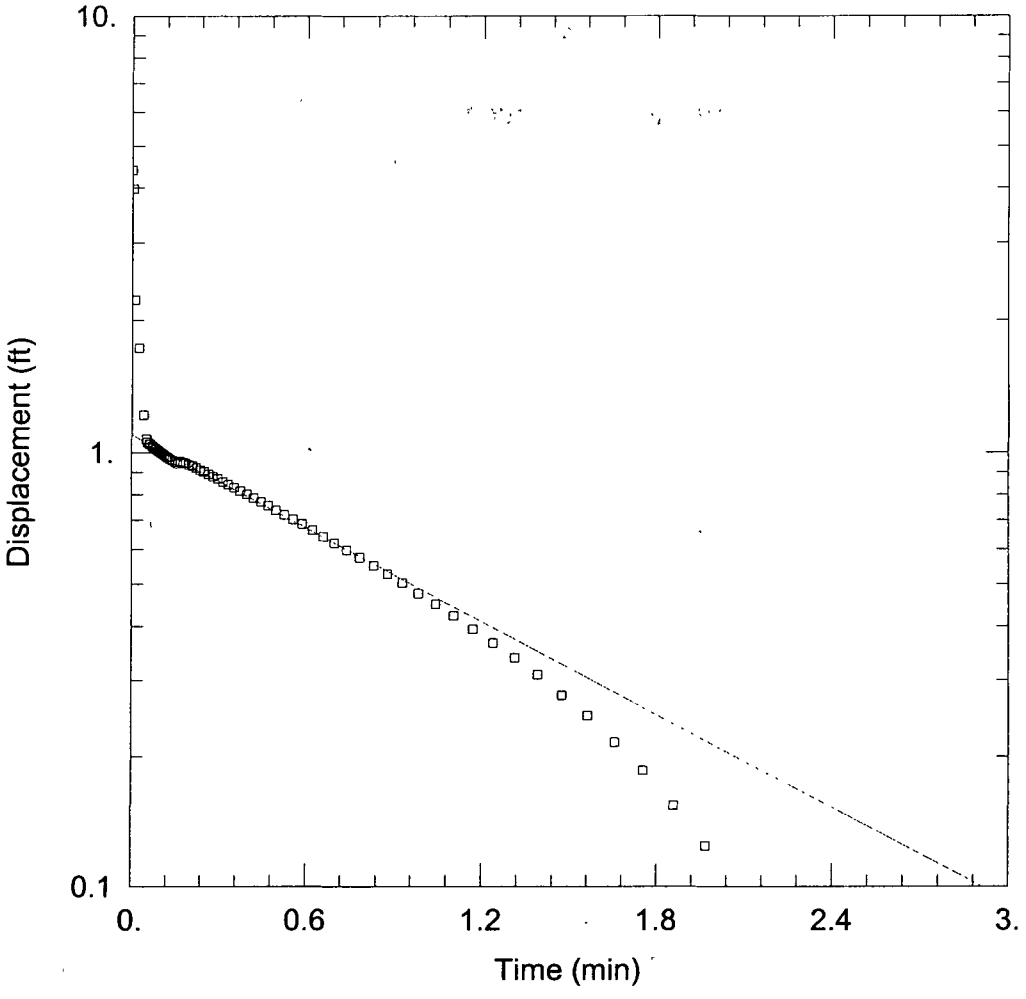
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (14I_Fall)

Initial Displacement: 2.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.08621 ft/day
y0 = 17.12 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\16I_Rise.aqt
Date: 05/20/03 Time: 15:55:39

PROJECT INFORMATION

Test Well: 16I_Rise

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

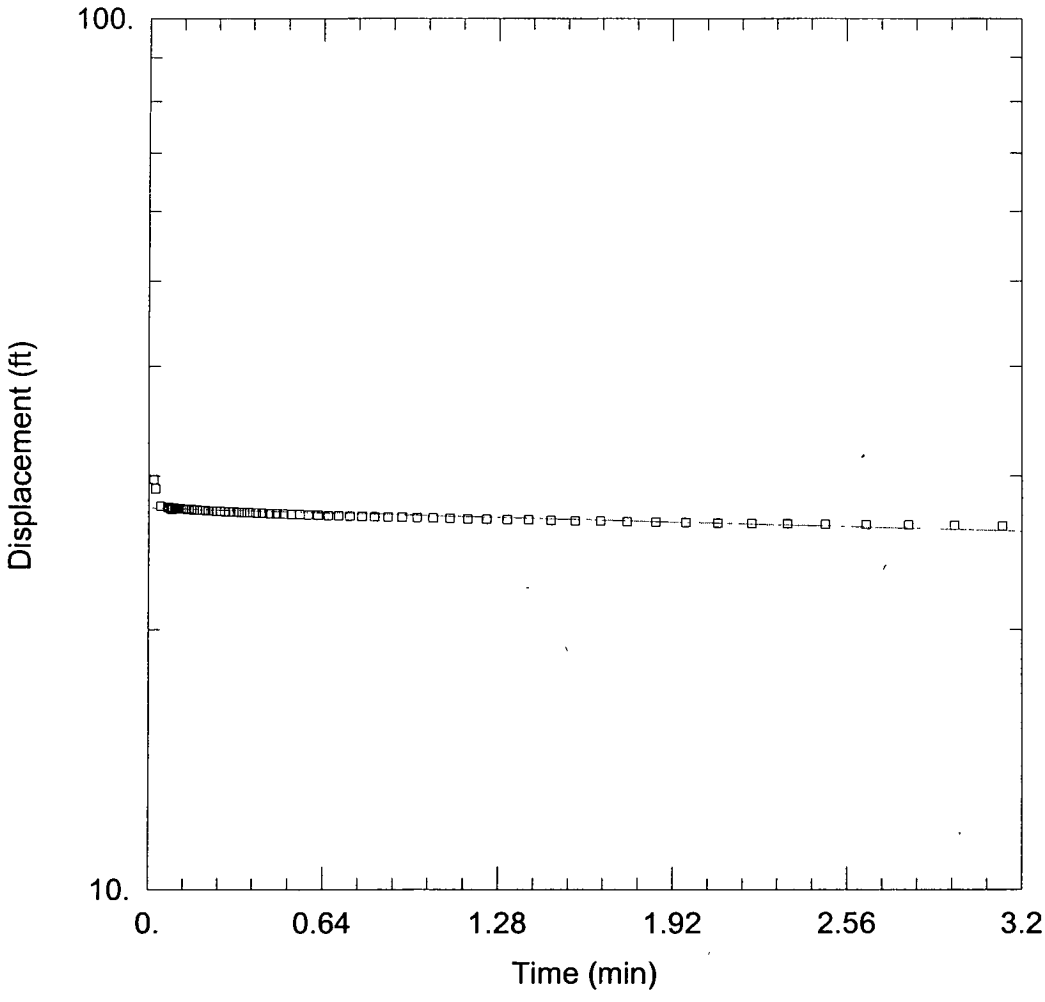
WELL DATA (16I_Rise)

Initial Displacement: 4.4 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.51 ft/day y0 = 1.1 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\16I_Fall.aqt
Date: 05/20/03 Time: 15:07:54

PROJECT INFORMATION

Test Well: 16I_Fall

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

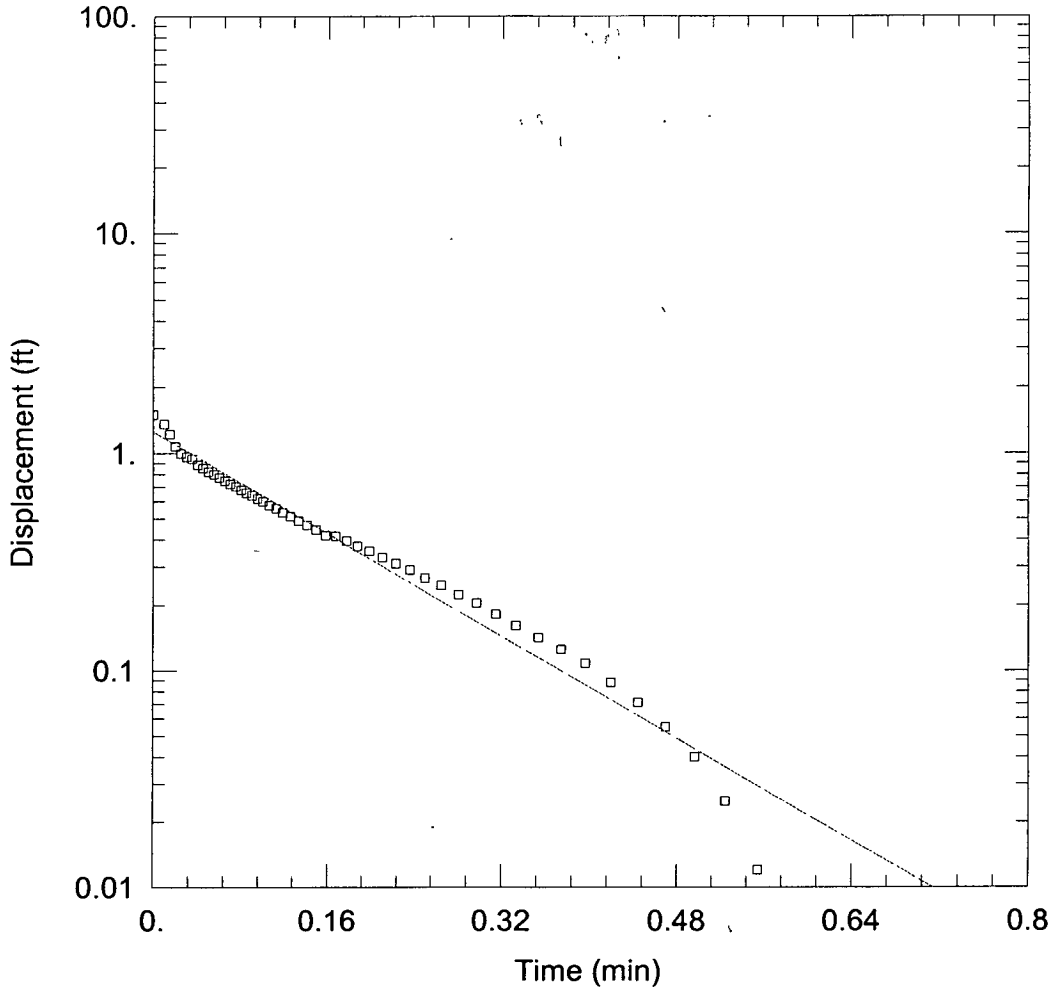
WELL DATA (16I_Fall)

Initial Displacement: 3.8 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.03519 ft/day
y0 = 27.59 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\16D_Rise.aqt
Date: 05/20/03 Time: 15:55:20

PROJECT INFORMATION

Test Well: 16D_Rise

AQUIFER DATA

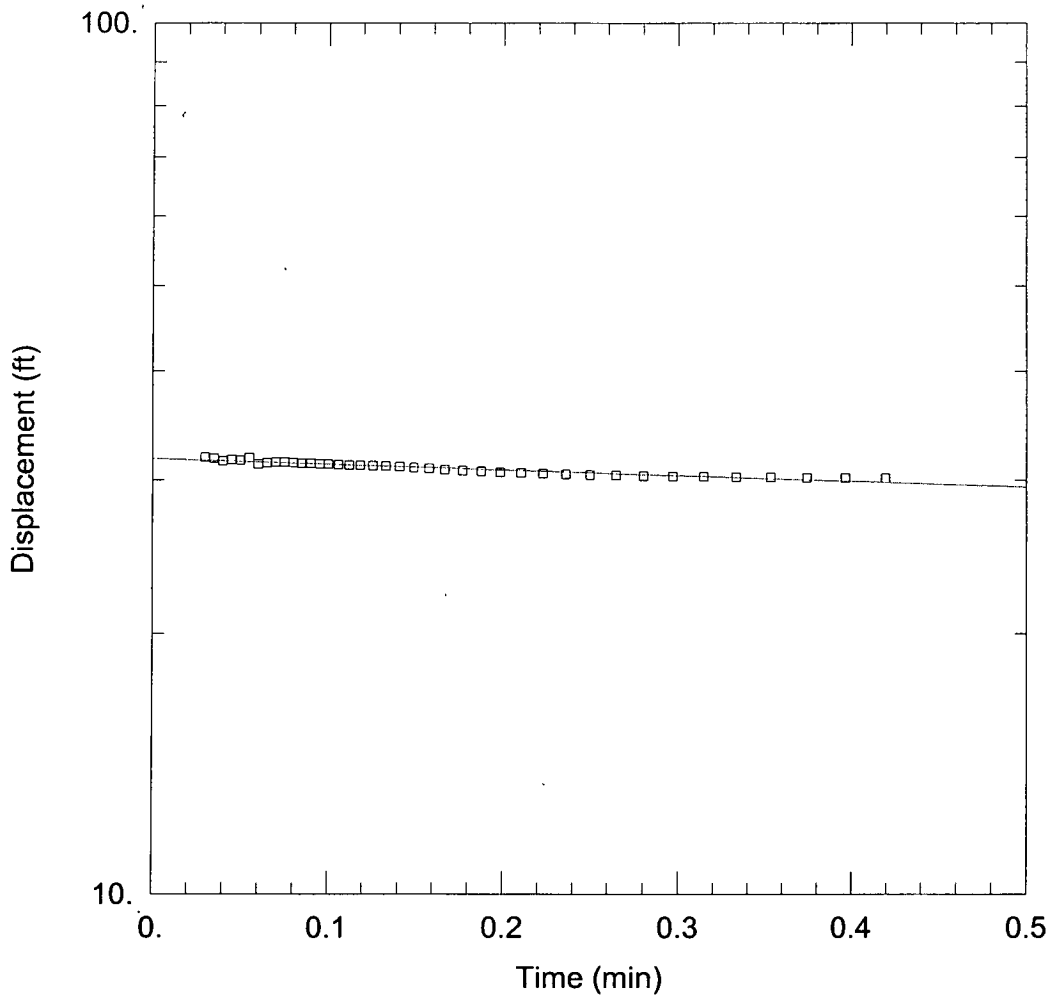
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (16D_Rise)

Initial Displacement: 1.5 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 12.41 ft/day y0 = 1.255 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\16D_Fall.aqt
Date: 05/20/03 Time: 15:07:56

PROJECT INFORMATION

Test Well: 16D_Fall

AQUIFER DATA

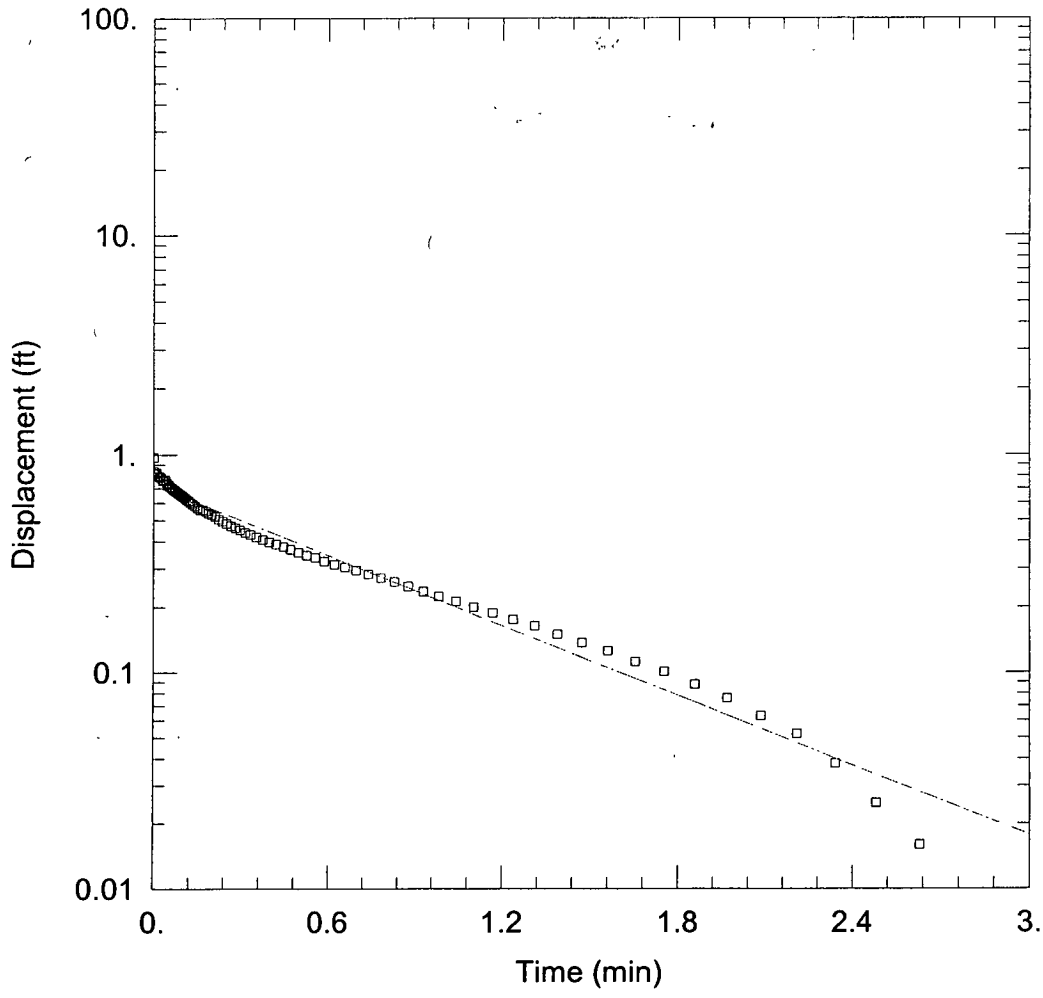
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (16D_Fall)

Initial Displacement: 2. ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.27 ft/day
y0 = 31.74 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\17S_Rise.aqt
Date: 05/20/03 Time: 15:56:13

PROJECT INFORMATION

Test Well: 17S_Rise

AQUIFER DATA

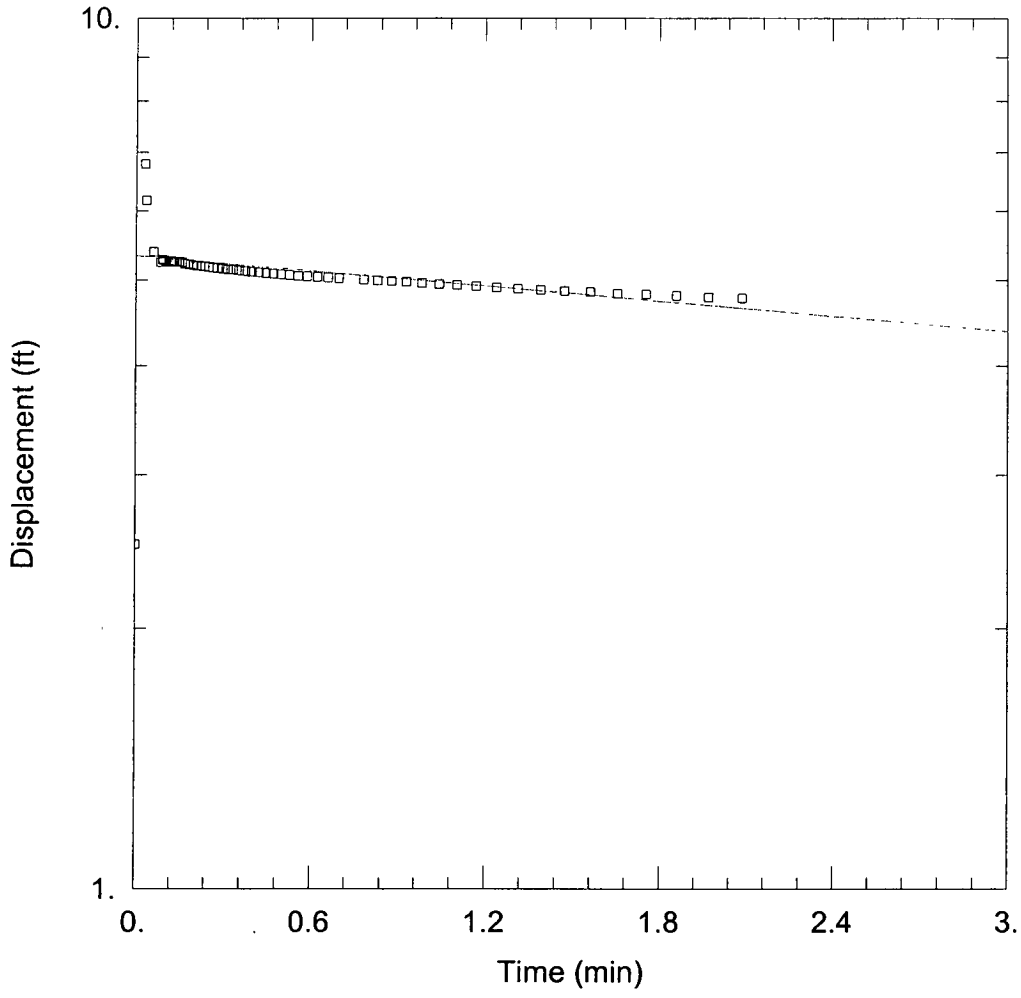
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (17S_Rise)

Initial Displacement: 0.973 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 2.266 ft/day y0 = 0.7244 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\17S_Fall.aqt
Date: 05/20/03 Time: 15:07:49

PROJECT INFORMATION

Test Well: 17S_Fall

AQUIFER DATA

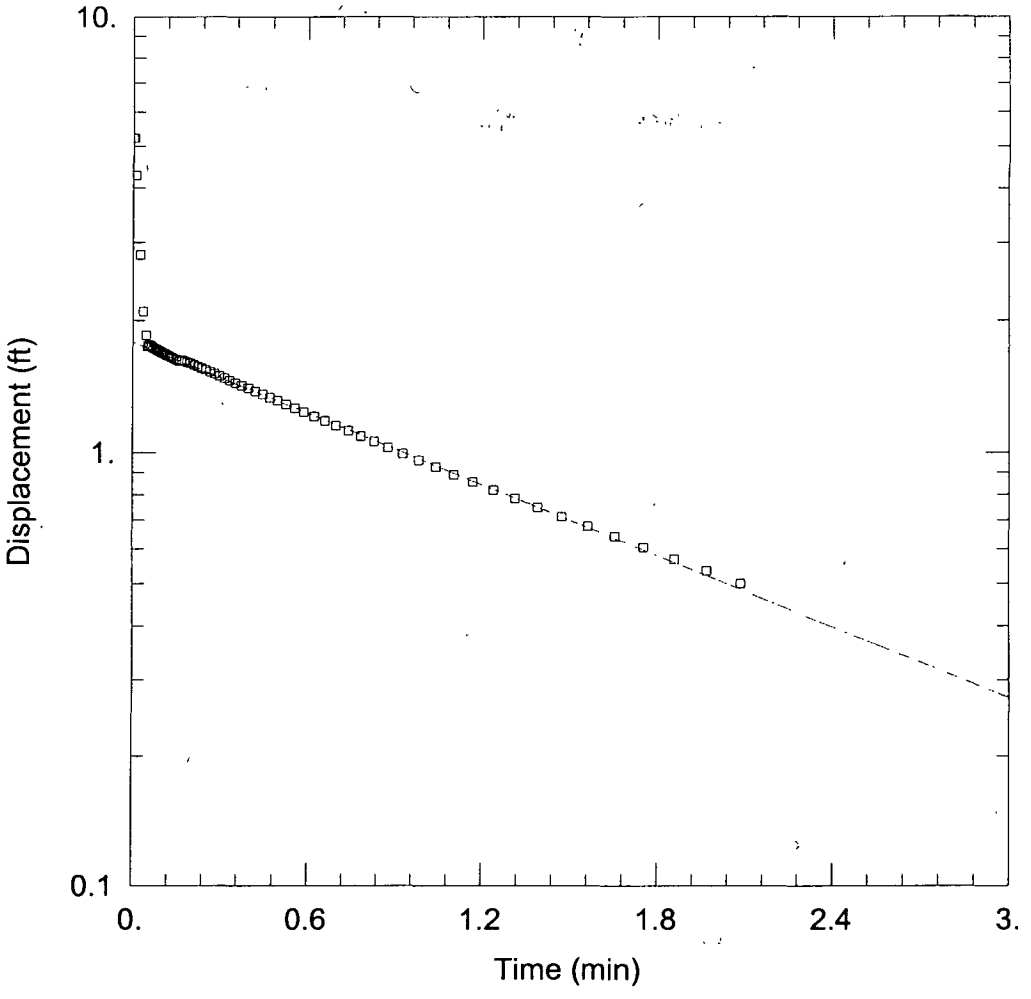
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (17S_Fall)

Initial Displacement: 2.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1202 ft/day
y0 = 5.331 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\17I_Rise.aqt
Date: 05/20/03 Time: 15:07:50

PROJECT INFORMATION

Test Well: 17I_Rise

AQUIFER DATA

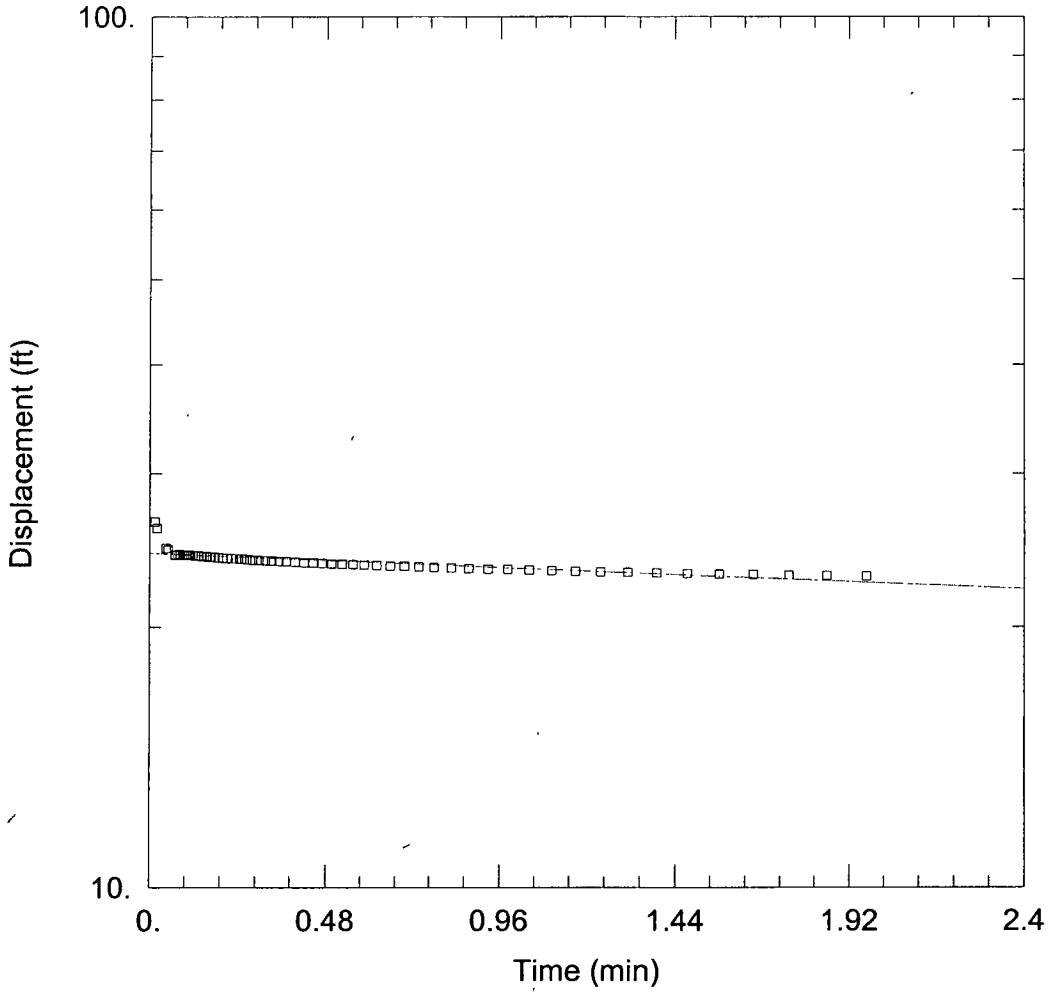
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (17I_Rise)

Initial Displacement: 5.226 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.148 ft/day
y0 = 1.788 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\17I_Fall.aqt
Date: 05/20/03 Time: 15:07:52

PROJECT INFORMATION

Test Well: 17I_Fall

AQUIFER DATA

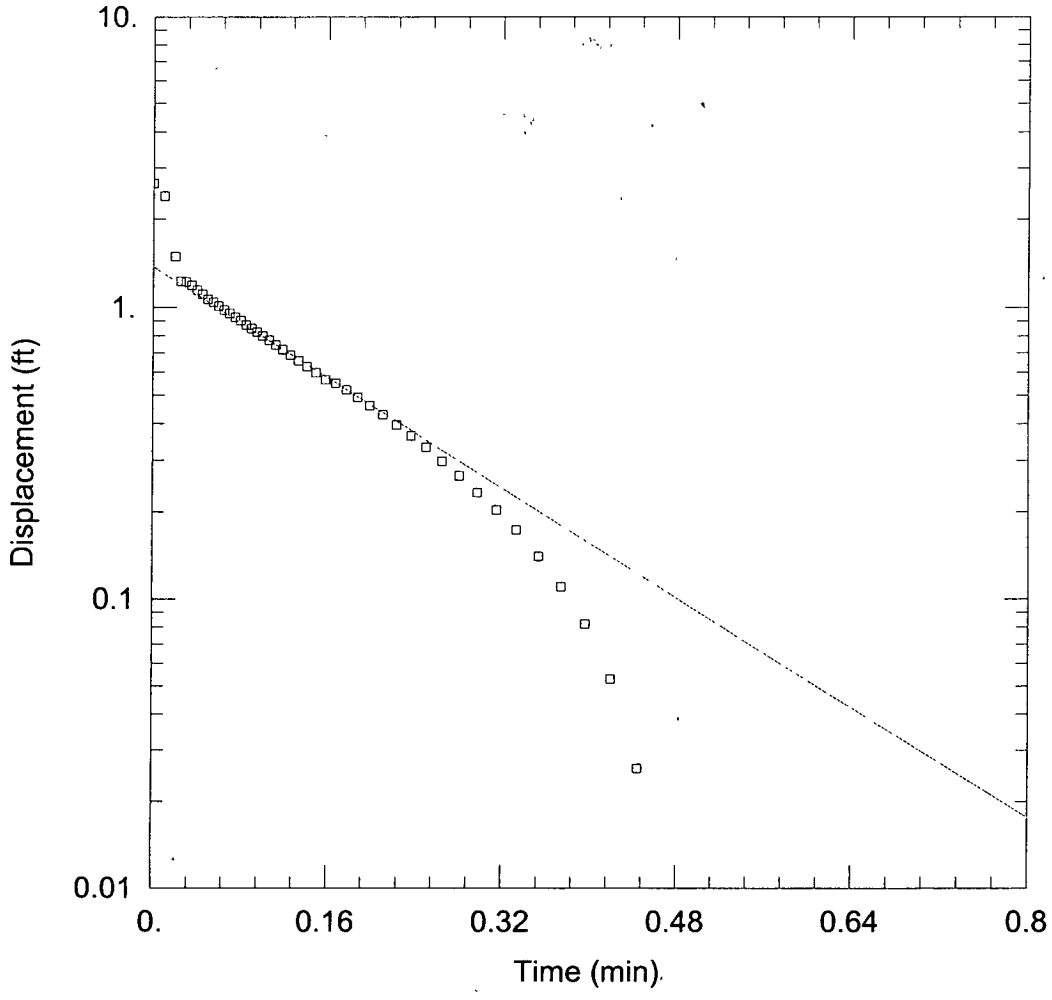
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (17I_Fall)

Initial Displacement: 3.93 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.07243 ft/day
y0 = 24.34 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\18I_Rise.aqt
Date: 05/20/03 Time: 15:56:32

PROJECT INFORMATION

Test Well: 18I_Rise

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

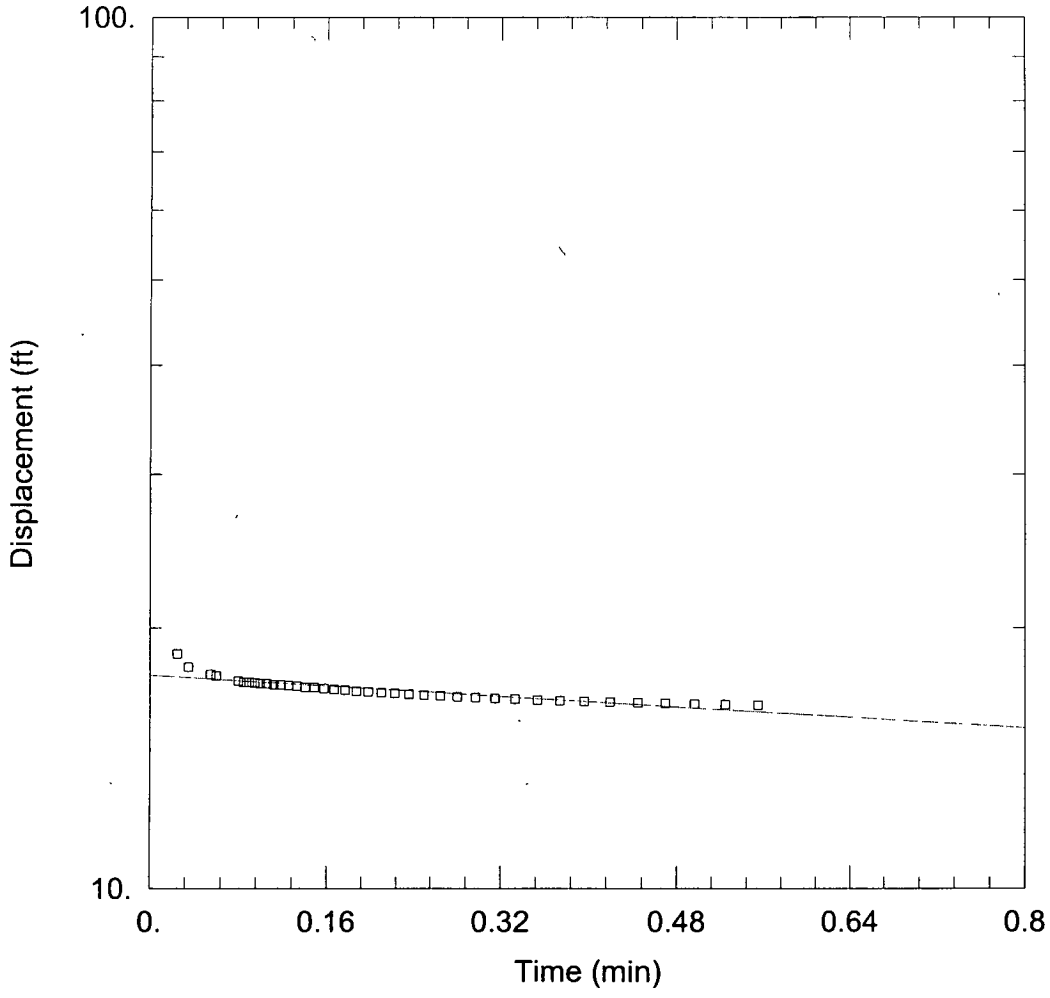
WELL DATA (18I_Rise)

Initial Displacement: 2.644 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 9.972 ft/day y0 = 1.371 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\18I_Fall.aqt
Date: 05/20/03 Time: 15:07:47

PROJECT INFORMATION

Test Well: 18I_Fall

AQUIFER DATA

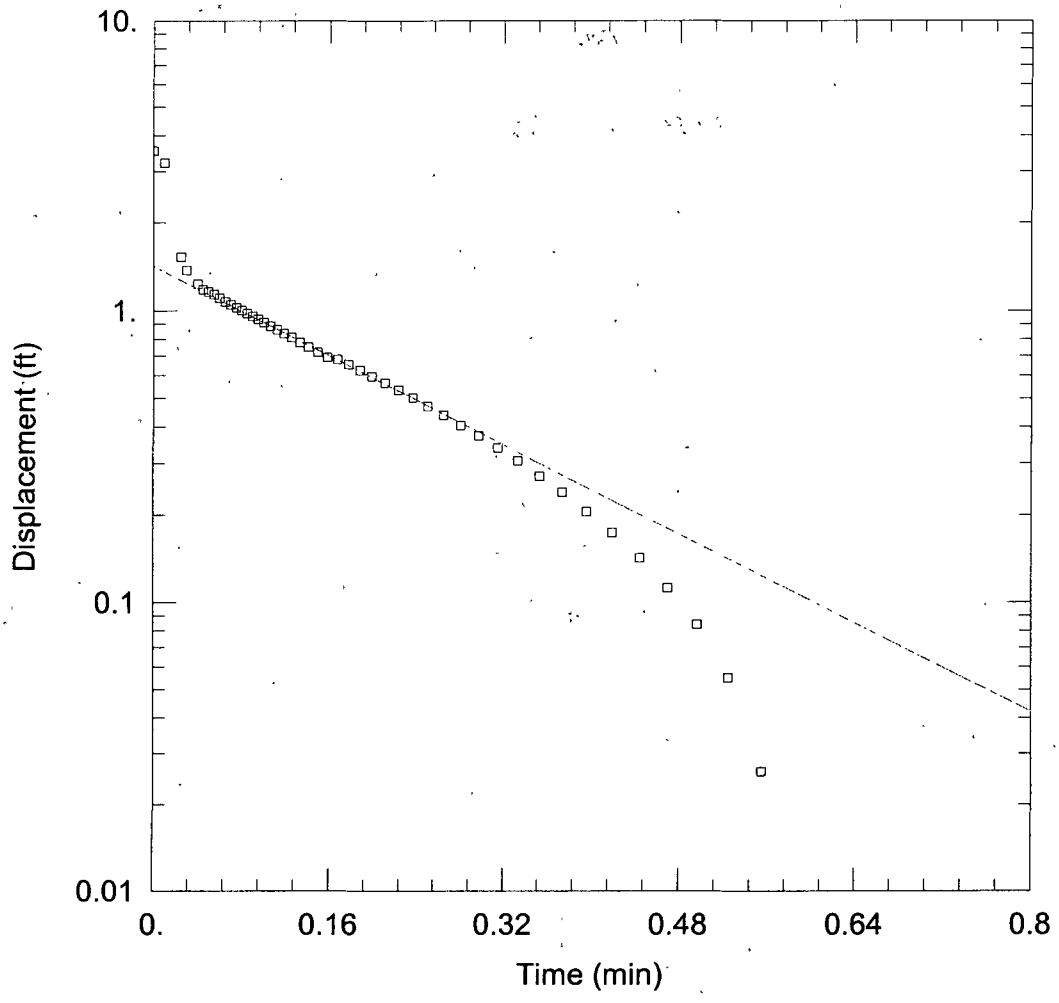
Saturated Thickness: 12. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (18I_Fall)

Initial Displacement: 2.59 ft
Wellbore Radius: 0.083 ft
Screen Length: 12. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2779 ft/day
y0 = 17.65 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\19I_Rise.aqt
Date: 05/20/03 Time: 15:57:24

PROJECT INFORMATION

Test Well: 19I_Rise

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

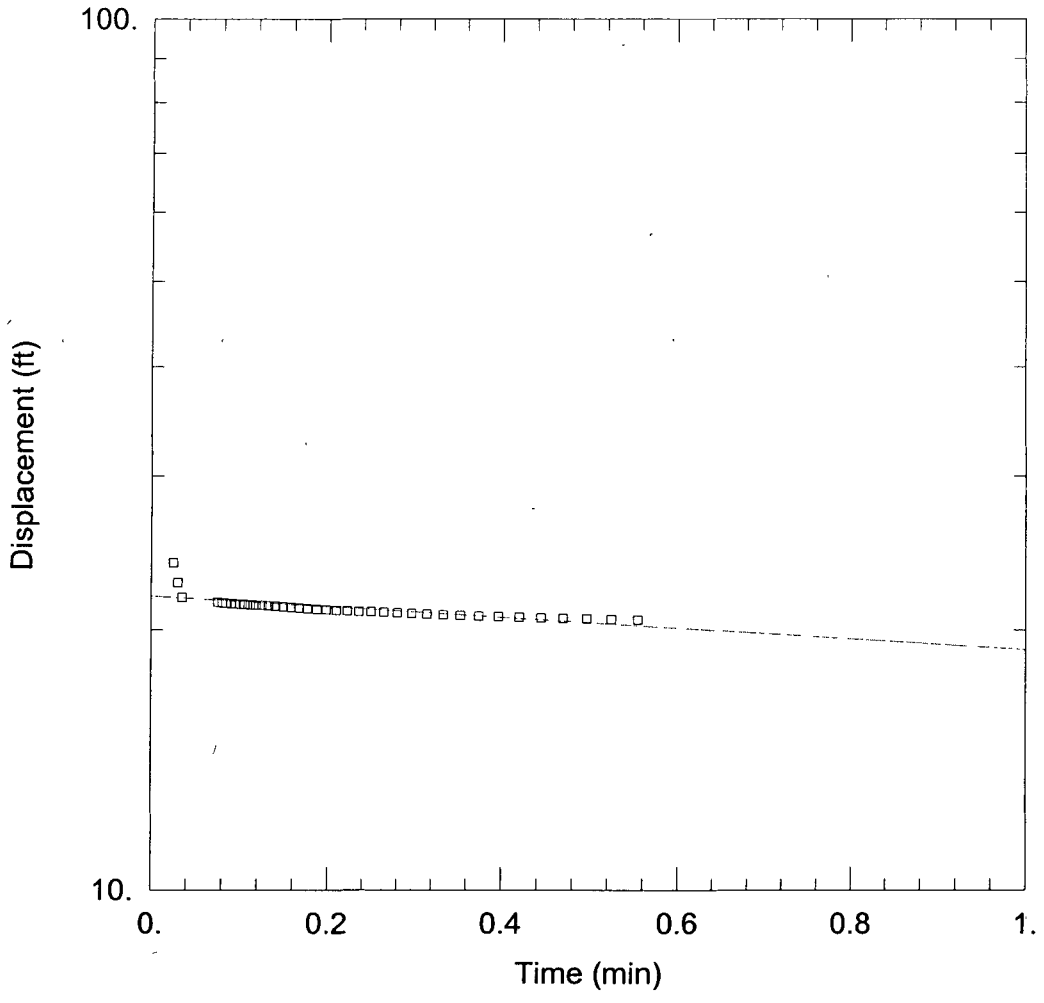
WELL DATA (19I_Rise)

Initial Displacement: 3.536 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 8.049 ft/day y0 = 1.413 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\19I_Fall.aqt
Date: 05/20/03 Time: 15:07:42

PROJECT INFORMATION

Test Well: 19I_Fall

AQUIFER DATA

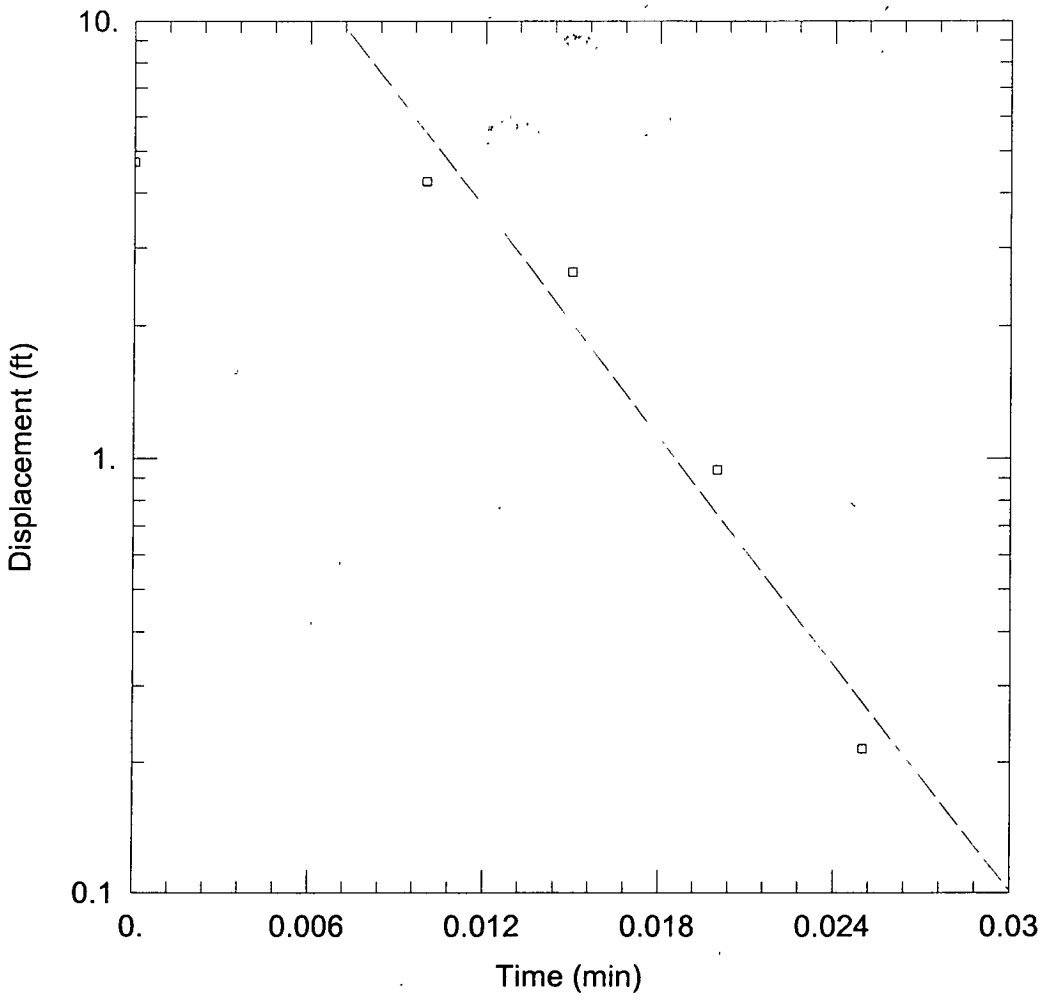
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (19I_Fall)

Initial Displacement: 3.69 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2622 ft/day
y0 = 21.9 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\20I_Rise.aqt
Date: 05/20/03 Time: 15:58:13

PROJECT INFORMATION

Test Well: 20I_Rise

AQUIFER DATA

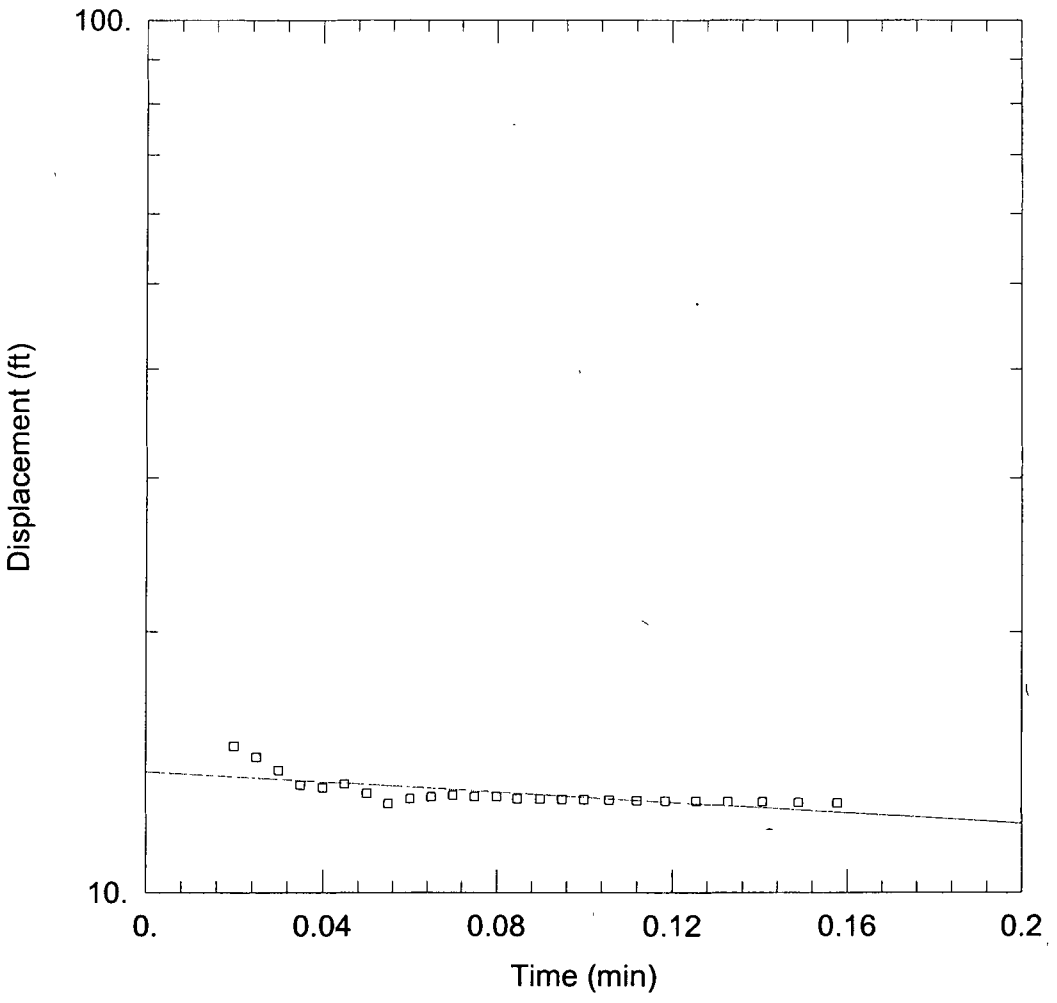
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (20I_Rise)

Initial Displacement: 4.72 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 366.2 ft/day
y0 = 40.56 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\20I_Fall.aqt
Date: 05/20/03 Time: 15:07:40

PROJECT INFORMATION

Test Well: 20I_Fall

AQUIFER DATA

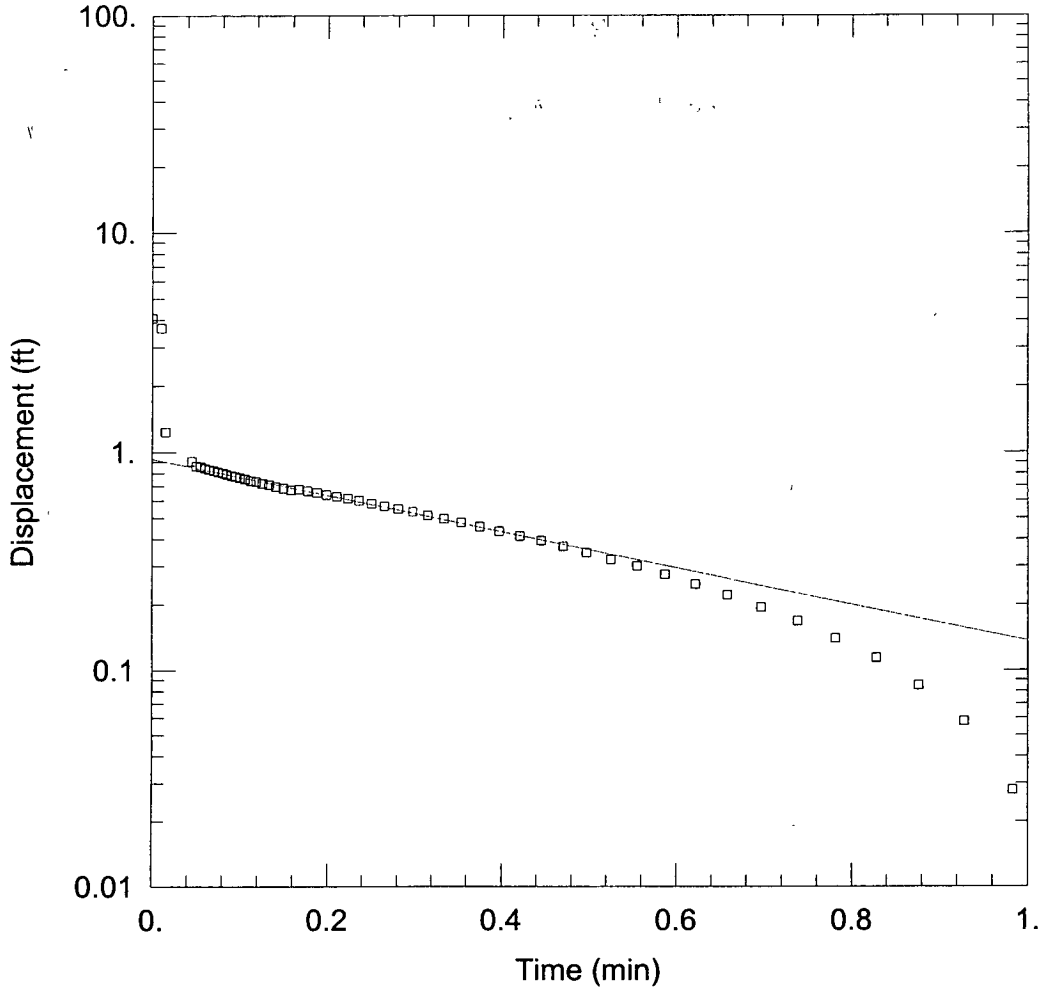
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (20I_Fall)

Initial Displacement: 2.2 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.266 ft/day
y0 = 13.8 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\21I_Rise.aqt
Date: 05/20/03 Time: 15:58:34

PROJECT INFORMATION

Test Well: 21I_Rise

AQUIFER DATA

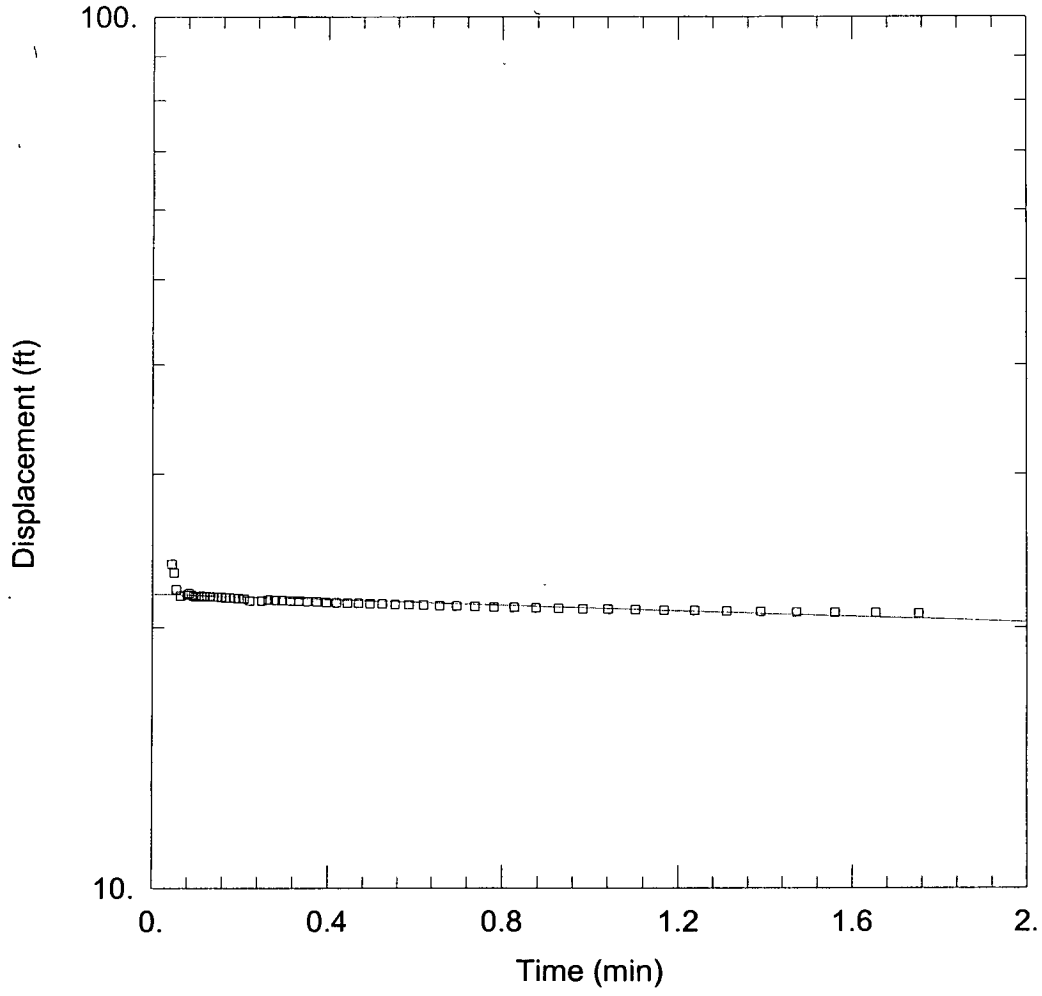
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (21I_Rise)

Initial Displacement: 4.07 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.517 ft/day
y0 = 0.93 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\21I_Fall.aqt
Date: 05/20/03 Time: 15:07:38

PROJECT INFORMATION

Test Well: 21I_fall

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

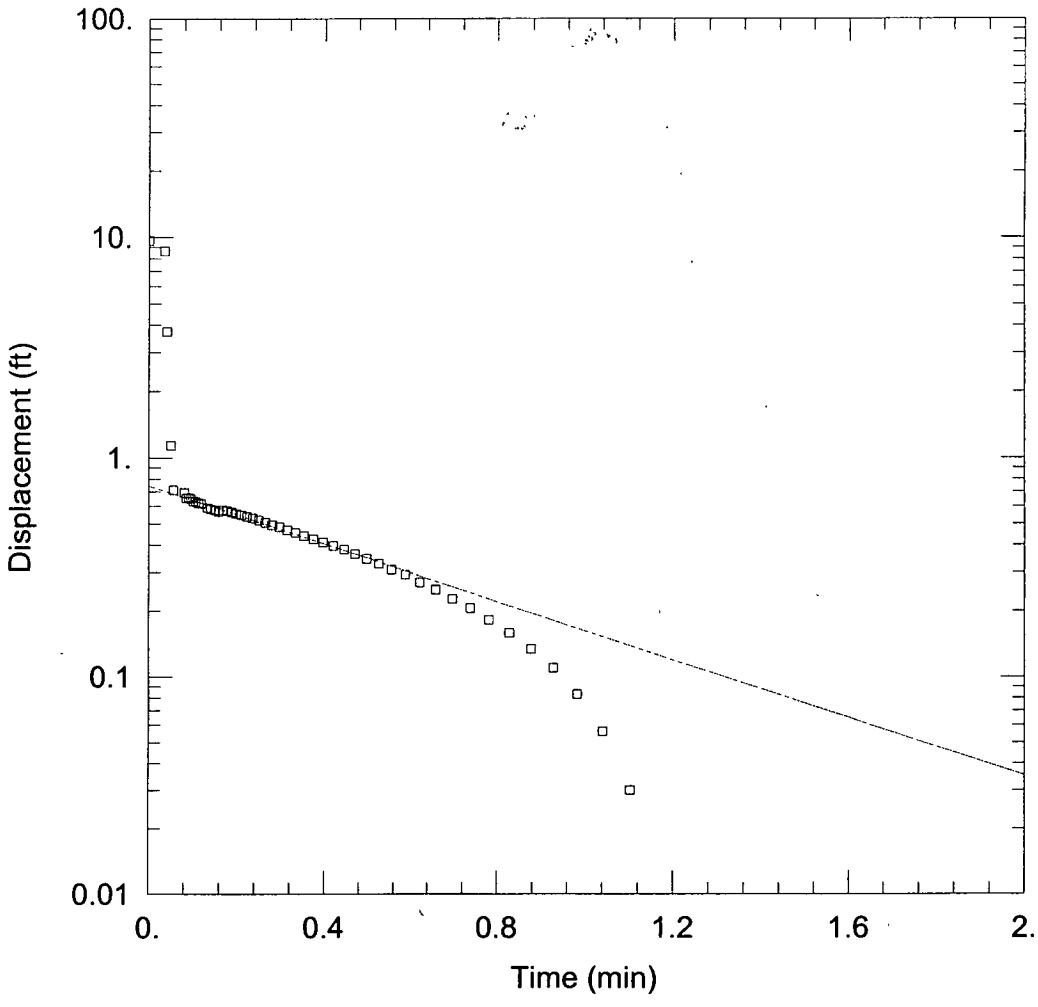
WELL DATA (21D_Fall)

Initial Displacement: 3.2 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.06874 ft/day
y0 = 21.87 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\22I_Rise.aqt
Date: 05/20/03 Time: 15:58:53

PROJECT INFORMATION

Test Well: 22I_Rise

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

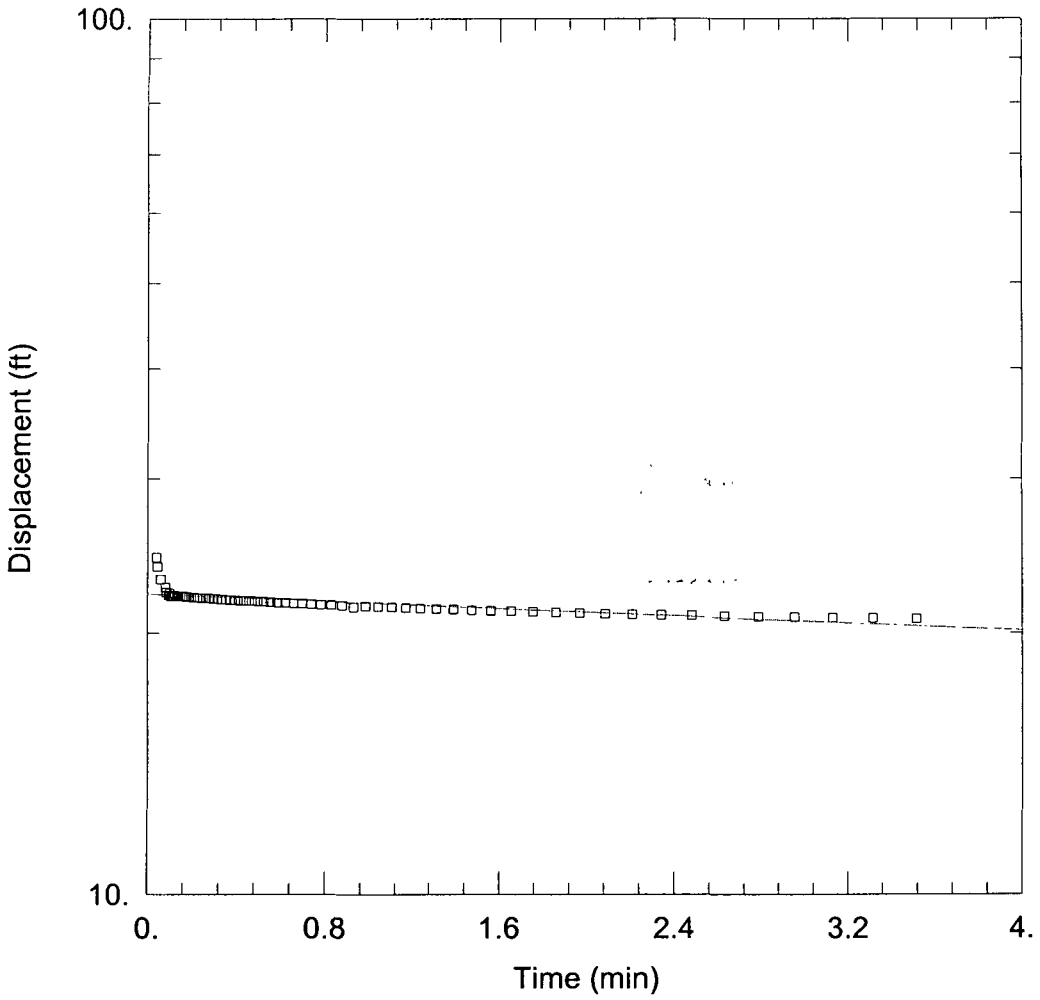
WELL DATA (22I_Rise)

Initial Displacement: 9.618 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.796 ft/day y0 = 0.7449 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\22I_Fall.aqt
Date: 05/20/03 Time: 15:07:35

PROJECT INFORMATION

Test Well: 22I_Fall

AQUIFER DATA

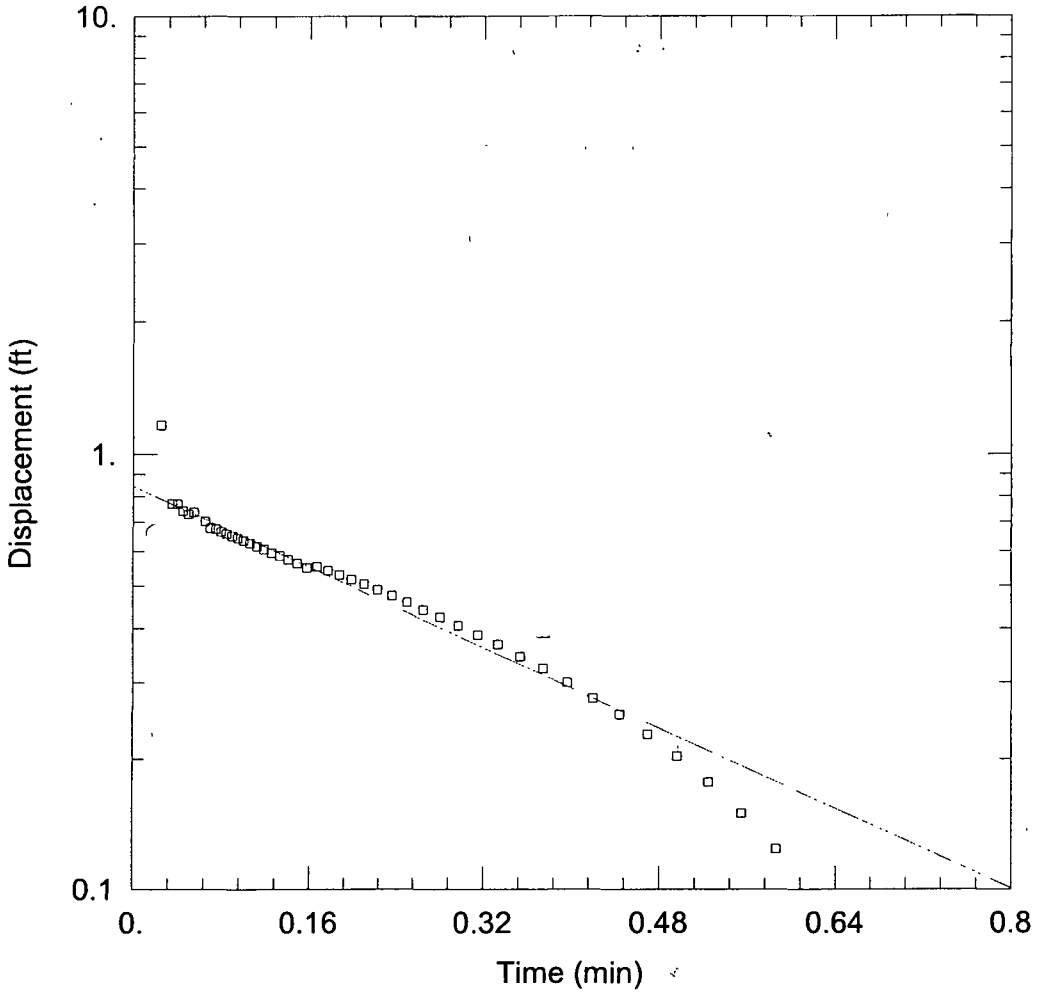
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (22I_Fall)

Initial Displacement: 4.1 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04365 ft/day
y0 = 22.16 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\24I_Rise.aqt
Date: 05/20/03 Time: 15:59:59

PROJECT INFORMATION

Test Well: 24I_Rise

AQUIFER DATA

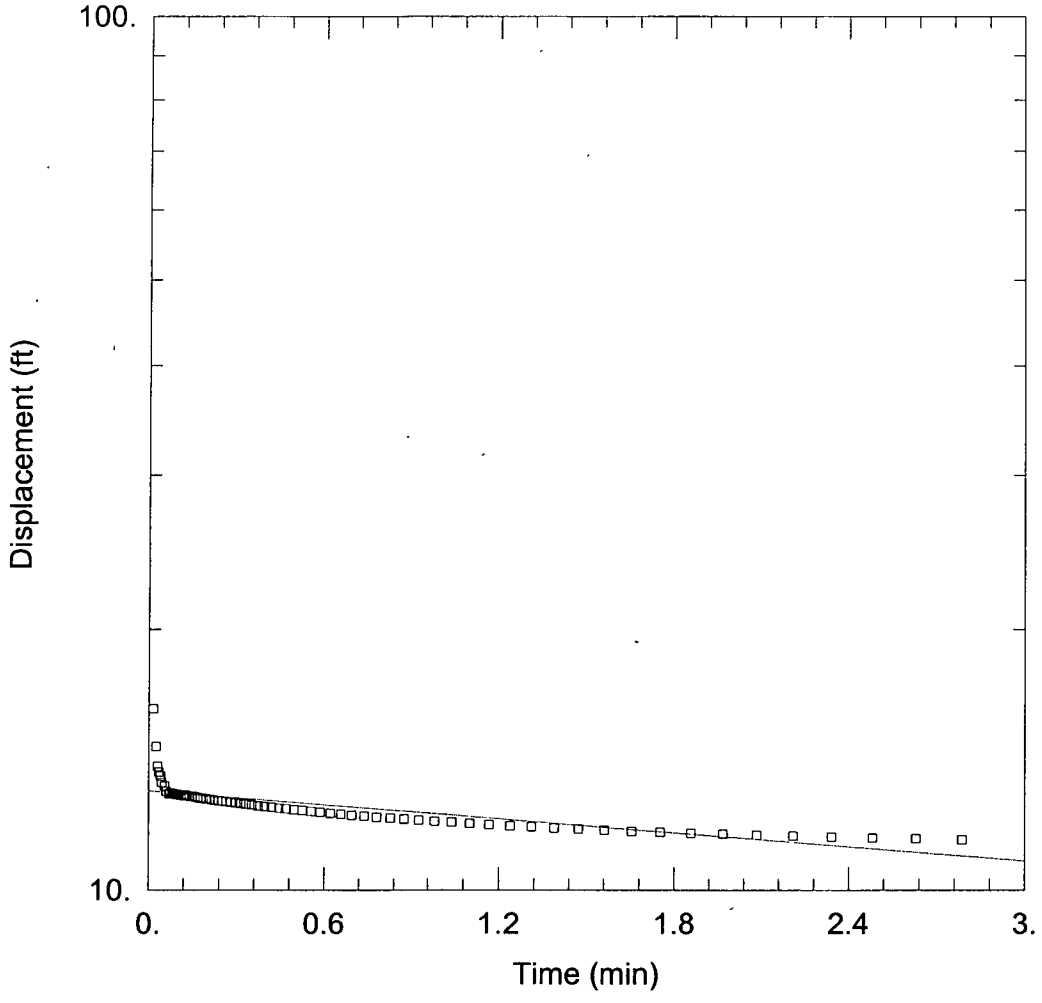
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (24I_Rise)

Initial Displacement: 2.26 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.877 ft/day
y0 = 0.8449 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\24I_Fall.aqt
Date: 05/20/03 Time: 15:59:47

PROJECT INFORMATION

Test Well: 24I_Fall

AQUIFER DATA

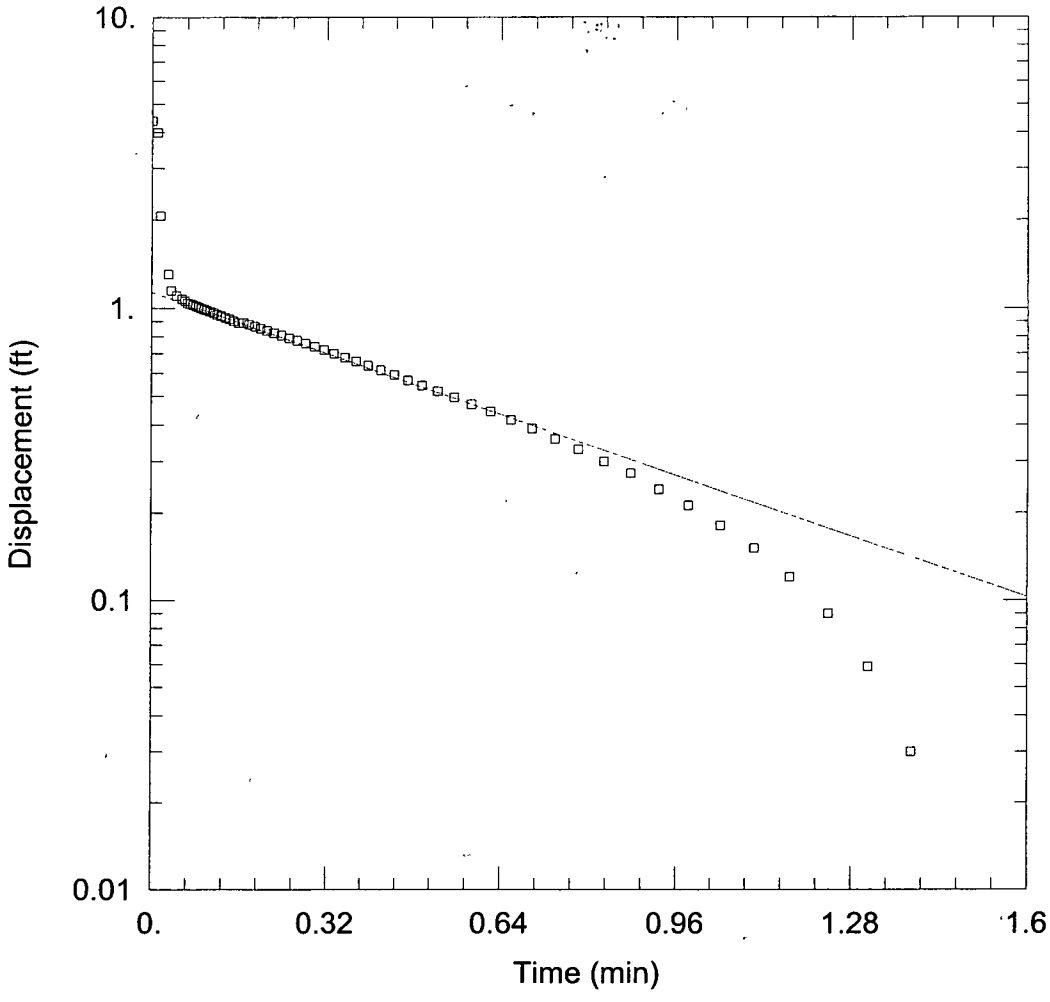
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (24I_Fall)

Initial Displacement: 5. ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1138 ft/day
y0 = 13.02 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\25I_Rise.aqt
Date: 05/20/03 Time: 16:00:18

PROJECT INFORMATION

Test Well: 25I_Rise

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

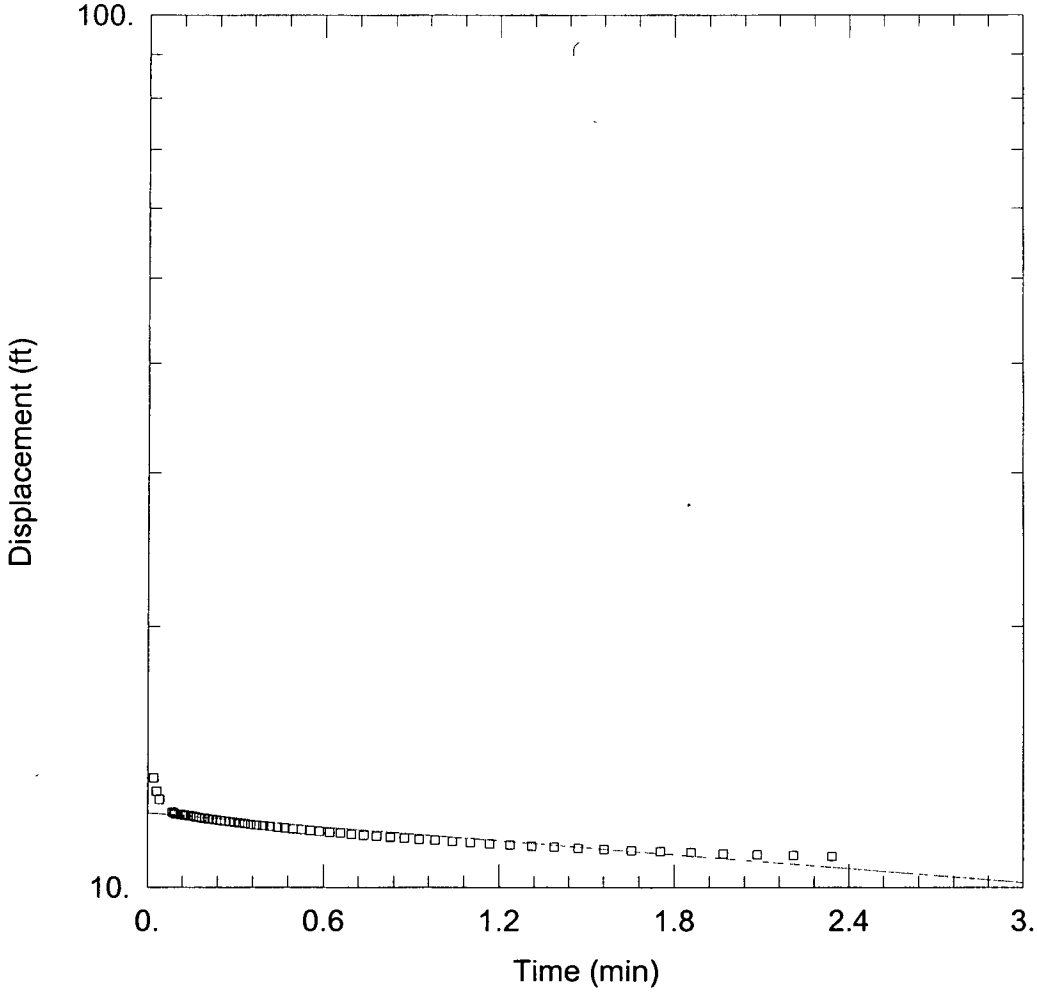
WELL DATA (25I_Rise)

Initial Displacement: 4.38 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.746 ft/day y0 = 1.131 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\25I_Fall.aqt
Date: 05/20/03 Time: 15:07:31

PROJECT INFORMATION

Test Well: 25I_Fall

AQUIFER DATA

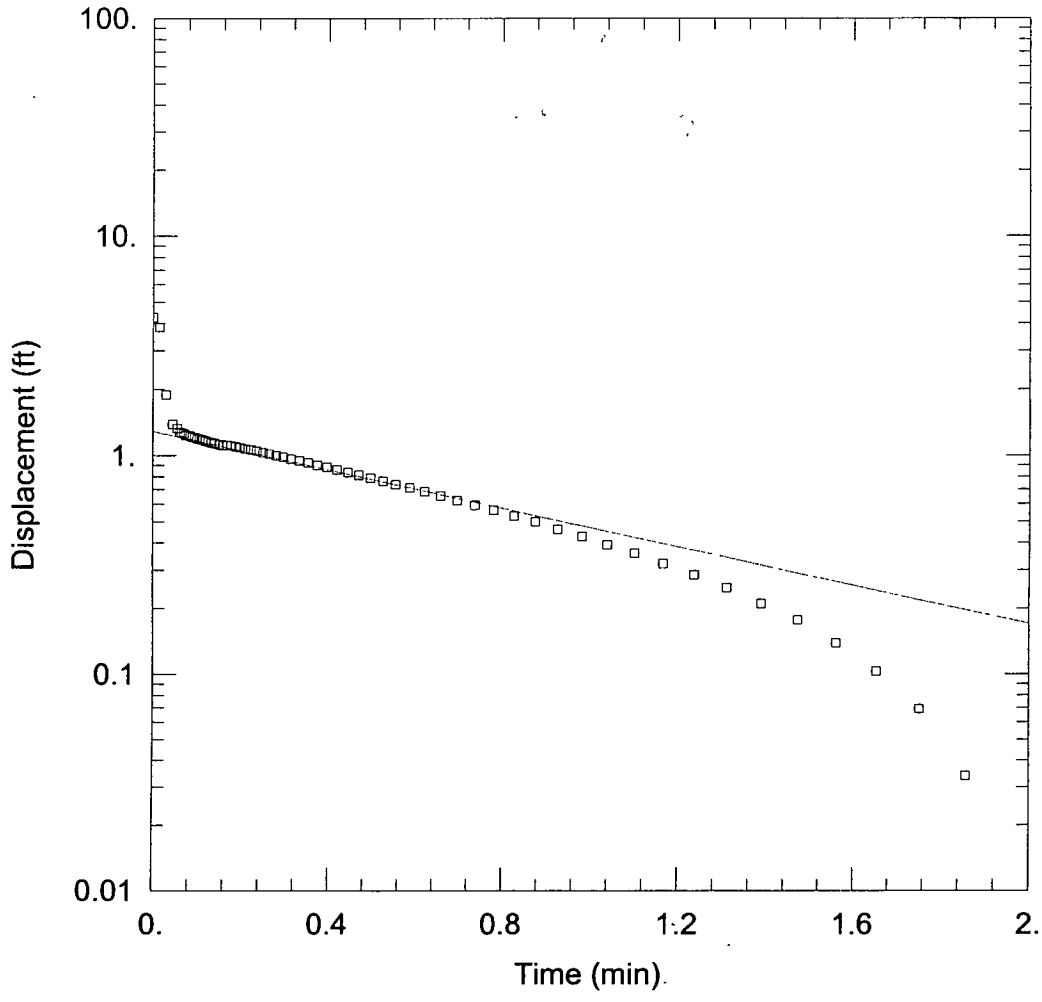
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (25I_Fall)

Initial Displacement: 2.82 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.114 ft/day
y0 = 12.2 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\31D_Rise.aqt
Date: 05/20/03 Time: 16:06:49

PROJECT INFORMATION

Test Well: 31D_Rise

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

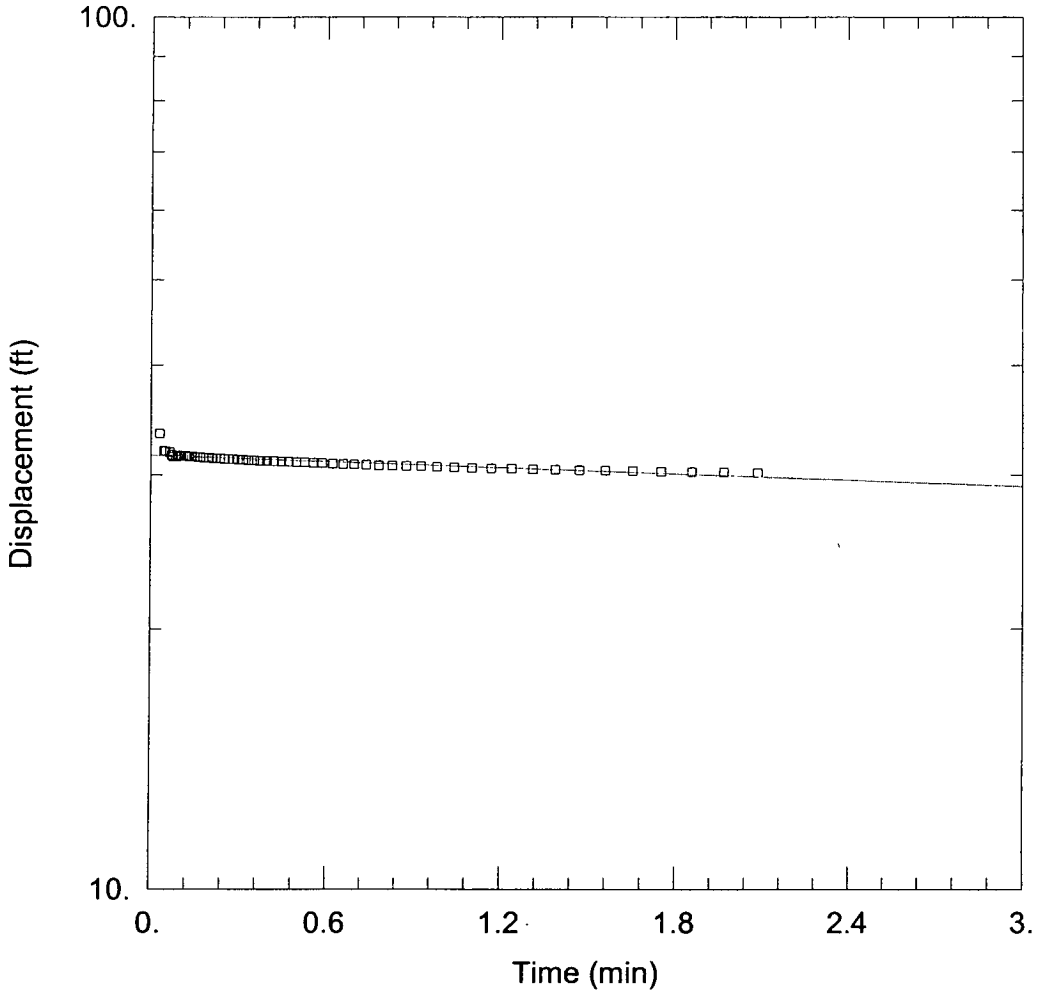
WELL DATA (31D_Rise)

Initial Displacement: 4.26 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.851 ft/day y0 = 1.288 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\31D_Fall.aqt
Date: 05/20/03 Time: 15:07:22

PROJECT INFORMATION

Test Well: 31D_Fall

AQUIFER DATA

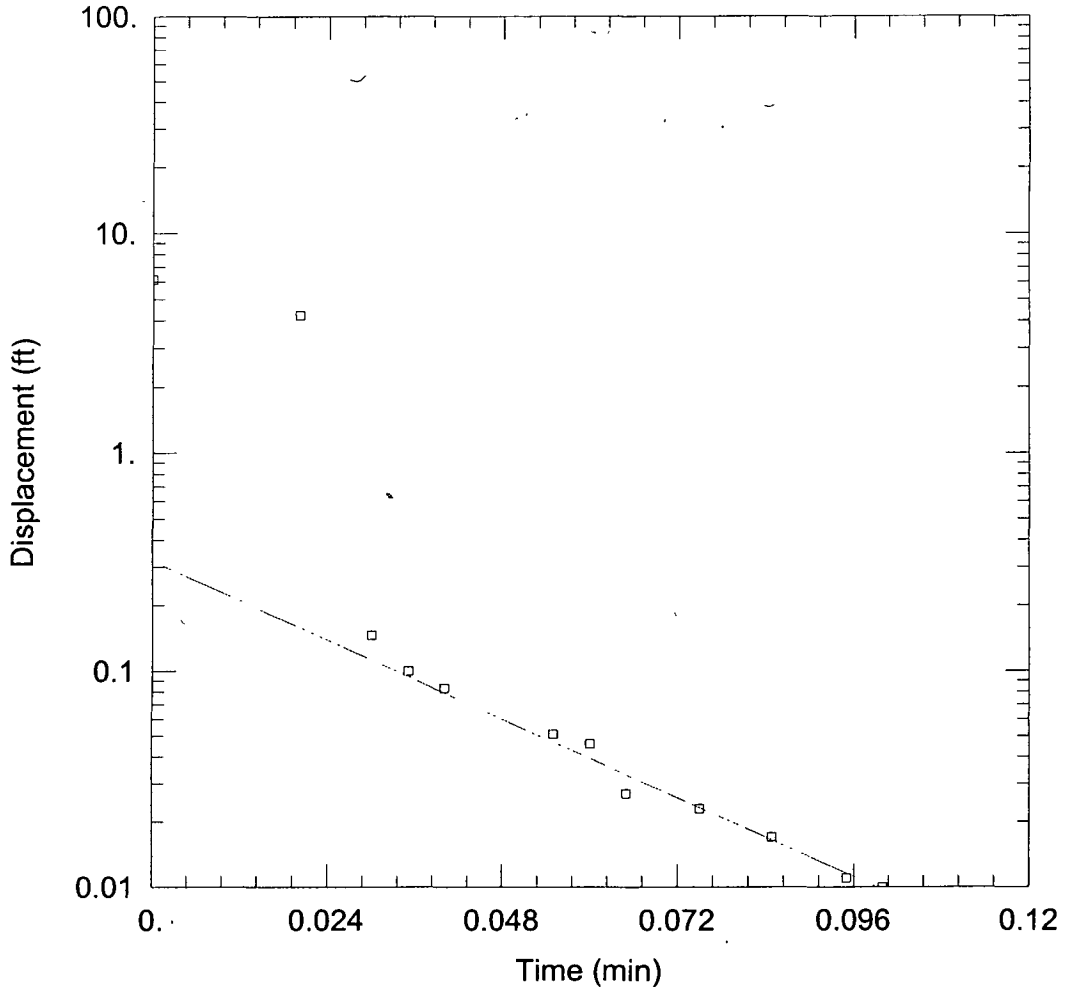
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (31D_Fall)

Initial Displacement: 3.6 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04992 ft/day
y0 = 31.62 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\32D_Rise.aqt
Date: 05/20/03 Time: 16:07:09

PROJECT INFORMATION

Test Well: 32D_Rise

AQUIFER DATA

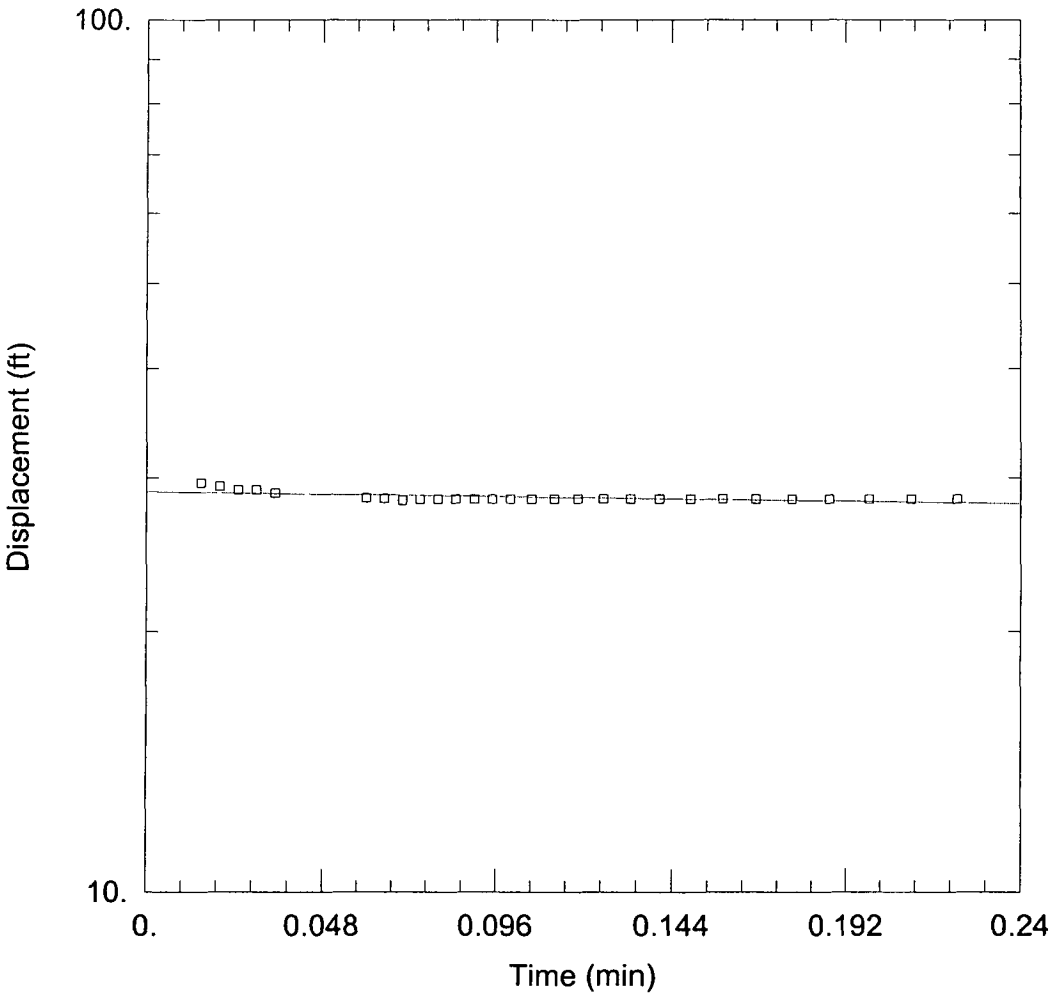
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (32D_Rise)

Initial Displacement: 6.127 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 12. ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 55.6 ft/day
y0 = 0.3205 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\32D_Fall.aqt
Date: 05/20/03 Time: 15:07:20

PROJECT INFORMATION

Test Well: 32D_Fall

AQUIFER DATA

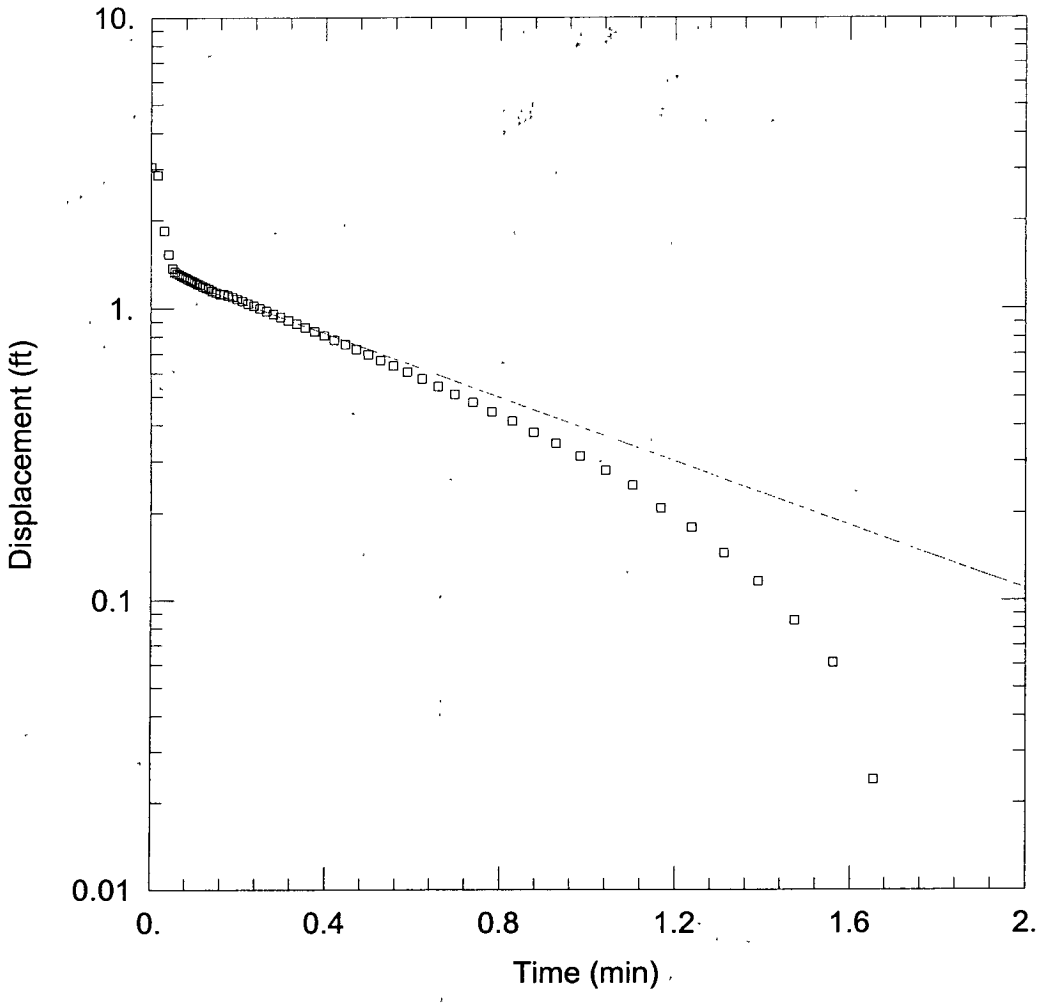
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (32D_Fall)

Initial Displacement: 3.2 ft
Wellbore Radius: 0.083 ft
Screen Length: 12. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.204 ft/day
y0 = 28.92 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\33I_Rise.aqt
Date: 05/20/03 Time: 16:07:46

PROJECT INFORMATION

Test Well: 33I_Rise

AQUIFER DATA

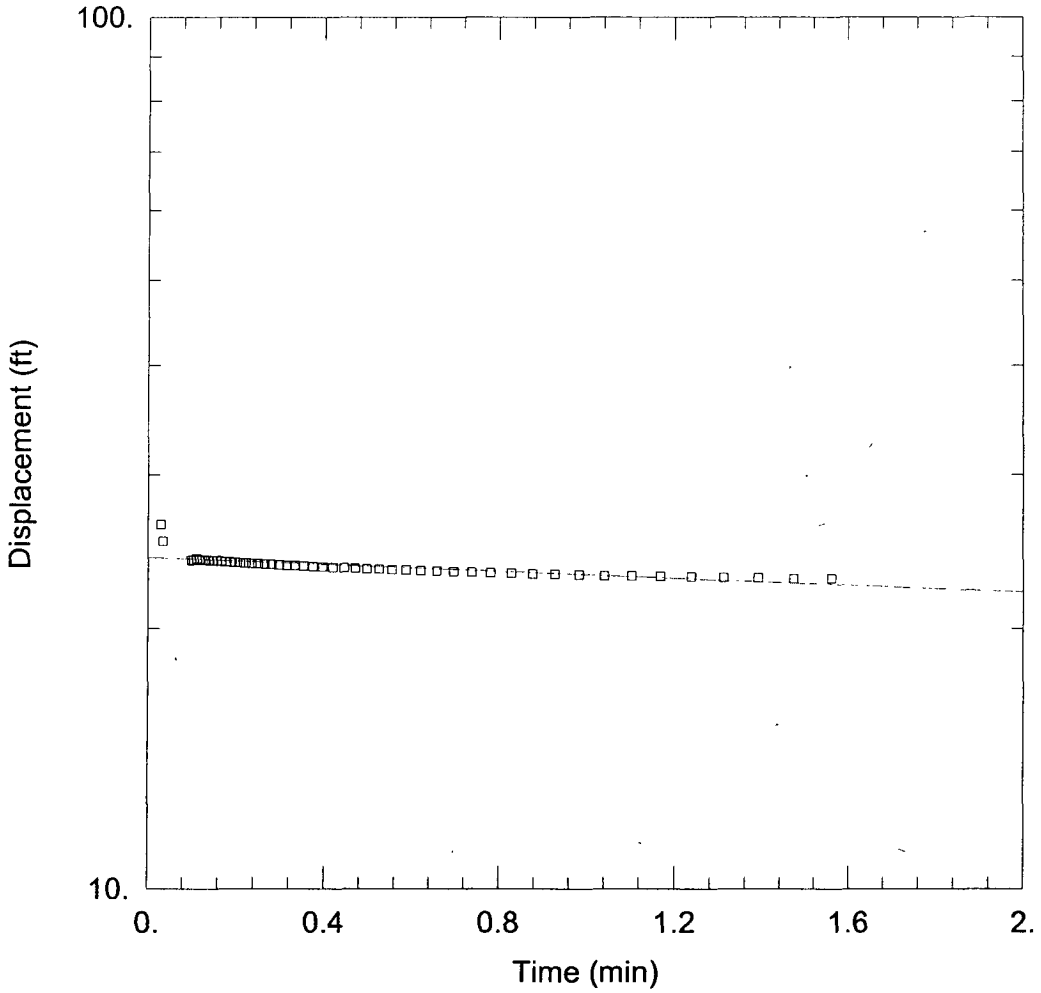
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (33I_Rise)

Initial Displacement: 3.05 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.302 ft/day
y0 = 1.355 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\33I_Fall.aqt
Date: 05/20/03 Time: 15:07:15

PROJECT INFORMATION

Test Well: 33I_Fall

AQUIFER DATA

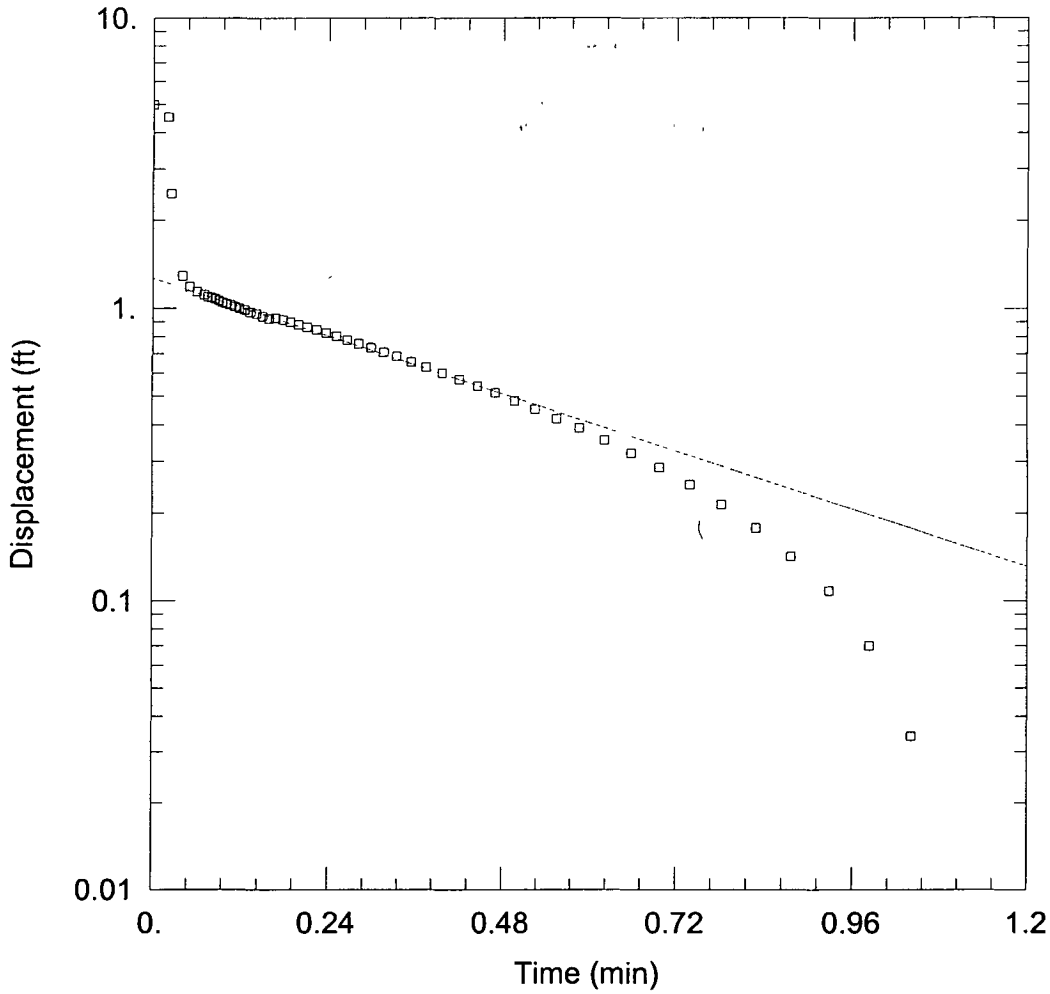
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (33I_Fall)

Initial Displacement: 3.59 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.08399 ft/day
y0 = 24.13 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv Slug\33D_Rise.aqt
Date: 05/20/03 Time: 16:07:30

PROJECT INFORMATION

Test Well: 33D_Rise

AQUIFER DATA

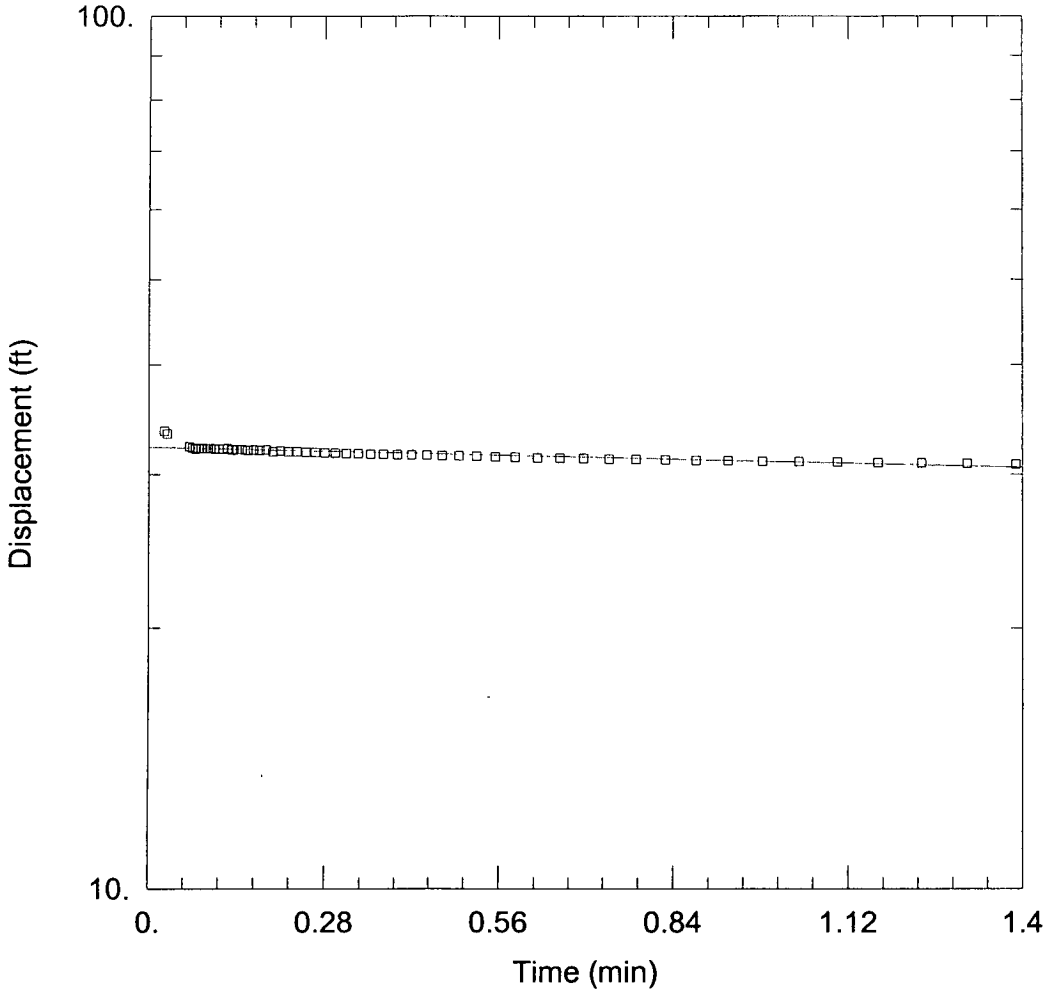
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (33D_Rise)

Initial Displacement: 4.99 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.457 ft/day
y0 = 1.263 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\33D_Fall.aqt
Date: 05/20/03 Time: 15:07:17

PROJECT INFORMATION

Test Well: 33D_Fall

AQUIFER DATA

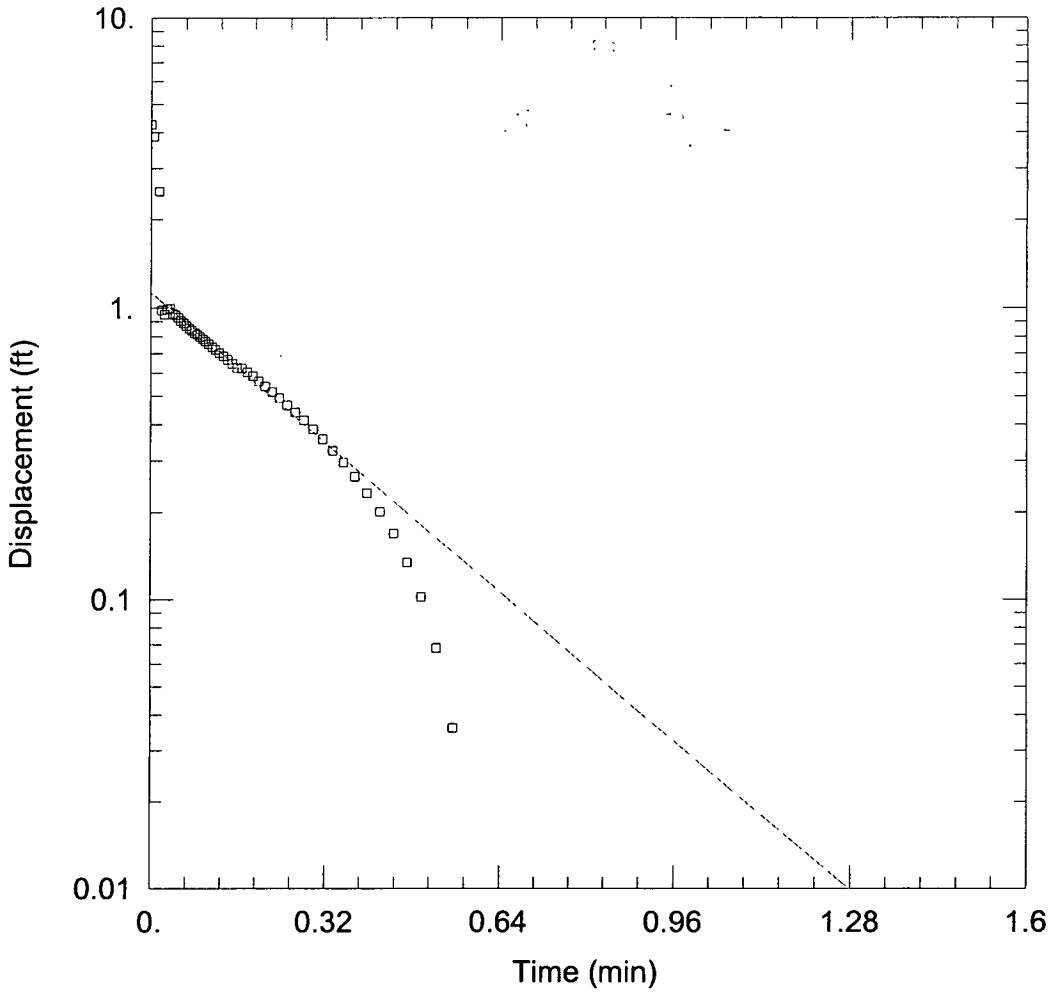
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (33D_Fall)

Initial Displacement: 3.119 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.06934 ft/day
y0 = 32.24 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\34I_Rise.aqt
Date: 05/20/03 Time: 16:08:23

PROJECT INFORMATION

Test Well: 34I_Rise

AQUIFER DATA

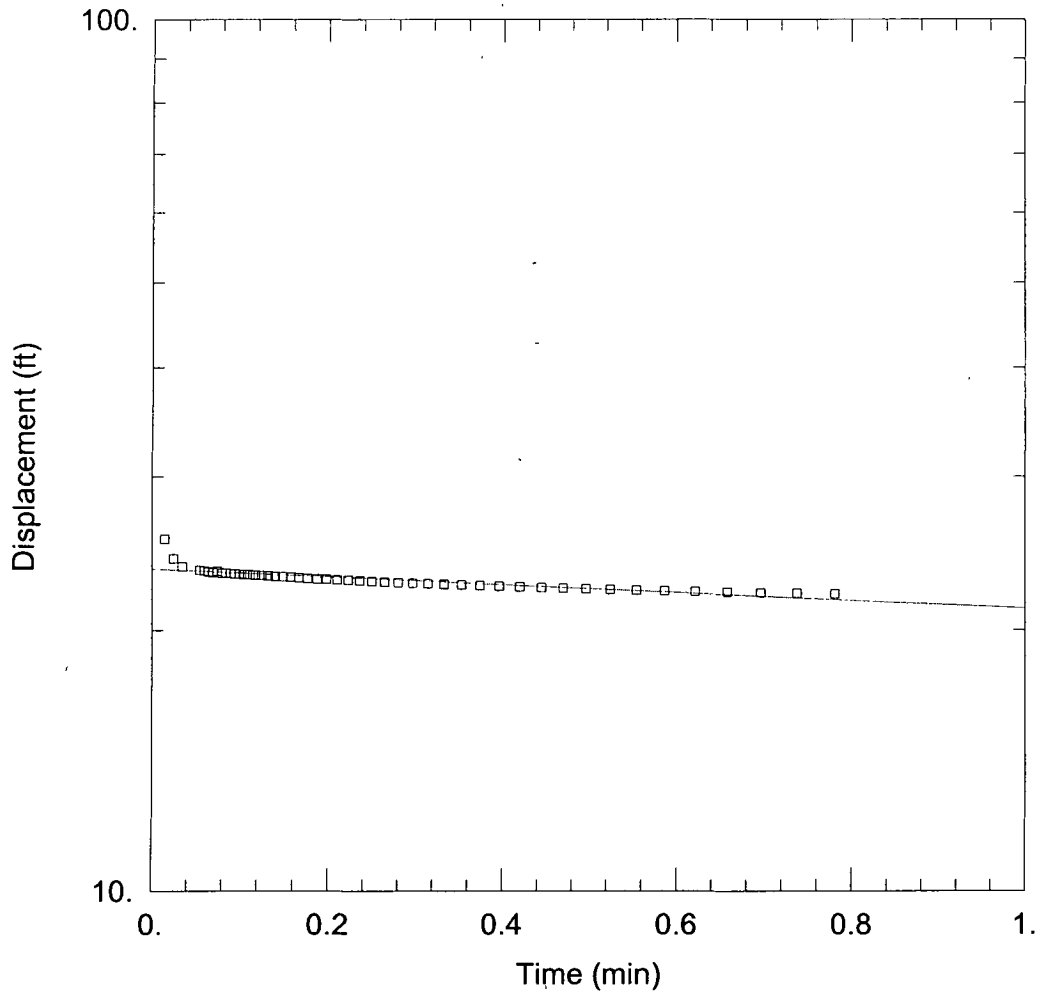
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (34I_Rise)

Initial Displacement: 4.25 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.774 ft/day
y0 = 1.128 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\34I_Fall.aqt
Date: 05/20/03 Time: 15:07:10

PROJECT INFORMATION

Test Well: 34I_Fall

AQUIFER DATA

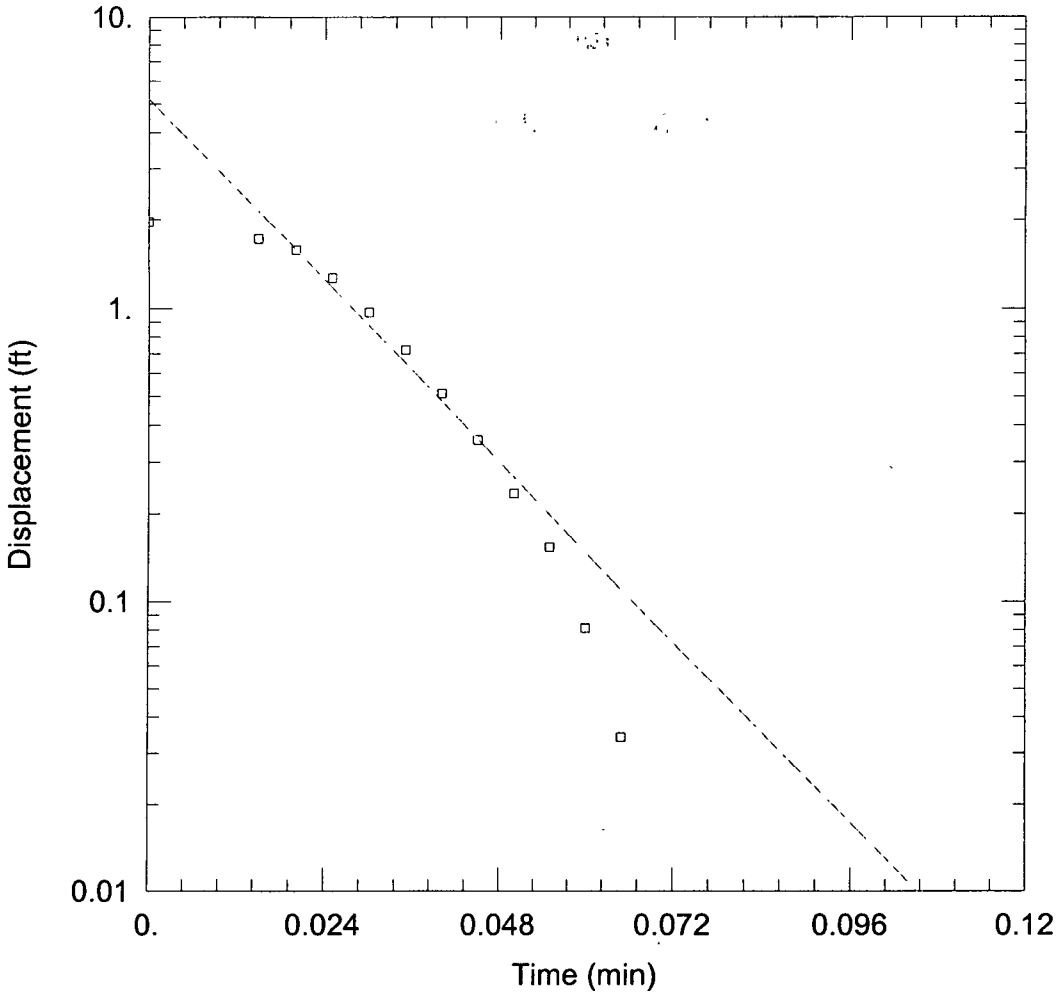
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (34I_Fall)

