

APPENDIX D

Field Forms

Form 1: Typical Bore Log Form Used to Describe Split-Spoon Samples

Form 2: The Unified Soil Classification System (USCS)

Form 3: Well Abandonment Form

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Form 1. Typical Bore Log Form used to Describe Split-Spoon Samples

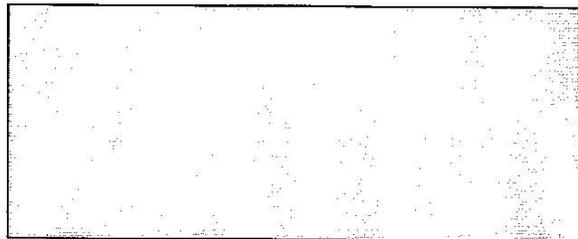
HTRW DRILLING LOG		DISTRICT		HOLE NUMBER		
1. COMPANY NAME		2. DRILL SUBCONTRACTOR		SHEET 1 OF 1		
3. SITE		4. LOCATION				
5. NAME OF DRILLER		6. MANUFACTURER'S DESIGNATION OF DRILL				
7. SIZE AND TYPE OF DRILLING AND SAMPLING EQUIPMENT		8. HOLE LOCATION				
		9. SURFACE ELEVATION				
		10. DATE STARTED		11. DATE COMPLETED		
12. OVERBURDEN THICKNESS		13. DEPTH GROUNDWATER ENCOUNTERED				
13. DEPTH DRILLED INTO ROCK		14. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED				
14. TOTAL DEPTH OF HOLE		15. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)				
16. BIOCHEMICAL SAMPLES		17. DISTURBED		18. TOTAL NUMBER OF CORE BOSSES		
20. SAMPLES FOR CHEMICAL ANALYSIS		VOC	METALS	SVOC	Pest./PCB	21. TOTAL CORE RECOVERY %
		BACTERIA	MONITORING WELL	OTHER (SPECIFY)	SIGNATURE OF INSPECTOR	
22. DESCRIPTION OF HOLE		SCALE 1 inch = 1 foot				
LOCATION SKETCH / COMMENTS						
PROJECT				HOLE NO.		

Form 1. Typical Bore Log Form used to Describe Split-Spoon Samples (Concluded)

HTRW DRILLING LOG		SITE	LOCATION	HOLE NUMBER	
PROJECT #		DISTRICT	INSPECTOR PATRICIA WESTON		SHEET 2 OF SHEETS
ELEV. (a)	DEPTH (ft.) (b)	DESCRIPTION OF MATERIALS (c)	USCS CLASS. (d)	FIELD SCREEN RESULTS (e)	REMARKS (f)
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				

Form 2. The Unified Soil Classification System (USCS)

Revised 07-12-02

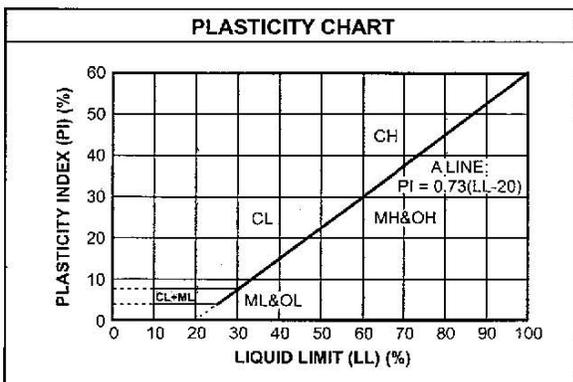


UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
Clean Gravels (Less than 5% fines)		
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	GW Well-graded gravels, gravel-sand mixtures, little or no fines	
	GP Poorly-graded gravels, gravel-sand mixtures, little or no fines	
	Gravels with fines (More than 12% fines)	
	GM Silty gravels, gravel-sand-silt mixtures	
	GC Clayey gravels, gravel-sand-clay mixtures	
Clean Sands (Less than 5% fines)		
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	SW Well-graded sands, gravelly sands, little or no fines	
	SP Poorly graded sands, gravelly sands, little or no fines	
	Sands with fines (More than 12% fines)	
	SM Silty sands, sand-silt mixtures	
	SC Clayey sands, sand-clay mixtures	
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
SILTS AND CLAYS Liquid limit less than 50%	ML Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity	
	CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
	OL Organic silts and organic silty clays of low plasticity	
SILTS AND CLAYS Liquid limit 50% or greater	MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
	CH Inorganic clays of high plasticity, fat clays	
	OH Organic clays of medium to high plasticity, organic silts	
HIGHLY ORGANIC SOILS	PT Peat and other highly organic soils	

LABORATORY CLASSIFICATION CRITERIA	
GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3
GP	Not meeting all gradation requirements for GW
GM	Atterberg limits below "A" line or P.I. less than 4
GC	Atterberg limits above "A" line with P.I. greater than 7
	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3
SP	Not meeting all gradation requirements for GW
SM	Atterberg limits below "A" line or P.I. less than 4
SC	Atterberg limits above "A" line with P.I. greater than 7
	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:
 Less than 5 percent GW, GP, SW, SP
 More than 12 percent GM, GC, SM, SC
 5 to 12 percent Borderline cases requiring dual symbols



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Form 3. Well Abandonment Form

Well Abandonment Form		Project Name _____		Borehole Number _____	
		Location _____		Well Number _____	
		Project Number _____		Page _____ of _____	
Logged By _____		Checked By _____		Reason For Abandonment _____	
Driller _____					
Drilling Method _____		Measured Depth of Well _____		Depth to Water _____	
Sampling Method _____		Was Old Well Removed? Yes _____ No _____ Partial _____			
Start Date _____		End Date _____		Drilled Diameter _____ Quality of Backfill (Gal) _____	
DEPTH (feet)	SAMPLE NUMBER	MATERIAL DESCRIPTION	BACKFILL DESCRIPTION	WELL CONSTRUCTION DETAILS	WELL SCHEMATIC
				TOP OF SEAL _____ TOP OF SAND _____ TOP OF SCREEN _____ WATER LEVEL _____ DEPTH OF WELL _____ DEPTH OF HOLE _____	

Form 3. Well Abandonment Form (Concluded)

Denver Federal Center Boring Log				Project Name _____		Boring Number _____	
				Contractor _____			
				Project Number _____		Page _____ of _____	
Depth (ft-bgs)	Blows/6" (recovery)	PID (ppm)	Graphic Log	MATERIAL DESCRIPTION		REMARKS	
							