

**APPENDIX B**

**FIELD EXPLORATION PROGRAM  
RESULTS**

## **APPENDIX B**

### **GEOTECHNICAL FIELD EXPLORATION PROGRAM RESULTS**

The portion of the Phase 2 geotechnical field exploration program conducted by Golder Associates Inc. (Golder) investigated soil and rock conditions in the areas of the proposed ore pads, tailings cells, and evaporation ponds. Kleinfelder West Inc. (Kleinfelder) conducted a supplemental Phase 2 geotechnical field exploration program to investigate conditions for design of mill foundations and access roads, presented under separate cover.

Exploration techniques included a combination of auger drilling, rock coring, and test pit excavation. Laboratory tests (Appendix C) were performed on samples collected during the excavation. Attachments to this Appendix provide detailed field investigation information and include drill hole logs (Appendix B-1); core photos (Appendix B-2); packer test data, interpretation, and analyses (Appendix B-3); and test pit logs (Appendix B-4). Geotechnical field exploration locations are presented on Drawing 1 in the report. Tables B-1 and B-2 present the depths of the Phase 2 drill holes and test pits, respectively.

The exploration layout, exploration methods, and sampling and testing protocols were selected to characterize the variability of overburden soils and near-surface bedrock, both spatially and with depth.

**TABLE B-1  
PHASE 2 DRILL HOLE EXPLORATION DEPTHS**

<b>Drillhole Identification</b>	<b>Depth (ft)</b>
GA-BH-01	25
GA-BH-02	50
GA-BH-03	50
GA-BH -04	46
GA-BH -05	40
GA-BH -06	60
GA-BH -07	65
GA-BH -08	50
GA-BH-09	70
GA-BH -10	50
GA-BH -11	25
GA-BH -12	50
GA-BH -13	70
GA-BH -14	50
GA-BH -15	70
GA-BH -16	70
GA-BH -17	51
GA-BH -18	100
GA-BH -19	78
GA-BH -20	44
GA-BH -21	100
GA-BH -22	100
GA-BH -23	55
GA-BH -24	99.5
GA-BH -25	45.5
GA-BH -26	100
GA-BH -27	100
GA-BH -28	40
GA-BH -29	100
GA-BH -30	60
GA-BH -31	110
GA-BH -32	31
GA-BH -32B	50
GA-BH -33	100
GA-BH -34	36
GA-BH -35	70
GA-BH -36	100
GA-BH -37	65
GA-BH -38	100
GA-BH -39	100

GA-BH -40	50
GA-BH -41	50
GA-BH -42	100
GA-BH -43	50
GA-BH -44	39
GA-BH -45	50
GA-BH -46	50
GA-BH -47	41
GA-BH -48	51

**TABLE B-2**  
**PHASE 2 TEST PIT EXPLORATION DEPTHS**

<b>Test Pit Identification</b>	<b>Depth (ft)</b>
GA-TP-01	10
GA-TP-02	10.5
GA-TP-03	10.5
GA-TP -04	10
GA-TP -05	9.5
GA-TP -06	10
GA-TP -07	10
GA-TP -08	10
GA-TP-09	11
GA-TP -10	10
GA-TP -11	10.5

**APPENDIX B-1**  
**DRILLHOLE LOGS**

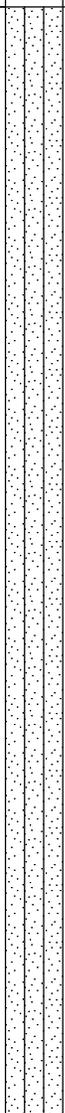
# RECORD OF BOREHOLE GA-BH-01

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.50 E: 2,060,098.50

ELEVATION: 5419.8  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
											W <sub>p</sub>	W	W <sub>L</sub>		W <sub>U</sub>		
0	8" OD 4.25" ID HSA	SM		5405.3 14.5	1	MC	--10-14--	24	0.8 1	■					<p style="text-align: right;">Full Sample Barrel</p> <p style="text-align: right;">Material Change in Sample</p>		
5																	
10									2	MC	--16-26--	42	1 1	■			
15									3	MC	--36-46--	>50	1 1	■			
20					4	MC	--28-49--	>50	0.9 1	■							

0.0 - 14.5  
 Compact, reddish brown, weakly cemented,  
 very fine grained SILTY SAND (SM), trace  
 calcareous veins; dry to slightly moist  
 (LOESS)

14.5 - 24.0  
 Hard, mod. brown, CLAYSTONE, dry to  
 slightly moist, interbedded with dense to  
 very dense, lt. brown silty SANDSTONE,  
 well-graded, dry

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-01

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.50 E: 2,060,098.50

ELEVATION: 5419.8  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						20	40	60		80
20	8" OD 4.25" ID HSA	14.5 - 24.0 Hard, mod. brown, CLAYSTONE, dry to slightly moist, interbedded with dense to very dense, lt. brown silty SANDSTONE, well-graded, dry (Continued)		[Graphic Log: Dotted pattern]	5395.8										
25		24.0 - 25.0 Hard to very hard, light olive yellow silty CLAYSTONE, dry to slightly moist (HERMOSA FORMATION)		[Graphic Log: Horizontal lines]	24.0	5	MC	--36-49--	>50	1 1					Driller notes harder drilling  >> ■
25		Boring completed at 25 ft.													
30															
35															
40															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-02

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.40 E: 2,060,648.60

ELEVATION: 5430.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>	
20	8" OD 4.25" ID HSA	21.0 - 29.0		[Graphic Log: Horizontal lines]	5409.7 21.0											
		Dense, light reddish brown SILTSTONE, some clay, trace very fine sand, dry (CUTLER FORMATION)														
25						5	MC	--28-50--	>50	1 1						Full sample barrel, Claystone not evident in sample @ 25.0'
		29.0 - 35.0 Interbedded, very hard, olive gray silty CLAYSTONE, trace calcareous veins and dense, light reddish brown SILTSTONE, some sand, dry (HERMOSA FORMATION)			5401.7 29.0	6	MC	--47-50/4"--	50/4"	0.67 0.8						
30		35.0 - 35.3	GW	[Graphic Log: Water level symbol]	5395.7 35.0	7	MC	--50/2"----	-	0 0.2						
		Very dense GRAVEL			5395.5 35.3											
		35.3 - 42.0 Very hard, mottled olive and brown CLAYSTONE, thinly bedded, few silty zones (HERMOSA FORMATION)														
35																
40						8	MC	--25-48--	>50	1 1					Driller notes gravel from 42 - 47 feet.	

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-02

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.40 E: 2,060,648.60

ELEVATION: 5430.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	BLOWS / ft ■		
					DEPTH (ft)						WATER CONTENT (PERCENT)		
40	8" OD 4.25" ID HSA	35.3 - 42.0 Very hard, mottled olive and brown CLAYSTONE, thinly bedded, few silty zones (HERMOSA FORMATION) (Continued)		[Graphic Log: Horizontal lines]	5388.7 42.0								
45		42.0 - 47.0 Highly weathered, well-graded SANDSTONE with gravel, sub-angular		[Graphic Log: Dotted pattern]	5383.7 47.0							No sampling attempts made @ 45 or 50 feet.	
50		47.0 - 50.0 Very hard, olive gray to gray CLAYSTONE with gypsum inclusions, dry (HERMOSA FORMATION)		[Graphic Log: Horizontal lines]									
55	Boring completed at 50 ft.												
60													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-03

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.40 E: 2,061,198.80

ELEVATION: 5442.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 1.5 Compact, reddish brown silty SAND (SM), slightly moist to moist (LOESS)	SM	[Dotted Pattern]	5440.8 1.5	1	MC	--12-23--	35	1	1	■			
		1.5 - 4.0 Compact to dense, light reddish brown silty SAND (SM), trace calcareous veins, dry (LOESS)	SM	[Dotted Pattern]	5438.3 4.0								■		
5		4.0 - 6.0 Hard, light tan silty CLAY (CL), some very fine sand, dry (LOESS)	CL-ML	[Cross-hatched Pattern]	5436.3 6.0	2	MC	--15-27--	42	1	1		■		
		6.0 - 10.0 Hard, reddish brown to moderate brown silty CLAY (CL), some sand, dry to slightly moist (LOESS)	CL	[Diagonal Line Pattern]	5432.3 10.0	3	MC	--34-42--	>50	0.8	1		■	>>	
10		10.0 - 23.0 Compact to dense, light reddish brown, well-graded, weakly cemented, sandy CLAY (CL), dry (LOESS)	CL	[Diagonal Line Pattern]		4	MC	--19-23--	42	1	1		■		
15					5	MC	--31-40--	>50	1	1		■	>>		
20															

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-03

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/27/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,596,809.40 E: 2,061,198.80

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)			
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>		
20	8" OD 4.25" ID HSA	10.0 - 23.0 Compact to dense, light reddish brown, well-graded, weakly cemented, sandy CLAY (CL), dry (LOESS) (Continued)	CL		5419.3 23.0									
25		23.0 - 27.0 Hard, light reddish brown, moderately cemented silty CLAY (CL-ML), little to some very fine sand, dry (LOESS)	CL-ML			6	MC	--32-50/4"--	50/4"	0.8 0.8			>> ■	
30		27.0 - 37.5 Dense, light reddish brown, weakly to moderately cemented, very fine silty SAND (SM), trace fine to coarse sand, trace gravel, dry (LOESS)	SM		5415.3 27.0	7	MC	--26-37--	>50	1 1			>> ■	
35						8	MC	--50-50/5"--	50/5"	0.75 1			>> ■ Driller notes material is getting harder.	
40		37.5 - 44.0 Dense, light reddish brown, weakly to moderately cemented, very fine silty SAND (SM), trace fine to coarse sand, little to some gravel, dry (LOESS)	SM		5404.8 37.5	9	MC	--50/0"----	-	0 0			>> ■	
		Log continued on next page												

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-03

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.40 E: 2,061,198.80

ELEVATION: 5442.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>			
40	8" OD 4.25" ID HSA	37.5 - 44.0 Dense, light reddish brown, weakly to moderately cemented, very fine silty SAND (SM), trace fine to coarse sand, little to some gravel, dry (LOESS) <i>(Continued)</i>	SM	[Graphic Log: Dotted pattern]	5398.3										Driller notes cobbly conditions from 41-44 feet.	
45		44.0 - 47.0 Very hard, olive black to light olive gray CLAYSTONE (HERMOSA FORMATION)		[Graphic Log: Horizontal lines]	44.0	10	MC	-50/3"----	-	0.25	0.25					>> ■
50		47.0 - 50.0 Hard, white to olive white GYPSUM, dry (HERMOSA FORMATION)		[Graphic Log: Diagonal lines]	5395.3 47.0											>> ■ Sluff recovered and returned.
55		Boring completed at 50 ft.														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-04

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,596,809.40 E: 2,061,749.00

ELEVATION: 5441.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W	W <sub>L</sub>		W <sub>U</sub>	
0	8" OD 4.25" ID HSA	0.0 - 1.0 Soft, moderate brown, clayey SILT (ML), dry (LOESS)	ML		5440.2 1.0											
		1.0 - 9.0 Compact, grayish orange, sandy SILT (ML), some fine to coarse gravel, weakly cemented, dry (LOESS)				1	MC	--24-26--	50	1 1				■		
5				ML											■	
						2	MC	--20-30--	50	1 1					■	
10			9.0 - 20.0 Compact, moderate brown, sandy SILT (ML), some fine to coarse gravel, weakly cemented, dry (LOESS)			5432.2 9.0	3	MC	--25-25--	50	1 1				■	
15			ML			4	MC	--25-25/5"--	25/5"	0.9 1				>> ■		
20					5421.2	5	MC	--25-25/3"--	25/3"	0.9 1				>> ■		
		Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-04

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,596,809.40 E: 2,061,749.00

ELEVATION: 5441.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		
20	8" OD 4.25" ID HSA	20.0 - 30.0 Compact, light brown, sandy SILT (ML), some fine to coarse gravel, trace gypsum, weakly cemented, dry (LOESS)	ML		20.0										
25					6	MC	--50/5"-50/2"--	50/2"	0 1						>> ■
30					7	MC	--16-31--	47	0.5 1						■
35	8" OD 4.25" ID HSA	30.0 - 38.0 Compact, light brown, sandy SILT (ML), some fine to coarse gravel (loose), some white to gray gypsum/anhydrite, weakly cemented, dry (LOESS)	ML		5411.2 30.0										
38					8	MC	--49-50/3"--	50/3"	0.75 1						>> ■
40					9	MC	--49-50/4"--	50/4"	0.75 1						>> ■
40		38.0 - 44.0 Moderately weathered (III), moderate brown SILTSTONE/CLAYSTONE, trace anhydrite/gypsum, weak reaction with HCL (HERMOSA FORMATION)	ML		5403.2 38.0										

