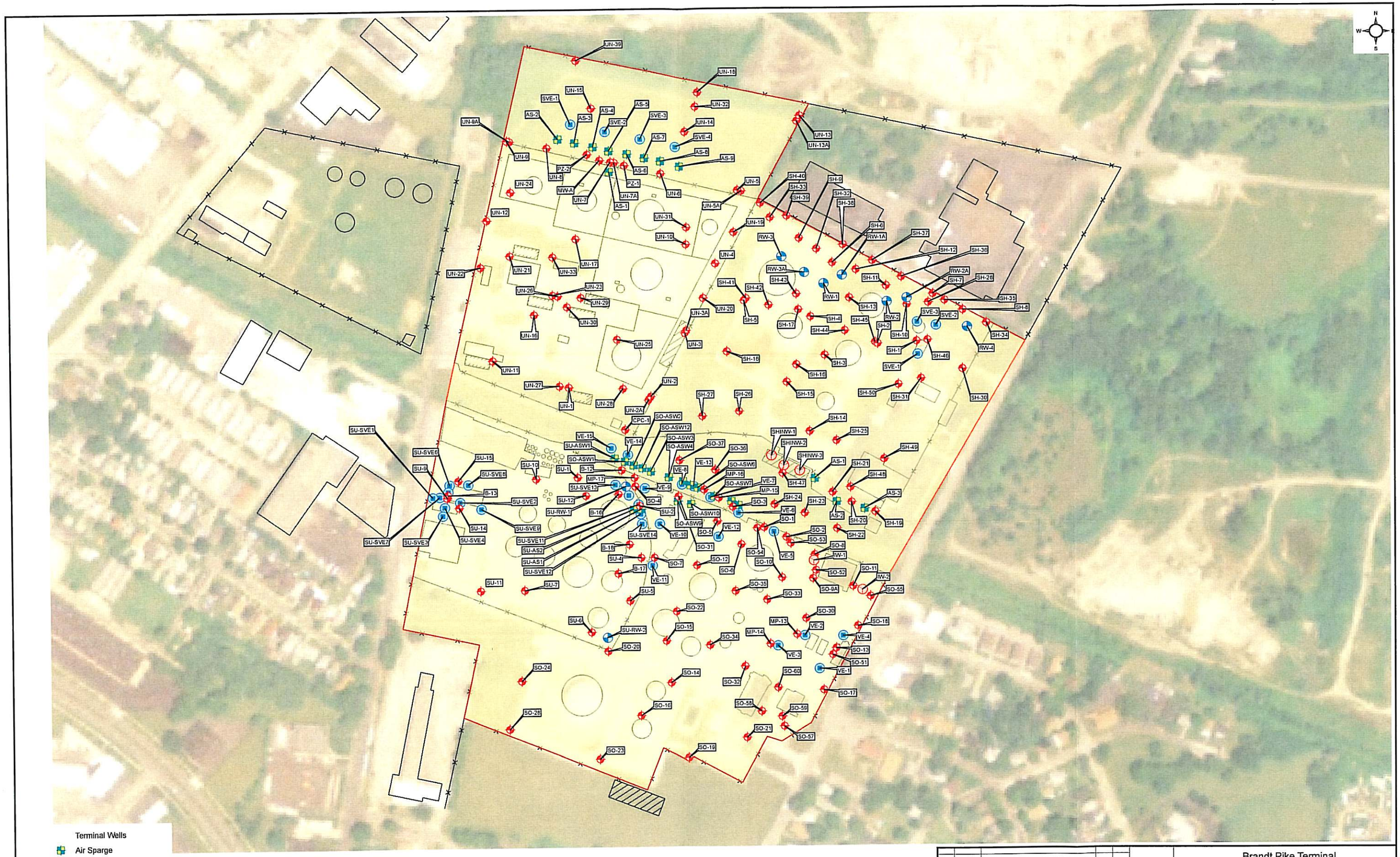


Rev.	Date	Description	By	Chk

DRAWN BY RMK | CADD Review DFG | CHECKED BY WC-CLE

Environmental Resources Management

ERM

Brandt Pike Terminal

Dayton, Ohio

Treminal Wells

SCALE As Noted | PROJECT NUMBER 0074201 | SHEET FIGURE E-1 | REV

DATE April 15,2008

VDC Property Wells
Air Sparge
Monitoring Well
Recovery Well
Soil Vapor Extraction Well
Terminal Property

0 50 100 200 300 400 Feet

Rev.	Date	Description	By	Chk

DRAWN BY RMK | CADD Review DFG | CHECKED BY WC-CLE

Environmental Resources Management

ERM

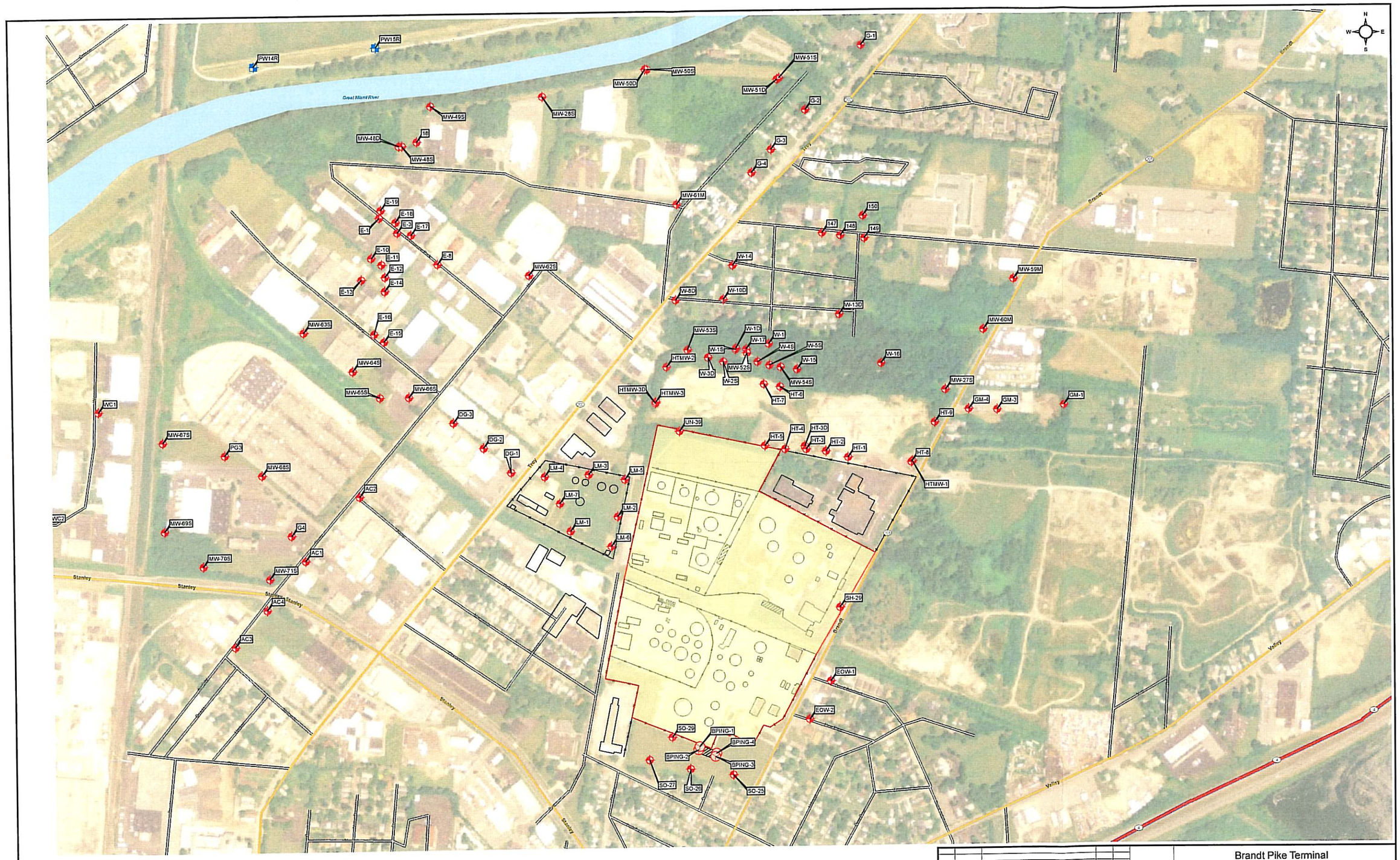
Brandt Pike Terminal

Dayton, Ohio

Van Dyne Crotty Property Wells

SCALE As Noted | PROJECT NUMBER 0074201 | SHEET FIGURE E-2 | REV

DATE April 15,2008



Off Site Wells
Injection Well
Monitoring Well
Purge Well
Terminal Property

0 250 500 1,000 1,500 2,000 Feet

Rev.	Date	Description	By	Chk
DRAWN BY RMK	CADD Review DFG	CHECKED BY WC-CLE		

Environmental Resources Management

ERM.

Brandt Pike Terminal

Dayton, Ohio

Off Site Wells

SCALE	PROJECT NUMBER	SHEET	REV
As Noted	0074201	FIGURE E-3	
DATE April 15, 2008			

BP Terminal Well Logs &
Construction Diagrams

Terra Research Inc.

DRILLING LOG

No. 50-2
pg. 1 of 1

Project Dayton Temporary Observation Wells No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS augers, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist T. Benson

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(97.38)				Brown, coarse quartz SAND and GRAVEL (sandstone and siltstone fragments), little silt, subrounded to rounded, poorly graded, non-stratified, non-cemented, moist [GP-SP] no hydrocarbon odor	Surface Ele: 97.38 Begon Drilling: 4-3-87 11:00 AM
5					
10				12' Slight hydrocarbon odor (diesel fuel)	
15		1 18		Medium dense, gray to brown, coarse quartz SAND and GRAVEL (sandstone and siltstone fragments), little silt, sub-rounded to rounded, poorly graded, non-stratified, non-cemented, moist [GP-SP], medium to strong hydrocarbon odor	
20		2 44		20'-22' Moist, strong hydrocarbon odor	
		3 33			
25		4 21		24' Saturated, strong hydrocarbon odor, sheen on spoon and in sample	Water table at 24' during drilling
		5 28		26'-28' Medium to strong hydrocarbon odor, product sheen on inside of spoon	Completed drilling 4-3-87 @ 12:40 PM Set well 4-3-87, complete @ 4:00 PM Well construction data 2", PVC well (see detail drawing) Water level taken 4-6-87 (1 hr. after development): 24.20'
30		6 32			
(63.38)				EOH: 34.0'	
35					

Terra Research Inc.

DRILLING LOG

No. SO-1
pg. 1 of 1

Project Dayton Temporary Observation Wells No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS augers, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist T. Benson

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(97.8)					Surface Ele: 97.8
		1		Medium dense, brown, SAND and GRAVEL (sandstone and siltstone fragments), little silt, subrounded to rounded, poorly graded, non-stratified, non-cemented, moist [GP-SP], with a 1' lense (8'-9') brown silty clay and gravel, slightly plastic, moist [ML-CL] no hydrocarbon odor	Began Drilling: 4-2-87 11:30 AM
		12			
5					
		2			
		55			
10					
		3		14'-16' Gray to brown, moist, no hydrocarbon odor.	Equipment breakdown fuel line plugged and bad fuel pump 3:00 PM to 5:00 PM
15		31			
		4			
		43			
		5		19' Slight hydrocarbon odor (diesel fuel)	
		52			
20		6		20'-22' Medium to strong hydrocarbon odor (diesel fuel)	
		47			
		7		22'-24' Moist with product, strong hydrocarbon odor	
		22			
		8		24'-26' Saturated, medium to strong hydrocarbon odor.	Water table @ 24' during drilling
25		28			
		9			Completed drilling 4-2-87 @ 6:00 PM
		24			Set well 4-3-87, completed @: 10:00 AM
		10		29' Hydrocarbon odor gets weaker, medium hydrocarbon odor	Well construction data: 2" PVC well (see detail drawing)
		27			
30		11			Water table taken 4-6-87 (1 hr. after development): 24.5'
		24			
		12			
		36			
(63.8)				EOH: 34.0'	
35					

Terra Research Inc.

DRILLING LOG

No. SO-3
Pg. 1 of 1

Project: Dayton Temporary Observation Wells — No. 8705
Location: Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment: Technical Drilling Services, CME-55, 3 3/4" I.D. HS augers, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist: T. Benson

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(97.96)				Gray to brown, coarse quartz SAND and GRAVEL (sandstone and siltstone fragments), little silt, subrounded to rounded, poorly graded, non-stratified, non-cemented, moist [GP-SP], no hydrocarbon odor.	Surface Ele: 97.96 Began Drilling: 4-4-87 9:00 AM
5					
10					
15				18' Slight hydrocarbon odor (diesel fuel)	
20		1 31		20'-22' Moist, medium to strong hydrocarbon odor.	
		2 23		22'-24' Moist, moist with product, strong hydrocarbon odor.	
25		3 19		25' Saturated, product sheen in sample, strong hydrocarbon odor.	Water table at 25' during drilling
		4 32			Completed drilling: 4-4-87 @ 12:00 PM Set well 4-4-87, complete @ 1:00 PM Well construction data: 2" PVC well (see detail drawing) Water level taken 4-6-87 (1 hr. after development): 24.55'
30					
(63.96)				EOH: 34.0'	
35					

Terra Research Inc.

DRILLING LOG

No. SD-4
Pg. 1 of 1

Project Dayton Temporary Observation Wells No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS augers, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist J. Benson

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(96.16)				Gray to brown, coarse quartz SAND and GRAVEL (sandstone and siltstone fragments) some silt, subrounded to rounded, poorly graded, non-stratified, non-cemented, moist [GP-SP], no hydrocarbon odor.	Surface Ele: 96.16 Began Drilling: 4-4-87 1:30 PM Material described from auger cuttings
5					
10					
15				17' Slight hydrocarbon odor (diesel fuel)	
20		1		20'-22' Moist, strong hydrocarbon odor	
		63			
		2		23.5' Saturated, strong hydrocarbon odor	Water table at 23.5' during drilling
		35			
		3		24'-26' Medium hydrocarbon odor	
25		24			Completed drilling 4-4-87 @ 3:30 PM
		4		26'-28' Slight hydrocarbon odor.	Set well 4-4-87, complete @ 5:00 PM
		85			Well construction date 2" PVC well (see detail drawing)
30					Water level taken 4-6-87 (1 hr. after development): 22.5'
(62.16)				EOH: 34.0'	
35					

Terra Research Inc.

DRILLING LOG

No. 50-5
pg. 1 of 1

Project: Dayton Temporary Observation Wells — No. 8705
Location: Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment: Technical Drilling Services, CME-55, 3 3/4" I.D. HS augers, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist: T. Benson

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(97.88)				Brown to gray, coarse quartz SAND and GRAVEL (sandstone and siltstone fragments) some cobbles, little silt, subrounded to rounded, poorly graded, non-stratified, non-cemented, moist [GP-SP], no hydrocarbon odor.	Surface Ele: 97.88 Began Drilling: 4-5-87 10:20 AM Material described from auger cuttings
5					
10					
15					
20		1		18' Slight hydrocarbon odor (diesel fuel) 20'-22' Moist, moist with product, medium to strong hydrocarbon odor	
		59			
		2		22'-24' Pockets of black hydrocarbon stain, product sheen in sample, strong hydrocarbon odor	
		47			
25		3		24'-26' Saturated, strong hydrocarbon odor at 24', slight hydrocarbon odor at 25', slight to no hydrocarbon odor at 26''	Water table at 24' during drilling Completed drilling: 4-5-87 @ 12:15 PM Set well 4-5-87, complete @ 12:45 PM Well construction data 2" PVC well (see detail drawing)
		20			
		4			
		31			
30					
(62.88)					Water level taken 4-6-87 (1 hr. after development): 24.35'
35				EOH: 35.0'	

Terra Research Inc.

DRILLING LOG

No. SD-6
pg. 1 of 1

Project Dayton Temporary Observation Wells No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS augers, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist T. Benson

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(97.98				Gray to brown, coarse quartz SAND and GRAVEL (sandstone and siltstone fragments) some silt, subrounded to rounded, poorly graded, non-stratified, non-cemented, moist [GP-SP], slight hydrocarbon odor	Surface Ele: 97.98 Began Drilling: 4-5-87 1:00 PM
5					
10				10' Gray, medium to strong hydrocarbon odor.	
15					
20		1		Dense, gray, coarse quartz SAND, little gravel (sandstone and siltstone fragments) some silt, subrounded to rounded, non-stratified, non-cemented, moist [GP-SP], medium to strong hydrocarbon odor	
		43			
		2		Medium dense, grey, coarse quartz SAND and GRAVEL (sandstone and siltstone fragments), little silt, subrounded to rounded, poorly graded, non-stratified, non-cemented, saturated at 24', 1" gravel with no sand at 24', strong hydrocarbon odor, product sheen in sample and on spoon	Water table at 24' during drilling
25		22			Completed drilling: 4-5-87 @ 2:00 PM
		3			Set well 4-5-87, complete @ 3:00 PM
		24			Well construction data: 2" PVC well (see detail drawing)
		4			Water table taken 4-6-87 (1 hr. after development): 24.6'
30		16			
(63.98				EOH: 34.0'	
35					

Terra Research Inc.

DRILLING LOG

No. 50-7
pg. 1 of 1

Project Monitor Well Installation No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen./
Geologist M.Singer

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(759.8)				Brown, SAND and GRAVEL, little silt, sub-angular to subrounded, poorly graded, non-stratified, non-cemented, damp to moist, [GP], no hydrocarbon odor.	Began Drilling: 7-2-87 @ 10:00 AM (Auger sample 1: 0-5')
5					(Auger sample 2: 5-10')
10					(Auger sample 3: 10-15')
15		4 63		Very dense, brown and gray SAND and GRAVEL, subangular to subrounded, poorly graded, stratified with thin layers of tan SAND, non-cemented, moist, [GP], hydrocarbon odor 20-22'	
20		5 72 6 70			
25					
(730.30)					Completed Drilling: 7-2-87 @ 11:30 AM
30				Total Depth: 29.5'	Well Construction: Top PVC Casing: Elev: 762.3' Top Screen: Elev: 745.3' Bottom Screen: Elev: 730.3'

Terra Research Inc.

DRILLING LOG

No. SO-B
pg. 1 of 1

Project Monitor Well Installation No. 8705
Location Sohio terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(761.04)				Brown and Gray SAND and GRAVEL, some silt, subrounded, poorly graded, non-stratified, non-cemented, [GM], no hydrocarbon odor	Began Drilling: 7-1-87 @ 3:00 PM (rain)
					(Auger sample 1: 0-5')
5					
					(Auger sample 2: 5-10')
10					
					(Auger sample 3: 10-15')
15		4			
		32			
		5			
		30			
20		6		21.5-22.0': Saturated with hydrocarbon	
		33			
		7		Dense, gray SAND, little gravel, sub-rounded, poorly graded, non-stratified, non-cemented, wet, [SP], strong hydrocarbon odor (gasoline)	
		31			
25					
					Completed Drilling: 7-1-87 @ 5:00 PM
(721.54)					
30				Total Depth: 29.5'	Well Construction: Top PVC Casing: Elev: 762.92' Top Screen: Elev: 746.54' Bottom Screen: Elev: 731.54

Terra Research Inc.

DRILLING LOG

No. SD-9
Pg. 1 of 1

Project Monitor Well Installation No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(760.59)				Brown and gray SAND and GRAVEL, some silt, subangular to subrounded, poorly graded, stratified, non-cemented, moist to wet, [GM], no hydrocarbon odor	Began Drilling: 7-7-87 @ 9:15 AM
					(Auger sample 1: 0-5')
5					
					(Auger sample 2: 5-10')
10					
					(Auger sample 3: 10-15')
15		4			
		46			
		5			
		63			
20					
		6		Strong hydrocarbon odor 22-24'	
		29			
25					
					Completed Drilling: 7-7-87 @ 11:00 AM
(731.59)				Total Depth: 29.5'	Well Construction: Top Casing: Elev: 761.42' Top Screen: Elev: 746.59' Bottom Screen: Elev: 731.59'
30					

Terra Research Inc.

DRILLING LOG

No. SO-10
pg. 1 of 1

Project Monitor Well Installation No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer

DEPTH (ELE)	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(761.41)			Brown SAND and GRAVEL, some silt, subangular to subrounded, poorly graded, non-stratified, non-cemented, moist, [GM], no hydrocarbon odor	Began Drilling: 7-7-87 @ 12:30 PM (Auger Sample 1: 0-5')
5				(Auger sample 2: 5-10')
10			Note: Slight hydrocarbon odor 10-15'	(Auger sample 3: 10-15')
15	4 47		Dense, black and gray, SAND, little gravel, subangular to subrounded, poorly graded, non-stratified, non-cemented, moist, [SP], slight hydrocarbon odor	
	5 56		Dense to very dense, gray, SAND and GRAVEL, subangular to subrounded, poorly graded, non-stratified, non-cemented, moist, [GP], hydrocarbon odors and stains	
20	6 59			
25				Completed Drilling: 7-7-87 @ 2:00 PM Well Construction: Top PVC Casing: Elev: 762.24' Top Screen: Elev: 747.41' Bottom Screen: elev: 732.41'
(732.41)			Total Depth: 29.0'	
30				

Terra Research Inc.

DRILLING LOG

No. SD-11
Pg. 1 of 1

Project Monitor Well Installation No. 8705
Location Sohio terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Service, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer

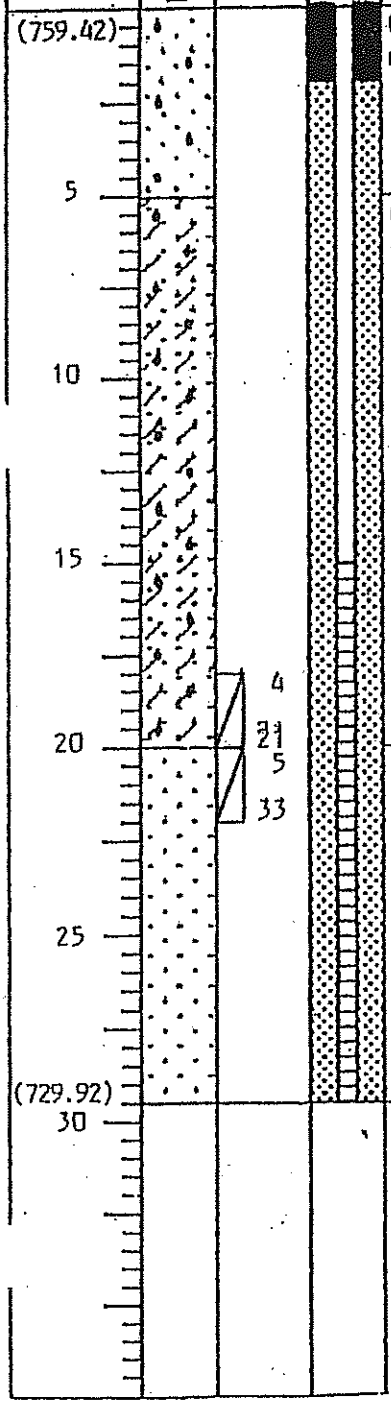
DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(761.35)				Brown SILT, non-stratified, moist, [ML], slight hydrocarbon odor	Began Drilling: 7-7-87 @ 3:30 PM
					(Auger sample 1: 0-5')
5				gray GRAVEL, some silt, subangular, poorly graded, non-stratified, moist, [GM], no hydrocarbon odor	(Auger sample 2: 5-10')
10					(Auger sample 3: 10-15')
15		4 48		Slight hydrocarbon odor 15-18'	
		5 55			
20		6 45		Medium hydrocarbon odor 22-24'	
25					Completed Drilling: 7-7-87 @ 4:30 PM
(732.22)				Total Depth: 29.5'	Well Construction: Top PVC Casing: Elev: 762.14
30					Top Screen: Elev: 747.22
					Bottom Screen: Elev: 732.22

Terra Research Inc.

DRILLING LOG

No. SO-12
pg. 1 of 1

Project Monitor Well Installation No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer



DESCRIPTION OF MATERIALS	REMARKS
Grey GRAVEL, subrounded, well graded, non-stratified, non-cemented, dry, [GW]	Began Drilling: 7-8-87 @ 11:00 AM (Auger sample 1: 0-5')
Grey SAND and GRAVEL, subrounded, well graded, stratified, non-cemented, moist, [GM], slight hydrocarbon odor	(Auger sample 2: 5-10') (Auger sample 3: 10-15')
Dense, brown SAND, little gravel, sub-angular to subrounded, poorly graded, non-stratified, non-cemented, wet, [SP], slight hydrocarbon odor and some oil stain	Completed Drilling: 7-8-87 @ 12:30 PM
Total Depth: 29.5'	Well Construction: Top PVC Casing: Elev: 760.50' Top Screen: Elev: 744.92' Bottom Screen: Elev: 729.92'

Terra Research Inc.

DRILLING LOG

No. SO-13
pg. 1 of 1

Project Monitor Well Installation No. 8705
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Service, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" PVC casing, 2" schedule 40 , 0.020" screen
Geologist M. Singer

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(761.27)				Brown SAND, some silt and gravel, gravel subrounded, poorly graded, non-stratified, non-cemented, moist, [SM-ML], no hydrocarbon odor	Began Drilling: 7-8-87 @ 2:45 PM (Auger sample 1: 0-5')
5				Gray SAND and GRAVEL, some silt, subangular to subrounded, poorly graded, non-stratified, non-cemented, moist, [GM]	(Auger sample 2: 5-10') moved hole 2' because of possible pipe at 6'
10					(Auger sample 3: 10-15') difficult drilling 10-15'
15					(Auger sample 4: 15-20')
20		5 37 6 15			
25				Medium dense, gray SAND, little gravel, subangular to subrounded, poorly graded, non-stratified, non-cemented, moist, [SP], 18" of sample product stained	Completed Drilling: 7-8-87 @ 4:30 PM
(732.35)				Total Depth: 29.0'	Well Construction: Top PVC Casing: Elev: 762.27' Top Screen: Elev: 747.35' Bottom Screen: Elev: 732.35'
30					

Terra Research Inc.

DRILLING LOG

No. SO-14
pg. 1 of 1

Project: Monitor Well Installation — No. 8715
Location: Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment: Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist: E. VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(759.56)		1 / 17		Medium dense to dense GRAVEL, trace sand, [GP], no hydrocarbon odor.	Began Drilling: 10-12-87
5		2 / 22			
10		3 / 23			
15		4 / 31		Note: Hydrocarbon odor and visible product 15-32'	
20		5 / 37		Dense GRAVEL and SAND, stratified, saturated, [GP], hydrocarbon odor	
25		6 / 28		Medium dense GRAVEL, [GP], trace clay and sand, saturated, product stained, hydrocarbon odor	
(729.56)					
30		7 / 30		Dense SAND and GRAVEL, hydrocarbon odor	Completed Drilling: 10-21-87
				Total Depth: 32.0'	Well Construction: Top PVC Casing: Elev: 761.18' Top Screen: Elev: 744.56' Bottom Screen: Elev: 729.56

Terra Research Inc.

DRILLING LOG

No. SO-15
pg. 1 of 1

Project , Monitor Well Installation No. 8715
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(759.76)					Began Drilling: 10-12-87
5					Auger Samples Only
10				SAND and GRAVEL	
15					
20				No product observed	
25					
30					Completed Drilling: 10-12-87
(727.76)				Total Depth: 32.0'	Well Construction: Top PVC Casing: Elev: 761.98' Top Screen: Elev: 742.76' Bottom Screen: Elev: 727.76'

Terra Research Inc.

DRILLING LOG

No. SO-16
pg. 1 of 1

Project Monitor Well Installation No. 8715
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E. VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(755.18)					Began Drilling: 10-12-87
5					Auger Samples Only
				SAND and GRAVEL	
10					
15					
20					
25					Completed Drilling: 10-12-87
					Well Construction: Top PVC Casing: Elev: 757.32'
30					Top Screen: Elev: 738.18'
(723.18)				Total Depth: 32.0'	Bottom Screen: Elev: 723.18

Terra Research Inc.

DRILLING LOG

No. SO-17
pg. 1 of 1

Project Monitor Well Installation No. 8715
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger; 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E. VanHeyde

DEPTH (ELEV)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(759.40)		1 8		Loose to very dense SAND and GRAVEL, [GW], trace silt and clay	Began Drilling: 10-15-87 @ 6:20 PM
5		2 24			
10		3 34			
15		4 76			
20		5 44		Hydrocarbon odor 20-32'	
25		6 20		Soil saturated 25-27'	Completed Drilling: 10-16-87 @ 10:00 AM
30		7 28			Well Construction: Top PVC Casing: Elev: 759.40' Top Screen: Elev: 742.40' Bottom Screen: Elev: 727.40'
(727.40)				Total Depth: 32.0'	

Terra Research Inc.

DRILLING LOG

No. SO-18
pg. 1 of 1

Project: Monitor Well Installation — No. 8715
Location: Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment: Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist: F. Vanlleyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(761.89)					Began Drilling: 10-20-87 @ 10:45 AM
5					Auger Samples Only
				SAND and GRAVEL	
10					
15					
20					Water level at 761.6' (13" of brown product
25					Completed Drilling: 10-20-87 @ 1:15 PM
30					Well Construction: Top PVC Casing: Elev: 762.64'
					Top Screen: Elev: 744.97'
(729.97)				Total Depth: 32.5'	Bottom Screen: Elev: 729.97'

Terra Research Inc.

DRILLING LOG

No. SO-19
pg. 1 of 1

Project: Monitor Well Installation — No. 8715
Location: Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment: Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist: F. VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(755.53)					Began Drilling: 10-15-87
					Clay plug in auger prevented installation of casing, abandoned hole, re-drilled 10-16-87
5					
10				SAND and GRAVEL	
15					
20					Water level 10-16-87 735.0'
					1" product 10-17-87
25					Completed Drilling: 10-16-87
					Well Construction: Top PVC Casing: Elev: 756.16'
30					Top Screen: Elev: 737.66'
					Bottom Screen: Elev: 722.66'
(722.66)				Total Depth: 33.0'	

Terra Research Inc.

DRILLING LOG

No. SO-20
pg. 1 of 1

Project Monitor Well Installation No. 8715
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.Vanlleyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(760.43)					Began Drilling: 11-14-87 @ 4:00 PM
5					Auger Samples Only
10				SAND and GRAVEL	
15					
20					Water level 10-19-87 734.84' (0.37'product)
25					Completed Drilling: 11-14-87 @ 5:30 PM
30					Well Construction: Top PVC Casing: Elev: 761.24'
(728.43)				Total Depth: 32.6'	Top Screen: Elev: 743.43'
					Bottom Screen: Elev: 728.43'

Terra Research Inc.

DRILLING LOG

No. SO-21
pg. 1 of 1

Project: Monitor Well Installation — No. 8715
Location: Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment: Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist: E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(758.22)					Began Drilling: 10-19-87 @ 11:30 AM
5					Auger Samples Only
10				SAND and GRAVEL	
15					
20					Water level 21' depth
25					Completed Drilling: 11-19-87 @ 3:15 PM
(728.47)					Well Construction: Top PVC Casing: Elev: 758.22'
30				Total Depth: 30.0'	Top Screen: Elev: 745.47'
					Bottom Screen: Elev: 728.47

Terra Research Inc.

DRILLING LOG

No. SO-22
pg. 1 of 1

Project Monitor well Installation No. 8715
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(760.45)					Began Drilling: 10-14-87 @ 12:00 AM
5					Auger Samples Only
10				SAND and GRAVEL	
15					3" yellow product in well 10 minutes after completion
20					Water level 10-19-87 734.48 (0.33' of product)
25					Completed Drilling: 10-14-87 @ 2:00 PM
30					Well Construction: Top PVC Casing: Elev: 761.71' Top Screen: Elev: 743.45' Bottom Screen: Elev: 728.45'
(728.45)				Total Depth: 32.5'	

Terra Research Inc.

DRILLING LOG

No. SO-23
pg. 1 of 1

Project: Monitor Well Installation — No. 8712
Location: Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment: Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist: E. Vanlleyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(753.88)		1 35		Medium dense to dense SAND and GRAVEL, traces of silt and clay, upper 15' interbedded with thin (~1') layers of red till, [GM]	Began Drilling: 10-15-87
5		2 14			
10		3 42			
15		4 23			
20		5 11		Hydrocarbon odor 20-32'	
25		6 20			Completed Drilling: 10-15-87 Well Construction: Top PVC Casing: Elev: 754.95' Top Screen: Elev: 737.38' Bottom Screen: Elev: 722.38'
30		7 12			
(722.38)				Total Depth: 32.0'	

Terra Research Inc.

DRILLING LOG

No. SO-24
pg. 1 of 1

Project Monitor Well Installation No. 8715
Location Sohio Terminal, Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(761.18)					Began Drilling: 10-19-87 @ 4:30 PM
5					Auger Samples Only
				SAND and GRAVEL	
10					
15					
20					
25					Water level at 26' (no product 11-20-87)
					Completed Drilling: 10-19-87 @ 6:45 PM
30					Well Construction: Top PVC Casing: Elev: 762.15' Top Screen: Elev: 746.48'
(729.48)				Total Depth: 32.5'	Bottom Screen: Elev: 729.48'

Terra Research Inc.

DRILLING LOG

No. 30-25
pg. 1 of 1

Project BP; Dayton Terminal No. 300.2
Location Dayton, Ohio
Drilling Contractor/Equipment Geotech, Acker Wht 1, 5" ID HS Auger, 2" schedule 40 PVC, 0.020" screen
Geologist E Van Hoyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
5					Began Drilling: 11/23/88 @ 11:00 AM
10				Brown, SAND AND GRAVEL, rounded, numerous cobbles, poorly graded, [GP], no hydrocarbon odor.	Hole drilled to 35', well set @ ~30' 11" screened from 10' 11" to 30' 11"
15					augers and rods cleaned before drilling.
20					
25					
30				total depth = 30' 11"	Completed Drilling @ 11/23/88 @ 3:00 pm Set Well 11-23-88
35					

RECEIVED
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Terra Research Inc.

DRILLING LOG

No. SO-26
Pg. 1 of 1

Project BP Dayton Terminal No. 5502
Location Dayton, Ohio
Drilling Contractor/Equipment Geotech / Acker WM1, 5" ID HS Auger, 2" schedule 40 PVC, 0.020" screen
Geologist E. Winstead

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
5					Began Drilling 1-26-88 @ 7:00 AM
10				Brown, GRAVEL, rounded, little sand, numerous cobbles and occassional boulders, poorly graded, [GP], no hydrocarbon odor, course sand on last 2 feet of augers (33'-35')	Hole drilled to 35', well set @ 31'5" screened from 11'5" to 31'5"
15					
20					augers and rod cleaned before drilling
25					
50				Total Depth = 31'5"	Completed Drilling 1-26-88 @ 2:00 PM Set Well 1-26-88
55					

RECEIVED
FEB 9

Terra Research Inc.

DRILLING LOG

No. SO-27
pg. 1 of 1

Project BP Terminal - Dayton No.
Location Dayton, Ohio
Drilling Contractor/Equipment Geotech / Acker WA-1, 5" ID HS Auger, 2" schedule 40 PVC, 0.020" screen
Geologist

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
5					Began Drilling: 1-27-88 @ 8:30 AM
10					Hole drilled to 35', well set @ 31'6"
15				Brown, SAND AND GRAVEL, rounded little sand, numerous cobbles and occassional boulders, poorly graded, [GP], no hydrocarbon odor, sand on last few feet of augers (30-35 fm)	Screened from 11'6" to 31'6"
20					augers and rod cleaned before drilling
25					
30				Total Depth = 31'6"	Completed Drilling: 1-27-88 @ 11:30 AM Set Well 1-27-88
35					

RECEIVED
FEB 9

Terra Research Inc.

DRILLING LOG

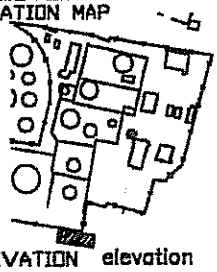
BP
No. Injection 1
Pg. 1 of 1

Project BP; Dayton Terminal No. 8802-
Location Dayton, Ohio
Drilling Contractor/Equipment Geotech 1 Acker WA2, 13" I.D. HS Auger, O? schedule 80 PVC, hand sawed screen
Geologist L. Ann Hoyle

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
				OPEN ABANDONED HOLE SHOWS A WEATHERING PROFILE DOWN TO ~3 FEET.	Began Drilling: 1-21-88 @ 1:00 PM
5				FROM 3' to ~ 8', THE OPEN 24" HOLE SHOWED: COURSE GRAVEL, trace sand, rounded, dry, limestone and dolomite, (GP)	Hole drilled to 20', Well set @ 18.5' Screened from 3.5' to 18.5', open bottom casing
10				cuttings from below 8' showed very similar lithology: course gravel (GP).	
15					
20				Total Dpth = 18.5'	Completed Drilling 1-21-88 @ 2:00 PM

RECEIVED

LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

PAGE 1 OF 1

WELL NUMBER	SO-32	LOCATION	BP TERMINAL DAYTON
DATE	20 AUGUST 1996	WEATHER	SUNNY, 90°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

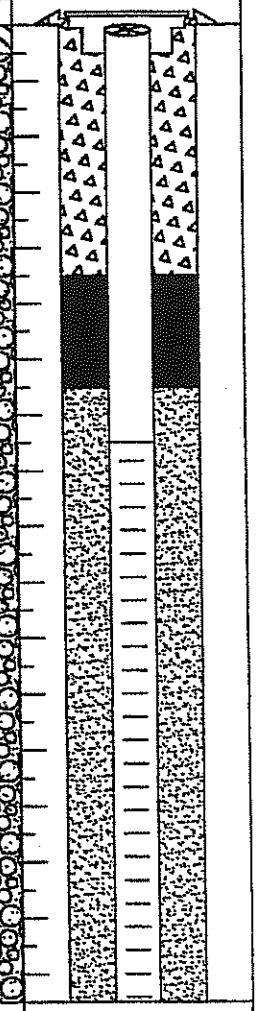
CASING TYPE	SCH 40 PVC		DIAMETER	4"	LENGTH	14'	HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	20'	TOTAL DEPTH 34.5'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			ASPHALT AND SUB-BASE.
		2			
		4			
	44.3	6		6/8	DRY TO DAMP, BROWN SAND AND GRAVEL,
				18/24	TRACE CLAY, SOME LARGER LIMESTONE
	77.4	8		16/22	FRAGMENTS.
				25/27	
	110	10		11/15	
				21/17	
	32.5	12		5/13	
				9/16	
	33.5	14		9/15	
				13/17	MOIST, GRAY/TAN SAND AND GRAVEL.
	134	16		12/46	
				50/3	
	63.4	18		18/25	
				22/17	
	1189	20		12/17	
				17/17	
	1273	22		7/11	WET, GRAY SAND AND GRAVEL BECOMES
				8/8	COARSER WITH DEPTH.
	690	24		7/7	
				4/6	
	655	26		7/5	
				8/10	
	1135	28		6/8	
				8/8	WET, BLACK SAND AND GRAVEL.
	1455	30		6/12	
				11/11	
	769	32		3/4	
				4/3	WET, GRAY SAND AND GRAVEL WITH MEDIUM
	284	34		6/7	GRAINED SAND.
				7/12	
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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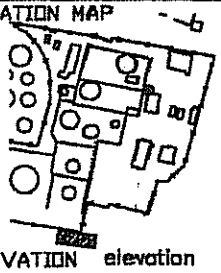
SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

PAGE 1 OF 1

WELL NUMBER	SO-33	LOCATION	BP TERMINAL DAYTON
DATE	20 AUGUST 1996	WEATHER	SUNNY, 90°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH 40 PVC			DIAMETER	4"	LENGTH	14'
SCREEN TYPE	SCH 40 PVC	SLOT	CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	15'

HOLE DIA. 12"

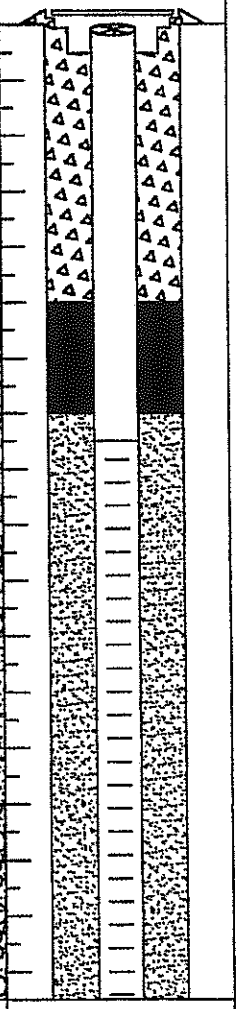
TOTAL DEPTH 34.5'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			BASE AND FILL.
		2			
		4			
	12.9	6		8/11	DRY TO DAMP, BROWN SAND AND GRAVEL.
				9/15	
	5.2	8		8/10	
				9/18	
	23.2	10		14/21	
				23/29	
				12/17	
	88.3	12		17/11	DAMP, WELL SORTED, MEDIUM GRAINED,
				12/14	BROWN SAND, SOME LARGER PEBBLES.
	88.1	14		24/23	
				9/19	DAMP, BROWN SAND AND GRAVEL.
	44.5	16		17/30	DAMP, BROWN SAND.
				4/20	
	52.3	18		29/26	DAMP TO MOIST, GRAY/BROWN SAND AND
				13/19	GRAVEL.
	1047	20		27/33	
				19/32	MOIST TO WET, GRAY SAND AND GRAVEL.
	1626	22		15/11	WET, MEDIUM GRAINED SAND, 10% PEBBLES,
				3/3	TRACE CLAY.
	1043	24		6/10	
				4/4	
	1472	26		10/20	WET, GRAY SAND AND GRAVEL, COARSENING
	1785	28		5/18	DOWNWARD.
				13/16	
				6/9	
	1081	30		11/12	
				6/6	
	599	32		6/4	
				7/9	
	62.9	34		8/6	
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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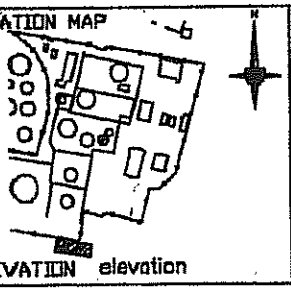
SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

PAGE 1 OF 1

WELL NUMBER	SO--34	LOCATION	BP TERMINAL DAYTON
DATE	21 AUGUST 1996	WEATHER	HUMID, 90°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE SCH 40 PVC DIAMETER 4" LENGTH 14' HOLE DIA. 12"

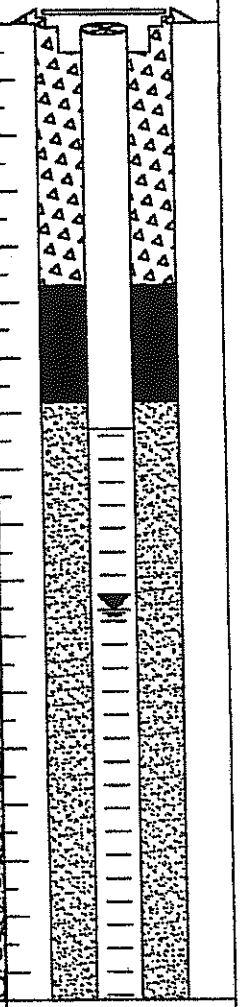
SCREEN TYPE SCH 40 PVC SLOT CONTINUOUS 0.020" DIAMETER 4" LENGTH 20' TOTAL DEPTH 34.5'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			DRY TO DAMP, GRAY SAND AND GRAVEL.
		2			
		4			
		6		5/10	MOIST, BROWN/GRAY SAND AND GRAVEL.
	370	6		14/17	
		8		10/16	
	782	8		17/17	
		10		8/21	
	310	10		25/28	
		12		10/21	
	352	12		25/22	
		14		10/19	
	803	14		17/12	
		16		11/14	
	715	16		15/13	
		18		5/6	
SO-34 17-19	843	18		10/8	VERY MOIST, WELL SORTED SAND AND GRAVEL.
		20		11/20	
	661	20		27/29	
		22		7/14	
	1157	22		12/11	WET, COARSE SAND AND GRAVEL.
		24		9/11	
	827	24		11/10	
		26		5/7	
	1017	26		6/7	
		28		6/7	
	510	28		11/28	
		30		5/7	WET, BLACK/GRAY SAND AND GRAVEL.
	856	30		8/11	
		32		7/6	
	139	32		6/6	
		34		5/8	
	174	34		6/7	
		36			END OF BORING.
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

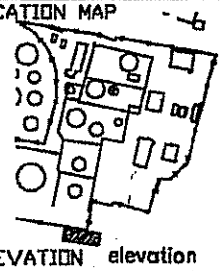
FLUSH MOUNT PROTECTIVE COVER



725284S034

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL



PARSONS ENGINEERING SCIENCE LOG

PAGE 1 OF 1

WELL NUMBER	SO-35	LOCATION	BP TERMINAL DAYTON
DATE	21 AUGUST 1996	WEATHER	HUMID, 90"
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE SCH 40 PVC DIAMETER 4" LENGTH 14' HOLE DIA. 12"

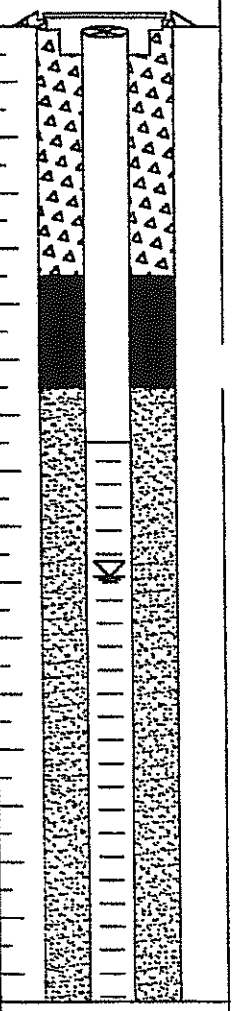
SCREEN TYPE SCH 40 PVC SLOT CONTINUOUS 0.020" DIAMETER 4" LENGTH 20' TOTAL DEPTH 34.5'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			DRY TO DAMP SAND AND GRAVEL.
		2			
		4			
	14.6	6	10/16	17/20	DRY TO DAMP, SANDY, GRAY/BROWN SAND AND GRAVEL BECOMING MOIST WITH DEPTH.
	3.1	8	13/21	23/50	
	16.4	10	6/9	10/10	
	24.8	12	8/14	18/24	
	53.2	14	14/17	17/14	MOIST, GRAY, SANDY GRAVEL.
	95	16	12/14	15/13	
SO-35 17-19'	179	18	11/16	17/17	
	272	20	6/12	11/28	WET, GRAY/TAN, SANDY GRAVEL.
	564	22	7/9	10/12	WET, COARSE SAND, SOME GRAVEL.
	1150	24	14/14	11/14	WET, SANDY GRAVEL.
	1162	26	14/13	19/18	
	1217	28	5/8	13/11	
	1336	30	9/10	12/12	WET, BROWN SAND AND GRAVEL.
	111	32	9/14	12/11	
	60.2	34	12/16	10/8	
		36			END OF BORING.
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

725284S035

PARSONS

LOG OF MONITORING WELL SO-36

Drilling Date:	23-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	PVC / 2 - inch
Site ID: BP Site #04654	**Method:** 4.25-inch Hollow Stem Auger	**Screen Length/slot:**	20 feet/0.020-inch
Site Address: 621 Brandt Pike	**Hole Diameter:** 8 inches	**Depth to Water:**	20 feet
Site City/State: Dayton, Ohio	**Weather:** 60's, partly cloudy	**Total Well Depth:**	38 feet
	Top of Casing (PVC) Elevation: 759.89 feet		

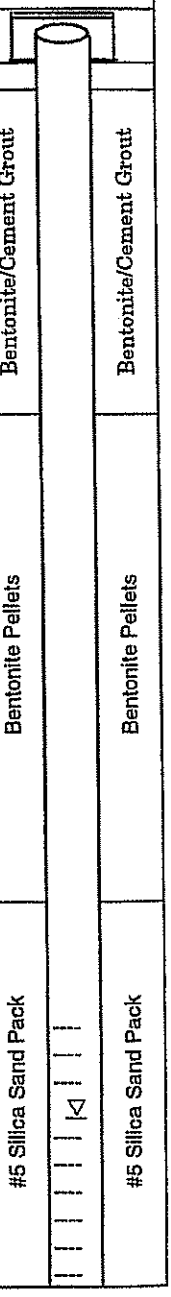
Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		0				slightly moist, clayey SILT topsoil
		1				
		2		HYDRO VAC TO 8 FEET		slightly moist SAND with gravel and cobbles
		3				
		4				
		5				
		6				
		7				
		8	65%	4		dry, loose, brown and gray poorly sorted coarse SAND with some gravel
	0	9		8		
				9		
				10		
		10	60%	5		
				10		
	0.2	11		9		
				8		
		12	75%	4		moist, loose, brown, poorly sorted medium to coarse SAND with little gravel
SO-36 (12-14 ft)	0.9	13		5		
				8		
				7		
		14	70%	5		slightly moist, loose, brown and gray GRAVEL with some sand
				6		
	0.5	15		6		
				5		
		16	65%	5		
				6		
	0.6	17		5		
				5		
		18	75%	5		moist, loose, brown and gray poorly sorted SAND with some gravel
SO-36 (18-20 ft)	2.2	19		8		
				17		
				10		
		20	5%	5		wet, loose, brown GRAVEL
				20		
	12.4	21		18		
				18		
		22		12		wet, gray, olive and black, poorly sorted coarse SAND with some gravel
				20		

Well Completion
Flush Mount
Protective Cover

Bentonite/Cement Grout

Bentonite Pellets

#5 Silica Sand Pack



PARSONS

LOG OF MONITORING WELL SO-36

Drilling Date:	23-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	PVC / 2 - inch
Site ID: BP Site #04654	**Method:** 4.25-inch Hollow Stem Auger	**Screen Length/slot:**	20 feet/0.020-inch
Site Address: 621 Brandt Pike	**Hole Diameter:** 8 inches	**Depth to Water:**	20 feet
Site City/State: Dayton, Ohio	**Weather:** 60's, partly cloudy	**Total Well Depth:**	38 feet

Top of Casing (PVC) Elevation: 759.89 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
	39.1	23		17		wet, gray, olive, and black poorly sorted SAND with some gravel	#5 Silica Sand Pack
				15			
		24	75%	13		wet, olive, brown, and gray poorly sorted SAND with little gravel	
	77.7	25		8			
				8			
		26		13			
			75%	15			
	196	27		9			
				12		wet, loose, poorly sorted fine to coarse SAND	
		28		15		wet, brown and olive poorly sorted SAND	
			75%	6			
				6		moist, stiff, gray, clayey SILT with little gravel (glacial till)	
	127	29		16		wet, dilatant, gray, fine silty SAND	
				17			
		30		6			
			50%	4			
	51.2	31		8		wet, brown, gray, and olive, well-sorted, medium SAND	
				11			
		32					Natural Sand Pack
			NA	sample			
	NA	33		heave			
		34					
			NA				
	NA	35					
		36					
	NA						
		37	NA				
		38				Sampling ends at 32 feet due to sample heave, well set to 38 feet.	
		39					
		40					
		41					
		42					
		43					
		44					
		45					

#5 Silica Sand Pack

Natural Sand Pack

PARSONS

LOG OF MONITORING WELL SO-37

Drilling Date:	19-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	PVC / 2 - inch
Method:	4.25-inch Hollow Stem Auger	**Screen Length/slot:**	20 feet/0.020-inch
Hole Diameter:	8 inches	**Depth to Water:**	20 feet
Weather:	60's, cloudy, breezy	**Total Well Depth:**	38 feet

Site ID: BP Site #04654
Site Address: 621 Brandt Pike
Site City/State: Dayton, Ohio
Top of Casing (PVC) Elevation: 759.91 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		0		H		
		1		Y		slightly moist, clayey SILT topsoil
		2		D		
		3		R		
		4		O		slightly moist SAND with gravel and cobbles
		5		V		
		6		A		
		7		C		
		8		TO		
		9		8		
		10		FEET		
		11				
		12				
		13				
		14				
		15				
		16				
		17				
		18				
		19				
		20				
		21				
		22				

	0	8	70%	5		dry, loose, brown and gray poorly sorted coarse SAND with some gravel
		9		7		
		10		18		
		11		20		
	0	12	60%	5		
		13		10		
		14		8		
		15		10		
		16		10		
SO-37 (12-14 ft)	0	17	70%	12		slightly moist, loose, brown and gray SAND and GRAVEL
		18		14		
		19		12		
		20		8		
	0	21	60%	11		slightly moist, loose, brown and gray GRAVEL with some sand
		22		12		
				12		
				4		
	0		70%	9		
				15		
				15		
				4		moist, loose, brown GRAVEL with little sand
SO-37 (18-20 ft)	0		75%	6		
				8		
				8		
				3		wet, loose, brown and red-brown GRAVEL with some sand
	2.7		65%	9		
				15		
				17		
				4		
				10		

Well Completion
Flush Mount
Protective Cover

Bentonite/Cement Grout

Bentonite Pellets

#5 Silica Sand Pack

▽

Bentonite/Cement Grout

Bentonite Pellets

#5 Silica Sand Pack

PARSONS

LOG OF MONITORING WELL SO-37

Drilling Date:	19-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	PVC / 2 - inch
Method:	4.25-inch Hollow Stem Auger	**Screen Length/slot:**	20 feet/0.020-inch
Hole Diameter:	8 inches	**Depth to Water:**	20 feet
Weather:	60's, cloudy, breezy	**Total Well Depth:**	38 feet

Site ID: BP Site #04654
Site Address: 621 Brandt Pike
Site City/State: Dayton, Ohio

Top of Casing (PVC) Elevation: 759.91 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
	273	23		15		wet, loose, poorly sorted coarse SAND with some gravel
				12		
		24	70%	4		wet, loose, well sorted medium-coarse SAND
	356	25		4		
				12		
		26	75%	12		
				4		
	753	27		11		wet, loose, poorly sorted fine to coarse SAND
				14		
		28	80%	20		
				10		wet, loose, gray and olive poorly sorted coarse SAND with some gravel
	711	29		17		
				20		
		30	50%	20		
				5		wet, loose, poorly sorted SAND with little gravel
	567	31		10		
				12		
		32	NA	14		
	NA	33		sample		
				heave		
		34	NA			
	NA	35				
		36	NA			
	NA					
		37				
		38				Sampling ends at 32 feet due to sample heave, well set to 38 feet.
		39				
		40				
		41				
		42				
		43				
		44				
		45				

Well Completion
Flush Mount
Protective Cover

ENGINEERING-SCIENCE WELL LOG

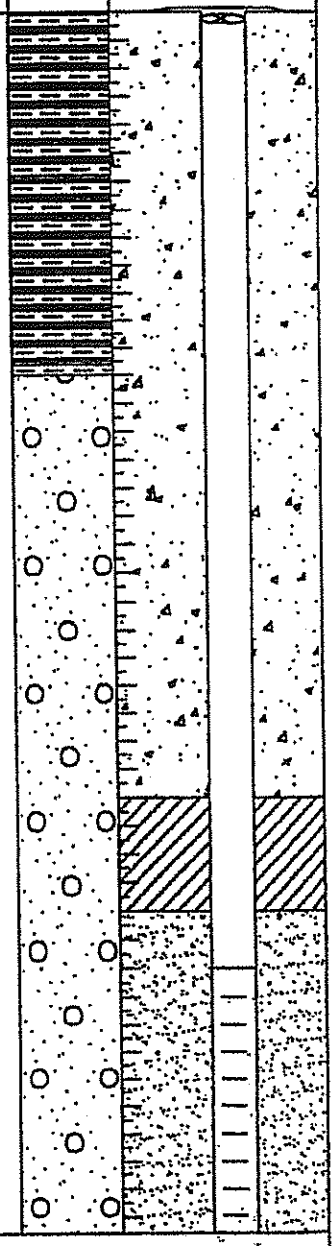
WELL NUMBER	IW-1	LOCATION	BP TERMINAL DAYTON
DATE	14 JULY 1994	WEATHER	85F CLOUDY
WELLSITE GEOLOGIST	J.B.L.	DRILLED BY	NORTH COAST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	4 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 2"	LENGTH 16 1/2'
			HOLE DIA. 10"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.020	DIAMETER 2"	LENGTH 10'
			TOTAL DEPTH 27'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			
		1		5	Moist grayish brown clay, little to some gravel.
	230	2		9	
		3		10	
	420	4		12	
		5		7	
	570	6		8	Very moist brown clay, little gravel.
		7		12	
	1020	8		12	
		9		10	
	1320	10		15	
		11		19	Dry poorly sorted light brown sand and gravel, little clay.
	2200	12		19	
		13		8	
	4000	14		10	
		15		11	
IW-1 15-17	10000	16		15	Slight moist poorly sorted light brown sand and gravel, little to some clay decreasing with depth. Hydrocarbon odor.
		17		7	
	10000	18		9	
		19		10	
	10000	20		13	
		21		10	
				12	
				15	
				20	
				9	
				13	
				15	
				19	
				10	
				13	
				17	
				21	Moist to very moist poorly sorted sand and gravel, little clay, trace silt, trace hydrocarbon staining.
				10	
				11	
				17	Attempt Shelby tube @ 17ft sampler refusal.
				18	
				8	
				12	
				16	
				18	

LITHO. PROFILE

WELL COMPLETION

FLUSHMOUNT



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	IW-1	LOCATION	BP TERMINAL DAYTON
DATE	14 JULY 1994	WEATHER	85F CLOUDY
WELLSITE GEOLOGIST	J.B.L.	DRILLED BY	NORTH COAST DRILLING
			PAGE 2. OF 2
DRILLING METHOD	4 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE

CASING TYPE	SCHEDULE 40 PVC	DIAMETER	2"	LENGTH	16 1/2'	HOLE DIA.	10"
SCREEN TYPE	SCHEDULE 40 PVC	SLOT	0.020	DIAMETER	2"	LENGTH	10'
						TOTAL DEPTH	27'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
IW-1 21-23	10000	20		16	Very moist poorly sorted sand and gravel, little clay, trace to some silt, hydrocarbon staining wet @ 23ft.		
		21		18			
				7			
		22		10			
				12			
		23		15			
				7			
	320	24		8			
				12			
		25		13			
				10			
	120	26		11			
				11			
		27		13	Drill and sampling end @ 27'. Well set @ 27'.		
		28					
		29					

SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

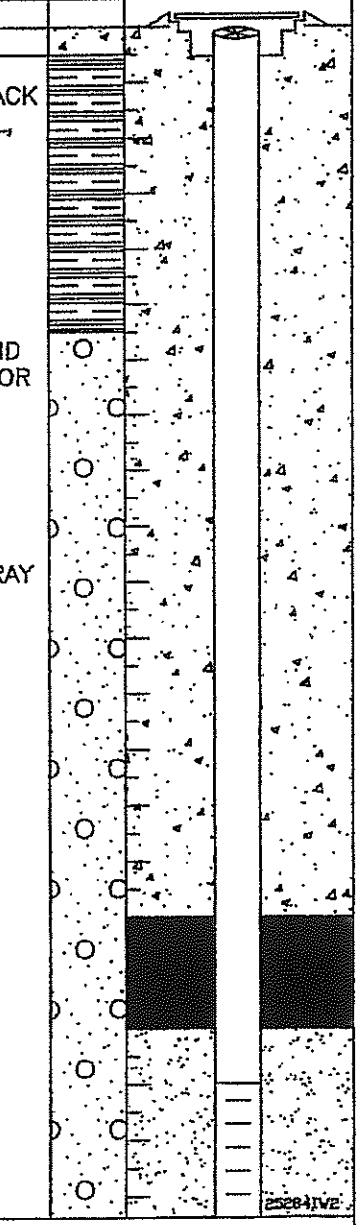
WELL NUMBER	IW-2	LOCATION	BP, DAYTON TERMINAL		
DATE	26 OCTOBER 1994	WEATHER	SUNNY, 55°F		
LOCATED BY	JBL	DRILLED BY	NORTH COAST DRILLING	PAGE	1 OF 2
DRILLING METHOD	4 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 2"	LENGTH 18.5'	HOLE DIA.	10"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.020"	DIAMETER 2"	LENGTH 10'	TOTAL DEPTH	29'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			6" ASPHALT AND SUB-BASE
		1		6	SLIGHTLY MOIST, BROWN GRADING TO BLACK CLAY, LITTLE TO SOME SAND AND GRAVEL, LITTLE SILT.
	113	2		7	
				4	
		3		3	
				1	
	37.5	4		1	
				2	
		5		1	
				2	
	47.5	6		8	DRY, LIGHT BROWN, POORLY SORTED SAND AND GRAVEL, LITTLE CLAY AND SILT, COLOR IS BLACK AT 5.5FT.
				14	
		7		18	
				12	
	115	8		20	
				26	
		9		22	
				4	MOIST, GRAYISH BROWN, POORLY SORTED SAND AND GRAVEL, 1" MOIST, BROWN GRAY CLAY SEAM AT 10.5FT.
	133	10		11	
				20	
		11		16	
				10	
	125	12		15	
				18	
		13		21	
				20	
	180	14		22	
				28	
		15		15	
				12	
	186	16		19	
				15	
		17		12	
				SHELBY	UNSUCCESSFUL SHELBY TUBE ATTEMPTS AT 17 AND 18FT.
	NR	18		TUBE	
				ATTEMPT	
		19		29	DRY TO SLIGHTLY MOIST, GRAY STAINED, POORLY SORTED SAND, LITTLE CLAY AND LITTLE SILT.
IW-2 19-21	1210	20		27	
				24	
		21		21	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	IW-2	LOCATION	BP, DAYTON TERMINAL		
DATE	26 OCTOBER 1994	WEATHER	SUNNY, 55°F		
LOCATED BY	JBL	DRILLED BY	NORTH COAST DRILLING	PAGE	2 OF 2
DRILLING METHOD	4 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 2"	LENGTH 18.5'	HOLE DIA.	10"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.020"	DIAMETER 2"	LENGTH 10'	TOTAL DEPTH	29'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
		20		24	SLIGHTLY MOIST TO MOIST, LIGHT BROWN AND DARK GRAY HYDROCARBON STAINED, POORLY SORTED SAND AND GRAVEL.		
		21		21			
				18			
	2156	22		22			
				22			
		23		20			
				16			
IW-2 23-25	2399	24		15			
				11			
		25		9			
				3			
	2248	26		11	WET, HYDROCARBON STAINED, POORLY SORTED SAND AND GRAVEL, LITTLE SILT AND CLAY.		
				9			
		27		6			
				9			
	1453	28		14			
				15			
		29		14			
					END OF BORING.		
		30					

5284IW28

SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-1	LOCATION	BP TERMINAL DAYTON
DATE	15 JULY 1994	WEATHER	80F
WELLSITE GEOLOGIST	J.B.L.	DRILLED BY	NORTH COAST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE

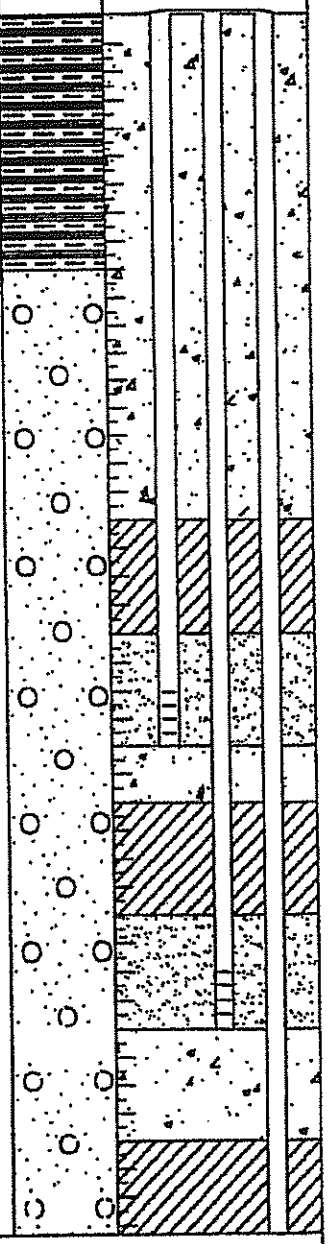
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"	LENGTH	12.17 & 21 ft.	HOLE DIA.	12"
SCREEN TYPE	SCHEDULE 40 PVC	SLOT	0.010	DIAMETER	1"	LENGTH	3 @ 1'
						TOTAL DEPTH	23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			
		1			
		2			
		3			
		4			
		5			
		6			
		7			
		8			
		9			
		10			
		11		9	Slightly moist poorly sorted light brown sand and gravel, little to some clay.
MV-11 11-13	528	12		15	
		13		18	
		14		25	
		15			
		16		10	Moist poorly sorted brown sand and gravel, little clay, little silt.
		17		12	
		18		15	
MP-1 17-19	10000	19		21	Attempt Shelby tube, sampler refusal @ 18ft.
		20			
		21			

LITHO. PROFILE

WELL COMPLETION

FLUSHMOUNT



SAND
BACKFILL
CASING
SCREEN
BENTONITE
CEMENT
INITIAL WATER LEVEL
STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-1	LOCATION	BP TERMINAL DAYTON
DATE	15 JULY 1994	WEATHER	80F
WELLSITE GEOLOGIST	J.B.L., P.A.H.	DRILLED BY	NORTH COAST DRILLING
		PAGE	2 OF 2
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"
		LENGTH	12.17 & 21 ft.
		HOLE DIA.	12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010	DIAMETER	1"
		LENGTH	3 @ 1'
		TOTAL DEPTH	23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
MP-1 21-23	10000	20					
		21		6	Very moist poorly sorted grey stained sand and gravel, little clay, little silt.		
		22		10			
				11			
		23		15			

SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

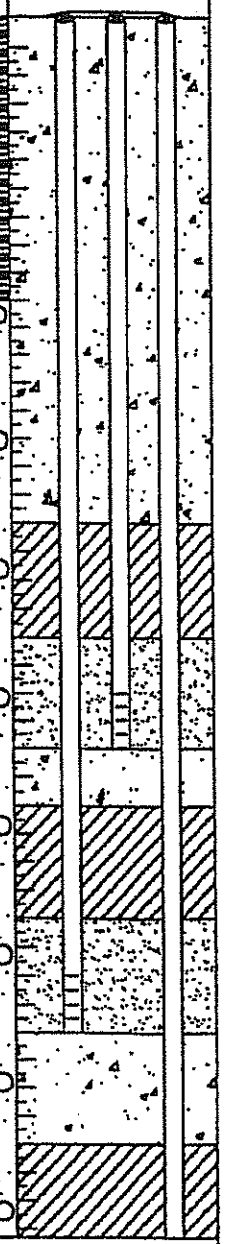
WELL NUMBER	MP-2	LOCATION	BP TERMINAL DAYTON
DATE	15 JULY 1994	WEATHER	85F HUMID
WELLSITE GEOLOGIST	J.B.L., P.A.H.	DRILLED BY	NORTH COAST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 12,17 & 21 ft.
			HOLE DIA. 12"
SCREEN TYPE	SCHEDULE 40 PVC	SLOT 0.010 DIAMETER 1"	LENGTH 3 @ 1'
			TOTAL DEPTH 23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
MP-2 11-13	520	11		7	Slightly moist poorly sorted light brown sand, some gravel, little clay.
		12		12	
		13		15	
				17	
MP-2 16-18	2800	16		9	Moist poorly sorted light brown sand and gravel, little clay, hydrocarbon odor.
		17		11	
		18		11	
				12	

LITHO. PROFILE

WELL COMPLETION

FLUSHMOUNT



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-2	LOCATION	BP TERMINAL DAYTON
DATE	15 JULY 1994	WEATHER	85F HUMID
WELLSITE GEOLOGIST	J.B.L., P.A.H.	DRILLED BY	NORTH COAST DRILLING
			PAGE 2 OF 2
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 12,17 & 21 ft.
			HOLE DIA. 12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010	DIAMETER 1"	LENGTH 3 @ 1'
			TOTAL DEPTH 23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
MP-2 21-23	10000	20					
		21		6	Moist to very moist brown and gray sand, little to some gravel, little to some silt, little clay.		
		22		7			
				9			
		23		15			

SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

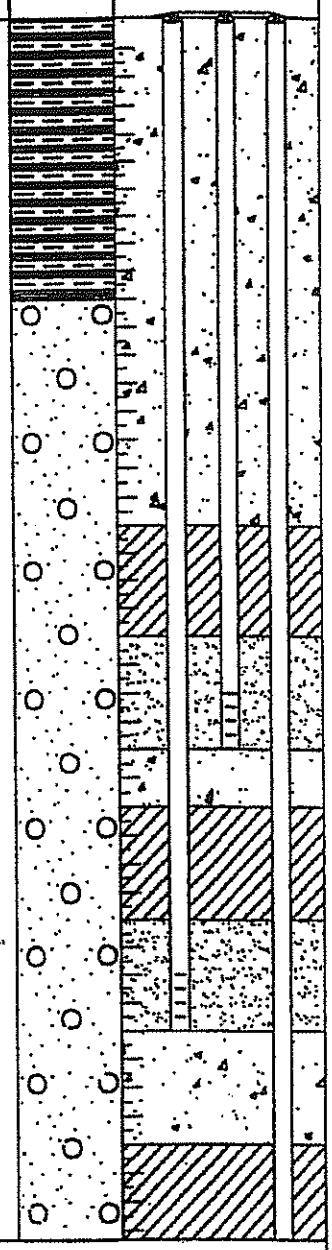
WELL NUMBER	MP-3	LOCATION	BP TERMINAL DAYTON
DATE	19 JULY 1994	WEATHER	WARM, EXPECTED HIGH OF 95F.
WELLSITE GEOLOGIST	P. HIGGINS	DRILLED BY	NORTH COAST DRILLING
PAGE	1 OF 2		
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"
LENGTH	12,17 & 21 ft.	HOLE DIA.	10"
SCREEN TYPE	SCHEDULE 40 PVC	SLOT	0.010
DIAMETER	1"	LENGTH	3 @ 1'
TOTAL DEPTH	23'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			
		1			
		2			
		3			
		4			
		5			
		6			
		7			
		8			
		9			
		10			
		11		4	Dry, medium dense, poorly sorted brown sand and gravel.
MP-3 11-13	6.5	12		10	
				10	
		13		12	
		14			
		15			
		16		9	Dry, very dense, poorly sorted, well rounded gravel. Some very large fragments.
MP-3 16-18	59.8	17		19	
				28	
		18		18	
		19			
		20			
		21			

LITHO. PROFILE

WELL COMPLETION

FLUSHMOUNT



SAND
BACKFILL
CASING
SCREEN
BENTONITE
CEMENT
INITIAL WATER LEVEL
STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-3	LOCATION	BP TERMINAL DAYTON
DATE	19 JULY 1994	WEATHER	WARM, EXPECTED HIGH OF 95F.
WELLSITE GEOLOGIST	P. HIGGINS	DRILLED BY	NORTH COAST DRILLING
		PAGE	2 OF 2
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE

CASING TYPE	SCHEDULE 40 PVC		DIAMETER	1"	LENGTH	12,17 & 21 ft.	HOLE DIA. 10"
SCREEN TYPE	SCHEDULE 40 PVC	SLOT 0.010	DIAMETER	1"	LENGTH	3 @ 1'	TOTAL DEPTH 23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
MP-3 21-23	142	20					
		21		6	Dry dense, poorly sorted, well rounded gravel. Some large fragments, strong hydrocarbon odor.		
		22		18			
		23		18			
				16			

SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-4	LOCATION	BP TERMINAL DAYTON
DATE	19 JULY 1994	WEATHER	WARM, EXPECTED HIGH OF 95F.
WELLSITE GEOLOGIST	P. HIGGINS	DRILLED BY	NORTH COAST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE

CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"	LENGTH	12,17 & 21 ft.	HOLE DIA.	10"
SCREEN TYPE	SCHEDULE 40 PVC	SLOT	0.010	DIAMETER	1"	LENGTH	3 @ 1'
						TOTAL DEPTH	23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
MP-4 11-13	16.8	11-13	24"	8, 12, 24, 26	Dry, dense, poorly sorted sand and gravel. Some gravel is well rounded, some are fragmented.
MP-4 16-18	29.9	16-18	24"	9, 9, 13, 22	Dry, dense, poorly sorted brown sand, some silt, some poorly sorted gravel.

