ATTACHMENT E-16 Recovery Well Construction Logs

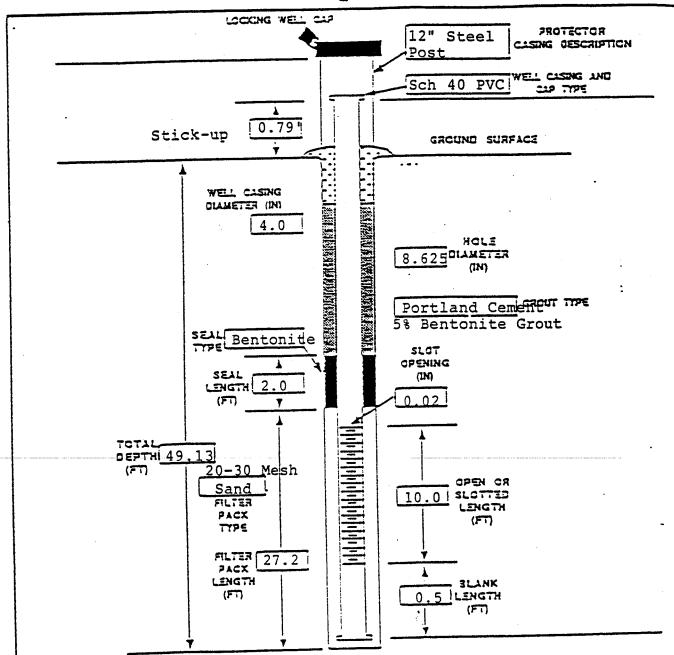


WELL CONSTRUCTION DIAGRAM

Torrington Co. - Svlvania, GA

LOCATION: Off-Site at W-20
WEL NUMBER: R-1 (Recovery well) E EVATION Nº 130.0 Feet

DATE INSTALLED: October 10-11, 1959 GROUND CLASING CARGO CASING C ABOVE GROUND LEVEL CABOVE MEAN SEA LEVEL



COMMENTS:	m1 11 W	ae install	ed as a	recover	y well for	r the
COMMENTS:	nated inter	mediate de	pth zone	at the	W-20 are	a. The
CONTAINI	s developed	using air	lifting	and hi	gh-veloci	ty jetting
until C	lear silt-f	ree water	was obta	ined.		
					24CZ	·

				Date: O	ctober 10-11.198
Owner: Torrington/Sylvania Well No: R-1 (Recovery Well) Location: Offsite at W-20 area Driller: Paul Clawson Geologist: Mark Potts Drilling Method: Mud/Rotary		Gravel Pack Bentonite S Concrete Se	Screened From: 48.63 ft. to 38.63 ft. Gravel Pack: 20-30 mesh to 21.93 ft. Bentonite Seal: 21.93 ft. to 19.93 ft. Concrete Seal from ft. to surface		
		Water Level: 7.715 ft. below well top Well top elevation: 131.31 ft.			
Depth (fee	t) To	Li	thology		Remarks
		See well log for we	11 20D-The Ad	uifer too	
		was at 22.0 ft with	the lower co	onfining	
		clay occurring at 4	8.0 ft.	-	
	· · · · · · · · · · · · · · · · · · ·		<u>, , , , , , , , , , , , , , , , , , , </u>		
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ATTANTA ENVIRONMENTAL MANAGEMENT INC.

WELL CONSTRUCTION DIAGRAM

Torrington/Sylvania Adjacent to R- 3B PROJECT: . LOCATIONS 146.80 ELEVATION: R-3A WELL NUMBER: . 1989 GROUND ECASING PROTECTOR CASING 18, December DATE INSTALLED:_ ABOVE GROUND LEVEL MABOVE MEAN SEA LEVEL LOCKING WELL حدت 12" Steel PROTECTOR CASING DESCRIPTION Post WELL CLISING AND 625"PVC CLP TYPE ī 2.05 GROUND SURFACE Ť WELL CASING DIAMETER (IN) 6.25 HOLE 10.25DIAMETER (IN) GROUT TYPE Cement W/5% Bentonite SEAL Bentonite SLOT DRING SEAL (IN) 2.0 LENGTH 014 (FI) Ŧ DEPTH 48.0 (FI) 20-30Mesh OPEN OR 10.0 | SLOTTED FILTER LENGTH PACX (FT) TYPE PACK 18.0 LENGTH BLANK 2.0 (FI) LENGTH (F1) Well was developed using 175 cu.ft./min. COMMENTS: _ Air compressor for 4 hours OF_

PAGE_

			·	Date:	December 18, 198
Well No:	R-3A	gton/Sylvania	Gravel Pack:	20-30	nesh to 36.0 ft. 1 to 28.0 ft.
Location: Adjacent to R-3B 5 feet to the Northwest Driller: Paul Clawson Geologist: Ron Yarborough Drilling Method: Mud/Rotary		Water Level:	Concrete Seal from 28.0 Water Level: 15.385 ft. Well top elevation: 14		
Depth (f			Lithology	······································	Remarks
		See well log for	well R-3B		
					-
		·			
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ATTANTA ENVIRONMENTAL MANAGEMENT INC.

WELL CONSTRUCTION DIAGRAM

PAGE_

OF_

Torrington/Sylvania PROJECT: LOCATION: Property Boundary E EVATION: 146.36 WELL NUMBER: R-3B
DATE INSTALLED: December 12, 1989 GROUND ECASING FROTECTOR CASING ABOVE GROUND LEVEL MABOVE MEAN SEA LEVEL LOCKING WELL CAP 12" Steel PROTECTOR CASING DESCRIPTION Post WELL CASING AND 6.25" PVC CLP TYPE .61 GROUND SURFACE WELL CASING (MI) RETEMAJO 6.25 HOLE 10.25 DIAMETER GROUT TIPE Cement W/5% Bentonite SEAL Bentonite SLQT OPENING SEAL (IN) LENGTH 2 0 (FI) 014 Ŧ TOTAL DEPTH|78.05 (FI) 20-30 Mesh OPEN OR Sand 10.0 | SLOTTED FILTER LENGTH PACK (FT). TYPE PACK 27.05 LENGTH BLANK (FI) 45 LENGTH (FI) Well was developed using 175 cu.ft./min. COMMENTS: _ Air compressor for 8 hours.

Date: December 12, 1989 Owner: Torrington/Sylvania Screened From: <u>75.85</u> ft. to <u>65.85</u> ft. Gravel Pack: 20-30 mesh to 51.0 ft. Well No: R-3B Bentonite Seal: 51 0 ft. to 49 0 ft. Location: Property Boundary Concrete Seal from 49 0 ft. to surface Water Level: 18.825 ft. below well top Driller: Paul Clawson Well top elevation: 146.36 ft. Geologist: Ron Yarborough Drilling Method: Mud/Rotary Depth (feet) Remarks Lithology From 3-7/8" Wellbore SC-Light gray, very fine to fine 0.0 2.0 grained sand with 5-10% clay and drilled with abundant organic material mud/rotary Sample #1 CL-Orange sandy clay with 10-15% 2.0 10.0 9.0'-10.5' Sample verv fine-fine grained sand 14.0'-15.5' CH-Light gray, maroon, stiff clay with 10.0 | 19.5 Sample #3 less than 5% sand CH-CL-Orange maroon, light gray mottled 19.0'-20.5' 19.5 25.5 Sample #4 stiff clay interbedded with orange 24.0-25.5' red sandy clay. Sample #5 29.0'-30.5' CL-Light grav sandy clay with less 25.5 30.0 5% sand

				December 5. 1989
Owner: Torrington/Sylvania Well No: R-3B (continued) Location: Driller: Geologist: Drilling Method:		(continued) Grave Bento Concr Water Well	l Pack: nite Seal: ete Seal from Level:	ft. to ft mesh to ft ft. to ft ft. to surface ft. below well top
Depth (feet) To	Lithology		Remarks
30.0	44.5	SM- Light grav, light green very fine		Sample #6
		to medium grained unconsol with approximately 10% cla		34.0'-35.5' Sample #7
				39.0'-40.5'
44.5	54.0	CL/SC-Light grav sandv cla		Sample #8
		than 10% sand interbedded gray orange clayey sand wi		44.0'-45.5'
		Matrix		49.0'-50.5'
54.0	76.0	SC-Light gray, very fine o	grained sand	Sample #10
		grading to silt clayey say	nd with 10%	54.0'-55.5'
		clay Matrix		Sample #11
				59.0'-60.5' Sample #12
76.0	<u>-76.5'</u>	CL-Light gray, light gree Red Mottled sandy clay wi		64.0'-65.5'
		5% sand		Sample #13
	· · · · · · · · · · · · · · · · · ·			69 0-70.51

Sample #14 75.0'-76.5'

	Date:			
Well No: Location	R-3B	ngton/Sylvania (Continued)	Grave: Fack: Bentonite Seal: Concrete Seal from Water Level:	ft. toft. ft. to surface ft. below well top
Drilling	Method:			
Depth (Lith	ology	Remarks
		Well was drilled us Pilot hole was dril then opened to 10-1 6-1/4" ID casing wa a total depth of 78	led with 3-7/8" bit /4". s then installed to	
			·	
				· .