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-04

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,596,809.40 E: 2,061,749.00

ELEVATION: 5441.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
40	8" OD 4.25" ID HSA	38.0 - 44.0 Moderately weathered (III), moderate brown SILTSTONE/CLAYSTONE, trace anhydrite/gypsum, weak reaction with HCL (HERMOSA FORMATION) (Continued)		[Graphic Log: Horizontal lines]											
45		44.0 - 46.0 Light to medium gray, very fine grained GYPSUM/ANHYDRITE (HERMOSA FORMATION - PARADOX MEMBER)		[Graphic Log: Diagonal hatching]	5397.2 44.0	10	MC	--25-50/0"--	50/0"	0 1				>> ■	
50	Boring completed at 46 ft.														
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-05

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.50 E: 2,062,299.10

ELEVATION: 5432.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 1.5 Compact, reddish brown, sandy-clayey SILT (ML), slightly moist (LOESS)	ML		5431.2										
		1.5 - 10.0 Dense, reddish brown to white, clayey-sandy SILT (ML), sand is very fine grained, white calcareous veins throughout, dry to slightly moist (LOESS)			1.5	1	MC	--36-50/4"--	50/4"	1	0.83			>> ■ Last high blow count likely due to barrel being full	
5			ML												
10			10.0 - 18.0 Very stiff, moderate brown, silty CLAY (CL), little very fine sand, white calcareous veins throughout, weakly to moderately cemented, dry to slightly moist, sand and silt decreases with depth (LOESS)	CL		5422.7	2	MC	--28-30--	>50	1	1		>> ■	
15					10.0	3	MC	--41-50/5"--	50/5"	0.67	0.9		>> ■		
20		18.0 - 24.0 Dense, reddish brown sandy SILT (ML), little clay, trace white calcareous veins, dry (LOESS)	ML		5414.7	4	MC	--41-46--	>50	1	1		>> ■		
		Log continued on next page			18.0										

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-05

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,809.50 E: 2,062,299.10

ELEVATION: 5432.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA	18.0 - 24.0 Dense, reddish brown sandy SILT (ML), little clay, trace white calcareous veins, dry (LOESS) (Continued)	ML												
25		24.0 - 35.0 Dense to very dense, mottled reddish brown, white, and yellowish brown sandy-gravelly SILT (ML), sand is well-graded, gravel is fine to medium grained and subangular, dry, occasional clayey zones (LOESS)	ML			5	MC	--50/5.5"----	-	0.42 0.46				>> ■ Drilling noticeably harder below 24 feet	
30		35.0 - 40.0 Highly weathered (IV), very stiff (S5), olive CLAYSTONE, dry (HERMOSA FORMATION)	ML			6	MC	--48-50/5"--	50/5"	1 0.9				>> ■ Gray volcanic rocks found in top of sample	
35		35.0 - 40.0 Highly weathered (IV), very stiff (S5), olive CLAYSTONE, dry (HERMOSA FORMATION)	ML			7	MC	--44-50/4"--	50/4"	1 0.8				>> ■	
40		Boring completed at 40 ft.	35.0 - 40.0 Highly weathered (IV), very stiff (S5), olive CLAYSTONE, dry (HERMOSA FORMATION)	ML			8	MC	--50/4"----	-	0.67 0.33			>> ■	

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-06

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50

ELEVATION: 5443.9  
 INCLINATION: -90  
 COORDINATES: N: 1,596,809.40 E: 2,062,849.30

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>	W <sub>L</sub>	
0	8" OD 4.25" ID HSA	0.0 - 4.0 Soft, grayish orange sandy SILT (ML), dry (LOESS)	ML		5439.9 4.0	1	MC	--22-23--	45	1 1	■				
5		4.0 - 9.0 Loose, dark orange, fine to coarse silty SAND (SM), trace fine to coarse gravel, trace organics, dry (LOESS)	SM		5434.9 9.0	2	MC	--3-5--	8	1 1	■				
10		9.0 - 29.0 Compact, grayish orange sandy SILT (ML), dry (LOESS)	ML			3	SH	-----	-	0.8 0.8					
15				ML		4	SH	-----	-	0.71 0.71					
20			Log continued on next page			5	MC	--16-24/5"--	24/5"	0.9 1		■	>>		

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-06

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50

ELEVATION: 5443.9  
 INCLINATION: -90  
 COORDINATES: N: 1,596,809.40 E: 2,062,849.30

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>				
20	8" OD 4.25" ID HSA	9.0 - 29.0 Compact, grayish orange sandy SILT (ML), dry (LOESS) <i>(Continued)</i>	ML		5414.9	5	MC	--16-24/5"--	24/5"	0.9 1	>>						
25					29.0	6	MC	--16-20--	36	1 1	■						
30		29.0 - 30.0 Very stiff, moderate yellowish brown silty CLAY (CL), dry (LOESS)	CL	/ / / / /	5413.9	7	MC	--20-30--	50	0.4 1	■						
35		30.0 - 36.0 Compact, dark yellowish brown sandy SILT (ML), trace gypsum, dry (LOESS)	ML		5407.9	8	MC	--33-17/2"--	17/2"	1 1	>>						
40					36.0	36.0 - 39.0 Soft to firm, moderate yellowish brown silty CLAY (CL), dry (LOESS)	CL	/ / / / /	9	MC	--50-50/4"--	50/4"	0.8 1	>>			
40					5404.9	39.0 - 59.0 Dense, light brown silty, clayey, SAND (SC-SM), little fine to coarse gravel, dry (LOESS)	SC-SM		39.0								
		Log continued on next page															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-06

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,596,809.40 E: 2,062,849.30

ELEVATION: 5443.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W	W <sub>L</sub>		W <sub>p</sub>
40	8" OD 4.25" ID HSA	SC-SM	Dense, light brown silty, clayey, SAND (SC-SM), little fine to coarse gravel, dry (LOESS) <i>(Continued)</i>	5384.9 59.0	9	MC	--50-50/4"--	50/4"	0.8 1	>>	>>	>>	>>		
45					10	MC	--50/3"-50/4"--	50/4"	0.1 0.6	>>	>>	>>	>>		
50					11	MC	--50/0"----	-	0 0	>>	>>	>>	>>		
55					12	MC	--50/0"----	-	0 0	>>	>>	>>	>>		
60					13	MC	--50-50/3"--	50/3"	0.75 0.75	>>	>>	>>	>>		
		Boring completed at 60 ft.													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-07

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/29/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,060,098.50

ELEVATION: 5430.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
0	8" OD 4.25" ID HSA	0.0 - 7.0 Loose to compact, light brown, very fine grained silty SAND (SM), trace fine to coarse sand, poorly-graded, dry (LOESS)	SM	[Graphic Log: Dotted pattern]	5423.5	1	MC	--8-10--	18	1/1	■				
5		7.0													
10		7.0 - 13.0 Compact (stiff), reddish brown, clayey SILT (ML), trace very fine sand, calcareous veins throughout, weakly cemented, dry (LOESS)	ML	[Graphic Log: Vertical lines]	5417.5	2	MC	--18-22--	40	1/1	■				
15		13.0													
20	13.0 - 17.0 Dense, reddish brown, very fine grained sandy SILT (ML), trace calcareous veins, weakly cemented, dry (LOESS)	ML	[Graphic Log: Vertical lines]	5413.5	3	MC	--46-39--	>50	1/1	■	>>				
25	17.0														
30	17.0 - 24.0 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, trace calcareous veins, dry -occasional zone with little to some gravel-occasional zone of sandy SILT (ML)- (LOESS)	SM	[Graphic Log: Dotted pattern]	5411.0	4	MC	--29-49--	>50	1/1	■	>>				
35	19.5														
40	Thin (1-2") zone of well-cemented sand at Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-07

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/29/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,596,186.80 E: 2,060,098.50

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
20	8" OD 4.25" ID HSA	19.5 feet 17.0 - 24.0 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, trace calcareous veins, dry -occasional zone with little to some gravel- -occasional zone of sandy SILT (ML)- (LOESS) (Continued)	SM											Full sample barrel likely accounting for high final blow count	
25		24.0 - 33.0 Compact, reddish brown, clayey SILT (ML), trace to little very fine sand, weakly cemented, dry (LOESS)	ML												
30			ML												
35		33.0 - 37.5 Compact, light reddish brown, very fine grained silty SAND (SM), trace clay, trace fine to coarse sand, weakly cemented, dry (LOESS)	SM												
40		37.5 - 43.0 Dense, reddish brown, sandy-clayey SILT (ML), sand is very fine grained, trace fine to coarse sand, weakly cemented, dry (LOESS)	ML												
40	Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-07

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/29/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,596,186.80 E: 2,060,098.50

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>U</sub>		W <sub>h</sub>
40	8" OD 4.25" ID HSA	37.5 - 43.0 Dense, reddish brown, sandy-clayey SILT (ML), sand is very fine grained, trace fine to coarse sand, weakly cemented, dry (LOESS) (Continued)	ML		5387.5 43.0									Full sample barrel likely accounting for high final blow count     Full sample barrel likely accounting for high final blow count     Gravel in cuttings from 50 to 55 feet     Driller notes gravel layer at 56 feet	
45		43.0 - 48.0 Dense, reddish brown, very fine grained silty SAND (SM), dry (LOESS)	SM			9	MC	--33-50/5"--	50/5"	1 0.9					
50		48.0 - 53.0 Very stiff, mottled moderate brown and whitish tan CLAYSTONE, dry to slightly moist (HERMOSA FORMATION)			5382.5 48.0		10	MC	--19-22--	41	0.75 1				
55		53.0 - 59.0 Stiff to very stiff, mottled olive, black, brown, and tan gravelly CLAYSTONE, dry to slightly moist (HERMOSA FORMATION)			5377.5 53.0		11	MC	--20-15--	35	0.67 1				
60		59.0 - 65.0 Medium strong (R3), mottled black and white GYPSUM (HERMOSA FORMATION - PARADOX MEMBER)  Log continued on next page			5371.5 59.0		12	MC	--50/3"---	-	0.5 0.25				

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-08

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,060,648.70

ELEVATION: 5433.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)		
											W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 1.5 Loose to compact, dark reddish brown silty SAND (SM), dry to slightly moist [TOPSOIL]	SM	[Graphic Log: Fine dots]	5431.5 1.5								
		1.5 - 12.0 Compact, light reddish brown, silty SAND (SM), trace gavel, trace roots, weakly cemented, dry (LOESS)	SM	[Graphic Log: Fine dots]		1	MC	--10-13--	23	0.9 1	■		Thin (1") slightly moist to moist zone at 3.2 feet
5				SM	[Graphic Log: Fine dots]								
10				SM	[Graphic Log: Fine dots]	2	MC	--13-16--	29	1 1	■		
			12.0 - 15.0 Compact to very dense, light reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, trace fine gravel, dry (LOESS)	SM	[Graphic Log: Fine dots]	5421.0 12.0							
15			SM	[Graphic Log: Fine dots]	3	MC	*-13-50/3"--	50/3"	0.9 0.75	■	>>		
		15.0 - 19.0 Compact, light reddish brown, very fine grained silty SAND and GRAVEL (SM-GM), trace fine to coarse sand, little cobbles, dry (ALLUVIUM)	SM-GM	[Graphic Log: Dotted with circles]	5418.0 15.0							Gravelly and cobbly drilling from 15 to 19 feet	
20			SM	[Graphic Log: Dotted with circles]	5414.0 19.0	4	MC	--37-33--	>50	1 1	■	>>	
		19.0 - 27.0 Dense, reddish brown, well-graded silty SAND (SM), little Gravel, dry, density increases with depth (LOESS)  Log continued on next page	SM	[Graphic Log: Dotted with circles]									