LITHO. PROFILE

WELL COMPLETION: FLUSHMOUNT

SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-4	LOCATION	BP TERMINAL DAYTON
DATE	19 JULY 1994	WEATHER	WARM, EXPECTED HIGH OF 95F.
WELLSITE GEOLOGIST	P. HIGGINS	DRILLED BY	NORTH COAST DRILLING
		PAGE	2 OF 2
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 12.17 & 21 ft.
			HOLE DIA. 10"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010	DIAMETER 1"	LENGTH 3 @ 1'
			TOTAL DEPTH 23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
MP-4 21-23	161	20					
		21		8	Dry, very dense poorly sorted sand, poorly sorted gravel. Strong hydrocarbon odor.		
		22		21			
		23		26			
				24			

SAND
BACKFILL
CASING
SCREEN
BENTONITE
CEMENT
INITIAL WATER LEVEL
STATIC WATER LEVEL

MP-5

ENGINEERING-SCIENCE WELL LOG

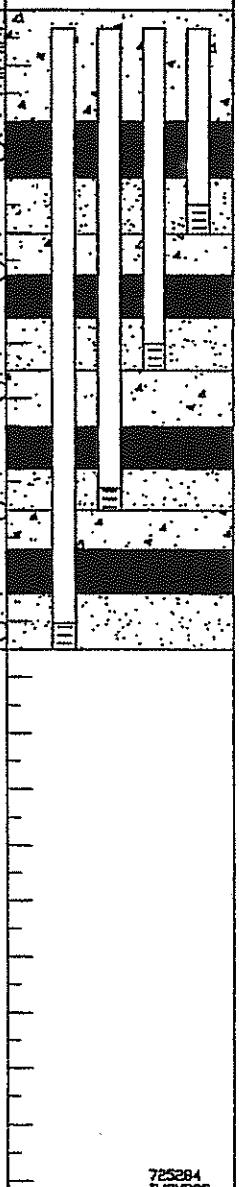
WELL NUMBER	MP-25 (IW-2)	LOCATION	BP, DAYTON TERMINAL		
DATE	28 OCTOBER 1994	WEATHER	45-70°F, SUNNY		
LOCATED BY	JBL	DRILLED BY	NORTH COAST DRILLING	PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"	LENGTH	7,12,18,22
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER	1"	LENGTH	1"

HOLE DIA. 12"
TOTAL DEPTH 23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			6" ASPHALT AND SUB-BASE
		2			MOIST BROWN CLAY IN AUGER CUTTINGS.
		4			
IW-2 MP-25 6-8	81.2	6		10/14	DRY BROWN AND LIGHT BROWN POORLY
		8		11/17	SORTED SAND AND GRAVEL, TRACE TO LITTLE CLAY AND SILT.
		10			
IW-2 MP-25 11-13	102	12		13/19	
				21/23	2" SEAM OF GRAY POORLY SORTED SAND AT 12.0FT.
		14			
IW-2 MP-25 16-18	248	16		6/14	
		18		22/25	MOIST TO SLIGHTLY MOIST BROWN POORLY SORTED SAND AND GRAVEL, TURNING GRAY AT 22FT.
		20			
IW-2 MP-25 21-23	706	22		8/33	
				16/26	
		24			END OF BORING.
		26			
		28			
		30			

LITHO. PROFILE

WELL COMPLETION



725284
IV2MP25

SAND
BACKFILL
CASING
SCREEN
BENTONITE
CEMENT
INITIAL WATER LEVEL
STATIC WATER LEVEL

MP-6

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-30 (IW-2)	LOCATION	BP, DAYTON TERMINAL
DATE	27 OCTOBER 1994	WEATHER	45-70°F, SUNNY
LOCATED BY	JBL	DRILLED BY	NORTH COAST DRILLING
		PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 7,12,18,22
		HOLE DIA.	12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER 1"	LENGTH 1"
		TOTAL DEPTH	23'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			6" ASPHALT AND SUB-BASE
IW-2 MP-30 6-8	39.8	6	10/19		DRY, LIGHT BROWN SAND AND GRAVEL,
		8	21/21		TRACE SILT AND CLAY.
IW-2 MP-30 11-13	82.2	10	11/17		
		12	13/11		
IW-2 MP-30 16-18	207	14	17/20		DRY, BROWN SILTY CLAY LAYER AT 17.5FT.
		16	28/24		
		18			
IW-2 MP-30 21-23	1582	20	10/11		MOIST, GRAY HYDROCARBON STAINED, POORLY SORTED GRAVEL AND SAND, TRACE SILT AND CLAY.
		22	14/12		
		24			END OF BORING.
		26			
		28			
		30			

LITHO. PROFILE

WELL COMPLETION

725284
IV2HP30

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

MP-7

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	MP-60 (IW-2)	LOCATION	BP, DAYTON TERMINAL
DATE	28 OCTOBER 1994	WEATHER	45-70°F, SUNNY
LOCATED BY	JBL	DRILLED BY	NORTH COAST DRILLING
PAGE	1 OF 1		
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"
LENGTH	7,12,18,22	HOLE DIA.	12"
SCREEN TYPE	SCHEDULE 40 PVC	SLOT	0.010"
DIAMETER	1"	LENGTH	1"
TOTAL DEPTH	23'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE
		0			6" ASPHALT AND SUB-BASE	
		2			MOIST, BROWN CLAY IN AUGER CUTTINGS.	
		4				
IW-2 MP-60 6-8	21.1	6		7/9	DRY, POORLY SORTED SAND AND GRAVEL, TRACE TO LITTLE SILT AND CLAY.	
		8		17/15		
		10				
IW-2 MP-60 11-13	70.7	12		11/17		
				18/18		
		14				
IW-2 MP-60 16-18	528	16		10/21	DRY, POORLY SORTED SAND, SOME GRAVEL.	
		18		20/15		
		20				
IW-2 MP-60 21-23	2682	22		7/12	SLIGHTLY MOIST, BROWN AND GRAY SAND, TRACE CLAY.	
				15/16		
		24			END OF BORING.	
		26				
		28				
		30				

WELL COMPLETION

725284
IW2MP60

SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

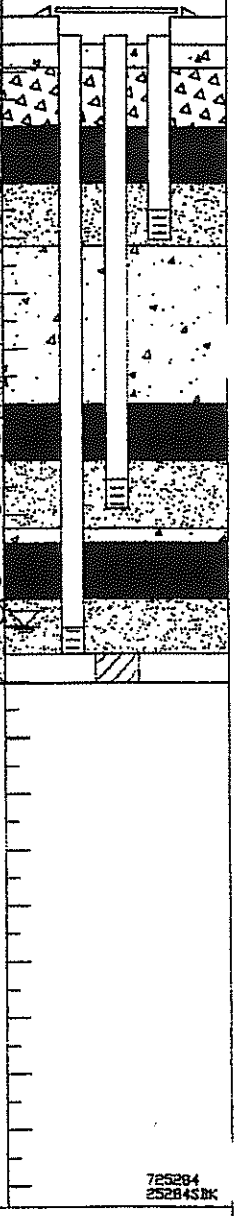
ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	MP-8 (SB-K)	LOCATION	BP, DAYTON TERMINAL
DATE	13 NOVEMBER 1995	WEATHER	30° OVERCAST/FLURRIES
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING
		PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	#5 SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 6.5',16.5',21.5'
HOLE DIA.	12"		
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER 1"	LENGTH 3 @ 1"
TOTAL DEPTH	24'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			ASPHALT AND SUB-BASE 12".
		2			HAND AUGER TO 5'.
		4			MOIST, GREEN/BROWN CLAY.
		6			DRY SAND AND GRAVEL, WITH SOME LARGE COBBLE FRAGMENTS.
	40	8		19/21	
	50.5	10		17/17	
	142	12		7/9	DAMP, COARSE, BROWN/TAN SAND, SOME GRAVEL.
SB-K (12-14)	200	14		6/10	
	160	16		8/5	
	39.1	18		5/7	
	420	20		5/8	
SB-K (20-22)	2020	22		7/10	DAMP, COARSE, TAN/GRAY SAND, SOME GRAVEL.
	1620	24		10/14	
		26		19/18	
		28		11/16	
		30		20/22	MOIST, COARSE SAND AND GRAVEL, SOME LARGE COBBLE FRAGMENTS.
		32		11/15	
		34		12/16	
		36		7/12	
		38		12/12	
		40		10/11	WET PEA-SIZE GRAVEL, WITH SOME SAND AND COBBLE FRAGMENTS; SHEEN.
		42		10/13	
					END OF BORING. FIRST MONITOR POINT SET TO 23'.

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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252845BK

SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

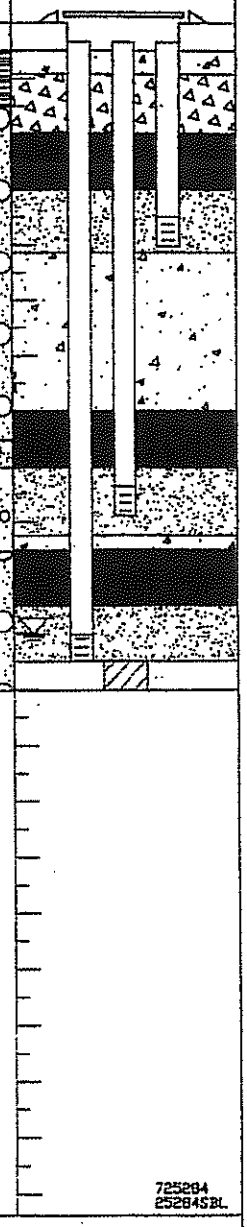
BORING NUMBER	MP-9 (SB-L)	LOCATION	BP, DAYTON TERMINAL		
DATE	14 NOVEMBER 1995	WEATHER	20° WINDY		
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING	PAGE 1	OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	#5 SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"	LENGTH 6.5',16.5',21.5'	HOLE DIA. 12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER	1"	LENGTH 3 @ 1"	TOTAL DEPTH 24'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			CONCRETE AND SUB-BASE 12". HAND AUGER TO 5'.
		2			MOIST, GREEN/BROWN CLAY, SOME GRAVEL.
		4			DRY TO DAMP SAND AND GRAVEL, SOME LARGE COBBLE FRAGMENTS, TRACE OF CLAY, WITH THIN INTERBEDDED SAND LENSES AND ORANGE STAINING.
	9.7	6		8/10	
	4.7	8		11/12	
		10		15/12	
		12		15/14	
	18.6	14		10/11	
	11.7	16		12/11	
SB-L (16-18)	138	18		17/15	
	211	20		31/27	
SB-L (20-22)	687	22		6/7	
	311	24		11/14	
		26		5/7	MOIST, BROWN/TAN, COARSE SAND, SOME COBBLE FRAGMENTS, GREEN AND BLACK STAINING IN SAND.
		28		6/6	
		30		8/17	
		32		17/19	
		34		13/14	WET SAND AND GRAVEL, SOME LARGE COBBLE FRAGMENTS. GREEN AND BLACK STAINING.
		36		17/16	
		38		4/5	
		40		11/8	WET, BLACK, PEA-SIZE GRAVEL.
		42			END OF BORING. FIRST MONITOR POINT SET TO 23'.

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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252845BL

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

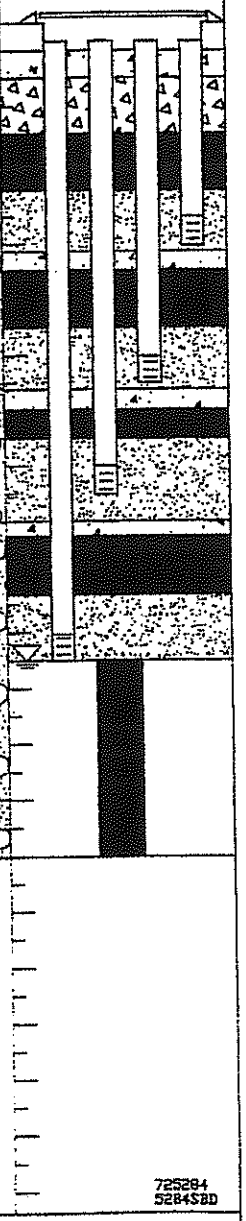
BORING NUMBER	MP-10 (SB-D)	LOCATION	BP, DAYTON TERMINAL
DATE	7 NOVEMBER 1995	WEATHER	55° OVERCAST, WINDY
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING
		PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	#5 SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 6.5',11.5',16.5',21.5'
		HOLE DIA.	12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER 1"	LENGTH 4 @ 1"
		TOTAL DEPTH	30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			CONCRETE AND SUB-BASE 12".
		2			HAND AUGER TO 5'. MOIST, BROWN/GREEN CLAY, SOME GRAVEL.
		4			DAMP TO MOIST, POORLY SORTED SAND AND GRAVEL.
	1507	6		9/12	
		8		15/19	
SB-D (8-10)	1810			10/11	DAMP, BROWN, WELL SORTED, LAMINATED, MEDIUM GRAINED SAND.
		10		9/9	
	1378			7/9	
		12		9/10	
	1420			3/5	DAMP, BROWN/GRAY, COARSE GRAINED SAND.
		14		8/8	
	1564			9/10	
		16		15/16	DAMP TO MOIST, COARSE, POORLY SORTED SAND, SOME GRAVEL AND COBBLE FRAGMENTS.
	1588			17/21	
		18		14/21	
	2233			6/14	
		20		12/14	
SB-D (20-22)	2500			11/17	MOIST TO WET, POORLY SORTED SAND AND GRAVEL, SOME THIN SAND LENSES.
		22		14/16	
	2190			7/9	
		24		9/9	
	2484			6/12	
		26		9/11	
	2001			19/19	
		28		16/17	WET, COARSE, BLACK STAINED SAND.
	872			15/16	WET, COARSE SAND AND GRAVEL.
		30		21/21	
		32			END OF BORING. OVERBORE AND FIRST MONITOR POINT SET TO 23'.
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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5284SBD

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

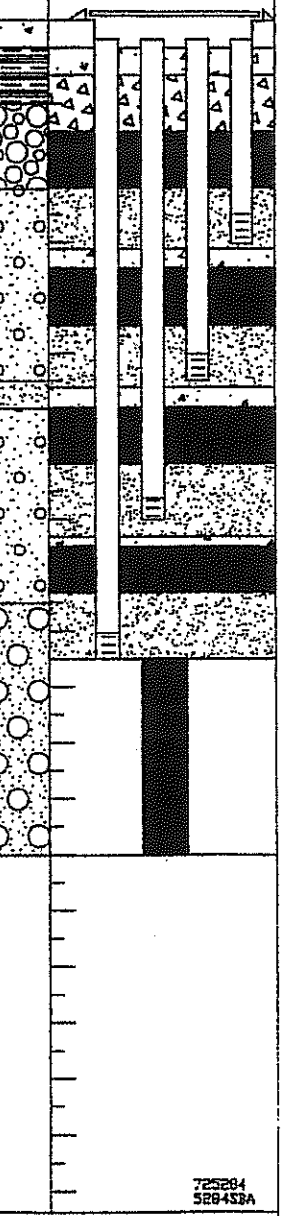
BORING NUMBER	MP-11 (SB-A)	LOCATION	BP, DAYTON TERMINAL
DATE	6 NOVEMBER 1995	WEATHER	25° SUNNY
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING
		PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	#5 SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 6.5',11.5',16.5',21.5'
		HOLE DIA.	12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER 1"	LENGTH 4 @ 1"
		TOTAL DEPTH	30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			CONCRETE AND SUB-BASE 12".
		2			HAND AUGER TO 5'. DAMP TO MOIST, BROWN, PEBBLY CLAY.
		4			DRY, COARSE, POORLY SORTED GRAVEL.
SB-A (6-8)	1721	6		28/32	DRY TO DAMP, COARSE, POORLY SORTED
		8		31/34	SAND, COARSENING DOWNWARD TO GRAVEL.
	1555			26/18	
		10		14/13	
	809			6/6	
		12		9/10	
	1375			11/8	
		14		10/16	DAMP, TAN/BROWN, FINE GRAINED SAND.
	1510			14/25	
		16		30/28	DAMP, COARSE, POORLY SORTED SAND,
	480			18/15	COARSENING DOWNWARD TO GRAVEL.
		18		20/19	
	1670			5/20	
		20		18/20	
SB-A (20-22)	2500			10/16	
		22		13/12	WET SAND AND GRAVEL, WITH SOME LARGE
	1983			5/3	COBBLE FRAGMENTS.
		24		6/7	
	2484			7/6	
		26		6/16	
	1598			9/11	
		28		16/13	
	1910			4/9	WET, BROWN SAND, SOME GRAVEL, WITH
		30		9/11	GRAY/BLACK STAINING.
					END OF SAMPLE BORING. OVERBORE AND FIRST MONITOR POINT SET TO 23'.

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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528432A

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

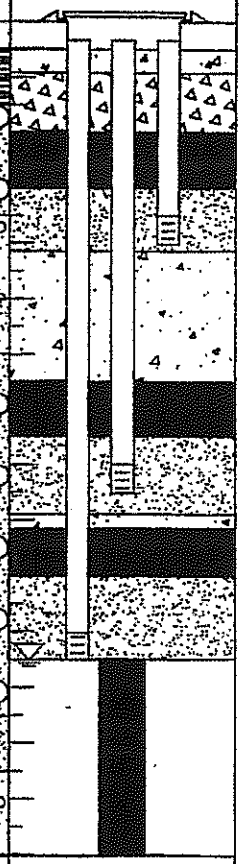
ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	MP-12 (SB-B)	LOCATION	BP, DAYTON TERMINAL		
DATE	6 NOVEMBER 1995	WEATHER	30° OVERCAST		
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING	PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	#5 SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"	LENGTH 6.5',16.5',21.5'	HOLE DIA. 12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER	1"	LENGTH 3 @ 1"	TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE
		0			CONCRETE AND SUB-BASE 14".	
		2			HAND AUGER TO 5'. DAMP BROWN SANDY CLAY.	
		4			DAMP SAND AND GRAVEL, WITH COBBLE FRAGMENTS.	
	1312	6		15/25		
		8		33/34	DAMP, COARSE SAND, WITH SOME GRAVEL AND COBBLE FRAGMENTS, TRACE OF CLAY.	
	918			25/18		
		10		29/14		
				18/15	DAMP, COARSE POORLY SORTED SAND FINING DOWNWARD TO BETTER SORTED COARSE SAND, SOME CLAY AND PEBBLES.	
	738	12		13/17		
	2109			11/8		
		14		4/7		
SB-B (14-16)	2500			17/14		
		16		9/17	DAMP TO MOIST SAND AND GRAVEL, WITH SOME LARGE COBBLE FRAGMENTS.	
	2500			9/8		
		18		15/17		
	1690			20/23		
		20		20/22		
SB-B (20-22)	2119			15/12		
		22		12/14		
	1954			16/14		
		24		13/12	WET, SAND AND GRAVEL, TRACE OF CLAY.	
	2500			18/15		
		26		10/13		
	2253			8/12	WET, COARSE, BROWN/GRAY SAND.	
		28		13/16		
	2500			11/13	WET, VERY COARSE, POORLY SORTED SAND, SOME GRAVEL.	
		30		16/17		
					END OF SAMPLE BORING. OVERBORE AND FIRST MONITOR POINT SET TO 23'.	
		32				
		34				
		36				
		38				
		40				
		42				

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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25284SBB

SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	MP-13 (SB-M)	LOCATION	BP, DAYTON TERMINAL		
DATE	14 NOVEMBER 1995	WEATHER	35° WINDY		
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING	PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	#5 SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"	LENGTH 6.5',16.5',21.5'	HOLE DIA. 12"
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER	1"	LENGTH 3 @ 1"	TOTAL DEPTH 24'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE
		0			CONCRETE AND SUB-BASE 14".	
		2			MOIST, BROWN, PEBBLY CLAY.	
		4			DRY, SAND AND GRAVEL, SOME COBBLE FRAGMENTS, TRACE OF CLAY.	
	1410	6		10/11		
		8		13/19		
	1360			16/9		
		10		12/15	DAMP, GRAY/TAN, COARSE GRAINED, WELL SORTED SAND.	
	2275			18/11		
		12		12/8		
	1562			5/7		
		14		7/10	MOIST TO WET, COARSE SAND AND GRAVEL.	
SB-M (14-16)	2498			8/8		
		16		11/12		
	1860			6/6		
		18		5/8	MOIST TO WET, POORLY SORTED SAND AND GRAVEL, SOME LARGE COBBLE FRAGMENTS.	
	1950			5/5		
		20		9/10		
SB-M (20-22)	2500			11/12		
		22		12/13		
	2198			14/20		
		24		13/14	WET, BROWN/GRAY COARSE SAND.	
					END OF SAMPLE BORING. OVERBORE AND FIRST MONITOR POINT SET TO 23'.	
		26				
		28				
		30				
		32				
		34				
		36				
		38				
		40				
		42				

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

725284
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SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	SB-F	LOCATION	BP, DAYTON TERMINAL
DATE	8 NOVEMBER 1995	WEATHER	25°CLEAR
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING
PAGE	1 OF 1		
DRILLING METHOD	6 ,1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	—	SEAL	BENTONITE
CASING TYPE	— DIAMETER —	LENGTH —	HOLE DIA. 8"
SCREEN TYPE	— SLOT — DIAMETER —	LENGTH —	TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			12" ASPHALT AND SUB-BASE.
		2			MOIST, BROWN CLAY, LITTLE GRAVEL.
		4			DRY TO DAMP, BROWN/TAN SAND AND GRAVEL, ORANGE STAINING, SOME COBBLE FRAGMENTS, TRACE OF CLAY.
	89	6		10/14	
SB-F (8-10)	427	8		20/22	
	110	10		13/32	
	237	12		28/24	
	234	14		34/32	
	40	16		28/21	
	49	18		13/12	
SB-F (20-22)	2145	20		10/10	
	1234	22		8/10	
	1883	24		10/11	COARSE POORLY SORTED SAND, SOME GRAVEL COARSENING DOWNWARD.
	1572	26		13/22	
	2037	28		24/16	
		30		10/16	
		32		12/18	
		34		7/9	DAMP TO MOIST, COARSE LAMINATED, MODERATELY SORTED SAND.
		36		9/13	
		38		20/19	
		40		28/22	MOIST TO WET SAND, SOME GRAVEL.
		42		6/10	
				13/4	
				9/12	WET, BROWN TO BLACK, COARSE SAND, WELL SORTED TURNING POORLY SORTED WITH DEPTH.
				13/12	
				11/16	
				14/20	
					END OF BORING.

LITHO. PROFILE

WELL COMPLETION

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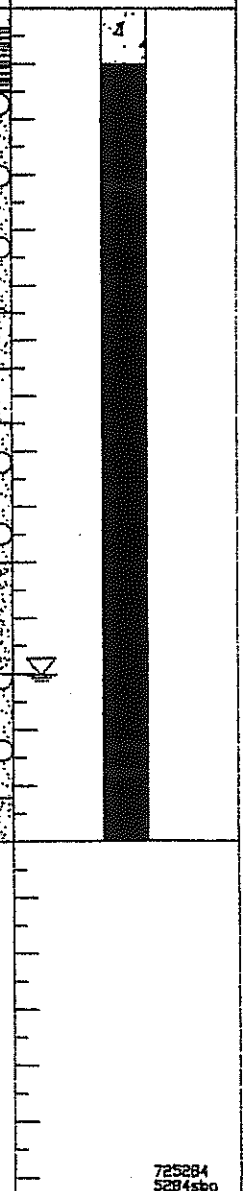
ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	SB-G	LOCATION	BP, DAYTON TERMINAL		
DATE	8 NOVEMBER 1995	WEATHER	27° OVERCAST		
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING	PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	—	SEAL	BENTONITE		
CASING TYPE	—	DIAMETER —	LENGTH —	HOLE DIA.	8"
SCREEN TYPE	—	SLOT — DIAMETER —	LENGTH —	TOTAL DEPTH	30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			12" ASPHALT AND SUB-BASE.
		2			DRY, GREEN/BROWN CLAY, LITTLE GRAVEL.
		4			DRY TO DAMP, TAN/BROWN SAND AND GRAVEL, ORANGE STAINING.
SB-G (6-8)	277	6		8/10	
	160	8		13/20	
		10		27/24	
	33			37/35	
		12		25/28	
	141			15/17	DAMP, COARSE, POORLY SORTED SAND, LITTLE GRAVEL.
		14		18/15	
	42			17/15	DAMP, BROWN SAND, SOME GRAVEL, LITTLE COBBLE FRAGMENTS.
		16		11/16	
	47			19/50-3	
		18		18/21	DAMP TO MOIST GRAVEL, SOME SAND, WITH ORANGE STAINING.
	92			12/12	
SB-G (20-22)	265	20		12/16	
		22		15/21	
	1742			11/14	MOIST, BROWN, COARSE, POORLY SORTED SAND, FINING DOWNWARD WITH BETTER SORTING.
		24		15/20	
	2500			13/15	
		26		17/14	
	693			7/10	WET, COARSE, POORLY SORTED GRAVEL, SOME PEA-GRAVEL LENSES.
		28		9/11	
	719			9/12	
		30		11/11	
				4/11	
				12/12	WET, BLACK, POORLY SORTED SAND.
		32			END OF BORING.
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION



725284
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SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	SB-H	LOCATION	BP, DAYTON TERMINAL
DATE	8 AND 9 NOVEMBER 1995	WEATHER	20° WINDY
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING
PAGE	1 OF 1		
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	–	SEAL	BENTONITE
CASING TYPE	–	DIAMETER – LENGTH –	HOLE DIA. 8"
SCREEN TYPE	– SLOT –	DIAMETER – LENGTH –	TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			12" ASPHALT AND SUB-BASE.
		2			MOIST, BROWN/GREEN, PEBBLY CLAY.
		4			DRY, TAN SAND AND GRAVEL, COBBLE FRAGMENTS.
	13	6		7/7	
	42	8		8/10 11/14	
	21	10		16/21 16/21	
SB-H 12-14	245	12		20/15 17/18	DAMP, COARSE, POORLY SORTED SAND, FINING DOWNWARD, LAMINATED.
	163	14		22/25 7/12	DAMP, FINE SAND, SOME GRAVEL.
	148	16		14/14 15/19	DAMP, COARSE GRAINED SAND, SOME GRAVEL, ORANGE STAINING.
	2200	18		17/29	
	1505	20		34/32 17/22 21/20	DAMP, GRAY SAND AND GRAVEL.
SB-H 22-24	2286	22		8/7 17/15	
	1450	24		4/6 12/13	MOIST TO WET, POORLY SORTED SAND AND GRAVEL.
	707	26		6/12 16/18	
	481	28		8/13 13/16	WET, COARSE, BLACK SAND AND GRAVEL.
		30			END OF BORING.
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

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SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	SB-1	LOCATION	BP, DAYTON TERMINAL		
DATE	8 NOVEMBER 1995	WEATHER	25° OVERCAST		
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING	PAGE	1 OF 1
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	–	SEAL	BENTONITE		
CASING TYPE	–	DIAMETER –	LENGTH –	HOLE DIA.	8"
SCREEN TYPE	–	SLOT – DIAMETER –	LENGTH –	TOTAL DEPTH	30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			12" ASPHALT AND SUB-BASE.
		2			DRY TO DAMP, BROWN CLAY, LITTLE GRAVEL.
		4			
	20	6		8/14	DRY TO DAMP, BROWN/TAN, POORLY SORTED SAND AND GRAVEL.
	27	8		22/25	
		10		21/19	
SB-1 (10-12)	116			15/17	
		12		16/9	DAMP, BROWN, WELL SORTED, MEDIUM GRAINED SAND.
	48			5/8	
		14		5/8	
	37			13/17	DAMP, COARSE, POORLY SORTED SAND WITH TRACE COBBLE FRAGMENTS.
		16		16/23	
	33			21/14	
		18		5/14	
	196			34/41	DAMP TO MOIST, BROWN/GRAY, POORLY SORTED, SAND AND GRAVEL, ORANGE/ GREEN STAINING.
SB-1 (20-22)	315	20		14/14	
				25/20	
		22		9/16	MOIST, FINE, GREEN SAND, TRACE CLAY.
	440			21/24	
		24		15/28	WET, COARSE, POORLY SORTED SAND AND GRAVEL, COBBLE FRAGMENTS, SOME PEA-SIZE GRAVEL LENSES.
	560			22/22	
		26		9/12	
	108			15/18	
		28		9/9	
	172			10/15	
		30		6/9	
				9/11	
		32			END OF BORING.
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

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ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	SB-J	LOCATION	BP, DAYTON TERMINAL
DATE	9 NOVEMBER 1995	WEATHER	20° WINDY
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING
PAGE	1 OF 1		
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	—	SEAL	BENTONITE
CASING TYPE	— DIAMETER — LENGTH —	HOLE DIA.	8"
SCREEN TYPE	— SLOT — DIAMETER — LENGTH —	TOTAL DEPTH	30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
		0			12" CONCRETE AND SUB-BASE.		
		2			MOIST, BROWN CLAY, SOME GRAVEL.		
		4			DAMP, TAN SAND AND GRAVEL, ORANGE AND GREEN STAINING, TRACE CLAY.		
	223	6		21/32			
		8		34/32			
	175			19/30			
		10		50-5			
	397			10/27			
		12		41/40	DAMP, COARSE, BLACK AND YELLOW SAND AND GRAVEL.		
SB-J (12-14)	1300			12/26			
		14		24/31			
	1217			24/32			
		16		28/16			
	245			10/7	DAMP TO MOIST, POORLY SORTED, COARSE SAND.		
		18		15/27			
	565			5/26	DAMP TO MOIST, SAND AND GRAVEL. TRACE OF CLAY.		
		20		22/22			
SB-J (20-22)	2178			9/14			
		22		13/15			
	2500			4/8	MOIST TO WET, POORLY SORTED, COARSE SAND, TRACE GRAVEL.		
		24		6/5			
	2500			2/5	WET, PEA-SIZE GRAVEL.		
		26		7/7			
	2087			5/7			
		28		4/11	WET, COARSE, GRAY/BROWN SAND.		
	2500			3/8			
		30		12/16			
		32			END OF BORING.		
		34					
		36					
		38					
		40					
		42					

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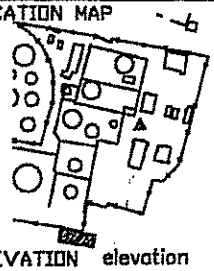
LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-14	LOCATION	BP TERMINAL DAYTON
DATE	23 AUGUST 1996	WEATHER	HUMID, 85°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE SCH 40 PVC DIAMETER 1" LENGTH 22', 17', 12' HOLE DIA. 12"

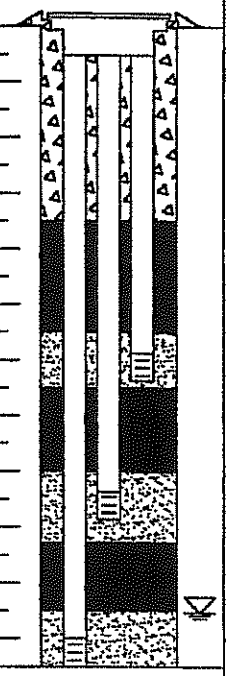
SCREEN TYPE SCH 40 PVC SLOT 0.010" DIAMETER 1" LENGTH 1' TOTAL DEPTH 23', 18', 13'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			2" CONCRETE, 4" SUB-BASE.
		2			
		4			
	19.1	6		17/24	DRY, BROWN/TAN SAND AND GRAVEL.
				40/50-5	
	31.3	8		8/50-5	
	67.3	10		9/10	DAMP, WELL SORTED SAND, BROWN.
				13/14	DAMP, BROWN SAND AND GRAVEL, TRACE CLAY.
	124	12		11/15	
				15/16	
	110	14		6/18	
				18/25	
	128	16		9/10	DAMP, COARSE TO MEDIUM GRAINED SAND, 10% PEBBLES.
				12/18	
	101	18		33/34	
				43/50-3	DAMP TO MOIST SAND AND GRAVEL.
MP-14 19-21'	821	20		40/40	
				25/25	WET, GRAY SAND AND GRAVEL.
	2411	22		6/14	
				18/17	
		24			END OF BORING.
		26			
		28			
		30			
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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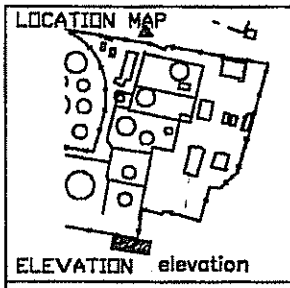
725284MP14



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-15	LOCATION	BP TERMINAL DAYTON
DATE	29 AUGUST 1996	WEATHER	SUNNY, 85°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH 40 PVC			DIAMETER	1"	LENGTH	22', 17', 12'
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"	DIAMETER	1"	LENGTH	1'

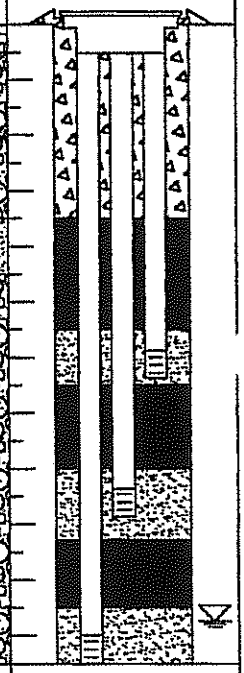
HOLE DIA. 12"

TOTAL DEPTH 23', 18', 13'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)	LITHO. PROFILE
		0			SOIL.	
		2				
		4			DRY, BROWN/TAN SAND AND GRAVEL, VERY SANDY.	
	3.7	6		9/24		
				22/15		
	1.3	8		6/11	DRY, COARSE SAND, SOME GRAVEL.	
				12/13		
	1.0	10		6/33		
				25/19		
	0.0	12		10/15	DRY, GRAY SAND AND GRAVEL WITH LIME-STONE FRAGMENTS, TRACE SILT, TRACE CLAY	
				16/19		
	9.4	14		19/19		
				23/28		
	15.1	16		8/12		
				17/19		
	42.2	18		4/10		
				16/14		
	454	20		3/6		
				31/34		
	366	22		6/14	WET, PEA-GRAVEL SIZE SAND AND GRAVEL.	
				8/10		
		24			END OF BORING.	
		26				
		28				
		30				
		32				
		34				
		36				
		38				
		40				
		42				

WELL COMPLETION

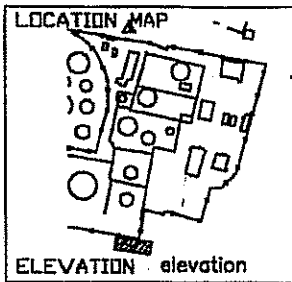
FLUSH MOUNT PROTECTIVE COVER



SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

725284MP15



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-16	LOCATION	BP TERMINAL DAYTON
DATE	28 AUGUST 1996	WEATHER	SUNNY, 85°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE SCH 40 PVC DIAMETER 1" LENGTH 22', 17', 12' HOLE DIA. 12"

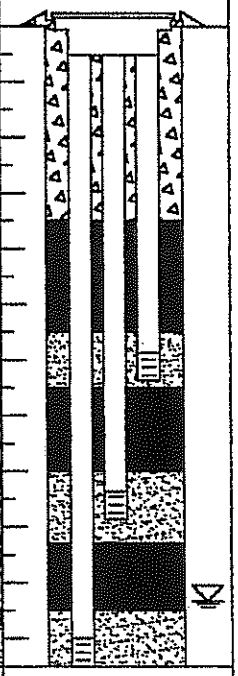
SCREEN TYPE SCH 40 PVC SLOT 0.010" DIAMETER 1" LENGTH 1' TOTAL DEPTH 23', 18', 13'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			SOIL.
		2			
		4			DRY, BROWN/GRAY SAND AND GRAVEL.
	5.6	6		4/17	
				25/25	
	13.8	8		14/22	
				26/22	DAMP, BROWN, MEDIUM GRAINED SAND.
	8.7	10		6/12	
				13/12	
	20.3	12		6/9	
				8/11	DRY TO DAMP, BROWN/GRAY SAND AND GRAVEL.
	10.2	14		4/2	
				13/15	
	8.1	16		9/10	
				5/5	DAMP TO MOIST SAND AND GRAVEL, FINING DOWNWARD.
	132	18		7/7	
				12/21	
	216	20		27/31	
				21/24	WET SAND AND GRAVEL.
	739	22		8/8	
				15/18	WET, COARSE, MODERATELY SORTED SAND.
		24			END OF BORING.
		26			
		28			
		30			
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

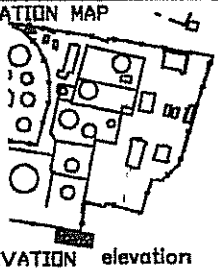


SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

725284MP16

LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-17	LOCATION	BP TERMINAL DAYTON
DATE	28 AUGUST 1996	WEATHER	HUMID, 90°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH 40 PVC			DIAMETER	1"	LENGTH	22', 17', 12'
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"	DIAMETER	1"	LENGTH	1'

HOLE DIA. 12"

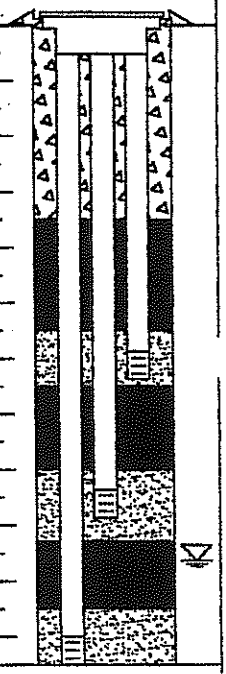
TOTAL DEPTH 23', 18', 13'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			SOIL.
		2			
		4			DRY, BROWN/TAN SAND AND GRAVEL, TRACE SILT, LIMESTONE FRAGMENTS.
	2.1	6		6/9	
				12/18	
	1.2	8		14/11	
				7/6	
	7.3	10		7/7	DAMP, BROWN, MEDIUM GRAINED SAND.
				10/8	
	7.1	12		8/12	
				15/17	DAMP TO MOIST, BROWN SAND AND GRAVEL, TRACE GREEN SILT.
	13.2	14		7/8	
				5/8	
	17.3	16		9/18	
				19/18	
	88.4	18		7/13	
				20/23	
	570	20		11/20	
				17/17	WET, COARSE, BROWN SAND AND GRAVEL.
	475	22		7/7	
				5/11	
		24			END OF BORING.
		26			
		28			
		30			
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



725284MP17

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

BORING NUMBER	VE-1 (SB-E)	LOCATION	BP, DAYTON TERMINAL		
DATE	7 NOVEMBER 1995	WEATHER	40° OVERCAST		
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING	PAGE	1 OF 1
DRILLING METHOD	6 1/4", HSA	SAMPLING METHOD	2' SPLIT SPOON		
GRAVEL PACK	#5 SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	4"	LENGTH	14.5'
SCREEN TYPE	SCHEDULE 40 PVC SLOT 0.010"	DIAMETER	4"	LENGTH	15'

HOLE DIA. 12"

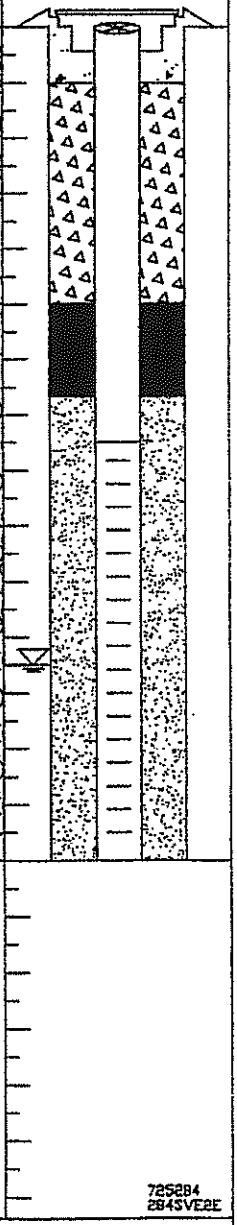
TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			CONCRETE AND SUB-BASE 10".
		2			HAND AUGER TO 5'.
					MOIST, GREEN/BROWN CLAY.
		4			DRY, SAND AND GRAVEL;
					DAMP, COARSE TAN/ORANGE SAND;
		6		2/12	
SB-E (6-8)	2500			14/17	DAMP, COARSE SAND WITH SOME GRAVEL, TRACE CLAY AND SANDY CLAY.
		8		12/13	
	1624			17/16	
		10		15/4	DAMP, COARSE BROWN SAND, LITTLE GRAVEL FINING DOWNWARD TO MEDIUM GRAINED SAND.
	1434			5/4	
		12		4/5	
	1760			16/20	
		14		10/10	DAMP TO MOIST SAND AND GRAVEL, WITH SOME LARGE COBBLE FRAGMENTS, AND YELLOW/BROWN STAINING IN SAND.
	894			21/20	
		16		12/11	
	1304			8/6	
		18		2/4	WET, PEA-SIZE GRAVEL, COARSENING DOWNWARD, LITTLE SAND.
	1264			5/7	
SB-E (20-22)		20		4/4	
	2500			5/8	
		22		5/7	
	1830			9/10	WET, POORLY SORTED SAND AND GRAVEL, WITH SOME PEA-SIZE GRAVEL AND LARGER COBBLE FRAGMENTS; WITH BLACK STAINING AND SHEEN.
		24		5/5	
	2500			7/10	
		26		6/10	
	2500			8/9	
		28		3/5	
	1560			7/10	WET, COARSE BROWN SAND, LITTLE GRAVEL.
		30			END OF BORING.
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



725284
284SVE2E

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

ENGINEERING-SCIENCE WELL LOG

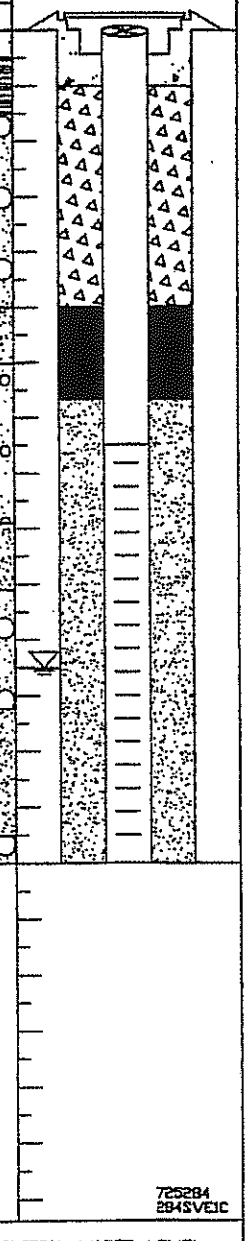
BORING NUMBER	VE-2 (SB-C)	LOCATION	BP, DAYTON TERMINAL
DATE	7 NOVEMBER 1995	WEATHER	50° RAIN
LOCATED BY	PID	DRILLED BY	NORTHCOAST DRILLING
PAGE	1 OF 1		
DRILLING METHOD	6 1/4" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	#5 SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 4"	LENGTH 14.5'
HOLE DIA.	12"		
SCREEN TYPE	SCHEDULE 40 PVC	SLOT 0.010"	DIAMETER 4" LENGTH 15'
TOTAL DEPTH	30'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH'	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			CONCRETE AND SUB-BASE 12".
		2			HAND AUGER TO 5'.
					MOIST BROWN PEBBLY CLAY.
		4			MOIST SAND AND GRAVEL, SOME COBBLE FRAGMENTS, ORANGE STAINING.
		6		15/18	
	2500			18/22	
		8		28/31	
	2500			21/16	
		10		17/18	MOIST, COARSE, POORLY SORTED SAND, SOME PEBBLES, LITTLE COBBLE FRAGMENTS ORANGE STAINING.
	2500			21/18	
		12		11/9	
	2500			8/5	
		14		8/6	MOIST, COARSE, POORLY SORTED SAND AND GRAVEL, SOME COBBLE FRAGMENTS.
	2500			4/4	
		16		6/9	
	2500			10/10	
		18		5/7	MOIST, COARSE SAND, WITH LENSES OF MDIUM GRAINED SAND AND GRAVELY SAND.
	2500			10/11	
SB-C (20-22)		20		5/5	
	2500			5/6	
		22		5/6	DAMP TO WET, POORLY SORTED SAND AND GRAVEL.
	2500			8/11	
		24		7/8	
	2500			7/7	WET, COARSE, POORLY SORTED, BROWN SAND, WITH BLACK STAINING.
		26		11/12	
	2500			12/15	
		28		12/12	
	2289			13/15	WET, BLACK SAND AND GRAVEL.
		30			END OF BORING.
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

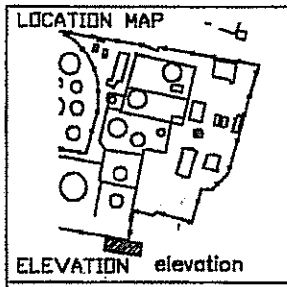
FLUSH MOUNT PROTECTIVE COVER



725284
284SVE3C

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-3	LOCATION	BP TERMINAL DAYTON
DATE	19 AUGUST 1996	WEATHER	SUNNY, 90°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH 40 PVC		DIAMETER	4"	LENGTH	14'	HOLE DIA. 12'
SCREEN TYPE	SCH. 40 PVC	SLOT	DIAMETER	4"	LENGTH	15'	TOTAL DEPTH 29.5'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			ASPHALT AND BACKFILL.
		2			BROWN, DAMP, PEBBLY CLAY.
		4			DAMP, BROWN, GRAVELY SAND.
	0.0	6		8/12	
	0.0	8		21/31 17/23 28/30	DRY TO DAMP, BROWN/GRAY SAND AND GRAVEL, SOME LARGER LIMESTONE FRAGMENTS.
	2.3	10		10/13 13/13	
	8.2	12		13/15 16/12	VERY MOIST, BROWN SAND AND GRAVEL WITH TRACE CLAY.
	5.5	14		5/7 13/9	
	1.0	16		11/15 14/14	MOIST TO VERY MOIST, COARSE WELL SORTED BROWN SAND.
VE-3 19-21	1.3	18		5/7 8/9	
	420	20		7/13 18/19	MOIST TO VERY MOIST, BROWN/GRAY SAND AND GRAVEL, BLACK DISCOLORATION.
	2357	22		12/10 11/12	WET, GRAY/BLACK SAND AND GRAVEL, BECOMING SANDIER WITH DEPTH.
	1307	24		5/3 8/10	
	1805	26		4/9 12/16	
	2101	28		5/11 13/14	WET, GRAY/BROWN SAND AND GRAVEL.
	1669	30		5/11 11/13	
		32			
		34			
		36			
		38			
		40			
		42			

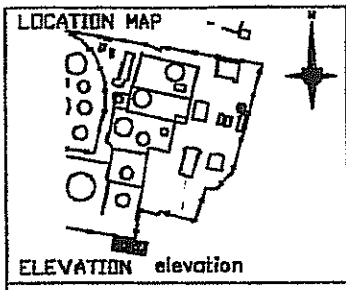
LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

725284VE3

SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-4	LOCATION	BP TERMINAL DAYTON
DATE	19 AUGUST 1996	WEATHER	SUNNY, 90°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH 40 PVC			DIAMETER	4"	LENGTH	14.5'
SCREEN TYPE	SCH 40 PVC	SLOT	CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	15'

HOLE DIA. 12'

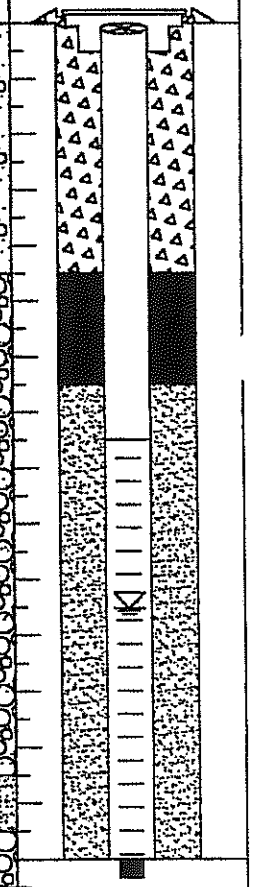
TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			ASPHALT AND BACKFILL.
		2			
		4			
	72.3	6		11/14	DAMP, TAN GRAVELY SAND.
				13/15	
	80.3	8		12/15	
				31/48	
	91.3	10		10/10	DAMP, GRAY/BROWN SAND AND GRAVEL, BECOMES COARSER WITH DEPTH, GREEN DISCOLORATION.
				16/18	
	103	12		11/15	
				17/24	
	83.4	14		6/15	
				19/26	
	40.8	16		12/18	
				20/18	
	173	18		6/15	
				21/38	
	705	20		20/45	
				24/48	WET, GRAY SAND AND GRAVEL.
	2592	22		10/11	
				14/16	
	2023	24		8/15	
				15/19	
	1430	26		5/7	
				16/10	WET, GRAY, MEDIUM GRAINED SAND BECOMING COARSE WITH POOR SORTING, BLACK DISCOLORATIONS.
	1079	28		9/12	
				14/16	
	251	30		12/10	
				13/26	WET, BLACK SAND AND GRAVEL.
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

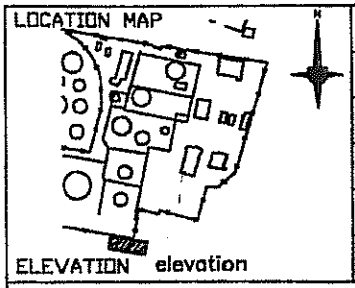
FLUSH MOUNT PROTECTIVE COVER



785284VE4

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-5	LOCATION	BP TERMINAL DAYTON
DATE	22 AUGUST 1996	WEATHER	HUMID, 90°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

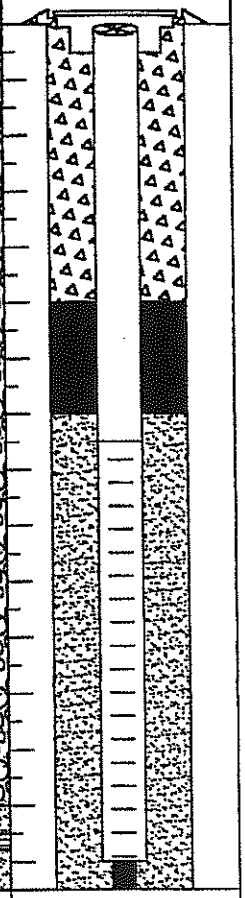
CASING TYPE	SCH 40 PVC		DIAMETER	4"	LENGTH	14.5'	HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	15'	TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			DRY TO DAMP, BROWN SAND AND GRAVEL.
		2			
		4			
	2.1	6		5/10	DRY, BROWN/TAN SAND AND GRAVEL.
	0.0	8		10/10	
	–	10		10/9	
	0.6	12		8/9	
	0.0	14		9/8	MOIST, BROWN SAND AND GRAVEL, ORANGE INCLUSIONS.
	15.2	16		8/6	
	3.7	18		6/4	
VE-5 19-21	28.4	20		4/3	WET, BROWN SAND AND GRAVEL. NO RECOVERY.
	–	22		5/7	
	257	24		9/11	WET, SAND AND GRAVEL WITH BLACK DISCOLORATION.
	981	26		9/15	
	1457	28		17/17	
	1231	30		9/9	
		32		17/21	
		34		6/22	
		36		11/15	
		38		47/28	
		40		34/22	
		42		13/10	
				8/6	
				8/10	
				13/18	
				7/7	
				10/13	WET, COARSE SAND.
				12/10	DAMP, OLIVE CLAY.
				11/10	WET, COARSE SAND.

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

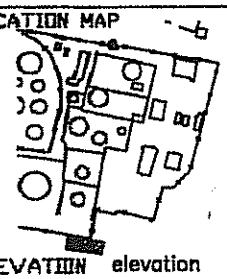


785284VE5

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-6	LOCATION	BP TERMINAL DAYTON
DATE	26 AUGUST 1996	WEATHER	SUNNY, 85°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH 40 PVC			DIAMETER	4"	LENGTH	14.5'
SCREEN TYPE	SCH 40 PVC	SLOT	CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	15'

HOLE DIA. 12"

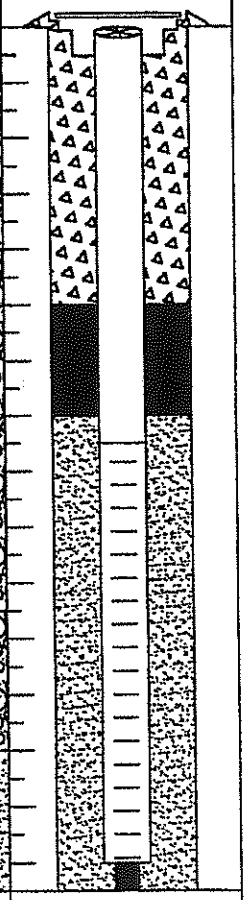
TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			SOIL.
		2			
		4			DRY, BROWN/TAN SAND AND GRAVEL.
	3.8	6		7/14	
				21/30	
	0.0	8		12/26	
				45/50-1	
	0.0	10		21/41	
				50-5	DAMP, SAND AND GRAVEL WITH TRACE
	0.0	12		12/21	MOIST, ORANGE SILT.
				23/20	
	2.5	14		16/16	
				21/17	
	2.3	16		5/7	
				6/13	
	9.6	18		11/16	
VE-6 19-21'				22/22	
	474	20		10/18	
				14/14	
	510	22		8/11	WET, GRAY SAND AND GRAVEL.
				16/14	
	1051	24		7/15	
				14/11	
	1123	26		8/11	
				12/10	WET, MEDIUM GRAINED SAND, TRACE CLAY,
	1776	28		6/13	GRAY BECOMING BLACK WITH DEPTH, 10-
				22/32	15% PEBBLES.
	1848	30		9/10	
				12/11	
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

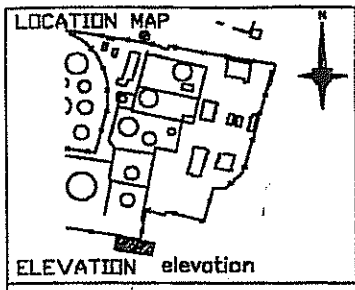
FLUSH MOUNT PROTECTIVE COVER



725284VE6

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL



PARSONS ENGINEERING SCIENCE LOG

PAGE 1 OF 1

WELL NUMBER	VE-7	LOCATION	BP TERMINAL DAYTON
DATE	27 AUGUST 1996	WEATHER	SUNNY, 85°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH 40 PVC		DIAMETER	4"	LENGTH	14.5'	HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	15'	TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			SOIL.
		2			DRY, GRAY/BROWN, COARSE SAND AND GRAVEL.
		4			
	0.0	6		9/32	
	4.7			30/35	
		8		14/26	
				27/37	
	15.6	10		20/26	DRY TO DAMP SAND AND GRAVEL, TRACE SILT.
				27/22	
	21.1	12		14/23	
				23/21	
	32.1	14		6/17	
				23/23	
	—	16		50-2	NO RECOVERY.
	46.8	18		8/9	MOIST SAND AND GRAVEL, COARSE, TRACE SILT AND YELLOW DISCOLORATION.
				10/8	
	197	20		4/7	WET, GRAY SAND AND GRAVEL.
				8/10	
	214	22		12/13	
				15/18	
	385	24		11/13	
				14/14	WET, BROWN, COARSE TO MEDIUM GRAINED SAND, FINING DOWNWARD, SOME SILT.
	641	26		5/10	
				18/19	
	510	28		10/18	
				30/50	WET, GRAY, DENSE SILT.
	48.5	30		11/23	WET, SAND AND SILT, ALTERNATING LAYERS.
				22/29	
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

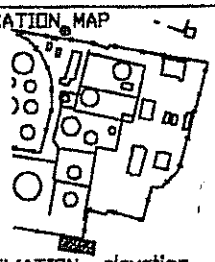
FLUSH MOUNT PROTECTIVE COVER

725284VE7

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-8	LOCATION	BP TERMINAL DAYTON
DATE	27 AUGUST 1996	WEATHER	OVERCAST, 85°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

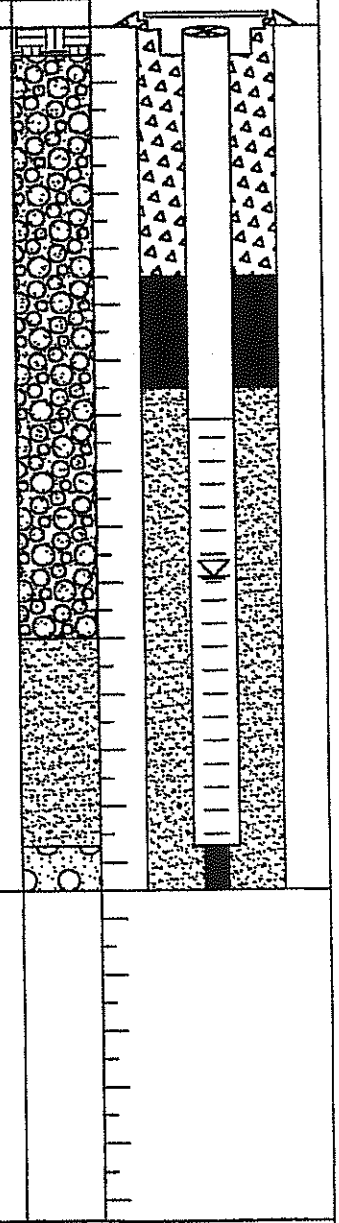
CASING TYPE	SCH 40 PVC		DIAMETER	4"	LENGTH	14.5'	HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	15'	TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			SOIL.
		2			
		4			DRY TO DAMP, BROWN/GRAY SAND AND GRAVEL, LIMESTONE FRAGMENTS.
	19.6	6		7/12	
				17/23	
	11.5	8		13/20	
				24/26	
	14.0	10		11/13	
				9/16	
	11.5	12		4/9	DAMP TO MOIST SAND AND GRAVEL, TRACE SILT.
				11/7	
	11.7	14		3/6	
				13/30	
	13.2	16		12/12	
				16/21	
	50.8	18		5/8	
				21/27	VERY MOIST TO WET, BROWN/GRAY SAND AND GRAVEL.
	105	20		7/9	
				10/15	
	317	22		5/13	WET, BROWN, FINE TO MEDIUM GRAINED SAND, MODERATE TO WELL SORTED.
				14/17	
	267	24		6/18	
				21/21	
	138	26		8/12	
				22/25	
	134	28		17/19	
				15/18	
	126	30		10/14	
				21/24	WET SAND WITH SOME GRAVEL.
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

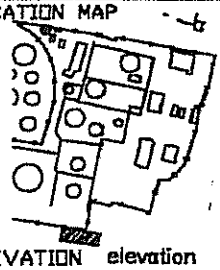
FLUSH MOUNT PROTECTIVE COVER



7ES284VE8

SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

LOCATION MAP



ELEVATION elevation

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-9	LOCATION	BP TERMINAL DAYTON
DATE	23 & 26 AUGUST 1996	WEATHER	OVERCAST, 85°
LOCATED BY	P.I.D.	DRILLED BY	NORTHCOAST DRILLING SERVICE
DRILLING METHOD	6.25" HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	SILICA SAND	SEAL	BENTONITE

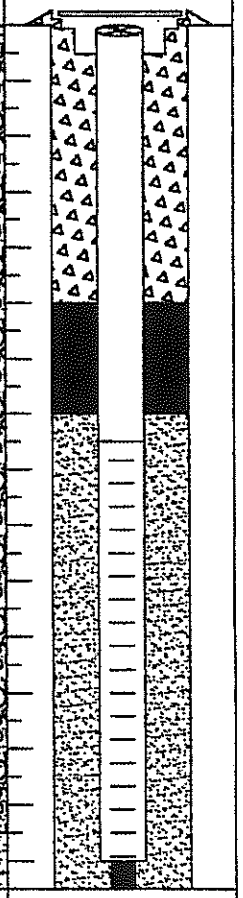
CASING TYPE	SCH 40 PVC		DIAMETER	4"	LENGTH	14.5'	HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT CONTINUOUS 0.020"	DIAMETER	4"	LENGTH	15'	TOTAL DEPTH 30'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0			SOIL.
		2			DRY, BROWN SAND AND GRAVEL.
		4			
	8.4	6		6/11	
				12/8	
	9.5	8		15/21	DAMP SAND AND GRAVEL, TRACE SILT.
				15/19	
	3.6	10		4/8	
				4/7	NO RECOVERY.
	—	12		10/10	
				9/15	
	2.7	14		10/16	
				9/10	
	16.8	16		5/8	MOIST SAND AND GRAVEL, UNIFORM PEA-GRAVEL SIZE.
VE-9 17-19'				6/5	
	66.3	18		15/17	
				15/2	
	412	20		6/10	WET, BROWN/BLACK SAND AND GRAVEL.
				10/6	
	363	22		6/7	
				11/14	
	1634	24		4/15	
				14/14	
	905	26		6/9	
				14/19	
	1543	28		6/11	WET SAND AND GRAVEL WITH INTERBEDDED SAND.
				15/17	
	349	30		8/15	
				17/19	WET, COARSE SAND.
		32			
		34			
		36			
		38			
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

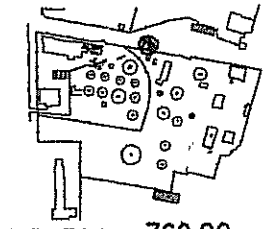


SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

725284VE9

PARSONS ENGINEERING SCIENCE LOG

LOCATION MAP



ELEVATION 760.90

WELL NUMBER	VE-14	LOCATION	BP# 04654 DAYTON,OHIO
DATE	2 MAY 2000	WEATHER	70°,CLEAR
LOCATED BY	MIKE JACKSON	DRILLED BY	NORTHCOAST DRILLING INC.,
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	#5 SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH. 40 PVC			DIAMETER	4"	LENGTH	20'
SCREEN TYPE	SCH 40 PVC	SLOT	0.010	DIAMETER	4"	LENGTH	20'

HOLE DIA. 10"