Initial Displacement: 3.79 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1917 ft/day
y0 = 23.54 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\34D_Rise.aqt
Date: 05/20/03 Time: 16:08:05

PROJECT INFORMATION

Test Well: 34D_Rise

AQUIFER DATA

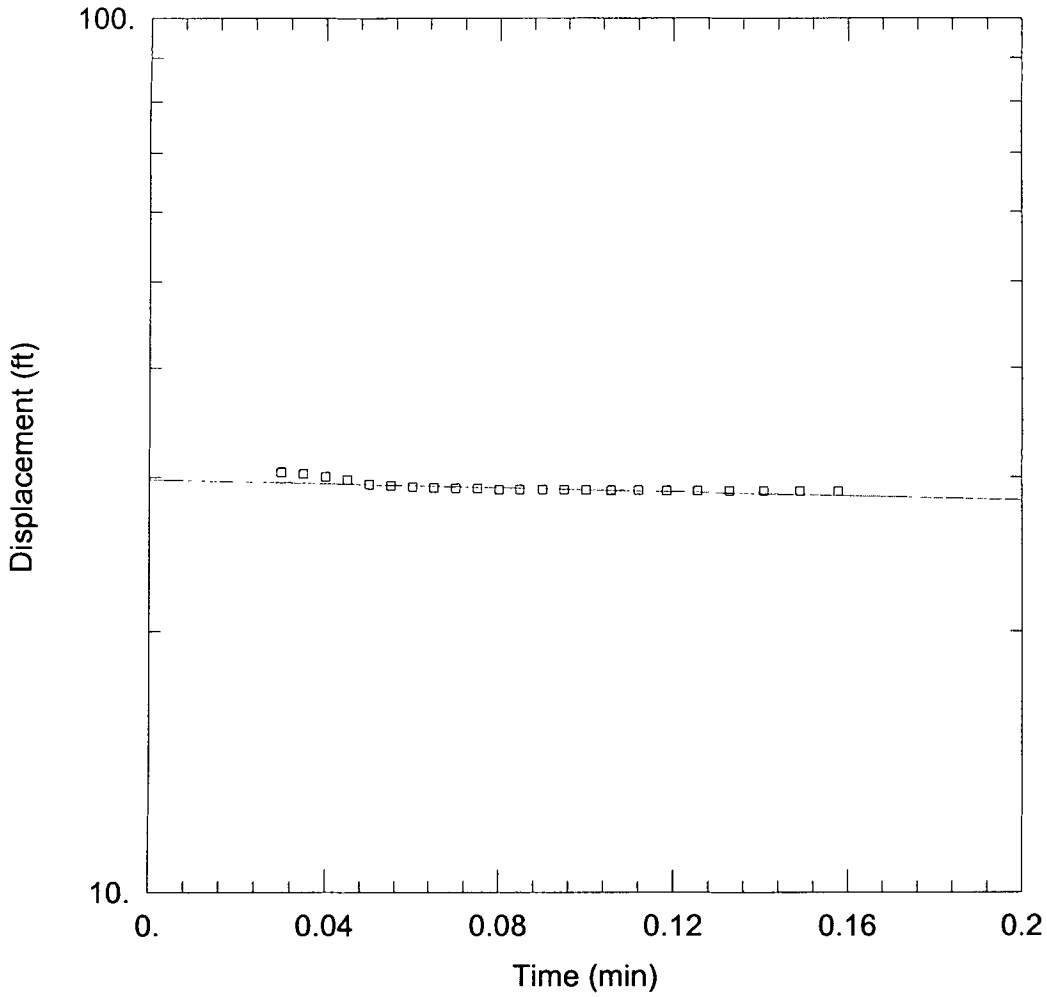
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (34D_Rise)

Initial Displacement: 1.96 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 109. ft/day
y0 = 5.201 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\34D_Fall.aqt
Date: 05/20/03 Time: 15:07:13

PROJECT INFORMATION

Test Well: 34D_Fall

AQUIFER DATA

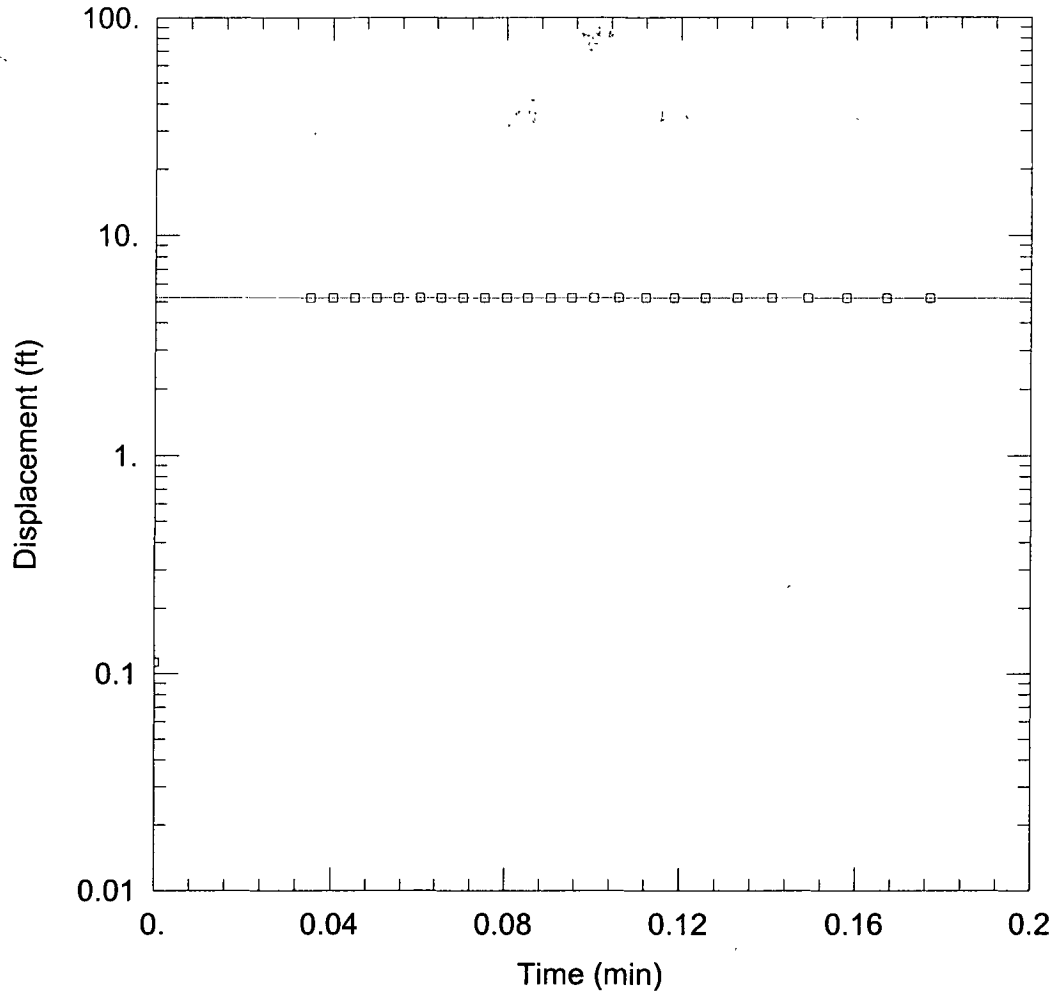
Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (34D_Fall)

Initial Displacement: 1.62 ft
Wellbore Radius: 0.083 ft
Screen Length: 14. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 14. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3753 ft/day
y0 = 29.82 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\35S_Rise.aqt
Date: 05/20/03 Time: 16:09:10

PROJECT INFORMATION

Test Well: 35S_Rise

AQUIFER DATA

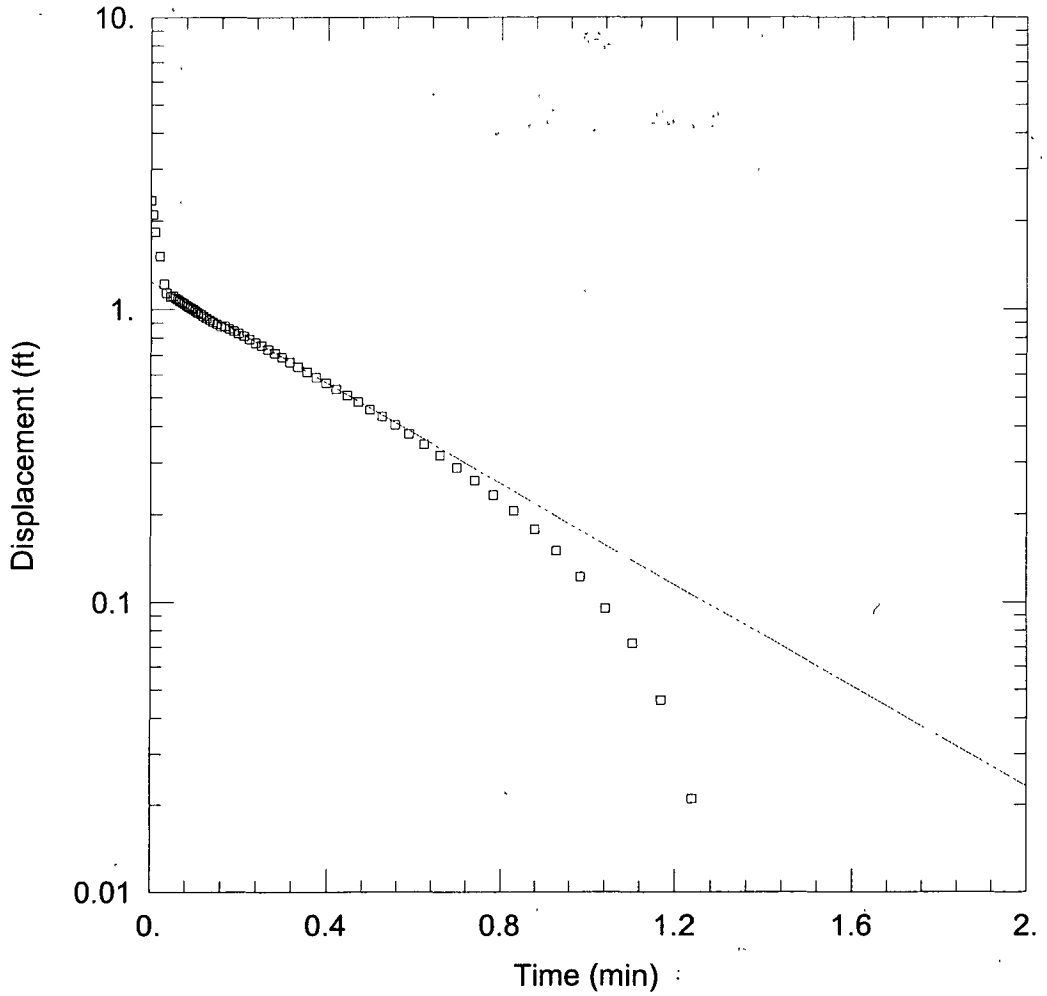
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (35S_Rise)

Initial Displacement: 0.113 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 12. ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04016 ft/day
y0 = 5.217 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\35I_Rise.aqt
Date: 05/20/03 Time: 15:07:03

PROJECT INFORMATION

Test Well: 35I_Rise

AQUIFER DATA

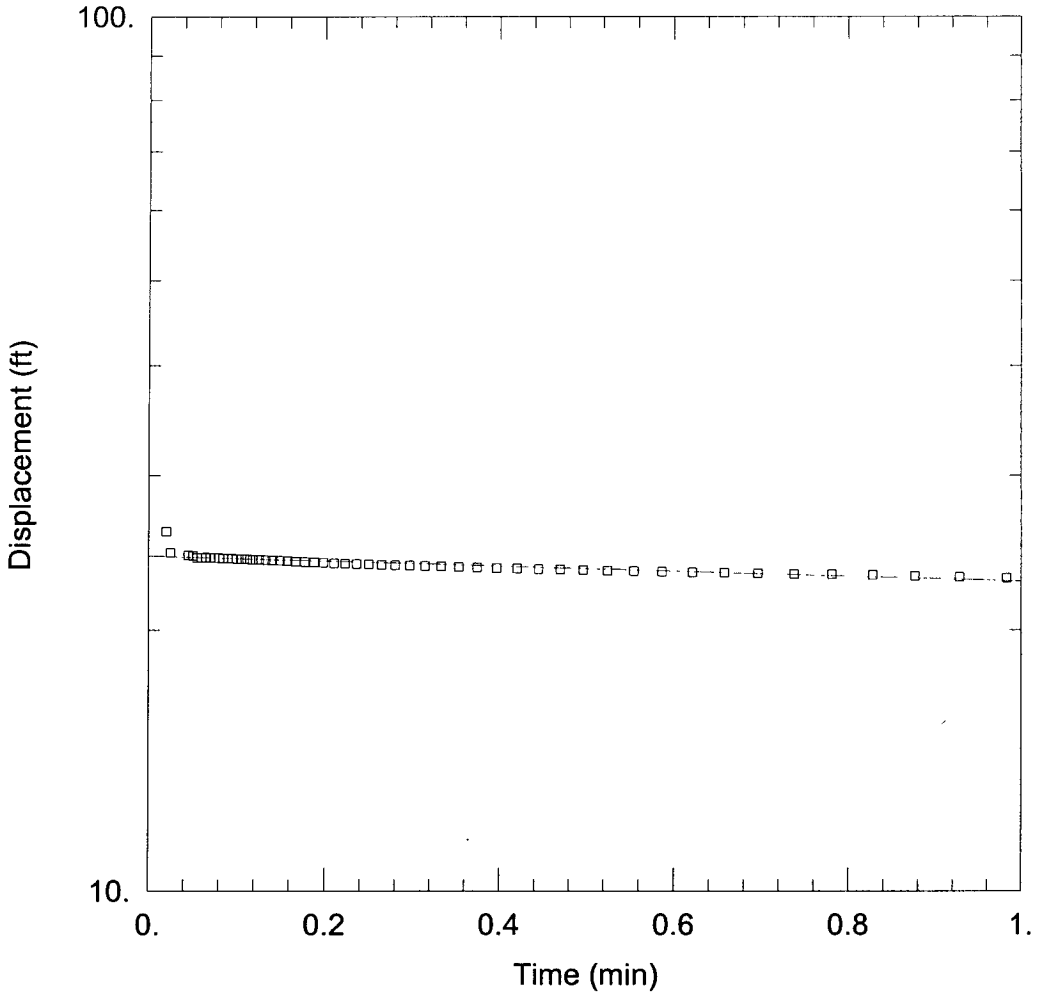
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (35I_Rise)

Initial Displacement: 2.34 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.644 ft/day
y0 = 1.241 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\35I_Fall.aqt
Date: 05/20/03 Time: 15:07:04

PROJECT INFORMATION

Test Well: 35I_Fall

AQUIFER DATA

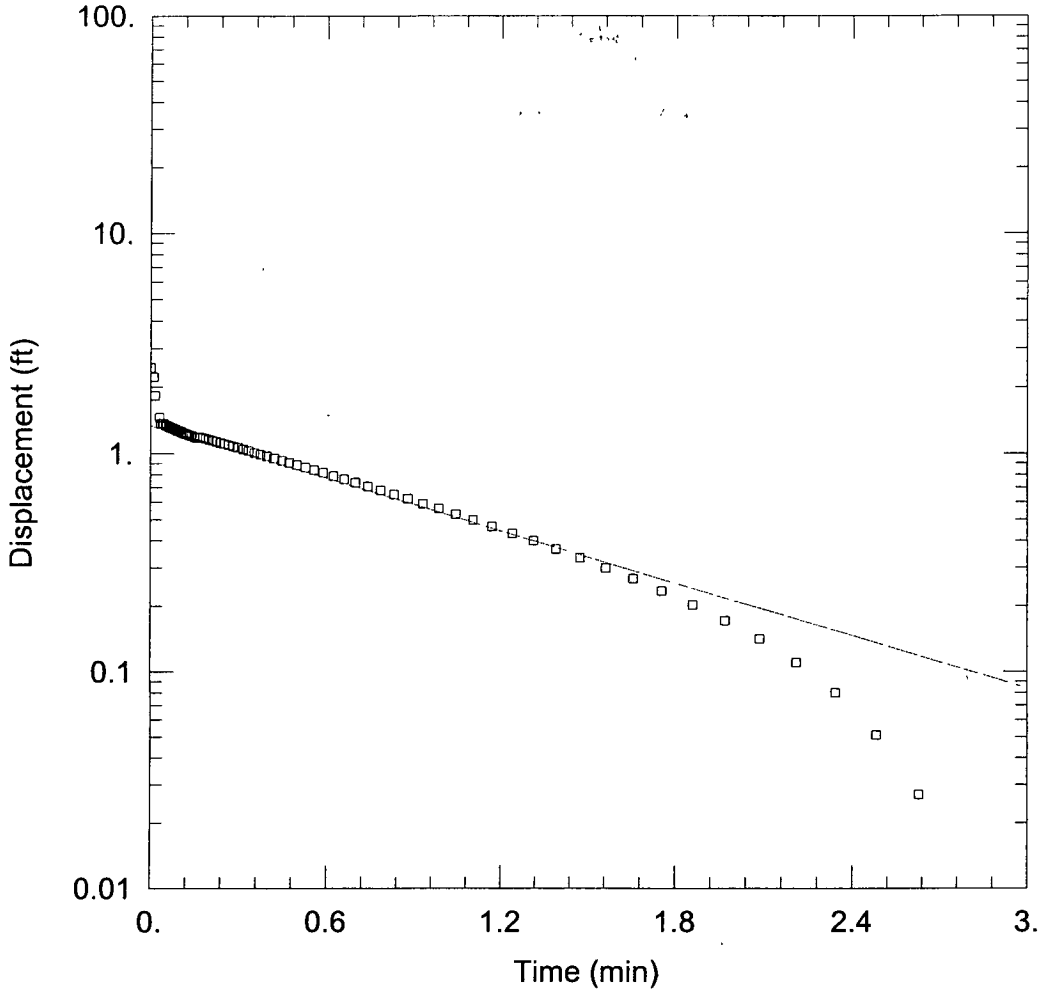
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (35I_Fall)

Initial Displacement: 3.3 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1204 ft/day
y0 = 24.29 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\35D_Rise.aqt
Date: 05/20/03 Time: 16:08:44

PROJECT INFORMATION

Test Well: 35D_Rise

AQUIFER DATA

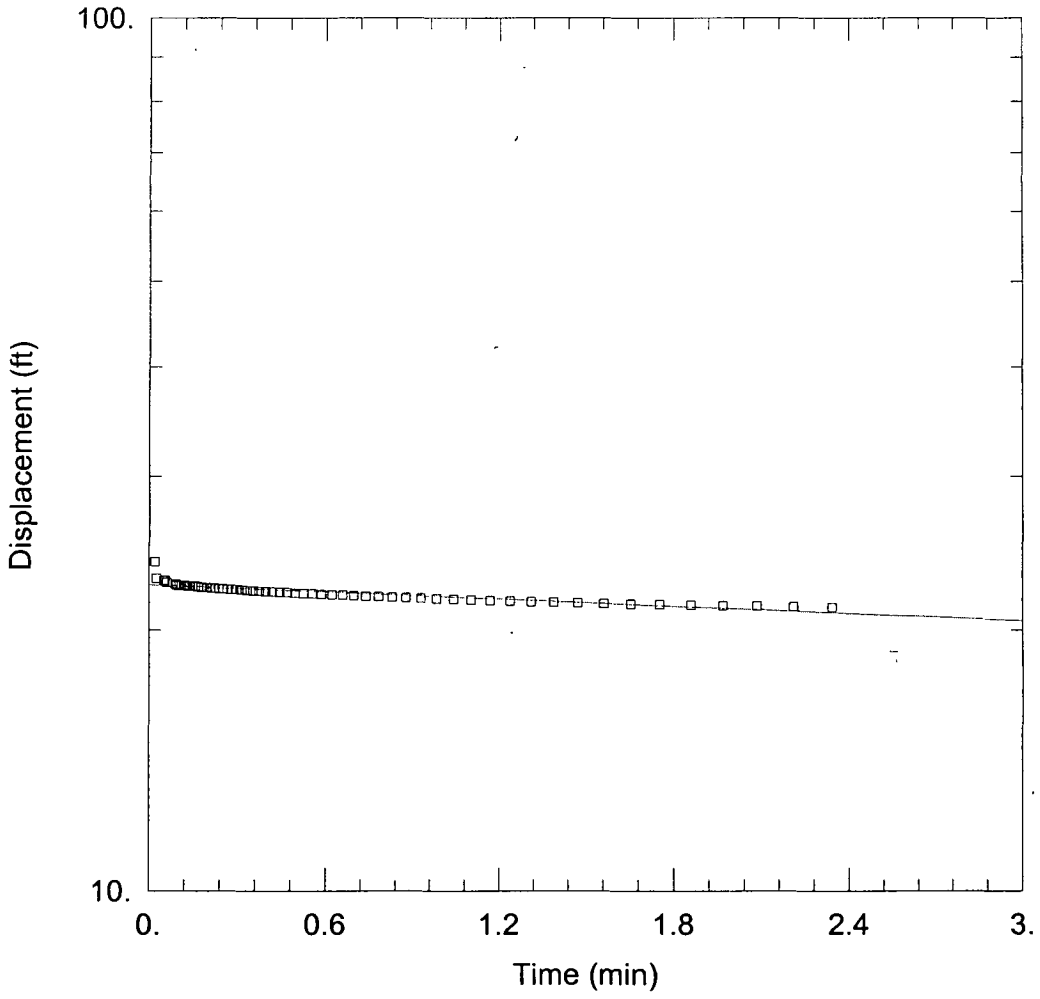
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (35D_Rise)

Initial Displacement: 2.46 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 12. ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.468 ft/day
y0 = 1.34 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\35D_Fall.aqt
Date: 05/20/03 Time: 15:07:08

PROJECT INFORMATION

Test Well: 35D_Fall

AQUIFER DATA

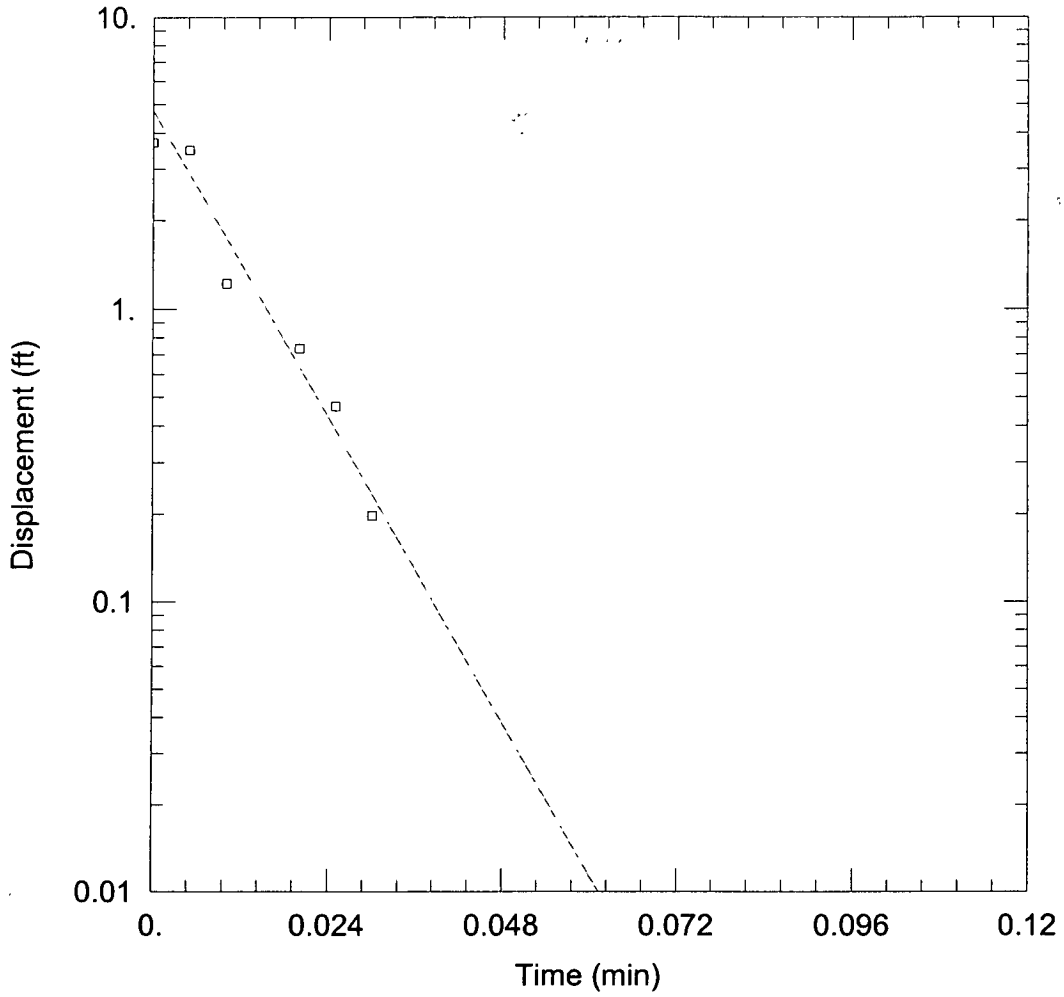
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (35D-Fall)

Initial Displacement: 3. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.05804 ft/day
y0 = 22.55 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\36D_Rise.aqt
Date: 05/20/03 Time: 16:09:29

PROJECT INFORMATION

Test Well: 36D_Rise

AQUIFER DATA

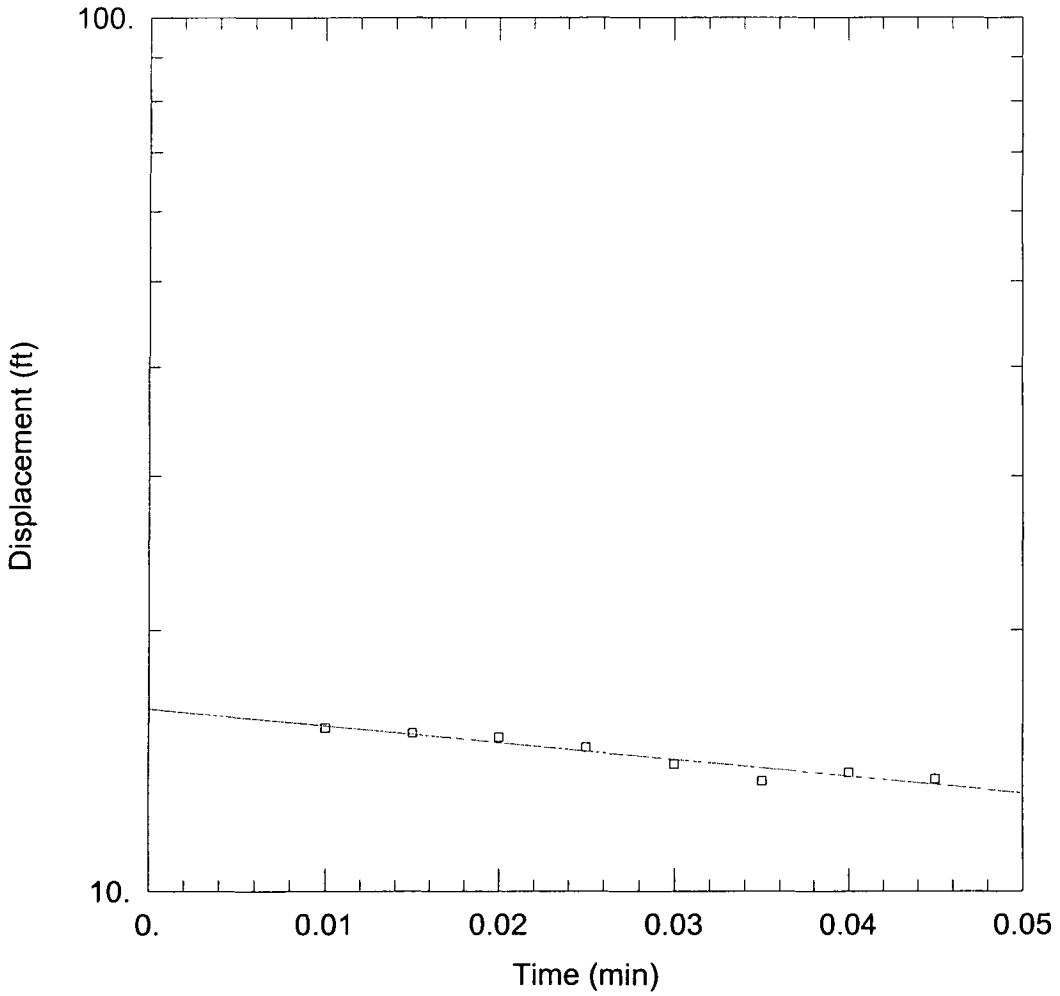
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (36D_Rise)

Initial Displacement: 3.7 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 184.3 ft/day y0 = 4.759 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\36D_Fall.aqt
Date: 05/20/03 Time: 15:07:00

PROJECT INFORMATION

Test Well: 36D-Fall

AQUIFER DATA

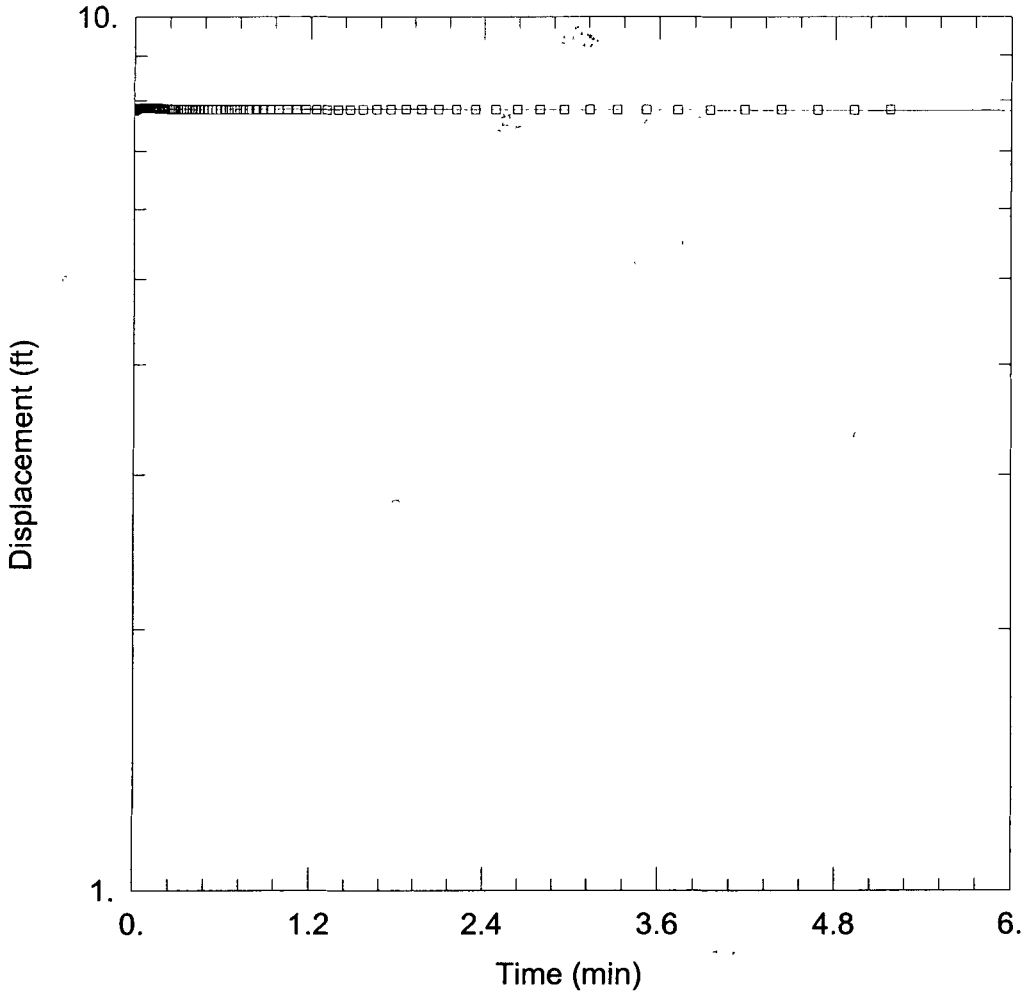
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (36D_Fall)

Initial Displacement: 2.1 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.223 ft/day
y0 = 16.25 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\37S_Rise.aqt
Date: 05/20/03 Time: 16:10:32

PROJECT INFORMATION

Test Well: 37S_Rise

AQUIFER DATA

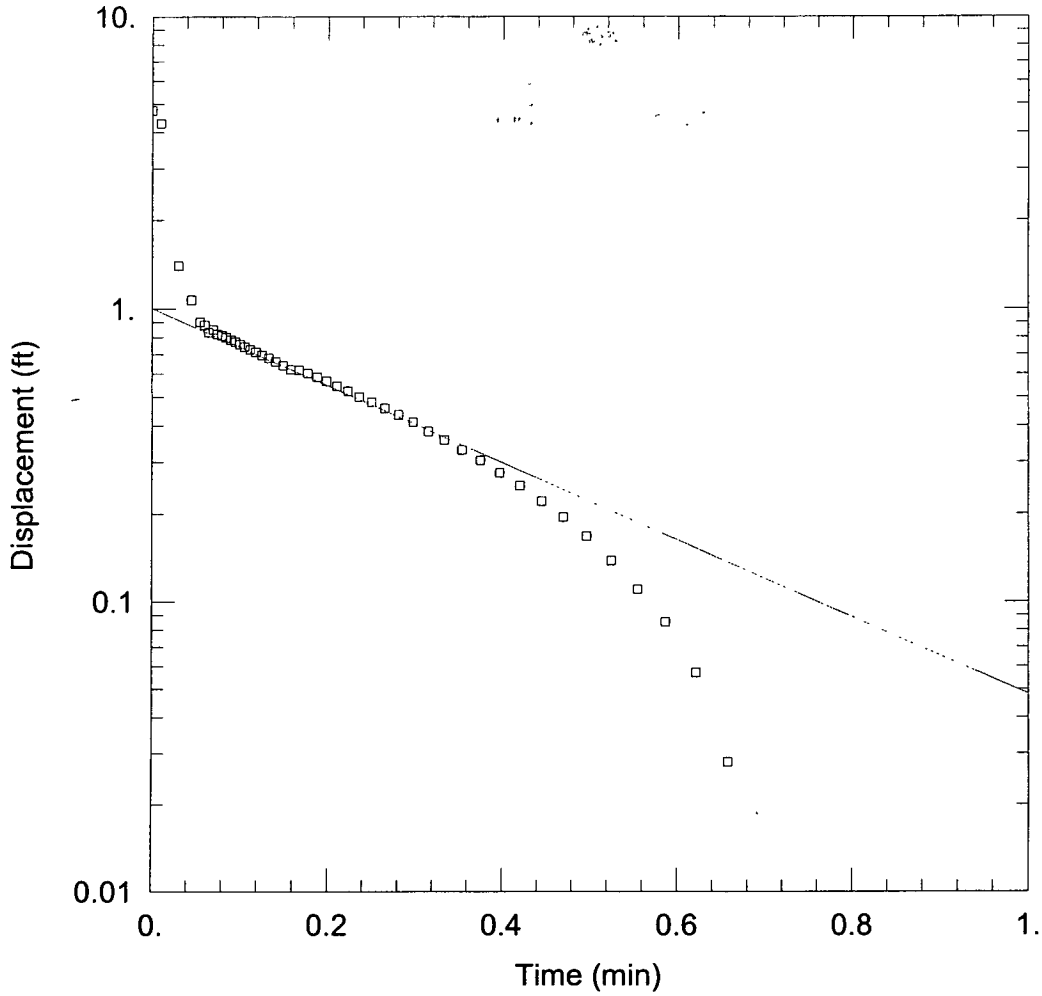
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (37S_Rise)

Initial Displacement: 0.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001646 ft/day
y0 = 7.831 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\37I_Rise.aqt
Date: 05/20/03 Time: 16:10:07

PROJECT INFORMATION

Test Well: 37I_Rise

AQUIFER DATA

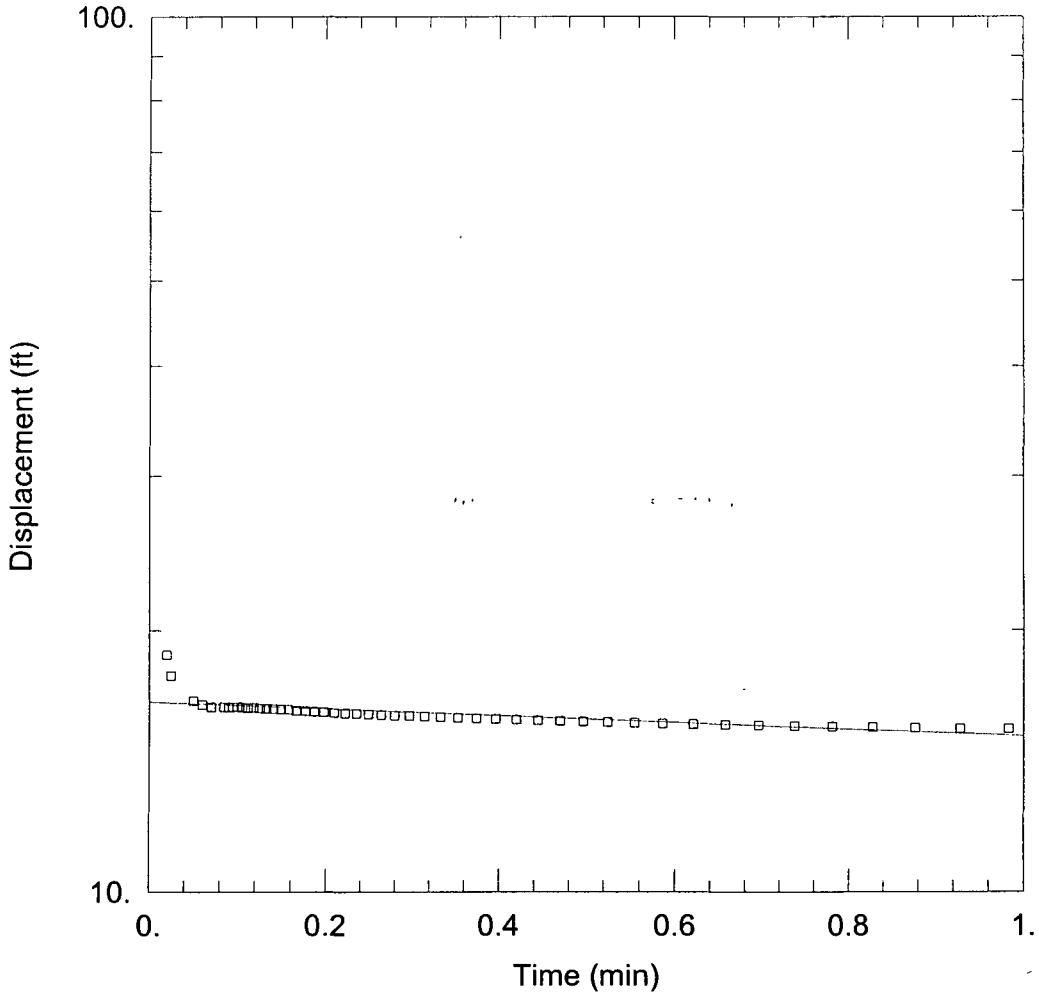
Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (37I_Rise)

Initial Displacement: 4.75 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 14. ft
Total Well Penetration Depth: 14. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.279 ft/day
y0 = 1.003 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\37I_Fall.aqt
Date: 05/20/03 Time: 15:06:54

PROJECT INFORMATION

Test Well: 37I_Fall

AQUIFER DATA

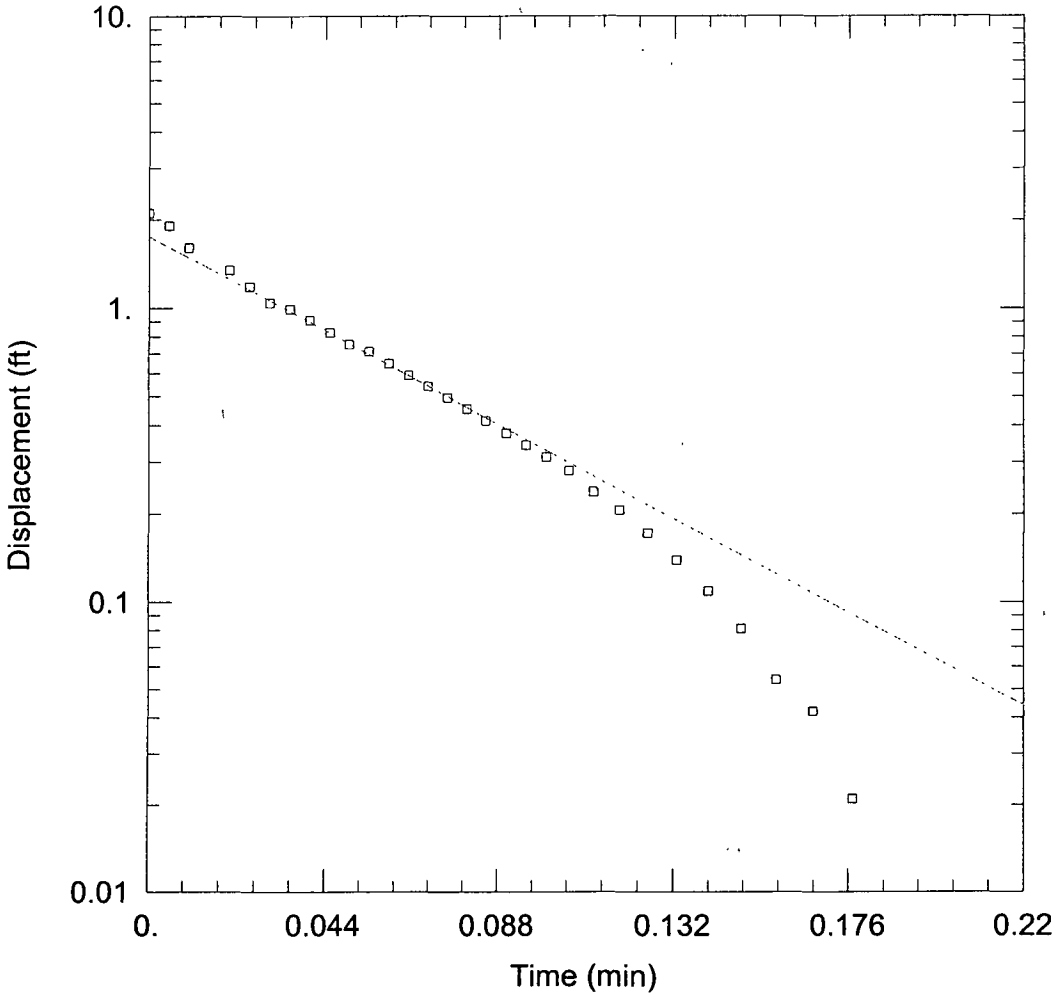
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (37I_Fall)

Initial Displacement: 3. ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.165 ft/day
y0 = 16.55 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\37D_Rise.aqt
Date: 05/20/03 Time: 16:09:48

PROJECT INFORMATION

Test Well: 37D_Rise

AQUIFER DATA

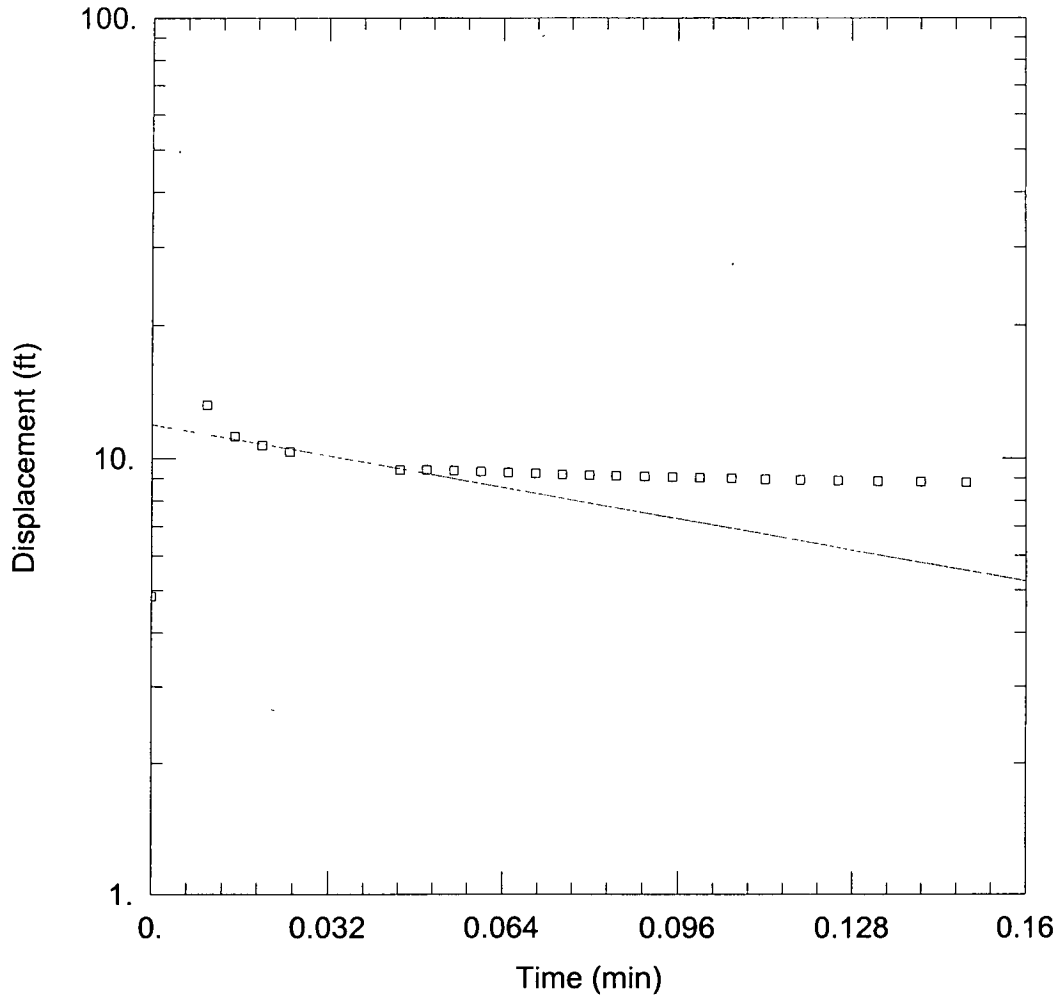
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (37D_Rise)

Initial Displacement: 2.104 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 30.67 ft/day
y0 = 1.751 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\37D_Fall.aqt
Date: 05/20/03 Time: 15:06:58

PROJECT INFORMATION

Test Well: 37D_Fall

AQUIFER DATA

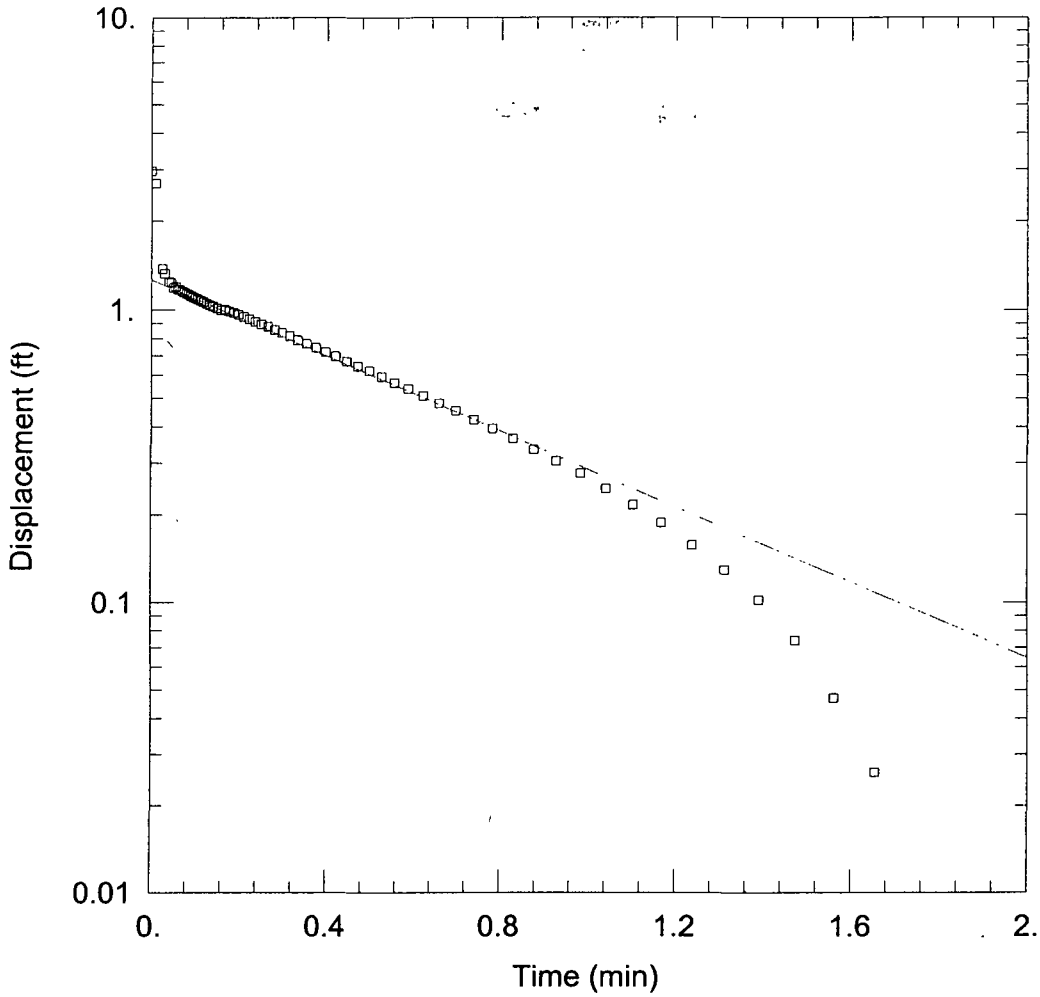
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (37D_Fall)

Initial Displacement: 4.84 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 9.421 ft/day
y0 = 11.94 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\38I_Rise.aqt
Date: 05/20/03 Time: 16:10:47

PROJECT INFORMATION

Test Well: 38I_Rise

AQUIFER DATA

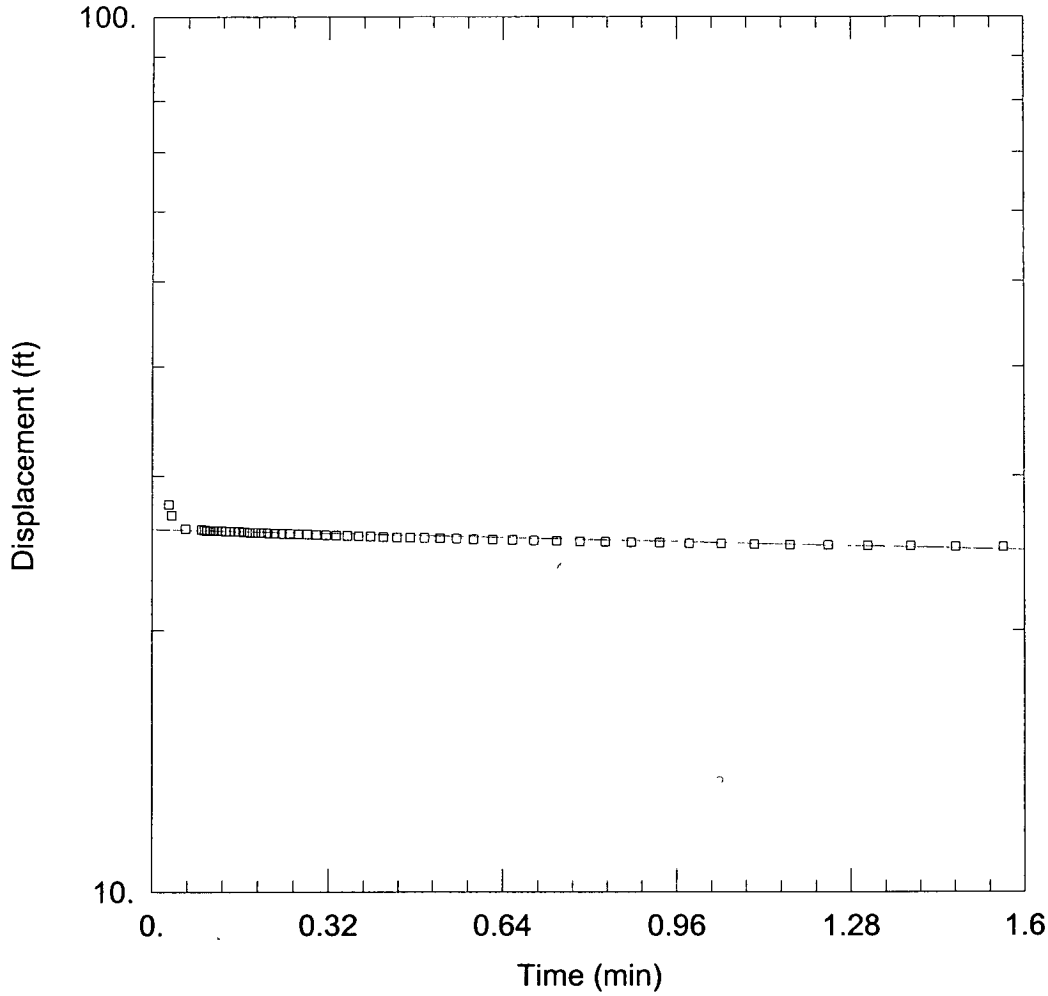
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (38I_Rise)

Initial Displacement: 2.96 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.724 ft/day
y0 = 1.265 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\38I_Fall.aqt
Date: 05/20/03 Time: 15:06:49

PROJECT INFORMATION

Test Well: 38I_Fall

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

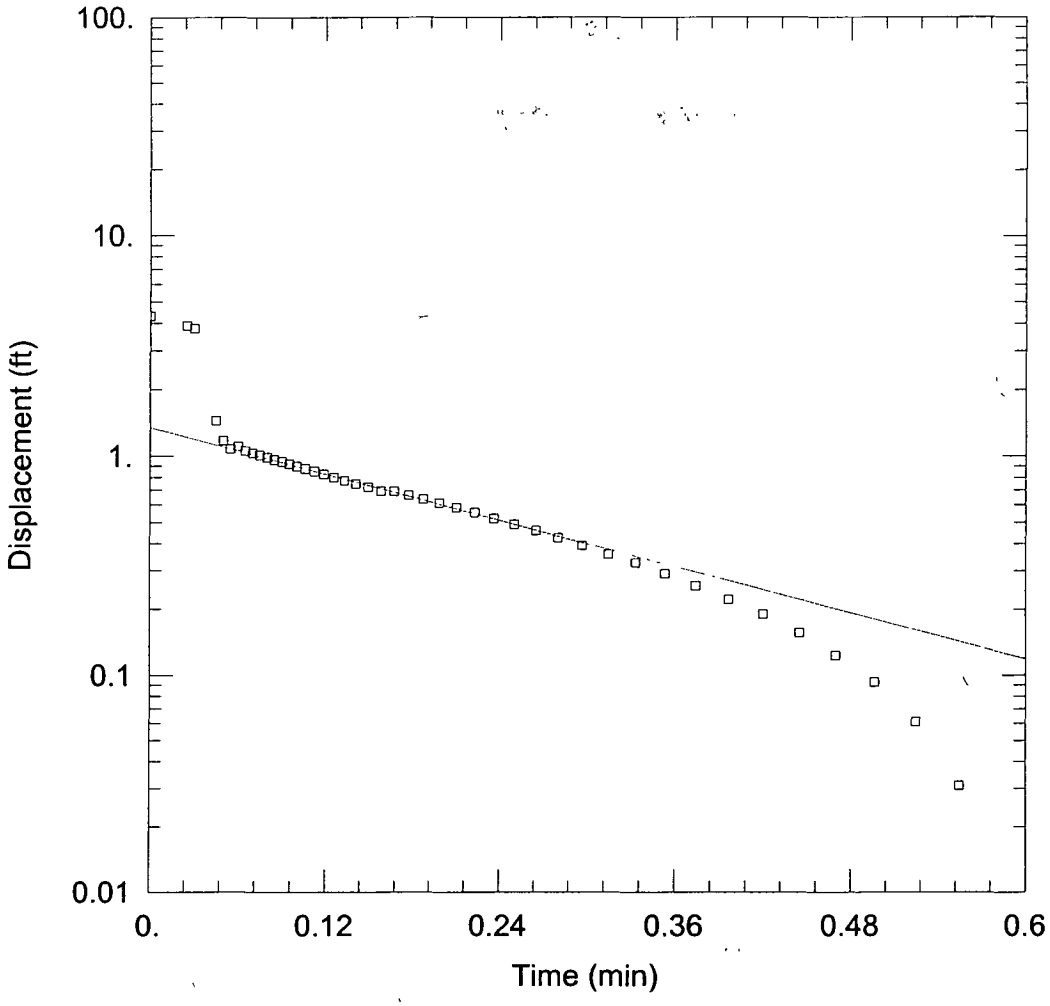
WELL DATA (38I_Fall)

Initial Displacement: 3.33 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.06225 ft/day
y0 = 26.09 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\39I_Rise.aqt
Date: 05/20/03 Time: 16:11:24

PROJECT INFORMATION

Test Well: 39I_Rise

AQUIFER DATA

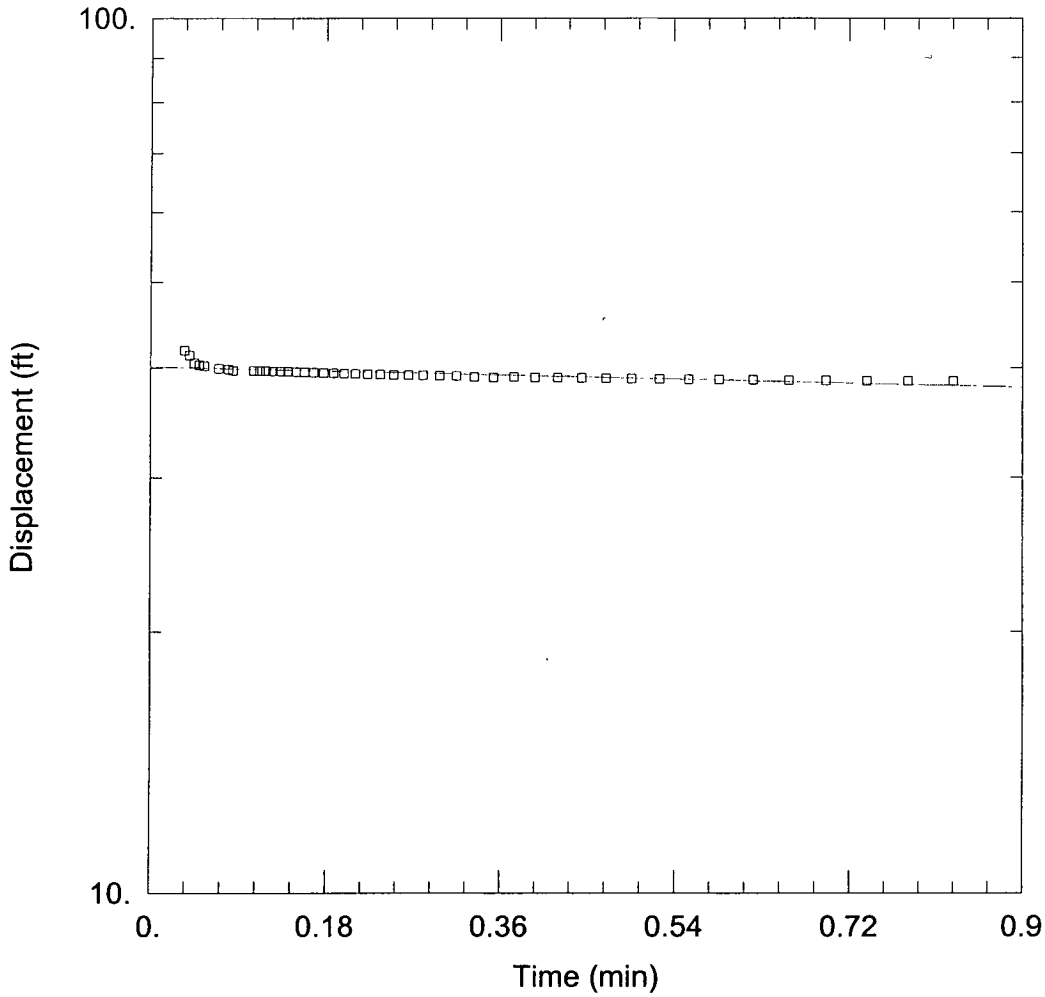
Saturated Thickness: 12. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (39I_Rise)

Initial Displacement: 4.31 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 12. ft Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 6.435 ft/day y0 = 1.345 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\39I_Fall.aqt
Date: 05/20/03 Time: 15:06:42

PROJECT INFORMATION

Test Well: 39I_Fall

AQUIFER DATA

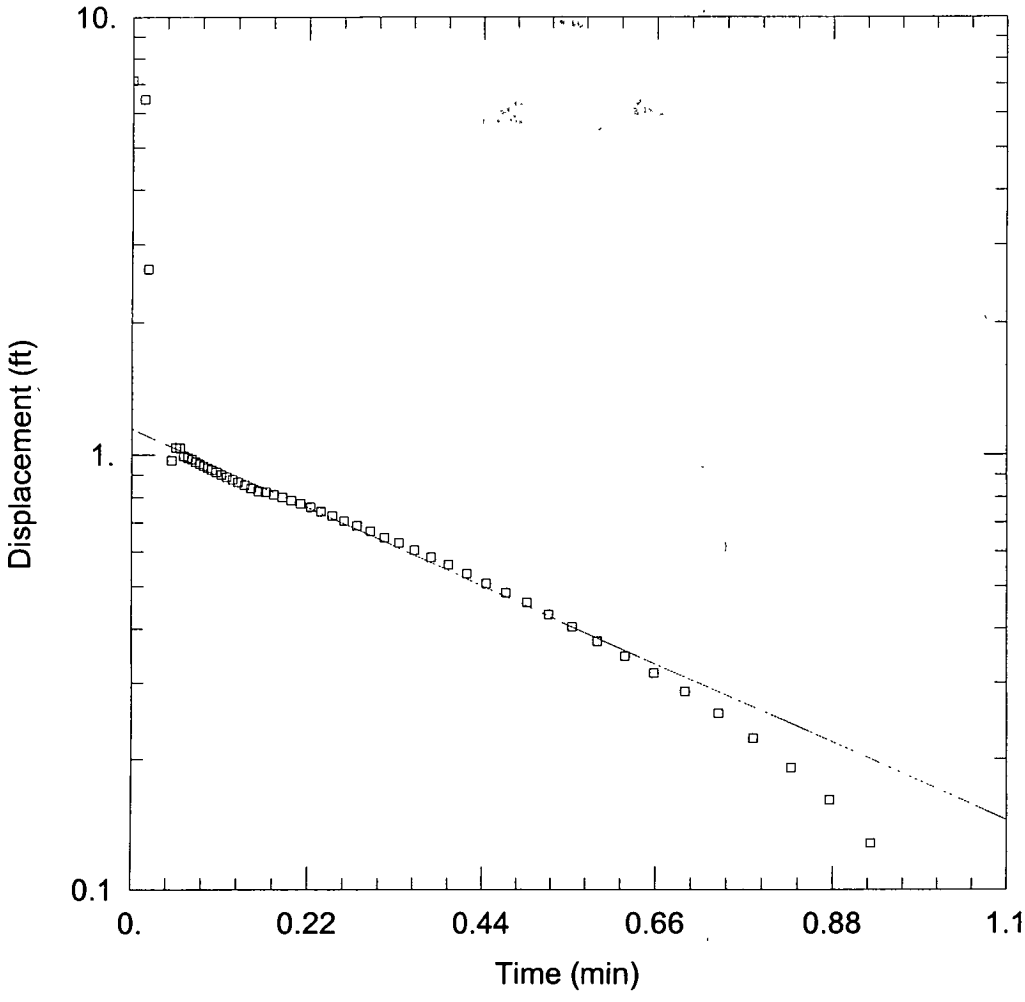
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (39I_Fall)

Initial Displacement: 2.6 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1098 ft/day
y0 = 40.12 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\39D_Rise.aqt
Date: 05/20/03 Time: 16:11:06

PROJECT INFORMATION

Test Well: 39D_Rise

AQUIFER DATA

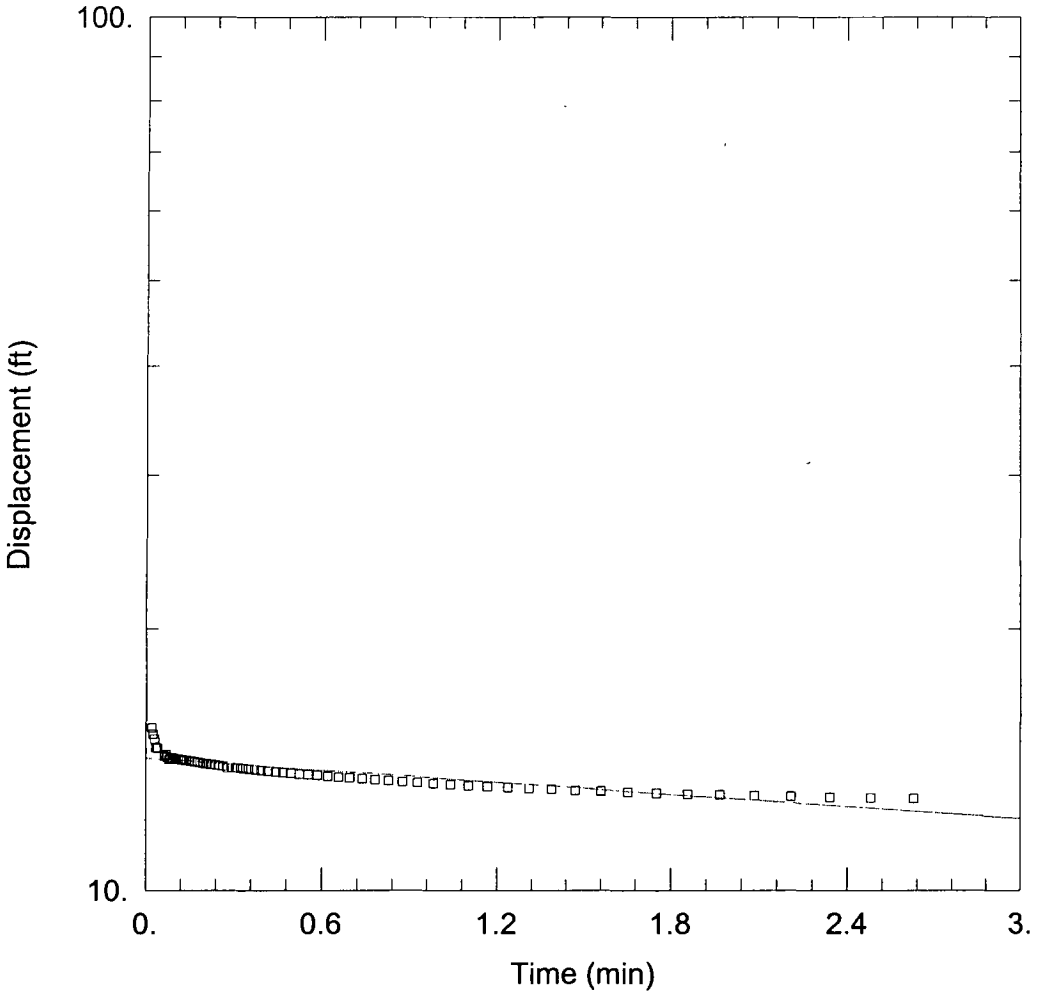
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (39D_Rise)

Initial Displacement: 7.114 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.44 ft/day
y0 = 1.143 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\39D_Fall.aqt
Date: 05/20/03 Time: 15:06:45

PROJECT INFORMATION

Test Well: 39D_Fall

AQUIFER DATA

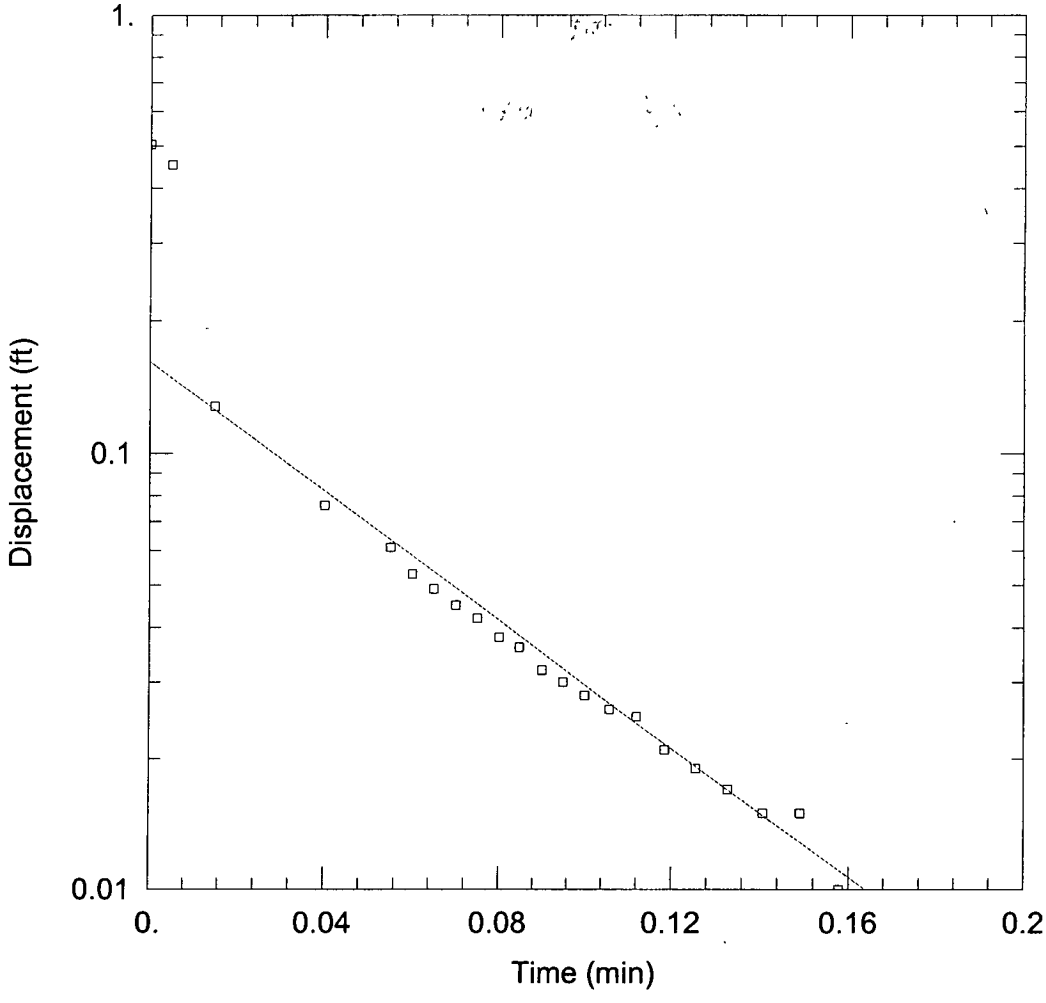
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (39D_Fall)

Initial Displacement: 3. ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.09817 ft/day
y0 = 14.2 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\40S_Rise.aqt
Date: 05/20/03 Time: 16:11:57

PROJECT INFORMATION

Test Well: 40S_Rise

AQUIFER DATA

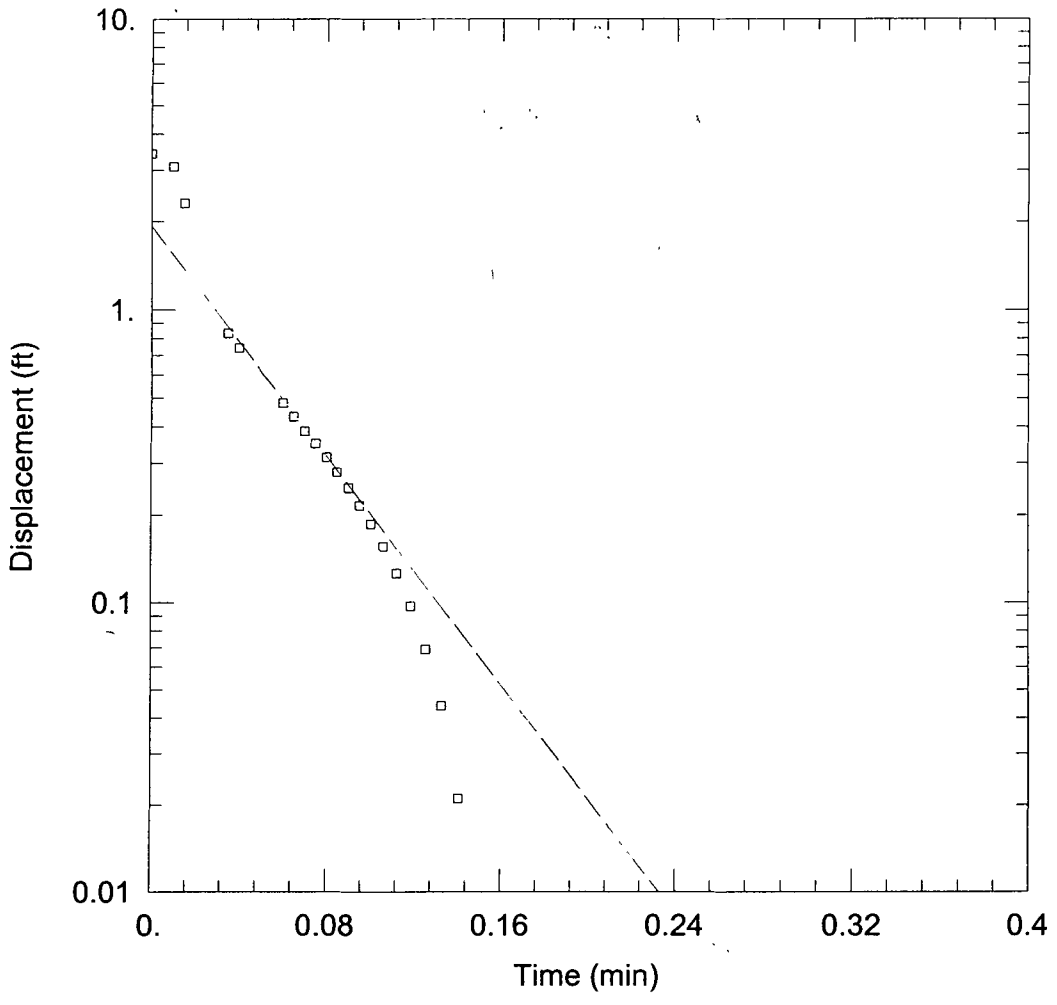
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (40S_Rise)

Initial Displacement: 0.504 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 31.14 ft/day
y0 = 0.1619 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\41S_Rise.aqt
Date: 05/20/03 Time: 16:12:48

PROJECT INFORMATION

Test Well: 41S_Rise

AQUIFER DATA

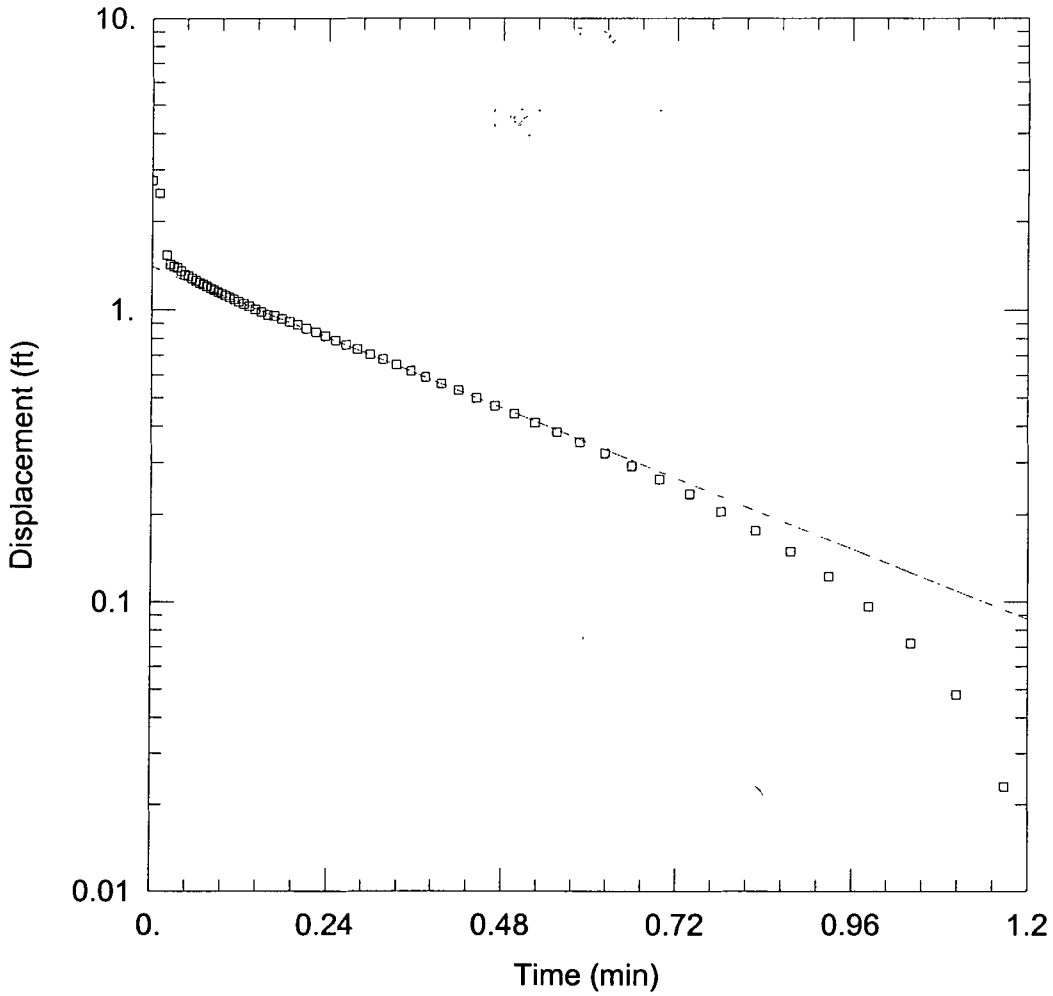
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (41S_Rise)

Initial Displacement: 3.42 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 41.42 ft/day
y0 = 1.927 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\41I_Rise.aqt
Date: 05/20/03 Time: 16:12:36

PROJECT INFORMATION

Test Well: 41I_Rise

AQUIFER DATA

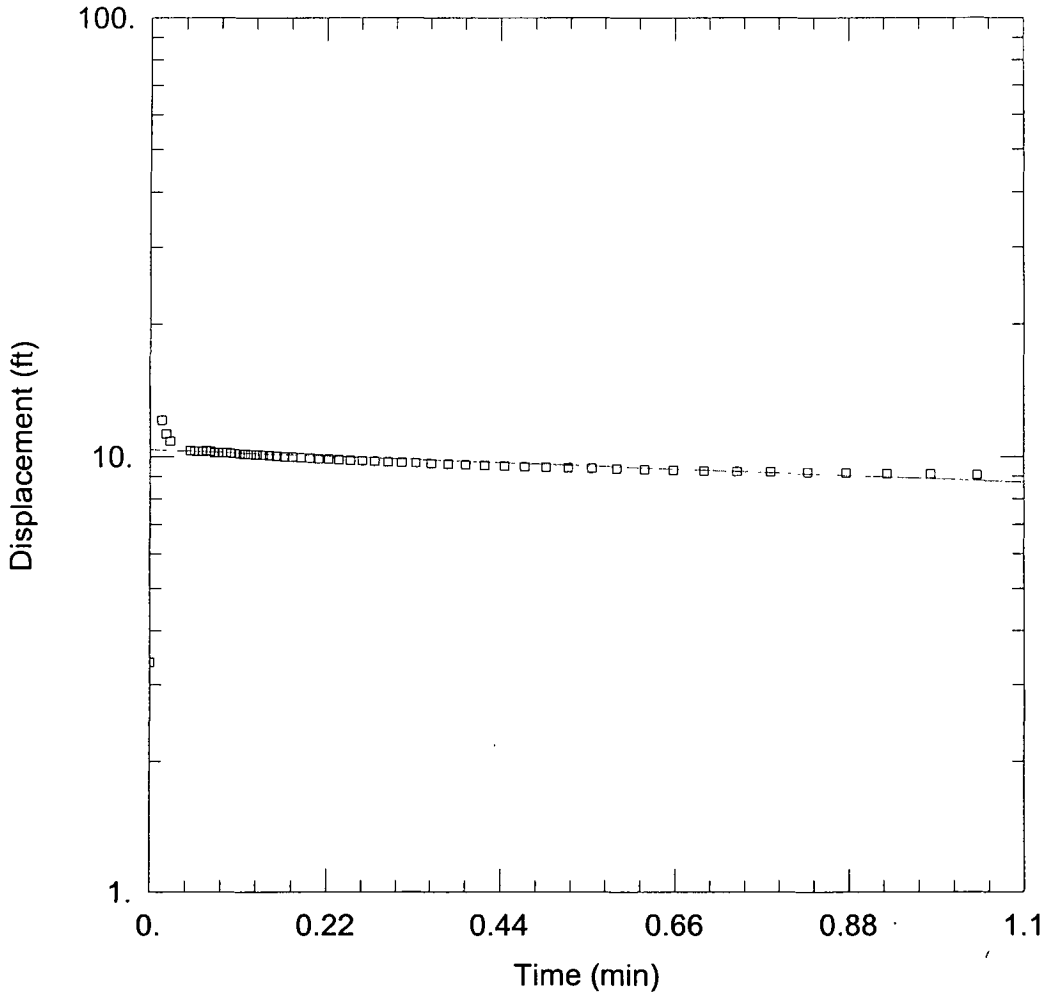
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (41I_Rise)

Initial Displacement: 2.76 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.238 ft/day
y0 = 1.398 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\41I_Fall.aqt
Date: 05/20/03 Time: 15:06:36

PROJECT INFORMATION

Test Well: 41I_Fall

AQUIFER DATA

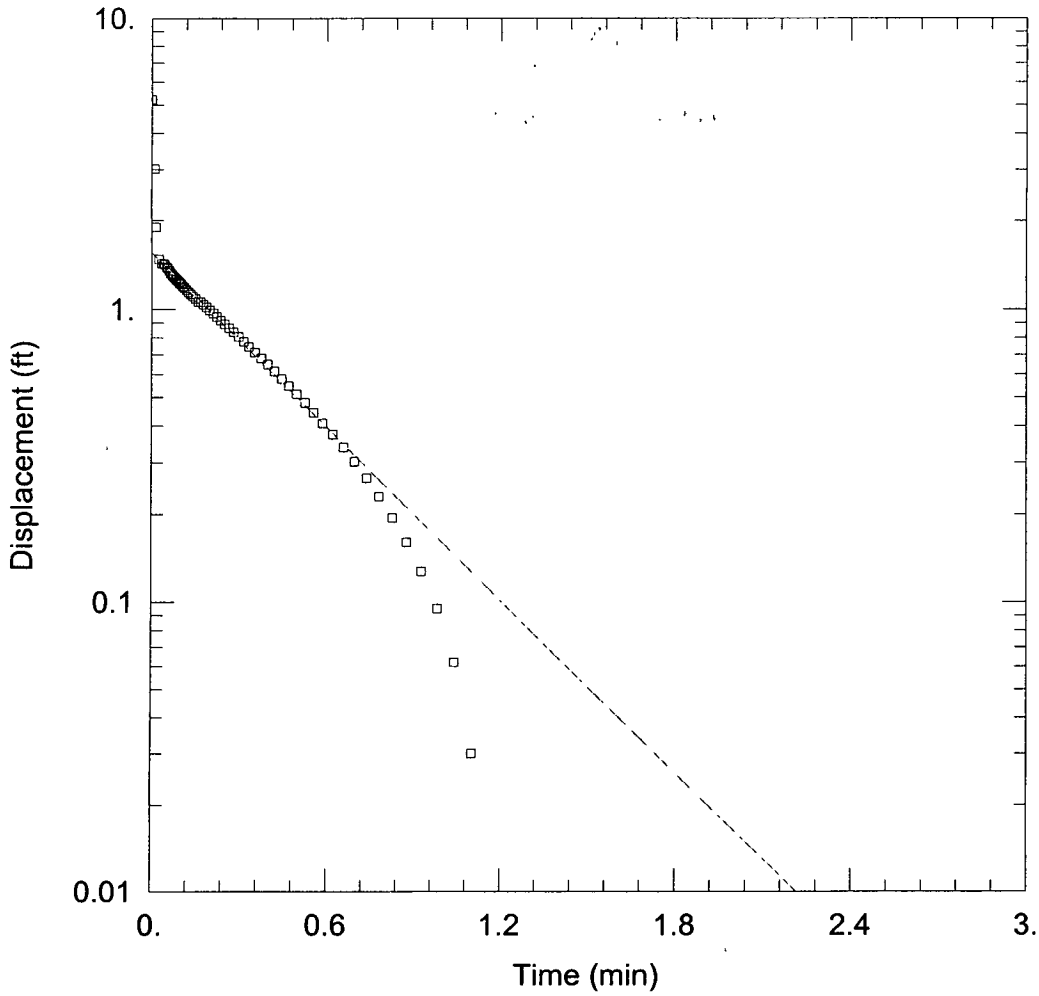
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (41I_Fall)

Initial Displacement: 3.38 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2867 ft/day
y0 = 10.37 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\41D_Rise.aqt
Date: 05/20/03 Time: 16:12:20

PROJECT INFORMATION

Test Well: 41D_Rise

AQUIFER DATA

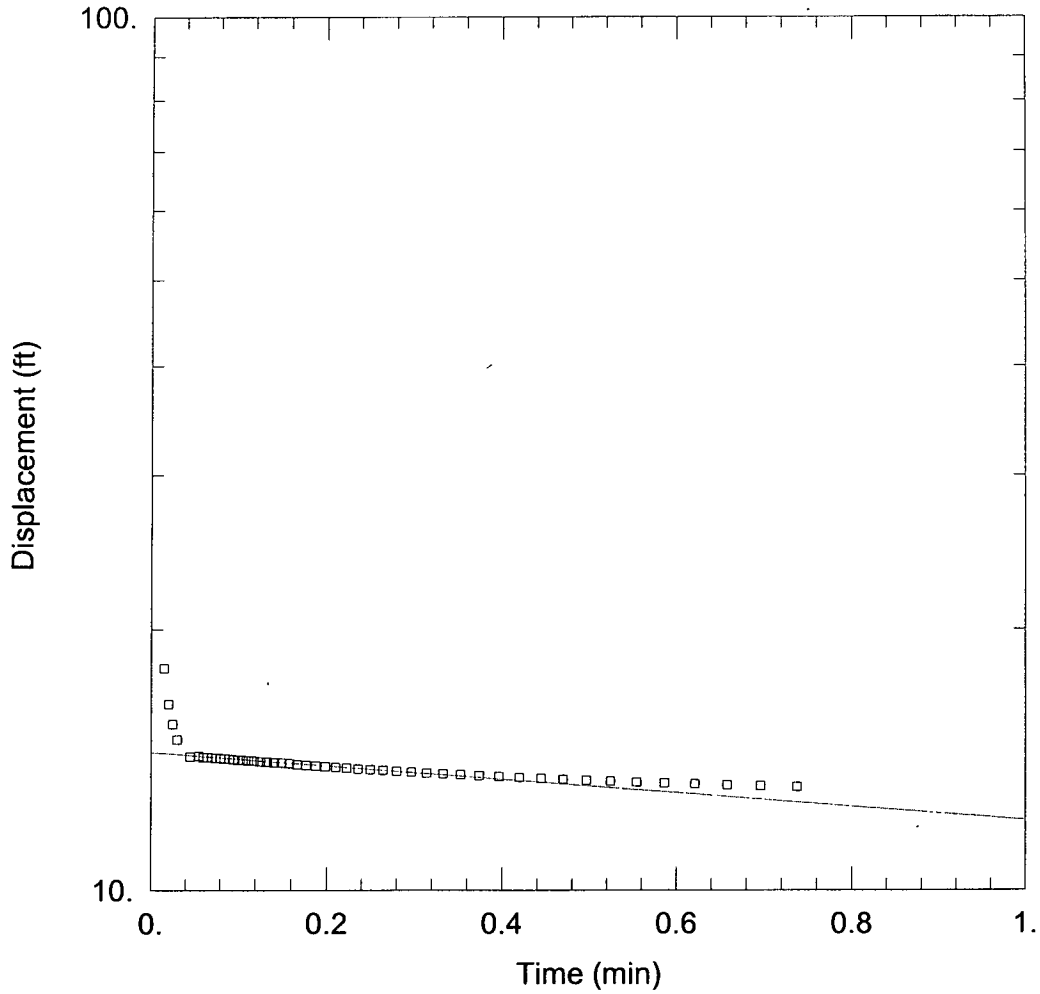
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (41D_Rise)

Initial Displacement: 5.226 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.172 ft/day
y0 = 1.553 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\41D_Fall.aqt
Date: 05/20/03 Time: 15:06:39

PROJECT INFORMATION

Test Well: 41D_Fall

AQUIFER DATA

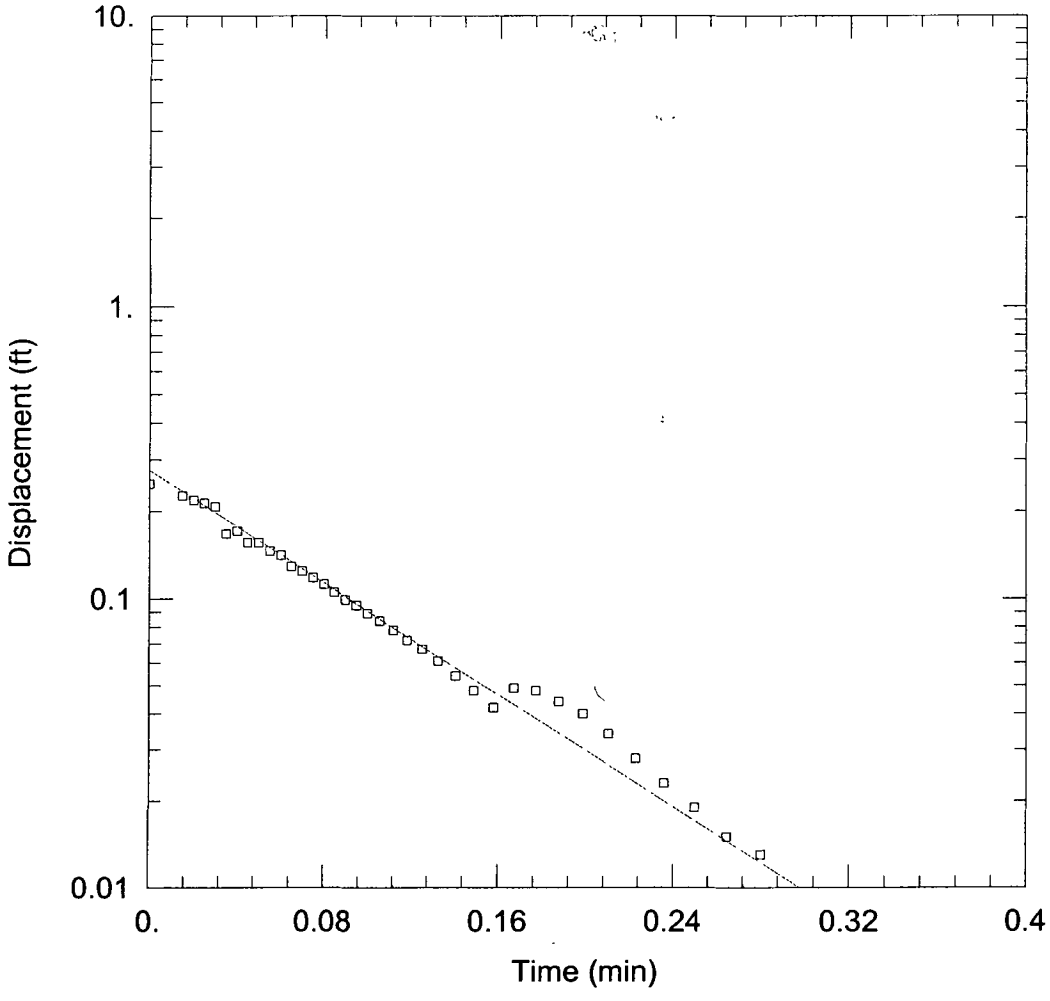
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (41D_Fall)

Initial Displacement: 5.417 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.331 ft/day
y0 = 14.44 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\42S_Rise.aqt
Date: 05/20/03 Time: 16:13:47

PROJECT INFORMATION

Test Well: 42S_Rise

AQUIFER DATA

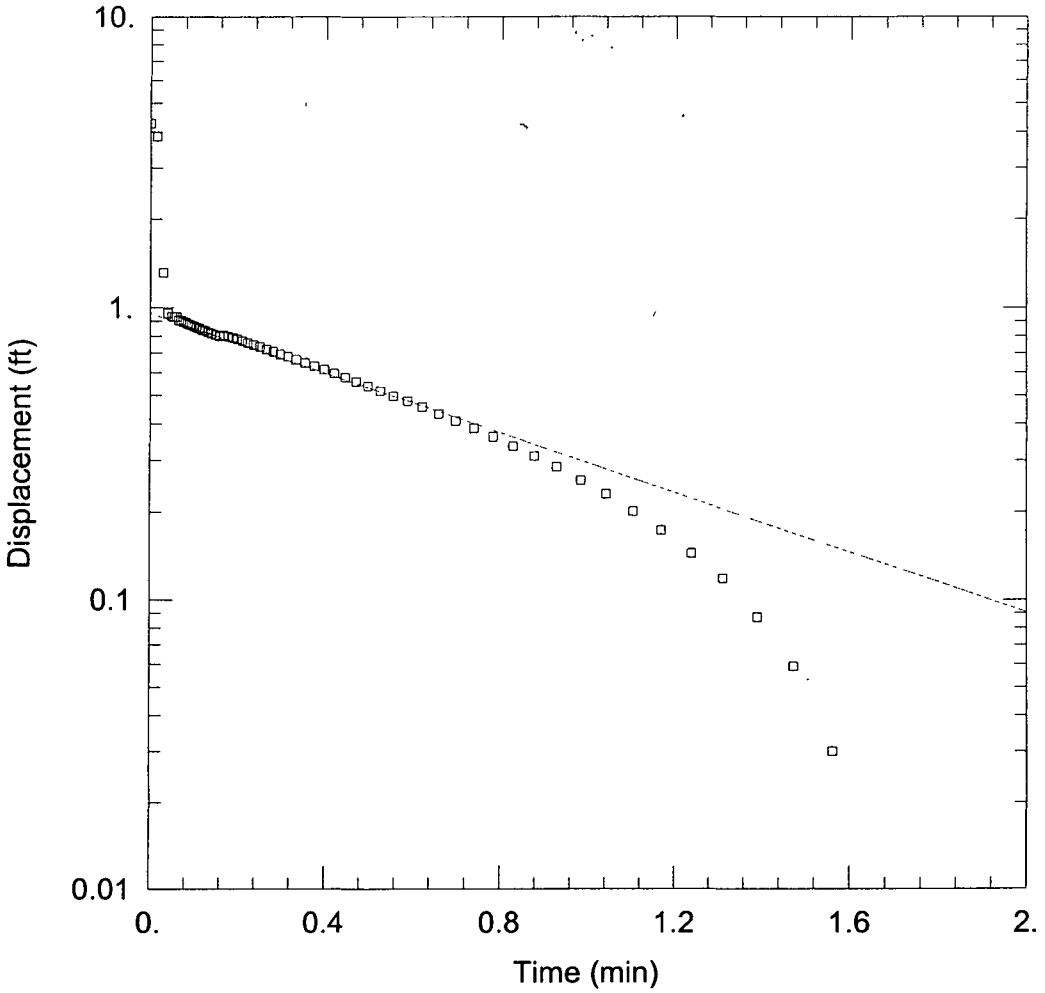
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (42S_Rise)

Initial Displacement: 0.248 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 20.42 ft/day
y0 = 0.2766 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\42I_Rise.aqt
Date: 05/20/03 Time: 16:13:34

PROJECT INFORMATION

Test Well: 42I_Rise

AQUIFER DATA

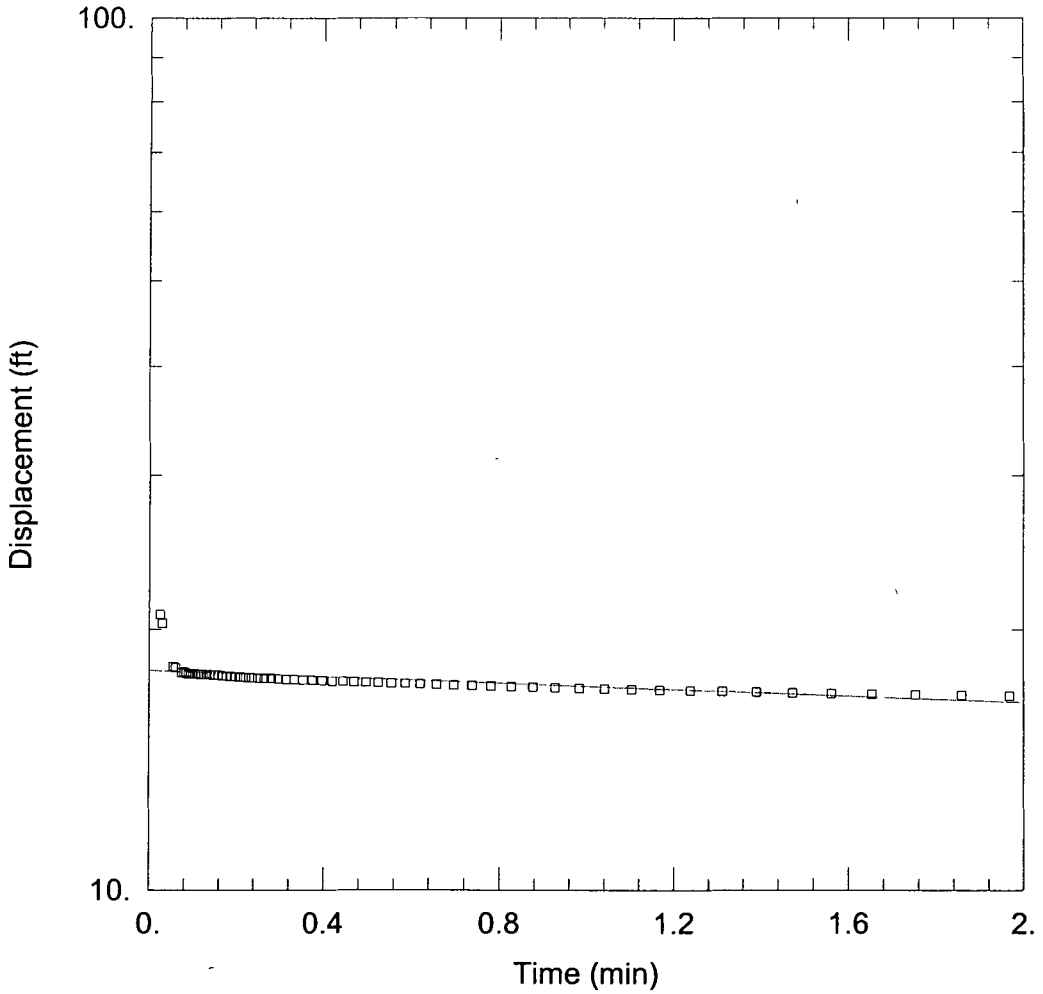
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (42I_Rise)

Initial Displacement: 4.274 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.16 ft/day
y0 = 0.9562 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\42I_Fall.aqt
Date: 05/20/03 Time: 15:06:29

PROJECT INFORMATION

Test Well: 42I_Fall

AQUIFER DATA

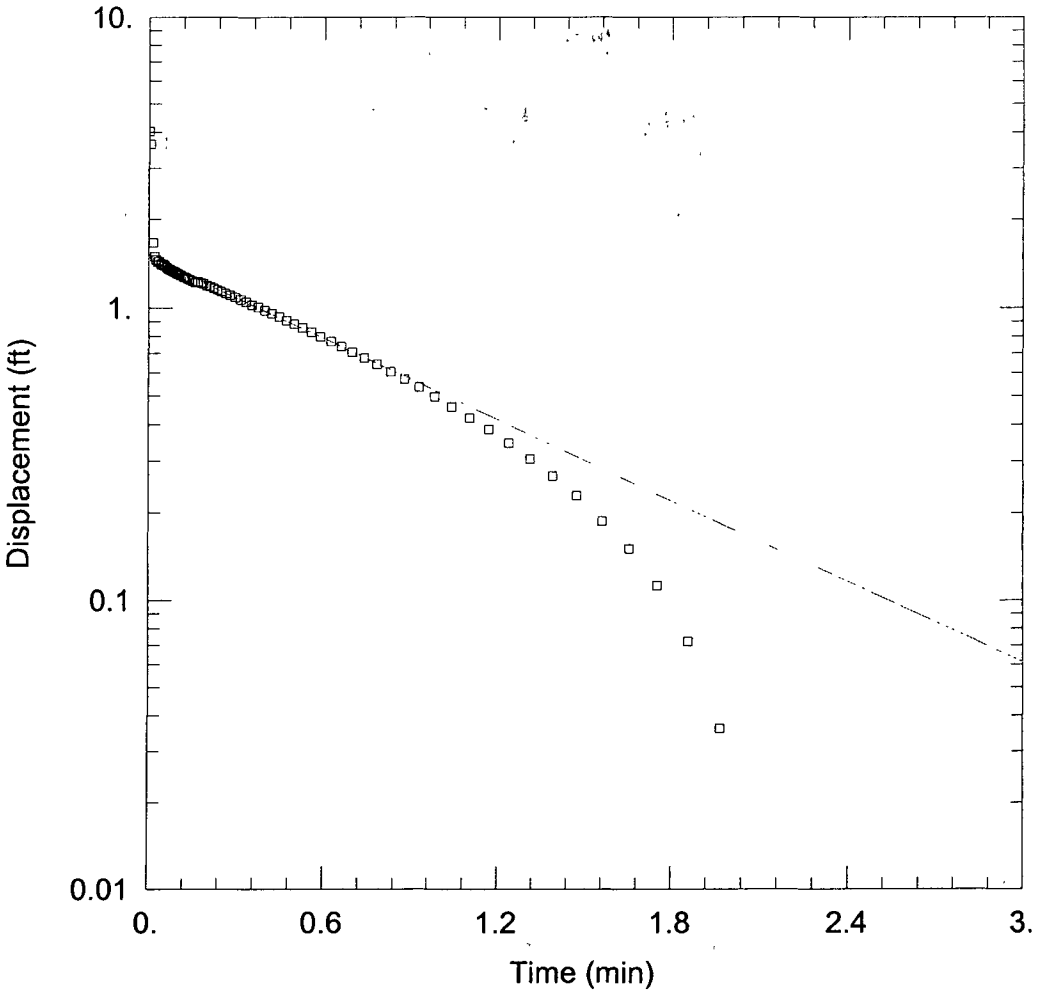
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (42I_Fall)

Initial Displacement: 4.49 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.07827 ft/day
y0 = 17.96 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\42D_Rise.aqt
Date: 05/20/03 Time: 16:13:19

PROJECT INFORMATION

Test Well: 42D_Rise

AQUIFER DATA

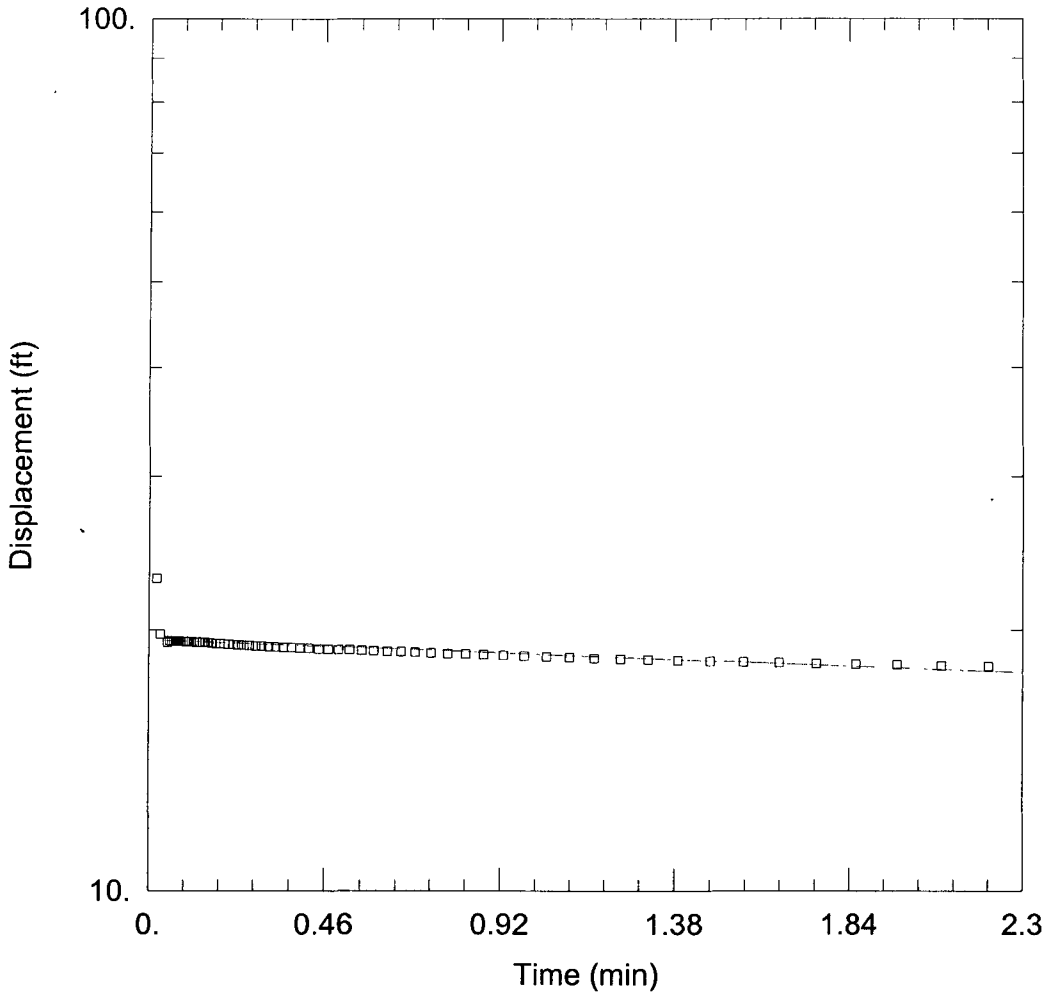
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (42D_Rise)

Initial Displacement: 4.03 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.948 ft/day
y0 = 1.485 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\42D_Fall.aqt
Date: 05/20/03 Time: 15:06:33

PROJECT INFORMATION

Test Well: 42D_Fall

AQUIFER DATA

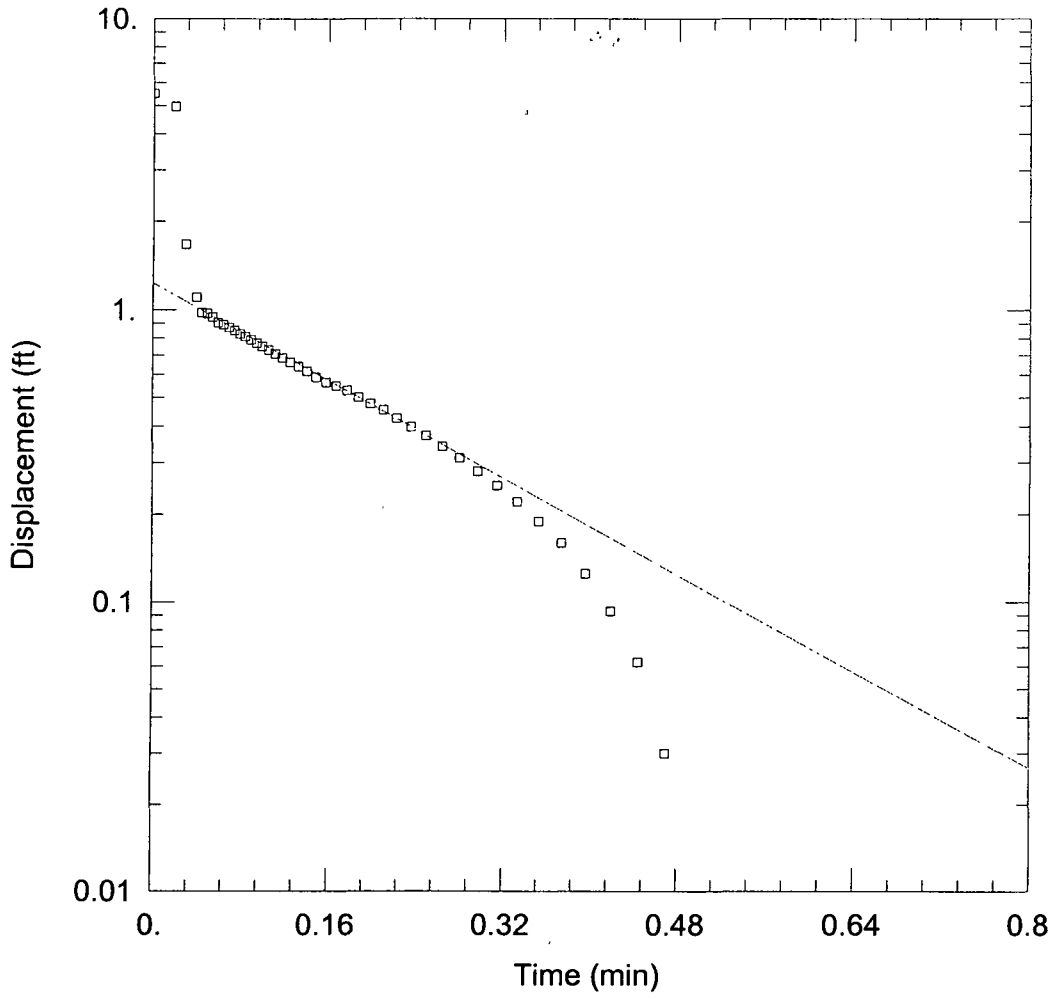
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (42D_Fall)

Initial Displacement: 5.28 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.06844 ft/day
y0 = 19.49 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\43I_Rise.aqt
Date: 05/20/03 Time: 16:15:10

PROJECT INFORMATION

Test Well: 43I_Rise

AQUIFER DATA

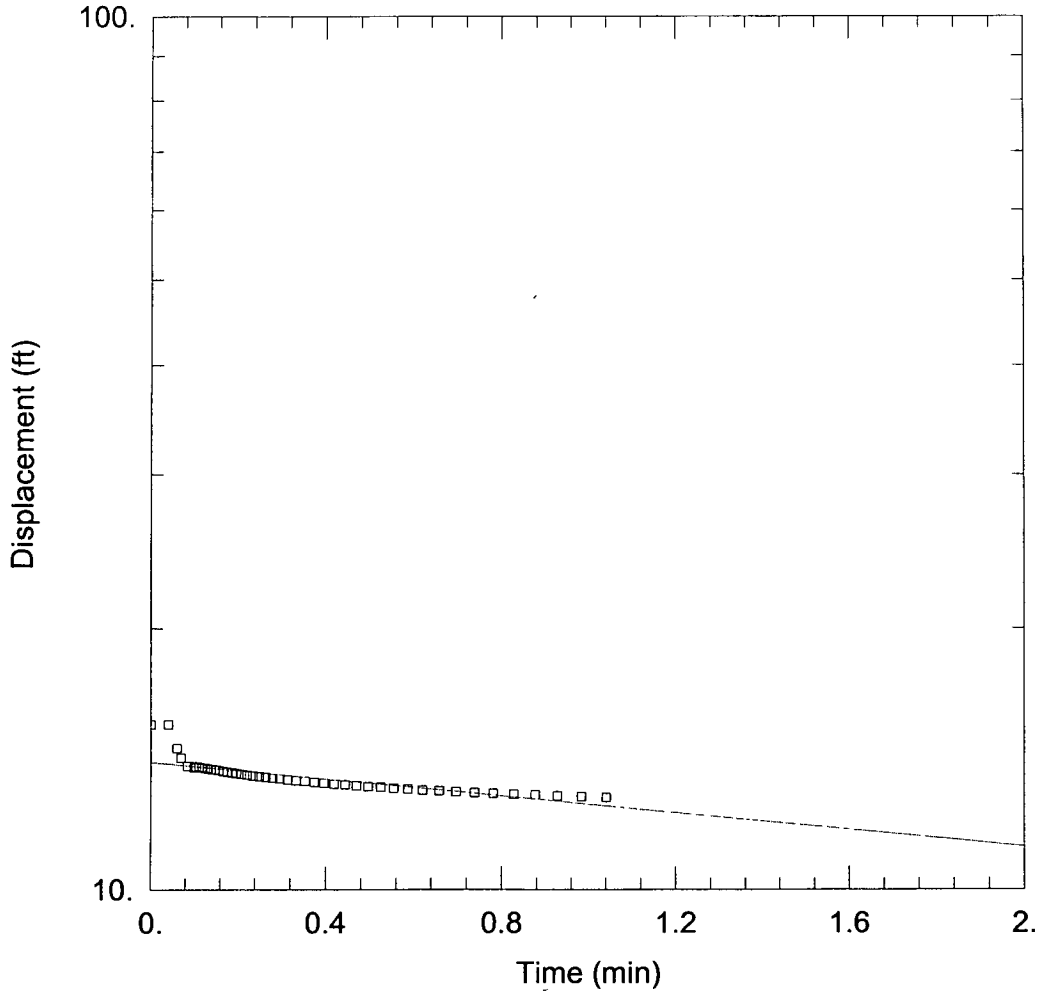
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (43I_Rise)

Initial Displacement: 5.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.793 ft/day
y0 = 1.236 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\43i_fall.aqt
Date: 05/20/03 Time: 16:14:58

PROJECT INFORMATION

Test Well: 43I_Fall

AQUIFER DATA

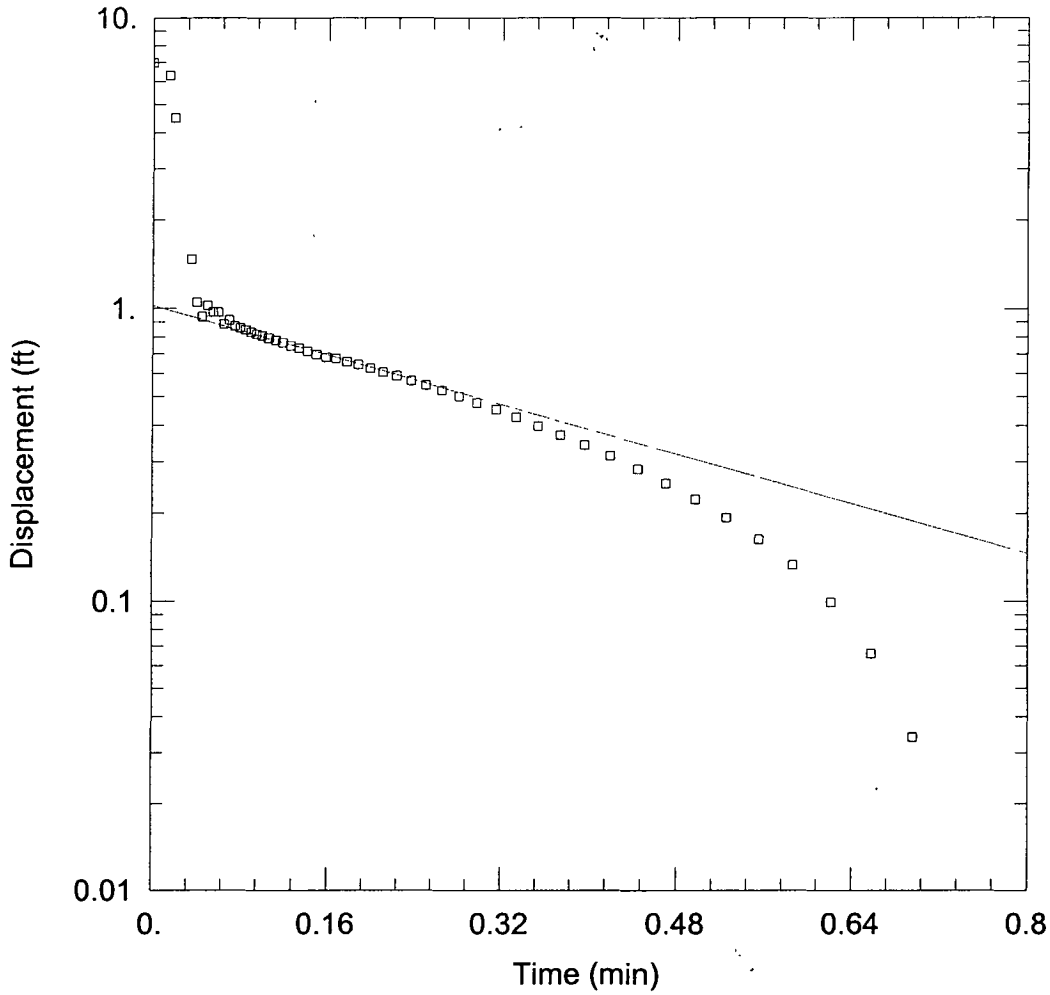
Saturated Thickness: 8. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (43I_Fall)