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-08

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,060,648.70

ELEVATION: 5433.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											$W_p$  -----  $W$  -----  $W_L$ 20 40 60 80					
20	8" OD 4.25" ID HSA	19.0 - 27.0 Dense, reddish brown, well-graded silty SAND (SM), little Gravel, dry, density increases with depth (LOESS) (Continued)	SM	[Graphic Log: Dotted pattern]	5406.0											
					27.0											5
25			27.0 - 32.0 Dense to very dense, reddish brown, very fine grained silty SAND (SM), weakly cemented, dry (LOESS)	ML	[Graphic Log: Vertical lines]	5401.0										
			32.0			6										
30			32.0 - 37.5 Dense to very dense, light reddish brown, very fine grained silty SAND (SM), trace gravel, dry (LOESS)	SM	[Graphic Log: Dotted pattern]	5395.5										
			37.5			7										
35			37.5 - 48.0 Dense to very dense, whitish tan, very fine to fine grained sandy SILT (ML), trace gravel, weakly to moderately cemented, dry (LOESS)	ML	[Graphic Log: Vertical lines]	5395.5										
			37.5			8										
40		Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-08

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,060,648.70

ELEVATION: 5433.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
40	8" OD 4.25" ID HSA	37.5 - 48.0 Dense to very dense, whitish tan, very fine to fine grained sandy SILT (ML), trace gravel, weakly to moderately cemented, dry (LOESS) <i>(Continued)</i>	ML											>> ■	
45															9
50			48.0 - 50.0 Very dense, reddish brown to moderate brown very fine grained sandy-clayey SILT (ML), trace calcareous veins, dry to slightly moist (LOESS)	ML											>> ■
55		Boring completed at 50 ft.													
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-09

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,061,198.80

ELEVATION: 5448.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 5.0 Compact to dense, reddish brown to reddish white, very fine grained silty SAND (SM), trace fine to medium sand, slightly moist (0-2.5), dry (2.5-5) (LOESS)	SM		5443.9 5.0	1	MC	--26-49--	>50	1 1					>> ■
5		5.0 - 37.5 Compact to dense, reddish brown, very fine grained sandy SILT (ML), weakly cemented, dry -interbedded with- Compact to dense, reddish brown to reddish white, very fine grained silty SAND (SM), trace fine to medium sand, dry (LOESS)	ML-SM		5443.9 5.0	2	MC	--25-49--	>50	1 1					>> ■
10				ML-SM		3	MC	--28-28--	>50	1 1					>> ■
15						4	MC	--18-24--	42	1 1					■
20		Log continued on next page			5428.9										

Driller notes gravel and cobbles at 13 feet

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-09

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/27/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,061,198.80

ELEVATION: 5448.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>				
20	8" OD 4.25" ID HSA	5.0 - 37.5 Compact to dense, reddish brown, very fine grained sandy SILT (ML), weakly cemented, dry -interbedded with- Compact to dense, reddish brown to reddish white, very fine grained silty SAND (SM), trace fine to medium sand, dry (LOESS) (Continued)  Trace GYPSUM inclusions near 20 feet	ML-SM		20.0												
25		Trace medium to coarse sand near 25 feet				5423.9 25.0	5	MC	--21-28--	49	1 1					■	
30		33 feet: Increase in gravel and coarse sand content				5415.9 33.0	6	MC	--43-36--	>50	1 1					>> ■	
35							7	MC	--50/5"----	-	0.25 0.4					>> ■	
40					37.5 - 52.0 Dense to very dense, reddish brown, silty SAND (SM), weakly cemented, dry to slightly moist, occasional zone with little fine to coarse sand, occasional zone of very fine grained sandy SILT (ML) (LOESS)	SM	5411.4 37.5	8	MC	--36-47--	>50	1 1					>> ■
					Log continued on next page												

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



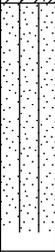
# RECORD OF BOREHOLE GA-BH-09

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/27/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,596,186.80 E: 2,061,198.80

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION													
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)																
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>												
40	8" OD 4.25" ID HSA	37.5 - 52.0 Dense to very dense, reddish brown, silty SAND (SM), weakly cemented, dry to slightly moist, occasional zone with little fine to coarse sand, occasional zone of very fine grained sandy SILT (ML) (LOESS) <i>(Continued)</i>	SM		5398.9	9	MC	--21-34--	>50	1	1	>> ■															
45					50.0									10	MC	--35-50/4"--	50/4"	0	0.8	>> ■							
50					5396.9																11	MC	--29-50/5"--	50/5"	0.5	0.9	>> ■
55					52.0																						
60	5391.9	57.0	57.0 - 70.0	Very stiff to hard, light tan, interbedded very fine grained clayey SAND (SC) and sandy CLAY (CL), dry (LOESS)	SC-CL		57.0 - 70.0	Dense to very dense, reddish brown, silty SAND (SM), weakly cemented, dry to slightly moist, occasional zone with little fine to coarse sand, occasional zone of very fine grained sandy SILT (ML) (LOESS)	SM		Log continued on next page																

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-10

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,061,749.00

ELEVATION: 5453.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)		
					DEPTH (ft)						W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 5.0 Compact, reddish brown, very fine grained sandy SILT (ML), trace calcareous veins, weakly cemented, dry (LOESS)	ML		5448.3								
		1			MC								
5		5.0 - 12.0 Dense to very dense, light reddish brown, sandy CLAY (CL), very fine to medium grained sand, trace calcareous veins, dry (LOESS)	CL		5441.3								
		2			MC								
10		12.0 - 19.0 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, trace gravel, very weakly cemented, dry (LOESS)	SM		5434.3								
	3	MC			--26-50/5"--								
15			CL		5434.3								
	4	MC			--25-50--								
20		Log continued on next page											

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

High final blow count likely due to full sample barrel

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-10

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55

ELEVATION: 5453.3  
 INCLINATION: -90  
 COORDINATES: N: 1,596,186.80 E: 2,061,749.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		
20	8" OD 4.25" ID HSA	19.0 - 32.0 Compact to dense, light reddish brown, sandy CLAY (CL), trace very fine sand, trace white calcareous veins, weakly cemented, dry (LOESS) (Continued)	CL	[Hatched Pattern]	5421.3										
25					5	MC	--22-31--	>50	1/1	>>■					
30					6	MC	--37-38--	>50	1/1	>>■					
35															
		32.0 - 37.5 Compact to dense, light rusty brown, very fine grained silty SAND (SM), trace black sand, very weakly cemented, dry (LOESS)	SM	[Dotted Pattern]	5415.8										
35						7	MC	--18-31--	49	1/1	■	High final blow count likely due to full sample barrel			
		37.5 - 42.0 Very stiff to hard, reddish brown, sandy CLAY (CL), little very fine sand, weakly to moderately cemented, dry (LOESS)	CL	[Hatched Pattern]	5415.8										
40						8	MC	--49-50/4"--	50/4"	1/0.8	>>■				

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



Log continued on next page

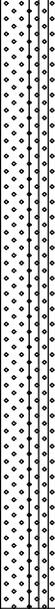
# RECORD OF BOREHOLE GA-BH-10

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,061,749.00

ELEVATION: 5453.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>	W <sub>L</sub>	
40	8" OD 4.25" ID HSA	37.5 - 42.0 Very stiff to hard, reddish brown, sandy CLAY (CL), little very fine sand, weakly to moderately cemented, dry (LOESS) <i>(Continued)</i>	CL		5411.3 42.0										
45		42.0 - 50.0 Dense to very dense, light reddish brown, very fine grained SAND (SP), little silt, little clay, trace sub-angular to sub rounded gravel, weakly cemented, dry (LOESS)	SW-SM			9	MC	--48-50/5"--	50/5"	1 0.9				>> ■	
50		Boring completed at 50 ft.					10	MC	--50/4"---	-	0 0.33			>> ■	
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-11

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,596,186.80 E: 2,062,849.30

ELEVATION: 5443.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>P</sub>		W <sub>U</sub>
20	8" OD 4.25" ID HSA	18.0 - 25.0 Hard, moderate brown CLAYSTONE, massive, trace black specks, dry to slightly moist (MOENKOPI FORMATION) <i>(Continued)</i>		[Vertical hatched pattern]											
25		Boring completed at 25 ft.													
30															
35															
40															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-12

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/29/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,564.10 E: 2,060,148.50

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)		
					DEPTH (ft)						W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 2.5 Compact, light brown, very fine grained silty SAND (SM), dry (LOESS)	SM		5441.9 2.5	1	MC	--12-17--	29	0.9 1	■		
		2.5 - 3.5 Very stiff, light brown silty CLAY (CL), dry (LOESS)	CL		5440.9 3.5								
		3.5 - 7.0 Loose to compact, reddish brown silty SAND (SM), little clay, dry (LOESS)	SM		5437.4 7.0	2	MC	--6-12--	18	1 1	■		
		7.0 - 37.5 Dense to very dense, reddish brown, very fine grained sandy SILT (ML), trace coarse sand, trace fine gravel, white calcareous spots (1-10 mm dia.) throughout, non-to weakly cemented, dry - interbedded with - otherwise similar clayey SAND (SC) (LOESS)	SC-ML		5426.4 18.0	3	MC	--45-50/5.5"--	50/5.5"	1 0.96	■	>>	Full sample barrel likely accounting for high final blow count
						4	MC	--42-50/5"--	50/5"	0.9 0.9	■	>>	
					5	MC	--21-30--	>50	1 1	■	>>		
18		18 feet: soil becomes softer, occasional zone with little to some fine to coarse sand and trace gravel											
20		Log continued on next page											

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-12

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/29/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,060,148.50

ELEVATION: 5444.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)		
					DEPTH (ft)						W <sub>p</sub>		W <sub>L</sub>
40	8" OD 4.25" ID HSA	37.5 - 43.0 Dense to very dense, reddish brown, very fine grained sandy SILT (ML), trace clay, weakly cemented, dry (LOESS) <i>(Continued)</i>	ML		5401.4								
		43.0 - 48.0 Dense to very dense, reddish brown, very fine grained silty SAND (SM) with gravel, little medium to coarse sand, trace clay, weakly cemented, dry (LOESS)			SM		43.0	10	MC	--29-44--	>50	1 1	>> ■
45		48.0 - 50.0 Loose, reddish brown SILT (ML), little very fine sand, little clay, dry to slightly moist (LOESS)	ML		5396.4								
				48.0	11	MC	--7-4--	11	0.67 1	■			
50	Boring completed at 50 ft.												
55													
60													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-13

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/28/07-10/29/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,060,698.70

ELEVATION: 5446.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
0	8" OD 4.25" ID HSA	0.0 - 16.0 Compact, light reddish brown silty SAND (SM), coarse sand and gravel in a matrix of silty, very fine grained sand, dry (LOESS)	SM	[Graphic Log: Dotted pattern]											
5					1	MC	--25-50/5"--	50/5"	1/1	>> ■	Full sample barrel likely accounts for high final blow count				
10					2	MC	--15-27--	42	1/1	■					
15					3	MC	--23-24--	47	1/1	■					
16.0	5430.3 16.0														
20		16.0 - 34.0 Dense, reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, trace calcareous veins/nodules, weakly cemented, dry (LOESS)	SM	[Graphic Log: Dotted pattern]											>> ■
	Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-13

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/28/07-10/29/07 AZIMUTH: -  
 DRILL RIG: CME-55

ELEVATION: 5446.3  
 INCLINATION: -90  
 COORDINATES: N: 1,595,564.10 E: 2,060,698.70

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>		
20	8" OD 4.25" ID HSA	16.0 - 34.0 Dense, reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, trace calcareous veins/nodules, weakly cemented, dry (LOESS) (Continued)	SM		5412.3 34.0	5	MC	--34-36--	>50	1 1					>> ■		
25																	
30									6	MC	--15-33--	48	1 1				
35		34.0 - 37.5 Dense, reddish brown, very fine grained silty SAND (SM), little to some gravel and cobbles, trace fine to coarse sand, trace calcareous veins/nodules, weakly cemented, dry (LOESS)	SM		5408.8 37.5	7	MC	--50/4.5"----	-	0 0.38					>> ■ Driller notes gravel and cobbles beginning at 34 feet		
40		37.5 - 42.0 Compact to dense, light yellowish brown, poorly-graded SAND (SP), very fine sand, little silt, no cementation, dry (LOESS)				SP			8	MC	--29-44--	>50	1 1				
		Log continued on next page															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR. CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-13

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/28/07-10/29/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,060,698.70

ELEVATION: 5446.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>	
40	8" OD 4.25" ID HSA	37.5 - 42.0 Compact to dense, light yellowish brown, poorly-graded SAND (SP), very fine sand, little silt, no cementation, dry (LOESS) <i>(Continued)</i>	SP		5404.3 42.0										blow count	
		42.0 - 70.0 Dense to very dense, reddish brown, very fine grained silty SAND (SM), trace fine sand to fine gravel, weakly to moderately cemented, dry (LOESS)	SM													
						9	MC	--50/5.5"----	-	0 0.46					>> ■	
45																
						10	MC	--50/2"----	-	0.25 0.2					>> ■	
50																
						11	MC	--50/5"----	-	0.67 0.42					>> ■	
55																
						12	MC	--50/3.5"----	-	0 0.3					>> ■	
60			Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-13