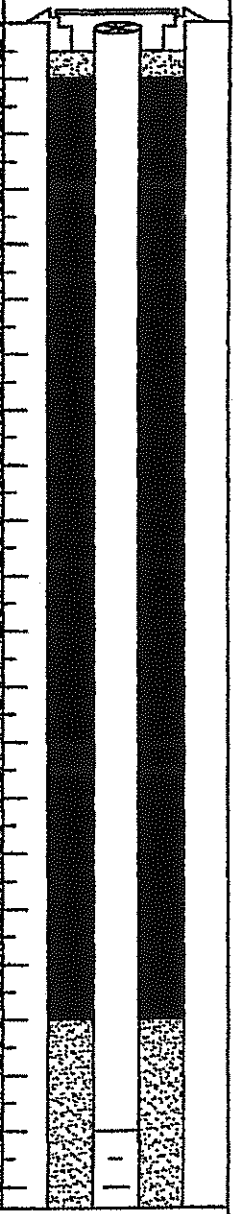
TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0		H	GRAY, DAMP, COBBLES
		1		A	BROWN ORANGE, MOIST, SLIGHTLY SOFT,
	15.9	2		N	SILTY CLAY WITH GRAVEL & COBBLES
				D	
	11.4	3		A	
				U	
	30.5	4		G	
				E	
		5		R	BROWN, MOIST, SLIGHTLY STIFF, SILTY CLAY
				1	WITH 10% SAND & GRAVEL & SOME COBBLE
	12.7	6		2	ZONES
				4	
		7		7	
				8	
	26.5	8		11	
				13	
		9		16	
				9	
		10		10	LIGHT BROWN, DAMP, SAND WITH GRAVEL
	19.5			10	SOME COBBLES
		11		11	
				13	
		12		11	
	17.5			30	
		13		5	
				5	BROWN, VERY MOIST, SAND WITH 40% GRAVEL
VE-14 (13-15')	61.4	14		5	& SOME COBBLES
				10	
		15		17	
				8	
	11.4	16		8	
				9	
		17		11	
				11	
		18		12	
	NS			13	
		19		15	LIGHT BROWN, MOIST, SAND WITH 30% GRAVEL
				7	& 5% COBBLES
		20		11	
	40.7			13	
		21		11	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

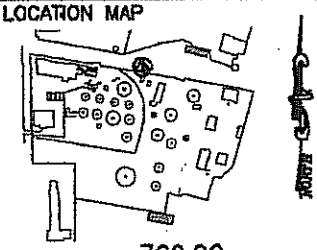


JUNE-02-00\M.LANG 730877VE14.DWG

WELL COMPLETION LEGEND

SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

LOCATION MAP



ELEVATION 760.90

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-14	LOCATION	BP# 04654 DAYTON,OHIO
DATE	2 MAY 2000	WEATHER	70°,CLEAR
LOCATED BY	MIKE JACKSON	DRILLED BY	NORTHCOAST DRILLING INC.,
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2' SPLIT SPOON
GRAVEL PACK	#5 SILICA SAND	SEAL	BENTONITE

CASING TYPE SCH. 40 PVC DIAMETER 4" LENGTH 20' HOLE DIA. 10"

SCREEN TYPE SCH 40 PVC SLOT 0.010 DIAMETER 4" LENGTH 20' TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		20			
		21		13	LIGHT BROWN, VERY MOIST, SAND WITH
	29.1	22		15	30% GRAVEL & 5% COBBLES
				14	
		23		22	
				6	
VE-14 (23-25')	822	24		11	
				10	
		25		11	
				5	
	607	26		15	GRAY, WET, SAND WITH 30% GRAVEL
				20	
		27		19	
				5	
	1769	28		15	
				16	
		29		17	
				5	
	1375	30		11	
				14	
		31		13	BROWN, WET, MEDIUM SAND
				6	
	1168	32		10	
				11	
		33		11	
				7	
	696	34		7	BROWN GRAY, WET, SAND WITH 30%
				14	GRAVEL & 10% COBBLES
		35		16	
				6	
	412	36		6	
				10	
		37		14	
				7	
	287	38		9	
				13	
		39		16	
				7	BROWN, GRAY, MEDIUM SAND WITH
	86.1	40		11	5% GRAVEL
				11	
		41		13	
					BORING ENDS @ 41', WELL SET @ 40'

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

JUNE-02-00\MLAND 730877VE14.DWG

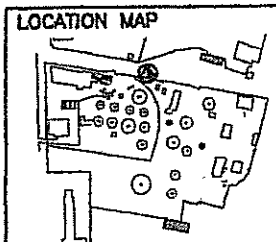
WELL COMPLETION LEGEND

SAND · CASING · BENTONITE · INITIAL WATER LEVEL

BACKFILL · SCREEN · CEMENT · STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

LOCATION MAP



ELEVATION 761.11

WELL NUMBER	VE-15	LOCATION	BP# 04654 DAYTON,OHIO
DATE	3 MAY 2000	WEATHER	60°,CLEAR
LOCATED BY	MIKE JACKSON	DRILLED BY	NORTHCOAST DRILLING INC.,
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2" SPLIT SPOON
GRAVEL PACK	#5 SILICA SAND	SEAL	BENTONITE

CASING TYPE	SCH. 40 PVC		DIAMETER	4"	LENGTH	20'	HOLE DIA. 10"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010	DIAMETER	4"	LENGTH	20'	TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0		H	GRAY, DAMP, COBBLES
		1		A	
	NS			N	BROWN ORANGE, MOIST, SILTY CLAY WITH GRAVEL & COBBLES
		2		D	
	NS				
		3		A	
				U	
	NS	4		G	
				E	
		5		R	BROWN, MOIST, SILTY CLAY WITH 10% SAND & GRAVEL
				3	
	10.4	6		5	
				9	BROWN, MOIST, SAND WITH 30% GRAVEL & 10% COBBLES
		7		11	
				16	
	25.2	8		18	
				24	
		9		18	
				15	
				25	
	12.0	10		30	
				41	
		11		18	BROWN, MOIST, SAND WITH 30% GRAVEL & 10% COBBLES
				17	
	14.4	12		18	
				16	
		13		11	
				15	
	97.3	14		25	
				17	
		15		4	
VE-15 (15-17')	99.3	16		4	BROWN, VERY MOIST, SAND WITH 40% GRAVEL & 10% COBBLES
				11	
		17		12	
				8	
	10.3	18		14	
				14	
		19		6	
				3	
	61.8	20		7	
				18	
		21		18	

LITHO. PROFILE

WELL COMPLETION

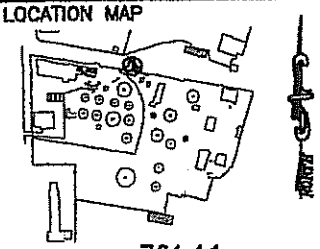
FLUSH MOUNT PROTECTIVE COVER

JUNE-02-00\M.LANG 730877\VE15.DWG

WELL COMPLETION LEGEND

SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

LOCATION MAP



ELEVATION 761.11

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	VE-15	LOCATION	BP# 04654 DAYTON,OHIO
DATE	3 MAY 2000	WEATHER	60°,CLEAR
LOCATED BY	MIKE JACKSON	DRILLED BY	NORTHCOAST DRILLING INC.,
DRILLING METHOD	6 1/4 HSA	SAMPLING METHOD	2" SPLIT SPOON
GRAVEL PACK	#5 SILICA SAND	SEAL	BENTONITE

CASING TYPE SCH. 40 PVC DIAMETER 4" LENGTH 20' HOLE DIA. 10"

SCREEN TYPE SCH 40 PVC SLOT 0.010 DIAMETER 4" LENGTH 20' TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		20			
		21		8	BROWN, VERY MOIST, SAND WITH 40%
	6.1	22		12	GRAVEL & 10% COBBLES
				12	
		23		13	
				15	
VE-15 (23-25')	119	24		14	
				15	
		25		19	
				30	
	NS	26		50/3	
		27			BROWN, WET, MEDIUM SAND WITH 5%
				5	GRAVEL
	1035	28		20	
				22	
		29		3	BROWN, WET, MEDIUM SAND WITH 20%
				8	GRAVEL
	767	30		22	
				25	
		31		27	
				6	BROWN, WET, MEDIUM SAND WITH
	1381	32		16	
				21	30% GRAVEL
		33		18	
				6	
	211	34		7	
				11	
		35		17	
				8	
	258	36		9	
				11	
		37		14	
				14	BROWN, WET MEDIUM SAND WITH 30%
	193	38		13	GRAVEL & 2% SILT
				12	
		39		12	
				14	
	278	40		16	
				20	
		41		24	

BORING ENDS @ 41'. WELL SET @ 40'

JUNE-02-00\MJANG 730877VE15.DWG

WELL COMPLETION LEGEND

SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

From 5 October 1990 Report
Eastern Off-Site Investigation

LOCATION MAP

TOP OF CASING ELEVATION: 761.21'

ENGINEERING-SCIENCE WELL LOG

PAGE 1 OF 1

WELL NUMBER	EOW1 (SB-4) (STADELBERTS)	LOCATION	EASTERN OFF-SITE BRANDT PIKE TERMINALS
DATE	24 AUGUST 1990	WEATHER	SUNNY, 70°F
LOCATED BY	SOJAY GUOBADIA	DRILLED BY	BOWSER MORNER
DRILLING METHOD	6 1/4" HOLLOW-STEM AUGERS	SAMPLING METHOD	SPLIT-SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE SLURRY

CASING TYPE SCH 40 PVC DIAMETER 4" LENGTH 20'

HOLE DIA. 6"

SCREEN TYPE SCH 40 PVC SLOT 0.020 DIAMETER 4" LENGTH 20'

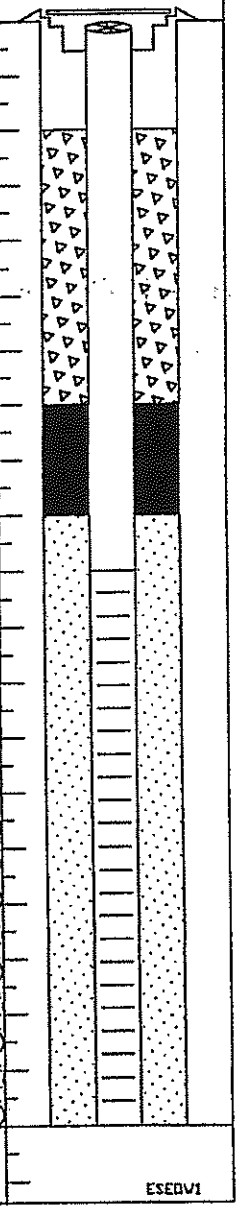
TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			BROWN, DAMP MEDIUM DENSE SAND AND GRAVEL.
SS1	0	4	X	2 8	
SS2	0	6		10 11	
SS3	0.1	8		– –	
SS4	0.1	10	X	22 25	
SS5	0.4	12		27 30	
SS6	0.4	14	X	16 17	
SS7	0.8	16	X	22 25	
SS8	0.9	18	X	25 35	
SS9	1.0	20	X	27 25	VERY SLIGHT ODORS.
SS10	1.6	22	X	35 38	BROWN, DAMP DENSE SAND, SLIGHT ODORS.
SS11	1.0	24	X	42 45	GREY MOIST. SAND AND GRAVEL. NO ODORS.
SS12	0.6	26	X	20 21	WATER TABLE ENCOUNTERED BROWN, WET SAND AND GRAVEL.
SS13	0.6	28	X	27 30	
SS14	0.6	30	X	23 25	
SS15	0.2	32	X	35 40	
SS16	0.5	34	X	50 53	
SS17	0.5	36	X	21 23	
SS18	0.4	38	X	24 26	
		40		22 35	
		42		27 28	
			X	22 25	
				27 30	
			X	20 21	
				19 23	
			X	35 37	
				38 40	
			X	20 22	
				23 25	
			X	23 24	
				22 20	
			X	22 24	
				25 30	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



ESEOV1

From 5 October 1990 Report
Eastern Off-Site Investigation

LOCATION MAP

TOP OF CASING ELEVATION: 758.75'

ENGINEERING-SCIENCE WELL LOG

WELL NUMBER	EOW2 (SB-5) (PAW-PAW)	LOCATION	EASTERN OFF-SITE BRANDT PIKE TERMINALS
DATE	24 AUGUST 1990	WEATHER	SUNNY, 73°F
LOCATED BY	SOJAY GUOBADIA	DRILLED BY	BOWSER MORNER
DRILLING METHOD	6 1/4" HOLLOW-STEM AUGERS	SAMPLING METHOD	SPLIT-SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE SLURRY

CASING TYPE	SCH 40 PVC			DIAMETER	4"	LENGTH	20'
SCREEN TYPE	SCH 40 PVC	SLOT	0.020	DIAMETER	4"	LENGTH	20'

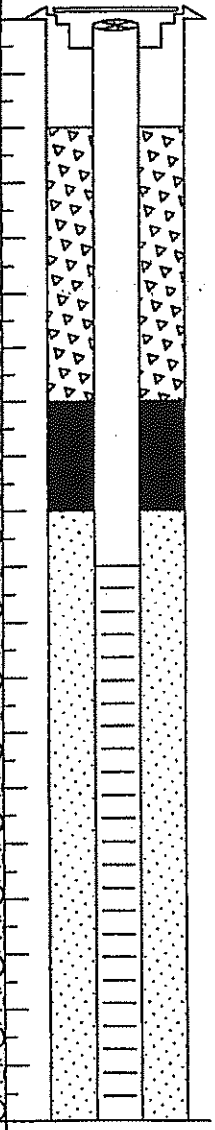
HOLE DIA. 6"
TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			BROWN, DAMP, SAND AND GRAVEL, SOME COARSE GRAVEL.
		2			
		4	X	8 11	
SS1	1.2			15 17	
		6	X	5 9	
SS2	0.6			18 22	
		8	X	15 19	
SS3	0.2			24 23	
		10	X	- -	
SS4	0.2			- -	
		12	X	25 45	
SS5	0.4			45 45	
		14	X	25 25	
SS6	0.6			25 25	
		16	X	55 -	
SS7	0.6			- -	
		18	X	36 27	GREY MOIST SAND AND GRAVEL
SS8	2			14 15	WATER TABLE ENCOUNTERED
		20	X	30 40	
SS9	1.8			40 40	
		22	X	30 30	
SS10	1.0			30 30	
		24	X	19 17	
SS11	0.9			24 25	
		26	X	34 29	
SS12	1.8			28 31	
		28	X	20 26	BROWN WET SAND AND GRAVEL.
SS13	1.6			26 24	
		30	X	20 20	
SS14	0.6			20 20	
		32	X	17 19	
SS15	0.4			21 26	
		34	X	20 24	
SS16	0.6			36 34	
		36	X	21 28	
SS17	0.5			30 36	
		38	X	28 36	
SS18	0.3			39 41	
		40			
		42			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



ESEDV2

PARSONS

LOG OF MONITORING WELL ASW-1

Drilling Date:	19-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Site ID: BP Site #04654	**Method:** 3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.060-inch
Site Address: 621 Brandt Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	20 feet
Site City/State: Dayton, Ohio	**Weather:** 60's, cloudy, breezy	**Total Well Depth:**	36 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
NA	NA	0–7	NA	HYDROVAC TO 7 FEET		slightly moist, clayey SILT topsoil	
		7–36		AUGER TO 36 FEET		slightly moist SAND with gravel and cobbles No samples collected during drilling Sand, gravel, and cobbles observed in auger cuttings	Bentonite/cement Grout Bentonite/Cement Grout Bentonite Pellets Bentonite Pellets

PARSONS

LOG OF MONITORING WELL ASW-1

Drilling Date:	19-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Site ID: BP Site #04654	**Method:** 3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.060-inch
Site Address: 621 Brandt Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	20 feet
Site City/State: Dayton, Ohio	**Weather:** 60's, cloudy, breezy	**Total Well Depth:**	36 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
NA	NA	23					
		24					
		25				No samples collected during drilling	
		26					
		27				Sand and gravel observed in auger cuttings	
		28					
		29					
		30					
		31					
		32					
		33					
		34					
		35					
		36					
		37				Boring ends at 36 feet, well set to 36 feet	
		38					
		39					
		40					
		41					
		42					
		43					
		44					
		45					

PARSONS

LOG OF MONITORING WELL ASW-2

Drilling Date:	16-Sep-03	Geologist:	Eric Mysona
Drilling Company:	Midwest Env. Drilling	Screen Type/diam:	stainless / 1-inch
Method:	3.25-inch Hollow Stem Augers	Screen Length/slot:	3 feet / 0.060-inch
Hole Diameter:	6 inches	Depth to Water:	20.2 feet
Weather:	70's, sunny	Total Well Depth:	32.feet

Site ID:	BP Site #04654
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
NA	NA	0–7	NA	HYDRO VAC TO 6 FEET		slightly moist, clayey SILT topsoil; slightly moist SAND with gravel and cobbles
		8–22		AUGER TO 32 FEET		encountered coarse gravel, sand, and cobbles in drill cuttings

Well Completion
Flush Mount
Protective Cover

Bentonite/cement Grout

Bentonite/Cement Grout

Bentonite Pellets

Bentonite Pellets

PARSONS

LOG OF MONITORING WELL ASW-2

Drilling Date:	16-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Site ID: BP Site #04654	**Method:** 3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.060-inch
Site Address: 621 Brandt Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	20.2 feet
Site City/State: Dayton, Ohio	**Weather:** 70's, sunny	**Total Well Depth:**	32 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
		23					Bentonite Pellets
		24		Auger			
		25					
		26		to			
		27		32 feet			
		28					Natural Sand Pack
		29					
		30					
		31					
		32		NA		wet, gray and olive, well-sorted medium SAND with trace gravel	Sand Pack
	713	33	50%				
		34				Boring sampled to 34 feet, well set at 32 feet due to sample heave	
		35					
		36					
		37					
		38					
		39					
		40					
		41					
		42					
		43					
		44					
		45					

Bentonite Pellets

PARSONS

LOG OF MONITORING WELL ASW-3

Drilling Date:	16-Sep-03	Geologist:	Eric Mysona
Drilling Company:	Midwest Env. Drilling	Screen Type/diam:	stainless / 1-inch
Site ID: BP Site #04654	Method: 3.25-inch Hollow Stem Augers	Screen Length/slot:	5 feet / 0.060-inch
Site Address: 621 Brandt Pike	Hole Diameter: 6 inches	Depth to Water:	19 feet
Site City/State: Dayton, Ohio	Weather: 70's, sunny	Total Well Depth:	39.8 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
		0					
		1		H		slightly moist, clayey SILT topsoil	
		2		Y			
		3		D			
		4		R			
		5		O			
		6					
		7		V			
		8		A			
		9		C			
		10					
		11		TO			
		12					
		13		FEET			
		14					
		15					
		16					
		17					
		18		AUGER			
		19					
		20		TO			
		21					
		22		18 FEET			
	NA		NA			slightly moist SAND with gravel and cobbles	
		18	60%	9		moist, brown, gray, and black poorly sorted SAND with some gravel	
				10			
	72.5	19		7		wet, gray and black, poorly sorted coarse SAND with some gravel	
				8			
		20	40%	2		wet, black and gray poorly sorted SAND with GRAVEL	
				4			
	119	21		3			
				5			
		22		4		wet, brown, olive, and black poorly sorted coarse SAND with some gravel	
				6			

Bentonite/cement Grout

Bentonite Pellets

Bentonite/Cement Grout

Bentonite Pellets

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PARSONS

LOG OF MONITORING WELL ASW-3

Drilling Date:	16-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Site ID: BP Site #04654	**Method:** 3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.060-inch
Site Address: 621 Brandt Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	19 feet
Site City/State: Dayton, Ohio	**Weather:** 70's, sunny	**Total Well Depth:**	39.8 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
ASW-3 (22-24 ft)	1393	23		28		wet, brown, olive, and black poorly sorted coarse SAND with some gravel	Bentonite Pellets
				29			
		24	70%	12			
				15			
	646	25		18		wet, brown, gray, and olive SAND with GRAVEL	
				20			
		26	70%	20		wet, gray, black, and olive poorly sorted coarse SAND with some gravel	
				20			
	1278	27		20			
				25			
		28	70%	8		wet, black, gray, and olive poorly sorted medium and coarse SAND	
				12			
	1347	29		12			
				8			
		30	75%	6		wet, gray, well-sorted medium coarse SAND	
				17		wet, black, gray, and olive poorly sorted coarse SAND with some gravel	
		31		18			
				16			
		32		No Sample due to Sand Heave			Natural Sand Pack
		33					
		34					
		35					
		36					
		37					
		38					
		39					
		40				Boring ends at 40 feet, well set to 39.8 feet	
		41					
		42					
		43					
		44					
		45					

Bentonite Pellets

Natural Sand Pack

PARSONS

LOG OF MONITORING WELL ASW-4

		Drilling Date:	18-Sep-03	**Geologist:**	Eric Mysona
		Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Site ID:	BP Site #04654	**Method:**	3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.060-inch
Site Address:	621 Brandt Pike	**Hole Diameter:**	6 inches	**Depth to Water:**	20 feet
Site City/State:	Dayton, Ohio	**Weather:**	70's, sunny	**Total Well Depth:**	36 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
NA	NA	0–7	NA	HYDROVAC TO 7 FEET		slightly moist, clayey SILT topsoil	Bentonite/cement Grout
		7–8				slightly moist SAND with gravel and cobbles	
		8–14		AUGER TO 36 FEET			
		14–15				No samples collected during drilling	Bentonite Pellets
		15–16					
		16–22				Sand, gravel, and cobbles observed in auger cuttings	

Bentonite/Cement Grout

Bentonite Pellets

▼

PARSONS

LOG OF MONITORING WELL ASW-4

Drilling Date:	18-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Site ID: BP Site #04654	**Method:** 3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.060-inch
Site Address: 621 Brandt Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	20 feet
Site City/State: Dayton, Ohio	**Weather:** 70's, sunny	**Total Well Depth:**	36 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
NA	NA	23–45				No samples collected during drilling Sand and gravel observed in auger cuttings Boring ends at 36 feet, well set to 36 feet	Bentonite Pellets; Natural Sand Pack; Bentonite Pellets; Natural Sand

LOG OF MONITORING WELL ASW-5

PARSONS

Site ID:	BP Site #04654	Drilling Date:	17-Sep-03
Site Address:	621 Brandt Pike	Drilling Company:	Midwest Env. Drilling
Site City/State:	Dayton, Ohio	Method:	3.25-inch Hollow Stem Augers
		Hole Diameter:	6 inches
		Weather:	70's, sunny, breezy
		Geologist:	Eric Mysona
		Screen Type/diam:	stainless / 1-inch
		Screen Length/slot:	5 feet / 0.060-inch
		Depth to Water:	19 feet
		Total Well Depth:	36 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
		0					
		1		H		slightly moist, clayey SILT topsoil	
		2		Y			
		3		D		slightly moist SAND with gravel and cobbles	
	NA	4	NA	R			
		5		O			
		6		V			
		7		A			
		8		C			
		9		TO			
		10		6			
		11		FEET			
		12					
		13		AUGER			
		14		TO			
		15		18 FEET			
		16					
		17					
		18		18		moist, stiff, brown and gray poorly sorted coarse SAND with some GRAVEL	
				20			
	13.9	19	75%	23		wet GRAVEL with sand	
				20			
		20		14		wet, brown GRAVEL with poorly sorted coarse SAND	
			75%	14			
	16.8	21		15			
				15			
		22		6			
				18			

Bentonite/cement Grout

Bentonite Pellets

Bentonite/Cement Grout

Bentonite Pellets

▽

PARSONS

LOG OF MONITORING WELL ASW-5

Drilling Date:	17-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Site ID: BP Site #04654	**Method:**	3.25-inch Hollow Stem Augers	**Screen Length/slot:** 5 feet / 0.060-inch
Site Address: 621 Brandt Pike	**Hole Diameter:**	6 inches	**Depth to Water:** 19 feet
Site City/State: Dayton, Ohio	**Weather:**	70's, sunny, breezy	**Total Well Depth:** 36 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
ASW-5 (22-24 ft)	323	23		18		wet, dense, well-sorted medium-fine SAND	Bentonite Pellets
				18			
		24	80%	3		wet, gray, and olive well-sorted medium-fine SAND	
	312	25		17			
				20			
		26	80%	22			
				4			
	291	27		17			
				20			
		28	80%	20		wet, gray and olive poorly sorted fine to coarse SAND with little gravel	#4 Silica Sand
				22			
	446	29		20		wet, brown and gray, poorly sorted coarse SAND with some gravel	Natural Sand Pack
				30			
		30	50%	6			
				14			
	125	31		20			
				20			
		32	NA	No			
				Sample		could not sample due to fine to medium SAND heaving in augers	
	NA	33		due to			
				sand heave			
		34	25%	7		wet, poorly sorted gray and brown SAND with some gravel	
				11			
	38.4	35		15			
				20			
		36				Boring ends at 36 feet, well set to 36 feet	
		37					
		38					
		39					
		40					
		41					
		42					
		43					
		44					
		45					

PARSONS

LOG OF MONITORING WELL ASW-6

Drilling Date:	17-Sep-03	Geologist:	Eric Mysona
Drilling Company:	Midwest Env. Drilling	Screen Type/diam:	stainless / 1-inch
Site ID: BP Site #04654	Method: 3.25-inch Hollow Stem Augers	Screen Length/slot:	5 feet / 0.060-inch
Site Address: 621 Brandt Pike	Hole Diameter: 6 inches	Depth to Water:	20 feet
Site City/State: Dayton, Ohio	Weather: 70's, sunny, breezy	Total Well Depth:	36 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
	NA	0–7	NA	HYDROVAC TO 7 FEET		slightly moist, clayey SILT topsoil	
		7–8				slightly moist SAND with gravel and cobbles	
		8–34		AUGER TO 34 FEET		No samples collected sand, gravel, and cobbles in auger cuttings	

Bentonite/cement Grout

Bentonite/Cement Grout

Bentonite Pellets

Bentonite Pellets

PARSONS

LOG OF MONITORING WELL ASW-6

Drilling Date:	17-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	stainless / 1-inch
Method:	3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.060-inch
Hole Diameter:	6 inches	**Depth to Water:**	20 feet
Weather:	70's, sunny, breezy	**Total Well Depth:**	36 feet

Site ID:	BP Site #04654
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
		23					Bentonite Pellets
		24		AUGER			
		25					
		26		TO			
		27					
		28		34 FEET			#4 Silica Sand
		29					
		30					Natural Sand Pack
		31					
		32					
		33					
		34		6			
	39.9		70%	9		wet, gray and olive, well-sorted medium SAND	
		35		13			
				13			
		36					
		37				Boring ends at 36 feet, well set to 36 feet	
		38					
		39					
		40					
		41					
		42					
		43					
		44					
		45					

Bentonite Pellets

#4 Silica Sand

Natural Sand F

PARSONS

LOG OF MONITORING WELL ASW-7

Drilling Date:	18-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Sch 40 PVC / 1-inch
Method:	3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.020-inch
Hole Diameter:	6 inches	**Depth to Water:**	20.5 feet
Weather:	70's, sunny	**Total Well Depth:**	40 feet

Site ID:	BP Site #04654
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
	NA	0–7	NA	HYDRO VAC TO 7 FEET		slightly moist, clayey SILT topsoil slightly moist SAND with gravel and cobbles
		8–11		AUGER TO 28 FEET		no samples collected
		12–22				sand, gravel, and cobbles observed in auger cuttings

Well Completion Flush Mount Protective Cover

Bentonite/cement Grout

Bentonite/Cement Grout

Bentonite Pellets

Bentonite Pellets

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PARSONS

LOG OF MONITORING WELL ASW-7

Drilling Date:	18-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Sch 40 PVC / 1-inch
Method:	3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.020-inch
Hole Diameter:	6 inches	**Depth to Water:**	20.5 feet
Weather:	70's, sunny	**Total Well Depth:**	40 feet

Site ID:	BP Site #04654
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Description	Well Completion Flush Mount Protective Cover
		23				Bentonite Pellets
		24				
		25				
		26				
		27				
		28	80%	10	wet, gray and olive, poorly sorted fine to medium SAND	
				12		
	792	29		16	wet, gray, dilatant, sandy SILT with trace clay	
				16		
No		30	50%	5		
				7	wet, gray, dilatant, sandy SILT	
Samples	49	31		9		
				12		
Sent		32	80%		wet, gray, silty SAND	#5 Silica Sand
to		33		4		
				8		
Lab	352	34	90%	15		
				26	wet, gray, silty SAND with 0.25-inch clay lenses from 34.5 to 35 feet	
		35		6	wet, gray, poorly sorted fine to medium SAND	
				17		
	19.4	36		18	wet, gray, poorly sorted coarse SAND with some gravel	
				20		
		37		Sand Heave Could Not Sample		
		38				
		39				
		40				
		41				
		42				
		43				
		44				
		45				

Bentonite Pellets

#5 Silica Sand

PARSONS

LOG OF MONITORING WELL ASW-8

Drilling Date:	18-Sep-03	Geologist:	Eric Mysona
Drilling Company:	Midwest Env. Drilling	Screen Type/diam:	Sch 40 PVC / 1-inch
Site ID: BP Site #04654	Method: 3.25-inch Hollow Stem Augers	Screen Length/slot:	5 feet / 0.020-inch
Site Address: 621 Brandt Pike	Hole Diameter: 6 inches	Depth to Water:	20.5 feet
Site City/State: Dayton, Ohio	Weather: 70's, sunny	Total Well Depth:	38 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
	NA	0–22	NA	HYDRO VAC TO 7 FEET; AUGER TO 38 FEET		slightly moist, clayey SILT topsoil slightly moist SAND with gravel and cobbles No samples collected during drilling sand, gravel, and cobbles observed in auger cuttings	Bentonite/cement Grout; Bentonite/Cement Grout; Bentonite Pellets; Bentonite Pellets

PARSONS

LOG OF MONITORING WELL ASW-8

Drilling Date:	18-Sep-03	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Sch 40 PVC / 1-inch
Method:	3.25-inch Hollow Stem Augers	**Screen Length/slot:**	5 feet / 0.020-inch
Hole Diameter:	6 inches	**Depth to Water:**	20.5 feet
Weather:	70's, sunny	**Total Well Depth:**	38 feet

Site ID:	BP Site #04654
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Well Completion Flush Mount Protective Cover
		23					Bentonite Pellets
		24					
		25				No samples collected during drilling	
		26					
		27				sand and gravel observed in auger cuttings	
		28					
		29					
		30					Natural Sand Pack
		31					
		32					
		33					
		34					
		35					
		36					
		37					
		38				Boring ends at 38 feet, well set to 38 feet	
		39					
		40					
		41					
		42					
		43					
		44					
		45					

PARSONS

LOG OF AIR SPARGING WELL ASW-9

Drilling Date:	19-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Method:	6.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Hole Diameter:	10 inches	**Depth to Water:**	24 feet
Weather:	50 degrees, misty, cloudy	**Total Well Depth:**	37.7 feet

Site ID:	BP Dayton Terminal
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Description
No samples sent to lab		0	100%	H	six inches of asphalt
		1		Y	moist gravel paving sub-base
		2		D	
		3		R	moist, gravel and clay FILL
		4		O	
		5		V	
	0.5	6	70%	A	moist SAND, GRAVEL, and cobbles
		7		C	
	1.7	8	70%		moist, brown and gray SAND and GRAVEL
		9		5 5 9 12 1 7 11 15 9 11 14 12	
	1.6	10	75%		
		11			
	2.2	12	75%	17 13 13 11	moist, brown and gray GRAVEL, COBBLES, and SAND
		13		1 3 5 5 3 13 17 23 3 8 7 6 3 28 17 17 5 19 17 21	
	0.3	14	50%		
		15			
	1.2	16	50%		moist, brown and gray GRAVEL with SAND, some cobbles
		17			
	0	18	50%		
		19			
	122	20	20%		
		21			
	184	22	75%		

Manhole Cover

Fill

Fill

Bentonite/Cement Grout

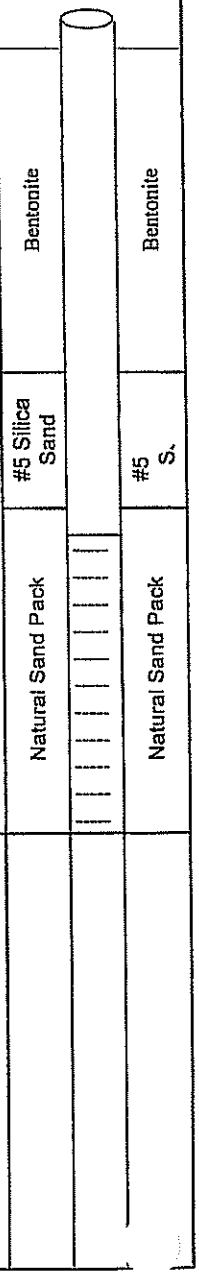
Bentonite/Cement Grout

PARSONS

LOG OF AIR SPARGING WELL ASW-9

Drilling Date:	19-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID: BP Dayton Terminal	**Method:** 6.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address: 621 Brandt Pike	**Hole Diameter:** 10 inches	**Depth to Water:**	24 feet
Site City/State: Dayton, Ohio	**Weather:** 50 degrees, misty, cloudy	**Total Well Depth:**	37.7 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
No samples sent to lab	324	23	75%	7		moist, brown and gray GRAVEL with SAND, trace silt
		24		13		
				20		wet, brown, olive, and gray GRAVEL with SAND
				21		wet, olive fine silty SAND
	343	25	75%	5		wet, olive and gray fine silty SAND, trace gravel
		26		7		
				11		
				17		
	192	27	80%	1		wet, olive and gray fine SAND with some silt
		28		8		
				12		
				15		
	37.4	29	100%	NA		wet, olive and gray fine SAND with some silt
		30				
	49.5	31	100%	8		
		32		11		
				14		
				22		
	NA	33	100%	2		wet, olive and gray fine to medium SAND, trace silt, trace gravel
		34		4		
				8		
				6		
	47.7	35	100%	5		wet, olive and gray, fine to coarse, poorly sorted SAND with some gravel
		36		7		
				11		
				14		
		37		auger to 38 feet		
		38				Well set to 37.7 feet Advanced augers to 38 feet
		39				
		40				
		41				
		42				
		43				
		44				
		45				



PARSONS

LOG OF AIR SPARGING WELL ASW-10

Drilling Date:	19-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Method:	6.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Hole Diameter:	10 inches	**Depth to Water:**	23.5 Feet
Weather:	50 degrees, misty, cloudy	**Total Well Depth:**	37 Feet

Site ID:	BP Dayton Terminal
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Nested 4-inch SVE Well (0.010-inch continuous wrap slots) and 1-inch air sparge well

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		0	100%	Hydro-Vac Excavate to 5 feet		6 inches of asphalt
		1				moist, gravel FILL paving sub-base
		2				moist, gravel and clay FILL
		3				moist SAND, GRAVEL, and COBBLES
		4				
		5	NA	Auger to 9 Feet with 6.25-inch hollow stem augers		moist, brown and gray SAND and GRAVEL
		6				
		7	NA			
		8				
		9	60%	10		moist, brown and gray GRAVEL, sand, and cobbles
	0	10		20		
				15		
		11	60%	16		
	0			6		
		12		7		
				17		
		13	70%	12		
	0			9		slightly moist, loose, brown and gray GRAV EL with sand
		14		11		
				17		
		15	75%	8		
	0			8		
		16		15		
				15		
		17	20%	10		
	0			13		
		18		13		
				13		
		19	60%	12		
	0			7		moist, gray and brown GRAVEL with sand, trace cobbles
		20		7		
				9		
		21	75%	9		
	6.4			9		
		22		5		
				10		
				15		

Flush Mount Manhole

Fill

Fill

Bentonite

Bentonite

#5 Silica Sand

#5 Silica Sand

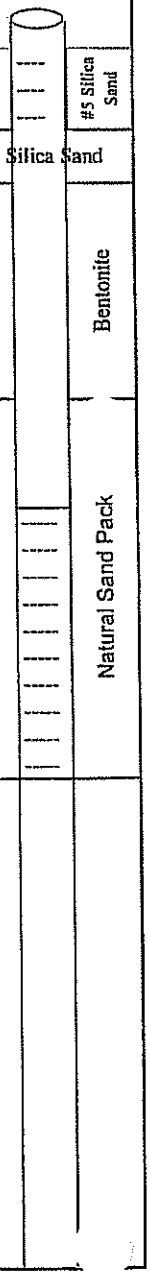
LOG OF AIR SPARGING WELL ASW-10

PARSONS

Drilling Date:	19-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID:	BP Dayton Terminal	**Method:**	6.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address:	621 Brandt Pike	**Hole Diameter:**	10 inches	**Depth to Water:**	23.5 Feet
Site City/State:	Dayton, Ohio	**Weather:**	50 degrees, misty, cloudy	**Total Well Depth:**	37 Feet

Nested 4-inch SVE Well (0.010-inch continuous wrap slots) and 1-inch air sparge well

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		23	75%	7		moist, gray and brown GRAVEL with sand, trace cobbles
	735	24		11 15 13		wet, olive and gray medium to coarse SAND with some gravel
		25	60%	7		
	1,083	26		11 14 15		
		27	70%	8		wet, olive, brown, and gray GRAVEL with sand
	805	28		12 14 23		
		29	10%	5		
	22.9	30		12 19 19		
		31	75%	2		wet, gray and olive medium to coarse GRAVEL with sand
	80.8	32		8 9 13		
		33	50%	2		
	19.9	34		16 23 31		
		35	50%	10		wet, gray and brown GRAVEL with sand
	15.2	36		12 15 16		
		37				Boring ends at 37 feet, well set to 37 feet
		38				1-inch diameter, Schuma Well Screen from 32 to 37 feet
		39				4-inch diameter, 0.010-inch continuous wrap PVC screen from 15 to 25 feet
		40				
		41				
		42				
		43				
		44				
		45				



PARSONS

LOG OF AIR SPARGING WELL ASW-11

Drilling Date:	20-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Method:	3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Hole Diameter:	6 inches	**Depth to Water:**	23.7 Feet
Weather:	50 degrees, misty, cloudy	**Total Well Depth:**	36.5 Feet

Site ID:	BP Dayton Terminal
Site Address:	621 Brandt Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		0				moist topsoil and fill
		1	100%	Hydro-Vac Excavate to 5 feet		moist, brown and gray GRAVEL, cobbles, and sand
		2				
		3				
		4				
		5		Auger to 11 feet		
		6				
		7				
		8				
		9				
		10				
		11	75%	22 15		moist, brown and gray GRAVEL and sand
	0	12		15 18		
		13	60%	4 4		
	0	14		4 4		
		15	60%	10 16		moist, gray and brown GRAVEL with sand and cobbles
	0	16		8 4		
		17	70%	5 11		
	0	18		17 23		
		19	75%	8 15		
	0	20		15 21		
		21	100%	7 11		moist, stiff, brown, then gray clayey SILT, some gravel
	0	22		11 15		

Flush Mount Manhole

Fill

Fill

Bentonite

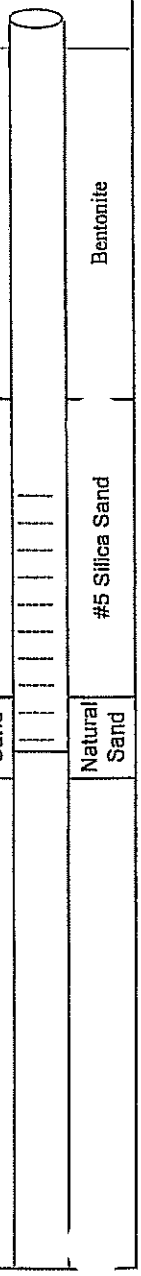
Bentonite

PARSONS

LOG OF AIR SPARGING WELL ASW-11

Drilling Date:	20-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID: BP Dayton Terminal	**Method:** 3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address: 621 Brandt Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	23.7 Feet
Site City/State: Dayton, Ohio	**Weather:** 50 degrees, misty, cloudy	**Total Well Depth:**	36.5 Feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		23	75%	8		moist, stiff, gray clayey SILT with some gravel and cobbles
				11		
	503	24		12		wet, gray and olive SAND and some gravel
				15		
		25	75%	9		
	852			17		wet, gray, SAND with gravel
		26		12		
				14		
		27	75%	12		wet, gray and olive, poorly sorted SAND, trace gravel, hydrocarbon sheen
	1,431			19		
		28		20		
				21		
		29	75%	8		
	1,515			13		
		30		19		
				20		
		31	75%	11		wet, gray, poorly sorted medium to coarse SAND, some gravel
	1,428			16		
		32		17		wet, olive and gray, fine SAND with trace silt
				19		
		33	50%	4		
	473			8		wet, olive and gray fine to medium SAND
		34		12		
				15		
		35	100%	8		
	229			11		
		36		16		wet, olive and gray sandy SILT, dilatant
				19		wet, olive and gray sandy SILT, increasing sand content with depth
		37				drilled to 37 feet, well set to 36.4 Feet
		38				
		39				
		40				
		41				
		42				
		43				
		44				
		45				



PARSONS

LOG OF AIR SPARGING WELL ASW-12

Drilling Date:	19-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Method:	3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Hole Diameter:	6 inches	**Depth to Water:**	22 feet
Weather:	50 degrees, cloudy	**Total Well Depth:**	37 feet

Site ID:	BP Dayton Terminal
Site Address:	621 Brand Pike
Site City/State:	Dayton, Ohio

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
						grass area
		0				moist topsoil
No Samples Sent to Lab	NA	1	100%	Hydro-Vac Excavate to 5 feet		
		2				
		3				moist, brown and gray GRAVEL, COBBLES, and SAND
		4				
		5	NA	Advance 3.25-inch Hollow Stem Augers to 15 feet		
		6				
		7	NA			
		8				
		9	NA	NA		
		10				
		11	NA	NA		
		12				
		13	NA	NA		
		14				
		15	60%	3		moist, brown and gray SAND and GRAVEL, some cobbles
	10.8	16		9 7 8		
		17	75%	10		
	25.9	18		11 13 20		
		19	75%	12		
	223	20		20 25 17		
		21	50%	8		
	220	22		10 8 7		wet, gray and black GRAVEL with sand, hydrocarbon sheen

Flush Mount Manhole

Fill

Fill

Bentonite

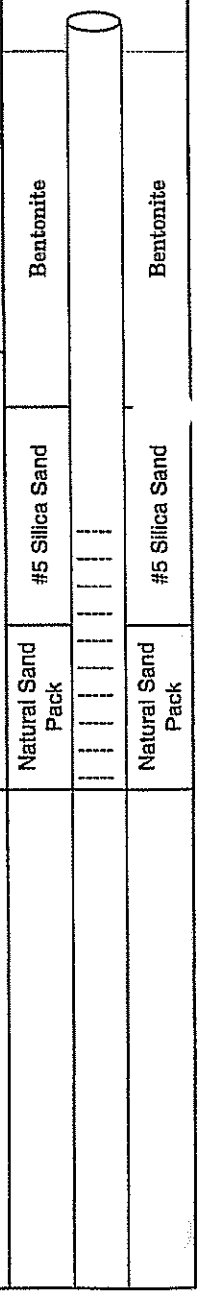
Bentonite

PARSONS

LOG OF AIR SPARGING WELL ASW-12

Drilling Date:	21-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID: BP Dayton Terminal	**Method:** 3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address: 621 Brand Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	22 feet
Site City/State: Dayton, Ohio	**Weather:** 50 degrees, cloudy	**Total Well Depth:**	37 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
NA	1,069	23–24	75%	8, 13, 14, 21		wet, gray GRAVEL with sand, hydrocarbon sheen
	934	25–26	75%	3, 10, 14, 16		wet, gray and olive, fine to coarse, poorly sorted SAND and GRAVEL
	1,099	27–28	75%	8, 12, 13, 15		
	1,130	29–30	50%	3, 5, 9, 9		wet, gray, poorly sorted SAND and GRAVEL, hydrocarbon sheen
	356	31–32	60%	7, 14, 16, 20		
	87.8	33–34	50%	5, 9, 13, 7		wet, gray GRAVEL with some sand, hydrocarbon sheen
	245	35–36	50%	NA		
		37–45				Boring advanced to 37 feet, well set to 37 feet



PARSONS

LOG OF AIR SPARGING WELL ASW-13

Drilling Date:	21-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID: BP Dayton Terminal	**Method:** 3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address: 621 Brand Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	22 feet
Site City/State: Dayton, Ohio	**Weather:** 50 degrees, cloudy	**Total Well Depth:**	38 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		0				moist topsoil
No Samples Sent to Lab	NA	1	100%	Hydro-Vac Excavate to 5 feet		moist, brown and gray GRAVEL, cobbles, and sand
		2				
		3				
		4				
		5	NA	Drill to 15 Feet Using 3.25-inch Hollow Stem Augers		
	NA	6				
		7	NA			
		8				
		9	NA			
		10				
		11	NA			
		12				
		13	NA			
		14				
		15	50%	8		dry, brown and gray GRAVEL and SAND with some cobbles
	0.8	16		9		
				11		
				14		
		17	50%	7		
	2.3	18		11		
				14		
				12		
		19	60%	5		
	47.8	20		12		moist, gray, SAND and GRAVEL with cobbles
				14		
				18		
		21	70%	7		
	45.9	22		6		
				9		wet, gray GRAVEL with sand, hydrocarbon sheen
				7		

Flush Mount Manhole

Fill

Fill

Bentonite

Bentonite

PARSONS

LOG OF AIR SPARGING WELL ASW-13

Drilling Date:	21-Oct-04	**Geologist:**	Eric Mysona
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID: BP Dayton Terminal	**Method:** 3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address: 621 Brand Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	22 feet
Site City/State: Dayton, Ohio	**Weather:** 50 degrees, cloudy	**Total Well Depth:**	38 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description	Flush Mount Manhole
NA	578	23–24	70%	6, 12, 16, 16		wet, gray, olive, and black GRAVEL with SAND LNAPL coating grains, hydrocarbon sheen	Bentonite
	1,057	25–26	70%	5, 11, 12, 12		wet, gray SAND with gravel, hydrocarbon sheen	
	760	27–28	75%	5, 7, 7, 11		wet, gray, poorly sorted fine to coarse SAND, hydrocarbon sheen	
	177	29–30	100%	5, 7, 11, 13		wet, gray, poorly sorted, fine to medium SAND	Natural Sand Pack
	311	31–32	75%	9, 11, 18, 20		wet, gray, poorly sorted fine to coarse SAND with some gravel	
	NA	33–34	50%	12, 18, 22, 25			
	NA	35–36	NA	heaving sand auger to 38 feet			
		37–38				sampled to 35 feet, augered to 38 feet due to heaving sand	
		39–40				set well to 38 feet	
		41–42					
		43–44					
		45					

Bentonite

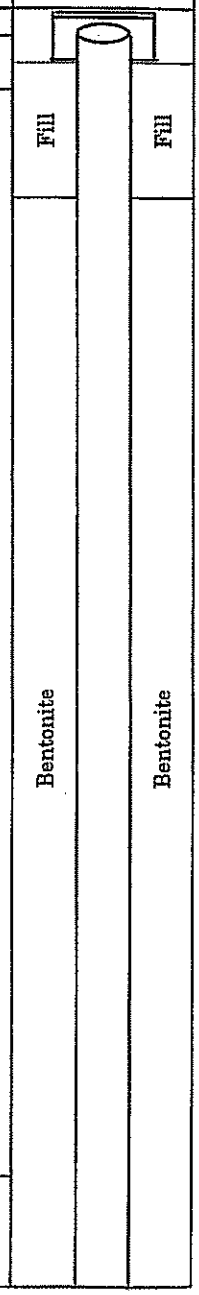
Natural Sand Pack

PARSONS

LOG OF AIR SPARGING WELL ASW-14

Drilling Date:	22-Oct-04	**Geologist:**	Ken Yokoyama
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID: BP Dayton Terminal	**Method:** 3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address: 621 Brand Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	21 feet
Site City/State: Dayton, Ohio	**Weather:** 50 degrees, cloudy	**Total Well Depth:**	37 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
		0				
No Samples Sent to Lab	NA	1	100%	Hydro-Vac Excavate to 5 feet		moist topsoil
		2				moist, brown and gray GRAVEL, cobbles, and sand
		3				
		4				
		5				
	NA	6	NA	Auger to 15 feet Using 3.25-inch Hollow Stem Augers		
		7				
		8	NA			
		9				
		10	NA			
		11				
		12	NA			
		13				
		14	NA			
		15		18		dry, gray GRAVEL and sand with trace cobbles
	2.4		50%	14		
		16		10		
				11		
		17		4		moist, gray GRAVEL and sand with trace cobbles
	3.4		50%	5		
		18		8		
				7		
		19		3		
	4.8		50%	6		
		20		10		
				20		
		21		9		wet, gray, silty SAND and gravel
	65		75%	15		
		22		9		
				9		



PARSONS

LOG OF AIR SPARGING WELL ASW-14

Drilling Date:	22-Oct-04	**Geologist:**	Ken Yokoyama
Drilling Company:	Midwest Env. Drilling	**Screen Type/diam:**	Schuma / 1-inch
Site ID: BP Dayton Terminal	**Method:** 3.25-inch hollow stem augers	**Screen Length/slot:**	5 feet / Schuma
Site Address: 621 Brand Pike	**Hole Diameter:** 6 inches	**Depth to Water:**	21 feet
Site City/State: Dayton, Ohio	**Weather:** 50 degrees, cloudy	**Total Well Depth:**	37 feet

Sample No.	Organic Vapors (PPM)	Depth (ft)	Sample Recovery	Blows	Lithographic Profile	Description
NA	481	23–24	75%	8, 12, 12, 10		wet, gray SAND with some gravel, hydrocarbon sheen
	1,001	25–26	50%	6, 15, 17, 20		wet, gray, poorly sorted fine to coarse SAND with trace cobbles hydrocarbon sheen
	460	27–28	100%	8, 12, 15, 23		wet, gray, poorly sorted, fine to medium SAND with hydrocarbon sheen
	612	29–30	100%	6, 15, 22, 23		wet, gray, poorly sorted fine to medium, SAND with some gravel, hydrocarbon sheen
	121	31–32	100%	10, 5, 25, 30		wet, gray, poorly sorted, fine toe medium SAND
	NA	33–34	NA	NA		heaving sands start at 33 feet
	NA	35–36	NA	NA		
		37–38				advanced augers to 38 feet, sand heaved into hole to 37 feet well set to 37 feet
		39–40				
		41–42				
		43–44				
		45				

Flush Mount Manhole

Bentonite

Natural Sand Pack

Natural Sand Pack

Bentonite

Buckeye Terminal Boring Logs

MW-4

LOG OF BORING NO. 4

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As directed by client

DATE STARTED: 3/4/80

SURFACE ELEVATION: 94.2'

DATE COMPLETED: 3/4/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Dark brown sand and gravel, trace of silt, trace of organic material, trace of cobbles - moist				
5'					
6.5'	(ORIGINAL) Brown fine to coarse sand and gravel, trace of silt, trace of cobbles - moist				
10'					
15'	(Some cobbles from 15.0')				
20'					
25'	(Becomes wet at 24.8')				
30'	(Continued on next page)				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-GR

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 24.8'

COMPLETION DEPTH: 22.0'

DEPTH AFTER: 48 HRS. 21.7'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER - MORNER
TESTING LABORATORIES, INC.

MW-4

LOG OF BORING NO. 4 (second page)

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As directed by client

DATE STARTED: 3/4/80

SURFACE ELEVATION: 94.2'

DATE COMPLETED: 3/4/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
	Bottom of boring at 31.0'				
	NOTE: 2" PVC pipe installed with bottom of screen at 31.0' Top of pipe elevation is 96.6'				
35'					
40'					
45'					
50'					
60'					
65'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-GR

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 24.8'

COMPLETION DEPTH: 22.0'

DEPTH AFTER: 48 HRS. 21.7'

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 7

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

MW-7

BORING LOCATION: As directed by client

DATE STARTED: 3/5/80

SURFACE ELEVATION: 97.8'

DATE COMPLETED: 3/5/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
	Topsoil				
0.0'					
0.3'	Brown silt, some clay, trace of				
2.0'	sand, trace of gravel - moist				
	Brown fine to coarse sand and gravel, trace of cobbles - moist				
5'					
10'					
15'					
20'					
25'	(Becomes wet at 25.8')				
30'	(Continue on next page)				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-GR

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 25'9"

COMPLETION DEPTH: 25'9"

DEPTH AFTER: 24 HRS. 25 5'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC

LOG OF BORING NO. 7 (second page)

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON OHIO

MW-7

BORING LOCATION: As directed by client

DATE STARTED: 3/5/80

SURFACE ELEVATION: 97.8'

DATE COMPLETED: 3/5/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
	Bottom of boring at 32.0'				
35'	NOTE: 2" PVC installed with bottom of screen at 32.0' Top of pipe elevation is 99.9'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-GR

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 25'9"

COMPLETION DEPTH: 25'9"

DEPTH AFTER: 24 HRS. 25'5"

TYPE SAMPLER:

___ A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2815

MW-8

LOG OF BORING NO. 8

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON OHIO

BORING LOCATION: As directed by client

DATE STARTED: 3/6/80

SURFACE ELEVATION: 97.8'

DATE COMPLETED: 3/6/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Dark brown sitl, some clay, trace of sand, trace of gravel, trace of organic material - moist				
2.5'	Brown fine to coarse sand and gravel, trace of silt, trace of cobbles - moist				
5'					
10'					
15'					
20'					
25'	(Becomes wet at 26.3')				
30'	(Continued on next page)				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-CP

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 26'4"

COMPLETION DEPTH: 25'11"

DEPTH AFTER: 3 HRS. 25.3'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER - MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 8 (second page)

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As directed by client

DATE STARTED: 3/6/80

SURFACE ELEVATION: 97.8'

DATE COMPLETED: 3/6/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
	Bottom of boring at 32.0'				
35'	NOTE: 2" PVC pipe installed with bottom of screen at 32.0' Top of pipe elevation is 99.7'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-CP

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 26'4"

COMPLETION DEPTH: 25'11"

DEPTH AFTER: 3 HRS. 25.3'

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

MW-9

LOG OF BORING NO. 9

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As directed by client

DATE STARTED: 3/6/80

SURFACE ELEVATION: 94.2'

DATE COMPLETED: 3/6/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Dark brown silt and sand, some gravel, trace of organic material - moist				
2.0	Brown fine to coarse sand and gravel, some cobbles, trace of silt - moist				
5'					
8.0'	Brown fine to coarse sand and gravel, trace of cobbles, trace of silt - moist				
10'					
15'					
20'					
	(Becomes wet at 22.5')				
25'					
30'	Bottom of boring at 29.0' (Continued on next page)				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-'CP

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 22.5'

COMPLETION DEPTH: 22.2'

DEPTH AFTER: 1/2 HRS. 22.2'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 9 (second page)

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As directed by client

DATE STARTED: 3/6/80

SURFACE ELEVATION: 94.2'

DATE COMPLETED: 3/6/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued) NOTE: 2" PVC pipe installed with bottom of screen at 28.5' Top of pipe elevation is 96.83'				
5'					
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-CP

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 22.5'

COMPLETION DEPTH: 22.2'

DEPTH AFTER: 1/2 HRS. 22.2'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2B15

LOG OF BORING NO. 12

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

MW-12

BORING LOCATION: As directed by client

DATE STARTED: 4/15/80

SURFACE ELEVATION: 94.4'

DATE COMPLETED: 4/15/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.2'	Brown clay, some silt - damp				
2.5'	Brown sand and gravel, trace of silt - damp				
5'					
10'					
15'					
20'					
25'					
30'					

(Continued on next page)

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-RF

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 30.0'

COMPLETION DEPTH: 30.0'

DEPTH AFTER: 24 HRS. 30.0'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 12 (second page)

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

MW-12

BORING LOCATION: As direct by client

DATE STARTED: 4/15/80

SURFACE ELEVATION: 94.4'

DATE COMPLETED: 4/15/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued				
35'					
40'					
	Bottom of boring at 40.0'				
	NOTE: 2" PVC pipe installed with bottom of screen at 25.0' Top of pipe elevation is 96.6'				
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-RE

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 30.0'

COMPLETION DEPTH: 30.0'

DEPTH AFTER: 24 HRS. 30.0'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 13

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

MW-13

BORING LOCATION: As directed by client

DATE STARTED: 4/14/80

SURFACE ELEVATION: 94.1'

DATE COMPLETED: 4/14/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Brown clay; some silt, some sand - damp				
2.0'	Brown sand and gravel, trace of silt - damp				
5'					
10'					
15'					
20'					
25'					
30'					

(Continued on next page)

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-RF-BC

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 29.0'

COMPLETION DEPTH: 29.0'

DEPTH AFTER: 24 HRS. 29.0'

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 13 (second page)

MONITOR WELLS FOR SHELL OIL ON BRANDT PIKE, DAYTON, OHIO

MW-13

BORING LOCATION: As directed by client

DATE STARTED: 4/14/80

SURFACE ELEVATION: 94.1'

DATE COMPLETED: 4/14/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
35'					
40'	Bottom of boring at 40.0'				
45'	NOTE: 2" PVC pipe installed with bottom of screen at 34.0' Top of pipe elevation is 96.2'				
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-RF-BC

JOB NO.: 25557 (jee)

WATER OBSERVATIONS

INITIAL DEPTH: 29.0'

COMPLETION DEPTH: 29.0'

DEPTH AFTER: 24 HRS. 29.0'

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

MW #14-27

MW-14

LOG OF BORING NO. 14

SHELL OIL CO., 801 BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As shown on boring location plan

DATE STARTED: 10/24/83

SURFACE ELEVATION: 100.75'

DATE COMPLETED: 10/24/83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown sand and gravel, some silt, - moist				
10'					
20'					
	(becomes wet at 27.1')				
30'					
35.0'	Grey sand and silt, some gravel - wet				
40'					
	Bottom of Boring at 44.0'				
50'					
60'					

METHOD: Hollow Stem Auger

TECHNICIAN: RG/RH

JOB NO.: 27293

WATER OBSERVATIONS

INITIAL DEPTH: 27.1'

COMPLETION DEPTH: 27.1

DEPTH AFTER: 24 HRS. 26.3'

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

2B15

MW-15

LOG OF BORING NO. 15

SHELL OIL CO., 801 BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As shown on boring location plan

SURFACE ELEVATION: 93.50'

DATE STARTED: 10/24/83

DATE COMPLETED: 10/24/83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown sand and gravel - moist				
10'					
20'					
30'					
	(becomes wet at 37.5')				
40'	Bottom of Boring at 39.0'				
50'					
60'					

METHOD: Hollow Stem Auger

TECHNICIAN: RG/RH

JOB NO.: 27293

WATER OBSERVATIONS

INITIAL DEPTH: 37.5'

COMPLETION DEPTH: 37.5'

DEPTH AFTER: 24 HRS. 19.8

TYPE SAMPLER:

A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER – MORNER

2815

MW-16

LOG OF BORING NO. 16

SHELL OIL CO., 801 BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 10/24/83

SURFACE ELEVATION: 96.20' **DATE COMPLETED:** 10/24/83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown sand and gravel, some silt, trace of cobbles - moist				
10'					
17.0'					
20'	Grey clay, some silt, trace of sand, trace of gravel - moist				
21.0'	Grey sand and silt, some gravel, some clay - moist				
30'					
	(becomes wet at 37.0')				
40'	Bottom of Boring at 39.0'				
50'					
60'					

METHOD: Hollow Stem Auger

TECHNICIAN: RG/RH

JOB NO.: 27293

WATER OBSERVATIONS

INITIAL DEPTH: 37.0'

COMPLETION DEPTH: 37.0'

DEPTH AFTER: 24 HRS. 24.0'

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

2815

BOWSER – MORNER

LOG OF BORING NO. 24

SHELL OIL COMPANY, 801 BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As shown on boring location plan

DATE STARTED: 4/16/86

SURFACE ELEVATION: 96.62'

DATE COMPLETED: 4/16/86

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.2'	Brown silt, some clay, trace of gravel - damp				
1.5'	Brown sand and gravel - moist				
20.0	Gray sand and gravel - wet				

5' 10' 15' 25' 30'

METHOD: Hollow Auger

TECHNICIAN: RF-TB

JOB NO.: 29028

WATER OBSERVATIONS

INITIAL DEPTH: 20.0'

COMPLETION DEPTH: 19.4'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

2B15

LOG OF BORING NO. 24

SHELL OIL COMPANY, 801 BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As shown on boring location plan

DATE STARTED: 4/16/86

SURFACE ELEVATION: 96.62'

DATE COMPLETED: 4/16/86

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'					
35'	Bottom of Boring at 33.0'				
40'					
45'					
50'					
55'					
60'					

METHOD: Hollow Auger

TECHNICIAN: RF-TB

JOB NO.: 2902B

WATER OBSERVATIONS

INITIAL DEPTH: 20.0'

COMPLETION DEPTH: 19.4'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

2B15

LOG OF BORING NO. 27 MW-27

SHELL OIL CO., 801 BRANDT PIKE, DAYTON, OHIO

BORING LOCATION: As shown on boring location plan DATE STARTED: 6/5/87

SURFACE ELEVATION: 99.03' DATE COMPLETED: 6/5/87

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0	Topsoil				
0.3'	Brown Silt				
1.5'	Brown sand and gravel				
10'					
20'	Grey sand and gravel				
30'					
	Bottom of Boring at 35.5'				
40'					
50'					
60'					

METHOD: Hollow Stem Auger

TECHNICIAN: JR

JOB NO.: 29116

WATER OBSERVATIONS

INITIAL DEPTH: 24.9'

COMPLETION DEPTH: 24.9'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

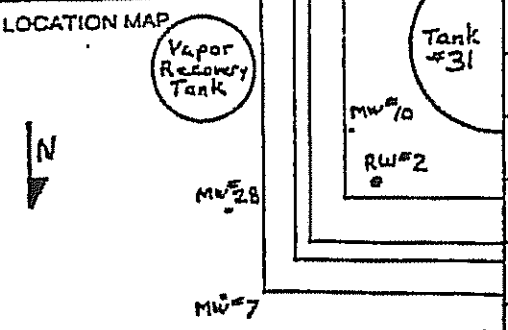
2B15

BOWSER – MORNER

S-12787 (1-85)

SHELL OIL COMPANY — WELL LOG

LOCATION MAP

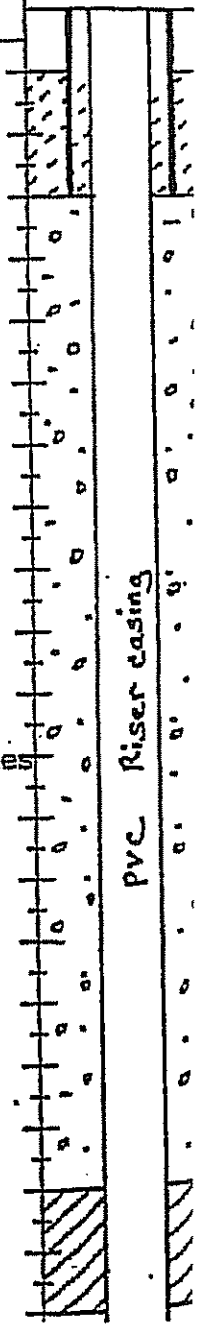


ELEVATION ▸

WELL NUMBER ▸ MW-28	LOCATION ▸ Dayton, Ohio		
DATE ▸ 11/24-11/25/87	WEATHER ▸ cloudy, 45		
LOGGED BY ▸ M. Watkins	DRILLED BY ▸ Moody's.. driller-Russell helper-William		
DRILLING METHOD ▸ cable tool	SAMPLING METHOD ▸ NA		
GRAVEL PACK ▸ #5 silica sand	SEAL ▸ bentonite		
CASING ▸ TYPE PVC	DIAMETER 4"	LENGTH 25'	HOLE DIA 8"
SCREEN ▸ TYPE PVC	SLOT .020 / DIAMETER 4"	LENGTH 15'	TOTAL DEPTH 37'

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0			brown, Clay and Silt, trace gravel
					1			
					2			brown, medium Sand and Gravel, some clay, some silt
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					1			brown, medium Sand and Gravel, some cobbles
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			

WELL COMPLETION



S-12767 (1-85)

LOCATION MAP

ELEVATION

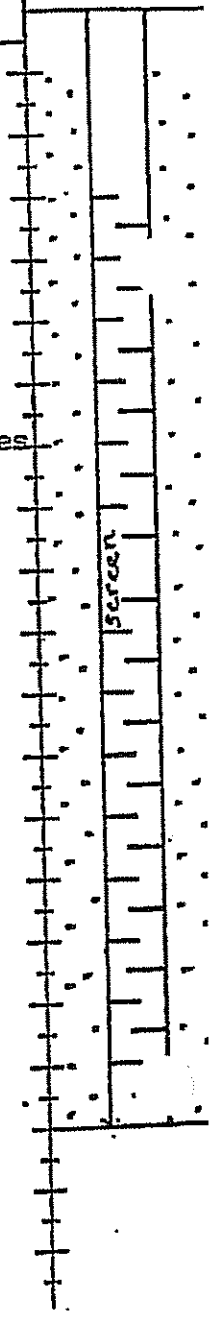
SHELL OIL COMPANY — WELL LOG

WELL NUMBER: MW-28	LOCATION: Dayton, Ohio
DATE:	WEATHER:
LOGGED BY:	DRILLED BY:
DRILLING METHOD:	SAMPLING METHOD:
GRAVEL PACK:	SEAL:

CASING: TYPE DIAMETER LENGTH HOLE DIA

SCREEN: TYPE SLOT DIAMETER LENGTH TOTAL DEPTH

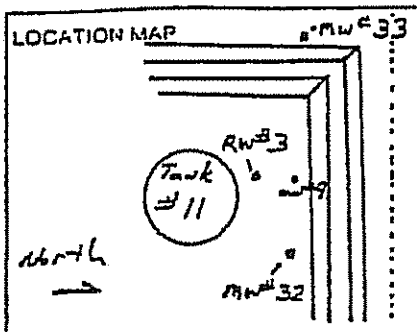
MOISTURE CONTENT	BONDING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETION
					20			Sand and Gravel, slight hydrocarbon odor	
					1				
					2				
					3				
					4				
					5				
					6			brown, medium Sand and Gravel, some cobbles	
					7			thin layers of brown/gray Clay interbedded from 25'-30'	
					8				
					9				
					30				
					1			▼ static water level=34.12'(T.O.C.) (measured 11/25/87)	
					2				
					3				
					4				
					5				
					6				
					7			brown Clay, trace gravel, trace silt	
					8			TD=37'	
					9				



WELL LOG

PAGE 1 OF

LOCATION MAP



ELEVATION

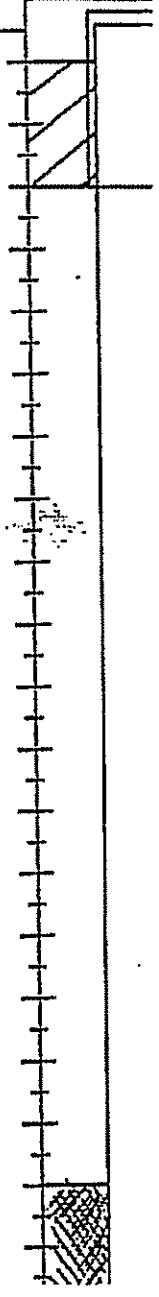
WELL NUMBER	MW #32	LOCATION	Dayton, Ohio
DATE	6/14/88	WEATHER	Sunny, 95° F
LOGGED BY	J. Sewell	DRILLED BY	Moody's of Dayton Bill Elliot
DRILLING METHOD	Hollow Stem Auger	SAMPLING METHOD	Grab
GRAVEL PACK	#4 Silica Sand	SEAL	Bentonite

CASING ▶ TYPE PVC Schedule 40 DIAMETER 4" LENGTH 22' HOLE DIA 8"

SCREEN ▶ TYPE PVC SLOT #20 DIAMETER 4" LENGTH 15' TOTAL DEPTH 37

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
dry					0–6			large Gravel, some sand
moist					4–9			medium Gravel and Sand, trace cobbles

WELL COMPLET



WELL LOG

PAGE 2 OF

LOCATION MAP

ELEVATION

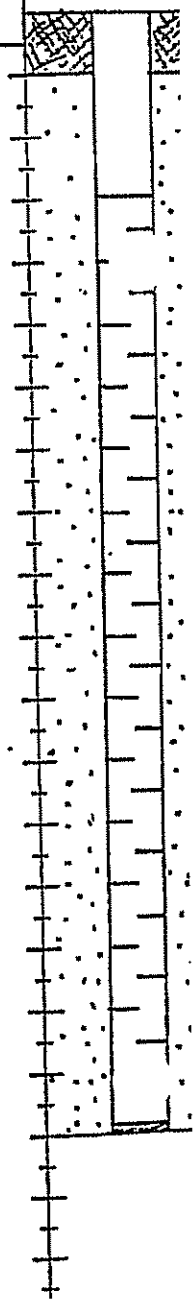
WELL NUMBER: MW #32	LOCATION: Dayton, Ohio
DATE:	WEATHER:
LOGGED BY:	DRILLED BY:
DRILLING METHOD:	SAMPLING METHOD:
GRAVEL PACK:	SEAL:

CASING: TYPE DIAMETER LENGTH HOLE DIA.