ATLANTA ENVIRONMENTAL MANAGEMENT INC.

WELL CONSTRUCTION DIAGRAM

OF_

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Torrington/Sylvania PROJECT: . LOCATION: Property Boundary E EVATION: 145.70 WELL NUMBER: R-4 DATE INSTALLED: December 14,1989 EGROUND ECASING EPROTECTOR CASING ABOVE GROUND LEVEL MABOVE MEAN SEA LEVEL LOCKING WELL CAP 12" Steel PROTECTOR CASING DESCRIPTION Post WELL CASING AND 6.25" PVC CLP TYPE A 1.40 GROUND SURFACE WELL CASING (MI) RETEMAIC 6.25 HOLE 10.25 DIAMETER GROUT TYPE Cement W/5% Bentonite SEAL Bentonite SLOT OPENING SEAL (1N)LENGTH 4.0 020 (FI) Ŧ DEPTH 90.13 30-40 Mesh (Fi) CPEN OR Sand 20.0 SLOTTED FILTER LENGTH PACK (F1) TYPE FILTER 52.13 LENGTH BLANK 3.0 (Fi) LENGTH (FI) Well was developed using 175 cu.ft./min. Air compressor for 4 hours.

		Date: I	ecember 14, 1989
ell No: ocation riller: eologis	Boring: 55' Sor Paul C T: Ron	gton/Sylvania Screened From: 87.13 R-4 Area Gravel Pack: 30-40 Uth East of Well R-3R Concrete Seal: 38.0 Lawson Water Level: 16.550 Yarborough Well top elevation: 1	mesh to 38 0 ft.) ft. to 34 0 ft. 1.0 ft. to surface ft. below well top
Depth (feet) To	Lithology	Remarks
0.0	2.0	SC-Light gray very fine to fine grained	Boring was inst
		clavey sand with abundant organic	ed using mud/ro
2.0	12.0	CL-Light grav, orange sandy clay with	Samples were lo
•		5-10% sand	from cuttings to
12.0	29.5	CH-Light gray, maroon mottled stiff	Sample #1 19'-20.0' Sample #2
29.5	42.0	sc-Orange, tan clayey sand with	24.0'-25.5' Sample #3
	<u> </u>	10-15% clay matrix	Sample #4 34.0-35.5' Sample #5
42.0	55.5	SM-Tan, very fine grained to medium moderately graded sand less than 5%	49.0'-50.5' Sample #6
		clay	Sample #7 49.0'-50.5' Sample #8 54'-55.5'

			Date:	<u>December 14. 1989</u>
Cwner:	Torring	gton/Sylvania R-4 Area (continued)	compliance.	
Location		R-9 A/FA (LIM	Concrete Seal from Water Level:	ft. to surface ft. below well top
Geologis	T:		Well top elevation:	
Depth From		Litho	logy	Remarks
55.5	85.5	SC-Tan, light gray, f	ine grained	Sample #9
33.3	. 63.3	grading to silt claye		Sample #10 64.0'-65.5' Sample #11
		10-15% clay matrix		Sample #11 60.0'-70.5' Sample #12 74.0'-75.5'
85.5	90.5	CL-Light gray, orange	e, sandy clay .	Sample #13 84.0'-85.5' Sample #14
•		with 10-15% very fine	e to fine grained	_
·		sand		
		Boring was drilled to	o characterize	
		formation prior to in	nstallation of	
<u></u>		recovery wells in ar	ea .	

WELL CONSTRUCTION DIAGRAM

PAGE____

_ OF __

ECT: Torringto	Georgia	E EVATION:	
MIMBER: K-UA		GROUND ECASING PROTECTOR	CASING
INSTALLED: 7-9	_90	ABOVE GROUND LEVEL ABOVE M	FAN SEA
		TYBOAE GHOND CEAST CHAPAIL	
	LOCKING WELL C	2	
		12" CTOOL PROTECT	
	T	post CISING DESC	RIPTICN
		post	
		6.25"Sch 40 HVC CAP TIPE	ANEO
		0.23 Sell 40 HVC Cap TYPE	·
	2.0		
	2.0	GROUND SURFACE	
	₹		
**************************************	1		
	Ī		•
	WELL CASING	단 더	
	DIAMETER (IN)		
	6.25		
		# HOLE	
	•	10.25 DIAMETER	•
		Portland Cement GROUT TYPE w/5% bentonite	•
			: '
		Portland Cement GROUT TIPE	•
		w/5% bentonite	
	SEAL bentonite	W. J. Dencontre	
	TIPE Dentonite	S SLOT	
	1	T OPENING	•
•	SEAL	(124)	
	LENGTH 0.0	.014	
	(FT) <u>Y</u>		
•	A		
TOTAL-			•
DEPTH 3	4.48		
(FI)	1 30-40 Mesh	OPEN OR	
	Sand	OPEN OR	
•	FILTER	10.0 SLOTTED	
	PACX		
	TYPE		
		ENGTH (FT)	
	PACK 20.0		
	LENGTH	A BLANK	
	(FT)	2.0 LENGTH	
		(FI)	
		1 1 1 1	
		,	
•			•
			••
	, ,,,,	mud/rotary. After installation we	II was
COMMENTS: Well	was drilled using	maa, 2002, 5)
1 Tomad wadma	a 175 cu. ft./min.	air compressor.	
developed asing	a +17		

				•	Da	te:	7/9/90	
Owner: The Torrington Company Well No: R-6A Location: Svlvania, Georgia Property boundary Driller: Paul Clawson Geologist: Ron Yarborough Drilling Method: Mud/Rotary				Gravel Bentoni Concre Water	Pack: <u>30-</u> ite Seal: te Seal fi	40 4.48 om 12 58	ft. to	22.48 ft. 14.48 ft. 12.48 ft. to surface ow well top ft.
Depth (f	feet) To		Litholo	ogy				Remarks
		See well log for	well R	-6B				
						٠.٩٠		
						٠.	<u>.</u>	
	_							·
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				<u> </u>				
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ATLANTA ENVIRONMENTAL MANAGEMENT INC.

