CH2MHILL

BORING NUMBER

SOIL BORING LOG

MW-238 (IW-1)

	T . N 4	. D		Kata A. K. I		
			ntermed		LOCATION : Memphis, Tennessee	ELEVATION:
				Boart Longyear		NAME OF DRILLER : T. Overcash
			=N [:		ounted Rotasonic	SIZE/TYPE OF BIT : 4X6"; 9.25"
OVERBURDEN THICKNESS :					D INTO ROCK N/A	TOTAL DEPTH OF BORING : 191 ft-bgs
	WATER LEVELS : XXX ft-bgs			START: 9/13/07		LOGGER : Derek Miller / Kirk Nuzum (KNV)
DEPTH BI	ELOW SURFA	ACE (FT)		STANDARD	SOIL DESCRIPTION	COMMENTS
	SAMPLE INT	ERVAL (FT)	PENETRATION		
		RECOVER	RY (FT)	TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE,
			#/TYPE	RESULTS	MOISTURE CONTENT, RELATIVE DENSITY,	DRILLING FLUID LOSS,
				6"-6"-6"	OR CONSISTENCY, SOIL STRUCTURE,	TESTS, AND INSTRUMENTATION.
				(N)	MINERALOGY.	FID (ppm)
				(14)	0.0-3.5: CLAYEY SILT (ML), yellowish brown, dry, hard,	MAX FID ON CORE: N/A
_					crumbly, sl. plasticity	
_						0.0-3.5: Hand-augered
_	0-3.5	3.5 / 3.5	HA-1	N/A		
-						
-						
_					3.5-6.0: AS ABOVE	MAX FID ON CORE: 31.3
			_			
5	3.5-6	2.5 / 2.5	C-1	N/A		-
—						
—				1	6.0-16.0: CLAYEY SILT (ML), dark brown, moist, soft to firm	MAX FID ON CORE: 0.0
_					w/ depth, common coarse faint yellowish brown mottles	
_						
—						
—						
—						
10						_
_						
—	6-16	10/10	C-2	N/A		
-						
-						
_						
_						
_						
15 -						
10						-
_						
_					16.0-26.0: AS ABOVE, yellowish brown, sl. moist, firm and	MAX FID ON CORE: 0.0
_					crumbly, becoming reddish brown w/ trace v. fine-grained	
—					sand @ 24'	
-						
_						
20						-
—						
—	16-26	10 / 10	C-3	N/A		
_						
_						
—						
—						
—						
25						_
_						
—				ł		
—					26.0-30.6: SANDY CLAY (CL), strong reddish brown, sl. moist, firm, ~10-20% v. fine-grained sand, increasing w/	MAX FID ON CORE: 83.0
—					depth	
_						
_						
_						
30 -						
JU						-
_	06.06	10/10	C-4	N1/A	30.6-36.0: SILTY SAND (SM), yellowish brown to strong red-	
	26-36	10 / 10	0-4	N/A	dish brown, moist, firm to loose, v. fine-grained sand,	
_					~25-30% silt	
—						
—						
—						
-						
25 -				I		
35						
³⁵ —						-

CH2MHILL

BORING NUMBER MW-238 (IW-1)

