USGS 1145

WOODWARD-CLYDE CONSULTANTS ROCKY MOUNTAIN REGION	HOLE NO. TH-466	PROJECT NO.: 21010-10185 PROJECT NAME: CHARACTERIZATION OF ROCK UNDERDRAIN MATERIAL
		LOCATION: PETE SPRING GULCH N 642,800 E 1,270,600
DRILLING LOG	SHEET 1 of 2	ELEVATION: (MSL OR TBM) ≈7670 MSL — DATE DRILLED: STARTED: 9-21-82, COMPLETED: 9-23-82
DRILL MANUFACTURER AND MODEL NUMBER: LONGYEAR 44		DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED - - - DEGREES TO VERTICAL
SIZE AND TYPE OF BIT(S): 3.93" DIAMETER ROTARY ROCK BIT FROM 0 TO 29.5' NX DIAMOND CORING BIT FROM 29.5' TO 203'		DRILLING FLUID: AIR MIST
CASING: 3.5' OD DEPTH: 29.5'	PIEZOMETER: DEPTH: NONE	WATER LEVEL — DEPTH: 113' DATE: 9-23-82; DEPTH: DATE: ; DEPTH: DATE:

ELEVATION	DEPTH	SYMBOL	CLASSIFICATION AND PHYSICAL CONDITION	POINT LOAD INDEX (PSI)	CORE RECOV. (%)	CORE RECOV. (FT.)	CORE RQD	CORE SHORTEST	CORE AVERAGE	CORE LONGEST	WEATHERING	HARDNESS	JOINTS	BEDDING	NOTES	WATER TESTS	DEPTH
	0–29.5		SAND, VERY GRAVELLY, VERY SILTY, BROWN (GM, SM).										60°				
	29.5–203		MARLSTONE WITH A FEW SCATTERED 1" INTERBEDS OF SANDSTONE, MEDIUM TO HIGH STRENGTH ROCK, GENERALLY UNWEATHERED, LAMINATED BEDDING (< 1" THICK); MODERATELY CLOSELY JOINTED TO WIDELY JOINTED (1' TO 5' SPACING) DIPPING GENERALLY STEEPER THAN 50°, SMOOTH TO ROUGH AND PLANAR TO IRREGULAR, WITH LOCAL PYRITE CRYSTALS GREY, CORE GENERALLY BREAKS ALONG BEDDING (UINTA FORMATION).	224	94	3.3	40	.1	.3	.4	U-M	3	70°	4°			
				714 864	100	10	94	<.1	.7	3.1	S	4	15°	3°-5°			
			29.5-30 MODERATELY WEATHERED 32.9-40 MARCASITE CRYSTALS ON BEDDING PLANE 35.6 SMALL VUG 46.7-47.5 KEROGEN RICH	1136 226	100	10	97	0.3	2.0	4.4	U	4	80°	2°-7°			
				725													
			SANDSTONE WITH THICK MARLSTONE INTERBEDS, WELL CEMENTED, GENERALLY MEDIUM STRENGTH ROCK, UNWEATHERED, LAMINATED BEDDING (< 1") TO THICK BEDDED (8" TO 3'), MODERATELY CLOSELY JOINTED TO WIDELY JOINTED (1' TO 5' SPACING), SMOOTH TO ROUGH AND PLANAR TO IRREGULAR, GREY AND BROWN, VERY FINE GRAINED, VERY SILTY, GENERALLY CALCAREOUS, LOCALLY TUFFACEOUS (UINTA FORMATION).	1173 305	100	10	97	0.1	2.0	2.6	U	3-4	65° 60°	2°-10°			
				617	100	10	79	<.1	1.0	1.8	U	3-4	50° 45° 75° 60°	2°-10°			
				568 386	100	10	92	.1	2.0	2.5	U	3-4	60° 80° 30° 70°	2°-15°			
				992 617 601 725	100	10	83	<.1	1.2	2.8	U	3-4	55° 85° 80° 60°	2°			
			MARLSTONE, AS ABOVE, WITH THICK INTERBEDS OF SANDSTONE.	617 146	83	8.3	65	<.1	1.0	5.0	U	3-4	80° 80°	2°-5°			
			87.8-89.2, 98-99 AND 100-100.5 VERY FRACTURED MARLSTONE	611 619	98	9.8	85	<.1	1.5	3.7	U	3-4	70° 75° 70° 60°	3°-15°			