WELL CONSTRUCTION DIAGRAM

CATION: Property Boundary I NUMBER: R-68 TE INSTALLED: LOCKING WELL CAP	E EVATION: 147.18 CROUND MCASING PROTECTOR CASING
TE INSTALLED:	T GROUND MICESING TO PROTECTOR CASING
TOCKING MELL CTS	CAROLE BOXOLIGE CHARACTERS OF LESS 15
LCCYNG WELL CAS	C ABOVE GROUND LEVEL X ABOVE MEAN SEA CE
WELL CASING DIAMETER (IN) 6.25 SEAL Bentonite SEAL 3.0 (FT) (FT) TOTAL	12" Steel PROTECTOR CASING DESCRIPTION 6.25" PVC WELL CASING AND CAP TYPE GROUND SURFACE
(FT) 20-30 Mesh Sand FILTER PACK TYPE FILTER PACK 41.98 LENGTH (FT)	OPEN OR 20.0 SLOTTED LENGTH (FT) 3.0 LENGTH (FT)
COMMENTS: Well was developed Air compressor for 8 hours	
-	

		Date:	December 11, 1989
Well No: Location Driller: Geologis	R-68 Proper Well Paul (Screened From: 86.0 Gravel Pack: 20-30 Bentonite Seal: 47.0 Concrete Seal from 4 Clawson arborough Mud/Rotary Screened From: 86.0 Gravel Pack: 20-30 Bentonite Seal: 47.0 Water Level: 22.175 Well top elevation:	mesh to 47.0 ft. ft. to 44.0 ft. 4.0 ft. to surface ft. below well top
Depth From	(feet) To	Lithology	Remarks
0.0	2.0	SC-Light gray clayey sand with	
		abundant organic material	
2.0	14.0	CH-Light bray, maroon, stiff clay with	
		approximately 5% sand	
14.0	20.0	CL-Light gray, orange sandy clay with	
		less than 10% sand	
20.0	39.0	SC-Light gray, orange, tan, very fine	
		grained to medium grained sand with	
		10-15% clay Matrix	
39.0	47.0	CL-Light gray, tan, orange, sandy clay	·
		with 10-15% fine grained to medium	
		grained sand	
47.0	65.0	SC-Tan, light gray, very fine to fine	
		grained sand with 10-15% clay Matrix	•

			Date: .	December 11, 198	
Wher: Torrington/Sylvania Well No: WellR-6B (continued) Location: Oriller: Geologist: Orilling Method:		Bentonite Seal: Concrete Seal from Water Level:	ft. toft. ft. to surface ft. below well top		
Depth (f		Lithol	ogy.	Remarks	
	65.3	Thin clay bed 65.0-65	5.3		
		CL-Light gray, sandy	clay with		
		approximately 5% sand			
	70.5	SC-Light gray, orange			
		sand with 10-15% clay	v Matrix		
·	75.5	SC-Laminated light g	ray, orange clayey		
		sand with 10-15% clay	y Matrix		
84.0	85.5	CL-Light gray, tan, sandy clay with			
		greater than 15% san	d and abundant	•	
		milky well rounded-s	ub rounded gravel		
		Well was drilled usi	ng 3-7/8" bit and	·	
·		then opened to 10-1/	•		
		was set to 86 feet w	•		
		.014. Slot screen, w			
		using Portland cemen		;	

mixture.

语识别的

TOTTINGTON/Sylvania

COCATION: Landfill Area

WE! NUMBER: R-11

CATE INSTALLED: October 18, 1989

CARCUND ECASING CARROLLEVE EARCY MEAN SEA LEVE

COCHO WELLER

DOST

TOTTINGTON/Sylvania

177.17

CARCUND ECASING CARROLLEVE

FROTECTOR

POST

TOTTINGTON/Sylvania

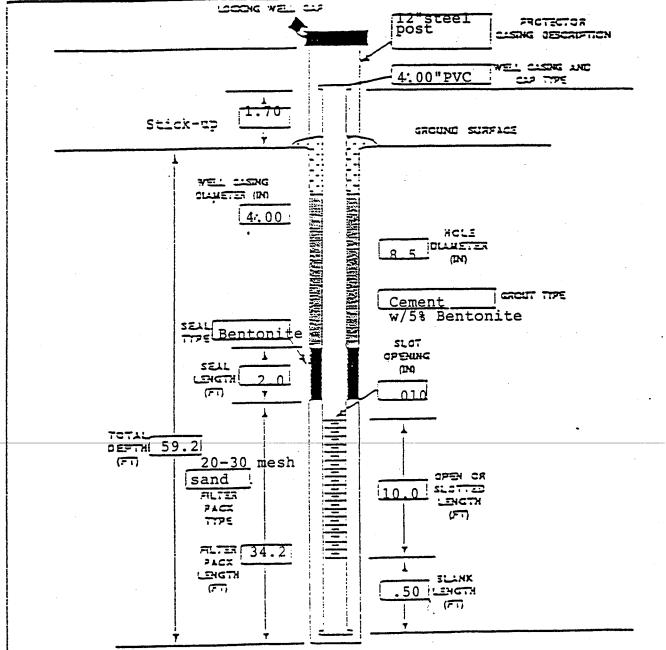
177.17

CARCUND LEVE EARCY MEAN SEA LEVE

TOTTION

TOTTION

WE! CLEME AND



Well was developed using 175 cu ft/min air compressor and high pressure jetting.

7455______ **7**_____

Date: October 18, 1989 Screened From: 58.7 ft. to 48.7 ft. Owner: Torrington/Sylvania Gravel Pack: 20-30 mesh to 25.0 ft. Well No: R-11 Bentonite Seal: 25.0 ft. to 23.0 ft. Location: Landfill Area Concrete Seal from 23.0 ft. to surface Water Level: 29.285 ft. below well top Driller: Paul Clawson Well top elevation: 177.17 ft. Geologist: Ron Yarborough/Mark Potts Drilling Method: Mud Rotary Depth (feet) Remarks Lithology From Sample #1 20.0' SC-vellow, brown, medium grained to 5 0 0.0coarse grained clayey sand from cuttings SC-White clavey sand with approximately 8.0 30% sand CH-Gray, white stiff clay 13.0 12.5 Light gray, purple mottled stiff clay 20.0 with less than 5% sand Sample #2 CH-Light gray, light green stiff 21.5 20.0'-21.5' clay with less than 5% sand CH-Light green, light gray stiff clay Sample #3 24.0 23.0-24.5' with less than 5% sand CL-Orange silty sandy clay with 24.5 24.0 10-15% very fine grained sand Sample #4 SC-Light green, light gray, orange 26.0 27.0

26.0'-27.5'

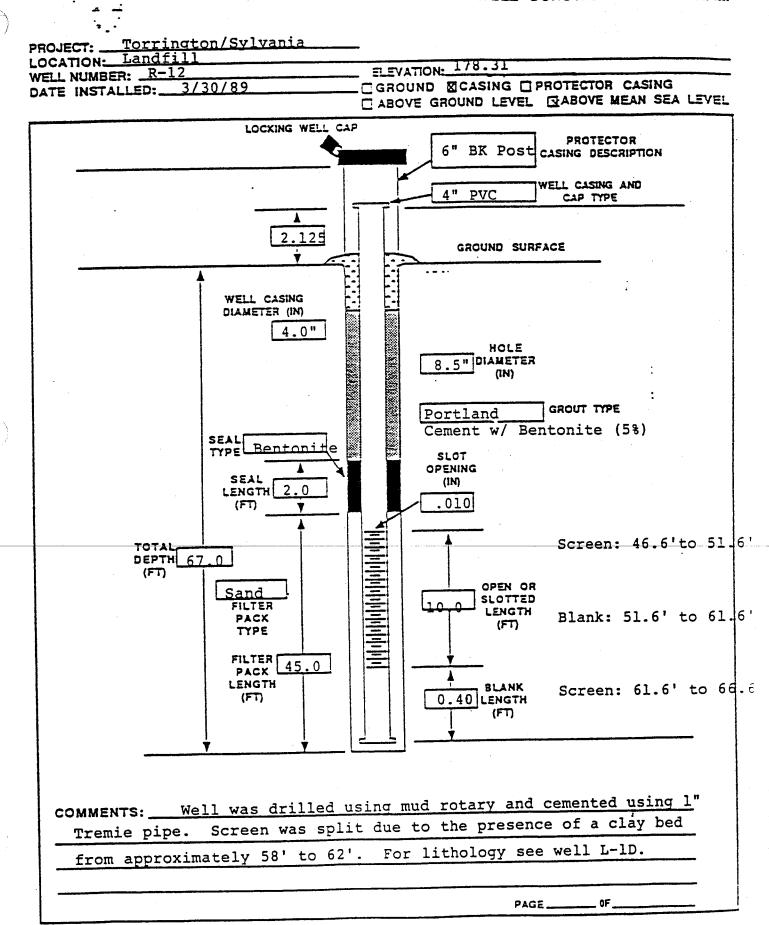
sandy clay

		Date:	October 18, 1989
Well No: Location Driller: Geologis	k-11 (c	Screened From: Continued) Continued) Concrete Seal: Concrete Seal from Water Level: Well top elevation:	ft. toft. ft. to surface ft. below well top
Depth (From	feet) To	Lithology	Remarks
	27.5	SC-Orange very fine grained silty	
		clayey sand	
	30.5	SP-Reddish orange, pink laminated, fin	e Sample #5
		grained to very fine grained sand with	29.0'-30.5'
		less than 5% orange pink silt	
	33.5	SP-Pink vellow well sorted fine	Sample #6
	33.3	grained sand with less than 10% clay	32.0'-33.5'
		and less than 10% medium grained sand	-
	36.5	SP-Greenish gray fine grained to very	Sample #7
	30.3	fine grained well sorted sand with les	i '
		than 5% silt increasing to 10% at 36.0	·
	20 5	SP-Greenish gray, fine grained to very	
	39,5	fine grained well sorted sand with 10%	İ
			,
<u></u>		or less clay, presence of major	
		minerals	