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/28/07-10/29/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,060,698.70

ELEVATION: 5446.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>	
60	8" OD 4.25" ID HSA	42.0 - 70.0 Dense to very dense, reddish brown, very fine grained silty SAND (SM), trace fine sand to fine gravel, weakly to moderately cemented, dry (LOESS) (Continued)	SM	[Graphic Log: Dotted pattern]											Driller notes gravelly and cobbly conditions near 60 to 61 feet  >> ■  65 feet: End drilling at 1112 on 10/28 Resume drilling at 0900 on 10/29  Driller Notes Much harder material from 67 to 70 feet  >> ■	
65					13	MC	-50/4"----	-	0 0.33							
70					14	MC	-50/4"----	-	0.67 0.33							
75		Boring completed at 70 ft.														
80																

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-14

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,061,248.80

ELEVATION: 5459.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)		
											W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 3.0 Compact, reddish brown to light reddish brown, very fine grained silty SAND (SM), dry to slightly moist (LOESS)	SM		5456.6 3.0								
5		3.0 - 8.0 Dense to very dense, light reddish brown, very fine grained sandy SILT (ML), trace to little coarse sand and fine gravel, weakly to moderately cemented, dry (LOESS)	ML		5451.6 8.0	1	MC	--50-50/4"--	50/4"	0.9 0.83		>> ■	
10		8.0 - 32.0 Compact, light reddish brown, clayey SILT (ML), little very fine sand, weakly cemented, dry - interbedded with - Compact, light reddish brown, very fine grained silty SAND (SM), trace medium to coarse sand, trace white calcareous veins, weakly cemented, dry (LOESS)	ML			2	MC	--16-20--	36	1/1		■	
15				ML		3	MC	--14-17--	31	1/1		■	
20					4	MC	--16-18--	34	0.9 1		■		

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-14

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,061,248.80

ELEVATION: 5459.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>	
20	8" OD 4.25" ID HSA	8.0 - 32.0 Compact, light reddish brown, clayey SILT (ML), little very fine sand, weakly cemented, dry - interbedded with - Compact, light reddish brown, very fine grained silty SAND (SM), trace medium to coarse sand, trace white calcareous veins, weakly cemented, dry (LOESS) (Continued)  22 feet: soil changes to 'dense to very dense'	ML		5437.6											
25					5	MC	--39-45--	>50	1							>> ■
30					6	MC	--50/5'----	-	0.33 0.42							>> ■
35					7	MC	--24-43--	>50	1							>> ■
40		32.0 - 37.5 Compact to dense, light reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, weakly cemented, dry, occasional silt zone (LOESS)	SM		5427.6											
	8				MC	--50/3'----	-	0 0.25							>> ■	
		37.5 - 50.0 Compact to very dense, light reddish brown, very fine grained sandy SILT (ML), trace coarse sand, trace gravel, dry (LOESS)	ML		5422.1											

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-14

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/26/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,061,248.80

ELEVATION: 5459.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION							
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)										
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>						
40	8" OD 4.25" ID HSA	37.5 - 50.0 Compact to very dense, light reddish brown, very fine grained sandy SILT (ML), trace coarse sand, trace gravel, dry (LOESS) <i>(Continued)</i>	ML																		
45															9	MC	--24-50/5"--	50/5"	1 0.9	>> ■	High final blow count likely due to full sample barrel
50															10	MC	--50/4"---	-	0 0.33	>> ■	
55		Boring completed at 50 ft.																			
60																					

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-15

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/30/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,564.10 E: 2,061,799.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)		
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	
0	8" OD 4.25" ID HSA	0.0 - 7.0 Firm to stiff, light tan silty CLAY (CL), trace sand, dry (LOESS)	CL		5452.3	1	MC	--9-8--	17	1/1	■	Shelby Tube pushed 2 feet at max 500 psi	
5					2	SH	-----	-	2/2				
		5452.3	7.0			7.0 - 12.0 Moderately weathered, medium hard to hard, dark brown CLAYSTONE, trace to some silt, black fossiliferous markings throughout, slightly moist (MOENKOPI FORMATION)	3	MC	--15-17--	32	1/1		■
10		4	MC	--15-16--			31	1/1	■				
		5447.3	12.0			12.0 - 23.0 Moderately weathered, hard, reddish brown, very fine grained silty SANDSTONE, white fossiliferous fragments throughout, weakly cemented, dry (MOENKOPI FORMATION)	5	MC	--18-23--	41	1/1		■
15		6	SH	-----			-	1/1.2					
20	Shelby Tube Pushed 14 inches at max 800 psi												

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-15

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/30/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,564.10 E: 2,061,799.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>	W <sub>s</sub>			
20	8" OD 4.25" ID HSA	12.0 - 23.0 Moderately weathered, hard, reddish brown, very fine grained silty SANDSTONE, white fossiliferous fragments throughout, weakly cemented, dry (MOENKOPI FORMATION) <i>(Continued)</i>		[Graphic Log: Dotted pattern]	5436.3 23.0												
25		23.0 - 27.0 Moderately weathered, medium hard, brown, very fine grained sandy SILTSTONE, black and white fossiliferous markings throughout, dry to slightly moist (MOENKOPI FORMATION)		[Graphic Log: Horizontal lines]		7	MC	--29-23--	>50	1 1					>> ■		
30		27.0 - 37.5 Moderately weathered, medium hard, reddish brown, very fine grained silty SANDSTONE, trace fine to coarse sand, fossiliferous markings throughout, weakly cemented, dry (MOENKOPI FORMATION)		[Graphic Log: Dotted pattern]	5432.3 27.0		8	MC	--33-29--	>50	1 1					>> ■	
35				[Graphic Log: Dotted pattern]		9	MC	--8-8--	16	1 1	■						
40			37.5 - 44.0 Moderately weathered, medium hard, light reddish brown, very fine grained silty SANDSTONE, trace medium to coarse sand, dry (MOENKOPI FORMATION)		[Graphic Log: Dotted pattern]	5421.8 37.5		10	MC	--7-9--	16	1 1	■				
		Log continued on next page															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-15

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/30/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,564.10 E: 2,061,799.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>U</sub>		W <sub>h</sub>	
40	8" OD 4.25" ID HSA	37.5 - 44.0 Moderately weathered, medium hard, light reddish brown, very fine grained silty SANDSTONE, trace medium to coarse sand, dry (MOENKOPI FORMATION) <i>(Continued)</i>			5415.3 44.0											
45		44.0 - 47.0 Moderately weathered, medium hard, light reddish brown, well-graded SANDSTONE, little silt, little gravel, trace cobbles, dry (CUTLER FORMATION)				11	MC	--14-24--	38	1				■	Driller notes cobbles starting at 44 feet	
50		47.0 - 67.0 Slightly to moderately weathered, medium hard to very hard, light reddish brown, fine grained SANDSTONE, trace medium to coarse sand, trace gravel, trace silt, dry (CUTLER FORMATION)			5412.3 47.0		12	MC	--23-32--	>50	1				>> ■	
55		53 feet: material becomes very hard			5406.3 53.0		13	MC	--50/4"----	-	0	0.33			>> ■	Cuttings in no recovery zone (50'-69') appear similar to above material
60		Log continued on next page				14	MC	--50/2"----	-	0	0.17			>> ■		

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-15

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: CME-55

ELEVATION: 5459.3  
 INCLINATION: -90  
 COORDINATES: N: 1,595,564.10 E: 2,061,799.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>	
60	8" OD 4.25" ID HSA	47.0 - 67.0 Slightly to moderately weathered, medium hard to very hard, light reddish brown, fine grained SANDSTONE, trace medium to coarse sand, trace gravel, trace silt, dry (CUTLER FORMATION) <i>(Continued)</i>			5396.3 63.0										Driller notes intermittent cobbles from 62 to 67 feet	
		gravel and cobbles increase from 63 to 67 feet														
65			67.0 - 69.0 Medium hard to hard, dark brown CLAYSTONE, trace to little sand, slightly moist (HERMOSA FORMATION)			5392.3 67.0										
		69.0 - 70.0 Medium strong (R3), mottled black and white GYPSUM (HERMOSA FORMATION - PARADOX MEMBER)			5390.3 69.0											
70		Boring completed at 70 ft.														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-16

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/25/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,564.10 E: 2,062,349.20

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0		0.0 - 1.0 Dark reddish brown SILT (ML), some sand, some clay, slightly moist (TOPSOIL)	ML		5450.2 1.0										
		1.0 - 6.0 Compact to hard, mottled white and reddish brown, sandy SILT (ML), little to some gravel, trace cobbles (LOESS)	ML												
5						1	MC	--26-36--	>50	1 1				>> ■	Driller notes cobbles at 3 to 6 feet
		6.0 - 22.0 Compact to hard, rusty brown, very fine grained sandy, silty CLAY (CL-ML), weakly cemented, dry (LOESS)			5445.2 6.0										
						2	MC	--17-18--	35	1 1		■			
10	8" OD 4.25" ID HSA														
		13 feet: soil becomes dense and calcareous veins appear	CL-ML		5438.2 13.0										
						3	MC	--44-46--	>50	1 1				>> ■	
15															
		16 feet: soil changes back to compact, sand fraction decreases			5435.2 16.0										
						4	MC	--17-25--	42	1 1		■			Driller notes softer drilling at 16 feet
20		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-16

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/25/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,062,349.20

ELEVATION: 5451.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>			
20	8" OD 4.25" ID HSA	6.0 - 22.0 Compact to hard, rusty brown, very fine grained sandy, silty CLAY (CL-ML), weakly cemented, dry (LOESS) <i>(Continued)</i>	CL-ML		5429.2 22.0										
		22.0 - 33.0 Dense, reddish brown, sandy-clayey SILT (ML), very fine sand, trace white calcareous veins, dry (LOESS)	ML												
25						5	MC	--33-43--	>50	1 1				>> ■	
30						6	MC	--49-50/5"--	50/5"	1 0.9				>> ■	
35			33.0 - 37.5 Dense, reddish brown, very fine grained silty SAND (SM), trace gravel, trace coarse sand, dry (LOESS)	SM		5418.2 33.0									
		37.5 - 50.0 Very dense, rusty brown very fine grained sandy SILT (ML), little clay, little gravel, dry (LOESS)	ML		5413.7 37.5										
40					8	MC	--50/0"----	-	0 0				>> ■		

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-16

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/25/07 AZIMUTH: -  
 DRILL RIG: CME-55

COORDINATES: N: 1,595,564.10 E: 2,062,349.20  
 ELEVATION: 5451.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
40	8" OD 4.25" ID HSA	37.5 - 50.0 Very dense, rusty brown very fine grained sandy SILT (ML), little clay, little gravel, dry (LOESS) (Continued)	ML		5401.2 50.0	9	MC	--50/1"----	-	0 0.1	>> ■	Driller notes cobbles from 40 to 41 feet			
10						MC	--50/5"----	-	0 0.42	>> ■					
11						MC	--50/5"----	-	0.67 0.42	>> ■	Color is lighter than last recovery (20 feet above) but otherwise similar. Cuttings indicate no material change.				
12						MC	--50/1.5"----	-	0 0.12	>> ■					
50		50.0 - 70.0 Dense to very dense, light rusty brown, very fine grained silty SAND (SM), trace fine to medium sand, dry (LOESS)	SM												
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

Log continued on next page

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-16

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/25/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,564.10 E: 2,062,349.20

ELEVATION: 5451.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>			
60	8" OD 4.25" ID HSA	50.0 - 70.0 Dense to very dense, light rusty brown, very fine grained silty SAND (SM), trace fine to medium sand, dry (LOESS) <i>(Continued)</i>	SM	[Graphic Log: Dotted pattern]											Cobbly zone from 61 to 63 feet	
65					13	MC	--50/2.5"----	-	0 0.21							>> ■
70					14	MC	--36-50/4.5"--	50/4.5"	1 0.88							
75																
80		Boring completed at 70 ft.														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-17