CUTTING TIME

INTERVAL (feet)	TIME (min)	RATE (ft/min)
29.5-33	12	.29
33-43	28	.36
43-53	36	.28
53-63	40	.25
63-73	32	.31
73-83	28	.36
83-93	33	.30
93-103	54	.19
103-113	42	.24
113-123	28	.36
123-133	29	.34
133-142.8	44	.22
142.8-152.8	25	.40
152.8-163	42	.24
163-173	47	.21
173-183	21	.48
183-193	22	.45
193-203	29	.34

LEGEND

SEE TH-462

WOODWARD-CLYDE CONSULTANTS
ROCKY MOUNTAIN REGION

HOLE NO. TH-466

SHEET 2 of 2

DRILLING LOG

PROJECT NO.: 21010-10185
PROJECT NAME: CHARACTERIZATIONS OF ROCK UNDERDRAIN MATERIAL

ELEVATION	DEPTH	SYMBOL	CLASSIFICATION AND PHYSICAL CONDITION	POINT LOAD INDEX (PSI)	CORE RECOV.(%)	CORE RECOV.(FT.)	CORE RQD	CORE SHORTEST	CORE AVERAGE	CORE LONGEST	WEATHERING	HARDNESS	JOINTS	BEDDING	NOTES (Ground water level, water return, drilling fluid, drilling characteristics, etc.)	WATER TESTS	DEPTH
	110		SILTSTONE, WELL CEMENTED, MEDIUM STRENGTH ROCK, UNWEATHERED, VERY THICK BEDDED (>3'), WIDELY JOINTED (3'), SMOOTH AND PLANAR, VERY SANDY, VERY FINE GRAINED, HIGHLY CALCAREOUS, PINKISH GREY (UINTA FORMATION).	359													110
				<77	96	9.6	68	<.1	.7	1.8	U	3-4	30° 60° 70°	2° TO 10°			
	120			528													120
				284	99	9.9	64	<.1	.5	3.0	U	3-4	35° 60	2° TO 15°			
	130		MARLSTONE, AS ABOVE EXCEPT VUGGY FROM 118 TO 130, VUGS ARE OVOID AND 1/8" TO 1" ACROSS (UINTA FORMATION). VUGS AT 118.8, 119.4, 120.7, AND 128.3 118.0 TO 118.5 BRECCIA REHEALED WITH CARBONACEOUS MATERIAL 124.2 TO 124.8 VERY FRACTURED AND VUGGY 124.9 TO 130.2 VUGS WITH CALCITE CRYSTALS AND CARBONACEOUS MATERIAL	656													130
				679	97	9.5	54	.1	.5	1.6	U	4	60° 30° 55°	2° TO 5°			
	140			582													140
				717	104	10.2	92	.2	1.2	2.4	U	3-4	70° 60° 30° 85°	0°-7°			
	150			408													150
			SILTSTONE WITH INTERBEDDED SANDSTONE AND MINOR INTERBEDS OF MARLSTONE AS ABOVE (UINTA FORMATION).	385	89	9.1	74	.1	.7	3.3	U	3-4	50° 70° 50° 60° 30°	2°			
	160			453													160
			MARLSTONE, AS ABOVE (UINTA FORMATION). 158 TO 164 NUMEROUS VUGS 173 TO 175.8 NUMEROUS VUGS	676													
				778	92	9.2	75	<.1	.7	1.1	U	4	50° 50° 60° 40°	2°			
	170			1053													170
				702													
			SILTSTONE WITH THICK INTERBEDS OF MARLSTONE, AS ABOVE (UINTA FORMATION).	386	96	9.6	87	<.1	7.2	7.2	U	3-4	30° 30° 60°	2°-5°			
	180																180
				610	100	10	89	<.1	1.0	2.3	U	3-4	70° 60° 50° 60° 40°				
	190																190
					102	10.2	78	<.1	1.0	2.5	U	3-4	60° 70° 30° 80° 40°	2°-10°			
	200																200
	210																210