		Date: _	October 18, 1989
Well No: Location Driller: Geologi:	: R-11	ngton/Sylvania Screened From: (continued) Gravel Pack: Bentonite Seal: Concrete Seal from Water Level: Well top elevation:	mesh to ft ft. to ft ft. to surface ft. below well top
Depth From		Lithology	Remarks
	42.5	SP-Greenish gray uniform fine grained	Sample #9
		to very fine grained well sorted sand	41.0'-42.5'
		with less than 10% medium grained sand,	
		less than 5% clay	
	45.5	SP-Light gray very fine to fine grained	Sample #10
		sand with less than 5% clay	44.0'-45.5'
	48.5	SP-Light gray, very fine to fine	Sample #11
		grained sand with less than 5% clay	47.5'-48.5'
		and less than 10% medium grained sand	
	51.5	SP-Light gray, white, very fine grained	Sample #12
		to fine grained sand well sorted with	50.0'-51.5'
		less than 5% clay	
	54.0	SC-Grayish white very fine grained,	Sample #13
		moderately well sorted clayey sand	53.0'-54.5'
	54.5	SC-As above lithified well cemented	,

			Date:	October 18, 1989
Well No: Location Driller: Geologis	R-11		Bentonite Seal: Concrete Seal from Water Level:	ft. toft mesh toft ft. toft ft. to surface ft. below well top ft
Depth From	•	Litholo	ogy	Remarks
		sand with approximately	y 15% clay	
55.0	56.0	CH-Thin bed gravish wh	_	Sample #14
56.0	57.5	SC-Gravish white, very moderately to poorly s		d.
		with 15.0-20.0% clay 1		
	59.5	SC-CH-Greenish gray fivery fine grained mode		Sample #15 59.0'-60.5'
		sorted clayev sand int		
		stiff pot clay SC-Greenish gray fine	grained sand,	·
		moderately well sorted		h
		5-10% clay and approxi	mately 10%	2
		7		

WELL CONSTRUCTION DIAGRAM



ATLANTA ENVIRONMENTAL MANAGEMENT INC.

WELL CONSTRUCTION DIAGRAM

roject: _	Torring	gton/Svlvania					
ocation:		ea	= lous=		<u></u>		
ell Numbe		R-13 7/13/90	Elevati	und GC	asing Ol	rotector (asing
ate Inst	a i iea:	1113130		ve Ground	i Level	Above Mean	Sea Level
			2 7.50				
		LOCKING WELL	CUP 🛦				
		•	3		•		
•				$\Box \Box$	PROTECTOR	CASING DESC	SIETION
			_	.	12" Steel		ALF HOW
		À.		7			
		1.77 STICK-UP			מאסעד דיו	76	
			لسبلم		G	ROUND SURFA	CE
		<u> </u>		- 5	•		
†				に置			
	COND	ICTOR CASING					
		DIAMETER 16.0"	200				•
	HOLE	DIAMETER 12.0"					
1	CASING	SING TYPE Sch40	PVC EE		• •		
	ندع	IG LENGTH 13.0			•		
	CASIN	IG LENGTH				•	
							:
	Portla	nd Cementarour					;
•	TOLCIA	d Cemenagaco:		25			
66.43	•				68.20	WELL CASING	HTDHELL
TOTAL				E	Sch40P	VELL CLEING	מאג
DEPTH			5			SCREEN TYP	-
			1			WELL CLSING	
		τ	ij Šantonitaš	5	10.25	HOLE DIAME	TER
		SEAL TYPE	.0				
		SEAL LENGTH -		i d			
		† .					
						COPER OR	
					20.0	TO OTTER	
1 1		SLOT		国	20.0	LENGTH	
	FILTER .	,					
	PACK 4	1.43 FILTER	30-40			BLUNK	
	LENGTH	PACX	Mesh Sand		1 2.0	KTDK3.1	
<u> </u>		+	. 56114				
		E/OH	عسقا ممبوا	1124 464	no mud vo	eary. Hola	Was ther
COMMEN	TS: 3	5/8" pilot hol 25" after sett	e was dri	racing 1	nell mas a	ieveloped r	sing a
		air compresso		CCSTIIR	\		<u> </u>
1/3 6	-/ TC MILL	. LLI COMPLESSO					
					· · · · · · · · · · · · · · · · · · ·		
1					Page	of	

		Date: _	7/13/90
Driller: Geologis	R-13 Sylva UST-A Paul t: Ron Y	Gravel Pack: 30-40 nia, Georgia Bentonite Seal: 25.0 rea Concrete Seal from 2 Clawson Water Level: 33.45	ft. to 44.43 ft. mesh to 25.0 ft. ft. to 21.0 ft. 1.0 ft. to surface ft. below well top ft.
Depth (feet) To	Lithology	Remarks
0.0	12.0	SC-orange, tan fine to medium grained	
12.0	38.5	CH-light grav, Maroon stiff	Sample #1 20.0'-21.5 Sample #2 30.0'-31.5
38.5	41.5	Clay with less than 5% sand SC-light gray, orange, very fine grained	Sample #3 40.0'-41.5
	51.5	unconsolidated sand with less than 5% cl SC-light gray very fine grained sand wit	
	62.0	less than 5% clay SC-light gray fine to medium grained san	d Sample #5 60.0'-62.0
		with less than 5% clay	
		Drilling was terminated at 67.0 ftsuff for recovery well. Well was developed u	
		air compressor	

ATLANTA ENVIRONMENTAL MANAGEMENT, INC.

WELL CONSTRUCTION DIAGRAM

Project: Torrington Company

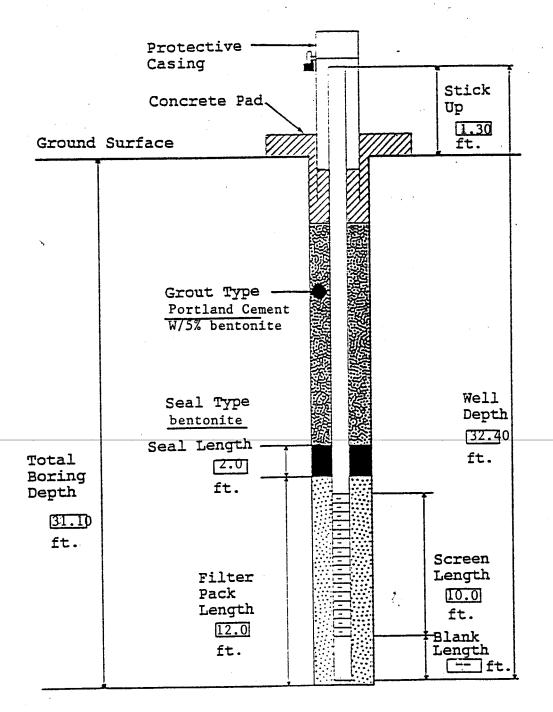
Location: Sylvania, Georgia

Well Number: R-14 Ground Elevation(AMSL): 175.81

Date Installed: 12/9/91 Casing Elevation(AMSL): 177.11

Hole Diameter[in]: 10.50 Filter Pack Type: 20-30 Mesh Sand

Well Casing Diameter[in]: 6.25 Slot Opening[in]: 0.014



Comments: Well was installed using mud/rotary drilling and terminated when confining limestone bed was encountered.