SCREEN: TYPE SLOT DIAMETER LENGTH TOTAL DEPTH

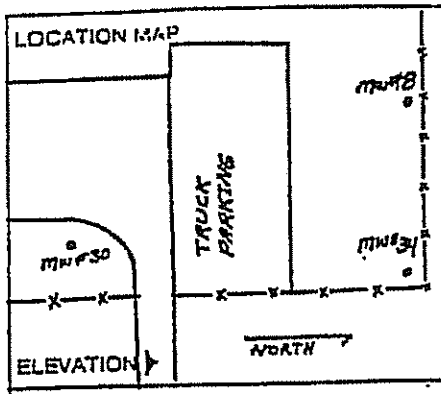
MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
moist					0			
					1			
					2			
					3			medium Gravel and Sand, trace cobbles, diesel odor
					4			
					5			
					6			
					7			
					8			
wet					9			
					0			Groundwater first encountered during drilling
saturated					1			
					2			medium to small Gravel and coarse Sand, diesel odor
					3			
					4			
					5			
					6			
					7			TD = 37'
					8			
					9			

WELL COMPLETION



WELL LOG

LOCATION MAP



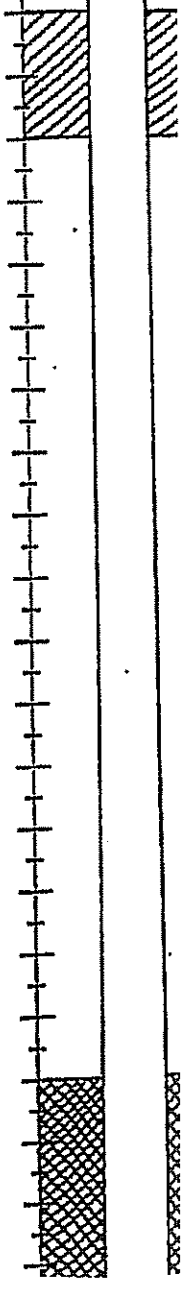
WELL NUMBER: MW #34	LOCATION: Dayton, OH
DATE: 8/8 - 8/9/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Dave helper-Bill
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC DIAMETER 4" LENGTH 25.3' HOLE DIA 10"

SCREEN: TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52.5

MOISTURE CONTENT	CONSIST	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0			brown Silt, some gravel
					1			
					2			brown, medium Sand, some gravel, trace cobbles
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			

WELL COMPLETION



WELL LOG

LOCATION MAP

ELEVATION ▶

WELL NUMBER ▶ MW #34	LOCATION ▶ Dayton, OH
DATE ▶	WEATHER ▶ sunny, hot
LOGGED BY ▶ M. Allen	DRILLED BY ▶ Bowser Morner driller-Dave helper-Bill
DRILLING METHOD ▶ hollow auger	SAMPLING METHOD ▶ N/A
GRAVEL PACK ▶ No. 4 silica sand	SEAL ▶ bentonite

CASING ▶ TYPE PVC DIAMETER 4" LENGTH 25.3' HOLE DIA 10"

SCREEN ▶ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52.5'

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETION
					20 1 2 3 4 5 6 7 8 9 30 1 2 3 4 5 6 7 8 9 40			brown, medium Sand and Gravel, trace cobbles	

static water level = 36.33' (T.O.C.)
(measured 8/9/88)

WELL LOG

LOCATION MAP

ELEVATION ▸

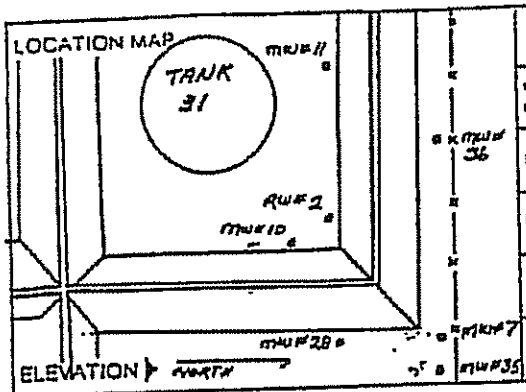
WELL NUMBER ▸ MW #34	LOCATION ▸ Dayton, OH
DATE ▸ 8/8 - 8/9/88	WEATHER ▸ sunny, hot
LOGGED BY ▸ M. Allen	DRILLED BY ▸ Bowser Morner driller-Dave helper-Bill
DRILLING METHOD ▸ hollow auger	SAMPLING METHOD ▸ N/A
GRAVEL PACK ▸ No. 4 silica sand	SEAL ▸ bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 25.3' HOLE DIA 10

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLET
					40			brown, medium Sand, some gravel, trace cobbles	
					50			T.D. = 52.5'	

WELL LOG



WELL NUMBER: MW #35	LOCATION: Dayton, OH
DATE: 8/9 - 8/10/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Dave helper-Bill
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC DIAMETER 4" LENGTH 24.1' HOLE DIA. 10"

SCREEN: TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52.9

MOISTURE CONTENT	CONSIS	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0–10			brown Silt, some brown, medium sand and gravel
					10–20			brown, medium Sand and Gravel, trace silt, trace cobbles
					20–30			fine-medium Gravel, some brown, fine sand, trace cobbles
					30–40			coarse-medium Gravel, trace brown, medium sand, some cobbles

WELL COMPLETION

WELL LOG

LOCATION MAP

ELEVATION ▶

WELL NUMBER ▶ MW #35	LOCATION ▶ Dayton, OH
DATE ▶ 8/9 - 8/10/88	WEATHER ▶ sunny, hot
LOGGED BY ▶ M. Allen	DRILLED BY ▶ Bowser Morner driller-DAve helper-Bill
DRILLING METHOD ▶ hollow auger	SAMPLING METHOD ▶ N/A
GRAVEL PACK ▶ No. 4 silica sand	SEAL ▶ bentonite

CASING ▶ TYPE PVC DIAMETER 4" LENGTH 24.1' HOLE DIA 10"

SCREEN ▶ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52.9

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETIO
					20				
					1				
					2			brown, medium Sand and Gravel	
					3				
					4				
					5			brown, medium Sand, some coarse gravel	
					6				
					7				
					8				
					9				
					30				
					1				
					2				
					3				
					4				
					5				
					6			static water level = 36.61' (T.O.C.) (measured 8/10/88)	
					7				
					8				
					9				
					40				

WELL LOG

LOCATION MAP

ELEVATION ▸

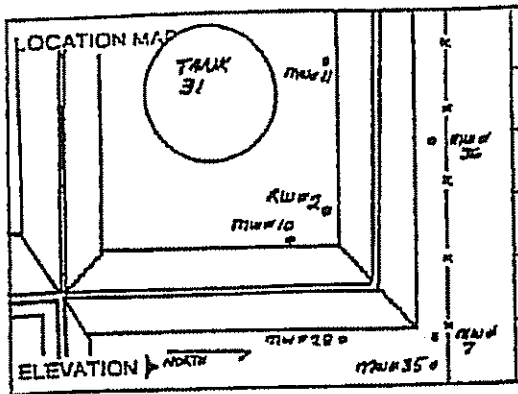
WELL NUMBER ▸ MW #35	LOCATION ▸ Dayton, OH
DATE ▸ 8/9 - 8/10/88	WEATHER ▸ sunny, hot
LOGGED BY ▸ M. Allen	DRILLED BY ▸ Bowser Morner driller-Dave helper-Bill
DRILLING METHOD ▸ hollow auger	SAMPLING METHOD ▸ N/A
GRAVEL PACK ▸ No. 4 silica sand	SEAL ▸ bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 24.1' HOLE DIA 10"

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52.9

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETION
					40			brown, medium Sand, some coarse gravel	
					1				
					2				
					3				
					4				
					5				
					6				
					7				
					8				
					9				
					50				
					1				
					2			TD = 52.9'	
					3				
					4				
					5				
					6				
					7				
					8				
					9				
					0				

WELL LOG



WELL NUMBER	MW #36	LOCATION	Dayton, OH
DATE	8/10/88	WEATHER	sunny, hot
LOGGED BY	M. Allen	DRILLED BY	Bowser Morner driller-Dave helper-Bill
DRILLING METHOD	hollow auger	SAMPLING METHOD	N/A
GRAVEL PACK	No. 4 silica sand	SEAL	bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 26.1' HOLE DIA 10"

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.

MOISTURE CONTENT	SOIL/RIG	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0			brown Clay, some brown silt, trace brown, medium sand, trace gravel
					1			
					2			
					3			brown, medium Sand and Gravel
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					1			
					2			
					3			
					4			
					5			coarse-medium Gravel, some brown, medium sand, trace cobbles
					6			
					7			
					8			
					9			
					20			

WELL COMPLETI

WELL LOG

LOCATION MAP

ELEVATION ▸

WELL NUMBER ▸ MW #36	LOCATION ▸ Dayton, OH
DATE ▸ 8/10/88	WEATHER ▸ sunny, hot
LOGGED BY ▸ M. Allen	DRILLED BY ▸ Bowser Morner driller-Dave helper-Bill
DRILLING METHOD ▸ hollow auger	SAMPLING METHOD ▸ N/A
GRAVEL PACK ▸ No. 4 silica sand	SEAL ▸ bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 26.1' HOLE DIA 10"

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.2

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETIO
					20				
					1				
					2				
					3				
					4				
					5				
					6				
					7				
					8				
					9				
					30				
					1				
					2				
					3				
					4				
					5				
					6				
					7				
					8				
					9				
					40				

static water level = 37.42' (T.O.C.)
(measured 8/11/88)

brown, medium-coarse Sand and Gravel

WELL LOG

LOCATION MAP

ELEVATION ▶

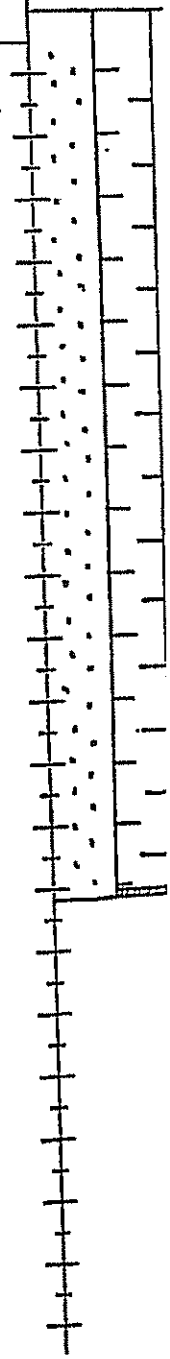
WELL NUMBER ▶ MW #36	LOCATION ▶ Dayton, OH
DATE ▶ 8/10/88	WEATHER ▶ sunny, hot
LOGGED BY ▶ M. Allen	DRILLED BY ▶ Bowser Morner driller-Dave helper-Bill
DRILLING METHOD ▶ hollow auger	SAMPLING METHOD ▶ N/A
GRAVEL PACK ▶ No. 4 silica sand	SEAL ▶ bentonite

CASING ▶ TYPE PVC DIAMETER 4" LENGTH 26.1' HOLE DIA 10"

SCREEN ▶ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.2

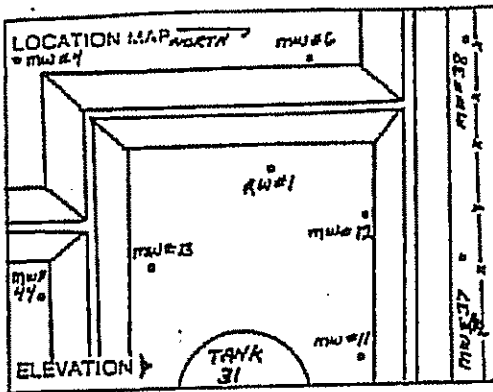
MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					40			brown, medium-coarse Sand and Gravel
					50			TD = 53.2'

WELL COMPLETIO



WELL LOG

PAGE 1 OF 3



WELL NUMBER	MW #37	LOCATION	Dayton, OH
DATE	8/10 - 8/11/88	WEATHER	sunny, hot
LOGGED BY	M. Allen	DRILLED BY	Bowser Morner driller-Bill C. helper-E
DRILLING METHOD	hollow auger	SAMPLING METHOD	N/A
GRAVEL PACK	No. 4 silica sand	SEAL	bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 25.5' HOLE DIA 1(

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 5'

MOISTURE CONTENT	SOIL TYPE	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0–20			brown Silt and brown, medium-fine Sand, trace gravel fine-coarse Gravel, some brown, medium sand

WELL COMPLE

WELL LOG

LOCATION MAP

ELEVATION ▶

WELL NUMBER ▶ MW #37	LOCATION ▶ Dayton, OH
DATE ▶ 8/10 - 8/11/88	WEATHER ▶ sunny, hot
LOGGED BY ▶ M. Allen	DRILLED BY ▶ Bowser Morner driller-Bill C. helper-Bil
DRILLING METHOD ▶ hollow auger	SAMPLING METHOD ▶ N/A
GRAVEL PACK ▶ No. 4 silica sand	SEAL ▶ bentonite

CASING ▶ TYPE PVC DIAMETER 4" LENGTH 25.5' HOLE DIA 10"

SCREEN ▶ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.5

MOISTURE CONTENT	SOIL/RIG	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETION
					20			brown, medium-coarse Sand and Gravel	
					30			static water level = 36.16' (T.O.C.) (measured 8/11/88)	
					40				

WELL LOG

LOCATION MAP

ELEVATION ▶

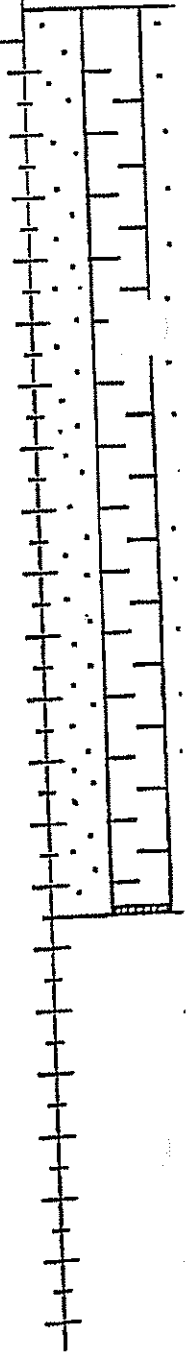
WELL NUMBER ▶ MW #37	LOCATION ▶ Dayton, OH
DATE ▶ 8/10 - 8/11/88	WEATHER ▶ sunny, hot
LOGGED BY ▶ M. Allen	DRILLED BY ▶ Bowser Morner driller-Bill C. helper-Bi
DRILLING METHOD ▶ hollow auger	SAMPLING METHOD ▶ N/A
GRAVEL PACK ▶ No. 4 silica sand	SEAL ▶ bentonite

CASING ▶ TYPE PVC DIAMETER 4" LENGTH 25.5' HOLE DIA 10"

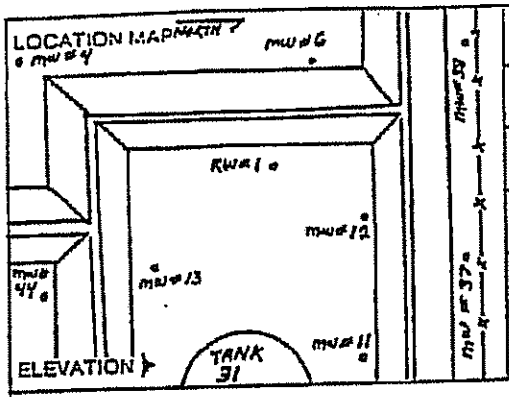
SCREEN ▶ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.5'

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0			
					1			
					2			
					3			
					4			
					5			brown, medium-coarse Sand, some coarse gravel
					6			
					7			
					8			
					9			
					50			brown, coarse Sand, some gravel
					1			
					2			
					3			TD = 53.5'
					4			
					5			
					6			
					7			
					8			
					9			
					0			

WELL COMPLETIO



WELL LOG



WELL NUMBER: MW #38	LOCATION: Dayton, OH
DATE: 8/11/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Bill C. helper-Bi
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC — DIAMETER 4" — LENGTH 24.7' — HOLE DIA 10'

SCREEN: TYPE PVC — SLOT 0.02 — DIAMETER 4" — LENGTH 30' — TOTAL DEPTH 52.

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0–20			brown Clay, some brown silt brown, fine Sand, some gravel, trace silt brown fine-medium Sand and Gravel brown, medium Sand and Gravel, trace cobbles

WELL COMPLETI

WELL LOG

LOCATION MAP

ELEVATION ▸

WELL NUMBER ▸ MW #38	LOCATION ▸ Dayton, OH
DATE ▸ 8/11/88	WEATHER ▸ sunny, hot
LOGGED BY ▸ M. Allen	DRILLED BY ▸ Bowser Morner driller-BillC. helper-Bil
DRILLING METHOD ▸ hollow auger	SAMPLING METHOD ▸ N/A
GRAVEL PACK ▸ No. 4 silica sand	SEAL ▸ bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 24.7' HOLE DIA 10"

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52.7

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					20–40			brown, medium-coarse Sand and Gravel

static water level = 35.5' (T.O.C.)
(measured 8/11/88)

WELL COMPLETI

WELL LOG

LOCATION MAP

ELEVATION

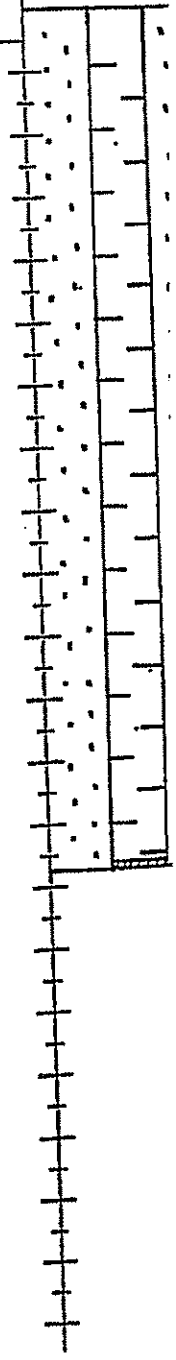
WELL NUMBER: MW #38	LOCATION: Dayton, OH
DATE: 8/11/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Bill C. helper-Bill
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC DIAMETER 4" LENGTH 24.7' HOLE DIA. 10"

SCREEN: TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 52.7'

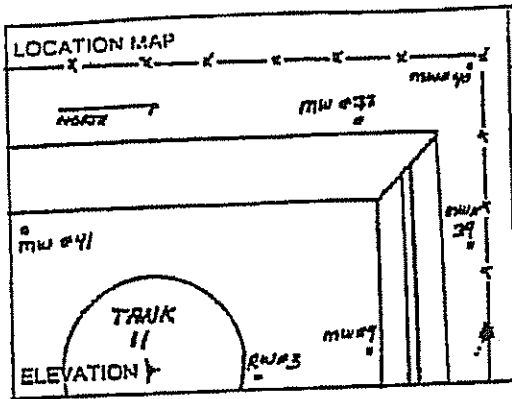
MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					40			brown, medium-coarse Sand and Gravel
					50			TD = 52.7'

WELL COMPLETIO



WELL LOG

LOCATION MAP



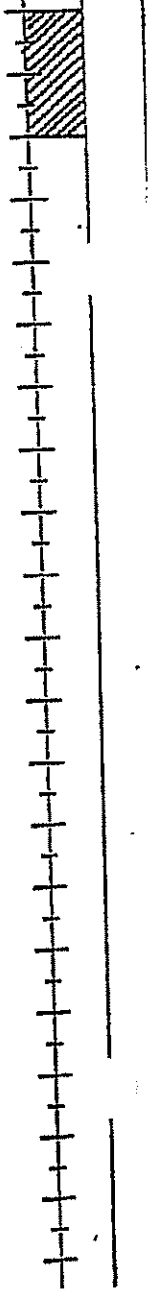
WELL NUMBER: MW #39	LOCATION: Dayton, OH
DATE: 8/12/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Bill C. helper-Bi
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC DIAMETER 4" LENGTH 26' HOLE DIA 10"

SCREEN: TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 54.

MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0			brown Clay, some silt
					1			
					2			brown, medium-coarse Sand and Gravel, trace cobbles
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					20			

WELL COMPLET



WELL LOG

LOCATION MAP

ELEVATION ▸

WELL NUMBER ▸ MW #39	LOCATION ▸ Dayton, OH
DATE ▸ 8/12/88	WEATHER ▸ sunny, hot
LOGGED BY ▸ M. Allen	DRILLED BY ▸ Bowser Morner driller-Bill C. helper-Bi
DRILLING METHOD ▸ hollow auger	SAMPLING METHOD ▸ N/A
GRAVEL PACK ▸ No. 4 silica sand	SEAL ▸ bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 26' HOLE DIA 10"

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 54.2

MOISTURE CONTENT	SOIL TYPE	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					20			brown, medium-coarse Sand and Gravel
					30			brown, medium-coarse Sand, trace gravel static water level = 36.07' (T.O.C.) (measured 8/12/88)
					40			

WELL COMPLETIC

WELL LOG

LOCATION MAP

ELEVATION ▸

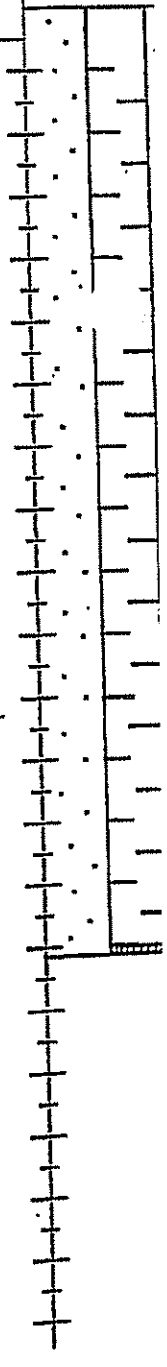
WELL NUMBER ▸ MW #39	LOCATION ▸ Dayton, OH
DATE ▸ 8/12/88	WEATHER ▸ sunny, hot
LOGGED BY ▸ M. Allen	DRILLED BY ▸ Bowser Morner driller-Bill C. helper-Bi
DRILLING METHOD ▸ hollow auger	SAMPLING METHOD ▸ N/A
GRAVEL PACK ▸ No. 4 silica sand	SEAL ▸ bentonite

CASING ▸ TYPE PVC DIAMETER 4" LENGTH 26' HOLE DIA 10"

SCREEN ▸ TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 54.

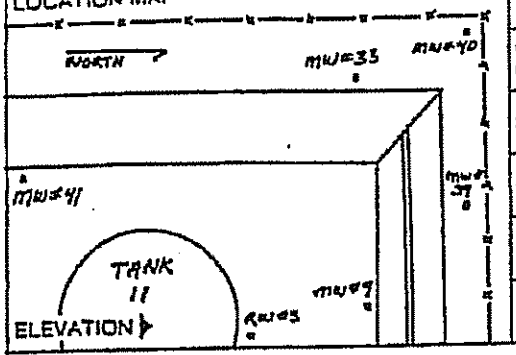
MOISTURE CONTENT	SORTING	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					40			brown, medium Sand, some gravel
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			gray medium Sand
					9			
					50			brown, medium Sand, some coarse, gravel
					1			
					2			
					3			
					4			TD = 54.2'
					5			
					6			
					7			
					8			
					9			
					0			

WELL COMPLETI



WELL LOG

LOCATION MAP



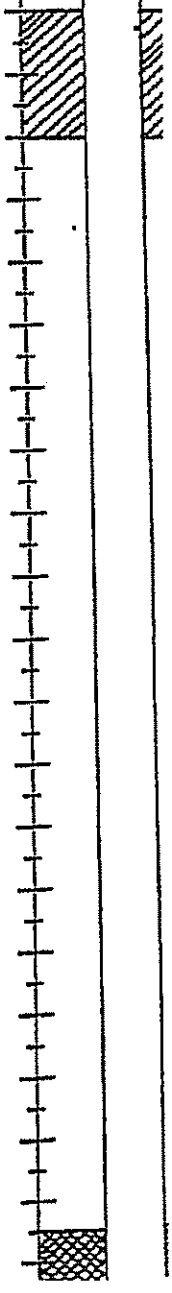
WELL NUMBER: MW #40	LOCATION: Dayton, OH
DATE: 8/12/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Bill C. helper-Bill
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC DIAMETER 4" LENGTH 25.9' HOLE DIA 10"

SCREEN: TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.9

MOISTURE CONTENT	SOIL/RQD	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					0			brown Clay, some silt
					3			brown, medium Sand and medium-coarse Gravel, trace cobbles

WELL COMPLETIC



WELL LOG

LOCATION MAP

ELEVATION

WELL NUMBER: MW #40	LOCATION: Dayton, OH
DATE: 8/12/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Bill C. helper-Bil
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC DIAMETER 4" LENGTH 25.9' HOLE DIA 10"

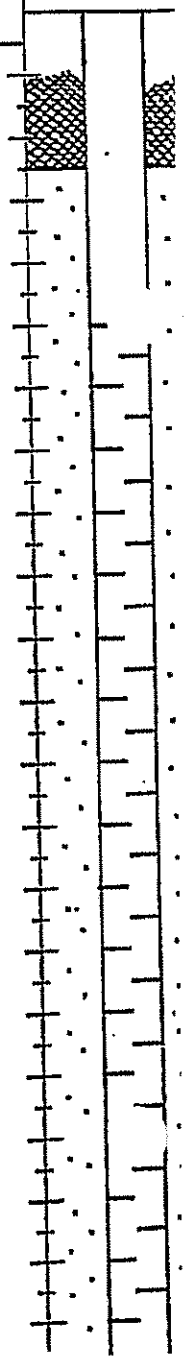
SCREEN: TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.9'

MOISTURE CONTENT	SOIL TYPE	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					20			
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					30			
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					40			

static water level = 36.80' (T.O.C.)
(measured 8/12/88)

brown, medium-coarse Sand, some fine-medium gravel

WELL COMPLETION



WELL LOG

LOCATION MAP

ELEVATION

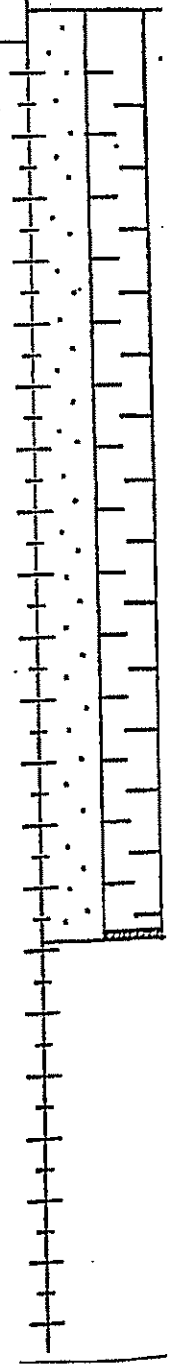
WELL NUMBER: MW #40	LOCATION: Dayton, OH
DATE: 8/12/88	WEATHER: sunny, hot
LOGGED BY: M. Allen	DRILLED BY: Bowser Morner driller-Bill C. helper-Bi
DRILLING METHOD: hollow auger	SAMPLING METHOD: N/A
GRAVEL PACK: No. 4 silica sand	SEAL: bentonite

CASING: TYPE PVC DIAMETER 4" LENGTH 25.9' HOLE DIA 10"

SCREEN: TYPE PVC SLOT 0.02 DIAMETER 4" LENGTH 30' TOTAL DEPTH 53.9

MOISTURE CONTENT	SOIL TYPE	DENSITY	PLASTICITY	SAMPLE NO.	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS
					40			brown, medium-coarse Sand, some fine-medium gravel
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					50			
					1			
					2			
					3			
					4			TD = 53.9'
					5			
					6			
					7			
					8			
					9			
					0			

WELL COMPLETI

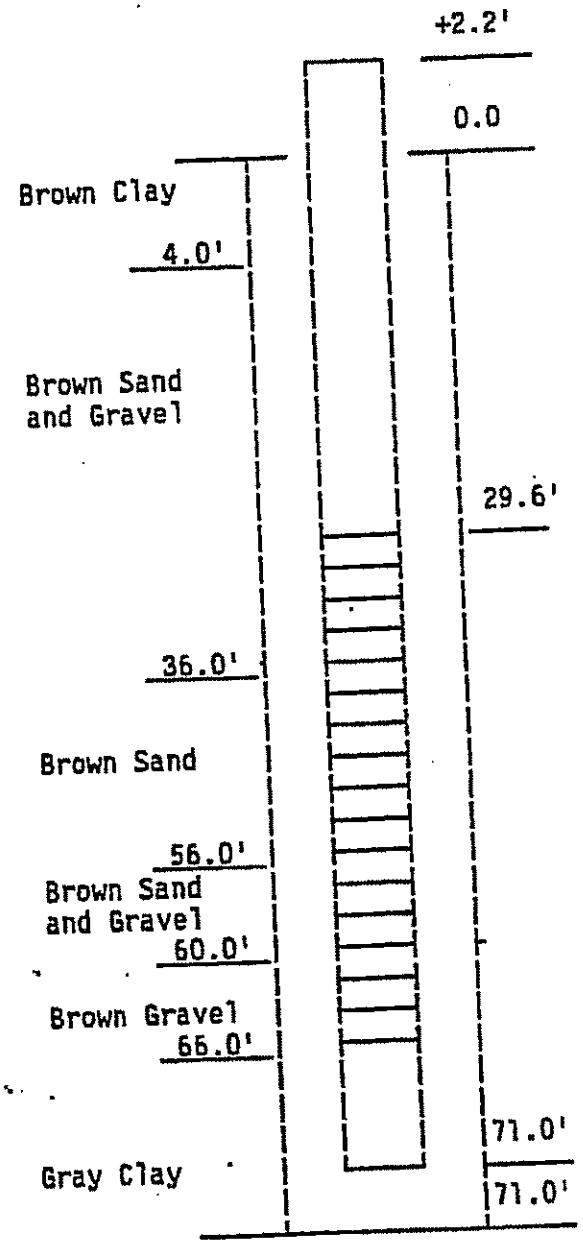


LOG OF WELL NO. RW-4

SHELL OIL CO. 801 BRANDT PIKE, DAYTON, OHIO

45449	Job Number
11-23-88	Date Installed
SCP	Technician
100.50'	Top of Casing Elevation
Steel	Riser Pipe Material
16"	Riser Pipe Diameter
Steel	Screen Material - Galvanized
13-1/8"	Screen Diameter I.D.
.020"	Screen Slot Size *
71.0'	Bottom of Boring
71.0'	Bottom of Screen
29.6'	Top of Screen
----	Top of Sand
----	Top of Bentonite Pellet
----	Top of Bentonite Slurry
----	Top of Bentonite /Cement Grout
----	Top of Soil Backfill
+2.2'	Top of Well Riser Pipe
----	Top of Guard Pipe
38.0'	Initial Water Depth
35.8'	Completion of Water Depth
35.8'	24 Hour Water Depth
35.8'	48 Hour Water Depth
	Hour Water Depth

TOC 100.5



* Remarks: Bottom 5' of the galvanized telescoping screen is tight wrap, next, 6.0' is 60 slot screen and remainder is 20 slot screen. Drilled by cable tool methods

BOWSE MORNE

RW-1A!

LOG OF BORING No. 1 – RW#1 Replacement

BORING LOCATION: As Directed

DATE STARTED: 4-9-90

SURFACE ELEVATION:

DATE COMPLETED: 4-9-90

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS/FT.	SAMPLE RECOVERY IN.
Paving 0.0	Top Soil +					
30.0	Brn Sand + Gravel Sm Silt					
	Start sampling at 32.0'					
Med Dense 32.0	BRN SD + GRVL TR SLT (DISCOLORED ODOR) wet	1A	32-34	5-8-10-19	18	16
37.0	FN BRN SD TR GRVL TR SLT wet	2A	37-39	36-16-12-22	28	16
	wet	3A	42-44	13-13-11-12	24	16
V. Dense 48.0	FN GRY SD + GRVL Sm SLT wet	4A	47-49	25-36-36-42	72	18
52.0	BRN SD + GRVL Sm SLT wet	5A	52-54	26-27-27-26	54	9
Dense 57.0	FN BRN SD Sm SLT wet	6A	57-59	8-21-24-31	45	10
V. Dense 62.0	FN BRN SD Sm SLT TR GRVL wet	7A	62-64	20-24-31-41	55	16
63.5	BRN SD + GRVL Sm SLT wet					
	wet	8A	67-69	36-19-27-51	46	14
	Bgf B 69.0'					

DRILLING METHOD: HSA

DRILLER: JF, GH, GG

JOB NO.: 50595

WATER OBSERVATIONS

INITIAL DEPTH: 32.0

COMPLETION DEPTH: ...

DEPTH AFTER N/A HRS. T

TYPE SAMPLER:

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

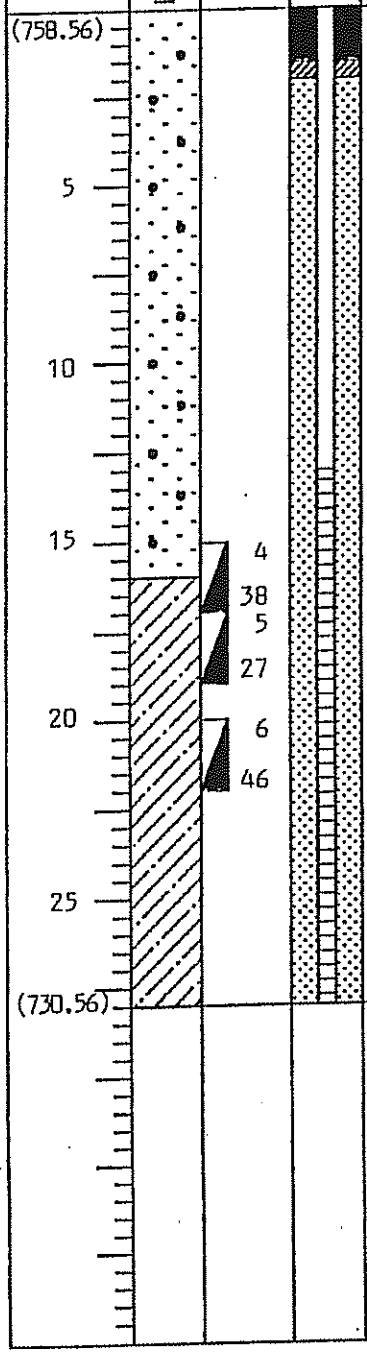
Unocal Terminal Drilling Logs

Terra Research Inc.

DRILLING LOG

No. UN-1
pg. 1 of 1

Project UNOCAL Dayton Terminal No. 8710
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer



DESCRIPTION OF MATERIALS

Brown, SAND and GRAVEL, trace silt, poorly graded, subrounded to subangular occasional boulders and cobbles, non-stratified, non-cemented, damp to moist, [GP], no hydrocarbon odor

NOTE: Percent of sand increases with depth

Hard, gray, SANDY SILT, little sub-angular gravel, non-plastic, non-stratified, moist to wet, [GM-ML], till, no hydrocarbon odor

Total Depth: 28.0'

REMARKS

Began Drilling:
6-29-87 9:00 AM
Difficult Drilling 0-5'
(Auger sample #1: 0-5')

(Auger sample #2: 5-10')

(Auger sample #3: 10-15')

No sample recovery 15-17' (pushed stone)

Completed Drilling:
6-29-87 @ 3:00 PM
(4 hr delay due to broken fan)

Set Well: 6-29-87

Well Construction:
Top Steel Casing:
Ele: 758.56

Top Screen:
Ele: 745.56

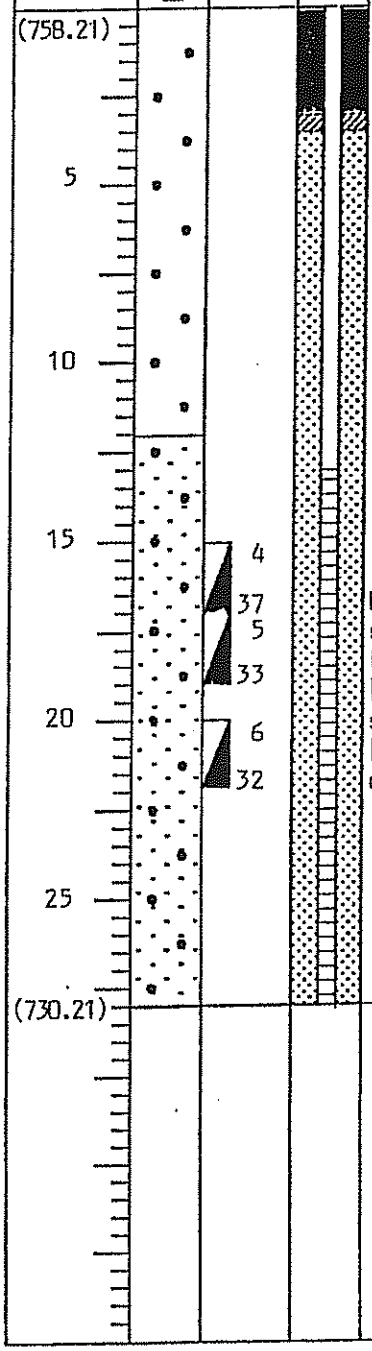
Bottom Screen:
Ele: 730.56

Terra Research Inc.

DRILLING LOG

No. UN-2
pg. 1 of 1

Project UNOCAL Dayton Terminal No. 8710
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer



DESCRIPTION OF MATERIALS	REMARKS
Brown, GRAVEL, subrounded, little sand, trace silt, numerous cobbles and occasional boulders, poorly graded, non-stratified, non-cemented, damp to moist, [GP], hydrocarbon odor 0-5'	Began Drilling: 6-30-87 @ 8:20 AM Auger sample # 1: 0-5' Auger sample # 2: 5-10' Auger sample # 3:10-15'
Dense, brown and gray, SAND and GRAVEL, subrounded to sub angular, little to trace silt, stratified, poorly graded, [GP-GM], with 1' layer sand (21'-22'), subangular, trace silt, poorly graded, [SP], moist to wet at 21.5', hydrocarbon odor at and below 21 feet	NOTE: Color change, brown to gray at 21.5' Completed Drilling: 6-30-87 @ 10:15 AM Set Well: 6-30-87 Well Construction: Top Steel Casing: Ele: 758.21 Top Screen: Ele: 745.21 Bottom Screen: Ele: 730.21
Total Depth: 28.0'	

Terra Research Inc.

DRILLING LOG

No. UN-3
pg. 1 of 1

Project UNOCAL Dayton Terminal No. 8710
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(759.81)					Began Drilling: 6-30-87 @ 10:50 AM
				Brown, SAND and GRAVEL, subangular to subrounded, trace silt, numerous cobbles and occasional boulders, poorly graded, non-stratified, non-cemented, damp to moist, [GP], no hydrocarbon odor	Auger sample # 1: 0-5'
5					Auger sample # 2: 5-10'
10				NOTE: Slight hydrocarbon odor at 12'	Auger sample # 3: 10-15'
15		4 35 5 59		Dense to very dense, brown, SAND and GRAVEL, angular to subrounded, trace to little silt, poorly graded, non-stratified, non-cemented, moist to wet, [GP-SP], hydrocarbon odor 20-24'	
20		6 55 7 68			
25		8 45		Hard, brown to gray, SANDY SILT, little angular gravel, non-plastic, non-stratified, moist, till, slight hydrocarbon odor	NOTE: Color change brown to gray at 25'
					Completed Drilling: 6-30-87 @ 11:50 AM
(730.31)					Set Well: 6-30-87
30				Total Depth: 29.5'	Well Construction: Top Steel Casing: Ele: 759.81 Top Screen: Ele: 745.31 Bottom Screen: Ele: 730.31

Terra Research Inc.

DRILLING LOG

No. UN-4
pg. 1 of 1

Project Monitor Well Installation No. 8719
Location UNOCAL Terminal, Dayton, Ohio
Drilling Contractor/Equipment Moody's of Dayton Inc. Mobile B-57, 4 1/2" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(759.85)					Began Drilling: 12-8-87 @ 9:00 AM
5					
10					
15		1 / 103		Medium dense to very dense, brown and gray, SAND and GRAVEL, trace silt, stratified, subrounded to rounded, poorly graded, non-cemented, wet below 30', [SP-GP], hydrocarbon odor at and below 25'	
20		2 / 83			
25		3 / 143			Completed Drilling: 12-8-87 @ 1:20 PM Well Construction: Top Steel Casing: Elev: 761.95 Top Screen: Elev: 744.85 Bottom Screen: Elev: 724.85
30		4 / 88			
(724.85) 35		5 / 13		Total Depth: 35.0'	

Terra Research Inc.

DRILLING LOG

No. UN-5
pg. 1 of 1

Project Monitor Well Installation No. 8719
Location UNOCAL Terminal, Dayton, Ohio
Drilling Contractor/Equipment Moody's of Dayton inc. Mobile B-57, 4 1/2" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist F VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(760.16)					Began Drilling: 12-8-87 @ 2:00 PM
5					
10					
15		1 82		Very dense, light brown to white, SAND and GRAVEL, subrounded to subangular, trace silt, stratified, poorly graded, non-cemented, [GP]	
20		2 118		Hard, gray SILT and CLAY, stratified, [ML-CL], with red silt and clay above 25'.	
25		3 89		Light gray medium sand, well sorted [SP] 25-25.6' 26-27' Gravel [GP]	Completed Drilling: 12-8-87 @ 5:00 PM
30		4 64			Well Construction: Top Steel Casing: Elev: 762.36' Top Screen: Elev: 745.16'
35				Gray, GRAVELLY CLAY, medium plastic, wet, basal till [GC]	Bottom Screen: Elev: 725.16'
(725.16)		5 85		[ML] Total Depth: 35.0' [SP]	

Terra Research Inc.

DRILLING LOG

No. UN-6
pg. 1 of 1

Project Monitor Well Installation No. 8719
Location UNOCAL Terminal, Dayton, Ohio
Drilling Contractor/Equipment Moody's of Dayton Inc. Mobile B-57 , 4 1/2" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(758.22)					Began Drilling: 12-9-87 @ 8:20 AM
5					
10					
15		1 27		Dense to very dense, brown and gray, GRAVELLY SAND, [SP], rounded to sub-rounded, poorly graded, stratified, non-cemented, moist 15-27', wet below 30', hydrocarbon odor below 20'	
20		2 51			
25		3 73			Completed Drilling: 12-9-87 @ 11:00 AM
30		4 54		GRAVEL, rounded, poorly graded, [GP]	Well Construction: Top Steel Casing: Elev: 760.92' Top Screen: Elev: 739.22' Bottom Screen: Elev: 723.22'
(723.22) 35		5		Total Depth: 35.0'	

Terra Research Inc.

DRILLING LOG

No. UN-7
Pg. 1 of 1

Project Monitor Well Installation No. 8719
Location UNOCAL Terminal, Dayton, Ohio
Drilling Contractor/Equipment Moody's of Dayton Inc., Mobile B-57, 4 1/2" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(759.60)					Began Drilling: 12-9-87 @ 11:30 AM
5					
10					
15		1 25		Medium dense, gray, SAND and GRAVEL, subrounded to rounded, poorly graded, stratified, non-cemented, [GP]	
20		2 56		Hard, red and gray, SILT and CLAY, [ML - CL], stratified with sand and gravel, 6" layer homogenous course sand, poorly graded, sharp and highly angled contact below and sharp contact above [SP]	
25		3 57		Very dense, brown and gray, SAND and GRAVEL, trace silt and clay, poorly graded, stratified, [GP], (31-32') fine sand, poorly graded, [SP], wet at 30.5'	Completed Drilling: 12-9-87 @ 3:30 PM Well Construction: Top Steel Casing: Elev: 761.75 ' Top Screen: Elev: 740.10' Bottom Screen: Elev: 725.10'
30		4 54		Hydrocarbon odor at 30.5'	
(725.10)				Total Depth: 34.5'	
35		5 52			

Terra Research Inc.

DRILLING LOG

No. UN-8
pg. 1 of 2

Project Monitor Well Installation No. 8719
Location UNOCAL Terminal, Dayton, Ohio
Drilling Contractor/Equipment Moody's of Dayton, Inc., Mobile B-57, 4 1/2" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(762.76)				Cuttings below soil zone, to ~ 27' are: MEDIUM GRAVEL, [GP], rounded, dry, limestone and dolomite, very poorly graded. No sand, grain size changed very little until abrupt change @ ~ 27.0'	Began Drilling: 12-9-87 @ 3:45 PM
5					
10					
15					
(744.09)					
20					
25					
30				Auger cuttings @ ~ 27.0' : brown, MEDIUM SAND, [SP], subangular, dry from 27 to ~ 32', moist @ ~ 32', poorly graded, hydrocarbon odor 27'-38.6'	
35					

Terra Research Inc.

DRILLING LOG

No. UN-8
pg. 2 of 2

Project Monitor Well Installation No.
Location UNOCAL Terminal, Dayton, Ohio
Drilling Contractor/Equipment Moody's of Dayton, Inc., Mobile B-57, 4 1/2" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(724.09) 38				Total Depth: 38.8'	Completed Drilling: 12-10-87 @ 8:20 AM Well Construction: Top Steel Casing: Elev: 764.16' Top Screen: Elev: 744.09' Bottom Screen: Elev: 724.09'

Terra Research Inc.

DRILLING LOG

No. UN-9
pg. 1 of 1

Project UNOCAL Dayton Terminal No. 8710
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, CME-55, 3 3/4" I.D. HS Augers, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist M. Singer

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(763.71)				Brown, SAND and GRAVEL, subangular to subrounded, little silt, numerous cobbles and occasional boulders, poorly graded, non-stratified, non-cemented, damp to moist, [GP], no hydrocarbon odor	Began Drilling: 6-30-87 1:30 PM Auger sample # 1: 0-5' Auger sample # 2: 5-10' Auger sample # 3: 10-15'
5					
10				NOTE: Wet at 14'	
15		4&5 34 6 22		Medium dense to dense, brown, SAND and GRAVEL, little silt, subangular to subrounded, poorly graded, stratified: 2-4" thick, non-cemented, wet, [GP-GM], with 9" sand lense (16-17'), [SP], no hydrocarbon odor	
20		7 36			Completed Drilling: 6-30-87 @ 2:30 PM Set Well: 6-30-87 Well Construction: Top Steel Casing: Ele: 763.71 Top Screen: Ele: 751.21 Bottom Screen: Ele: 736.21
25					
(736.21)				Total Depth: 27.5'	
30					

Terra Research Inc.

DRILLING LOG

No. UN-10
pg. 1 of 1

Project Monitor Well Installation No. 8719
Location UNOCAL Terminal, Dayton, Ohio
Drilling Contractor/Equipment Moody's of Dayton Inc. Mobile B-57, 4 1/2" I.D. HS Auger, 2" split spoon, 2" schedule 40 PVC, 0.020" screen
Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	WELL DIAG.	DESCRIPTION OF MATERIALS	REMARKS
(758.42)					Began Drilling: 12-10-87 @ 9:00 AM
5					
10					
15		1 102		Dense to very dense, gray, SAND and GRAVEL, rounded to subrounded, poorly graded, stratified, non-cemented, wet at 30', [GP], hydrocarbon odor 20-35'	
20		2 83			
25		3 71			Completed Drilling: 12-10-87 @ 11:30 AM Well Construction: Top Steel Casing: Elev: 760.52' Top Screen: Elev: 743.67' Bottom Screen: Elev: 723.67
30		4 26			
(723.67)				Total Depth: 34.75'	
35		5 33			

Terra Research Inc.

DRILLING LOG

No. UN-11
pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, Driller: M.Fuhrmann, CME-55, Truck mount 6.25" HS Augers, 2" split spoon sampler, 140 LB hammer, Sch 40 PVC Riser and Screen (#20 slot) Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
760.27		1			
		15	ND	Stiff, brown, SANDY SILT, trace clay and gravel, low plastic, non-stratified, damp [ML-SM]	Began Drilling: 4-25-88 @ 1:00 PM
		2	ND		
		13		Dense to very dense, brown, SAND and GRAVEL, little to trace silt, occasional cobbles, non-stratified, dry to moist, [GP]	
5		3	ND		
		31			
		4	ND		
		63			
		5	ND		
		50			
10		6	ND		
		48			
		7	ND		
		83			
		8	ND		
15		75			
		9	13		
		59			
		10	ND		
		22			
20		11	ND		
		30		Hard to very stiff, grayish brown, SANDY SILT and GRAVEL, trace clay, occasional cobbles, non-stratified, low plastic, damp to moist (@19') [GM-ML], glacial till	
		12	ND		
		47			
		13	ND		
25		36			
		14	ND		
		53			
		15	ND		
		28			
30		16	ND		
		28			
		17	ND		
		23			
		18	ND		
35		34			
				(Continued)	

Terra Research Inc.

DRILLING LOG

No. UN-11
pg. 2 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, Driller: M.Fuhrmann, CME-55, Truck mount 6.25" HS Augers, 2" split spoon sampler, 140 LB hammer, Sch 40 PVC Riser and Screen (#20 slot) Geologist E.VanHeyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
		19 29 20 22	ND ND 	(Same as Above)	Completed Drilling & Set Well: 4-26-88 @ 6:30 PM
40				Total Depth: 40.0'	

ND = Not detected

WELL CONSTRUCTION:

Ele. Top Protective Casing:	759.97
Ele. Top Screen:	750.27
Ele. Bottom Screen:	725.27
Ele. Ground Surface:	760.27

Screen Length: 25 Feet
Well Total Depth: 35 Feet

NOTE: Protective casing is a manhole. A locking expansion plug was used to seal PVC casing to prevent surface water infiltration.

Terra Research Inc.

DRILLING LOG

No. UN-12
pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services (driller - M. Fuhrmann)
CME-55, truck mount 6.25" HS augers, 2" split spoon sampler, 140 lb. hammer,
sch. 40 PVC riser and screen (#20 slot) Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
763.09		1 7	ND	Medium stiff, brown, SANDY SILT, trace gravel, clan, and organics, non-stratified, damp, [ML-SM]	Began drilling 4/27/88 @ 10:30 AM
		2 37	ND		
5		3 47	ND	Dense to very dense, brown, SAND AND GRAVEL, trace silt, occassional cobbles, non-stratifed, dry to moist [GP] Note: Saturated at 19.5'.	
		4 65	ND		
		5	NR		
10		6 64	ND		
		7 27	ND		
15		8 30	ND		
		9 53	10		
		10 37	ND		
20		11 29	ND	Very stiff, gray, SANDY SILT AND GRAVEL, trace clay, non-stratified, low plastic, moist, [GM-ML], till	Slight hydrocarbon odor 22' - 25'
		12 49	18	Medium to very dense, brown and gray SILTY SAND AND GRAVEL, trace clay, stratified (0.1' to 0.5' thick), moist, [GM-SM]	
25		13 34	20		
		14 26	ND		
		15 40	ND	Medium dense to very dense, brown SAND, trace silt, subangular to subrounded, poorly graded, moist to saturated (at 32'), [SP]	
30		16 49	10		
		17 34	80		
35		18 44	ND		
				(continued)	

Terra Research Inc.

DRILLING LOG

No. UN-12
pg. 2 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment

Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
		19 41	ND	SAME	Completed drilling 4/27/88 at 6:00 PM
40		20 67	ND		

TOTAL DEPTH: 40.0'

ND = Not detected
NR = No sample recovered

WELL CONSTRUCTION:

Ele. top protective casing:	764.89
Ele. top screen:	744.69
Ele. bottom screen:	724.69
Ele. ground surface:	763.09

Screen length: 20 feet
Well total depth: 38.4 feet

Terra Research Inc.

DRILLING LOG

No. UN-13
pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, (driller - M. Fuhrmann)
CME-55, truck mount 6.25" HS augers, 2" split spoon sampler, 140 lb. hammer,
sch. 40 PVC riser and screen (#20 slot) Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
760.48		1 8	ND	Stiff, brown and gray mottled, SANDY SILT, trace clay and organics, non-stratified, low plastic, dry to damp, [ML-SM]	Began drilling 4/28/88 at 10:15 AM
		2 23	ND		
5		3 49	ND		
		4 40	ND	Medium dense to dense, brown, SAND AND GRAVEL, little to trace silt, non-stratified, damp to moist [GP-GM]	
		5 50	ND		
10		6 42	ND		
		7 41	ND		
15		8 39	ND		
		9 44	ND		
		10 85	ND		
20		11 67	ND	Very dense, brown and gray, SILTY SAND AND GRAVEL, little to trace clay, stratified (0.05 to 0.7' thick), moist [GP-SM]	
		12 100+	ND		
25		13 50	ND		
		14 97	ND		
		15 78	ND	Very dense, brown, SAND AND GRAVEL, little to trace silt, non-stratified, moist to saturated (at 30'), [GP]	
30		16 62	5		
		17 30	12		
35		18 25	15		
				(continued)	

Terra Research Inc.

DRILLING LOG

No. UN-13
pg. 2 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment

Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA.	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
		19 11	50	NOTE: Brown till and sand encountered at 38'. Same as described in UN-12	Completed drilling 4/28/88 at 6:15 PM
40		20 26	45		

TOTAL DEPTH: 40.0'

ND = Not detected

WELL CONSTRUCTION:

Ele. top protective casing: 763.58
Ele. top screen: 743.28
Ele. bottom screen: 723.28
Ele. ground surface: 760.48

Screen length: 20 feet
Well total depth: 37.2 feet

Terra Research Inc.

DRILLING LOG

No. UN-14
pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services (driller - M. Fuhrmann), CME-55, truck mount 6.25" HS augers, 2" split spoon sampler, 140 lb. hammer, sch. 40 PVC riser and screen (#20 slot) Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
		1 17	ND	Very stiff, brown and gray mottled, SANDY SILT, trace to little clay, trace organics, trace gravel, slight plasticity, non-stratified, damp, [ML-SM]	Began drilling 5/7/88 at 11:45 AM
		2 25	ND		
5		3 58	ND	Medium dense to very dense, brown SAND AND GRAVEL, trace to little cobbles, trace silt, non-stratified, damp to moist (at 15') [GP]	
		4 73	ND		
		5 56	26		
10		6 52	11		Numerous cobbles 10 - 14 feet
		7 100+	30		
15		8 65	ND		
		9 42	ND		
		10 45	ND		
20		11 62	ND	Dense to very dense, tan, brown and gray, SILTY SAND AND GRAVEL, little to trace clay, stratified (0.2' - 0.8 feet thick), moist [GP-SM].	Interbeds vary from gravel to silt
		12 135	13		
25		13 60	130		
		14 78	850		
		15 78	2900	Dense to very dense, brown and gray, SAND AND GRAVEL, little to trace silt, non-stratified, moist to saturated (at 29.9') [GP]	
30		16 46	10K+		
		17 26	10K+		
35		18 49	5500		
				(continued)	

Terra Research Inc.

DRILLING LOG

No. UN-14
pg. 2 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment

Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
40		19 28 20 58	6000 80	Same as above	Completed drilling 5/7/88 at 7:15 PM

TOTAL DEPTH: 40.0'

ND = Not detected
10K+ = greater than 10,000

WELL CONSTRUCTION:

Ele. top protective casing:	761.73
Ele. top screen:	741.27
Ele. bottom screen:	721.73
Ele. ground surface:	759.23

Screen length: 20 feet
Well total depth: 37.5 feet

Terra Research Inc.

DRILLING LOG

No. UN-15
Pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services (driller - M. Fuhrmann) CME-55, truck mount 6.25" HS augers, 2" split spoon sampler, 140 lb. hammer, sch. 40 PVC riser and screen (#20 slot) Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
760.73		1 9	ND	Stiff, dark brown, sandy silt, little gravel, trace organics, slight plasticity, non-stratified, damp, [ML-SM]	Began drilling 5/8/88 at 9:30 AM
		2 12	ND		
5		3 48	ND		
		4 140	ND	Medium dense to very dense, brown, SAND AND GRAVEL, trace silt, little to trace cobbles, non-stratified, damp to wet, [GP]	
		5 87	ND		Numerous cobbles 4 to 12 feet
10		6 75	ND		
		7 41	ND		
15		8 68	ND		
		9 48	ND		Wet at 17.5'
		10 47	ND		
20		11 35	ND		
		12 49	ND	Dense, brown SILTY SAND AND GRAVEL, stratified, wet, [GM-SM]	
25		13 32	ND		Interbeds vary from silt to gravel
		14 48	ND		
		15 26	ND		
30		16 63	ND	Dense to very dense, brown SAND AND GRAVEL, trace silt, non-stratified, wet to saturated (at 30.5') [GP]	
		17 45	ND		
35		18 98	ND		
				(continued)	

Terra Research Inc.

DRILLING LOG

No. UN-15
pg. 2 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment
Geologist E.Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
		19 51	ND	Same as above	Completed drilling 5/8/88 at 3:15 PM
40		20 54	ND		

TOTAL DEPTH: 40.0'

ND = Not detected

WELL CONSTRUCTION:

Ele. top protecteve casing: 763.33
Ele. top screen: 742.93
Ele. bottom screen: 722.93
Ele. ground surface: 760.73

Screen length: 20 feet
Well total depth: 37.8 feet

Terra Research Inc.

DRILLING LOG

No. UN-16
pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services (driller - M. Fuhrmann)
CME-55, truck mount 6.25" HS augers, 2" split spoon sampler, 140 lb. hammer, sch. 40 PVC riser and screen (#20 slot) Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
758.17		1 22	ND	Very stiff, dark brown, SANDY SILT, trace clay, trace organics, non-stratified, slight plasticity, dry to damp [ML-SM]	Began drilling 5/9/88 at 11:30 AM
		2 38	ND		
5		3 28	ND		
		4 38	ND		
		5 42	ND	Dense, brown, SAND AND GRAVEL, trace silt, little cobbles (4 -14 feet), non-stratified, damp to moist [GP]	
10		6 43	ND		
		7 46	ND		
15		8 34	180		Color change; brown to gray at 15.5'
		9 76	NR		
		10 24	16	Very stiff to hard, brown to gray, SANDY SILT AND GRAVEL, trace clay, slightly plastic, non-stratified, moist [GM-ML]	
20		11 36	NR		
		12 64	NR		
25		13 32	ND		Non-plastic zones contain 50 - 60% fine to very fine sand
		14 56	ND		
		15 111	50		
30		16 109	ND		
		17 155	ND		
35		18 46	15		
				(continued)	

Terra Research Inc.

DRILLING LOG

No. UN-16
pg. 2 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment

Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
40		19 52 20 143	14 16	Same as above	Completed drilling 5/9/88 at 7:00 PM

TOTAL DEPTH: 40.0'

ND = Not detected
NR = No sample recovered

WELL CONSTRUCTION:

Ele. top protective casing: 760.47
Ele. top screen: 742.17
Ele. bottom screen: 722.17
Ele. ground surface 758.17
Screen length: 20 feet
Well total depth: 36.0 feet

Terra Research Inc.

DRILLING LOG

No. UN-17
pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services (driller - M. Fuhrmann)
CME-55, truck mount 6.25" augers, 2" split spoon sampler, 140 lb. hammer,
sch. 40 PVC riser and screen (#20 slot) Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
759.56		1 / 20	ND	Very stiff, brown, SANDY SILT, little organics, trace clay, slight plasticity, non-stratified, damp to moist [ML-SM]	Began drilling 5/10/88 at 9:00 AM
		2 / 20	ND		
5		3 / 30	ND		
		4 / 77	ND		
		5 / 77	8	Medium dense, brown and gray, SAND AND GRAVEL, trace silt, non-stratified, moist, [GP]	
10		6 / 24	8		
		7 / 44	20		
15		8 / 28	16		
		9 / 45	20		Moisture content increases with depth
		10 / 32	18	Brown to gray, SANDY SILT AND GRAVEL slight plasticity, non-stratified, moist [GM-ML] till	
20		11 / 32	12		
		12 / 47	18		
25		13 / 29	12		
		14 / 60	20		
		15 / 38	13		
30		16 / 47	25		
		17 / 51	80		
35		18 / 38	2500		
				(continued)	

Terra Research Inc.

DRILLING LOG

No. UN-17
pg. 1 of 2

Project Unocal Terminal - Phase II Monitor Wells No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment

Geologist E. Van Heyde

DEPTH (ELE)	LEGEND	SAMPLE DATA	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
40		19 15 20 13	25 10K+	Medium dense, gray SAND, medium to fine grained, trace silt, non-stratified, saturated, [SP]	Septic odor
				TOTAL DEPTH: 40.0'	Completed drilling 5/10/88 at 3:40 PM
				ND = Not detected 10K+ = greater than 10,000	
				WELL CONSTRUCTION:	
				Ele. top protective casing: 759.36 Ele. top screen: 741.06 Ele. bottom screen: 721.06 Ele. ground surface: 759.56	
				Screen length: 20 feet Well total depth: 38.5 feet	
				NOTE: Protective casing is a manhole. A locking expansion plug was used to seal PVC casing to prevent surface water infiltration.	

Terra Research Inc.

DRILLING LOG

No. UN-18
pg. 1 of 2

Project UNOCAL Terminal - Phase II Monitor No. 8810
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, Driller: M.Fuhrmann, Rig; CME-55 Truck mount, 1.25" I.D. HS Augers, 2" split spoon sampler, 140 lb. hammer Geologist E.VanHeyde
Date Drilled 8/29 - 8/31/88 Time Started 13:20 PM Time Completed 12:20 PM

DEPTH (ELE)	LEGEND	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
		ND	Stiff, brown, SANDY SILT, trace clay, gravel, organics, low plastic, non-stratified, damp, [ML-SM]	Weather: Sunny & Warm
		ND		
5		ND		
		ND		
		ND	Dense to very dense, brown, SAND and GRAVEL, little to trace silt, occasional cobbles and boulders, non-stratified, dry to moist [GP]	Some cobbles elevated by augers
10		ND		
		ND		
		ND		
15		ND		
		ND		
		ND	Medium dense to dense, brown and gray SILTY SAND and GRAVEL trace clay, stratified (0.2' to 0.6' thick), moist, [GM-SM]	Top of Well Screen 20.0'
20		ND		
		ND		
		ND		
25		6	Dense to very dense, brown, SAND and GRAVEL, little to trace silt, lense of gray sandy silt 27 - 27.5', non-stratified to crudely stratified, moist to saturated, [GP], grains stained with residual hydrocarbon 28 to 31'	
		105		
		100		
30		120		Encounterd water at 32.0' ▽
		140		
35		160		
			(Continued)	

Terra Research Inc.

DRILLING LOG

No. UN-18
pg. 2 of 2

Project UNOCAL Terminal - Phase II Monitor No. 8823
Location Dayton, Ohio
Drilling Contractor/Equipment Technical Drilling Services, Driller: M.Fuhrmann, Rig: CME-55 Truck mount, 1.25" I.D. HS Augers, 2" split spoon sampler, 140 lb. hammer
Geologist E.VanHeyde
Date Drilled 8/29 - 8/31/88 Time Started 13:20 PM Time Completed 12:20 PM

DEPTH (ELE)	LEGEND	OVA (PPM)	DESCRIPTION OF MATERIALS	REMARKS
38		115 200	Dense to very dense, brown, SAND and GRAVEL, little to trace silt, lense or gray sandy silt 27 - 27.5', non-stratified to crudley stratified, moist to saturated, [GP], grains stained with residual hydrocarbon 28 to 31'	
			Total Depth: 40.0'	Bottom of Well Screen

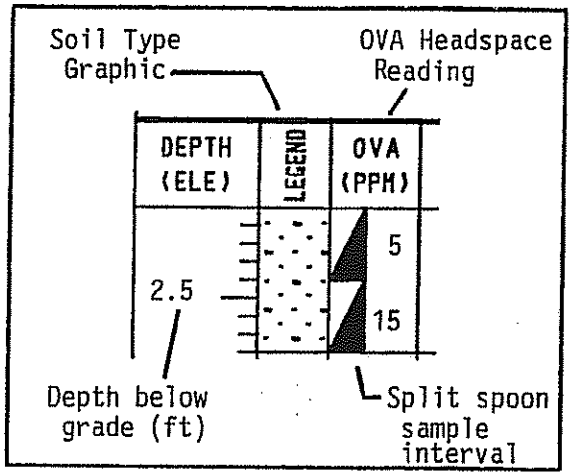
NOTES:

ND = Not detected

Well Construction:

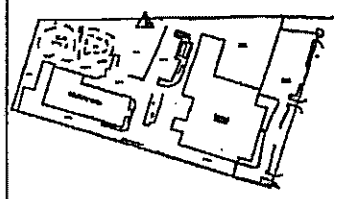
4" PVC flush joint riser pipe and #20 slot screen; Bentonite seal 16 to 18 feet steel protective casing (riser) grouted 0 to 2.5 feet.