Initial Displacement: 15.51 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 8. ft
Total Well Penetration Depth: 8. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.244 ft/day
y0 = 14.03 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\43D_Rise.aqt
Date: 05/20/03 Time: 16:14:38

PROJECT INFORMATION

Test Well: 43D_Rise

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

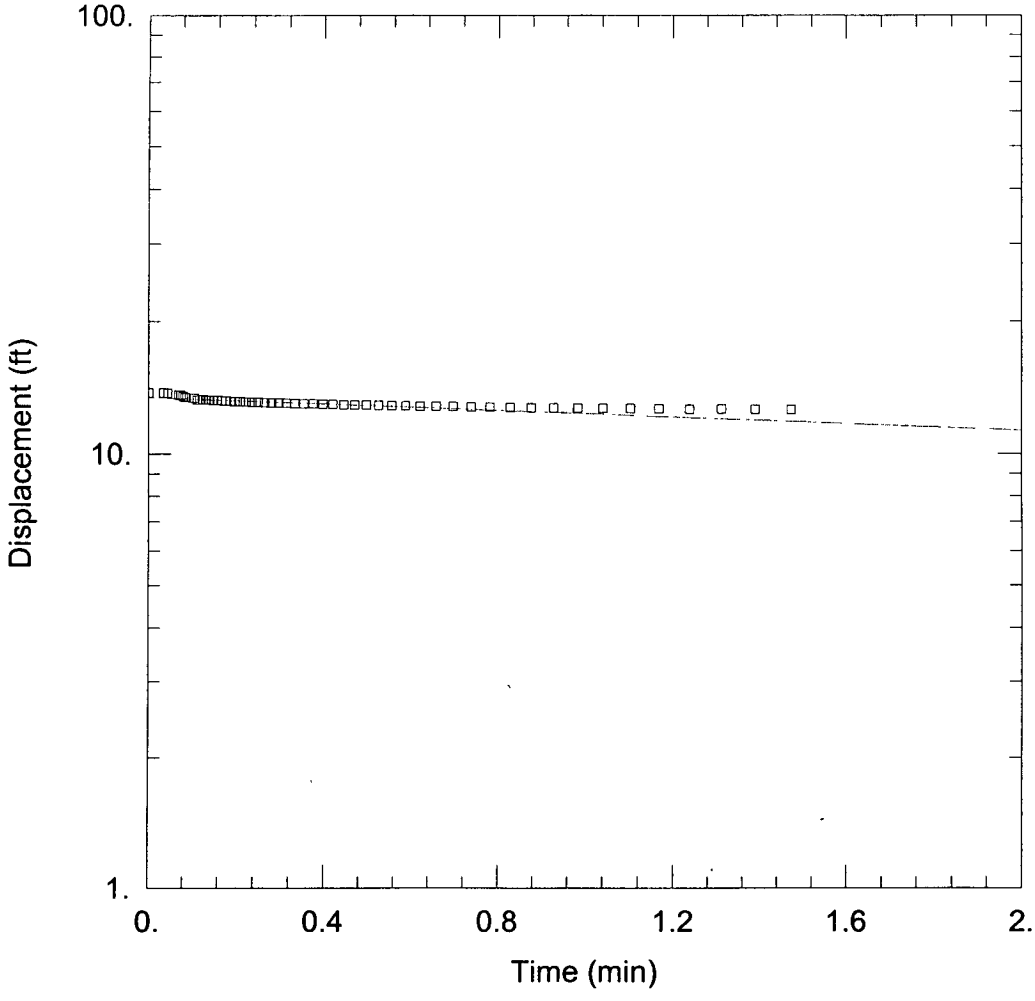
WELL DATA (43D_Rise)

Initial Displacement: 6.98 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 10. ft Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 4.46 ft/day y0 = 1.023 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\43d_fall.aqt
Date: 05/20/03 Time: 16:14:23

PROJECT INFORMATION

Test Well: 43D_Fall

AQUIFER DATA

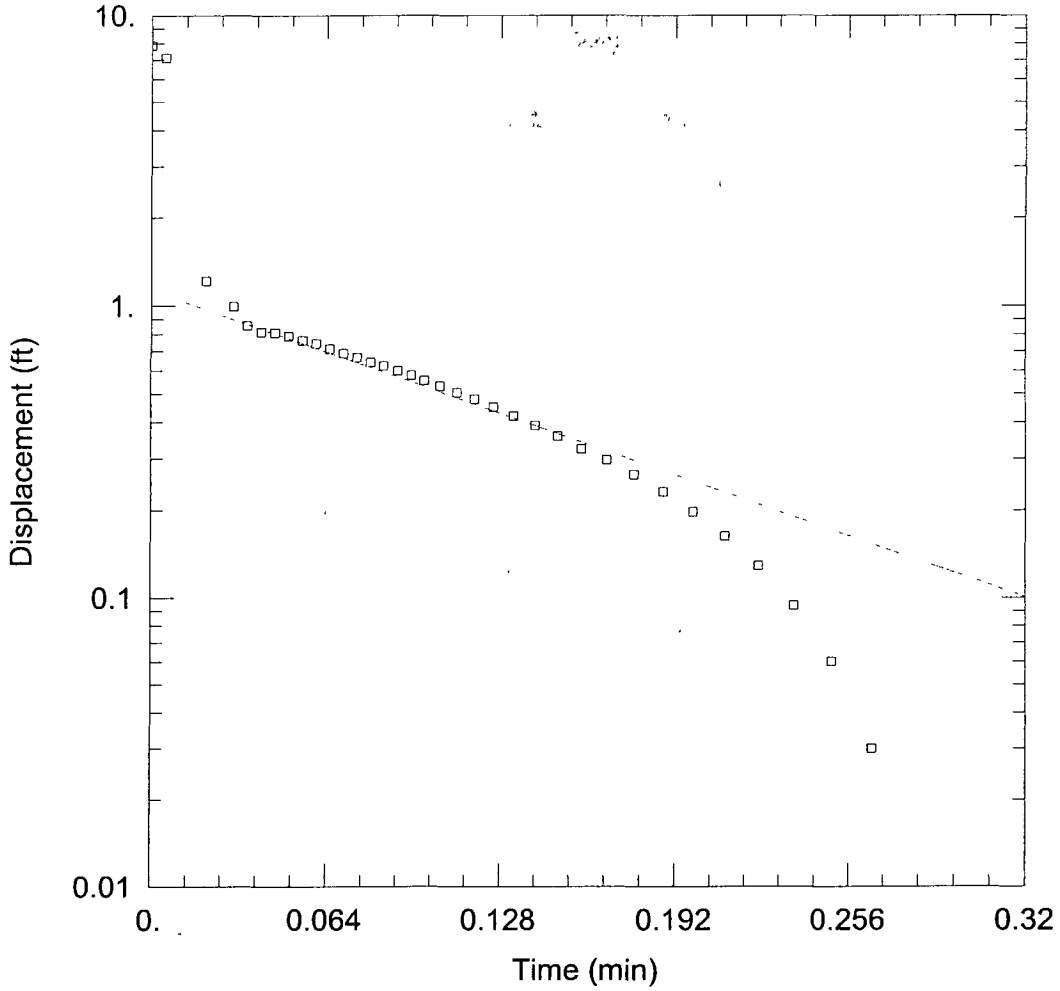
Saturated Thickness: 6. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (43D_Fall)

Initial Displacement: 13.77 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 6. ft
Total Well Penetration Depth: 6. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2353 ft/day
y0 = 13.44 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\44S_Rise.aqt
Date: 05/21/03 Time: 07:46:19

PROJECT INFORMATION

Test Well: 44S_Rise

AQUIFER DATA

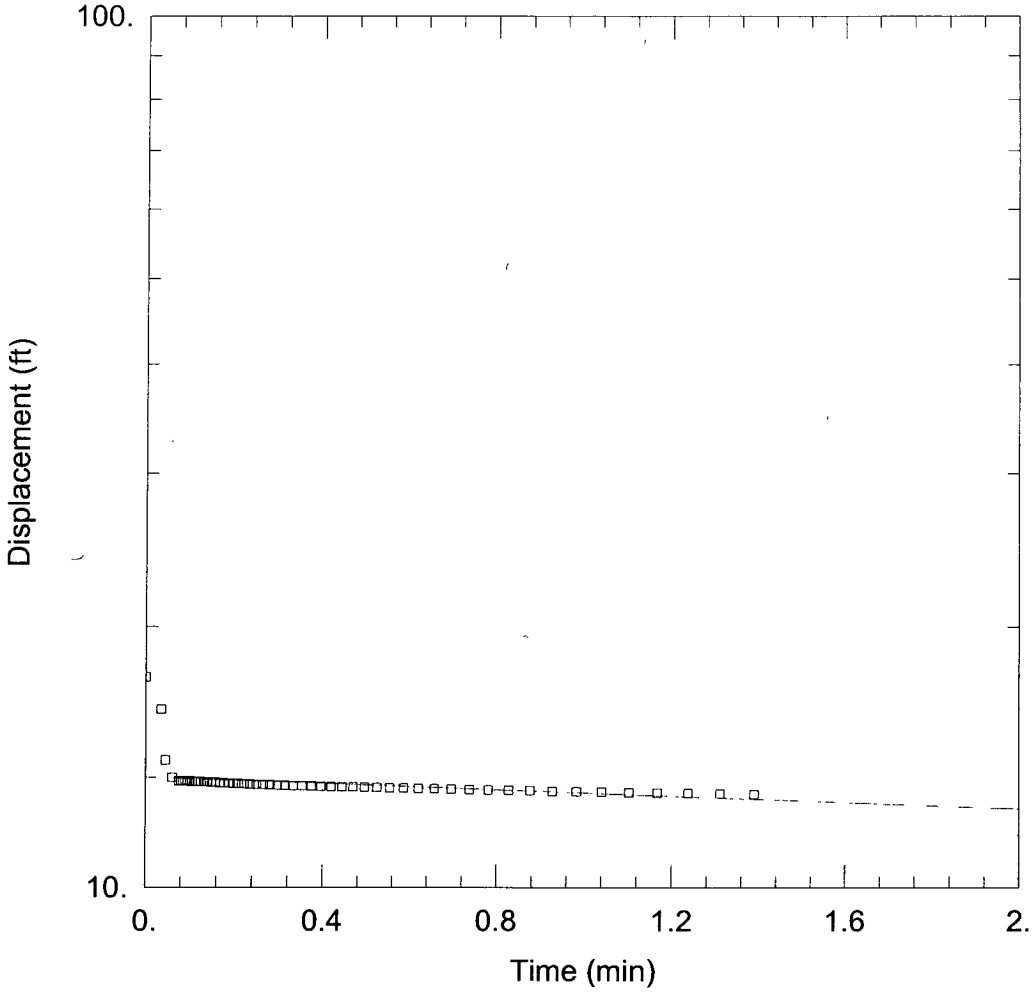
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (44S_Rise)

Initial Displacement: 7.86 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 15. ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 10.08 ft/day
y0 = 1.126 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\44s_fall.aqt
Date: 05/21/03 Time: 07:46:03

PROJECT INFORMATION

Test Well: 44S_Fall

AQUIFER DATA

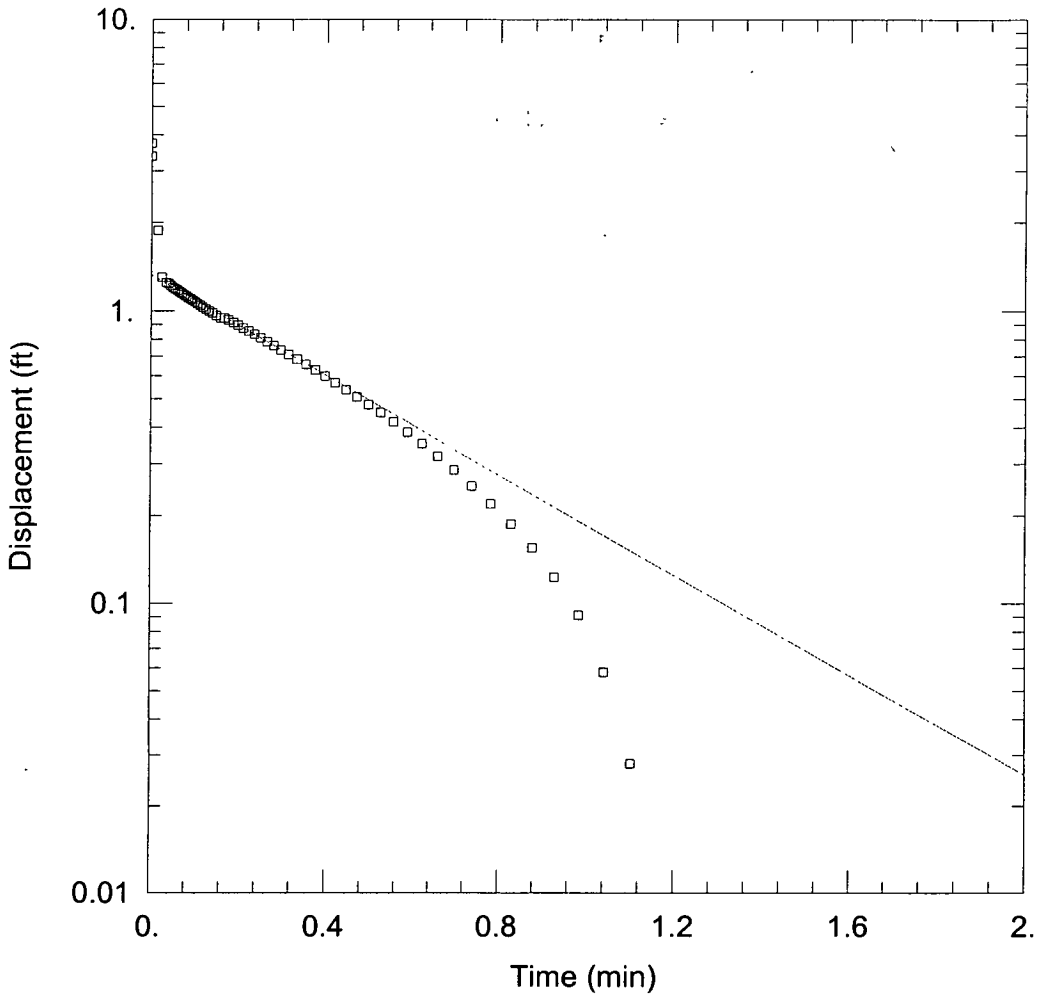
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (44S_Fall)

Initial Displacement: 17.5 ft
Wellbore Radius: 0.083 ft
Screen Length: 15. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.05594 ft/day
y0 = 13.41 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\44I_Rise.aqt
Date: 05/20/03 Time: 15:06:16

PROJECT INFORMATION

Test Well: 44I_Rise

AQUIFER DATA

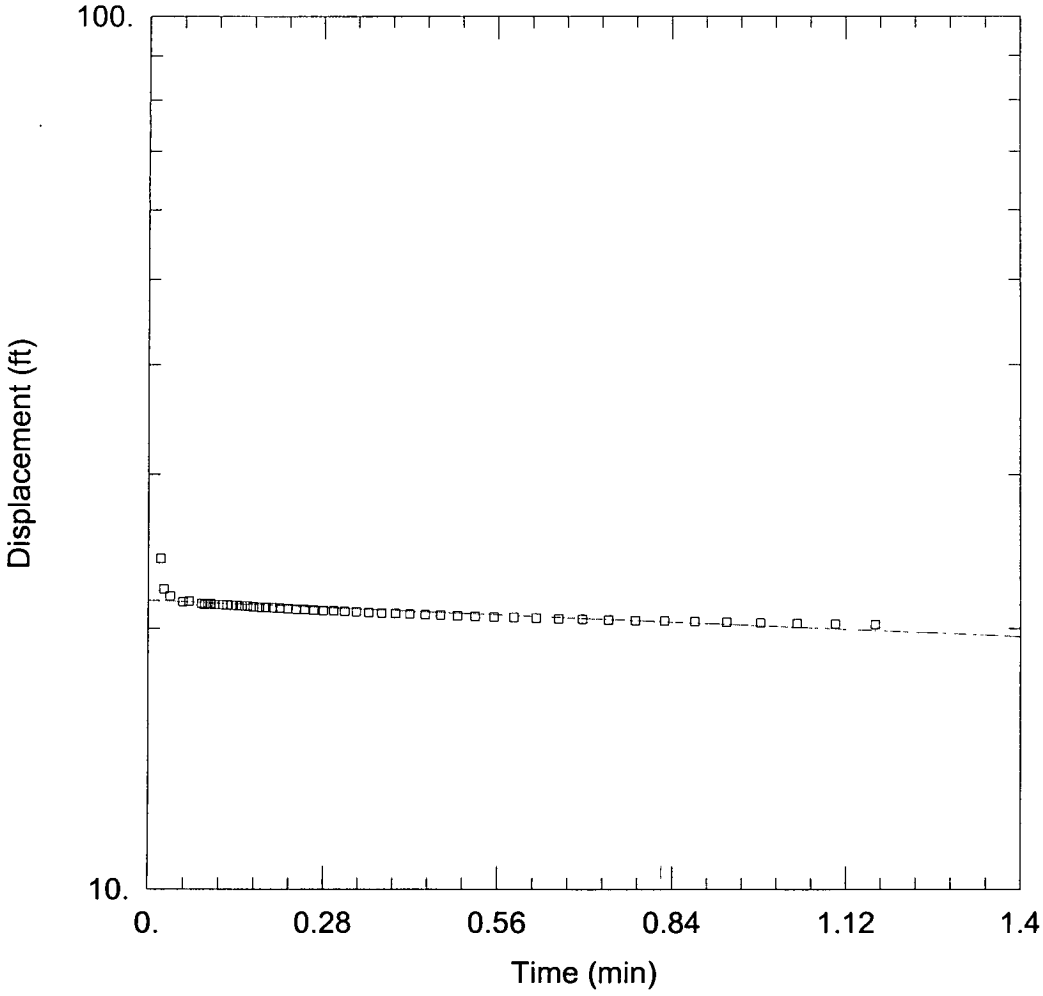
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (44I_Rise)

Initial Displacement: 3.74 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.613 ft/day
y0 = 1.325 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\44I_Fall.aqt
Date: 05/20/03 Time: 15:06:17

PROJECT INFORMATION

Test Well: 44I_Fall

AQUIFER DATA

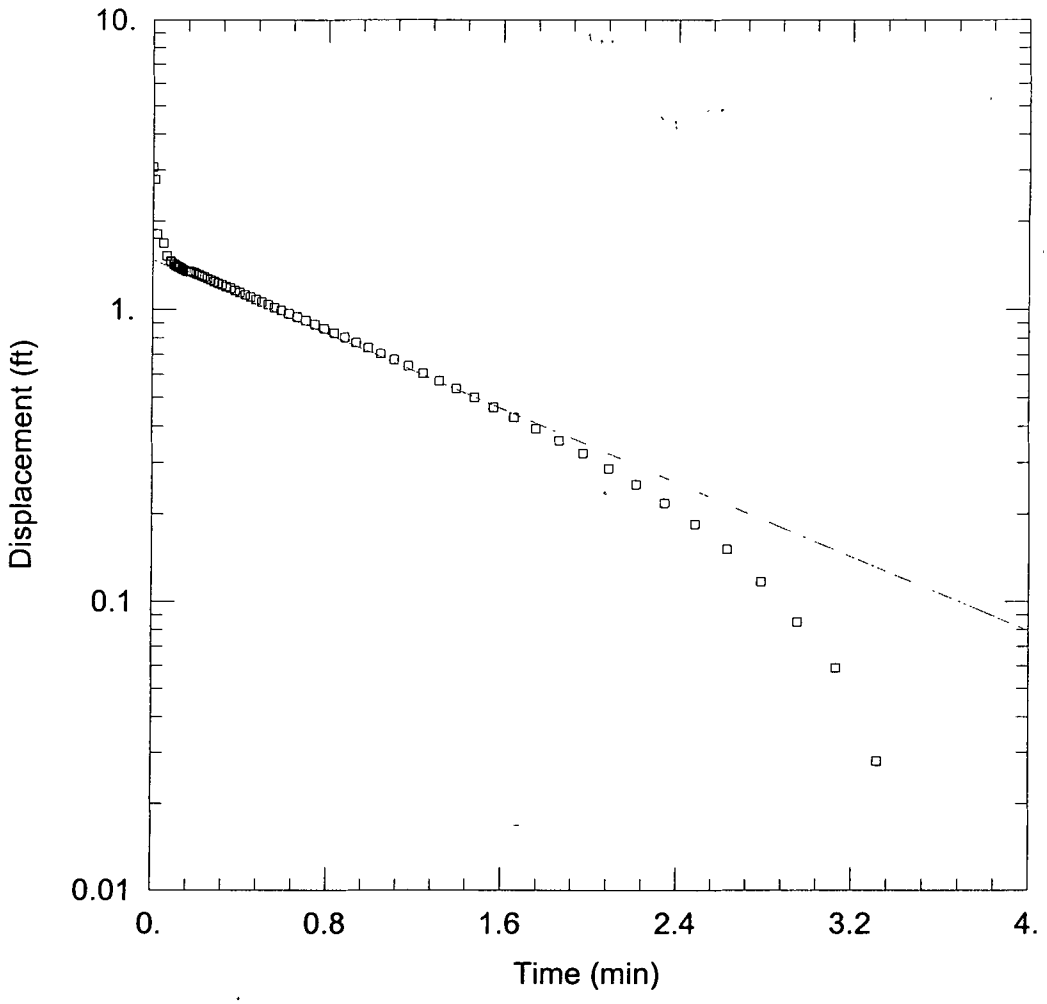
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (44I_Fall)

Initial Displacement: 4.2 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1254 ft/day
y0 = 21.55 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\44D_Rise.aqt
Date: 05/20/03 Time: 15:06:18

PROJECT INFORMATION

Test Well: 44D_Rise

AQUIFER DATA

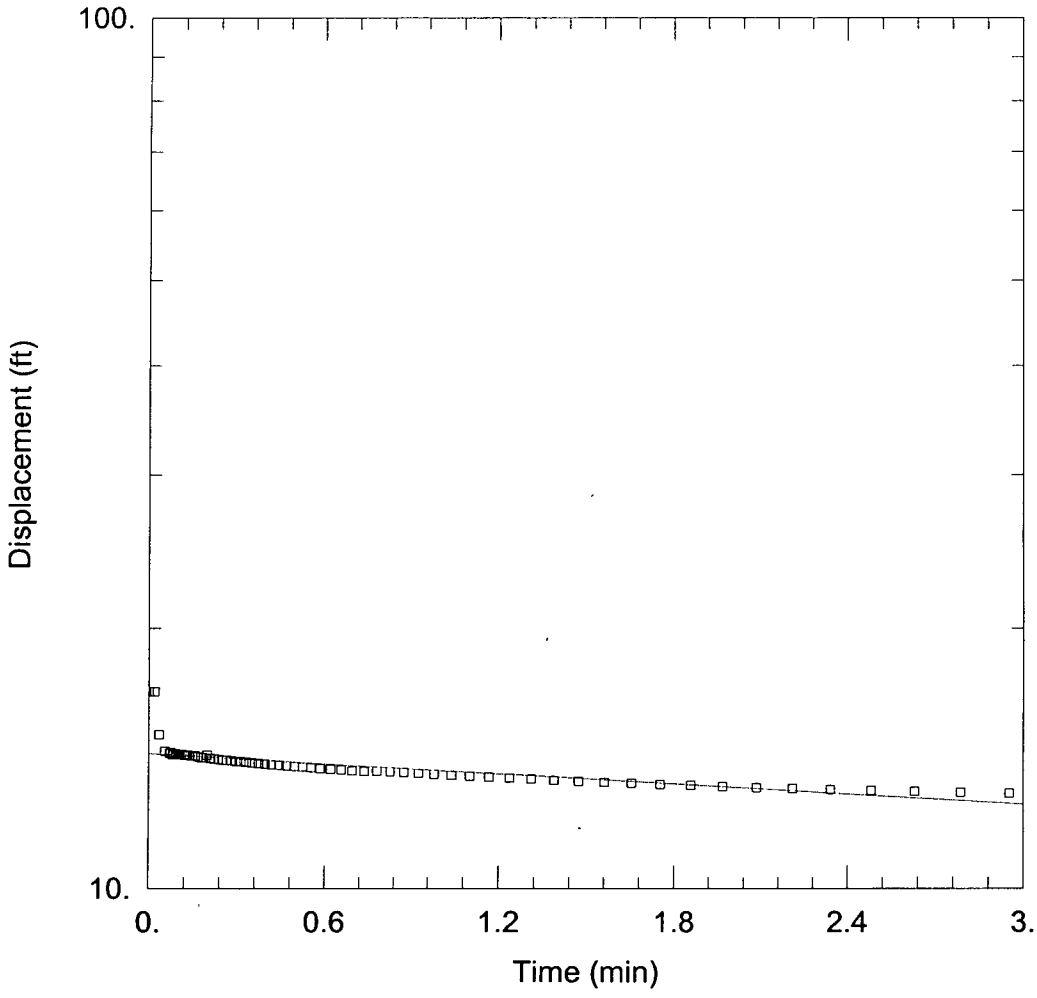
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (44D_Rise)

Initial Displacement: 3.068 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.339 ft/day
y0 = 1.475 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\44d_fall.aqt
Date: 05/20/03 Time: 15:06:19

PROJECT INFORMATION

Test Well: 44D_Fall

AQUIFER DATA

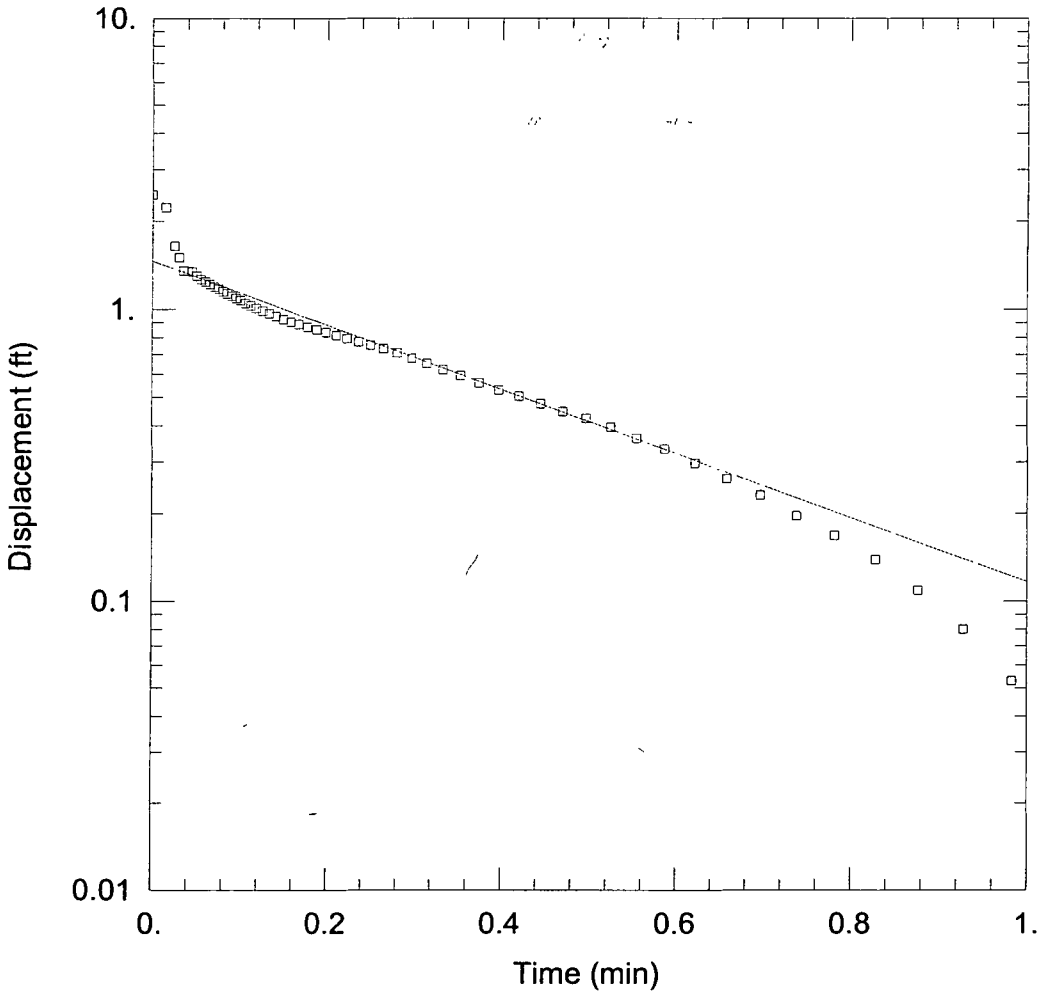
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (44D_Fall)

Initial Displacement: 16.9 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0826 ft/day
y0 = 14.34 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\45S_Rise.aqt
Date: 06/10/03 Time: 13:58:14

PROJECT INFORMATION

Test Well: 45S_Rise

AQUIFER DATA

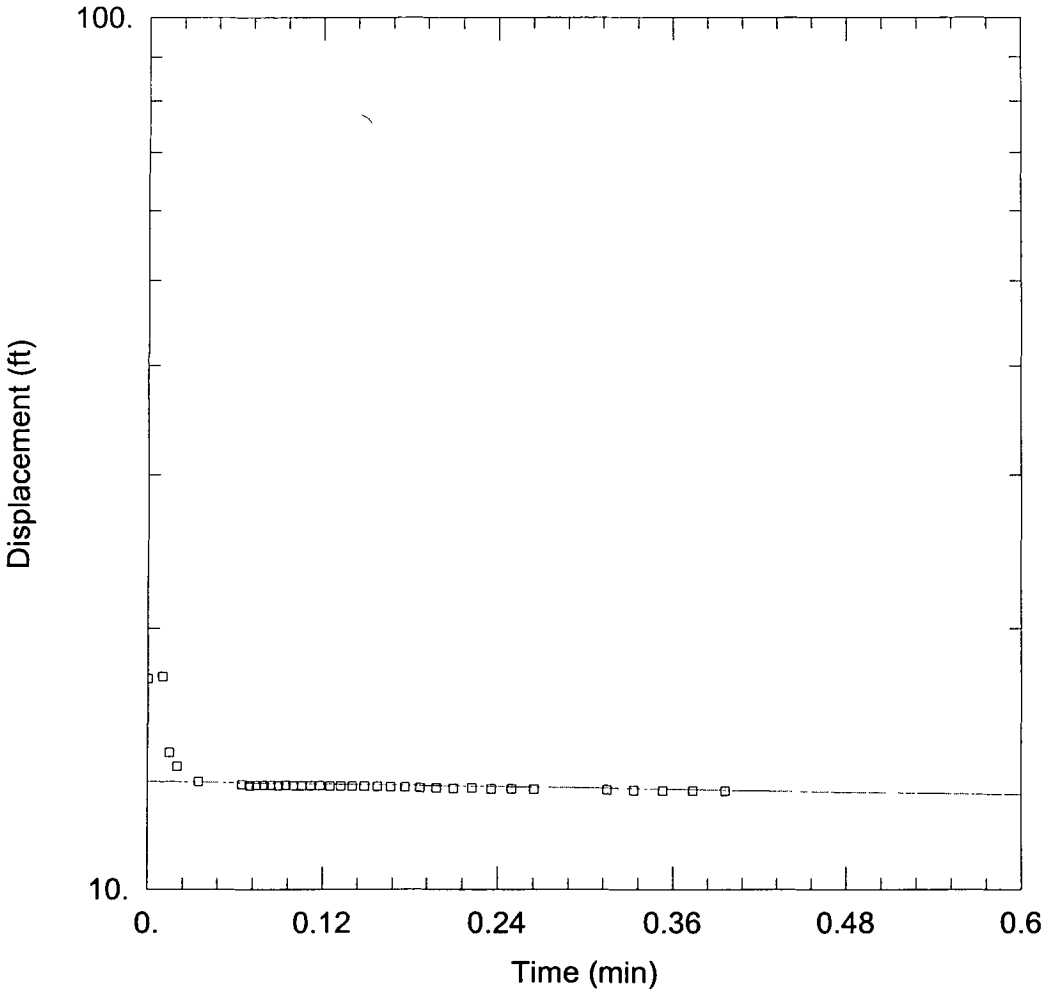
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (45S_Rise)

Initial Displacement: 2.45 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 15. ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.375 ft/day
y0 = 1.46 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\45s_fall.aqt
Date: 05/20/03 Time: 15:06:05

PROJECT INFORMATION

Test Well: 45S_Fall

AQUIFER DATA

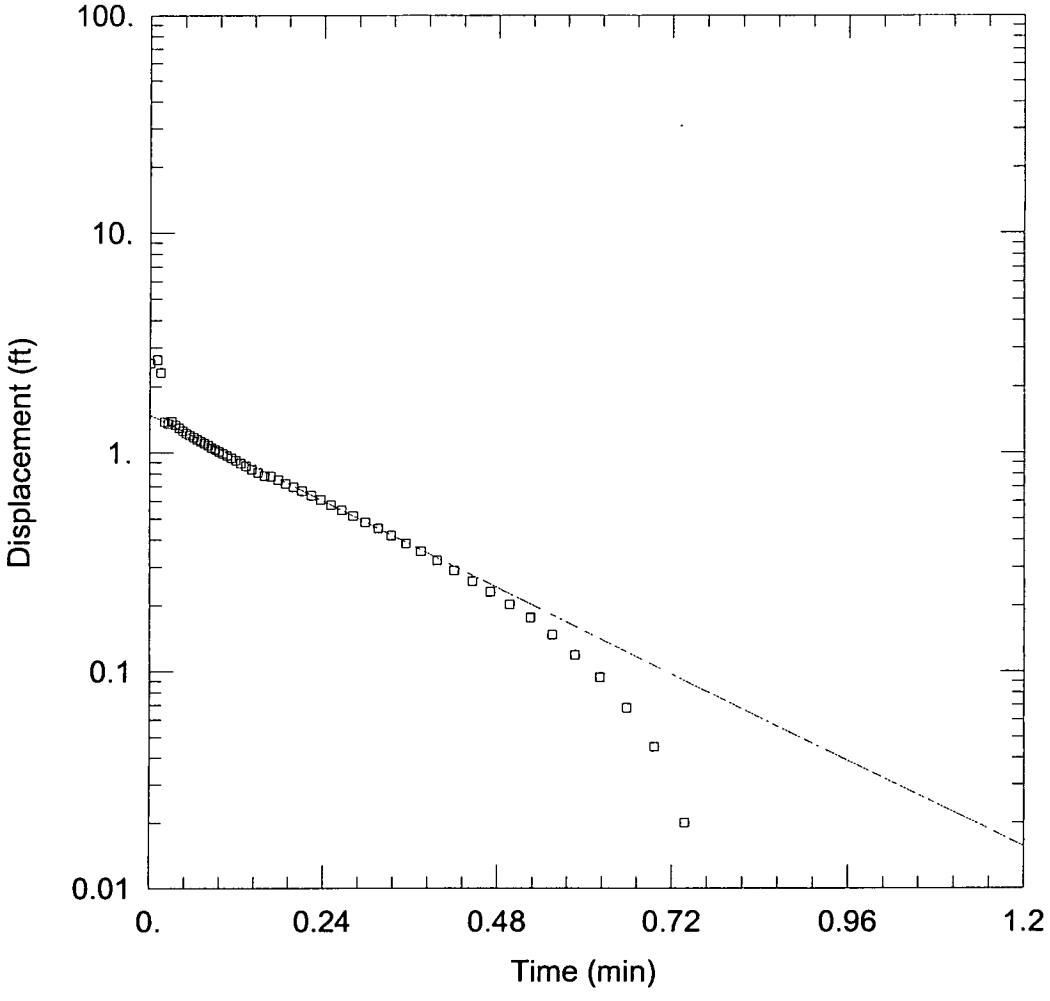
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (45S_Fall)

Initial Displacement: 17.5 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 15. ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.07797 ft/day
y0 = 13.33 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\45I_Rise.aqt
Date: 05/20/03 Time: 15:34:05

PROJECT INFORMATION

Test Well: 45I_Rise

AQUIFER DATA

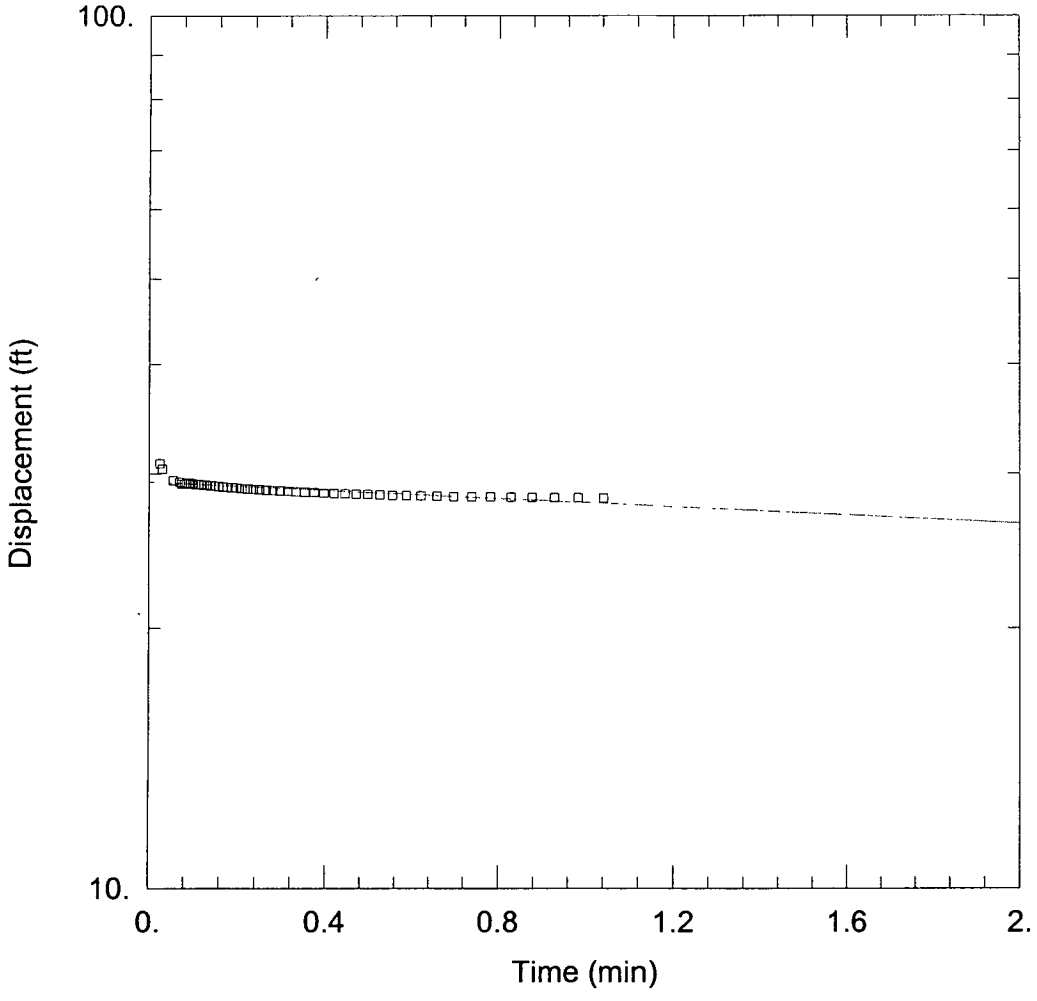
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (45I_Rise)

Initial Displacement: 2.56 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 12. ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.042 ft/day
y0 = 1.492 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\45I_Fall.aqt
Date: 05/20/03 Time: 15:06:08

PROJECT INFORMATION

Test Well: 45I_Fall

AQUIFER DATA

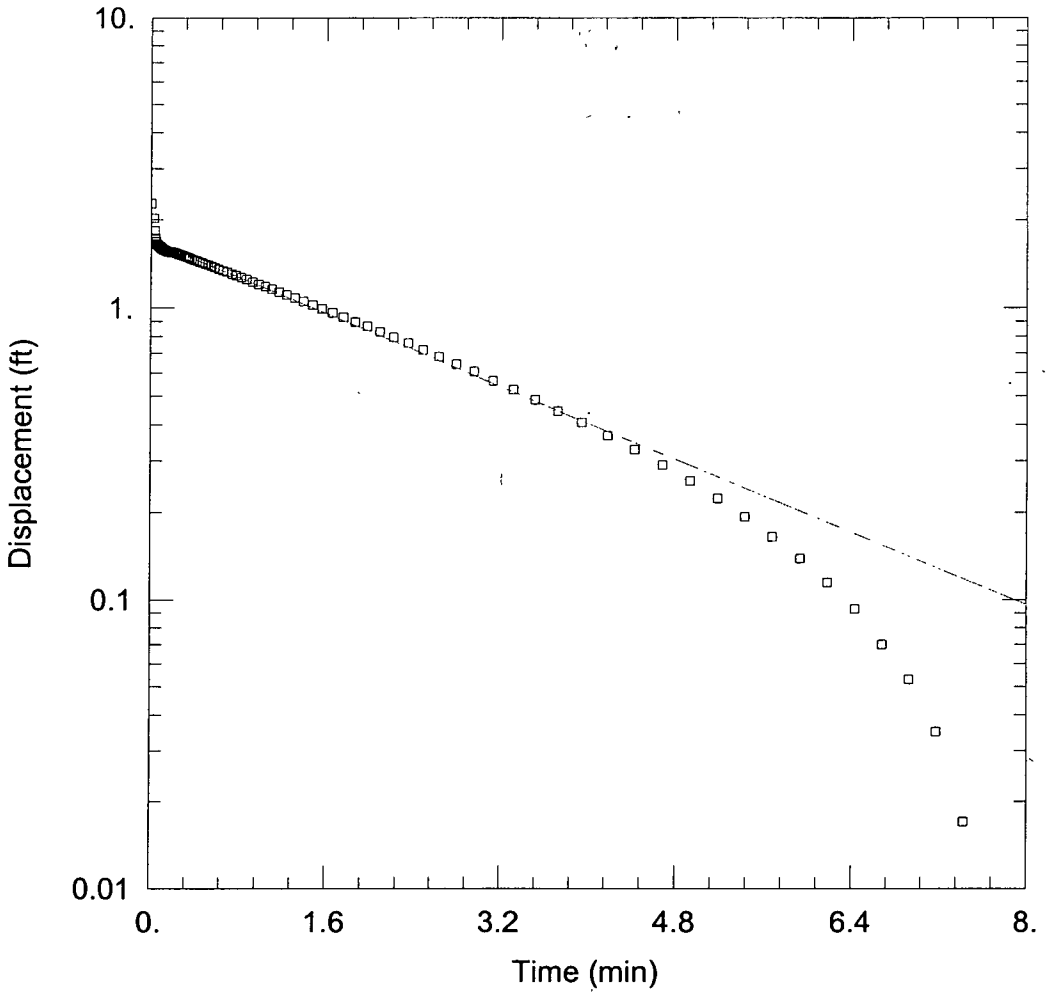
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (45I_Fall)

Initial Displacement: 2.9 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1 ft/day
y0 = 29.38 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\45D_Rise.aqt
Date: 05/20/03 Time: 15:31:23

PROJECT INFORMATION

Test Well: 45D_Rise

AQUIFER DATA

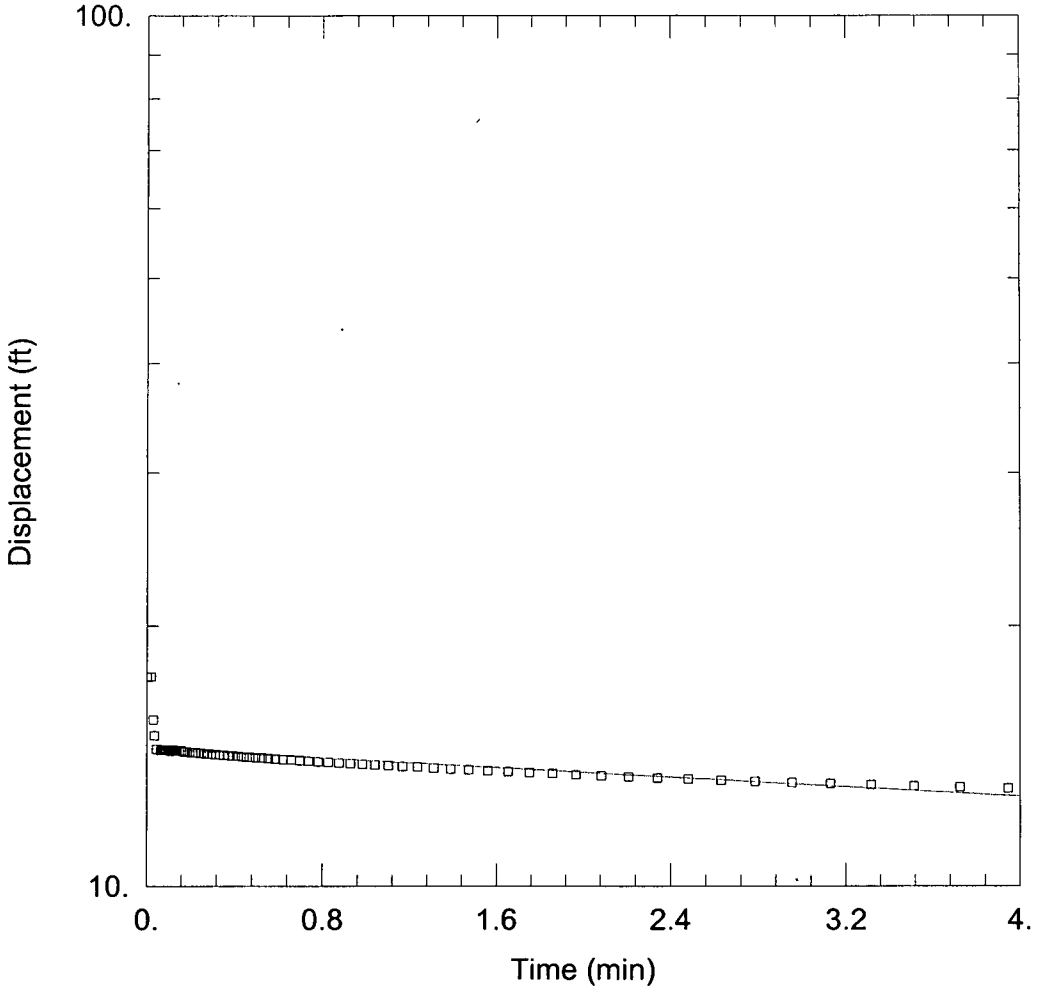
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (45D_Rise)

Initial Displacement: 2.27 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.6572 ft/day
y0 = 1.696 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\45d_fall.aqt
Date: 05/20/03 Time: 15:06:10

PROJECT INFORMATION

Test Well: 45D_Fall

AQUIFER DATA

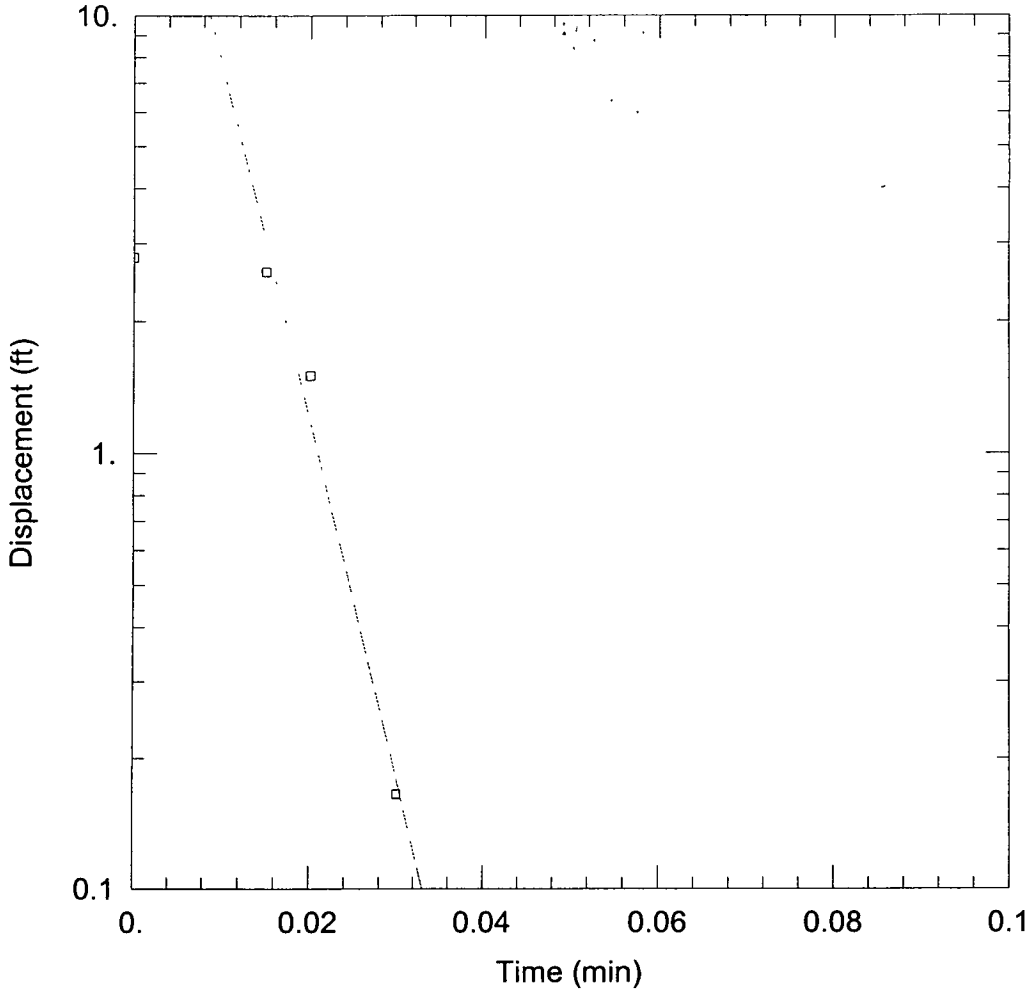
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (45D_Fall)

Initial Displacement: 17.45 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.05797 ft/day
y0 = 14.44 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\46S_Rise.aqt
Date: 05/20/03 Time: 15:36:53

PROJECT INFORMATION

Test Well: 46S_Rise

AQUIFER DATA

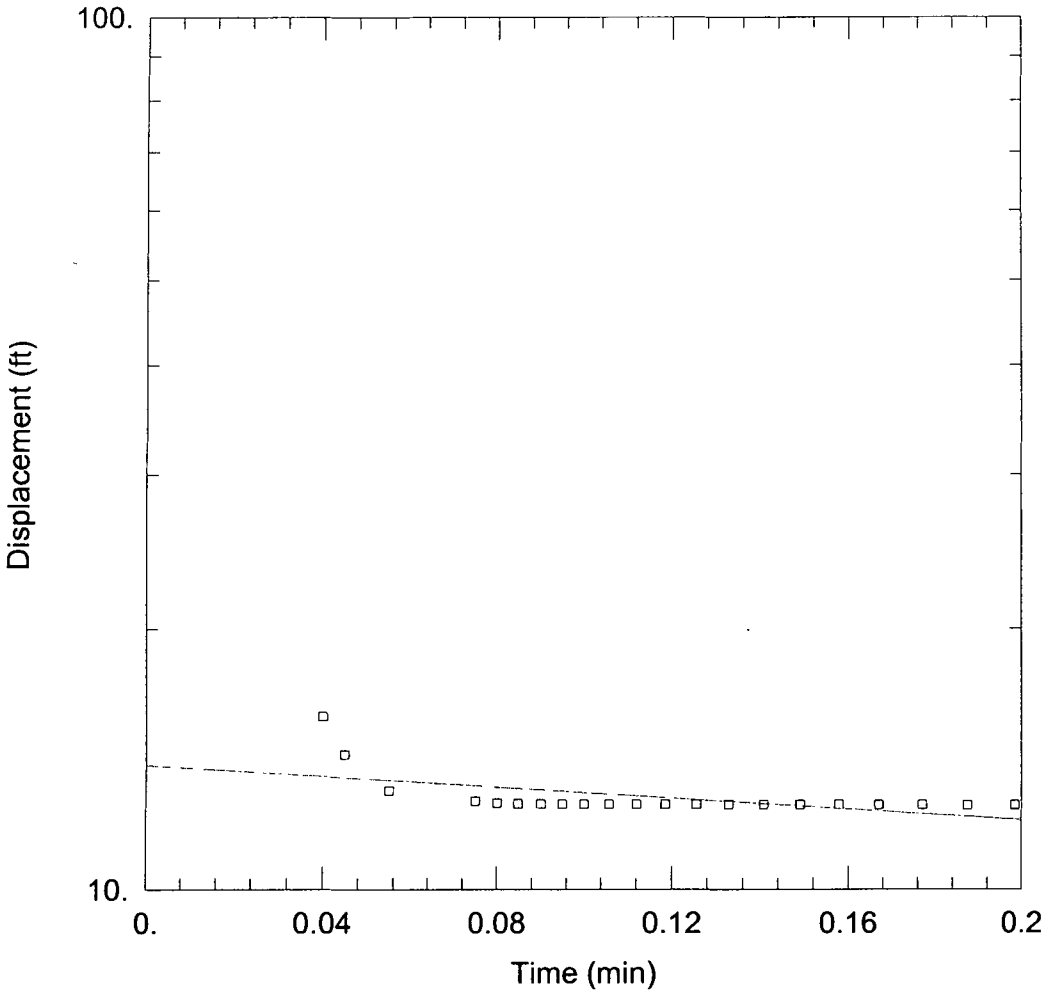
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (46S_Rise)

Initial Displacement: 2.79 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 346.2 ft/day
y0 = 51.69 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\46S_Fall.aqt
Date: 05/20/03 Time: 15:05:56

PROJECT INFORMATION

Test Well: 46S-Fall

AQUIFER DATA

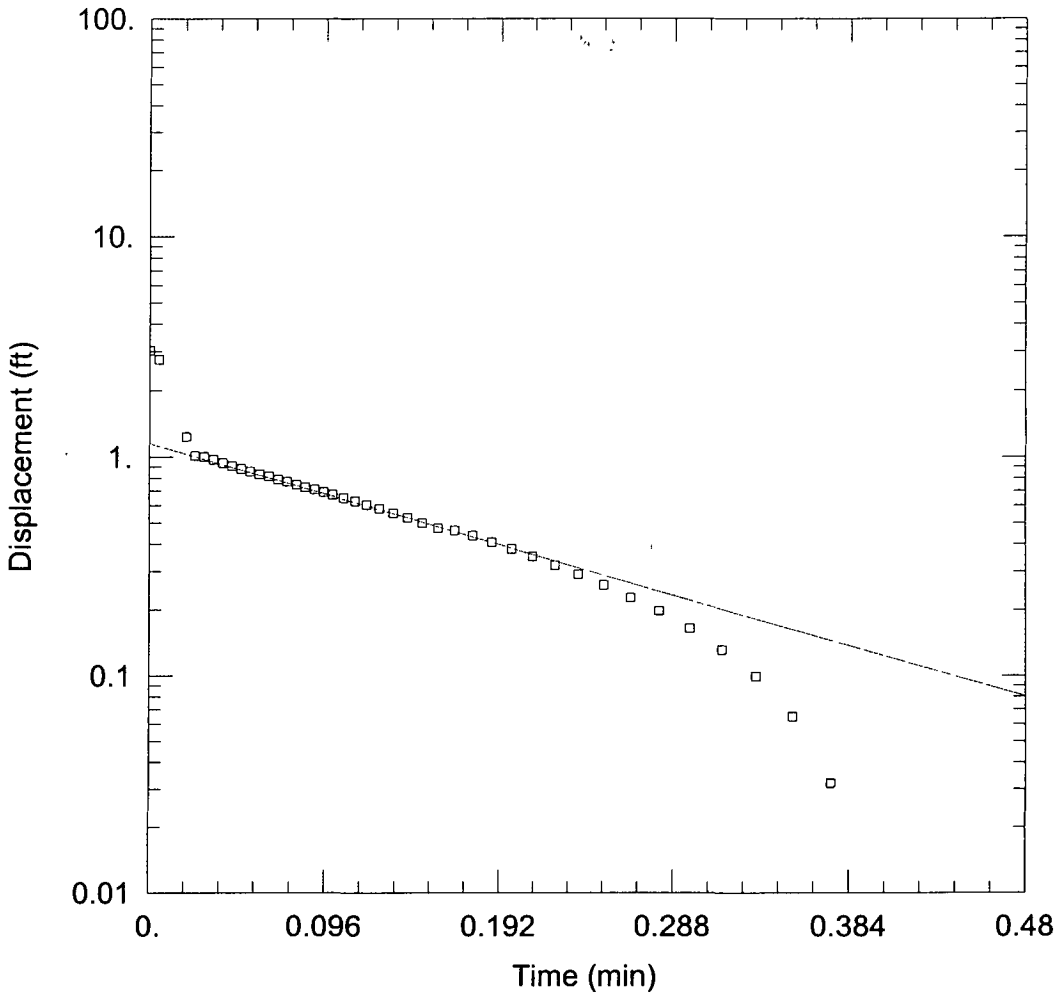
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (46S_Fall)

Initial Displacement: 2.5 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.334 ft/day
y0 = 13.92 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\46I_Rise.aqt
Date: 05/20/03 Time: 15:36:07

PROJECT INFORMATION

Test Well: 46I_Rise

AQUIFER DATA

Saturated Thickness: 12. ft Anisotropy Ratio (Kz/Kr): 1.

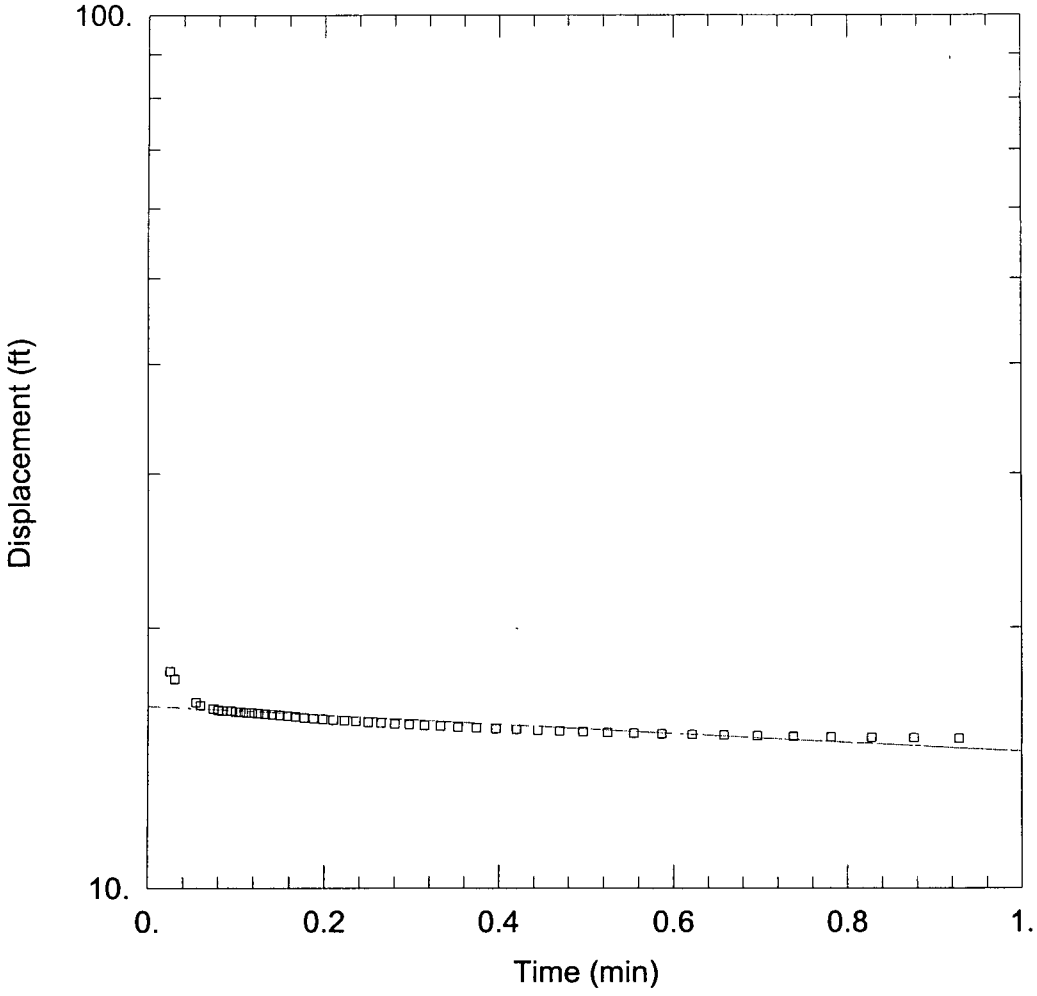
WELL DATA (46I_Rise)

Initial Displacement: 3.04 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 12. ft Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 8.819 ft/day y0 = 1.152 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\46I_Fall.aqt
Date: 05/20/03 Time: 15:05:58

PROJECT INFORMATION

Test Well: 46I_Fall

AQUIFER DATA

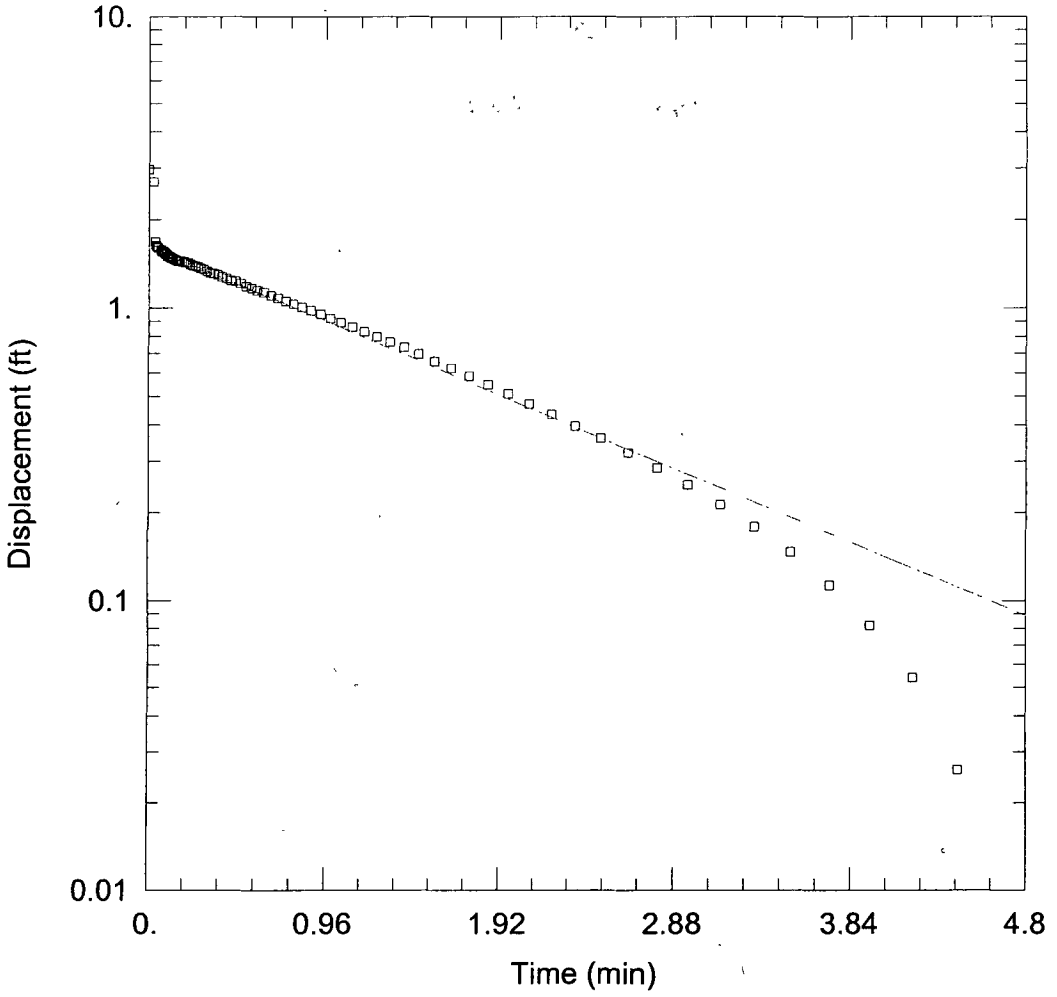
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (46I_Fall)

Initial Displacement: 3.1 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.221 ft/day
y0 = 16.23 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\46D_Rise.aqt
Date: 05/20/03 Time: 15:35:06

PROJECT INFORMATION

Test Well: 46D_Rise

AQUIFER DATA

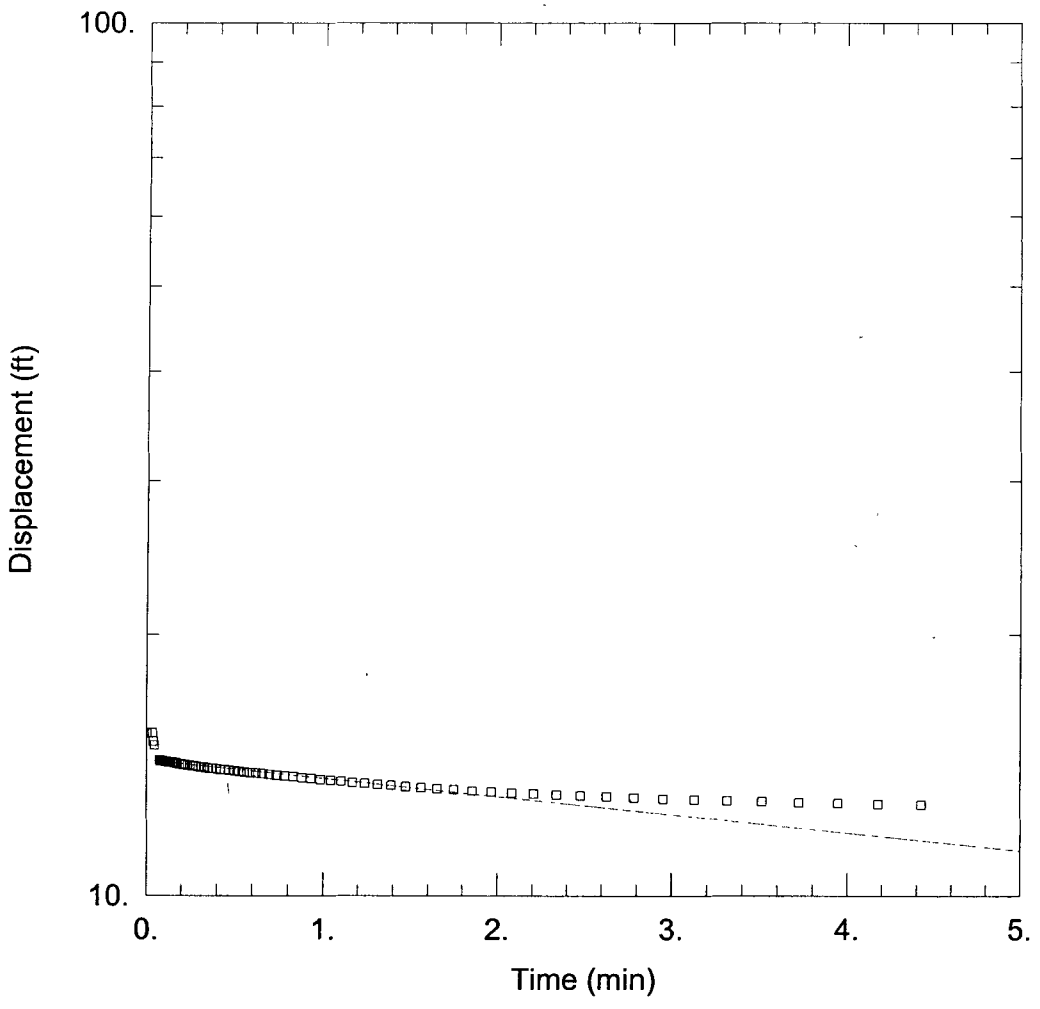
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (46D_Rise)

Initial Displacement: 2.96 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.106 ft/day
y0 = 1.609 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\46d_fall.aqt
Date: 05/20/03 Time: 15:06:02

PROJECT INFORMATION

Test Well: 46D_Fall

AQUIFER DATA

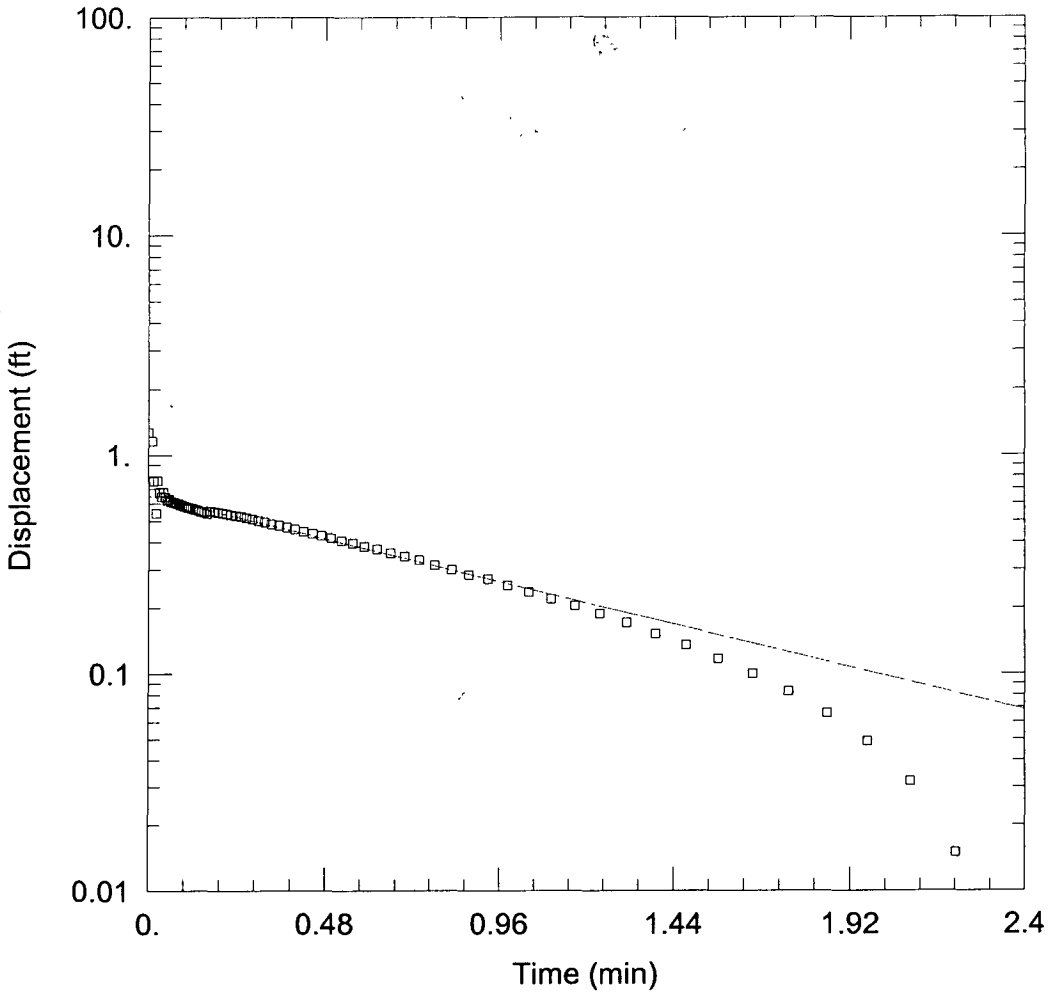
Saturated Thickness: 8.5 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (46D_Fall)

Initial Displacement: 15.4 ft
Wellbore Radius: 0.083 ft
Screen Length: 8.5 ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 8.5 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1002 ft/day
y0 = 14.34 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\47D_Rise.aqt
Date: 05/20/03 Time: 15:37:39

PROJECT INFORMATION

Test Well: 47D_Rise

AQUIFER DATA

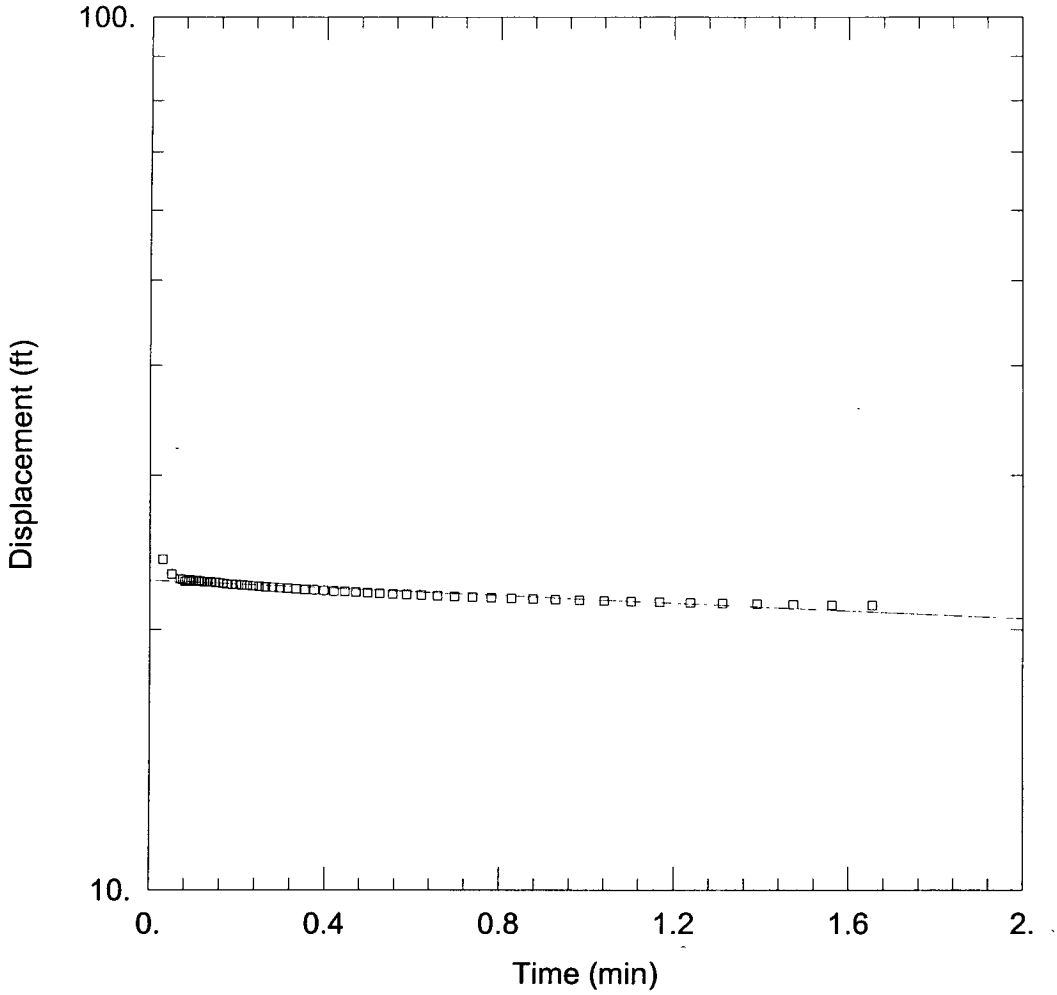
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (47D_Rise)

Initial Displacement: 1.27 ft
Wellbore Radius: 0.083 ft
Screen Length: 12. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.495 ft/day
y0 = 0.6517 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\47D_Fall.aqt
Date: 05/20/03 Time: 15:05:53

PROJECT INFORMATION

Test Well: 47D_Fall

AQUIFER DATA

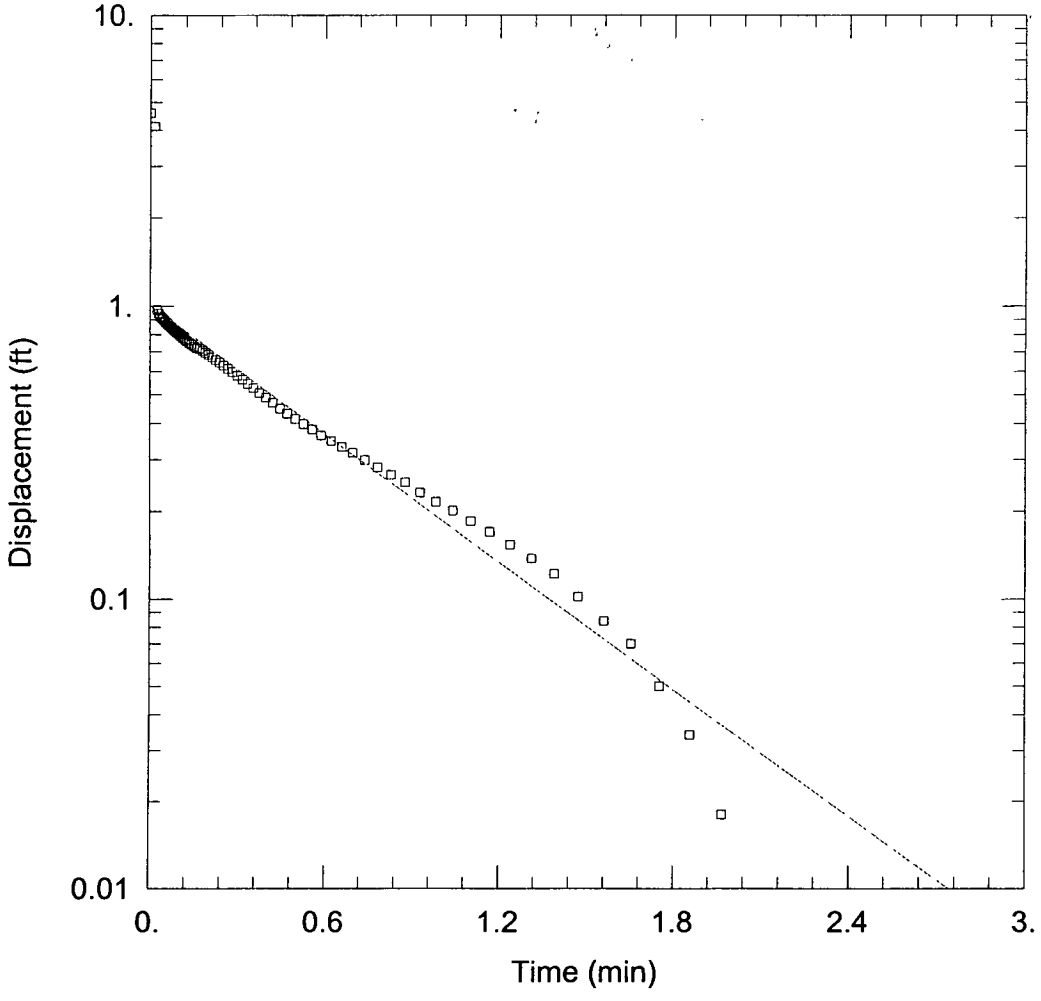
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (47D_Fall)

Initial Displacement: 3. ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.09251 ft/day
y0 = 22.78 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\48S_Rise.aqt
Date: 05/20/03 Time: 15:40:46

PROJECT INFORMATION

Test Well: 48S_Rise

AQUIFER DATA

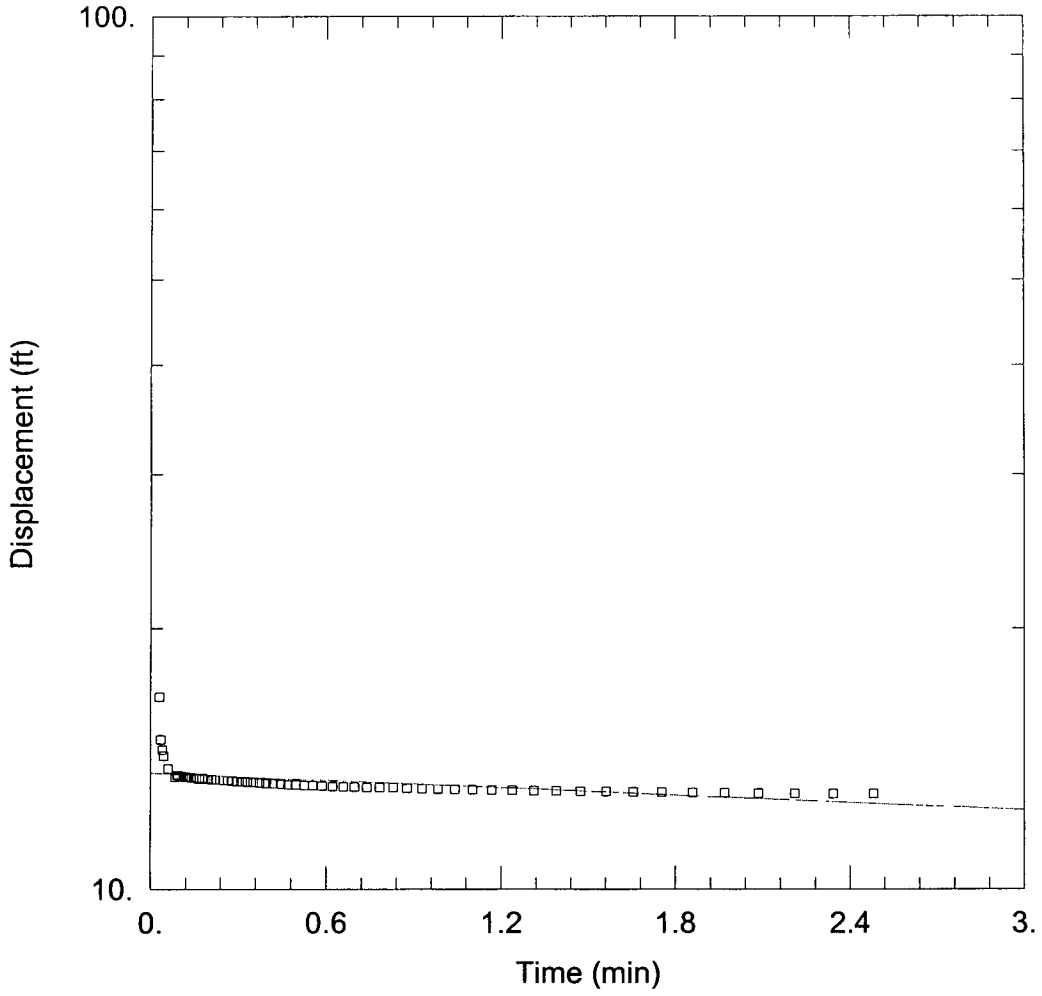
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (48S_Rise)

Initial Displacement: 4.6 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.083 ft/day
y0 = 1.006 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\48S_Fall.aqt
Date: 05/20/03 Time: 15:05:46

PROJECT INFORMATION

Test Well: 48S_Fall

AQUIFER DATA

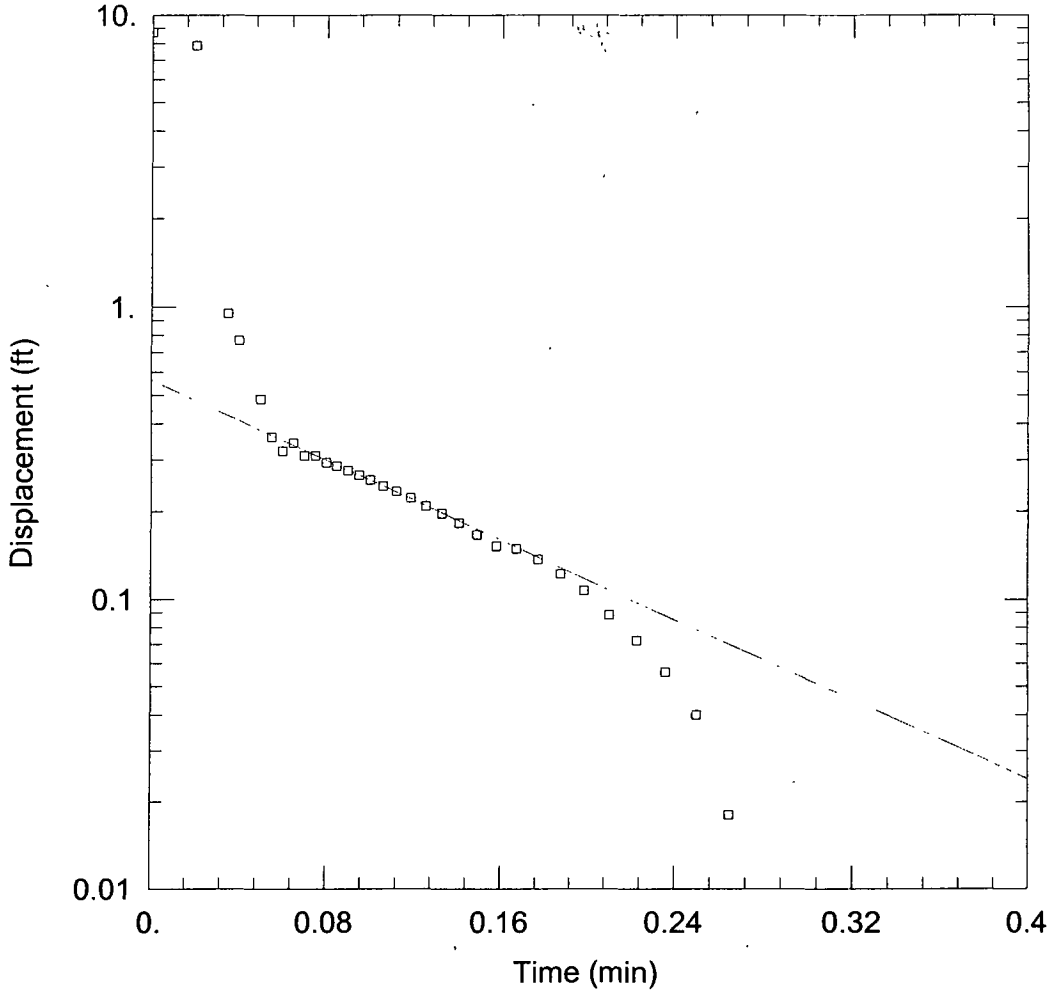
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (48S_Fall)

Initial Displacement: 4.2 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.06037 ft/day
y0 = 13.63 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\48I_Rise.aqt
Date: 05/20/03 Time: 15:40:21

PROJECT INFORMATION

Test Well: 48I_Rise

AQUIFER DATA

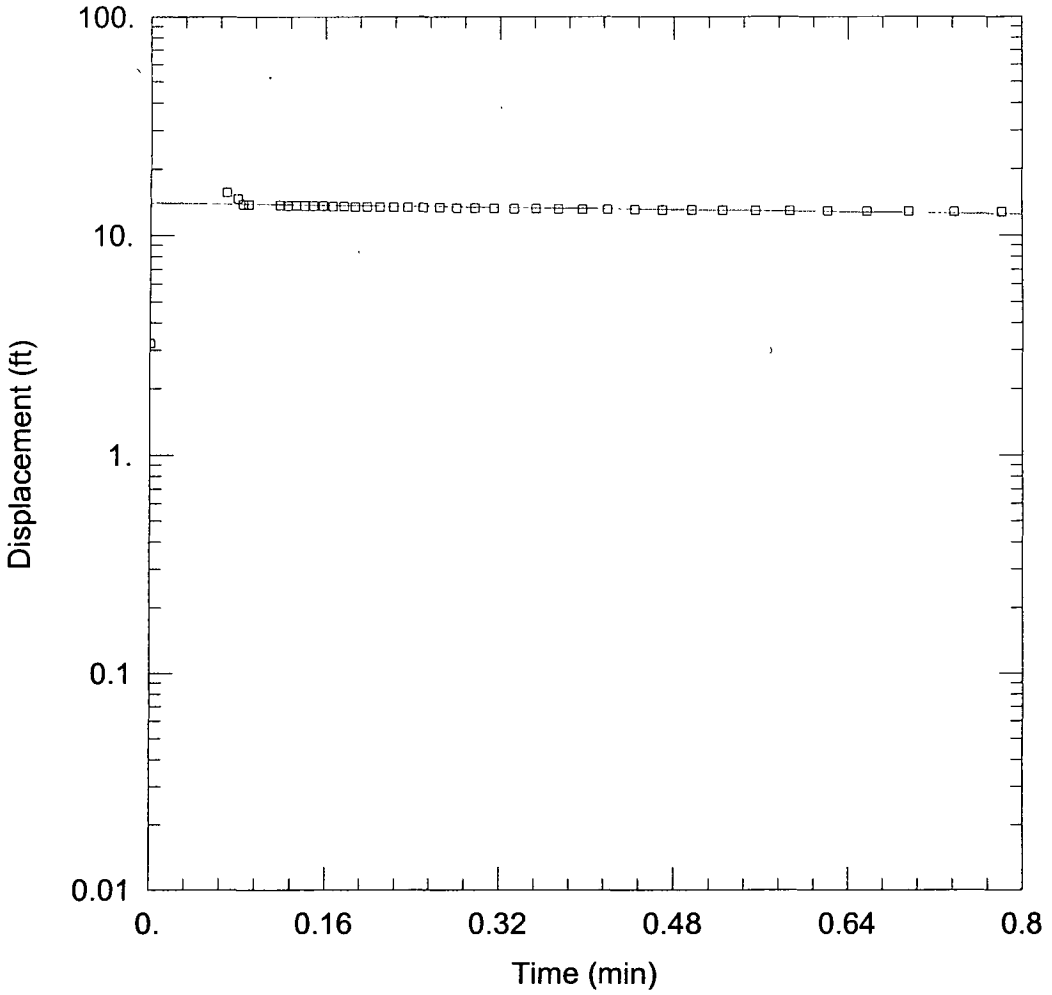
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (48I_Rise)

Initial Displacement: 8.73 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 14.45 ft/day
y0 = 0.5626 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\48I_Fall.aqt
Date: 05/21/03 Time: 08:36:24

PROJECT INFORMATION

Test Well: 48I_Fall

AQUIFER DATA

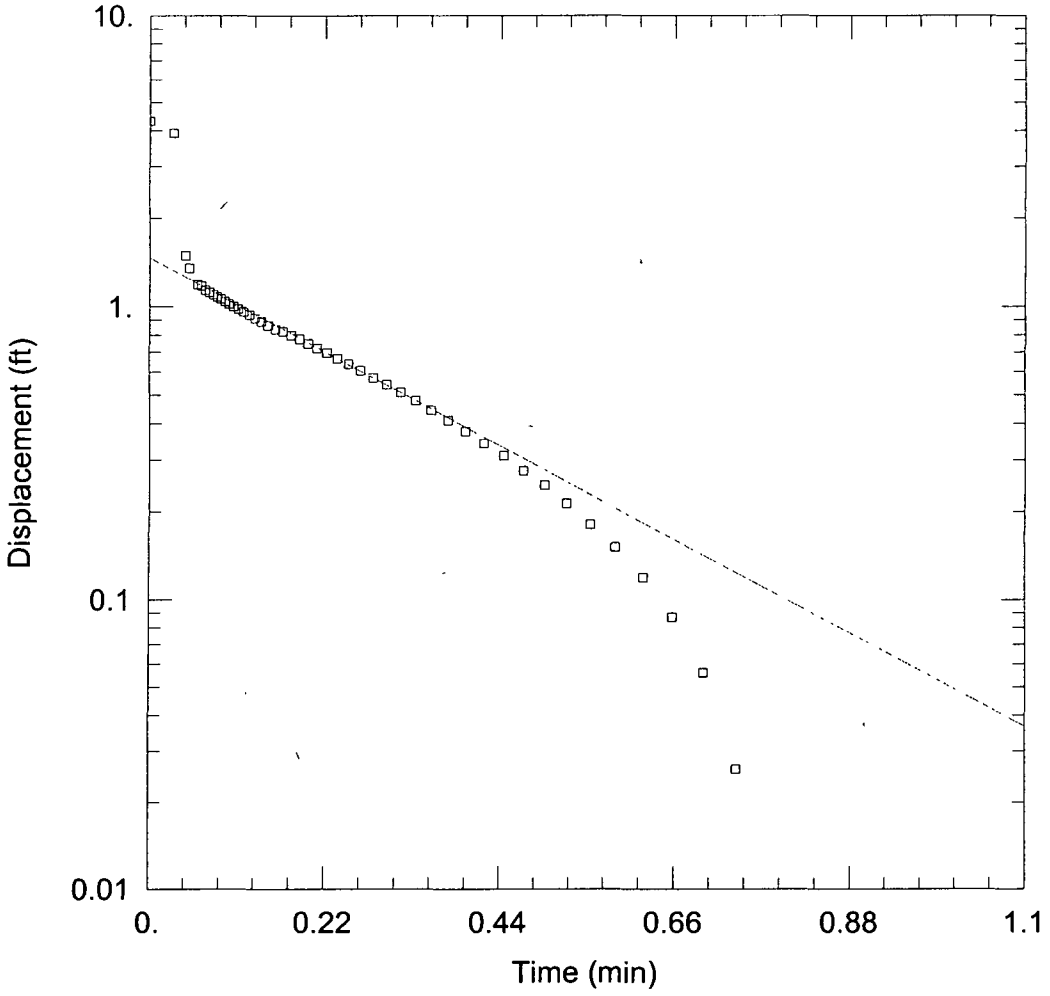
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (48I_Fall)

Initial Displacement: 3.23 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2686 ft/day
y0 = 14.03 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\48D_Rise.aqt
Date: 05/20/03 Time: 15:38:42

PROJECT INFORMATION

Test Well: 48D_Rise

AQUIFER DATA

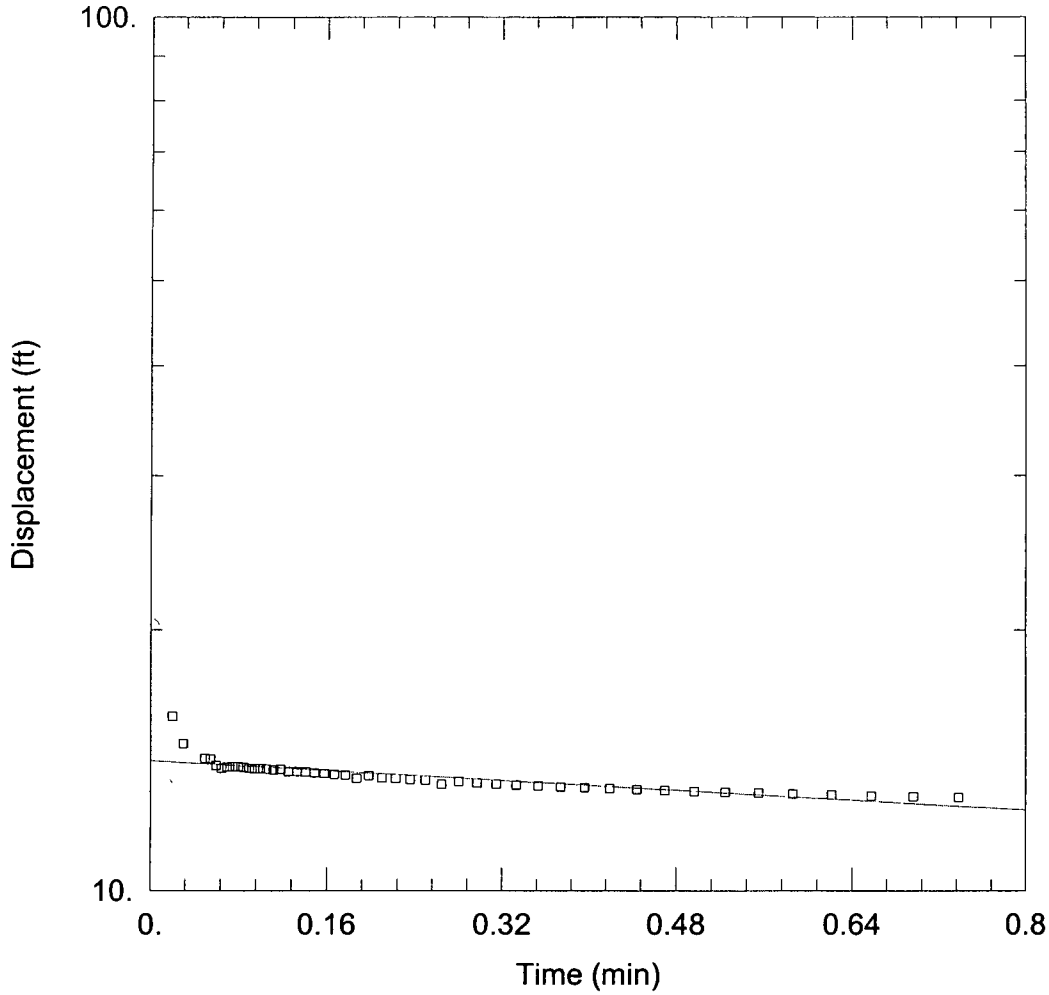
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (48D_Rise)

Initial Displacement: 4.32 ft
Wellbore Radius: 0.083 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.147 ft/day
y0 = 1.468 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\48D_Fall.aqt
Date: 05/20/03 Time: 15:38:26

PROJECT INFORMATION

Test Well: 48D_Fall

AQUIFER DATA

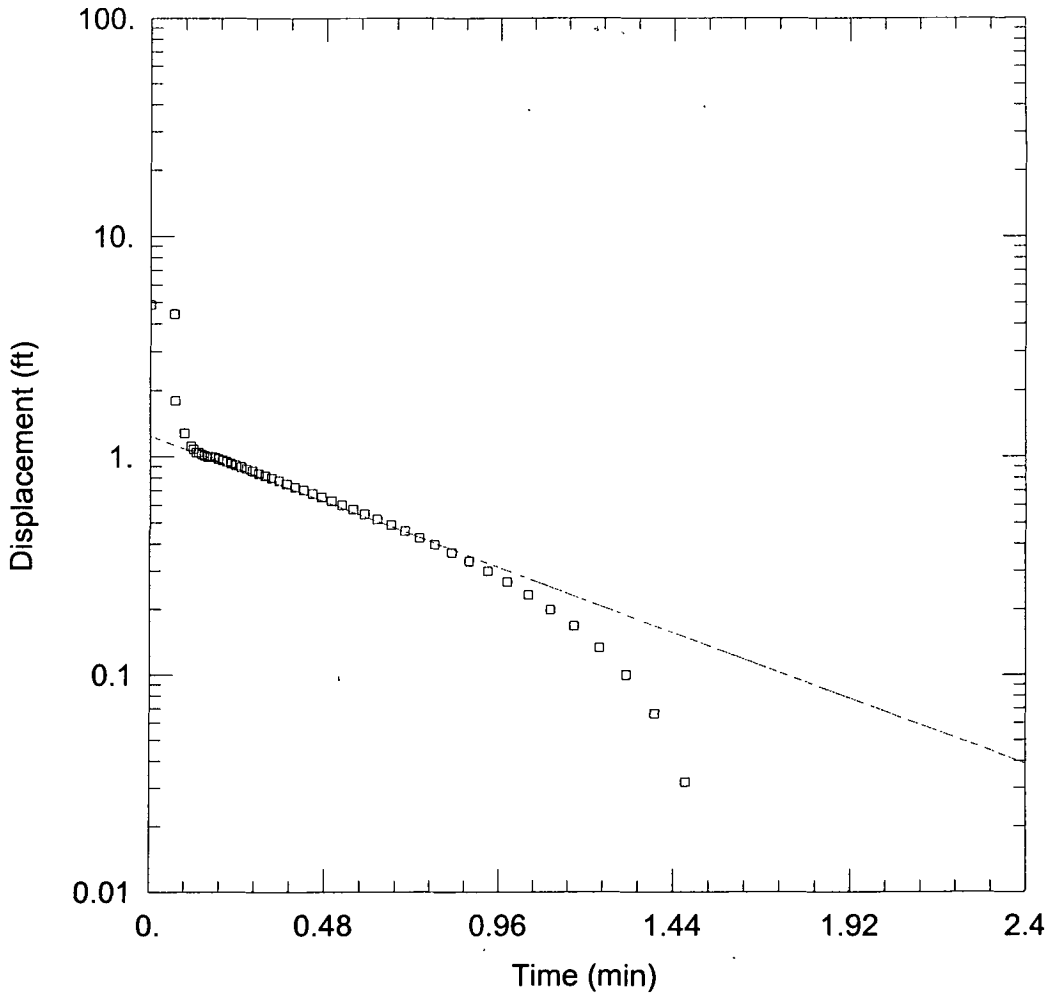
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (48D_Fall)

Initial Displacement: 3.4 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.061E-06 m/sec
y0 = 14.13 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\49D_Rise.aqt
Date: 05/20/03 Time: 15:41:53

PROJECT INFORMATION

Test Well: 49D_Rise

AQUIFER DATA

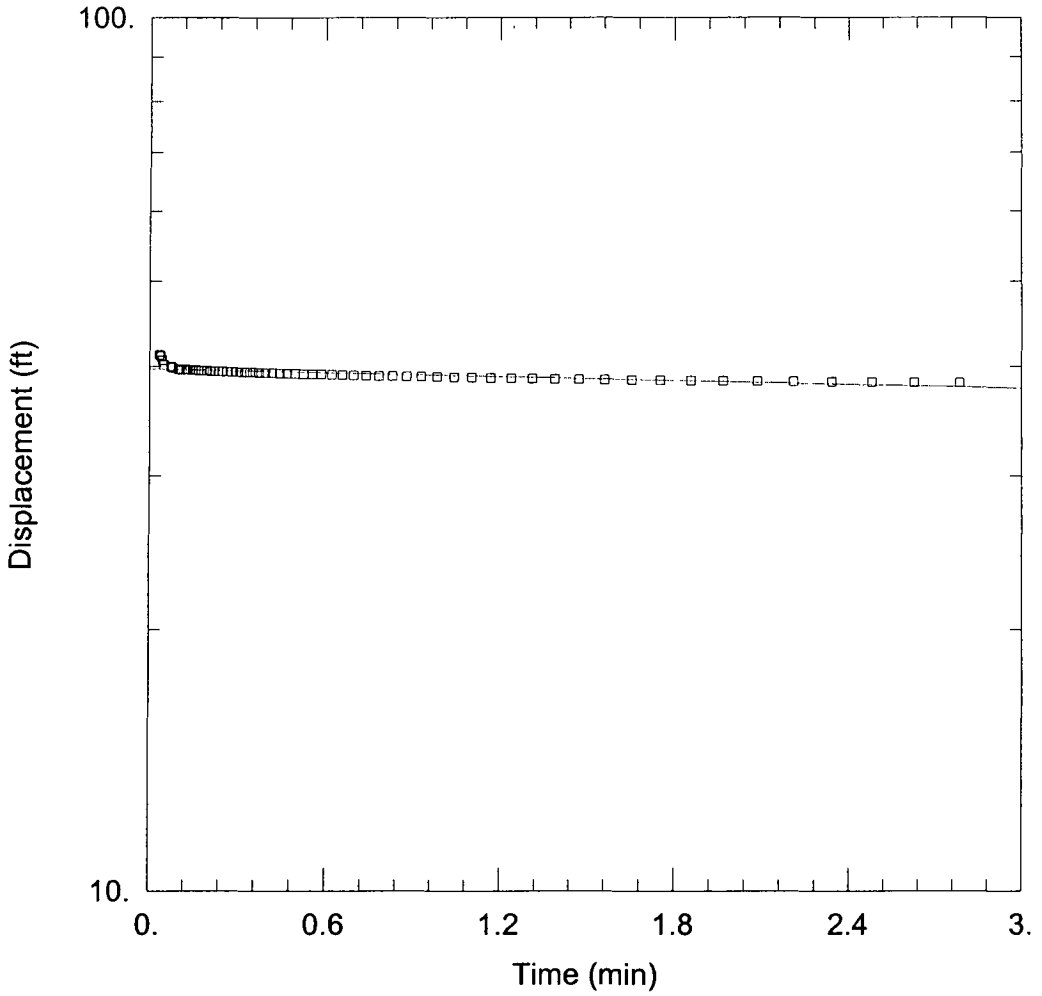
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (49D_Rise)

Initial Displacement: 4.88 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 12. ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.293 ft/day
y0 = 1.24 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\49D_Fall.aqt
Date: 05/20/03 Time: 15:05:43

PROJECT INFORMATION

Test Well: 49D_Fall

AQUIFER DATA

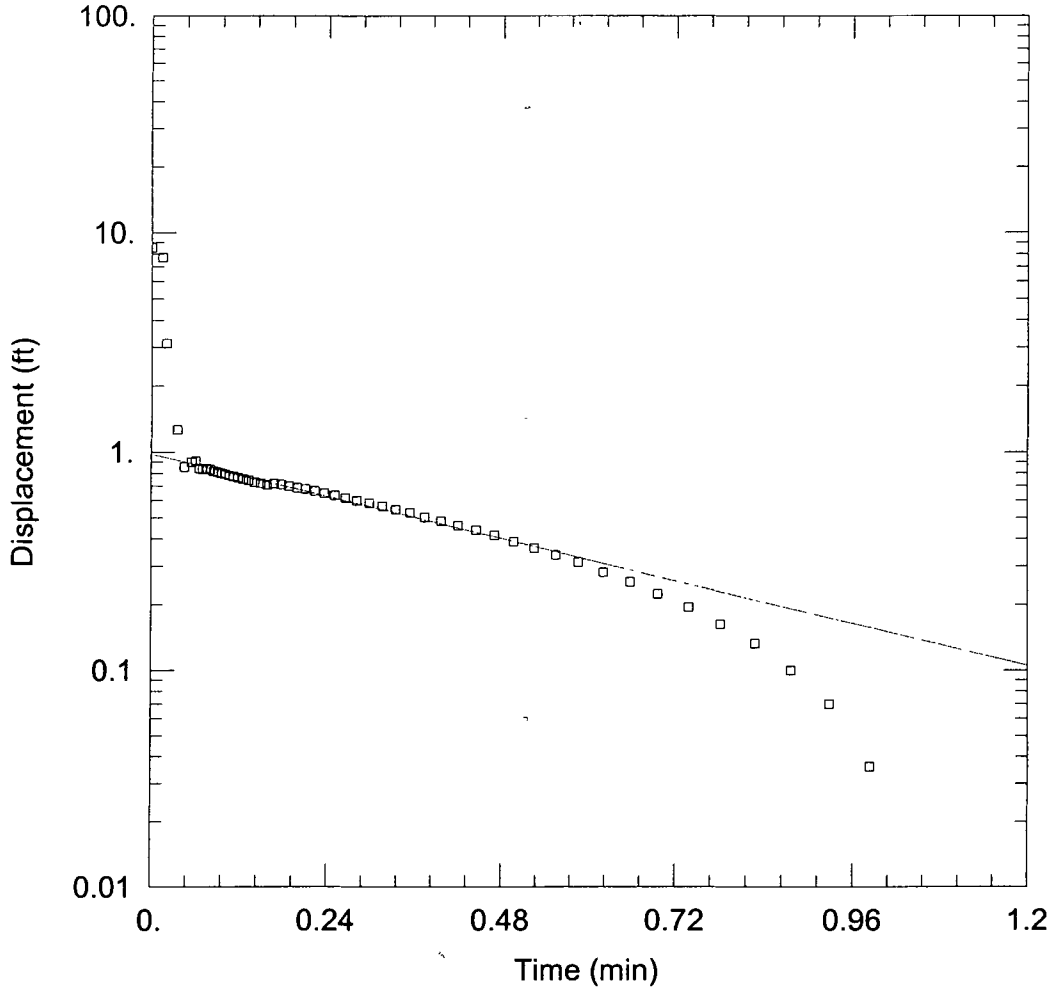
Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (49D_Fall)

Initial Displacement: 3.2 ft
Wellbore Radius: 0.083 ft
Screen Length: 14. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 14. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02393 ft/day
y0 = 39.76 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\50D_Rise.aqt
Date: 05/20/03 Time: 15:42:43

PROJECT INFORMATION

Test Well: 50D_Rise

AQUIFER DATA

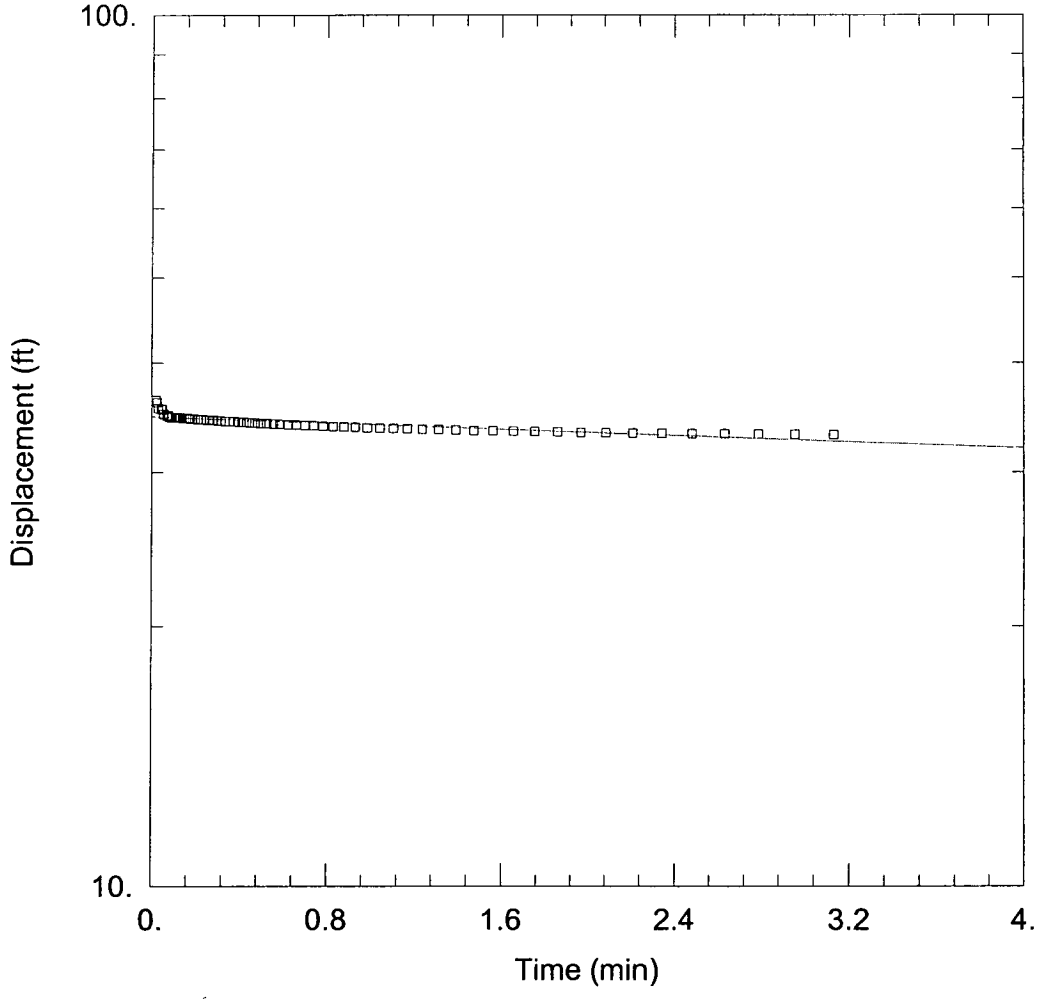
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (50D_Rise)

Initial Displacement: 8.519 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 12. ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.956 ft/day
y0 = 0.9789 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\50D_Fall.aqt
Date: 05/20/03 Time: 15:05:40

PROJECT INFORMATION

Test Well: 50D_Fall

AQUIFER DATA

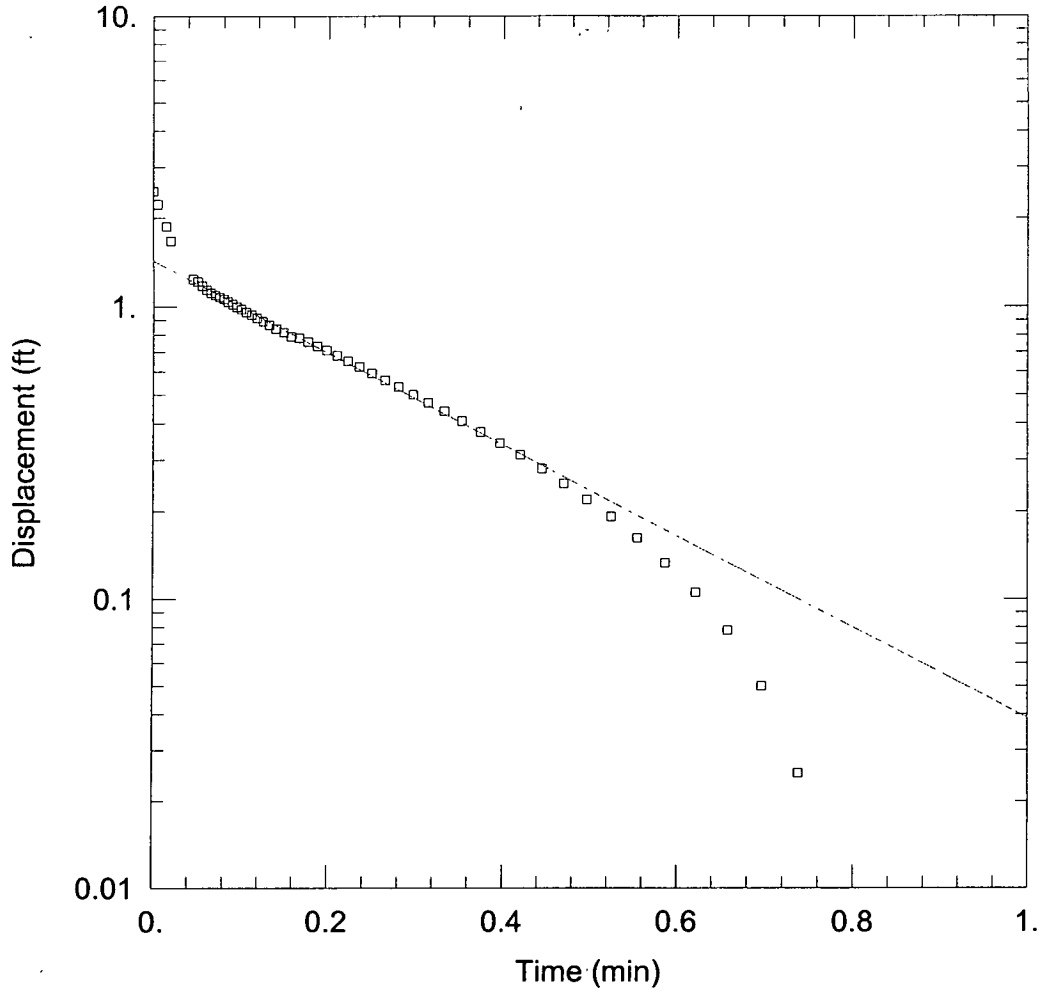
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (50D_Fall)

Initial Displacement: 3.3 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03749 ft/day
y0 = 34.71 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\51D_Rise.aqt
Date: 05/20/03 Time: 15:43:26