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,595,564.10 E: 2,062,899.40

ELEVATION: 5446.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		
20	8" OD 4.25" ID HSA	17.0 - 24.0 Hard, moderate yellowish brown silty CLAY (CL), dry to slightly moist (LOESS) <i>(Continued)</i>	CL		5422.7	5	MC	--19-31/5"--	31/5"	0.9 0.9	>> ■				
25		24.0 - 30.0 Compact, light brown, fine to medium grained silty SAND (SM), weakly cemented, dry (LOESS)			SM							24.0	6	MC	--49-50/4"--
30		30.0 - 50.0 Compact, grayish orange sandy SILT (ML), dry (LOESS)	ML			5416.7	7	MC	--19-31--	50		0.8 1			
35		color changes to light brown, trace concretions from 35 to 41 feet			5411.7	8					MC		--100---	-	0.25 0.5
40		Log continued on next page			35.0										

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-17

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,595,564.10 E: 2,062,899.40

ELEVATION: 5446.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
40	8" OD 4.25" ID HSA	30.0 - 50.0 Compact, grayish orange sandy SILT (ML), dry (LOESS) <i>(Continued)</i>	ML			9	MC	--49-50/2"--	50/2"	0.25 0.67					>> ■
45						10	MC	--34-16/2"--	16/2"	0.42 0.67					>> ■
50		50.0 - 51.0 Very stiff to hard, light brown clayey SILT (ML), some fine to coarse sand, dry (LOESS)				ML		5396.7 50.0	11	MC	--25-25/4"--	25/4"	0.75 0.8		
55	Boring completed at 51 ft.														
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-18

SHEET 1 of 5

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/9/07 AZIMUTH: -  
 DRILL RIG: Diedrich 120 COORDINATES: N: 1,595,159.00 E: 2,060,648.70

ELEVATION: 5453.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 3.0 Loose to compact, light brown clayey SILT (ML), little sand, dry (LOESS)	ML												
				5450.5	1	MC	--8-10--	18	1/1	■					
5		3.0 - 12.0 Loose to compact, light reddish brown, very fine grained sandy SILT (ML), trace gravel, weakly cemented, occasional white clay lens, dry - interbedded with - Compact, light reddish brown, fine to very fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, weakly cemented, dry (LOESS)	ML,SM												
				3.0	2	MC	--6-10--	16	1/1	■					
10				5441.5	3	MC	--14-20--	34	1/1	■					
15		12.0 - 37.3 Compact, reddish brown, very fine grained silty SAND (SM), trace to little fine to coarse sand, trace fine gravel, trace micro stringers of gypsum, weakly cemented, dry (LOESS)	SM												
				12.0	4	MC	--19-26--	45	1/1	■					
20		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-18

SHEET 2 of 5

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/9/07 AZIMUTH: -  
 DRILL RIG: Diedrich 120 COORDINATES: N: 1,595,159.00 E: 2,060,648.70

ELEVATION: 5453.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION					
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						20	40	60		80				
20	8" OD 4.25" ID HSA	12.0 - 37.3 Compact, reddish brown, very fine grained silty SAND (SM), trace to little fine to coarse sand, trace fine gravel, trace micro stringers of gypsum, weakly cemented, dry (LOESS) <i>(Continued)</i>	SM		5416.2	5	MC	--23-27--	50	1 1	20	40	60	80	Full sample barrel likely causing high final blow count				
25					6						MC	--18-25--	43	1 1		20	40	60	80
30					7						MC	--22-50/5"--	50/5"	1 0.9		20	40	60	80
35					8						MC	--15-19--	34	1 1		20	40	60	80
40					37.3 - 43.0						SM	5416.2 37.3							
		Log continued on next page																	

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-18

SHEET 3 of 5

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/9/07 AZIMUTH: -  
 DRILL RIG: Diedrich 120 COORDINATES: N: 1,595,159.00 E: 2,060,648.70

ELEVATION: 5453.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		W <sub>u</sub>
40	8" OD 4.25" ID HSA	37.3 - 43.0 Compact, reddish brown, very fine grained silty SAND (SM), trace to little fine to coarse sand, trace fine gravel, trace micro stringers of gypsum, weakly cemented, dry (LOESS) <i>(Continued)</i>	SM		5410.5 43.0	9	MC	--26-24--	50	1 1					Driller notes much harder drilling- periodically adds water to prevent hole from sealing up  Water contents below 43 feet may be affected by drilling water
45		43.0 - 47.0 Dense to very dense, light brown, clayey SILT (ML), weakly to moderately cemented, fossiliferous markings throughout, horizontally stratified, dry (LOESS)	ML		5406.5 47.0	10	MC	--36-50/4"--	50/4"	0.9 0.8					
50		47.0 - 50.5 Dense, light brown, well-graded SAND (SW), trace to little gravel, trace silt, trace clay, dry (LOESS)	SW		5403.0 50.5	11	MC	--39-50/4"--	50/4"	0.9 0.8					
55		50.5 - 58.0 Well-graded SAND as above, interbedded with very stiff to hard, light moderate brown CLAY (CL), black and white fossiliferous markings throughout, horizontally stratified, friable, dry	SW-CL		5395.5 58.0	12	MC	--32-50/5"--	50/5"	1 0.9					
60		58.0 - 75.0 Dense, light brown, well-graded SAND (SW), trace to little gravel, trace silt, trace clay, dry (LOESS)	SW												
			Log continued on next page												

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-18

SHEET 4 of 5

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 11/9/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,159.00 E: 2,060,648.70

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>			
60	8" OD 4.25" ID HSA	58.0 - 75.0 Dense, light brown, well-graded SAND (SW), trace to little gravel, trace silt, trace clay, dry (LOESS) <i>(Continued)</i>	SW		5378.5	13	MC	--50/4"----	-	0.42 0.33	>>					>>
65					5378.5	14	MC	--50/5"----	-	0.4 0.4	>>					>>
70					5378.5	15	MC	--50/3"----	-	0.1 0.25	>>					>>
75	8" OD 4.25" ID HSA	75.0 - 83.0 Very stiff to hard, reddish brown to moderate brown sandy CLAY (CL), dry to slightly moist (LOESS) or moderately weathered CLAYSTONE	CL		75.0	16	MC	--50/4"----	-	0.3 0.3	>>					>>
80					75.0	Log continued on next page										>>

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

Driller notes cobbles beginning at 67 feet

Driller notes more cobbles at 76 feet

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-18

SHEET 5 of 5

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/9/07 AZIMUTH: -  
 DRILL RIG: Diedrich 120 COORDINATES: N: 1,595,159.00 E: 2,060,648.70

ELEVATION: 5453.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>h</sub>	
80	8" OD 4.25" ID HSA	75.0 - 83.0 Very stiff to hard, reddish brown to moderate brown sandy CLAY (CL), dry to slightly moist (LOESS) or moderately weathered CLAYSTONE (Continued)	CL		5370.5	17	MC	--50/4.5"----	-	0 0.38					>> No sample recovery - other than occasional cobbles, driller does not note any difference in drilling	
				83.0												
85		83.0 - 98.0 Hard (S6), mottled olive gray, rust, and very light gray, silty CLAYSTONE, irregularly fractured, dry (HERMOSA FORMATION)					18	MC	--50/1"----	-	0.1 0.1					>>
90							19	MC	--50/5"----	-	0.67 0.42					>> Driller thinks recovery in this layer is possible via coring but will likely be very low
95							20	MC	--50/3"----	-	0.2 0.25					>>
100			98.0 - 100.0 Medium strong (R3), black and white GYPSUM, interbedded with layers of completely decomposed GYPSUM, dry (HERMOSA FORMATION - PARADOX MEMBER)			5355.5 98.0	21	MC	--50/1.5"----	-	0.12 0.12					>> Driller notes drilling through gypsum feels like drilling through cobbles and boulders
			Boring completed at 100 ft.													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08  
 SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-19

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/30/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,158.90 E: 2,061,198.80

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>	W <sub>s</sub>		
0	8" OD 4.25" ID HSA	0.0 - 4.0 Firm, light tan silty-sandy CLAY (CL), dry (LOESS)	CL		5452.2											
5		4.0 - 7.0 Loose to compact, reddish brown, very fine grained sandy SILT (ML), weakly cemented (LOESS)	ML		4.0	1	MC	--8-8--	16	1/1	■					
10		7.0 - 10.0 Compact / hard, light reddish brown silty CLAY (CL), little very fine sand, frequent gravel sized zones of moderate to strong cementation, dry (LOESS)	CL		5449.2	7.0										Driller notes cobbles from 7 to 10 feet
15		10.0 - 37.5 Compact, reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained sandy SILT (ML), trace fine to coarse sand, weakly cemented, dry (LOESS)	SM-ML		5446.2	10.0										
20						3	MC	--13-14--	27	1/1	■					
						4	MC	--17-17--	34	1/1	■					

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-19

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,158.90 E: 2,061,198.80

ELEVATION: 5456.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION						
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)										
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>								
20	8" OD 4.25" ID HSA	10.0 - 37.5 Compact, reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained sandy SILT (ML), trace fine to coarse sand, weakly cemented, dry (LOESS) <i>(Continued)</i>	SM-ML		5431.2 25.0					1 1											
25		25 feet: color changes to light reddish brown																			Driller notes cobbles at 27 feet  >> ■  >> ■  >> ■
30																					
35																					
40		37.5 - 48.0 Dense, light reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained sandy SILT (ML), trace fine to coarse sand, weak to no cementation, dry (LOESS)	SM-ML	5418.7 37.5						1 1											
	Log continued on next page																				

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-19

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,158.90 E: 2,061,198.80

ELEVATION: 5456.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		
40	8" OD 4.25" ID HSA	37.5 - 48.0 Dense, light reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained sandy SILT (ML), trace fine to coarse sand, weak to no cementation, dry (LOESS) <i>(Continued)</i>	SM-ML	5408.2 48.0	9	MC	--42-50/4"--	50/4"	0.5 0.8	>>					
45												>>			
50		48.0 - 58.0 Very dense, light brown to reddish brown, weakly to moderately cemented SILTSTONE, trace to little clay, trace sand (MOENKOPI FORMATION)	5398.2 58.0	10	MC	--50/4.5"----	-	0.4 0.4	>>						
55										>>					
60										>>					
60		58.0 - 78.0 Medium strong to strong (R3-R4), light reddish brown, very fine grained SANDSTONE, trace gravel, moderately to well cemented, dry, occasional thin layers of claystone and siltstone (MOENKOPI FORMATION)			12	MC	--50/1"----	-	0 0.1	>>					
		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-19

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/30/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,158.90 E: 2,061,198.80

ELEVATION: 5456.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)							
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>					
60	8" OD 4.25" ID HSA	58.0 - 78.0 Medium strong to strong (R3-R4), light reddish brown, very fine grained SANDSTONE, trace gravel, moderately to well cemented, dry, occasional thin layers of claystone and siltstone (MOENKOPF FORMATION) (Continued)	USCS	GRAPHIC LOG 											Majority of 5 foot run is very hard drilling. Driller believes advancing through well cemented sandstone. Auger cuttings suggest very fine grained sandstone w/ intermittent siltstone and claystone layers.			
					13	MC	-50/4"----	-	0 0.33	>> ■								
65																		>> ■
70																		
75														>> ■	Easier drilling from from 70 to 75 feet than from 60 to 70 feet. Same material appears in cuttings.			
80		Boring completed at 78 ft.																