Drilling Log Legend



Van Dyne Crotty Well Logs

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER MP-11	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 9 JUNE 1998	WEATHER 70°, LIGHT RAIN
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNER
DRILLING METHOD 4 1/2 HSA	SAMPLING METHOD 2' SPLIT SPOON
GRAVEL PACK #5 SAND	SEAL BENTONITE

CASING TYPE SCH 40 PVC — DIAMETER 1", 2", 2" — LENGTH 12.5' 20' 37' — HOLE DIA. 10"

SCREEN TYPE SCH 40 PVC — SLOT 0.010" — DIAMETER 1", 2", 2" — LENGTH 2.5' 5' 5' — TOTAL DEPTH 15' 25' 42'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		0		H	BLACK, DAMP, ORGANIC RICH, SILTY CLAY WITH SOME SAND & GRAVEL
		1		A	
				N	LIGHT BROWN, DAMP, GRAVELLY SAND WITH COBBLES
		2		D	
				A	
		3		U	
				G	
		4		E	
				R	
		5			
				18	
	4.2	6		18	
				26	
		7		30	
				15	
	0.0	8		20	
				28	
		9		32	
				40	
	5.4	10		31	
				20	
		11		16	
				30	LIGHT BROWN, SLIGHTLY MOIST, GRAVELLY SAND
	4.2	12		47	
				34	
		13		24	
				22	
	6.1	14		12	
				12	
		15		26	
				12	
	9.4	16		24	
				10	
		17		17	LIGHT BROWN, MOIST, GRAVELLY SAND
				6	
	8.2	18		7	LIGHT BROWN, MOIST, SAND WITH LITTLE GRAVEL
				5	
		19		11	
				10	
	6.3	20		9	
				13	
		21		11	

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

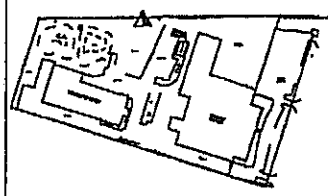
LITHO. PROFILE

JUNE-30-98\BTMH 729237MP11.DWG

SAND — CASING — BENTONITE — INITIAL WATER LEVEL

BACKFILL — SCREEN — CEMENT — STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER MP-11	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 9 JUNE 1998	WEATHER 70°, LIGHT RAIN
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNER
DRILLING METHOD 4 1/2 HSA	SAMPLING METHOD 2' SPLIT SPOON
GRAVEL PACK #5 SAND	SEAL BENTONITE

CASING TYPE SCH 40 PVC — DIAMETER 1", 2", 2" — LENGTH 12.5' 20' 37' — HOLE DIA. 10"

SCREEN TYPE SCH 40 PVC — SLOT 0.010" — DIAMETER 1", 2", 2" — LENGTH 2.5' 5' 5' — TOTAL DEPTH 15' 25' 42'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
		20			LIGHT BROWN, MOIST, SAND WITH LITTLE GRAVEL
		21			
				17	LIGHT BROWN, MOIST, GRAVELLY SAND, COARSENING DOWNWARD
	1.3	22		26	
				36	
		23		40	
				11	
	4.2	24		50/2	
		25			
				14	
MP-11 (25'-27')	3.8	26		21	BROWN, MOIST, PLASTIC, SILTY CLAY WITH SOME SAND & GRAVEL
				30	
		27		30	
				17	
	9.2	28		26	BROWN, VERY MOIST, GRAVELLY SAND
				21	
		29		25	
				15	
	1.7	30		20	
				20	
		31		28	
				9	
	1.3	32		10	
				17	
		33		27	
				38	
	0.2	34		35	
				25	
		35		33	
				15	
	2.4	36		35	BROWN, VERY MOIST, COARSE GRAVEL WITH LITTLE SAND
				35	
		37		50	BROWN, VERY MOIST, GRAELLY SAND
				24	
MP-11 (37-39')	4.7	38		35	
				40	
		39		44	
				20	
	4.7	40		35	
				35	
		41		32	

LITHO. PROFILE

WELL COMPLETION

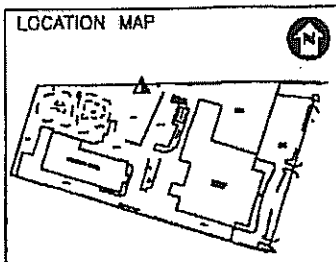
FLUSH MOUNT PROTECTIVE COVER

JUNE-30-98\BTMH 729237MP11b.DWG

SAND — CASING — BENTONITE — INITIAL WATER LEVEL

BACKFILL — SCREEN — CEMENT — STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER MP-11	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 9 JUNE 1998	WEATHER 70°, LIGHT RAIN
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNER
DRILLING METHOD 4 1/2 HSA	SAMPLING METHOD 2' SPLIT SPOON
GRAVEL PACK #5 SAND	SEAL BENTONITE

CASING TYPE SCH 40 PVC — DIAMETER 1", 2", 2" — LENGTH 12.5' 20' 37' — HOLE DIA. 10"

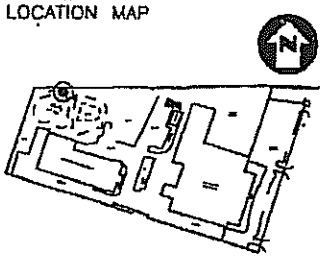
SCREEN TYPE SCH 40 PVC — SLOT 0.010" — DIAMETER 1", 2", 2" — LENGTH 2.5' 5' 5' — TOTAL DEPTH 15' 25' 42'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)	LITHO. PROFILE	WELL COMPLETION
		40			BROWN, GRAVELLY SAND, VERY MOIST		FLUSH MOUNT PROTECTIVE COVER
		41		40			
MP-11 (41-43')	9.1	42		36	GRAY BROWN, MOIST, SILTY CLAY WITH SAND & GRAVEL		
		43		43			
				50	BORING ENDS AT 43'		
		44					
		45					
		46					
		47					
		48					
		49					
		50					
		51					
		52					
		53					
		54					
		55					
		56					
		57					
		58					
		59					
		60					
		61					

JUNE-30-98\BTMH 729237MP11c.DWG

SAND — BACKFILL — CASING — SCREEN — BENTONITE — CEMENT — INITIAL WATER LEVEL — STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER RW-4	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 19 JUNE 1998	WEATHER 77°, PARTLY CLOUDY
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNOR
DRILLING METHOD CABLE TOOL	SAMPLING METHOD N/A
GRAVEL PACK NATURAL	SEAL N/A

CASING TYPE STEEL DIAMETER 8" LENGTH 20' HOLE DIA. N/A

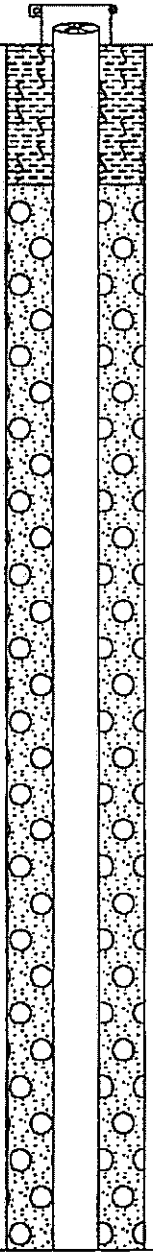
SCREEN TYPE GALVANIZED STEEL SLOT 0.030" DIAMETER 8" LENGTH 30' TOTAL DEPTH 50'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
N/A	N/A	0–1	N/A		BROWN, MOIST, SILTY CLAY
		2–3			BROWN, DAMP, SANDY GRAVEL WITH COBBLES

LITHO. PROFILE

WELL COMPLETION

ELEVATED WELL COMPLETION

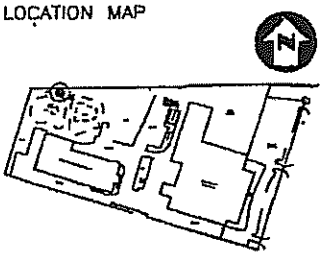


JULY-24-98\BTMH 729237RW4.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER RW-4	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 19 JUNE 1998	WEATHER 77°, PARTLY CLOUDY
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNOR
DRILLING METHOD CABLE TOOL	SAMPLING METHOD N/A
GRAVEL PACK NATURAL	SEAL N/A

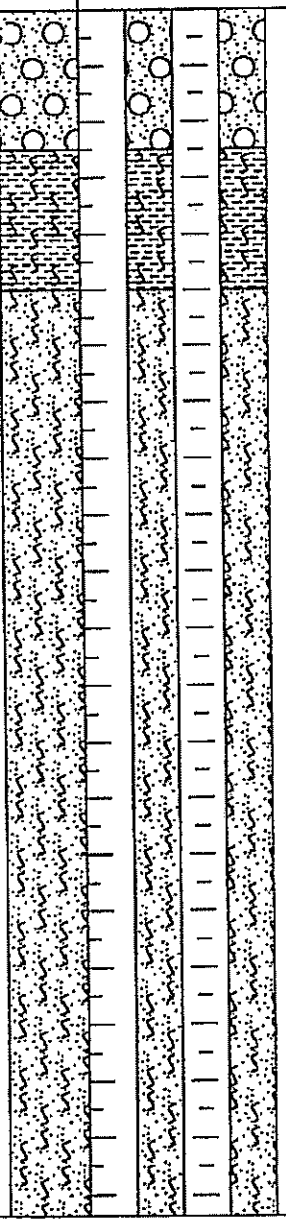
CASING TYPE STEEL DIAMETER 8" LENGTH 20' HOLE DIA. N/A

SCREEN TYPE GALVANIZED STEEL SLOT 0.030' DIAMETER 8" LENGTH 30' TOTAL DEPTH 50'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
N/A	N/A	20–41	N/A		BROWN, DAMP, SANDY GRAVEL WITH COBBLES BROWN, MOIST, SILTY CLAY WITH SOME SAND & GRAVEL BROWN, MOIST, SILTY SAND

LITHO. PROFILE

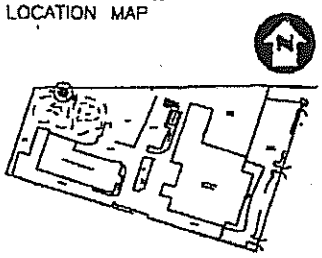
WELL COMPLETION



JULY-24-98\BTM1 729237RW42.DWG

SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER RW-4	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 19 JUNE 1998	WEATHER 77°, PARTLY CLOUDY
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNOR
DRILLING METHOD CABLE TOOL	SAMPLING METHOD N/A
GRAVEL PACK NATURAL	SEAL N/A

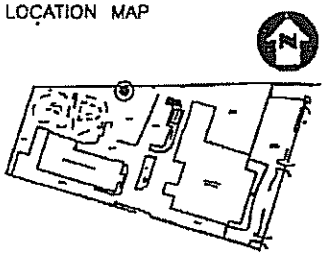
CASING TYPE STEEL		DIAMETER 8"		LENGTH 20'	HOLE DIA. N/A
SCREEN TYPE GALVANIZED STEEL	SLOT 0.030'	DIAMETER 8"		LENGTH 30'	TOTAL DEPTH 50'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)	LITHO. PROFILE	WELL COMPLETION
N/A	N/A	40–49	N/A		BROWN, MOIST, SILTY SAND WITH SOME SAND & GRAVEL		
		50			BORING ENDS AT 50'		
		51–61					

JULY-24-98\BTM4 729237RW43.DWG

SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

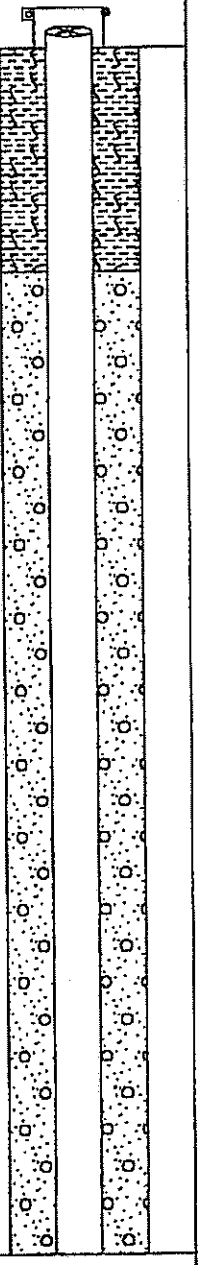
WELL NUMBER RW-5	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 24 JUNE 1998	WEATHER 82', CLEAR
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNOR
DRILLING METHOD CABLE TOOL	SAMPLING METHOD N/A
GRAVEL PACK NATURAL	SEAL N/A
CASING TYPE STEEL — DIAMETER 8" — LENGTH 27'	HOLE DIA. N/A
SCREEN TYPE GALVANIZED STEEL — SLOT 0.030' — DIAMETER 8" — LENGTH 15'	TOTAL DEPTH 42'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)
N/A	N/A	0–1	N/A		ORANGE BROWN, MOIST, SILTY CLAY WITH SAND & GRAVEL.
		5			BROWN, MOIST, GRAVELLY SAND WITH SILT & CLAY

LITHO. PROFILE

WELL COMPLETION

ELEVATED WELL COMPLETION

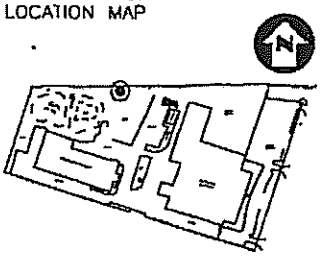


JULY-24-98\BTMH 729237RW5.DWG

SAND — CASING — BENTONITE — INITIAL WATER LEVEL

BACKFILL — SCREEN — CEMENT — STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

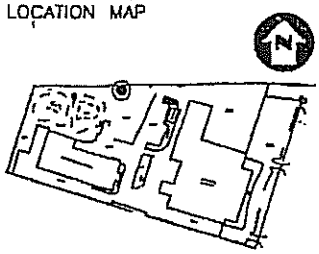
WELL NUMBER RW-5	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 24 JUNE 1998	WEATHER 82°, CLEAR
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNOR
DRILLING METHOD CABLE TOOL	SAMPLING METHOD N/A
GRAVEL PACK NATURAL	SEAL N/A
CASING TYPE STEEL DIAMETER 8" LENGTH 27'	HOLE DIA. N/A
SCREEN TYPE GALVANIZED STEEL SLOT 0.030' DIAMETER 8" LENGTH 15'	TOTAL DEPTH 42'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)	LITHO. PROFILE	WELL COMPLETION
							ELEVATED
N/A	N/A	20	N/A				
		21					
		22					
		23					
		24					
		25					
		26					
		27					
		28					
		29					
		30					
		31					
		32			BROWN, MOIST, GRAVELLY SAND WITH COBBLES		
		33					
		34					
		35					
		36					
		37					
		38					
		39					
		40					
		41					

JULY-24-98\BTMH 729237RW52.DWG

SAND | BACKFILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

LOCATION MAP



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER RW-5	LOCATION VAN DYNE CROTTY DAYTON, OHIO
DATE 24 JUNE 1998	WEATHER 82°, CLEAR
LOCATED BY MIKE JACKSON	DRILLED BY BOWSER & MORNOR
DRILLING METHOD CABLE TOOL	SAMPLING METHOD N/A
GRAVEL PACK NATURAL	SEAL N/A
CASING TYPE STEEL — DIAMETER 8" — LENGTH 27'	HOLE DIA. N/A
SCREEN TYPE GALVANIZED STEEL — SLOT 0.030' — DIAMETER 8" — LENGTH 15'	TOTAL DEPTH 42'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH (FT)	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE.)	LITHO. PROFILE	WELL COMPLETION
		40					ELEVATED
N/A	N/A	41	N/A				
		42			BORING ENDS AT 42'		
		43					
		44					
		45					
		46					
		47					
		48					
		49					
		50					
		51					
		52					
		53					
		54					
		55					
		56					
		57					
		58					
		59					
		60					
		61					

JULY-24-98\BTMH 729237RW53.DWG

SAND — CASING — BENTONITE — INITIAL WATER LEVEL

BACKFILL — SCREEN — CEMENT — STATIC WATER LEVEL

DNR 7802.96

TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Divison of Water, 1939 Fountain Square Drive
Columbus, Ohio 43224-9971 Voice (614) 265-6739 Fax (614) 447-9503

File 729237
Well 865599
2095

WELL LOCATION

County MONTGOMERY Township N/A

Owner/Builder (Circle One or Both) VAN DYNE (First) CROTTY (Last)

Address of Well Location 903 (Number) BRANDT PK. (Street Name)

City DAYTON Zip Code +4 45404

Permit No. RV-4 Section/Lot No. (Circle One or Both) N/A

Location of Well in State Plane coordinates, if available: Use of Well RECOVERY

N ☐ X _____ . _____ +/- _____ ft. or m

S ☐ Y _____ . _____ +/- _____ ft. or m

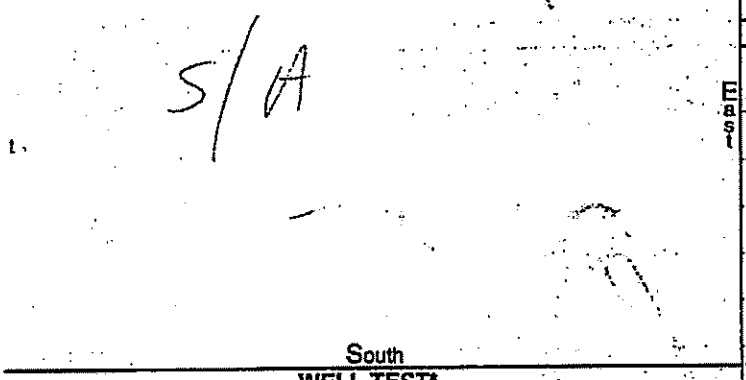
Elevation of Well _____ . _____ +/- _____ ft. or m

Datum Plain: ☐ NAD27 ☐ NAD83 Elevation Source _____

Source of Coordinates: ☐ GPS ☐ Survey ☒ Other _____

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks. If latitude and longitude are available please include here: Lat: _____ Long: _____

North



WELL TEST*

Pre-Pumping Static Level _____ ft. Date _____

Measured from: ☐ Top of Casing ☐ Ground Level ☐ Other _____

☐ Air ☐ Bailing ☐ Pumping* ☐ Other _____

Test Rate _____ gpm Duration of Test _____ hrs.

Feet of Drawdown _____ ft. Sustainable Yield _____ gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

s Copy Attached? ☐ Yes ☐ No Flowing Well? ☐ Yes ☒ No

Quality _____

PUMP/PITLESS

Type of pump _____ Capacity _____ gpm

Pump set at _____ ft. Pitless Type _____

Pump Installed by _____

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm BAUSER-MAHER INC.

Address 4518 TAYLORSVILLE RD.

State, Zip DAYTON OH 45424

Signed _____ (CB) Date 9-1-98

ODH Registration Number 1631

CONSTRUCTION DETAILS

☐ Rotary ☒ Cable ☐ Augered ☐ Driven ☐ Other _____

BOREHOLE/CASING (measured from ground surface)

1 ☒ Borehole Diameter 8 inches Depth 50 ft.

Casing Diameter 8 in. Length 22 ft. Thickness _____ in.

2 ☐ Borehole Diameter _____ inches Depth _____ ft.

Casing Diameter _____ in. Length _____ ft. Thickness _____ in.

Casing Height Above Ground 1.0 ft.

Type 1 ☒ Steel 1 ☐ Galv. 1 ☐ PVC 1 ☐
2 ☐ 2 ☐ 2 ☐ 2 ☐ Other _____

Joints 1 ☐ Threaded 1 ☒ Welded 1 ☐ Solvent 1 ☐
2 ☐ 2 ☐ 2 ☐ 2 ☐ Other _____

SCREEN TELESCOPING

Diameter 8 Slot Size .030 Screen Length 30 ft.

Type WIREWRAPPED Material STEEL

Set Between 50 ft. and 20 ft.

GRAVEL PACK (Filter Pack)

Material/Size NATURAL CAVE Volume/Weight Used _____

Method of Installation _____

Depth: Placed FROM _____ ft. TO _____ ft.

GROUT

Material N/A Volume/Weight Used _____

Method of Installation _____

Depth: Placed FROM _____ ft. TO _____ ft.

DRILLING LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED. Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
TOPSOIL	0.0	.C
BR SAND & GRAV w/ CLAY & SILT	.C	50.0
MOIST (BECOMES WET AT 40)		
BOFO 50.0		

*(If more space is needed to complete drilling log, use next consecutively numbered form.)

Date of Well Completion 6-19-98 Total Depth of Well 50.0 ft.

Completion of this form is required by section 1521.05 Ohio Revised Code - file within 30 days after completion of drilling or boring.

ORIGINAL COPY TO - ODNR DIVISION OF WATER 1939 FOUNTAIN SQ. DRIVE COLS. OHIO 43224-9971

DNR 7802.96

TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Divison of Water, 1939 Fountain Square Drive
Columbus, Ohio 43224-9971 Voice (614) 265-6739 Fax (614) 447-9503

File 729237 Vol 11 2095

869751

WELL LOCATION

County MONTGOMERY Township N/A

Owner/Builder (Circle One or Both) VAN DYNE CROTTY (First / Last)

Address of Well Location 903 (Number) BRANDT PK. (Street Name)

City DAYTON Zip Code +4 45404

Permit No. MP-11 Section/Lot No. (Circle One or Both) N/A

Location of Well in State Plane coordinates, if available: Use of Well MONITORING

N ☐ X _____ . _____ +/- _____ ft. or m

S ☐ Y _____ . _____ +/- _____ ft. or m

Elevation of Well _____ . _____ +/- _____ ft. or m

Datum Plain: ☐ NAD27 ☐ NAD83 Elevation Source _____

Source of Coordinates: ☐ GPS ☐ Survey ☐ Other _____

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks. If latitude and longitude are available please include here: Lat: _____ Long: _____

North

S/A

East

South

WELL TEST*

Pre-Pumping Static Level _____ ft. Date _____

Measured from: ☐ Top of Casing ☐ Ground Level ☐ Other _____

☐ Air ☐ Bailing ☐ Pumping* ☐ Other _____

Test Rate _____ gpm Duration of Test _____ hrs.

Feet of Drawdown _____ ft. Sustainable Yield _____ gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? ☐ Yes ☐ No Flowing Well? ☐ Yes ☐ No

Quality _____

PUMP/PITLESS

Type of pump _____ Capacity _____ gpm

Pump set at _____ ft. Pitless Type _____

Pump Installed by _____

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm BOWSER-MORNER INC

Address 4518 TAYLORSVILLE RD.

City, State, Zip DAYTON OH 45424

Signed Jim Nicholson (TS) Date 9-1-98

ODH Registration Number 1631

CONSTRUCTION DETAILS

☐ Rotary ☐ Cable ☒ Augered ☐ Driven ☐ Other _____

BOREHOLE/CASING (measured from ground surface)

1 ☒ Borehole Diameter 10 inches Depth 43 ft.

Casing Diameter 2 in. Length 36.5/19.5 ft. Thickness SCH 40 in.

2 ☒ Borehole Diameter 10 inches Depth 43 ft.

Casing Diameter 1 in. Length 12 ft. Thickness SCH 40 in.

Casing Height Above Ground Set Below Grnd LA ft.

Type: 1 ☐ Steel 2 ☐ | 1 ☐ Galv. 2 ☐ | 1 ☒ PVC 2 ☒ | 1 ☐ 2 ☐ Other _____

Joints: 1 ☒ Threaded 2 ☒ | 1 ☐ Welded 2 ☐ | 1 ☐ Solvent 2 ☐ | 1 ☐ 2 ☐ Other _____

SCREEN

Diameter 2/2/1 Slot Size .020 Screen Length 5/5/2.5 ft.

Type SLOTTED Material PVC

Set Between 40.5/24.5/15 ft. and 36.5/19.5/10.5 ft.

GRAVEL PACK (Filter Pack)

Material/Size SILICA #5 Volume/Weight Used 6.5 CF/650 #

Method of Installation TREMIE THROUGH NIPPERS

Depth: Placed FROM 43/24.5/15 ft. TO 35.5/18.5/11.5 ft.

GROUT

Material BENT/CEMENT Volume/Weight Used 2.6 CF/200 #

Method of Installation TREMIE

Depth: Placed FROM 9.5 ft. TO 1.0 ft.

DRILLING LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED. Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
TOPSOIL	0.0	.5
BR SANDY GRAVEL w/ COBBLES	.5	41.5
DRY TO wet (29.5) Dense to V. Dense		
GR SILTY SANDY GRAVELLY CLAY DAMP	41.5	43
BOFB 43.0		

*(If more space is needed to complete drilling log, use next consecutively numbered form.)

Date of Well Completion 5-9-98 Total Depth of Well 43.5 ft.

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.

ORIGINAL COPY TO: ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224-9971

DNR 7802.96

TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Divison of Water, 1939 Fountain Square Drive
Columbus, Ohio 43224-9971 Voice (614) 265-6739 Fax (614) 447-9503

File 729237
Well 865600
2005

WELL LOCATION

County MONTGOMERY Township N/A

Owner/Builder (Circle One or Both) VAN DYNE CROTTY (First / Last)

Address of Well Location 903 (Number) BRANAT PK. (Street Name)

City DAYTON Zip Code +4 45404

Permit No. RW-5 Section/Lot No. (Circle One or Both) N/A

Location of Well in State Plane coordinates, if available:

Use of Well RECOVERY

N ☐ X _____ . _____ +/- _____ ft. or m

S ☐ Y _____ . _____ +/- _____ ft. or m

Elevation of Well _____ . _____ +/- _____ ft. or m

Datum Plain: ☐ NAD27 ☐ NAD83 Elevation Source _____

Source of Coordinates: ☐ GPS ☐ Survey ☐ Other _____

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks. If latitude and longitude are available please include here: Lat: _____ Long: _____

North

S/A

East

South

WELL TEST*

Pre-Pumping Static Level _____ ft. Date _____

Measured from: ☐ Top of Casing ☐ Ground Level ☐ Other _____

☐ Air ☐ Bailing ☐ Pumping* ☐ Other _____

Test Rate _____ gpm Duration of Test _____ hrs.

Feet of Drawdown _____ ft. Sustainable Yield _____ gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? ☐ Yes ☐ No Flowing Well? ☐ Yes ☐ No

Quality _____

PUMP/PITLESS

Type of pump _____ Capacity _____ gpm

Pump set at _____ ft. Pitless Type _____

Pump installed by _____

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm BOWSER-MORNER INC.

Address 4518 TAYLORSVILLE RD

State, Zip DAYTON OH 45424

Signed Jim Neighbor (JB) Date 9-1-98

ODH Registration Number 1651

CONSTRUCTION DETAILS

☐ Rotary ☒ Cable ☐ Augered ☐ Driven ☐ Other _____

BOREHOLE/CASING (measured from ground surface)

1 ☒ Borehole Diameter 8 inches Depth 42 ft.

Casing Diameter 8 in. Length 28 ft. Thickness _____ in.

2 ☐ Borehole Diameter _____ inches Depth _____ ft.

Casing Diameter _____ in. Length _____ ft. Thickness _____ in.

Casing Height Above Ground 1.0 ft.

Type 1 ☒ Steel 1 ☐ Galv. 1 ☐ PVC 1 ☐
2 ☐ 2 ☐ 2 ☐ 2 ☐ Other _____

Joints 1 ☐ Threaded 1 ☒ Welded 1 ☐ Solvent 1 ☐
2 ☐ 2 ☐ 2 ☐ 2 ☐ Other _____

SCREEN TELESCOPING

Diameter 8 Slot Size .030 Screen Length 15 ft.

Type WIRE WRAPPED Material STEEL

Set Between 42 ft. and 07 ft.

GRAVEL PACK (Filter Pack)

Material/Size NATURAL Volume/Weight Used _____

Method of Installation _____

Depth: Placed FROM _____ ft. TO _____ ft.

GROUT

Material N/A Volume/Weight Used _____

Method of Installation _____

Depth: Placed FROM _____ ft. TO _____ ft.

DRILLING LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED. Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
TOPSOIL	0.0	.7
BR SAND + GRAVEL w/ SILT & CLAY	.7	42
MOIST to WET (27.0)		
BOTTOM 42.0		

*(If more space is needed to complete drilling log, use next consecutively numbered form.)

Date of Well Completion 6-24-98 Total Depth of Well 42.0 ft.

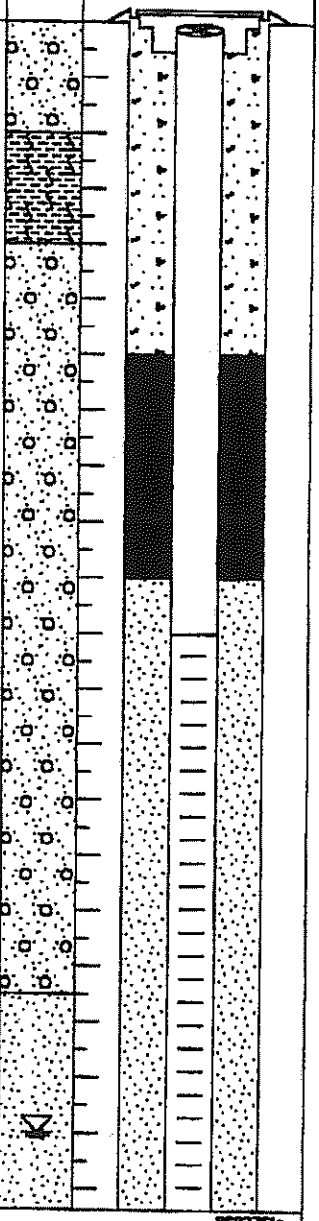
Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.

ORIGINAL COPY TO - ODNR DIVISION OF WATER 1939 FOUNTAIN SQ. DRIVE COLS., OHIO 43224-9971

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	SVE-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	10 JUNE 1996	WEATHER	PARTLY CLOUDY, 70°
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC	DIAMETER 4"	LENGTH 10.5'
SCREEN TYPE	SCH 40 PVC	SLOT 0.010" WIRE WRAP DIAMETER 4"	LENGTH 20'
			HOLE DIA. 12"
			TOTAL DEPTH 31'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			4 1/2" ASPHALT
		1			TAN TO BROWN SAND AND GRAVEL
				HAND AUGER	
		2			GRAY SILT AND CLAY, TRACE GRAVEL (FILL)
		3		4	MOIST, BROWN PLASTIC CLAY, SOME SILT
	34.5	4		10	AND LITTLE COBBLES
				15	
		5		20	DRY BROWN SAND AND GRAVEL SOME SILT
				16	
	25.7	6		24	MOIST BECOMING DRY TAN SAND AND GRAVEL, SOME ROCK FRAGS AND SILT, TRACE CLAY
				21	
		7		20	
				12	MOIST, TAN TO BROWN SAND AND GRAVEL
	23.6	8		21	SOME COBBLE WITH THIN WET SILT SEAMS.
				28	
		9		43	
				17	DAMP BROWN SAND AND GRAVEL, SOME
	30.0	10		26	COBBLES LITTLE SILT.
				40	
		11		42	DRY BROWN SAND AND GRAVEL SOME COBBLES, LITTLE SILT.
				17	
	34.2	12		23	DRY BROWN SAND AND GRAVEL LITTLE COBBLES, TRACE SILT.
				26	
		13		30	
				10	
	38.8	14		28	MOIST TO DRY BROWN SAND AND GRAVEL, SOME COBBLES.
				36	
		15		28	
				18	MOIST TO DRY BROWN SAND AND GRAVEL,
	84.2	16		23	SOME ROCK FRAGMENTS AND COBBLES.
				33	
		17		28	
				30	
	85.3	18		50	
				67	DENSE, DRY FINE SAND LITTLE GRAVEL AND
		19		70	COBBLES.
				24	
	214	20		35	
				40	
		21		40	



SAND · BACK FILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

ES637/61a

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	SVE-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	10 JUNE 1996	WEATHER	PARTLY CLOUDY, 70°
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	2 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC	DIAMETER 4"	LENGTH 10.5'
		HOLE DIA.	12"
SCREEN TYPE	SCH 40 PVC SLOT 0.010" WIRE WRAP	DIAMETER 4"	LENGTH 20'
		TOTAL DEPTH	31'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
		20		40	WET BROWN MEDIUM SAND, LITTLE GRAVEL OVERLYING 4" OF TAN TO BROWN FINE SAND, LITTLE SILT TRACE GRAVEL.		FLUSH MOUNT PROTECTIVE COVER
		21		40			
				14			
	32.3	22		26			
				26			
		23		28			
				4			
	264	24		8	WET BROWN MEDIUM SAND, TRACE GRAVEL.		
				18			
		25		31			
				14			
	255	26		28	WET BROWN FINE SAND AND GRAVEL LITTLE TO SOME SILT.		
				72			
		27		66			
				8	BROWN POORLY SORTED SAND AND GRAVEL, LITTLE TO SOME SILT.		
	27.0	28		13			
				20			
		29		25			
					WET BROWN SILT, SAND AND GRAVEL, SOME ROCK FRAGMENTS.		
	48.3	30					
		31			WET BROWN SILT, SAND AND GRAVEL.		
SVE1 31-33	560	32					
		33			END OF BORING.		
		34					
		35					
		36					
		37					
		38					
		39					
		40					
		41					

SAND | BACK FILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO		
DATE	11 JUNE 1996	WEATHER	CLOUDY, SHOWERS AND 60'S		
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING	PAGE	1 OF 3
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT		
CASING TYPE	SCH 40 PVC	DIAMETER	2"	LENGTH	41'
SCREEN TYPE	SCH 40 PVC SLOT 0.010"	DIAMETER	2"	LENGTH	2.5'

HOLE DIA. 10"
TOTAL DEPTH 44'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			TOPSOIL
		1		HAND AUGER	MOIST REDDISH BROWN CLAY AND SILT, SOME GRAVEL, GRAVEL CONTENT INCREASING WITH DEPTH.
		2			
		3			
		4		11	
	14.6	5		13	MOIST, BROWN GRAVEL AND ROCK FRAG-
				20	MENTS, SOME SAND AND SILT.
		6		18	
				18	
	8.9	7		23	
				25	
		8		30	
				14	MOIST BROWN SAND AND GRAVEL, TRACE
	7.0	9		24	COBBLES.
				20	
		10		18	MOIST, BROWN SAND, LITTLE FINE GRAVEL.
				13	
	8.4	11		33	
				35	MOIST, BROWN SAND, GRAVEL AND LITTLE
		12		53	ROCK FRAGMENTS.
				20	
	6.1	13		20	DAMP BROWN SAND AND GRAVEL, LITTLE
				12	ROCK FRAGMENTS.
		14		11	
				8	WET, BROWN PEA GRAVEL, LITTLE SAND AND
	5.6	15		14	SILT, TRACE ROCK FRAGMENT.
				20	
		16		20	
				11	WET BROWN PEA GRAVEL AND SAND, LITTLE
	5.3	17		11	SILT.
				13	DAMP, BROWN SAND AND GRAVEL, SOME
		18		11	ROCK FRAGMENTS AND SILT.
				12	MOIST TO DAMP BROWN SAND AND GRAVEL,
	8.6	19		12	SOME ROCK FRAGMENTS, LITTLE SILT, WET
				14	AT BOTTOM.
		20		21	
		21			

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

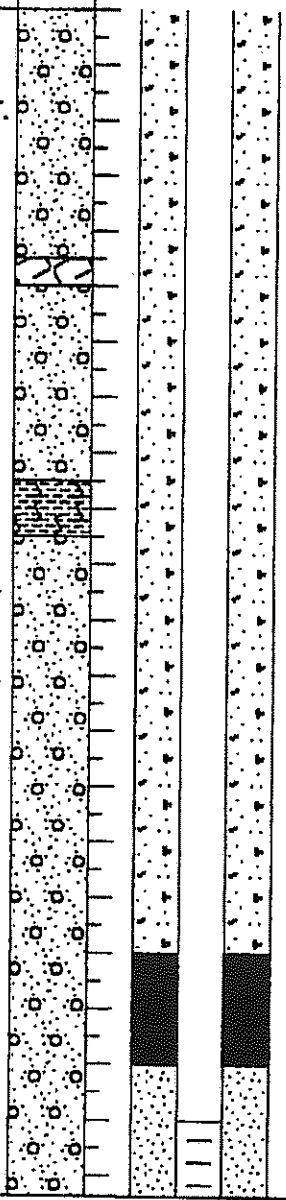
PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	11 JUNE 1996	WEATHER	CLOUDY, SHOWERS AND 60'S
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	2 OF 3
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT
CASING TYPE	SCH 40 PVC	DIAMETER 2"	LENGTH 41'
		HOLE DIA.	10"
SCREEN TYPE	SCH 40 PVC SLOT 0.010"	DIAMETER 2"	LENGTH 2.5'
		TOTAL DEPTH	44'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20		12	WET, BROWN SAND AND GRAVEL, WITH 4"
	14.3	21		22	SILT SEAM.
				29	
		22		27	WET BROWN SAND AND GRAVEL, LITTLE SILT.
				27	WET, BROWN SAND AND GRAVEL, SOME
	11.6	23		32	ROCK FRAGMENTS (COBBLE BLOCKING
				47	SPOON).
		24		60	
				18	
	81.6	25		29	MOIST, HARD GRAY TILL.
				34	
		26		55	
				6	WET, BROWN MEDIUM SAND AND GRAVEL,
	36.4	27		15	LITTLE SILT, TRACE ROCK FRAGMENTS.
				24	
		28		34	
				11	
	671	29		29	MOIST, BROWN CLAY UNDERLAIN WITH
				32	BROWN SILT GRADING INTO BROWN MEDIUM
		30		65	SAND AND GRAVEL, SOME SILT.
				8	WET, BROWN SAND AND GRAVEL, TRACE OF
ASW-1 30-32	1047	31		23	ROCK FRAGMENTS, SOME SILT IN SPOON AT
				46	BOTTOM.
		32		58	
				28	WET, BROWN SAND AND GRAVEL, SOME SILT
	532	33		37	TRACE OF CLAY AND ROCK FRAGMENTS.
				51	
		34		83	
				114	
	NR	35		122	
				110	
		36		172	WET, BROWN SAND AND GRAVEL, SOME
				30	COBBLES AND SILT.
	240	37		43	
				67	
		38		75	
				28	WET, BROWN SAND, GRAVEL AND ROCK
	68.6	39		30	FRAGMENTS, SOME SILT, TRACE CLAY.
				29	
		40		32	
		41			

LITHO. PROFILE

WELL COMPLETION



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

E9237A1b

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	11 JUNE 1996	WEATHER	CLOUDY, SHOWERS AND 60'S
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	3 OF 3
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT
CASING TYPE	SCH 40 PVC	DIAMETER 2"	LENGTH 41'
			HOLE DIA. 10"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010" DIAMETER 2"	LENGTH 2.5'
			TOTAL DEPTH 44'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
		40					
	32.2	41		12 22 32 37	WET, BROWN SAND AND GRAVEL, SOME COBBLES, LITTLE SILT.		
		42		16	WET BROWN SILT, SOME FINE SAND OVER–		
ASW-1 42–44	57.6	43		36 57 93	LYING GRAY WET SAND, SOME SILT.		
		44			END OF BORING		
		45					
		46					
		47					
		48					
		49					
		50					
		51					
		52					
		53					
		54					
		55					
		56					
		57					
		58					
		59					
		60					
		61					

SAND · BACK FILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

89237A1c

PARSONS ENGINEERING SCIENCE LOG

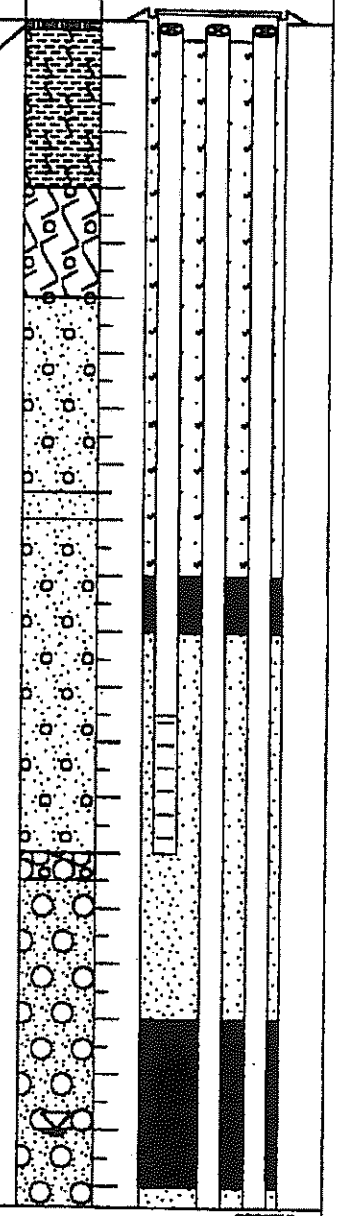
WELL NUMBER	MP-1	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	12 JUNE 1996	WEATHER	PARTLY CLOUDY, MID 70's
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC	DIAMETER 2" AND 1" LENGTH	VARIOUS
HOLE DIA.	12"		
SCREEN TYPE	SCH 40 PVC SLOT 0.010"	DIAMETER 2" AND 1" LENGTH	VARIOUS
TOTAL DEPTH	39'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			2" TOPSOIL
		1		HAND AUGER	REDDISH BROWN CLAY AND SILT.
		2			
		3			MOIST, GRAY SILT AND GRAVEL.
		4			
		5		12	MOIST, BROWN SAND AND GRAVEL, SOME SILT AND ROCK FRAGMENTS; ROCK FRAGMENT CONTENT INCREASING WITH DEPTH.
	3.7	6		24	
		7		28	
		8		28	
	2.1	9		16	MOIST, TAN TO BROWN SAND AND GRAVEL, LITTLE COBBLES.
		10		28	
		11		18	MOIST, TAN SAND.
	11.8	12		18	
		13		17	DRY TO MOIST TAN SAND AND GRAVEL, LITTLE ROCK FRAGMENTS.
		14		36	
		15		26	
	12.3	16		36	MOIST, TAN TO BROWN SAND AND GRAVEL, SOME ROCK FRAGMENTS.
		17		24	
		18		28	
		19		28	
	9.3	20		23	
		21		11	MOIST, TAN TO BROWN SAND AND GRAVEL, SOME SILT AND ROCK FRAGMENTS.
				11	
				19	
	3.3			13	
				9	WET BROWN PEA GRAVEL.
				11	MOIST, BROWN SAND AND GRAVEL, SOME SILT.
				18	
	2.3			14	
				11	
				11	
				10	
				13	
	NR			8	
				5	
				11	
				15	

LITHOL. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



SAND | BACK FILL | CASING | SCREEN | BENTONITE | CEMENT | INITIAL WATER LEVEL | STATIC WATER LEVEL

ES237/11A

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	12 JUNE 1996	WEATHER	PARTLY CLOUDY, MID 70's
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	2 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC	DIAMETER 2" AND 1"	LENGTH VARIOUS
HOLE DIA.	12"		
SCREEN TYPE	SCH 40 PVC SLOT 0.010"	DIAMETER 2" AND 1"	LENGTH VARIOUS
TOTAL DEPTH	39'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20			WET, BROWN SAND AND GRAVEL, SOME SILT AND COBBLES.
		21		19	
		22		16	
	5.6			26	BROWN SILT/FINE SAND, (COHESIVE) OVER-LYING 2" OF FINE BROWN SAND.
		23		31	
				15	WET, BROWN SILT, SOME SAND AND ROCK FRAGMENTS.
		24		17	
	25.4			21	WET, BROWN SAND AND GRAVEL.
		25		19	
				5	WET, BROWN, MEDIUM SAND, TRACE OF GRAVEL.
		26		7	
	9.7			24	
		27		20	
				12	DRY, HARD, GRAY CLAY, LITTLE GRAVEL.
		28		15	DAMP TO WET BROWN SILT, SOME SAND.
	17.3			26	
		29		38	
				14	
		30		25	WET, BROWN SAND, SOME GRAVEL.
	61.1			31	
		31		35	
				25	
		32		36	
	90.2			34	
		33		49	
				15	WET, BROWN SAND, GRAVEL AND SILT.
MP-1 33-35		34		30	DAMP BROWN SILT, SOME ROCK FRAGMENTS,
	210			32	LITTLE GRAVEL.
		35		66	
				19	MOIST, BROWN CLAY AND SILT, LITTLE GRAVEL.
		36		39	
	68.4			32	WET, BROWN SAND AND GRAVEL.
		37		30	
				34	WET, BROWN SAND AND GRAVEL, LITTLE SILT.
		38		38	
	72.3			29	
		39		30	
					END OF BORING
		40			
		41			

LITHO. PROFILE

WELL COMPLETION

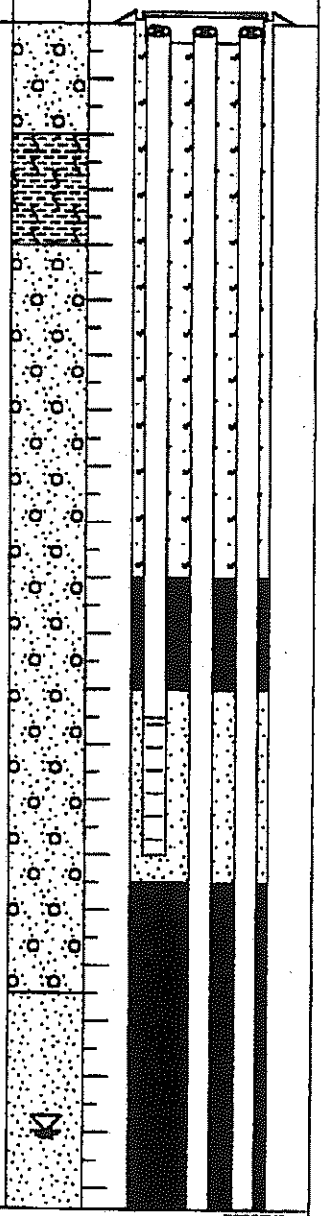
SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-2	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	13 JUNE 1996	WEATHER	SUNNY 85°
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC	DIAMETER 2" AND 1" LENGTH	VARIOUS
HOLE DIA.	12"		
SCREEN TYPE	SCH 40 PVC SLOT 0.010"	DIAMETER 2" AND 1" LENGTH	VARIOUS
TOTAL DEPTH	40'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
		0					FLUSH MOUNT PROTECTIVE COVER
		1			SEE SVE-1 DESCRPTION FOR 0-20 FEET.		
		2					
		3					
		4					
		5					
		6					
		7					
		8					
		9					
		10					
		11					
		12					
		13					
		14					
		15					
		16					
		17					
		18					
		19					
		20					
		21					



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

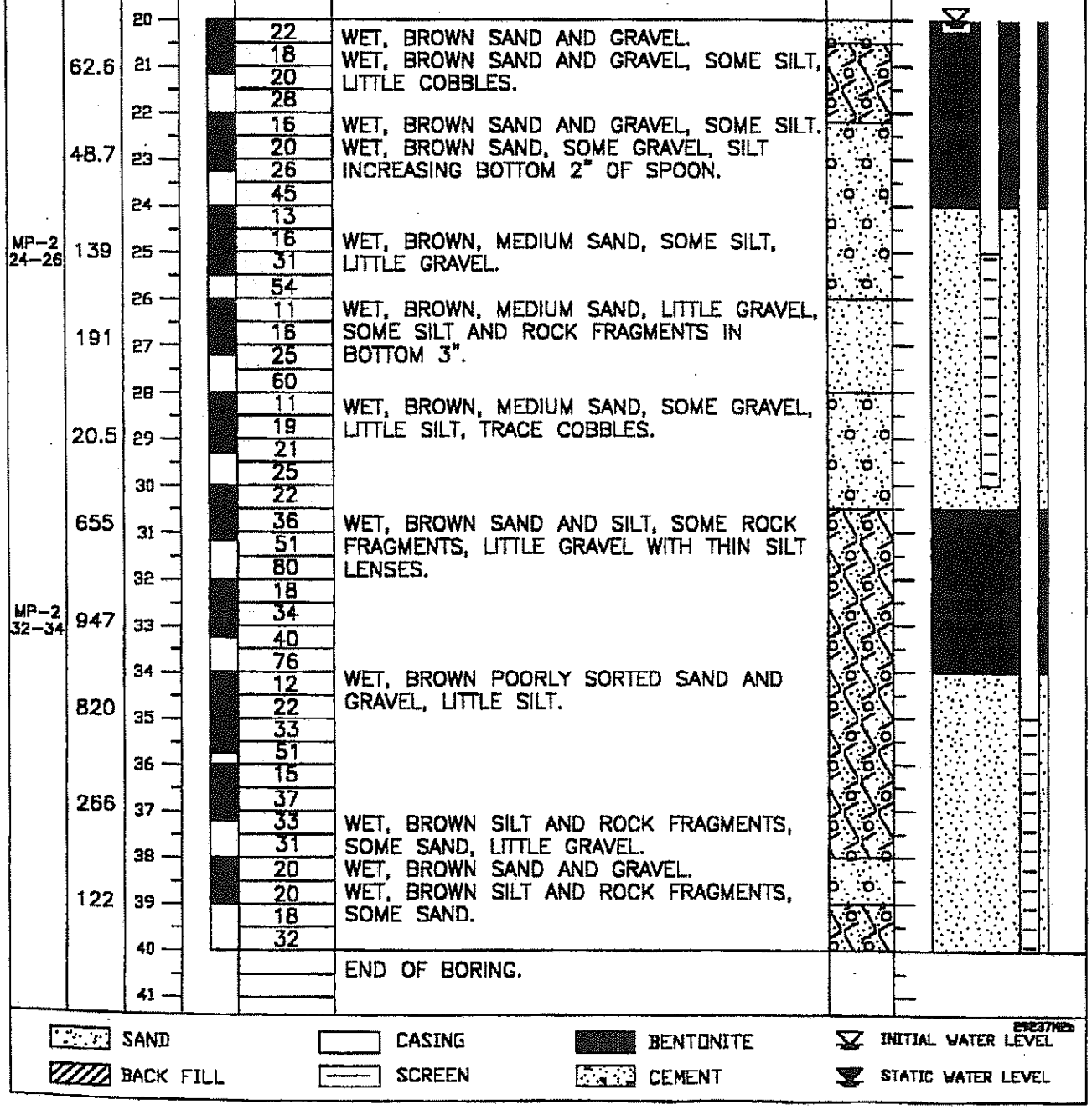
PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-2	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO		
DATE	13 JUNE 1996	WEATHER	SUNNY 85°		
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING	PAGE	2 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE		
CASING TYPE	SCH 40 PVC	DIAMETER	2" AND 1"	LENGTH	VARIOUS
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"	DIAMETER	2" AND 1"
				LENGTH	VARIOUS
HOLE DIA.	12"				
TOTAL DEPTH	40'				

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20		22	WET, BROWN SAND AND GRAVEL.
	62.6	21		18	WET, BROWN SAND AND GRAVEL, SOME SILT,
				20	LITTLE COBBLES.
		22		28	
				16	WET, BROWN SAND AND GRAVEL, SOME SILT.
	48.7	23		20	WET, BROWN SAND, SOME GRAVEL, SILT
				26	INCREASING BOTTOM 2" OF SPOON.
		24		45	
				13	
MP-2 24-26	139	25		16	WET, BROWN, MEDIUM SAND, SOME SILT,
				31	LITTLE GRAVEL.
		26		54	
				11	WET, BROWN, MEDIUM SAND, LITTLE GRAVEL,
	191	27		16	SOME SILT AND ROCK FRAGMENTS IN
				25	BOTTOM 3".
		28		60	
				11	WET, BROWN, MEDIUM SAND, SOME GRAVEL,
	20.5	29		19	LITTLE SILT, TRACE COBBLES.
				21	
		30		25	
				22	
	655	31		36	WET, BROWN SAND AND SILT, SOME ROCK
				51	FRAGMENTS, LITTLE GRAVEL WITH THIN SILT
		32		80	LENSES.
				18	
MP-2 32-34	947	33		34	
				40	
		34		76	
				12	WET, BROWN POORLY SORTED SAND AND
	820	35		22	GRAVEL, LITTLE SILT.
				33	
		36		51	
				15	
	266	37		37	
				33	WET, BROWN SILT AND ROCK FRAGMENTS,
		38		31	SOME SAND, LITTLE GRAVEL.
				20	WET, BROWN SAND AND GRAVEL.
	122	39		20	WET, BROWN SILT AND ROCK FRAGMENTS,
				18	SOME SAND.
		40		32	
					END OF BORING.
		41			

LITHO. PROFILE

WELL COMPLETION



PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW-2	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO		
DATE	14 JUNE 1996	WEATHER	SUNNY, HAZY AND 70'		
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING	PAGE	1 OF 3
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT		
CASING TYPE	SCH 40 PVC	DIAMETER	2"	LENGTH 41'	HOLE DIA. 10"
SCREEN TYPE	SCH 40 PVC SLOT 0.010"	DIAMETER	2"	LENGTH 2.5'	TOTAL DEPTH 46'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			2" TOPSOIL
		1		HAND AUGER	MOIST, TAN TO BROWN SILT AND GRAVEL, SOME SAND.
		2			
		3			
		4			
		5			
		6		17	DRY, BROWN SAND AND GRAVEL, SOME ROCK FRAGMENTS AND SILT.
	4.1	7		22	
		8		26	
		9		22	
	12.8			25	
				31	
				29	
		10		23	
				16	DRY, CRUMBLY SILT, SAND AND GRAVEL.
	15.8	11		22	MOIST, BROWN MEDIUM SAND, LITTLE GRAVEL OVERLYING MOIST, BROWN SAND,
				24	SOME COBBLES AND ROCK FRAGMENTS.
		12		28	
				25	4" OF ROCK FRAGMENTS.
	19.7	13		24	TAN TO BROWN SAND AND ROCK FRAGMENTS
				23	OVERLYING DAMP, BROWN SAND, LITTLE
		14		22	GRAVEL.
				9	
	12.7	15		13	HARD BROWN SILT, SOME CLAY AND GRAVEL.
				20	
		16		33	
				21	MOIST, BROWN SILT, SAND AND GRAVEL,
	16.2	17		25	SOME ROCK FRAGMENTS AND COBBLES.
				20	
		18		25	
				23	WET, TAN TO GRAY SAND AND ROCK FRAG-
	9.3	19		60	MENTS, LITTLE GRAVEL AND SILT.
				56	
		20		31	
		21			

LITHOL. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW-2	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO		
DATE	14 JUNE 1996	WEATHER	SUNNY, HAZY AND 70°		
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING	PAGE	2 OF 3
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT		
CASING TYPE	SCH 40 PVC	DIAMETER	2"	LENGTH	41'
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"	DIAMETER	2"
HOLE DIA.	10"				
TOTAL DEPTH	46'				

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR)
	0.0	20		16	WET, BROWN SAND AND ROCK FRAGMENTS,
		21		18	SOME SILT, LITTLE GRAVEL.
				22	
				26	
		22		11	WET, BROWN SAND, GRAVEL AND ROCK
	0.0	23		14	FRAGMENTS WITH THIN BROWN SILT LENSES.
				22	
				25	
		24		19	
	1.7	25		13	WET, BROWN SAND AND GRAVEL, SOME SILT,
				24	LITTLE COBBLES.
				39	
		26		14	
	0.0	27		22	
				23	
				26	
		28		13	
	1.6	29		20	WET, BROWN SAND AND GRAVEL, SOME
				27	SILT AND COBBLES.
				29	
		30		8	WET, BROWN MEDIUM SAND, LITTLE GRAVEL.
	13.8	31		12	
				15	
		32		15	
				18	
	6.3	33		22	WET, BROWN SILT, LITTLE GRAVEL GRADING
				26	TO MOIST GRAY SILT, SOME GRAVEL.
		34		66	
				3	WET LOOSE GRAY SAND AND GRAVEL,
	27.3	35		8	TRACE SILT AND COBBLES.
				17	
				23	
		36		11	WET, GRAY SAND, SOME GRAVEL, LITTLE
	40.0	37		11	SILT, TRACE COBBLES.
				18	
				42	
		38		6	
ASW2 38-40	62.0	39		14	WET, BROWN SAND, SOME COBBLES, LITTLE
				35	GRAVEL.
				35	
		40		6	
				18	
		41			

LITHOL. PROFILE

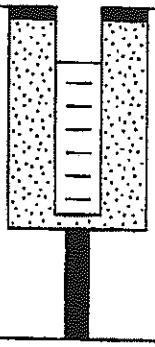
WELL COMPLETION

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW-2	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	14 JUNE 1996	WEATHER	SUNNY, HAZY AND 70°
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	3 OF 3
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT
CASING TYPE	SCH 40 PVC	DIAMETER 2"	LENGTH 41'
			HOLE DIA. 10"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010" DIAMETER 2"	LENGTH 2.5'
			TOTAL DEPTH 46'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE
		40		6	WET, TAN TO BROWN MEDIUM SAND, SOME SAND.	
	53.7	41		18		
				30		
		42		40	WET, BROWN SILT AND SAND, SOME GRAVEL.	
				9		
	35.1	43		12		
				42		
		44		38		
				26	HARD, WET BROWN SILT, SOME SAND AND GRAVEL.	
ASW2 44-46	20.6	45		56		
				70		
		46		—	END OF BORING	
		47				
		48				
		49				
		50				
		51				
		52				
		53				
		54				
		55				
		56				
		57				
		58				
		59				
		60				
		61				

WELL COMPLETION



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

29237ABc

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-3	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	18 JUNE 1996	WEATHER	CLOUDY, SHOWERS, 80'S
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
		PAGE	1 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT
CASING TYPE	SCH 40 PVC	DIAMETER 2"	LENGTH -
			HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010" DIAMETER 2"	LENGTH -
			TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHOL. PROFILE	WELL COMPLETION
		0			SEE WELL LOG FOR ASW-2 OR MP-4 FOR 0-20 FEET.		FLUSH MOUNT PROTECTIVE COVER
		1					
		2					
		3					
		4					
		5					
		6					
		7					
		8					
		9					
		10					
		11					
		12					
		13					
		14					
		15					
		16					
		17					
		18					
		19					
		20					
		21					

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-3	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	18 JUNE 1996	WEATHER	CLOUDY, SHOWERS 80'S
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING
PAGE	2 OF 2		
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT
CASING TYPE	SCH 40 PVC	DIAMETER	2" LENGTH -
HOLE DIA.	12"		
SCREEN TYPE	SCH 40 PVC SLOT 0.010"	DIAMETER	2" LENGTH -
TOTAL DEPTH	40'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR)
		20		14	WET, BROWN SAND AND GRAVEL, SOME
	14.8	21		16	SILT, LITTLE COBBLES AND ROCK FRAG-
				17	MENTS.
		22		21	
				13	
	12.0	23		26	WET, BROWN, FINE SAND AND SILT.
				36	WET, BROWN SAND, SOME SILT AND GRAVEL.
		24		41	
				7	WET, BROWN SAND AND GRAVEL, SOME
MP-3 24-26	10.5	25		15	SILT, LITTLE ROCK FRAGMENTS.
				24	
		26		28	
				65	WET, BROWN, FIRE SAND, SOME GRAVEL
	7.8	27		59	AND COBBLES.
				63	
		28		61	
				23	
	15.0	29		14	
				23	
		30		30	
				8	WET, BROWN SAND, LITTLE GRAVEL GRADING
	18.9	31		15	INTO WET, BROWN SAND AND GRAVEL,
				18	SOME SILT, LITTLE COBBLES.
		32		18	
				12	
	NR	33		34	
				41	
		34		100	
				8	
	9.5	35		13	MOIST, BROWN CLAY, SOME SILT.
				22	MOIST, BECOMING WET, GRAY SILT.
		36		35	
				8	WET, GRAY SAND AND GRAVEL, LITTLE ROCK
MP-3 36-38	45.7	37		17	FRAGMENTS, TRACE OF SILT.
				14	
		38		20	
				6	
	NR	39		10	
				15	
		40		25	
					END OF BORING.
		41			

LITHO. PROFILE

WELL COMPLETION

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-4	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO		
DATE	17 JUNE 1996	WEATHER	CLOUDY, HUMID, 85'		
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING	PAGE	1 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT		
CASING TYPE	SCH 40 PVC	DIAMETER	2"	LENGTH	-
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"	DIAMETER	2"
				LENGTH	-
HOLE DIA.	12"				
TOTAL DEPTH	40'				

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE
		0			3" TOPSOIL	
		1			MOIST, GRAY SILT AND GRAVEL.	
		2			MOIST, RED-BROWN SILT, SOME CLAY, LITTLE GRAVEL.	
		3			MOIST, RED-BROWN SILT AND GRAVEL, SOME COBBLES.	
		4				
		5			MOIST, BROWN SAND AND GRAVEL, SOME SILT AND ROCK FRAGMENTS.	
		6		8	MOIST, BROWN SAND AND GAVEL, SOME SILT, LITTLE COBBLES.	
	7.3	7		9		
		8		10		
		9		14		
		10		8	MOIST, BROWN SAND AND GRAVEL, SOME SILT, LITTLE ROCK FRAGMENTS.	
	12.5	11		29		
		12		28	DRY, CRUMBLY, GRAY SILT AND GRAVEL, SOME SAND, LITTLE ROCK FRAGMENTS.	
		13		21		
		14		24		
	31.8	15		40	DRY, CRUMBLY, TAN TO BROWN SAND AND GRAVEL, SOME SILT AND ROCK FRAGMENTS.	
		16		46		
		17		45		
		18		16	DRY TO MOIST, TAN TO BROWN SAND, SOME GRAVEL AND ROCK FRAGMENTS.	
	25.8	19		25		
		20		25		
		21		29	MOIST, BROWN SAND AND GRAVEL, SOME SILT AND ROCK FRAGMENTS.	
				14		
	27.4			21		
				45		
				45		
				27		
	12.1			20		
				16		
				23		
				27	MOIST TO WET, BROWN SAND, SILT AND ROCK FRAGMENTS.	
	17.8			29		
				23		
				25		

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

89237M44

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-4	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO	
DATE	17 JUNE 1996	WEATHER	CLOUDY, HUMID, 85°	
LOCATED BY	W. H. REID	DRILLED BY	JERSEY WEST DRILLING	PAGE 2 OF 2
DRILLING METHOD	6 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON	
GRAVEL PACK	SAND	SEAL	BENTONITE GROUT	
CASING TYPE	SCH 40 PVC	DIAMETER 2"	LENGTH -	HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010" DIAMETER 2"	LENGTH -	TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR)
		20		7	WET, BROWN SAND AND GRAVEL, SOME SILT.
	8.6	21		14	
				23	
		22		25	
				14	
	11.4	23		27	WET, BROWN SILT, SOME SAND, LITTLE GRAVEL.
				28	
		24		31	
				8	WET, BROWN SAND AND GRAVEL, LITTLE ROCK FRAGMENTS AND SILT.
	6.8	25		14	
				19	
		26		19	
				12	
	14.2	27		20	
				26	WET, BROWN SAND, SOME SILT AND GRAVEL, LITTLE COBBLES.
		28		33	
				5	
	13.2	29		8	
				12	
		30		12	
				13	
	21.4	31		23	
				39	
		32		52	
				6	WET, BROWN SAND, SOME GRAVEL, LITTLE COBBLES, TRACE SILT.
	21.1	33		10	
				20	
		34		24	
				6	MOIST, BROWN CLAY, SOME SILT.
	19.7	35		10	WET, GRAY SILT, GRADING INTO WET, GRAY, FINE TO MEDIUM SAND.
				20	
		36		24	
				12	WET, GRAY, MEDIUM SAND AND GRAVEL, TRACE SILT.
	39.4	37		29	
				320	
		38		38	
				12	
MP-4 38-40	43.4	39		47	
				97	WET, GRAY SAND AND SILT, SOME GRAVEL, LITTLE COBBLES.
		40		50	
					END OF BORING.
		41			

LITHO. PROFILE

WELL COMPLETION

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACK FILL | SCREEN | CEMENT | STATIC WATER LEVEL

ES237M4n

TABLE 1
WELL CONSTRUCTION SUMMARY
AIR SPARGING WELLS
VAN DYNE CROTTY
DAYTON, OHIO FACILITY

WELL ID	TOTAL DEPTH (ft)	BASE OF SCREEN (ft)	TOP OF SAND (ft)	TOP OF SEAL (ft)	TOP OF SILT/CLAY LAYER(S)* (ft)	SILT/CLAY THICKNESS
SYSTEM 1 (SOURCE AREA)						
ASW 1-1	43	43	40	37		
ASW 1-2	44	43	40	32		
ASW 1-3	41	40	35.5	29.5	38	>1.5 ft
ASW 1-4	41	40.5	37.5	32		
ASW 1-7	40	39.5	36.5	31	28	1 ft
ASW 1-8	40	40	36.5	31		
ASW 1-9	42	41	38	32		
ASW 1-10	46	45	42	38		
ASW 1-11	44	43	40	35		
ASW 1-12	41	40	37	32		
ASW 1-13	40	39	36	29		
ASW 1-14S	43	37	34	29		
ASW 1-14D	43	42	39	38		
ASW 1-15	39	38	35	29		
ASW 1-16	38	36	33	16	32.5	6 inches
ASW 1-17S	48	33	30	25	31	2 ft
ASW 1-17D	48	47	44	34	47	>1 ft
ASW 1-18	42	41	38	31.5	40.5	>4 inches
ASW 1-19	43	43	39	31		
ASW 1-20	43	43	40	33		
ASW 1-21	41	39	36	30	40	6 inches
SYSTEM 2 (FENCE LINE)						
ASW 2-1	45	44	41	37		
ASW 2-2	45	44	41	37		
ASW 2-3	45	44	41	37		
ASW 2-4	39	38	35	31	18.5	3.5 ft
					38.5	3 ft
ASW 2-5	44	43	40	35		
ASW 2-6	43	42	39	34		
ASW 2-7A	43	42	39	35	16	2 ft
ASW 2-8	39	38.5	35.5	30	31	2.5 ft
ASW 2-9	39	39	35.5	29.5	38	>1 ft
ASW 2-10	38.5	38.5	35.5	29.5	37	2 ft

* Blank space = no clay layer penetrated during sampling

PARSONS ENGINEERING SCIENCE LOG

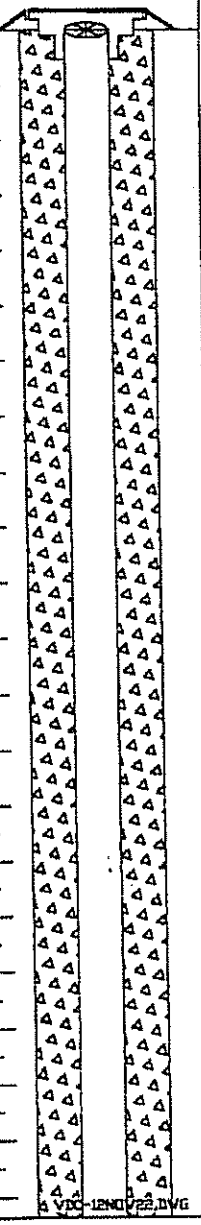
WELL OR BORING NUMBER: VDC-12	LOCATION: VAN DYNE CROTTY – DAYTON, OHIO		
DATE: 22 NOVEMBER 96	WEATHER: CLOUDY 30°		
LOCATED BY: WH. REID	DRILLED BY: BROWSER MORNER	PAGE 1 OF 2	
DRILLING METHOD: 4 1/4" ID HSA		SAMPLING METHOD: SPLIT SPOON	
GRAVEL PACK: SAND		SEAL: BENTONITE	
CASING TYPE: SCH 40 PVC AND STAINLESS	DIAMETER: 2"	LENGTH: 30'	HOLE DIA.: 10"
SCREEN TYPE: STAINLESS	SLOT: 0.010	DIAMETER: 2"	LENGTH: 10'	TOTAL DEPTH: 41'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR)
		0			4" ASPHALT PAVING SUBBASE
		1			MOIST, BROWN CLAY AND SILT.
		2			DRY, BROWN SAND AND GRAVEL.
		3			
		4			DRY BROWN SAND AND COBBLES SOME GRAVEL.
		5			
		6		6	DRY, BROWN SAND AND GRAVEL, SOME COBBLES.
	3.4	7		6	
		8		10	MOIST, BROWN SAND AND GRAVEL.
	4.3	9		13	
		10		7	
	6.7	11		7	
		12		11	MOIST, BROWN SAND AND GRAVEL, LITTLE COBBLES.
	4.0	13		18	
		14		10	
	8.0	15		13	
		16		13	MOIST, BROWN GRAVEL, SOME SAND.
	6.0	17		11	
		18		12	
	6.1	19		14	
		20		18	
		21		17	
				36	MOIST, BROWN FINE SAND LITTLE SILT, BECOMING DAMP AT DEPTH.
				50/3	
				49	DAMP, BROWN SILT, SAND AND COBBLES.
				50/3	
				6	MOIST, BROWN SAND AND COBBLES, SOME GRAVEL.
				16	
				23	
				36	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL OR BORING NUMBER	VDC-12	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	22 NOVEMBER 96	WEATHER	CLOUDY 30°
LOCATED BY	WH. REID	DRILLED BY	BROWSER MORNER
PAGE	2 OF 2		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC AND STAINLESS	DIAMETER	2"
LENGTH	30'	HOLE DIA.	10"
SCREEN TYPE	STAINLESS	SLOT	0.010
DIAMETER	2"	LENGTH	10'
TOTAL DEPTH	41'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20		18	MOIST, BROWN SAND AND COBBLES, SOME GRAVEL
	NR	21		26	
				34	
		22		40	
				80/5	HARD, GRAY CLACIAL TILL
	3.0	23		–	
				–	
		24		–	
				45	
	4.21	25		50/3	MOIST BROWN SILT AND GRAVEL DRY, BROWN, COARSE SAND, SOME GRAVEL
				–	
		26		25	MOIST, REDDISH BROWN COARSE SAND SOME GRAVEL AND COBBLES
	5.4	27		50/3	
				–	
		28		–	
				25	
	5.5	29		50/3	MOIST BROWN SAND AND GRAVEL, LITTLE COBBLES
				–	
		30		–	
				20	MOIST BROWN SAND AND GRAVEL, SOME SILT
	4.2	31		25	
				10	WET, BROWN SAND AND GRAVEL, LITTLE SILT
		32		14	
				11	
	6.2	33		24	
				24	
		34		28	
				18	WET, BROWN SAND AND GRAVEL SOME COBBLES AND SILT
	4.0	35		24	
				28	
		36		30	
				8	WET, BROWN SAND AND GRAVEL, LITTLE COBBLES, TRACE SILT
	7.2	37		20	
				28	
		38		45	
				18	
	5.5	39		23	
				25	
		40		28	–NOTE SCALE CHANGE.
				7/16	MOIST, GRAY SILT AND GRAVEL (TILL).
	6.3	42		23/28	END OF BORING.