Well Development: Well was developed using a 175 CFM air compressor

Page of

		Date:	12/9/91
Owner: Torring Well No: R-14 Location: Sylv Driller: Paul Geologist: Ron Drilling Method:	ania, Georgia	Screened From: 31.10 Gravel Pack: 20-30 Bentonite Seal: 19.10 Concrete Seal from 1 Water Level: Well top elevation:	mech to 19 10 ft
Depth (feet) From To	Litho	Logy	Remarks
	See well log for monitoring	g well B-2D	
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Dual-Phase Vacuum Extraction Well DVE-4									
Project: IR - Sylvania	vania Drill Rig: Ge			DT HSA			Top of Casing Elevation: NM		
Date: July 20, 2004	Sampler: I	Vlacro	Core				Initial Groundwater Depth: NM		
Logged By: Gerald Ingle Hole Diame			8-inch				Final Groundwater Depth: NM		
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"	2'x2'x2' Steel Vault 2-inch-diameter Sch. 40 Blank PVC Casing		
Turf grass/rooted zone fill				- 0 			//		
Light brown, very fine to fine quartz SAND, dry		SW		- 1 - - 2 - - 3 - 			Concrete Bentonite Pellet Seal		
Light tan, very fine to fine SAND, trace to some s odor	ilt, dry, no	SM		4 -					
Same as 4'-5' with some clay and trace to some smedium plasticity	silt, low to	SM/ SC		- 5 - - 6 -			2-inch-diameter Sch. 40 0.010" Slotted PVC Screen		
Orange-gray mottled clayey SILT, some very fine sand, medium plasticity, dry, no odor Orange-gray mottled hard CLAY, trace very fine splasticity, damp at 11', no odor		MŁ		- 7 8 9 10 11			20-30 Mesh Sand Filter Pack		
Terminate boring				12 13 14 			12.3' — 8-inch-diameter Borehole		
				- 15 16 17 18 19 20					
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services 2580 Northeast Expressway • Atlanta Georgia 303-	45		SCS = Uni				on System. p of casing. Project No. 1162-0410-5		
2580 Northeast Expressway • Atlanta Georgia 30345 Telephone: (404) 329-9006 • Fax: (404) 329-2057			File name: C:\DWG\1162-0410-5\well logs.dwg Print Date: Sep 27, 2004 - 1:52pm Page 1 of 1						

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	ase vac	cuu	m = x	xtrac	TIC	n	Well DVE-5		
Project: IR - Sylvania	Drill Rig: 6						Top of Casing Elevation: NM		
Date: July 20, 2004	Sampler: I	Sampler: <i>Macro Core</i>					Initial Groundwater Depth: NM		
Logged By: Gerald Ingle	Hole Diame	eter: a	8-inch				Final Groundwater Depth: <i>NM</i>		
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"	2'x2'x6" Concrete Pad		
Turf grass/rooted zone fill				- o -			Concrete		
Light brown, very fine to fine quartz SAND, dry		sw		- 1 - - 2 - - 3 -			2.0' — Bentonite Pellet Seal 2.0' — 2-inch-diameter Sch. Blank PVC Casing	. 40	
Orange-red mottled very fine sandy SILT, some medium plasticity, hard, compact, dry, no odor	clay, low to	ML		4 — - 5 — - 6 —	Ø		2-inch-diameter Sch.		
Orange/tan silty very fine SAND, trace clay, har dry no odor	d, compact,	SM		- 7 -					
Tan-gray-orange very fine to medium sandy SIL some clay, low plasticity, hard, compact, damp,		ML		- 8 - - 9 - - 9 -			20-30 Mesh Sand Filter Pack		
Orange-gray mottled CLAY, hard, some very fin "stringers" throughout	e sand	СН		10 11 					
Tarminata haring				— 12— - — — 13—			12.4' 8-inch-diameter Bord	ehole	
Terminate boring				- 14 15 16 17 18 19 20 14 12 12 - 12 - 12 - 12 -					
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services)345		SCS = Uni				Project on System. 1162-04		

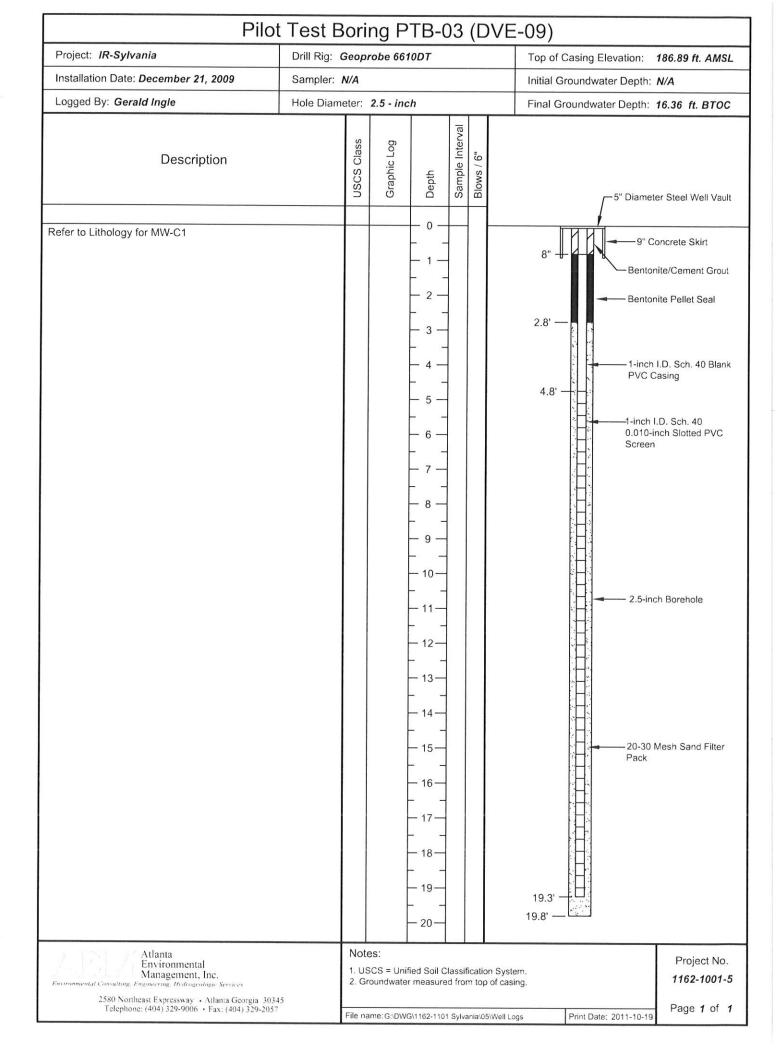
Dual-Pha	ase Vac	cuu	m E	xtrac	tio	n '	Well DVE-6		
Project: IR - Sylvania	Drill Rig: 6					-	Top of Casing Elevation: NM		
Date: July 20, 2004	Sampler: Macro Core						Initial Groundwater Depth: NM		
Logged By: Gerald Ingle	Hole Diameter: 8-inch					-	Final Groundwater Depth: NM		
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"	2'x2'x6" Concrete Pad		
Turf grass/rooted zone fill				0 —			Concrete		
Light brown, very fine to fine quartz SAND, dry		sw		- 1 - 2 - 3 			2.25' Bentonite Pellet Seal 2.9' Bentonite Pellet Seal 2-inch-diameter Sch. 40 Blank PVC Casing		
Concrete rubble				4 —					
No recovery				- 6 - - 7 -			2-inch-diameter Sch. 40 0.010" Slotted PVC Screen		
Orange-tan very fine sandy SILT, trace to some medium plasticity, damp, no odor	clay, low to	ML		- 8 - - 8 - - 9 - - 9 -			20-30 Mesh Sand Filter Pack		
Orange-gray, mottled, hard CLAY, trace very fine plasticity, wet at 11', no odor	e sand, high	СН		- 10 - - 11 - 	Ø				
				- 12- 			12.4' 8-inch-diameter Borehole		
Terminate boring				- 13 14 15 16 17 18 19 20 20			13.0' — [5.4: "		
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services			SCS = Un				on System. p of casing. Project No. 1162-0410-5		
2580 Northeast Expressway • Atlanta Georgia 303 Telephone: (404) 329-9006 • Fax: (404) 329-205	7 	File n	ame: C:\D\	VG\1162-04	10-5\	well lo	ogs.dwg Print Date: Sep 27, 2004 - 1:52pm Page 1 of 1		