PROJEC	T: Memphis	Bepot - I	ntermed	iate Aquifer Inv.	LOCATION : Memphis, Tennessee	ELEVATION:
DRILLING CONTRACTOR : Boart Long						NAME OF DRILLER : T. Overcash
	G METHOD/		INT:		ounted Rotasonic	SIZE/TYPE OF BIT : 4X6"; 9.25"
					D INTO ROCK N/A	TOTAL DEPTH OF BORING : 191 ft-bgs
	LEVELS :	-	js	START: 9/13/07		LOGGER : Derek Miller / Kirk Nuzum (KNV)
	ELOW SURFA	()		STANDARD	SOIL DESCRIPTION	COMMENTS
	SAMPLE INT	,	/	PENETRATION		
		RECOVER		TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE,
			#/TYPE	RESULTS	MOISTURE CONTENT, RELATIVE DENSITY,	DRILLING FLUID LOSS,
				6"-6"-6"	OR CONSISTENCY, SOIL STRUCTURE,	TESTS, AND INSTRUMENTATION.
				(N)	MINERALOGY.	FID (ppm)
-					36.0-37.4: AS ABOVE	MAX FID ON CORE: 135.5
_					37.4-46.0: GRAVELLY SAND (SW), yellowish brown to red-	-
_					dish brown, sl. moist, loose, fine to medium-grained sand,	
-					~25% gravel, some sandstone up to 1.5", subangular, easily	-
-					breakable w/ finger pressure, chert up to 1/2", subround, ~10% silt	-
40						-
- 1						-
	36-46	10 / 10	C-5	N/A		-
I –						-
- 1						-
- 1						-
						-
						-
45						-
- 1						-
_					46.0-48.6: AS ABOVE	MAX FID ON CORE: 127.0
- 1						-
-						-
-						-
_					48.6-55.3: SAND (SP), pale yellow, dry, loose, v. fine-grained	-
F0 -						-
50						-
_	16 F6	10/10	0.6	NI/A		-
_	46-56	10 / 10	C-6	N/A		-
-						-
-						-
_						
- –						-
55 -					55.3-56.0: GRAVELLY SAND (SW), dark yellowish brown, sl.	-
					moist, loose, gravel up to 1", chert, subround, fine to coarse-	
-					grained sand, ~25% gravel	
- 1					56.0-66.0: GRAVELLY SAND (SW), pale brownish yellow, dry, loose to hard and crumbly, fine to medium-grained sand,	MAX FID ON CORE: 118.5
					gravels up to 1", sandstone, break apart w/ finger pressure,	-
_					gravels up to 3/4", chert, subround, ~20-25% gravels, ~5%	
- 1					silt	-
- 1						-
60						-
-						
- 1	56-66	10 / 10	C-7	N/A		-
						-
_						
						-
- 1						-
65						
						-
- 1	L		L		66.0-76.0: SAND (SP), brownish yellow to pale yellow w/	MAX FID ON CORE: 67.9
_					depth, sl. moist, loose, fine-grained sand, obscure contact	
- 1						-
- 1	66-76	10 / 10	C-8	N/A		-
						-
-						-
70						

CH2MHILL

BORING NUMBER MW-238 (IW-1)

			ntermed	ate Aquifer Inv.	LOCATION : Memphis, Tennessee	ELEVATION:
				Boart Longyear	ente d Detección	NAME OF DRILLER : T. Overcash
DRILLING METHOD/EQUIPMENT: OVERBURDEN THICKNESS :					ounted Rotasonic D INTO ROCK N/A	SIZE/TYPE OF BIT : 4X6"; 9.25"
	LEVELS :			START: 9/13/07		TOTAL DEPTH OF BORING : 191 ft-bgs LOGGER : Derek Miller / Kirk Nuzum (KNV)
	ELOW SURFA		<i>j</i> 0	STANDARD	SOIL DESCRIPTION	COMMENTS
	SAMPLE INTI	. ,	.)	PENETRATION		
		RECOVER	,	TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE,
			#/TYPE	RESULTS	MOISTURE CONTENT, RELATIVE DENSITY,	DRILLING FLUID LOSS,
				6"-6"-6"	OR CONSISTENCY, SOIL STRUCTURE,	TESTS, AND INSTRUMENTATION.
				(N)	MINERALOGY.	FID (ppm)
_						MAX FID ON CORE: 67.9
_						-
_						-
_	66-76	10/10	C-8	N/A		-
-						-
						-
75						-
_						-
-					76.0-82.3: AS ABOVE, wet	MAX FID ON CORE: 78.0 _
_						
-						-
_						
80 -						-
—	76-86	10/10	C-9	N/A		-
						-
—					82.3-83.3: SILTY SAND (SM), yellowish brown, wet, loose, fine-grained sand, ~30% silt	-
					83.3-84.3: SANDY CLAY W/ LITTLE GRAVEL (CL), brownish	-
_					yellow to strong brown, wet, soft to loose, ~20% fine to	-
85 _					coarse-grained sand, gravel up to 1/2", subangular, ~20% 84.3-86.0: CLAY (CL), brownish yellow, sl. moist, firm, few	-
					medium distinct light gray mottles	-
-					86.0-89.7: CLAY (CL), light gray, sl. moist, firm, common med-	MAX FID ON CORE: 0.0
_					ium distinct brownish yellow mottles	-
_						
_						-
—						-
90					89.7-96.0: SL. SANDY CLAY (CL), dark gray, sl. moist, firm,	
_	00.00	10/10	0.40	N1/A	~5-10% v. fine-grained sand	Sample <i>MW238_SS_90</i> : VOC (8260B/5035A)
_	86-96	10/10	C-10	N/A		TOC (415.1)
_						-
_						-
-						-
0F -						
95						-
_						
_	06.00	0 / 0	OT 4	NI/A	96.0-98.0: AS ABOVE	MAX FID ON CORE: N/A
-	96-98	2/2	ST-1	N/A	*LOGGED SHAVINGS FROM TUBE*	Vertical permeability and grain size analysis
_					98.0-100.0: AS ABOVE	MAX FID ON CORE: 0.0
-	98-100	2/2	C-11	N/A		-
100		. –			0.0-100.0: 6" SCHEDULE 80 PERMANENT CASING	
_					100.0-103.0: SILTY CLAY (CL), light gray to yellowish brown,	MAX FID ON CORE: N/A
-					sl. moist, v. soft to firm w/ depth	-
_						
-						-
_	100-106	6/6	C-12	N/A	103.0-106.0: SL. SILTY CLAY (CL), dark gray, sl. moist, hard,	
-					trace silt and organic debris throughout	-
105						-
-						-
					I	-