PROJECT INFORMATION

Test Well: 51D_Rise

AQUIFER DATA

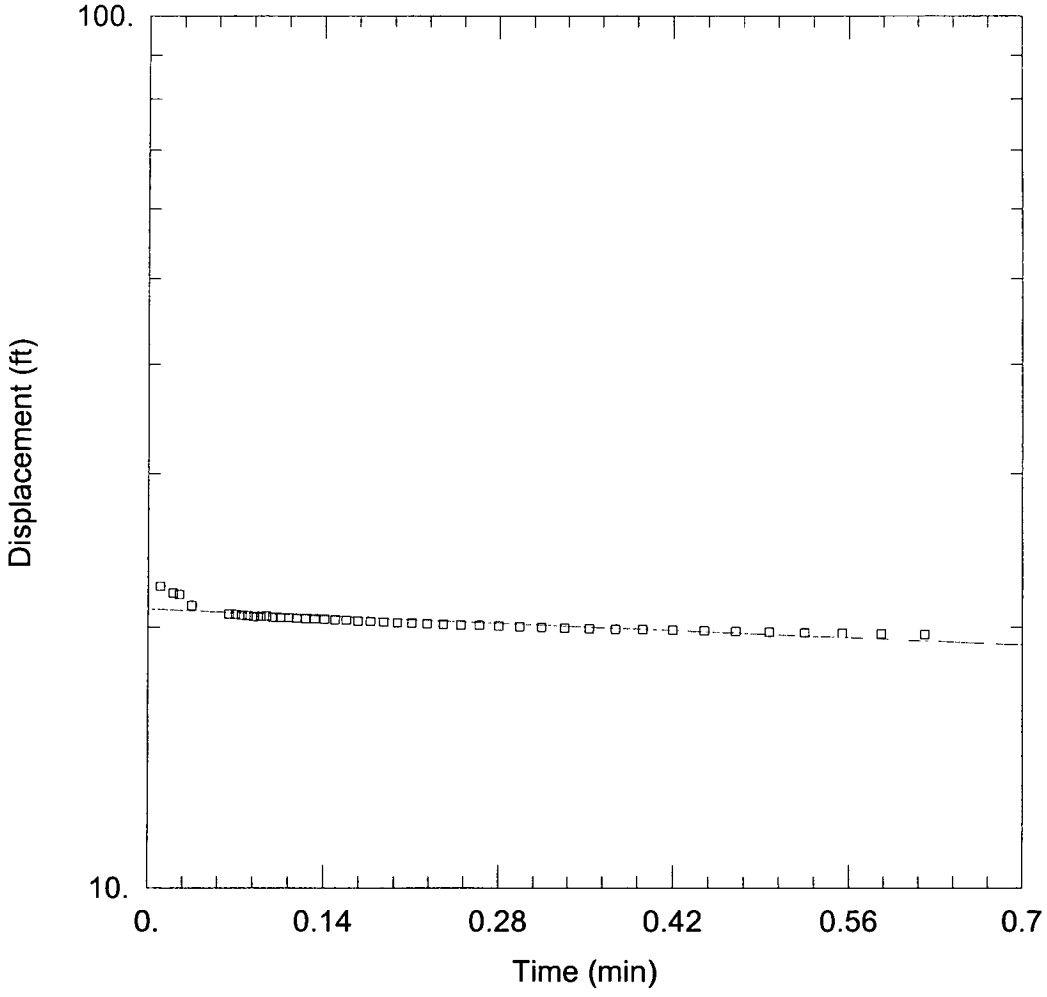
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (51D_Rise)

Initial Displacement: 2.47 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.604 ft/day
y0 = 1.428 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\51D_Fall.aqt
Date: 05/20/03 Time: 15:05:37

PROJECT INFORMATION

Test Well: 51D_Fall

AQUIFER DATA

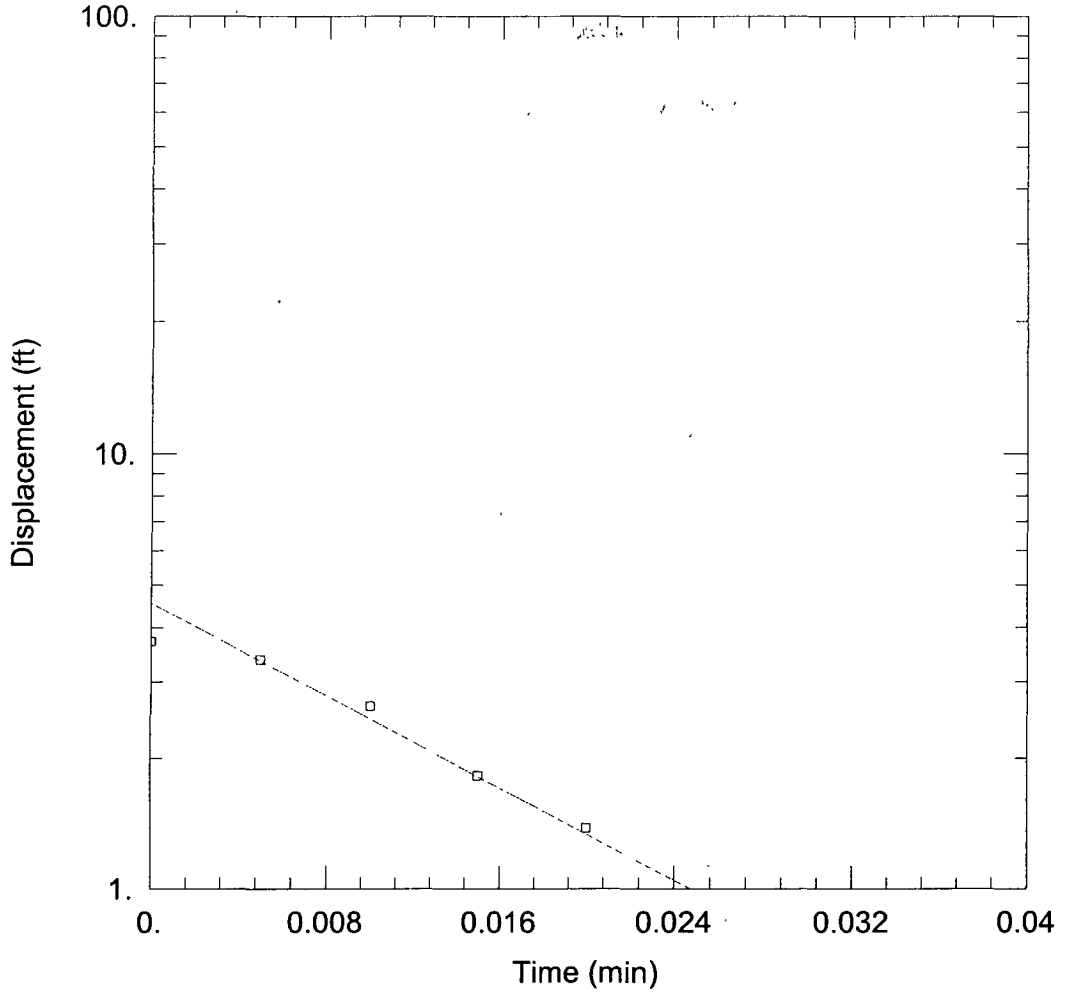
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (51D_Fall)

Initial Displacement: 3. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2477 ft/day
y0 = 20.98 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\52D_Rise.aqt
Date: 05/21/03 Time: 08:39:11

PROJECT INFORMATION

Test Well: 52D_Rise

AQUIFER DATA

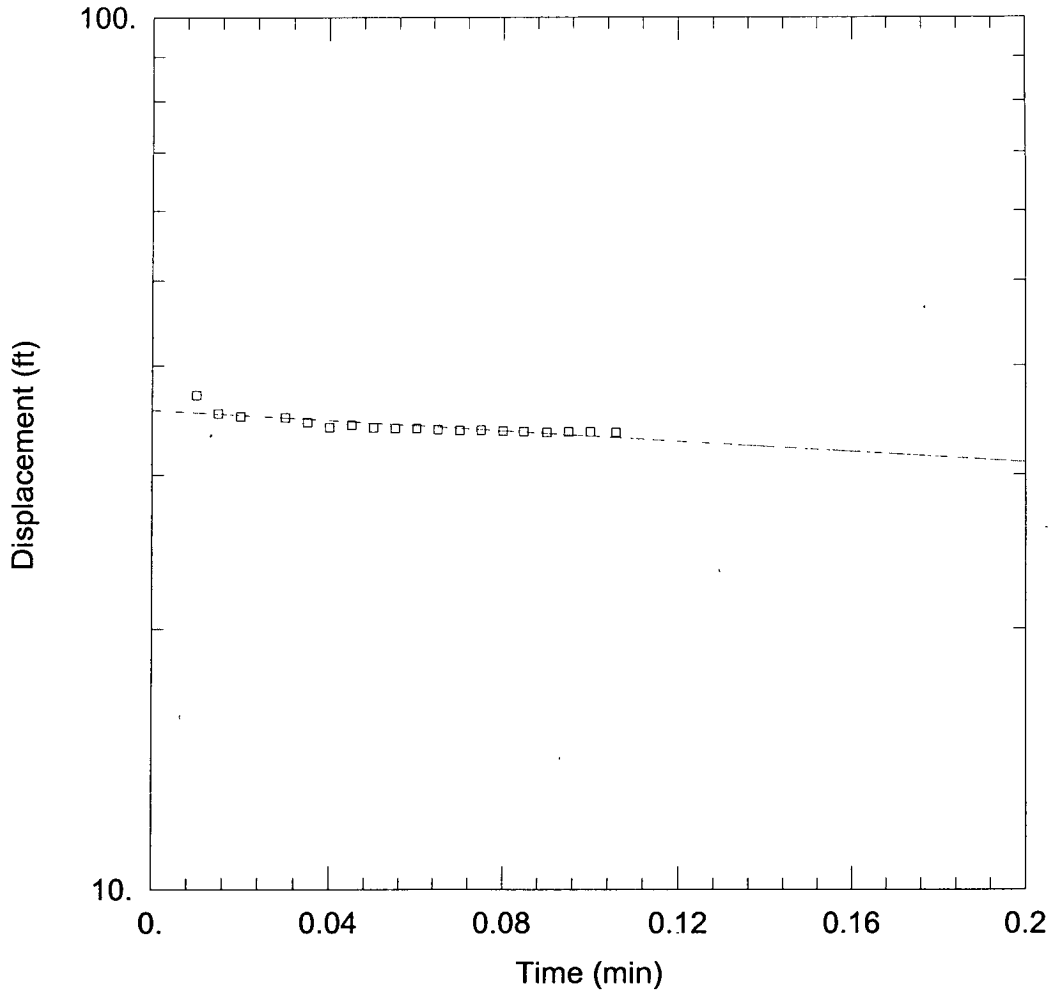
Saturated Thickness: 14. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (52D_Rise)

Initial Displacement: 3.72 ft Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft Well Skin Radius: 0.083 ft
Screen Length: 14. ft Total Well Penetration Depth: 14. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 86.26 ft/day y0 = 4.548 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\52D_Fall.aqt
Date: 05/20/03 Time: 15:05:33

PROJECT INFORMATION

Test Well: 52D_Fall

AQUIFER DATA

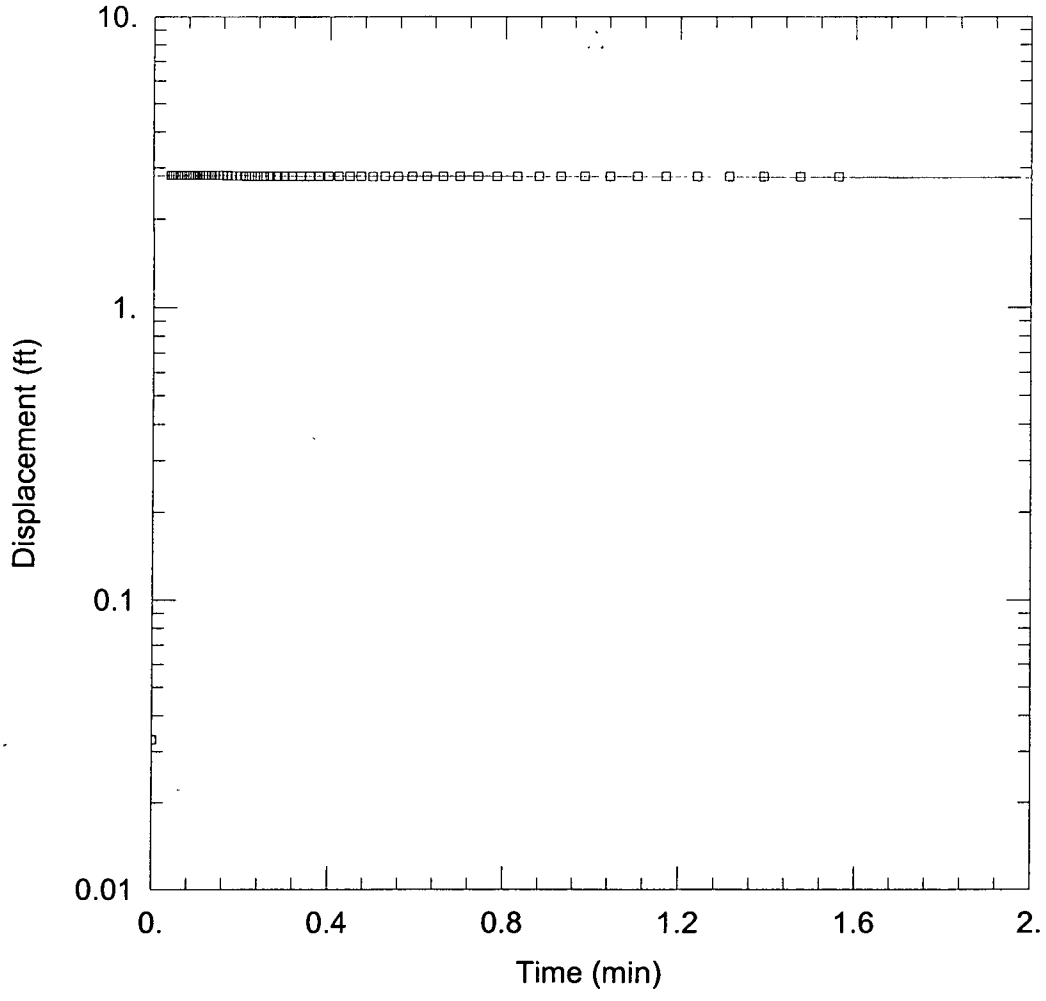
Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (52D_Fall)

Initial Displacement: 3.6 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 14. ft
Total Well Penetration Depth: 14. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.9659 ft/day
y0 = 35.59 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\53S_Rise.aqt
Date: 05/20/03 Time: 15:44:33

PROJECT INFORMATION

Test Well: 53S_Rise

AQUIFER DATA

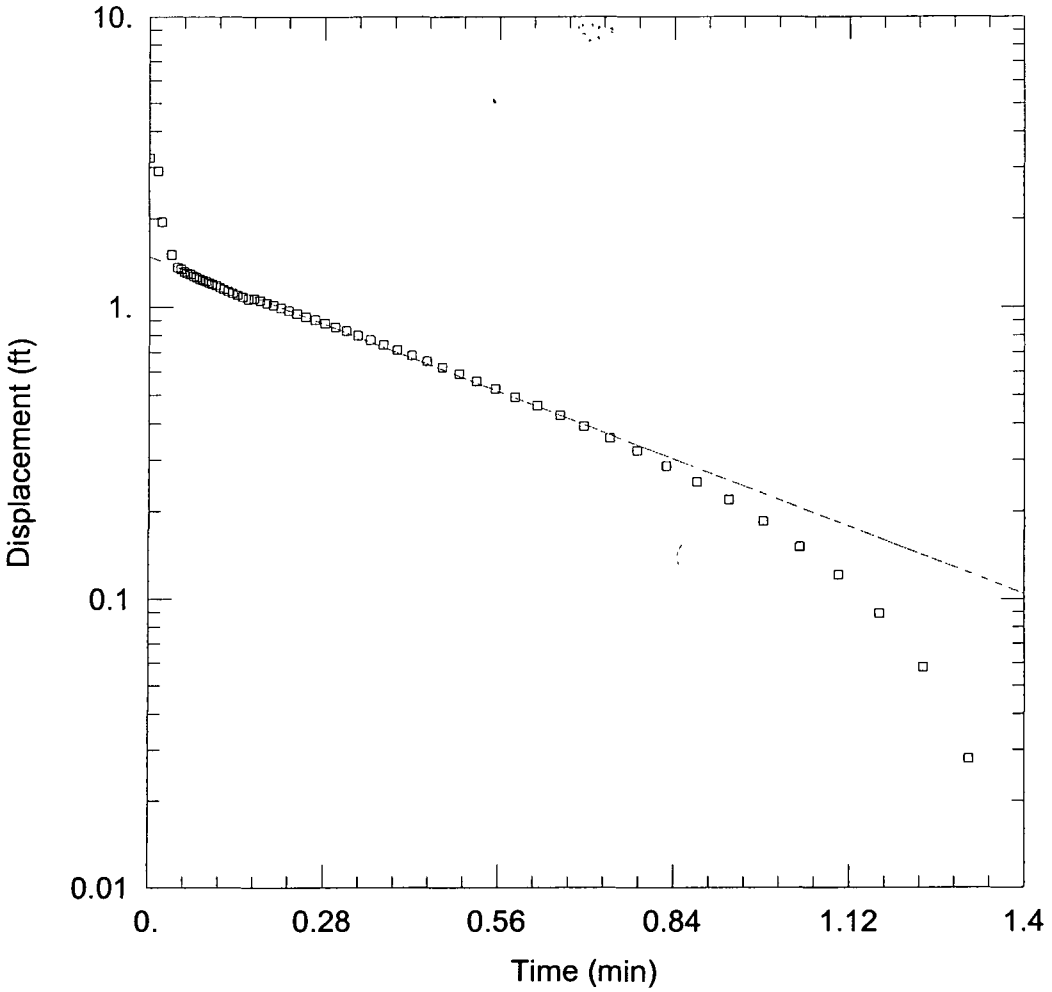
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (53S_Rise)

Initial Displacement: 0.033 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 15. ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01186 ft/day
y0 = 2.824 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\54D_Rise.aqt
Date: 05/20/03 Time: 15:45:27

PROJECT INFORMATION

Test Well: 54D_Rise

AQUIFER DATA

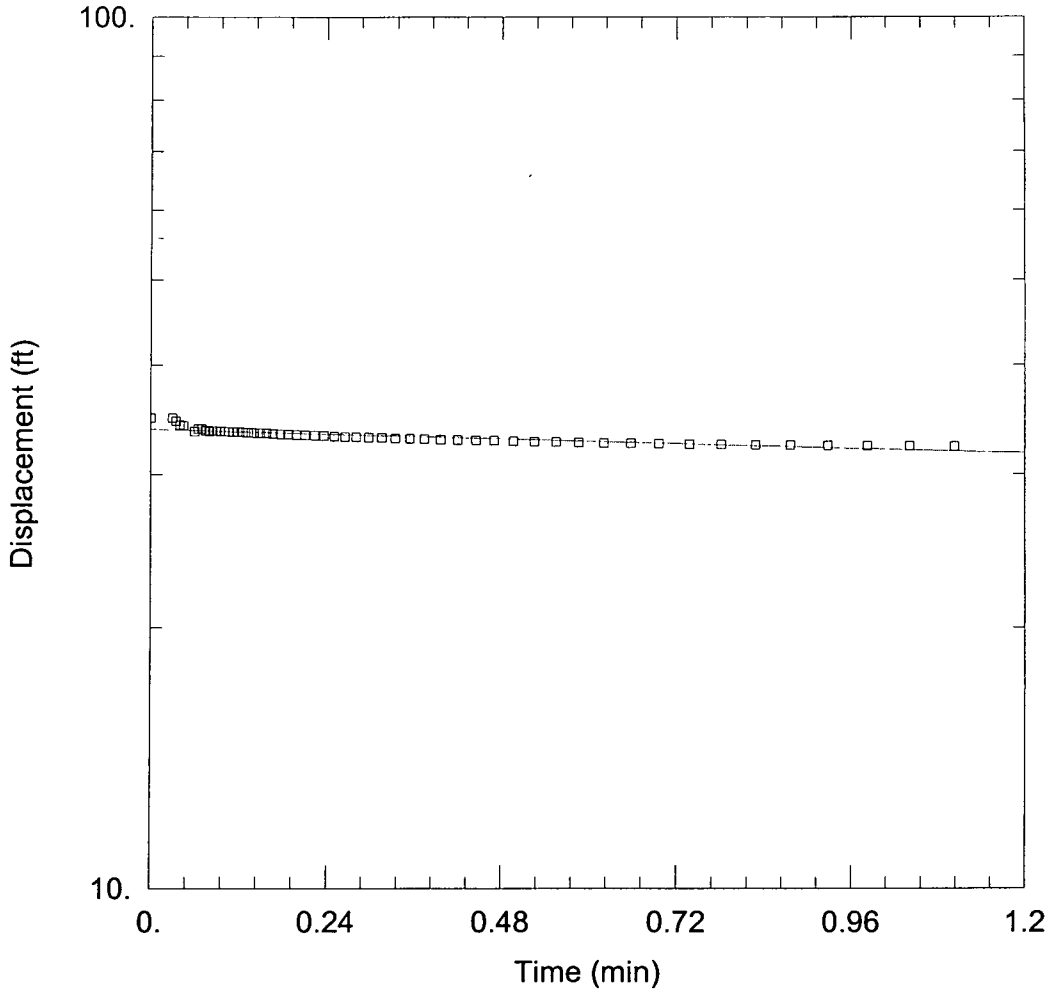
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (54D_Rise)

Initial Displacement: 3.23 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.479 ft/day
y0 = 1.485 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\54D_Fall.aqt
Date: 05/20/03 Time: 15:08:11

PROJECT INFORMATION

Test Well: 54D_Fall

AQUIFER DATA

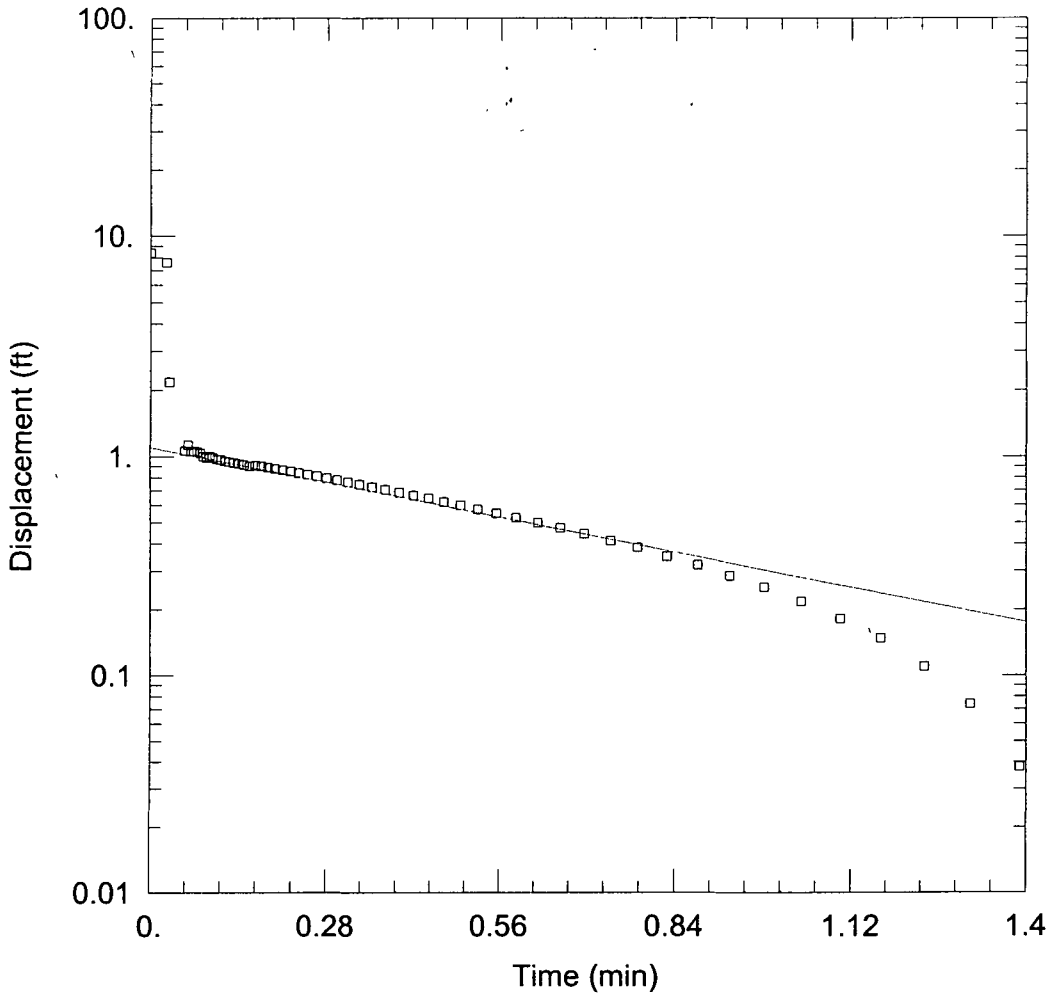
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (54D_Fall)

Initial Displacement: 34.82 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.09491 ft/day
y0 = 33.77 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\55D_Rise.aqt
Date: 05/20/03 Time: 15:45:47

PROJECT INFORMATION

Test Well: 55D_Rise

AQUIFER DATA

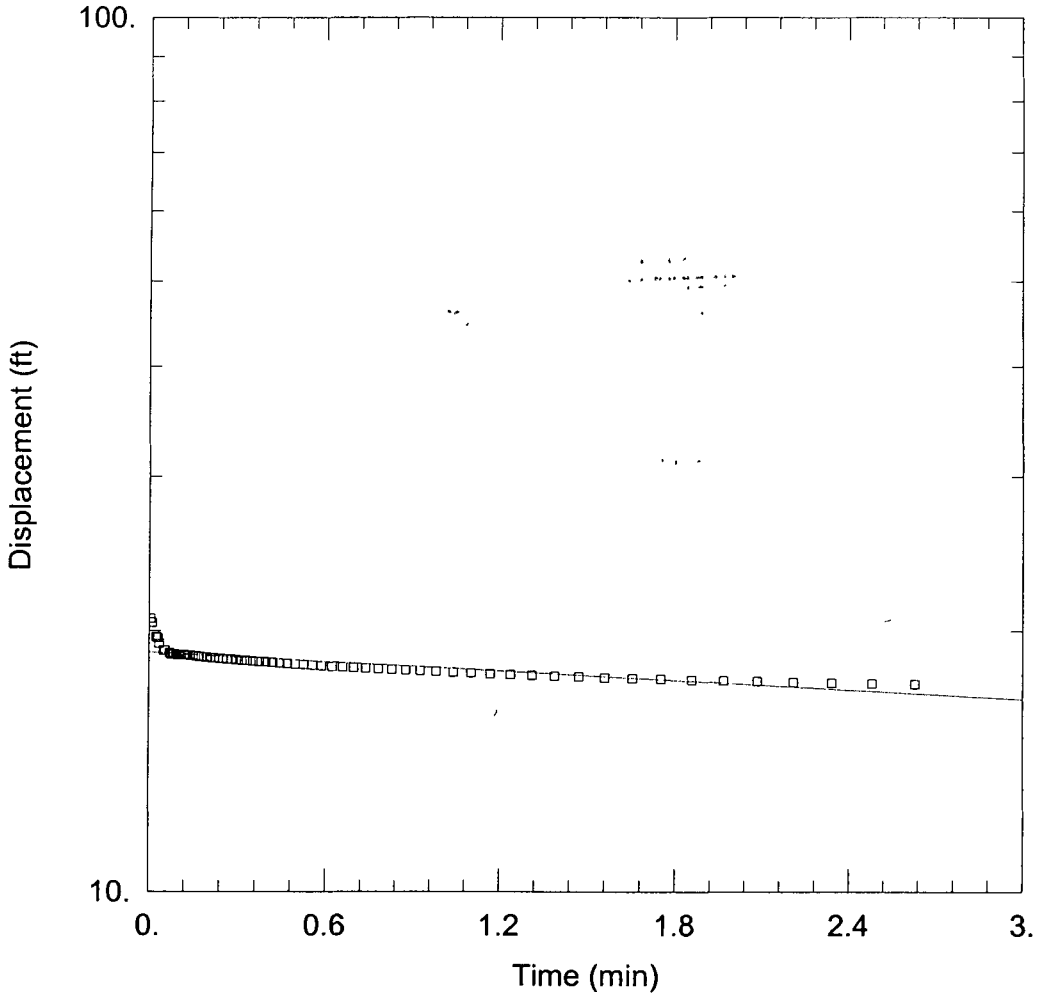
Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (55D_Rise)

Initial Displacement: 8.39 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Screen Length: 12. ft
Total Well Penetration Depth: 12. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.085 ft/day
y0 = 1.101 ft



WELL TEST ANALYSIS

Data Set: C:\NCBC_DM\Site 16 Phase II RI Slug tests\AqteSolv_Slug\55D_Fall.aqt
Date: 05/20/03 Time: 15:05:26

PROJECT INFORMATION

Test Well: 55D_Fall

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (55D_Fall)

Initial Displacement: 3.4 ft
Wellbore Radius: 0.083 ft
Screen Length: 15. ft
Casing Radius: 0.083 ft
Well Skin Radius: 0.083 ft
Total Well Penetration Depth: 15. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0559 ft/day
y0 = 18.9 ft

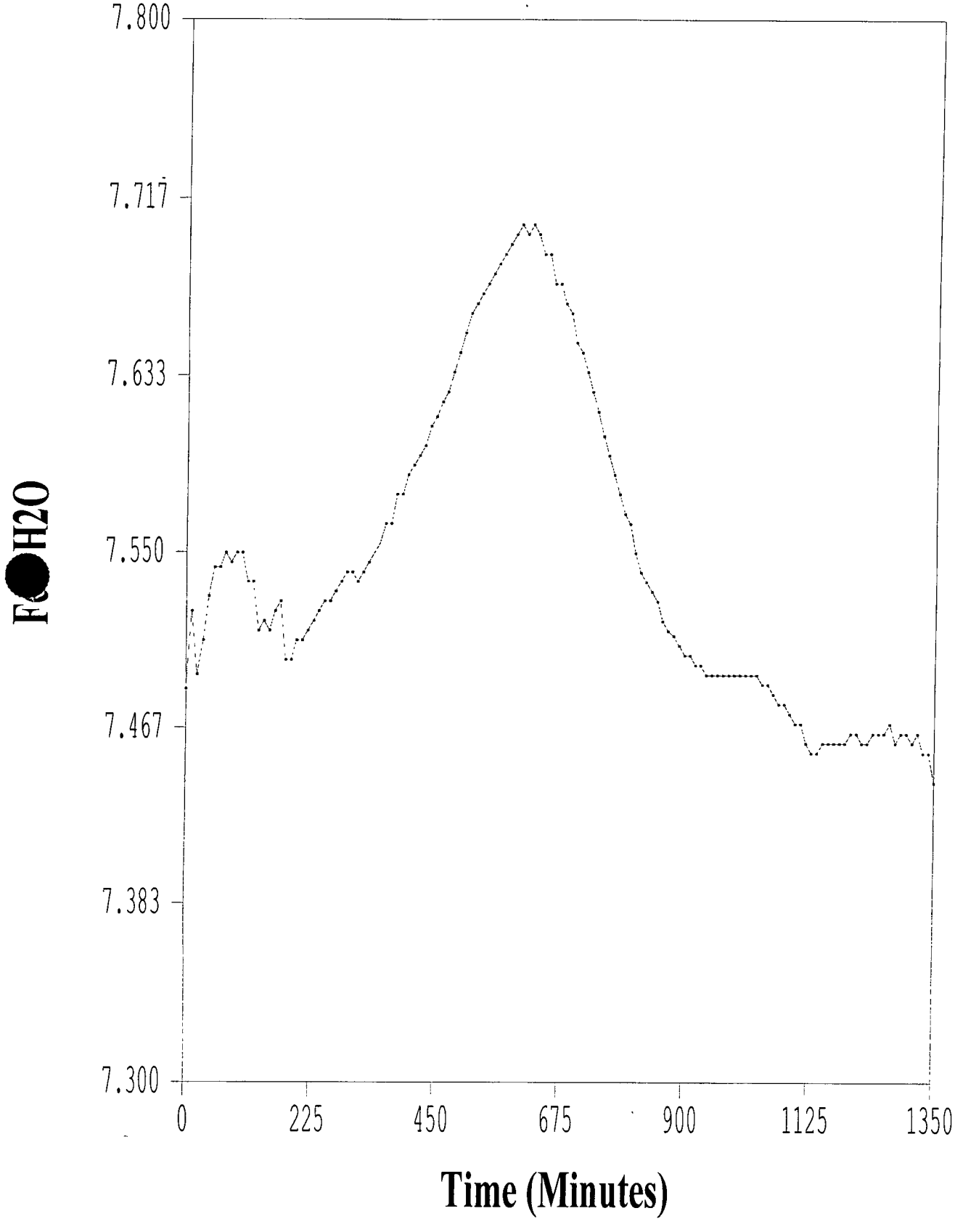
Appendix G

Phase I and II Graphs of Tidal Impact on Ground-Water Levels in Selected Wells

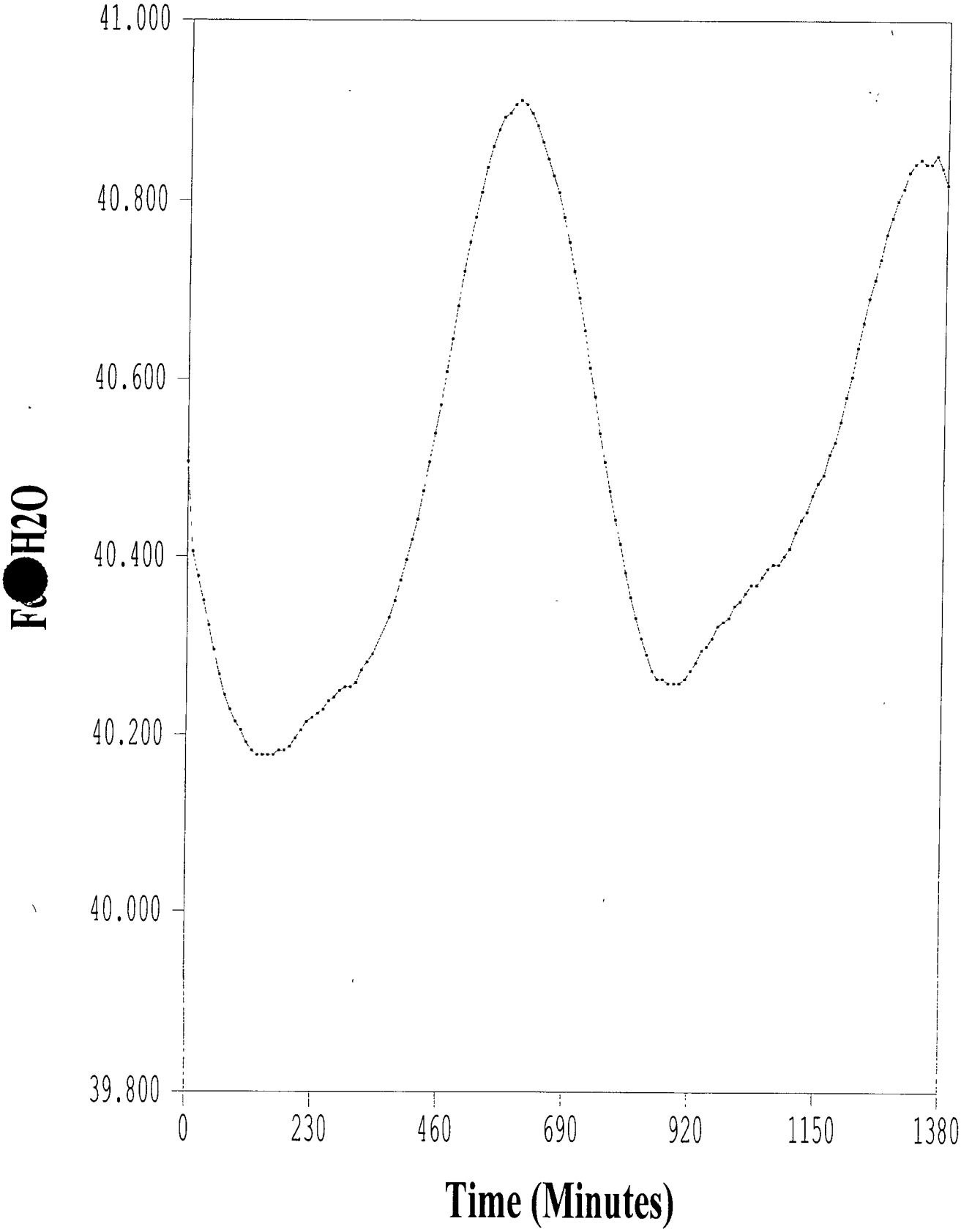
Appendix G.1

Phase I Graphs of Tidal Impact on Ground-Water Levels in Selected Wells

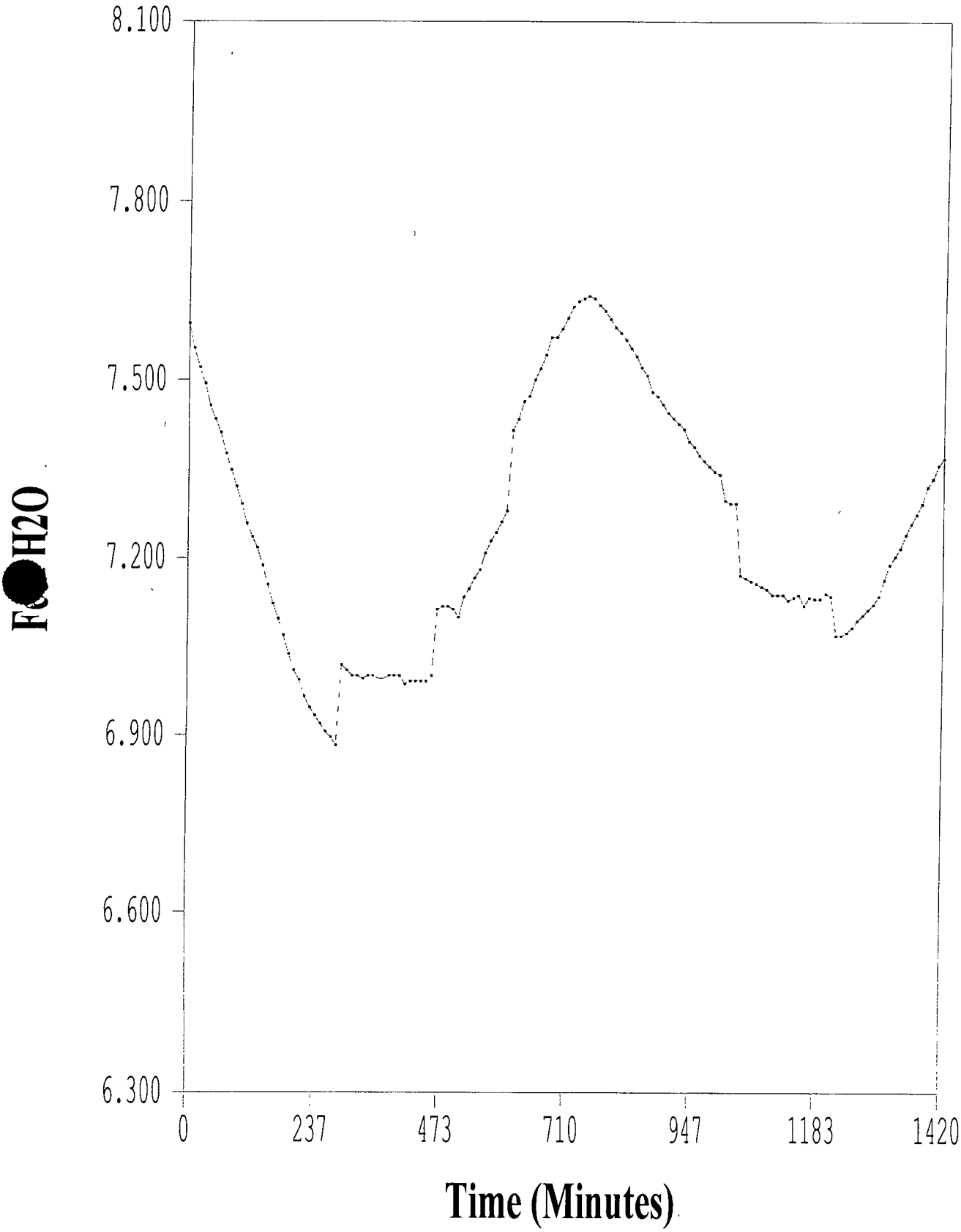
MW16-03S_Tidal



MW16-03D_Tidal



MW16-04S_Tidal



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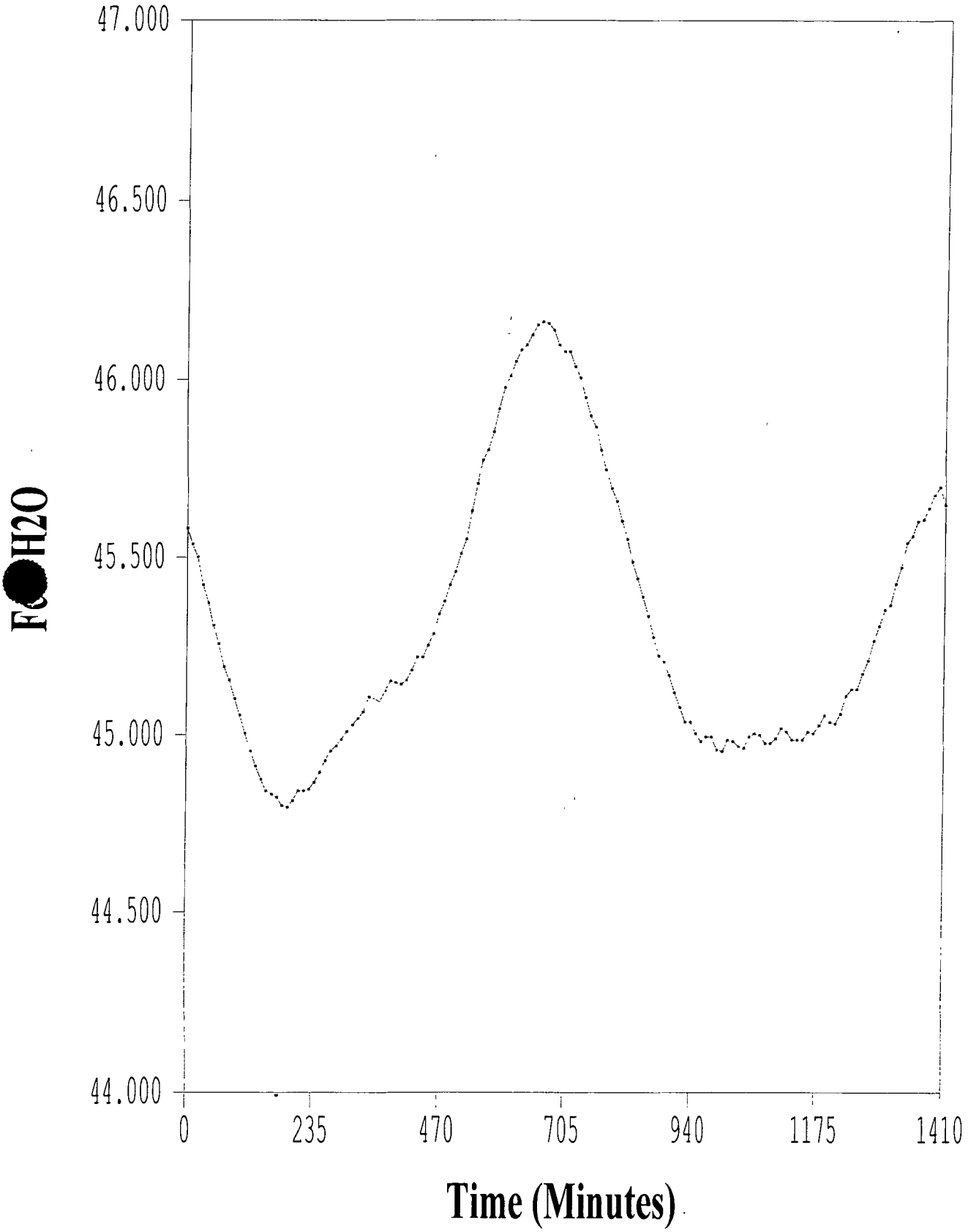

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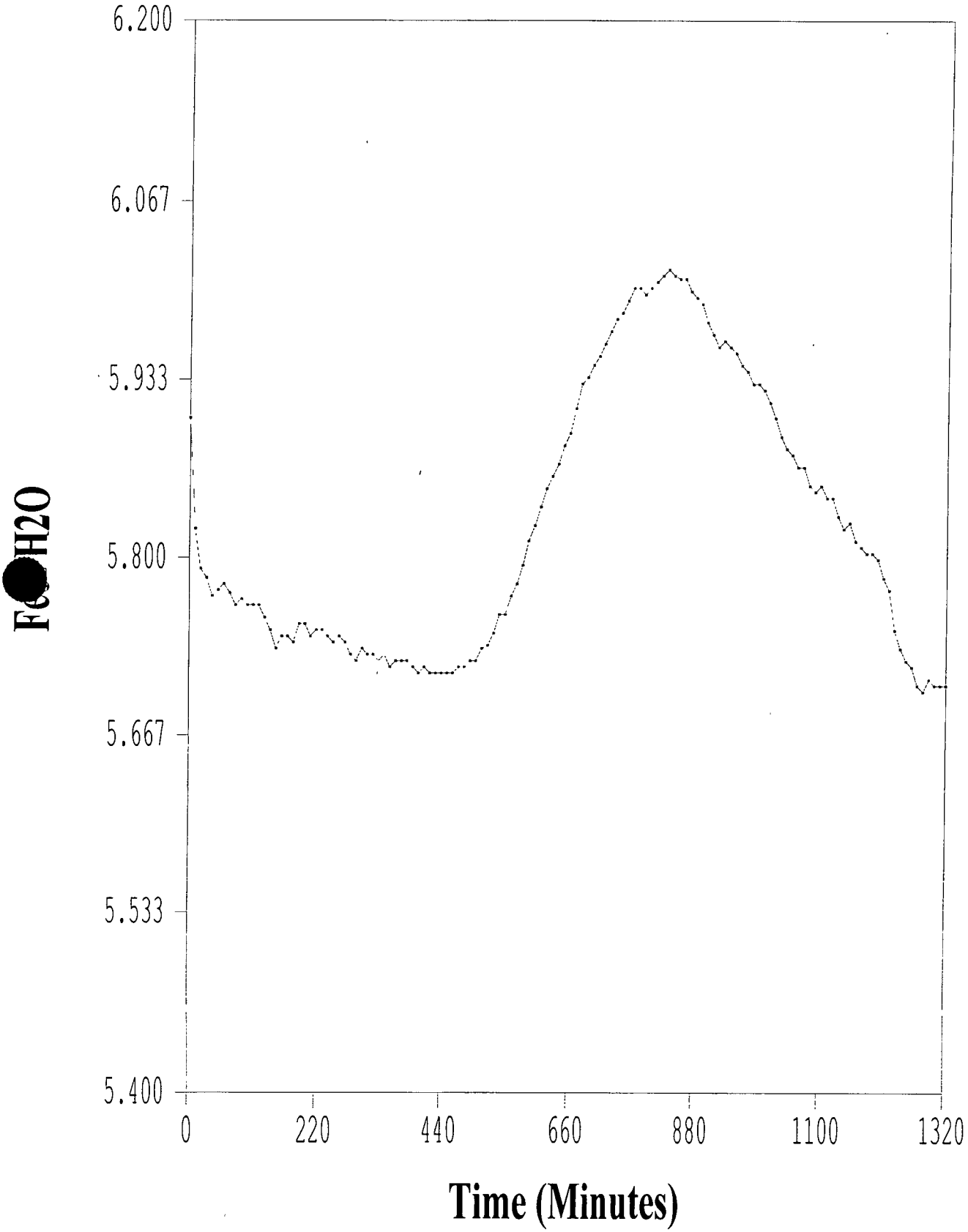

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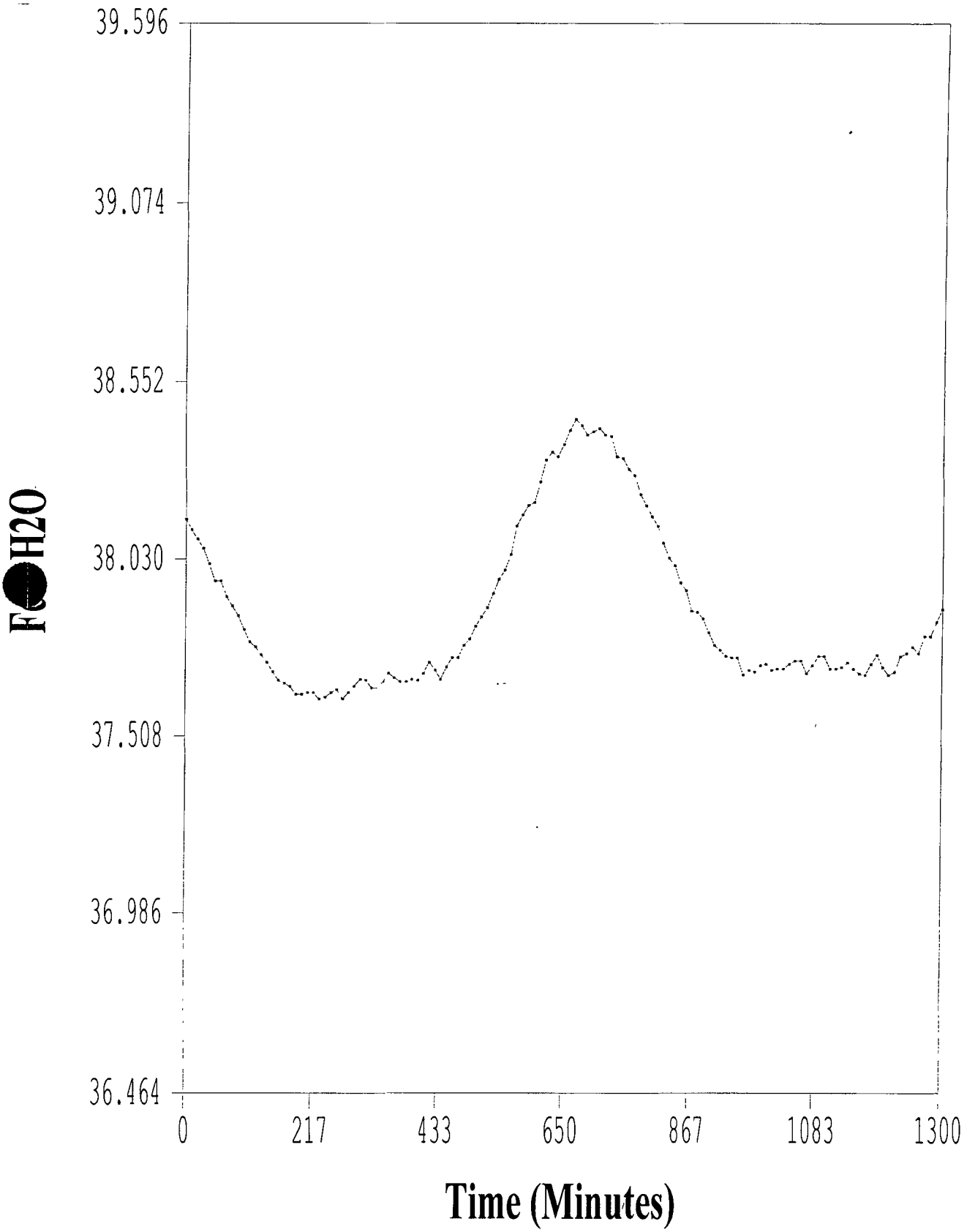
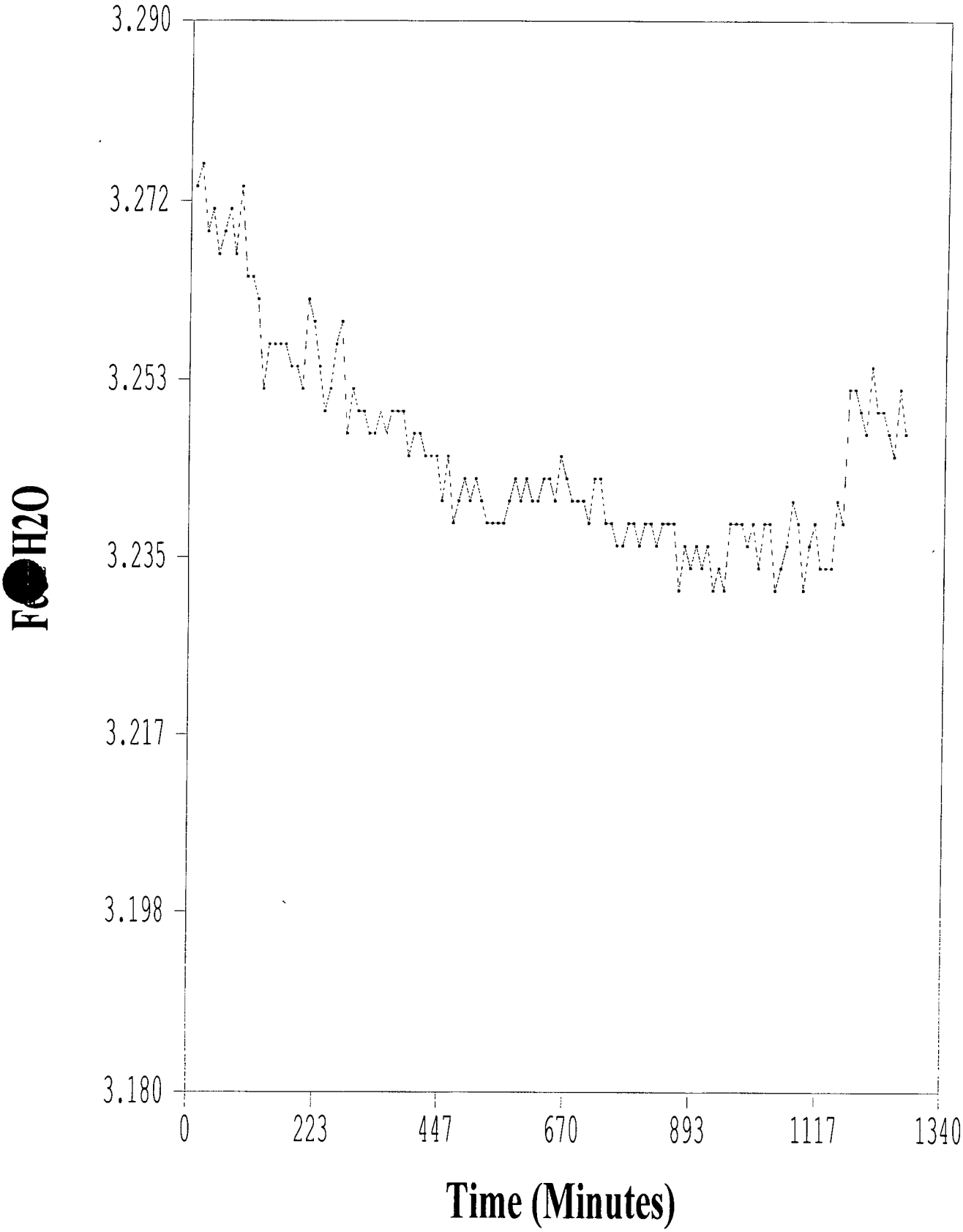
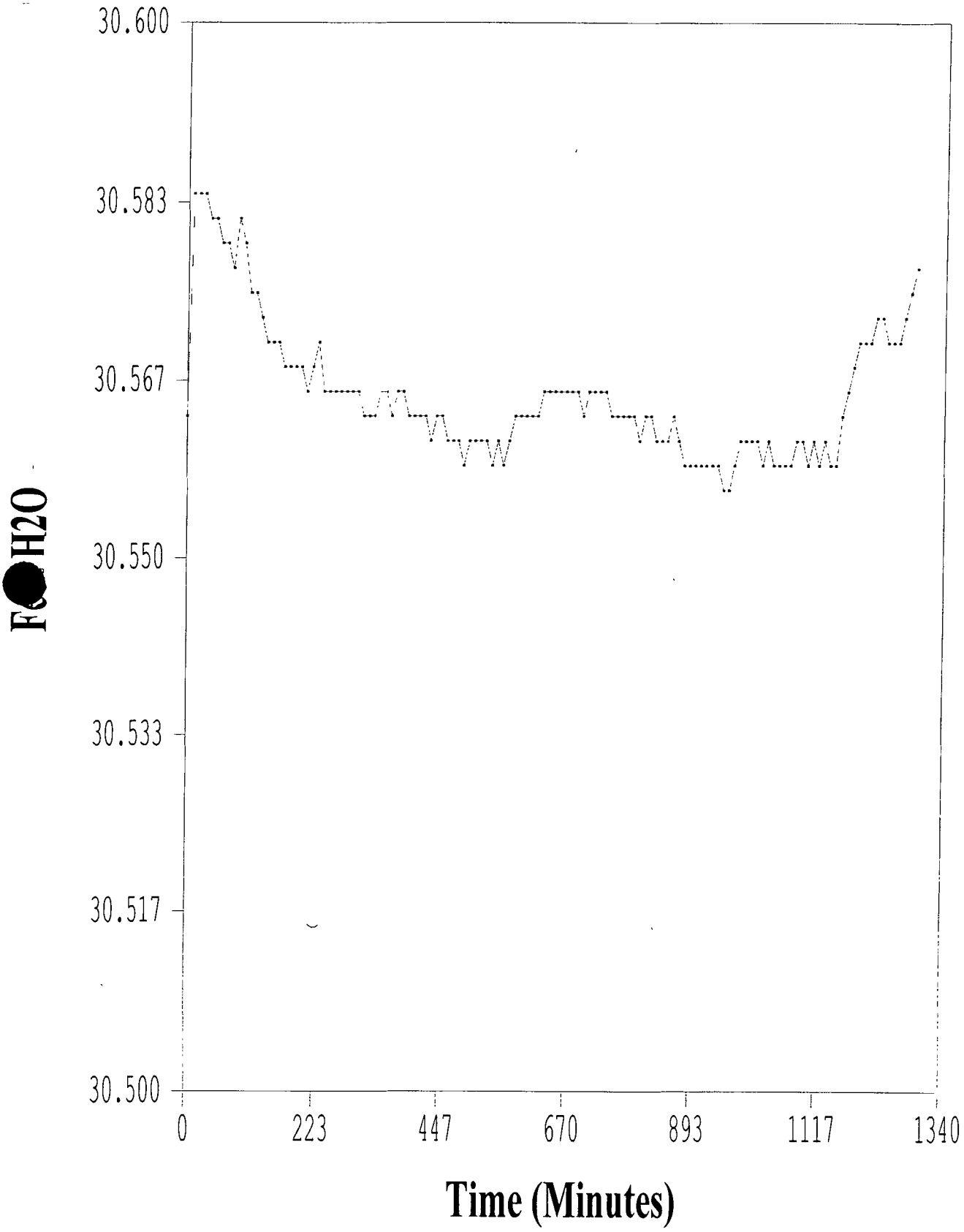


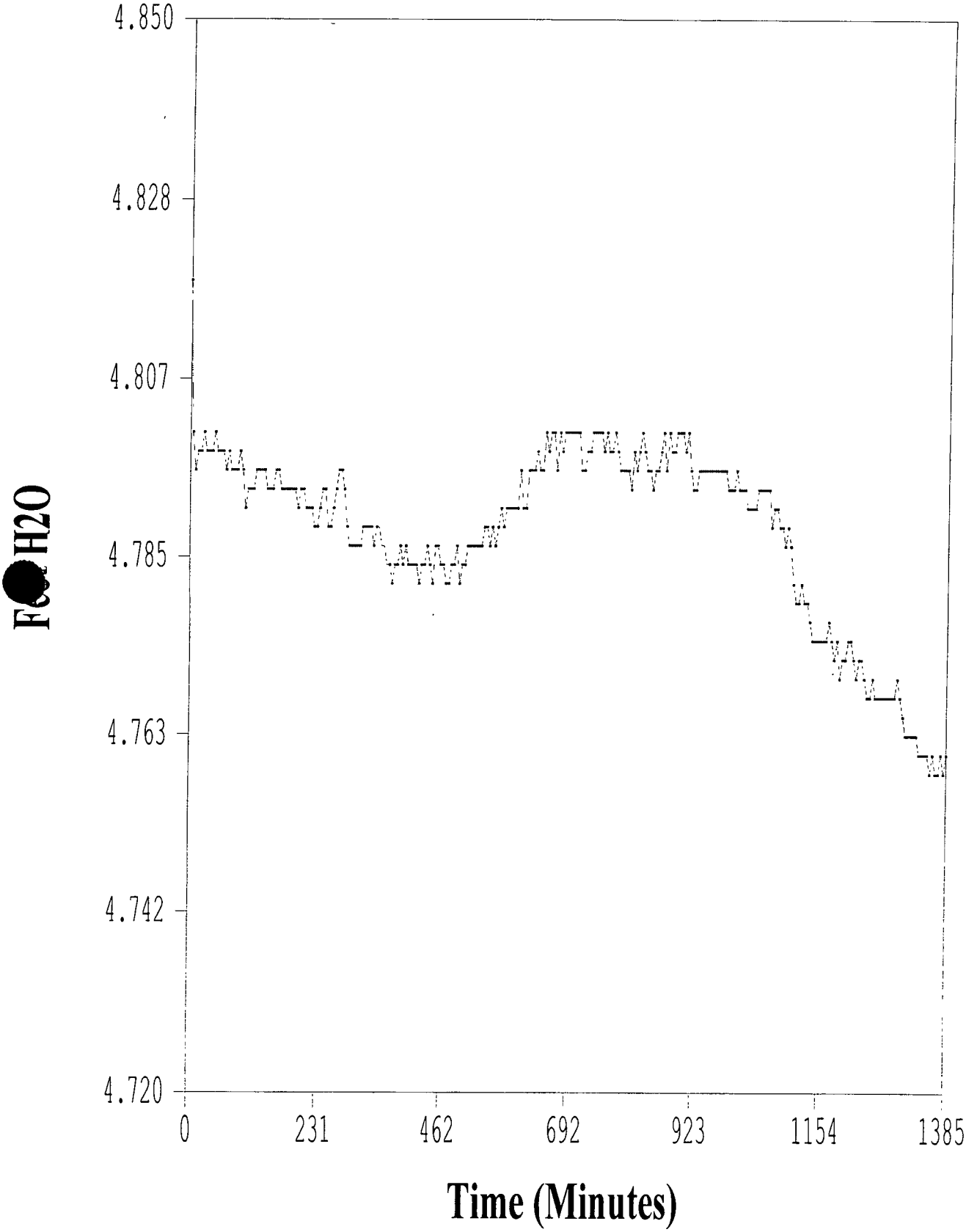
MW16-06S_Tidal



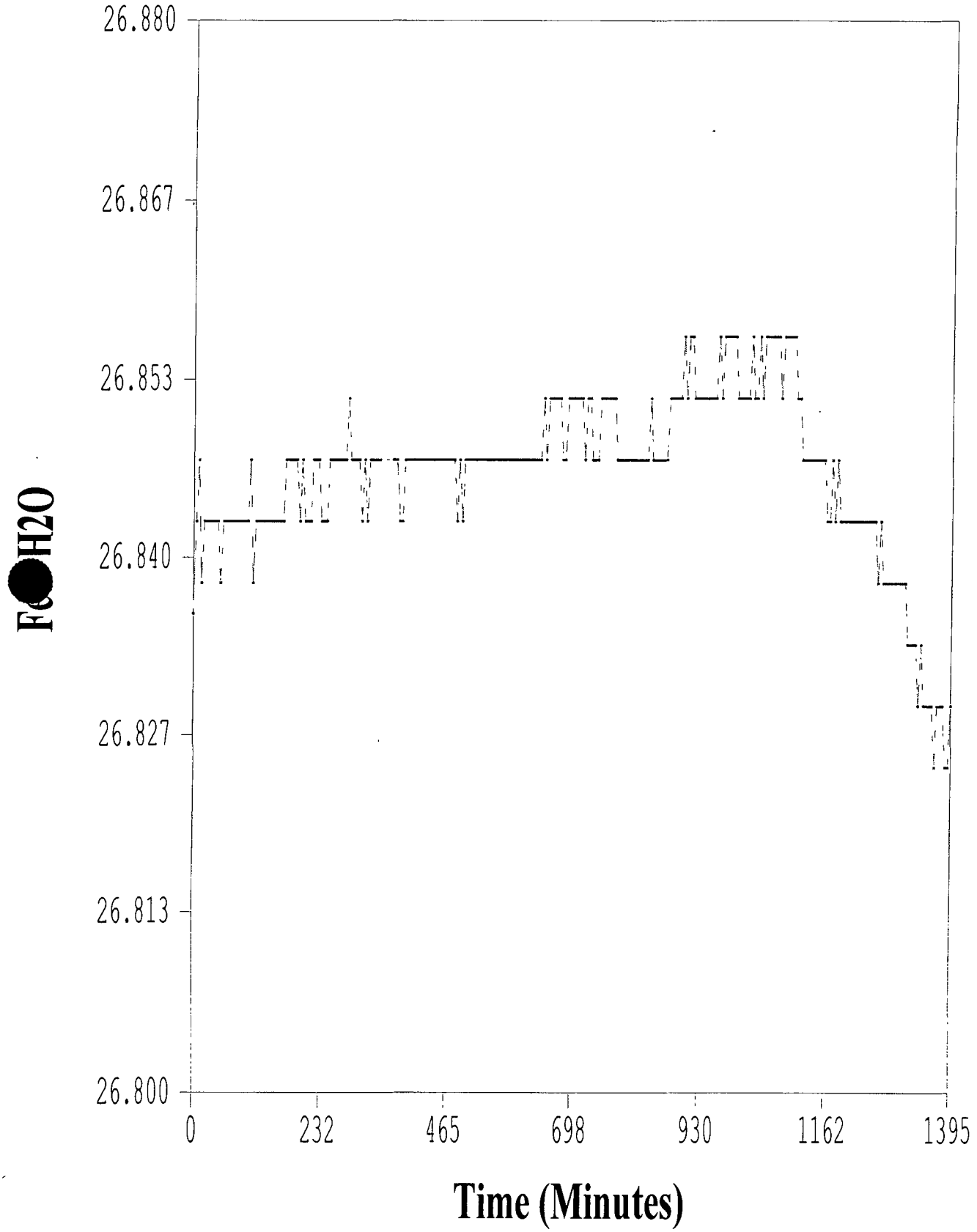
MW16-06D_Tidal



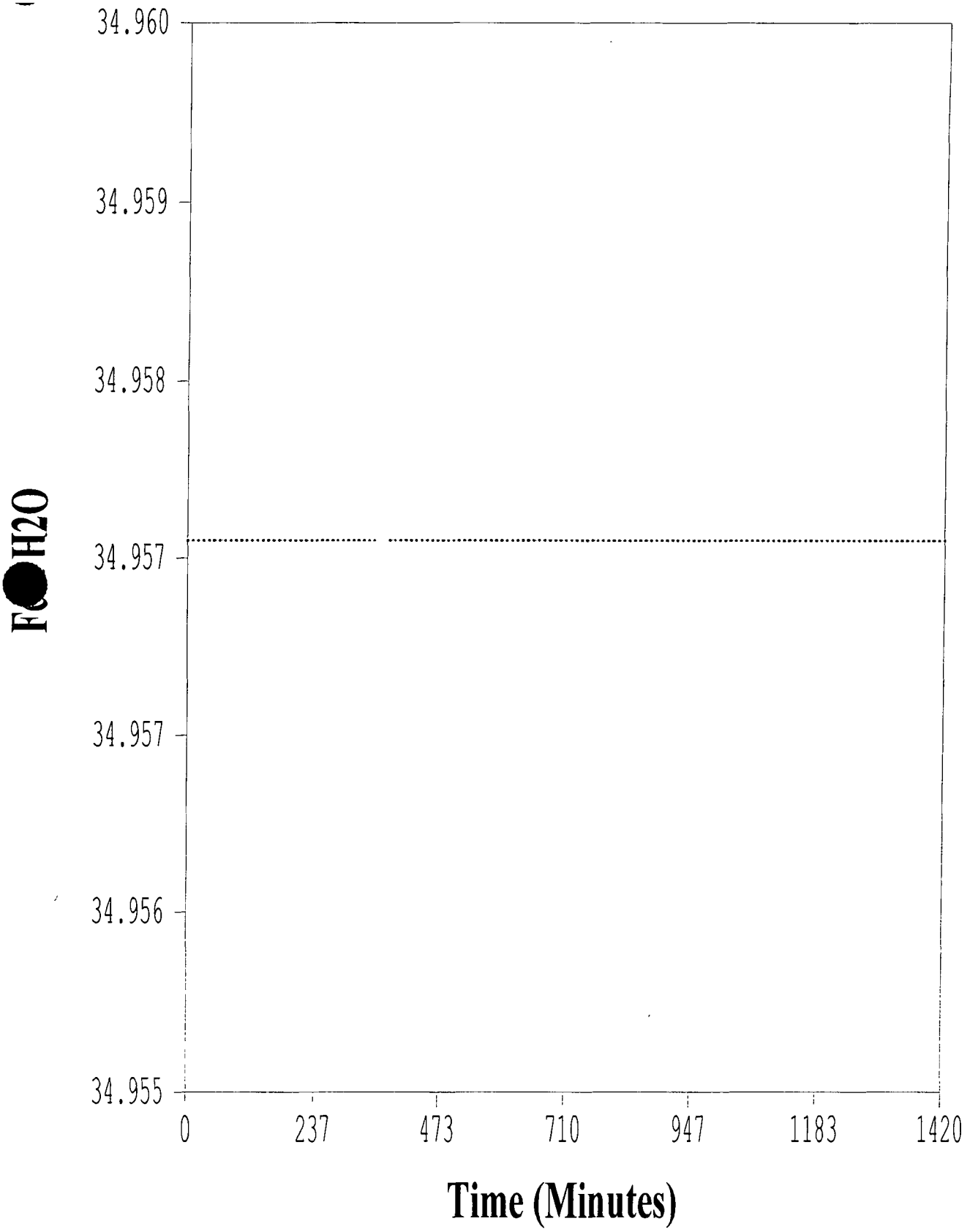
MW16-07S_Tidal



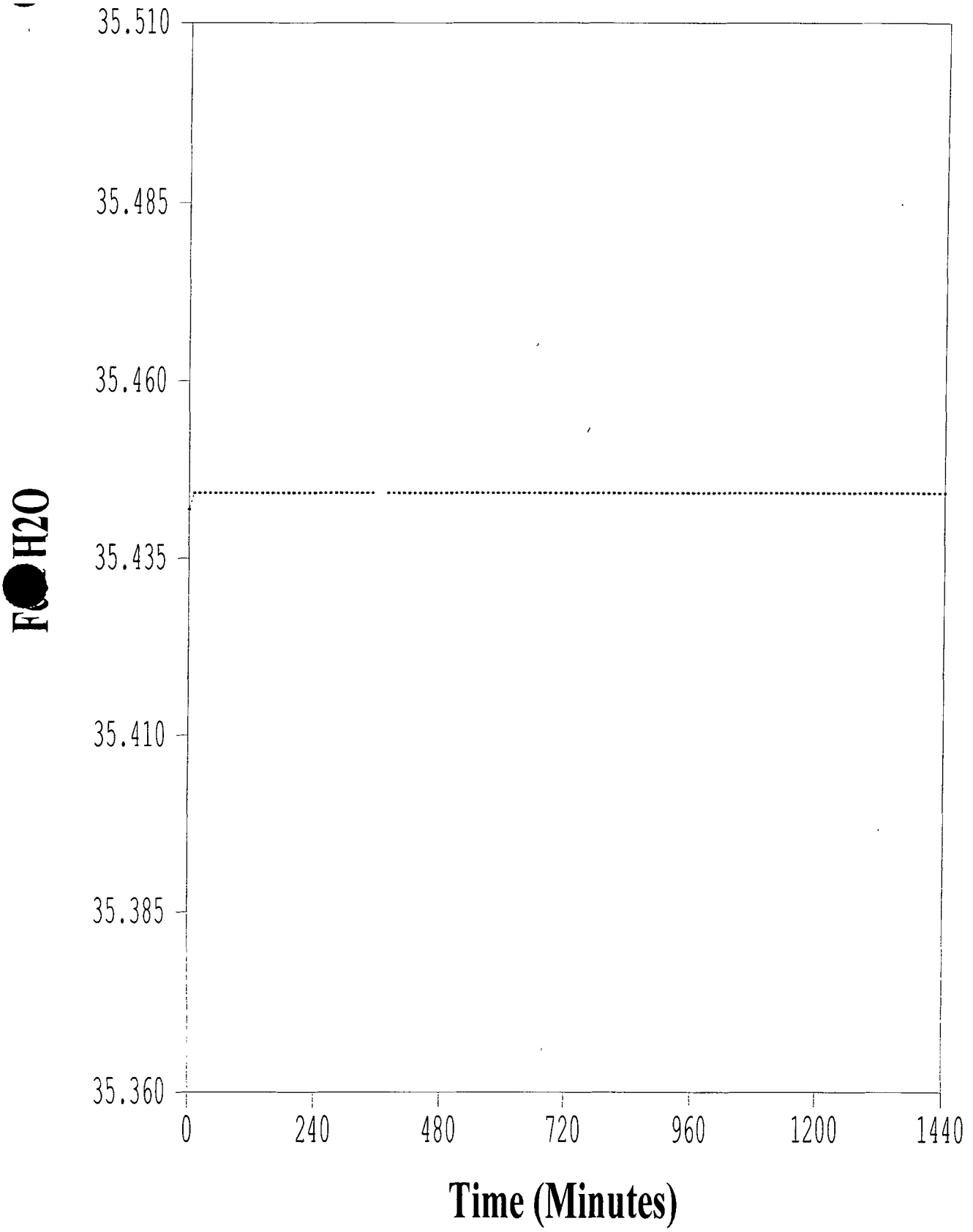
MW17-07D_Tidal



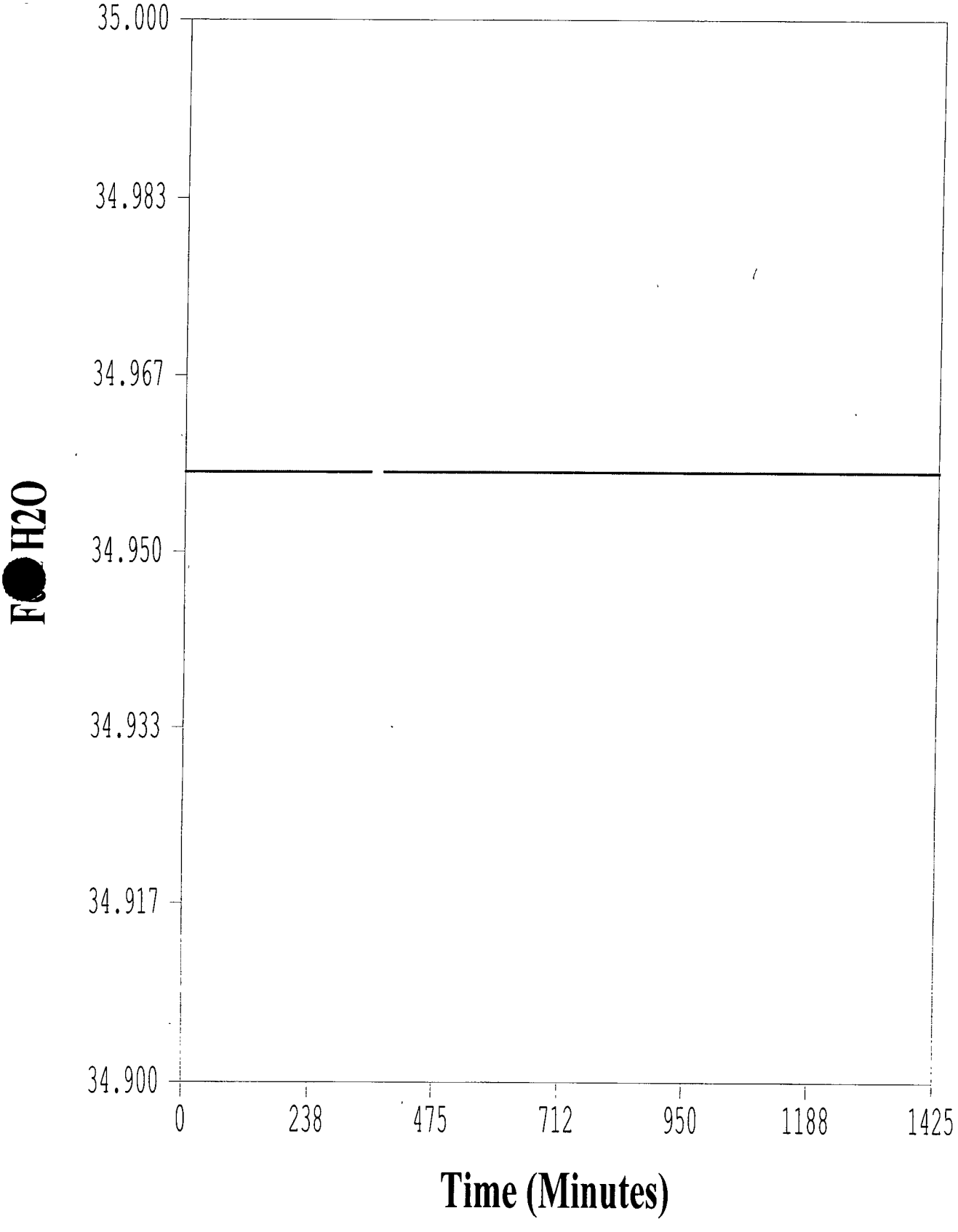
MW16-27D_Tidal



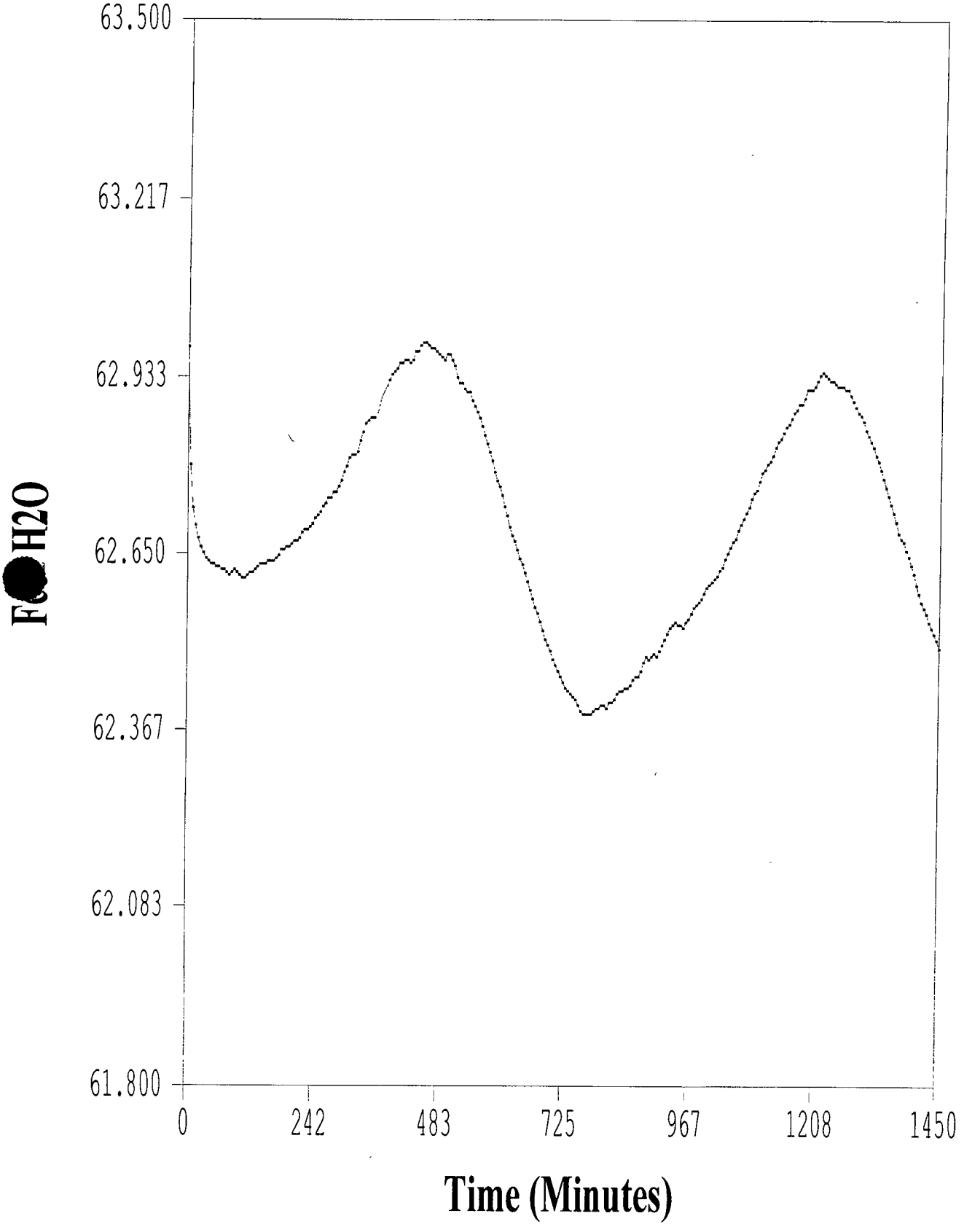
MW16-27R_Tidal



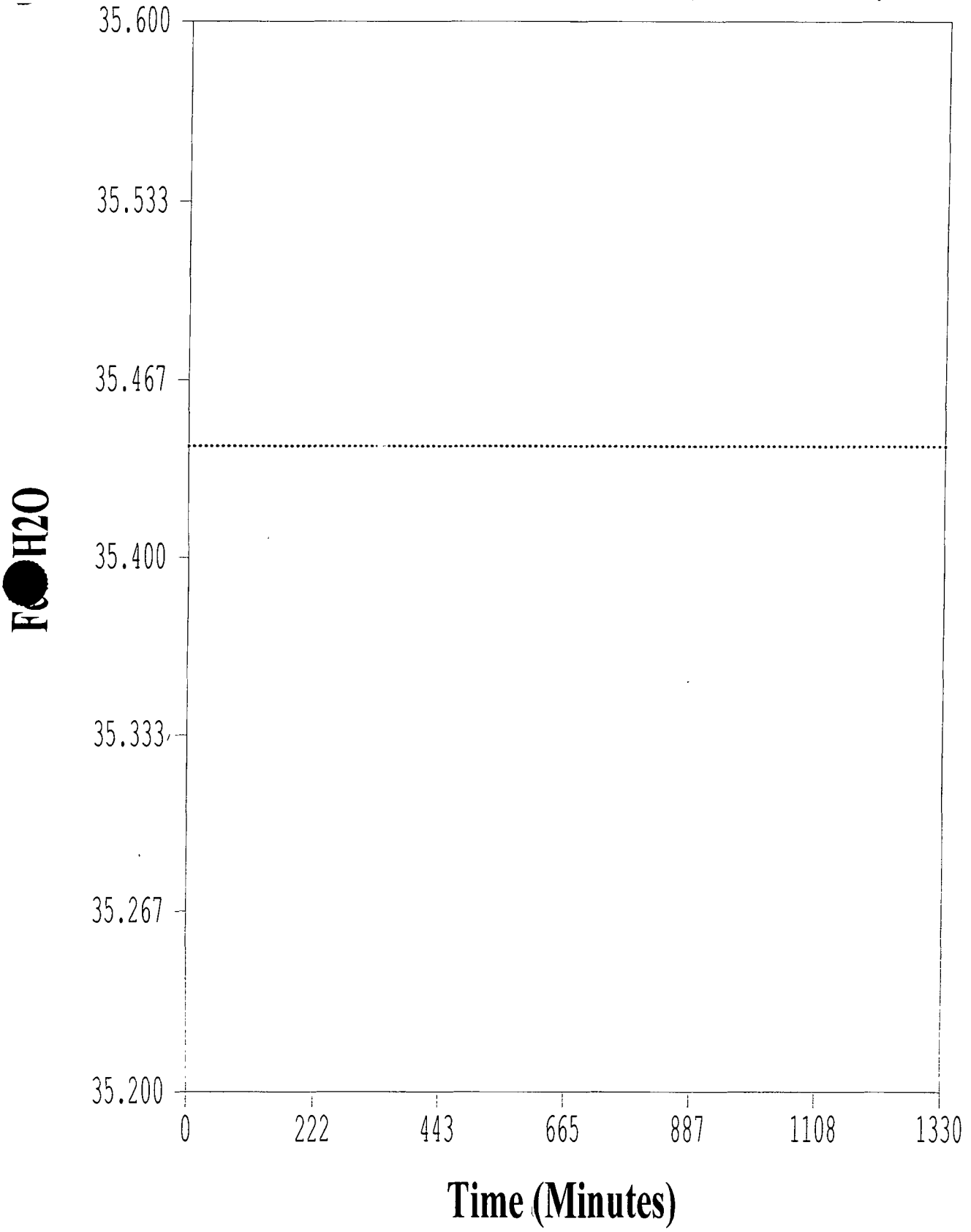
MW16-28D_Tidal



MW16-28R_Tidal



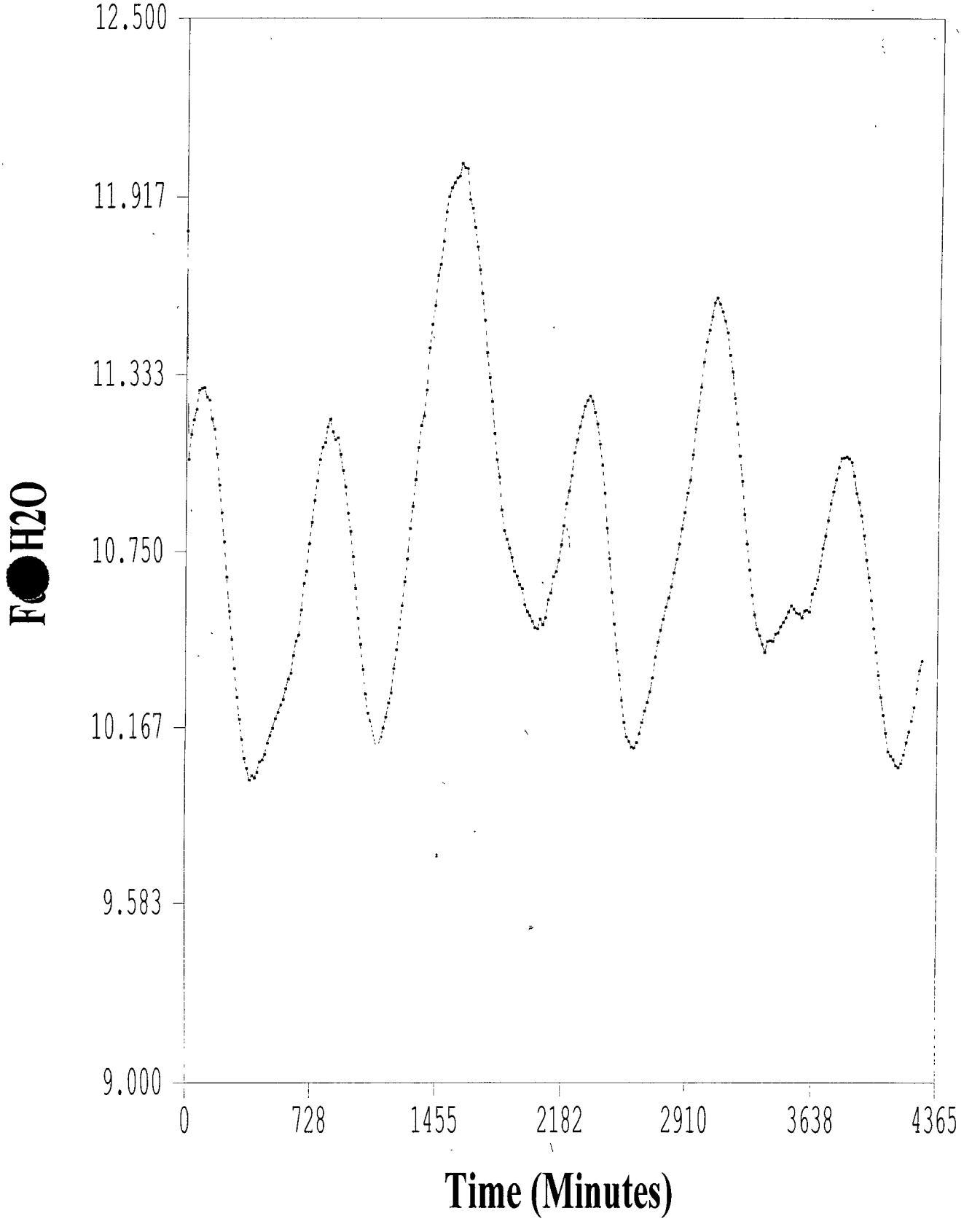
MW16-29D_Tidal



Appendix G.2

Phase II Graphs of Tidal Impact on Ground-Water Levels in Selected Wells

MW16-04I_Tidal



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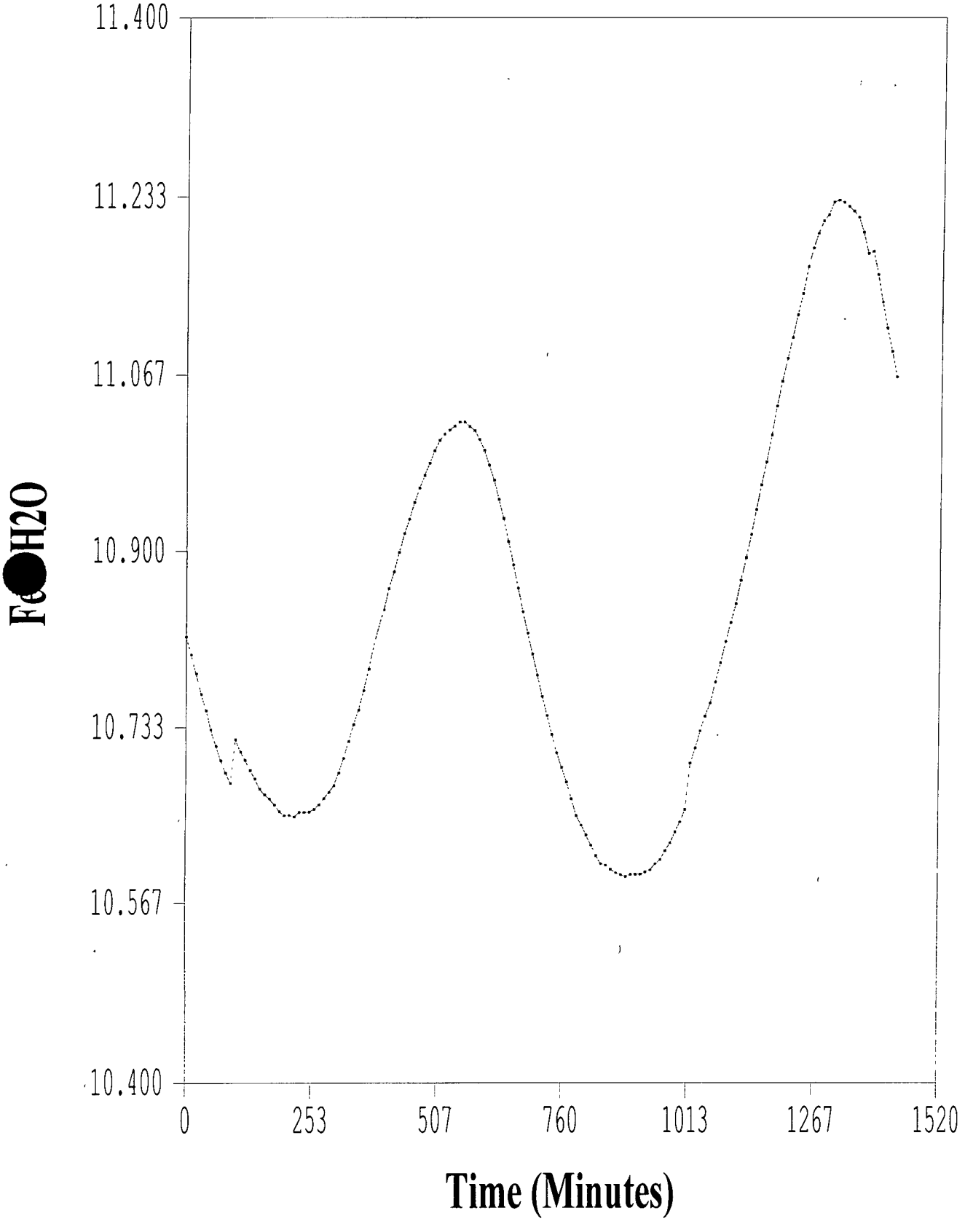

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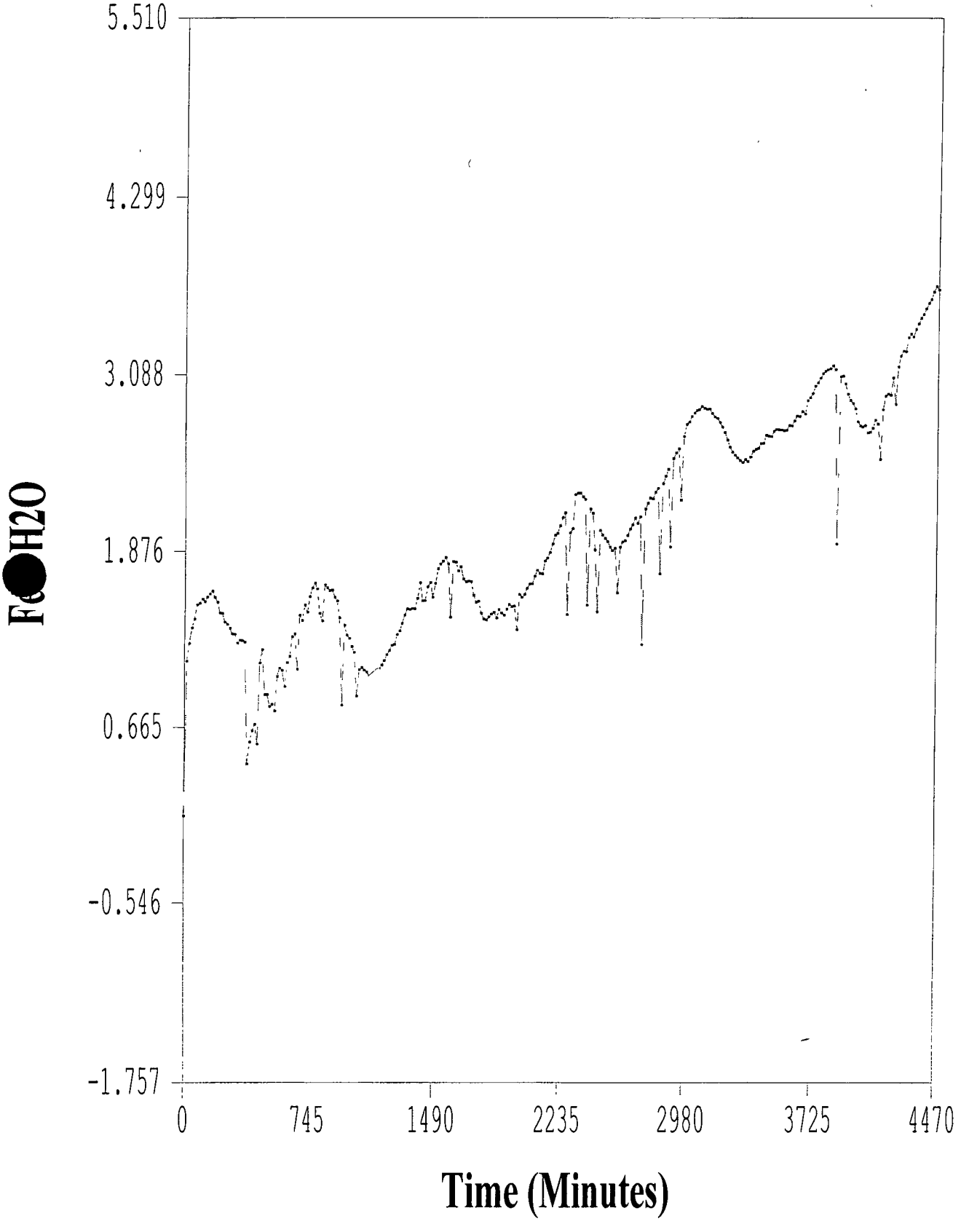
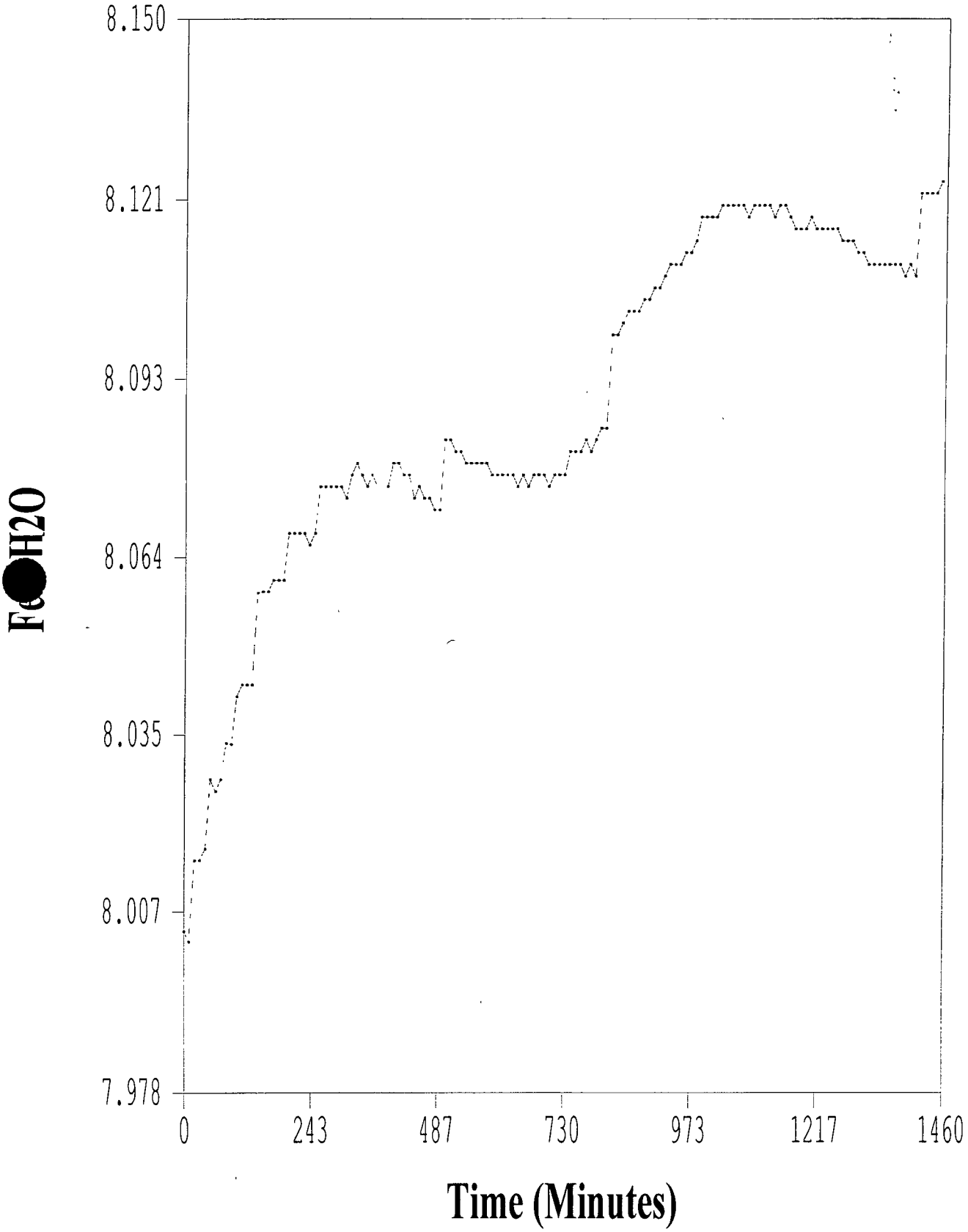
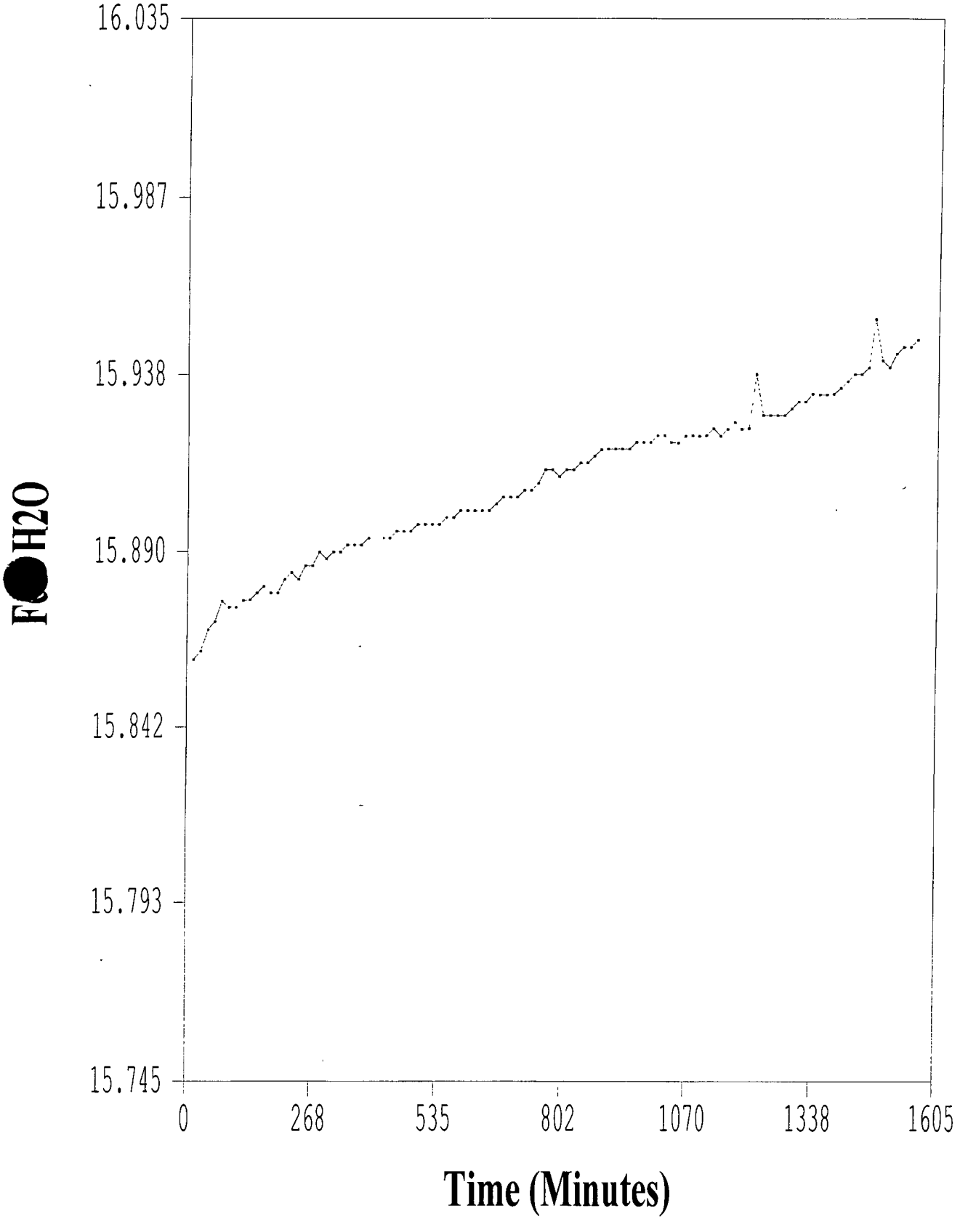


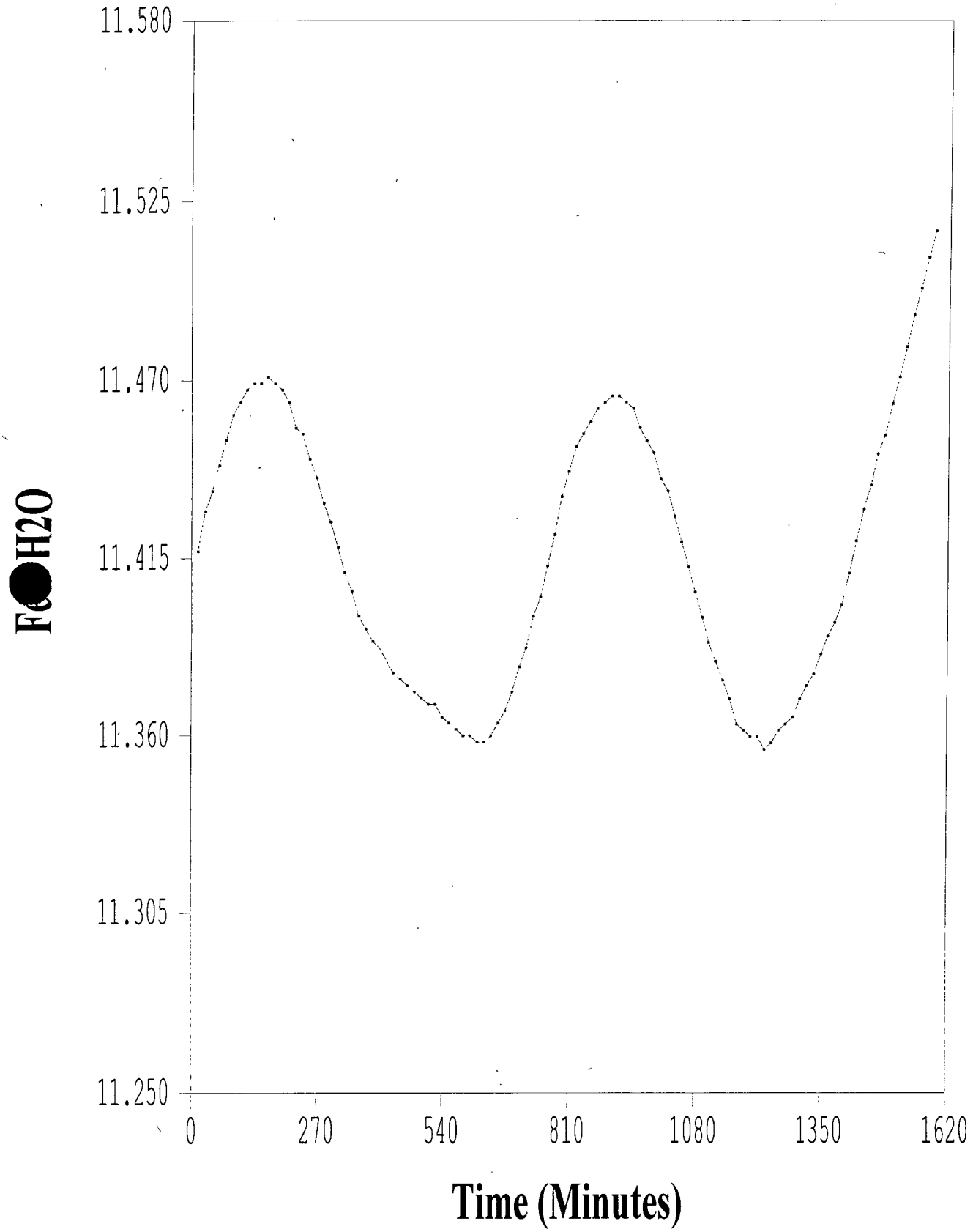
MW16-06R_Tidal



MW16-39I_Tidal



MW16-43D_Tidal



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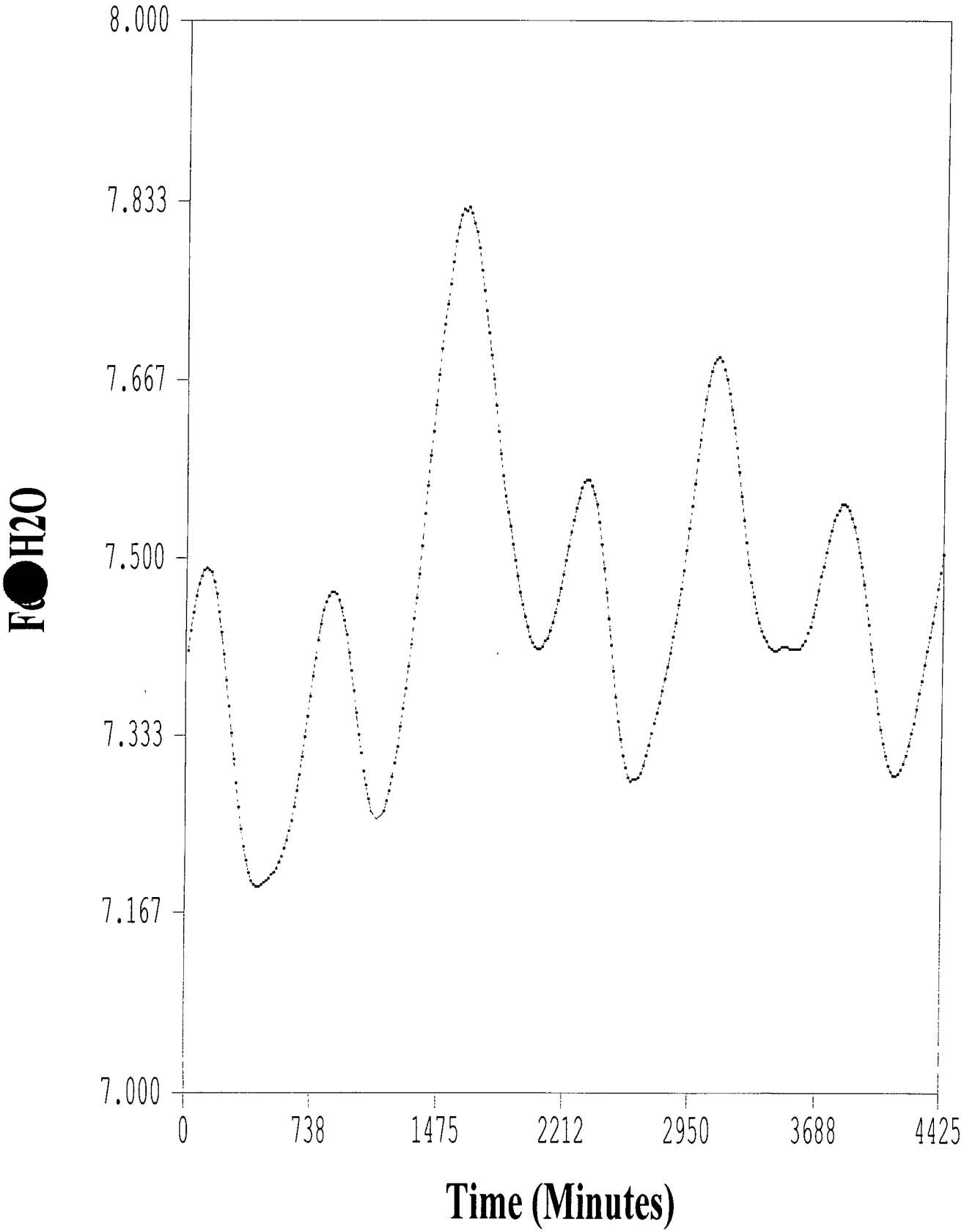

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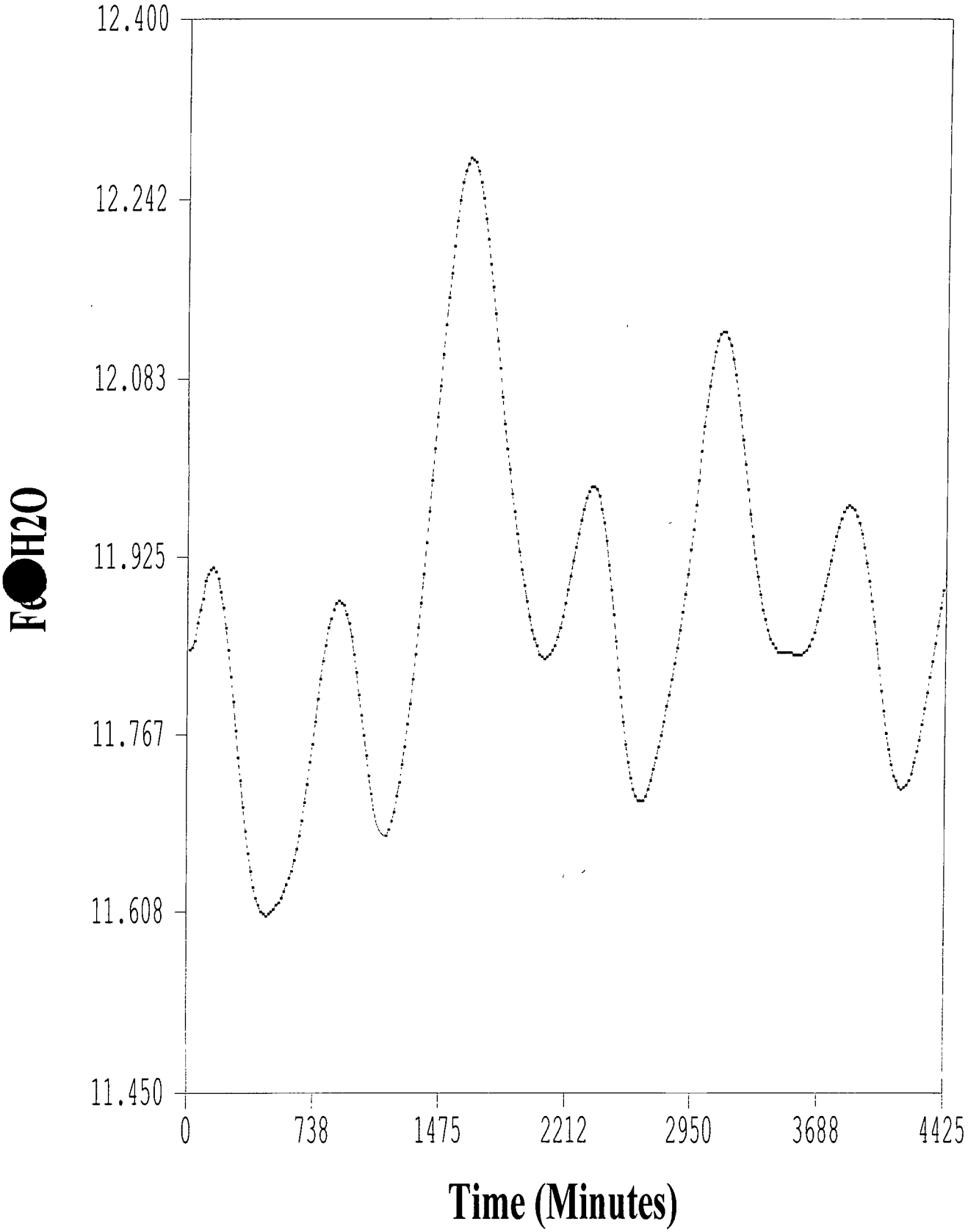
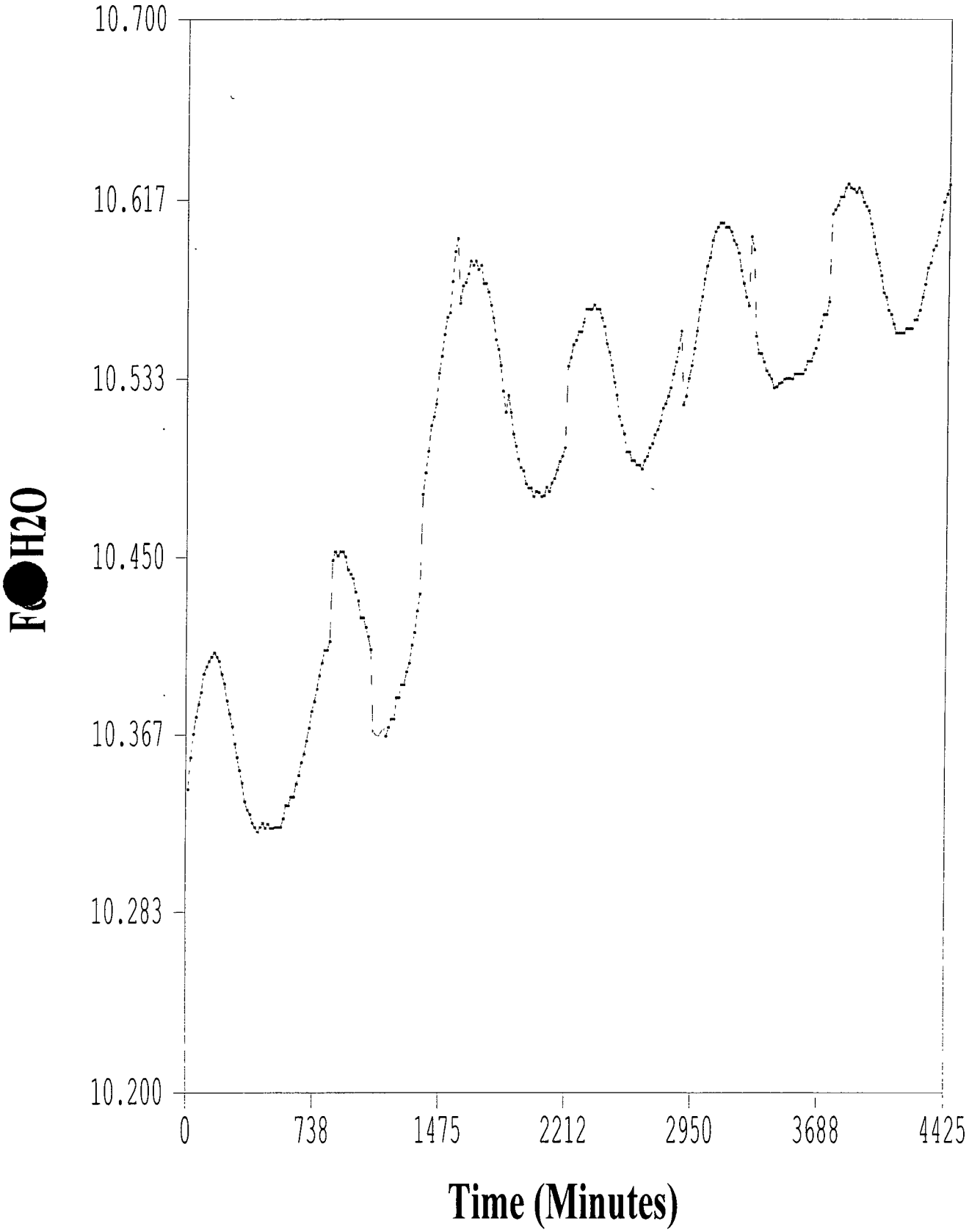