LITHO. PROFILE

WELL COMPLETION

VDC-12NOV22.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

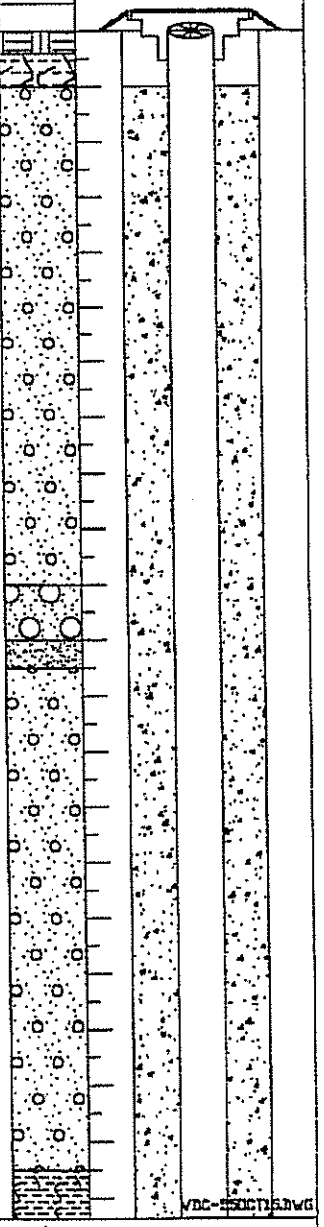
WELL NUMBER	VDC-5S	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	15 OCTOBER 96	WEATHER	PARTLY CLOUDY, 60°
LOCATED BY	PETE DACYK	DRILLED BY	BOWSER MORNER
PAGE	1 OF 2		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC AND STAINLESS	DIAMETER	2"
LENGTH	26.5	HOLE DIA.	10"
SCREEN TYPE	STAINLESS	SLOT	0.010
DIAMETER	2"	LENGTH	10'
TOTAL DEPTH	39'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			TOPSOIL
		1			MOIST, BROWN CLAY AND SILT.
		2			MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
		3			
		4			
		5		15	
	2.1	6		23	MOIST, BROWN SAND AND GRAVEL, LITTLE COBBLES.
				24	
				31	
		7		24	
	0.9	8		30	MOIST, BROWN SAND AND GRAVEL SOME COBBLES, LITTLE SILT.
				22	
		9		23	
				10	
				50	
	NR	10		100/5	MOIST, BROWN GRAVEL, SOME SAND.
				–	
		11		8	MOIST, FINE BROWN SAND, LITTLE SILT.
	3.2	12		23	MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
				41	
				59	
		13		12	
				29	
	3.6	14		28	
				34	
		15		19	
				28	
	2.8	16		31	
				38	
		17		13	
				30	
	4.2	18		34	
				32	
		19		7	
				16	
	9.6	20		21	
		21		20	DAMP, BROWN CLAY, SOME SILT.

LITHOL. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



SAND
BACKFILL
CASING
SCREEN
BENTONITE
CEMENT
INITIAL WATER LEVEL
STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

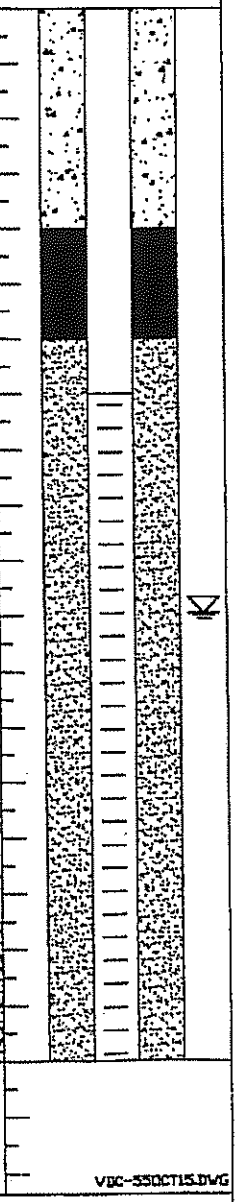
WELL NUMBER	VDC-5S	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	15 OCTOBER 96	WEATHER	PARTLY CLOUDY, 60°
LOCATED BY	PETE DACYK	DRILLED BY	BOWSER MORNER
PAGE	2 OF 2		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC AND STAINLESS	DIAMETER	2"
LENGTH	26.5	HOLE DIA.	10"
SCREEN TYPE	STAINLESS	SLOT	0.010
DIAMETER	2"	LENGTH	10'
TOTAL DEPTH	39'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20		21	DAMP, BROWN CLAY, SOME SILT.
		21		20	
				10	DAMP, GRAY CLAY, SOME SILT, TRACE SAND.
	7.8	22		26	HARD, GRAY SILT, SOME GRAVEL (TILL).
				34	
		23		25	
				42	
	7.6	24		54	
				52	
		25		61	
				12	
	11.2	26		15	MOIST, GRAY SAND, SOME SILT.
				22	
				36	
		27		10	MOIST, GRAY SAND AND GRAVEL, SOME SILT.
				45	
	9.8	28		39	
				36	
		29		8	
				16	
	18.2	30		24	
				24	
		31		12	WET, GRAY SAND AND GRAVEL.
				19	
	32.4	32		24	
				28	
		33		8	
				14	
	64.2	34		19	
				18	
		35		8	
				9	
	43.5	36		11	
				19	MOIST, GRAY CLAY, SOME SILT AND SMALL GRAVEL, TWO INCH SAND AND GRAVEL SEAM AT 38ft.
		37		36	
				44	
	28.4	38		43	
				46	
		39			END OF BORING
		40			
		41			

LITHO. PROFILE

WELL COMPLETION

(CONTINUED)



VDC-5SOCT15.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL OR BORING NUMBER	VDC-10	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	16 OCTOBER 96	WEATHER	PARTLY CLOUDY, 60°
LOCATED BY	P DACYK	DRILLED BY	BROWSER MORNER
PAGE	1 OF 2		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	STAINLESS AND SCH 40 PVC	DIAMETER	2"
LENGTH	29'	HOLE DIA.	10"
SCREEN TYPE	STAINLESS	SLOT	0.010
DIAMETER	2"	LENGTH	10'
TOTAL DEPTH	39		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			4" TOPSOIL.
		1			MOIST, BROWN CLAY AND SILT, SOME GRAVEL.
		2			MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
		3			
		4			
		5		6	
	18.4	6		8	
				10	
		7		9	
				5	MOIST, BROWN SILT, SOME CLAY, TRACE SAND.
	32.3	8		6	
				7	
		9		9	
				7	MOIST, BROWN SAND AND GRAVEL, TRACE COBBLES.
	7.9	10		41	
				14	
		11		11	
				6	
	12.4	12		15	
				21	
		13		23	
				15	
	16.3	14		21	
				25	
		15		22	
				10	MOIST, GRAY SAND.
	14.1	16		8	
				8	
		17		14	
				7	
	24.1	18		20	MOIST, GRAY SAND AND GRAVEL, TRACE COBBLES, FOUR INCH BROWN SILT AT 19.5ft.
				27	
		19		30	
				7	
	16.4	20		20	
				27	
		21		30	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

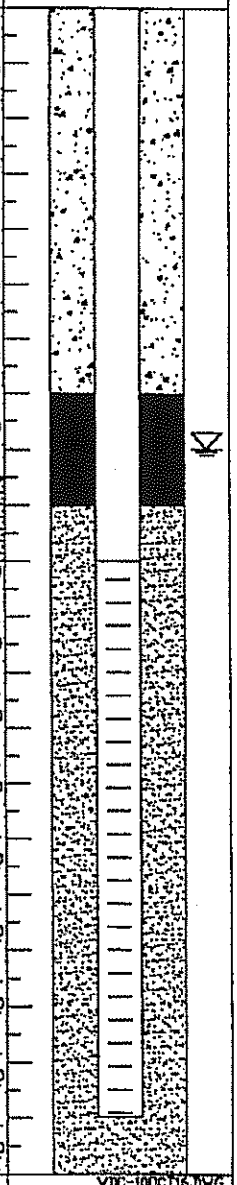
WELL OR BORING NUMBER	VDC-10	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO		
DATE	16 OCTOBER 96	WEATHER	PARTLY CLOUDY, 60°		
LOCATED BY	P DACYK	DRILLED BY	BROWSER MORNER	PAGE	2 OF 2
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE		
CASING TYPE	STAINLESS AND SCH 40 PVC	DIAMETER	2"	LENGTH 29'	HOLE DIA. 10"
SCREEN TYPE	STAINLESS SLOT 0.010	DIAMETER	2"	LENGTH 10'	TOTAL DEPTH 39

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20		24	MOIST, GRAY SAND AND GRAVEL, TRACE COBBLES.
		21		38	
				13	
	11.4	22		29	
				54	
		23		63	
				14	DAMP, GRAY SAND AND GRAVEL, LITTLE COBBLES.
	13.9	24		36	
				50	
		25		60	
				45	
	20.5	26		35	
				35	
				52	
		27		6	
				20	WET GRAY SAND AND GRAVEL LITTLE COBBLES. DAMP, GRAY CLAY AND SILT, TRACE SAND.
	16.2	28		22	
				28	
		29		12	
				28	WET, GRAY SAND AND GRAVEL.
	47.6	30		31	
				30	
		31		14	
				38	
	68.2	32		24	
				36	
		33		17	
				31	
	92.3	34		38	
				35	
		35		16	
				29	
	48.2	36		34	
				51	
		37		18	
				24	
	24.1	38		36	
				35	
		39		20	
				31	
	16.8	40		34	
		41		35	END OF BORING

LITHO. PROFILE

WELL COMPLETION

(CONTINUED)



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING · SCIENCE LOG

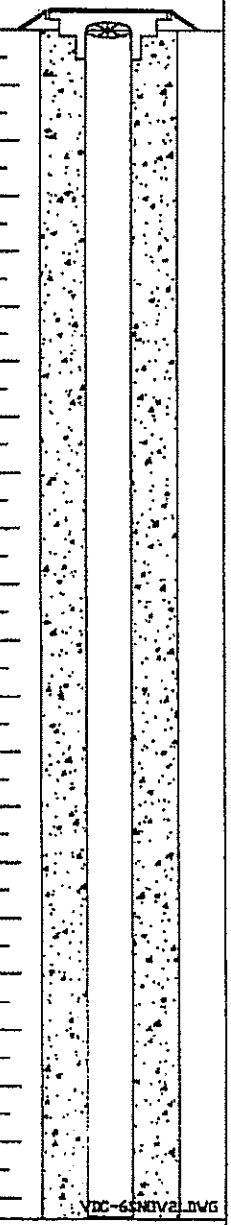
WELL OR BORING NUMBER	VDC-6S	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	21 NOVEMBER 96	WEATHER	SNOWING, COLD 30°
LOCATED BY	WILLIAM REID	DRILLED BY	BROWSER MORNER
PAGE	1 OF 3		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	
CASING TYPE	SCH 40 PVC AND STAINLESS	DIAMETER 2	LENGTH
HOLE DIA.	10"		
SCREEN TYPE	STAINLESS	SLOT 0.010	DIAMETER 2 LENGTH 10'
TOTAL DEPTH	43'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			4" ASPHALT PAVING SUBBASE MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
		1			
		2			
		3			
		4			
		5			
		6		9	MOIST, BROWN SAND AND GRAVEL, LITTLE COBBLES.
	6.9	7		9	
				12	
		8		15	
				35	
	140	9		31	
				25	
		10		18	MOIST, FINE BROWN SAND AND SILT.
				19	MOIST, BROWN SAND AND GRAVEL
				35	SOME COBBLES.
	6.3	11		100/3	
		12			
				21	
	6.2	13		25	
				32	
		14		33	
				19	MOIST, BROWN SAND AND GRAVEL, SOME SILT AND COBBLES, SILT AND COBBLES DECREASING WITH DEPTH.
	6.9	15		24	
				27	
				34	
		16		15	
				18	
	12.6	17		50/4	
				–	
		18		13	MOIST, BROWN GRAVEL, SOME SAND, LITTLE SILT AND COBBLES.
	11.4	19		13	
				15	
		20		14	
		21			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



SAND · BACKFILL · CASING · SCREEN · BENTONITE · CEMENT · INITIAL WATER LEVEL · STATIC WATER LEVEL

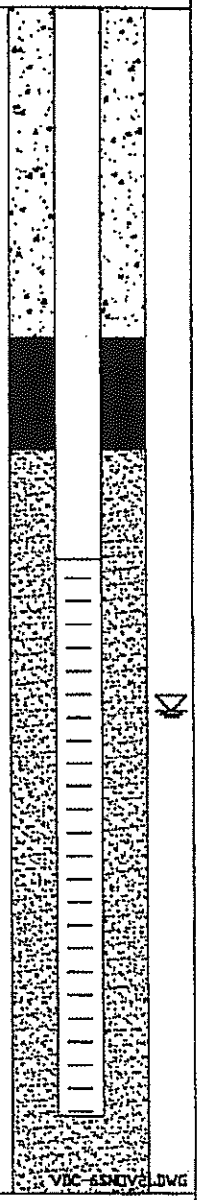
PARSONS ENGINEERING SCIENCE LOG

WELL OR BORING NUMBER	VDC-6S	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	21 NOVEMBER 96	WEATHER	SNOWING, COLD 30°
LOCATED BY	WILLIAM REID	DRILLED BY	BROWSER MORNER
PAGE	2 OF 3		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	
CASING TYPE	SCH 40 PVC AND STAINLESS	DIAMETER 2	LENGTH
HOLE DIA.	10"		
SCREEN TYPE	STAINLESS	SLOT 0.010	DIAMETER 2 LENGTH 10'
TOTAL DEPTH	43'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20		14	MOIST, BROWN SAND AND GRAVEL, SOME COBBLES, LITTLE SILT.
	14.3	21		16	
				15	
		22		17	
				33	
	0.0	23		50/3	
				–	
				–	
		24		22	DAMP, GRAY SAND AND GRAVEL.
				50/3	
	12.6	25		–	MOIST, BROWN SILT, LITTLE GRAVEL, BECOMING DAMP AT DEPTH.
				–	
		26		40	
				50	MOIST, GRAY SILT.
	19.5	27		50/5	HARD, GRAY GLACIAL TILL.
				–	
		28		44	MOIST, GRAY SILT, SOME GRAVEL AND SAND.
				50/3	
	10.1	29		–	
				–	
		30		32	DAMP, GRAY SILT AND COBBLES, LITTLE SAND.
				50/3	
	19.2	31		–	
				–	
		32		32	
				30	WET, BROWN SAND AND GRAVEL, SOME COBBLES.
	30.1	33		50/3	
				–	
		34		50	
				50/5	
	24.5	35		–	
				–	WET, BROWN SAND AND GRAVEL.
		36		18	
				20	REDDISH BROWN SAND AND GRAVEL, SOME COBBLES.
	1.6	37		35	
				37	
		38		18	
				25	
	1.9	39		11	
				9	
		40			
		41			

LITHO. PROFILE

WELL COMPLETION (CONTINUED)



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL OR BORING NUMBER	VDC-6S	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	21 NOVEMBER 96	WEATHER	SNOWING, COLD 30°
LOCATED BY	WILLIAM REID	DRILLED BY	BROWSER MORNER
PAGE	3 OF 3		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	
CASING TYPE	SCH 40 PVC AND STAINLESS	DIAMETER 2	LENGTH
HOLE DIA.	10"		
SCREEN TYPE	STAINLESS	SLOT 0.010	DIAMETER 2
LENGTH	10'	TOTAL DEPTH	43'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
		40		18	WET, BROWN SAND AND GRAVEL, SOME SILT AND COBBLES.		(CONTINUED)
	3.6	41		28			
				35			
		42		40			
				16	WET, BROWN SAND.		
				24	WET, BROWN SAND AND GRAVEL.		
	5.8	43		32	HARD, BROWN, TURNING GRAY, SILT AND GRAVEL (TILL).		
		44		42	END OF BORING		
		45					
		46					
		47					
		48					
		49					
		50					
		51					
		52					
		53					
		54					
		55					
		56					
		57					
		58					
		59					
		60					
		61					

VDC-6SMDV2LOG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

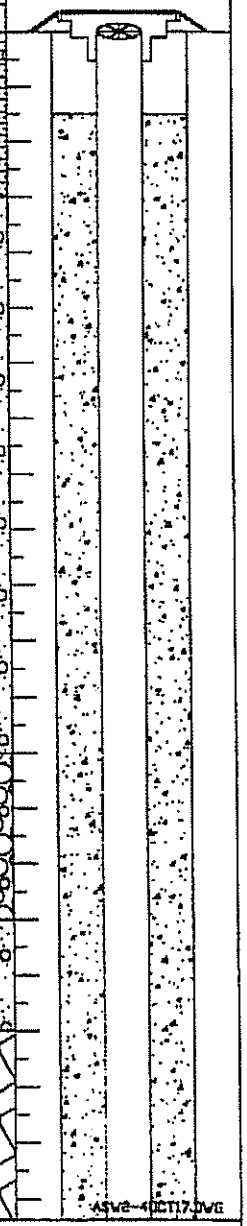
WELL OR BORING NUMBER: ASW 2-4	LOCATION: VAN DYNE CROTTY - DAYTON, OHIO		
DATE: 17 OCTOBER 96	WEATHER: PARTLY CLOUDY, 70°		
LOCATED BY: P DACYK	DRILLED BY: BROWSER MORNER	PAGE 1 OF 2	
DRILLING METHOD: 4 1/4" ID HSA		SAMPLING METHOD: SPLIT SPOON	
GRAVEL PACK: SAND		SEAL: BENTONITE	
CASING TYPE: SCH 40 PVC	DIAMETER: 2"	LENGTH:	HOLE DIA.: 10"
SCREEN TYPE: SCH 40 PVC SLOT: 0.010	DIAMETER: 2"	LENGTH: 2'	TOTAL DEPTH: 41'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			BROWN TOPSOIL
		1			MOIST, BROWN CLAY AND SILT
		2			LITTLE GRAVEL.
		3			MOIST, BROWN SAND AND GRAVEL,
		4			SOME COBBLES.
		5		12	
	4.6	6		20	
				41	
		7		48	
				11	MOIST, BROWN SAND, SOME GRAVEL,
	34.5	8		21	TRACE SILT.
				32	
		9		36	
				11	
	16.3	10		20	
				20	
		11		19	
				26	MOIST, BROWN SAND AND GRAVEL,
	15.4	12		16	SOME COBBLES.
				10	
		13		8	
				10	DRY, GRAY AND TAN GRAVEL,
	9.8	14		12	SOME COBBLES, LITTLE SAND.
				18	
		15		19	
				5	
	NR	16		10	
				15	
		17		20	MOIST, BROWN SAND AND GRAVEL.
				8	
	16.5	18		10	
				12	
		19		17	DAMP, BROWN SILT, LITTLE SAND.
				6	
	10.1	20		12	DAMP, GRAY SILT, TRACE OF SAND.
				13	
		21		18	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



ASW2-4OCT17.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

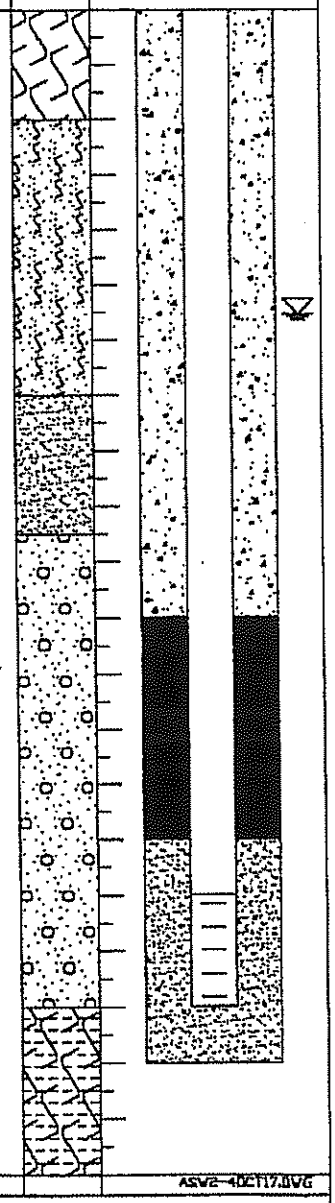
WELL NUMBER	ASW 2-4	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	17 OCTOBER 96	WEATHER	PARTLY CLOUDY, 70°
LOCATED BY	P DACYK	DRILLED BY	BROWSER MORNER
PAGE	2 OF 2		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH 40 PVC	DIAMETER	2"
LENGTH		HOLE DIA.	10"
SCREEN TYPE	SCH 40 PVC	SLOT	0.010
DIAMETER	2"	LENGTH	2'
TOTAL DEPTH	41'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20			
		21			WET, GRAY SILT, SOME FINE SAND.
	4.8	22			DAMP TO WET, GRAY SAND, SOME SILT.
		23			
	NR	24			
		25			
	5.7	26			WET, BROWN SAND, SOME SILT.
		27			WET, BROWN SAND, TRACE SILT.
	6.8	28			
		29			
	11.4	30			WET, GRAY SAND AND GRAVEL.
		31			WET, GRAY SAND AND GRAVEL, LITTLE COBBLES.
	9.8	32			
		33			
	26.7	34			
		35			
	46.5	36			
		37			
	55.4	38			WET, GRAY CLAY AND SILT, TRACE OF SAND.
		39			
	45.6	40			
		41			END OF BORING

LITHO. PROFILE

WELL COMPLETION

(CONTINUED)



ASW2-4OCT17.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

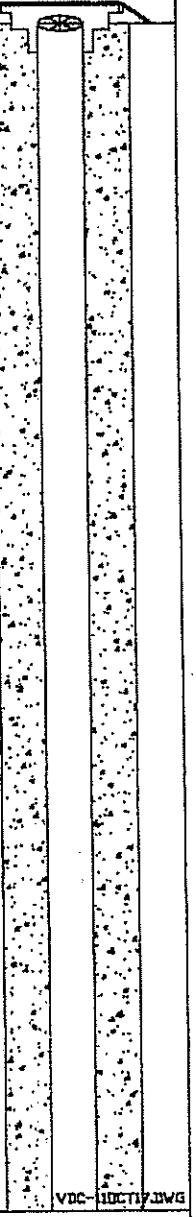
WELL OR BORING NUMBER	VDC-11	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	17 OCTOBER '96	WEATHER	PARTLY CLOUDY, 69°
LOCATED BY	P. DACYK	DRILLED BY	BROWSER MORNER
PAGE	1 OF 2		
DRILLING METHOD	4.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	STAINLESS STEEL AND SCH 40 PVC	DIAMETER	2" LENGTH
HOLE DIA.	10"		
SCREEN TYPE	STAINLESS	SLOT 0.010	DIAMETER 2" LENGTH 10'
TOTAL DEPTH	41		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			4" ASPHALT. PAVING SUBBASE.
		1			MOIST, BROWN SILT AND GRAVEL.
		2			MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
		3			
		4			
		5		6	
	2.4	6		17	
		7		17	
				26	
				10	
	1.2	8		18	
				26	
		9		25	
				12	
	4.3	10		13	
				16	
		11		18	
				14	
	4.1	12		12	
				15	
		13		14	
				14	
	2.9	14		16	
				19	
		15		27	
				4	MOIST, GRAY SAND AND GRAVEL, LITTLE COBBLES.
	4.0	16		10	
				17	
		17		19	
				12	DAMP, BROWN SILT, TRACE SAND
	7.2	18		15	
				23	
		19		27	DAMP, GRAY SILT, TRACE SAND
				10	
	10.4	20		19	
				22	
		21		26	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



SAND
BACKFILL
CASING
SCREEN
BENTONITE
CEMENT
INITIAL WATER LEVEL
STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

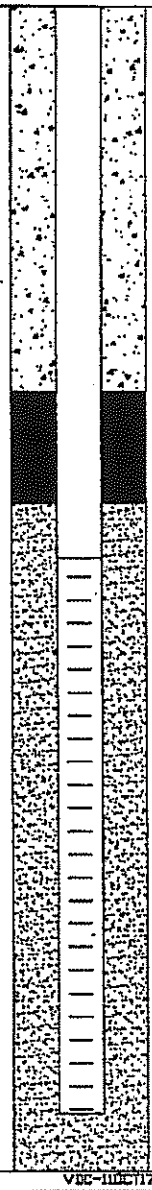
WELL OR BORING NUMBER	VDC-11	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	17 OCTOBER 96	WEATHER	PARTLY CLOUDY, 68°
LOCATED BY	P. DACYK	DRILLED BY	BROWSER MORNER
		PAGE	2 OF 2
DRILLING METHOD	4.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	STAINLESS STEEL AND SCH 40 PVC	DIAMETER 2"	LENGTH
			HOLE DIA. 10"
SCREEN TYPE	STAINLESS	SLOT 0.010 DIAMETER 2"	LENGTH 10'
			TOTAL DEPTH 41

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		20		22	DAMP, GRAY SILT, TRACE OF SAND.
		21		26	
				19	
	16.5	22		18	
				16	
		23		19	
				27	MOIST, BROWN SAND AND GRAVEL TRACE COBBLES.
	18.4	24		31	
				36	
		25		35	
				10	WET, BROWN SAND AND GRAVEL, TRACE COBBLES.
	21.3	26		12	
				18	
		27		21	
				4	WET, GRAY SAND AND GRAVEL, TRACE COBBLES.
	25.4	28		10	
				10	
		29		16	
				6	WET, GRAY SAND, SOME GRAVEL.
	29.7	30		6	
				9	
		31		16	
				8	
	36.5	32		10	
				19	
		33		19	
				10	WET, GRAY SAND AND GRAVEL, LITTLE COBBLES.
	48.5	34		12	
				21	
		35		22	
				11	
	54.2	36		14	
				22	
		37		24	WET, GREY SAND AND GRAVEL, SOME SILT.
				18	
	18.6	38		19	
				50	
		39		52	
				11	
		40		15	
	9.8			25	
		41		40	END OF BORING

LITHO. PROFILE

WELL COMPLETION

(CONTINUED)



VDC-11DEC17.DWG

SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

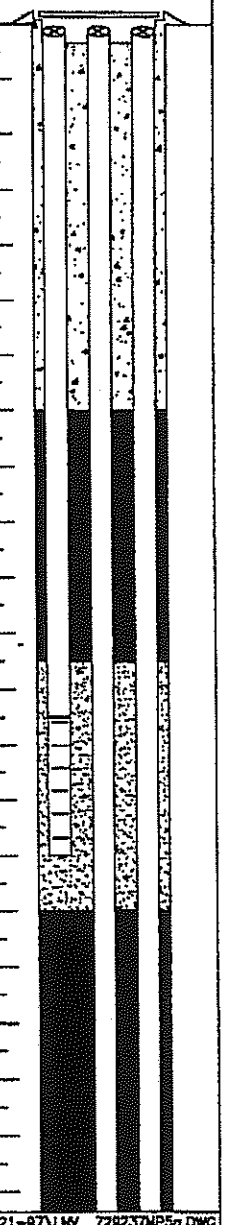
WELL NUMBER	MP-5	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	22 OCTOBER 1996	WEATHER	PARTLY CLOUDY, 60°
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER
		PAGE	1 OF 2
DRILLING METHOD	6.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	1"
		LENGTH	12.5, 22, 34'
		HOLE DIA.	12"
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"
		DIAMETER	1"
		LENGTH	2.5, 5'
		TOTAL DEPTH	40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.
		0			4" TOPSOIL.
		1			MOIST, BROWN CLAY AND SILT, TRACE GRAVEL.
		2			
		3			
		4			MOIST, BROWN SAND AND GRAVEL, LITTLE COBBLES.
		5			
		6		12	MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
	4.5	7		13	
				14	
		8		16	
				7	
	12.2	9		16	
				24	
		10		28	
				5	
	6.8	11		14	
				21	
		12		27	
				5	
	4.1	13		8	MOIST, BROWN GRAVEL, SOME SAND AND COBBLES.
				14	
		14		24	
				9	MOIST, BROWN SAND AND GRAVEL, LITTLE COBBLES.
	3.1	15		20	
				21	
		16		20	
				12	
	1.9	17		19	
				23	
		18		19	
				14	
	2.2	19		15	
				17	
		20		17	
				12	
		21		19	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



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SAND | CASING | BENTONITE | INITIAL WATER LEVEL

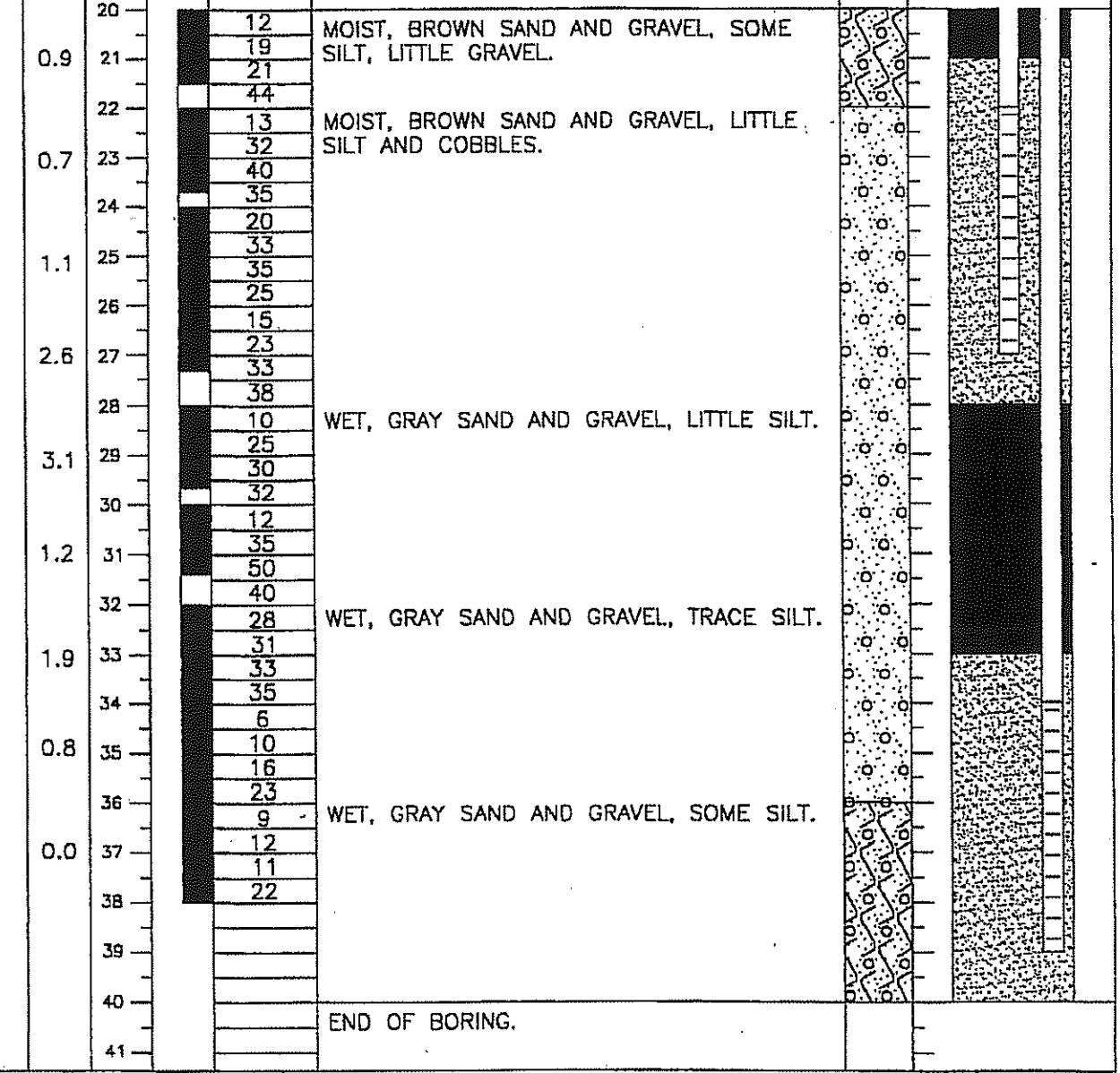
BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-5	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	22 OCTOBER 1996	WEATHER	PARTLY CLOUDY, 60°
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER
		PAGE	2 OF 2
DRILLING METHOD	6.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 1"	LENGTH 12.5, 22, 34'
			HOLE DIA. 12"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010"	DIAMETER 1" LENGTH 2.5, 5'
			TOTAL DEPTH 40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.	LITHO. PROFILE
	0.9	20		12	MOIST, BROWN SAND AND GRAVEL, SOME SILT, LITTLE GRAVEL.	
		21		19		
				21		
		22		44		
	0.7			13	MOIST, BROWN SAND AND GRAVEL, LITTLE SILT AND COBBLES.	
		23		32		
				40		
		24		35		
	1.1			20		
		25		33		
				35		
		26		25		
				15		
	2.6	27		23		
				33		
		28		38		
				10	WET, GRAY SAND AND GRAVEL, LITTLE SILT.	
	3.1	29		25		
				30		
		30		32		
				12		
	1.2	31		35		
				50		
		32		40		
				28	WET, GRAY SAND AND GRAVEL, TRACE SILT.	
	1.9	33		31		
				33		
		34		35		
				6		
	0.8	35		10		
				16		
		36		23		
				9	WET, GRAY SAND AND GRAVEL, SOME SILT.	
	0.0	37		12		
				11		
		38		22		
		39				
		40				
					END OF BORING.	
		41				

WELL COMPLETION



JAN-21-97\LW 720237MP5b.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

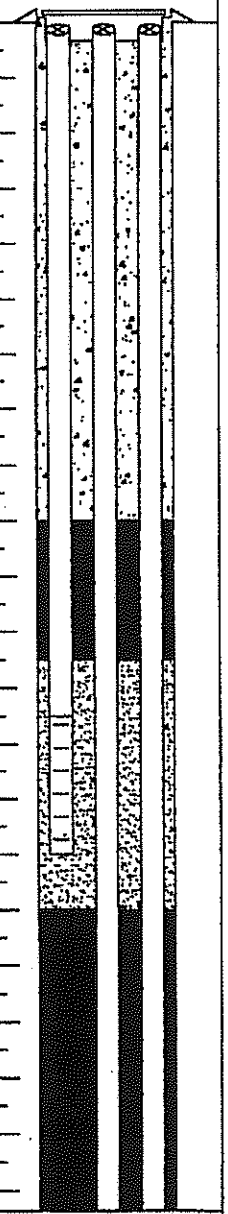
WELL NUMBER	MP-8	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	23 OCTOBER 1996	WEATHER	PARTLY CLOUDY, 50's
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER
PAGE	1 OF 2		
DRILLING METHOD	6.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC AND STAINLESS	DIAMETER	2"
LENGTH	15, 27, 39'	HOLE DIA.	12"
SCREEN TYPE	SCH 40 PVC/STAINLESS	SLOT	0.010"
DIAMETER	2"	LENGTH	5 & 2.5
TOTAL DEPTH	40'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.
		0			ASPHALT.
		1			SAND AND GRAVEL BASE.
		2			MOIST, BROWN SILT AND CLAY.
		3			
		4			MOIST, BROWN SAND AND GRAVEL.
		5			
		6		4	
	3.4	7		7	
				14	MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
		8		24	
				3	
	5.1	9		15	
				22	
		10		25	
				13	
	4.3	11		14	
				20	
		12		22	
				24	MOIST, BROWN SAND AND GRAVEL, TRACE COBBLES.
	5.9	13		25	
				25	
		14		26	
				10	
	6.8	15		14	
				9	
		16		8	
				4	
	11.5	17		7	
				9	
		18		11	
				4	MOIST, BROWN SAND AND GRAVEL.
	14.5	19		8	
				11	
		20		11	
				4	
		21		7	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



JAN-21-97\JMV 729237MP8a.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

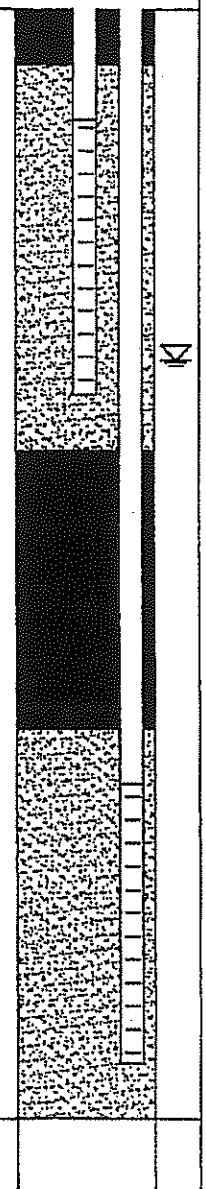
BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	MP-8	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	23 OCTOBER 1996	WEATHER	PARTLY CLOUDY, 50's
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER
PAGE	2 OF 2		
DRILLING METHOD	6.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC AND STAINLESS	DIAMETER	2"
LENGTH	15, 27, 39'	HOLE DIA.	12"
SCREEN TYPE	SCH 40 PVC/STAINLESS	SLOT	0.010"
DIAMETER	2"	LENGTH	5 & 2.5
TOTAL DEPTH	40'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.	LITHO. PROFILE
		20		4	MOIST, BROWN SAND AND GRAVEL.	
	18.1	21		7		
				16		
		22		20		
				10	DAMP, GRAY SAND, SOME GRAVEL.	
	14.3	23		14		
				20		
		24		35		
				23		
	19.5	25		20	DAMP, GRAY SILT, SOME CLAY, TRACE SAND.	
				22		
		26		20		
				13		
	27.3	27		13		
				20	WET, GRAY SAND AND GRAVEL.	
		28		21		
				13		
	48.5	29		13		
				20		
		30		21		
				21		
	92.1	31		26		
				24		
		32		22		
				10	WET, GRAY SAND AND GRAVEL, LITTLE COBBLES.	
	128	33		51		
				60		
		34		55		
				12	WET, GRAY SAND AND GRAVEL.	
	89.5	35		20		
				22		
		36		40		
				14		
	62.6	37		23		
				30		
		38		45		
		39				
		40			END OF BORING.	
		41				

WELL COMPLETION



SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

JAN-21-97\LMV 729237MP8b.DWG

PARSONS ENGINEERING SCIENCE LOG

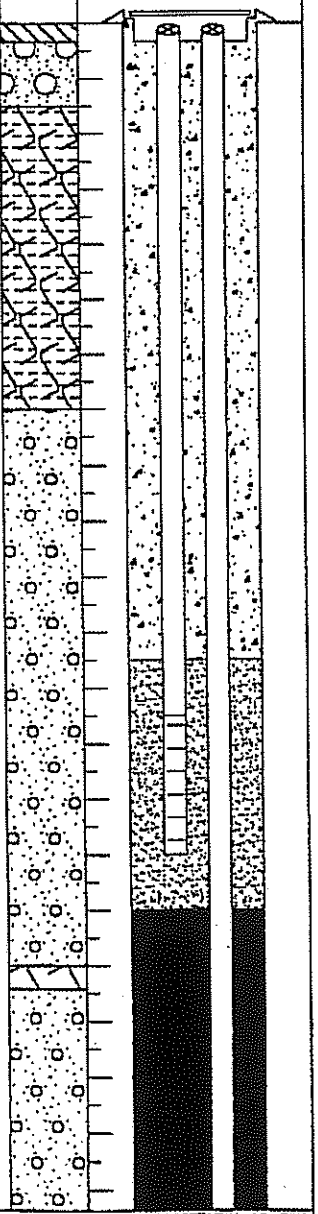
WELL NUMBER	ASW 1-16	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	24 OCTOBER 1996	WEATHER	PARLTY CLOUDY, 60°
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER
PAGE	1 OF 2		
DRILLING METHOD	4.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	2"
LENGTH	33.5'	HOLE DIA.	10"
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"
DIAMETER	2"	LENGTH	2'
TOTAL DEPTH	40'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.
		0			ASPHALT.
		1			PAVING SUBBASE.
		2			MOIST, BROWN SILT, SOME CLAY.
		3			
		4			
		5			
		6		4	
	3.2	7		20	
				22	MOIST, BROWN SAND AND GRAVEL, LITTLE
				15	COBBLES.
		8		6	
	2.9	9		8	
				8	
		10		7	
				6	
	NR			17	
		11		12	MOIST, BROWN SAND AND GRAVEL, LITTLE
		12		14	COBBLES.
				6	
	4.6	13		12	
				15	
		14		20	
				9	
	6.8	15		10	
				12	
		16		12	
				8	MOIST, GRAYISH BROWN SAND AND GRAVEL,
	2.1	17		22	4" BROWN SILT SEAM AT 17'.
				24	
		18		40	
				9	DAMP, GRAY SAND AND GRAVEL, TRACE
	11.3	19		28	COBBLES.
				50	
		20		51	
				10	
		21		24	

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



JAN-22-97\LMV 720237ASW1-16a.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

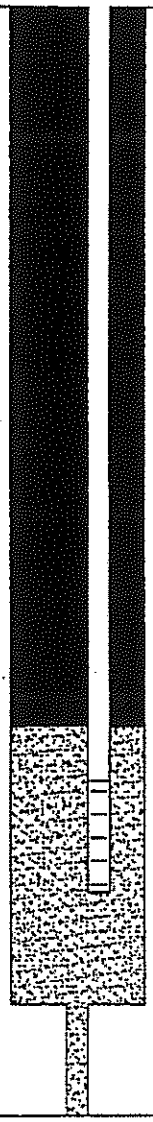
BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW 1-16	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	24 OCTOBER 1996	WEATHER	PARLTY CLOUDY, 60°
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER
PAGE	2 OF 2		
DRILLING METHOD	4.25" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCHEDULE 40 PVC	DIAMETER	2"
LENGTH	33.5'	HOLE DIA.	10"
SCREEN TYPE	SCH 40 PVC	SLOT	0.010"
DIAMETER	2"	LENGTH	2'
TOTAL DEPTH	40'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.	LITHO. PROFILE
		20		10	MOIST, GRAY SAND AND GRAVEL, LITTLE COBBLES.	
	14.3	21		24		
				34		
		22		55		
				10		
	10.1	23		14		
				19		
		24		25		
				25		
	15.3	25		28		
				31		
		26		38		
				11		
	48.3	27		30		
				36	WET, GRAY SAND AND GRAVEL, TRACE COBBLES.	
		28		27		
				54	WET, GRAY SAND AND GRAVEL.	
	62.4	29		48		
				36		
		30		39		
				10	WET, GRAY SAND AND GRAVEL, TRACE COBBLES.	
	75.4	31		12		
				31		
		32		28		
				22		
	49.4	33		24	MOIST, BROWN CLAY AND SILT.	
				28	WET, GRAY SAND AND GRAVEL, LITTLE COBBLES.	
		34		25		
				11		
	41.3	35		27		
				37		
		36		46		
				17		
	32.4	37		19		
				30	MOIST, GRAY SAND AND GRAVEL, SOME SILT.	
		38		33		
				9		
	29.5	39		11		
				28		
		40		31		
					END OF BORING.	
		41				

WELL COMPLETION



SAND | CASING | BENTONITE | BACKFILL | SCREEN | CEMENT

JAN-22-97\LMV 729237ASW1-16b.DWG

INITIAL WATER LEVEL | STATIC WATER LEVEL

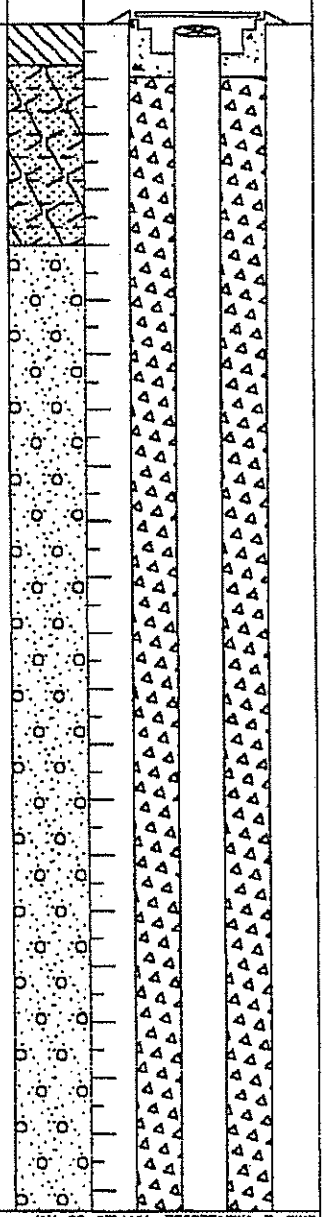
PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW 1-7	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO		
DATE	24 OCTOBER 1996	WEATHER	PARTLY SUNNY, 60°		
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER	PAGE	1 OF 2
DRILLING METHOD	4.25" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 2"	LENGTH 37'	HOLE DIA.	10"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010"	DIAMETER 2" LENGTH 2.0'	TOTAL DEPTH	40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.
		0			ASPHALT/SAND AND GRAVEL.
		1			MOIST, BROWN SILT, SOME CLAY AND SAND.
		2			
		3			
		4			MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
		5			
		6		12	
	4.2	7		12	
		8		13	
		9		10	
	10.2	10		4	
		11		7	
		12		13	
	8.4	13		13	
		14		10	MOIST, BROWN SAND AND GRAVEL, LITTLE COBBLES.
		15		10	
		16		11	
	11.9	17		16	
		18		4	
		19		9	
	12.5	20		9	
		21		10	
				13	
				12	
				8	
				9	
	16.4			11	
				11	
				13	
				21	
				8	MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
	21.2			21	
				24	
				23	
				10	
				12	

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER



JAN-22-97\JMV 729237ASW1-7a.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW 1-7	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO		
DATE	24 OCTOBER 1996	WEATHER	PARTLY SUNNY, 60°		
LOCATED BY	W. H. REID	DRILLED BY	BOWSER MORNER	PAGE	2 OF 2
DRILLING METHOD	4.25" ID HSA	SAMPLING METHOD	SPLIT SPOON		
GRAVEL PACK	SAND	SEAL	BENTONITE		
CASING TYPE	SCHEDULE 40 PVC	DIAMETER 2"	LENGTH 37'	HOLE DIA.	10"
SCREEN TYPE	SCH 40 PVC	SLOT 0.010"	DIAMETER 2" LENGTH 2.0'	TOTAL DEPTH	40'

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.
		20		10	MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
	18.5	21		12	
				15	
		22		27	
				17	
	36.4	23		23	
				21	
		24		33	
				16	
	17.8	25		17	
				20	
		26		20	
				12	
	19.8	27		19	
				27	
		28		30	
				10	MOIST, BROWN SILT AND CLAY, SOME SAND.
	24.9	29		28	
				29	
		30		36	WET, GRAY SAND AND GRAVEL.
				6	
	48.1	31		6	WET, GRAY SAND AND GRAVEL, SOME COBBLES.
				10	
		32		24	
				21	
	68.4	33		25	
				28	
		34		31	
				16	
	41.1	35		18	
				29	
		36		44	
				8	
	36.5	37		9	
				22	
		38		37	
				12	WET, GRAY SAND AND GRAVEL, SOME SILT AND COBBLES.
	29.5	39		19	
				31	
		40		45	
					END OF BORING.
		41			

LITHO. PROFILE

WELL COMPLETION

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

JAN-22-97\LMV 729237ASW1-7b.DWG

PARSONS ENGINEERING SCIENCE LOG

WELL NUMBER	ASW 2-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	17 OCTOBER 96	WEATHER	PARTLY CLOUDY, BREEZY, 70°
LOCATED BY	PETE DAYCK	DRILLED BY	BROWSER MORNER
PAGE	1 OF 3		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH40 PVC	DIAMETER	LENGTH 42.5'
HOLE DIA.	10"		
SCREEN TYPE	SCH40 PVC	SLOT 0.010	DIAMETER 2" LENGTH 2'
TOTAL DEPTH	45'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)
		0			TOPSOIL
		1			MOIST, BROWN SILT AND CLAY, TRACE OF SAND.
		2			
		3		12	MOIST, BROWN SAND AND GRAVEL, TRACE COBBLES.
	0.0	4		12	
		5		11	
		6		11	
	0.9	7		4	
		8		10	
		9		16	
	0.7	10		20	
		11		2	
		12		12	
	0.3	13		19	
		14		36	
		15		12	
	1.1	16		13	MOIST, BROWN SAND AND GRAVEL, SOME COBBLES.
		17		24	
		18		21	
	0.7	19		7	
		20		19	
		21		21	
		22		21	
	0.0	23		12	DRY, TAN AND GRAY GRAVEL
		24		16	
		25		26	
	0.0	26		24	
		27		9	
		28		16	MOIST, BROWN SAND AND GRAVEL, TRACE OF SILT.
		29		31	
	0.0	30		34	
		31		24	
		32		24	
	0.2	33		40	
		34		45	
		35		6	
		36		14	
		37		30	
		38		30	
		39			
		40			
		41			
		42			
		43			
		44			
		45			

LITHO. PROFILE

WELL COMPLETION

FLUSH MOUNT PROTECTIVE COVER

ASWE-LOGCTY.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL OR BORING NUMBER	ASW 2-1	LOCATION	VAN DYNE CROTTY – DAYTON, OHIO
DATE	17 OCTOBER 96	WEATHER	PARTLY CLOUDY, BREEZY, 70°
LOCATED BY	PETE DAYCK	DRILLED BY	BROWSER MORNER
PAGE	2 OF 3		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH40 PVC	DIAMETER	LENGTH 42.5'
HOLE DIA.	10"		
SCREEN TYPE	SCH40 PVC	SLOT 0.010	DIAMETER 2" LENGTH 2'
TOTAL DEPTH	45'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
							(CONTINUED)
		20		30	DAMP, GRAY SAND AND GRAVEL, TRACE COBBLES		
		21		30			
				20			
	1.2	22		31			
				30			
		23		33			
				20			
	1.4	24		17	WET, GRAY SAND AND GRAVEL		
				20			
		25		21			
				18			
	1.5	26		17			
				19			
		27		20			
				14	WET, GRAY SAND, LITTLE GRAVEL		
	1.1	28		18			
				19			
		29		20			
				11			
	2.5	30		13			
				18			
		31		18			
				15	WET, GRAY SAND AND GRAVEL		
	6.0	32		17			
				15			
		33		16			
				10			
	0.8	34		12			
				13			
		35		21			
				8			
	0.4	36		8			
				11			
		37		20			
				8			
	1.3	38		13			
				14			
		39		20			
				9			
	1.1	40		14			
				15			
		41		19			

SAND CASING BENTONITE INITIAL WATER LEVEL

BACKFILL SCREEN CEMENT STATIC WATER LEVEL

PARSONS ENGINEERING SCIENCE LOG

WELL OR BORING NUMBER	ASW 2-1	LOCATION	VAN DYNE CROTTY - DAYTON, OHIO
DATE	17 OCTOBER 96	WEATHER	PARTLY CLOUDY, BREEZY, 70°
LOCATED BY	PETE DAYCK	DRILLED BY	BROWSER MORNER
PAGE	3 OF 3		
DRILLING METHOD	4 1/4" ID HSA	SAMPLING METHOD	SPLIT SPOON
GRAVEL PACK	SAND	SEAL	BENTONITE
CASING TYPE	SCH40 PVC	DIAMETER	LENGTH 42.5'
HOLE DIA.	10"		
SCREEN TYPE	SCH40 PVC	SLOT 0.010	DIAMETER 2" LENGTH 2'
TOTAL DEPTH	45'		

SAMPLE NO.	ORGANIC VAPORS (PPM)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	DESCRIPTION/REMARKS (COLOR, MOISTURE, PLASTICITY, SORTING, SOIL TYPE, ODOR.)	LITHO. PROFILE	WELL COMPLETION
		40		15	WET, GRAY SAND AND GRAVEL		(CONTINUED)
		41		19			
	0.7	42		10			
		43		12			
		44		15			
	0.4	45		20			
		46		20	END OF BORING.		
		47		25			
		48		14			
		49		19			
		50					
		51					
		52					
		53					
		54					
		55					
		56					
		57					
		58					
		59					
		60					
		61					

ASW2-1100CT17.DWG

SAND | CASING | BENTONITE | INITIAL WATER LEVEL

BACKFILL | SCREEN | CEMENT | STATIC WATER LEVEL

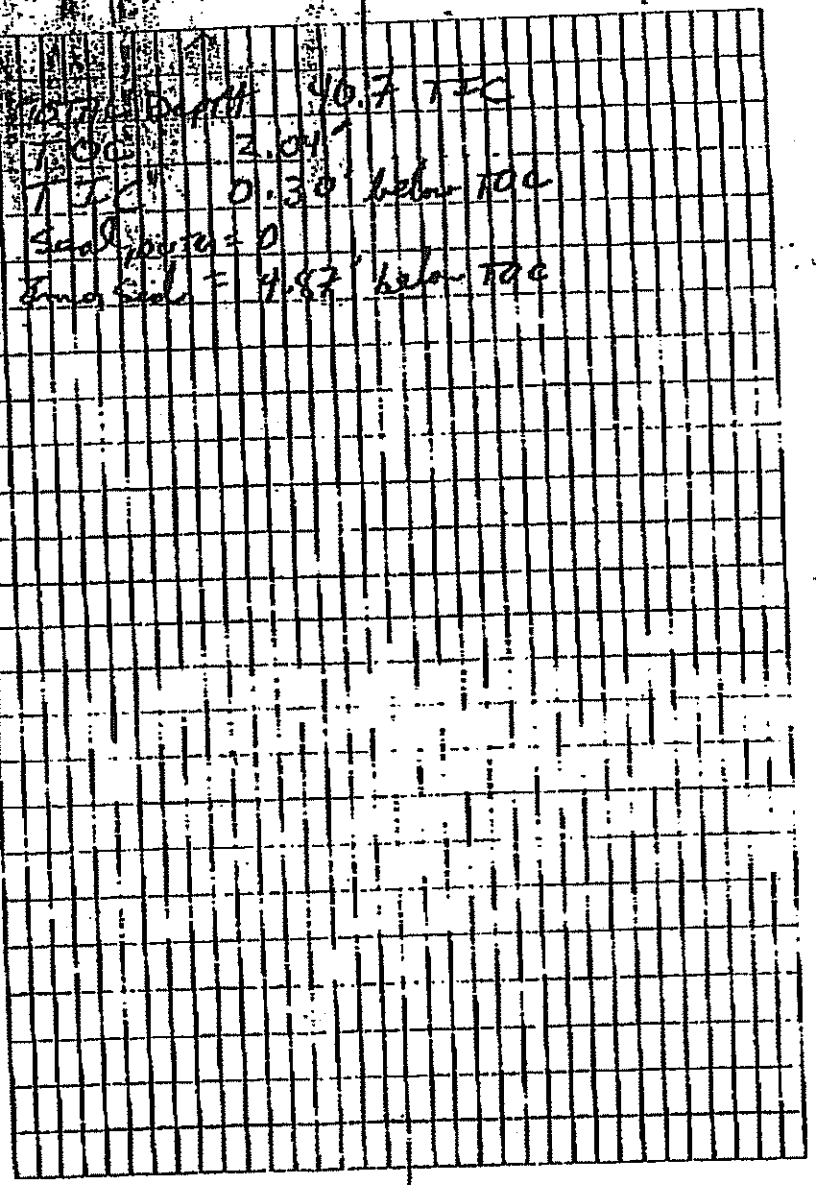
P-1 10-28-91

Depth	Blow counts	Description	odor
4'-6'	8, 11, 7, 10	Soil, Sand, gravel	none
9'-11'	65, for 0'	cobble	
14'-16'	11, 18 25, 23	Sand gravel	none
19'-21'	30' for 0'	cobble	
24'-26'	20, 25 32, 34	Sand gravel	none
29'-31'	25, 10, 9, 11	Silty Sand	none
34'-36'	14, 14, 38, 38,	Sand gravel	none
39'-41'	8, 11, 13, 10	Sand gravel	none
		10" rec	

water at 38.5'

Wet Sand Seam at 30'

Bottom of hole 41'



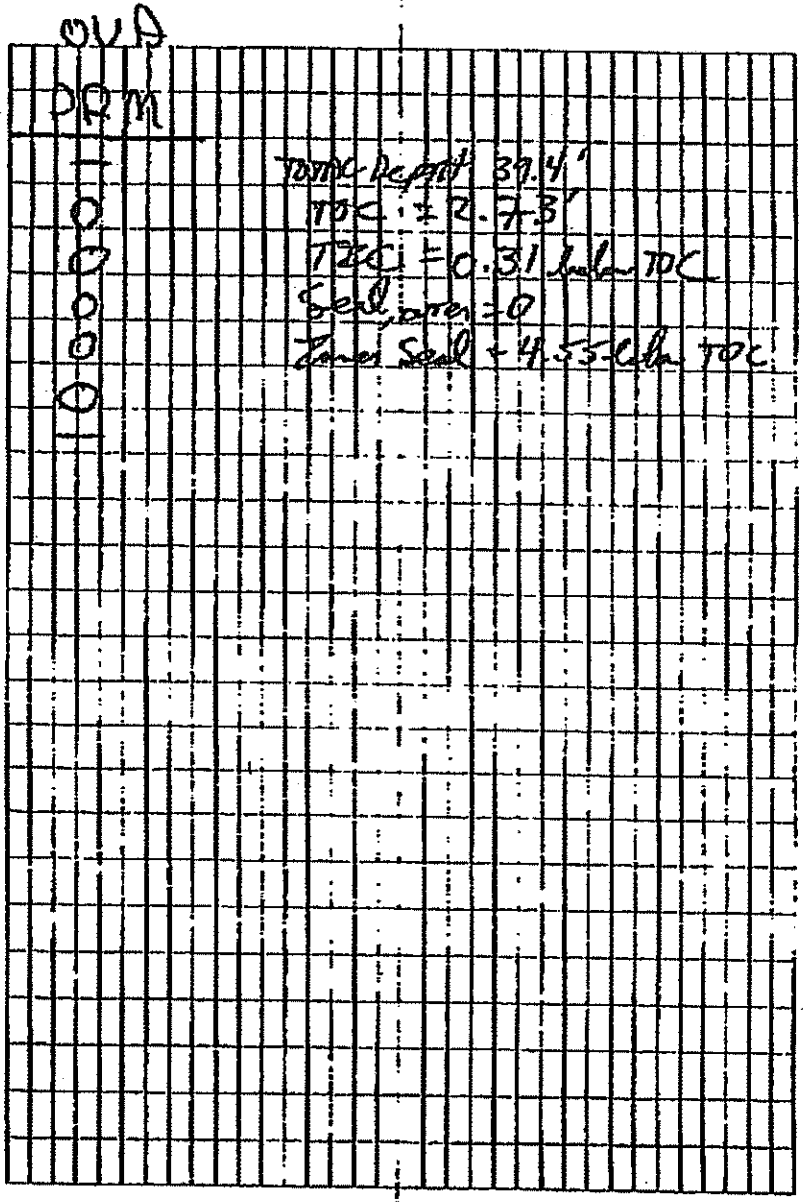
P-2 10-30-91

Depth	Blow counts		Description		OVA
4'-6'	10,25	8,18	no	rec.	—
9'-11'	12,17	17,32	Sandy	silt	none
14'-16'	10,30	35,30	Sand	gravel	none
19'-21'	10,16	20,20	Sand	gravel	none
24'-26'	7,20	17,18	Sand	gravel	none
29'-31'	5,10	12,13	Silty	clay	~~Mone~~
34'-36'	60-	0-	cobble		—
39'-41'	3,10	18,28	Silty	Sand	none

water at 25'

Bottom of hole 41'

(#2 9'-11' picked up)



	Blow Counts		Description		Odor
4'-6'	5,7	7, 4	Soil, sand, gravel		no
9'-11'	12, 12,	10, 10	n.e	ref	—
14'-16'	19, 17	15, 24	Sand	gravel	no
19'-21'	19, 32	40, —	Sand	gravel	no
24'-26'	38, 15	24, 14	Sand	gravel	noo
29'-31'	15, 19,	17, 17	Sand	gravel	no
34'-36'	4, 4	9, 12	Silty	sand	no
39'-41'	5, 10	32, 18	Sand	grave	no

water at 28.5'

Bottom of hole 41'

T.D. depth 41.18 (PVC)
TOC N/A
TWC —
Screen - type
Sump - N/A

10-29-91

Depth	Blow Counts	Description	odor
4'-6'	6,8 6,10	Soil, Sand, gravel	none
9'-11'	10,18 17,22	Sand gravel	none
14'-16'	20,22, 23,22	Sand gravel	none
19'-21'	10,25 42,-	Sand gravel	none
24'-26'	12,15 18,22	Sand gravel	none
29'-31'	8,16 24,34	Sand silt	none
34'-36'	8,15 15,15	Sand gravel	none
39'-41'	7,10 10,12	Sand gravel	none

Wet sandy silt 30'

Water at 38'

Bottom of hole 41'

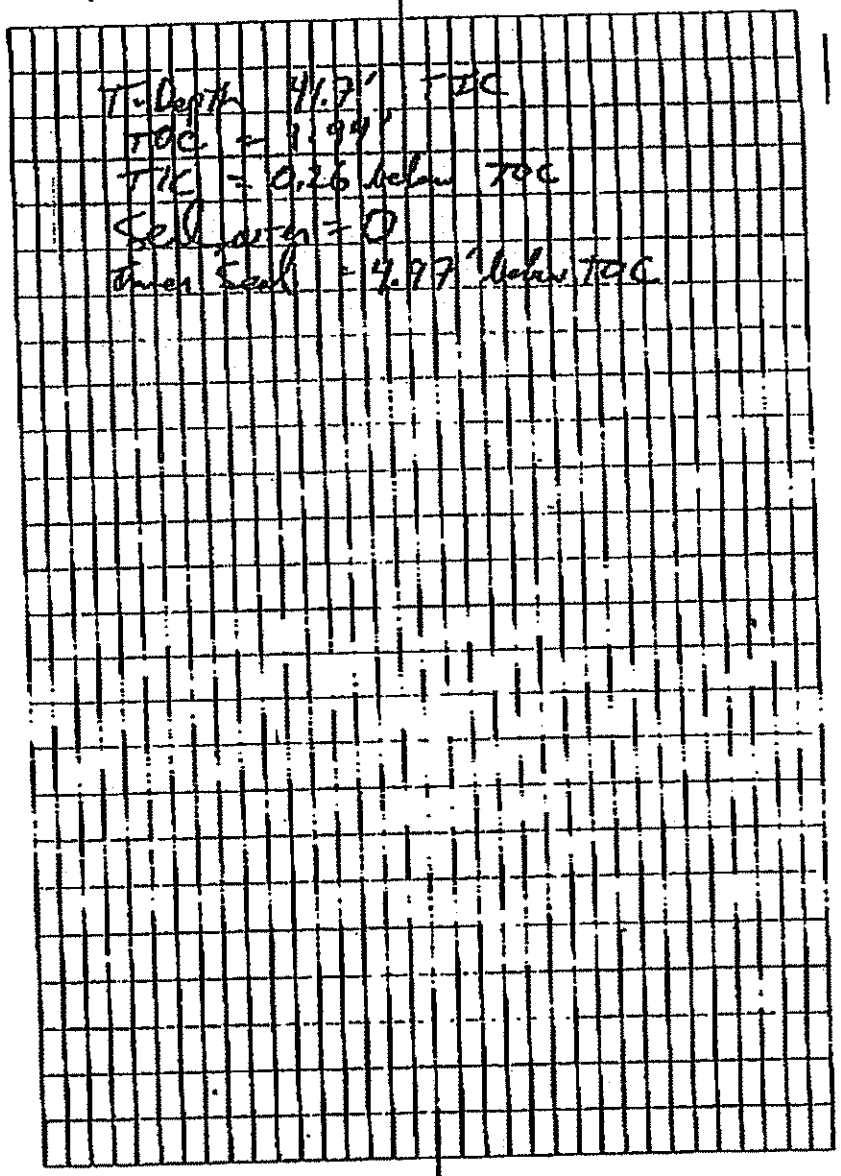
T. depth 42.2 below TOC
TOC = 2.41'
TOC = 0.30' below TOC
Soil, pipe = 0'
Thru Soil = 41.04' below TOC

P-5 11-1-91

Depth	Blow counts	Description	odor
4'-6'	8, 10 12, 14	Sand gravel	no
9'-11'	100- 0 —	no rec	—
14'-16'	10, 12 15, 13	Sand gravel	no
19'-21'	30, 35 32, 43	Sand gravel	no
24'-26'	10, 20 40, 28	Silty Sand	no
29'-31'	10, 10, 10, 19	Sand gravel	no
34'-36'	10, 17 15, 18	Silty Sand	no
39'-41	10, 8, 32, 20	wet Sand	no

Water at 36'

Bottom of hole 41'

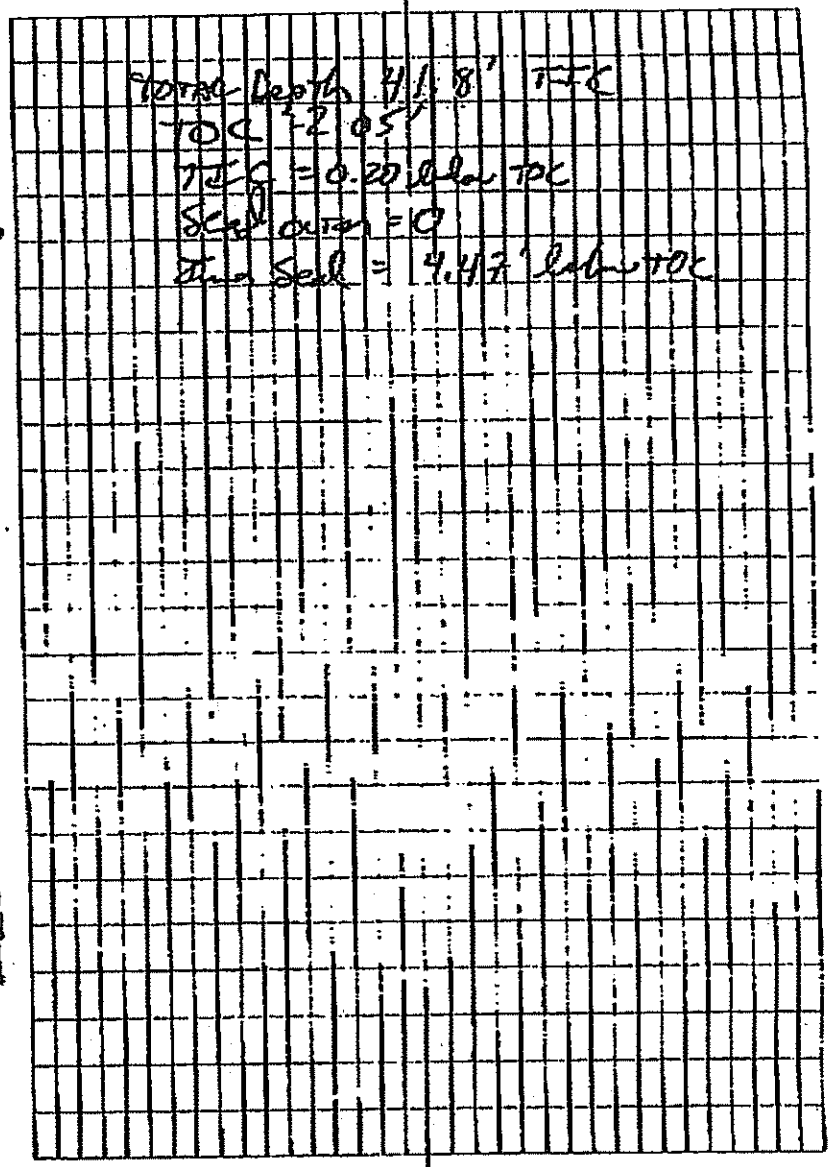


P7 10-29-91

Depth	Blow counts		Description		ODOR
4'-6'	8, 12	12, 18	Soil, Sand, gravel		none
9'-11'	9, 8	12, 8	Sand	gravel	none
14'-16'	17, 15	17, 24	Sand	gravel	none
19'-21'	10, 22	22, 24	Sand	gravel	none
24'-26'	20, 38	63, —	Sand	gravel	none
29'-31'	10, 25	69, —	Sand	gravel	none
34'-36'	100 - 6"		no	rec	=
39'-41'	22'-	- -	Sand	gravel	none

Water at 39'

Bottom of hole 41'

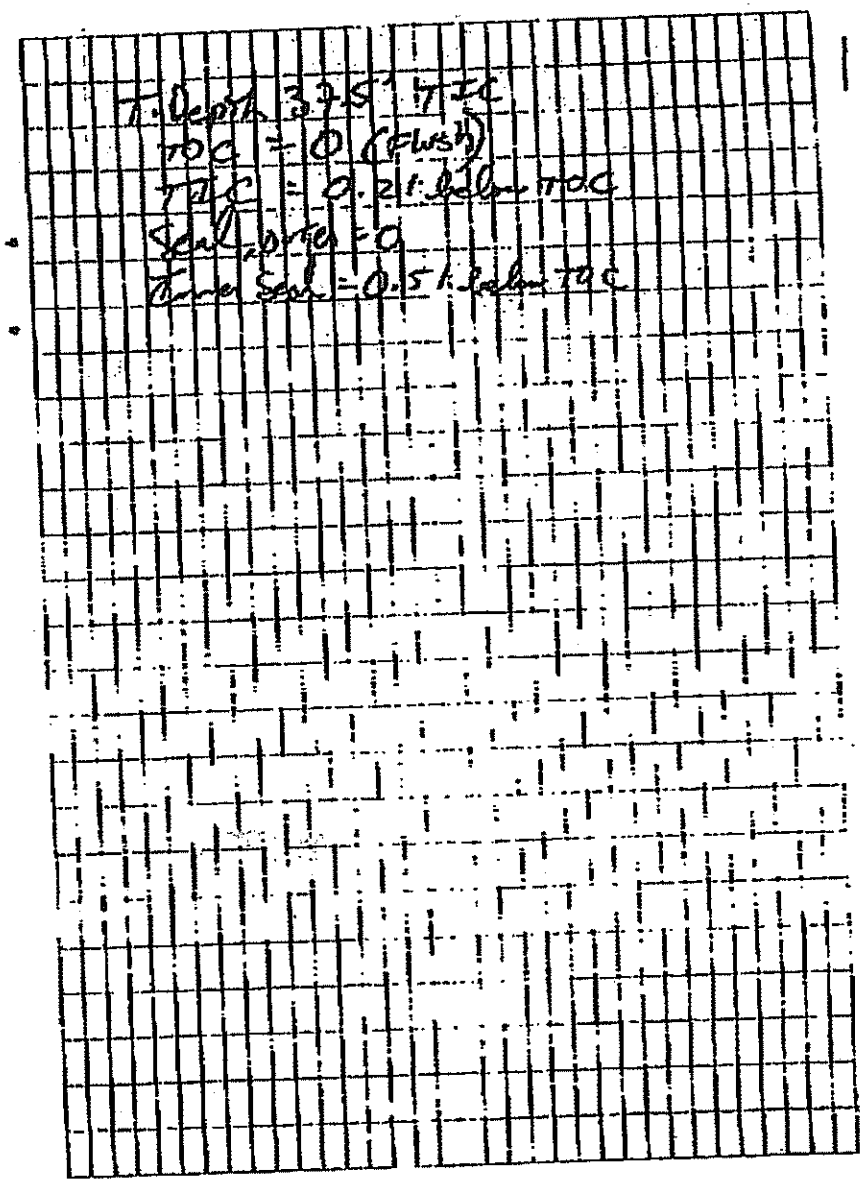


P-5 11-4-91

Depth	Blow counts	Description	odor
4'-6'	6, 8 , 8, 10	Soil, sand, gravel	no
9'-11'	18, 30, 24, 18	Sand gravel	no
14'-16'	10, 10, 10, 28	Sand gravel	no
19'-21'	18, 6, 29, 34	Sand gravel	no
24'-26'	9, 14 20, 18	Sand gravel	no
29'-31'	10, 12, 10, 11	Sand gravel	no
34'-36'	30, 35, 20, 19	Sand gravel	no
39'-41	50' - 0 —	no rec	—

Water at 35'

Bottom of hole 41'



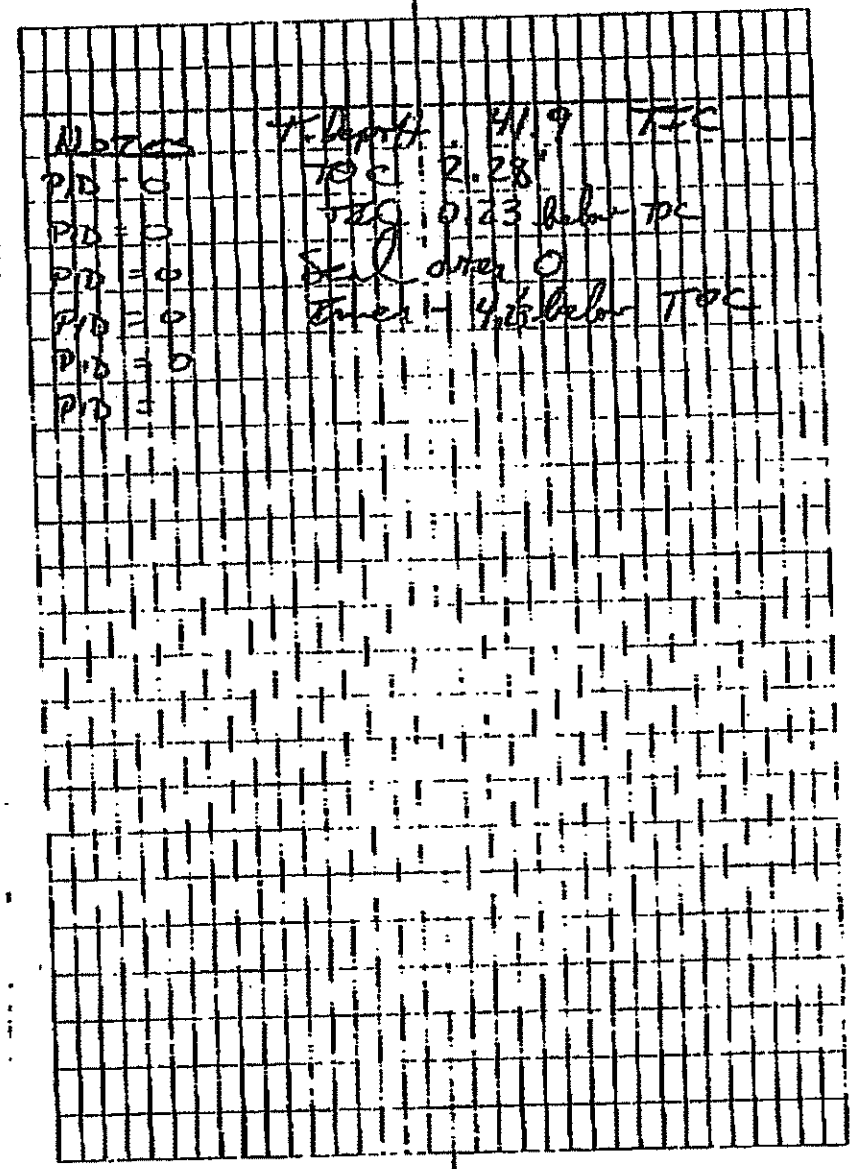
10-25-91

P-9

DEPTH	BLOW COUNTS	DESCRIPTION	ODOR
4-6'	8, 14, 22, 27	SOIL, SAND/GRAVEL	NONE
9-11'	9, 20, 30, 42	SAND/GRAVEL	NONE
14-16'	10, 16, 20, 28	SAND/GRAVEL	NONE
19-21'	16, 17, 30, 25	SAND/GRAVEL	NONE
24-26'	20, 22, 30, 42	SAND/GRAVEL	NONE
29-31'	40, 50/2"	NO SAMPLE	
34-36'	25, 35, 30, 25	Sand/gravel	none
39-41'	20, 20, 25, 23	Sand/gravel	none
		no rec.	