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BORING NUMBER MW-238 (IW-1)

SHEET 4 of 6

OJECT	: Memphis	s Depot - I	ntermed	iate Aquifer Inv.	LOCATION : Memphis, Tennessee	ELEVATION:		
	CONTRAC		-NIT.	Boart Longyear		NAME OF DRILLER : T. Overcash		
	METHOD/		INT:		ounted Rotasonic D INTO ROCK N/A	SIZE/TYPE OF BIT : 4X6"; 9.25" TOTAL DEPTH OF BORING : 191 ft-bgs		
VERBURDEN THICKNESS : VATER LEVELS : XXX ft-bgs			IS	START: 9/13/07		LOGGER : Derek Miller / Kirk Nuzum (KNV)		
	.OW SURFA	Ű	,0	STANDARD	SOIL DESCRIPTION	COMMENTS		
SA	AMPLE INT	ERVAL (FT)	PENETRATION				
		RECOVER		TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE,		
			#/TYPE		MOISTURE CONTENT, RELATIVE DENSITY,	DRILLING FLUID LOSS,		
				6"-6"-6"	OR CONSISTENCY, SOIL STRUCTURE,	TESTS, AND INSTRUMENTATION.		
				(N)	MINERALOGY. 106.0-116.0: AS ABOVE	FID (ppm) MAX FID ON CORE: 3.6		
_								
-								
_								
-								
)								
-								
	106-116	10 / 10	C-13	N/A				
-								
_								
5								
_					J			
_					116.0-126.0: SL. SANDY CLAY (CL), gray, sl. moist, hard,	MAX FID ON CORE: 0.8		
_					~5% v. fine-grained sand lenses throughout			
_								
-								
_								
)								
_	116-126	10 / 10	C-14	N/A				
-			• • •					
_								
-								
_								
5 -								
-					126.0-132.2: AS ABOVE	MAX FID ON CORE: 1.8		
_								
-								
_								
-								
-		10.1.1	a :-					
_	126-136	10 / 10	C-15	N/A				
-					132.2-133.0: CLAYEY SAND (SC), light gray, moist, soft,			
_					v. fine-grained sand, ~40% clay			
-					133.0-134.0: SL. SANDY CLAY (CL), gray, sl. moist, hard, ~5% v. fine-grained sand lenses throughout			
					134.0-134.6: CLAYEY SAND (SC), light gray, sl. moist, soft,			
5					v. fine-grained sand, ~50% clay 134.6-136.0: SL. SANDY CLAY (CL), gray, sl. moist, hard,			
_					~15% v. fine-grained sand lenses throughout			
-					136.0-143.0: SL. SANDY CLAY (CL), gray, sl. moist, hard, ~15% v. fine-grained sand lenses throughout, organic	MAX FID ON CORE: 0.0		
_					aminated staining in upper interval			
-	136-146	10 / 10	C-16	N/A				
_								
_					1			
)								

CH2MHILL

BORING NUMBER

SOIL BORING LOG

MW-238 (IW-1)