MW16-45S_Tidal



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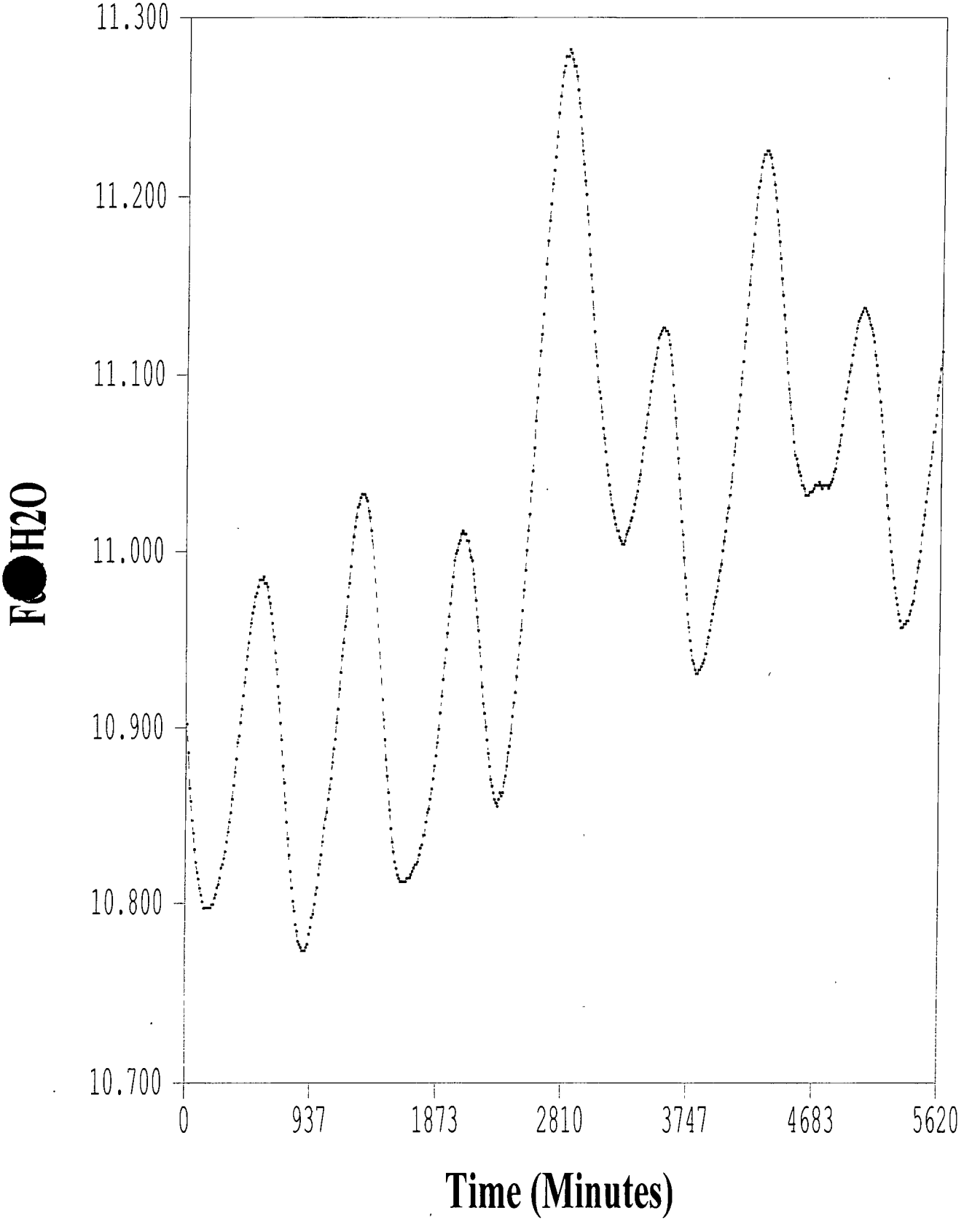

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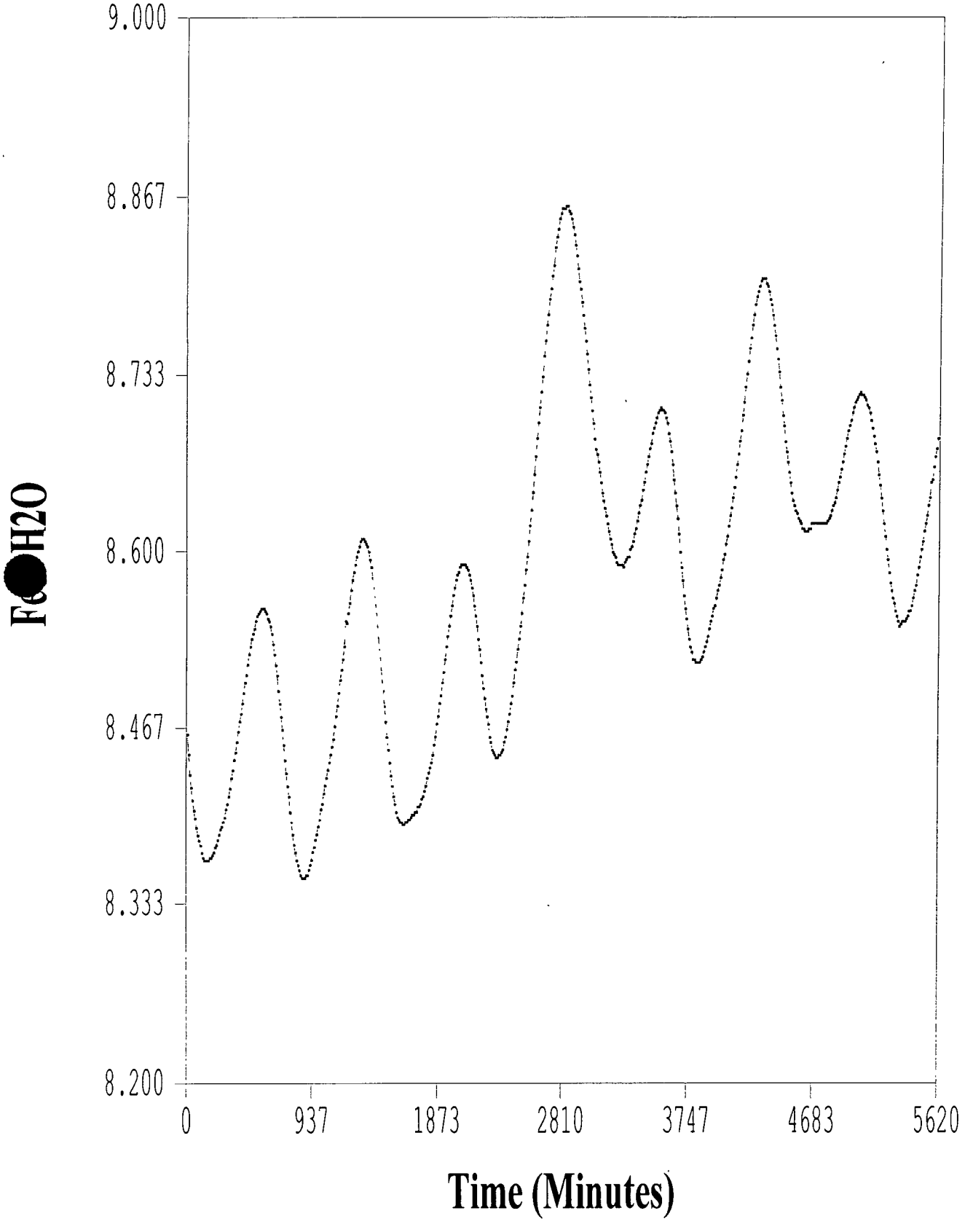
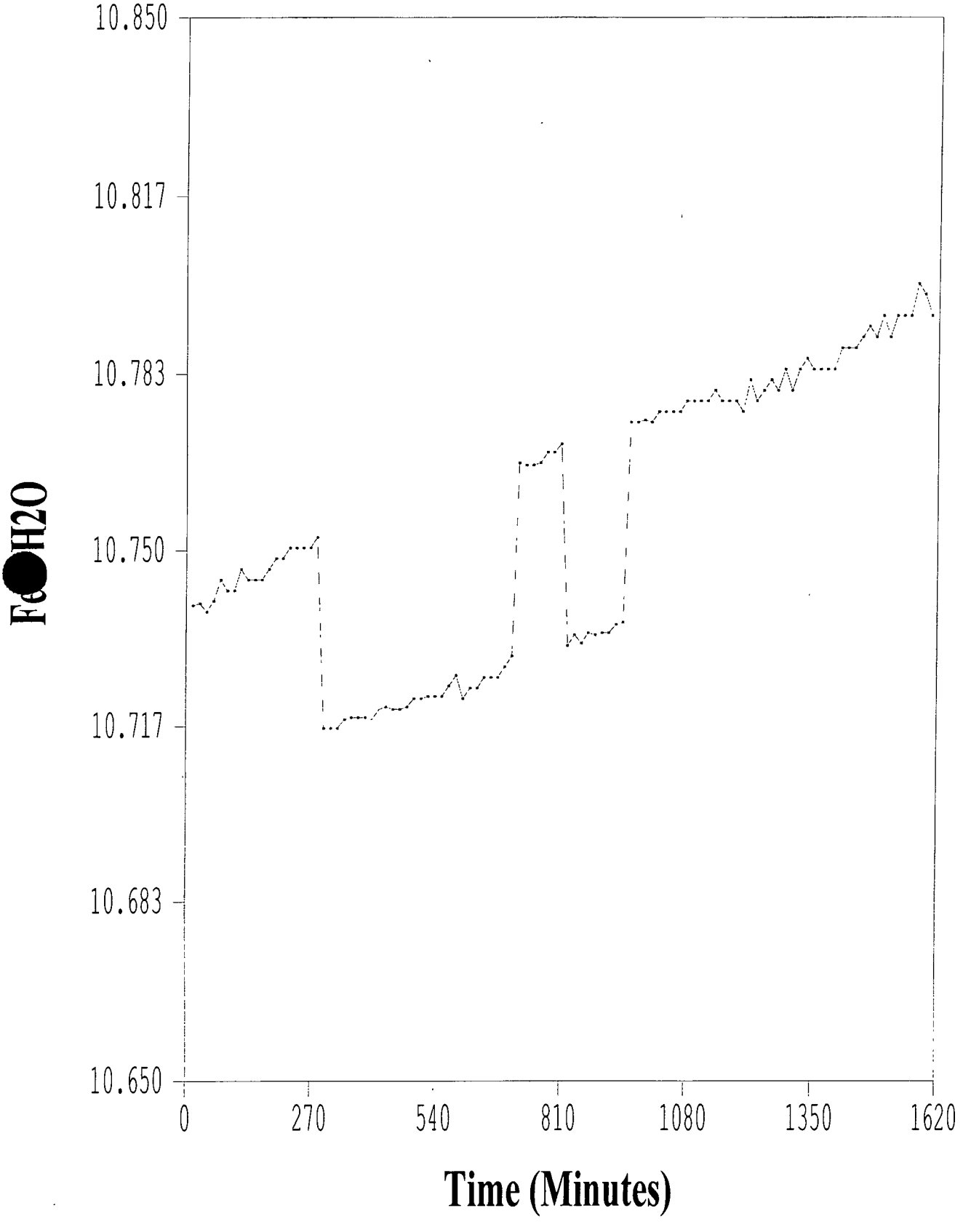


MW16-46S_Tidal



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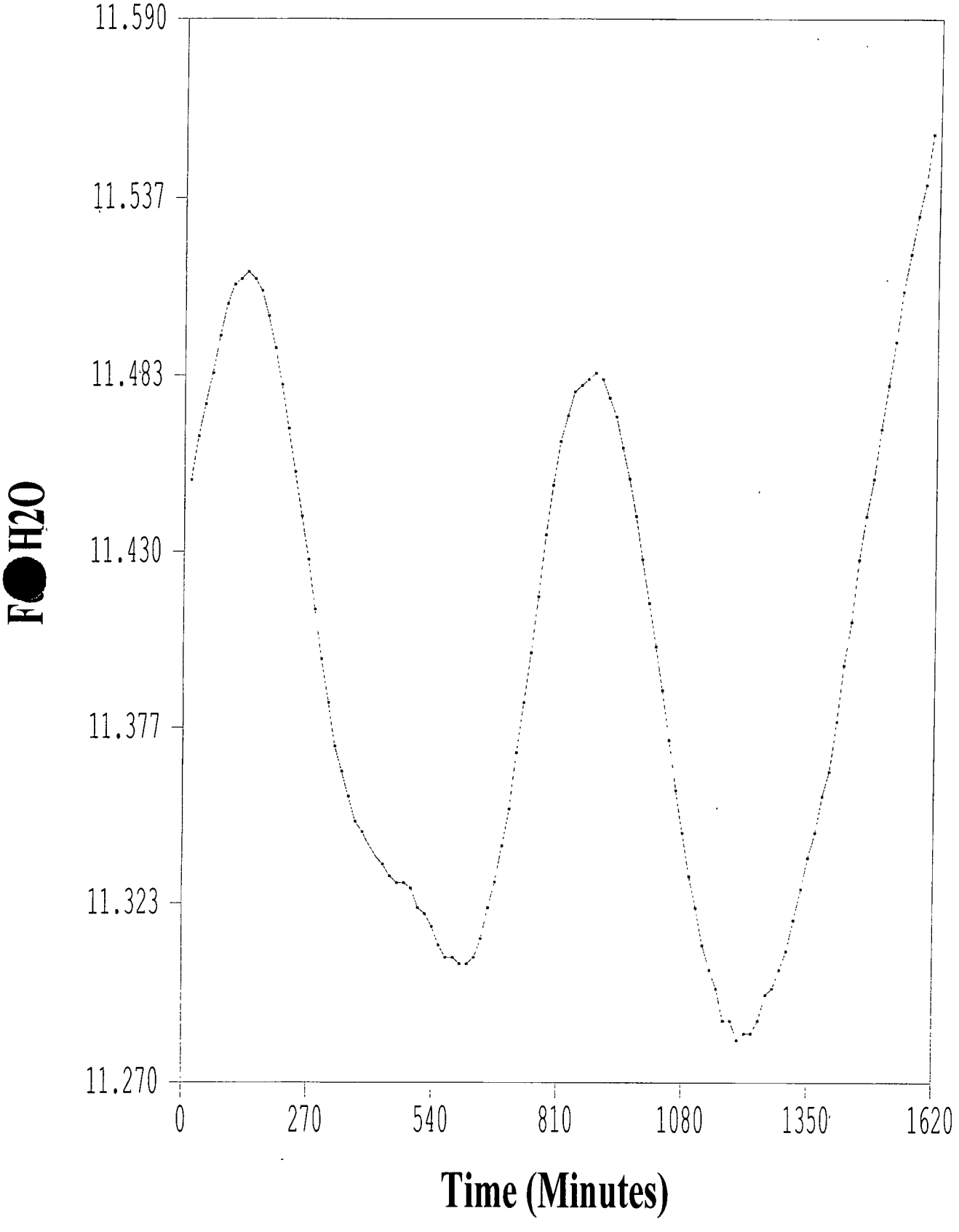

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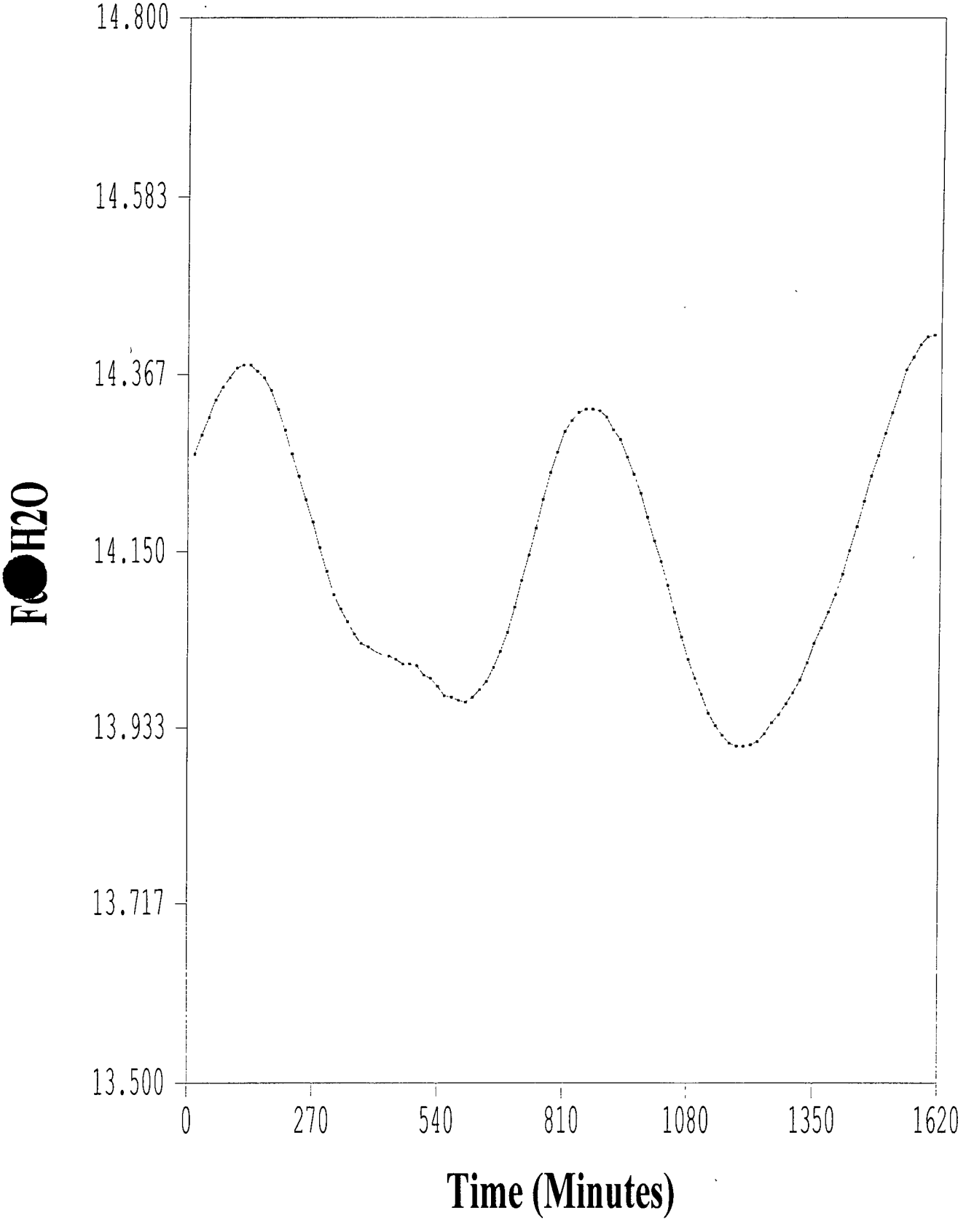

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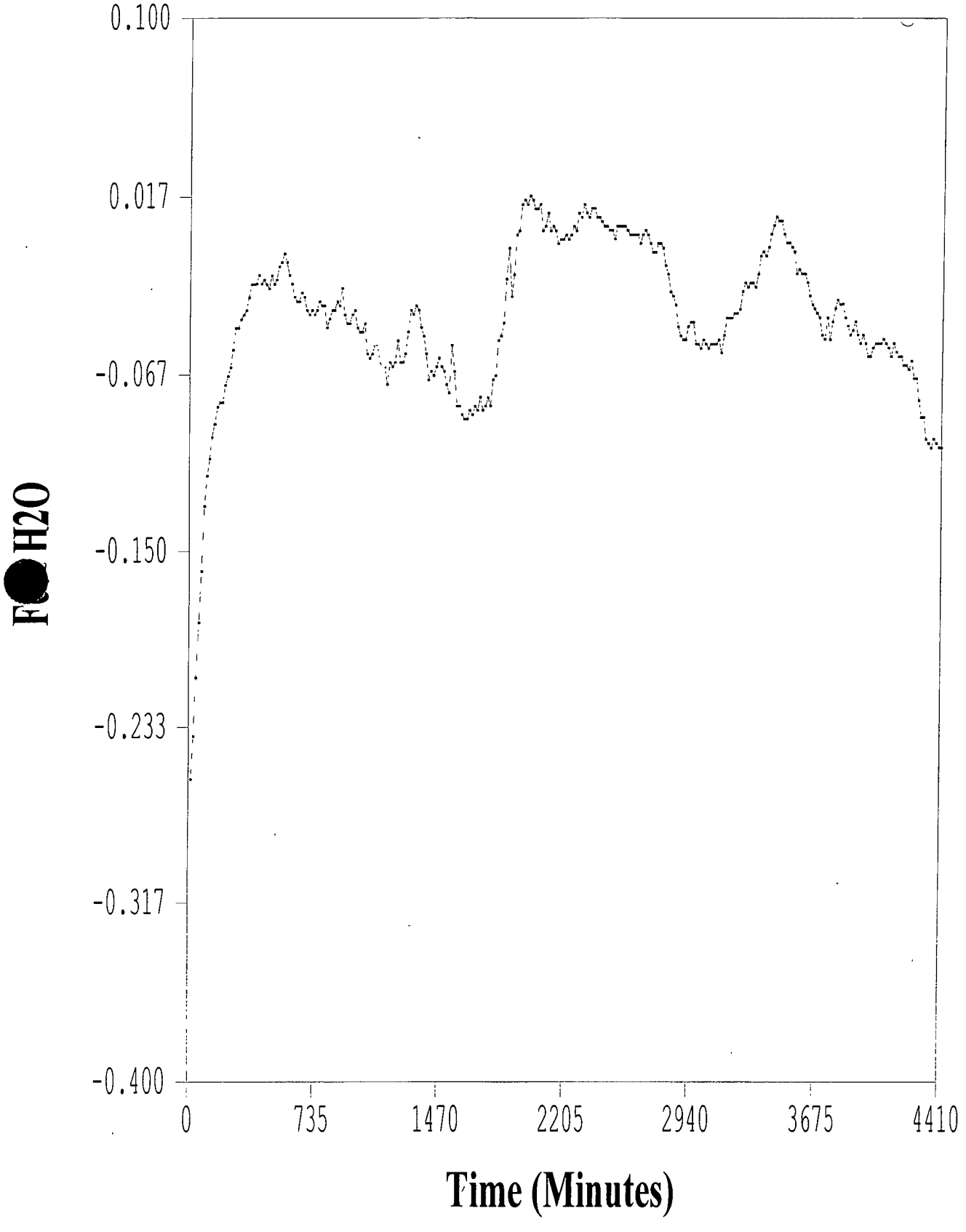

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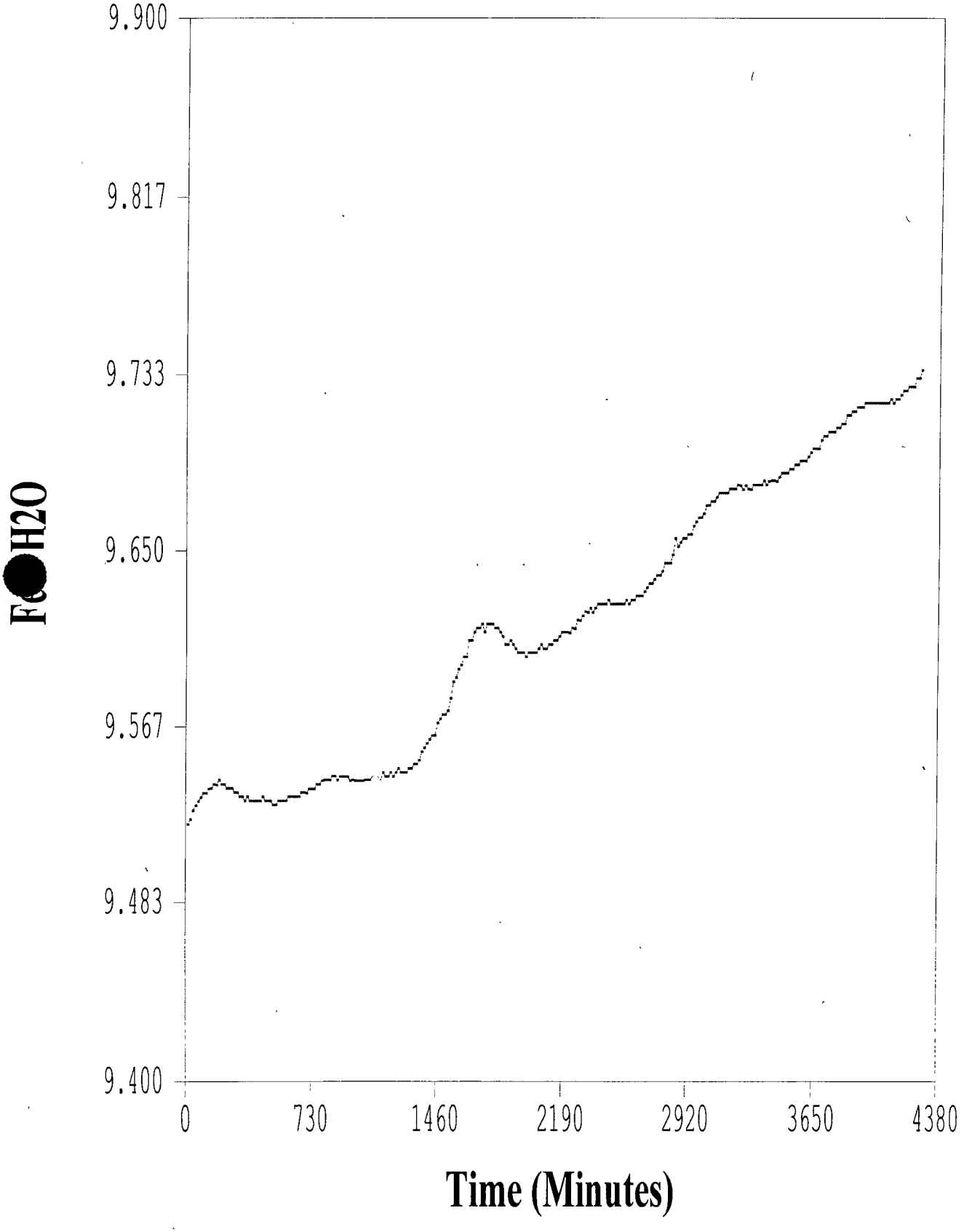
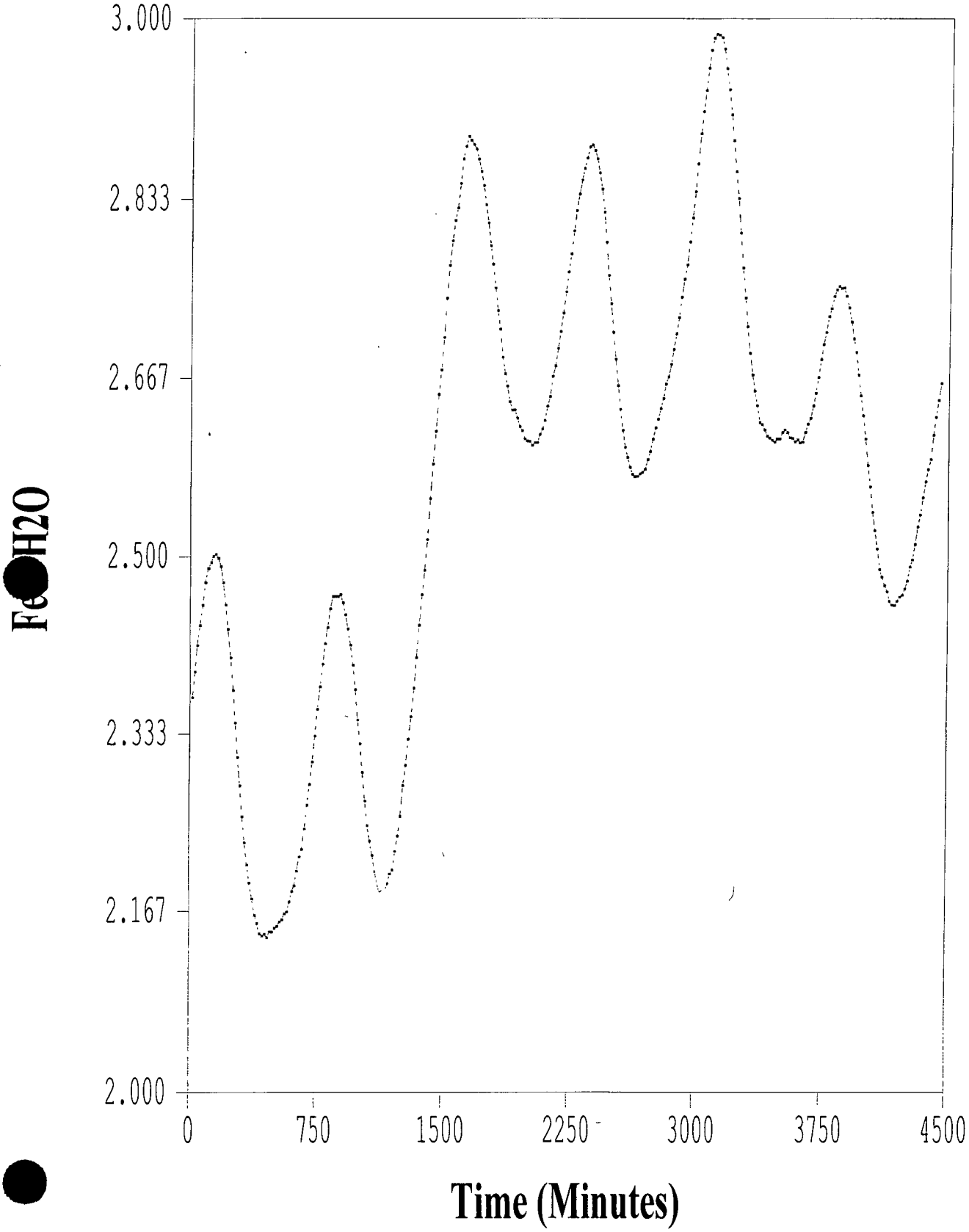


MW16-48S_Tidal



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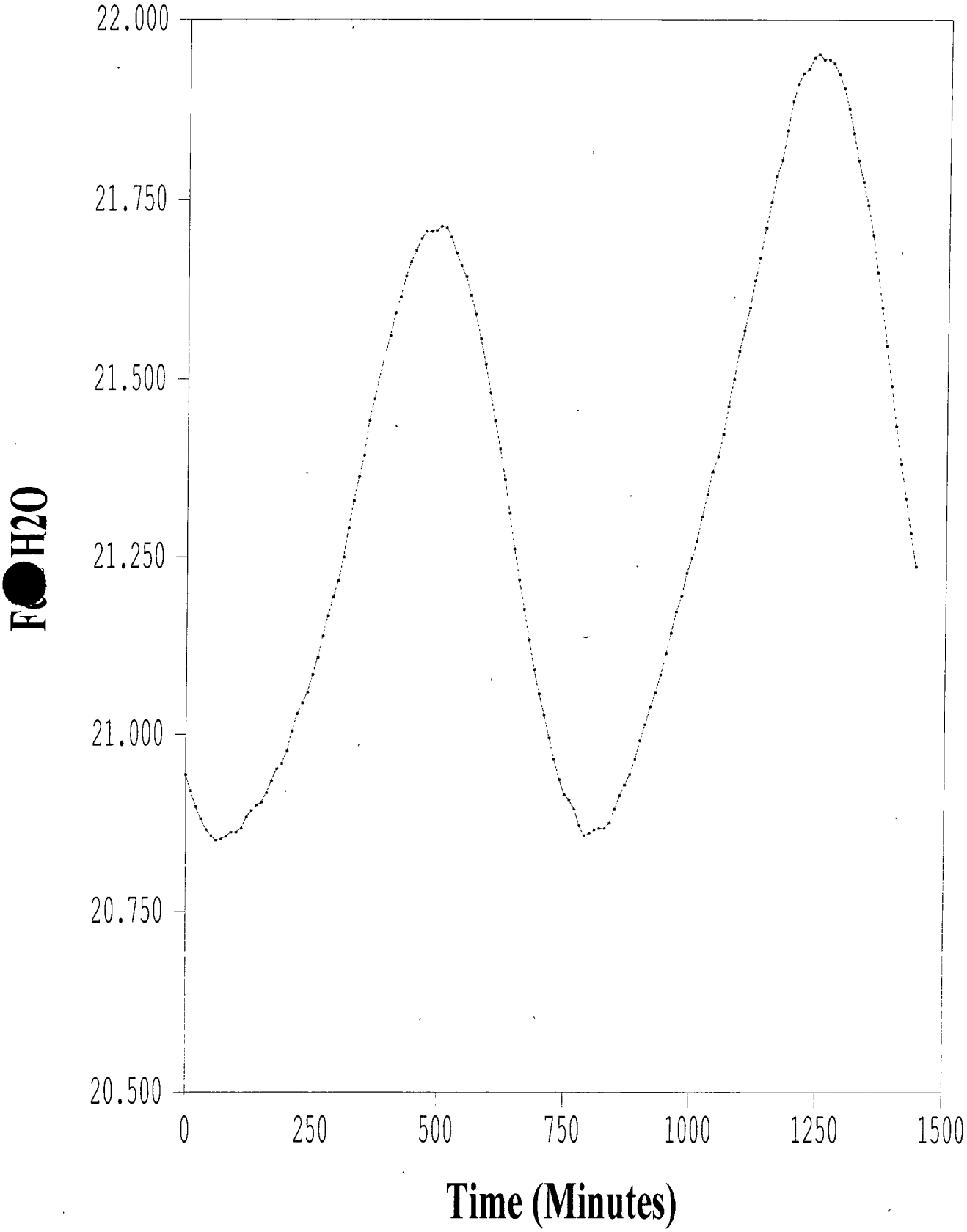

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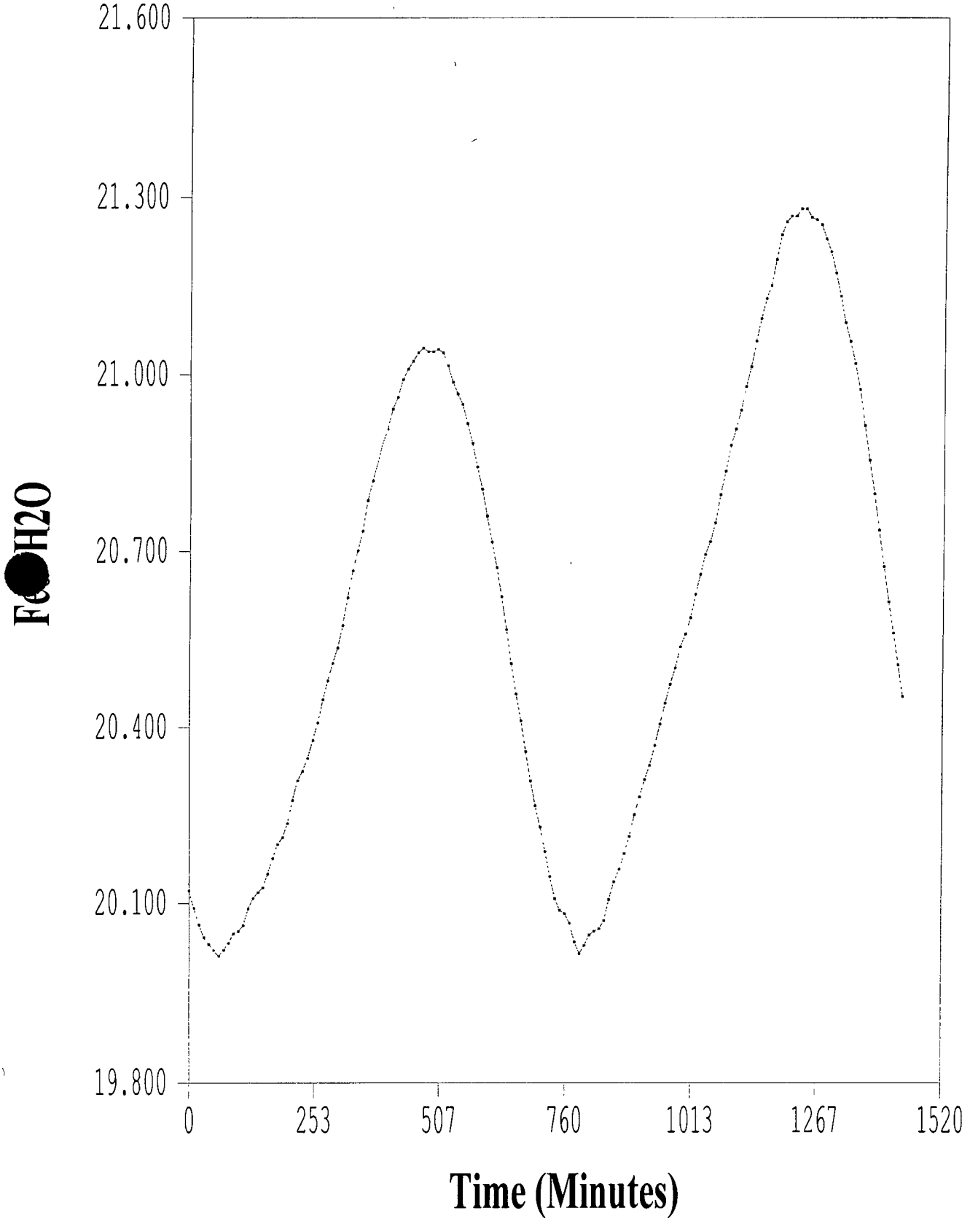

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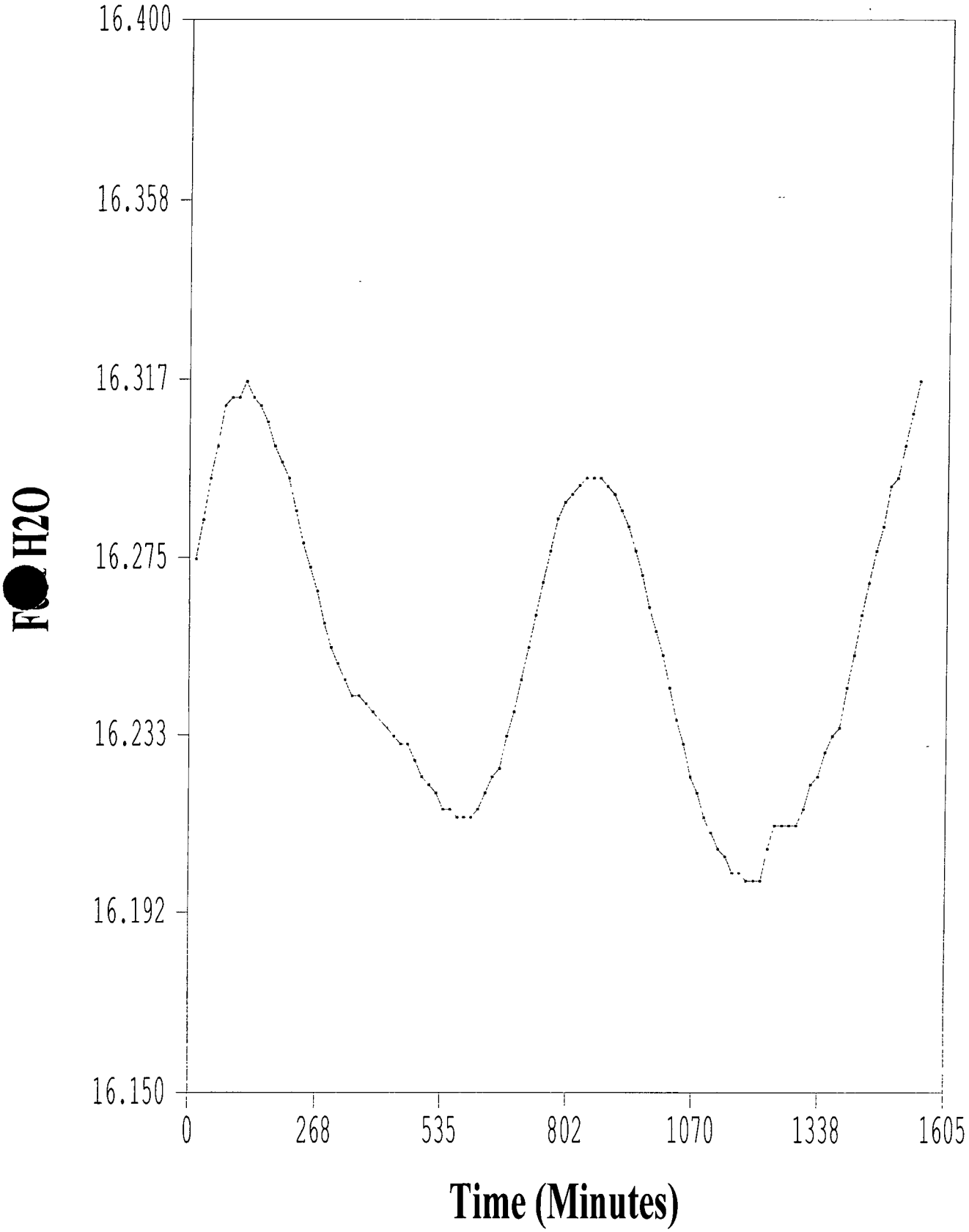
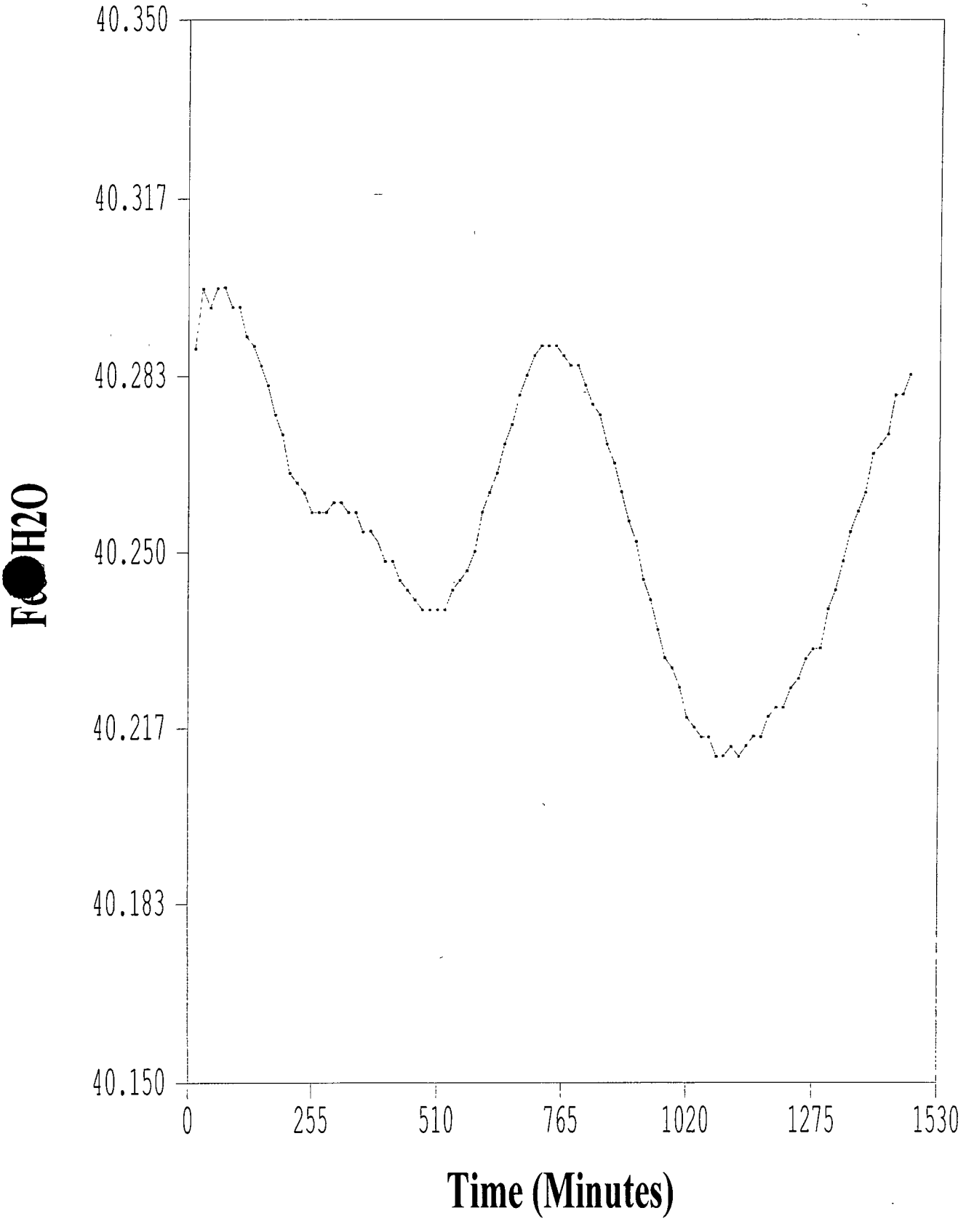
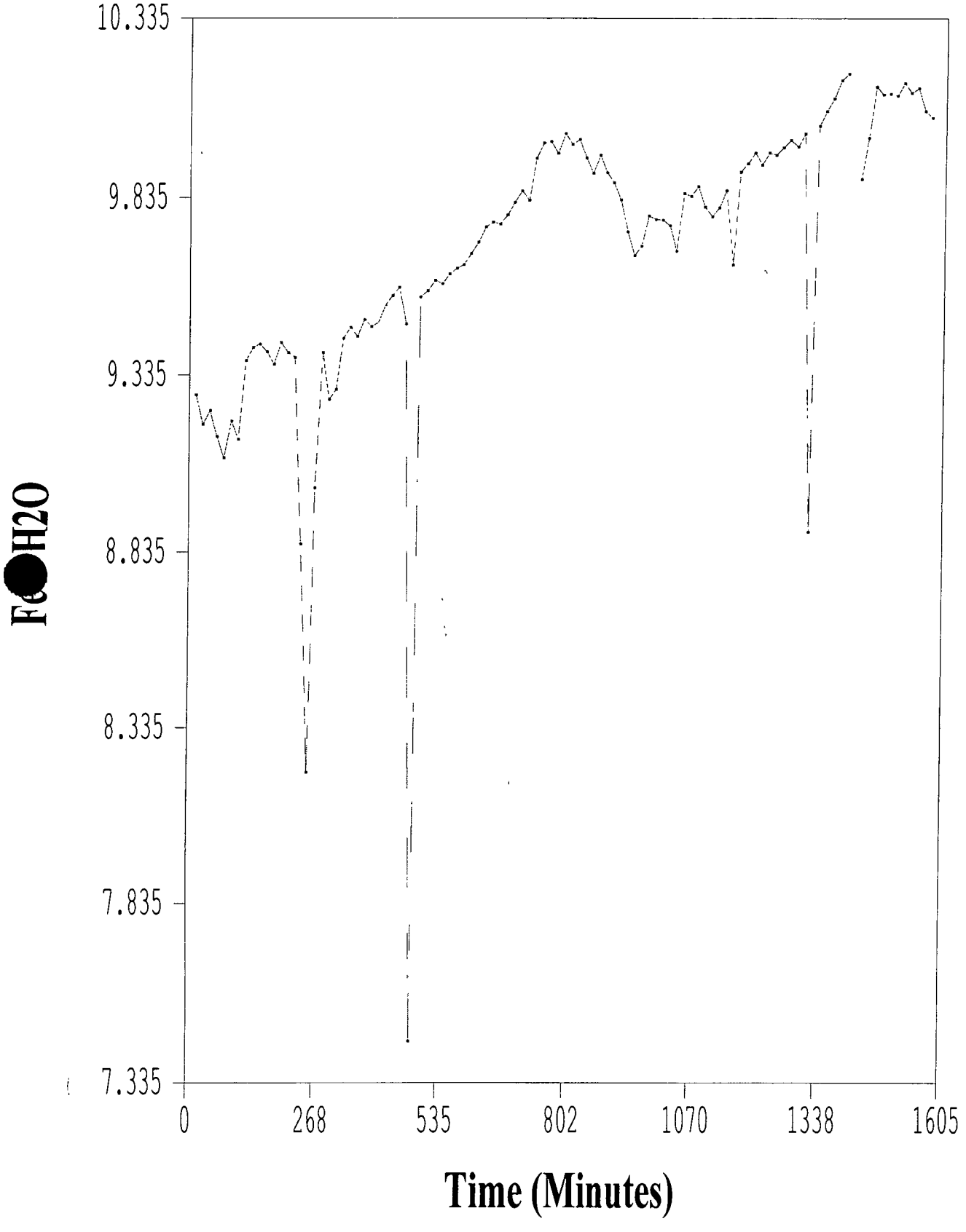


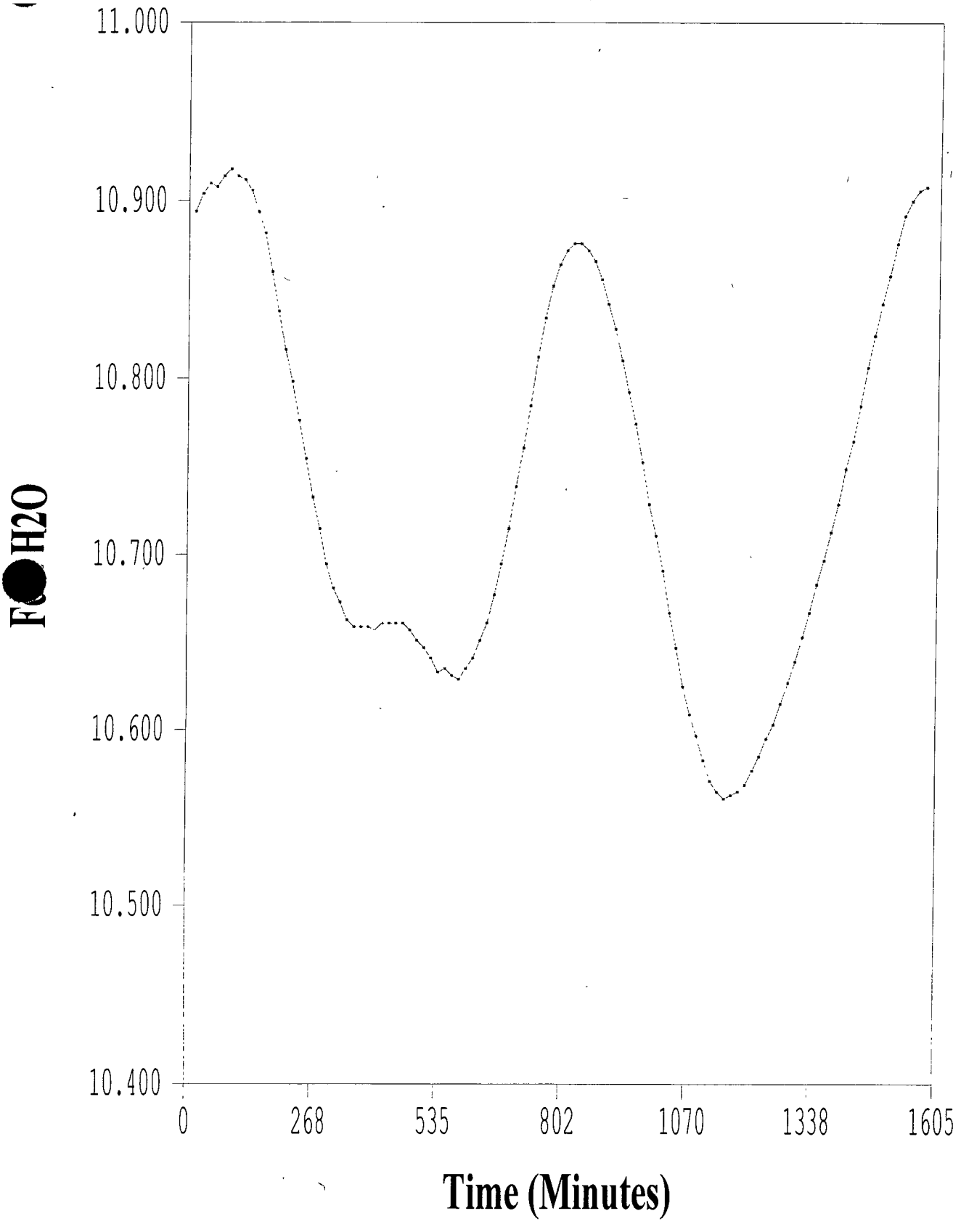
MW16-50D_Tidal



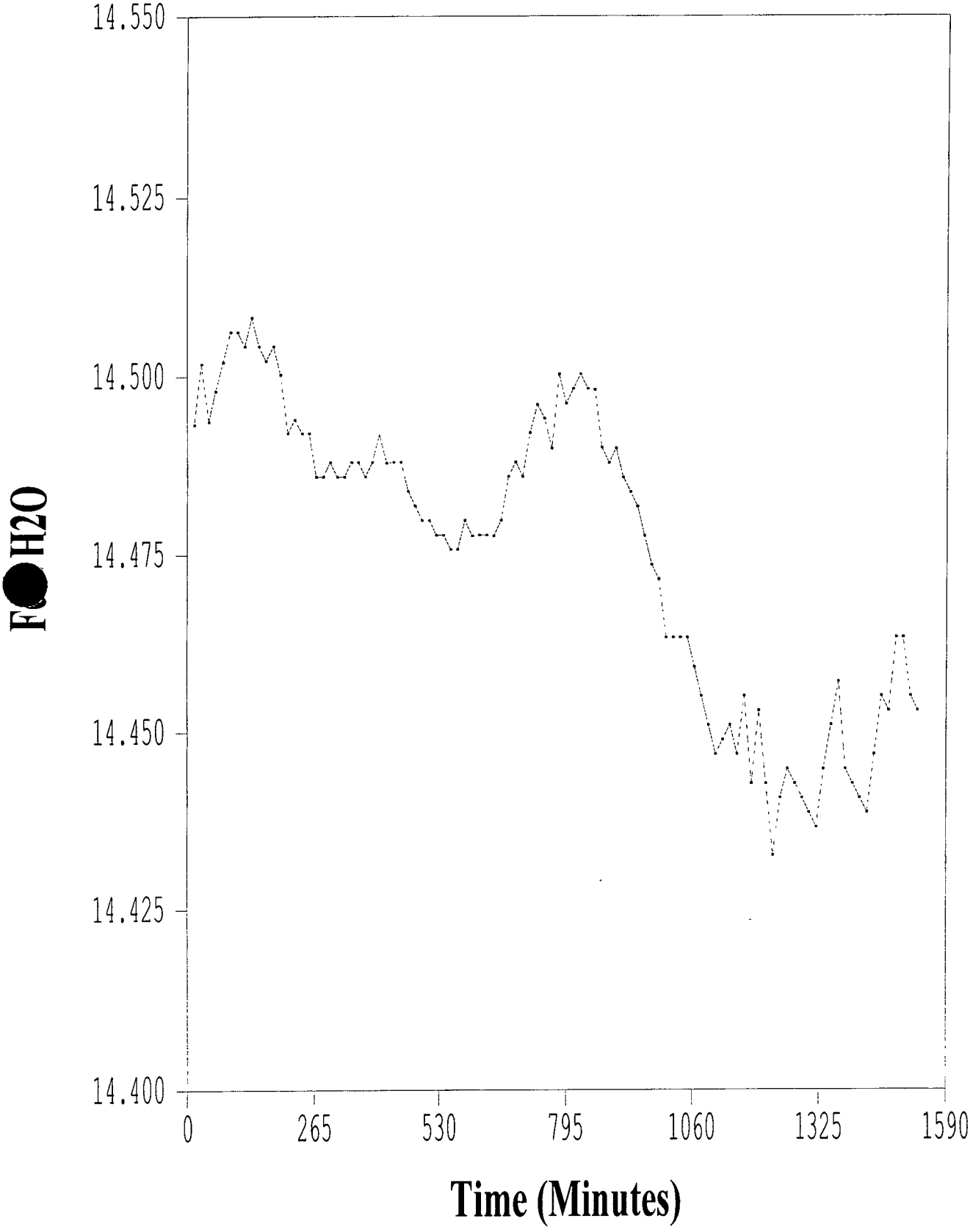
MW16-51D_Tidal



MW16-51R_Tidal



MW16-52D_Tidal



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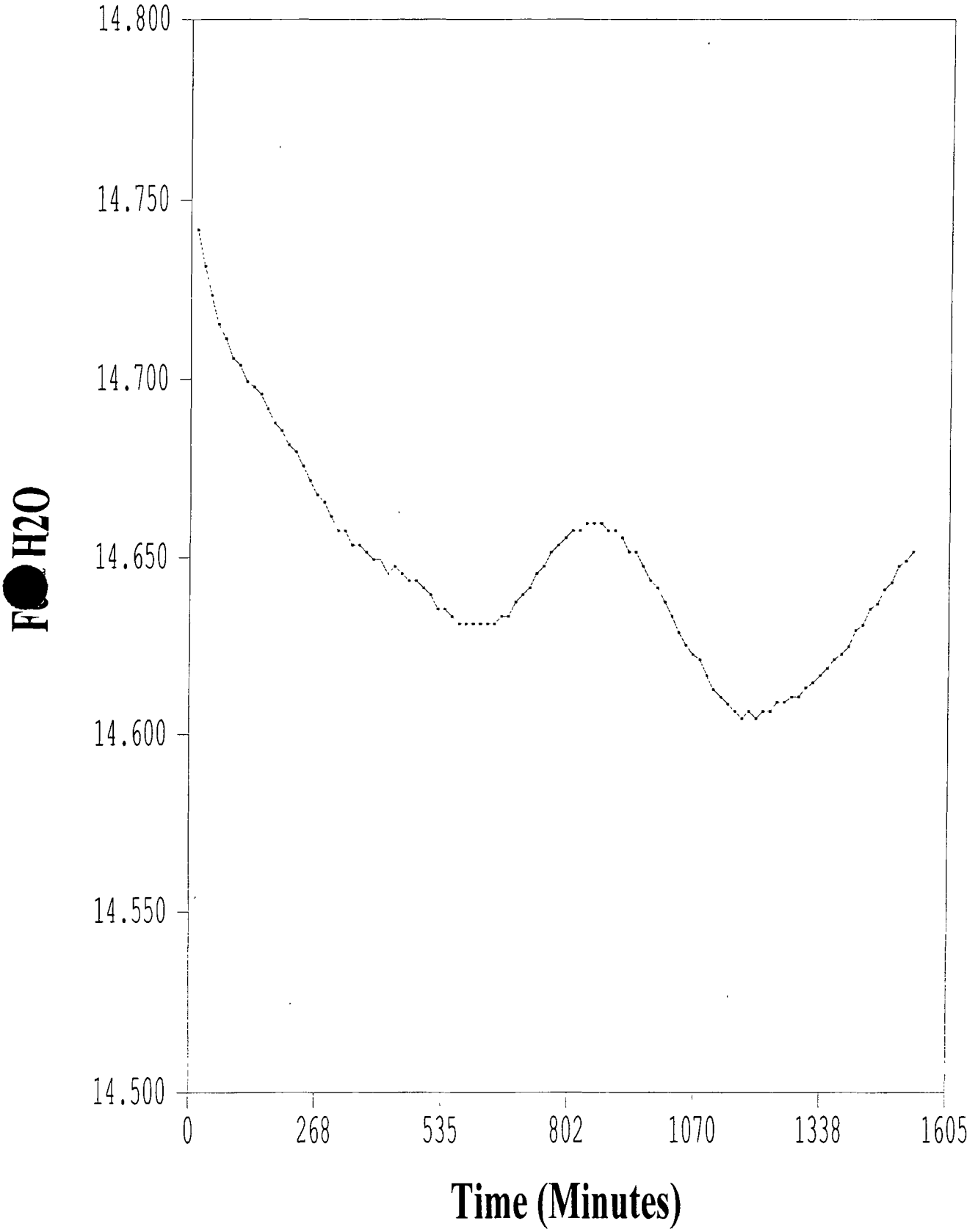

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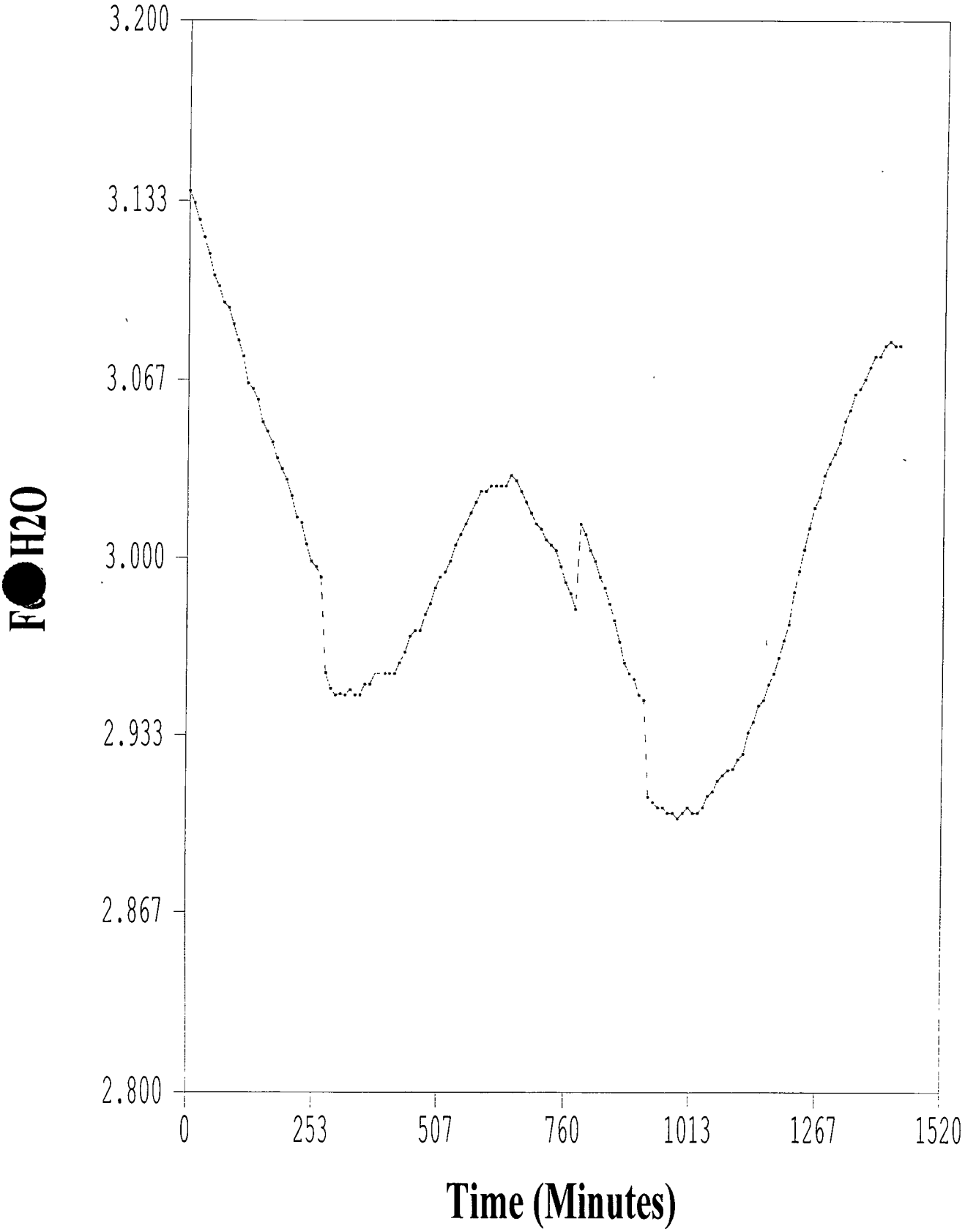

Appendix H

Borehole Geophysical Logging Report for Rock Wells From Geophysical Applications, Inc., 2002

Borehole Geophysics Logging Report
NCBC Davisville – Site 16
North Kingstown, Rhode Island

Prepared for
EA Engineering Science & Technology, Inc.
December 2002

GEOPHYSICAL
APPLICATIONS
INCORPORATED

December 6, 2002

Mr. James Shultz
EA ENGINEERING SCIENCE & TECHNOLOGY, INC.
Southboro Technology Park
333 Turnpike Road
Southboro, MA 01772

Subject: Borehole Geophysics Logging Report
NCBC Davisville - Site 16
North Kingstown, Rhode Island

Dear Mr. Shultz:

Geophysical Applications performed borehole geophysical logging between September 26 and October 18, 2002 at eleven boreholes, to help EA characterize bedrock fractures and groundwater flow encountered by those borings.

The logging suite included conventional measurements (caliper, natural gamma, single-point resistance, fluid temperature, and fluid resistivity), augmented by heat-pulse flowmeter measurements and acoustic televiewer imaging. Optical televiewer logging was performed at one borehole, MW16-51R, to demonstrate that probe's capabilities to EA.

Preliminary conventional-log plots were previously submitted to EA via e-mail, to help guide groundwater sampling and well-screen placement.

METHODS OF INVESTIGATION

Survey Control

All borehole logs were referenced to depths below ground surface. The geophysical logging winch contains an optical depth encoder, to maintain depth measurements accurate within approximately ± 0.2 feet throughout each borehole.

Borehole Geophysical Logging

A Mount Sopris model 4MXA digital logging winch and model MGX electronics console was used with Mount Sopris polyprobe and caliper sondes to obtain the conventional log data. These conventional logs were recorded at 0.1-foot depth increments, as determined by the logging winch's digital depth encoder.

Acoustic televiewer (ATV) data were recorded using an Advanced Logic Technologies (ALT) model FAC40 acoustic televiewer probe and the Mount Sopris logging winch. ATV data were recorded at 0.01-foot intervals throughout each borehole, with one pixel per 1.25 degrees of arc around the borehole wall, at speeds of approximately 2.5 feet per minute.

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Optical televiewer (OBI) data were obtained with an ALT model OBI40 optical televiewer probe and the Mount Sopris winch and electronics console. OBI data were stored using one pixel per degree of arc around the borehole wall, at depth increments of 0.007 feet.

Flowmeter data were recorded at specific depth ranges in each borehole, above and below possible bedrock fractures indicated by the caliper and fluid temperature/resistivity logs.

Flow data were recorded in ambient conditions on the downward run, to measure natural groundwater flow between fracture zones encountered by each boring. Flowmeter data were subsequently repeated under low-flow (less than 1.0 gallons per minute, or gpm) pumping conditions, to help determine depths where groundwater was entering each borehole.

Fluid temperature and fluid resistivity logs were recorded during the first logging run at a relatively slow downward logging speed (approximately three feet per minute), to help identify subtle variations. A sub-assembly on the polyelectric probe's bottom obtained these fluid measurements concurrently with single-point resistance (SPR) and natural gamma data, during a single pass through each borehole.

Caliper logging was subsequently performed while pulling a caliper probe upwards through each borehole at approximately 8 feet per minute.

All geophysical logs were recorded on a laptop computer's hard drive, and copied to CD-ROM as a backup precaution.

Post-survey plot scales were adjusted to display as much detail as possible. All conventional and flowmeter logs from the same borehole were merged onto one log plot, to aid data correlation. Acoustic televiewer logs are presented on separate pages, for clarity.

Equipment Decontamination Procedures

Decontamination consisted of an Alconox scrub and tap water rinse of logging cables and probes between logging runs.

SURVEY LIMITATIONS

Measured geophysical-log depths are estimated to be accurate within ± 0.2 feet, allowing for some slippage of the winches' depth-measurement wheels.

The caliper-probe's arms can measure borehole diameters up to approximately 16 inches. Caliper logs can most-confidently detect fractures that cross a borehole at moderate angles, e.g. less than approximately 70 degrees from horizontal. Caliper logs may not detect near-vertical fractures.

The heat-pulse flowmeter probe can measure water flow rates between 0.02 and approximately 1.2 gallons per minute (gpm). Higher flow rates may be erroneously characterized as zero flow by this probe.

The acoustic and optical televiewer probes rely on a three-component magnetometer to orient the recorded images with respect to magnetic north. These images become distorted when the magnetometers approach the bottom of steel casing, typically beginning approximately 1 to 1.5 feet below the steel.

Hydraulically-active fracture depths were inferred by correlating numerous geophysical logs. These interpretations are a subjective judgment based upon available data.

RESULTS

Logging data and generalized descriptions of log interpretations are described below. All geophysical logs described in this report are presented in Appendix A. Tabulated televiewer interpretations are provided in Appendix B. These Excel spreadsheets list observed fracture depths, down-dip compass directions for each inferred fracture (note that this is perpendicular to the fracture strike direction), fracture dip angles with respect to horizontal, and whether an inferred feature was judged to be relatively open (category 105), or less-open (category 100).

SPR and natural gamma logs are presented in the left-most conventional log-plot column. SPR inflections towards the left indicate lower formation resistivity (higher conductivity). Natural gamma inflections are likely to represent lithologic variations, and not the fractures that were of primary interest to this survey.

Caliper logs are presented in the next conventional log-plot column. Inflections to the right indicate borehole enlargements, for example where the drill bit passed through a fracture zone. Inflections towards the left may represent a localized reduction in borehole diameter, or possibly a depth where the caliper probe moved abruptly (causing a brief compression of the probe's arms). Caliper decreases at the very bottom of a borehole usually represent accumulated sediments.

Fluid temperature (FTemp) and fluid resistivity (FRes) logs are presented in the next panel of each conventional-log plot. Localized inflections or changes in slope of FTemp or FRes logs typically represent water entering or exiting a borehole. Large inflections at the very bottom of a borehole may represent only accumulated sediments with temperature or electrical properties that contrast with the water column.

Heat-pulse flowmeter data are presented on the caliper panel (ambient flow measurements) and on the FTemp/FRes panel (flow measurements while pumping). Shaded boxes to the left of centerline on either panel represent downwards water flow, with the box length indicating the flow magnitude in gpm. Shaded boxes to the right of a panel's centerline represent upwards water flow. Filled circles represent depths where "zero" flow was observed (i.e., flow less than the probe's minimum detectable rate, approximately 0.02 gpm). Flowmeter test depths were selected on-site using field plots of the caliper, fluid temperature, and fluid resistivity logs. Note that the plotted flow magnitudes are as reported by the vendor's data-acquisition software.

Acoustic televiewer data are presented via two columns (FAC40 "traveltime" and "amplitude"), where each column represents a cylindrical image sliced down the north edge and laid flat on the printed page. Magnetic north is at the left edge of each column, and the plot progresses through east, south, west, and back to north at the right-hand edge.

Optical televiewer data are presented in a single column labeled "OBI40", showing geologic elements with contrasting color properties. The OBI image is oriented similar to the ATV data, with magnetic north at the left edge and progressing through east, south, west, and back to north at the right edge.

Acoustic and optical televiewer logs were evaluated using WellCAD's image-processing module, to measure fracture dip angles and down-dip azimuths. All fracture down-dip azimuths are referenced to magnetic north. Measured fracture orientations are indicated by tadpole plots, where each filled-

circle indicates a fracture's dip angle from horizontal (plotted on a graph that ranges between 0 and 90 degrees from left to right). Each tadpole tail points in the down-dip azimuth, assuming magnetic north is straight up on the printed page. Note that the down-dip azimuth indicated by each tadpole tail is perpendicular to the feature's strike direction.

Fractures represented on both the ATV travel-time and amplitude plots are denoted as "open" features. Fractures represented only on the ATV amplitude plot are likely to have smaller apertures (or possibly represent mineral-filled joints), and are therefore judged "less open". Red tadpoles, and red sine-curve lines superimposed on the ATV plots, represent inferred "open" fractures. Black tadpoles and black sine curves represent interpreted "less-open" features.

Televiewer interpretations are also summarized using rose diagrams, to indicate the predominant down-dip azimuth(s) of features observed in each borehole. These rose diagrams are presented with magnetic north oriented straight up on the printed page. The red rose diagram represents inferred open fractures, and the black rose diagram represents inferred less-open fractures (or possibly other planar features, e.g. foliation).

A stereoplot also summarizes the open and less-open planar-feature orientations inferred from the televiewer logs. Each stereoplot was prepared using an equal-angle (Schmidt) projection on the southern hemisphere.

Note that some features visible on the televiewer plots are not planar. No orientation can be provided for circular or elliptical shaped features; they probably represent a slightly-curved near-vertical surface that intersects a borehole wall, or possibly localized features resembling vugs.

Annotations on the conventional log plots describe interpreted hydraulically-active fracture depths, based on correlations between all of the available log data. Selected observations that may be of particular interest are described below.

MW16-02R2

This borehole exhibited relatively few caliper enlargements, with the largest ones near 100.5 and 111 feet deep.

Groundwater flow was not observed under ambient conditions. Most inflow while pumping occurred between 98 and 102.5 feet deep, probably at the 110.5-foot caliper enlargement. This fracture was observed on the ATV plot, dipping approximately 30 degrees from horizontal, down towards the west-northwest.

The ATV rose plots indicate that most open and less-open features dip down towards the northwest or west-northwest. The stereoplot shows a small cluster of four poles, representing features that dip down approximately 27 to 45 degrees from horizontal, towards the northwest or west-northwest.

MW16-05R

This borehole's caliper log shows only minor diameter variations. A distinct FRes inflection is present at 67 feet deep, and a second FRes inflection occurred within the casing near 40 feet deep.

Ambient groundwater flow was not observed. Pumping flowmeter tests disclosed measurable inflow only between the steel casing bottom and 69 feet deep, probably near the 67-foot FRes inflection. Three ATV-inferred features are centered near 68 to 69 feet deep, dipping down towards the south, southeast, and northwest.

The rose plots show that most interpreted planar features dip down towards the northwest or west-northwest. The stereoplot shows a distinct cluster of poles, indicating planar features dipping approximately 58 to 75 degrees from horizontal, down towards the northwest and west-northwest.

The "corduroy" pattern visible on the ATV amplitude plot below approximately 80 feet deep is judged to represent tool marks created during the drilling process or during drill bit removal from this borehole. Similar patterns can be observed throughout portions of most holes logged during this project.

MW16-06R

Very few enlargements are visible on this borehole's caliper log. The higher gamma counts between 40 and 50 feet deep may represent increased clay content of overburden outside the steel casing.

Ambient groundwater flow was not observed. Pumping inflow originated between 69 and 73 feet deep, probably at the 71-foot caliper enlargement and ATV-inferred planar feature that dips gently down towards the southeast. Most inflow while pumping entered between 55.5 and 60 feet deep, probably at the group of three ATV-inferred features near 57 to 58 feet.

Most less-open ATV-inferred features dip down towards the south. Two of the four interpreted open features dip down towards the southeast. The stereoplot shows feature poles with varying orientations.

MW16-15R2

The largest caliper anomaly is located approximately 108.5 feet deep, coinciding with ATV-inferred features that dip down towards the southwest and east. A very subtle FTemp inflection correlates with this enlargement.

Ambient flowmeter testing did not disclose measurable groundwater flow. Pumping flow testing showed most inflow occurring between 106.5 and 109.5 feet deep, probably at the 108.5-foot caliper enlargement.

Two of the three interpreted less-open features dip down towards the east. The two interpreted open features dip down towards the southwest and southeast. The stereoplot shows a group of four interpreted feature poles dipping down towards the east, southeast, and south at approximately 15 to 48 degrees.

MW16-17R

This borehole showed several distinct caliper enlargements, particularly near 76 and 80.5 feet deep. Despite these apparent large openings, ambient groundwater flow was not observed and only limited inflow was measured while pumping this borehole.

Weak inflow while pumping occurred between 82 and 87 feet deep. Numerous ATV-inferred planar features, mostly judged less-open, occur within this depth range.

Most ATV-inferred features dip down towards the west and southeast. The stereoplot shows two clusters of feature poles. One represents features dipping west at approximately 10 to 45 degrees from horizontal. The other represents features dipping approximately 30 to 40 degrees from horizontal, down towards the southeast.

MW16-36R

This borehole showed almost no diameter variation within the logged interval. The most prominent FRes inflection occurs near an apparent casing joint, approximately 50 feet deep.

Ambient groundwater flow was not observed. Minor inflow while pumping this borehole occurred between 61 and 65 feet deep, probably at the ATV-inferred feature dipping approximately 58 degrees from horizontal down towards the northwest.

The rose plots show most interpreted features dipping down towards the northwest or north-northwest. The stereoplot shows a group of four interpreted feature poles, dipping roughly northwest at approximately 32 to 57 degrees from horizontal.

MW16-44R

Distinct caliper enlargements were observed near 64, 66, and 72 feet deep. The most prominent FRes inflection occurred near 69 feet deep.

Ambient groundwater flow was not observed. Pumping inflow appeared to originate near the bottom of this borehole, but most inflow occurred between the casing bottom and 62.5 feet deep.

Most less-open ATV features dip down towards the northwest. Most open features dip down towards the west and southwest. The stereoplot shows at least two possible groups of feature poles: a) features dipping 10 to 60 degrees from horizontal, down towards roughly the northwest, and b) features dipping east to northeast at approximately 10 to 38 degrees.

MW16-51R

This borehole's caliper log shows very little variation throughout the logged interval. A subtle FRes inflection is visible near 81 feet deep.

Groundwater flow was not observed under ambient conditions. Weak inflow while pumping originated between 79 and 83 feet deep, probably from the group of four less-open ATV-inferred features that dip down approximately 50 to 70 degrees from horizontal towards the east and northeast.

The optical televiewer log recorded at this borehole shows some features that were also detected by the ATV probe (e.g. the northeast-dipping less-open features near 81.5 feet deep), and others that are not visible on the ATV data (e.g. the northwest-dipping features near 91 feet deep). Note that this latter group of optical televiewer anomalies are unlikely to contribute to groundwater flow; they simply represent structures within the bedrock that have a colorful expression.

All ATV-inferred features at this borehole were judged to be in the "less-open" category. Their predominant down-dip azimuth is towards the east or northeast. The stereoplot shows a group of four such features that dips down towards the east or northeast at approximately 50 to 73 degrees from horizontal.

MW16-52R

Several minor caliper enlargements are visible on this borehole's conventional log plot. FRes data values are very low (apparently below the manufacturer's lowest calibration point,

resulting in "negative" FRes measurements) below approximately 36 feet deep. These low FRes values may represent relatively saline groundwater.

Ambient water flow was not observed at this borehole. Pumping inflow occurred within two distinct depth ranges: a) between 112 and 117 feet, and b) between 98 and 105 feet deep.

ATV-inferred features dip down towards approximately the northwest and east-northeast to east-southeast at this borehole. The stereoplot shows these two groups of planar feature orientations.

MW16-55R

This borehole's caliper log shows very little variation throughout the logged interval. Slight increases in natural gamma counts between 96 and 108 feet deep may represent overburden with increased clay content outside the steel casing.

The 132-foot ambient flow test indicated weak downward flow, near the probe's lower measurement limit. Neither downward nor upward flow was observed near that depth during the pumping flowmeter tests.

Weak inflow while pumping occurred between 118 to 125 feet deep. This inflow may originate at a subtle FRes slope change near 119 feet, or possibly at a less-open ATV-inferred feature near 122.5 feet deep.

All ATV-inferred features at this borehole were judged to be in the "less-open" category. They fall into two groups, dipping downward at moderate angles towards either the northwest or southeast, as shown on both the rose and stereoplot diagrams.

MW16-55R2

Only minor caliper variations were observed at this borehole, with the biggest enlargement near 136 feet deep.

Ambient groundwater flow was not observed at this borehole. Pumping inflow originated between 142 and 150 feet deep, probably at a FRes inflection and ATV-inferred feature that dips approximately 67 degrees down towards the southeast. Additional minor inflow while pumping may have occurred between each pair of shallower flowmeter test depths.

Only four ATV-inferred planar features, all classified as "less-open", were observed at this borehole. Two of these features dip down towards the east-northeast, and the others dip down towards the southeast and due west.

* * * * *

All interpreted planar-feature orientations from these eleven boreholes were collated onto a single tadpole and stereoplot (see end of Appendix A). This figure utilizes an average borehole diameter of 3.85 inches in representing all reported fractures (or other planar features).

Many feature poles plot towards the lower right side of the stereoplot, indicating planes that dip down roughly towards the northwest (mostly at dip angles less than 70 degrees). The corresponding strike orientation for these features is approximately northeast. Numerous other poles are grouped on the stereoplot's left side, indicating features that dip down towards the southeast, east, and east-northeast (corresponding strike directions are towards the northeast,

north, and north-northwest). A small group of seven poles is located near the top of the stereoplot, representing planes that dip down towards the south or south-southwest at 60 to 80 degrees (corresponding strike orientations are towards the east and east-southeast).

We appreciate this opportunity to provide geophysical services, and we welcome questions concerning this report. Please call the undersigned at 508/543-1388 if we may provide additional information that would benefit EA's project.

Sincerely,

GEOPHYSICAL APPLICATIONS, INC.

M. Blackey

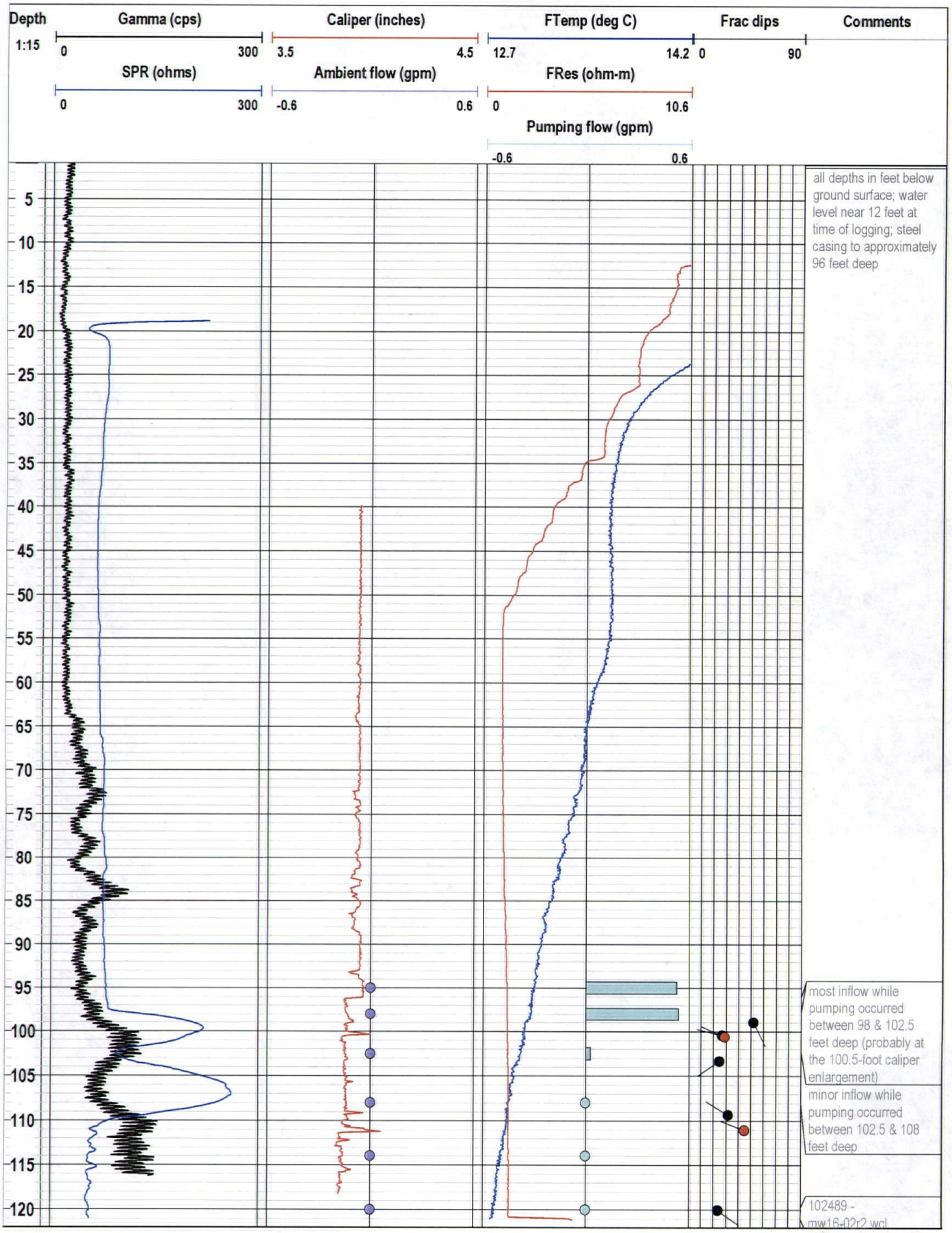
Mark E. Blackey
Principal and Geophysicist

102489 - 102489bh.rpt

Appendix A

Borehole Geophysics Log Plots

Project - Well: EA Engineering/Davisville, RI - MW16-02R2 conventional logs



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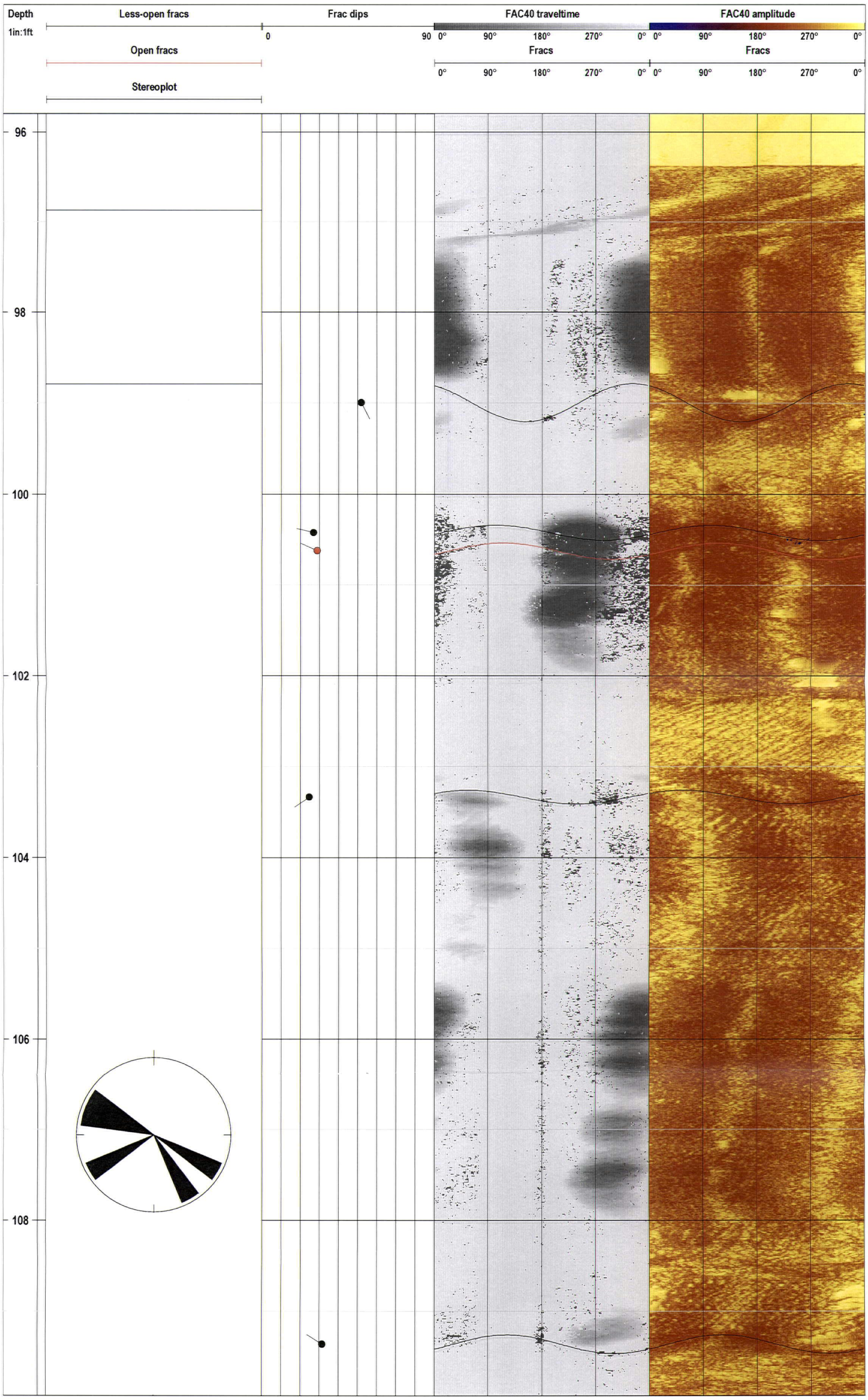

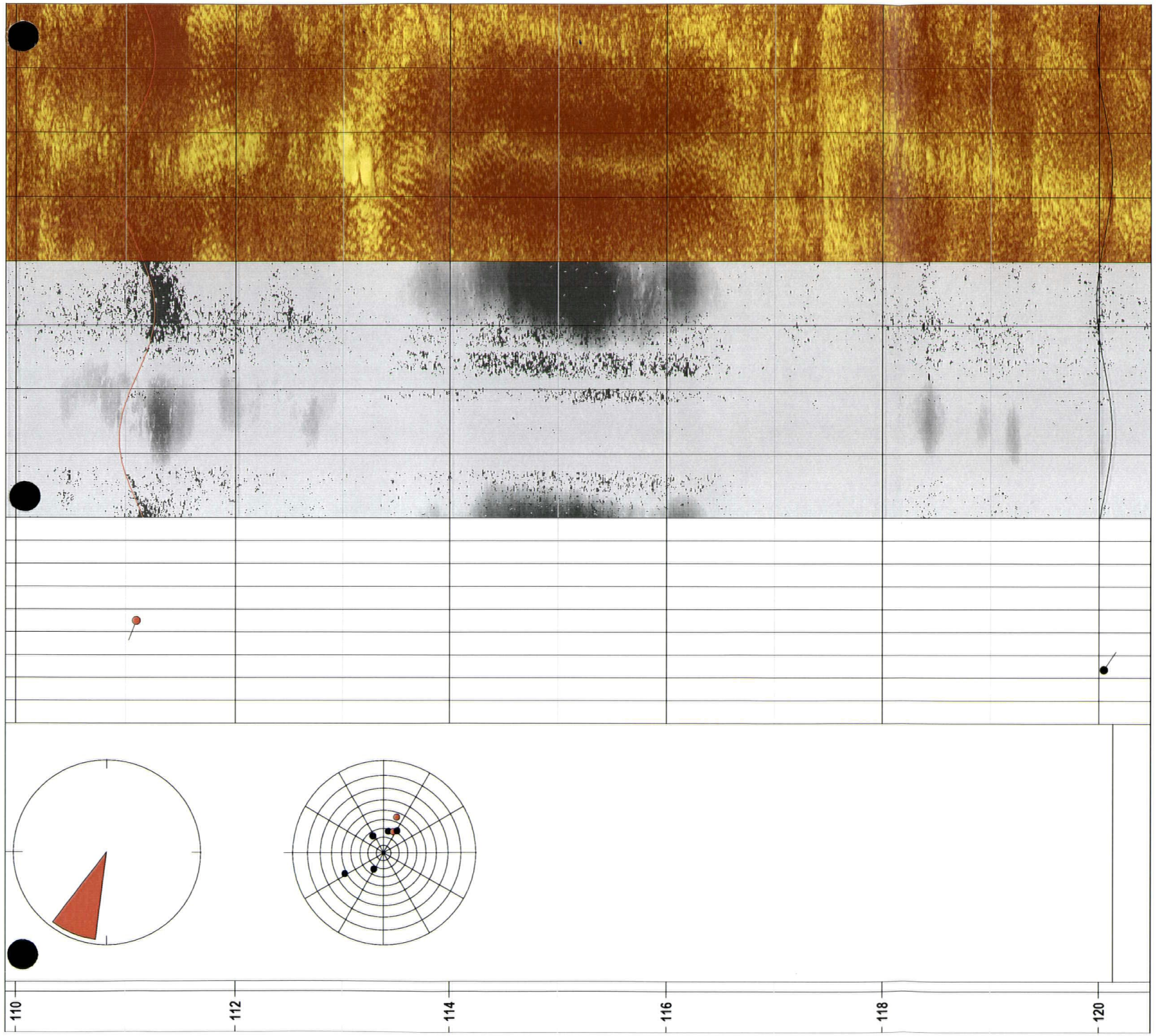
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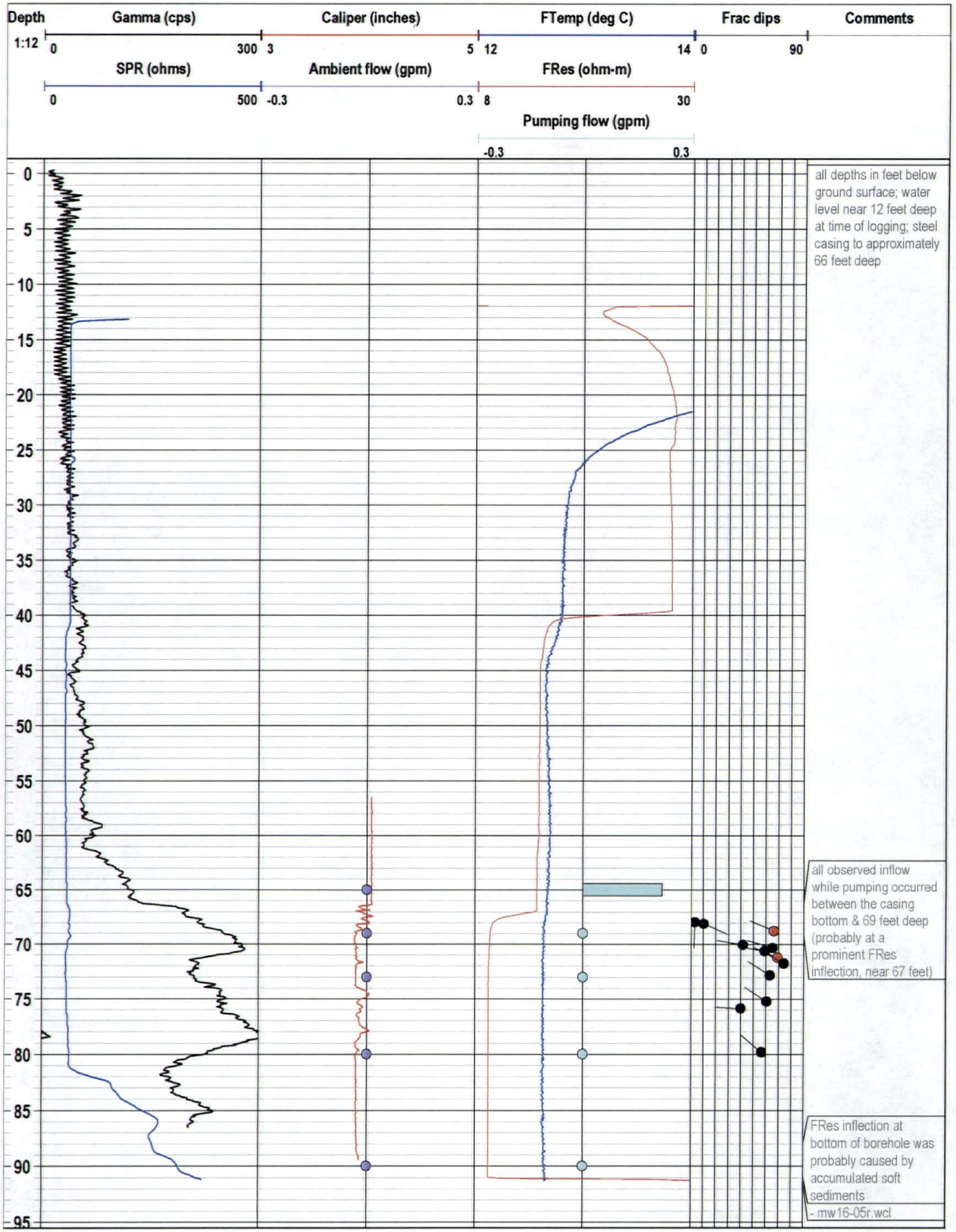

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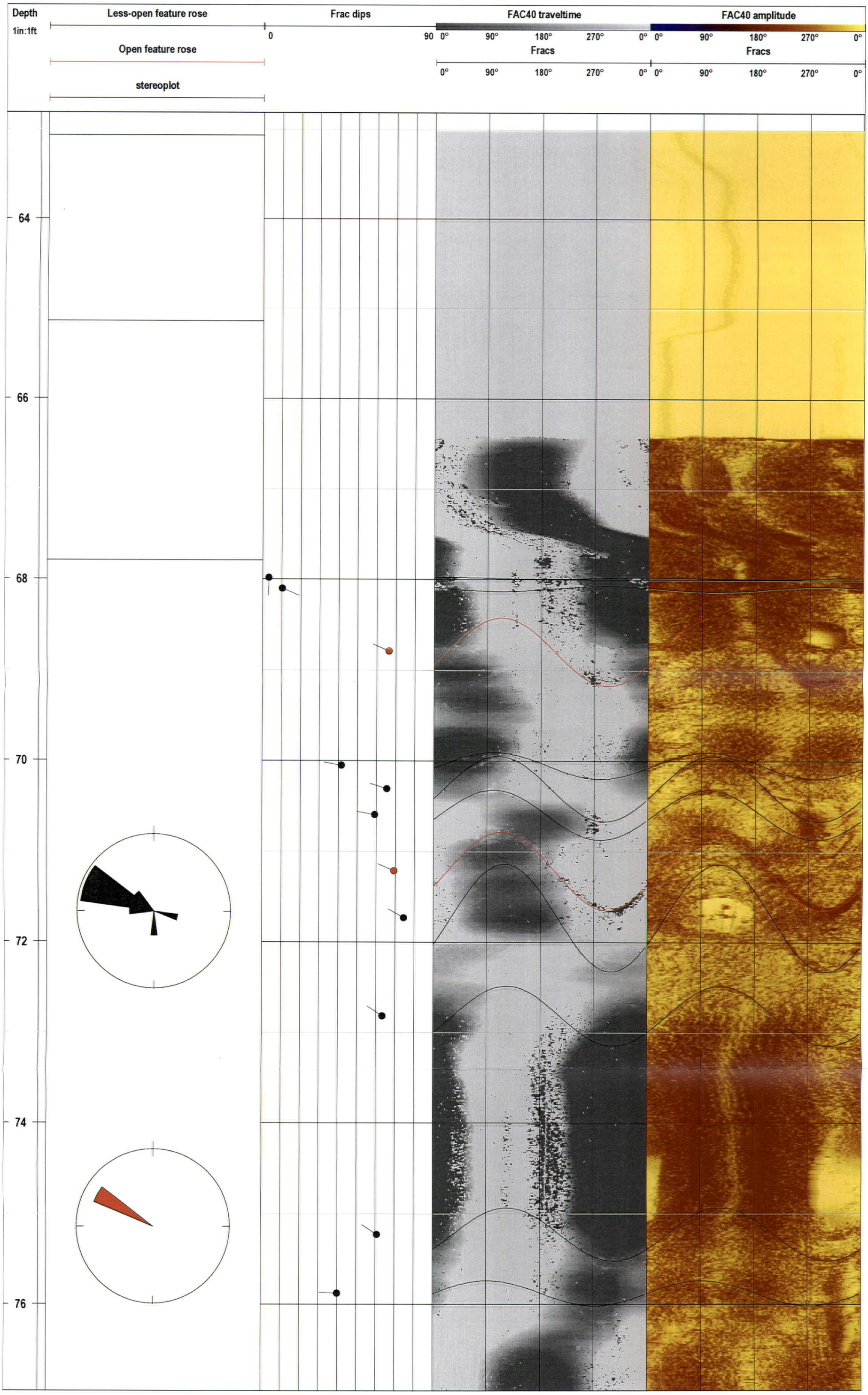

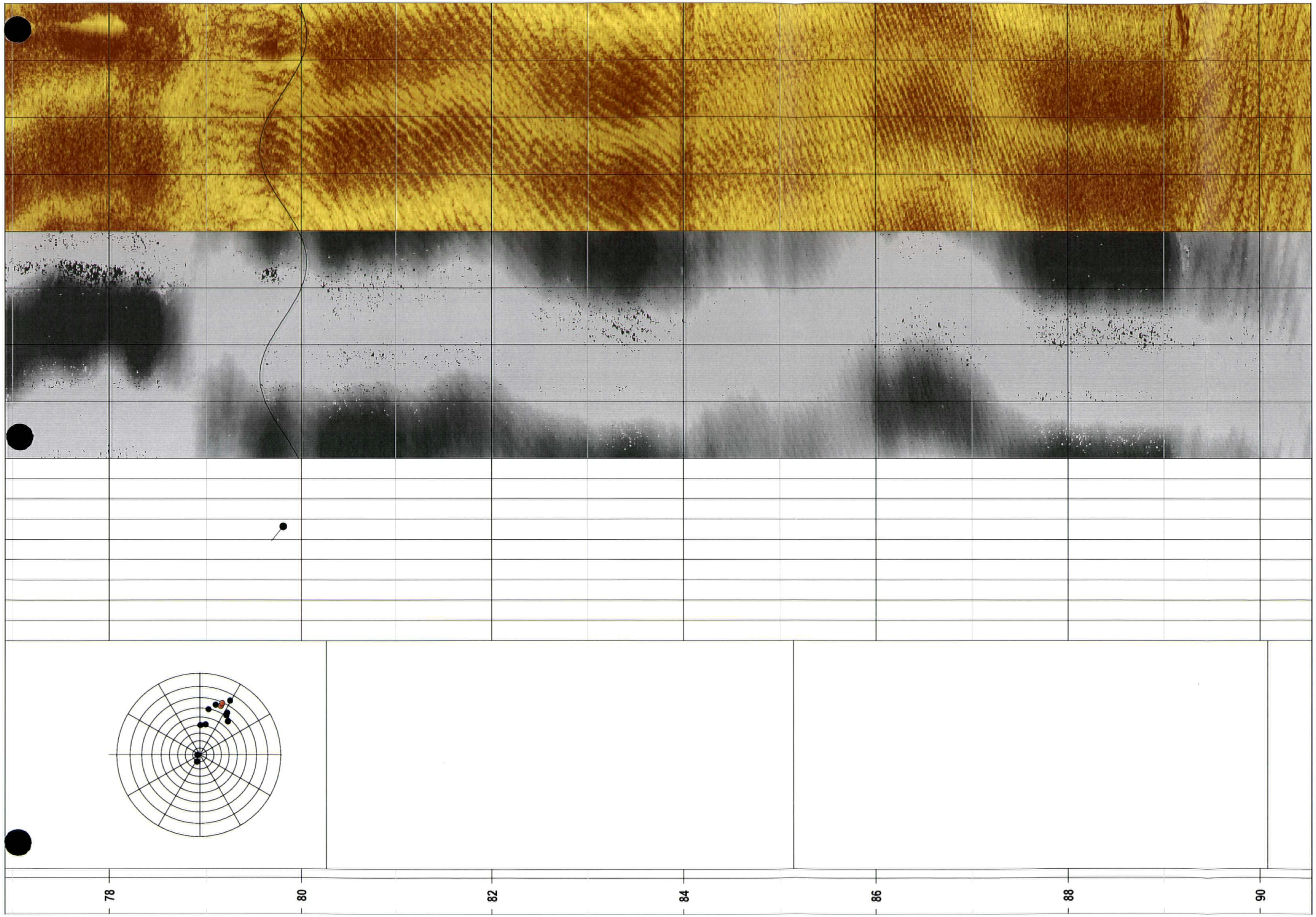
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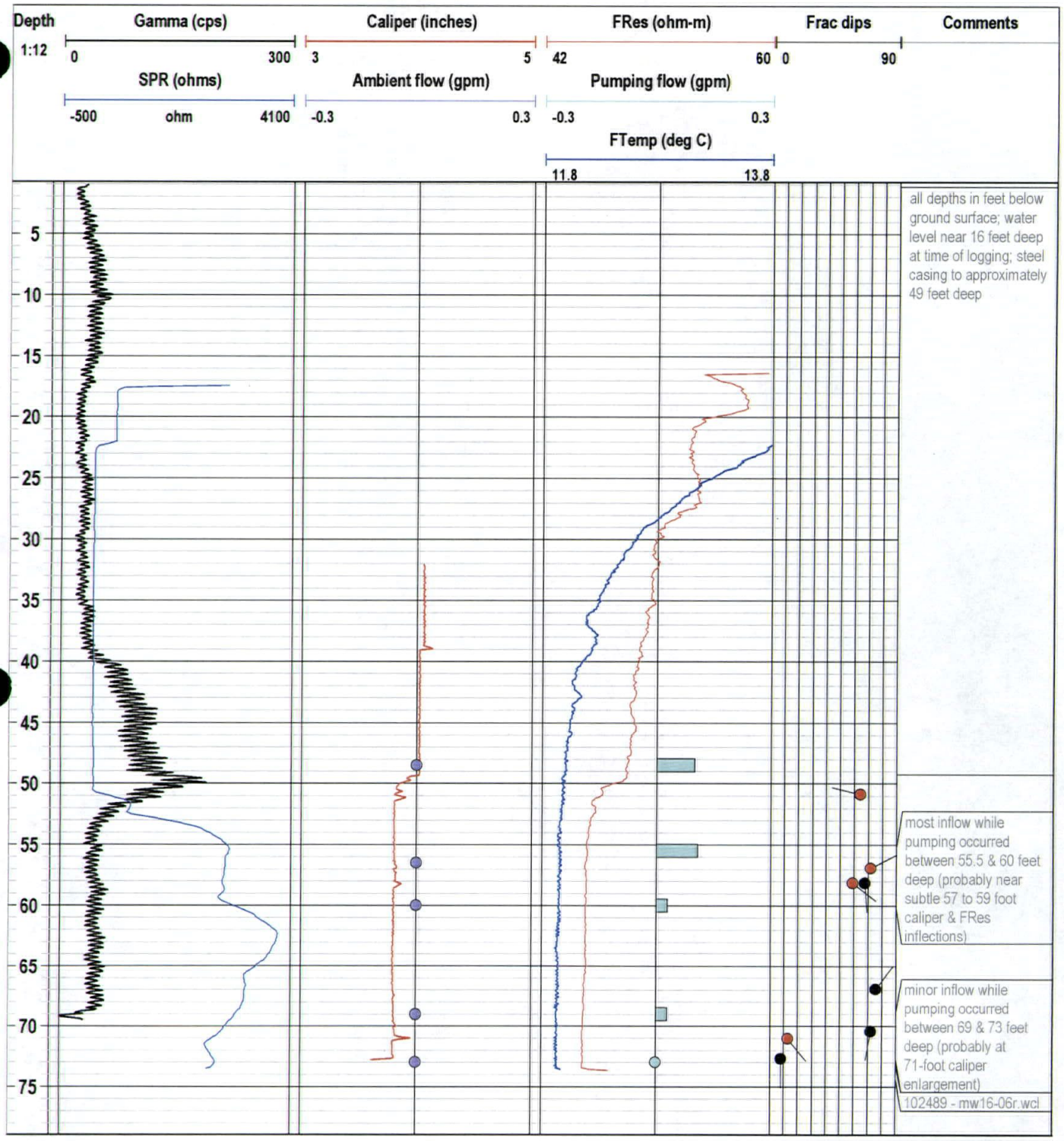

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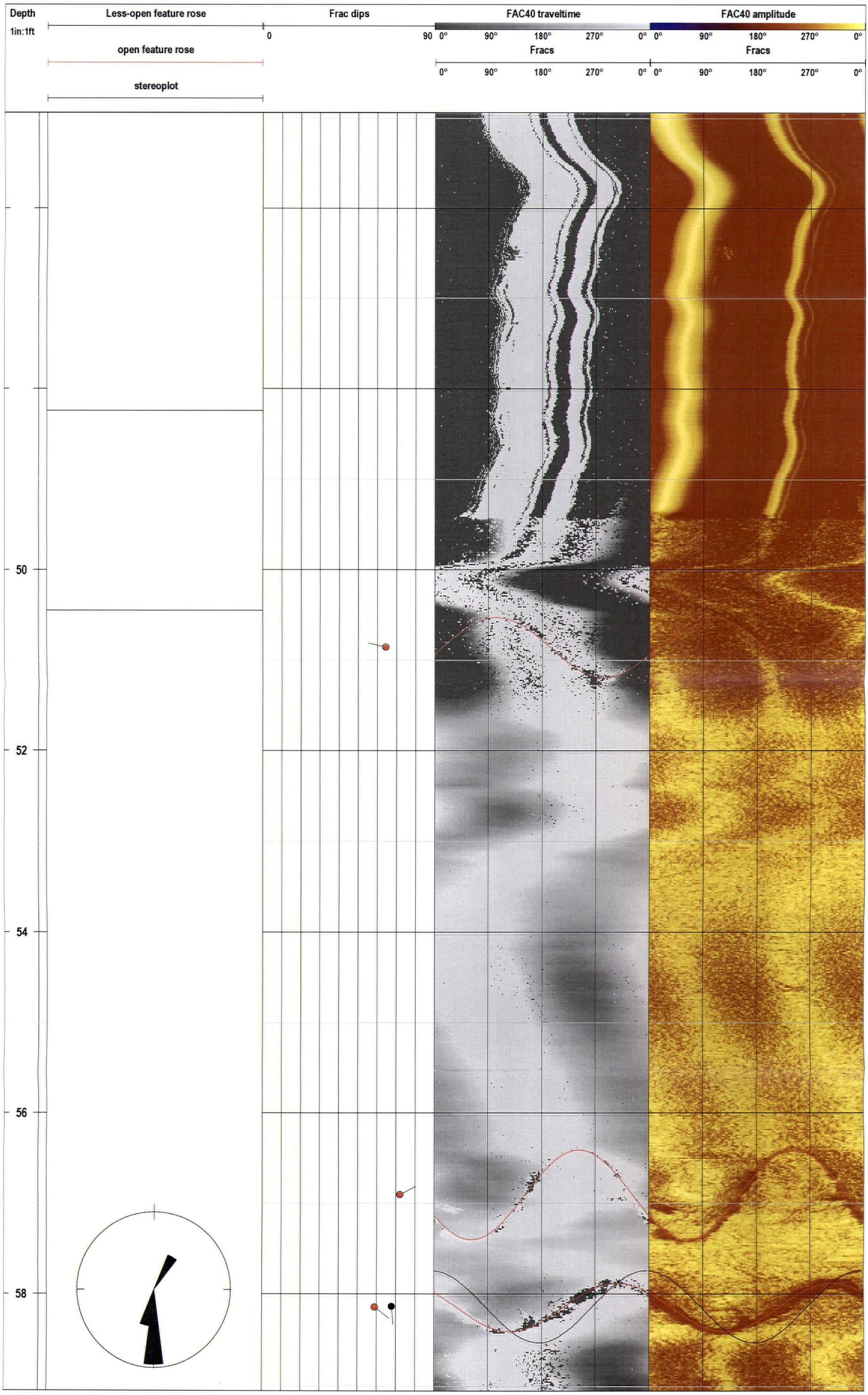

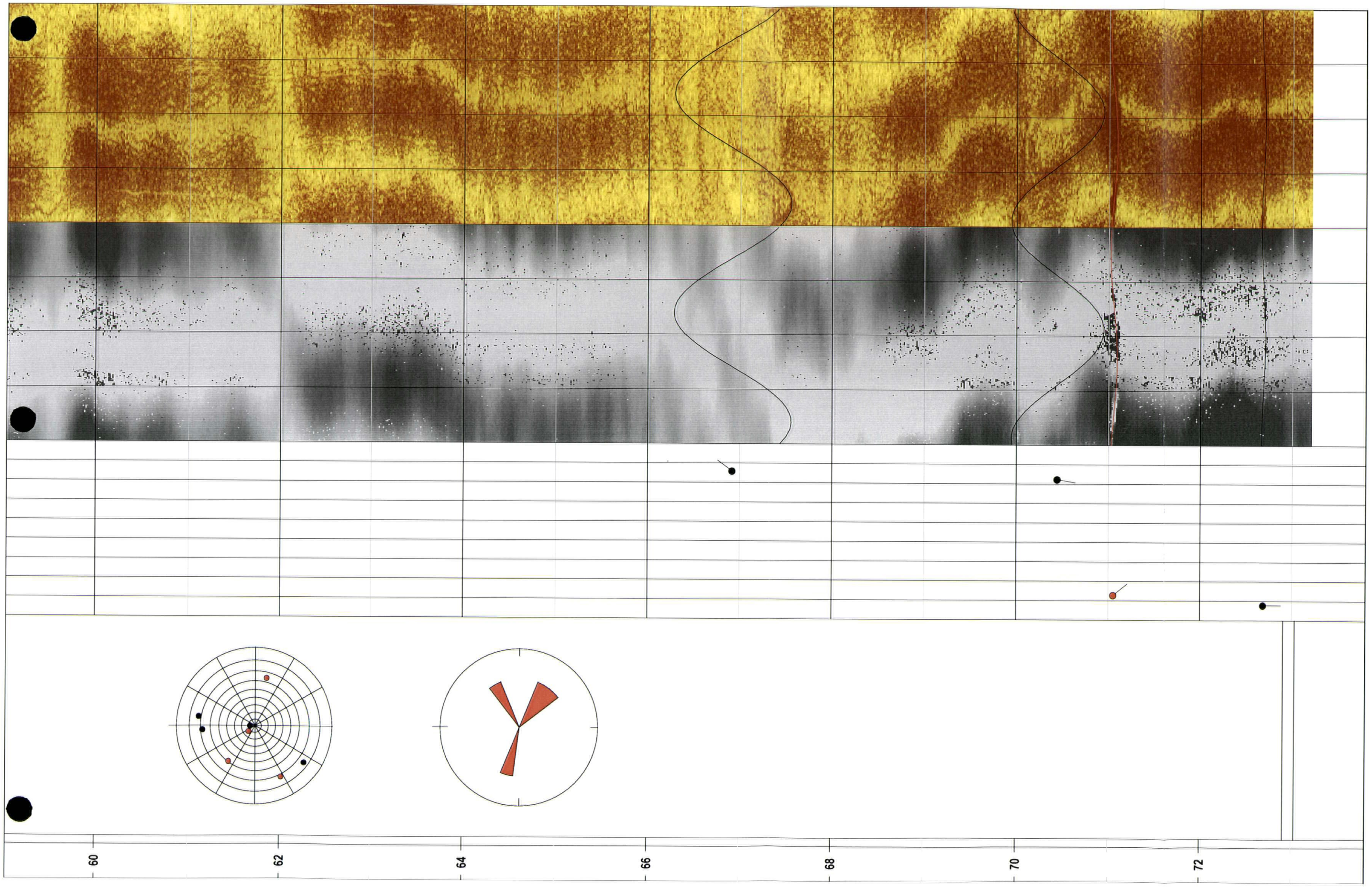
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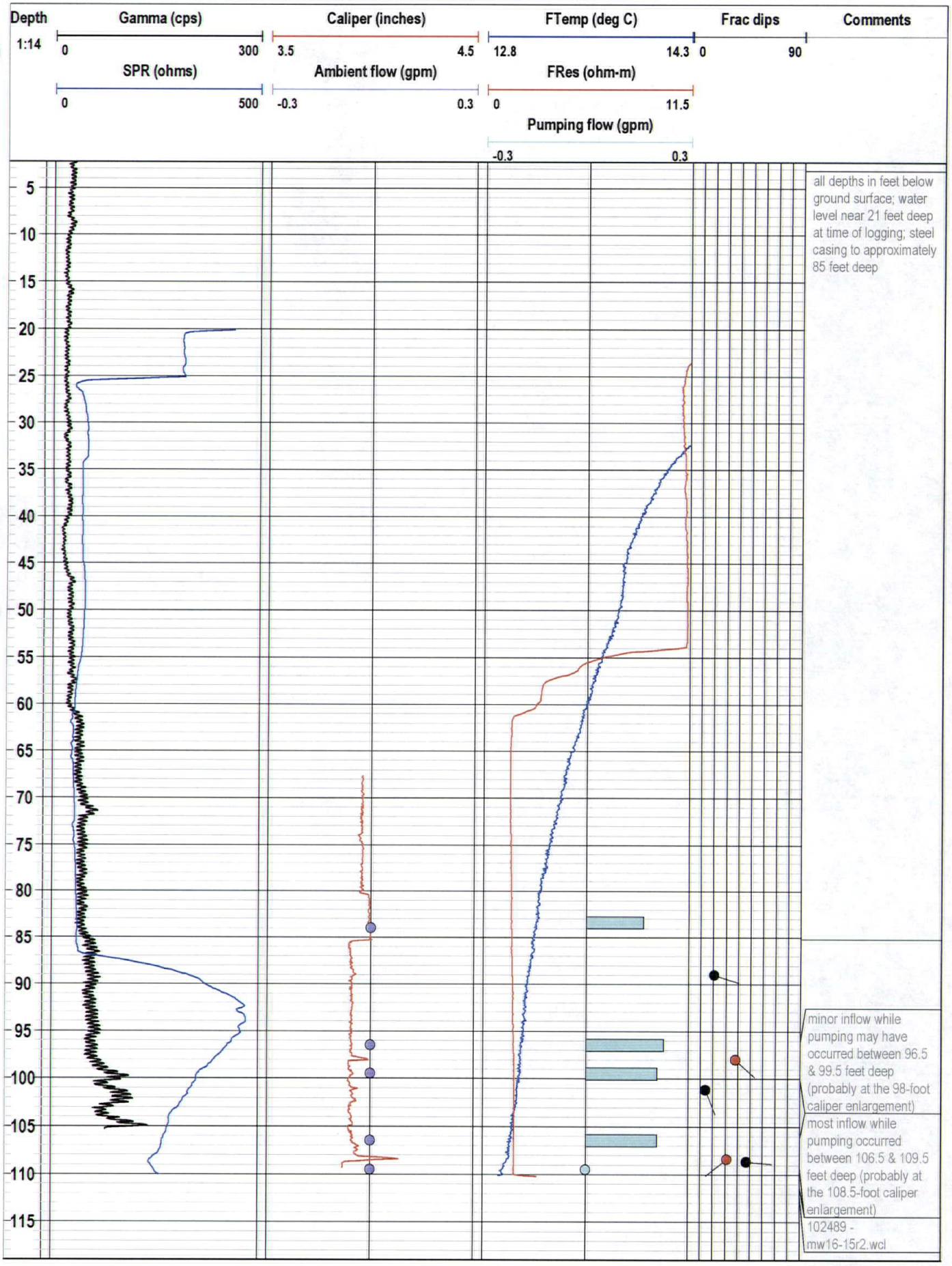