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-20

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/25/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,159.00 E: 2,062,299.20

ELEVATION: 5458.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W	W <sub>L</sub>		W <sub>p</sub>
0	8" OD 4.25" ID HSA	0.0 - 4.0 Compact to dense, rusty brown, very fine grained sandy CLAY (CL), frequent roots and calcerous veins, slightly moist (0-2), dry (2'-4) (LOESS)	CL	[Hatched Pattern]	5454.0	1	MC	--22-39--	>50	1 1	20	40	60	80	>> ■  >> ■ Driller notes change in material during drive sample  ■  ■  ■
5		4.0 - 9.0 Very dense / hard, white to very light tan, moderately cemented CLAY (CL), dry (LOESS)	CL	[Hatched Pattern]	5449.0 4.0	2	MC	--19-50/4"--	50/4"	1 0.8					
10		9.0 - 9.5 Compact to dense, light yellow, poorly-graded SAND (SP), very fine sand, well cemented, dry (LOESS)	SP	[Dotted Pattern]	9.0 5448.5	3	MC	--24-26--	50	1 1					
10		9.5 - 12.0 Compact, light rusty brown, fine to very fine silty SAND (SM), dry (LOESS)	SM	[Dotted Pattern]	9.5 5446.0										
15		12.0 - 18.0 Compact, reddish brown, clayey SILT (ML), trace sand, dry, occasional zones of fine sand (SP) (LOESS)	ML	[Vertical Lines]	12.0 5440.0	4	MC	--17-19--	36	1 1					
20	18.0 - 21.0 Compact, reddish brown, clayey SILT (ML), trace to little limestone and gypsum gravel, trace sand, dry, occasional zones of fine sand (SP) (LOESS)	ML	[Vertical Lines]	18.0 5440.0	5	MC	--17-26--	43	1 1						

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-20

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/25/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,595,159.00 E: 2,062,299.20

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA		ML		5437.0 21.0										
		21.0 - 26.0 Compact to very dense, reddish brown SILT and GRAVEL (ML-GM) (ALLUVIUM)		ML-GM											
25						6	MC	--26-50/5"--	50/5"	1 0.9					>> ■ Driller notes large amount of gravel at end of drive sample
		26.0 - 37.5 Dense, rusty brown, clayey SILT (ML), trace very fine to medium sand, weakly cemented, dry (LOESS)													
30				ML		7	MC	--41-50--	>50	1 1					>> ■
35						8	MC	--50/5"----	-	0.1 0.42					>> ■
40			37.5 - 44.0 Very dense, light rusty brown, fine to coarse sand and fine gravel in a matrix of very fine grained SAND and silt (SM), dry (LOESS)	SM		9	MC	--50/4"----	-	0.42 0.33					>> ■ Driller notes cobbly conditions from 35 to 40 feet

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-20

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/25/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,595,159.00 E: 2,062,299.20

ELEVATION: 5458.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
40	8" OD 4.25" ID HSA	37.5 - 44.0 Very dense, light rusty brown, fine to coarse sand and fine gravel in a matrix of very fine grained SAND and silt (SM), dry (LOESS) <i>(Continued)</i>	SM											Drilling from 40 to 44 feet was very difficult	
45		Boring completed at 44 ft.												Dark gray cobbles found in cuttings from 43 to 44 feet are very strong rock (R5)  44 feet: Auger met refusal on what is believed to be a boulder and <u>not</u> bedrock.	
50															
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-21

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/13/07-12/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,595,159.00 E: 2,062,849.30

ELEVATION: 5449.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0		0.0 - 2.0 Very stiff, moderate brown silty CLAY (CH), trace roots, fossiliferous markings, moderate to high plasticity, very strong reaction to HCl, moist to wet	CH		5447.5 2.0										
		2.0 - 3.5 Compact, reddish brown, very fine grained clayey SAND (SC), trace roots, trace fossiliferous markings, weakly cemented, very strong reaction with HCl, dry (LOESS)	SC		5446.0 3.5	1	MC	--21-24--	45	1 1				■	
5		3.5 - 32.0 Very stiff, reddish brown, very fine grained sandy CLAY (CL), fossiliferous markings throughout, very strong reaction with HCl, dry interbedded with - Dense, reddish brown, very fine grained sandy SILT (ML), trace to little fine to coarse sand, micro stringers of gypsum throughout, very strong reaction with HCl, dry (LOESS)	CL-ML			2	MC	--19-28--	47	1 1				■	Driller notes continuous hard drilling (harder than other boreholes) throughout the top 25 feet
10	8" OD 4.25" ID HSA					3	MC	--31-39--	>50	1 1				>>■	
15						4	MC	--21-37--	>50	1 1				>>■	Last blow count of 15 foot MC sample was likely high due to an over-full sample barrel
20					5429.5										

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-21

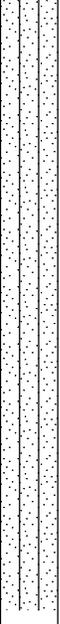
SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/13/07-12/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,595,159.00 E: 2,062,849.30

ELEVATION: 5449.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>	W <sub>h</sub>		
20	8" OD 4.25" ID HSA	3.5 - 32.0 Very stiff, reddish brown, very fine grained sandy CLAY (CL), fossiliferous markings throughout, very strong reaction with HCl, dry - interbedded with - Dense, reddish brown, very fine grained sandy SILT (ML), trace to little fine to coarse sand, micro stringers of gypsum throughout, very strong reaction with HCl, dry (LOESS) (Continued)  Interbedded clay and silt becomes denser at 20 feet	CL-ML		20.0	5	MC	--36-50/4"--	50/4"	1 0.83					>> ■  >> ■ Driller hits a cobble at 25 feet and begins using water to drill          >> ■          >> ■          >> ■ 35 feet: End drilling on 12/13/07 Resume drilling at 0809 on 12/14/07	
25					6	MC	--40-50/4"--	50/4"	0.92 0.83							
30		32.0 - 45.0 Very dense, reddish brown, very fine grained silty SAND (SM), very strong reaction with HCl, dry (LOESS)          occasional zones of weak to moderate cementation from 37.5 to 45 feet          Log continued on next page	SM		5417.5 32.0	7	MC	--36-50/4"--	50/4"	0.08 0.83						
35	8				MC	--50/4.5"----	-	0.08 0.38								
40					5412.0 37.5											

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-21

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/13/07-12/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,595,159.00 E: 2,062,849.30

ELEVATION: 5449.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
40	8" OD 4.25" ID HSA	32.0 - 45.0 Very dense, reddish brown, very fine grained silty SAND (SM), very strong reaction with HCl, dry (LOESS) <i>(Continued)</i>	SM												
					9	SS	--50/5.5"----	-	1.5 0.67						>>■
45		Continued as cored hole. See Drillhole log report.													>>■ 45 feet: End hollow stem augering and begin NX coring
50															
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-21

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/13/07-12/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,595,159.00 E: 2,062,849.30  
 ELEVATION: 5449.5  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION			
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.							
			DEPTH (ft)	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS														
45	Continued from non-cored borehole. See Borehole log report.		5404.5 45.0	1	0.9 5.0	0												
50	49.1 - 50.0 Very dense, very fine to fine grained silty SAND (SM)/completely weathered SANDSTONE, trace gravel, trace medium to coarse sand, very strong reaction with HCl 50.0 - 53.8 No recovery		5400.4 49.1 5399.5 50.0	2	1.2 5.0	0												
55	53.8 - 55.0 Very dense, very fine to fine grained silty SAND (SM)/completely weathered SANDSTONE, trace gravel, trace medium to coarse sand, very strong reaction with HCl 55.0 - 57.8 No recovery		5395.7 53.8 5394.5 55.0	3	2.2 5.0	10	>10											
60	57.8 - 60.0 Moderate to highly weathered (III-IV), very weak (R1), reddish brown CONGLOMERATE, well-graded sand and gravel in a very fine to fine silty sand matrix, occasional cobble, moderate reaction with HCl (CUTLER FORMATION)		5391.7 57.8 5389.5 60.0	4	2.8 5.0	0		57.8-59.1 Rubble  59.1-59.1 J, I,R,None 59.6-59.7 J, I,R,None 59.7-65.1 Rubble										
65	62.3 - 64.5 Highly weathered (IV), very weak (R1), reddish brown clayey SANDSTONE, very strong reaction with HCl (CUTLER FORMATION)		5387.3 62.3 5385.0 64.5 5384.5															
	64.5 - 65.0 Fresh (I), strong (R4) SANDSTONE Log continued on next page																	

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008







# RECORD OF BOREHOLE GA-BH-22

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/12/07-12/13/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,594,658.90 E: 2,061,198.80

ELEVATION: 5467.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 2.5 Loose to compact, reddish brown, very fine grained silty SAND (SM), trace to little clay, moderate to very strong reaction with HCl, moist to wet (LOESS)	SM	[Dotted Pattern]	5465.2 2.5										
5		2.5 - 6.5 Loose to compact, reddish brown, very fine grained silty SAND (SM), trace to little clay, weakly cemented, moderate to very strong reaction with HCl, dry (LOESS)	SM	[Dotted Pattern]		1	MC	--12-18--	30	1 1		■			
10		6.5 - 10.0 Loose to compact, reddish brown, very fine grained silty SAND (SM), little to some gravel, trace to little clay, weakly cemented, moderate to violent reaction with HCl, dry (LOESS)	SM	[Dotted Pattern]	5461.2 6.5										Driller notes gravel starting at 6.5 feet
15		10.0 - 27.0 Loose to compact, reddish brown, very fine grained silty SAND (SM), weakly cemented, moderate reaction with HCl, dry - interbedded with - Loose to compact, very fine grained clayey SAND (SC), weakly cemented, moderately cohesive, micro stringers of gypsum throughout, very strong reaction with HCl, dry - with occasional layers of - Light reddish brown, fine grained SAND (SP), trace medium to coarse sand, trace silt, weakly cemented, no reaction to HCl, dry (LOESS)	SM-SC	[Diagonal Pattern]	5457.7 10.0	2	MC	--21-24--	45	1 1		■			End of Shelby tube was slightly crimped
20		Log continued on next page				3	SH	-----		2.5 2.5					

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-22

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/12/07-12/13/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,594,658.90 E: 2,061,198.80

ELEVATION: 5467.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)		
											W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA	10.0 - 27.0 Loose to compact, reddish brown, very fine grained silty SAND (SM), weakly cemented, moderate reaction with HCl, dry - interbedded with - Loose to compact, very fine grained clayey SAND (SC), weakly cemented, moderately cohesive, micro stringers of gypsum throughout, very strong reaction with HCl, dry - with occasional layers of - Light reddish brown, fine grained SAND (SP), trace medium to coarse sand, trace silt, weakly cemented, no reaction to HCl, dry (LOESS) (Continued)	SM-SC		5440.7 27.0	4	MC	--13-18--	31	1 1	■	Drilling through cobbles from 27 to 28 feet	
25		27.0 - 28.0 Cobbles (ALLUVIUM)				5439.7 28.0	5	MC	--16-27--	43	0 1		■
30		28.0 - 32.0 Very stiff, light reddish brown, very fine grained sandy CLAY (CL), moderate reaction with HCl, dry (LOESS)	CL		6	MC	--17-27--	44	1 1	■			
35		32.0 - 37.5 Dense to very dense, reddish brown, very fine grained clayey SAND (SC), thinly bedded, no reaction with HCl, dry (LOESS)	SC		7	SS	--37-50/5"--	50/5"	0 0.92	■	No sample recovered for MC sample, chased with SS sampler. Retained SS sample in ziplock bag.		
40		37.5 - 47.0 Very dense, reddish brown, very fine grained clayey and silty SAND (SC-SM), trace to little fine to coarse sand, occasional zones with very little fines, weakly cemented, moderate to very strong reaction with HCl, dry (LOESS)	SC-SM		5430.2 37.5								
Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-22

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/12/07-12/13/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,594,658.90 E: 2,061,198.80

ELEVATION: 5467.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		
40	8" OD 4.25" ID HSA	37.5 - 47.0 Very dense, reddish brown, very fine grained clayey and silty SAND (SC-SM), trace to little fine to coarse sand, occasional zones with very little fines, weakly cemented, moderate to very strong reaction with HCl, dry (LOESS) <i>(Continued)</i>	SC-SM		5420.7	8	MC	--48-50/5"--	50/5"	1 0.92	>>■				
45					9	MC	--50/5"----	-	0.75 0.67	>>■					
50					10	MC	--50/3"----	-	0.5 0.33	>>■					
55		50	47.0	47.0 - 50.0 Medium hard to hard, reddish brown, very fine to fine grained SAND (SP)/SANDSTONE, occasional clayey zone, weakly to moderately cemented, very strong reaction with HCl, dry (Highly weathered MOENKOPI FORMATION)											
60		Continued as cored hole. See Drillhole log report.													

