
 <b>CH2MHILL</b>		PROJECT NUMBER <b>334469.SA.HS</b>	BORING NUMBER <b>MW-232 (IW-5)</b>	SHEET 1 of 3		
		<h2 style="text-align: center;">SOIL BORING LOG</h2>				
PROJECT : Memphis Depot - Intermediate Aquifer Inv.		LOCATION : Memphis, Tennessee		ELEVATION:		
DRILLING CONTRACTOR : Boart Longyear		NAME OF DRILLER : T. Schmalfeldt / C. Herron				
DRILLING METHOD/EQUIPMENT: Canterra CT 250 Mud Rotary (M) / SR 120 Track-Mounted Rotasonic (R)		SIZE/TYPE OF BIT : 17.25" (M) / 4X6"; 9.25" (R)				
OVERBURDEN THICKNESS : DEPTH DRILLED INTO ROCK N/A		TOTAL DEPTH OF BORING 176 ft-bgs				
WATER LEVELS : XXX ft-bgs		START: 8/17/07 (M) ; 9/16/07 (R) / END: 9/13/07 (M) ; 9/17/07 (R)		LOGGER : Derek Miller/ORO		
DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. FID (ppm)
					0.0-85.0: NOT SAMPLED	0.0-85.0: MUD ROTARY RIG DID NOT BEGIN SAMPLING UNTIL 85.0 FT BGS  *REFERENCE MW-159 BORING LOG
85	0-85	N/A	N/A	N/A		
	85-87	0.8 / 2	SS-1	N/A	85.0-87.0: SILTY SAND W/ TRACE GRAVEL (SM), yellowish brown, wet, loose, fine to medium-grained sand, gravels up to 1/2", chert, round, ~15% silt	MAX FID ON CORE: 0.9
90						
	87-94	N/A	N/A	N/A		87.0-94.0: MUD ROTARY RIG DID NOT SAMPLE DUE TO SIMILAR LITHOLOGY OF ADJACENT MONITORING WELL  *REFERENCE MW-159 BORING LOG
95						
	94-96	0.4 / 2	SS-2	N/A	94.0-96.0: AS ABOVE, gravel ~10%	MAX FID ON CORE: 0.0
	96-98	0.8 / 2	SS-3	N/A	96.0-97.5: AS ABOVE 97.5-98.0: SAND W/ TRACE GRAVEL (SP), pale yellow, wet, loose, medium-grained sand, well sorted, gravel up to 1/4", round, chert	MAX FID ON CORE: 0.0
					98.0-100.0: NO RECOVERY	MAX FID ON CORE: 0.0
100	98-100	0 / 2	SS-4	N/A		98.0-100.0: NO RECOVERY, DRILLER NOTED V. HARD INTERVAL
	100-102	1.2 / 2	SS-5	N/A	100.0-101.5: SL. SANDY CLAY (CL), v. dark grayish brown to dark gray, moist, hard, ~5-10% fine-grained sand 101.5-102.0: SILTY SAND (SM), gray, wet, hard, well sorted, v. fine-grained sand, ~20% silt	MAX FID ON CORE: 0.0
					102.0-102.5: AS ABOVE	MAX FID ON CORE: 0.0
	102-104	1.5 / 2	SS-6	N/A	102.5-103.0: AS ABOVE, dark brown 103.0-104.0: CLAY (CL), gray, moist, hard, massive, no mottling	MAX FID ON CORE: 0.0
105					104.0-106.0: AS ABOVE	MAX FID ON CORE: 0.0
	104-106	1.7 / 2	SS-7	N/A		
	106-108	1.8 / 2	SS-8	N/A	106.0-108.0: SILTY CLAY (CL), gray, moist, hard, massive, no mottling, ~20% silt	MAX FID ON CORE: 0.0
	108-110	1.8 / 2	SS-9	N/A	108.0-110.0: AS ABOVE	MAX FID ON CORE: 0.0
110						
					<b>0.0-110.0: 12" CARBON STEEL PERMANENT CASING</b>	
					110.0-118.0: NO RECOVERY	MAX FID ON CORE: N/A
	110-118	0 / 8	C-1	N/A		110.0-118.0: NO RECOVERY, DRILLER NOTED HEAVING. 18-IN RUBBER PLUG FROM MUD ROTARY CASING INSTALLATION MAY HAVE PLUGGED THE CORE BARREL.
115						