		_				
			ntermed	iate Aquifer Inv.	LOCATION : Memphis, Tennessee	ELEVATION:
DRILLING CONTRACTOR : DRILLING METHOD/EQUIPMENT:				Boart Longyear	ounted Rotasonic	NAME OF DRILLER : T. Overcash SIZE/TYPE OF BIT : 4X6"; 9.25"
OVERBURDEN THICKNESS :					D INTO ROCK N/A	TOTAL DEPTH OF BORING : 191 ft-bgs
WATER LEVELS : XXX ft-bgs				START: 9/13/07		LOGGER : Derek Miller / Kirk Nuzum (KNV)
	ELOW SURFA		<i></i>	STANDARD	SOIL DESCRIPTION	COMMENTS
[SAMPLE INT	ERVAL (FT)	PENETRATION		
		RECOVER	RY (FT)	TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE,
			#/TYPE	RESULTS	MOISTURE CONTENT, RELATIVE DENSITY,	DRILLING FLUID LOSS,
				6"-6"-6"	OR CONSISTENCY, SOIL STRUCTURE,	TESTS, AND INSTRUMENTATION.
				(N)	MINERALOGY.	FID (ppm)
—						MAX FID ON CORE: 0.0
_						
—						-
_	136-146	10/10	C-16	N/A		-
_	100 110	10 / 10	0.10	14/7	143.0-146.0: SILTY CLAY (CL), gray, sl. moist, hard, ~5-10% silt	-
_					301	-
145						_
—						-
_					146.0-156.0: SL. SANDY CLAY W/ LITTLE SAND (CL), gray,	MAX FID ON CORE: 3.2
—					sl. moist, hard, ~10-15% v. fine-grained sand, laminated organic staining throughout	-
_						-
-						-
						-
150						_
_	146 156	10/10	C-17	N/A		-
_	146-156	10/10	0-17	IN/A		-
-						-
_						-
_						-
						-
155						
_						
_					156.0-159.8: SL. SANDY CLAY (CL), gray, sl. moist, hard,	MAX FID ON CORE: 3.0
-					~15% v. fine-grained sand throughout	-
_						-
_						-
160					159.8-160.1: CLAYEY SAND (SC), light gray, moist, firm, ~50% v. fine-grained sand, ~50% clay	
_	156-166	10/10	C-18	N/A	160.1-166.0: SANDY CLAY (CL), gray, sl. moist, hard, ~15-	-
_	100 100	10/10	0 10	10/7 (20% v. fine-grained sand increasing w/ depth	-
_						-
_						-
-						-
165 -						-
165						
_						-
—					166.0-167.2: SL. SANDY CLAY (CL), gray, sl. moist, hard, ~15% v. fine-grained sand throughout	MAX FID ON CORE: 6.2 _
					167.2-167.8: SANDY CLAY (CL), gray, moist, firm, ~40% v.	
—					fine-grained sand	-
-					167.8-176.0: SL. SANDY CLAY (CL), gray, sl. moist, hard, 3 lenses of v. fine-grained sand up to 1/2" thick, ~10%, lam-	-
170 -					inated organic staining throughout	
170						
_	166-176	10/10	C-19	N/A		-
-	100 170	10/10	0.10			-
—						-
-						-
175						-
_						-
_						

CH2MHILL

BORING NUMBER MW-238 (IW-1)

SHEET 6 of 6

PROJEC	PROJECT : Memphis Depot - Intermediate Aquifer Inv. LOCATION : Memphis, Tennessee ELEVATION:								
DRILLIN	G CONTRAC	CTOR :		Boart Longyear		NAME OF DRILLER : T. Overcash			
DRILLING METHOD/EQUIPMENT:					ounted Rotasonic	SIZE/TYPE OF BIT : 4X6"; 9.25"			
	JRDEN THIC				D INTO ROCK N/A	TOTAL DEPTH OF BORING : 191 ft-bgs			
WATER	LEVELS :	XXX ft-bg	<u>js</u>	START: 9/13/07	/ END: 9/18/07	LOGGER : Derek Miller / Kirk Nuzum (KNV)			
DEPTH B	ELOW SURFA	()		STANDARD	SOIL DESCRIPTION	COMMENTS			
	SAMPLE INTE	ERVAL (FT)	PENETRATION					
		RECOVER		TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE,			
			#/TYPE	RESULTS	MOISTURE CONTENT, RELATIVE DENSITY,	DRILLING FLUID LOSS,			
				6"-6"-6"	OR CONSISTENCY, SOIL STRUCTURE,	TESTS, AND INSTRUMENTATION.			
				(N)	MINERALOGY.	FID (ppm)			
-					176.0-177.1: AS ABOVE	MAX FID ON CORE: 4.1			
	176-186	10 / 10	C-20		177.1-178.0: SANDY CLAY (CL), gray, sl. moist to moist, firm to hard, ~25% lenses of v. fine-grained sand up to 2" thick, moist, soft 178.0-186.0: SILTY SAND (SM), light gray, wet, v. soft, fine to v. fine-grained sand, ~20% silt				
	186-191	10 / 10	C-21	N/A	186.0-191.0: AS ABOVE	MAX FID ON CORE: 2.7			