Drilling becomes much harder at 47 feet

50 feet: End hollow stem augering and begin NX coring

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-22

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/12/07-12/13/07  
 DRILL RIG: Diedrich 120

DATUM: AZIMUTH: N/A  
 COORDINATES: N: 1,594,658.90 E: 2,061,198.80  
 ELEVATION: 5467.7  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE	DESCRIPTION	GRAPHIC LOG	J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION		
				ELEV.	RUN NO.	CORE RECOVERY	RQD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.						
				DEPTH (ft)					TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS									
50		Continued from non-cored borehole. See Borehole log report. 50.0 - 52.1 No recovery	5417.7 50.0															
		52.1 - 55.0 Completely weathered (V), extremely weak (R0), reddish brown, clayey SANDSTONE, crumbles upon handling, very fine to fine sand, very strong reaction with HCl (MOENKOPI FORMATION)	5415.6 52.1	1	2.9 5.0	0												
55		55.0 - 58.5 No recovery	5412.7 55.0					>10										
		58.5 - 60.0 Completely weathered (V), extremely weak (R0), reddish brown, clayey SANDSTONE, crumbles upon handling, very fine to fine sand, very strong reaction with HCl (MOENKOPI FORMATION)	5409.2 58.5															
		Limestone gravel and cobbles, moderate to very strong reaction with HCl from 59.3 to 59.9 feet 60.0 - 62.1 No recovery	5408.4 59.3															
60		62.1 - 65.0 Slightly to moderately weathered (II-III), very weak (R1), very fine to fine grained clayey SANDSTONE, fractures easily upon handling, slight to moderate reaction with HCl (MOENKOPI FORMATION)	5407.7 60.0															
		62.1 - 65.0 Slightly to moderately weathered (II-III), very weak (R1), very fine to fine grained clayey SANDSTONE, fractures easily upon handling, slight to moderate reaction with HCl (MOENKOPI FORMATION)	5405.6 62.1	3	2.9 5.0	48		1										
65		65.0 - 68.6 No recovery	5402.7 65.0															
		68.6 - 70.0 Primarily SANDSTONE as per 52.1 to 55 feet, interbedded with SANDSTONE as per 62.1 to 65 feet (MOENKOPI FORMATION)	5399.1 68.6	4	1.4 5.0	0												
70		68.6 - 77.8 Rubble	5397.7					4										
		Log continued on next page																

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-22

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 LOCATION NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/12/07-12/13/07  
 DRILL RIG: Diedrich 120

DATUM: AZIMUTH: N/A  
 COORDINATES: N: 1,594,658.90 E: 2,061,198.80  
 ELEVATION: 5467.7  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE	DESCRIPTION	GRAPHIC LOG	J-Fault, F-Fault, S-Shear, B-Bedding, M-Mechanical, FO-Foliation, PL-Planar, C-Curved, U-Undulating, ST-Stepped, I-Irregular, P-Polished, K-Slickensided, SM-Smooth, R-Rough, VR-V.Rough, Fr-Fracture, CA-Calcite, CL-Clay, CT-Contact, RD-Redrilled, Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION	
				ELEV.	DEPTH (ft)	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.				
										TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS							
70		70.0 - 72.5 No recovery		70.0													
		72.5 - 75.0 Primarily SANDSTONE as per 52.1 to 55 feet, interbedded with SANDSTONE as per 62.1 to 65 feet (MOENKOPI FORMATION)		5395.2 72.5	5	2.5 5.0	0										
		75.0 - 77.8 No recovery		5392.7 75.0													
75		77.8 - 78.7 Slightly weathered (II), medium strong (R3), very fine to fine grained clayey SANDSTONE, fractures easily upon handling, slight to moderate reaction with HCl (MOENKOPI FORMATION)		5389.9 77.8	6	2.2 5.0	22										
		78.7 - 80.0 Primarily SANDSTONE as per 52.1 to 55 feet, interbedded with SANDSTONE as per 62.1 to 65 feet (MOENKOPI FORMATION)		5389.1 78.7													
		80.0 - 82.9 No recovery		5387.7 80.0													
80		82.9 - 83.5 Primarily SANDSTONE as per 52.1 to 55 feet, interbedded with SANDSTONE as per 62.1 to 65 feet (MOENKOPI FORMATION)		5384.8 82.9	7	2.1 5.0	0										
		83.5 - 85.0 Moderately weathered (III), weak (R2), reddish brown CONGLOMERATE, coarse sand to cobble material in a silty very fine to fine grained sand matrix, intensely fractured, moderate to very strong reaction with HCl (CUTLER FORMATION)		5384.2 83.5													
		85.0 - 87.4 No recovery		5382.7 85.0													
85		87.4 - 87.9 Moderately weathered (III), weak (R2), reddish brown CONGLOMERATE, coarse sand to cobble material in a silty very fine to fine grained sand matrix, intensely fractured, moderate to very strong reaction to HCl (CUTLER FORMATION)		5380.3 87.4	8	2.6 5.0	0										
		87.9 - 90.0 Moderate to highly weathered		5379.8 87.9													
		Log continued on next page		5379.3 88.4													
90				5377.7													

Sandstone was not considered competent or strong enough to hold packer pressure, so no attempt was made at packer testing.

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-22

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/12/07-12/13/07  
 DRILL RIG: Diedrich 120

DATUM: AZIMUTH: N/A  
 COORDINATES: N: 1,594,658.90 E: 2,061,198.80  
 ELEVATION: 5467.7  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		GRAPHIC LOG	ELEV. DEPTH (ft)	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.	ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION				
	DESCRIPTION	J-Joint F-Fault S-Shear B-Bedding M-Mechanical							FO-Foliation PL-Planar C-Curved U-Undulating	SI-Stepped I-Irregular P-Polished K-Slickensided						SM-Smooth R-Rough VR-V.Rough Fr-Fracture	CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS	
90	(III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)  CLAYSTONE becomes slightly darker and slightly more competent from 88.4 to 89.2 feet			90.0											Claystone core appears somewhat intact within the core barrel but crumbles into intense, irregular fractures upon handling.				
	90.0 - 92.4 No recovery			5375.4															
	92.4 - 93.6 Moderate to highly weathered (III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)			92.4	9	2.7 5.0	0												
	93.6 - 93.9 Thin, rubbly, black SHALE (HERMOSA FORMATION)			5374.1															
	93.9 - 95.0 Moderate to highly weathered (III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)			93.6				>10											
95	95.0 - 97.3 No recovery			5373.8									MW to HW	to S5					
	97.3 - 100.0 Moderate to highly weathered (III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)			93.9															
	97.3 - 100.0 Moderate to highly weathered (III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)			5372.7															
	97.3 - 100.0 Moderate to highly weathered (III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)			95.0															
	97.3 - 100.0 Moderate to highly weathered (III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)			5370.4															
	97.3 - 100.0 Moderate to highly weathered (III-IV), very stiff (S5), olive CLAYSTONE, intensely and irregularly fractured, moderate to very strong reaction with HCl (HERMOSA FORMATION)			97.3	10	2.7 5.0	0												
100	Boring completed at 100 ft.																		
105																			
110																			

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-23

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,594,658.90 E: 2,061,749.00

ELEVATION: 5476.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>	W <sub>L</sub>	
0	8" OD 4.25" ID HSA	0.0 - 7.0 Compact, reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, weakly cemented, dry (LOESS)	SM		5469.9 7.0	1	MC	--21-20--	41	1 1	■				
5		7.0 - 12.0 Compact, reddish brown, sandy SILT (ML), trace fossiliferous markings throughout, weakly to moderately cemented, dry to slightly moist (LOESS)	ML		5464.9 12.0	2	MC	--21-22--	43	1 1	■				
10		12.0 - 16.0 Very stiff / compact, reddish brown, clayey SILT (ML), moderately cemented, dry (LOESS)	ML		5460.9 16.0	3	MC	--20-22--	42	1 1	■				
15		16.0 - 37.5 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace micro stringers of gypsum throughout, weakly to moderately cemented, dry	SM			4	MC	--28-29--	>50	1 1	■	>>			
20		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-23

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,594,658.90 E: 2,061,749.00

ELEVATION: 5476.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA	16.0 - 37.5 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace micro stringers of gypsum throughout, weakly to moderately cemented, dry (Continued)	SM		5452.9										
		24 feet: soil becomes denser / harder, likely due to increased cementation				24.0	5	MC	--50/5'----	-	0.3 0.4				>> ■
25															>> ■
30															>> ■
35													>> ■		
		37.5 - 43.0 Very loose, reddish brown, well-graded silty SAND (SM), trace to little gravel, dry (LOESS)	SM		5439.4										
	Log continued on next page				37.5	8	MC	--2-1--	3	0.8 1	■			>> ■	

Cobbles drilling from 29 to 32 feet

Intermittent Cobbles from 35 to 40 feet

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-23

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,594,658.90 E: 2,061,749.00

ELEVATION: 5476.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		W <sub>U</sub>	
40	8" OD 4.25" ID HSA	37.5 - 43.0 Very loose, reddish brown, well-graded silty SAND (SM), trace to little gravel, dry (LOESS) <i>(Continued)</i>	SM		5433.9	9	SH	-----	-	1.9 2					Shelby tube advanced at 200 psi from 41 to 42.5 feet and 500 psi from 42.5 to 43 feet. The higher pressure is likely due to a cobble, not harder material.	
		43.0 - 53.0 Loose, light tan, well-graded silty SAND (SM), little to some gravel, trace cobbles, dry (Weathered CUTLER FORMATION)			43.0	10	MC	--7-7--	14	1 1						
45		48 feet: soil changes to dense to very dense, increase in cobbles	SM		5428.9	11	MC	--50/5"----	-	0 0.4						>> ■  Driller says drilling still feels soft at 50 feet
		53.0 - 55.0 Hard (S6), light olive CLAYSTONE, dry (HERMOSA FORMATION)			5423.9	12	MC	--50/3.5"----	-	0.33 0.3						>> ■
55		Boring completed at 55 ft.														
60																

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-24

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/28/07-11/29/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,658.80 E: 2,062,299.10

ELEVATION: 5465.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
0	8" OD 4.25" ID HSA	0.0 - 8.0 Compact, reddish brown, very fine grained sandy SILT (ML), trace micro stringers of gypsum, weakly cemented, mild reaction with HCl, dry (LOESS)	ML		5457.7										
5		8.0 - 10.5 Compact, reddish brown, very fine grained sandy SILT (ML), some gravel and cobbles, trace micro stringers of gypsum, weakly cemented, mild to strong reaction with HCl, dry (LOESS)	ML		8.0	1	MC	--12-14--	26	1/1	■				Driller notes cobble at 8.5 feet
10		10.5 - 11.0 Very stiff to hard, light reddish brown to white, very fine grained sandy CLAY (CL), trace to little fine to coarse sand and fine to coarse gravel, strong to very strong reaction with HCl	CL		5455.2	2	MC	--25-36--	>50	1/1	■	>>			
15		11.0 - 15.5 Compact, reddish brown, very fine grained sandy SILT (ML), some gravel and cobbles, trace micro stringers of gypsum, weakly cemented, mild to strong reaction with HCl, dry	ML		5454.7										
20		15.5 - 17.0 Hard, light olive CLAY (CL), no reaction with HCl, dry (Weathered HERMOSA FORMATION)	CL		5450.2	3	MC	--27-50/5"--	50/5"	0.5 0.9	■	>>			Driller notes harder drilling at 17.0 feet.
25		17.0 - 30.0 Hard, light reddish brown and light olive sandy CLAYSTONE, trace fine to coarse sand, trace gravel, very strong reaction with HCl, occasional shale zones, dry (HERMOSA FORMATION)			5448.7										
30		Log continued on next page		17.0											

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-24

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/28/07-11/29/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,658.80 E: 2,062,299.10

ELEVATION: 5465.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
20	8" OD 4.25" ID HSA	17.0 - 30.0 Hard, light reddish brown and light olive sandy CLAYSTONE, trace fine to coarse sand, trace gravel, very strong reaction with HCl, occasional shale zones, dry (HERMOSA FORMATION) (Continued)		[Graphic Log]		4	MC	--50/4"----	-	0.3 0.3					>> ■
25					5	MC	--50/3"----	-	0.5 0.25					>> ■	
30		30.0 - 37.5 Hard, mottled black, brown, gray, and olive sandy CLAYSTONE, trace fine to coarse sand, trace gravel, mild to no reaction with HCl, occasional shale zones, dry to slightly moist (HERMOSA FORMATION)		5435.7 30.0	6	MC	--38-50/4"--	50/4"	1 0.8						>> ■
35					7	MC	--50/3"----	-	0 0.5						>> ■
40		37.5 - 45.8 Hard, olive brown CLAYSTONE, occasional shale zone, no reaction with HCl, dry (HERMOSA FORMATION)		5428.2 37.5											
		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-24

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/28/07-11/29/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,658.80 E: 2,062,299.10  
 ELEVATION: 5465.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
40	8" OD 4.25" ID HSA	37.5 - 45.8 Hard, olive brown CLAYSTONE, occasional shale zone, no reaction with HCl, dry (HERMOSA FORMATION) (Continued)		[Horizontal line pattern]		8	MC	--35-50/5"--	50/5"	1 0.9					>> ■
45		45.8 - 49.5 Black and white GYPSUM (HERMOSA FORMATION - PARADOX MEMBER)		[Vertical line pattern]	5419.9 45.8	9	MC	--18-25--	43	1 1					■  Driller begins using water at 45 feet.
50		Continued as cored hole. See Drillhole log report.													49.5 feet: end augering, begin coring
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008











