MONITORING WELL COMPLETION LOG GRN01-0183											
PROJECT UMTRA LOCATION GREE SITE GREEN RIVER WELL NUMBER 0	EAS		. (FT) 23 (FT) 170	8316.67 SURFACE ELEV. (FT NGVD) 4097.90 TOP OF CASING (FT) 4100.60							
	WELL INS	TALLATION	INTE	ERVAL (FT	SLOT SIZE (IN) 0.020 BIT SIZE(S) (IN) 8.0						
SURFACE CASING: BLANK CASING: WELL SCREEN: SUMP/END CAP: SURFACE SEAL: GROUT: SEAL: UPPER PACK: LOWER PACK:	4 in. PVC S 4 in. 0.02 S Cement Bentonite Bentonite C 20-40 Silica 10-20 Silica	Chips a Sand	-2.7 76.0 0.0 2.0 66.0 72.0 74.0	to 86 to 2. to 66 to 72 to 74	5.0 DRILLING METHOD ROTASONIC 5.0 SAMPLING METHOD ROTASONIC CORE DATE DEVELOPED 06/23/2002						
DEPTH (FT BGL) ELEV. (FT NGVD) BLOW COUNTS	SAMPLE ID. EXTENT	WELL DI	AGRAM	GRAPHIC LOG	LITHOLOGIC DESCRIPTION						
			- Cement		0-1.0 ft. SAND (SP); fine to medium grained, few small pebbles.						
			Cement		1.0-2.0 ft. FILL; gray clayey soil.						
_ 4095—					2.0-3.0 ft. SAND (SP); fine to medium grained, 10-15% pebbles.						
 - 5					3.0-22.9 ft. DAKOTA SANDSTONE: 3.0-6.0 ft. SANDSTONE; carbonaceous, medium to coarse grained, dark yellowish orange (10YR 6/6), increasing pebbles with depth, calcite cement.						
4090 					6.0-10.0 ft. CONGLOMERATE; pebbles (up to 3.0"), quartz, quartzite, dark chert, no cement-loose.						
		_			10.0-14.0 ft. CLAYSTONE; with weathered medium grained sandstone, Fe-staining, alternating clayey sandy layers about 6.0" thick.						
15 4080					14.0-19.0 ft. CONGLOMERATE; sandstone, light gray (N8), dark chert and pebbles (up to 3.0" in diameter) mixed with clay lenses.						
-20-					19-19.5 ft. SANDSTONE; fine to medium grained. Vertical fractures showing Fe staining, dolomitic cement. 19.5-21.5 ft. CONGLOMERATE; coarse sandstone with Fe staining. 21.5-22.0 ft. LIGNITE;						
4075—			PVC Sch	100.100	22.0-22.5 ft. CLAYSTONE; carbonaceous, carbon layer 1/8" thick, grayish black (N2). 22.5-22.9 ft. CONGLOMERATE; hard. 22.9-170.0 ft. CEDAR MOUNTAIN FORMATION: 22.9.23.2 ft. CLAYSTONE; weathered, gray (N3).						
Stoller-C	3 <u>10</u> \		PARTM		F ENERGY PAGE 1 OF 6 09/23/2002						

MONITORING WELL COMPLETION LOG GRN01-0183 PROJECT **UMTRA GROUND WATER WELL NUMBER** 0183 **GREEN RIVER** 06/06/2002 SITE **DATES DRILLED** Continued from Previous Page BLOW COUNTS EXTENT SAMPLE WELL DIAGRAM LITHOLOGIC DESCRIPTION 23.2-23.6 ft. CONGLOMERATE; sandstone/shale, gray (N7 to 23.6-68.0 ft. SHALE; some pebbles, dark green gray (5G 4/1), silty lenses to 1/4" thick, minor calcite stringers to 1/4" thick, trace of 4070 4065 33.0-40.0 ft. Pyrite nodules (up to 1/2" in diameter). Bentonite -35-35.0-37.0 ft. more siliceous, dark gray shale to siltstone, indurated @37.5 ft. calcite vein with pyrite framboids. 4060 40-40.0-46.0 ft. less silicification in shale, less pyrite, broken up and 4055 45 46.0-54.0 ft. silty lenses, calcareous, white powdery material is calcareous and coats broken shale, no pyrite. 4050 -50-4045 54.0-59.0 ft. clayey, fragmental texture, high plasticity. Stoller-GJO**U.S. DEPARTMENT OF ENERGY** PAGE 2 OF 6 09/23/2002 GRAND JUNCTION OFFICE, COLORADO