Wet at 38'

Bottom of hole 41'



R-10 10-31-91

Depth	Blow counts		Description	odor
4'-6'	5,10	5,18	Soil, sand, gravel	no
9'-11'	50 -	0 —	cobble —	—
14'-16'	13,20	13,20	Sand gravel	no
19'-21'	10,20	24,31	silty Sand	no
24'-26'	8,16	20,23	sand gravel	no
29-31'	6,8	11,18	light Sand	no
34'-36'	8,20	6,19	Sand gravel	no
39-41'	5,10	50 - 0 -	no rec.	—

water at 38.5'

Bottom of hole 41'

T. Depth 42.4
TOC 2.02
TDC 0.26 below TOC
Sediment - N/A
Top Soil - 4.85 below TOC

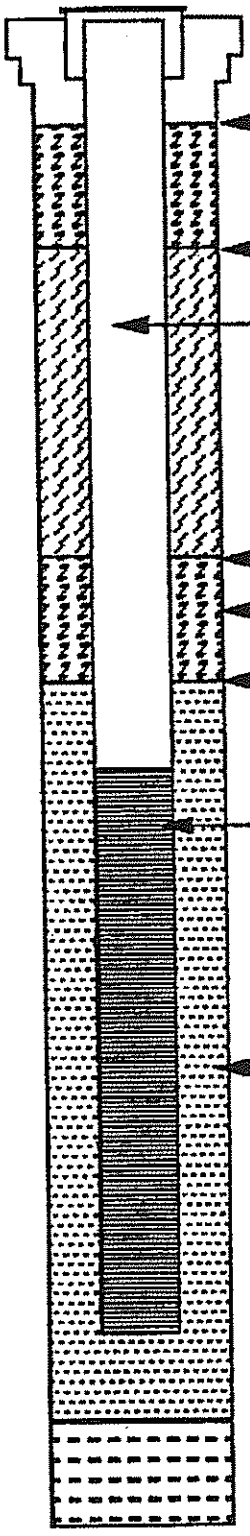
→ light grey silty sand

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-1

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 10-28/91



763.53 Top of Security Box (4" dia.)

763.23 Top of Riser

Top of Surface Seal 758.66 made of CONCRETE

Top of Grout 755.66 made of DRY BENTONITE

20.4 ft. of 1 "dia. sched 40 PVC

Approximate Top of Water 742.0 ft.

Top of Filter Pack Seal 746.83 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 744.83 ft.

20 ft. of 1 "dia. sched 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 722.83 ft.

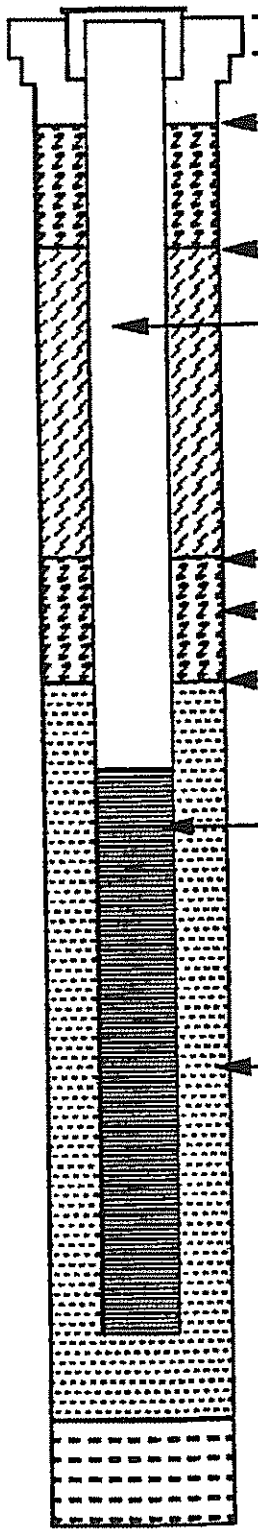
Bottom of Boring 43 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-2

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 10-30/91



751.41 Top of Security Box (4" dia.)

751.10 Top of Riser

Top of Surface Seal 746.86 made of CONCRETE

Top of Grout 743.86 made of DRY BENTONITE

19.4 ft. of 1 "dia. sched. 40 PVC

Approximate Top of Water 733.0 ft.

Top of Filter Pack Seal 735.70 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 733.70 ft.

20 ft. of 1 "dia. sched. 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 711.70 ft.

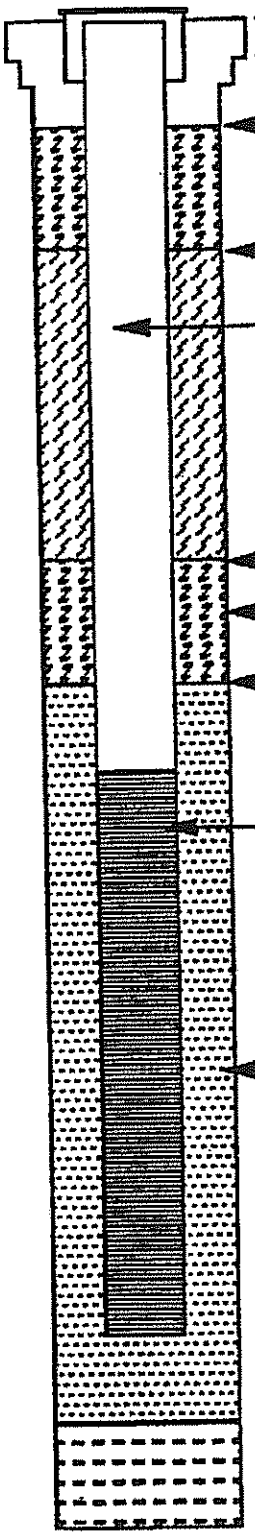
Bottom of Boring 42 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-3

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 10-31/91



N/A Top of Security Box (_____" dia.)

762.51 Top of Riser

Top of Surface Seal N/A made of CONCRETE

Top of Grout N/A made of DRY BENTONITE

21.8 ft. of 1 "dia. sched 40 PVC

Approximate Top of Water 733.0 ft.

Top of Filter Pack Seal 744.71 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 742.71 ft.

20 ft. of 1 "dia. sched 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 720.71 ft.

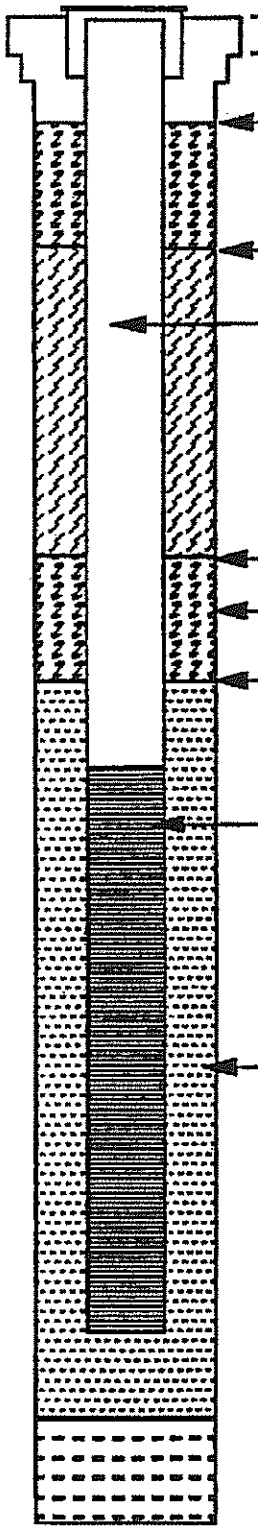
Bottom of Boring 43 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-4

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 10-29/92



764.17 Top of Security Box (4" dia.)

763.87 Top of Riser

Top of Surface Seal 760.13 made of CONCRETE

Top of Grout 757.13 made of DRY BENTONITE

22.2 ft. of 1 "dia. sched 40 PVC

Approximate Top of Water 733.0 ft.

Top of Filter Pack Seal 745.67 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 743.67 ft.

20 ft. of 1 "dia. sched. 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 721.67 ft.

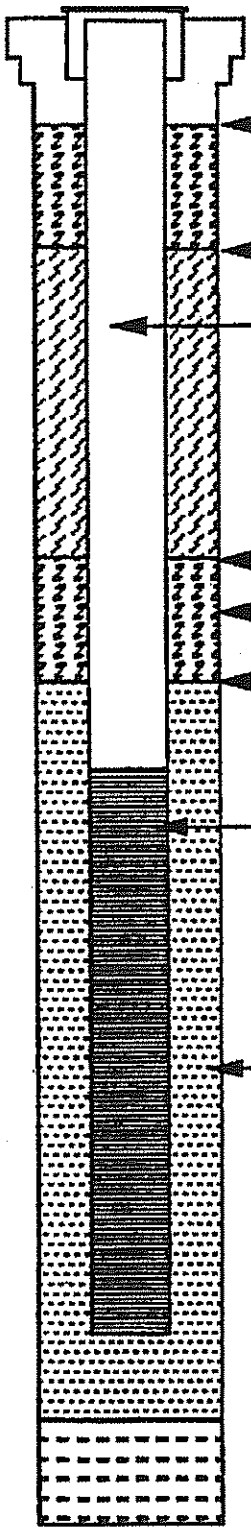
Bottom of Boring 43 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-7

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 10-29/91



764.71 Top of Security Box (4" dia.)

764.51 Top of Riser

Top of Surface Seal 760.24 made of CONCRETE

Top of Grout 757.24 made of DRY BENTONITE

21.8 ft. of 1 "dia. sched. 40 PVC

Approximate Top of Water 731.0 ft.

Top of Filter Pack Seal 746.71 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 744.71 ft.

20 ft. of 1 "dia. sched. 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 722.71 ft.

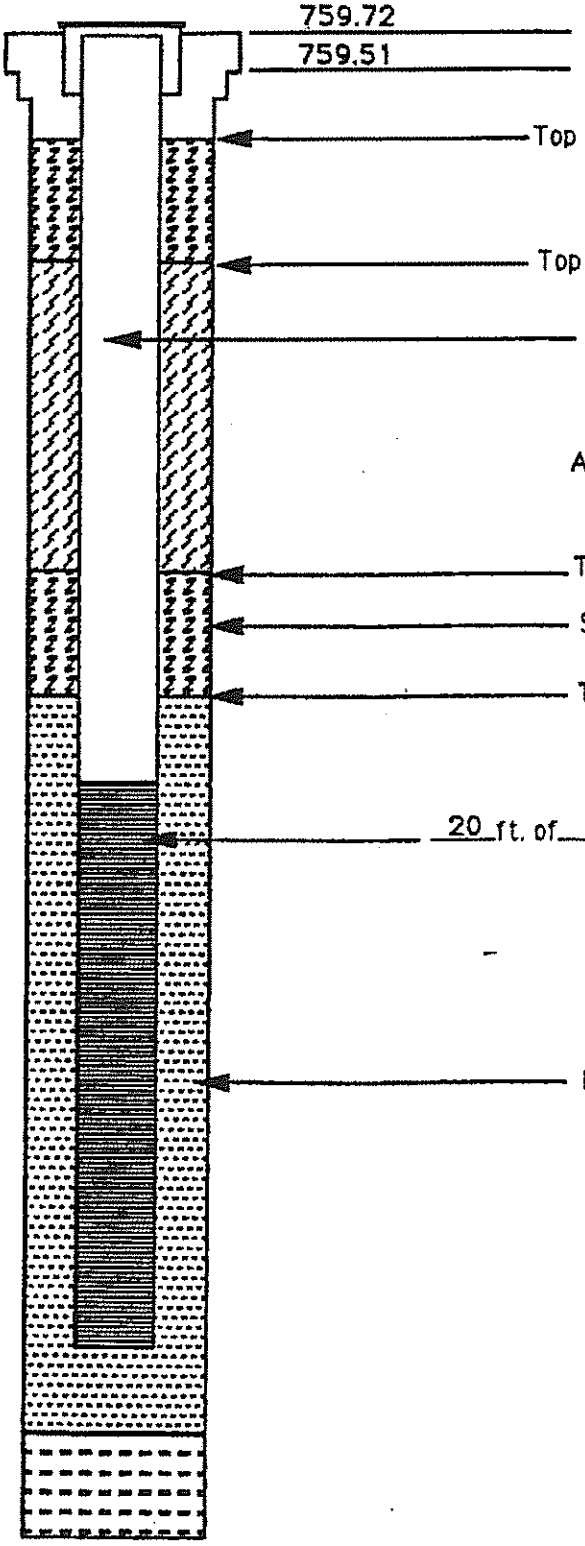
Bottom of Boring 43 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-8

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 11-4/91



759.72 Top of Security Box (4 " dia.)

759.51 Top of Riser

Top of Surface Seal 759.21 made of CONCRETE

Top of Grout 756.21 made of DRY BENTONITE

17.5 ft. of 1 "dia. sched 40 PVC

Approximate Top of Water 731.0 ft.

Top of Filter Pack Seal 746.01 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 744.01 ft.

20 ft. of 1 "dia. sched 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 722.01 ft.

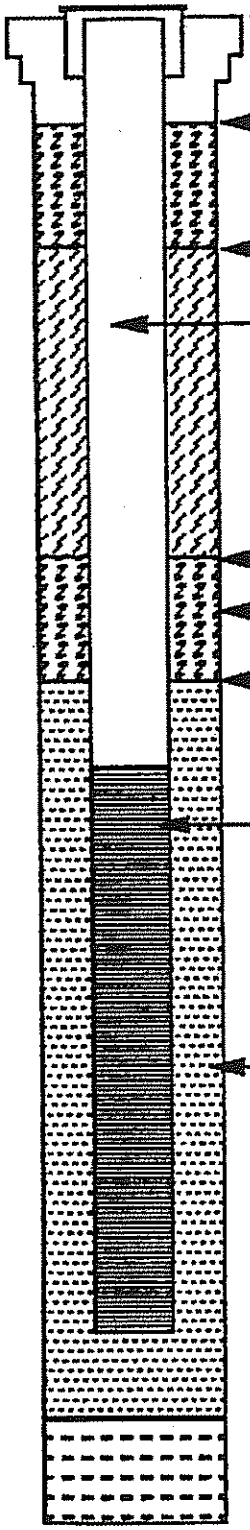
Bottom of Boring 41 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-9

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 11-4/91



763.11 Top of Security Box (4" dia.)

762.88 Top of Riser

Top of Surface Seal 758.82 made of CONCRETE

Top of Grout 755.82 made of DRY BENTONITE

21.9 ft. of 1 "dia. sched 40 PVC

Approximate Top of Water 731.0 ft.

Top of Filter Pack Seal 744.98 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 742.98 ft.

20 ft. of 1 "dia. sched 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 720.98 ft.

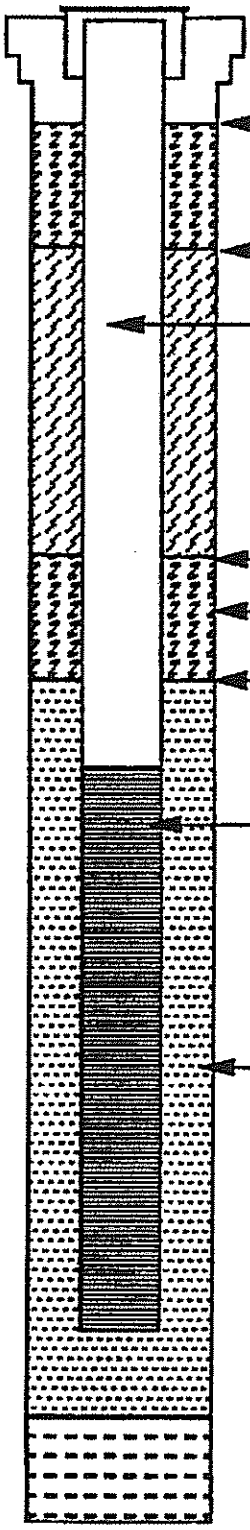
Bottom of Boring 41 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-10

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 10-31/91



762.75 Top of Security Box (4 " dia.)

762.49 Top of Riser

Top of Surface Seal 757.90 made of CONCRETE

Top of Grout 754.90 made of DRY BENTONITE

22.4 ft. of 1 "dia. sched. 40 PVC

Approximate Top of Water 732.0 ft.

Top of Filter Pack Seal 744.09 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 742.09 ft.

20 ft. of 1 "dia. sched. 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 720.09 ft.

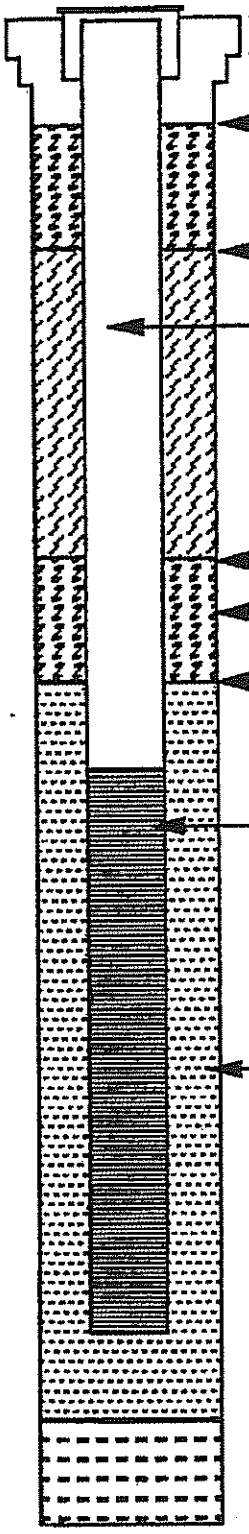
Bottom of Boring 43 ft.

Hayden Environmental Group, Inc.

AS-BUILT RECORD FOR MONITORING WELL #: P-10

LOCATION: VAN DYNE CROTTY

PROJECT #: 681.004 DATE COMPLETED: 10-31/91



762.75 Top of Security Box (4" dia.)

762.49 Top of Riser

Top of Surface Seal 757.90 made of CONCRETE

Top of Grout 754.90 made of DRY BENTONITE

22.4 ft. of 1 "dia. sched. 40 PVC

Approximate Top of Water 732.0 ft.

Top of Filter Pack Seal 744.09 ft.

Seal material BENTONITE PELLETS

Top of Filter Pack 742.09 ft.

20 ft. of 1 "dia. sched. 40 PVC Screen .010 "Slot

Filter Pack Grain Size #4

Bottom of Well 720.09 ft.

Bottom of Boring 43 ft.

Qsource Environmental Services, Inc.

SUBSURFACE EXPLORATION LOG

PROJECT VANDYKE CROTTY PROJECT # 691026 PIT OR BORING # P-11

PAGE 1 OF 3

GENERAL SITE LOCATION 805 CLAUDT PLACE

STATE OH COUNTY MONTGOMERY CITY / TWP DAYTON SEC — COORDINATES —

LOCATION ON THE SITE 5' S & 4' E OF P-1

METHOD(S) 4¼" HSA RIG D-50 HOLE DIA. — SAMPLER & SIZE 2" x 2" SS

DRILLING CO. HAYDEN DRILLERS BB / KF LOGGED BY RT

DATE STARTED 6/16/92 DATE FINISHED 6/17/92

☐ BORING COMPLETED AS A — OR ☒ BACKFILLED DATE 6/17/92 MATERIAL —

DEPTH TO WATER: Encountered at 16'0" At Completion 27'3" After — Hrs. water was at —

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / to	REC	BLOW CT ADV RATE	ELEV.	MATERIAL DESCRIPTION	DRILLING AND OTHER NOTES
							surface: GL HSS	
0							NO SAMPLE - PLACED AUGER IN GROUND	
1								
2	1	SS	2.0-4.0'	1.5	2		SAND - FN-SM GRAIN, TRACE SILT LT. OLIVE BROWN (2.5Y. 5/4)	
					3			
3					5		TRACE SM. GRAVEL	
					9			
4	2	SS	4.0-6.0	1.5	8		SAME	
					7			
5					18		SILT - DAMP, LT. OLIVE BROWN, TRACE SM GRAVEL	
					18		SAND - FN-LG GRAIN, TRACE SM. GRAVEL, DK	
6	3	SS	6.0-8.0'	2.0	8		SAND - SM-LG GRAIN	
					17		SAND - SM-LG GRAIN, PIECES OF	
7					32		BROKEN ROCK, TRACE SM-MD	
					50		GRAVEL (LG. GRAVEL/SM COBBLES IN AUGER)	
8	4	SS	8.0-10.0'	2.0	8		SAND - SM-LG GRAIN, PIECES OF	
					24		BROKEN ROCK, TRACE SM-MD	
9					24		GRAVEL (RIG BOUNCING A LOT)	
					26			
10								

228 Byers Road • Miamisburg, Ohio 45342 • (513) 866-1711 • (800) 356-9039 • FAX (513) 866-7893

Qsource Environmental Services, Inc.

SUBSURFACE EIPLORATION LOG

BORING OR PIT # P-11

PROJECT VAN DYNE (NOT) PROJECT NO. 971226

PAGE 2 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL DESCRIPTION	DRILLING AND OTHER NOTES
10	5	SS	10.0-12.0'	2.0'	13		SAND - SM-LG. GRAIN, SOME SM-MD GRAVEL	
					8			
					9			
					12			
12	6	SS	12.0-14.0'	1.5'	8		SAND - SM-LG GRAIN, SOME SM-MD GRAVEL (LG GRAVEL SM COBBLE IN SPOON)	
					10			
					8			
					13			
14	7	SS	14.0-16.0'	1.5'	6		SAND - SM-LG GRAIN, SOME SM-MD GRAVEL	
					13			
					12			
					8			
16	8	SS	16.0-18.0'	1.5'	9		SAND - SM-LG GRAIN, SOME SM-MD GRAVEL, SILTY, WET	
					10			
					12			
					21			
18	9	SS	18.0-20.0'	1.5'	8		SAND - SM-LG GRAIN TRACE SM-MD GRAVEL, SILTY, SATURATED	
					16			
					27			
					25			
20	10	SS	20.0-22.0'	2.0	3		SAND - SM-LG GRAIN TRACE SM. GRAVEL SILTY, SATURATED	
					2			
					16		SILT - SOFT DK GRAY (5Y 4/1), TRACE FN SAND [21.5' - FERROUS STAINING] SATURATED	
					8			
22	11	SS	22.0-24.0'	2.0'	12		SAND - FN GRAIN, SILTY, GRAY (5Y 5/1) SATURATED	
					13			
					20			
					16			
24	12	SS	24.0-26.0'	0.0	10		NO RECOVERY, SPOON WET	
					18			
					46			
					40			
26	13	SS	26.0-28.0'	2.0'	9		SAND - FN GRAIN SILTY, GRAY (5Y 5/1)	
					12		SILT - HARD, GRAY (5Y 5/1)	
					16		SAND - FN GRAIN SILTY GRAY (5Y 5/1)	
					21		SATURATED	
28	14	SS	28.0-30.0'	2.0	8		SILT - HARD, GRAY (5Y 5/1)	
					10			
					12		SAND - FN-SM GRAIN SILTY, GRAY (5Y 5/1)	
30					10		SILT - HARD, SILTY (5Y 5/1)	

NOTES

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Qsource Environmental Services, Inc.

SUBSURFACE EXPLORATION LOG

BORING OR PIT # P-11

PAGE 3 OF 3

PROJECT VAN DYNE CITY PROJECT NO. 09026

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL DESCRIPTION	DRILLING AND OTHER NOTES
30	15	SS	30.0-32.0'	2.0	3 4 13		SAND - FN GRAIN, GRAY (5Y, 5/1) SILTY	
					28		SAND - FN-MD GRAIN, TRACE SILT TRACE SM GRAVEL	
32	16	SS	32.0-34.0'	1.0	4 6 22		SAND - FN-MD GRAIN TRACE SILT TRACE SM GRAVEL SATURATED	
					24			
34	17	SS	34.0 36.0	1.5	13 22 26		SAND - SM - MD GRAIN, SATURATED	
					/		SAND - FN-MD GRAIN SILTY PIECES OF CLOSEST ROCK	
36	18	SS	36.0-38.0'	1.5	4 17 19		SAME	
					21			
38	19	SS	38.0-40.0'	2.0	8 7 13 15		SAND - SM-MD GRAIN, TRACE SILT SATURATED	
40	20	SS	40.0-42.0	1.5			SAND - SM-LG GRAIN, TRACE SILT SATURATED	
42							BOTTOM OF BORING 42.0'	
44								
46								
48								
50								

NOTES

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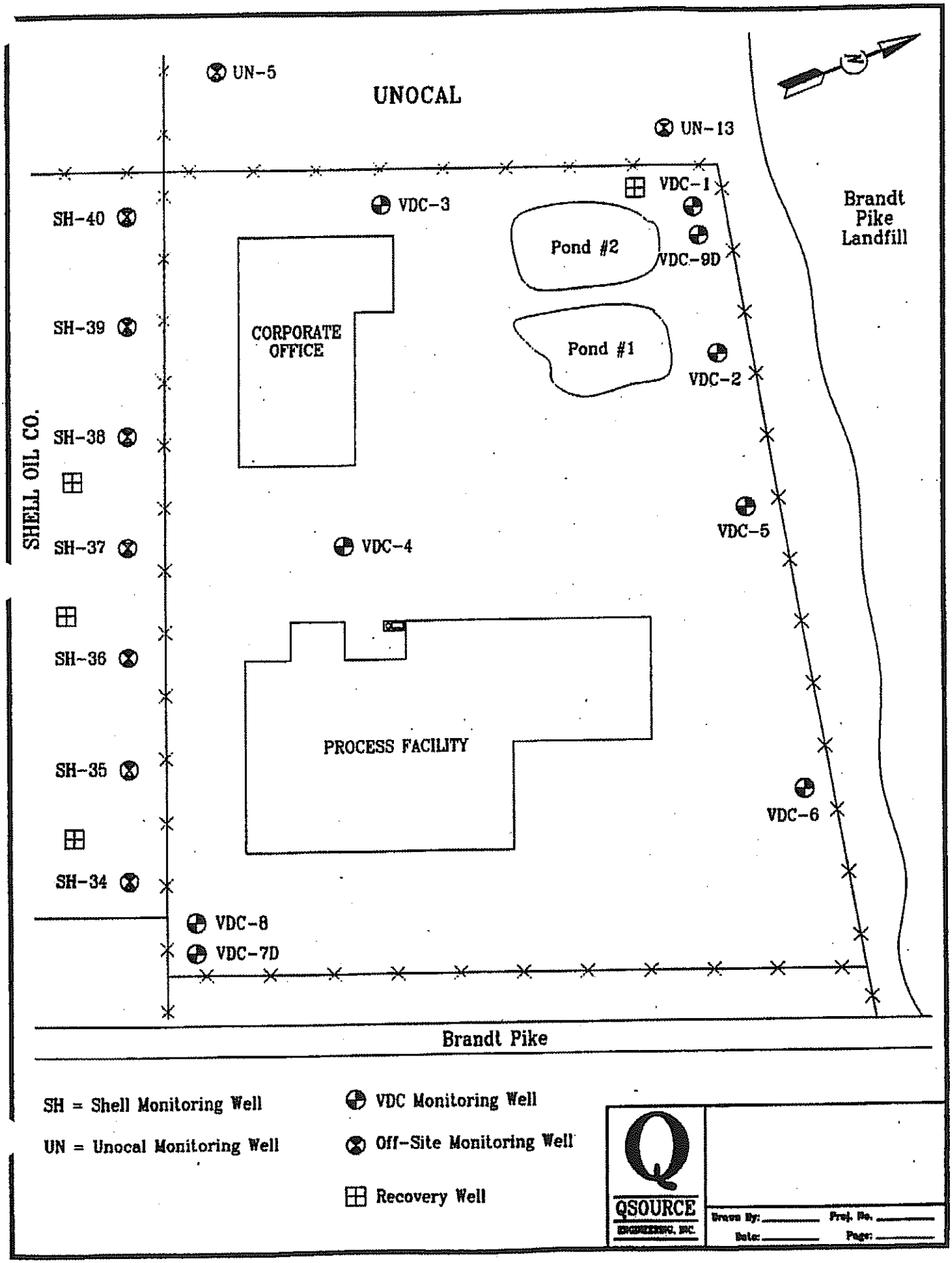
UN-5
UNOCAL
UN-13
VDC-1
VDC-3
SH-40
Pond #2
VDC-9D
Brandt
Pike
Landfill
SH-39
CORPORATE
OFFICE
Pond #1
VDC-2
SHELL OIL CO.
SH-38
VDC-5
SH-37
VDC-4
SH-36
PROCESS FACILITY
SH-35
VDC-6
SH-34
VDC-8
VDC-7D
Brandt Pike
SH = Shell Monitoring Well
UN = Unocal Monitoring Well
VDC Monitoring Well
Off-Site Monitoring Well
Recovery Well
QSOURCE
ENGINEERING, INC.
Drawn By:
Proj. No.
Date:
Page:

LOG OF BORING

PROJECT NUMBER: 162.89011	PROJECT NAME: Van Dyne Crotty		
BORING NUMBER: 7D	ELEVATION:	DATE STARTED: 4/12/89	
COORDINATES:		DATE COMPLETED: 4/13/89	
DRILLING METHODS: Hollow Stem Augers		PAGE: 1 OF 2	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 34 AT	HRS.
DRILLER: Moody's of Dayton			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % RQD%	REMARKS
				Brown clay topsoil	Na	Na	Na	Na	
5	ss	2/4/6/8	30%	Light brown sand with some gravel, trace clay, dry					OVA 3ppm-
10	ss	10/18/22/34							
15	ss	6/10/15/26		Cobble zone at 13'					
20	ss	17/22/25/26		Fine light brown sand					
25	ss	10/28/33/30		Medium to course brown sand with some gravel, dry					
30	ss	12/14/23/24							
35	ss	17/28/25/30		Grey silty clay					
40	ss	11/18/20/28		Brown medium sand with some gravel, trace grey clay, wet					
45	ss	11/18/18/24		Small to medium gravel, some grey sand, wet					

NOTES: Bottom of boring at 77'
ss = split spoon
OVA = organic vapor analyzer

ACAD. BOR.NO.: 7B-8-88/1.1

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LOG OF BORING

PROJECT NUMBER: 162.89011	PROJECT NAME: Van Dyne Crotty
BORING NUMBER: 7D	ELEVATION:
COORDINATES:	DATE STARTED: 4/12/89
DRILLING METHODS: Hollow Stem Augers	DATE COMPLETED: 4/13/89
ENGINEER/GEOLOGIST: G. Clyburn	PAGE: 2 OF 2
DRILLER: Moody's of Dayton	GWL: 34 AT HRS.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % RQD%	REMARKS
50	ss	19/25/34/40		Medium to fine sand with some gravel	Na	Na	Na	Na	
55	ss	12/19/31/27							
60	ss	19/28/31/26							
65	ss	19/22/23/30							
				Fine grey sand, trace clay					
70	ss	38/54/73							
	ss	31/38/46/29							
	ss	19/34/38/34							
75	ss	38/46/48/34							
	ss	56/88		Dense grey clay, some gravel					
80									

NOTES: Blow counts based on 140 pound hammer

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ACAD. BORING: 7B-6-88/1.1

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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van-Dyne Crotty - Q Source JOB NO. 49149 DATE 4/13/89 BORING NO. 1 Deep

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Monitoring

SCREEN TYPE, SIZE & SLOT:

Johnson Stainless steel 10' ,10 slot

10" stainless adaptor

INSTALLATION TIME & REMARKS:

Top of pipe 79'

76'6"

DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH
4-14-89	32' top of pipe 30' G.L.

COMMENTS:

1 pc 4" stainless adaptor from Johnson to BK pvc

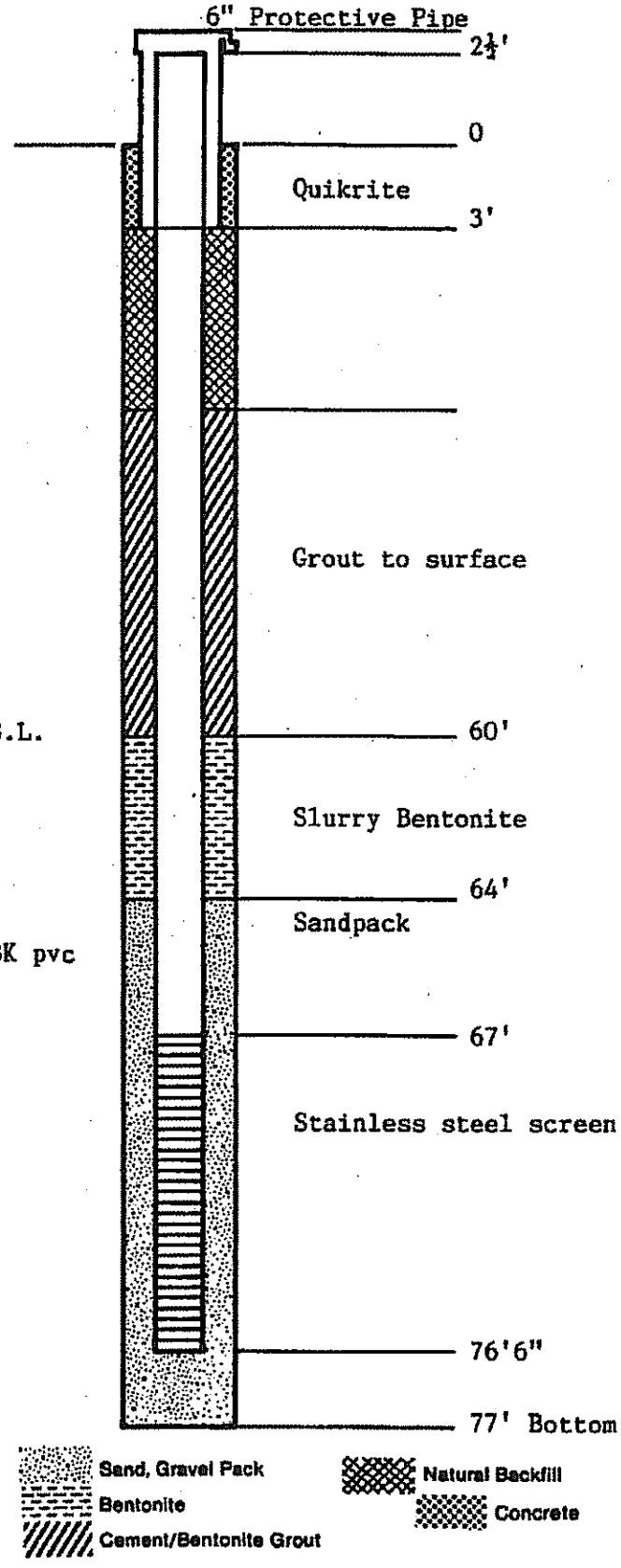
1 pc 4" stainless steel screen Johnson

7 pc 4" BK sch 40 pvc 10' riser

3 Bags #4 silica sand 1 pc 4" cap pvc

18 bags cement 3 bags Bentonite

3 Bags Quikrite



LOG OF BORING

PROJECT NUMBER: 162.89011	PROJECT NAME: Van Dyne Crotty		
BORING NUMBER: 8	ELEVATION:	DATE STARTED: 4/21/89	
COORDINATES:		DATE COMPLETED: 4/22/89	
DRILLING METHODS: Hollow Stem Augers 4¼"		PAGE: 1 OF 1	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 34 AT	HRS.
DRILLER: Moody's of Dayton			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
	Na	Na	Na	Brown clay topsoil	Na	Na	Na	Na	
5				Light brown sand with some gravel, trace clay, dry					
10				Cobble zone at 13'					
15									
20				Fine light brown sand					
25				Medium to course brown sand with some gravel dry					
30									
35				Grey silty clay					
40				Brown medium sand with some gravel, trace grey clay					
45				Small to medium gravel some grey sand, wet					

NOTES: Bottom of boring at 44'
Log of well inferred from well log of VDC- 7D

ACAD. BOR.NO.: 8-8-88/1.1

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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/21/89 BORING NO. 1 Shallow

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 2" Monitoring

SCREEN TYPE, SIZE & SLOT:

Johnson stainless steel 2" x 10' .10 slot

INSTALLATION TIME & REMARKS:

Drilled well with 4½" pvc plug in augers.
No samples were taken

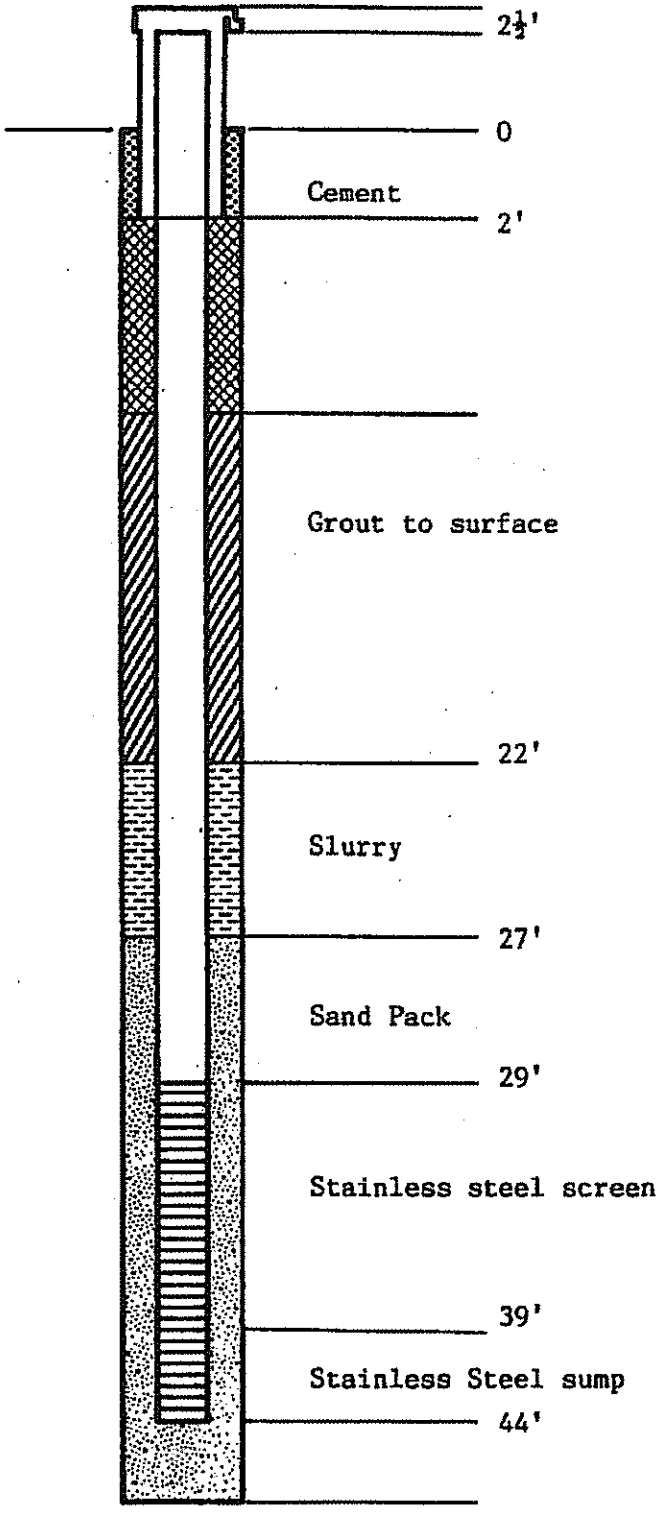
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH
4/20/89	31'

COMMENTS:

1 - 5' stainless steel sump 2"
1 - 10' x 2" stainless steel screen Johnson
1 - Sch 40 pvc adaptor Johnson to BK
3 pc. sch 40 pvc riser 2" x 10'
3 bags sand, 2 bags Bentonite, 6 bags cement
4" protective cover 3 bags Quikrite



LOG OF BORING

PROJECT NUMBER: 162.89011	PROJECT NAME: Van Dyne Crotty	
BORING NUMBER: 9D	ELEVATION:	DATE STARTED: 4/15/89
COORDINATES:		DATE COMPLETED: 4/17/89
DRILLING METHODS: Hollow Stem Augers 6¼"		PAGE: 1 OF 2
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 34'9" AT HRS.
DRILLER: Moody's of Dayton		

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % RQD%	REMARKS
				Brown clay topsoil	Na	Na	Na	Na	
5	ss	4/10/13/18		Light brown medium sand and gravel, trace clay, dry					
10	ss	7/7/9/12							
15	ss	9/25/24/30							
20	ss	20/25/30/45							
25	ss	15/16/19/20		Fine grey sand					
30	ss	5/9/12/15		water at 34' 9"					
35	ss	15/25/23/30							
40	ss	12/28/30/32		Grey silt, some clay					
45	ss	35/55/70		Fine to medium grey sand, some gravel and cobbles, wet					

NOTES: ss = split spoon
blow counts based on 140 pound hammer

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ACAD. BOR.NO._: /3-8-88/1.1

LOG OF BORING

PROJECT NUMBER: 162.89011	PROJECT NAME: Van Dyne Crotty		
BORING NUMBER: 9D	ELEVATION:	DATE STARTED: 4/15/89	
COORDINATES:		DATE COMPLETED: 4/17/89	
DRILLING METHODS: Hollow Stem Augers 6¼"		PAGE: 2 OF 2	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: AT HRS.	
DRILLER: Moody's of Dayton			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
50	ss	15/17/23/27		Fine to medium grey sand and gravel, wet					
55	ss	15/17/30/37							
60	ss	12/19/31/18							
65	ss	16/19/41/28							
				Medium to course sand some gravel					
70	ss	19/48/42/38							
	ss	18/20/24/22		fining downward					
75	ss	28/34/38							
80	ss	18/25/31/54							
85	ss	35/42/52/43							
90	ss	35/40/60/70		Dense grey clay , some gravel					

NOTES: Bottom of boring at 91'

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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/19/89 BORING NO. 2 Deep

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Monitoring

SCREEN TYPE, SIZE & SLOT:

Johnson stainless steel 4" x 10 - .10 slot

4" s.s. adaptor Johnson to BK pvc

INSTALLATION TIME & REMARKS:

95' top of pipe

91'9" GL

DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 - 4" stainless steel adaptor

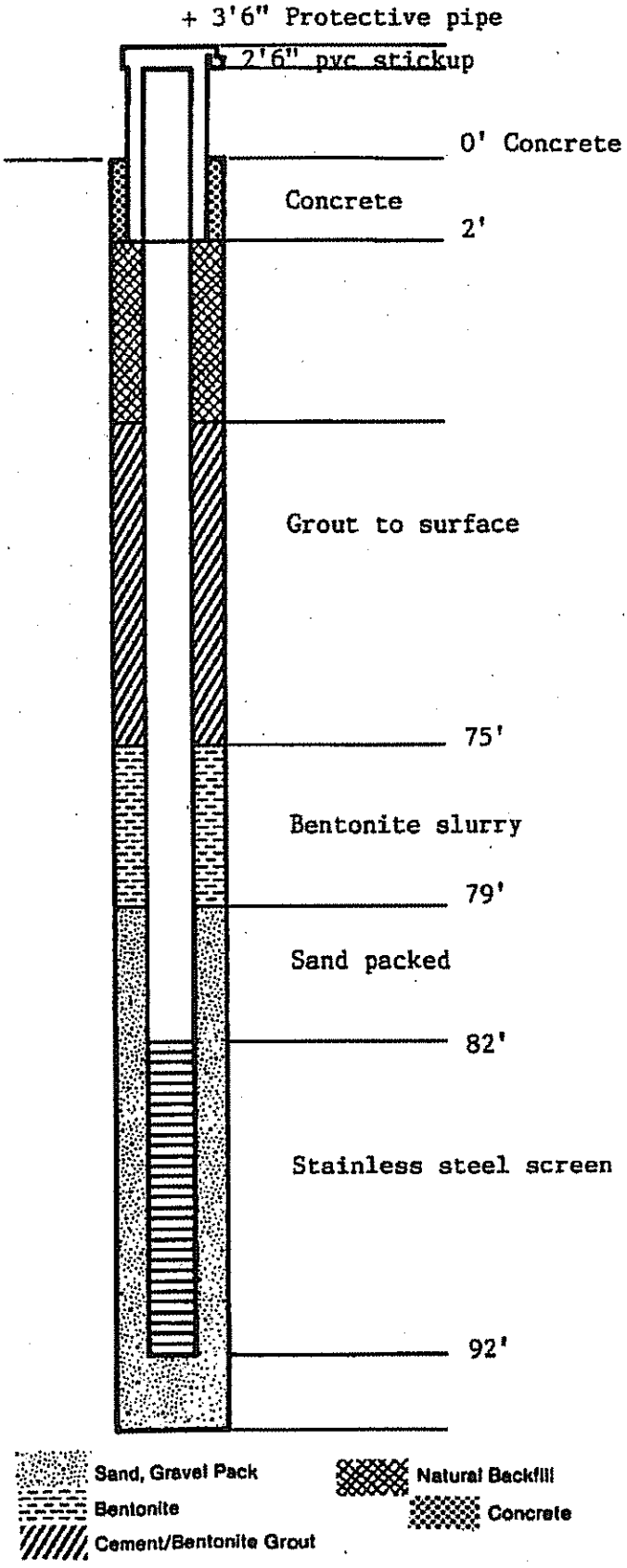
1 - 4" x 10' stainless steel Johnson screen

9 - 4" x 10' Sch 40 pvc riser

5" Protective cover, 4 bags Bentonite

3 bags #4 sand, 24 bags cement

2 Bags Quikrite



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TEST BORING FIELD LOG

CUSTOMER: Van Dyne Crotty - Q Source | BORING NO.: 2 Shallow | PAGE: 1 of 1

NAME & LOCATION: Brandt Pike , Dayton, Ohio | JOB NO.: 49149

DATE STARTED: 4/21/89 | DATE FINISHED: | SURFACE ELEV.:

WEATHER: | DRILLER: P. Ridder | CREW: S. Belt

DEPTH	MATERIAL DESCSRIPTION AND REMARKS	SAMPLE NO	SAMPLE TYPE	DEPTH	BLOW COUNT	'N' BLOWS PER FT.	REC
5.0	Brown clay topsoil	1	A	5.0 - 7.0	1/5/5/8		
10.0	Brown clay & sand, some gravel	2	A	10.0 - 12.0	12/12/14/23		
15.0	Brown sand & gravel	3	A	15.0 - 17.0	19/23/28/21		
20.0	Dense grey clay	4	A	20.0 - 22.0	23/27/38/51		
	ABANDONED HOLE, CEMENT UP 3 BAGS						

METHOD OF DRILLING:
AUGER: SIZE:
ROTARY: SIZE(S):
AIR MUD WATER
OTHER:
MACHINE:

WATER LEVELS:
INITIAL
COMPLETION
24 HR
OTHER

TYPE AND SIZE SAMPLER:
A. SPLIT SPOON ( )
B. SHELBY TUBE ( )
C. NX CORE
D. OTHER:

LOG OF BORING

PROJECT NUMBER: 162.89011	PROJECT NAME: Van Dyne Crotty
BORING NUMBER: R1	ELEVATION:
COORDINATES:	DATE STARTED: 4/17/89
DRILLING METHODS: Cable Tool	DATE COMPLETED: 4/25/89
ENGINEER/GEOLOGIST: Gary Clyburn	PAGE: 1 OF 2
DRILLER: Moody's of Dayton	GWL: 34' AT HRS.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % RQD%	REMARKS
				Brown clay topsoil	Na	Na	Na	Na	
5				Light brown medium sand and gravel, trace clay, dry					
10									
15									
20									
25				Fine grey sand					
30				water at 34' 9"					
35									
40				Grey silt, some clay					
45				Fine to medium grey sand, some gravel and cobbles, wet					

NOTES:

ACAD. BOR.NO.: 3-E-88/1.1

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LOG OF BORING

PROJECT NUMBER: 162.89011	PROJECT NAME: Van Dyne Crotty		
BORING NUMBER: R1	ELEVATION:	DATE STARTED: 4/17/89	
COORDINATES:		DATE COMPLETED: 4/25/89	
DRILLING METHODS: Cable Tool		PAGE: 2 OF 2	
ENGINEER/GEOLOGIST: Gary Clyburn		GWL: 34' AT	HRS.
DRILLER: Moody's of Dayton			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
55				Fine to medium grey sand and gravel, wet					
60									
65									

NOTES: Bottom of well at 65' 12" diameter well with 20' screen

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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/24/89 BORING NO. 1

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn well

SCREEN TYPE, SIZE & SLOT:

Sch 40 pvc 5' x 4" .20 slot

INSTALLATION TIME & REMARKS:

Drill hole to 25', Run KO plug set 4" well

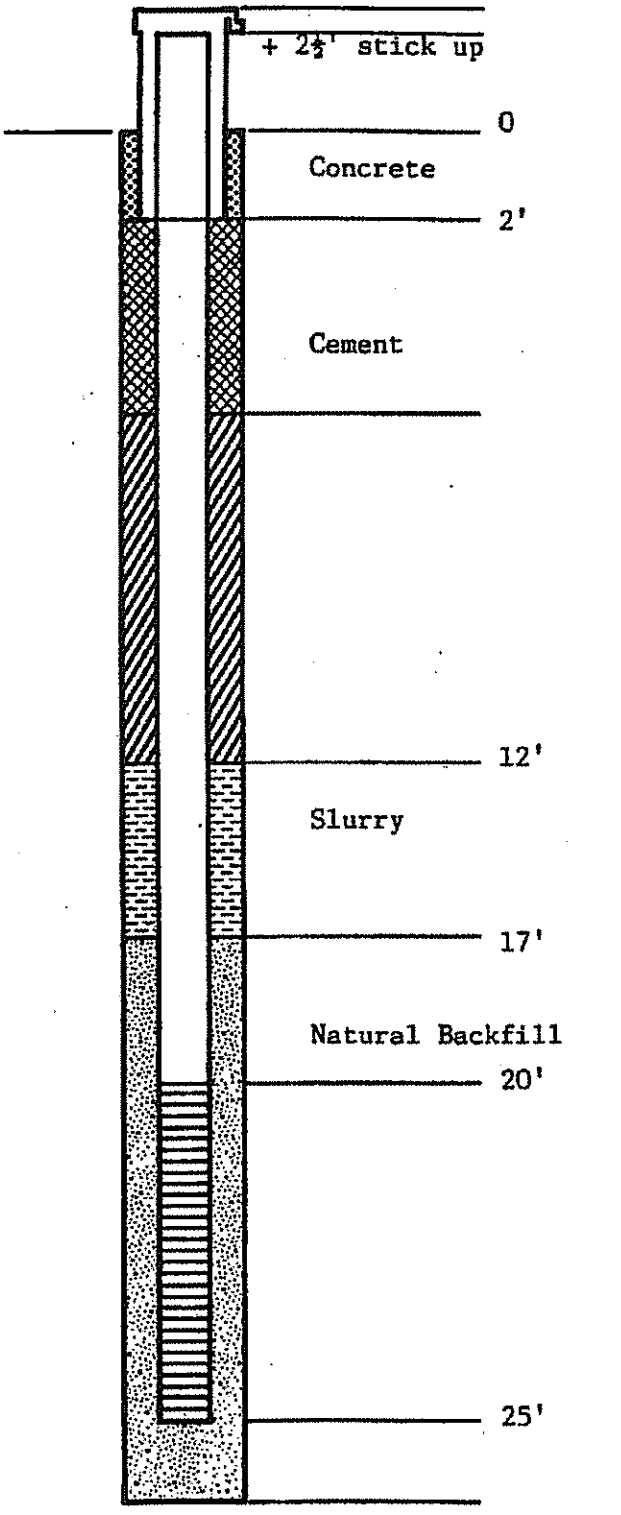
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 pc 4" male threaded plug
1 pc 4" x 5' Sch 40 pvc screen
2 pc 4" x 10' Sch 40 pvc riser
1 pc 4" x 2½' Sch 40 pvc riser
2 Bags Bentonite
5 Bags cement
2 Bags Quikrite



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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/24/89 BORING NO. 2

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn Well

SCREEN TYPE, SIZE & SLOT:
Sch 40 pvc 4" x 5' .20 slot

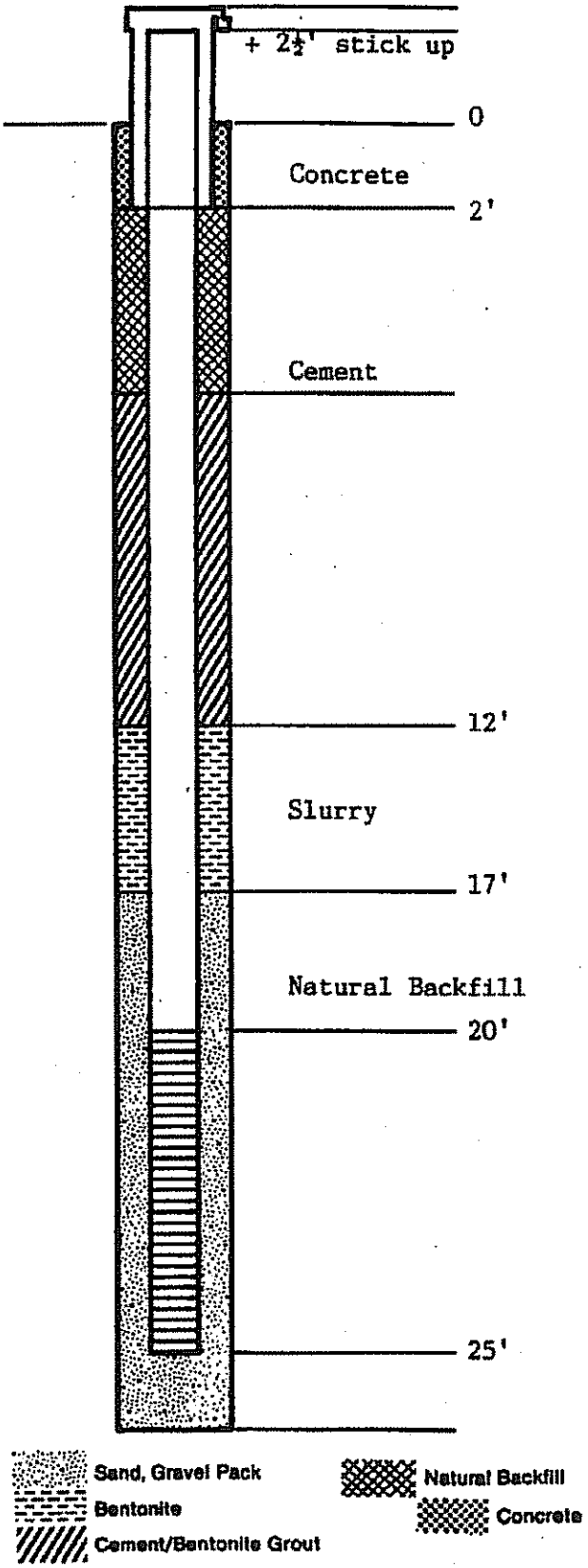
INSTALLATION TIME & REMARKS:
Drilled hole to 25', Run knock out plug, set 4" well

DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:
1 Pc 4" male threaded plug
1 Pc 4" x 5' Sch 40 pvc screen
2 Pc 4" x 10' Sch 40 pvc riser
1 Pc 4" x 2½" Sch 40 pvc riser
1 Bag Bentonite
6 Bags cement
2 Bags Quikrite



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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/28/89 BORING NO. 3

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn well

SCREEN TYPE, SIZE & SLOT:

Sch 40 pvc 4" x 5' .20 slot

INSTALLATION TIME & REMARKS:

Drill to 15', set well at 14'

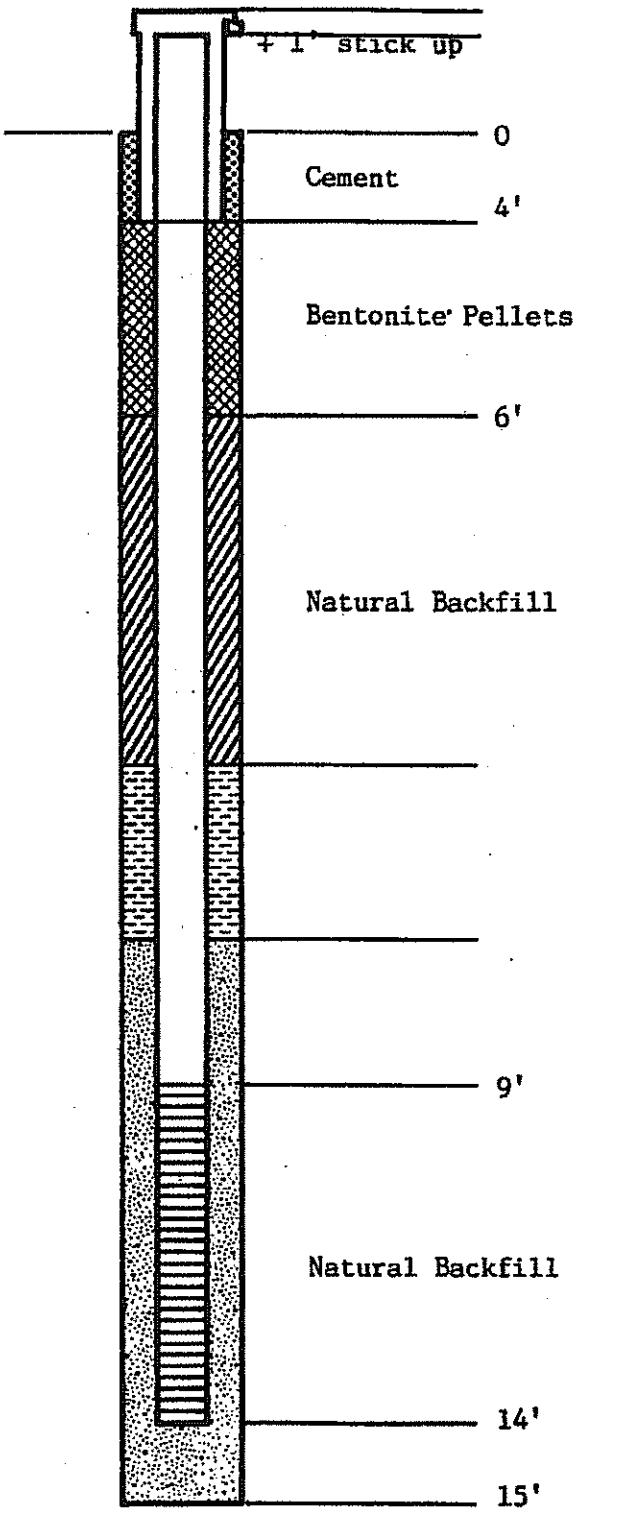
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 Male threaded plug
1 - 5' Sch 40 pvc screen 4"
1 - 10' Sch 40 pvc riser 4"
1 Bucket pellets Bentonite
2 Bags Cement
4 Bags Quikrite