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				<b>SOIL BORING LOG</b>					
PROJECT : Memphis Depot - Intermediate Aquifer Inv.				LOCATION : Memphis, Tennessee				ELEVATION:	
DRILLING CONTRACTOR : Boart Longyear				NAME OF DRILLER : T. Schmalfeldt / C. Herron					
DRILLING METHOD/EQUIPMENT: Canterra CT 250 Mud Rotary (M) / SR 120 Track-Mounted Rotasonic (R)				SIZE/TYPE OF BIT : 17.25" (M) / 4X6"; 9.25" (R)					
OVERBURDEN THICKNESS : DEPTH DRILLED INTO ROCK N/A				TOTAL DEPTH OF BORING 176 ft-bgs					
WATER LEVELS : XXX ft-bgs				START: 8/17/07 (M) ; 9/16/07 (R) / END: 9/13/07 (M) ; 9/17/07 (R)				LOGGER : Derek Miller/ORO	
DEPTH BELOW SURFACE (FT)		SAMPLE INTERVAL (FT)		STANDARD PENETRATION TEST RESULTS		SOIL DESCRIPTION		COMMENTS	
		RECOVERY (FT)		6"-6"-6" (N)				DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. FID (ppm)	
		#/TYPE							
110-118		0 / 8		C-1		N/A		MAX FID ON CORE: N/A	
118-126		8 / 8		C-2		N/A		MAX FID ON CORE: 13.9	
126-136		10 / 10		C-3		N/A		MAX FID ON CORE: 56.8 Sample MW232 SS 127: VOC (8260B/5035A) TOC (415.1)	
136-146		10 / 10		C-4		N/A		MAX FID ON CORE: 14.7 Sample MW232_ST_136-138: (Shelby tube) Vertical permeability and grain size analysis	
146-156		10 / 10		C-5		N/A		MAX FID ON CORE: 12.2	



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SHEET 3 of 3

## SOIL BORING LOG

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DRILLING CONTRACTOR : Boart Longyear NAME OF DRILLER : T. Schmalfeldt / C. Herron  
DRILLING METHOD/EQUIPMENT: Canterra CT 250 Mud Rotary (M) / SR 120 Track-Mounted Rotasonic (R) SIZE/TYPE OF BIT : 17.25" (M) / 4X6"; 9.25" (R)  
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DEPTH BELOW SURFACE (FT)				STANDARD	SOIL DESCRIPTION	COMMENTS
SAMPLE INTERVAL (FT)				PENETRATION	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. FID (ppm)
RECOVERY (FT)				TEST RESULTS		
#/TYPE				6"-6"-6" (N)		
155	146-156	10 / 10	C-5	N/A	150.1-151.0: SANDY CLAY (CL), dark gray, sl. moist, firm, ~20-25% v. fine-grained sand 151.0-151.1: SANDSTONE GRAVEL (GP), v. dark gray, sl. moist, v. hard, breaks w/ considerable finger pressure 151.1-153.7: SILTY SAND (SM), light gray, wet, v. soft, v. fine grained sand, ~15% silt, clear contact 153.7-155.5: AS ABOVE, brownish yellow	MAX FID ON CORE: 12.2
160	156-166	10 / 10	C-6	N/A	155.5-156.0: AS ABOVE, pale brown 156.0-163.0: AS ABOVE  163.0-163.3: CLAY (CL), light grayish yellow, moist, v. soft, high plasticity, few medium distinct reddish brown mottles 163.3-166.0: SILTY SAND (SM), pale brown, wet, v. soft, v. fine-grained sand, ~15% silt, clear contact	MAX FID ON CORE: 0.0
170	166-176	10 / 10	C-7	N/A	166.0-176.0: AS ABOVE	MAX FID ON CORE: 5.2
175						