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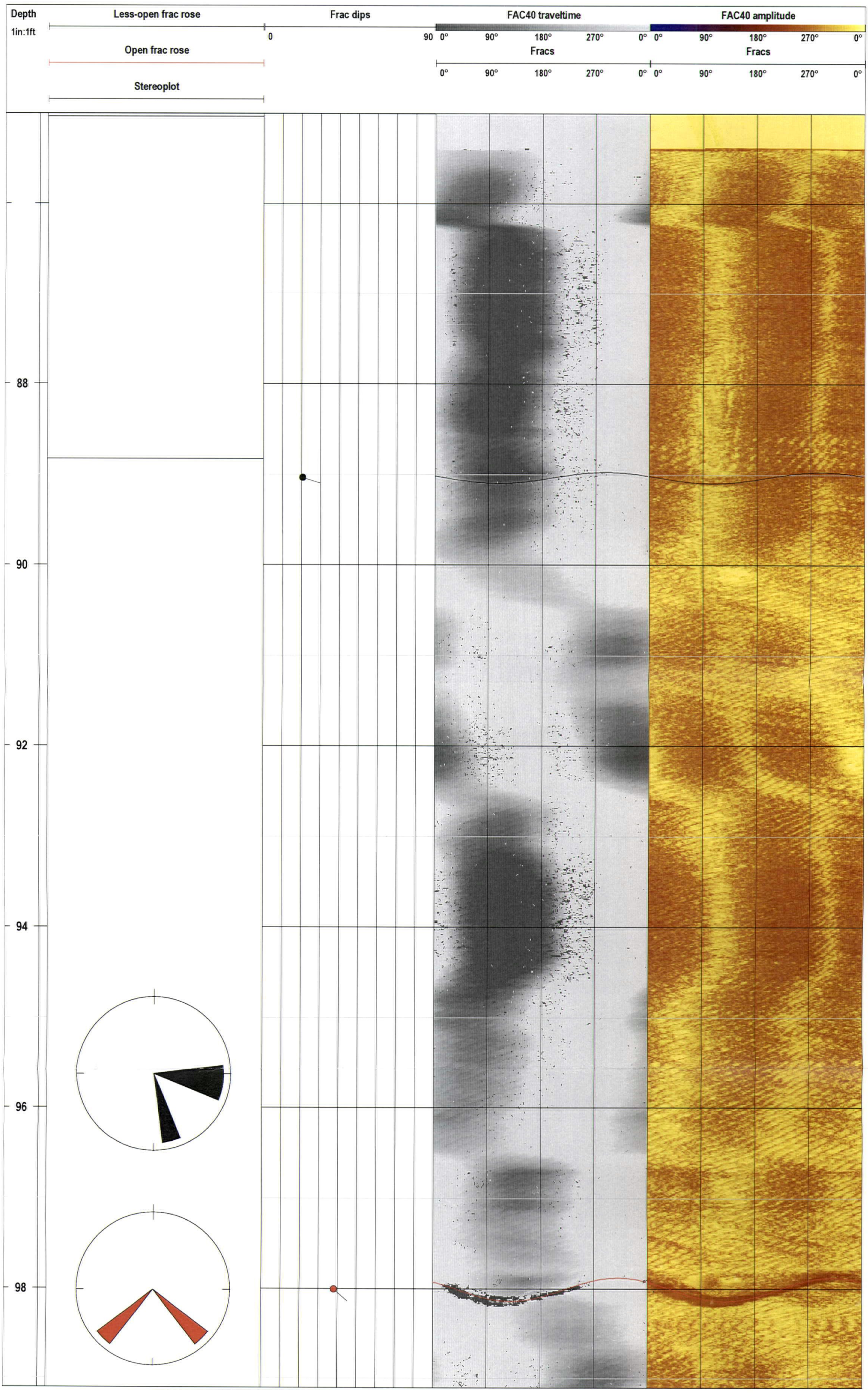

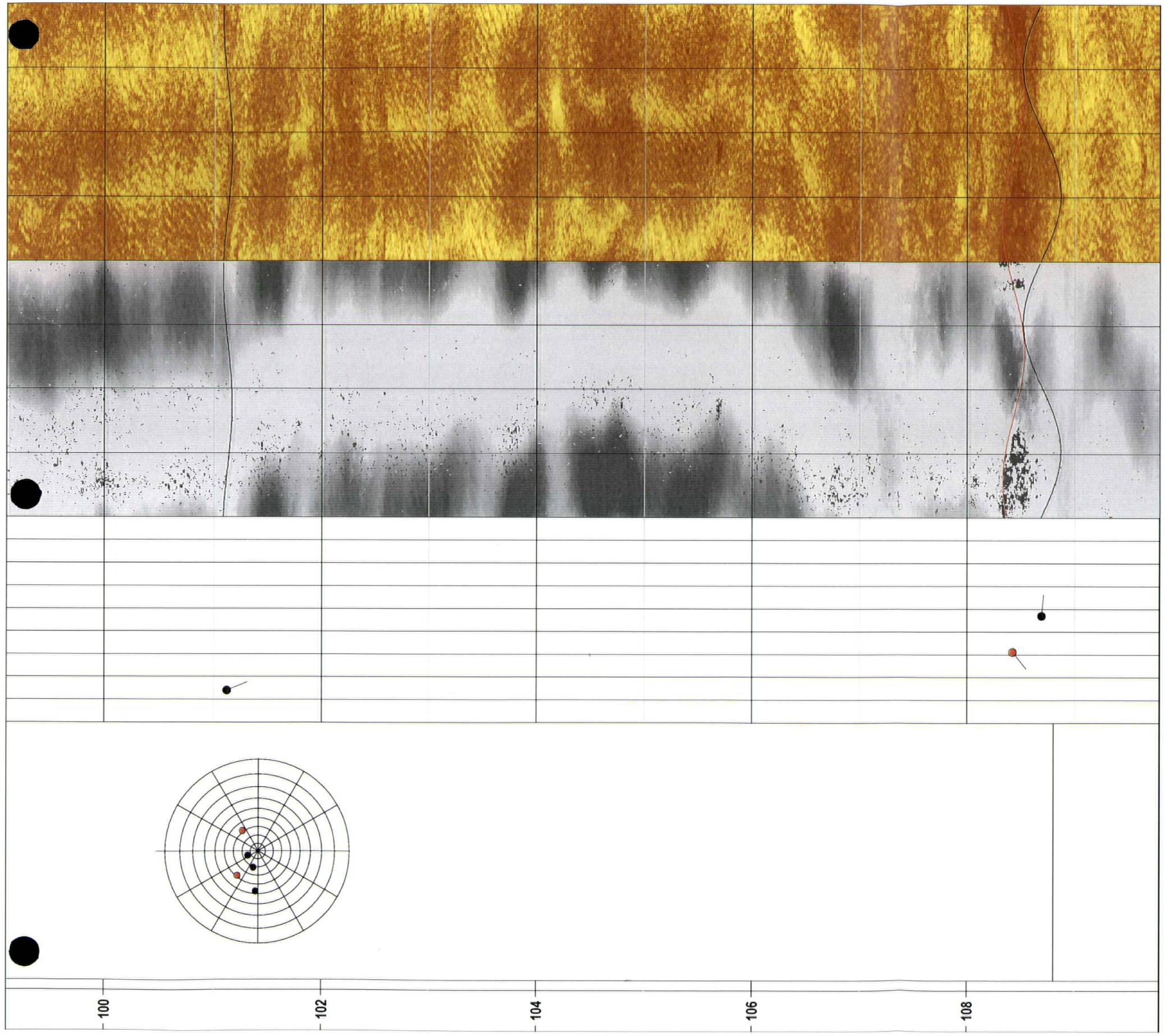
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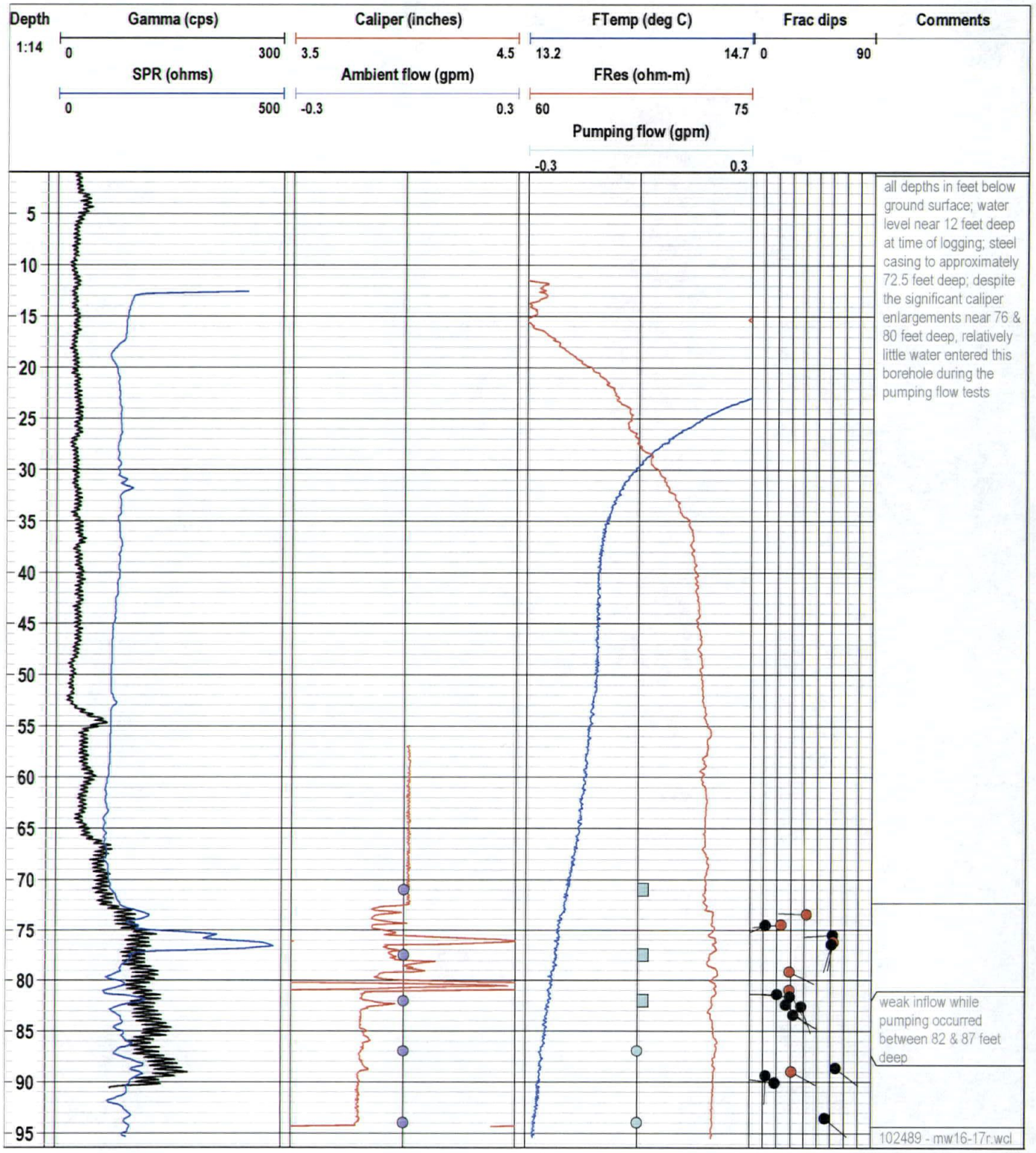

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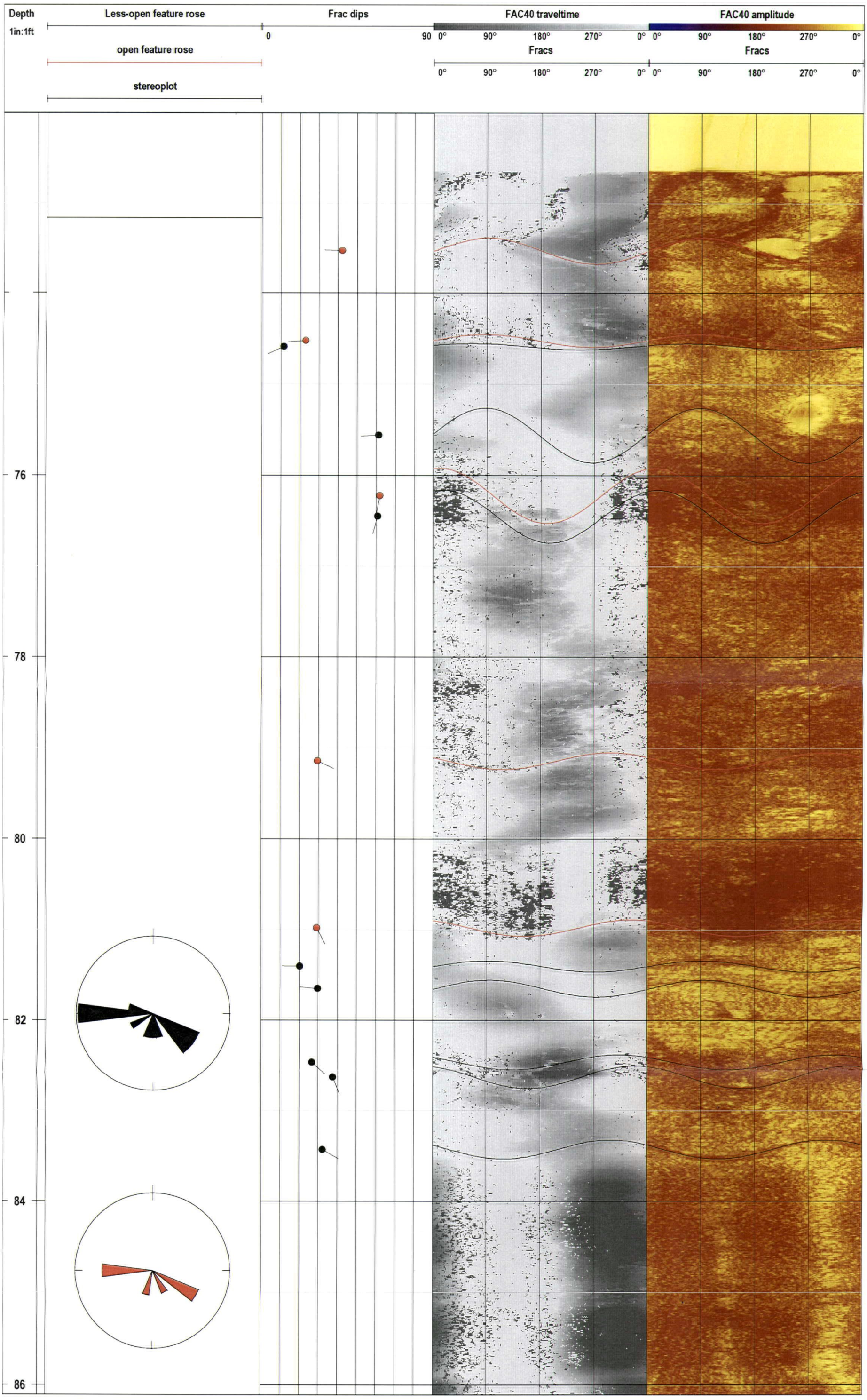

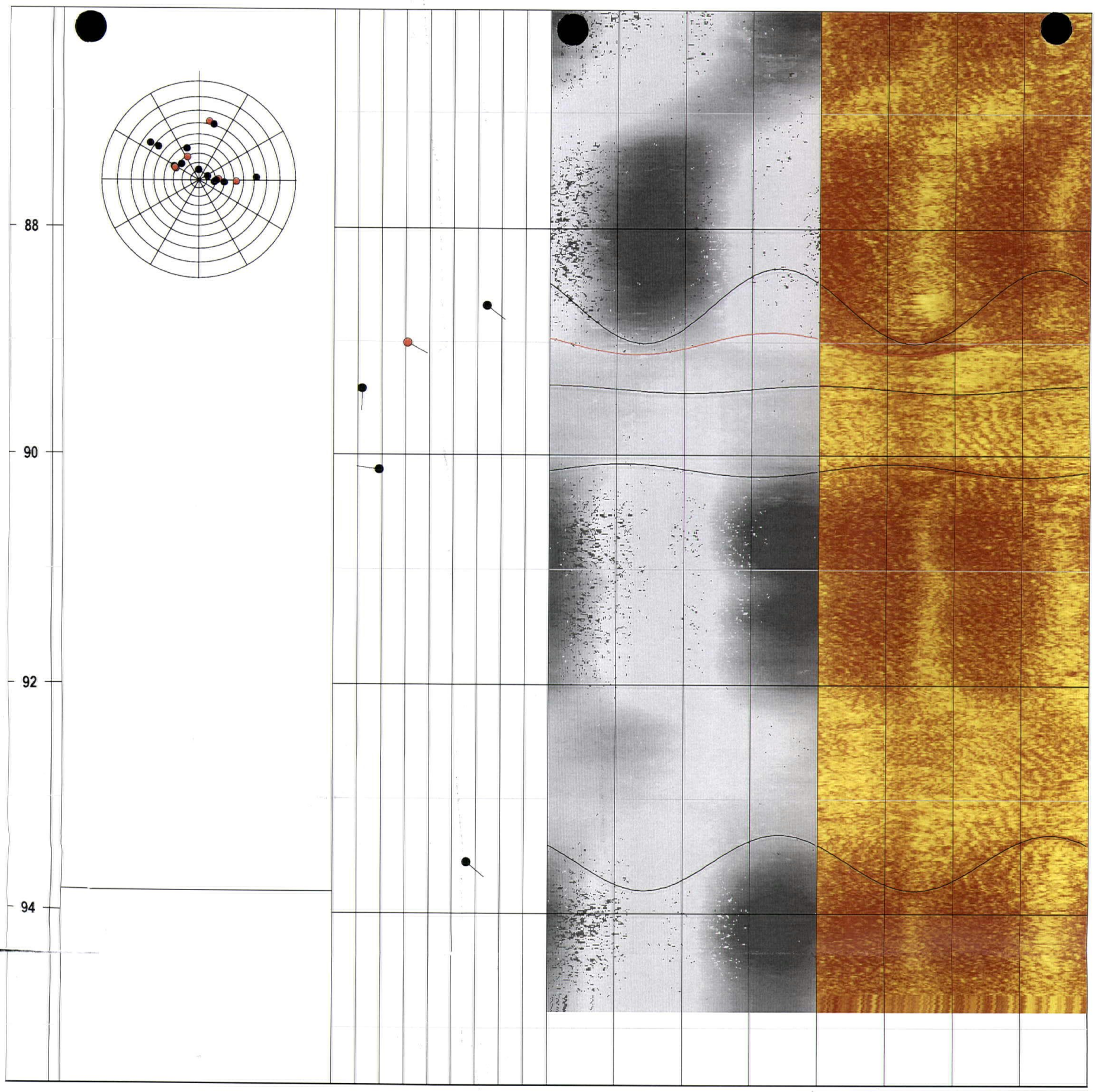
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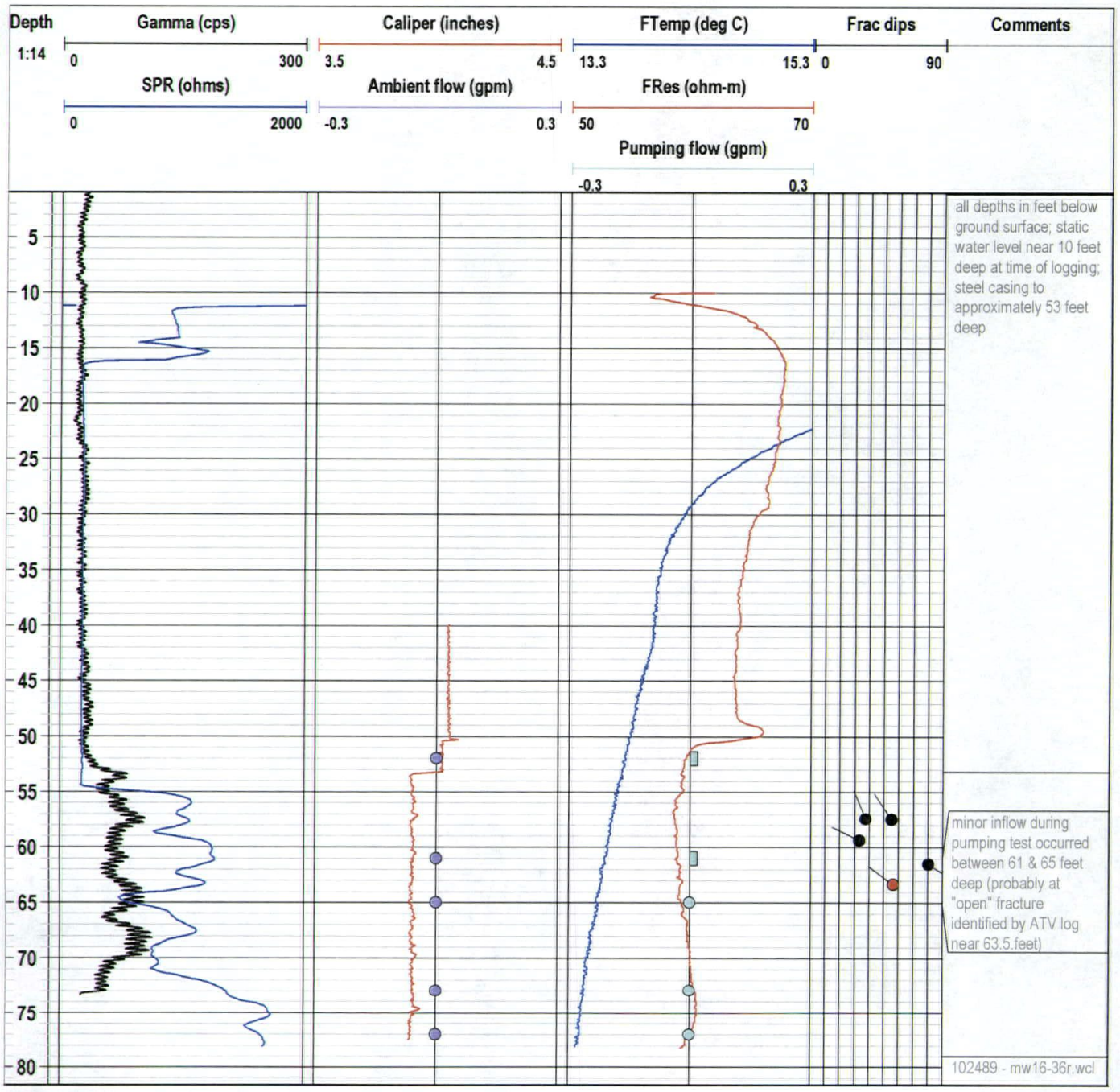

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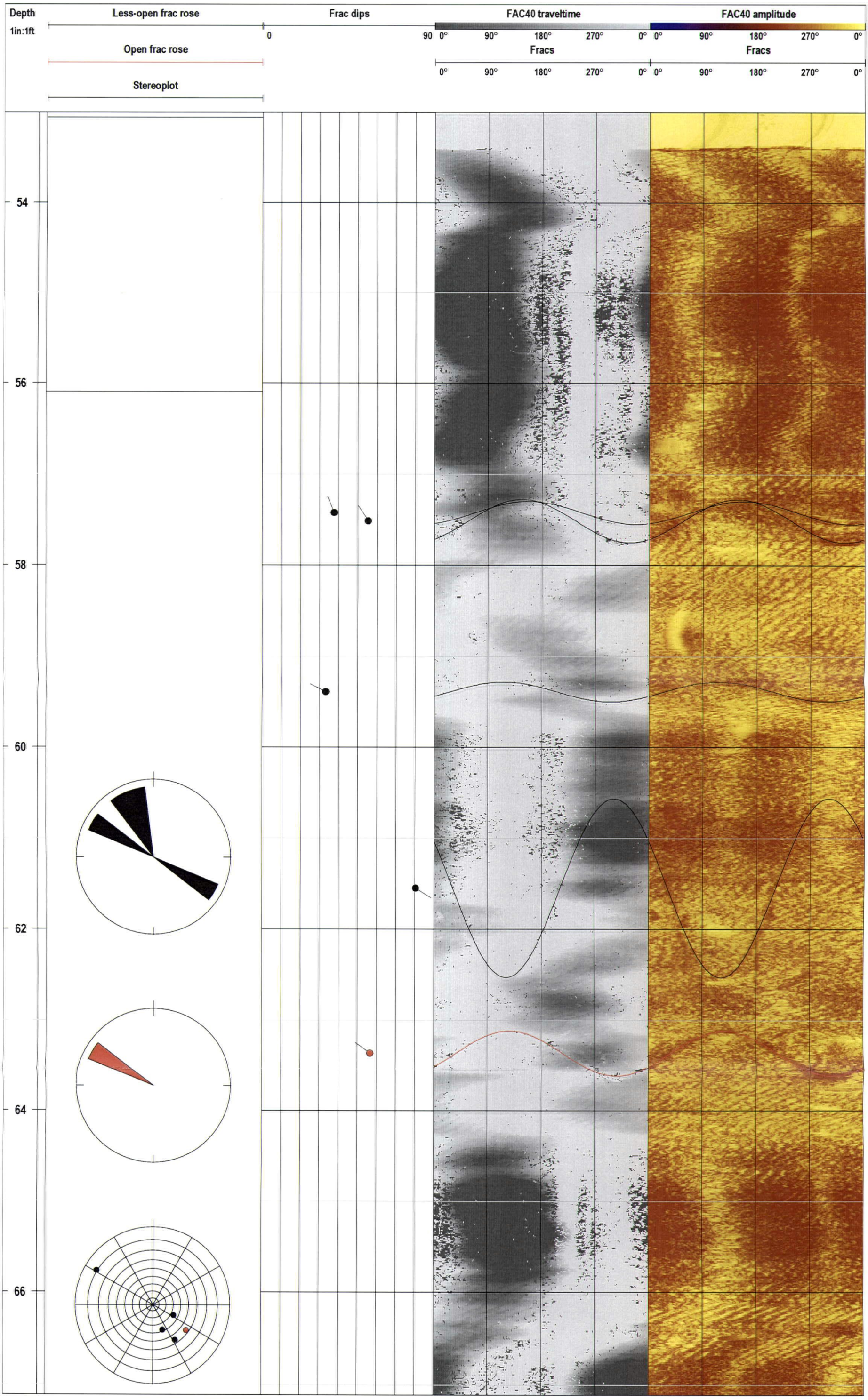

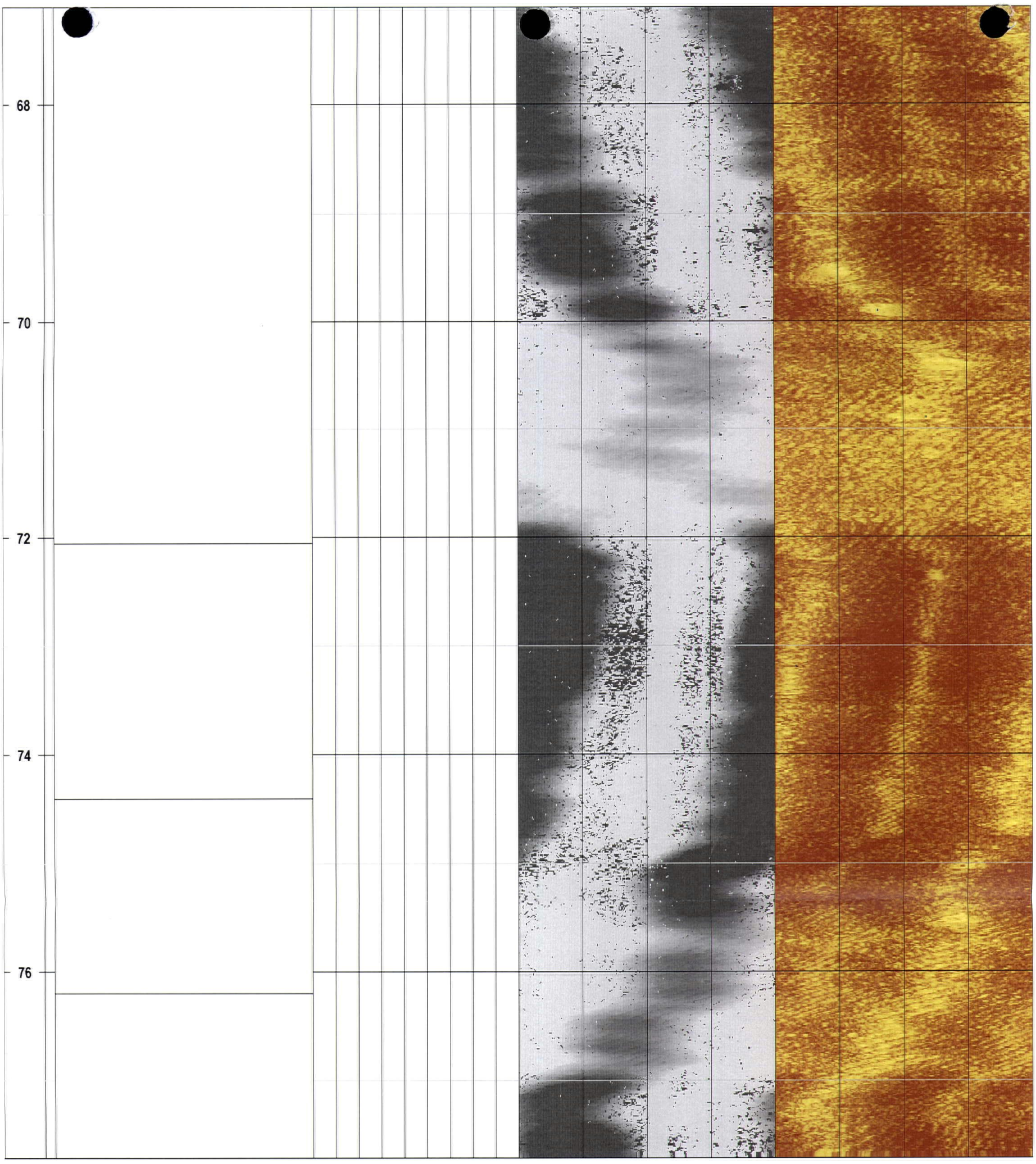
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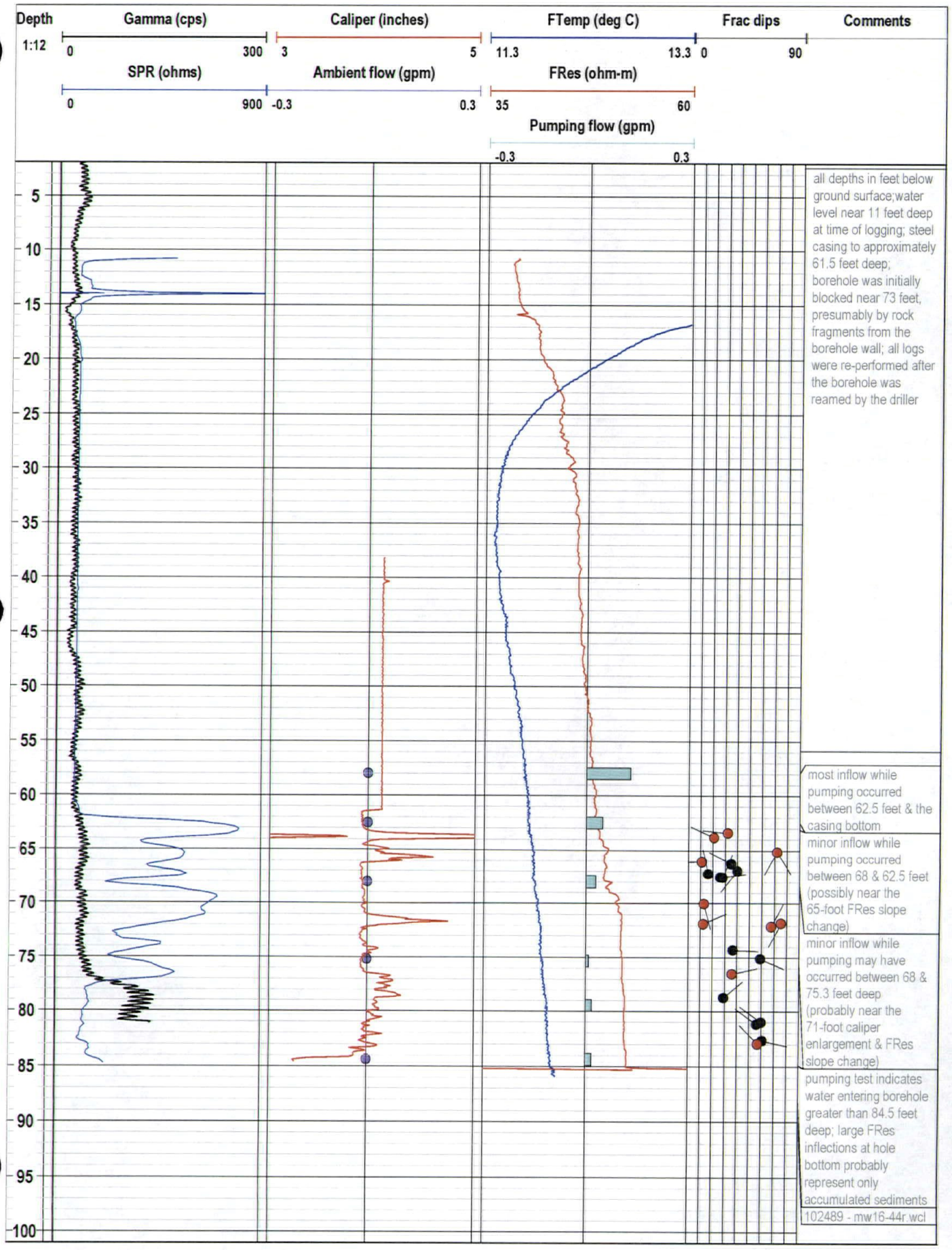
Project - Well: EA Engineering/Davisville, RI - MW16-44R conventional logs



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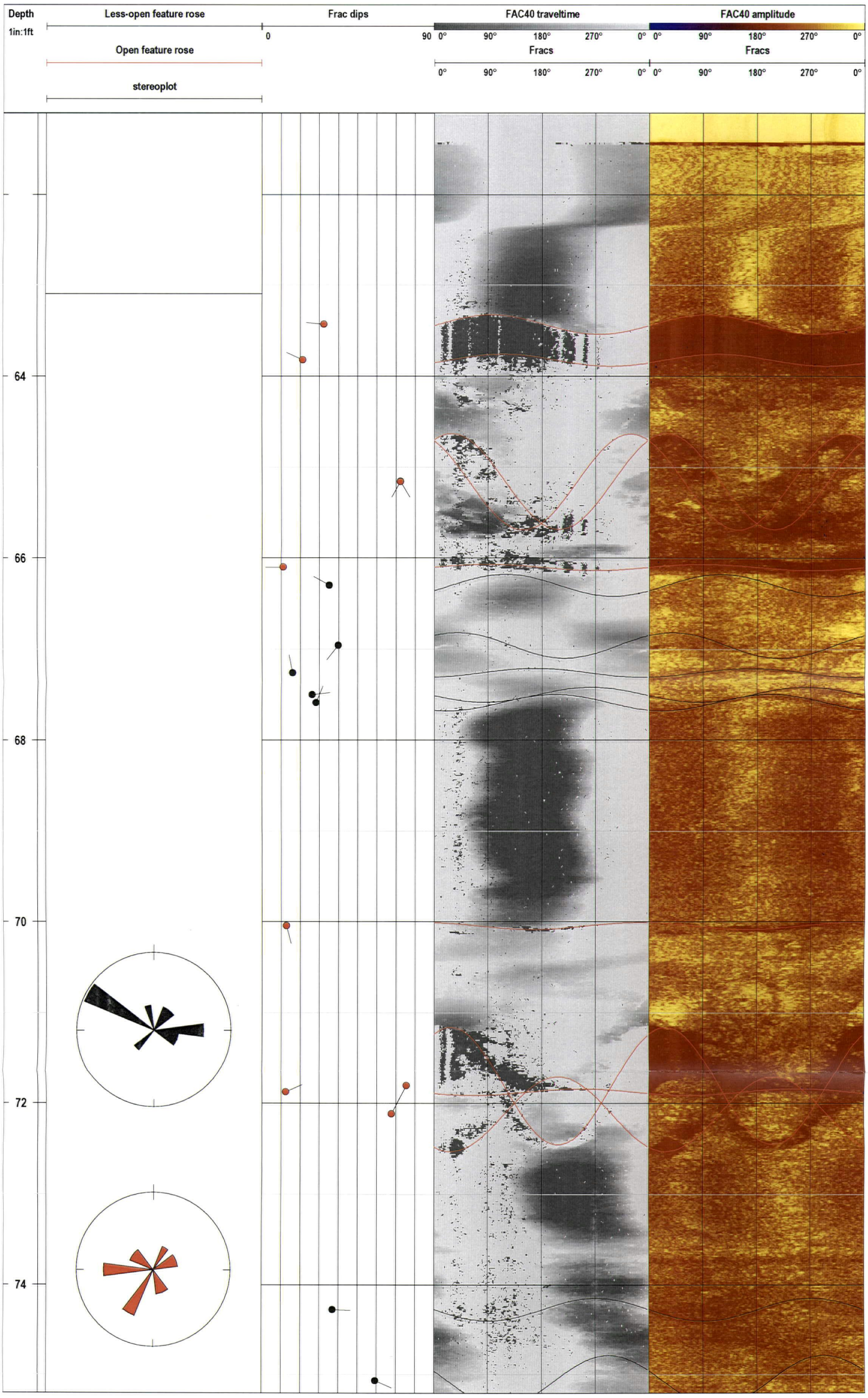

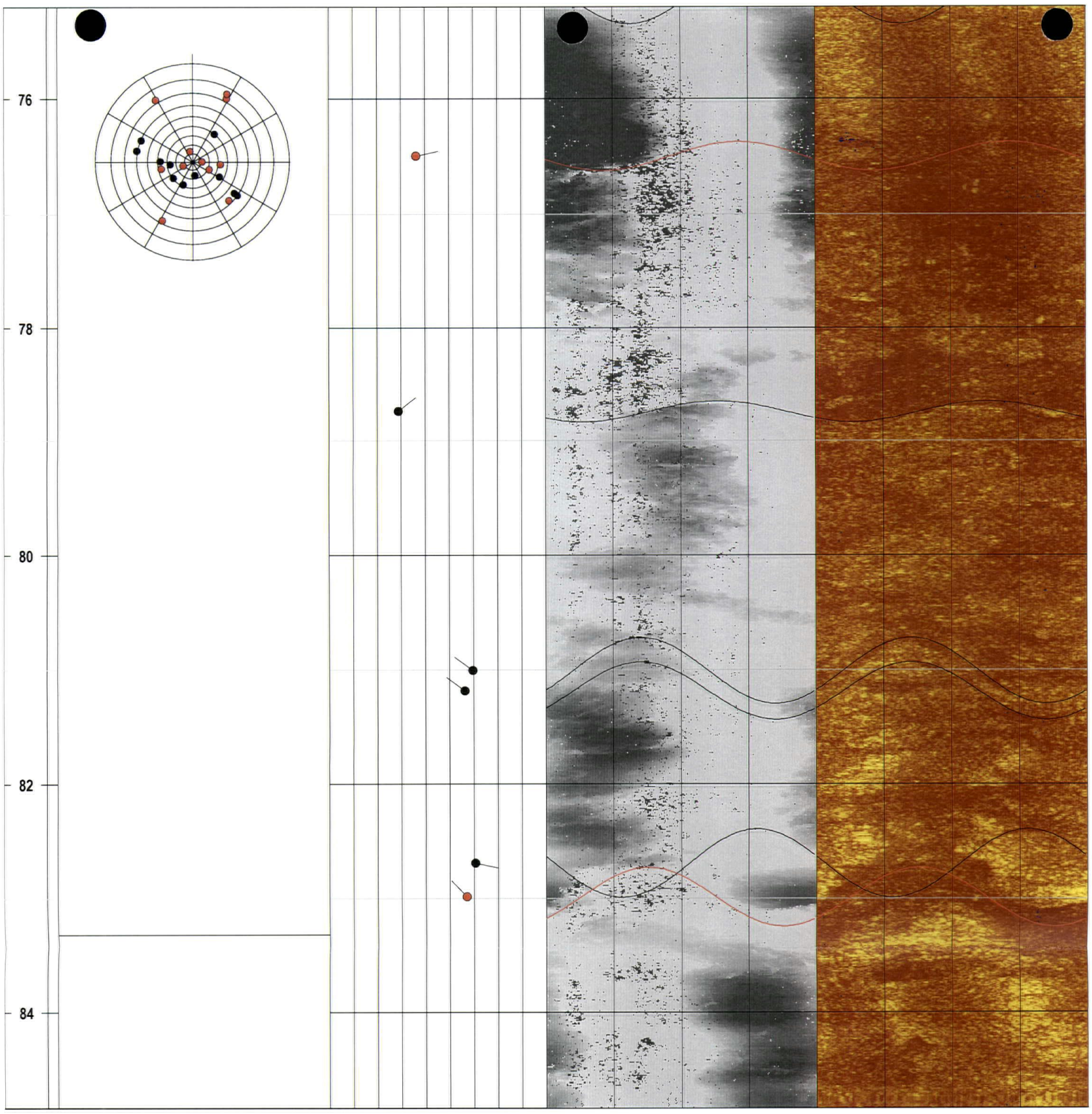
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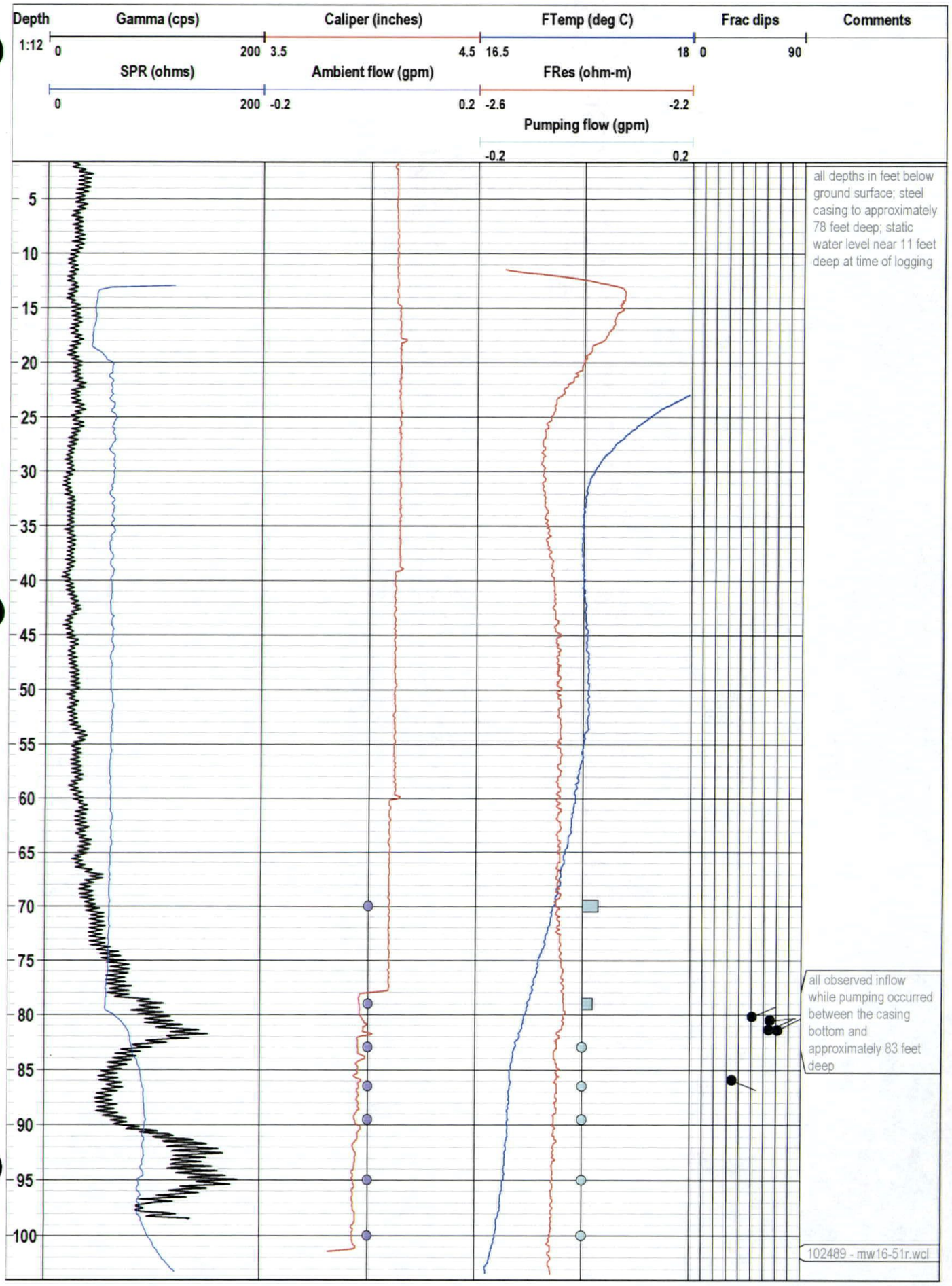
Project - Well: EA Engineering/Davisville, RI - MW16-51R conventional logs



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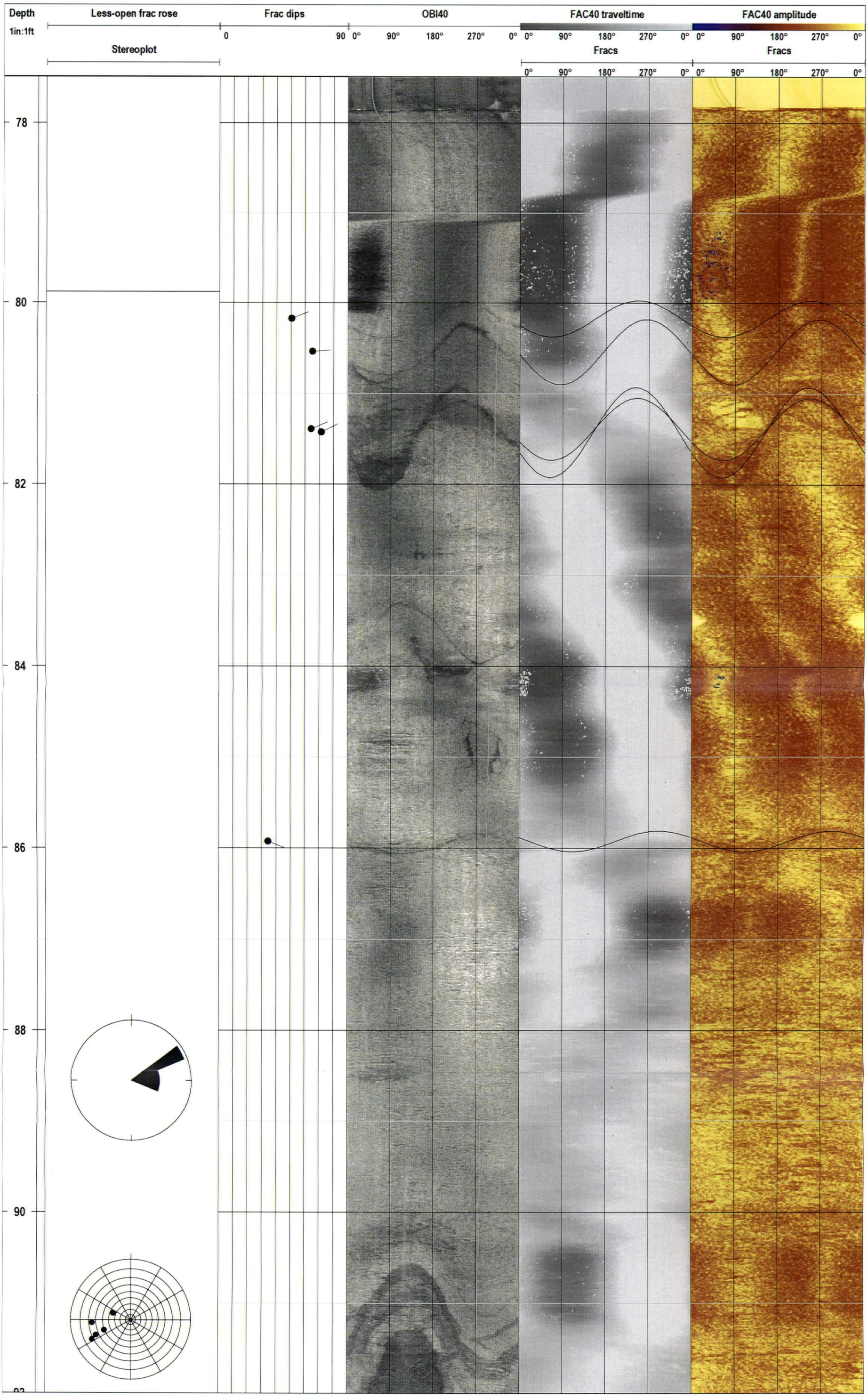

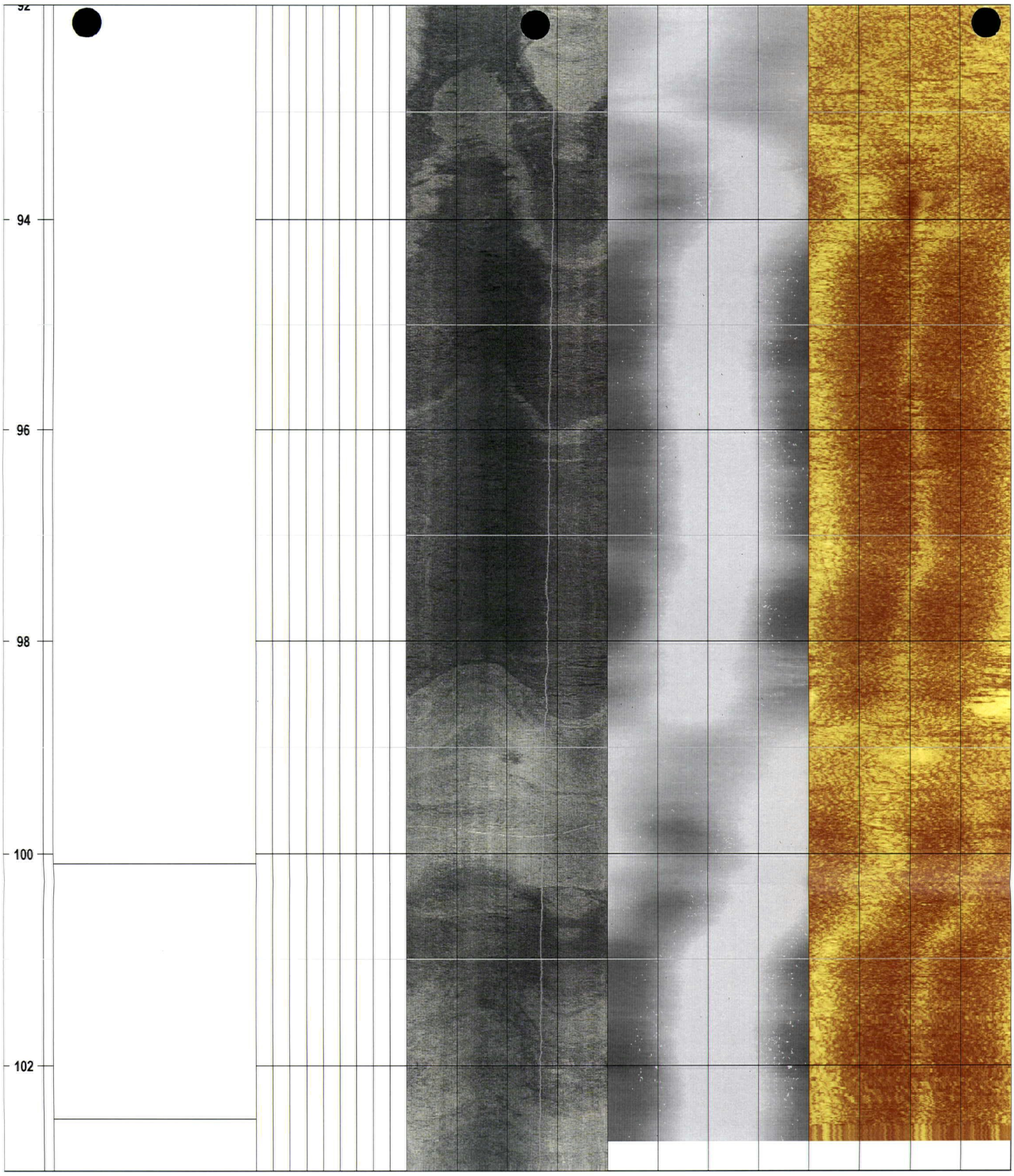
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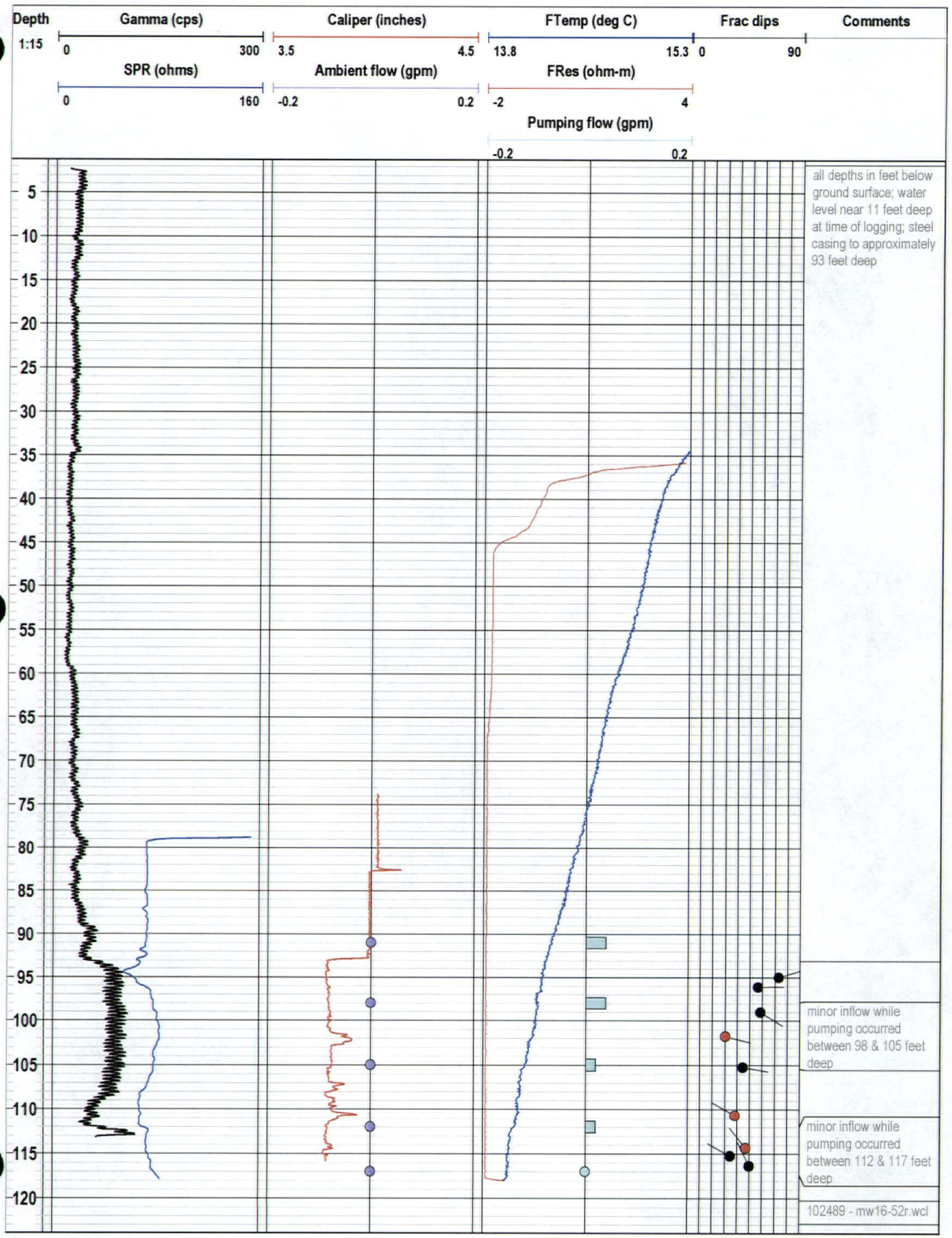
Project - Well: EA Engineering/Davisville, RI - MW16-52R conventional logs



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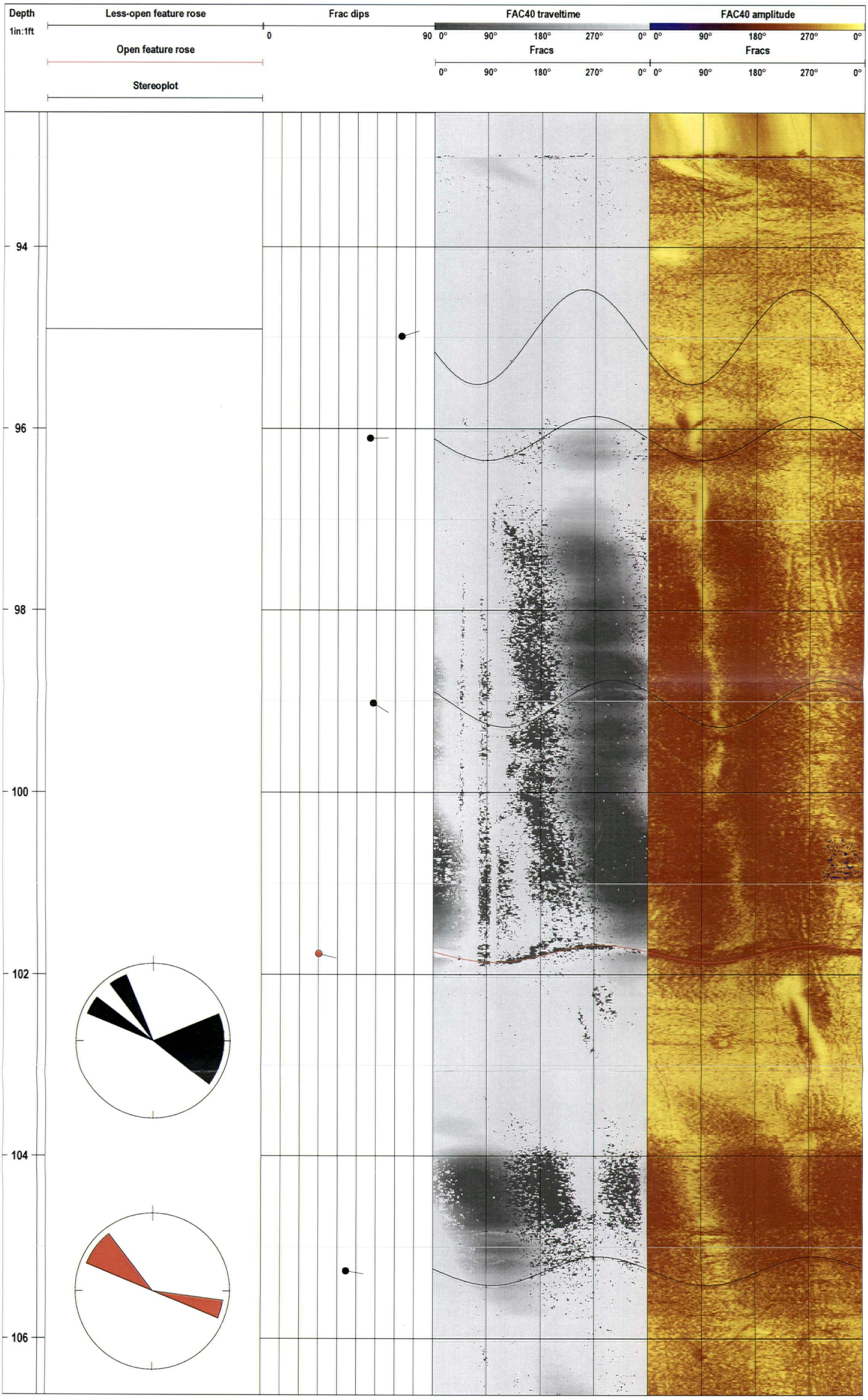

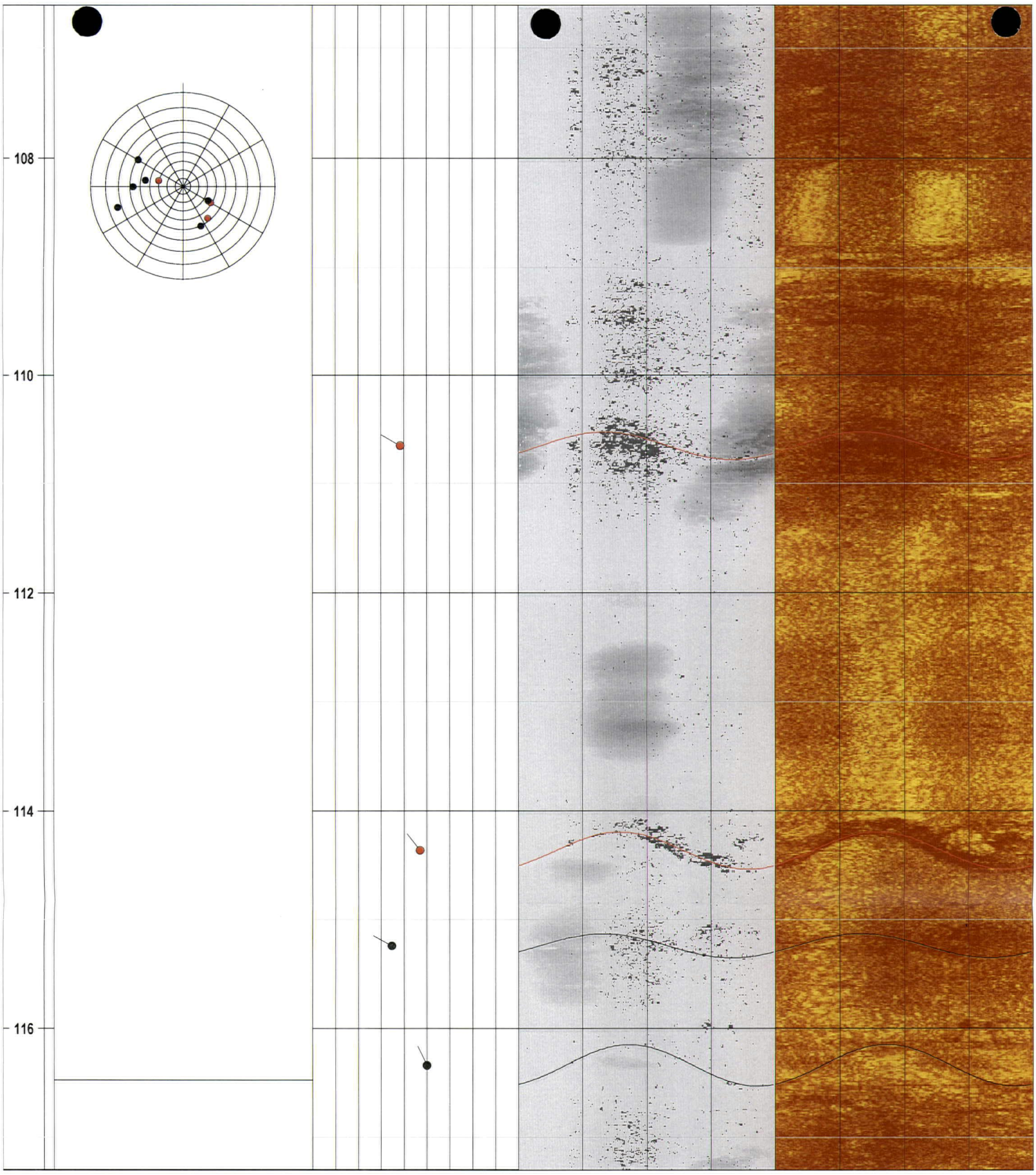
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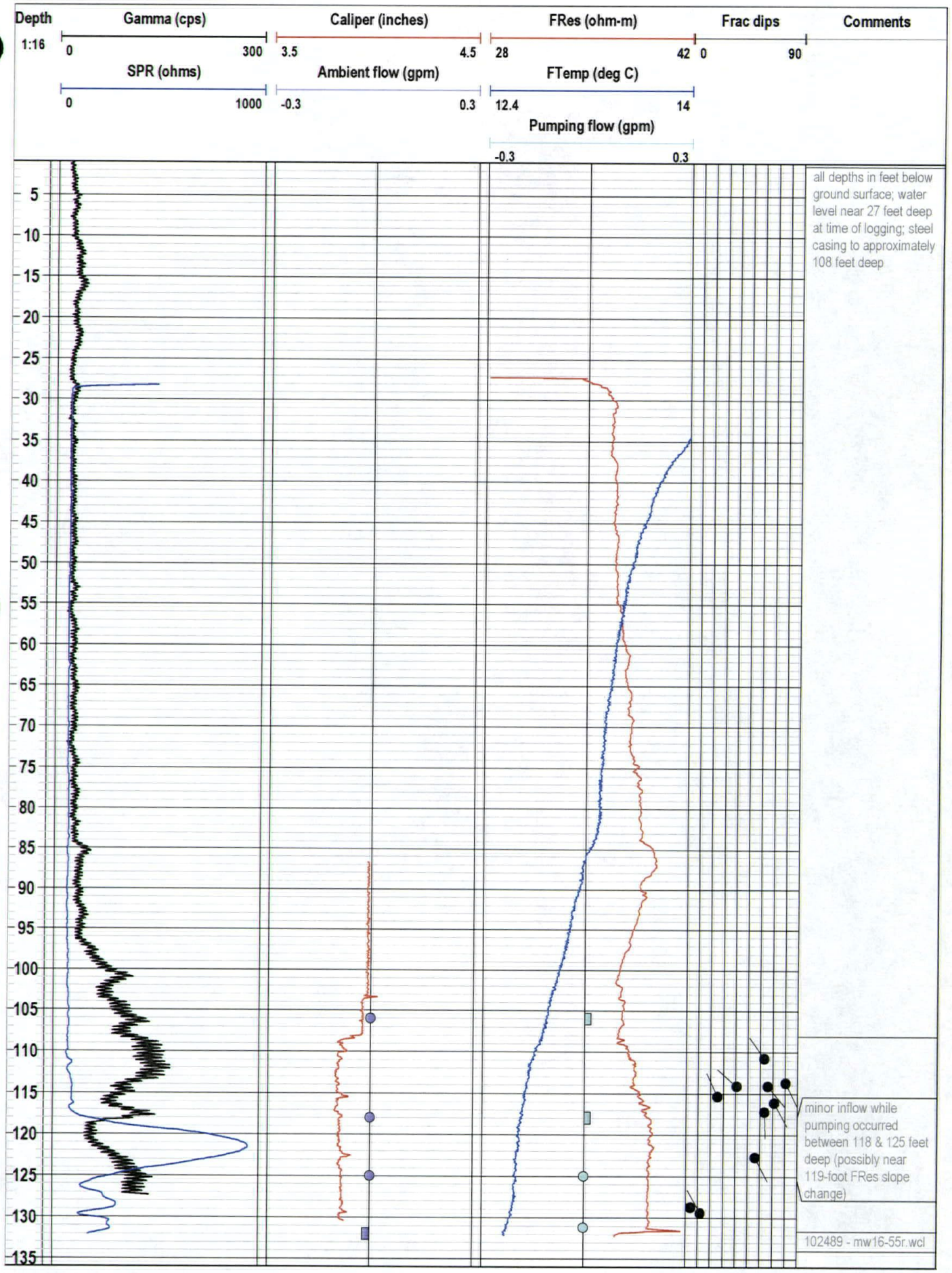
Project - Well: EA Engineering/Davisville, RI - MW16-55R conventional logs



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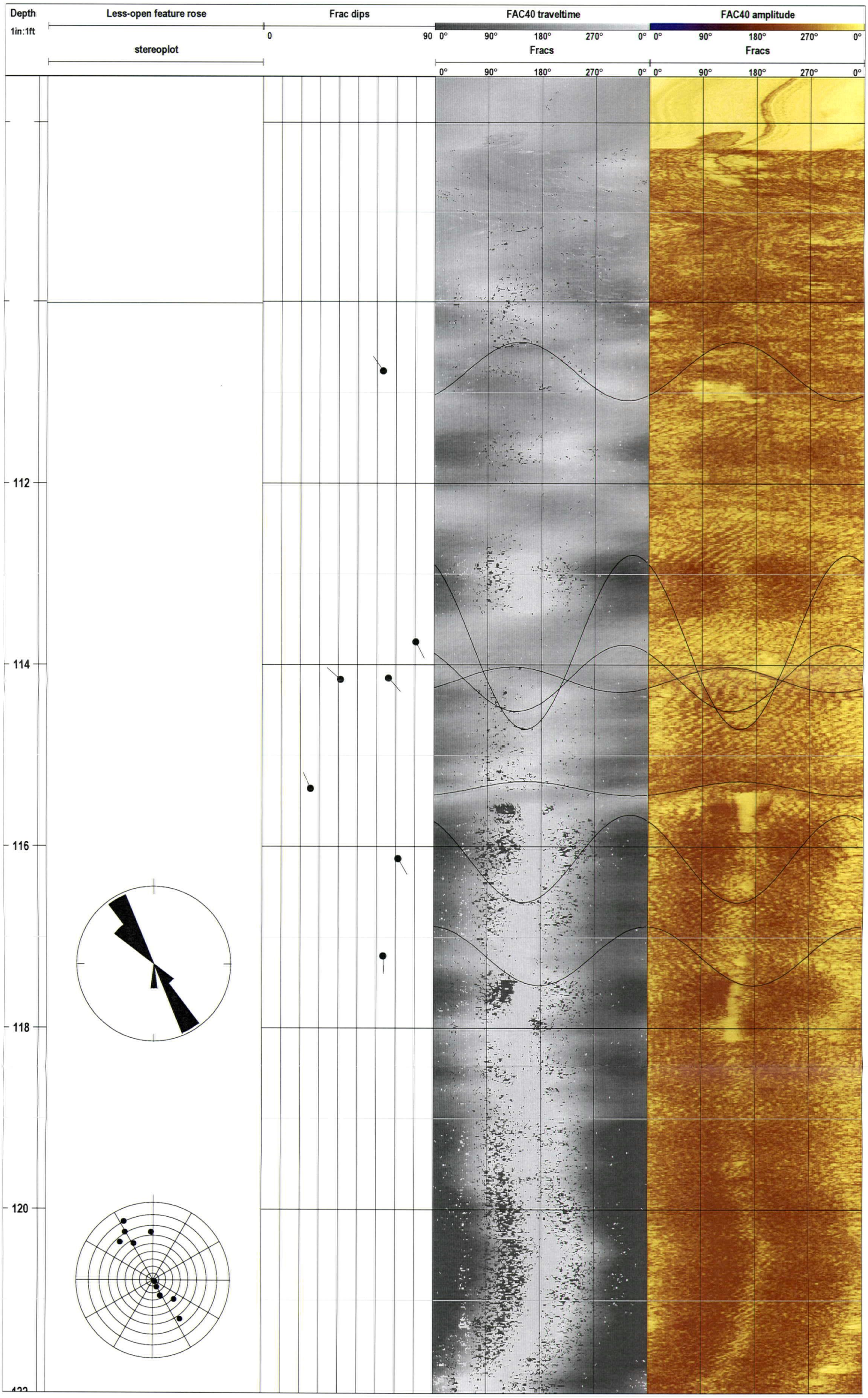

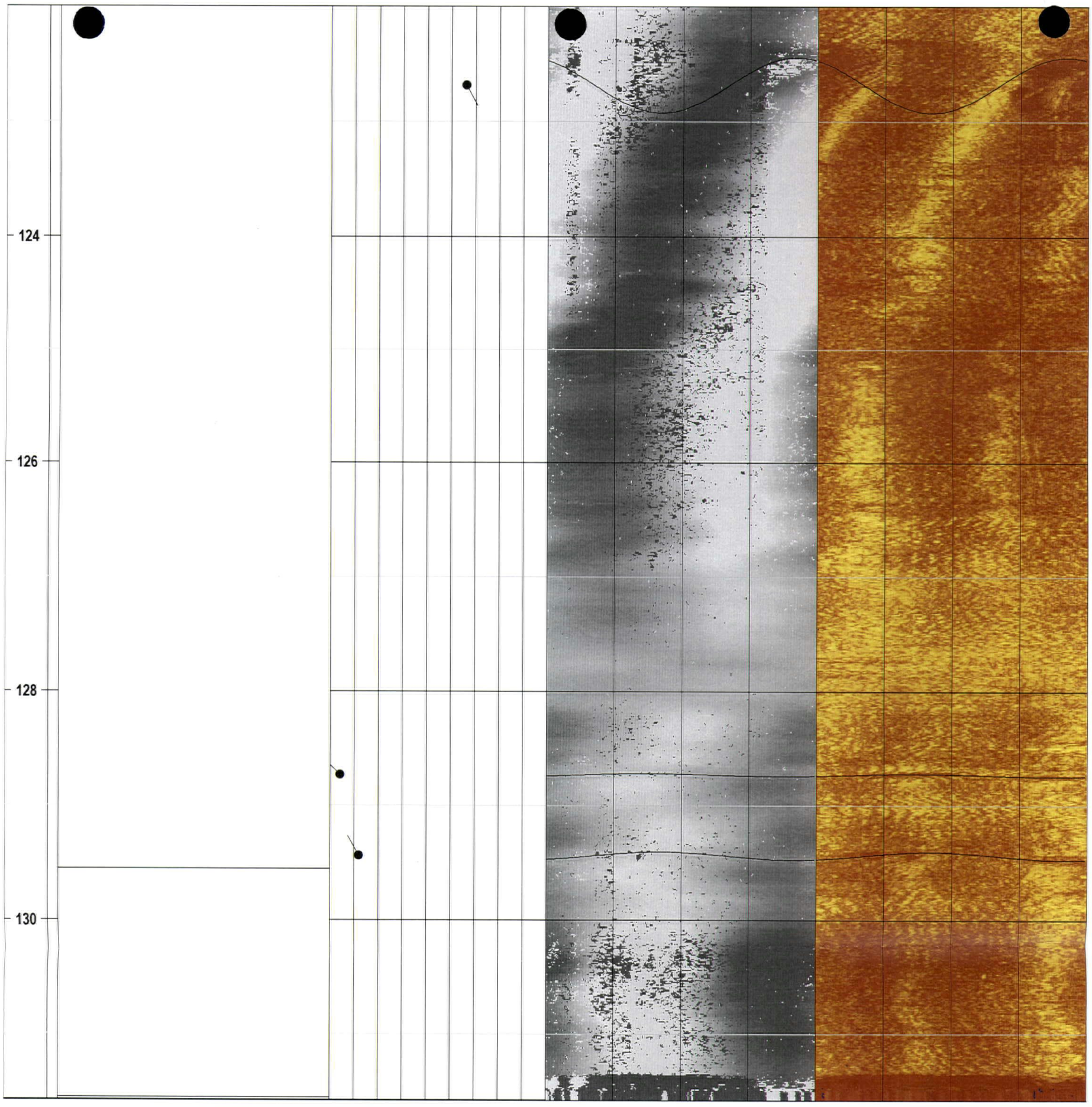
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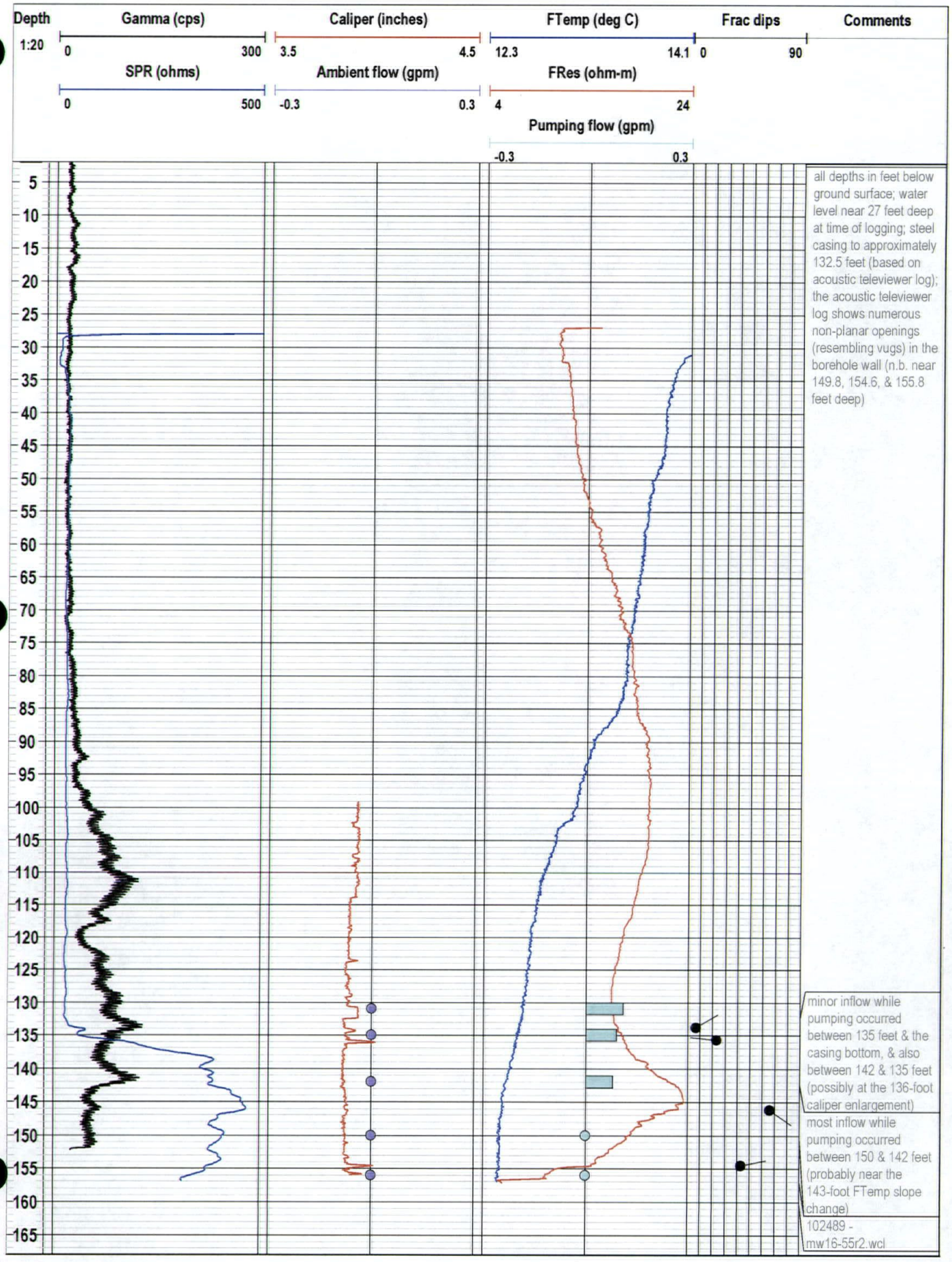
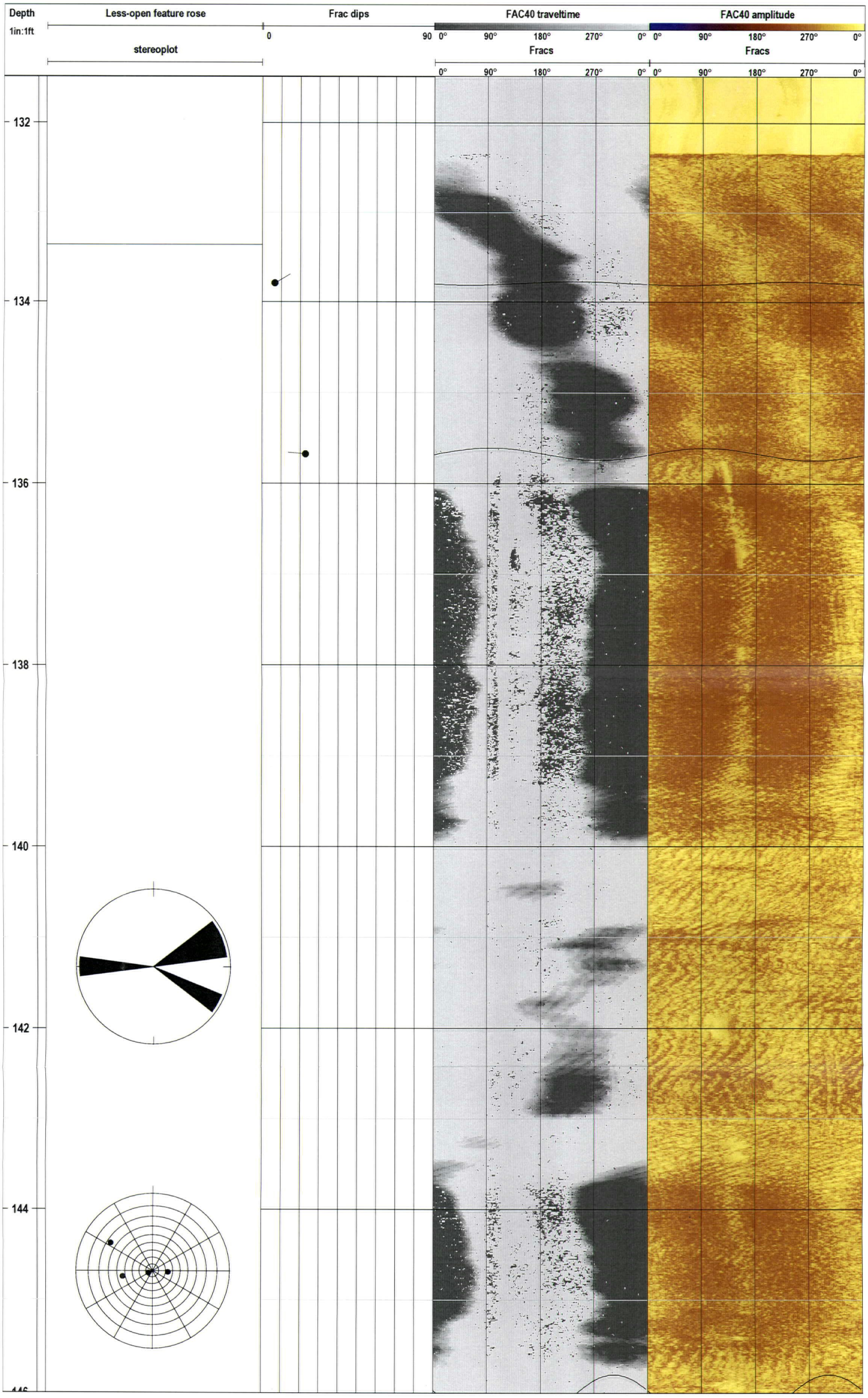
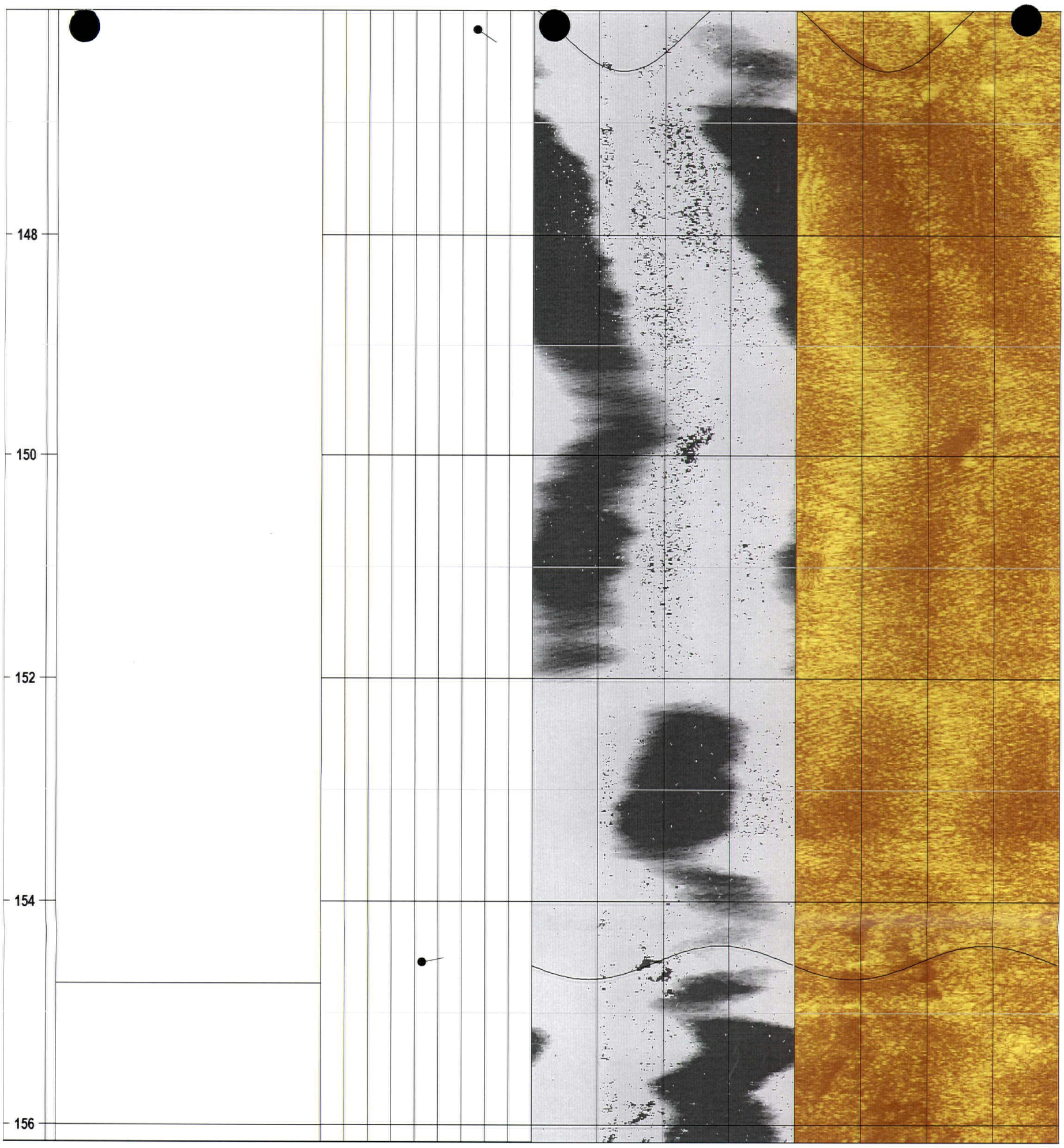
Project - Well: EA Engineering/Davisville, RI - MW16-55R2 conventional logs

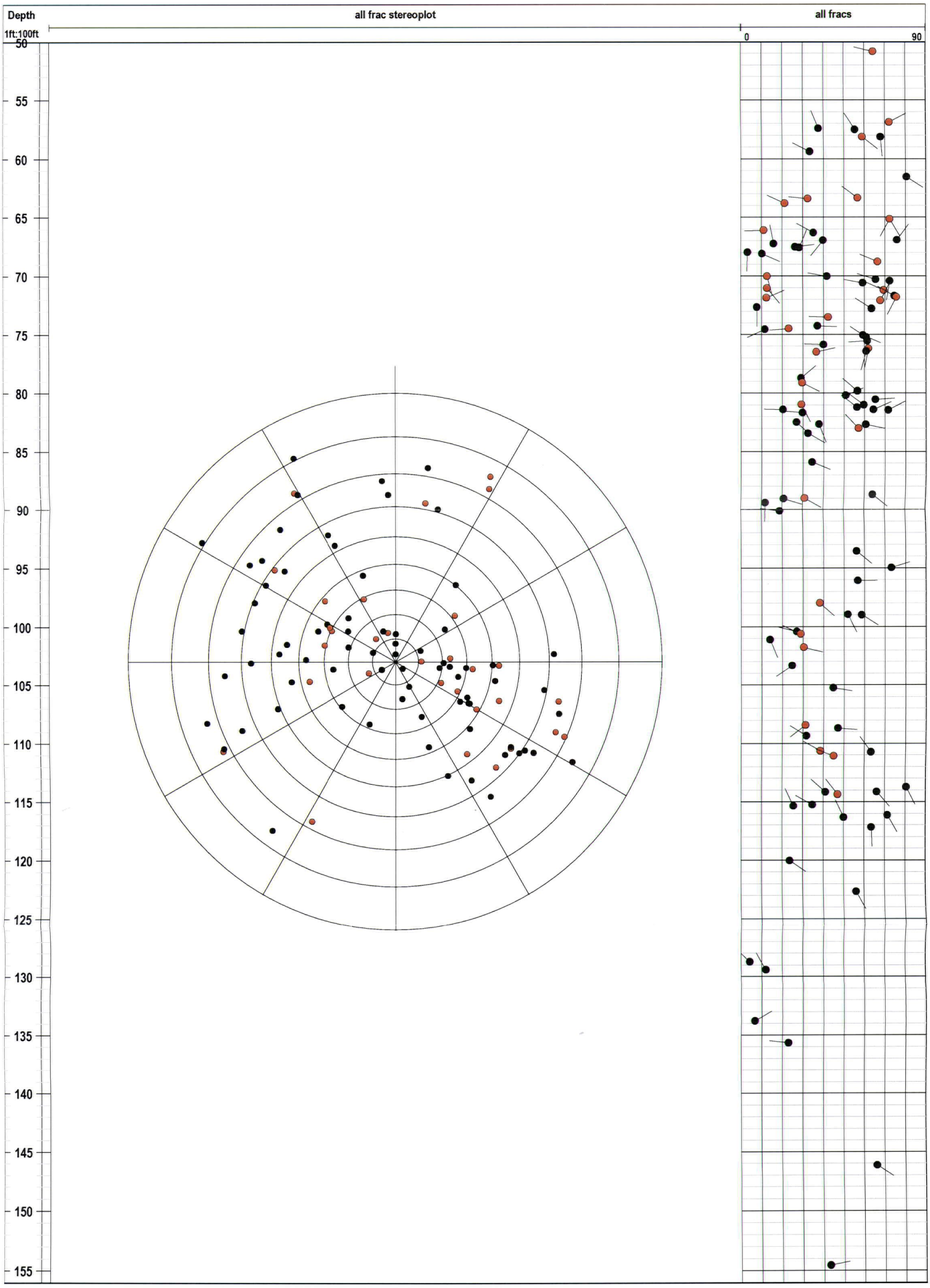


Project - Well: EA Engineering/Davisville, RI - MW16-55R2 acoustic televiewer log




148
150
152
154
156

Project - Well: EA Engineering/Davisville, RI - all interpreted fracture orientations, from 11 boreholes



Appendix B

Fracture Orientations Measured from Acoustic Televiewer Logs

Fracture Orientations from MW16-02R2 Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-02r2i.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
99.0	152.3	52.0	100
100.4	283.4	27.2	100
100.6	295.3	29.0	105
103.3	236.9	25.0	100
109.4	301.5	31.9	100
111.1	290.6	45.2	105
120.1	122.8	23.8	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-05R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-05ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
68.0	181.4	3.4	100
68.1	112.4	10.5	100
68.8	293.6	66.6	105
70.1	280.9	41.8	100
70.3	287.7	65.6	100
70.6	280.8	59.3	100
71.2	293.8	69.4	105
71.7	299.4	74.7	100
72.8	303.3	63.6	100
75.2	304.3	60.9	100
75.9	272.1	40.2	100
79.8	310.2	56.6	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-06R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-06ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
50.9	283.7	64.5	105
56.9	62.6	72.2	105
58.1	175.7	68.1	100
58.1	127.1	59.2	105
66.9	36.3	76.0	100
70.4	189.7	72.4	100
71.1	139.8	13.0	105
72.7	179.5	7.9	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-15R2 Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-15r2i.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
89.0	107.4	20.9	100
98.0	130.6	38.4	105
101.1	158.2	14.1	100
108.4	232.4	31.4	105
108.7	93.8	47.2	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-17R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-17ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
73.5	272.2	42.5	105
74.5	266.4	23.3	105
74.6	246.4	11.8	100
75.6	267.2	61.6	100
76.2	190.9	62.0	105
76.5	195.8	61.0	100
79.1	116.1	29.7	105
81.0	153.1	29.4	105
81.4	271.6	20.6	100
81.7	275.0	29.9	100
82.5	132.8	27.0	100
82.6	159.3	38.0	100
83.4	118.8	32.6	100
88.7	127.0	64.1	100
89.0	117.4	31.0	105
89.4	181.3	12.0	100
90.1	277.9	19.0	100
93.6	129.1	56.4	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-36R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-36ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
57.4	338.3	37.8	100
57.5	327.1	55.7	100
59.4	296.4	33.6	100
61.6	121.5	80.6	100
63.4	306.9	56.8	105

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-44R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-44ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
63.4	275.5	32.5	105
63.8	294.8	21.5	105
65.2	208.8	72.5	105
65.2	148.8	72.5	105
66.1	269.1	11.2	105
66.3	299.2	35.4	100
67.0	218.5	40.1	100
67.3	349.5	16.1	100
67.5	82.9	26.4	100
67.6	22.6	28.4	100
70.1	165.2	12.9	105
71.8	207.4	75.6	105
71.9	66.7	12.6	105
72.1	27.8	67.9	105
74.3	91.4	37.1	100
75.1	112.6	59.4	100
76.5	76.9	36.7	105
78.8	50.0	29.3	100
81.0	306.3	59.9	100
81.2	306.4	56.5	100
82.7	101.3	60.8	100
83.0	316.3	57.2	105

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-51R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-51ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
80.2	68.2	50.9	100
80.5	85.3	65.4	100
81.4	65.9	64.4	100
81.4	63.2	71.7	100
85.9	111.4	34.7	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-52R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-52ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
95.0	72.0	73.2	100
96.1	89.3	56.9	100
99.0	120.3	58.7	100
101.8	103.3	30.6	105
105.3	99.1	44.8	100
110.7	300.2	38.8	105
114.4	322.2	47.2	105
115.2	299.3	35.0	100
116.3	335.2	50.2	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-55R Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-55ri.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
110.8	324.6	63.4	100
113.8	153.2	80.5	100
114.2	138.7	66.4	100
114.2	311.8	41.2	100
115.4	334.2	25.7	100
116.1	149.4	71.6	100
117.2	177.5	63.8	100
122.7	151.8	56.3	100
128.7	313.9	4.4	100
129.4	330.8	12.1	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from MW16-55R2 Acoustic Televiewer Log
NCBC Davisville - Site 16
North Kingstown, RI
Prepared for EA Engineering Science & Technology
102489 - mw16-55r2i.xls

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
133.8	59.4	6.8	100
135.7	275.5	23.2	100
146.2	123.4	66.3	100
154.6	78.9	43.3	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Appendix I

Field Sampling Forms, Ground-Water Sampling, November - December 2002

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-01S Personnel: S. Sheer Start Time: 1315 Finish Time: 1550

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.38			___ Press. Transducer
Casing/Well Difference (ft): 2.00			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 27.5 (ft) Depth to Pump Intake: 25.5 (ft)

Depth to Top of Water: 23.95 (ft) Depth of Screened Interval: 17.5-27.5 (ft)

Field Hach Kit Data

Concentration of Fe: 0.03 Mg/L

Concentration of CO: 298 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-01S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-01S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-01S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-01S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-01S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-01S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-01S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-01S Personnel: S. Sheer Start Time: 1315 Finish Time: 1550

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	2	3	4	5	6	7	8
Time	1345	1350	1355	1400	1405	1410	1415
Temperature (°C)	13.27	13.58	13.05	13.98	13.99	14.01	14.00
pH	5.58	5.40	5.34	5.31	5.29	5.29	5.29
Conductivity (ms/cm)	0.985	1.095	1.093	1.100	1.083	1.049	1.016
DO (mg/L)	0.66	0.68	0.74	0.83	0.91	0.99	1.04
Turbidity (NTUs)	6.05	5.87	5.53	3.38	2.39	2.46	2.17
Salinity (ppth)	0.64	0.71	0.71	0.70	0.69	0.67	0.64
Eh (mV)	207.6	221.6	229.8	238.8	244.7	251.5	256.9
Water Level (ft from TOR)	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected sample at 1420.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-01D Personnel: J. Nafus Start Time: 1350 Finish Time: 1550

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.30			___ Press. Transducer
Casing/Well Difference (ft): 2.11			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 57.5 (ft) Depth to Pump Intake: 56 (ft)

Depth to Top of Water: 27.96 (ft) Depth of Screened Interval: 48.5-58.5 (ft)

Field Hach Kit Data

Concentration of Fe: 15.5 Mg/L

Concentration of CO: 65.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-01D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-01D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-01D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-01D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-01D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-01D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-01D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-01D Personnel: J. Nafus Start Time: 1350 Finish Time: 1550

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1.0	1.5	2.0	2.5	3.0
Time		1350	1355	1400	1405	1410	1415	1420
Temperature	(°C)	10.74	11.14	11.48	11.72	11.65	11.74	11.77
pH		5.64	6.10	6.31	6.45	6.47	6.49	6.49
Conductivity	(ms/cm)	0.185	0.192	0.208	0.220	0.226	0.228	0.232
DO	(mg/L)	6.30	4.50	2.79	1.87	1.27	0.98	0.76
Turbidity	(NTUs)	34	27	17	15	14	14	17
Salinity	(ppth)	0.12	0.13	0.13	0.14	0.15	0.15	0.15
Eh	(mV)	150.0	127.3	104.5	78.1	55.5	36.8	22.2
Water Level	(ft from TOR)	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.5	4.0	4.5	5.0	5.5		
Time		1425	1430	1435	1440	1445		
Temperature	(°C)	11.70	11.86	11.94	11.93	11.98		
pH		6.49	6.52	6.52	6.52	6.52		
Conductivity	(ms/cm)	0.232	0.233	0.234	0.234	0.234		
DO	(mg/L)	0.65	0.57	0.44	0.41	0.40		
Turbidity	(NTUs)	17	16	15	14	15		
Salinity	(ppth)	0.15	0.15	0.15	0.15	0.15		
Eh	(mV)	16.2	12.1	6.6	5.0	3.3		
Water Level	(ft from TOR)	23.00	23.00	23.00	23.00	23.00		
Flow Rate	(mL/min.)	100	100	100	100	100		

Notes: Collected sample at 1450.

Ground Water Field Sampling Form

Project Name. Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-02S Personnel: V. Deleone Start Time: 0830 Finish Time: 1000

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.19			___ Press. Transducer
Casing/Well Difference (ft): 2.84			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 15 (ft) Depth to Pump Intake: 13.5 (ft)

Depth to Top of Water: Below top of pump (ft) Depth of Screened Interval: 5-15 (ft)

Field Hach Kit Data

Concentration of Fe: 0.04 Mg/L

Concentration of CO: 30 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-02S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-02S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-02S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-02S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-02S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-02S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-02S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-02S Personnel: V. Deleone Start Time: 0830 Finish Time: 1000

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0	0.75	1.50	2.25			
Time	0835	0840	0845	0850			
Temperature (°C)	11.87	11.82	11.75	11.77			
pH	6.94	7.06	7.11	7.15			
Conductivity (ms/cm)	0.176	0.207	0.222	0.239			
DO (mg/L)	9.62	9.37	9.22	9.08			
Turbidity (NTUs)	36.8	5.75	2.86	2.91			
Salinity (ppth)	0.11	0.13	0.14	0.15			
Eh (mV)	213.4	214.9	215.9	216.9			
Water Level (ft from TOR)	(a)	(a)	(a)	(a)			
Flow Rate (mL/min.)	150	150	150	150			

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: (a) = water level below top of pump.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-02I Personnel: C. Springer Start Time: 0840 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.41			___ Press. Transducer
Casing/Well Difference (ft): 2.10			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 37 (ft) Depth to Pump Intake: 36 (ft)

Depth to Top of Water: 14.02 (ft) Depth of Screened Interval: 32-37 (ft)

Field Hach Kit Data

Concentration of Fe: (a) Mg/L

Concentration of CO: 300 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-02I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-02I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-02I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-02I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-02I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-02I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-02I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-02I Personnel: C. Springer Start Time: 0840 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0840	0845	0850	0855	0900	0905	0910
Temperature	(°C)	10.89	9.50	10.19	10.63	10.60	10.63	10.70
pH		7.00	6.33	6.25	6.27	6.32	6.34	6.35
Conductivity	(ms/cm)	0.067	0.075	0.078	0.081	0.088	0.091	0.092
DO	(mg/L)	5.67	4.17	2.74	2.76	2.27	2.00	1.75
Turbidity	(NTUs)	192	273	329	347	450	535	507
Salinity	(ppth)	0.05	0.05	0.05	0.05	0.06	0.06	0.06
Eh	(mV)	122.0	110.9	106.9	105.5	99.2	94.5	89.9
Water Level	(ft from TOR)	14.02	15.55	14.45	14.44	14.43	14.43	14.44
Flow Rate	(mL/min.)	200	20	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10	11		
Time		0915	0920	0925	0930	0935		
Temperature	(°C)	10.79	10.58	9.35	8.88	8.79		
pH		6.35	6.36	6.36	6.36	6.36		
Conductivity	(ms/cm)	0.093	0.093	0.090	0.089	0.090		
DO	(mg/L)	1.51	1.41	1.39	1.35	1.32		
Turbidity	(NTUs)	506	514	516	515	514		
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06		
Eh	(mV)	85.1	81.8	80.5	79.0	77.6		
Water Level	(ft from TOR)	14.50	14.29	14.25	14.25	14.25		
Flow Rate	(mL/min.)	200	200	200	200	200		

Notes: (a) = Cannot read, turbidity > 500 NTU.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/5/02

Well ID: MW16-02D Personnel: S. Sheer Start Time: 0830 Finish Time: 1045

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked: √ Yes ___ No

Protective Casing Secure: √ Yes ___ No

Concrete Collar Intact: √ Yes ___ No

Other: ___

Protective Casing Stick Up (ft): 2.45

Casing/Well Difference (ft): 2.11

Well Material: √ PVC/ ___ SS/Other ___

Well Diameter: √ 2-in. / ___ 4-in./ ___ 6-in./ Other

Water Level Equip. Used: √ Elect. Cond. Probe

___ Interface Probe

___ Press. Transducer

___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 76 (ft) Depth to Pump Intake: 58.5 (ft)

Depth to Top of Water: 13.66 (ft) Depth of Screened Interval: 56.5-66.5 (ft)

Field Hach Kit Data

Concentration of Fe: 2.20 Mg/L

Concentration of CO: 24.4 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-02D MW16-Dup1	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-02D MW16-Dup1	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-02D MW16-Dup1	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-02D MW16-Dup1	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-02D MW16-Dup1	< 4°C
Hydrogen sulfide		1 liter poly	MW16-02D MW16-Dup1	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-02D MW16-Dup1	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/5/02

Well ID: MW16-02D Personnel: S.Sheer Start Time: 0830 Finish Time: 1045

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		0845	0850	0855	0900	0905	0910	0915
Temperature	(°C)	11.54	11.98	12.12	12.11	12.12	12.16	12.07
pH		6.61	6.46	6.40	6.38	6.36	6.35	6.35
Conductivity	(ms/cm)	0.115	0.113	0.112	0.111	0.111	0.110	0.110
DO	(mg/L)	4.97	3.05	2.06	1.46	1.39	1.30	2.20
Turbidity	(NTUs)	11.1	6.69	4.66	2.48	0.95	0.71	0.48
Salinity	(ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Eh	(mV)	55.7	46.2	43.3	41.6	40.7	39.8	40.1
Water Level	(ft from TOR)	13.68	13.60	13.68	13.68	13.68	13.68	13.68
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9					
Time		0920	0925					
Temperature	(°C)	12.04	11.95					
pH		6.35	6.35					
Conductivity	(ms/cm)	0.111	0.111					
DO	(mg/L)	2.04	1.86					
Turbidity	(NTUs)	0.46	0.42					
Salinity	(ppth)	0.05	0.05					
Eh	(mV)	40.3	40.6					
Water Level	(ft from TOR)	13.68	13.68					
Flow Rate	(mL/min.)	200	200					

Notes: Collected samples at 0930 including Dup01

Ground Wat r Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-02R Personnel: V. Deleone Start Time: 1310 Finish Time: 1530

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.11			___ Press. Transducer
Casing/Well Difference (ft): 1.82			___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 95 (ft) Depth to Pump Intake: 80 (ft)

Depth to Top of Water: 13.90 (ft) Depth of Screened Interval: 70-95 (ft)

Field Hach Kit Data

Concentration of Fe: 3.08 Mg/L

Concentration of CO: 32 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-02R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-02R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-02R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-02R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-02R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-02R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-02R	HCL, < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-02R Personnel: V. Deleone Start Time: 1330 Finish Time: 1530

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1325	1330	1335	1340	1345	1350	1355
Temperature	(°C)	12.82	12.55	12.60	12.58	12.56	12.53	12.55
pH		6.91	6.90	6.83	6.87	6.90	6.92	6.91
Conductivity	(ms/cm)	0.114	0.116	0.115	0.114	0.114	0.114	0.113
DO	(mg/L)	2.32	1.83	1.66	1.46	1.46	1.34	1.25
Turbidity	(NTUs)	143	38.4	25.5	17.8	14.3	15.5	15.5
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	-63.7	-87.4	-92.0	-90.6	-88.8	-84.3	-84.8
Water Level	(ft from TOR)	14.20	14.18	14.16	14.14	14.12	14.10	14.08
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9				
Time		1400	1405	1410				
Temperature	(°C)	12.58	12.55	12.50				
pH		6.90	6.89	6.89				
Conductivity	(ms/cm)	0.114	0.113	0.113				
DO	(mg/L)	1.13	1.09	1.04				
Turbidity	(NTUs)	16.5	15.4	15.6				
Salinity	(ppth)	0.07	0.07	0.07				
Eh	(mV)	-82.5	-81.1	-80.5				
Water Level	(ft from TOR)	14.07	14.07	14.07				
Flow Rate	(mL/min.)	200	200	200				

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-02R2 Personnel: C. Springer Start Time: 1330 Finish Time: 1450

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green/red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.55			___ Press. Transducer
Casing/Well Difference (ft): 1.54			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 121 (ft) Depth to Pump Intake: 105 (ft)

Depth to Top of Water: 13.47 (ft) Depth of Screened Interval: 96-111 (ft)

Field Hach Kit Data

Concentration of Fe: 3.17 Mg/L

Concentration of CO: 0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-02R2	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-02R2	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-02R2	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-02R2	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-02R2	< 4°C
Hydrogen sulfide		1 liter poly	MW16-02R2	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-02R2	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-02R2 Personnel: C. Springer Start Time: 1330 Finish Time: 1450

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green/red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1330	1335	1340	1345	1350	1355	1400
Temperature	(°C)	8.09	10.40	11.37	11.68	11.82	11.84	11.80
pH		11.80	12.72	12.82	12.52	12.74	12.63	12.71
Conductivity	(ms/cm)	0.772	2.031	2.231	2.397	2.476	2.479	2.477
DO	(mg/L)	7.56	2.66	1.69	0.97	0.65	0.41	0.37
Turbidity	(NTUs)	3.94	2.72	1.17	0.75	0.69	0.93	0.93
Salinity	(ppth)	0.39	1.05	1.15	1.25	1.28	1.29	1.29
Eh	(mV)	216.2	185.2	156.4	134.7	121.4	110.5	105.5
Water Level	(ft from TOR)	13.47	13.52	13.53	13.53	13.53	13.53	13.53
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8					
Time		1405	1410					
Temperature	(°C)	11.47	11.39					
pH		12.50	12.45					
Conductivity	(ms/cm)	2.480	2.490					
DO	(mg/L)	0.36	0.37					
Turbidity	(NTUs)	0.93	0.93					
Salinity	(ppth)	1.29	1.29					
Eh	(mV)	101.9	1.001					
Water Level	(ft from TOR)	13.53	13.53					
Flow Rate	(mL/min.)	200	200					

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-03S Personnel: B Andersen Start Time: 0840 Finish Time: 1135

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): ___			___ Press. Transducer
Casing/Well Difference (in): 4			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 13 (ft) Depth to Pump Intake: 8 (ft)

Depth to Top of Water: 5.92 (ft) Depth of Screened Interval: 3-13 (ft)

Field Hach Kit Data

Concentration of Fe: 2.97 Mg/L

Concentration of CO: 96 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-03S MW16-Dup 02	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-03S MW16-Dup 02	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-03S MW16-Dup 02	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-03S MW16-Dup 02	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-03S MW16-Dup 02	< 4°C
Hydrogen sulfide		1 liter poly	MW16-03S MW16-Dup 02	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-03S MW16-Dup 02	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-03S Personnel: B. Andersen Start Time: 0840 Finish Time: 1135

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	3	10	11	12	13	14	15
Time	0900	0910	0915	0920	0925	0930	0935
Temperature (°C)	5.83	8.51	9.49	9.45	8.96	9.01	9.03
pH	6.02	6.10	6.11	6.10	6.11	6.12	6.09
Conductivity (ms/cm)	0.280	0.265	0.270	0.275	0.280	0.281	0.284
DO (mg/L)	3.06	2.91	2.53	2.10	2.06	2.08	2.11
Turbidity (NTUs)	71.2	32.7	15.2	12.0	6.0	6.0	3.9
Salinity (ppth)	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Eh (mV)	50.3	52.3	49.8	49.6	52.0	52.6	53.5
Water Level (ft from TOR)	6.05	6.05	6.05	6.05	6.05	6.05	6.05
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Temperature 20°

Collected sample at 0945

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-03D Personnel: S. Cackowski Start Time: 0820 Finish Time: 1225

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 48.5 (ft) Depth to Pump Intake: 43 (ft)

Depth to Top of Water: 7.53 (ft) Depth of Screened Interval: 38.5-48.5 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 60.4 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-03D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-03D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-03D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-03D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-03D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-03D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-03D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-03D Personnel: S. Cackowski Start Time: 0820 Finish Time: 1225

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	5	6	7	8	9	10
Time		1010	1015	1020	1025	1030	1035	1040
Temperature	(°C)	8.51	8.17	8.14	8.25	8.66	8.67	8.28
pH		5.83	5.94	5.92	5.91	5.98	5.92	5.98
Conductivity	(ms/cm)	0.139	0.138	0.137	0.137	0.137	0.138	0.137
DO	(mg/L)	57.5 %	59.0 %	56.1 %	53.5 %	55.5 %	6.51	6.59
Turbidity	(NTUs)	5.57	6.37	6.84	4.59	4.56	1.92	3.09
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.09	0.10	0.10
Eh	(mV)	171.6	168.5	166.6	162.8	158.5	153.9	151.3
Water Level	(ft from TOR)	7.55	7.55	7.55	7.60	7.63	7.68	7.68
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		11						
Time		1045						
Temperature	(°C)	8.35						
pH		5.98						
Conductivity	(ms/cm)	0.137						
DO	(mg/L)	6.42						
Turbidity	(NTUs)	2.69						
Salinity	(ppth)	0.10						
Eh	(mV)	150.6						
Water Level	(ft from TOR)	7.68						
Flow Rate	(mL/min.)	200						

Notes: Collected sample at 1100

Tide going out

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-04S Personnel: B. Anderson Start Time: 0825 Finish Time: 1130

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	___ Yes √ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft):	0.00		___ Press. Transducer
Casing/Well Difference (ft):	-0.38		___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 13 (ft) Depth to Pump Intake: 11.5 (ft)

Depth to Top of Water: 4.81 (ft) Depth of Screened Interval: 3-13 (ft)

Field Hach Kit Data

Concentration of Fe: 20.16 Mg/L

Concentration of CO: 72 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-04S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-04S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-04S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-04S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-04S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-04S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-04S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-04S Personnel: B. Anderson Start Time: 0825 Finish Time: 1130

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.5	1.0	1.5	2.0	2.5	3.0	3.5
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	8.73	9.26	9.14	9.15	8.63	8.03	7.66
pH		6.75	6.73	6.71	6.71	6.74	6.74	6.76
Conductivity	(ms/cm)	1.047	0.549	0.468	0.440	0.413	0.403	0.399
DO	(mg/L)	1.01	0.26	0.13	0.04	0.06	0.06	0.08
Turbidity	(NTUs)	441	286	95	49.2	27.1	22.0	10.96
Salinity	(ppth)	0.52	0.38	0.33	0.31	0.29	0.29	0.29
Eh	(mV)	-99.0	-94.7	-89.6	-87.0	-92.0	-92.1	-90.3
Water Level	(ft from TOR)	5.60	5.99	6.80	6.89	6.75	6.74	6.74
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4.0	4.5	5.0	5.5	6.0		
Time		0935	0940	0945	0950	0955		
Temperature	(°C)	7.37	7.62	7.71	7.75	7.79		
pH		6.78	6.80	6.84	6.86	6.86		
Conductivity	(ms/cm)	0.400	0.398	0.397	0.397	0.397		
DO	(mg/L)	0.05	0.03	0.01	0.02	0.03		
Turbidity	(NTUs)	7.74	7.37	5.49	5.06	4.97		
Salinity	(ppth)	0.29	0.29	0.29	0.29	0.29		
Eh	(mV)	-88.6	-87.2	-89.8	-90.2	-90.8		
Water Level	(ft from TOR)	6.74	6.74	6.74	6.76	6.77		
Flow Rate	(mL/min.)	100	100	100	100	100		

Notes: Purge water with orange flock. Sample collected at 1000.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-04I Personnel: S. Cackowski Start Time: 0815 Finish Time: 1240

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked: √ Yes ___ No

Protective Casing Secure: √ Yes ___ No

Concrete Collar Intact: √ Yes ___ No

Other: ___

Protective Casing Stick Up (ft): 1.87

Casing/Well Difference (ft): 1.66

Well Material: √ PVC/ ___ SS/Other ___

Well Diameter: √ 2-in. / ___ 4-in./ ___ 6-in./ Other

Water Level Equip. Used: √ Elect. Cond. Probe

___ Interface Probe

___ Press. Transducer

___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 32 (ft) Depth to Pump Intake: 29 (ft)

Depth to Top of Water: 8.91 (ft) Depth of Screened Interval: 22-32 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 54.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-04I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-04I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-04I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-04I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-04I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-04I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-04I	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-04I	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-04I	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-04I	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-04I	HNO_3 < 4°C
olved TAL Inorganics 05A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-04I	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-04I Personnel: S. Cackowski Start Time: 0815 Finish Time: 1240

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	4.5	5.0	5.5	6.0	6.5	7.0
Time		0915	0920	0925	0930	0935	0940	0945
Temperature	(°C)	10.01	10.15	10.03	10.01	10.18	10.05	9.99
pH		5.89	5.88	5.95	6.00	6.03	6.07	6.08
Conductivity	(ms/cm)	0.148	0.144	0.144	0.143	0.144	0.144	0.143
DO	(mg/L)	3.34	2.43	217	1.94	1.76	1.73	1.70
Turbidity	(NTUs)	5.2	1.9	1.6	1.3	1.00	1.6	1.7
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	187.4	182.4	168.2	160.1	154.8	152.6	150.2
Water Level	(ft from TOR)	9.12	9.12	9.08	9.08	9.05	9.03	9.01
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters								
Time								
Temperature	(°C)							
pH								
Conductivity	(ms/cm)							
DO	(mg/L)							
Turbidity	(NTUs)							
Salinity	(ppth)							
Eh	(mV)							
Water Level	(ft from TOR)							
Flow Rate	(mL/min.)							