MONITORING WELL COMPLETION LOG GRN01-0183 PROJECT **UMTRA GROUND WATER WELL NUMBER** 0183 **GREEN RIVER** 06/06/2002 SITE **DATES DRILLED** Continued from Previous Page ELEV. (FT NGVD) BLOW DEPTH (FT BGL) EXTENT SAMPLE WELL DIAGRAM LITHOLOGIC DESCRIPTION 4040 59.0-61.0 ft. clayey calcareous with siliceous layers, possibly nodules with calcite stringers, siliceous layers, dark gray/green (5G 60 61.0-62.0 ft. slightly sandy. 62.0-63.0 ft. brown (5YR 4/1), siliceous nodules (up to 3.0" in diameter)-slightly calcareous, in greenish gray clay. 63.0-68.0 ft. more green clay with hard calcareous nodules (up to 4035 4.0" in diameter). 65 4030 68.0-87.0 ft. SANDSTONE Bentonite 68.0-73.0 ft. clean, fine grained, with calcite cement, light gray (N8), Chips well indurated, patches of pyrite. @69.0 ft. large (>6.0 in diameter) siliceous/calcareous concretion 70 which is near top of indurated sandstone. Numerous tiny (1mm diameter x 1cm long), dark brown organic inclusions in sandstone-may be twigs/pyrite is associated with them. Sandstone has mottled appearance, tan to light greenish gray in places. Tiny 1mm x .5 to 1.0 cm long carbonate veinlets occasionally. Calcite 20-40 4025 Silica cement generally decreases top to bottom. Sand 73.0-75.0 ft. clayey sequence, fragments of fine grained sandstone PVC Sch 75 40 75.0-77.5 ft. fine grained sandstone, horizontally fractured, calcite cement prominent. 10-20 Silica Sand 77.5-83.0 ft. nodules more common. 4020 80 0.020" Slotted PVC 4015 83.0-87.0 ft. fine grained sandstone. 85 87.0-170.0 ft. SHALE: $87.0\text{-}94.5 \; \text{ft.} \; \; \text{shale, mudstone, with siltstone stringers, micro}$ euhedral pyrites abundant in some silty layers (up to 1cm thick), U.S. DEPARTMENT OF ENERGY PAGE 3 OF 6 09/23/2002 GRAND JUNCTION OFFICE, COLORADO

MONITORING WELL COMPLETION LOG GRN01-0183 PROJECT **UMTRA GROUND WATER WELL NUMBER** 0183 **GREEN RIVER DATES DRILLED** 06/06/2002 SITE Continued from Previous Page ELEV. (FT NGVD) BLOW EXTENT SAMPLE WELL DIAGRAM LITHOLOGIC DESCRIPTION and some siliceous layers-pyrite diminishes with depth. -90-4005 94.5-96.5 ft. same as above except it is calcareous. -95 96.5-97.0 ft. lime nodule zone, some silicification, calcite veins mostly vertical (end abruptly). 97.0-99.0 ft. apparent coarse sand, pebble layer (may be due to 4000 drilling and it ends abruptly). 99.0-101.0 ft. clay supported rubble, lime clasts. 100 101.0-105.0 ft. silicified, mottled, calcareous mudstone to siltstone with vertical open veins containing octahedral pyrite and barite (1cm diameter-tabular) on drusy calcite. 3995 105 @105.0 ft. mudstone less silicified but still contains vertical calcite 106.0-107.0 ft. same as above with vertical calcite veins with pyrite and barite. 107.0-132.5 ft. mudstone to shale, calcareous. At 123.5 ft., 132.5 3990 ft, white chalky areas, pinkish (5R 8/2) at 132.5. From 123.5 to 129.5 ft., core swelling occurs in core barrel. 110 3985 -115-3980 **U.S. DEPARTMENT OF ENERGY** 09/23/2002 PAGE 4 OF 6 GRAND JUNCTION OFFICE, COLORADO

MONITORING WELL COMPLETION LOG GRN01-0183 PROJECT **UMTRA GROUND WATER WELL NUMBER** 0183 **GREEN RIVER** 06/06/2002 SITE DATES DRILLED Continued from Previous Page ELEV. (FT NGVD) BLOW EXTENT SAMPLEI WELL DIAGRAM LITHOLOGIC DESCRIPTION 3975 125 3970 -130-132.5-133.5 ft. calcareous nodule with red chert veinlets at 132.5 ft. 3965 Mudstone is calcareous, greenish gray (5G 4/1) to mauve (5R 2/2). 133.5-134.0 ft. mudstone, mauve to gray green, less calcareous, friable, good plasticity from 139.5 to 141.5 ft. 134.0-149.0 ft. friable, calcareous. @148.5 calcareous nodules. -135 3960 140-3955 3950 149.0-156.0 ft. greenish gray (5G 6/1). 150 @152.0 and 156.0 ft. siliceous, calcareous, light greenish gray $S_{toller-GJO}$ **U.S. DEPARTMENT OF ENERGY** PAGE 5 OF 6 09/23/2002 GRAND JUNCTION OFFICE, COLORADO

PROJECT UMTRA GROUND WATER SITE GREEN RIVER				R	WELL NUMBER 0183 DATES DRILLED 06/06/2002						
Continued from Previous Page											
DEPTH (FT BGL) ELEV.	BLOW	SAMPLE ID.	WELL WELL	WELL DIAGRAM		LITHOLOGIC DESCRIPTION					
-155					layer (up to 6.0" thick). @156.0 ft. color changes to mauve with, 1 to 2 ft. zones of greenish gray; at 156.0 to 157.5 ft., is an indurated calcareous mudstone. @160.0 ft. calcareous, greenish gray nodules. 164.0-165.0 ft. very light greenish gray(N7) siltstone to fine grained sandstone, calcareous, possible bioturbation. 165.0-170.0 ft. mauve, calcareous shale to mudstone.						
-170- 	- - -						Total Depth 170.0 ft.				