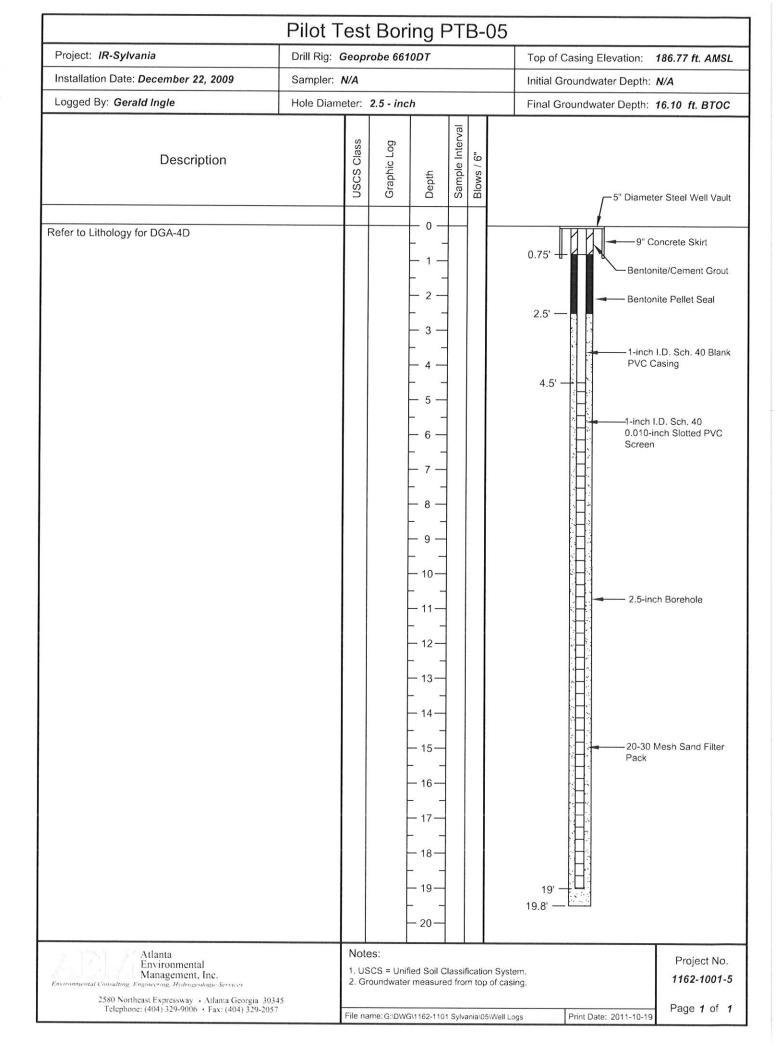
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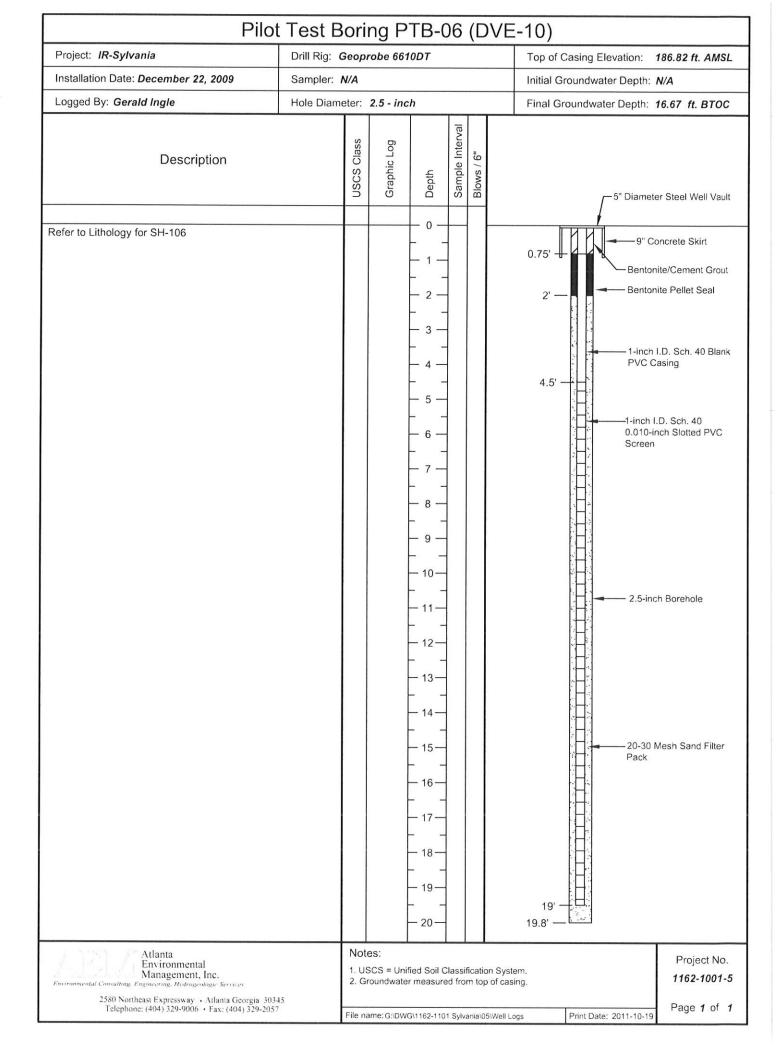
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Description Descr	Project: IR - Sylvania	Drill Rig: Geoprobe 66DT HSA						Top of Casing Elevation: NM	
Logged By. Gerald Ingle Description Descri	Date: February 4, 2004								
Description Section Part · · · · · · · · · · · · · · · · · · ·									
Brown silty CLAY, abundant gravel (fill) Light brown, very fine to fine quartz SAND, dry Drange-red motited very fine sandy SILT, some clay, low to medium plasticity, hard, compact, dry, no odor Orange-fram silty very fine SAND, trace clay, hard, compact, dry, no odor Same as 6.5-9 with slightly more clay Orange-gray mottled CLAY, hard, trace very fine sand, high plasticity, damp to 11', no odor Terminate boring Altaria Silva Same as 6.5-9 with slightly more clay Orange-gray mottled CLAY, hard, trace very fine sand, high plasticity, damp to 11', no odor Notes: 12.6' Notes: 1. USGS = Unified Soil Classification System.	Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"	2'x2'x2' Steel Vault /2-inch-diameter Sch. 40	
Light brown, very fine to fine quartz SAND, dry SW 2.3 Concrete Brown silty CLAY, abundant gravel (fill)				0 -					
Terminate boring Atlanta Environmental Envi	ight brown, very fine to fine quartz SAND, dry		sw		- 2 - - 2 -				
Atlanta Emvironmental Management, Inc. A 8 -		e clay, low to	ML					2-inch-diameter Sch. 40 0.010" Slotted PVC Scre	
Same as 6.5'-9' with slightly more clay Drange-gray mottled CLAY, hard, trace very fine sand, high lasticity, damp to 11', no odor Terminate boring Atlanta Environmental Management, Inc. Notes: 1. USCS = Unified Soli Classification System.		rd, compact,	SM		<u> </u>				
Project Notes: 1. USCS = Unified Soil Classification System. Project Notes: 1. USCS = Unified Soil Classification System.	Same as 6.5'-9' with slightly more clay		SM		- [*]			Filter Pack	
12- 13- 12- 12- 12- 12- 12- 12- 12- 12		e sand, high	СН		-				
13 - 14 - - 15 - - 16 - - 17 - - 18 - - 19 - - 20 - Atlanta Environmental Management, Inc. Notes: 1. USCS = Unified Soil Classification System. Project Notes: 1. USCS = Unified Soil Classification System. 1182,0410					- 12-			8-inch-diameter Boreho	
Environmental Management, Inc. 1. USCS = Unified Soil Classification System.	Terminate boring				14 15 16 17 18 19 19 1				
1 · · · · · · · · · · · · · · · · · · ·	Environmental Management, Inc.		1. US	SCS = Un					