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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/25/89 BORING NO. 4

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn well

SCREEN TYPE, SIZE & SLOT:

Sch 40 pvc 4" x 10' .20 slot

INSTALLATION TIME & REMARKS:

Drill to 15', set well at 14'

DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

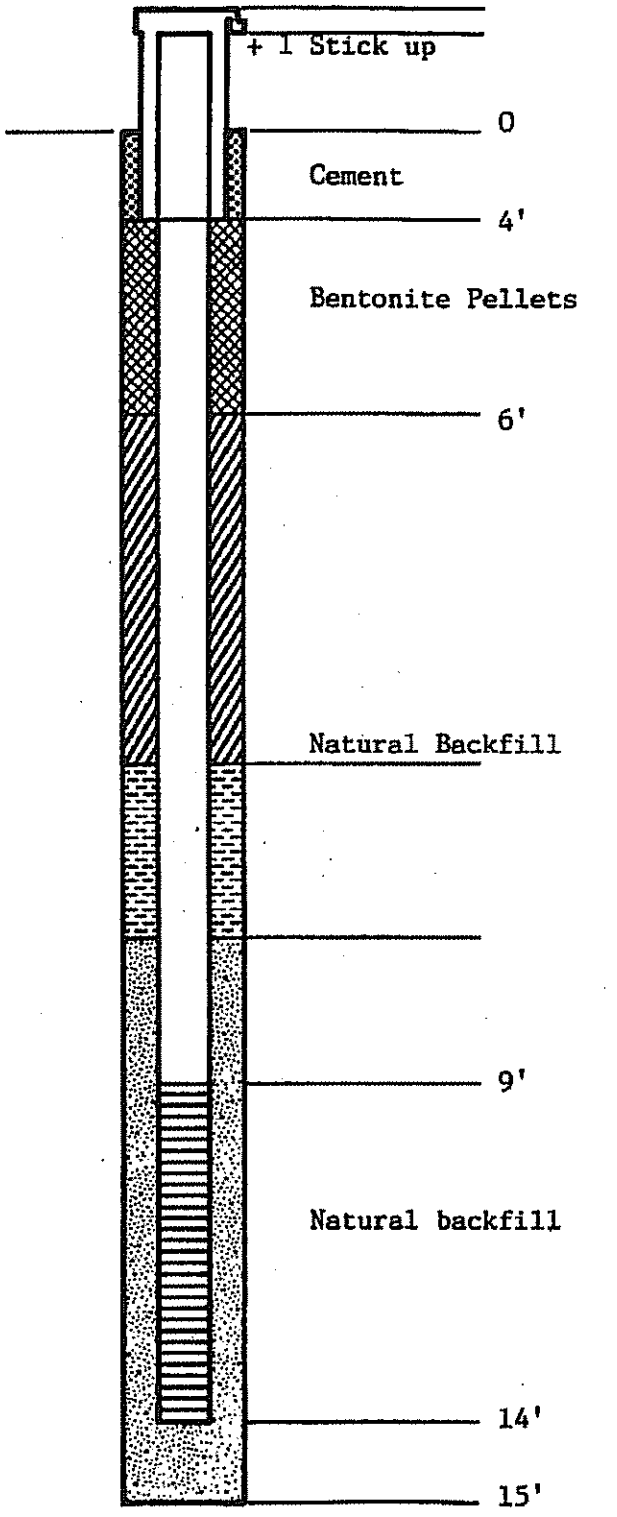
1 Male threaded plug

1 - 5' Sch 40 pvc screen

1 - 10' Sch 40 pvc riser

1 Bucket pellets

2 Bags cement



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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - O Source JOB NO. 49149 DATE 4/25/89 BORING NO. 5

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn well

SCREEN TYPE, SIZE & SLOT:

Sch 40 pvc 4" x 5' .20 slot

INSTALLATION TIME & REMARKS:

Drill well to 25', set well at 24'6"

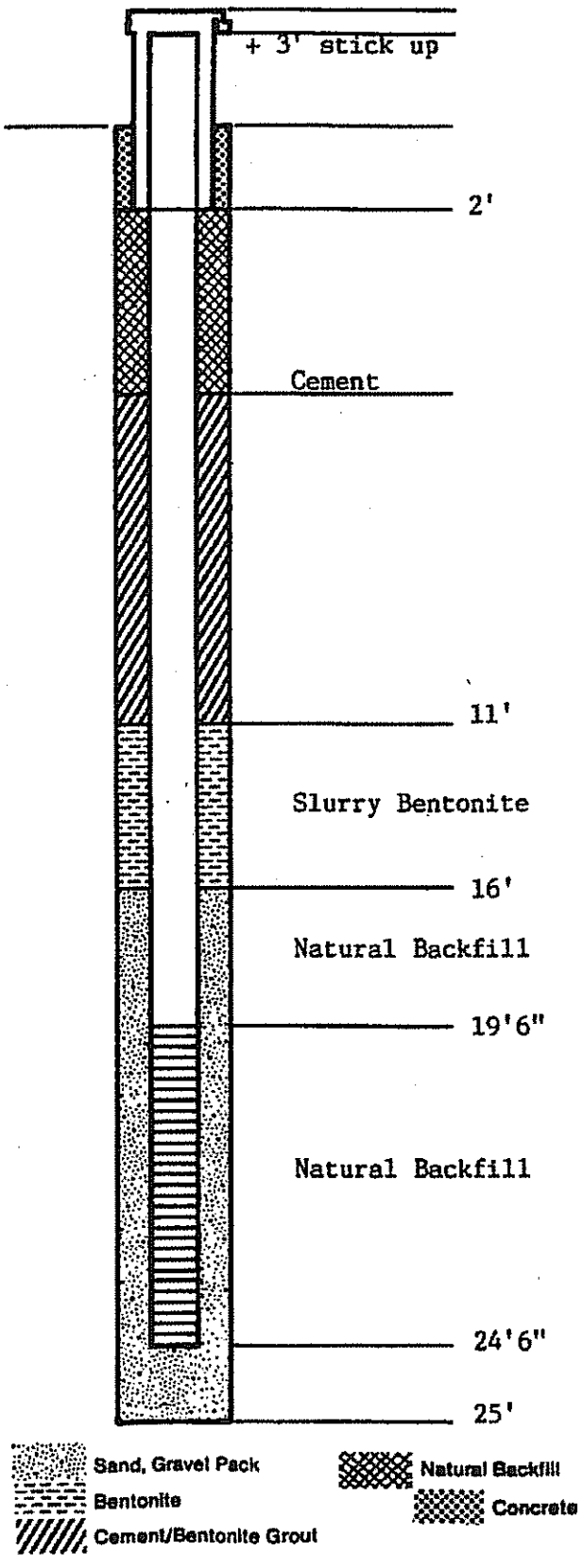
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 Male threaded plug
1 - 4" x 5 Sch 40 pvc screen
2 - 4" x 10' Sch 40 pvc riser
1 - 4" x 2½" Sch 40 pvc riser
1 Bag Bentonite
6 Bags cement
2 Bags Quikrite



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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/26/89 BORING NO. 6

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn well

SCREEN TYPE, SIZE & SLOT:

Sch 40 pvc 4" x 5' .20 slot

INSTALLATION TIME & REMARKS:

Drill to 25', run knock out, set well

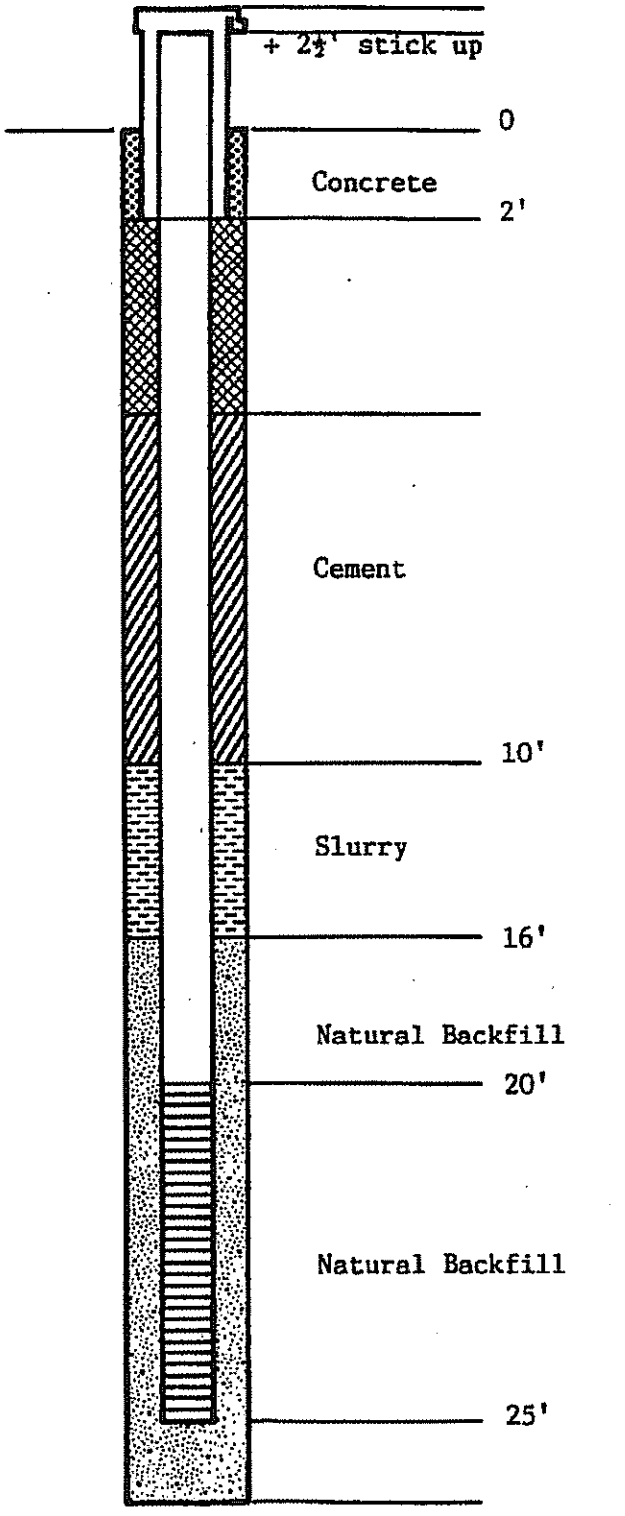
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 Male threaded plug
1 - 5' x 4" pvc screen
2 - 10' x 4" pvc riser
1 - 2½' x 4" pvc riser
1 Bag Bentonite
6 Bags Cement
3 Bags Quikrite



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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/26/89 BORING NO. 7

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn well

SCREEN TYPE, SIZE & SLOT:

Sch 40 pvc 4" x 5' .20 slot

INSTALLATION TIME & REMARKS:

Drill to 25' with plastic plug, knock out at bottom of boring

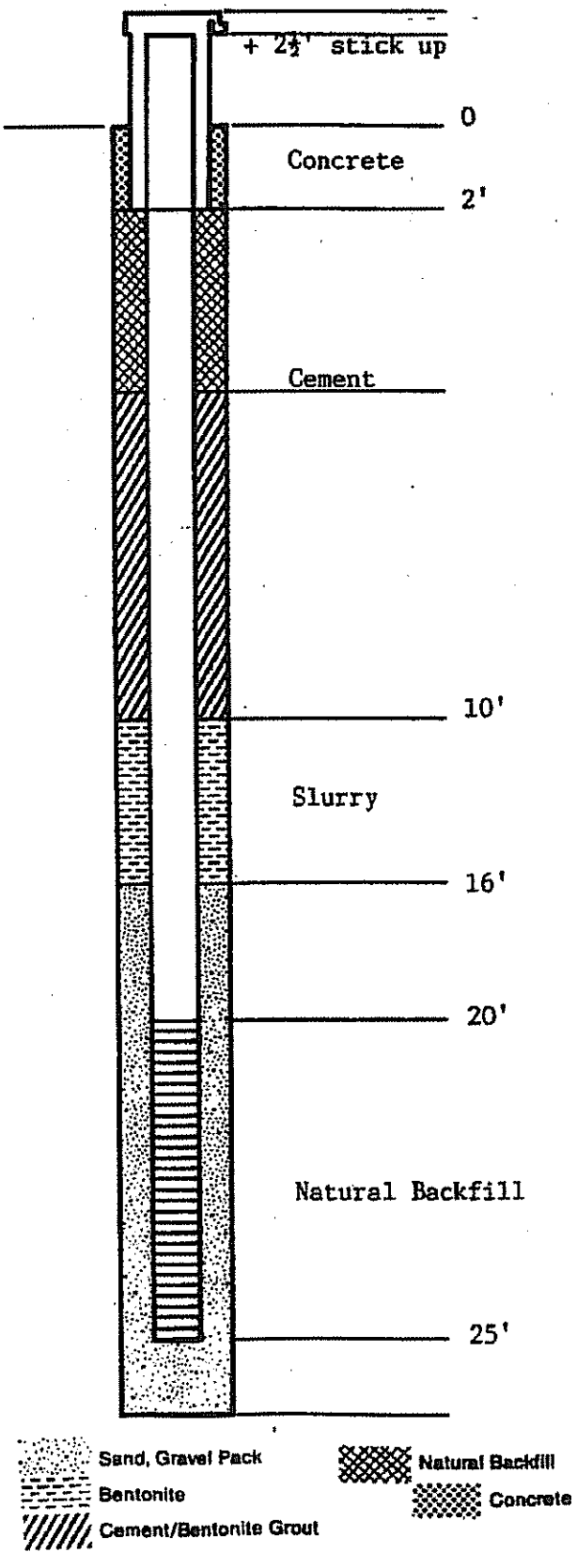
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 Male threaded plug
1-5' x 4" pvc screen
2-10' x 4" pvc riser
1-2½' x 4" pvc riser
1 Bag Bentonite
6 Bags cement



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PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Van Dyne Crotty - O Source JOB NO. 49149 DATE 4/27/89 BORING NO. 8

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Vacumn well

SCREEN TYPE, SIZE & SLOT:

Sch 40 pvc 4" x 5' .20 slot

INSTALLATION TIME & REMARKS:

Drill to 25', run knock out plug, set well

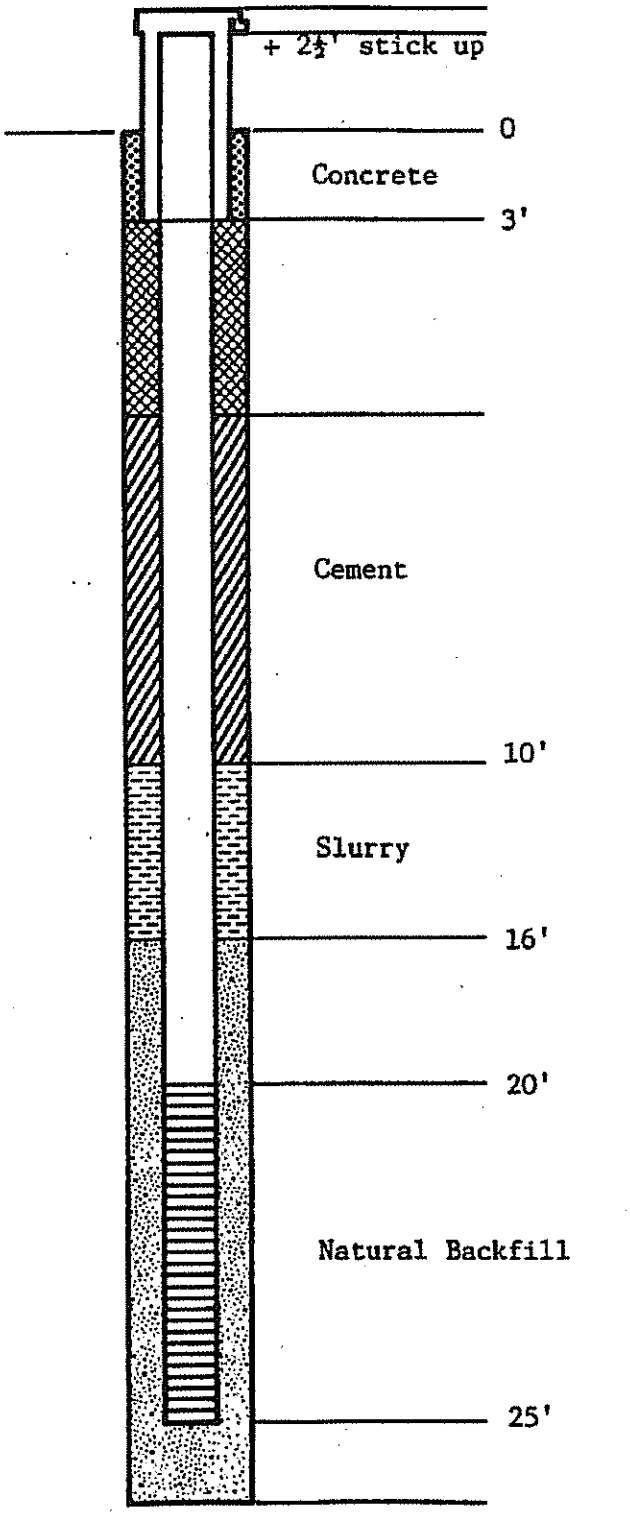
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 - 4" male plug
1 - 4" x 5' pvc screen
2 - 4" x 10' pvc riser
1 - 4" x 2½' pvc riser
1 Bag bentonite
6 Bags cement



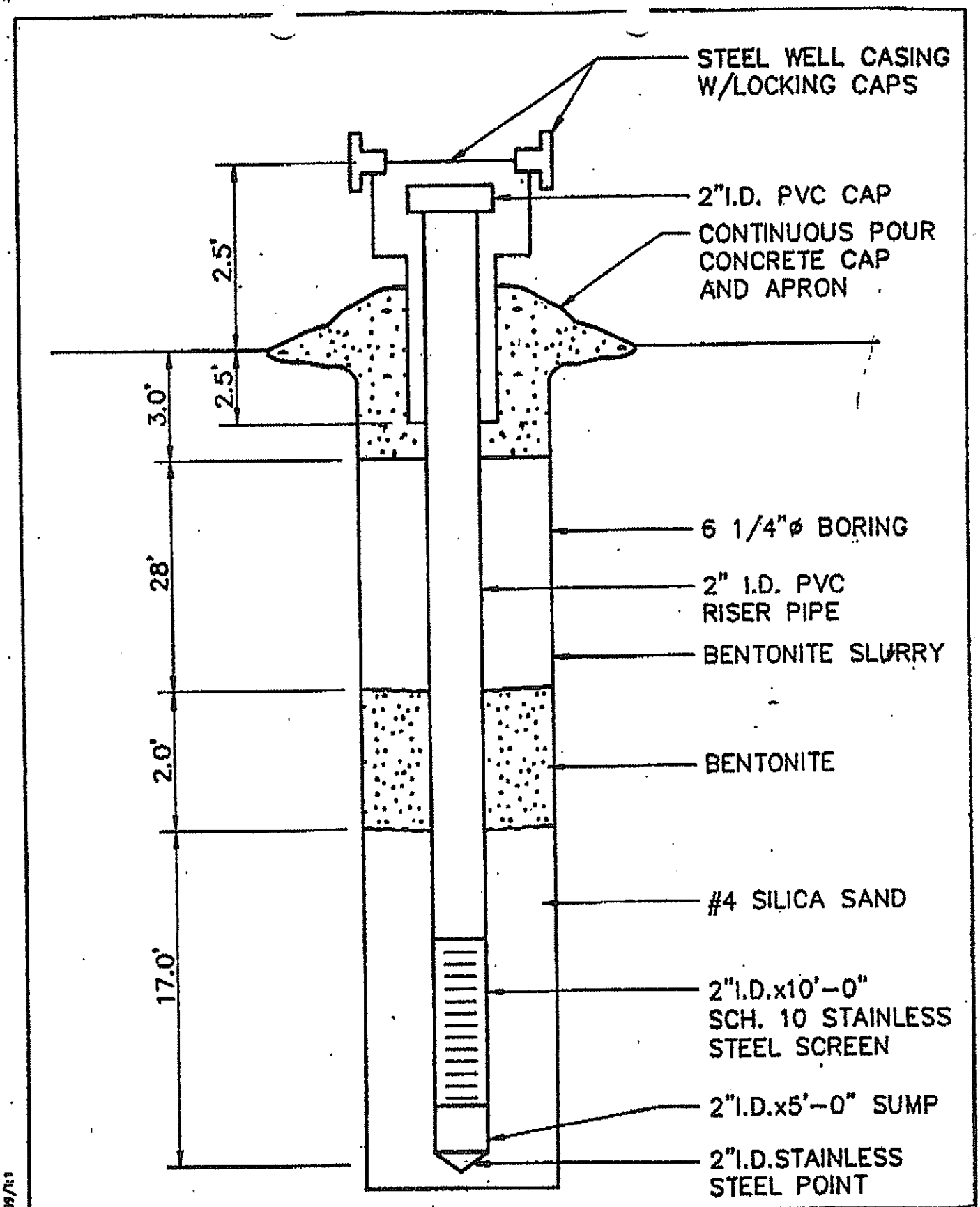
LOG OF BORING

PROJECT NUMBER: 162.88209 | PROJECT NAME: Van Dyne Crotty-Site Assessment
BORING NUMBER: 1 (VDC-1) | ELEVATION: | DATE STARTED: 11/21/88
COORDINATES: | DATE COMPLETED: 11/22/88
DRILLING METHODS: Hollow Stem Auger with S.S.S | PAGE: 1 OF 1
ENGINEER/GEOLOGIST: L. Foppe/G. Clyburn | GWL 36'6" AT HRS.
DRILLER: Moody's of Dayton, Inc.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % RQD%	REMARKS
	2	3/5/7/11		brown clay top soil	NA	NA	NA	NA	
	4	5/8/14/16							
5	6	14/18/18/25		sand and gravel, dry coursing downward					
	8	23/34/15/9							
10 m	10	10/18/27/29		tan clay with silt dry					
	12	24/28/32/34							
	14	32/60/65/54		very coarse grey gravel with coarse sand dry					
15	16	25/60/74/76							
	18	23/25/27/34		red staining at 16'6"					
	20	20/38/44/41							
20	22	20/24/28/20		coarse grey gravel with tan sand & trace silt, dry					
	24	13/20/23/27							
25	26	15/23/25/28		fine grey sand					
	28	14/23/28/34							
	30	16/28/34/32							
30	32	30/50/45/32		fine grey sand and medium gravel					
	34	20/15/15/20							
35	36	15/20/25/22		moist at 34'					
	38	8/20/27/35		wet at 36'6"					
	40	19/24/27/33							
40	42	19/23/38/35							
	44	30/37/60/60							
45	46	12/33/50/71							
	48	23/26/58/55		wet grey fine sand					
	50								

NOTES:
Bottom of boring at 50'

QSOURCE ENGINEERING, INC.



162.88209

2-22-89

L.E.F./K.M.K.

QSOURCE ENGINEERING, INC.

WELL CONSTRUCTION DETAIL

MONITORING WELL NO. 1

VAN DYNE-CROTTY, INC.
DAYTON, OHIO

ACAD: 88209810/2-22-89/1:1

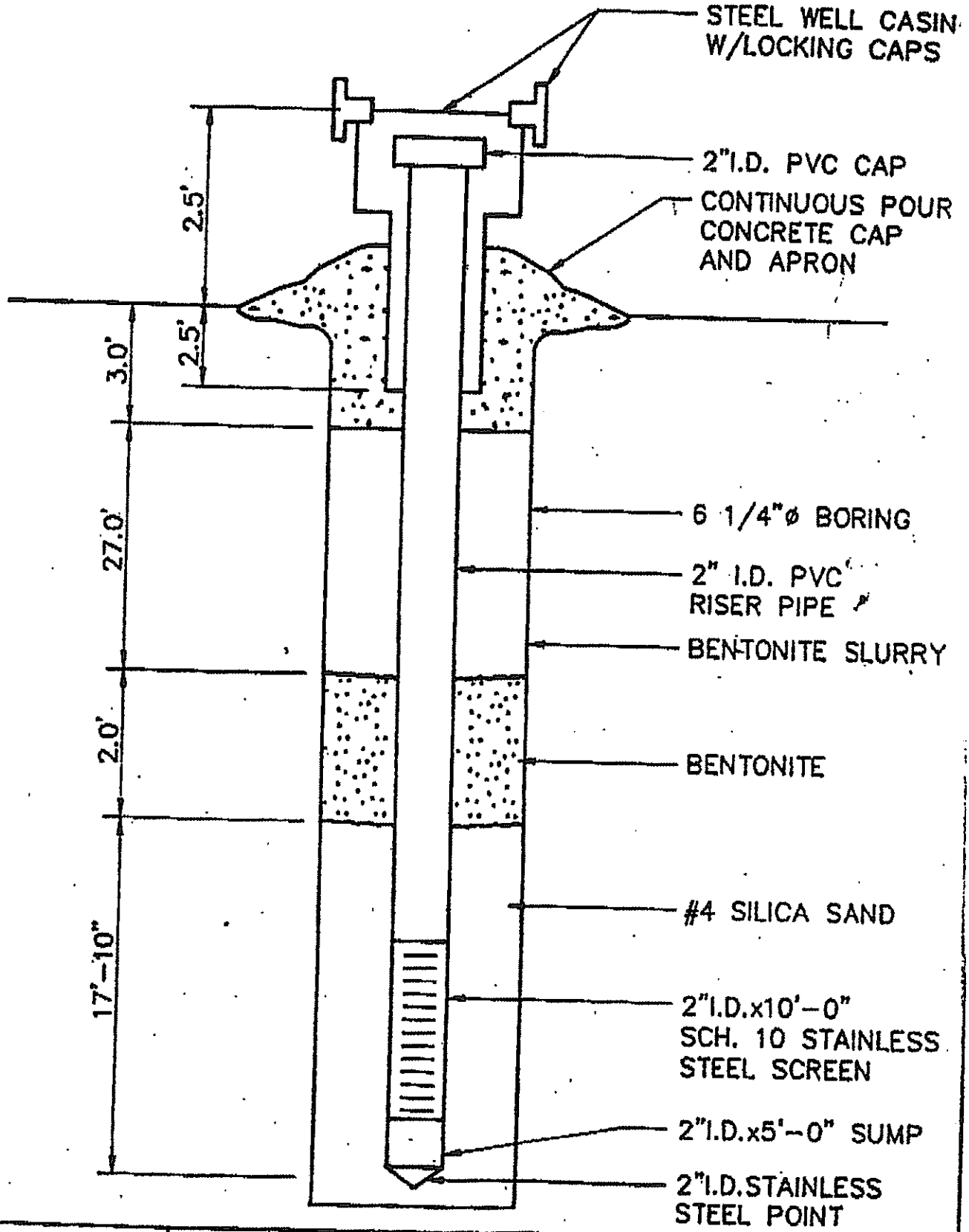
LOG OF BORING

PROJECT NUMBER: 162.88209 | PROJECT NAME: Van Dyne Crotty
BORING NUMBER: 2 VDC-2 | ELEVATION: | DATE STARTED: 11/23/88
COORDINATES: | DATE COMPLETED: 11/28/88
DRILLING METHODS: Hollow stem auger with S.S.S. | PAGE: 1 OF 1
ENGINEER/GEOLOGIST: G. Clyburn | GWL: 38'6" AT HRS.
DRILLER: Moody's of Dayton, Inc.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
				Brown silty clay, moist	NA	NA	NA	NA	
5	5	10/9/8/11		Brown fine to coarse sand with medium to large gravel					
10	10	16/16/24/14		dry					
15	15	30/30/26/23		red/orange staining at 16'-17'6"					
20	20	20/60/80							
25	25	42/63/60/56							
30	30	34/46/40/45		dense silty grey clay, dry					
				fine to medium grey sand and gravel, wet at 38'6"					
35	35	11/21/24/26							
40	40	14/26/33/50		coarse grey sand and gravel, wet					
45	45	24/30/35/50							

NOTES: Bottom of boring at 50'

SOURCE ENGINEERING, INC.



162.88209

2-22-89

WELL CONSTRUCTION DETAIL

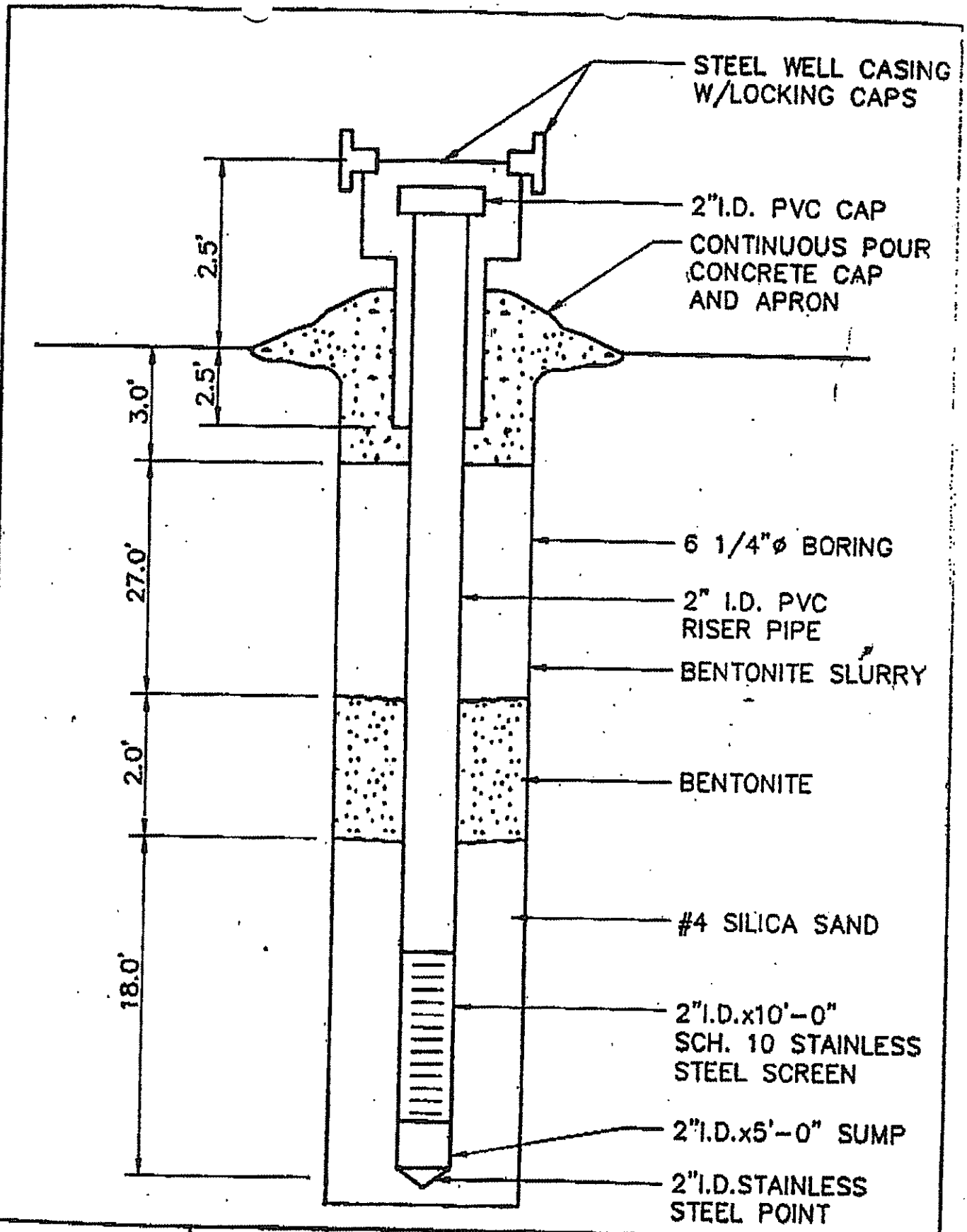
MONITORING WELL NO. 2

LOG OF BORING

PROJECT NUMBER: 162.88209 | PROJECT NAME: Van Dyne Crotty
BORING NUMBER: 3 VDC-3 | ELEVATION: | DATE STARTED: 11/29/88
COORDINATES: | DATE COMPLETED: 11/30/88
DRILLING METHODS: Hollow stem auger with s.s.s. | PAGE: 1 OF 1
ENGINEER/GEOLOGIST: G. Clyburn | GWL: 37' ; AT HRS.
DRILLER: Moody's of Dayton, Inc.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY / RQD%	REMARKS
				brown silty clay, moist	NA	NA	NA	NA	
5	5	8/18/18/19		brown fine to coarse sand with medium to large gravel, dry					
10	10	18/19/19/20							
	13	11/18/22/32							
15	15	14/18/18/16							
20	20	24/45/80/50							
25	25	19/26/34/38							
30	30	19/22/23/17		grey fine sand, dry					
35	35	30/32/31/34		grey medium sand with medium to large gravel, wet					
40	40	12/16/24/32							
45	45	8/12/13/12		grey clay with coarse sand and medium gravel wet					

NOTES:
Bottom of boring 50'



162.88209

2-22-89

QSOURCE

WELL CONSTRUCTION DETAIL

MONITORING WELL NO. 3

VAN DYNE-CROTTY INC

LOG OF BORING

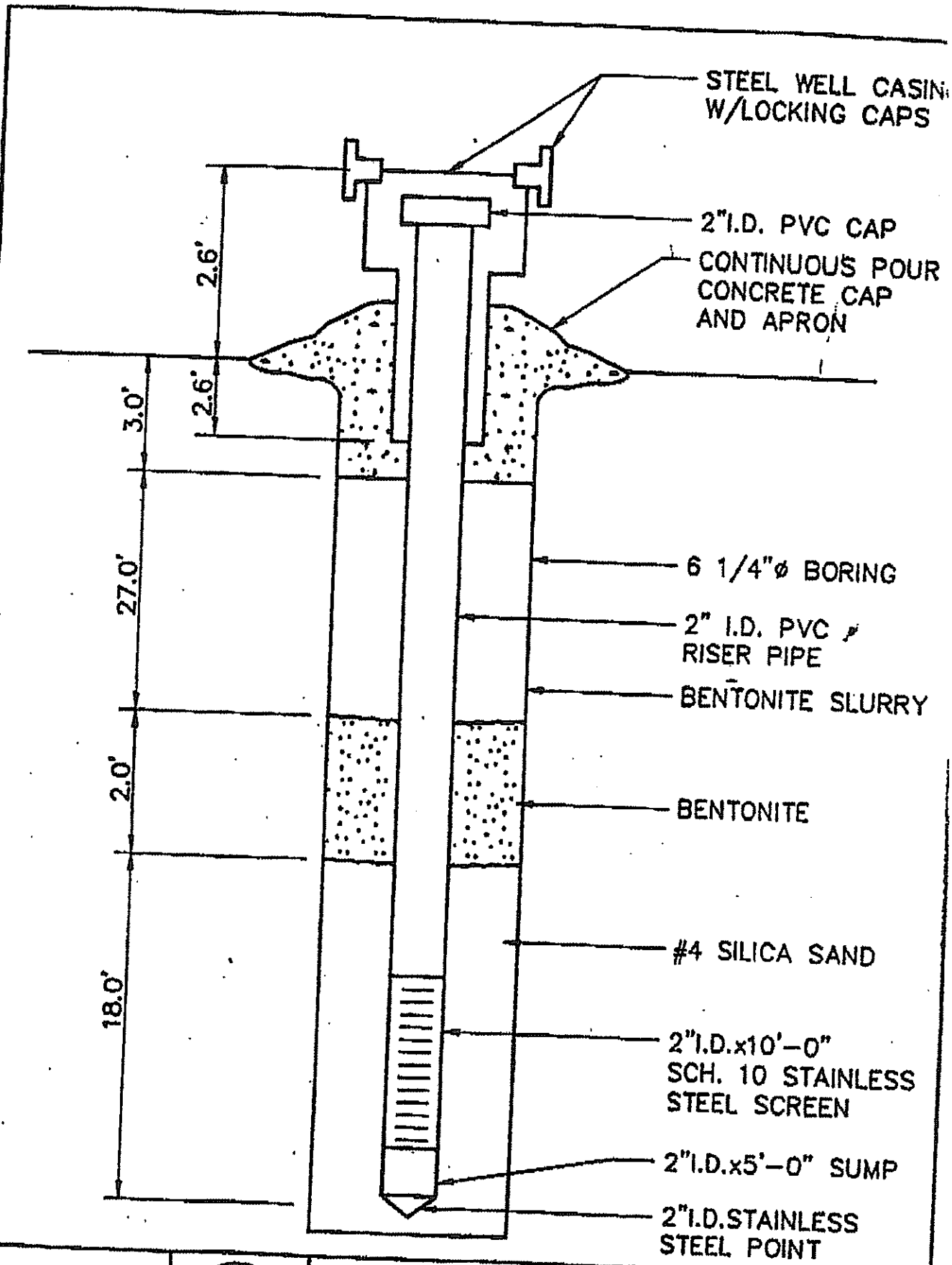
PROJECT NUMBER: 162.88209	PROJECT NAME: Van Dyne Crotty	
BORING NUMBER: 4 VDC-4	ELEVATION:	DATE STARTED: 12/1/88
COORDINATES:		DATE COMPLETED: 12/16/88
DRILLING METHODS: Hollow stem auger with S.S.S.		PAGE: 1 OF 1
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 37' AT HRS.
DRILLER: Moody's of Dayton, Inc.		

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY / RQD%	REMARKS
				brown silty clay, moist	NA	NA	NA	NA	
5	5	17/21/23/24		brown fine to coarse sand with medium to large gravel, dry					
10	10	35/60/57/45							
15	15	14/12/20/37							
20	20	35/65/65/55		fine to medium grey sand and gravel, dry					
25	25	23/27/25/34							
30	30	13/24/32/39		silty grey clay, dry					
35	35	20/27/38/41		coarse grey sand and gravel, wet					
40	40	15/24/37/42							
45	45	17/25/37/55							

NOTES:

Bottom of boring 50'

SOURCE ENGINEERING, INC.



162.88209

2-22-89

WELL CONSTRUCTION DETAIL

MONITORING WELL NO. 4

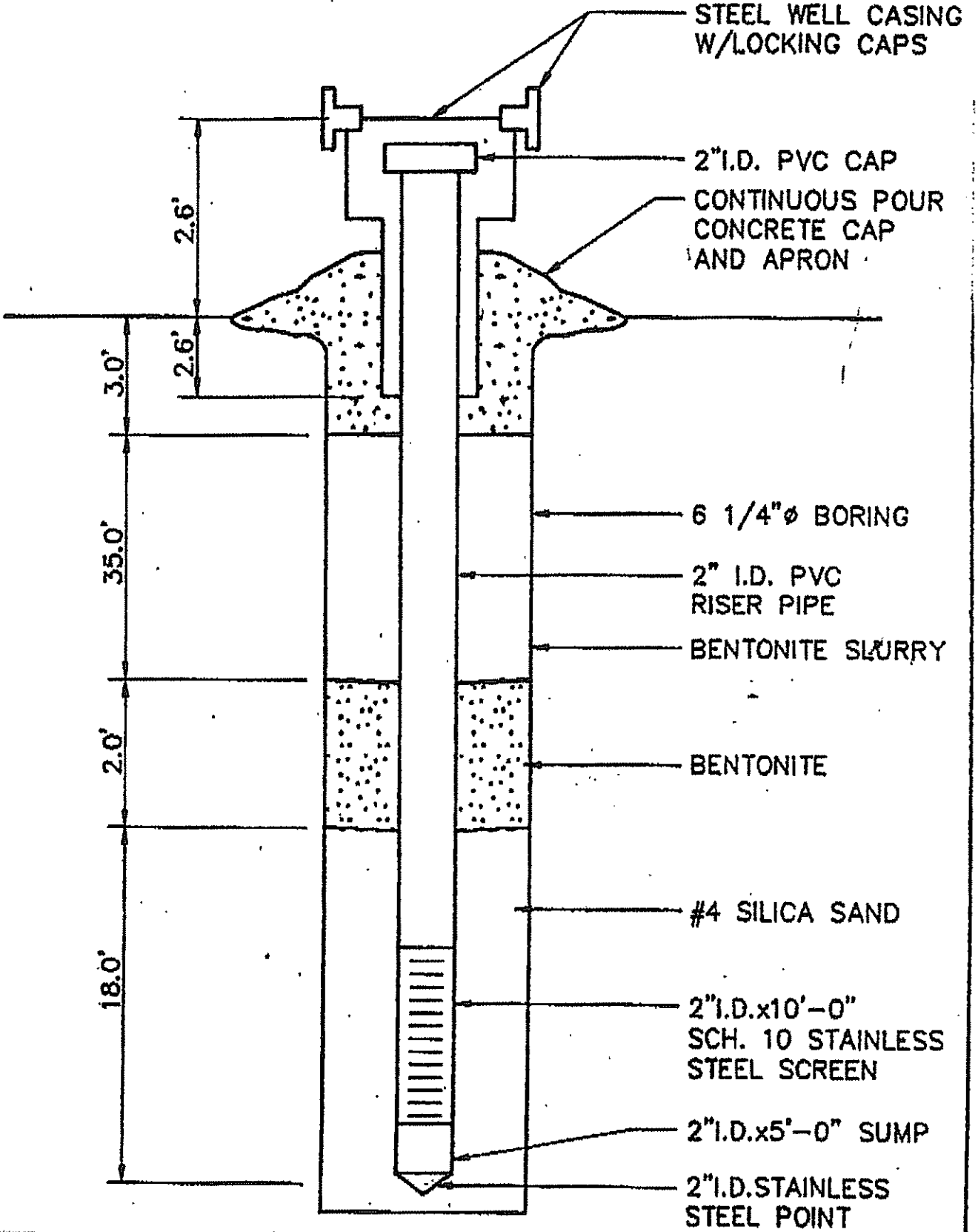
LOG OF BORING

PROJECT NUMBER: 162.88209	PROJECT NAME: Van Dyne Crotty
BORING NUMBER: S VDC-5	ELEVATION:
COORDINATES:	DATE STARTED: 12/6/88
DRILLING METHODS: Hollow stem auger with S.S.S.	DATE COMPLETED: 12/9/88
ENGINEER/GEOLOGIST: G. Clyburn	PAGE: 1 OF 2
DRILLER: Moody's of Dayton, Inc.	GWL: 44' AT HRS.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
				brown silty clay top soil, dry	NA	NA	NA	NA	
5	5	12/23/21/20							
10	10	45/25/35/25							
15	15	23/100/68							
20	20	14/26/50/68		silty grey clay, some gravel, dry					
25	25	10/20/20/18		Fine brown sand with some gravel, dry					
30	30	28/40/75/57							
35	35	15/18/24/57							
40	40	25/90/100		silty grey clay, moist					
45	45	25/50/75/100		dense grey clay till, (hardpan) dry					

NOTES:

Bottom of boring 61'



162.88209R14

2-22-89

J.F.F./K.M.K.

QSOURCE ENGINEERING, INC.

WELL CONSTRUCTION DETAIL

MONITORING WELL NO. 5

VAN DYNE-CROTTY, INC.

ACAD: 88209R14 2-22-89 1:1

LOG OF BORING

PROJECT NUMBER: 162.88209	PROJECT NAME: Van Dyne Crotty
BORING NUMBER: 6 VPL-6	ELEVATION:
COORDINATES:	DATE STARTED: 12/8/88
DRILLING METHODS: Hollow stem auger with S.S.S.	DATE COMPLETED 12/13/88
ENGINEER/GEOLOGIST: G. Clyburn	PAGE: 1 OF 2
DRILLER: Moody's of Dayton, Inc.	GWL: 59' AT HRS.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
	2	23/23/23		Sand & gravel fill, dry	NA	NA	NA	NA	
	4	40/45/50/45		brown silty clay, moist					
5	6	20/40/27/27		coarse brown sand with					
	8	55/18/20/20		small to large gravel					
	10	25/17/30/35		(primarily limestone),					
10	12	25/29/30/30		dry					
	14	26/24/26/35							
15	16	24/38/40/33							
	18	34/60/85/35							
	20	30/35/35/31							
20	22	15/80/60/58							
	24	36/63/43/47							
25	26	55/70/55/48							
	28	40/50/100/90		brown silty clay, dry					
	30	66/120		grey clay, dry					
30	32	120		medium to coarse sand & gravel, dry					
	34	120							
35	36	100/120							
	38	95/120							
	40	23/25/30/28							
40	42	45/32/50							
	44	46/30/18/27							
45	46	10/22/32/50		grey clay with sand, dry					
	48	12/22/38/47		very dense grey till "hardpan"					
	50	10/18/22/30							

NOTES:

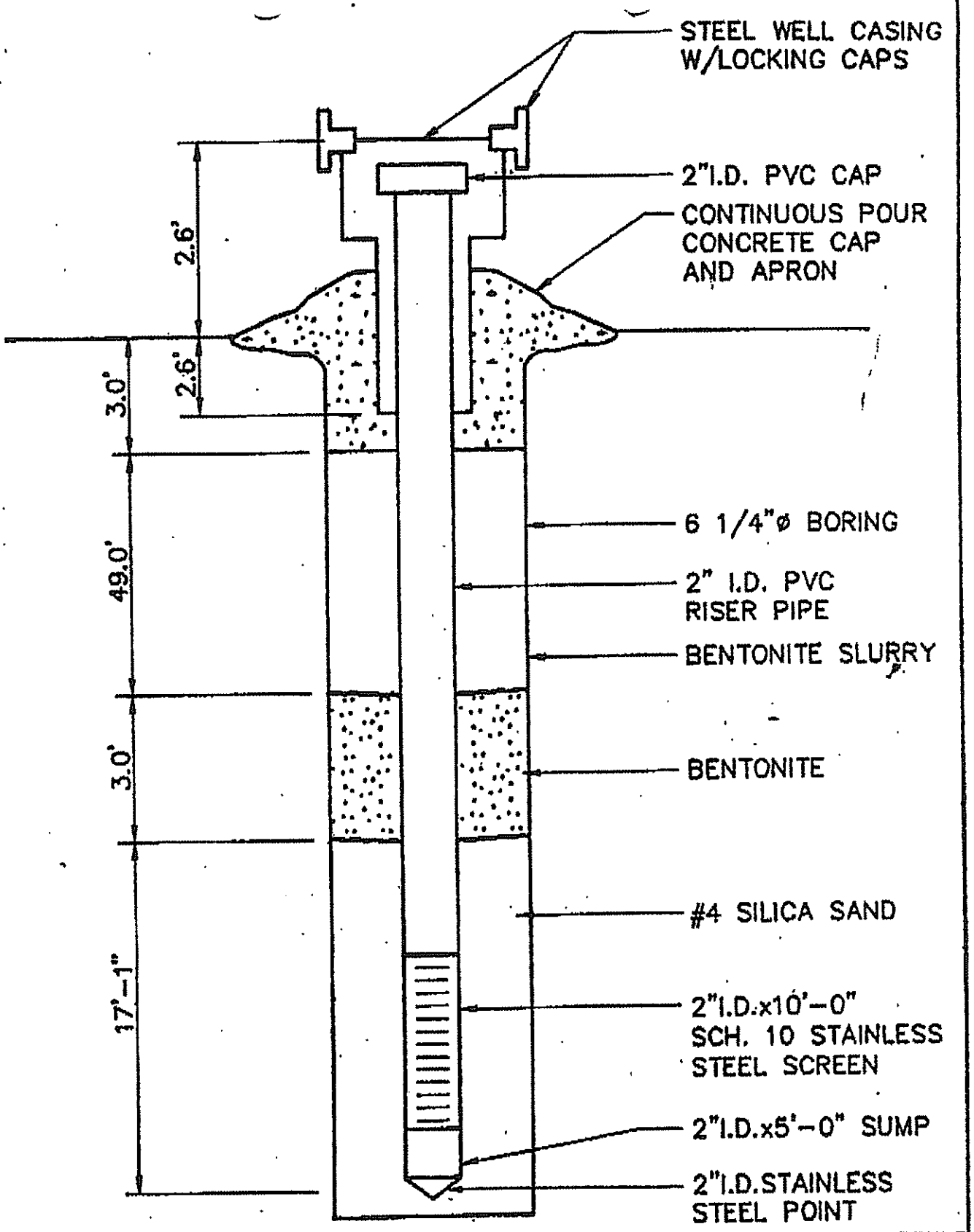
LOG OF BORING

PROJECT NUMBER: 162,88209	PROJECT NAME: Van Dyne Crotty
BORING NUMBER: 6 V DC-6	ELEVATION:
COORDINATES:	DATE STARTED 12/8/88
DRILLING METHODS: Hollow stem auger with S.S.S.	DATE COMPLETED: 12/13/88
ENGINEER/GEOLOGIST: G. Clyburn	PAGE: 2 OF 2
DRILLER: Moody's of Dayton, Inc.	GWL: AT HRS.

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY / RQD%	REMARKS
	52	20/25/35/40		Very dense grey till	NA	NA	NA	NA	
	54	13/20/29/35		"hardpan"					
55	56	8/15/23/30							
	58	15/23/14/16							
60	60	19/25/25/23		Coarse grey sand, wet					
	62	19/25/25/23		Medium to coarse grey sand and gravel, wet					
65	65	25/45/40/30							
70	73	23/32/40							
				Bottom of boring at 73					

NOTES:

QSOURCE ENGINEERING, INC.



ACAD: 89209815/2-22-89/1:1

162.88209	
2-22-89	
L.E.F./K.M.K.	

QSOURCE ENGINEERING, INC.

WELL CONSTRUCTION DETAIL

MONITORING WELL NO. 6

VAN DYNE-CROTTY, INC.
DAYTON, OHIO

MOODY'S
of Dayton, Inc.
P.O. Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

PIEZOMETER/MONITORING WELL LOG

VDC-7D

CUSTOMER: Van-Dyne Crotty - Q Source JOB NO. 49149 DATE 4/13/89 BORING NO. 1 Deep

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Monitoring VDC-7D

SCREEN TYPE, SIZE & SLOT:

Johnson Stainless steel 10' .10 slot
10" stainless adaptor

INSTALLATION TIME & REMARKS:

Top of pipe 79'
76'6"

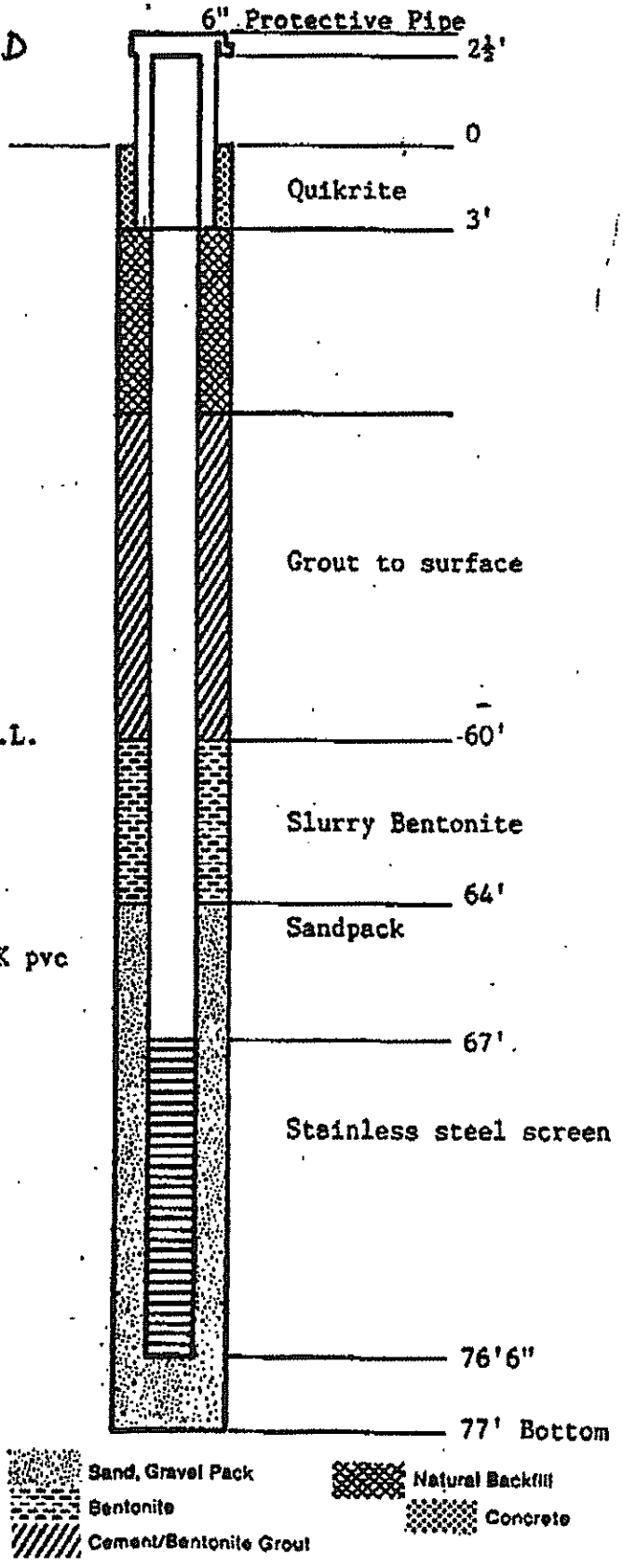
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH
4-14-89	32' top of pipe 30' G.L.

COMMENTS:

1 pc 4" stainless adaptor from Johnson to BK pvc
1 pc 4" stainless steel screen Johnson
7 pc 4" BK sch 40 pvc 10' riser
3 Bags #4 silica sand 1 pc 4" cap pvc
18 bags cement 3 bags Bentonite
3 Bags Quikrite



MOODY'S of Dayton, Inc.
P.O. Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

PIEZOMETER/MONITORING WELL LOG

VDC-8

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/21/89 BORING NO. 1 Shallow

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 2" Monitoring VDC-8

SCREEN TYPE, SIZE & SLOT:

Johnson stainless steel 2" x 10' .10 slot

INSTALLATION TIME & REMARKS:

Drilled well with 4¼" pvc plug in augers.

No samples were taken

DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH
4/20/89	31'

COMMENTS:

1 - 5' stainless steel sump 2"

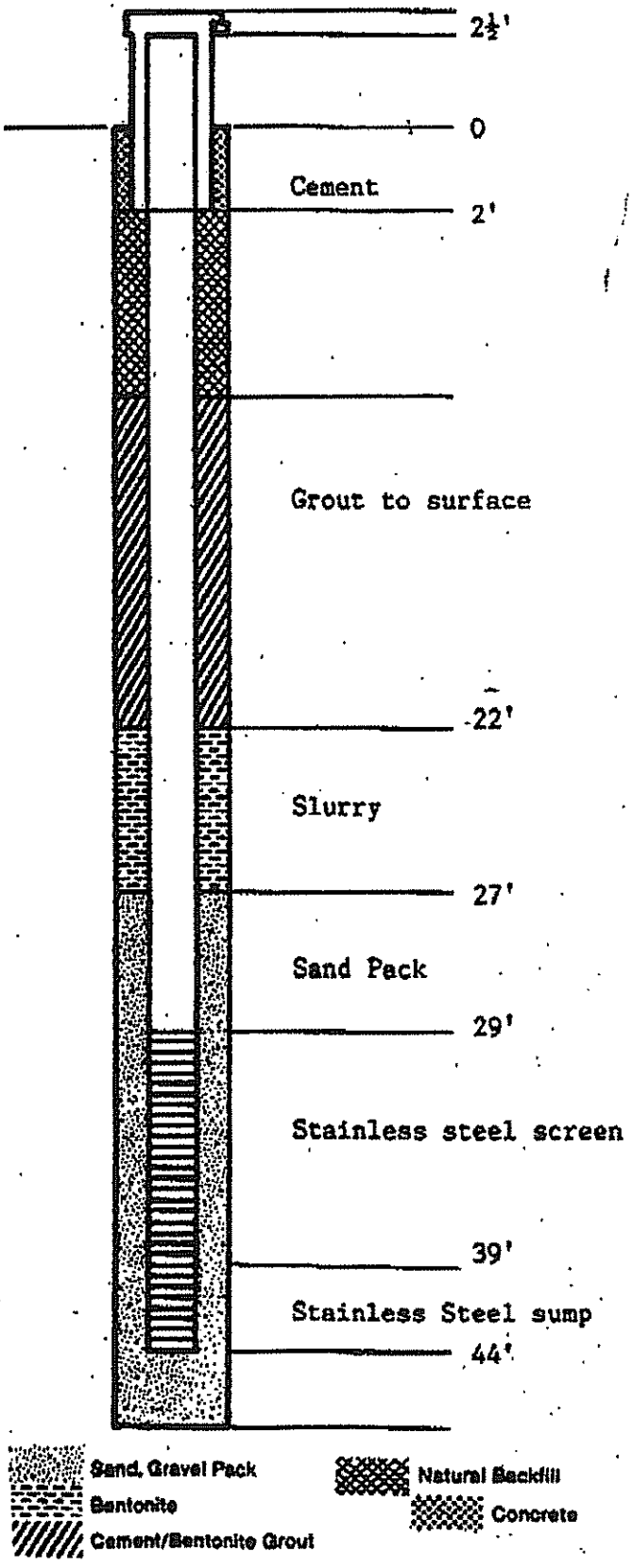
1 - 10' x 2" stainless steel screen Johnson

1 - Sch 40 pvc adaptor Johnson to BK

3 pc. sch 40 pvc riser 2" x 10'

3 bags sand, 2 bags Bentonite, 6 bags cement

4" protective cover 3 bags Quikrite



MOODY'S
of Dayton, Inc.

P.O. Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

TEST BORING FIELD LOG

CUSTOMER: Van Dyne Crotty - Q Source BORING NO.: 1 Deep PAGE: 1 of 1

NAME & LOCATION: Brandt Pike, Dayton, Ohio JOB NO.: 49149

DATE STARTED: 4/12/89 DATE FINISHED: 4/13/89 SURFACE ELEV.:

WEATHER: Clear and cool DRILLER: P. Ridder CREW: S. Belt

DEPTH	MATERIAL DESCSRIPTION AND REMARKS	SAMPLE NO	SAMPLE TYPE	DEPTH	BLOW COUNT	'N' BLOWS PER FT.	REC
4.0	Brown silty clay, some gravel	1	A	4.0 - 6.0	2/4/6/8		
9.0	Brown sand & gravel,trace clay	2	A	9.0 - 11.0	10/18/22/34		
14.0	Brown sand & gravel, damp	3	A	14.0- 16.0	6/10/15/26		
19.0	Fine brown sand, some gravel	4	A	19.0- 21.0	17/22/25/26		
24.0	Brown sand & gravel, damp	5	A	24.0- 26.0	10/28/33/30		
29.0	Brown sand & gravel, damp	6	A	29.0- 31.0	12/14/23/24		
34.0	Brown sand & gravel,wet -clay at 35'4"	7	A	34.0- 36.0	17/28/25/30		
39.0	Brown/Grey sand & gravel,wet some clay	8	A	39.0- 41.0	11/18/20/28		
44.0	Small gravel,some sand, grey wet	9	A	44.0- 46.0	11/18/18/24		
49.0	Med/fine sand, some gravel,wet grey	10	A	49.0- 51.0	19/25/34/40		
54.0	Med/fine sand, some gravel grey	11	A	54.0- 56.0	12/19/31/27		
59.0	Med sand & gravel, wet grey	12	A	59.0- 61.0	19/28/31/26		
64.0	Med sand & gravel, wet, grey	13	A	64.0- 66.0	19/22/23/30		
69.0	Fine sand & gravel, grey, wet	14	A	69.0- 70.6	38/54/73		
71.0	Fine sand, some clay, wet	15	A	71.0- 73.0	19/34/38/34		
73.0	Fine sand, some clay, wet	16	A	73.0- 75.0	31/38/46/29		
75.0	Fine sand & clay/clay at 77'	17	A	75.0- 77.0	38/46/48/34		
77.0	Silty grey clay, some sand	18	A	77.0- 79.0	56/88		

METHOD OF DRILLING:
AUGER: x SIZE: 6¼ ID
ROTARY: SIZE(S):
AIR MUD WATER
OTHER:
MACHINE: CME

WATER LEVELS:
INITIAL
COMPLETION
24 HR
OTHER

TYPE AND SIZE SAMPLER:
A. SPLIT SPOON (2"I2')
B. SHELBY TUBE ( )
C. NX CORE
D. OTHER:

MOODY'S
of Dayton, Inc.
P.O. Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

PIEZOMETER/MONITORING WELL LOG

VDC-9D

CUSTOMER: Van Dyne Crotty - Q Source JOB NO. 49149 DATE 4/19/89 BORING NO. 2 Deep

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL: 4" Monitoring

SCREEN TYPE, SIZE & SLOT:

Johnson stainless steel 4" x 10 - .10 slot

4" s.s. adaptor Johnson to BK pvc

INSTALLATION TIME & REMARKS:

95' top of pipe

91'9" GL

DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

1 - 4" stainless steel adaptor

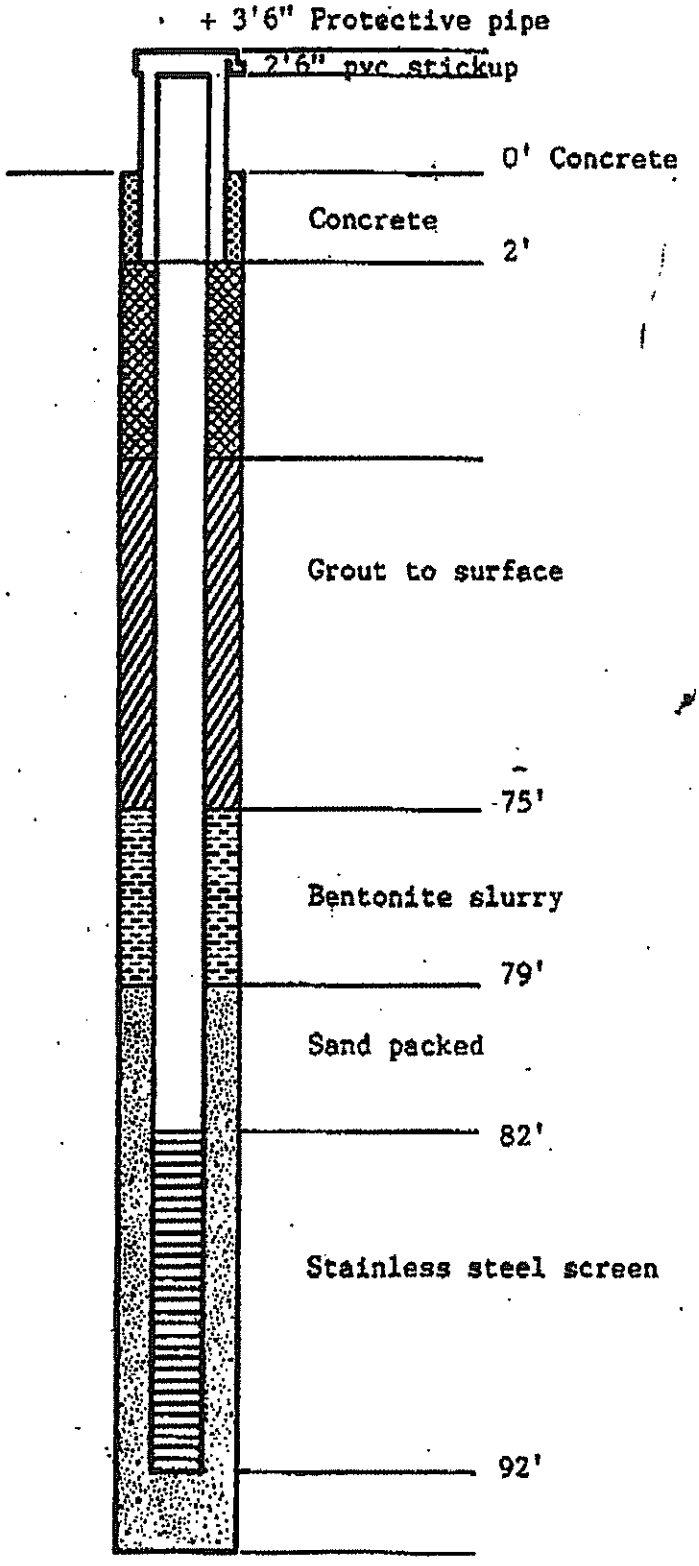
1 - 4" x 10' stainless steel Johnson screen

9 - 4" x 10' Sch 40 pvc riser

6" Protective cover, 4 bags Bentonite

3 bags #4 sand, 24 bags cement

2 Bags Quikrite



MOODY'S of Dayton, Inc.
P.O. Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

TEST BORING FIELD LOG

CUSTOMER: Van Dyne Crotty - Q Source BORING NO.: 2 Deep PAGE: 1 of 1

NAME & LOCATION: Brandt Pike , Dayton, Ohio JOB NO.: 49149

DATE STARTED: DATE FINISHED: 4/17/89 SURFACE ELEV.:

WEATHER: DRILLER: P. Ridder CREW: S. Belt

DEPTH	MATERIAL DESCSRIPTION AND REMARKS	SAMPLE NO	SAMPLE TYPE	DEPTH	BLOW COUNT	'N' BLOWS PER FT.	REC
4.0-5	Medium brown sand & gravel	1	A	4.0 - 6.0	4/10/13/18		
9.0	Medium brown sand & gravel	2	A	9.0 - 11.0	7/7/9/12		
14.0	Brown sand & gravel,trace clay	3	A	14.0 - 16.0	9/25/24/30		
19.0	Red/Brown fine sand, trace clay	4	A	19.0 - 21.0	20/25/30/45		
24.0	Fine grey sand	5	A	24.0 - 26.0	15/16/19/20		
29.0	Fine grey sand-water at 30'	6	A	29.0 - 31.0	5/9/12/15		
34.0	Fine grey sand	7	A	34.0 - 36.0	15/25/23/30		
39.0	Silt at 40'	8	A	39.0 - 41.0	12/28/30/32		
44.0	Fine grey sand & gravel	9	A	44.0 - 45.6	35/55/70		
49.0	Fine to medium sand	10	A	49.0 - 51.0	15/17/23/27		
54.0	Fine to medium sand	11	A	54.0 - 56.0	15/17/30/37		
59.0	Fine to medium sand	12	A	59.0 - 61.0	12/19/31/38		
64.0	Fine to medium sand	13	A	64.0 - 66.0	16/19/41/28		
69.0	Medium compacted sand, some clay	14	A	69.0 - 71.0	19/48/42/38		
72.0	Medium sand & gravel, some clay	15	A	72.0 - 74.0	28/34/38		
74.0	Medium sand & gravel	16	A	74.0 - 76.0	18/25/31/54		
79.0	Medium sand & gravel	17	A	79.0 - 81.0	35/42/52/43		
84.0	Medium sand & gravel some silt	18	A	84.0 - 86.0	18/20/24/22		
90.0		19	A	90.0 - 92.0	35/40/60/70		

METHOD OF DRILLING:
AUGER: x SIZE: 6¼ ID
ROTARY: SIZE(S):
AIR MUD WATER
OTHER:
MACHINE: CME

WATER LEVELS:
INITIAL
COMPLETION
24 HR
OTHER

TYPE AND SIZE SAMPLER:
A. SPLIT SPOON (2"2')
B. SHELBY TUBE ( )
C. NX CORE
D. OTHER:

TOTAL P.28