Notes: Collected sample at 1000.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05S Personnel: B. Anderson Start Time: 0830 Finish Time: 1145

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.35			___ Press. Transducer
Casing/Well Difference (ft): 2.00			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 18 (ft) Depth to Pump Intake: 16 (ft)

Depth to Top of Water: Below pump (ft) Depth of Screened Interval: 8-18 (ft)

Field Hach Kit Data

Concentration of Fe: 50 Mg/L

Concentration of CO: 360 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-05S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-05S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-05S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-05S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-05S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-05S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-05S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05S Personnel: B. Anderson Start Time: 0830 Finish Time: 1145

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		12	13	14	15	16	17	18
Time		0940	0945	0950	0955	1005	1010	1015
Temperature	(°C)	12.45	13.35	13.19	13.16	11.37	12.79	13.14
pH		6.16	6.25	6.23	6.24	6.26	6.24	6.29
Conductivity	(ms/cm)	0.308	0.333	0.327	0.331	0.333	0.330	0.341
DO	(mg/L)	1.99	0.60	0.63	0.65	0.73	0.42	0.32
Turbidity	(NTUs)	(a)	657	367	175	156	108.7	156.0
Salinity	(ppth)	0.15	0.16	0.16	0.16	0.16	0.16	0.16
Eh	(mV)	-37.1	-48.6	-45.0	-45.5	-44.2	-41.2	-49.8
Water Level	(ft from TOR)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		19	20	21	22	23	24	25
Time		1020	1025	1030	1035	1040	1045	1050
Temperature	(°C)	13.31	13.51	13.50	13.44	13.26	13.30	13.31
pH		6.32	6.33	6.33	6.32	6.30	6.30	6.31
Conductivity	(ms/cm)	0.349	0.348	0.346	0.344	0.342	0.344	0.344
DO	(mg/L)	0.27	0.07	0.06	0.18	0.17	0.12	0.10
Turbidity	(NTUs)	>1000	>1000	>1000	437	138	89.3	54.8
Salinity	(ppth)	0.17	0.17	0.17	0.16	0.16	0.17	0.17
Eh	(mV)	-54.8	-47.7	-47.9	-39.3	-42.0	-44.2	-45.8
Water Level	(ft from TOR)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes: Started at 0900-run pump to try to clear. (a) = water tomato color. Cleared, then tomato color again.

(b) = cannot measure depth to water – below top of pump. Problem with control box at 0957; switched tank.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05S Personnel: B. Anderson Start Time: 0830 Finish Time: 1145

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	26	27	28				
Time	1055	1100	1105				
Temperature (°C)	13.29	13.29	13.30				
pH	6.31	6.32	6.32				
Conductivity (ms/cm)	0.344	0.344	0.345				
DO (mg/L)	0.01	0.01	0.02				
Turbidity (NTUs)	30.1	27.8	29.3				
Salinity (ppth)	0.17	0.17	0.17				
Eh (mV)	-47.2	-48.0	-49.4				
Water Level (ft from TOR)	(b)	(b)	(b)				
Flow Rate (mL/min.)	200	200	200				

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected samples at 1110.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05I Personnel: S. Cackowski Start Time: 0830 Finish Time: 1120

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.16			___ Press. Transducer
Casing/Well Difference (ft): 1.90			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 36 (ft) Depth to Pump Intake: 34.5 (ft)

Depth to Top of Water: 12.31 (ft) Depth of Screened Interval: 22-36 (ft)

Field Hach Kit Data

Concentration of Fe: 0.26 Mg/L

Concentration of CO: 91.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-05I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-05I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-05I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-05I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-05I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-05I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-05I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05I Personnel: S. Cackowski Start Time: 0830 Finish Time: 1120

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3	3.5	4	4.5	5	5.5	6
Time		0910	0915	0920	0925	0930	0935	0940
Temperature	(°C)	10.78	10.82	10.93	10.95	11.21	11.65	11.58
pH		6.23	6.38	6.23	6.25	6.31	6.32	6.33
Conductivity	(ms/cm)	0.189	0.182	0.183	0.177	0.176	0.176	0.179
DO	(mg/L)	3.49	2.77	2.08	1.78	1.56	1.09	0.74
Turbidity	(NTUs)	9.8	9.5	8.8	6.8	5.7	5.9	5.5
Salinity	(ppth)	0.12	0.12	0.12	0.12	0.11	0.11	0.12
Eh	(mV)	43.5	36.3	28.1	23.8	21.3	18.3	16.4
Water Level	(ft from TOR)	13.28	13.25	13.25	13.20	13.20	13.20	13.20
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		6.5	7	7.5				
Time		0945	0950	0955				
Temperature	(°C)	11.37	11.00	10.96				
pH		6.35	6.36	6.40				
Conductivity	(ms/cm)	0.179	0.178	0.175				
DO	(mg/L)	0.84	0.87	0.89				
Turbidity	(NTUs)	5.4	5.4	5.4				
Salinity	(ppth)	0.12	0.12	0.12				
Eh	(mV)	16.1	16.1	15.9				
Water Level	(ft from TOR)	13.20	13.20	13.20				
Flow Rate	(mL/min.)	100	100	100				

Notes: Collected samples at 1010.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05D Personnel: V. Deleone Start Time: 0830 Finish Time: 1120

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.8			___ Press. Transducer
Casing/Well Difference (ft): 1.51			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 91 (ft) Depth to Pump Intake: 69 (ft)

Depth to Top of Water: 12.82 (ft) Depth of Screened Interval: 66-91 (ft)

Field Hach Kit Data

Concentration of Fe: 1.06 Mg/L

Concentration of CO: 41 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-05D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-05D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-05D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-05D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-05D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-05D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-05D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05D Personnel: V. Deleone Start Time: 0830 Finish Time: 1120

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.5	2.25	3.0	3.75	4.5
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	10.57	10.41	9.61	9.0	9.29	9.70	9.52
pH		6.31	6.30	6.30	6.31	6.31	6.32	6.34
Conductivity	(ms/cm)	0.097	0.095	0.093	0.091	0.091	0.093	0.093
DO	(mg/L)	4.56	4.60	4.20	4.11	3.87	3.26	3.13
Turbidity	(NTUs)	110	140	150	150	200	150	150
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	61.6	57.7	54.6	53.5	50.6	49.4	47.6
Water Level	(ft from TOR)	12.82	12.72	12.66	12.65	12.68	12.68	12.67
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6.0	6.75	7.5	8.25	9.0	9.75
Time		0935	0940	0945	0950	0955	1000	1005
Temperature	(°C)	9.44	9.35	9.33	9.28	9.34	9.43	9.52
pH		6.33	6.34	6.34	6.36	6.35	6.36	6.36
Conductivity	(ms/cm)	0.093	0.092	0.092	0.092	0.092	0.092	0.092
DO	(mg/L)	3.56	2.90	2.64	2.06	1.78	1.90	1.63
Turbidity	(NTUs)	110	114	97.8	93.9	108.2	79.7	70.3
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	47.8	45.5	43.1	40.5	38.6	38.0	37.9
Water Level	(ft from TOR)	12.67	12.67	12.66	12.67	12.67	12.67	12.67
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05D Personnel: V. Deleone Start Time: 0830 Finish Time: 1120

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	10.5	11.25	12.0				
Time	1010	1015	1020				
Temperature (°C)	9.62	9.73	9.87				
pH	6.36	6.36	6.37				
Conductivity (ms/cm)	0.093	0.093	0.093				
DO (mg/L)	1.79	1.56	1.47				
Turbidity (NTUs)	82.2	82.1	81.1				
Salinity (ppth)	0.06	0.06	0.06				
Eh (mV)	38.4	38.3	38.1				
Water Level (ft from TOR)	12.67	12.67	12.67				
Flow Rate (mL/min.)	150	150	150				

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05R Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.60			___ Press. Transducer
Casing/Well Difference (ft): 2.01			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 91 (ft) Depth to Pump Intake: 69 (ft)

Depth to Top of Water: 12.41 (ft) Depth of Screened Interval: 66-91 (ft)

Field Hach Kit Data

Concentration of Fe: 0.43 Mg/L

Concentration of CO: 20 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-05R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-05R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-05R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-05R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-05R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-05R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-05R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-05R Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	1.5	2.0	2.5	3.0	3.5	4.0
Time		0905	0910	0915	0920	0925	0930	0935
Temperature	(°C)	10.30	9.94	9.86	9.45	9.24	9.29	9.71
pH		10.18	9.57	9.45	9.36	9.33	9.31	9.29
Conductivity	(ms/cm)	0.785	1.187	1.233	1.264	1.244	1.230	1.182
DO	(mg/L)	5.64	3.22	2.74	2.14	2.31	2.42	2.43
Turbidity	(NTUs)	0.75	(a)	66.7	76.8	108.3	111	100.3
Salinity	(ppth)	0.39	0.60	0.62	0.63	0.62	0.62	0.59
Eh	(mV)	166.6	153.0	151.4	150.1	149.9	147.4	144.4
Water Level	(ft from TOR)	12.60	12.58	12.55	12.53	12.50	12.55	12.55
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4.5	5.0	5.5	6.0			
Time		0940	0945	0950	0955			
Temperature	(°C)	9.50	9.04	8.89	8.69			
pH		9.20	9.09	9.02	8.94			
Conductivity	(ms/cm)	1.177	1.167	1.123	1.135			
DO	(mg/L)	2.43	1.86	1.83	1.85			
Turbidity	(NTUs)	97.3	106.3	104.3	118.0			
Salinity	(ppth)	0.59	0.57	0.56	0.56			
Eh	(mV)	141.6	140.8	140.0	138.2			
Water Level	(ft from TOR)	12.55	12.55	12.55	12.55			
Flow Rate	(mL/min.)	100	100	100	100			

Notes: (a) = Turbility meter broke; replaced for 0915 reading. Collected sample at 1000.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-06S Personnel: J. Parrett Start Time: 1310 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 17 (ft) Depth to Pump Intake: 16 (ft)

Depth to Top of Water: Below pump (ft) Depth of Screened Interval: 7-17 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 3.08 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-06S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-06S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-06S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-06S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-06S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-06S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-06S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-06S Personnel: J. Parrett Start Time: 1310 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.75	1.5	2.25	3	3.75	4.5	5.25
Time		1325	1330	1335	1340	1345	1350	1412
Temperature	(°C)	12.47	12.47	12.35	12.26	12.23	12.18	11.82
pH		6.18	6.02	5.93	5.90	5.89	5.87	5.89
Conductivity	(ms/cm)	0.099	0.094	0.090	0.089	0.089	0.089	0.091
DO	(mg/L)	10.36	10.15	10.04	9.96	9.92	9.86	9.83
Turbidity	(NTUs)	4	2	1	1	<1	0	0
Salinity	(ppth)	0.05	0.04	0.04	0.04	0.04	0.04	0.04
Eh	(mV)	166.5	170.7	174.3	179.6	181.2	182.5	183.4
Water Level	(ft from TOR)	NA	NA	NA	NA	NA	NA	NA
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		6	6.75	7.5				
Time		1415	1420	1425				
Temperature	(°C)	11.84	11.83	11.82				
pH		5.90	5.91	5.91				
Conductivity	(ms/cm)	0.092	0.093	0.093				
DO	(mg/L)	9.83	9.81	9.79				
Turbidity	(NTUs)	0	0	0				
Salinity	(ppth)	0.04	0.04	0.04				
Eh	(mV)	182.7	182.6	182.7				
Water Level	(ft from TOR)	NA	NA	NA				
Flow Rate	(mL/min.)	150	150	150				

Notes: 1355 out of gas; 1405 resume pumping. Collected sample at 1430

NA = water level cannot be measured, below top of pump

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-06D Personnel: S. Sheer Start Time: 1310 Finish Time: 1530

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.00 ppm Well Headspace Reading: 0.00 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 44.5 (ft) Depth to Pump Intake: 41.5 (ft)

Depth to Top of Water: 15.79 (ft) Depth of Screened Interval: 38.5-44.5 (ft)

Field Hach Kit Data

Concentration of Fe: 3.3 Mg/L

Concentration of CO: 38 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-06D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-06D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-06D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-06D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-06D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-06D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-06D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-06D Personnel: S. Sheer Start Time: 1310 Finish Time: 1530

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Paramet r (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	4	5	6	7	8	9	10
Time	1330	1335	1340	1345	1350	1355	1400
Temperature (°C)	12.58	12.58	12.53	12.48	12.48	12.46	12.47
pH	6.76	6.76	6.75	6.75	6.75	6.75	6.75
Conductivity (ms/cm)	0.215	0.215	0.216	0.216	0.215	0.216	0.216
DO (mg/L)	5.03	3.14	2.66	2.30	1.99	1.67	1.51
Turbidity (NTUs)	11	9.8	6.6	3.3	2.5	2.3	2.7
Salinity (ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh (mV)	-36.4	-38.7	-40.3	-41.9	-42.7	-43.5	-44.1
Water Level (ft from TOR)	15.79	15.79	15.79	15.79	15.79	15.79	15.79
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	11	12	14	16	17	18	20
Time	1405	1410	1415	1420	1425	1430	1435
Temperature (°C)	12.41	12.37	12.35	12.33	12.32	12.35	12.33
pH	6.75	6.75	6.75	6.75	6.76	6.76	6.77
Conductivity (ms/cm)	0.215	0.216	0.217	0.216	0.215	0.215	0.215
DO (mg/L)	1.40	1.25	1.03	0.97	0.95	0.93	0.92
Turbidity (NTUs)	2.3	1.1	0.75	0.80	0.40	0.00	0.00
Salinity (ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh (mV)	-44.7	45.2	45.9	46.4	46.5	47.5	47.9
Water Level (ft from TOR)	15.79	15.79	15.79	15.79	15.79	15.79	15.79
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Notes: Collected sample at 1500

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-06D Personnel: S. Sheer Start Time: 1310 Finish Time: 1530

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	21						
Time	1440						
Temperature (°C)	12.93						
pH	676						
Conductivity (ms/cm)	0.216						
DO (mg/L)	0.91						
Turbidity (NTUs)	0.0						
Salinity (ppth)	0.10						
Eh (mV)	-48.1						
Water Level (ft from TOR)	15.79						
Flow Rate (mL/min.)	200						

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
onductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
ow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-06R Personnel: R. Clark Start Time: 1315 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: _____ ppm Well Headspace Reading: _____ ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ √ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.2			___ Press. Transducer
Casing/Well Difference (ft): 0.41			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 74 (ft) Depth to Pump Intake: 58 (ft)

Depth to Top of Water: 15.92 (ft) Depth of Screened Interval: 49-74 (ft)

Field Hach Kit Data

Concentration of Fe: 0.52 Mg/L

Concentration of CO: 24 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-06R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-06R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-06R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-06R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-06R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-06R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-06R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-06R Personnel: R. Clark Start Time: 1315 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.5	1	1.5	2	2.5	3	3.5
Time		1322	1329	1334	1339	1344	1349	1354
Temperature	(°C)	12.63	12.20	12.29	12.40	12.41	12.43	12.49
pH		7.98	8.17	8.24	8.32	8.35	8.34	8.29
Conductivity	(ms/cm)	0.218	0.226	0.226	0.227	0.227	0.227	0.228
DO	(mg/L)	13.91	9.10	7.93	6.89	6.16	5.47	4.77
Turbidity	(NTUs)	NR	3.06	3.27	4.02	4.85	4.89	5.35
Salinity	(ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Eh	(mV)	-195.3	-217.0	-219.8	-226.7	-230.7	-230.1	-230.1
Water Level	(ft from TOR)	16.05	16.54	16.50	16.45	16.42	16.40	16.37
Flow Rate	(mL/min.)	300	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	4.5	5	5.5	6		
Time		1359	1404	1409	1414	1419		
Temperature	(°C)	12.44	12.42	12.38	12.37	12.42		
pH		8.28	8.26	8.25	8.24	8.24		
Conductivity	(ms/cm)	0.228	0.228	0.228	0.228	0.228		
DO	(mg/L)	4.41	4.13	3.82	3.61	3.43		
Turbidity	(NTUs)	7.30	6.29	5.95	5.87	5.78		
Salinity	(ppth)	0.14	0.14	0.14	0.14	0.14		
Eh	(mV)	-229.7	-230.1	-229.9	-230.4	-230.4		
Water Level	(ft from TOR)	16.37	16.35	16.35	16.34	16.34		
Flow Rate	(mL/min.)	100	100	100	100	100		

Notes: Start pumping at 0910

NR = No reading

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-07S Personnel: B. Andersen Start Time: 1335 Finish Time: 1645

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked: √ Yes ___ No

Protective Casing Secure: √ Yes ___ No

Concrete Collar Intact: √ Yes ___ No

Other: ___

Protective Casing Stick Up (ft): ___

Casing/Well Difference (ft): ___

Well Material: √ PVC/ ___ SS/Other ___

Well Diameter: √ 2-in. / ___ 4-in./ ___ 6-in./ Other

Water Level Equip. Used: √ Elect. Cond. Probe

___ Interface Probe

___ Press. Transducer

___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 17 (ft) Depth to Pump Intake: 12 (ft)

Depth to Top of Water: 10.81 (ft) Depth of Screened Interval: 7-17 (ft)

Field Hach Kit Data

Concentration of Fe: 14.25 Mg/L

Concentration of CO: 210 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-07S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-07S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-07S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-07S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-07S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-07S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-07S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-07S Personnel: B. Andersen Start Time: 1335 Finish Time: 1645

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	3	4	5	6	7	
Time		1400	1405	1410	1415	1420	1425	
9.69		9.96	9.96	10.13	10.01	10.03	10.16	
pH		6.48	6.55	6.57	6.57	6.57	6.58	
Conductivity	(ms/cm)	0.817	0.818	0.820	0.817	0.820	0.821	
DO	(mg/L)	2.75	1.56	1.12	0.79	0.58	0.48	
Turbidity	(NTUs)	4.8	4.2	4.0	4.2	3.9	5.1	
Salinity	(ppth)	0.40	0.40	0.40	0.40	0.40	0.40	
Eh	(mV)	-48.0	-55.0	-57.4	-59.6	-60.4	-61.9	
Water Level	(ft from TOR)	10.81	10.81	10.81	10.81	10.81	10.81	
Flow Rate	(mL/min.)	200	200	200	200	200	200	

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters								
Time								
Temperature	(°C)							
pH								
Conductivity	(ms/cm)							
DO	(mg/L)							
Turbidity	(NTUs)							
Salinity	(ppth)							
Eh	(mV)							
Water Level	(ft from TOR)							
Flow Rate	(mL/min.)							

Notes: Collected sample at 1500

EPA split VOA, EPA also collected 2 amber bottles for oil and grease analysis

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-07D Personnel: V. Deleone Start Time: 0830 Finish Time: 1000

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): ___			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 37.5 (ft) Depth to Pump Intake: 35 (ft)

Depth to Top of Water: 10.98 (ft) Depth of Screened Interval: 27.5-37.5 (ft)

Field Hach Kit Data

Concentration of Fe: 9.2 Mg/L

Concentration of CO: 18 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-07D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-07D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-07D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-07D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-07D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-07D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-07D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-07D Personnel: V. Deleone Start Time: 0830 Finish Time: 1000

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1	1.5	2	2.5	3
Time		0830	0835	0840	0845	0850	0855	0900
Temperature	(°C)	10.21	9.69	8.60	8.14	7.74	7.46	7.16
pH		6.65	6.56	6.59	6.59	6.59	6.60	6.60
Conductivity	(ms/cm)	0.349	0.368	0.333	0.323	0.327	0.324	0.320
DO	(mg/L)	10.21	7.18	6.77	6.42	5.82	5.70	5.66
Turbidity	(NTUs)	33.3	20.7	15.1	11.9	10.99	9.89	9.85
Salinity	(ppth)	0.24	0.18	0.16	0.15	0.15	0.15	0.15
Eh	(mV)	89.3	10.4	-5.7	-10.3	-13.7	-15.9	-16.6
Water Level	(ft from TOR)	11.07	11.03	11.01	11.00	11.00	11.00	11.00
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters								
Time								
Temperature	(°C)							
pH								
Conductivity	(ms/cm)							
DO	(mg/L)							
Turbidity	(NTUs)							
Salinity	(ppth)							
Eh	(mV)							
Water Level	(ft from TOR)							
Flow Rate	(mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-08D Personnel: C. Springer Start Time: 0830 Finish Time: 0945

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red/green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked: √ Yes ___ No

Protective Casing Secure: √ Yes ___ No

Concrete Collar Intact: √ Yes ___ No

Other: ___

Protective Casing Stick Up (ft): ___

Casing/Well Difference (ft): ___

Well Material: √ PVC/ ___ SS/Other ___

Well Diameter: √ 2-in. / ___ 4-in./ ___ 6-in./ Other

Water Level Equip. Used: √ Elect. Cond. Probe

___ Interface Probe

___ Press. Transducer

___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 55 (ft) Depth to Pump Intake: 42 (ft)

Depth to Top of Water: 18.46 (ft) Depth of Screened Interval: 40-55 (ft)

Field Hach Kit Data

Concentration of Fe: 0.15 Mg/L

Concentration of CO: 46 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-08D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-08D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-08D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-08D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-08D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-08D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-08D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-08D Personnel: C. Springer Start Time: 0830 Finish Time: 0945

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0830	0835	0840	0845	0850	0855	0900
Temperature	(°C)	9.45	10.96	11.12	11.05	11.08	11.13	11.15
pH		7.18	6.71	6.28	6.24	6.13	6.07	6.02
Conductivity	(ms/cm)	0.354	0.286	0.287	0.286	0.283	0.282	0.280
DO	(mg/L)	10.22	4.36	3.15	3.01	2.53	1.84	1.51
Turbidity	(NTUs)	5.22	10.21	11.9	9.54	5.28	2.69	2.7
Salinity	(ppth)	0.17	0.14	0.14	0.14	0.14	0.14	0.13
Eh	(mV)	209.5	209.6	219.3	218.3	221.9	224.8	226.3
Water Level	(ft from TOR)	18.46	18.46	18.46	18.46	18.46	18.47	18.47
Flow Rate	(mL/min.)	200	200	200	200	200	200	20

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10			
Time		0905	0910	0915	0920			
Temperature	(°C)	11.23	11.23	11.33	11.34			
pH		5.99	5.99	5.99	5.99			
Conductivity	(ms/cm)	0.281	0.282	0.280	0.281			
DO	(mg/L)	1.35	1.00	1.01	1.00			
Turbidity	(NTUs)	2.2	1.8	1.2	1.4			
Salinity	(ppth)	0.13	0.13	0.13	0.13			
Eh	(mV)	226.8	227.2	227.7	227.9			
Water Level	(ft from TOR)	18.47	18.47	18.47	18.47			
Flow Rate	(mL/min.)	200	200	200	200			

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-09D Personnel: V. Deleone Start Time: 1340 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.45			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 63 (ft) Depth to Pump Intake: 61.8 (ft)

Depth to Top of Water: 18.11 (ft) Depth of Screened Interval: 53-63 (ft)

Field Hach Kit Data

Concentration of Fe: 3.03 Mg/L

Concentration of CO: 90 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-09D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-09D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-09D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-09D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-09D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-09D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-09D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-09D Personnel: V. Deleone Start Time: 1340 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.5	2.25	3.0	3.75	4.50
Time		1350	1355	1400	1405	1410	1415	1420
Temperature	(°C)	12.80	12.74	12.68	12.57	12.46	12.42	12.40
pH		6.34	6.35	6.64	6.74	6.80	6.81	6.82
Conductivity	(ms/cm)	0.045	0.081	0.097	0.099	0.099	0.099	0.099
DO	(mg/L)	7.65	4.32	1.29	1.00	0.86	0.79	0.75
Turbidity	(NTUs)	12.8	34.9	43.8	43.7	41.9	37.4	38.9
Salinity	(ppth)	0.03	0.05	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	150.3	91.1	23.6	-11.2	-39.3	-44.8	-48.0
Water Level	(ft from TOR)	18.65	18.64	18.70	18.70	18.70	18.70	18.70
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25						
Time		1425						
Temperature	(°C)	12.37						
pH		6.83						
Conductivity	(ms/cm)	0.099						
DO	(mg/L)	0.73						
Turbidity	(NTUs)	38.5						
Salinity	(ppth)	0.06						
Eh	(mV)	-43.0						
Water Level	(ft from TOR)	18.70						
Flow Rate	(mL/min.)	150						

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-10D Personnel: V. Deleone Start Time: 0830 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.22			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 58.5 (ft) Depth to Pump Intake: 52.5 (ft)

Depth to Top of Water: 15.68 (ft) Depth of Screened Interval: 48.5-58.5 (ft)

Field Hach Kit Data

Concentration of Fe: 2.35 Mg/L

Concentration of CO: 32 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-10D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-10D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-10D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-10D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-10D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-10D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-10D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-10D Personnel: V. Deleone Start Time: 0830 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.5	2.25	3.0	3.75	4.5
Time		0855	0900	0905	0910	0915	0920	0925
Temperature	(°C)	13.61	12.91	13.06	13.74	13.73	13.96	14.05
pH		6.78	6.64	6.71	6.60	6.57	6.57	6.57
Conductivity	(ms/cm)	0.167	0.161	0.125	0.126	0.125	0.127	0.128
DO	(mg/L)	2.71	3.04	5.68	3.27	2.67	2.31	1.92
Turbidity	(NTUs)	57.7	46.8	16.5	19.8	24.3	20.9	21.3
Salinity	(ppth)	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Eh	(mV)	83.8	69.8	65.4	62.2	58.2	55.5	46.7
Water Level	(ft from TOR)	16.22	16.85	17.30	15.98	15.99	16.00	16.02
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6.0	6.75				
Time		0930	0935	0940				
Temperature	(°C)	14.08	14.24	14.28				
pH		6.57	6.59	6.59				
Conductivity	(ms/cm)	0.128	0.129	0.129				
DO	(mg/L)	1.74	1.74	1.60				
Turbidity	(NTUs)	16.9	17.6	18.2				
Salinity	(ppth)	0.08	0.08	0.08				
Eh	(mV)	31.2	20.6	17.3				
Water Level	(ft from TOR)	16.02	16.03	16.02				
Flow Rate	(mL/min.)	150	150	150				

Notes: Emptied flowcell at 0900

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-10R Personnel: S. Whitin Start Time: 0850 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.18			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 91 (ft) Depth to Pump Intake: 69.5 (ft)

Depth to Top of Water: 15.93 (ft) Depth of Screened Interval: 66-91 (ft)

Field Hach Kit Data

Concentration of Fe: 0.87 Mg/L

Concentration of CO: 43 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-10R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-10R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-10R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-10R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-10R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-10R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-10R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-10R Personnel: S. Whitin Start Time: 0850 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1	1.5	2	2.5	3
Time		0855	0900	0905	0910	0920	0925	0930
Temperature	(°C)	13.82	13.93	14.00	14.09	14.22	13.77	13.77
pH		8.35	8.38	8.40	8.40	8.30	8.30	8.29
Conductivity	(ms/cm)	0.112	0.111	0.119	0.120	0.119	0.118	0.117
DO	(mg/L)	2.82	2.11	1.50	1.31	1.36	1.22	1.25
Turbidity	(NTUs)	10	12	15	16	12	13	14
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	47	11	-183	-218	-183	-197	-196
Water Level	(ft from TOR)	16.46	16.68	16.83	16.88	17.21	17.36	17.38
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.5	4.0	4.5	5.0	5.5	6.0	6.5
Time		0935	0940	0945	0950	0955	1000	1005
Temperature	(°C)	14.16	14.23	14.06	14.16	14.21	14.16	14.12
pH		8.26	8.26	8.25	8.27	8.28	8.30	8.34
Conductivity	(ms/cm)	0.119	0.119	0.119	0.119	0.119	0.118	0.117
DO	(mg/L)	1.29	1.36	1.27	1.13	1.11	1.07	1.04
Turbidity	(NTUs)	10	14	11	12	17	14	16
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	-183	-177	-179	-181	-185	-185	-179
Water Level	(ft from TOR)	17.42	17.48	17.55	17.62	17.70	17.80	17.87
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Notes: Collected sample on 11/26/02 at 1425, 13.06°C, 0.08 ppth salinity, 7.55 ppt, 0.124 ms/cm, 44.2 mV, 6.07 mg/L DO

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-11S Personnel: V. Deleone Start Time: 0830 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.33			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 14.88 (ft) Depth to Pump Intake: 18.5 (ft)

Depth to Top of Water: 13.63 (ft) Depth of Screened Interval: 10-20 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 28 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-11S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-11S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-11S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-11S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-11S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-11S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-11S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-11S Personnel: V. Deleone Start Time: 0830 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	1.75	2.50	3.25	4.0	4.75
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	14.85	14.95	15.35	15.25	15.10	15.47	15.45
pH		5.14	5.12	5.12	5.13	5.13	5.13	5.13
Conductivity	(ms/cm)	0.123	0.120	0.123	0.123	0.123	0.125	0.125
DO	(mg/L)	10.44	10.31	10.24	10.21	10.17	10.17	10.19
Turbidity	(NTUs)	5.23	1.78	0.61	4.66	4.58	1.22	0.25
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	257.3	264.8	268.0	273.4	280.2	281.9	284.5
Water Level	(ft from TOR)	13.66	13.67	13.66	13.63	13.45	13.39	13.40
Flow Rate	(mL/min.)	200	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.50						
Time		0935						
Temperature	(°C)	15.44						
pH		5.13						
Conductivity	(ms/cm)	0.123						
DO	(mg/L)	10.19						
Turbidity	(NTUs)	0.05						
Salinity	(ppth)	0.06						
Eh	(mV)	286.9						
Water Level	(ft from TOR)	13.39						
Flow Rate	(mL/min.)	150						

Notes: Collected sample at 1000

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-11D Personnel: R. Casey Start Time: 0845 Finish Time: 1105

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft):	flush		___ Press. Transducer
Casing/Well Difference (ft):	0.21		___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 63.5 (ft) Depth to Pump Intake: 58 (ft)

Depth to Top of Water: 15.31 (ft) Depth of Screened Interval: 53.5-63.5 (ft)

Field Hach Kit Data

Concentration of Fe: 3.30 Mg/L

Concentration of CO: 280 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-11D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-11D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-11D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-11D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-11D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-11D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-11D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-11D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-11D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-11D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-11D	HNO_3 < 4°C
[illegible]solved TAL Inorganics ([illegible]005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-11D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-11D Personnel: R. Casey Start Time: 0845 Finish Time: 1105

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	1.4	1.8	2.2	2.6	3	3.4
Time		0900	0904	0908	0912	0916	0920	0924
Temperature	(°C)	12.73	12.97	12.77	12.26	12.20	12.07	11.92
pH		6.92	6.82	6.82	6.81	6.81	6.82	6.82
Conductivity	(ms/cm)	0.211	0.213	0.212	0.208	0.207	0.207	0.207
DO	(mg/L)	0.68	0.78	0.79	0.90	0.89	1.37	1.18
Turbidity	(NTUs)	27.7	19.6	13.6	11.0	9.42	8.36	7.57
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	-40.8	-52.2	-57.9	-57.9	-57.6	-53.7	-49.3
Water Level	(ft from TOR)	15.31	15.46	15.39	15.39	15.39	15.39	15.39
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.8	4.2	4.7	5.2	5.7	6.2	6.7
Time		0928	0932	0937	0942	0947	0952	0957
Temperature	(°C)	11.92	11.87	11.66	11.47	11.36	12.40	12.70
pH		6.82	6.82	6.83	6.84	6.83	6.82	6.81
Conductivity	(ms/cm)	0.208	0.209	0.211	0.212	0.214	0.212	0.216
DO	(mg/L)	1.19	1.71	1.74	1.93	1.85	1.52	0.46
Turbidity	(NTUs)	7.22	6.42	5.85	5.58	5.27	5.21	5.18
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	-47.3	-46.5	-42.2	-41.6	-42.0	-44.6	-54.7
Water Level	(ft from TOR)	15.39	15.39	15.39	15.39	15.39	15.39	15.39
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-11D Personnel: R. Casey Start Time: 0845 Finish Time: 1105

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	7.2	7.7	8.2				
Time	1002	1007	1012				
Temperature (°C)	12.86	12.82	12.88				
pH	6.81	6.81	6.81				
Conductivity (ms/cm)	218	220	220				
DO (mg/L)	0.46	0.42	0.41				
Turbidity (NTUs)	5.08	5.07	5.01				
Salinity (ppth)	0.10	0.10	0.10				
Eh (mV)	-57.3	-60.4	-60.9				
Water Level (ft from TOR)	15.83	15.83	15.83				
Flow Rate (mL/min.)	100	100	100				

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
onductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
ow Rate (mL/min.)							

Notes:

Ground Wat r Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-12D Personnel: S. Sheer Start Time: 0830 Finish Time: 1040

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.71			___ Press. Transducer
Casing/Well Difference (ft): 2.33			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 72 (ft) Depth to Pump Intake: 57 (ft)

Depth to Top of Water: 17.14 (ft) Depth of Screened Interval: 52-62 (ft)

Field Hach Kit Data

Concentration of Fe: 2.92 Mg/L

Concentration of CO: 46.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-12D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-12D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-12D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-12D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-12D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-12D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-12D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-12D Personnel: S. Sheer Start Time: 0830 Finish Time: 1040

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		0905	0910	0915	0920	0925	0930	0935
Temperature	(°C)	11.38	11.62	12.13	12.62	11.48	12.41	12.18
pH		6.42	6.32	6.25	6.28	6.30	6.34	6.39
Conductivity	(ms/cm)	0.099	0.098	0.099	0.101	0.100	0.100	0.102
DO	(mg/L)	24.16	14.92	11.01	9.73	8.56	7.56	7.10
Turbidity	(NTUs)	35.2	29.2	25.8	15.3	14.5	11.6	13.6
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	98.4	95.3	90.6	82.8	76.5	68.1	60.0
Water Level	(ft from TOR)	17.2	17.2	17.2	17.2	17.2	17.2	17.2
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10				
Time		0940	0945	0950				
Temperature	(°C)	12.36	12.47	12.47				
pH		6.40	6.43	6.47				
Conductivity	(ms/cm)	0.103	0.103	0.104				
DO	(mg/L)	6.34	6.43	6.50				
Turbidity	(NTUs)	12.3	12.7	13.0				
Salinity	(ppth)	0.06	0.07	0.07				
Eh	(mV)	55.4	50.5	45.4				
Water Level	(ft from TOR)	17.2	17.2	17.2				
Flow Rate	(mL/min.)	200	200	200				

Notes: Collected sample at 0955.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-13I Personnel: R. Clark Start Time: 0830 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond: Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.18			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 34 (ft) Depth to Pump Intake: 29 (ft)

Depth to Top of Water: 14.00 (ft) Depth of Screened Interval: 24-34 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 36.2 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-13I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-13I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-13I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-13I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-13I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-13I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-13I	HCL, < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-13I Personnel: R. Clark Start Time: 0830 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	3	3.75	5.25	6	8	8.75
Time		0851	0907	0914	0921	0929	0936	0942
Temperature	(°C)	14.18	14.01	14.00	14.11	14.02	14.00	13.98
pH		6.07	5.95	5.96	5.95	5.94	5.96	5.95
Conductivity	(ms/cm)	0.141	0.148	0.120	0.122	0.123	0.124	0.123
DO	(mg/L)	3.23	1.70	1.63	1.54	1.51	1.49	1.45
Turbidity	(NTUs)	NR	24.6	72.4	80.8	153	132	117
Salinity	(ppth)	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	165.4	147.4	147.3	145.3	144.7	145.6	145.9
Water Level	(ft from TOR)	14.27	14.12	14.15	14.17	14.15	14.15	14.15
Flow Rate	(mL/min.)	300	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		11	12	12.5	14	15		
Time		0953	1000	1005	1014	1019		
Temperature	(°C)	13.98	14.10	14.11	14.13	14.05		
pH		5.96	5.96	5.96	5.96	5.96		
Conductivity	(ms/cm)	121	123	123	123	123		
DO	(mg/L)	1.41	1.39	1.40	1.39	1.39		
Turbidity	(NTUs)	148	149	174	178	181		
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07		
Eh	(mV)	145.9	145.7	145.3	144.8	144.7		
Water Level	(ft from TOR)	14.15	14.15	14.15	14.15	14.15		
Flow Rate	(mL/min.)	150	150	150	150	150		

Notes: NR = No reading

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-13D Personnel: K. Shutty Start Time: 0937 Finish Time: 1204

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): Flush mount			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 67 (ft) Depth to Pump Intake: 62 (ft)

Depth to Top of Water: 14.05 (ft) Depth of Screened Interval: 57-67 (ft)

Field Hach Kit Data

Concentration of Fe: >3.30 Mg/L

Concentration of CO: 36.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-13D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-13D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-13D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-13D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-13D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-13D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-13D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-13D Personnel: K. Shutty Start Time: 0937 Finish Time: 1204

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0944	0949	0954	0959	1004	1009	1014
Temperature	(°C)	13.46	13.47	13.36	13.34	13.39	13.41	13.33
pH		7.16	7.08	7.06	7.08	7.09	7.09	7.09
Conductivity	(ms/cm)	0.195	0.176	0.174	0.175	0.175	0.175	0.176
DO	(mg/L)	0.77	0.54	0.44	0.39	0.38	0.36	0.35
Turbidity	(NTUs)	29.3	9.74	11.9	11.4	11.6	11.5	9.84
Salinity	(ppth)	0.10	0.08	0.08	0.08	0.08	0.08	0.08
Eh	(mV)	-88.8	-92.8	-95.8	-97.6	-97.8	-97.4	-97.4
Water Level	(ft from TOR)	14.05	14.19	14.21	14.24	14.27	14.28	14.25
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8					
Time		1019	1024					
Temperature	(°C)	13.36	13.34					
pH		7.10	7.09					
Conductivity	(ms/cm)	0.177	0.177					
DO	(mg/L)	0.35	0.35					
Turbidity	(NTUs)	9.87	9.87					
Salinity	(ppth)	0.08	0.08					
Eh	(mV)	-97.4	-97.4					
Water Level	(ft from TOR)	14.26	14.27					
Flow Rate	(mL/min.)	200	200					

Notes: Collected sample at 1030

Ground Wat r Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-14I Personnel: S. Sheer Start Time: 1307 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.18			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 36 (ft) Depth to Pump Intake: 31 (ft)

Depth to Top of Water: 15.30 (ft) Depth of Screened Interval: 26-36 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 17.2 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-14I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-14I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-14I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-14I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-14I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-14I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-14I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02
Well ID: MW16-14I Personnel: S. Sheer Start Time: 1307 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		1334	1339	1344	1349	1354	1359	1404
Temperature	(°C)	14.37	14.37	14.43	14.41	14.39	14.34	14.27
pH		5.69	5.67	5.64	5.67	5.66	5.63	5.68
Conductivity	(ms/cm)	1.226	1.246	1.266	1.275	1.285	1.294	1.303
DO	(mg/L)	8.03	7.80	7.97	7.72	7.75	7.64	7.60
Turbidity	(NTUs)	46.4	40.8	31.3	29.9	33.18	34.3	32.3
Salinity	(ppth)	0.62	0.63	0.64	0.64	0.65	0.65	0.66
Eh	(mV)	203.0	209.5	216.8	221.8	224.7	227.5	228.7
Water Level	(ft from TOR)	15.67	15.67	15.66	15.63	15.64	15.64	15.62
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10				
Time		1409	1414	1419				
Temperature	(°C)	14.24	14.27	14.22				
pH		5.66	5.65	5.67				
Conductivity	(ms/cm)	1.313	1.324	1.337				
DO	(mg/L)	7.58	7.57	7.47				
Turbidity	(NTUs)	37.3	39.7	39.2				
Salinity	(ppth)	0.66	0.67	0.67				
Eh	(mV)	230.0	231.5	232.8				
Water Level	(ft from TOR)	15.62	15.62	15.62				
Flow Rate	(mL/min.)	200	200	200				

Notes: Collected sample at 1500

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-14D Personnel: K. Shutty Start Time: 1315 Finish Time: 1530

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (in): 4			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 62 (ft) Depth to Pump Intake: 60.5 (ft)

Depth to Top of Water: 16.05 (ft) Depth of Screened Interval: 52-62 (ft)

Field Hach Kit Data

Concentration of Fe: 2.56 Mg/L

Concentration of CO: 32 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-14D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-14D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-14D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-14D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-14D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-14D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-14D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-14D Personnel: K. Shutty Start Time: 1315 Finish Time: 1530

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0	1	2	3	4	5	6
Time	1330	1335	1340	1345	1350	1355	1400
Temperature (°C)	13.93	14.02	14.04	14.09	14.06	14.05	14.04
pH	6.62	6.41	6.37	6.31	6.27	6.27	6.27
Conductivity (ms/cm)	147	144	144	143	142	142	142
DO (mg/L)	1.40	0.82	0.72	0.61	0.60	0.60	0.60
Turbidity (NTUs)	38.9	49.1	25.3	24.9	23.1	22.2	19.9
Salinity (ppth)	0.08	0.07	0.07	0.07	0.07	0.07	0.07
Eh (mV)	18.5	12.1	14.9	20.0	23.0	23.6	24.4
Water Level (ft from TOR)	16.20	16.22	16.23	16.23	16.23	16.23	16.23
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	7	8	9	10	11	12	
Time	1405	1410	1415	1420	1425	1430	
Temperature (°C)	13.99	13.96	13.95	13.95	13.94	13.91	
pH	6.24	6.24	6.24	6.23	6.23	6.22	
Conductivity (ms/cm)	142	142	142	142	142	142	
DO (mg/L)	0.59	0.59	0.57	0.57	0.57	0.57	
Turbidity (NTUs)	19.1	17.2	16.6	14.2	14.1	14.2	
Salinity (ppth)	0.07	0.07	0.07	0.07	0.07	0.07	
Eh (mV)	26.1	27.1	28.1	29.2	30.1	30.9	
Water Level (ft from TOR)	12.23	12.23	12.22	12.22	12.21	12.21	
Flow Rate (mL/min.)	200	200	200	200	200	200	

Notes: Collected sample at 1500

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-15D Personnel: J. Parrett Start Time: 0820 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.42			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 56 (ft) Depth to Pump Intake: 52 (ft)

Depth to Top of Water: 15.82 (ft) Depth of Screened Interval: 46-56 (ft)

Field Hach Kit Data

Concentration of Fe: 1.46 Mg/L

Concentration of CO: 32.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-15D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-15D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-15D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-15D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-15D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-15D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-15D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-15D Personnel: J. Parrett Start Time: 0820 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		0915	0920	0925	0930	0935	0940	0945
Temperature	(°C)	13.49	13.43	13.55	13.19	13.26	13.44	13.15
pH		6.60	6.43	6.38	6.34	6.34	6.35	6.35
Conductivity	(ms/cm)	0.141	0.139	0.139	0.139	0.140	0.140	0.140
DO	(mg/L)	0.95	0.71	0.70	0.66	0.66	0.67	0.70
Turbidity	(NTUs)	6	9	25	30	48	48	38
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	90.8	71.8	65.6	65.3	64.3	63.4	64.6
Water Level	(ft from TOR)	15.96	15.90	15.87	15.85	15.84	15.85	15.84
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10	11	12	13	14
Time		0950	0955	1000	1005	1010	1015	1020
Temperature	(°C)	13.10	13.41	13.72	13.72	13.59	13.78	13.78
pH		6.34	6.33	6.34	6.35	6.35	6.36	6.36
Conductivity	(ms/cm)	0.140	0.139	0.139	0.139	0.139	0.139	0.139
DO	(mg/L)	0.69	0.62	0.53	0.49	0.47	0.47	0.46
Turbidity	(NTUs)	36	34	22	14	9	10	10
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	65.7	66.1	64.8	65.8	67.1	67.1	67.1
Water Level	(ft from TOR)	15.85	15.85	15.85	15.84	15.85	15.85	15.85
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes: Start pumping at 0910

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-15D Personnel: J. Parrett Start Time: 0820 Finish Time: 1100

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	15						
Time	1025						
Temperature (°C)	13.81						
pH	6.36						
Conductivity (ms/cm)	0.139						
DO (mg/L)	0.47						
Turbidity (NTUs)	NR						
Salinity (ppth)	0.07						
Eh (mV)	67.5						
Water Level (ft from TOR)	15.85						
Flow Rate (mL/min.)	200						

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: NR = No reading

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-15R Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.00 ppm Well Headspace Reading: 0.00 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ √ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): grade			___ Press. Transducer
Casing/Well Difference (ft): 0.66			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 86 (ft) Depth to Pump Intake: 62.5 (ft)

Depth to Top of Water: 15.59 (ft) Depth of Screened Interval: 60.5-86 (ft)

Field Hach Kit Data

Concentration of Fe: 2.01 Mg/L

Concentration of CO: 17.2 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-15R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-15R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-15R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-15R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-15R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-15R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-15R	HCL, < 4°C

Ground Water Fi Id Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600197 Task: 3202 Date: 11/25/02

Well ID: MW16-15R Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	5	6	7	7.5	8	8.5
Time		0951	0956	1001	1006	1011	1016	1021
Temperature	(°C)	13.75	13.66	13.68	13.59	13.55	13.60	13.63
pH		7.26	7.34	7.35	7.37	7.37	7.35	7.32
Conductivity	(ms/cm)	0.150	0.148	0.147	0.145	0.143	0.141	0.140
DO	(mg/L)	3.00	3.51	3.64	4.00	3.98	3.89	3.97
Turbidity	(NTUs)	2.5	2.5	2.6	2.7	2.8	2.9	3.0
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.05
Eh	(mV)	-126.7	-144.3	-146.4	-162.7	-172.5	-178.4	-184.4
Water Level	(ft from TOR)	17.55	17.62	17.62	17.65	17.66	17.66	17.66
Flow Rate	(mL/min.)	150	100	10	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters								
Time								
Temperature	(°C)							
pH								
Conductivity	(ms/cm)							
DO	(mg/L)							
Turbidity	(NTUs)							
Salinity	(ppth)							
Eh	(mV)							
Water Level	(ft from TOR)							
Flow Rate	(mL/min.)							

Notes: Collected sample at 1040

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-15R2 Personnel: R. Clark Start Time: 0900 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	___ PVC/ √ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): grade			___ Press. Transducer
Casing/Well Difference (ft): 0.67			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 111 (ft) Depth to Pump Intake: 108.5 (ft)

Depth to Top of Water: 17.08 (ft) Depth of Screened Interval: 86-111 (ft)

Field Hach Kit Data

Concentration of Fe: 0.44 Mg/L

Concentration of CO: 0.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-15R2	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-15R2	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-15R2	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-15R2	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-15R2	< 4°C
Hydrogen sulfide		1 liter poly	MW16-15R2	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-15R2	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/25/02

Well ID: MW16-15R2 Personnel: R. Clark Start Time: 0900 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	2.5	3	3.5	4	4.5
Time		0916	0922	0927	0932	0937	0942	0947
Temperature	(°C)	13.21	13.56	13.47	13.72	13.74	3.74	13.13
pH		12.14	12.14	12.14	12.12	12.11	12.11	12.12
Conductivity	(ms/cm)	1.552	1.604	1.609	1.591	1.537	1.530	1.485
DO	(mg/L)	5.47	1.47	1.01	0.67	0.42	0.39	0.37
Turbidity	(NTUs)	7.02	NR	6.85	5.82	5.33	4.60	3.99
Salinity	(ppth)	1.03	1.06	1.06	1.04	1.00	1.00	0.98
Eh	(mV)	-3.0	-43.3	-58.5	-72.9	-88.5	-92.9	-99.3
Water Level	(ft from TOR)	17.07	17.07	17.07	17.07	17.07	17.07	17.07
Flow Rate	(mL/min.)	400	200	200	200	200	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5	5.5	6	6.5	7	7.5	
Time		0955	1000	1005	1010	1015	1020	
Temperature	(°C)	12.59	13.68	13.94	13.90	13.91	13.96	
PH		12.12	12.09	12.07	12.06	12.06	12.04	
Conductivity	(ms/cm)	1.445	1.458	1.423	1.386	1.376	1.348	
DO	(mg/L)	0.54	0.45	0.39	0.36	0.33	0.31	
Turbidity	(NTUs)	3.19	3.13	2.21	1.74	1.80	2.21	
Salinity	(ppth)	0.97	0.95	0.92	0.90	0.89	0.87	
Eh	(mV)	-107.3	-111.4	-115.7	-118.8	-121.9	-125.8	
Water Level	(ft from TOR)	17.07	17.07	17.07	17.07	17.07	17.07	
Flow Rate	(mL/min.)	150	150	150	150	150	150	

Notes: 0950 – ran out of Nitrogen, changed tank – collected sample at 1030

NR = No reading taken

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-16I Personnel: V. Deleone Start Time: 1245 Finish Time: 1530

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.00 ppm Well Headspace Reading: 0.00 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.13			___ Press. Transducer
Casing/Well Difference (ft): 0.95			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 42 (ft) Depth to Pump Intake: 40 (ft)

Depth to Top of Water: 14.66 (ft) Depth of Screened Interval: 32-42 (ft)

Field Hach Kit Data

Concentration of Fe: NM Mg/L

Concentration of CO: 58 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-16I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-16I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-16I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-16I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-16I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-16I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-16I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-16I Personnel: V. Deleone Start Time: 1245 Finish Time: 1530

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1.25	2.0	2.75	3.50	4.25	5.0
Time		1320	1325	1330	1335	1340	1345	1350
Temperature	(°C)	13.85	13.65	13.83	13.88	13.89	14.01	13.95
pH		6.81	6.83	6.81	6.79	6.74	6.76	6.69
Conductivity	(ms/cm)	0.138	0.136	0.135	0.134	0.121	0.130	0.128
DO	(mg/L)	3.44	2.78	3.12	3.01	2.62	4.40	3.89
Turbidity	(NTUs)	252	569	673	688	768	702	752
Salinity	(ppth)	0.07	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	177.4	139.6	133.6	133.0	138.7	149.1	154.8
Water Level	(ft from TOR)	14.66	14.42	14.40	14.40	14.41	14.40	14.40
Flow Rate	(mL/min.)	250	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.75	6.50	7.25	8.0	8.75	9.50	10.25
Time		1355	1400	1405	1410	1415	1420	1425
Temperature	(°C)	14.00	13.94	13.86	13.86	13.84	13.83	13.79
pH		6.63	6.59	6.56	6.53	6.52	6.49	6.47
Conductivity	(ms/cm)	0.127	0.126	0.124	0.123	0.123	0.121	0.121
DO	(mg/L)	3.18	3.03	2.73	2.51	2.37	2.21	2.07
Turbidity	(NTUs)	768	820	914	874	1026	>1100	>1100
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	159.2	161.0	161.1	161.0	161.1	162.4	164.8
Water Level	(ft from TOR)	14.40	14.40	14.40	14.41	14.40	14.40	14.40
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Notes: Emptied flow cell at 1335

NM = Not measured – could not read Fe due to high turbidity

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-16I Personnel: V. Deleone Start Time: 1245 Finish Time: 1530

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	11.00						
Time	14.30						
Temperature (°C)	13.79						
pH	6.45						
Conductivity (ms/cm)	0.120						
DO (mg/L)	1.98						
Turbidity (NTUs)	>1100						
Salinity (ppth)	0.06						
Eh (mV)	168.7						
Water Level (ft from TOR)	14.40						
Flow Rate (mL/min.)	150						

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-16D Personnel: R. Casey Start Time: 1300 Finish Time: 1435

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 64 (ft) Depth to Pump Intake: 59 (ft)

Depth to Top of Water: 12.97 (ft) Depth of Screened Interval: 54-64 (ft)

Field Hach Kit Data

Concentration of Fe: 2.82 Mg/L

Concentration of CO: 160 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-16D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-16D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-16D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-16D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-16D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-16D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-16D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-16D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-16D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-16D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-16D	HNO_3 < 4°C
olved TAL Inorganics (3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-16D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/21/02

Well ID: MW16-16D Personnel: R. Casey Start Time: 1300 Finish Time: 1435

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0.2	0.65	1.1	1.55	2	2.45	2.9
Time	1315	1320	1325	1330	1335	1340	1345
Temperature (°C)	13.54	13.76	13.69	13.67	13.71	13.80	13.91
pH	6.52	6.57	6.53	6.49	6.47	6.46	6.45
Conductivity (ms/cm)	0.126	0.127	0.127	0.124	0.123	0.123	0.123
DO (mg/L)	2.56	1.02	1.03	0.98	0.88	0.89	0.86
Turbidity (NTUs)	67.8	49.4	33.6	24.9	13.9	9.90	8.27
Salinity (ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh (mV)	121.5	43.7	26	21.5	22.3	22.9	23.7
Water Level (ft from TOR)	12.47	12.98	12.98	12.98	12.98	12.98	12.98
Flow Rate (mL/min.)	150	150	150	150	150	150	150

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	3.35						
Time	1350						
Temperature (°C)	13.74						
pH	6.44						
Conductivity (ms/cm)	0.122						
DO (mg/L)	0.85						
Turbidity (NTUs)	6.27						
Salinity (ppth)	0.06						
Eh (mV)	24						
Water Level (ft from TOR)	12.98						
Flow Rate (mL/min.)	150						

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17S Personnel: V. Deleone/S. Sheer Start Time: 1300 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.38			___ Press. Transducer
Casing/Well Difference (ft): 0.22			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 16 (ft) Depth to Pump Intake: 14 (ft)

Depth to Top of Water: 11.66 (ft) Depth of Screened Interval: 6-16 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 20 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-17S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-17S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-17S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-17S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-17S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-17S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-17S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17S Personnel: V. Deleone/S. Sheer Start Time: 1300 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1300	1305	1310	1315	1320	1325	1330
Temperature	(°C)	13.67	12.75	12.28	12.13	12.24	12.18	12.08
pH		6.54	6.17	6.08	6.05	6.04	6.03	6.03
Conductivity	(ms/cm)	0.046	0.050	0.042	0.039	0.038	0.036	0.035
DO	(mg/L)	11.46	11.57	11.70	11.87	11.94	12.14	12.25
Turbidity	(NTUs)	390	340	120	70	50	34	25
Salinity	(ppth)	0.03	0.03	0.03	0.03	0.02	0.02	0.02
Eh	(mV)	215.8	212.1	206.1	202.0	195.0	194.7	195.0
Water Level	(ft from TOR)	12.27	11.87	11.78	11.79	11.81	11.80	11.80
Flow Rate	(mL/min.)	150	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	9.5	10	10.5	11
Time		1335	1340	1345	1350	1355	1400	1405
Temperature	(°C)	12.22	12.38	13.86	12.28	12.0	10.89	11.30
pH		6.02	6.02	6.01	6.02	6.02	6.02	6.02
Conductivity	(ms/cm)	0.035	0.034	0.032	0.029	0.028	0.026	0.026
DO	(mg/L)	12.34	12.37	12.25	12.54	12.83	12.99	12.68
Turbidity	(NTUs)	16.5	23.2	43.1	47.7	27.2	28	29
Salinity	(ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Eh	(mV)	195.6	195.9	197.6	198.0	195.5	198.5	187.3
Water Level	(ft from TOR)	11.80	11.80	11.80	11.80	11.80	11.80	11.80
Flow Rate	(mL/min.)	200	200	200	150	150	150	150

Notes: Collected sample at 1410

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17I Personnel: B. Andersen Start Time: 1115 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 1.90			___ Press. Transducer
Casing/Well Difference (ft): 0.70			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 40 (ft) Depth to Pump Intake: 30 (ft)

Depth to Top of Water: 11.45 (ft) Depth of Screened Interval: 28-40 (ft)

Field Hach Kit Data

Concentration of Fe: 0.12 Mg/L

Concentration of CO: none Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-17I MW16-Dup 04	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-17I MW16-Dup 04	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-17I MW16-Dup 04	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-17I MW16-Dup 04	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-17I MW16-Dup 04	< 4°C
Hydrogen sulfide		1 liter poly	MW16-17I MW16-Dup 04	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-17I MW16-Dup 04	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17I Personnel: B. Andersen Start Time: 1115 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		1200	1205	1210	1215	1220	1225	1230
Temperature	(°C)	8.42	9.58	9.39	4.20	9.52	9.52	9.61
pH		6.95	6.64	6.50	6.42	6.34	6.31	6.29
Conductivity	(ms/cm)	0.068	0.065	0.065	0.065	0.066	0.067	0.068
DO	(mg/L)	6.64	4.73	4.20	3.90	3.18	3.15	3.16
Turbidity	(NTUs)	5.53	4.46	3.30	1.44	0.29	2.08	2.84
Salinity	(ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Eh	(mV)	202.3	202.1	175.3	188.8	183.6	176.6	172.3
Water Level	(ft from TOR)	11.50	11.50	11.50	11.50	11.50	11.50	11.50
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8						
Time		1235						
Temperature	(°C)	9.60						
pH		6.27						
Conductivity	(ms/cm)	0.068						
DO	(mg/L)	3.20						
Turbidity	(NTUs)	2.76						
Salinity	(ppth)	0.03						
Eh	(mV)	170.5						
Water Level	(ft from TOR)	11.50						
Flow Rate	(mL/min.)	200						

Notes: Collected sample at 1240, also Dup 04

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17D Personnel: C. Springer Start Time: 1320 Finish Time: 1445

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 67 (ft) Depth to Pump Intake: 64.5 (ft)

Depth to Top of Water: 12.40 (ft) Depth of Screened Interval: 57-67 (ft)

Field Hach Kit Data

Concentration of Fe: 5.4 Mg/L

Concentration of CO: 42.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-17D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-17D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-17D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-17D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-17D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-17D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-17D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17D Personnel: C. Springer Start Time: 1320 Finish Time: 1445

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1320	1325	1330	1335	1340	1345	1350
Temperature	(°C)	7.03	8.49	9.19	9.18	9.06	8.08	7.88
pH		7.26	6.96	6.77	6.77	6.78	6.79	6.79
Conductivity	(ms/cm)	0.078	0.085	0.086	0.086	0.086	0.084	0.084
DO	(mg/L)	6.84	6.53	2.91	2.25	1.74	1.35	1.16
Turbidity	(NTUs)	292	159	166	106	94	90.3	90.0
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	116.5	92.4	25.2	-6.7	-24.5	-31.9	-34.9
Water Level	(ft from TOR)	12.40	12.49	12.45	12.45	12.45	12.45	12.45
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8					
Time		1355	1400					
Temperature	(°C)	8.09	8.15					
pH		6.79	6.79					
Conductivity	(ms/cm)	0.084	0.084					
DO	(mg/L)	1.11	1.06					
Turbidity	(NTUs)	89.9	88.7					
Salinity	(ppth)	0.06	0.06					
Eh	(mV)	-35.2	-36.0					
Water Level	(ft from TOR)	12.45	12.45					
Flow Rate	(mL/min.)	200	200					

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17R Personnel: S. Cackowski Start Time: 1130 Finish Time: 1540

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ √ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.07			___ Press. Transducer
Casing/Well Difference (ft): 0.11			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 98 (ft) Depth to Pump Intake: 82 (ft)

Depth to Top of Water: 11.83 (ft) Depth of Screened Interval: 73-98 (ft)

Field Hach Kit Data

Concentration of Fe: 0.85 Mg/L

Concentration of CO: 46.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-17R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-17R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-17R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-17R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-17R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-17R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-17R	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-17R	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-17R	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-17R	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-17R	HNO_3 < 4°C
olved TAL Inorganics 3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-17R	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17R Personnel: S. Cackowski Start Time: 1136 Finish Time: 1540

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3	3.5	3.75	4.0	4.25	4.50	4.75
Time		1215	1220	1225	1230	1235	1240	1245
Temperature	(°C)	9.56	10.04	9.67	6.65	5.88	6.08	5.77
pH		7.98	7.63	7.62	7.70	7.71	7.72	7.73
Conductivity	(ms/cm)	0.110	0.104	0.105	0.099	0.094	0.094	0.094
DO	(mg/L)	7.55	3.76	3.00	1.96	1.84	2.08	2.09
Turbidity	(NTUs)	19	28	36	39	37	34	32
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	19.8	-66.6	-100.6	-120.7	-124.6	-126.0	-124.8
Water Level	(ft from TOR)	12.11	12.19	12.22	12.11	12.10	12.08	12.08
Flow Rate	(mL/min.)	100	100	50	50	50	50	50

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5	5.25	5.5	5.75	6	6.25	6.5
Time		1250	1255	1300	1305	1310	1315	1320
Temperature	(°C)	5.79	5.55	6.05	6.30	6.59	8.92	8.17
pH		7.75	7.76	7.75	7.77	7.78	7.72	7.80
Conductivity	(ms/cm)	0.093	0.093	0.093	0.093	0.095	0.101	0.101
DO	(mg/L)	2.09	2.30	2.88	2.87	3.17	1.59	1.73
Turbidity	(NTUs)	31	29	28	25	27	28	27
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	123.7	-124.5	-121.6	-120.3	-119.8	-130.6	-128
Water Level	(ft from TOR)	12.08	12.08	12.08	12.08	12.08	12.18	12.18
Flow Rate	(mL/min.)	50	50	50	50	50	50	50

Notes: 3 inches snow accumulation during sampling

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-17R Personnel: S. Cackowski Start Time: 1130 Finish Time: 1540

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	6.75	7.0					
Time	1325	1330					
Temperature (°C)	7.97	7.64					
pH	7.79	7.77					
Conductivity (ms/cm)	0.101	0.101					
DO (mg/L)	1.74	1.69					
Turbidity (NTUs)	28	28					
Salinity (ppth)	0.07	0.07					
Eh (mV)	-127	-123.8					
Water Level (ft from TOR)	12.18	12.18					
Flow Rate (mL/min.)	50	50					

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected sample at 1345

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-18I Personnel: S. Cackowski Start Time: 0815 Finish Time: 1045

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.9 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.13			___ Press. Transducer
Casing/Well Difference (ft): 2.18			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 34 (ft) Depth to Pump Intake: 24 (ft)

Depth to Top of Water: 12.10 (ft) Depth of Screened Interval: 22-34 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 14.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-18I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-18I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-18I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-18I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-18I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-18I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-18I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-18I Personnel: S. Cackowski Start Time: 0815 Finish Time: 1045

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	3	3.5	4	4.5	5	5.5	
Time	0850	0855	0900	0905	0910	0915	
Temperature (°C)	12.17	10.51	11.45	11.93	10.83	10.03	
pH	6.45	5.97	5.83	5.84	5.88	5.89	
Conductivity (ms/cm)	0.043	0.040	0.040	0.041	0.040	0.039	
DO (mg/L)	8.17	8.51	8.46	8.46	8.54	8.56	
Turbidity (NTUs)	18	9.3	6.4	3.8	3.1	2.1	
Salinity (ppth)	0.03	0.03	0.02	0.02	0.03	0.03	
Eh (mV)	160.1	161.6	160.3	159.4	154.9	152.0	
Water Level (ft from TOR)	12.11	12.11	12.11	12.11	12.11	12.11	
Flow Rate (mL/min.)	200	100	100	100	100	100	

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-18D Personnel: B. Andersen Start Time: 0815 Finish Time: 1055

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked: √ Yes ___ No

Protective Casing Secure: √ Yes ___ No

Concrete Collar Intact: √ Yes ___ No

Other: ___

Protective Casing Stick Up (ft): 2.5

Casing/Well Difference (ft): ___

Well Material: √ PVC/ ___ SS/Other ___

Well Diameter: √ 2-in. / ___ 4-in./ ___ 6-in./ Other

Water Level Equip. Used: √ Elect. Cond. Probe

___ Interface Probe

___ Press. Transducer

___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 52.5 (ft) Depth to Pump Intake: 47.5 (ft)

Depth to Top of Water: 12.30 (ft) Depth of Screened Interval: 42.5-52.5 (ft)

Field Hach Kit Data

Concentration of Fe: 5.32 Mg/L

Concentration of CO: 28 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-18D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-18D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-18D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-18D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-18D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-18D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-18D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/05/02

Well ID: MW16-18D Personnel: B. Andersen Start Time: 0815 Finish Time: 1055

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1.5	2.5	3.5	4.5	5.5	6.5	7.5
Time		0845	0850	0855	0900	0905	0910	0915
Temperature	(°C)	10.95	11.84	10.32	8.87	7.93	7.30	7.02
pH		6.54	6.61	6.66	6.66	6.66	6.67	6.68
Conductivity	(ms/cm)	0.148	0.142	0.145	0.145	0.145	0.144	0.143
DO	(mg/L)	10.34	8.70	5.08	4.35	4.09	3.68	3.22
Turbidity	(NTUs)	312	86.5	46.7	36.6	34.1	28.1	26.7
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	-48.8	-61.6	-66.2	-61.8	-57.9	-55.2	-53.6
Water Level	(ft from TOR)	12.35	12.35	12.35	12.32	12.31	12.31	12.31
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8.5	9.5	10.5	11.5			
Time		0920	0925	0930	0935			
Temperature	(°C)	6.67	6.40	6.19	6.10			
pH		6.72	6.70	6.72	6.69			
Conductivity	(ms/cm)	0.143	0.143	0.143	0.143			
DO	(mg/L)	2.94	2.66	2.45	2.37			
Turbidity	(NTUs)	24.3	23.7	27.0	27.1			
Salinity	(ppth)	0.07	0.07	0.07	0.07			
Eh	(mV)	-50.9	-49.3	-47.2	-46.3			
Water Level	(ft from TOR)	12.31	12.31	12.31	12.31			
Flow Rate	(mL/min.)	200	200	200	200			

Notes: Collected sample at 0945

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-19I Personnel: S. Sheer Start Time: 0847 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.8			___ Press. Transducer
Casing/Well Difference (ft): 0.34			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 40 (ft) Depth to Pump Intake: 34 (ft)

Depth to Top of Water: 11.85 (ft) Depth of Screened Interval: 30-40 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 21.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-19I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-19I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-19I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-19I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-19I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-19I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-19I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-19I Personnel: S. Sheer Start Time: 0847 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10	11	12	13	14
Time		0915	0920	0925	0930	0935	0940	0945
Temperature	(°C)	12.71	12.66	12.66	12.66	12.62	12.58	12.59
pH		6.13	5.99	5.91	5.90	5.87	5.85	5.83
Conductivity	(ms/cm)	0.071	0.071	0.071	0.071	0.071	0.070	0.070
DO	(mg/L)	9.33	7.40	6.79	6.75	6.71	6.75	6.74
Turbidity	(NTUs)	2.95	2.22	2.20	2.33	2.44	1.40	1.20
Salinity	(ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Eh	(mV)	78.7	75.1	70.1	70.1	71.6	77.6	85.8
Water Level	(ft from TOR)	11.98	11.98	11.98	11.98	11.98	11.98	11.98
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		15	16	17	18	19		
Time		0950	0955	1000	1005	1010		
Temperature	(°C)	12.59	12.66	12.66	12.66	12.67		
pH		5.83	5.81	5.82	5.82	5.80		
Conductivity	(ms/cm)	0.070	0.070	0.070	0.069	0.070		
DO	(mg/L)	6.74	6.74	6.72	6.73	6.73		
Turbidity	(NTUs)	1.10	1.06	1.05	1.04	1.09		
Salinity	(ppth)	0.03	0.03	0.03	0.03	0.03		
Eh	(mV)	87.6	108.0	109.6	112.1	120.0		
Water Level	(ft from TOR)	11.98	11.98	11.98	11.98	11.98		
Flow Rate	(mL/min.)	200	200	200	200	200		

Notes: Collected sample at 1015

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/27/02

Well ID: MW16-19D Personnel: V. Deleone Start Time: 0845 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3			___ Press. Transducer
Casing/Well Difference (in): 4			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 54.5 (ft) Depth to Pump Intake: 47 (ft)

Depth to Top of Water: 11.59 (ft) Depth of Screened Interval: 45.5-55.5 (ft)

Field Hach Kit Data

Concentration of Fe: 33 Mg/L

Concentration of CO: 42 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-19D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-19D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-19D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-19D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-19D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-19D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-19D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/27/02

Well ID: MW16-19D Personnel: V. Deleone Start Time: 0845 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0850	0855	0900	0905	0910	0915	0920
Temperature	(°C)	11.00	10.24	10.24	10.06	10.11	10.17	10.22
pH		6.97	6.61	6.51	6.50	6.52	6.54	6.55
Conductivity	(ms/cm)	0.093	0.081	0.079	0.079	0.079	0.080	0.080
DO	(mg/L)	2.91	1.97	1.62	1.43	1.25	1.15	1.08
Turbidity	(NTUs)	104.5	88.5	77.1	52.3	38.1	28.2	19.1
Salinity	(ppth)	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Eh	(mV)	115.8	119.5	84.3	46.0	27.1	14.9	7.1
Water Level	(ft from TOR)	11.59	11.59	11.59	11.59	11.59	11.59	11.59
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10			
Time		0925	0930	0935	0940			
Temperature	(°C)	10.24	10.41	10.33	10.14			
pH		6.56	6.57	6.58	6.58			
Conductivity	(ms/cm)	0.080	0.080	0.080	0.080			
DO	(mg/L)	1.02	0.97	0.95	0.92			
Turbidity	(NTUs)	16.2	13.1	12.51	11.98			
Salinity	(ppth)	0.05	0.05	0.05	0.05			
Eh	(mV)	0.5	-3.4	-6.3	-8.1			
Water Level	(ft from TOR)	11.59	11.59	11.59	11.59			
Flow Rate	(mL/min.)	200	200	200	200			

Notes: snowing

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-20I Personnel: S. Cackowski Start Time: 1320 Finish Time: 1600

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): grade			___ Press. Transducer
Casing/Well Difference (ft): 0.32			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 34 (ft) Depth to Pump Intake: 29 (ft)

Depth to Top of Water: 8.41 (ft) Depth of Screened Interval: 24-34 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 43.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-20I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-20I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-20I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-20I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-20I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-20I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-20I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-20I Personnel: S. Cackowski Start Time: 1320 Finish Time: 1600

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	2.5	3	3.5	4	4.5	5
Time		1410	1415	1420	1425	1430	1435	1440
Temperature	(°C)	13.49	13.41	13.48	13.50	12.70	12.42	12.25
pH		5.39	5.24	5.15	5.16	5.13	5.19	5.23
Conductivity	(ms/cm)	0.132	0.146	0.154	0.159	0.157	0.156	0.155
DO	(mg/L)	8.82	6.19	4.57	3.48	3.22	2.78	2.50
Turbidity	(NTUs)	5.5	2.0	1.9	1.7	0.45	0.25	0.35
Salinity	(ppth)	0.08	0.09	0.09	0.10	0.10	0.10	0.10
Eh	(mV)	201.8	201.4	201.2	197.1	198.5	195.4	193.3
Water Level	(ft from TOR)	8.42	8.42	8.42	8.42	8.42	8.42	8.42
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.5	6.0	6.5				
Time		1445	1450	1455				
Temperature	(°C)	11.97	11.96	11.83				
pH		5.22	5.27	5.24				
Conductivity	(ms/cm)	0.154	0.154	0.154				
DO	(mg/L)	2.48	2.43	2.38				
Turbidity	(NTUs)	0.00	0.10	0.12				
Salinity	(ppth)	0.10	0.10	0.10				
Eh	(mV)	194.1	191.1	193.5				
Water Level	(ft from TOR)	8.42	8.42	8.42				
Flow Rate	(mL/min.)	100	100	100				

Notes: Well located approximately 52 ft from fire hydrant in line with red duct tape on fence post.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-20D Personnel: B. Anderson Start Time: 1320 Finish Time: 1600

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0			___ Press. Transducer
Casing/Well Difference (ft): -0.30			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 57 (ft) Depth to Pump Intake: 44.5 (ft)

Depth to Top of Water: 5.69 (ft) Depth of Screened Interval: 39.5-49.5 (ft)

Field Hach Kit Data

Concentration of Fe: 1.2 Mg/L

Concentration of CO: 56 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-20D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-20D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-20D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-20D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-20D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-20D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-20D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-	HNO_3 < 4°C
[illegible]solved TAL Inorganics [illegible]005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-	HNO_3 < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-20D Personnel: B. Anderson Start Time: 1320 Finish Time: 1600

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.5	1.5	2.5	3.5	4.5	5.5	6.5
Time		1405	1410	1415	1420	1425	1430	1435
Temperature	(°C)	10.89	11.41	11.86	12.06	11.95	11.89	11.67
pH		6.74	6.70	6.70	6.74	6.76	6.78	6.79
Conductivity	(ms/cm)	0.204	0.172	0.160	0.151	0.149	0.147	0.144
DO	(mg/L)	5.82	4.68	4.02	3.13	3.08	2.51	2.47
Turbidity	(NTUs)	152.0	134.5	75.5	36.2	24.5	13.4	8.63
Salinity	(ppth)	0.09	0.08	0.08	0.07	0.07	0.07	0.07
Eh	(mV)	190.7	178.5	130.8	27.6	-19.7	-36.1	-43.6
Water Level	(ft from TOR)	9.12	9.15	9.17	9.15	9.13	9.13	9.13
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7.5	8.5	9.5	10.5			
Time		1440	1445	1450	1455			
Temperature	(°C)	11.71	11.62	11.61	11.50			
pH		6.80	6.80	6.81	6.81			
Conductivity	(ms/cm)	0.144	0.144	0.143	0.143			
DO	(mg/L)	2.02	1.97	1.89	1.87			
Turbidity	(NTUs)	6.36	4.93	4.22	4.41			
Salinity	(ppth)	0.07	0.07	0.07	0.07			
Eh	(mV)	-47.4	-49.4	-51.2	-52.3			
Water Level	(ft from TOR)	9.11	9.10	9.09	9.08			
Flow Rate	(mL/min.)	200	200	200	200			

Notes: Collected sample at 1505.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-21D Personnel: S. Cackowski Start Time: 1255 Finish Time: 1545

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 61 (ft) Depth to Pump Intake: 54 (ft)

Depth to Top of Water: 10.63 (ft) Depth of Screened Interval: 51-61 (ft)

Field Hach Kit Data

Concentration of Fe: 0.97 Mg/L

Concentration of CO: 60.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-21D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-21D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-21D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-21D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-21D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-21D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-21D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-21D Personnel: S. Cackowski Start Time: 1255 Finish Time: 1545

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	2.5	3	3.5	4	4.5	5
Time		1330	1335	1340	1345	1350	1355	1400
Temperature	(°C)	13.05	13.33	13.39	13.27	13.15	13.00	12.76
pH		5.82	5.66	5.60	5.54	5.53	5.52	5.51
Conductivity	(ms/cm)	0.098	0.092	0.090	0.087	0.086	0.086	0.085
DO	(mg/L)	4.14	2.85	1.62	1.33	1.22	1.11	1.01
Turbidity	(NTUs)	24	18	17	14	8.7	7.6	5.9
Salinity	(ppth)	0.06	0.06	0.05	0.05	0.05	0.05	0.05
Eh	(mV)	194.6	156.1	113.6	95.3	88.8	85.7	84.0
Water Level	(ft from TOR)	10.69	10.69	10.69	10.69	10.69	10.69	10.69
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.5	6	6.5	7			
Time		1405	1410	1415	1420			
Temperature	(°C)	12.73	12.62	12.42	12.31			
pH		5.54	5.54	5.55	5.56			
Conductivity	(ms/cm)	0.085	0.085	0.084	0.084			
DO	(mg/L)	0.97	0.98	0.95	0.96			
Turbidity	(NTUs)	5.7	4.5	4.2	3.8			
Salinity	(ppth)	0.05	0.05	0.05	0.00			
Eh	(mV)	83.1	82.4	82.5	81.9			
Water Level	(ft from TOR)	10.69	10.69	10.69	10.69			
Flow Rate	(mL/min.)	100	100	100	100			

Notes: Collected sample at 1435

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-21I Personnel: B. Andersen Start Time: 1300 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	___ Yes √ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: flushmount			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.32			___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 36.5 (ft) Depth to Pump Intake: 34.5 (ft)

Depth to Top of Water: 10.10 (ft) Depth of Screened Interval: 26.5-36.5 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 46 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-21I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-21I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-21I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-21I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-21I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-21I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-21I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-21I Personnel: B. Andersen Start Time: 1300 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox; isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0.5	1.5	2.5	3.5	4.5	5.5	6.5
Time	1320	1325	1330	1335	1340	1345	1350
Temperature (°C)	13.38	13.79	14.17	14.34	14.27	14.24	14.15
pH	6.69	6.26	6.16	6.12	6.11	6.11	6.10
Conductivity (ms/cm)	0.176	0.188	0.203	0.201	0.194	0.190	0.189
DO (mg/L)	8.40	3.48	2.25	1.66	1.54	1.45	1.42
Turbidity (NTUs)	18.2	31.0	46.1	66.2	90.3	92.2	96.3
Salinity (ppth)	0.08	0.09	0.10	0.10	0.09	0.09	0.09
Eh (mV)	168.4	140.7	99.4	76.1	65.9	61.5	59.9
Water Level (ft from TOR)	10.25	10.32	10.30	10.30	10.29	10.29	10.29
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	7.5	8.5	9.5				
Time	1355	1400	1405				
Temperature (°C)	14.03	13.96	13.92				
pH	6.10	6.10	6.10				
Conductivity (ms/cm)	0.189	0.188	0.188				
DO (mg/L)	1.39	1.32	1.30				
Turbidity (NTUs)	99.2	100.0	101.0				
Salinity (ppth)	0.09	0.09	0.09				
Eh (mV)	60.9	62.4	63.0				
Water Level (ft from TOR)	10.29	10.29	10.29				
Flow Rate (mL/min.)	200	200	200				

Notes: Collected sample at 1410

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-22I Personnel: B. Andersen Start Time: 1245 Finish Time: 1450

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.29			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 44 (ft) Depth to Pump Intake: 43 (ft)

Depth to Top of Water: 17.54 (ft) Depth of Screened Interval: 34-44 (ft)

Field Hach Kit Data

Concentration of Fe: 0.06 Mg/L

Concentration of CO: 40 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-22I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-22I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-22I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-22I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-22I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-22I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-22I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-22I Personnel: B. Andersen Start Time: 1245 Finish Time: 1450

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		1310	1315	1320	1325	1330	1335	1340
Temperature	(°C)	14.27	14.79	14.54	1459	14.45	14.68	14.48
pH		6.52	6.31	6.36	6.25	6.21	6.19	6.19
Conductivity	(ms/cm)	0.119	0.117	0.119	0.117	0.117	0.117	0.117
DO	(mg/L)	6.02	5.57	3.42	1.61	1.26	1.17	1.12
Turbidity	(NTUs)	>999	>999	>999	>999	>999	>999	>999
Salinity	(ppth)	1.06	0.05	0.05	0.06	0.06	0.05	0.05
Eh	(mV)	169.8	172.5	170.3	170.5	171.9	173.0	174.1
Water Level	(ft from TOR)	17.95	17.95	17.95	17.95	17.95	17.95	17.95
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8.0						
Time		1345						
Temperature	(°C)	14.38						
pH		6.19						
Conductivity	(ms/cm)	0.117						
DO	(mg/L)	1.10						
Turbidity	(NTUs)	>999						
Salinity	(ppth)	0.05						
Eh	(mV)	175.4						
Water Level	(ft from TOR)	17.95						
Flow Rate	(mL/min.)	200						

Notes: Filtered sample to read Fe and CO due to high turbidity

Collected sample at 1350

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/15/02

Well ID: MW16-22D Personnel: R. Wasserman Start Time: 1245 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red/green calibration log

Ambient Air Reading: 0 ppm Well Headspace Reading: 0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (in): 4			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 62 (ft) Depth to Pump Intake: 58 (ft)

Depth to Top of Water: 17.04 (ft) Depth of Screened Interval: 52-62 (ft)

Field Hach Kit Data

Concentration of Fe: 2.46 Mg/L

Concentration of CO: 77.2 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-22D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-22D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-22D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-22D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-22D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-22D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-22D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-22D Personnel: R. Wasserman Start Time: 1245 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0	1	2	3	4	5	6
Time	1310	1315	1320	1325	1330	1335	1340
Temperature (°C)	14.28	14.47	14.47	14.41	14.35	14.41	14.36
pH	7.20	6.82	6.66	6.54	6.50	6.49	6.47
Conductivity (ms/cm)	0.131	0.130	0.130	0.131	0.130	0.129	0.129
DO (mg/L)	2.83	1.04	0.55	0.33	0.23	0.22	0.29
Turbidity (NTUs)	178	162	37	33	21.9	11.2	11.2
Salinity (ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh (mV)	95.6	44.1	30.3	19.8	14.2	11.7	11.7
Water Level (ft from TOR)	17.04	17.06	17.07	17.07	17.07	17.06	17.07
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	7	8	9				
Time	1345	1350	1355				
Temperature (°C)	14.30	14.36	14.35				
pH	6.47	6.46	6.48				
Conductivity (ms/cm)	0.128	0.126	0.127				
DO (mg/L)	0.51	0.54	0.60				
Turbidity (NTUs)	7.56	7.86	7.73				
Salinity (ppth)	0.06	0.06	0.06				
Eh (mV)	10.9	11.5	12.1				
Water Level (ft from TOR)	17.07	17.07	17.07				
Flow Rate (mL/min.)	200	200	200				

Notes: Collected sample at 1400

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-23D Personnel: S. Cackowski Start Time: 1230 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	___ Yes √ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): grade			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 65 (ft) Depth to Pump Intake: 52 (ft)

Depth to Top of Water: 13.65 (ft) Depth of Screened Interval: 50-65 (ft)

Field Hach Kit Data

Concentration of Fe: 0.43 Mg/L

Concentration of CO: 30.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-23D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-23D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-23D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-23D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-23D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-23D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-23D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-23D Personnel: S. Cackowski Start Time: 1230 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3	3.5	4	4.5	5	5.5	6
Time		1320	1325	1330	1335	1340	1345	1350
Temperature	(°C)	15.47	15.33	15.30	15.20	15.27	15.24	15.26
pH		7.00	6.78	6.68	6.55	6.48	6.42	6.36
Conductivity	(ms/cm)	0.088	0.062	0.053	0.047	0.045	0.044	0.042
DO	(mg/L)	11.24	11.21	11.30	10.62	9.70	8.97	8.85
Turbidity	(NTUs)	60	50	45	37	35	28	24
Salinity	(ppth)	0.05	0.03	0.03	0.03	0.03	0.02	0.02
Eh	(mV)	115.8	68.0	31.9	18.9	17.7	20.5	25.6
Water Level	(ft from TOR)	13.75	13.75	13.75	13.75	13.75	13.75	13.75
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		6.5	7.0	7.5				
Time		1355	1400	1405				
Temperature	(°C)	15.24	15.24	15.25				
pH		6.31	6.28	6.25				
Conductivity	(ms/cm)	0.041	0.040	0.040				
DO	(mg/L)	7.87	7.88	7.82				
Turbidity	(NTUs)	24	23	23				
Salinity	(ppth)	0.02	0.02	0.02				
Eh	(mV)	30.0	32.0	33.3				
Water Level	(ft from TOR)	13.75	13.75	13.75				
Flow Rate	(mL/min.)	100	100	100				

Notes: Collected sample at 1420

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-24I Personnel: B. Anderson Start Time: 1315 Finish Time: 1545

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 17 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	___ Yes √ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0.00			___ Press. Transducer
Casing/Well Difference (ft): -0.21			___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 28 (ft) Depth to Pump Intake: 23 (ft)

Depth to Top of Water: Below top of pump (ft) Depth of Screened Interval: 18-28 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 28 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-24I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-24I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-24I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-24I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-24I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-24I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-24I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-24I Personnel: B. Anderson Start Time: 1315 Finish Time: 1545

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See Red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.5	1.5	2.5	3.5	4.5	5.5	6.5
Time		1345	1350	1355	1400	1405	1410	1415
Temperature	(°C)	11.98	11.99	11.62	11.70	11.78	11.68	11.69
pH		6.46	6.27	6.14	6.02	6.00	5.92	5.89
Conductivity	(ms/cm)	0.201	0.208	0.210	0.212	0.213	0.218	0.222
DO	(mg/L)	2.77	2.70	2.54	2.53	2.55	2.58	2.61
Turbidity	(NTUs)	9.93	3.93	4.14	1.66	2.18	1.82	1.37
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	103.2	113.9	127.8	139.2	145.6	153.1	162.7
Water Level	(ft from TOR)	(a)	(a)	10.78	10.70	10.70	10.70	10.70
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7.5	8.5					
Time		1420	1425					
Temperature	(°C)	11.46	11.43					
pH		5.86	5.84					
Conductivity	(ms/cm)	0.224	0.224					
DO	(mg/L)	2.61	2.61					
Turbidity	(NTUs)	1.20	0.95					
Salinity	(ppth)	0.11	0.11					
Eh	(mV)	166.7	171.7					
Water Level	(ft from TOR)	10.70	10.70					
Flow Rate	(mL/min.)	200	200					

Notes: (a) = unable to gauge water level. Sample collected at 1435.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-24D Personnel: S. Cackowski Start Time: 1315 Finish Time: 1535

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount w/o lock			___ Interface Probe
Protective Casing Stick Up (ft):	0.00		___ Press. Transducer
Casing/Well Difference (ft):	-0.29		___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 70 (ft) Depth to Pump Intake: 51 (ft)

Depth to Top of Water: 10.86 (ft) Depth of Screened Interval: 50-62 (ft)

Field Hach Kit Data

Concentration of Fe: 2.73 Mg/L

Concentration of CO: 55.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-24D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-24D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-24D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-24D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-24D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-24D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-24D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/10/02

Well ID: MW16-24D Personnel: S. Cackowski Start Time: 1315 Finish Time: 1535

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	2.5	3	3.5	4	4.5	5
Time		1350	1355	1400	1405	1410	1415	1420
Temperature	(°C)	12.02	12.76	13.05	13.37	13.47	13.48	13.48
pH		6.83	6.82	6.70	6.68	6.58	6.56	6.49
Conductivity	(ms/cm)	0.124	0.126	0.126	0.123	0.121	0.118	0.117
DO	(mg/L)	3.11	1.14	0.66	0.40	0.28	0.20	0.18
Turbidity	(NTUs)	9.1	8.7	7.6	5.1	4.3	4.3	3.2
Salinity	(ppth)	0.08	0.08	0.08	0.08	0.07	0.07	0.07
Eh	(mV)	-33.6	-45.6	-48.9	-37.1	-27.0	-24.9	-20.8
Water Level	(ft from TOR)	10.92	10.95	10.95	10.95	10.95	10.95	10.95
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.5						
Time		1425						
Temperature	(°C)	13.46						
pH		6.47						
Conductivity	(ms/cm)	0.115						
DO	(mg/L)	0.18						
Turbidity	(NTUs)	2.9						
Salinity	(ppth)	0.07						
Eh	(mV)	-20.2						
Water Level	(ft from TOR)	10.95						
Flow Rate	(mL/min.)	100						

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-25I Personnel: R. Casey Start Time: 0800 Finish Time: 1020

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.00 ppm Well Headspace Reading: 0.00 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.15			___ Press. Transducer
Casing/Well Difference (ft): 0.24			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 42 (ft) Depth to Pump Intake: 40 (ft)

Depth to Top of Water: 11.81 (ft) Depth of Screened Interval: 32-42 (ft)

Fi Id Hach Kit Data

Concentration of Fe: 0.72 Mg/L

Concentration of CO: 82 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-25I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-25I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-25I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-25I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-25i	< 4°C
Hydrogen sulfide		1 liter poly	MW16-25I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-25I	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-25I	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-25I	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-25I	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-25I	HNO_3 < 4°C
olved TAL Inorganics (3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-25I	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-25I Personnel: R. Casey Start Time: 0800 Finish Time: 1020

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0.3	0.7	1.2	1.65	2.2	2.65	3.22
Time	0900	0905	0910	0915	0920	0925	0930
Temperature (°C)	12.49	12.50	12.53	12.52	12.40	12.39	12.42
pH	6.37	6.33	6.31	6.31	6.31	6.31	6.32
Conductivity (ms/cm)	103	103	105	106	106	106	106
DO (mg/L)	12.85	12.03	9.87	9.54	8.83	8.22	8.68
Turbidity (NTUs)	25.1	64.7	160	168	169	170	172
Salinity (ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Eh (mV)	120.6	114.6	100.9	83.2	65.5	64.8	59.8
Water Level (ft from TOR)	11.81	11.83	11.83	11.83	11.83	11.83	11.83
Flow Rate (mL/min.)	150	150	150	150	150	150	150

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-25D Personnel: S. Whitin Start Time: 0900 Finish Time: 0955

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.00 ppm Well Headspace Reading: 0.00 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.5			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 58 (ft) Depth to Pump Intake: 47 (ft)

Depth to Top of Water: 12.83 (ft) Depth of Screened Interval: 46-58 (ft)

Field Hach Kit Data

Concentration of Fe: 153 Mg/L

Concentration of CO: 52 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-25D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-25D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-25D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-25D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-25D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-25D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-25D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-25D Personnel: S. Whitin Start Time: 0900 Finish Time: 0955

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0	0.5	1	1.5	2	2.5	3
Time	0905	0910	0915	0920	0925	0930	0935
Temperature (°C)	12.05	12.75	12.90	12.76	12.71	12.71	12.68
pH	6.38	6.36	6.31	6.30	6.30	6.29	6.28
Conductivity (ms/cm)	0.109	0.107	0.106	0.104	0.103	0.103	0.102
DO (mg/L)	2.76	0.90	0.62	0.56	0.50	0.45	0.43
Turbidity (NTUs)	23	16	8	7	5	5	4
Salinity (ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Eh (mV)	6.54	36.4	26.4	20.4	18.2	16.9	16.4
Water Level (ft from TOR)	12.95	12.94	12.94	12.94	12.94	12.46	12.96
Flow Rate (mL/min.)	100	100	100	100	100	100	100

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected sample at 0950

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-25R Personnel: V. Deleone Start Time: 0830 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.00 ppm Well Headspace Reading: 0.00 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2			___ Press. Transducer
Casing/Well Difference (in): 4			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 86 (ft) Depth to Pump Intake: 80 (ft)

Depth to Top of Water: 11.90 (ft) Depth of Screened Interval: 61-86 (ft)

Field Hach Kit Data

Concentration of Fe: 0.12 Mg/L

Concentration of CO: 2.5 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-25R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-25R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-25R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-25R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-25R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-25R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-25R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/22/02

Well ID: MW16-25R Personnel: V. Deleone Start Time: 0830 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.50	2.25	3.0	3.75	4.50
Time		0845	0850	0855	0900	0905	0910	0915
Temperature	(°C)	12.25	12.14	12.22	12.26	12.26	12.28	12.34
pH		7.85	8.04	8.41	8.53	8.60	8.61	8.60
Conductivity	(ms/cm)	0.142	0.142	0.141	0.141	0.141	0.141	0.141
DO	(mg/L)	2.33	2.08	1.44	1.19	0.81	0.87	0.79
Turbidity	(NTUs)	21.7	25.3	21.2	19.5	18.9	18.8	17.8
Salinity	(ppth)	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Eh	(mV)	-58.2	-62.5	-80.5	-87.8	-85.2	-93.9	-108.3
Water Level	(ft from TOR)	12.00	12.10	12.10	12.10	12.10	12.11	12.10
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6.0	6.75				
Time		0920	0925	0930				
Temperature	(°C)	12.39	12.29	12.33				
pH		8.58	8.57	8.54				
Conductivity	(ms/cm)	0.140	0.140	0.140				
DO	(mg/L)	0.50	0.57	0.49				
Turbidity	(NTUs)	19.0	19.9	19.5				
Salinity	(ppth)	0.07	0.07	0.07				
Eh	(mV)	-114.5	-110.6	-102.4				
Water Level	(ft from TOR)	12.10	12.10	12.00				
Flow Rate	(mL/min.)	150	150	150				

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-26D Personnel: V. Deleone/S. Whitin Start Time: 1300 Finish Time: 1400

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 49 (ft) Depth to Pump Intake: 44.5 (ft)

Depth to Top of Water: 5.60 (ft) Depth of Screened Interval: 40-49 (ft)

Field Hach Kit Data

Concentration of Fe: 3.02 Mg/L

Concentration of CO: 48 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-26D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-26D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-26D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-26D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-26D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-26D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-26D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-26D Personnel: V. Deleone/S. Whitin Start Time: 1300 Finish Time: 1400

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	1.5	2	2.5	3	3.5
Time		1300	1305	1310	1315	1320	1325	1330
Temperature	(°C)	10.34	10.03	9.88	9.89	9.92	9.94	9.92
pH		6.44	6.56	6.72	6.75	6.77	6.79	6.80
Conductivity	(ms/cm)	0.249	0.236	0.213	0.211	0.210	0.212	0.212
DO	(mg/L)	4.48	3.89	3.09	2.87	2.68	2.54	2.40
Turbidity	(NTUs)	21.5	22.3	13.7	13.8	14.8	15.6	16.5
Salinity	(ppth)	0.13	0.12	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	37.0	5.6	-30.1	-38.5	-46.2	-52.3	-57.0
Water Level	(ft from TOR)	6.40	6.00	5.95	5.95	5.95	5.95	5.95
Flow Rate	(mL/min.)	200	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4						
Time		1335						
Temperature	(°C)	9.91						
pH		6.81						
Conductivity	(ms/cm)	0.213						
DO	(mg/L)	2.33						
Turbidity	(NTUs)	17.1						
Salinity	(ppth)	0.10						
Eh	(mV)	-60.7						
Water Level	(ft from TOR)	5.95						
Flow Rate	(mL/min.)	100						

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-27D Personnel: R. Wasserman Start Time: 0830 Finish Time: 1120

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: bolted			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (in): 3			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 64 (ft) Depth to Pump Intake: 55.5 (ft)

Depth to Top of Water: 9.28 (ft) Depth of Screened Interval: 54-64 (ft)

Field Hach Kit Data

Concentration of Fe: 1.51 Mg/L

Concentration of CO: 38 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-27D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-27D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-27D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-27D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-27D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-27D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-27D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-27D Personnel: R. Wasserman Start Time: 0830 Finish Time: 1120

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0924	0929	0934	0939	0944	0949	0954
Temperature	(°C)	14.20	14.32	14.38	14.35	14.22	13.46	13.31
pH		6.65	6.69	6.70	6.71	6.71	6.71	6.71
Conductivity	(ms/cm)	0.185	0.186	0.190	0.192	0.191	0.190	0.189
DO	(mg/L)	3.26	2.04	1.06	0.83	0.79	0.74	0.79
Turbidity	(NTUs)	41	14	8.5	20	16	27	9.1
Salinity	(ppth)	0.11	0.11	0.11	0.11	0.11	0.12	0.12
Eh	(mV)	73.5	61.4	43.1	34.6	24.2	13.2	11.2
Water Level	(ft from TOR)	9.28	9.32	9.33	9 33	9.33	9.36	9.33
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10			
Time		0959	1004	1009	1014			
Temperature	(°C)	13.03	12.85	12.98	13.02			
pH		6.71	6.70	6.70	6.71			
Conductivity	(ms/cm)	0.188	0.187	0.157	0.188			
DO	(mg/L)	0.72	0.69	0.61	0.60			
Turbidity	(NTUs)	6.7	4.8	4.9	4.2			
Salinity	(ppth)	0.12	0.12	0.12	0.12			
Eh	(mV)	8.8	6.3	3.4	1.9			
Water Level	(ft from TOR)	9.34	9.33	9.33	9.33			
Flow Rate	(mL/min.)	200	200	200	200			

Notes: Stopped pumping at 0945 to change nitrogen tanks.

Collected sample at 1020

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-27R Personnel: S. Cackowski Start Time: 0840 Finish Time: 1150

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked ___ Yes √ No

Protective Casing Secure ___ Yes √ No

Concrete Collar Intact √ Yes ___ No

Other: ___

Protective Casing Stick Up (ft): flush

Casing/Well Difference (ft): ___

Well Material: ___ PVC/ √ SS/Other ___

Well Diameter: ___ 2-in. / √ 4-in./ ___ 6-in./ Other

Water Level Equip. Used: √ Elect. Cond. Probe

___ Interface Probe

___ Press. Transducer

___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 92 (ft) Depth to Pump Intake: 79 (ft)

Depth to Top of Water: 8.28 (ft) Depth of Screened Interval: 66.5-92 (ft)

Field Hach Kit Data

Concentration of Fe: 0.89 Mg/L

Concentration of CO: 64.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-27R MW16-Dup 05	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-27R MW16-Dup 05	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-27R MW16-Dup 05	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-27R MW16-Dup 05	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-27R MW16-Dup 05	< 4°C
Hydrogen sulfide		1 liter poly	MW16-27R MW16-Dup 05	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-27R MW16-Dup 05	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-27R Personnel: S. Cackowski Start Time: 0840 Finish Time: 1150

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge	S = Sample	Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3	3.5	4	4.5	5	5.5	6
Time		0925	0930	0935	0940	0945	0950	0955
Temperature	(°C)	13.55	13.62	13.66	13.58	13.49	13.47	13.46
pH		7.04	7.07	7.08	7.08	7.09	7.10	7.11
Conductivity	(ms/cm)	4.239	4.196	4.102	4.027	4.009	4.005	4.004
DO	(mg/L)	1.93	1.63	1.27	0.81	0.74	0.73	0.69
Turbidity	(NTUs)	8.8	8.1	9.5	10	9.1	9.1	8.7
Salinity	(ppth)	2.94	2.91	2.84	2.79	2.78	2.78	2.78
Eh	(mV)	-32.7	-37.4	-43.8	-55.5	-58.7	63.3	65.0
Water Level	(ft from TOR)	8.40	8.40	8.41	8.41	8.41	8.41	8.41
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		6.5						
Time		1000						
Temperature	(°C)	13.37						
pH		7.12						
Conductivity	(ms/cm)	3.999						
DO	(mg/L)	0.68						
Turbidity	(NTUs)	8.5						
Salinity	(ppth)	2.78						
Eh	(mV)	65.8						
Water Level	(ft from TOR)	8.41						
Flow Rate	(mL/min.)	100						

Notes: Collected sample at 1015

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-28D Personnel: S. Sheer Start Time: 1300 Finish Time: 1537

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): road box			___ Press. Transducer
Casing/Well Difference (in): ~3			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 64.5 (ft) Depth to Pump Intake: 57 (ft)

Depth to Top of Water: 9.35 (ft) Depth of Screened Interval: 54.5-64.5 (ft)

Field Hach Kit Data

Concentration of Fe: 1.18 Mg/L

Concentration of CO: 46 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-28D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-28D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-28D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-28D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-28D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-28D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-28D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-28D Personnel: S. Sheer Start Time: 1300 Finish Time: 1537

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1330	1335	1340	1345	1350	1355	1400
Temperature	(°C)	13.60	13.51	13.26	13.14	13.32	13.52	13.59
pH		6.56	6.55	6.52	6.51	6.49	6.48	6.48
Conductivity	(ms/cm)	0.226	0.203	0.182	0.162	0.171	0.172	0.178
DO	(mg/L)	1.19	1.33	1.56	1.84	0.84	0.65	0.59
Turbidity	(NTUs)	5.01	4.62	3.18	1.86	1.53	1.61	1.71
Salinity	(ppth)	0.14	0.11	0.11	0.10	0.11	0.11	0.12
Eh	(mV)	96.1	87.6	79.8	62.3	60.5	59.0	55.1
Water Level	(ft from TOR)	9.35	9.34	9.32	9.30	9.30	9.30	9.30
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10			
Time		1405	1410	1415	1420			
Temperature	(°C)	13.58	13.49	13.41	13.49			
pH		6.48	6.49	6.49	6.50			
Conductivity	(ms/cm)	0.205	0.204	0.220	0.223			
DO	(mg/L)	0.52	0.50	0.53	0.50			
Turbidity	(NTUs)	1.72	0.81	0.48	0.58			
Salinity	(ppth)	0.13	0.13	0.14	0.14			
Eh	(mV)	50.2	49.8	47.7	47.1			
Water Level	(ft from TOR)	9.30	9.30	9.30	9.30			
Flow Rate	(mL/min.)	200	200	200	200			

Notes: Collected sample at 1425

Ground Wat r Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-28R Personnel: J. Nafus Start Time: 1300 Finish Time: 1537

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): ___			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 93 (ft) Depth to Pump Intake: 82.5 (ft)

Depth to Top of Water: 9.45 (ft) Depth of Screened Interval: 63-93 (ft)

Field Hach Kit Data

Concentration of Fe: 0.29 Mg/L

Concentration of CO: 62 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-28R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-28R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-28R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-28R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-28R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-28R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-28R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-28R Personnel: J. Nafus Start Time: 1300 Finish Time: 1537

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge	S = Sample	Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1	1.5	2	2.5	3
Time		1330	1335	1340	1345	1350	1355	1400
Temperature	(°C)	13.70	13.39	13.04	12.87	12.52	12.48	12.60
pH		6.90	6.90	6.90	6.91	6.92	6.92	6.93
Conductivity	(ms/cm)	8.926	8.923	8.873	8.858	8.751	8.711	8.725
DO	(mg/L)	1.47	1.45	1.32	1.18	1.17	1.06	0.97
Turbidity	(NTUs)	107	91	80	65	75	75	70
Salinity	(ppth)	6.51	6.56	6.58	6.59	6.57	6.54	6.54
Eh	(mV)	-85.9	-84.9	-83.1	-81.4	-79.5	-78.3	-77.8
Water Level	(ft from TOR)	9.65	9.65	9.65	9.65	9.65	9.65	9.62
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.5	4	4.5	5	5.5		
Time		1405	1410	1415	1420	1425		
Temperature	(°C)	12.74	12.83	12.72	12.56	12.79		
pH		6.93	6.93	6.94	6.94	6.94		
Conductivity	(ms/cm)	8.754	8.785	8.789	8.757	8.762		
DO	(mg/L)	0.84	0.74	0.69	0.62	0.56		
Turbidity	(NTUs)	70	75	75	75	70		
Salinity	(ppth)	6.52	6.55	6.57	6.56	6.53		
Eh	(mV)	-78.3	-79.1	-79.9	-80.2	-81.7		
Water Level	(ft from TOR)	9.61	9.61	9.61	9.61	9.61		
Flow Rate	(mL/min.)	100	100	100	100	100		

Notes: Collected sample at 1435

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-29D Personnel: S. Sheer Start Time: 0815 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.15			___ Press. Transducer
Casing/Well Difference (ft): 1.68			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 62 (ft) Depth to Pump Intake: 51 (ft)

Depth to Top of Water: 12.38 (ft) Depth of Screened Interval: 44.5-55.5 (ft)

Field Hach Kit Data

Concentration of Fe: 1.87 Mg/L

Concentration of CO: 79.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-29D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-29D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-29D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-29D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-29D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-29D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-29D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-29D Personnel: S. Sheer Start Time: 0815 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0850	0855	0900	0905	0910	0915	0920
Temperature	(°C)	9.69	10.31	10.34	10.50	10.53	10.58	10.55
pH		6.04	6.63	6.73	6.78	6.80	6.81	6.81
Conductivity	(ms/cm)	0.234	0.249	0.265	0.261	0.255	0.255	0.254
DO	(mg/L)	5.68	2.84	1.95	1.40	1.06	0.80	0.77
Turbidity	(NTUs)	1.33	1.05	0.49	0.62	0.54	0.26	0.26
Salinity	(ppth)	0.16	0.17	0.18	0.18	0.17	0.16	0.16
Eh	(mV)	36.0	0.1	-12.9	-18.4	-19.0	-19.8	-20.3
Water Level	(ft from TOR)	12.51	12.51	12.51	12.51	12.51	12.51	12.51
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9				
Time		0925	0930	0935				
Temperature	(°C)	10.54	10.52	10.59				
pH		6.83	6.82	6.82				
Conductivity	(ms/cm)	0.249	0.244	0.242				
DO	(mg/L)	0.56	0.51	0.46				
Turbidity	(NTUs)	0.33	0.30	0.29				
Salinity	(ppth)	0.16	0.16	0.15				
Eh	(mV)	-21.6	-21.9	-22.9				
Water Level	(ft from TOR)	12.51	12.51	12.51				
Flow Rate	(mL/min.)	200	200	200				

Notes: Collected sample at 0940.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-30D Personnel: R. Wasserman Start Time: 0805 Finish Time: 1021

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red/green calibration log

Ambient Air Reading: _____ ppm Well Headspace Reading: _____ ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (in): 9			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 64 (ft) Depth to Pump Intake: 62 (ft)

Depth to Top of Water: 14.36 (ft) Depth of Screened Interval: 54-64 (ft)

Field Hach Kit Data

Concentration of Fe: 1.03 Mg/L

Concentration of CO: 41.2 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-30D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-30D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-30D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-30D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-30D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-30D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-30D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-30D Personnel: R. Wasserman Start Time: 0805 Finish Time: 1021

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.25	0.5	0.75	1	1.25	1.5
Time		0854	0859	0904	0909	0914	0919	0924
Temperature	(°C)	10.16	8.67	8.58	8.86	9.05	8.89	8.88
pH		7.52	7.56	7.57	7.58	7.60	7.62	7.65
Conductivity	(ms/cm)	0.345	0.540	0.259	0.250	0.245	0.243	0.241
DO	(mg/L)	7.13	2.63	1.91	1.33	1.06	0.98	0.87
Turbidity	(NTUs)	>999	>999	>999	>999	>999	>999	>999
Salinity	(ppth)	0.16	0.07	0.12	0.12	0.12	0.12	0.11
Eh	(mV)	31.4	-81.3	-91.3	-100.4	-108.9	-114.2	-118
Water Level	(ft from TOR)	14.36	14.40	14.41	14.41	14.41	14.41	14.41
Flow Rate	(mL/min.)	50	50	50	50	50	50	50

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1.75						
Time		0929						
Temperature	(°C)	8.84						
pH		7.67						
Conductivity	(ms/cm)	0.241						
DO	(mg/L)	0.90						
Turbidity	(NTUs)	>999						
Salinity	(ppth)	0.11						
Eh	(mV)	-119.4						
Water Level	(ft from TOR)	14.41						
Flow Rate	(mL/min.)	50						

Notes: Collected sample at 0945

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-31D Personnel: B. Andersen Start Time: 0810 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.57			___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 64 (ft) Depth to Pump Intake: 56 (ft)

Depth to Top of Water: 1517 (ft) Depth of Screened Interval: 54-64 (ft)

Field Hach Kit Data

Concentration of Fe: 0.11 Mg/L

Concentration of CO: 778 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-31D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-31D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-31D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-31D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-31D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-31D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-31D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-31D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-31D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-31D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-31D	HNO_3 < 4°C
Dissolved TAL Inorganics 3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-31D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-31D Personnel: B. Andersen Start Time: 0810 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	2.5	3	3.5	4	4.5
Time		0830	0835	0840	0845	0850	0855	0900
Temperature	(°C)	11.50	11.26	11.96	9.57	8.92	8.74	8.32
pH		6.79	6.62	6.59	6.62	6.62	6.63	6.63
Conductivity	(ms/cm)	0.165	0.163	0.167	0.174	0.174	0.174	0.173
DO	(mg/L)	5.52	4.31	2.62	1.37	1.27	0.99	0.99
Turbidity	(NTUs)	24.8	32.9	24.0	25.5	22.4	16.6	14.6
Salinity	(ppth)	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Eh	(mV)	55.2	-5.9	-23.8	-35.7	-38.8	-40.5	-41.7
Water Level	(ft from TOR)	15.27	15.36	15.30	15.21	15.20	15.20	15.20
Flow Rate	(mL/min.)	200	200	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5	5.5	6	6.5	7	7.5	
Time		0905	0910	0915	0920	0925	0930	
Temperature	(°C)	8.18	8.55	8.72	8.78	9.13	8.98	
pH		6.64	6.63	6.65	6.64	6.64	6.65	
Conductivity	(ms/cm)	0.172	0.172	0.172	0.172	0.172	0.174	
DO	(mg/L)	1.08	0.87	0.82	0.78	0.68	0.68	
Turbidity	(NTUs)	12.3	9.74	9.21	7.69	7.02	4.83	
Salinity	(ppth)	0.08	0.08	0.08	0.08	0.08	0.08	
Eh	(mV)	-43.0	-43.6	-45.5	-45.9	-47.0	-47.9	
Water Level	(ft from TOR)	15.20	15.20	15.20	15.20	15.20	15.20	
Flow Rate	(mL/min.)	100	100	100	100	100	100	

Notes: Collected sample at 0940

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-32D Personnel: S. Cackowski Start Time: 0820 Finish Time: 1045

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	___ Yes √ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): grade			___ Press. Transducer
Casing/Well Difference (ft): 0.50			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 62 (ft) Depth to Pump Intake: 51 (ft)

Depth to Top of Water: 16.75 (ft) Depth of Screened Interval: 50-62 (ft)

Field Hach Kit Data

Concentration of Fe: 3.30 Mg/L

Concentration of CO: 0.00 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-32D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-32D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-32D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-32D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-32D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-32D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-32D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/18/02

Well ID: MW16-32D Personnel: S. Cackowski Start Time: 0820 Finish Time: 1045

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge	S = Sample	Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	2.25	2.50	2.75	3.0	3.25	3.75
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	10.69	10.36	10.33	10.18	10.17	9.93	9.87
pH		12.43	12.55	12.53	12.51	12.52	12.50	12.50
Conductivity	(ms/cm)	4.146	4.199	4.202	4.212	4.219	4.212	4.212
DO	(mg/L)	3.32	2.89	2.85	2.47	2.41	2.30	2.09
Turbidity	(NTUs)	19	16	13	9	8.8	7.4	7.6
Salinity	(ppth)	3.11	3.18	3.18	3.20	3.21	3.22	3.23
Eh	(mV)	67.5	55.7	56.5	58.0	56.8	56.4	55.5
Water Level	(ft from TOR)	17.79	18.32	18.57	18.77	19.13	19.30	19.63
Flow Rate	(mL/min.)	50	50	50	50	50	50	50

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4.0	4.25	4.50	4.75	6.0	33.5	
Time		0935	0940	0945	0950	1000	1035	
Temperature	(°C)	9.50	9.43	9.35	9.28	---	---	
pH		12.52	12.52	12.53	12.53	---	---	
Conductivity	(ms/cm)	4.190	4.187	4.187	4.183	---	---	
DO	(mg/L)	1.94	1.85	1.82	1.78	---	---	
Turbidity	(NTUs)	6.7	5.7	5.5	5.6	---	---	
Salinity	(ppth)	3.25	3.25	3.25	3.26	---	---	
Eh	(mV)	54.8	54.1	53.5	52.9	---	---	
Water Level	(ft from TOR)	19.91	20.04	20.30	20.41	24.35	46.62	
Flow Rate	(mL/min.)	50	50	50	50	500	1000	

Notes: Replaced YSI batteries at 0900 – increased flow at 0950 to purge well. 12/19/02 depth to water = 12.31

Collected sample on 12/19/02 at 1110.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-33S Personnel: V. Deleone Start Time: 0830 Finish Time: 1200

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.29			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 16.5 (ft) Depth to Pump Intake: 15.5 (ft)

Depth to Top of Water: below pump (ft) Depth of Screened Interval: 6.5-16.5 (ft)

Field Hach Kit Data

Concentration of Fe: 0.01 Mg/L

Concentration of CO: 5.64 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-33S MS/MSD MW16-33S MW16-Dup 06	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-33S MS/MSD MW16-33S MW16-Dup 06	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-33S MS/MSD MW16-33S MW16-Dup 06	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-33S MS/MSD MW16-33S MW16-Dup 06	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-33S MS/MSD MW16-33S MW16-Dup 06	< 4°C
Hydrogen sulfide		1 liter poly	MW16-33S MS/MSD MW16-33S MW16-Dup 06	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-33S MS/MSD MW16-33S MW16-Dup 06	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-33S Personnel: V. Deleone Start Time: 0830 Finish Time: 1200

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.50	2.25	3.0	3.75	4.5
Time		0850	0855	0900	0905	0910	0915	0920
Temperature	(°C)	15.20	13.74	13.90	15.15	15.19	15.36	14.64
pH		6.15	6.19	5.97	5.90	5.87	5.87	5.86
Conductivity	(ms/cm)	0.043	0.047	0.042	0.043	0.042	0.042	0.042
DO	(mg/L)	20.55	15.13	14.22	13.96	15.20	12.97	12.65
Turbidity	(NTUs)	7.63	5.25	3.56	2.50	1.43	1.01	0.47
Salinity	(ppth)	0.02	0.03	0.02	0.02	0.02	0.02	0.02
Eh	(mV)	226.4	221.1	223.4	227.5	231.5	232.6	235.8
Water Level	(ft from TOR)	---	---	---	---	---	---	---
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6.0					
Time		0925	0930					
Temperature	(°C)	14.66	14.79					
pH		5.84	5.84					
Conductivity	(ms/cm)	0.040	0.041					
DO	(mg/L)	12.22	12.04					
Turbidity	(NTUs)	0.82	0.60					
Salinity	(ppth)	0.02	0.02					
Eh	(mV)	240.1	242.0					
Water Level	(ft from TOR)	---	---					
Flow Rate	(mL/min.)	150	150					

Notes: Water level below pump

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-33I Personnel: S. Sheer Start Time: 0830 Finish Time: 1145

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.34			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 44 (ft) Depth to Pump Intake: 42 (ft)

Depth to Top of Water: 12.71 (ft) Depth of Screened Interval: 34-44 (ft)

Field Hach Kit Data

Concentration of Fe: 0.19 mg/L

Concentration of CO: 28 mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MS16-33I MS/MSD MW16-33I MW16-Dup 07	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-33I MW16-Dup 07	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-33I MW16-Dup 07	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-33I MW16-Dup 07	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-33I MW16-Dup 07	< 4°C
Hydrogen sulfide		1 liter poly	MW16-33I MW16-Dup 07	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-33I MW16-Dup 07	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date. 12/02/02

Well ID: MW16-33I Personnel: S. Sheer Start Time: 0830 Finish Time: 1145

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	5	6	7	8	9	10
Time		0905	0910	0915	0920	0925	0930	0935
Temperature	(°C)	12.33	12.27	12.31	12.37	12.47	12.44	12.29
pH		6.33	6.29	6.20	6.15	6.13	6.11	6.11
Conductivity	(ms/cm)	0.103	0.104	0.108	0.112	0.115	0.115	0.114
DO	(mg/L)	22.61	16.87	14.32	12.29	10.97	11.69	9.61
Turbidity	(NTUs)	9.69	5.85	5.58	5.26	5.5	2.8	2.0
Salinity	(ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Eh	(mV)	98.7	100.1	99.7	98.9	97.8	96.8	96.4
Water Level	(ft from TOR)	13.91	13.91	13.91	13.91	13.91	13.91	13.91
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		11	12	13	14			
Time		0940	0945	0950	0955			
Temperature	(°C)	12.18	12.07	11.35	11.47			
pH		6.10	6.10	6.10	6.11			
Conductivity	(ms/cm)	0.113	0.112	0.111	0.111			
DO	(mg/L)	8.89	8.75	8.06	7.98			
Turbidity	(NTUs)	1.9	2.0	2.1	2.1			
Salinity	(ppth)	0.05	0.05	0.05	0.05			
Eh	(mV)	96.3	96.3	96.6	96.3			
Water Level	(ft from TOR)	13.91	13.91	13.91	13.91			
Flow Rate	(mL/min.)	150	150	150	150			

Notes: Collected sample at 1000.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-33D Personnel: C. Springer Start Time: 1045 Finish Time: 1150

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.58			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 71 (ft) Depth to Pump Intake: 66 (ft)

Depth to Top of Water: 12.54 (ft) Depth of Screened Interval: 61-71 (ft)

Field Hach Kit Data

Concentration of Fe: >3.30 Mg/L

Concentration of CO: 54 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-33D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-33D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-33D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-33D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-33D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-33D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-33D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-33D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-33D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-33D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-33D	HNO_3 < 4°C
olved TAL Inorganics 05A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-33D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-33D Personnel: C. Springer Start Time: 1045 Finish Time: 1150

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1045	1050	1055	1100	1105	1110	1115
Temperature	(°C)	13.47	12.71	13.52	13.42	13.50	13.43	13.41
pH		7.02	6.83	6.81	6.82	6.83	6.84	6.85
Conductivity	(ms/cm)	0.168	0.166	0.168	0.169	0.169	0.170	0.170
DO	(mg/L)	8.5	1.60	0.88	0.50	0.29	0.16	0.06
Turbidity	(NTUs)	82.3	51.3	92.0	48.0	32.1	24.6	16.2
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	-28.0	-83.5	-92.0	-98.5	-101.2	-102.5	-104.3
Water Level	(ft from TOR)	12.54	12.60	12.70	12.75	12.82	12.82	12.80
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10	11	12	
Time		1120	1125	1130	1135	1140	1145	
Temperature	(°C)	13.37	13.38	13.40	13.38	13.39	13.35	
pH		6.85	6.85	6.85	6.85	6.85	6.86	
Conductivity	(ms/cm)	0.169	0.169	0.169	0.169	0.169	0.169	
DO	(mg/L)	0.04	-0.02	-0.03	-0.04	-0.06	-0.09	
Turbidity	(NTUs)	10.23	8.42	6.09	4.47	3.33	3.64	
0.10		0.10	0.10	0.10	0.10	0.10	0.10	
Eh	(mV)	-105.6	-106.8	-107.1	-108.1	-109.1	-109.6	
Water Level	(ft from TOR)	12.80	12.81	12.80	12.81	12.80	12.81	
Flow Rate	(mL/min.)	200	200	200	200	200	200	