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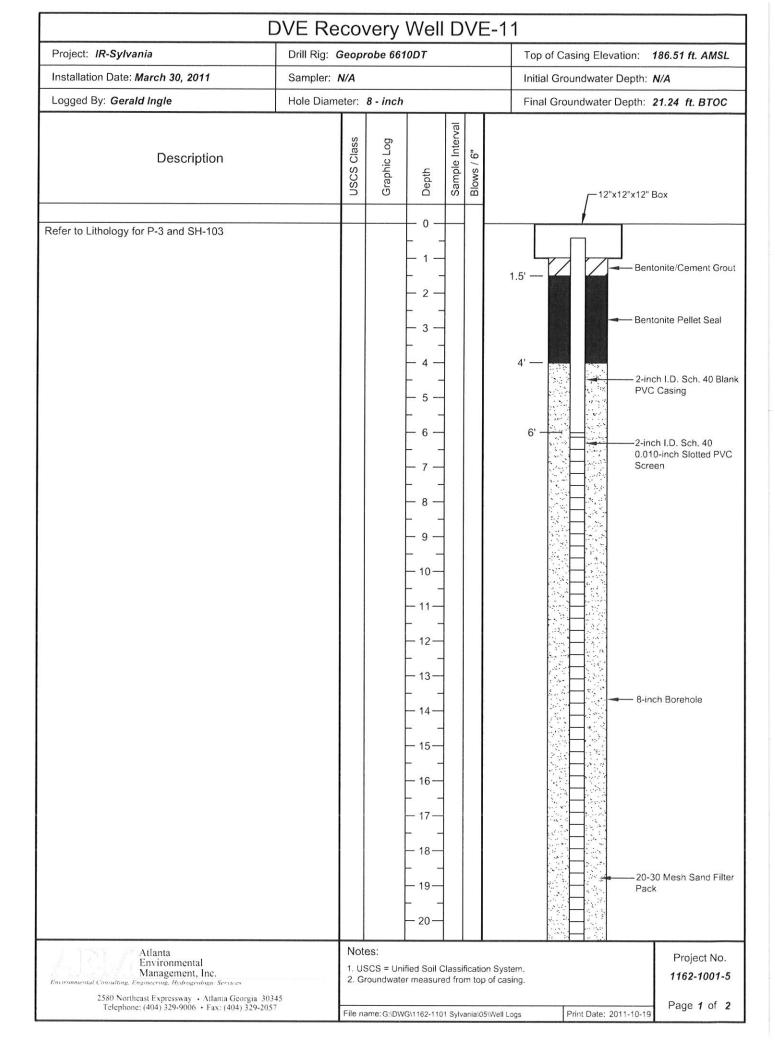




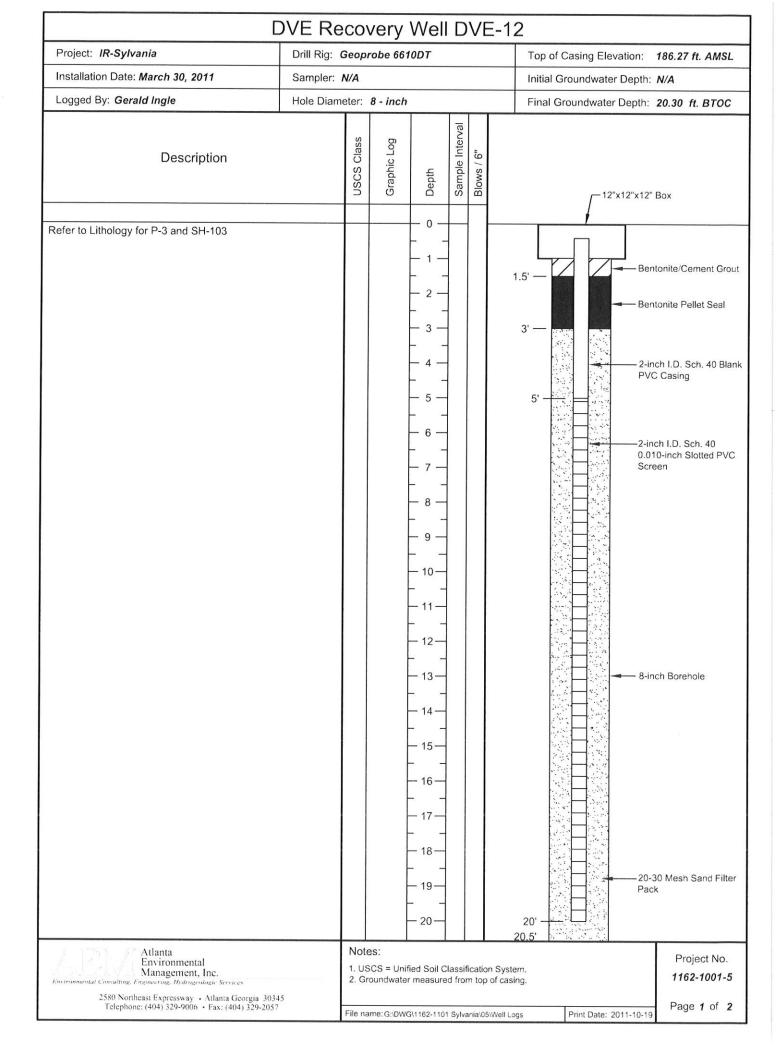


	DVE Rec	overy	Wel	ΙD)\	E-8
Project: IR-Sylvania	Drill Rig: Geo					Top of Casing Elevation: 186.05 ft. AMSL
Installation Date: March 28, 2011	Sampler: N/A					Initial Groundwater Depth: N/A
Logged By: <i>Gerald Ingle</i>	Hole Diameter: 8 - inch					Final Groundwater Depth: 20.80 ft. BTOC
Description	USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"	
Refer to Lithology for DGA-4D			- 0			Bentonite/Cement Groud Bentonite Pellet Seal 2-inch I.D. Sch. 40 Blar PVC Casing 2-inch I.D. Sch. 40 0.010-inch Slotted PVC Screen
			- 17 - 18 - 19 - 20			20-30 Mesh Sand Filter
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogenlogic Services	1. (otes: USCS = Unif Groundwate	fied Soil Cl r measure	lassifi d from	cation	on System. on of casing. Project No. 1162-1001-5
2580 Northeast Expressway • Atlanta Georgia 303 Telephone: (404) 329-9006 • Fax: (404) 329-205	7	name: G:\DW(G\1162-1101	Sulva	nia\05	SiWell Logs Print Date: 2011-10-19 Page 1 of 2

DVE Recovery Well DVE-8							
Project: IR-Sylvania	Drill Rig: Ge	Top of Casing Elevation: 186.05 ft. AMS					
Installation Date: March 28, 2011	Sampler: N/	Initial Groundwater Depth: N/A					
Logged By: <i>Gerald Ingle</i>	Hole Diameter: 8 - inch					Final Groundwater Depth: 20.80 ft. BTOC	
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"	
Refer to Lithology for DGA-4D				- 20			20.5' 2-inch I.D. Sch. 40 0.010-inch Slotted PV Screen 8-inch Borehole 20-30 Mesh Sand Filte Pack
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services 2580 Northeast Expressway • Atlanta Georgia 30345 Telephone: (404) 329-9006 • Fax: (404) 329-2057	1 2	2. Gro	CS = Unifi oundwater	measure	d fron	n top	Project No. 1162-1001-5 p of casing. 1162-1001-5 Page 2 of 2



DVE Recovery Well DVE-11									
Project: IR-Sylvania	Drill Rig: G	Top of Casing Elevation: 186.51 ft. AMSL							
Installation Date: March 30, 2011	Sampler: N	Initial Groundwater Depth: N/A							
Logged By: <i>Gerald Ingle</i>	Hole Diame	ter:	8 - inch				Final Groundwater Depth: 21.24 ft. BTOC		
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"			
Refer to Lithology for P-3 and SH-103				- 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 - 34 34 34 34 34 34 34 34 34 34			20.5' 2-inch I.D. Sch. 40 0.010-inch Slotted PVC Screen 8-inch Borehole 20-30 Mesh Sand Filter Pack		
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services 2580 Northeast Expressway - Atlanta Georgia 303- Telephone: (404) 329-9006 - Fax: (404) 329-2057	Notes: 1. USCS = Unified Soil Classification System. 2. Groundwater measured from top of casing. 45 File name: G:DWG\1162-1101 Sylvania\05\Well Logs Print Date: 2011-10-19						p of casing. 1162-1001-5		



	VE Re	CO	ery	Well	D	VE	E-13		
Project: IR-Sylvania	Drill Rig: 0	Geopr	obe 661	ODT			Top of Casing Elevation: 186.27 ft. AMSI	L	
Installation Date: March 30, 2011	Sampler: I	V/A					Initial Groundwater Depth: N/A		
Logged By: Gerald Ingle	Hole Diameter: 8 - inch						Final Groundwater Depth: 20.30 ft. BTOC	;	
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"			
Not logged.		\vdash		<u> </u>		-	<i>†</i>		
				- 1 2 3			1.5' — Bentonite/Cement Gro	out	
Tan-orange, SILTY, very fine to fine sand, dry, no odor.	noticeable	SM		 - 4 			3.5' — 2-inch I.D. Sch. 40 Bla	ank	
Orange/red, Very fine sandy SILT, trace of fine sa odor.	inds, dry, no	SC		5 — 6 — — 7 — — 8 — — 9 — —			2-inch I.D. Sch. 40 0.010-inch Slotted PV Screen	С	
Same as 5'-10'				10 11 12					
Orange/tan, very fine to fine sand, some silt.		SM		- 13- - 13-			8-inch Borehole		
Purplish gray-white, very heterogeneous, silty CLA odor, low plasticity.	AY, dry, no	ML		— 14 — –					
No recovery.				— 15 — -					
Orange, very fine to medium SAND, wet, no odor.		SW		— 16 — –					
Purple to gray ~(20'), fat clay, little or no fines, me high plasticity, damp, no odor, (transition from pur to gray clay (19'-20') was abrupt).		СН		— 17 — — 18 — — 19 — — 20			20-30 Mesh Sand Filt Pack	er	
Gray hard fat clay, medium to high plasticity.		СН		— 20 —			20'		
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services 2580 Northeast Expressway - Atlanta Georgia 3034.	Notes: 1. USCS = Unified Soil Classification System. 2. Groundwater measured from top of casing.						of casing. 1162-1001-3	5	
Telephone: (404) 329-9006 • Fax: (404) 329-2057		File na	me:G:\DW	G\1162-1101	Sylva	nia\05\	Well Logs Print Date: 2011-10-19 Page 1 of 2	۲	

DVE Recovery Well DVE-13									
Project: IR-Sylvania	Drill Rig: Geo	186.37 ft. AMSL							
Installation Date: March 29, 2011	Sampler: N/A	Initial Groundwater Depth:	N/A						
Logged By: Gerald Ingle	Hole Diameter	: 8 - inch				Final Groundwater Depth: NM			
Description	USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"				
			- 20 - 21 - 22 - 23			Pac	30 Mesh Sand Filter sk ach Borehole		
Terminate Boring.			- 24 25 26 27						
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services	N. 1. 2.	Project No. 1162-1001-5							
2580 Northeast Expressway • Atlanta Georgia 3034 Telephone: (404) 329-9006 • Fax: (404) 329-2057	5 File	name: G:\DV	VG\1162-110	1 Sylva	ania\05	Well Logs Print Date: 2011-10-19	Page 2 of 2		

Recovery Well R-16									
Project: IR-Sylvania	Drill Rig: R	-					Top of Casing Elevation: 182.92 ft. AMSL		
Installation Date: June 6-7, 2011	Sampler: 5	.25-ii	nch OD	Sample	-		Initial Groundwater Depth: N/A		
Logged By: Gerald Ingle	Hole Diame	ter:	10 - incl	(20 fee	t)		Final Groundwater Depth: 43.43' ft. BTOC		
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"	√36"x36"x24" Box		
Orange/red, very fine sandy SILT, trace clay, dry,	, no odor.	ML		— o —			,		
Dark red/orange/gray, very fine sandy SILT, trace clay, no odor. Same as 6'-7'.		ML		- 1			Bentonite/Cement Grout		
Tan-pink, silty, very fine to fine SAND, damp at 12 noticeable.	2', no clay	SM		 - 12 - 13 					
Purple with gray, mottled, high plasticity, trace of sand.	very fine	СН		14 15 16 			6-inch I.D. Sch. 40 Blank PVC Casing		
Same as 14'-17'; may have 1' of laminated sand f	rom 19'-20'.			17 18 19 20					
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services 2580 Northeast Expressway • Atlanta Georgia 3034	45		Project No. on System. on of casing. 1162-1001-5						
Telephone: (404) 329-9006 • Fax: (404) 329-2037									

	Recov	ery V	Vell f	 ₹- <i>′</i>	16				
Project: IR-Sylvania	Drill Rig: Roto	sonic				Top of Casing Elevation: 182	Top of Casing Elevation: 182.92 ft. AMSL		
Installation Date: June 6-7, 2011	Sampler: 5.25-	inch OD	Sample	r		Initial Groundwater Depth: N/A	Initial Groundwater Depth: N/A		
Logged By: Gerald Ingle	Hole Diameter:	10 - inc	h (20 fee	et)		Final Groundwater Depth: 43.	Final Groundwater Depth: 43.43' ft. BTOC		
Description	USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"				
			20 — 21 — — 21 — — 22 — — — 23 —			10-inch	Borehole		
No recovery but driller thinks its softer material.			- 24 - 24 25						
Gray, CLAY, fat, very little fines, high plasticity.	СН		_ 26 — 26 — 27 — — 28 — — — 29 —			Bentonite	e/Cement Grout		
			- 30 - 31 - 32 - 33 - 33 -			32.2' —	te Pellet Seal		
Pink/tan, silty, very fine to medium SANDS.	SM		34— - 35— - 36— - 37			35' ————————————————————————————————————	.D. Sch. 40 Blank asing .D. Sch. 40 ach Slotted PVC		
Same as 34'-37'.			- 37 38 40			Screen			
Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogeologic Services 2580 Northeast Expressway - Atlanta Georgia 3034	Notes: Project No 1. USCS = Unified Soil Classification System. 2. Groundwater measured from top of casing. 1162-1001-								
Telephone: (404) 329-9006 • Fax: (404) 329-2057		name: G:\DW	G\1162-110	1 Sylva	ania\05	5\Well Logs Print Date: 2011-10-19	Page 2 of 3		

	Reco	OV6	ery V	Vell F	₹-	16		
Project: IR-Sylvania	Drill Rig: R	Top of Casing Elevation: 182.92 ft. AMSL						
Installation Date: June 6-7, 2011	Sampler: 5.	.25-i	nch OD	Sample	r		Initial Groundwater Depth: N/A	
Logged By: Gerald Ingle	Hole Diame	ter:	10 - incl	h (20 fee	et)		Final Groundwater Depth: 43.43' ft. BTOC	
Description		USCS Class	Graphic Log	Depth	Sample Interval	Blows / 6"		
Gray/tan, very fine to fine SANDS, trace clay/silt, b seams.	out only in	CL		- 40			10-inch Borehole	
Pink/gray, fine to coarse SAND, some clay "nodule	is".	SC		- 48 49 50 52 53 55 56			6-inch I.D. Sch. 40 0.010-inch Slotted PVC Screen	
Same as 48'-57'. Compacted pink/tan to green SILTS; assumed transition zone between upper horizon and clay separation barrier		SM		57 58 59			18-40 Mesh Sand Filter Pack	
(between upper and lower sands).				 - 60 -			60'	
Terminate boring. Atlanta Environmental Management, Inc. Environmental Consulting, Engineering, Hydrogenlogic Services	1	Notes: 1. USCS = Unified Soil Classification System. 2. Groundwater measured from top of casing.						
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