Notes:

Ground Wat r Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/26/02

Well ID: MW16-34S Personnel: R. Clark Start Time: 0815 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.58			___ Press. Transducer
Casing/Well Difference (ft): 0.28			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 15 (ft) Depth to Pump Intake: 14.5 (ft)

Depth to Top of Water: 12.90 top of pump (ft) Depth of Screened Interval: 5-15 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 29 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-34S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-34S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-34S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-34S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-34S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-34S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-34S	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-34S	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-34S	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-34S	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-34S	HNO_3 < 4°C
[illegible]olved TAL Inorganics [illegible]5A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-34S	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/26/02

Well ID: MW16-34S Personnel: R. Clark Start Time: 0815 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	3	4.5	6	7.25	8.5	9.75	11
Time	0839	0844	0849	0854	0859	0904	0909
Temperature (°C)	14.12	14.00	14.09	14.32	14.37	14.40	14.50
pH	5.49	5.49	5.48	5.45	5.49	5.47	5.47
Conductivity (ms/cm)	0.036	0.036	0.035	0.036	0.036	0.034	0.035
DO (mg/L)	26.35	17.26	14.0	11.92	10.60	9.30	7.05
Turbidity (NTUs)	5.13	2.07	0.00	0.00	0.00	0.00	0.00
Salinity (ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Eh (mV)	272.5	276.7	280.7	285.7	289.4	292.4	293.6
Water Level (ft from TOR)	---	---	---	---	---	---	---
Flow Rate (mL/min.)	300	300	250	250	250	250	250

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	12.25	13.75	15	16.25			
Time	0919	0925	0930	0935			
Temperature (°C)	14.56	14.58	14.68	14.66			
pH	5.48	5.48	5.49	5.48			
Conductivity (ms/cm)	0.034	0.034	0.034	0.034			
DO (mg/L)	3.65	2.85	2.54	2.42			
Turbidity (NTUs)	0.00	0.0	0.0	0.0			
Salinity (ppth)	0.02	0.02	0.02	0.02			
Eh (mV)	298.5	301.1	303.1	304.7			
Water Level (ft from TOR)	---	---	---	---			
Flow Rate (mL/min.)	250	250	250	250			

Notes: Water level cannot be measured below top of pump. All 3 wells in this cluster have high DO readings even though YSIs were checked earlier.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/26/02

Well ID: MW16-34I Personnel: S. Sheer Start Time: 0800 Finish Time: 1030

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.3			___ Press. Transducer
Casing/Well Difference (ft): 0.25			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 35 (ft) Depth to Pump Intake: 30 (ft)

Depth to Top of Water: 14.12 (ft) Depth of Screened Interval: 25-35 (ft)

Field Hach Kit Data

Concentration of Fe: 0.01 Mg/L

Concentration of CO: 18 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-34I MW16-Dup 08	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-34I MW16-Dup 08	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-34I MW16-Dup 08	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-34I MW16-Dup 08	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-34I MW16-Dup 08	< 4°C
Hydrogen sulfide		1 liter poly	MW16-34I MW16-Dup 08	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-34I MW16-Dup 08	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/26/02

Well ID: MW16-34I Personnel: S. Sheer Start Time: 0800 Finish Time: 1030

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	3.5	4	4.5	5
Time		0840	0845	0850	0855	0900	0905	0910
Temperature	(°C)	12.49	11.73	11.55	11.52	11.57	11.40	11.48
pH		6.42	6.19	6.08	6.02	5.99	5.99	6.01
Conductivity	(ms/cm)	0.069	0.069	0.070	0.071	0.072	0.073	0.073
DO	(mg/L)	21.23	17.08	15.54	14.99	14.15	13.42	12.92
Turbidity	(NTUs)	12	11	7.3	6.36	3.06	1.30	1.30
Salinity	(ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Eh	(mV)	135.5	147.0	154.5	156.5	160.0	156.8	159.0
Water Level	(ft from TOR)	14.20	14.20	14.20	14.20	14.20	14.20	14.20
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.5	6	6.5				
Time		0915	0920	0925				
Temperature	(°C)	11.34	11.28	11.18				
pH		5.96	5.98	5.96				
Conductivity	(ms/cm)	0.072	0.072	0.072				
DO	(mg/L)	12.21	11.85	11.47				
Turbidity	(NTUs)	0.00	0.00	0.00				
Salinity	(ppth)	0.03	0.03	0.03				
Eh	(mV)	163.8	165.1	170.0				
Water Level	(ft from TOR)	14.20	14.20	14.20				
Flow Rate	(mL/min.)	150	150	150				

Notes: Collected sample at 0950

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/26/02

Well ID: MW16-34D Personnel: J. Parrett Start Time: 0820 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.02			___ Press. Transducer
Casing/Well Difference (ft): 0.23			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 58 (ft) Depth to Pump Intake: 51 (ft)

Depth to Top of Water: 15.76 (ft) Depth of Screened Interval: 44-58 (ft)

Field Hach Kit Data

Concentration of Fe: 0.07 Mg/L

Concentration of CO: 23.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-34D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-34D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-34D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-34D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-34D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-34D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-34D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-34D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-34D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-34D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-34D	HNO_3 < 4°C
[illegible]solved TAL Inorganics [illegible]05A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-34D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/26/02

Well ID: MW16-34D Personnel: J. Parrett Start Time: 0820 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	3	4	5	6	7	8
Time		0835	0840	0845	0850	0855	0900	0905
Temperature	(°C)	12.50	12.40	12.22	12.28	12.24	12.27	12.22
pH		6.72	6.56	6.56	6.54	6.55	6.55	6.55
Conductivity	(ms/cm)	0.130	0.101	0.097	0.096	0.095	0.094	0.094
DO	(mg/L)	unstable	21.24	18.43	16.17	14.97	14.14	13.49
Turbidity	(NTUs)	6	5	3	6	5	5	4
Salinity	(ppth)	0.08	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	229.7	209.8	210.0	192.0	184.2	194.2	177.1
Water Level	(ft from TOR)	14.81	14.82	14.81	14.81	14.81	14.81	14.81
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		9	10	11	12	13	14	15
Time		0910	0915	0920	0925	0930	0935	0940
Temperature	(°C)	12.26	12.19	12.23	12.16	12.13	12.31	12.32
pH		6.55	6.55	6.56	6.56	6.56	6.58	6.56
Conductivity	(ms/cm)	0.092	0.092	0.092	0.091	0.091	0.092	0.092
DO	(mg/L)	13.06	12.85	12.76	12.43	12.28	12.01	12.13
Turbidity	(NTUs)	3	3	3	3	3	3	3
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	161.5	146.5	140.2	136.9	134.3	132.7	132.0
Water Level	(ft from TOR)	14.81	14.81	14.81	14.81	14.81	14.81	14.81
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes: Collected sample at 1000

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-35S Personnel: S. Sheer Start Time: 1300 Finish Time: 1515

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.76			___ Press. Transducer
Casing/Well Difference (ft): 2.49			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 16 (ft) Depth to Pump Intake: 14 (ft)

Depth to Top of Water: 11.98 (ft) Depth of Screened Interval: 6-16 (ft)

Field Hach Kit Data

Concentration of Fe: 0.22 Mg/L

Concentration of CO: 16 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-35S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-35S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-35S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-35S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-35S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-35S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-35S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-35S Personnel: S. Sheer Start Time: 1300 Finish Time: 1515

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge	S = Sample	Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	3	4	5	6	7	8
Time		1330	1335	1340	1345	1350	1355	1400
Temperature	(°C)	13.87	14.07	13.78	13.81	13.99	13.82	13.97
pH		5.84	5.79	5.70	5.65	5.62	5.60	5.58
Conductivity	(ms/cm)	40	39	40	40	40	40	39
DO	(mg/L)	10.96	10.39	10.20	10.05	9.91	9.90	9.84
Turbidity	(NTUs)	150	95	45	27	19.7	15.5	9.17
Salinity	(ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Eh	(mV)	202.8	207.6	216.9	223.2	228.1	232.5	236.5
Water Level	(ft from TOR)	12.04	12.04	12.04	12.04	12.04	12.04	12.04
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		9	10	11	12	13		
Time		1405	1410	1415	1420	1425		
Temperature	(°C)	13.83	13.32	13.57	13.56	13.30		
pH		5.57	5.57	5.56	5.56	5.55		
Conductivity	(ms/cm)	39	39	39	40	40		
DO	(mg/L)	9.94	9.91	9.84	9.84	9.88		
Turbidity	(NTUs)	5.90	4.22	3.83	3.63	3.59		
Salinity	(ppth)	0.02	0.02	0.02	0.02	0.02		
Eh	(mV)	241.6	243.8	246.5	247.9	251.5		
Water Level	(ft from TOR)	12.04	12.04	12.04	12.04	12.04		
Flow Rate	(mL/min.)	200	200	200	200	200		

Notes: Collected sample at 1430.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/4/02

Well ID: MW16-35I Personnel: J. Parrett Start Time: 1300 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe2
Protective Casing Stick Up (ft): 2.56			___ Press. Transducer
Casing/Well Difference (ft): 2.27			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 38 (ft) Depth to Pump Intake: 34 (ft)

Depth to Top of Water: 11.91 (ft) Depth of Screened Interval: 28-38 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 72 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-35I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-35I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-35I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-35I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-35I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-35I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-35I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/4/02

Well ID: MW16-35I Personnel: J. Parrett Start Time: 1300 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.5	2.25	3	3.75	4.5
Time		1325	1330	1335	1340	1345	1350	1355
Temperature	(°C)	12.14	11.64	13.13	13.28	12.53	11.00	10.20
pH		6.26	6.19	6.03	5.98	5.96	5.90	5.94
Conductivity	(ms/cm)	0.041	0.037	0.036	0.036	0.035	0.034	0.034
DO	(mg/L)	5.80	5.58	5.07	4.83	4.90	5.01	5.37
Turbidity	(NTUs)	150	28	16	6	5	6	6
Salinity	(ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Eh	(mV)	124.2	126.8	132.3	137.8	142.3	149.3	154.9
Water Level	(ft from TOR)	12.00	12.02	12.12	12.20	12.21	12.20	12.21
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6	6.75	7.5	8.25	9	9.75
Time		1400	1405	1410	1415	1420	1425	1430
Temperature	(°C)	8.62	8.98	8.70	8.89	8.88	8.92	8.89
pH		5.94	5.95	5.96	5.93	5.90	5.92	5.91
Conductivity	(ms/cm)	0.032	0.032	0.031	0.031	0.031	0.031	0.031
DO	(mg/L)	5.93	5.99	5.95	5.98	5.96	5.92	5.92
Turbidity	(NTUs)	5	5	5	5	4	5	5
Salinity	(ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Eh	(mV)	162.3	164.3	169.5	171.2	173.2	176.4	177.0
Water Level	(ft from TOR)	12.22	12.21	12.22	12.20	12.21	12.21	12.21
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Notes: Collected sample at 1440.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-35D Personnel: V. Deleone Start Time: 1310 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.34			___ Press. Transducer
Casing/Well Difference (ft): 0.14			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 61.5 (ft) Depth to Pump Intake: 55 (ft)

Depth to Top of Water: 12.02 (ft) Depth of Screened Interval: 51.5-61.5 (ft)

Field Hach Kit Data

Concentration of Fe: too silty to measure Mg/L

Concentration of CO: too silty to measure Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-35D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-35D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-35D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-35D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-35D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-35D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-35D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-35D Personnel: V. Deleone Start Time: 1310 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1.25	2	2.75	3.5	4.25	5
Time		1330	1335	1340	1345	1350	1355	1400
Temperature	(°C)	13.14	12.78	12.88	12.47	12.70	12.79	13.18
pH		6.59	6.55	6.61	6.64	6.65	6.65	6.71
Conductivity	(ms/cm)	0.092	0.092	0.094	0.093	0.092	0.092	0.092
DO	(mg/L)	9.27	7.31	5.15	4.51	3.99	3.45	2.71
Turbidity	(NTUs)	49.4	4.62	>999	>999	>999	>999	>999
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Eh	(mV)	66.4	16.4	-34.0	-41.2	-44.5	-47.4	-51.4
Water Level	(ft from TOR)	12.56	12.30	12.32	12.32	12.32	12.32	12.32
Flow Rate	(mL/min.)	250	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.75	6.50	7.25	8.0			
Time		1415	1420	1425	1430			
Temperature	(°C)	12.74	12.85	12.94	12.98			
pH		6.68	6.74	6.79	6.76			
Conductivity	(ms/cm)	0.089	0.092	0.090	0.090			
DO	(mg/L)	2.42	2.70	2.74	2.72			
Turbidity	(NTUs)	>999	>999	>999	>999			
Salinity	(ppth)	0.06	0.06	0.06	0.06			
Eh	(mV)	-44.1	-47.5	-48.2	-47.5			
Water Level	(ft from TOR)	12.32	12.32	12.32	12.32			
Flow Rate	(mL/min.)	150	150	150	150			

Notes: Changed nitrogen tank at 1415

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-36D Personnel: S. Cackowski Start Time: 0830 Finish Time: 1245

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.51			___ Press. Transducer
Casing/Well Difference (ft): 0.35			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 49.5 (ft) Depth to Pump Intake: 48 (ft)

Depth to Top of Water: 11.37 (ft) Depth of Screened Interval: 39.5-49.5 (ft)

Field Hach Kit Data

Concentration of Fe: 0.65 Mg/L

Concentration of CO: 34.36 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-36D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-36D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-36D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-36D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-36D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-36D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-36D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-36D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-36D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-36D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-36D	HNO_3 < 4°C
olved TAL Inorganics 05A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-36D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-36D Personnel: S. Cackowski Start Time: 0830 Finish Time: 1245

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3	4	5	6	7	8	9
Time		0915	0920	0925	0930	0935	0940	0945
Temperature	(°C)	11.33	11.82	12.03	12.03	12.07	12.00	12.17
pH		6.75	6.38	6.72	6.76	6.85	6.89	6.92
Conductivity	(ms/cm)	0.062	0.064	0.064	0.064	0.064	0.065	0.065
DO	(mg/L)	19.64	15.37	12.71	11.30	9.58	8.14	6.77
Turbidity	(NTUs)	75	36	25	19	17	15	12
Salinity	(ppth)	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Eh	(mV)	98.9	66.8	55.4	49.8	42.5	37.9	31.9
Water Level	(ft from TOR)	11.30	11.30	11.29	11.29	11.30	11.30	11.30
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		10	11	12	14	15	16	17
Time		0950	0955	1000	1030	1035	1040	1045
Temperature	(°C)	12.54	12.38	12.03	11.08	11.91	11.96	11.74
pH		6.97	7.14	7.12	7.28	7.21	7.22	7.23
Conductivity	(ms/cm)	0.066	0.067	0.067	0.065	0.067	0.067	0.067
DO	(mg/L)	5.60	5.12	4.34	3.31	3.56	2.71	2.55
Turbidity	(NTUs)	11	12	10	12	10	5.9	5.2
Salinity	(ppth)	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Eh	(mV)	27.1	22.3	18.2	12.5	11.7	8.6	9.6
Water Level	(ft from TOR)	11.30	11.30	11.30	11.32	11.36	11.36	11.37
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes: At 1000 control box skipping discharge cycles, at 1003 control box not pumping; replaced with another, resumed purging.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/03

Well ID: MW16-36D Personnel: S. Cackowski Start Time: 0830 Finish Time: 1245

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	18	19	20	21			
Time	1050	1055	1100	1105			
Temperature (°C)	12.13	12.49	12.50	12.53			
pH	7.25	7.30	7.31	7.32			
Conductivity (ms/cm)	0.070	0.071	0.071	0.072			
DO (mg/L)	2.85	3.17	3.19	3.19			
Turbidity (NTUs)	3.5	2.4	1.6	1.5			
Salinity (ppth)	0.04	0.04	0.04	0.04			
Eh (mV)	3.5	-1.5	-4.2	-5.1			
Water Level (ft from TOR)	11.37	11.37	11.37	11.37			
Flow Rate (mL/min.)	200	200	200	200			

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected sample at 1120

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/03

Well ID: MW16-36R Personnel: B. Anderson Start Time: 0830 Finish Time: 1415

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.78			___ Press. Transducer
Casing/Well Difference (ft): 1.97			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 103.5 (ft) Depth to Pump Intake: 63.5 (ft)

Depth to Top of Water: 10.30 (ft) Depth of Screened Interval: 53.5-103.5 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-36R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-36R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-36R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-36R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-36R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-36R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-36R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-36R Personnel: B. Anderson Start Time: 0830 Finish Time: 1415

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	10.09	10.21	10.33	10.75	11.31	10.62	11.47
pH		10.12	10.26	10.32	10.30	10.36	10.38	10.32
Conductivity	(ms/cm)	0.233	0.214	0.214	0.214	0.214	0.213	0.214
DO	(mg/L)	8.48	5.71	4.37	3.21	1.95	1.62	1.50
Turbidity	(NTUs)	20.2	25.5	9.98	8.47	8.45	13.5	12.2
Salinity	(ppth)	0.11	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	91.9	76.3	70.5	63.1	53.8	48.4	40.7
Water Level	(ft from TOR)	11.01	11.15	11.35	11.70	11.95	12.17	12.38
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10	11	11.5	12	13
Time		0935	0940	0945	0950	0955	1000	1005
Temperature	(°C)	11.54	11.19	11.31	9.54	9.11	9.30	11.07
pH		10.36	10.33	10.34	10.35	10.38	10.36	10.36
Conductivity	(ms/cm)	0.214	0.214	0.213	0.223	0.213	0.213	0.209
DO	(mg/L)	1.12	0.83	0.66	0.64	0.69	0.64	0.56
Turbidity	(NTUs)	10.90	11.40	13.5	14.3	18.1	18.5	16.7
Salinity	(ppth)	0.10	0.10	0.10	0.11	0.10	0.10	0.10
Eh	(mV)	36.4	31.0	24.2	21.5	18.8	15.3	10.9
Water Level	(ft from TOR)	12.58	12.72	12.81	12.80	12.82	12.94	13.05
Flow Rate	(mL/min.)	200	200	200	100	100	100	200

Notes: Emptied flow cell at 0925.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-37S Personnel: V. Deleone Start Time: 0830 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked: √ Yes ___ No

Protective Casing Secure: √ Yes ___ No

Concrete Collar Intact: √ Yes ___ No

Other: ___

Protective Casing Stick Up (ft): 2.44

Casing/Well Difference (ft): 0.25

Well Material: √ PVC/ ___ SS/Other ___

Well Diameter: √ 2-in. / ___ 4-in./ ___ 6-in./ Other

Water Level Equip. Used: √ Elect. Cond. Probe

___ Interface Probe

___ Press. Transducer

___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 22 (ft) Depth to Pump Intake: 20 (ft)

Depth to Top of Water: 12.92 (ft) Depth of Screened Interval: 7-22 (ft)

Field Hach Kit Data

Concentration of Fe: 0.09 Mg/L

Concentration of CO: 14.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-37S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-37S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-37S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-37S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-37S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-37S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-37S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-37S Personnel: V. Deleone Start Time: 0830 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.50	2.25	3.0	3.75	4.50
Time		0850	0855	0900	0905	0910	0915	0920
Temperature	(°C)	12.03	12.65	11.08	11.18	11.40	11.78	12.65
pH		6.13	5.85	5.70	5.65	5.63	5.61	5.65
Conductivity	(ms/cm)	0.039	0.039	0.036	0.036	0.036	0.037	0.036
DO	(mg/L)	12.50	11.12	10.16	9.71	9.24	8.71	8.29
Turbidity	(NTUs)	39.0	35.1	28.2	27.9	31.1	33.2	46.8
Salinity	(ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Eh	(mV)	212.8	213.6	225.6	227.4	227.6	231.6	232.4
Water Level	(ft from TOR)	12.92	12.90	12.92	12.92	12.92	12.92	12.92
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6.0	6.75	7.5	08.25	9.0	9.75
Time		0925	0930	0935	0940	0945	0950	0955
Temperature	(°C)	12.48	12.84	12.19	12.08	12.03	11.79	12.11
pH		5.61	5.60	5.56	5.62	5.62	5.60	5.62
Conductivity	(ms/cm)	0.035	0.035	0.034	0.034	0.033	0.032	0.032
DO	(mg/L)	8.24	7.98	8.01	7.81	7.76	7.73	7.65
Turbidity	(NTUs)	49.0	45.9	43.2	36.0	29.6	20.6	19.8
Salinity	(ppth)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Eh	(mV)	237.6	237.9	241.0	243.1	244.6	246.5	248.7
Water Level	(ft from TOR)	12.92	12.92	12.92	12.92	12.92	12.92	12.92
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-37S Personnel: V. Deleone Start Time: 0830 Finish Time: 1100

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	10.50						
Time	1000						
Temperature (°C)	12.16						
pH	5.65						
Conductivity (ms/cm)	0.032						
DO (mg/L)	7.60						
Turbidity (NTUs)	18.5						
Salinity (ppth)	0.02						
Eh (mV)	248.4						
Water Level (ft from TOR)	12.92						
Flow Rate (mL/min.)	150						

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/4/02

Well ID: MW16-37I Personnel: J. Parrett Start Time: 0850 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.47			___ Press. Transducer
Casing/Well Difference (ft): 2.27			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 39 (ft) Depth to Pump Intake: 37 (ft)

Depth to Top of Water: 13.20 (ft) Depth of Screened Interval: 24-38 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 22 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-37I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-37I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-37I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-37I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-37I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-37I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-37I	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-37I	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-37I	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-37I	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-37I	HNO_3 < 4°C
Dissolved TAL Inorganics (3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-37I	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/4/02

Well ID: MW16-37I Personnel: J. Parrett Start Time: 0850 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.5	2.25	3	3.75	4.5
Time		0845	0900	0905	0910	0915	0920	0925
Temperature	(°C)	11.48	9.48	11.48	11.74	12.26	12.35	12.06
pH		6.31	6.00	5.80	5.77	5.73	5.76	5.74
Conductivity	(ms/cm)	0.053	0.047	0.045	0.044	0.045	0.045	0.047
DO	(mg/L)	11.11	11.40	10.33	10.23	10.19	10.20	10.20
Turbidity	(NTUs)	37	24	33	52	81	125	180
Salinity	(ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Eh	(mV)	113.4	120.9	129.4	134.3	140.1	147.5	153.0
Water Level	(ft from TOR)	13.12	13.32	13.34	13.33	13.34	13.34	13.32
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6	6.75	7.5	8.25	9	9.75
Time		0930	0935	0940	0945	0950	0955	1000
Temperature	(°C)	12.26	12.03	12.27	12.37	12.43	12.43	12.41
pH		5.76	5.72	5.73	5.73	5.73	5.73	5.73
Conductivity	(ms/cm)	0.044	0.044	0.044	0.044	0.044	0.044	0.044
DO	(mg/L)	10.16	16.18	10.54	10.22	10.12	10.15	10.15
Turbidity	(NTUs)	210	300	315	293	297	292	294
Salinity	(ppth)	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Eh	(mV)	155.9	163.3	165.9	167.8	171.2	173.6	175.4
Water Level	(ft from TOR)	13.32	13.32	13.33	13.33	13.33	13.33	13.33
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-37D Personnel: S. Sheer Start Time: 0830 Finish Time: 1200

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.50			___ Press. Transducer
Casing/Well Difference (ft): 2.35			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 62 (ft) Depth to Pump Intake: 46 (ft)

Depth to Top of Water: 13.09 (ft) Depth of Screened Interval: 44-54 (ft)

Field Hach Kit Data

Concentration of Fe: 1.57 Mg/L

Concentration of CO: 48.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-37D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-37D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-37D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-37D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-37D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-37D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-37D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-37D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-37D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-37D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-37D	HNO_3 < 4°C
[illegible]solved TAL Inorganics [illegible]5A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-37D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/04/02

Well ID: MW16-37D Personnel: S. Sheer Start Time: 0830 Finish Time: 1200

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	11.11	11.34	11.22	11.75	11.91	11.69	11.80
pH		6.50	6.44	6.41	6.40	6.40	6.39	6.39
Conductivity	(ms/cm)	0.106	0.106	0.105	0.104	0.104	0.104	0.104
DO	(mg/L)	5.39	3.47	2.48	1.96	1.90	1.81	1.77
Turbidity	(NTUs)	12.1	13.6	12	11	16	24	38
Salinity	(ppth)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Eh	(mV)	78.3	63.9	54.2	46.1	42.8	41.2	43.4
Water Level	(ft from TOR)	13.71	13.71	13.71	13.71	13.71	13.71	13.71
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10	11	12		
Time		0935	0940	0945	0950	0955		
Temperature	(°C)	11.86	11.52	11.83	11.68	11.52		
pH		6.40	6.38	6.39	6.39	6.39		
Conductivity	(ms/cm)	0.104	0.104	0.104	0.104	0.104		
DO	(mg/L)	1.97	1.78	1.51	1.55	1.47		
Turbidity	(NTUs)	45	49	50	50	49		
Salinity	(ppth)	0.05	0.05	0.05	0.05	0.05		
Eh	(mV)	40.2	40.2	41.2	39.0	39.0		
Water Level	(ft from TOR)	13.71	13.71	13.71	13.71	13.71		
Flow Rate	(mL/min.)	200	200	200	200	200		

Notes: Collected sample at 1000.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/27/02

Well ID: MW16-38I Personnel: J. Parrett Start Time: 0900 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.81			___ Press. Transducer
Casing/Well Difference (ft): 0.5			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 39 (ft) Depth to Pump Intake: 34 (ft)

Depth to Top of Water: 12.49 (ft) Depth of Screened Interval: 29-39 (ft)

Field Hach Kit Data

Concentration of Fe: 0.40 Mg/L

Concentration of CO: 32.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-38I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-38I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-38I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-38I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-38I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-38I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-38I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 11/27/02

Well ID: MW16-38I Personnel: J. Parrett Start Time: 0900 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		0910	0915	0935	0940	0945	0950	0955
Temperature	(°C)	12.55	12.51	9.63	10.10	10.74	11.08	11.06
pH		6.58	6.39	6.38	6.44	6.42	6.42	6.45
Conductivity	(ms/cm)	0.102	0.101	0.092	0.095	0.097	0.097	0.097
DO	(mg/L)	0.50	0.16	0.18	0.11	0.08	0.08	0.07
Turbidity	(NTUs)	523	>999	>999	>999	>999	>999	>999
Salinity	(ppth)	0.06	0.06	0.06	0.06	0.06	0.06	0.07
Eh	(mV)	175.2	155.1	175.6	157.0	148.5	147.9	143.6
Water Level	(ft from TOR)	13.05	13.04	13.00	13.02	13.03	13.05	13.05
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10	11			
Time		1000	1005	1010	1015			
Temperature	(°C)	11.11	11.14	11.12	11.35			
pH		6.47	6.49	6.50	6.50			
Conductivity	(ms/cm)	0.097	0.098	0.098	0.098			
DO	(mg/L)	0.07	0.06	0.06	0.06			
Turbidity	(NTUs)	>999	>999	>999	>999			
Salinity	(ppth)	0.06	0.06	0.06	0.06			
Eh	(mV)	141.0	139.4	139.7	139.4			
Water Level	(ft from TOR)	13.05	13.05	13.05	13.05			
Flow Rate	(mL/min.)	200	200	200	200			

Notes: Out of nitrogen at 0917, resume pumping 0935

Collected samples at 1030

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-39I Personnel: J. Nafus Start Time: 1330 Finish Time: 1620

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0.00			___ Press. Transducer
Casing/Well Difference (ft): -0.58			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 55 (ft) Depth to Pump Intake: 51 (ft)

Depth to Top of Water: 8.41 (ft) Depth of Screened Interval: 45-55 (ft)

Field Hach Kit Data

Concentration of Fe: 0.12 Mg/L

Concentration of CO: 160 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-39I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-39I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-39I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-39I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-39I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-39I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-39I	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-39I	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-39I	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-39I	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-39I	HNO_3 < 4°C
ssolved TAL Inorganics 05A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-39I	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-39I Personnel: J.Nafus Start Time: 1330 Finish Time: 1620

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1.0	1.5	2.0	2.5	3.0
Time		1355	1400	1405	1410	1415	1420	1425
Temperature	(°C)	11.80	11.91	12.01	12.28	12.46	12.51	12.54
pH		7.17	6.85	6.71	6.65	6.60	6.60	6.59
Conductivity	(ms/cm)	0.091	0.086	0.086	0.083	0.082	0.082	0.082
DO	(mg/L)	6.16	3.84	3.18	1.92	1.08	0.93	0.72
Turbidity	(NTUs)	11	10	10	14	14	13	13
Salinity	(ppth)	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Eh	(mV)	160.1	159.4	159.0	159.7	161.5	161.8	162.7
Water Level	(ft from TOR)	8.41	8.43	8.43	8.43	8.43	8.43	8.43
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4.0	4.5	5.0				
Time		1430	1435	1440				
Temperature	(°C)	12.57	12.66	12.66				
pH		6.59	6.59	6.59				
Conductivity	(ms/cm)	0.082	0.082	0.082				
DO	(mg/L)	0.66	0.61	0.62				
Turbidity	(NTUs)	12	12	13				
Salinity	(ppth)	0.05	0.05	0.05				
Eh	(mV)	162.4	161.7	161.1				
Water Level	(ft from TOR)	8.43	8.43	8.43				
Flow Rate	(mL/min.)	100	100	100				

Notes: Collected sample at 1445.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date. 12/11/02

Well ID: MW16-39D Personnel: S. Sheer Start Time: 1330 Finish Time: 1530

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0.00			___ Press. Transducer
Casing/Well Difference (ft): -0.22			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 82 (ft) Depth to Pump Intake: 69 (ft)

Depth to Top of Water: 8.61 (ft) Depth of Screened Interval: 64-74 (ft)

Field Hach Kit Data

Concentration of Fe: 1.03 Mg/L

Concentration of CO: (a) Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-39D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-39D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-39D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-39D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-39D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-39D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-39D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-39D Personnel: S. Sheer Start Time: 1330 Finish Time: 1530

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	3	4	5	6	7	8
Time		1405	1410	1415	1420	1425	1430	1435
Temperature	(°C)	13.55	1357	13.48	13.28	13.33	13.30	13.36
pH		7.59	7.57	7.55	7.54	7.52	7.52	7.51
Conductivity	(ms/cm)	0.270	0.267	0.266	0.263	0.263	0.262	0.261
DO	(mg/L)	1.26	0.81	0.53	0.27	0.22	0.14	0.10
Turbidity	(NTUs)	Er3	Er3	Er3	Er3	Er3	Er3	Er3
Salinity	(ppth)	0.17	0.16	0.16	0.16	0.16	0.16	0.16
Eh	(mV)	-111.7	-113.6	-117.3	-120.2	-121.4	-123.3	-125.2
Water Level	(ft from TOR)	9.05	9.05	9.05	9.05	9.05	9.05	9.05
Flow Rate	(mL/min.)	300	300	300	300	300	300	300

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		9	10	11				
Time		1440	1445	1450				
Temperature	(°C)	13.26	13.28	13.23				
pH		7.50	7.50	7.49				
Conductivity	(ms/cm)	0.260	0.260	0.260				
DO	(mg/L)	0.08	0.06	0.05				
Turbidity	(NTUs)	Er3	Er3	Er3				
Salinity	(ppth)	0.16	0.16	0.16				
Eh	(mV)	-125.9	-126.9	-127.4				
Water Level	(ft from TOR)	9.05	9.05	9.05				
Flow Rate	(mL/min.)	300	300	300				

Notes: Collected sampled at 1455. (a) = could not do CO parameter, H_2O too black to see.

Er3= Turbidity over 1200 NTU; purge H_2O black.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-40S Personnel: V. Deleone Start Time: 0815 Finish Time: 0950

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.73			___ Press. Transducer
Casing/Well Difference (ft): 2.35			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 40 (ft) Depth to Pump Intake: 19 (ft)

Depth to Top of Water: 15.50 (ft) Depth of Screened Interval: 6-22 (ft)

Field Hach Kit Data

Concentration of Fe: 0.08 Mg/L

Concentration of CO: 95 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-40S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-40S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-40S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-40S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-40S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-40S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-40S	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-40S	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-40S	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-40S	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-40S	HNO_3 < 4°C
Dissolved TAL Inorganics 3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-40S	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-40S Personnel: V. Deleone Start Time: 0815 Finish Time: 0950

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	2.25	3.0	3.75	4.50	5.25	6.0
Time		0830	0845	0850	0855	0900	0905	0910
Temperature	(°C)	12.26	9.81	9.90	10.26	10.32	10.36	10.42
pH		5.93	6.36	6.23	6.19	6.16	6.14	6.16
Conductivity	(ms/cm)	0.131	0.272	0.255	0.208	0.196	0.181	0.169
DO	(mg/L)	45.45 (a)	7.28	2.72	1.84	1.41	1.14	1.07
Turbidity	(NTUs)	61.1	55.0	49.8	40.4	34.5	25.9	18.6
Salinity	(ppth)	0.08	0.19	0.17	0.14	0.13	0.12	0.11
Eh	(mV)	141.0	133.5	132.8	126.5	126.3	124.3	124.0
Water Level	(ft from TOR)	15.60	15.51	15.51	15.51	15.51	15.51	15.51
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		6.75	7.50	8.25	9.0	9.75	10.50	11.25
Time		0915	0920	0925	0930	0935	0940	0945
Temperature	(°C)	10.46	10.51	10.54	10.48	10.53	10.40	10.35
pH		6.09	6.02	6.03	6.01	6.01	6.00	6.00
Conductivity	(ms/cm)	0.167	0.164	0.161	0.157	0.155	0.151	0.151
DO	(mg/L)	1.00	0.90	0.84	0.93	0.98	0.92	0.93
Turbidity	(NTUs)	17.6	15.5	13.2	10.47	8.80	6.86	7.44
Salinity	(ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Eh	(mV)	124.3	124.7	123.0	127.1	129.6	130.1	132.5
Water Level	(ft from TOR)	15.51	15.51	15.51	15.51	15.51	15.51	15.51
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Notes: (a) = 0830 changed DO membrane, recalibrate YSI.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-41S Personnel: R. Haras Start Time: 0900 Finish Time: 1210

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red/green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in./ ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.16			___ Press. Transducer
Casing/Well Difference (ft): 0.23			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 17.5 (ft) Depth to Pump Intake: 16.5 (ft)

Depth to Top of Water: 11.56 (ft) Depth of Screened Interval: 7.5-17.5 (ft)

Field Hach Kit Data

Concentration of Fe: 2.18 Mg/L

Concentration of CO: 286.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-41S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-41S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-41S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-41S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-41S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-41S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-41S	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-41S	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-41S	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-41S	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-41S	HNO_3 < 4°C
Dissolved TAL Inorganics 3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-41S	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-41S Personnel: R. Haras Start Time: 0900 Finish Time: 1210

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1	1.5	2	2.5	3.0
Time		0943	0948	0953	0958	1003	1005	1010
Temperature	(°C)	9.54	-7.84	6.33	6.17	5.95	5.68	5.76
pH		6.55	6.53	6.73	6.76	6.95	6.89	6.91
Conductivity	(ms/cm)	0.662	0.679	0.674	0.666	0.662	0.659	0.657
DO	(mg/L)	2.33	2.21	2.27	2.21	2.0	2.0	2.1
Turbidity	(NTUs)	11.8	10.40	9.49	9.37	8.02	8.51	8.0
Salinity	(ppth)	0.32	0.33	0.33	0.32	0.32	0.32	0.32
Eh	(mV)	-38.0	-37.6	-35.8	-34.9	-34.7	-34.0	-33.8
Water Level	(ft from TOR)	11.55	11.55	11.55	11.55	11.55	11.55	11.55
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters								
Time								
Temperature	(°C)							
pH								
Conductivity	(ms/cm)							
DO	(mg/L)							
Turbidity	(NTUs)							
Salinity	(ppth)							
Eh	(mV)							
Water Level	(ft from TOR)							
Flow Rate	(mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-41I Personnel: S. Cackowski Start Time: 0820 Finish Time: 1400

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.17			___ Press. Transducer
Casing/Well Difference (ft): 0.23			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 29.5 (ft) Depth to Pump Intake: 24 (ft)

Depth to Top of Water: 11.78 (ft) Depth of Screened Interval: 19.5-29.5 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 54.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		9 @ 40 ml VOA	MW16-41I MW16-41I MS/MSD	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		3 liter poly	MW16-41I MW16-41I MS/MSD	< 4°C
Dissolved iron, Dissolved manganese	√	3 liter poly	MW16-41I MW16-41I MS/MSD	HNO_3< 4°C
Total ammonia		3 liter poly	MW16-41I MW16-41I MS/MSD	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		3 @ 500 ml poly	MW16-41I MW16-41I MS/MSD	< 4°C
Hydrogen sulfide		3 @ 1 liter poly	MW16-41I MW16-41I MS/MSD	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		9 @ 40 ml VOA	MW16-41I MW16-41I MS/MSD	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		6 @ 1 liter amber	MW16-41I MW16-41I MS/MSD	< 4°C
TCL PAH (3510C / 3520C / 8310)		6 @ 1 liter amber	MW16-41I MW16-41I MS/MSD	< 4°C
TCL Pesticides + PCB		6 @ 1 liter amber	MW16-41I MW16-41I MS/MSD	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		3 liter poly	MW16-41I MW16-41I MS/MSD	HNO_3 < 4°C
Dissolved TAL Inorganics 5A / 3020A / 6010B / 7000)	√	3 liter poly	MW16-41I MW16-41I MS/MSD	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-41I Personnel: S. Cackowski Start Time: 0820 Finish Time: 1400

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3	3.5	4	4.5	5	5.5	6
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	8.71	8.19	7.68	7.32	7.32	7.22	7.11
pH		5.89	5.83	5.73	5.92	5.92	5.55	5.44
Conductivity	(ms/cm)	0.131	0.126	0.126	0.123	0.124	0.124	0.126
DO	(mg/L)	6.34	5.90	5.93	5.93	5.90	5.76	5.45
Turbidity	(NTUs)	9.6	1.6	0.25	0.00	0.2	0.00	0.05
Salinity	(ppth)	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Eh	(mV)	212.6	208.8	206.3	202.2	198.4	192.7	188.7
Water Level	(ft from TOR)	11.86	11.86	11.86	11.86	11.86	11.86	11.86
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		6.5	7.0	7.5				
Time		0935	0940	0945				
Temperature	(°C)	7.04	6.98	7.02				
pH		5.76	5.78	5.79				
Conductivity	(ms/cm)	0.127	0.127	0.127				
DO	(mg/L)	5.43	5.46	5.52				
Turbidity	(NTUs)	0.00	0.00	0.00				
Salinity	(ppth)	0.09	0.09	0.09				
Eh	(mV)	187.0	186.5	185.0				
Water Level	(ft from TOR)	11.86	11.86	11.86				
Flow Rate	(mL/min.)	100	100	100				

Notes: Collected sample at 1000

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-41D Personnel: R. Wasserman Start Time: 0820 Finish Time: 1230

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0 ppm Well Headspace Reading: 0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.12			___ Press. Transducer
Casing/Well Difference (ft): 0.51			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 61 (ft) Depth to Pump Intake: 57 (ft)

Depth to Top of Water: 11.09 (ft) Depth of Screened Interval: 51-61 (ft)

Field Hach Kit Data

Concentration of Fe: 7.3 Mg/L

Concentration of CO: 57 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-41D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-41D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-41D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-41D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-41D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-41D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-41D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-41D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-41D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-41D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-41D	HNO_3 < 4°C
Dissolved TAL Inorganics 3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-41D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-41D Personnel: R. Wasserman Start Time: 0820 Finish Time: 1230

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information, except YSI (yellow)

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0900	0911	0916	0921	0926	0931	0930
Temperature	(°C)	9.63	10.17	9.62	9.24	7.30	6.02	5.38
pH		6.64	6.52	6.43	6.39	6.37	6.34	6.40
Conductivity	(ms/cm)	0.176	0.161	0.154	0.151	0.145	0.140	0.136
DO	(mg/L)	2.64	1.25	0.80	0.67	0.53	0.60	0.73
Turbidity	(NTUs)	9.7	8.7	12	17	25	27	19
Salinity	(ppth)	0.12	0.11	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	26.5	10.7	6.9	7.6	7.7	9.8	9.9
Water Level	(ft from TOR)	11.17	11.36	11.19	11.15	11.16	11.17	11.16
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9				
Time		0941	0946	0951				
Temperature	(°C)	4.91	4.64	4.60				
pH		6.40	6.42	6.41				
Conductivity	(ms/cm)	0.134	0.133	0.132				
DO	(mg/L)	0.86	0.94	0.97				
Turbidity	(NTUs)	19	17	18				
Salinity	(ppth)	0.10	0.10	0.10				
Eh	(mV)	11	12.4	12.0				
Water Level	(ft from TOR)	11.16	11.16	11.16				
Flow Rate	(mL/min.)	200	200	200				

Notes: Sample collected at 0955

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-42S Personnel: V. Deleone Start Time: 1400 Finish Time: 1530

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.34			___ Press. Transducer
Casing/Well Difference (ft): 0.21			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 15.5 (ft) Depth to Pump Intake: 14.5 (ft)

Depth to Top of Water: below pump (ft) Depth of Screened Interval: 5.5-15.5 (ft)

Field Hach Kit Data

Concentration of Fe: >3.30 Mg/L

Concentration of CO: 86.4 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-42S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-42S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-42S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-42S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-42S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-42S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-42S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-42S Personnel: V. Deleone Start Time: 1400 Finish Time: 1530

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.50	2.25	3.0	3.75	4.50
Time		1425	1430	1435	1440	1445	1450	1455
Temperature	(°C)	11.52	10.75	10.85	10.94	10.99	10.99	10.96
pH		6.40	6.41	6.43	6.41	6.37	6.42	6.40
Conductivity	(ms/cm)	0.402	0.409	0.409	0.410	0.414	0.418	0.418
DO	(mg/L)	4.22	2.54	2.53	2.24	2.03	1.83	1.77
Turbidity	(NTUs)	42.0	27.8	17.4	9.30	4.53	2.34	3.48
Salinity	(ppth)	0.26	0.27	0.27	0.27	0.28	0.28	0.28
Eh	(mV)	68.7	60.4	59.3	58.6	57.7	55.1	54.2
Water Level	(ft from TOR)	---	---	---	---	---	---	---
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25						
Time		1450						
Temperature	(°C)	10.97						
pH		6.45						
Conductivity	(ms/cm)	0.420						
DO	(mg/L)	1.70						
Turbidity	(NTUs)	1.21						
Salinity	(ppth)	0.28						
Eh	(mV)	53.0						
Water Level	(ft from TOR)	---						
Flow Rate	(mL/min.)	150						

Notes: Water level below pump > 7 ft

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-42I Personnel: C. Springer Start Time: 1435 Finish Time: 1600

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.22			___ Press. Transducer
Casing/Well Difference (ft): 0.4			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 30 (ft) Depth to Pump Intake: 27 (ft)

Depth to Top of Water: 12.81 (ft) Depth of Screened Interval: 20-30 (ft)

Field Hach Kit Data

Concentration of Fe: >3.30 Mg/L

Concentration of CO: 465 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-42I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-42I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-42I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-42I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-42I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-42I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-42I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-42I Personnel: C. Springer Start Time: 1435 Finish Time: 1600

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0	1	2	3	4	5	6
Time	1435	1440	1445	1450	1455	1500	1505
Temperature (°C)	10.57	11.01	11.06	10.10	9.15	9.00	8.95
pH	7.01	7.05	7.03	7.02	7.03	7.07	7.09
Conductivity (ms/cm)	0.804	0.901	0.913	0.905	0.886	0.879	0.872
DO (mg/L)	2.26	-0.60	-0.74	-0.74	-0.69	-0.63	-0.60
Turbidity (NTUs)	9.33	9.81	8.50	10.68	7.92	7.28	7.13
Salinity (ppth)	0.55	0.62	0.63	0.64	0.64	0.63	0.64
Eh (mV)	-76.8	-133.7	-142.0	-145.3	-143.0	-140.0	-139.8
Water Level (ft from TOR)	12.81	13.15	13.08	12.89	12.88	12.88	12.88
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-42D Personnel: S. Sheer Start Time: 1400 Finish Time: 1600

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.39			___ Press. Transducer
Casing/Well Difference (ft): 0.29			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 68 (ft) Depth to Pump Intake: 63 (ft)

Depth to Top of Water: 14.18 (ft) Depth of Screened Interval: 58-68 (ft)

Field Hach Kit Data

Concentration of Fe: 2.65 Mg/L

Concentration of CO: 49 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-42D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-42D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-42D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-42D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-42D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-42D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-42D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-42D Personnel: S. Sheer Start Time: 1400 Finish Time: 1600

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		1440	1445	1450	1455	1500	1505	1510
Temperature	(°C)	9.48	10.36	10.40	10.36	10.27	10.20	10.10
pH		6.30	6.32	6.34	6.34	6.35	6.36	6.37
Conductivity	(ms/cm)	0.240	0.231	0.230	0.230	0.229	0.229	0.229
DO	(mg/L)	1.06	0.79	0.68	0.59	0.47	0.43	0.42
Turbidity	(NTUs)	210	550	650	700	700	750	750
Salinity	(ppth)	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Eh	(mV)	103.8	86.3	77.4	74.5	71.1	68.4	67.7
Water Level	(ft from TOR)	14.18	14.27	14.27	14.27	14.27	14.27	14.27
Flow Rate	(mL/min.)	200	200	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8						
Time		1515						
Temperature	(°C)	10.01						
pH		6.37						
Conductivity	(ms/cm)	0.229						
DO	(mg/L)	0.40						
Turbidity	(NTUs)	750						
Salinity	(ppth)	0.11						
Eh	(mV)	66.9						
Water Level	(ft from TOR)	14.27						
Flow Rate	(mL/min.)	150						

Notes: Collected sample at 1520

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-43S Personnel: V. Deleone Start Time: 1315 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.59			___ Press. Transducer
Casing/Well Difference (ft): 0.24			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 21 (ft) Depth to Pump Intake: 17 (ft)

Depth to Top of Water: 9.90 (ft) Depth of Screened Interval: 6-21 (ft)

Field Hach Kit Data

Concentration of Fe: 18.4 Mg/L

Concentration of CO: 18.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-43S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-43S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-43S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-43S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-43S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-43S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-43S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-43S Personnel: V. Deleone Start Time: 1330 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.50	2.25	3.0	3.75	4.50
Time		1325	1330	1335	1340	1345	1350	1355
Temperature	(°C)	10.21	11.31	11.52	10.74	10.41	10.24	9.56
pH		6.79	6.76	6.84	6.47	6.35	6.85	6.83
Conductivity	(ms/cm)	0.347	0.352	0.354	0.346	0.342	0.341	0.335
DO	(mg/L)	6.08	4.44	3.97	3.93	4.42	4.59	4.75
Turbidity	(NTUs)	17.8	4.82	2.89	2.68	1.62	0.56	0.62
Salinity	(ppth)	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Eh	(mV)	-70.7	-94.1	-99.8	-100.4	-98.3	-95.5	-93.6
Water Level	(ft from TOR)	9.85	9.95	9.94	9.87	9.85	9.85	9.85
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters								
Time								
Temperature	(°C)							
pH								
Conductivity	(ms/cm)							
DO	(mg/L)							
Turbidity	(NTUs)							
Salinity	(ppth)							
Eh	(mV)							
Water Level	(ft from TOR)							
Flow Rate	(mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-43I Personnel: C. Springer Start Time: 1330 Finish Time: 1510

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.11			___ Press. Transducer
Casing/Well Difference (ft): 0.22			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 33.5 (ft) Depth to Pump Intake: 32 (ft)

Depth to Top of Water: 9.55 (ft) Depth of Screened Interval: 25.5-33.5 (ft)

Field Hach Kit Data

Concentration of Fe: 2.45 Mg/L

Concentration of CO: 1.68 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-43I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-43I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-43I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-43I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-43I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-43I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-43I	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-43I Personnel: C. Springer Start Time: 1330 Finish Time: 1510

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing; MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1330	1335	1340	1345	1350	1355	1400
Temperature	(°C)	10.49	10.38	9.89	9.71	9.35	8.99	8.94
pH		6.83	6.55	6.69	6.60	6.60	6.66	6.70
Conductivity	(ms/cm)	0.285	0.360	0.359	0.356	0.354	0.352	0.351
DO	(mg/L)	7.87	2.27	2.11	1.94	1.77	1.58	1.46
Turbidity	(NTUs)	35.2	36.0	39.1	70.9	90.5	91.2	84.0
Salinity	(ppth)	0.20	0.24	0.24	0.24	0.25	0.25	0.25
Eh	(mV)	114.1	47.0	27.8	18.7	12.4	8.6	7.2
Water Level	(ft from TOR)	9.55	9.62	9.62	9.60	9.60	9.60	9.60
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10	11	12	
Time		1405	1410	1415	1420	1425	1430	
Temperature	(°C)	8.89	9.10	8.95	8.87	8.79	8.78	
pH		6.68	6.66	6.66	6.66	6.67	6.66	
Conductivity	(ms/cm)	0.352	0.354	0.353	0.351	0.349	0.348	
DO	(mg/L)	1.30	1.21	1.09	0.92	0.92	0.92	
Turbidity	(NTUs)	65	50	35	23	22	21	
Salinity	(ppth)	0.25	0.25	0.25	0.25	0.25	0.25	
Eh	(mV)	5.4	4.7	4.4	3.5	3.5	3.5	
Water Level	(ft from TOR)	9.60	9.60	9.60	9.60	9.60	9.60	
Flow Rate	(mL/min.)	200	200	200	200	200	200	

Notes:

Ground Wat r Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-43D Personnel: S. Sheer Start Time: 1320 Finish Time: 1510

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.47			___ Press. Transducer
Casing/Well Difference (ft): 0.26			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 43 (ft) Depth to Pump Intake: 40.5 (ft)

Depth to Top of Water: 11.20 (ft) Depth of Screened Interval: 37-43 (ft)

Field Hach Kit Data

Concentration of Fe: 3.29 Mg/L

Concentration of CO: 58.4 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-43D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-43D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-43D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-43D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-43D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-43D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-43D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-43D Personnel: S. Sheer Start Time: 1320 Finish Time: 1510

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1	2	3	4	5	6	7
Time		1340	1345	1350	1355	1400	1405	1410
Temperature	(°C)	9.83	9.45	9.40	9.60	9.94	9.98	9.80
pH		6.76	6.76	6.75	6.75	6.78	6.79	6.80
Conductivity	(ms/cm)	0.256	0.255	0.257	0.258	0.259	0.261	0.261
DO	(mg/L)	4.98	4.12	3.36	2.31	1.68	1.29	1.05
Turbidity	(NTUs)	33	21	21	18	16	13	11
Salinity	(ppth)	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Eh	(mV)	5.1	2.9	0.3	-3.4	-8.2	-12.6	-13.8
Water Level	(ft from TOR)	11.32	11.32	11.32	11.32	11.32	11.32	11.32
Flow Rate	(mL/min.)	200	200	200	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		8	9	10				
Time		1415	1420	1425				
Temperature	(°C)	9.74	9.65	9.42				
pH		6.79	6.50	6.80				
Conductivity	(ms/cm)	0.261	0.261	0.261				
DO	(mg/L)	0.90	0.83	0.78				
Turbidity	(NTUs)	10	10	11				
Salinity	(ppth)	0.13	0.13	0.12				
Eh	(mV)	-14.4	-15.4	-15.0				
Water Level	(ft from TOR)	11.32	11.32	11.32				
Flow Rate	(mL/min.)	150	150	150				

Notes: Collected sample at 1430

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44S Personnel: B. Andersen Start Time: 0820 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.34			___ Press. Transducer
Casing/Well Difference (ft): 0.26			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 21 (ft) Depth to Pump Intake: 16 (ft)

Depth to Top of Water: 9.75 (ft) Depth of Screened Interval: 6-21 (ft)

Field Hach Kit Data

Concentration of Fe: 1.28 Mg/L

Concentration of CO: 46 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-44S MW16-Dup 10	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-44S MW16-Dup 10	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-44S MW16-Dup 10	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-44S MW16-Dup 10	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-44S MW16-Dup 10	< 4°C
Hydrogen sulfide		1 liter poly	MW16-44S MW16-Dup 10	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-44S MW16-Dup 10	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44S Personnel: B. Andersen Start Time: 0820 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0.5	1.5	2.5	3.5	4.5	5.5	
Time	0850	0855	0900	0905	0910	0915	
Temperature (°C)	8.30	8.62	8.94	9.14	9.11	9.23	
pH	6.27	6.30	6.37	6.38	6.32	6.36	
Conductivity (ms/cm)	0.455	0.511	0.525	0.529	0.529	0.527	
DO (mg/L)	6.46	4.51	4.04	3.76	3.74	3.71	
Turbidity (NTUs)	15.5	6.24	5.11	4.69	4.36	4.46	
Salinity (ppth)	0.22	0.25	0.26	0.26	0.26	0.26	
Eh (mV)	57.5	-17.6	-35.7	-46.5	-47.8	-49.5	
Water Level (ft from TOR)	9.85	9.87	9.85	9.87	9.87	9.87	
Flow Rate (mL/min.)	200	200	200	200	200	200	

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected sample and duplicate at 0925

Ground Water Fi Id Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44I Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.96			___ Press. Transducer
Casing/Well Difference (ft): 0.53			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 33 (ft) Depth to Pump Intake: 28 (ft)

Depth to Top of Water: 10.65 (ft) Depth of Screened Interval: 23-33 (ft)

Field Hach Kit Data

Concentration of Fe: 2.25 Mg/L

Concentration of CO: 116.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-44I MS/MSD MW16-44I MW16-Dup 11	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-44I MS/MSD MW16-44I MW16-Dup 11	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-44I MS/MSD MW16-44I MW16-Dup 11	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-44I MS/MSD MW16-44I MW16-Dup 11	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-44I MS/MSD MW16-44I MW16-Dup 11	< 4°C
Hydrogen sulfide		1 liter poly	MW16-44I MS/MSD MW16-44I MW16-Dup 11	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-44I MS/MSD MW16-44I MW16-Dup 11	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44I Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	1	2	3	4	5		
Time	0855	0900	0905	0910	0915		
Temperature (°C)	10.16	10.21	10.29	10.26	10.25		
pH	6.27	6.19	6.17	6.15	6.14		
Conductivity (ms/cm)	0.228	0.225	0.227	0.227	0.228		
DO (mg/L)	2.12	2.10	1.57	1.57	1.61		
Turbidity (NTUs)	24.8	26.3	28.3	28.4	28.1		
Salinity (ppth)	0.15	0.15	0.15	0.15	0.15		
Eh (mV)	39.9	44.9	47.8	50.9	53.5		
Water Level (ft from TOR)	11.01	10.98	10.98	10.98	10.98		
Flow Rate (mL/min.)	200	300	300	300	300		

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected sample, duplicate, and MS/MSD at 0920

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44D Personnel: J. Nafus Start Time: 0820 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Cap on well not secure			___ Interface Probe
Protective Casing Stick Up (ft): 2.4			___ Press. Transducer
Casing/Well Difference (ft): 0.34			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 59.6 (ft) Depth to Pump Intake: 54.7 (ft)

Depth to Top of Water: 12.00 (ft) Depth of Screened Interval: 49.6-59.6 (ft)

Field Hach Kit Data

Concentration of Fe: 0.45 Mg/L

Concentration of CO: 38 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-44D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-44D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-44D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-44D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-44D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-44D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-44D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44D Personnel: J. Nafus Start Time: 0820 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1	1.5	2	2.5	3
Time		0845	0850	0855	0900	0905	0910	0915
Temperature	(°C)	9.43	9.05	8.87	8.23	8.26	8.05	7.82
pH		6.71	6.68	6.65	6.63	6.58	6.58	6.57
Conductivity	(ms/cm)	0.136	0.132	0.130	0.128	0.127	0.127	0.126
DO	(mg/L)	20.00	19.36	12.04	9.73	7.41	7.04	6.07
Turbidity	(NTUs)	78	.64	57	52	45	32	16
Salinity	(ppth)	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Eh	(mV)	101.8	100.6	100.5	100.4	100.6	100.4	101.1
Water Level	(ft from TOR)	12.20	12.20	12.20	12.20	12.20	12.20	12.20
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.5	4	4.5	5	5.5	6	6.5
Time		0920	0925	0930	0935	0940	0945	0950
Temperature	(°C)	7.87	7.98	7.98	8.02	8.01	7.46	7.21
pH		6.57	6.57	6.57	6.56	6.56	6.55	6.54
Conductivity	(ms/cm)	0.126	0.126	0.127	0.127	0.127	0.128	0.127
DO	(mg/L)	5.66	4.83	4.36	3.87	3.51	3.09	2.99
Turbidity	(NTUs)	12	8.1	8.0	6.2	4.9	4.1	4.5
Salinity	(ppth)	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Eh	(mV)	101.3	103.5	102.4	103.6	102.2	102.6	103.5
Water Level	(ft from TOR)	12.20	12.20	12.20	12.20	12.20	12.20	12.20
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Notes: DO readings appear high but are dropping

Collected sample at 1000

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44D Personnel: J. Nafus Start Time: 0820 Finish Time: 1100

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	7.0						
Time	0955						
Temperature (°C)	7.01						
pH	6.54						
Conductivity (ms/cm)	0.127						
DO (mg/L)	2.93						
Turbidity (NTUs)	4.4						
Salinity (ppth)	0.09						
Eh (mV)	104.0						
Water Level (ft from TOR)	12.20						
Flow Rate (mL/min.)	100						

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44R Personnel: S. Cackowski Start Time: 0820 Finish Time: 1215

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.89			___ Press. Transducer
Casing/Well Difference (ft): 2.78			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 87 (ft) Depth to Pump Intake: 65 (ft)

Depth to Top of Water: 12.12 (ft) Depth of Screened Interval: 62-87 (ft)

Field Hach Kit Data

Concentration of Fe: 3.05 Mg/L

Concentration of CO: 59.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-44R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-44R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-44R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-44R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-44R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-44R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-44R	HCL, < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/12/02

Well ID: MW16-44R Personnel: S. Cackowski Start Time: 0820 Finish Time: 1215

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	2.25	2.5	2.75	3.0	3.25	3.5
Time		0905	0910	0915	0920	0925	0930	0935
Temperature	(°C)	8.20	7.67	7.44	7.40	7.42	7.35	7.25
pH		7.14	7.04	7.06	7.12	7.17	7.26	7.43
Conductivity	(ms/cm)	0.169	0.143	0.138	0.137	0.137	0.136	0.136
DO	(mg/L)	3.19	2.38	1.91	1.66	1.50	1.33	1.15
Turbidity	(NTUs)	55	50	36	28	21	17	15
Salinity	(ppth)	0.12	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	75.5	-24.2	-63.1	-75.6	-85.6	-96.8	-107.9
Water Level	(ft from TOR)	12.41	12.41	12.41	12.41	12.41	12.41	12.41
Flow Rate	(mL/min.)	50	50	50	50	50	50	50

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.75	4.0	4.25	4.50	4.75	5.0	
Time		0940	0945	0950	0955	1000	1005	
Temperature	(°C)	7.30	7.21	7.20	7.10	7.11	7.09	
pH		7.45	7.47	7.49	7.50	7.51	7.49	
Conductivity	(ms/cm)	0.136	0.136	0.135	0.135	0.134	0.134	
DO	(mg/L)	1.04	101	0.94	0.87	0.83	0.83	
Turbidity	(NTUs)	13	11	9.3	8.8	8.1	8.0	
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.10	0.10	
Eh	(mV)	-114.1	-121.3	-123.0	-128.1	-131.2	-132.4	
Water Level	(ft from TOR)	12.41	12.41	12.41	12.41	12.41	12.41	
Flow Rate	(mL/min.)	50	50	50	50	50	50	

Notes: Collected samples @1020

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-45S Personnel: V. Deleone Start Time: 0900 Finish Time: 1000

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.61			___ Press. Transducer
Casing/Well Difference (ft): 0.35			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 21 (ft) Depth to Pump Intake: 19 (ft)

Depth to Top of Water: 9.47 (ft) Depth of Screened Interval: 6-21 (ft)

Field Hach Kit Data

Concentration of Fe: 25.2 Mg/L

Concentration of CO: 125.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-45S MW16-45S MS/MSD	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-45S MW16-45S MS/MSD	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-45S MW16-45S MS/MSD	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-45S MW16-45S MS/MSD	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-45S MW16-45S MS/MSD	< 4°C
Hydrogen sulfide		1 liter poly	MW16-45S MW16-45S MS/MSD	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-45S MW16-45S MS/MSD	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-45S MW16-45S MS/MSD	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-45S MW16-45S MS/MSD	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-45S MW16-45S MS/MSD	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-45S MW16-45S MS/MSD	HNO_3 < 4°C
[illegible]olved TAL Inorganics [illegible]5A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-45S MW16-45S MS/MSD	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-45S Personnel: V. Deleone Start Time: 0900 Finish Time: 1000

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0	0.75	1.50	2.25	3.0		
Time	0850	0855	0900	0905	0910		
Temperature (°C)	12.34	12.59	10.58	10.49	10.91		
pH	6.91	6.90	6.86	6.89	6.93		
Conductivity (ms/cm)	0.500	0.490	0.452	0.456	0.451		
DO (mg/L)	8.14	7.00	6.85	6.87	6.35		
Turbidity (NTUs)	19.0	16.3	14.3	14.7	16.3		
Salinity (ppth)	0.32	0.31	0.31	0.31	0.31		
Eh (mV)	-116.2	-124.3	-113.1	-116.2	-121.3		
Water Level (ft from TOR)	9.47	9.61	9.39	9.38	9.37		
Flow Rate (mL/min.)	150	150	150	150	150		

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-45I Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.91			___ Press. Transducer
Casing/Well Difference (ft): 0.26			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 42 (ft) Depth to Pump Intake: 33 (ft)

Depth to Top of Water: 9.12 (ft) Depth of Screened Interval: 32-42 (ft)

Field Hach Kit Data

Concentration of Fe: 7.04 Mg/L

Concentration of CO: 68 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-45I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-45I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-45I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-45I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-45I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-45I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-45I	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-45I	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-45I	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-45I	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-45I	HNO_3 < 4°C
Dissolved TAL Inorganics 3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-45I	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-45I Personnel: S. Sheer Start Time: 0830 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	5	6	7	8	9	10
Time		0905	0910	0915	0920	0925	0930	0935
Temperature	(°C)	11.09	10.75	10.63	10.62	10.16	10.26	10.03
pH		6.94	6.92	6.94	6.93	6.91	6.93	6.94
Conductivity	(ms/cm)	0.353	0.351	0.342	0.340	0.337	0.336	0.336
DO	(mg/L)	7.75	8.92	11.08	11.84	12.77	13.05	10.43
Turbidity	(NTUs)	400	150	100	85	65	65	65
Salinity	(ppth)	0.17	0.17	0.16	0.16	0.16	0.16	0.16
Eh	(mV)	-45.3	-51.9	-58.3	-58.7	-59.4	-59.3	-58.6
Water Level	(ft from TOR)	9.40	9.40	9.40	9.40	9.40	9.40	9.40
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		11	12	13	14	15		
Time		0940	0945	0950	0955	1000		
Temperature	(°C)	9.65	9.62	9.53	9.60	9.62		
pH		6.93	6.94	6.94	6.94	6.94		
Conductivity	(ms/cm)	0.335	0.335	0.333	0.333	0.333		
DO	(mg/L)	9.11	7.96	6.88	6.29	6.36		
Turbidity	(NTUs)	45	40	39	40	42		
Salinity	(ppth)	0.16	0.16	0.16	0.16	0.16		
Eh	(mV)	-57.2	-56.6	-56.4	-57.1	-57.5		
Water Level	(ft from TOR)	9.40	9.40	9.40	9.40	9.40		
Flow Rate	(mL/min.)	200	200	200	200	200		

Notes: Collected sample at 1005

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-45D Personnel: C. Springer Start Time: 0900 Finish Time: 1005

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See Blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 3.27			___ Press. Transducer
Casing/Well Difference (ft): 0.3			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 58 (ft) Depth to Pump Intake: 51 (ft)

Depth to Top of Water: 9.31 (ft) Depth of Screened Interval: 48-58 (ft)

Field Hach Kit Data

Concentration of Fe: 6.34 Mg/L

Concentration of CO: 72 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-45D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-45D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-45D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-45D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-45D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-45D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-45D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-45D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-45D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-45D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-45D	HNO_3 < 4°C
Dissolved TAL Inorganics 3005A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-45D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/03/02

Well ID: MW16-45D Personnel: C. Springer Start Time: 0900 Finish Time: 1005

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	9.35	9.70	9.70	8.67	8.61	8.26	7.44
pH		7.06	6.76	6.79	6.71	6.70	6.85	6.78
Conductivity	(ms/cm)	0.202	0.206	0.206	0.201	0.200	0.200	0.195
DO	(mg/L)	92.37	50.90	22.16	18.40	13.61	11.10	10.31
Turbidity	(NTUs)	30.9	253	517	518	389	324	270
Salinity	(ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Eh	(mV)	105.1	1.4	-31.2	-31.7	-31.7	-31.2	-29.6
Water Level	(ft from TOR)	9.31	10.12	9.87	9.77	9.77	9.69	9.65
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10	11	12	13
Time		0935	0940	0945	0950	0955	1000	1005
Temperature	(°C)	6.76	6.64	6.51	6.21	5.87	5.65	5.64
pH		6.79	6.78	6.77	6.76	6.77	6.77	6.78
Conductivity	(ms/cm)	0.191	0.190	0.189	0.188	0.187	0.185	0.181
DO	(mg/L)	9.43	8.49	7.98	7.10	6.80	6.75	6.71
Turbidity	(NTUs)	221	190	146	127	80	79	80
Salinity	(ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Eh	(mV)	-28.0	-27.2	-26.5	-25.6	-26.1	-25.9	-25.5
Water Level	(ft from TOR)	9.62	9.61	9.61	9.59	9.57	9.59	9.59
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes:

Ground Wat r Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-46S Personnel: V. Deleone Start Time: 1300 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.49			___ Press. Transducer
Casing/Well Difference (ft): 2.19			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 21 (ft) Depth to Pump Intake: 16.5 (ft)

Depth to Top of Water: 9.21 (ft) Depth of Screened Interval: 6-21 (ft)

Field Hach Kit Data

Concentration of Fe: 186 Mg/L

Concentration of CO: 42.4 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-46S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-46S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-46S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-46S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-46S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-46S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-46S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-46S Personnel: V. Deleone Start Time: 1300 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.75	1.50	2.25	3.0	3.75	4.50
Time		1300	1305	1310	1315	1320	1325	1330
Temperature	(°C)	11.98	12.04	11.59	11.53	10.68	10.66	10.30
pH		6.83	6.90	7.15	6.93	6.93	6.92	6.93
Conductivity	(ms/cm)	0.606	0.600	0.596	0.584	0.568	0.566	0.561
DO	(mg/L)	3.73	3.59	3.66	3.48	3.16	2.76	2.47
Turbidity	(NTUs)	39.9	18.3	10.89	9.19	7.80	5.05	3.49
Salinity	(ppth)	0.40	0.39	0.39	0.39	0.38	0.38	0.38
Eh	(mV)	-118.7	-125.6	-121.4	-116.2	-114.0	-117.7	-120.8
Water Level	(ft from TOR)	9.21	9.21	9.21	9.21	9.21	9.21	9.21
Flow Rate	(mL/min.)	150	150	150	150	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.25	6.0	6.75	7.50	8.25	9.0	
Time		1335	1340	1345	1350	1355	1400	
Temperature	(°C)	10.10	10.04	10.05	9.93	9.76	9.65	
pH		6.94	6.94	6.94	6.94	6.95	6.96	
Conductivity	(ms/cm)	0.566	0.554	0.554	0.552	0.549	0.546	
DO	(mg/L)	2.07	1.75	1.58	1.35	1.22	1.19	
Turbidity	(NTUs)	3.11	2.72	2.35	1.97	1.83	1.51	
Salinity	(ppth)	0.38	0.38	0.38	0.38	0.38	0.38	
Eh	(mV)	-122.4	-124.0	-124.4	-126.1	-126.3	-126.3	
Water Level	(ft from TOR)	9.21	9.21	9.21	9.21	9.21	9.21	
Flow Rate	(mL/min.)	150	150	150	150	150	150	

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-46I Personnel: J. Nafus Start Time: 1305 Finish Time: 1508

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.76			___ Press. Transducer
Casing/Well Difference (ft): 2.33			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 32 (ft) Depth to Pump Intake: 27 (ft)

Depth to Top of Water: 8.78 (ft) Depth of Screened Interval: 22-32 (ft)

Field Hach Kit Data

Concentration of Fe: 2.14 Mg/L

Concentration of CO: 108 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-46I MW16-Dup12	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-46I MW16-Dup12	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-46I MW16-Dup12	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-46I MW16-Dup12	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-46I MW16-Dup12	< 4°C
Hydrogen sulfide		1 liter poly	MW16-46I MW16-Dup12	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-46I MW16-Dup12	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-46I Personnel: J. Nafus Start Time: 1305 Finish Time: 1508

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		1305	1310	1315	1320	1325	1330	1335
Temperature	(°C)	12.09	12.09	12.07	11.72	11.94	11.28	10.07
pH		7.02	7.02	7.07	7.05	7.05	7.09	7.02
Conductivity	(ms/cm)	0.461	0.462	0.463	0.460	0.463	0.448	0.441
DO	(mg/L)	0.93	0.84	0.59	0.49	0.44	0.98	1.25
Turbidity	(NTUs)	32.6	23.8	19.5	17.2	14.9	15.6	16.1
Salinity	(ppth)	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Eh	(mV)	-123.2	-125.5	-138.0	-140.7	-142.2	-133.0	-127.4
Water Level	(ft from TOR)	8.87	9.08	8.97	9.01	9.06	8.93	8.82
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10	11	12	13
Time		1340	1345	1350	1355	1400	1405	1410
Temperature	(°C)	9.31	9.28	9.20	9.41	9.74	9.82	9.87
pH		7.06	7.07	7.05	7.04	7.05	7.05	7.05
Conductivity	(ms/cm)	0.435	0.433	0.432	0.435	0.437	0.437	0.438
DO	(mg/L)	1.17	0.88	0.73	0.54	0.38	0.25	0.21
Turbidity	(NTUs)	15.7	15.1	14.1	11.3	9.33	7.96	7.17
Salinity	(ppth)	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Eh	(mV)	-123.9	-126.1	-125.2	-125.8	-126.8	-134.1	134.8
Water Level	(ft from TOR)	8.82	8.82	8.82	8.82	8.82	8.82	8.82
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes: Sample time 1430.

Purge water smells like petroleum.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-46I Personnel: J. Nafus Start Time: 1305 Finish Time: 1508

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	14	15	16				
Time	1415	1420	1425				
Temperature (°C)	9.91	9.91	9.91				
pH	7.05	7.06	7.06				
Conductivity (ms/cm)	0.439	0.438	0.437				
DO (mg/L)	0.18	0.17	0.14				
Turbidity (NTUs)	5.99	5.21	5.87				
Salinity (ppth)	0.30	0.30	0.30				
Eh (mV)	-130.3	-134.5	-139.0				
Water Level (ft from TOR)	8.82	8.82	8.82				
Flow Rate (mL/min.)	200	200	200				

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-46D Personnel: S. Sheer Start Time: 1300 Finish Time: 1530

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See yellow calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.70			___ Press. Transducer
Casing/Well Difference (ft): 2.46			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 67 (ft) Depth to Pump Intake: 52 (ft)

Depth to Top of Water: 10.69 (ft) Depth of Screened Interval: 50.5-59 (ft)

Field Hach Kit Data

Concentration of Fe: 1.85 Mg/L

Concentration of CO: 113.2 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-46D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-46D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-46D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-46D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-46D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-46D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-46D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-46D Personnel: S. Sheer Start Time: 1300 Finish Time: 1503

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See yellow calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.5	1.0	2.0	2.5	3.0	3.5	4.0
Time		1315	1320	1325	1330	1335	1340	1345
Temperature	(°C)	10.13	10.77	11.17	11.04	10.92	11.04	11.33
pH		6.98	6.88	6.91	6.92	6.92	6.91	6.91
Conductivity	(ms/cm)	0.230	0.233	0.245	0.249	0.250	0.248	0.249
DO	(mg/L)	5.43	5.85	3.93	3.13	2.77	2.44	2.00
Turbidity	(NTUs)	21.8	52.6	156	217	190	161	206
Salinity	(ppth)	0.15	0.15	0.16	0.16	0.16	0.16	0.16
Eh	(mV)	100.2	46.3	29.1	-1.9	-13.4	-18.7	-20.7
Water Level	(ft from TOR)	11.03	11.05	11.06	11.06	11.06	11.06	11.06
Flow Rate	(mL/min.)	100	150	150	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.0	6.0	7.0	8.0	8.5	9.0	10.0
Time		1350	1355	1400	1405	1410	1415	1420
Temperature	(°C)	10.93	10.43	9.85	10.10	10.79	11.10	11.18
pH		6.89	6.88	6.90	6.88	6.88	6.86	6.85
Conductivity	(ms/cm)	0.245	0.242	0.231	0.237	0.242	0.244	0.244
DO	(mg/L)	2.01	2.04	2.28	2.39	2.19	2.08	1.98
Turbidity	(NTUs)	345	379	343	180	162	158	149
Salinity	(ppth)	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Eh	(mV)	-20.7	-22.5	-22.3	-21.5	-22.2	-21.6	-20.2
Water Level	(ft from TOR)	11.06	11.06	11.08	11.08	11.08	11.08	11.08
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Notes: Collected sample at 1425

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-47S Personnel: S. Cackowski Start Time: 1240 Finish Time: 1500

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.42			___ Press. Transducer
Casing/Well Difference (ft): 0.31			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 14 (ft) Depth to Pump Intake: 12.5 (ft)

Depth to Top of Water: 8.94 (ft) Depth of Screened Interval: 4-14 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 281.6 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-47S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-47S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-47S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-47S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-47S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-47S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-47S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-47S Personnel: S. Cackowski Start Time: 1240 Finish Time: 1500

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	5.25	6.5	7.75	9	10.25	11.50
Time		1305	1315	1320	1325	1330	1335	1340
Temperature	(°C)	12.53	12.44	12.45	12.57	12.61	12.66	12.67
pH		6.45	6.50	6.48	6.48	6.50	6.50	6.50
Conductivity	(ms/cm)	0.634	0.633	0.633	0.638	0.643	0.642	0.641
DO	(mg/L)	8.22	7.41	6.70	5.74	4.97	4.58	4.35
Turbidity	(NTUs)	2.75	2.10	2.18	2.00	6.10	5.14	4.34
Salinity	(ppth)	0.41	0.41	0.41	0.41	0.42	0.42	0.41
Eh	(mV)	112.0	111.4	110.7	108.7	107.4	107.4	106.8
Water Level	(ft from TOR)	8.95	9.02	9.02	9.02	9.02	9.02	9.02
Flow Rate	(mL/min.)	250	250	250	250	250	250	250

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		12.75	14					
Time		1345	1350					
Temperature	(°C)	12.65	12.65					
pH		6.51	6.52					
Conductivity	(ms/cm)	0.637	0.634					
DO	(mg/L)	4.16	4.05					
Turbidity	(NTUs)	3.24	2.33					
Salinity	(ppth)	0.41	0.41					
Eh	(mV)	106.0	105.2					
Water Level	(ft from TOR)	9.02	9.02					
Flow Rate	(mL/min.)	250	250					

Notes: Collected sample at 1355

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-47D Personnel: B. Andersen/R. Clark Start Time: 1300 Finish Time: 1620

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.63			___ Press. Transducer
Casing/Well Difference (ft): 0.33			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 36.3 (ft) Depth to Pump Intake: 32 (ft)

Depth to Top of Water: 9.16 (ft) Depth of Screened Interval: 26.3-36.3 (ft)

Field Hach Kit Data

Concentration of Fe: 4.74 Mg/L

Concentration of CO: 45 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-47D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-47D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-47D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-47D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-47D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-47D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-47D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-47D Personnel: B. Andersen Start Time: 1300 Finish Time: 1620

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3	4	5	6	7	8	9
Time		1317	1322	1327	1332	1337	1345	1350
Temperature	(°C)	10.81	10.38	9.87	9.80	9.72	11.11	11.05
pH		6.60	6.69	6.68	6.64	6.63	6.65	6.64
Conductivity	(ms/cm)	0.300	0.298	0.297	0.297	0.297	0.295	0.296
DO	(mg/L)	2.56	2.27	2.04	1.96	1.83	1.07	0.81
Turbidity	(NTUs)	59	59	69	70	95	103	89
Salinity	(ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Eh	(mV)	-34	-34	-33	-33	-32	-33	-36
Water Level	(ft from TOR)	9.26	9.26	9.26	9.25	9.25	9.30	9.27
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		10	11	12	13	14	15	16
Time		1355	1400	1405	1410	1415	1420	1425
Temperature	(°C)	10.95	10.84	10.75	10.84	10.94	10.94	10.96
pH		6.65	6.66	6.68	6.66	6.66	6.66	6.67
Conductivity	(ms/cm)	0.296	0.295	0.296	0.296	0.295	0.295	0.295
DO	(mg/L)	0.69	0.57	0.46	0.39	0.32	0.28	0.27
Turbidity	(NTUs)	89	61	54	50	46	33	27
Salinity	(ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Eh	(mV)	-37	-39	-40	-42	-44	-45	-47
Water Level	(ft from TOR)	9.27	9.30	9.30	9.33	9.35	9.35	9.35
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes: Empty flow cell at 1337

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/02/02

Well ID: MW16-47D Personnel: B. Andersen/R. Clark Start Time: 1300 Finish Time: 1620

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	17	18	19	20	21	22	23
Time	1430	1435	1440	1445	1450	1455	1500
Temperature (°C)	10.87	10.81	10.90	10.94	10.88	10.79	10.81
pH	6.67	6.66	6.66	6.67	6.68	6.68	6.68
Conductivity (ms/cm)	0.295	0.296	0.296	0.296	0.296	0.295	0.296
DO (mg/L)	0.26	0.23	0.23	0.22	0.22	0.21	0.22
Turbidity (NTUs)	20	20	17	17	14	14	11.5
Salinity (ppth)	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Eh (mV)	-48	-48	-48	-49	-49	-49.3	-49.6
Water Level (ft from TOR)	9.35	9.35	9.35	9.35	9.35	9.35	9.35
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	24	25	26				
Time	1505	1510	1515				
Temperature (°C)	10.75	10.68	10.67				
pH	6.67	6.67	6.67				
onductivity (ms/cm)	0.296	0.296	0.295				
DO (mg/L)	0.21	0.33	0.33				
Turbidity (NTUs)	11.5	10.05	9.63				
Salinity (ppth)	0.14	0.14	0.14				
Eh (mV)	-50.0	-49.6	-48.9				
Water Level (ft from TOR)	9.35	9.35	9.35				
Flow Rate (mL/min.)	200	200	200				

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
ow Rate (mL/min.)							

Notes: Collected sample at 1520

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-48S Personnel: B. Anderson Start Time: 0815 Finish Time: 1105

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	___ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0.00			___ Press. Transducer
Casing/Well Difference (ft): -0.29			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 14 (ft) Depth to Pump Intake: 9 (ft)

Depth to Top of Water: 4.59 (ft) Depth of Screened Interval: 4-14 (ft)

Field Hach Kit Data

Concentration of Fe: 31.35 Mg/L

Concentration of CO: 22 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-48S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-48S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-48S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-48S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-48S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-48S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-48S	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16- Personnel: B. Anderson Start Time: 0815 Finish Time: 1105

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See _____ calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	1.5	2.0	2.5	3.0	3.5	4.0	4.5
Time	0845	0850	0855	0900	0905	0910	0915
Temperature (°C)	10.17	12.27	12.57	12.66	12.85	12.87	12.78
pH	6.26	6.32	6.34	6.35	6.35	6.35	6.36
Conductivity (ms/cm)	0.269	0.289	0.294	0.299	0.304	0.302	0.303
DO (mg/L)	3.82	0.53	0.13	0.11	0.06	0.08	0.08
Turbidity (NTUs)	329	88.8	59.6	33.8	304	100.7	121
Salinity (ppth)	0.13	0.14	0.14	0.14	0.15	0.15	0.15
Eh (mV)	-6.9	-39.6	-44.1	-48.5	-50.4	-51.9	-53.1
Water Level (ft from TOR)	5.05	5.40	5.48	5.50	5.50	5.50	5.50
Flow Rate (mL/min.)	100	100	100	100	100	100	100

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	5.6	5.5	6.0	6.5			
Time	0920	0925	0930	0935			
Temperature (°C)	12.76	12.71	12.66	12.62			
pH	6.36	6.36	6.36	6.36			
Conductivity (ms/cm)	0.304	0.304	0.302	0.301			
DO (mg/L)	0.06	0.07	0.07	0.08			
Turbidity (NTUs)	59.3	33.8	23.7	31.2			
Salinity (ppth)	0.15	0.15	0.14	0.14			
Eh (mV)	-53.9	-54.1	-53.8	-54.0			
Water Level (ft from TOR)	5.50	5.50	5.50	5.50			
Flow Rate (mL/min.)	100	100	100	100			

Notes: Collected sample at 0945.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-48I Personnel: S. Cackowski Start Time: 0815 Finish Time: 1150

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): grade			___ Press. Transducer
Casing/Well Difference (ft): 0.31			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 32 (ft) Depth to Pump Intake: 27 (ft)

Depth to Top of Water: 3.76 (ft) Depth of Screened Interval: 22-32 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 80.4 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-48I	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-48I	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-48I	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-48I	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-48I	< 4°C
Hydrogen sulfide		1 liter poly	MW16-48I	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-48I	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-48I MW16-Dup 04	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-48I MW16-Dup 04	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-48I MW16-Dup 04	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-48I MW16-Dup 04	HNO_3 < 4°C
Dissolved TAL Inorganics 5A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-48I MW16-Dup 04	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-48I Personnel: S. Cackowski Start Time: 0815 Finish Time: 1150

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		2	2.5	3	3.5	4	4.5	5
Time		0850	0855	0900	0905	0910	0915	0920
Temperature	(°C)	11.31	11.21	11.20	11.31	11.40	11.41	11.38
pH		5.94	5.10	5.86	5.91	5.94	5.95	5.97
Conductivity	(ms/cm)	0.204	0.202	0.208	0.212	0.212	0.212	0.212
DO	(mg/L)	17.64	4.96	2.84	2.24	1.88	1.79	1.68
Turbidity	(NTUs)	27	18	8.8	3.9	2.6	2.1	1.8
Salinity	(ppth)	0.13	0.13	0.14	0.14	0.14	0.14	0.14
Eh	(mV)	203.1	190.7	180.0	173.5	169.3	167.4	165.3
Water Level	(ft from TOR)	3.79	3.79	3.79	3.79	3.79	3.79	3.79
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.5						
Time		0925						
Temperature	(°C)	11.45						
pH		5.97						
Conductivity	(ms/cm)	0.212						
DO	(mg/L)	1.64						
Turbidity	(NTUs)	1.2						
Salinity	(ppth)	0.14						
Eh	(mV)	163.6						
Water Level	(ft from TOR)	3.79						
Flow Rate	(mL/min.)	100						

Notes: One bolt bent on road box cover.

MS16-Dup 04 collected on additional parameters only.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-48D Personnel: J. Nafus Start Time: 0840 Finish Time: 1104

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0.00			___ Press. Transducer
Casing/Well Difference (ft): -0.34			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 53.4 (ft) Depth to Pump Intake: 40.5 (ft)

Depth to Top of Water: 4.21 (ft) Depth of Screened Interval: 35.4-45.4 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 Mg/L

Concentration of CO: 66 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-48D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-48D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-48D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-48D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-48D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-48D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-48D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-48D Personnel: J. Nafus Start Time: 0840 Finish Time: 1104

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1.0	1.5	2.0	2.5	3.0
Time		0840	0845	0850	0855	0900	0905	0910
Temperature	(°C)	9.37	9.39	9.44	8.99	8.65	9.17	9.84
pH		6.16	6.12	6.11	6.08	6.04	6.05	6.03
Conductivity	(ms/cm)	0.142	0.142	0.141	0.135	0.132	0.134	0.136
DO	(mg/L)	6.21	5.80	5.69	5.32	4.35	3.03	2.44
Turbidity	(NTUs)	73	69	55	50	18	15	10
Salinity	(ppth)	0.10	0.10	0.09	0.09	0.09	0.09	0.09
Eh	(mV)	159.2	160.0	160.8	163.6	167.6	173.0	176.7
Water Level	(ft from TOR)	4.21	4.21	4.21	4.21	4.21	4.21	4.21
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.5	4.0	4.5	5.0	5.5	6.0	6.5
Time		0915	0920	0925	0930	0935	0940	0945
Temperature	(°C)	10.03	10.18	10.32	10.30	10.41	10.44	10.49
pH		6.03	6.03	6.03	6.03	6.03	6.03	6.03
Conductivity	(ms/cm)	0.137	0.137	0.138	0.138	0.139	0.139	0.139
DO	(mg/L)	2.28	2.16	2.02	1.96	1.91	1.90	1.86
Turbidity	(NTUs)	7.6	7.4	6.2	5.4	5.2	3.4	3.5
Salinity	(ppth)	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Eh	(mV)	178.2	180.2	182.6	185.4	187.3	188.3	189.9
Water Level	(ft from TOR)	4.21	4.21	4.21	4.21	4.21	4.21	4.21
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Notes: Collected sample at 0955.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-49D Personnel: R. Haras Start Time: 0800 Finish Time: 1050

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red/green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
√	√ Yes ___ No	Well Diameter:	___ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): grade			___ Press. Transducer
Casing/Well Difference (ft): 0.57			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 76 (ft) Depth to Pump Intake: 70.5 (ft)

Depth to Top of Water: 8.82 (ft) Depth of Screened Interval: 62-76 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 90.8 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-49D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-49D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-49D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-49D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-49D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-49D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-49D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-49D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-49D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-49D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-49D	HNO_3 < 4°C
Dissolved TAL Inorganics 5A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-49D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-49D Personnel: R. Haras Start Time: 0800 Finish Time: 1050

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.5	1	1.5	2	2.5	3
Time		0825	0830	0835	0840	0845	0850	0855
Temperature	(°C)	11.97	12.62	12.18	11.94	11.60	12.0	8.99
pH		7.78	7.72	7.66	7.60	7.60	7.60	7.55
Conductivity	(ms/cm)	0.257	0.253	0.253	0.249	0.253	0.250	0.253
DO	(mg/L)	31.13	2.46	1.40	1.64	1.65	1.36	1.19
Turbidity	(NTUs)	25.2	6.93	7.42	4.09	4.60	7.15	5.61
Salinity	(ppth)	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Eh	(mV)	165.2	159.6	147.0	135	131	120.5	96.9
Water Level	(ft from TOR)	9.06	9.06	9.06	9.06	9.06	9.06	9.06
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.5	4	4.5				
Time		0900	0905	0910				
Temperature	(°C)	9.64	9.91	9.94				
pH		7.58	7.58	7.58				
Conductivity	(ms/cm)	0.248	0.248	0.248				
DO	(mg/L)	1.02	0.99	0.98				
Turbidity	(NTUs)	9.9	100	10.2				
Salinity	(ppth)	0.12	0.12	9.12				
Eh	(mV)	87.6	85.8	87.4				
Water Level	(ft from TOR)	9.00	9.00	9.00				
Flow Rate	(mL/min.)	100	100	100				

N tes: Collected sample at 0927

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-50D Personnel: B. Andersen Start Time: 0800 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	___ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.2			___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 88 (ft) Depth to Pump Intake: 86.5 (ft)

Depth to Top of Water: 10.40 (ft) Depth of Screened Interval: 78-88 (ft)

Field Hach Kit Data

Concentration of Fe: 2.57 Mg/L

Concentration of CO: 252 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-50D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-50D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-50D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-50D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-50D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-50D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-50D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-50D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-50D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-50D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-50D	HNO_3 < 4°C
[illegible]ssolved TAL Inorganics [illegible]05A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-50D	HNO_3 < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-50D Personnel: B. Andersen Start Time: 0800 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1.5	2.0	2.5	3.0	3.5	4.0	4.5
Time		0825	0830	0835	0840	0845	0850	0855
Temperature	(°C)	13.90	12.03	11.79	11.31	10.70	10.90	10.93
pH		6.95	7.07	7.09	7.10	7.12	7.13	7.13
Conductivity	(ms/cm)	30.86	33.57	34.15	34.23	34.08	33.86	33.83
DO	(mg/L)	0.89	0.45	0.28	0.20	0.16	0.12	0.12
Turbidity	(NTUs)	125	127	102.8	73.4	59.7	36.9	30.20
Salinity	(ppth)	19.29	21.06	21.41	21.46	21.34	21.15	21.16
Eh	(mV)	19.1	-35.8	-43.0	-46.3	-49.7	-55.0	-56.3
Water Level	(ft from TOR)	10.55	10.53	10.50	10.50	10.48	10.48	10.48
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		5.0	5.5	6.0	6.5	7.0	7.5	8.0
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	11.16	10.95	10.98	10.75	10.67	10.60	10.61
pH		7.13	7.13	7.14	7.15	7.15	7.16	7.15
Conductivity	(ms/cm)	33.88	33.80	33.87	33.78	33.68	33.76	33.73
DO	(mg/L)	0.10	0.10	0.09	0.08	0.07	0.06	0.06
Turbidity	(NTUs)	24.90	23.2	18.9	17.1	13.4	11.4	10.70
Salinity	(ppth)	21.19	21.23	21.13	21.09	21.12	21.09	21.09
Eh	(mV)	-56.8	-57.5	-61.4	-63.8	-64.7	-65.0	-66.8
Water Level	(ft from TOR)	10.48	10.48	10.48	10.48	10.48	10.48	10.48
Flow Rate	(mL/min.)	100	100	100	100	100	100	100

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/19/02

Well ID: MW16-50D Personnel: B. Andersen Start Time: 0800 Finish Time: 1100

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	8.5	9.0	9.5	10.0			
Time	0935	0940	0945	0950			
Temperature (°C)	10.49	10.49	10.36	10.38			
pH	7.16	7.16	7.16	7.16			
Conductivity (ms/cm)	33.78	33.78	33.86	33.83			
DO (mg/L)	0.06	0.05	0.05	0.05			
Turbidity (NTUs)	8.54	8.59	8.62	8.60			
Salinity (ppth)	21.13	21.12	21.22	21.18			
Eh (mV)	-67.8	-68.4	-68.5	-68.9			
Water Level (ft from TOR)	10.48	10.48	10.48	10.48			
Flow Rate (mL/min.)	100	100	100	100			

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes: Collected sample at 0955

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-51D Personnel: S. Cackowski Start Time: 1240 Finish Time: 1445

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See white calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.74			___ Press. Transducer
Casing/Well Difference (ft): 2.49			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 83.7 (ft) Depth to Pump Intake: 70.5 (ft)

Depth to Top of Water: 13.27 (ft) Depth of Screened Interval: 65.5-75.5 (ft)

Field Hach Kit Data

Concentration of Fe: 4.10 Mg/L

Concentration of CO: 141.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-51D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-51D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-51D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-51D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-51D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-51D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-51D	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-51D Personnel: S. Cackowski Start Time: 1240 Finish Time: 1445

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See white calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4	5	6	7	8	9	
Time		1315	1320	1325	1330	1335	1340	
Temperature	(°C)	11.15	11.66	11.37	11.69	11.37	11.28	
pH		7.17	7.22	7.30	7.29	7.34	7.32	
Conductivity	(ms/cm)	6.171	6.428	6.441	6.577	6.563	6.531	
DO	(mg/L)	0.96	0.77	0.64	0.53	0.55	0.51	
Turbidity	(NTUs)	14	6.8	4.1	3.6	3.1	3.5	
Salinity	(ppth)	4.68	4.84	4.89	4.94	4.98	4.98	
Eh	(mV)	-28.8	-36.4	-38.7	-41.1	-43.0	-44.3	
Water Level	(ft from TOR)	13.55	13.40	13.40	13.40	13.40	13.40	
Flow Rate	(mL/min.)	200	200	200	200	200	200	

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters								
Time								
Temperature	(°C)							
pH								
Conductivity	(ms/cm)							
DO	(mg/L)							
Turbidity	(NTUs)							
Salinity	(ppth)							
Eh	(mV)							
Water Level	(ft from TOR)							
Flow Rate	(mL/min.)							

Notes: Sample collected at 1355.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-51R Personnel: B. Anderson Start Time: 1240 Finish Time: 1600

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.85			___ Press. Transducer
Casing/Well Difference (ft): 2.04			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 103.5 (ft) Depth to Pump Intake: 81.5 (ft)

Depth to Top of Water: 13.25 (ft) Depth of Screened Interval: 78.5-103.5 (ft)

Field Hach Kit Data

Concentration of Fe: 34.8 Mg/L

Concentration of CO: 242 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-51R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-51R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-51R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-51R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-51R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-51R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-51R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/9/02

Well ID: MW16-51R Personnel: B. Anderson Start Time: 1240 Finish Time: 1600

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1.0	1.5	2.0	2.5	3.0	3.5
Time		1305	1310	1315	1320	1325	1330	1335
Temperature	(°C)	7.73	11.37	12.52	9.18	7.44	7.22	6.93
pH		4.84	5.77	6.70	6.80	6.86	6.92	6.87
Conductivity	(ms/cm)	24.91	25.07	26.67	27.52	27.14	27.19	27.12
DO	(mg/L)	2.70	1.78	0.65	0.78	0.77	0.71	0.65
Turbidity	(NTUs)	47.90	41.10	24.2	21.2	23.6	21.9	21.4
Salinity	(ppth)	15.11	15.28	16.42	16.84	16.53	16.56	16.49
Eh	(mV)	127.3	12.6	-130.4	-122.7	-119.4	-120.4	-120.1
Water Level	(ft from TOR)	13.54	13.95	14.20	14.35	14.21	14.23	14.25
Flow Rate	(mL/min.)	200	200	100	100	100	100	100

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		4.0						
Time		1340						
Temperature	(°C)	6.95						
pH		6.87						
Conductivity	(ms/cm)	27.14						
DO	(mg/L)	0.60						
Turbidity	(NTUs)	21.4						
Salinity	(ppth)	16.52						
Eh	(mV)	-114.0						
Water Level	(ft from TOR)	14.23						
Flow Rate	(mL/min.)	100						

Notes: Collected sample at 1355.

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-52D Personnel: C. Springer Start Time: 1430 Finish Time: 1610

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red/green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0.00			___ Press. Transducer
Casing/Well Difference (ft): -0.24			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 84 (ft) Depth to Pump Intake: 63 (ft)

Depth to Top of Water: 10.49 (ft) Depth of Screened Interval: 60-74 (ft)

Field Hach Kit Data

Concentration of Fe: 2.60 Mg/L

Concentration of CO: 200 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-52D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-52D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-52D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-52D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-52D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-52D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-52D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-52D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-52D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-52D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-52D	HNO_3 < 4°C
Dissolved TAL Inorganics 5A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-52D	HNO_3 < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-52D Personnel: C. Springer Start Time: 1430 Finish Time: 1610

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	0	1	2	3	4	5	6
Time	1430	1435	1440	1445	1450	1455	1500
Temperature (°C)	12.45	14.00	14.08	14.13	14.10	14.13	14.18
pH	6.45	6.61	6.66	6.69	6.72	6.76	6.77
Conductivity (ms/cm)	2.232	7.678	7.932	8.235	8.553	8.689	8.715
DO (mg/L)	3.80	0.94	0.52	0.24	0.12	0.05	0.04
Turbidity (NTUs)	9.6	18	13	14	9.5	6.6	5.5
Salinity (ppth)	1.44	4.30	4.43	4.61	4.80	4.80	4.89
Eh (mV)	273.2	34.0	12.2	-7.5	-17.4	-24.8	-27.6
Water Level (ft from TOR)	10.49	10.51	10.51	10.50	10.50	10.50	10.50
Flow Rate (mL/min.)	200	200	200	200	200	200	200

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters	7	8					
Time	1505	1510					
Temperature (°C)	13.89	13.98					
pH	6.76	6.77					
Conductivity (ms/cm)	8.744	8.762					
DO (mg/L)	0.03	0.02					
Turbidity (NTUs)	5.3	5.2					
Salinity (ppth)	4.91	4.99					
Eh (mV)	-30.3	-31.5					
Water Level (ft from TOR)	10.50	10.50					
Flow Rate (mL/min.)	200	200					

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-52R Personnel: V. Deleone Start Time: 1330 Finish Time: 1600

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See green calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: Flush mount			___ Interface Probe
Protective Casing Stick Up (ft): 0.00			___ Press. Transducer
Casing/Well Difference (ft): -0.33			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 118 (ft) Depth to Pump Intake: 112 (ft)

Depth to Top of Water: 10.90 (ft) Depth of Screened Interval: 93-118 (ft)

Field Hach Kit Data

Concentration of Fe: Overscale with dilution Mg/L

Concentration of CO: 108 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-52R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-52R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-52R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-52R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-52R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-52R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-52R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/11/02

Well ID: MW16-52R Personnel: V.Deleone Start Time: 1330 Finish Time: 1600

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1.25	2.0	2.4	2.75	3.0	3.4
Time		1415	1420	1425	1430	1435	1440	1445
Temperature	(°C)	14.29	13.65	12.70	11.26	10.57	9.76	9.69
pH		5.54	5.97	6.14	6.22	6.25	6.27	6.25
Conductivity	(ms/cm)	29.56	36.97	38.01	38.00	38.05	38.69	38.08
DO	(mg/L)	4.90	4.66	3.89	3.57	3.19	2.97	2.95
Turbidity	(NTUs)	84.2	112	66.1	35.2	26.9	23.2	20.1
Salinity	(ppth)	19.8	23.48	24.24	24.07	24.09	24.08	24.07
Eh	(mV)	-51.0	-75.6	-85.5	-91.5	-97.9	-164.6	-105.1
Water Level	(ft from TOR)	11.31	11.40	11.46	11.48	11.49	11.50	11.50
Flow Rate	(mL/min.)	250	150	75	75	75	75	75

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		3.8	4.15	4.5	4.9	5.3		
Time		1450	1455	1500	1505	1510		
Temperature	(°C)	9.56	9.30	9.10	9.04	9.03		
pH		6.28	6.28	6.28	6.29	6.29		
Conductivity	(ms/cm)	38.09	38.11	38.11	38.08	38.03		
DO	(mg/L)	2.89	2.83	2.77	2.76	2.76		
Turbidity	(NTUs)	18.3	16.1	13.1	12.9	12.8		
Salinity	(ppth)	24.07	24.07	24.06	24.04	24.04		
Eh	(mV)	-106.5	-109.5	-127.6	-118.3	-118.4		
Water Level	(ft from TOR)	11.50	11.50	11.50	11.50	11.50		
Flow Rate	(mL/min.)	75	75	75	75	75		

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-53S Personnel: C. Springer Start Time: 0900 Finish Time: 1100

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See blue calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.30			___ Press. Transducer
Casing/Well Difference (ft): 1.97			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 18 (ft) Depth to Pump Intake: 12 (ft)

Depth to Top of Water: 8.76 (ft) Depth of Screened Interval: 4-14 (ft)

Field Hach Kit Data

Concentration of Fe: 13.16 Mg/L

Concentration of CO: 22.3 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-53S	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-53S	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-53S	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-53S	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-53S	< 4°C
Hydrogen sulfide		1 liter poly	MW16-53S	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-53S	HCL, < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/6/02

Well ID: MW16-53S Personnel: C. Springer Start Time: 0900 Finish Time: 1100

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See blue calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	1	2	3	4	5	6
Time		0900	0905	0910	0915	0920	0925	0930
Temperature	(°C)	7.77	7.94	8.21	8.47	8.63	8.83	8.76
pH		6.29	6.17	6.20	6.22	6.22	6.22	6.22
Conductivity	(ms/cm)	0.111	0.119	0.122	0.127	0.127	0.128	0.128
DO	(mg/L)	0.14	4.65	4.01	3.26	2.37	1.47	1.13
Turbidity	(NTUs)	512	183	100	65	27.1	13.8	9.97
Salinity	(ppth)	0.08	0.08	0.09	0.09	0.09	0.09	0.09
Eh	(mV)	112.0	97.8	82.1	62.3	48.8	34.5	21.2
Water Level	(ft from TOR)	8.76	8.76	8.76	8.76	8.76	8.76	8.76
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7	8	9	10	11		
Time		0935	0940	0945	0950	0955		
Temperature	(°C)	8.47	8.43	8.31	8.17	8.09		
pH		6.21	6.21	6.21	6.22	6.22		
Conductivity	(ms/cm)	0.127	0.127	0.127	0.127	0.127		
DO	(mg/L)	0.89	0.79	0.74	0.71	0.72		
Turbidity	(NTUs)	7.31	7.03	6.36	6.29	6.19		
Salinity	(ppth)	0.09	0.09	0.09	0.09	0.09		
Eh	(mV)	16.9	15.8	14.3	12.7	11.4		
Water Level	(ft from TOR)	8.76	8.76	8.76	8.76	8.76		
Flow Rate	(mL/min.)	200	200	200	200	200		

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-54D Personnel: R. Clark/B. Andersen Start Time: 0830 Finish Time: 1215

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

W ll Data/ Integrity

Well Locked	___ Yes √ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): flush			___ Press. Transducer
Casing/Well Difference (ft): 0.23			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 74 (ft) Depth to Pump Intake: 72.5 (ft)

Depth to Top of Water: 12.57 (ft) Depth of Screened Interval: 64-74 (ft)

Field Hach Kit Data

Concentration of Fe: 0.0 (filtered) Mg/L

Concentration of CO: too silty to test Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-54D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-54D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-54D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-54D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-54D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-54D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-54D	HCL, < 4°C
TCL SVOC (3510C / 3520C / 8270C)		2@ 1 liter amber	MW16-54D	< 4°C
TCL PAH (3510C / 3520C / 8310)		2@ 1 liter amber	MW16-54D	< 4°C
TCL Pesticides + PCB		2@ 1 liter amber	MW16-54D	< 4°C
Total TAL Inorganics 3005A / 3020A / 6010B / 7000)		1 liter poly	MW16-54D	HNO_3 < 4°C
Dissolved TAL Inorganics 05A / 3020A / 6010B / 7000)	√	1 liter poly	MW16-54D	HNO_3 < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/17/02

Well ID: MW16-54D Personnel: B. Andersen/R. Clark Start Time: 0830 Finish Time: 1215

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.25	1	2	3	4	5	5.5
Time		0841	0846	0851	0856	0901	0906	0911
Temperature	(°C)	11.80	12.79	10.75	10.89	10.44	11.05	10.42
pH		11.49	11.60	11.54	11.39	11.25	11.16	11.07
Conductivity	(ms/cm)	0.749	0.745	0.633	0.523	0.445	0.417	0.390
DO	(mg/L)	0.65	0.16	0.10	0.47	0.06	0.05	0.07
Turbidity	(NTUs)	>999	>999	>999	>999	>999	>999	>999
Salinity	(ppth)	0.38	0.36	0.31	0.25	0.21	0.20	0.19
Eh	(mV)	84.9	29.4	1.3	-11.6	-25.7	-34.5	-42.5
Water Level	(ft from TOR)	12.75	12.79	12.65	12.66	12.66	12.66	12.66
Flow Rate	(mL/min.)	200	175	175	175	150	150	150

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		6	7	8	9	10	11	
Time		0916	0921	0926	0934	0940	0946	
Temperature	(°C)	10.54	10.27	10.31	10.29	10.74	7.99	
pH		10.97	10.87	10.66	10.50	10.37	10.36	
Conductivity	(ms/cm)	0.366	0.342	0.315	0.291	0.277	0.272	
DO	(mg/L)	0.07	0.08	0.21	0.10	0.09	0.17	
Turbidity	(NTUs)	>999	>999	>999	>999	>999	>999	
Salinity	(ppth)	0.18	0.16	0.15	0.14	0.13	0.13	
Eh	(mV)	-49.6	-56.0	-59.1	-67.0	-72.1	-77.3	
Water Level	(ft from TOR)	12.66	12.66	12.66	12.65	12.61	12.63	
Flow Rate	(mL/min.)	150	150	150	150	150	150	

Notes: Purge water is silty, dark gray

Collected sample at 1000

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55D Personnel: R. Wasserman Start Time: 1215 Finish Time: 1545

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See red calibration log

Ambient Air Reading: 0.0 ppm Well Headspace Reading: 0.0 ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	√ PVC/ ___ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	√ 2-in. / ___ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.61			___ Press. Transducer
Casing/Well Difference (ft): 0.32			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 115 (ft) Depth to Pump Intake: 92 (ft)

Depth to Top of Water: 28.05 (ft) Depth of Screened Interval: 90-115 (ft)

Field Hach Kit Data

Concentration of Fe: 0.14 Mg/L

Concentration of CO: 0.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-55D	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-55D	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-55D	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-55D	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-55D	< 4°C
Hydrogen sulfide		1 liter poly	MW16-55D	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-55D	HCL, < 4°C

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55D Personnel: R. Wasserman Start Time: 1215 Finish Time: 1545

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0.5	1.75	2.75	3.75	4.75	5.75	6.75
Time		1250	1255	1300	1305	1310	1315	1320
Temperature	(°C)	9.62	11.14	11.47	11.16	15.33	9.42	8.43
pH		7.46	7.56	7.66	7.73	7.83	7.89	7.94
Conductivity	(ms/cm)	0.207	0.195	0.191	0.179	0.166	0.157	0.150
DO	(mg/L)	4.22	2.08	1.30	1.39	1.28	1.30	1.25
Turbidity	(NTUs)	81.3	1.45	6.24	221	290	471	566
Salinity	(ppth)	0.14	0.13	0.12	0.12	0.11	0.11	0.10
Eh	(mV)	177.5	150.2	111.70	62.3	30.3	13.4	0.8
Water Level	(ft from TOR)	28.40	28.46	28.52	28.45	28.23	28.19	28.19
Flow Rate	(mL/min.)	250	250	200	200	200	200	200

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		7.75	9.75	10.75	11.75	12.75	13.75	14.75
Time		1325	1335	1340	1345	1350	1355	1400
Temperature	(°C)	8.57	8.40	8.26	8.20	8.16	8.01	7.87
pH		7.99	8.03	8.04	8.04	8.05	8.06	8.07
Conductivity	(ms/cm)	0.148	0.148	0.148	0.148	0.148	0.148	0.148
DO	(mg/L)	1.16	1.13	1.02	1.09	1.11	1.01	1.00
Turbidity	(NTUs)	78.4	274	37.9	29.7	140	122	104.3
Salinity	(ppth)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Eh	(mV)	-10.3	-18.7	-20.8	-23.1	-25.3	-29.2	-32.0
Water Level	(ft from TOR)	28.18	28.18	28.18	28.19	28.18	28.18	28.18
Flow Rate	(mL/min.)	200	200	200	200	200	200	200

Notes: Collected sample at 1420

Ground Water Fi ld Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55D Personnel: R. Wasserman Start Time: 1215 Finish Time: 1545

Parameter (units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters	15.75	16.75	17.75				
Time	1405	1410	1415				
Temperature (°C)	7.80	7.72	7.69				
pH	8.08	8.08	8.08				
Conductivity (ms/cm)	0.148	0.148	0.148				
DO (mg/L)	1.08	1.13	1.12				
Turbidity (NTUs)	92.3	84.5	85.3				
Salinity (ppth)	0.11	0.11	0.11				
Eh (mV)	-33.5	-33.1	-34.3				
Water Level (ft from TOR)	28.17	28.17	28.17				
Flow Rate (mL/min.)	200	200	200				

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Parameter (units)	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters							
Time							
Temperature (°C)							
pH							
Conductivity (ms/cm)							
DO (mg/L)							
Turbidity (NTUs)							
Salinity (ppth)							
Eh (mV)							
Water Level (ft from TOR)							
Flow Rate (mL/min.)							

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55R Personnel: R. Haras Start Time: 1230 Finish Time: 1600

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See calibration log

Ambient Air Reading: _____ ppm Well Headspace Reading: _____ ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ √ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.24			___ Press. Transducer
Casing/Well Difference (ft): 0.38			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 133 (ft) Depth to Pump Intake: 121.5 (ft)

Depth to Top of Water: 28.10 (ft) Depth of Screened Interval: 108-133 (ft)

Field Hach Kit Data

Concentration of Fe: 0.03 Mg/L

Concentration of CO: 92 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-55R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-55R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-55R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-55R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-55R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-55R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-55R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55R Personnel: R. Haras Start Time: 1230 Finish Time: 1600

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Paramet r (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.25	0.5	0.75	1	1.25	1.5
Time		1307	1316	1321	1326	1335	1340	1345
Temperature	(°C)	7.23	6.58	6.14	5.45	5.75	5.87	5.99
pH		10.93	11.03	11.03	11.05	11.06	11.06	11.07
Conductivity	(ms/cm)	0.254	0.247	0.244	0.244	0.243	0.244	0.247
DO	(mg/L)	24.29	14.97	12.58	10.97	9.24	8.44	7.44
Turbidity	(NTUs)	1.5	1.0	8.56	18.6	21.5	26.5	22.9
Salinity	(ppth)	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Eh	(mV)	221.4	215.9	204.4	193.9	186.5	182.5	178.9
Water Level	(ft from TOR)	28.39	28.39	28.39	28.45	28.51	28.56	28.61
Flow Rate	(mL/min.)	50	50	50	50	50	50	50

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1.75	2	2.25	2.5	2.75	3	
Time		1350	1355	1400	1405	1410	1417	
Temperature	(°C)	6.18	6.72	7.59	8.20	10.09	7.94	
pH		11.06	11.02	11.07	11.07	11.08	11.12	
Conductivity	(ms/cm)	0.249	0.255	0.256	0.255	0.254	0.258	
DO	(mg/L)	6.69	5.77	5.37	4.81	4.29	3.30	
Turbidity	(NTUs)	26.7	30.4	36.5	39.7	42.4	45.9	
Salinity	(ppth)	0.12	0.12	0.12	0.12	0.12	0.12	
Eh	(mV)	175.7	173.5	168.9	166.1	159.1	158.1	
Water Level	(ft from TOR)	28.67	28.73	28.82	28.90	29.04	29.07	
Flow Rate	(mL/min.)	50	50	50	50	50	50	

Notes:

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55R Personnel: R. Haras Start Time: 1230 Finish Time: 1517

Air Monitoring Equipment Used (Make/Model/Serial No.): Photovac 2020

Calibration Information: See calibration log

Ambient Air Reading: _____ ppm Well Headspace Reading: _____ ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ √ SS/Other ___
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: ___			___ Interface Probe
Protective Casing Stick Up (ft): 2.24			___ Press. Transducer
Casing/Well Difference (ft): 0.38			___ ___

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 133 (ft) Depth to Pump Intake: 121.5 (ft)

Depth to Top of Water: 28.10 (ft) Depth of Screened Interval: 108-133 (ft)

Field Hach Kit Data

Concentration of Fe: 0.03 Mg/L (12/17/02)

Concentration of CO: 92 Mg/L (12/17/02)

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-55R	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-55R	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-55R	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-55R	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-55R	< 4°C
Hydrogen sulfide		1 liter poly	MW16-55R	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-55R	HCL, < 4°C

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55R Personnel: R. Haras Start Time: 1230 Finish Time: 1517

Equipment Identify equipment used (i.e., pumps, bailers, tubing, filters, etc.)

P = Purge S = Sample		Equipment Used (serial number)	Decon Method
P	S	Solinst Water Level Indicator	Alconox, isopropyl, DI
P	S	YSI 600XL Water Quality Meter w/Flow-Through Cell	Alconox, isopropyl, DI
P	S	Geolog dedicated bladder pump and tubing, MP 10 control box, nitrogen tank	NA
P	S	Lamotte 2020 Turbidimeter or similar	NA
P	S	Hach Kit DR-700 or similar (dissolved ferrous iron)	DI
P	S	Hach Kit 8205 or similar (dissolved carbon dioxide)	DI

See red/green calibration log for equipment serial numbers and daily calibration information

Parameter (units)		Initial	Volume	Volume	Volume	Volume	Volume	Volume
Liters		0	0.45	0.7	0.95	1.2	1.45	1.7
Time		1307	1316	1321	1326	1335	1340	1345
Temperature	(°C)	7.23	6.58	6.14	5.45	5.75	5.87	5.99
pH		10.93	11.03	11.03	11.05	11.06	11.06	11.07
Conductivity	(ms/cm)	0.254	0.247	0.244	0.244	0.243	0.244	0.247
DO	(mg/L)	24.29	14.97	12.58	10.97	9.24	8.44	7.44
Turbidity	(NTUs)	1.5	1.0	8.56	18.6	21.5	26.5	22.9
Salinity	(ppth)	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Eh	(mV)	221.4	215.9	204.4	193.9	186.5	182.5	178.9
Water Level	(ft from TOR)	28.39	28.39	28.39	28.45	28.51	28.56	28.61
Flow Rate	(mL/min.)	50	50	50	50	50	50	50

Parameter (units)		Volume	Volume	Volume	Volume	Volume	Volume	Volume
Liters		1.95	2.2	2.45	2.7	2.95	3.2	---
Time		1350	1355	1400	1405	1410	1417	1517
Temperature	(°C)	6.18	6.72	7.59	8.20	10.09	7.94	---
pH		11.06	11.02	11.07	11.07	11.08	11.12	---
Conductivity	(ms/cm)	0.249	0.255	0.256	0.255	0.254	0.256	---
DO	(mg/L)	6.69	5.77	5.27	4.81	4.29	3.33	---
Turbidity	(NTUs)	26.7	30.4	36.5	39.7	42.4	45.9	---
Salinity	(ppth)	0.12	0.12	0.12	0.12	0.12	0.12	---
Eh	(mV)	175.7	173.5	168.9	166.1	159.1	158.8	---
Water Level	(ft from TOR)	28.67	28.73	28.82	28.90	29.04	29.07	34.40
Flow Rate	(mL/min.)	50	50	50	50	50	50	---

Notes: 1417 increased flow rate per task manager

Collected sample on 12/17/02 at 1445 (50 mL/minute)

Ground Water Field Sampling Form

Project Name: Site 16 Phase II RI Project No.: 29600.97 Task: 3202 Date: 12/16/02

Well ID: MW16-55R2 Personnel: S. Cackowski Start Time: 1215 Finish Time: 1605

Air Monitoring Equipment Used (Make/Model/Serial No.): _____

Calibration Information: _____

Ambient Air Reading: _____ ppm Well Headspace Reading: _____ ppm

Well Data/ Integrity

Well Locked	√ Yes ___ No	Well Material:	___ PVC/ √ SS/Other _____
Protective Casing Secure	√ Yes ___ No	Well Diameter:	___ 2-in. / √ 4-in./ ___ 6-in./ Other
Concrete Collar Intact	√ Yes ___ No	Water Level Equip. Used:	√ Elect. Cond. Probe
Other: _____			___ Interface Probe
Protective Casing Stick Up (ft): 1.98			___ Press. Transducer
Casing/Well Difference (ft): 0.38			___ _____

Water Level Data Measured from: Top of Riser

Depth to Bottom of Well: 158 (ft) Depth to Pump Intake: 146 (ft)

Depth to Top of Water: 27.2 (ft) Depth of Screened Interval: 133-158 (ft)

Field Hach Kit Data

Concentration of Fe: 0.00 Mg/L

Concentration of CO: 0.0 Mg/L

Analytical Parameter	Check if Field Filtered	Volume Required/ Sample Container	Sample ID	Preservation Method
TCL VOC (detection limit, <1 ug/L)(5030B / 8260B)		3@ 40 ml VOA	MW16-55R2	HCL, < 4°C
Alkalinity, Sulfate, Total Chloride, Nitrate, Nitrite, Salinity		1 liter poly	MW16-55R2	< 4°C
Dissolved iron, Dissolved manganese	√	1 liter poly	MW16-55R2	HNO_3< 4°C
Total ammonia		1 liter poly	MW16-55R2	H_2SO_4 < 4°C
Dissolved organic carbon, Dissolved inorganic carbon		500 ml poly	MW16-55R2	< 4°C
Hydrogen sulfide		1 liter poly	MW16-55R2	ZnAC / NaOH, < 4°C
Methane / Ethane / Ethene		3@ 40 ml VOA	MW16-55R2	HCL, < 4°C

Appendix J

PHASE II RI LABORATORY REPORTS

(LIMITED DISTRIBUTION SUBMITTED UNDER SEPARATE COVER BECAUSE OF LARGE SIZE)

Appendix K

PHASE I RI SAMPLE DATA VALIDATION REPORTS

(LIMITED DISTRIBUTION SUBMITTED UNDER SEPARATE COVER BECAUSE OF LARGE SIZE)