# RECORD OF BOREHOLE GA-BH-25

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,594,658.80 E: 2,062,849.40

ELEVATION: 5458.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		
20	8" OD 4.25" ID HSA	20.0 - 45.5 Compact, light brown, fine to medium grained silty SAND (SM), dry (LOESS / DEBRIS FLOW ALLUVIUM)		20.0	5	MC	--19-26--	45	1 1						
25		25 to 45.5 feet: Intermittent layers up to 3 feet thick of 4 to 5 inch diameter cobbles and fine to coarse gravel		5433.6 25.0	6	MC	--26-24/2"--	24/2"	0 0.7					>> ■ Hard drilling noted	
30						7	MC	--18-26--	44	1 1					
35						8	MC	--100/7"----	-	0 0.6					>> ■
40			Log continued on next page												

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-25

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,594,658.80 E: 2,062,849.40

ELEVATION: 5458.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■		NOTES WATER LEVELS INSTRUMENTATION				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>		W <sub>L</sub>			
40	8" OD 4.25" ID HSA	20.0 - 45.5 Compact, light brown, fine to medium grained silty SAND (SM), dry (LOESS / DEBRIS FLOW ALLUVIUM) (Continued)	SM	[Graphic Log: Dotted pattern]		9	MC	--49-50/3"--	50/3"	0 0.75	10	20	30	40	No cobbles 40 to 42 feet.	
45											10	MC	--100---	-		0 0.5
50	Boring completed at 45.5 ft.															
55																
60																

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-26

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/11/07-11/12/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,060,648.70

ELEVATION: 5472.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
0	8" OD 4.25" ID HSA	0.0 - 7.0 Compact, light brown to brown, very fine to fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, trace cobbles, trace roots, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5465.6 7.0	1	MC	--12-12--	24	0.9 1	■	Cobbles near 3 feet			
5						2	MC	--14-15--	29	1 1	■				
10						3	MC	--25-31--	>50	1 1	>>■				
15						4	MC	--47-50/5"--	50/5"	0.7 0.9	>>■	Sample moisture contents below 15 feet possibly affected by water added inside of HSA			
20		12.0 - 16.0 Compact to dense, reddish brown, very fine grained sandy SILT (ML), trace medium to coarse sand, trace gravel, trace micro stringers of gypsum, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	ML	5460.6 12.0	Log continued on next page										
		16.0 - 24.0 Dense to very dense, light reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, weakly cemented with 4-8 mm horizontal plates of moderate to high cementation, dry	SM	5456.6 16.0											

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08  
 SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-26

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/11/07-11/12/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,060,648.70

ELEVATION: 5472.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
20	8" OD 4.25" ID HSA	16.0 - 24.0 Very dense, light reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, weakly cemented with 4-8 mm horizontal plates of moderate to high cementation, dry ( <i>Continued</i> )	SM	[Graphic Log: Dotted pattern]	5448.6	5	MC	--50/5"----	-	0.5	>>	■	>>		
		24.0			0.44										
25		24.0 - 26.0 Hard, very light olive gray silty CLAYSTONE, dry (HERMOSA FORMATION)		[Graphic Log: Horizontal lines]	5446.6	6	MC	--50/4"----	-	0.3	>>	■	>>		
			26.0	0.3											
30		26.0 - 58.0 Hard, mottled light gray, dark gray, brown, and olive, CLAYSTONE, steeply dipping, irregular, and frequent fractures, dry to slightly moist (HERMOSA FORMATION)		[Graphic Log: Horizontal lines]		7	MC	--50/5"----	-	0.5	>>	■	>>		
									0.44	>>	■	>>			
35						8	MC	--40-50/4"--	50/4"	0.7	>>	■	>>		
									0.8	>>	■	>>			
40		Log continued on next page		[Graphic Log: Horizontal lines]	5432.6										

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-26

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/11/07-11/12/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,060,648.70

ELEVATION: 5472.6  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>			
40	8" OD 4.25" ID HSA	26.0 - 58.0 Hard, mottled light gray, dark gray, brown, and olive, CLAYSTONE, steeply dipping, irregular, and frequent fractures, dry to slightly moist (HERMOSA FORMATION) <i>(Continued)</i>  40 feet: soil color becomes more uniformly gray	USCS	GRAPHIC LOG	40.0	9	MC	--50/4"----	-	0.3 0.3	>>					>>
45					10	MC	--50/5"----	-	0.5 0.44	>>					>>	
50					11	MC	--40-50/5"--	50/5"	0.8 0.9	>>					>>	
55					12	MC	--25-46--	>50	0.75 1	>>					>>	
60					Continued as cored hole. See Drillhole log report.				5414.6 58.0							
60	58.0 - 60.0 Strong (R4), light yellowish brown SHALE (HERMOSA FORMATION)															

Drilling becomes harder at 46 feet

Driller begins using water at 47 feet. Driller thinks the apparent change is due to increased penetration into the claystone rather than a material change.

Driller notes multiple hard layers in run.

60 feet: end augering, begin coring

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-26

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/11/07-11/12/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,060,648.70  
 ELEVATION: 5472.6  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION	
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.					
			DEPTH (ft)					TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS								
60	Continued from non-cored borehole. See Borehole log report. 60.0 - 88.0 Hard (S6), light olive gray CLAYSTONE, irregular and frequent fractures, dry to slightly moist (HERMOSA FORMATION)	[Graphic Log]	5412.6 60.0		0.0 10.0	0										Drilling Method: Air coring with intermittent water injection. Run 1: core dust indicates claystone as found above when augering.
65				1	0.0 10.0	0										Missing discontinuity data suggests intensely fractured to rubbelized rock
70							>10						to SW	to S6		Attempted MC sampler: 50-0": saturated hole and retrieved: 100-1.5". No recovery, but residue on barrel suggests Claystone as per 26 - 60 feet. Run 2: core dust same as Run 1.
75			5396.6 76.0	2	0.0 10.0	0										Driller notes interbedded hard & soft layers
80	76 feet: color becomes mottled light olive gray, dark gray, and light gray  Log continued on next page															

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-26

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/11/07-11/12/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,060,648.70  
 ELEVATION: 5472.6  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION		
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.						
			DEPTH (ft)					TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS									
80	60.0 - 88.0 Hard (S6), light olive gray CLAYSTONE, irregular and frequent fractures, dry to slightly moist (HERMOSA FORMATION) <i>(Continued)</i>		5384.6	3	0.2 5.0	0											Attempted SS sampler: 100-2" (presaturated) ~ 2" recovery showing silty CLAYSTONE as before, but much harder (R1) pieces (3-20 mm dia.)  Driller changes to harder rock bit at 80 feet to attempt to improve recovery. New bit has slowed progress to 1 inch every 10 minutes..
85							>10										Conducted packer test from 75 to 85 feet  Switched back to original bit after packer test
90	88.0 - 93.0 Fresh to slightly weathered (I-II), extremely weak to very weak (R0-R1), black SHALE (HERMOSA FORMATION)		5379.6	4	1.5 10.0	5											Dark gray to black cuttings and sulfurious smell during Run 4
95	93.0 - 100.0 Fresh (I), weak (R2), gray SHALE, healed calcite fractures throughout, irregular fractures (HERMOSA FORMATION)			5	0.3 2.0	0	2-3	93.5-94.0 Rubble 94.0-94.0 J, I,SM,CA 94.2-94.2 J, I,SM,CA 94.8-94.8 J, I,SM,CA 94.8-94.9 J, I,SM,CA 94.9-94.9 J, I,SM,CA 95.0-98.9 Rubble									Change to a harder core bit
100	Log continued on next page Boring completed at 100 ft.			6	1.2 3.0	22	>10	98.9-98.9 J, I,SM,CA 99.1-99.1 J, I,SM,CA									

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-27

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/10/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,061,749.00  
 ELEVATION: 5484.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 6.0 Dense, reddish brown, well-graded silty SAND (SM), little gravel, trace cobbles, moderate reaction with HCl, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM												
5		6.0 - 19.0 Compact, reddish brown, very fine grained sandy SILT (ML), micro stringers of gypsum throughout, weakly cemented, very strong reaction with HCl, dry - with occasional layers of - Compact, light reddish brown well-graded silty SAND (SM), some gravel, very strong reaction with HCl, weakly cemented, dry (LOESS)	SM-ML		5478.4 6.0	1	SS	--43-49-40	>50	1.3 1.5				>> ■	
10						2	MC	--25-29--	>50	1 1				>> ■	
15						3	MC	--18-20--	38	1 1			■		
20		Log continued on next page	ML		5465.4 19.0										

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: R. Schipper  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF DRILLHOLE GA-BH-27

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/10/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,061,749.00

ELEVATION: 5484.4  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint		FO-Foliation		ST-Stepped		SM-Smooth		CA-Calcite		ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.				
								TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS							
35	Continued from non-cored borehole. See Borehole log report.		5449.4 35.0												Drilling Method: Air coring with intermittent water injection. Polymer additive used in water.
	35.0 - 37.0 NO RECOVERY														
	37.0 - 38.0 Slightly weathered (II), weak (R2), mottled gray and white GYPSUM, mostly clean fractures showing some decomposition, no reaction with HCl, dry (HERMOSA FORMATION - PARADOX MEMBER)		5447.4 37.0	1	0.9 5.0	15	3	37.0-37.2 J, I,SM,None 37.0-37.2 Rubble 37.5-37.5 J, I,SM,None 37.9-37.9 J, PL,SM,None			15-80 70-90 80				Driller notes void from 38 to 40 feet
	38.0 - 40.0 VOID (no recovery)		5446.4 38.0												
40	40.0 - 42.9 NO RECOVERY		5444.4 40.0												42.9 feet: rock becomes harder but remains weak (R2)
	42.9 - 45.0 Slightly weathered (II), weak (R2), mottled gray and white GYPSUM, mostly clean fractures showing some decomposition, no reaction with HCl, dry (HERMOSA FORMATION - PARADOX MEMBER)		5441.5 42.9	2	2.1 5.0	20	6	42.9-43.2 Rubble 43.5-43.5 J, PL,SM,None 43.9-43.9 J, I,SM,None 44.0-44.0 J, I,SM,None 44.2-44.2 J, PL,Clay 45.0-45.0 J, I,SM,Clay			90 85-90 70-90 90				
45	45.0 - 45.4 NO RECOVERY		5439.4 45.0 5439.0												Driller changes core bits at 45 feet
	45.4 - 50.0 Slightly weathered (II), weak (R2), mottled gray and white GYPSUM, mostly clean fractures showing some decomposition, no reaction with HCl, dry (HERMOSA FORMATION - PARADOX MEMBER)		5439.4 45.4	3	4.6 5.0	80	0	45.9-45.9 J, PL,SM,None 46.2-46.2 J, PL,SM,None 46.2-46.2 J, PL,SM,None 46.3-46.3 J, I,SM,None 46.6-46.6 J, PL,SM,None			90 90 90 50-90 50				
	50.0 - 52.2 NO RECOVERY		5434.4 50.0												R2 to R3
	52.2 - 55.5 Slightly weathered (II), weak (R2), mottled gray and white GYPSUM, mostly clean fractures showing some decomposition, no reaction with HCl, dry (HERMOSA FORMATION - PARADOX MEMBER)		5432.2 52.2	4	7.8 10.0	46	2	48.3-48.5 J, I,SM,None 48.8-48.8 J, PL,SM,None 49.2-49.2 J, I,SM,None 49.2-49.4 Rubble 49.4-49.4 J, I,SM,None 49.9-49.9 J, PL,SM,None 50.0-50.0 J, PL,SM,None			90 90 55				
55	54.4-54.4 J, PL,R,None						4								

SCALE: 1 in = 2.5 ft

DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: R. Schipper  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08





# RECORD OF DRILLHOLE GA-BH-27

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/10/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,061,749.00  
 ELEVATION: 5484.4  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		GRAPHIC LOG	ELEV. DEPTH (ft)	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.	ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION
	DESCRIPTION	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS													
95	95.0 - 97.2 NO RECOVERY		95.0												
	97.2 - 99.5 Slightly to moderately weathered (II-III), stiff to hard (S4-S6), olive CLAYSTONE, frequent calcite inclusions, irregularly fractured, no reaction with HCl (HERMOSA FORMATION)		5387.2 97.2	9	2.8 5.0	10	>10	97.2-100.0 Rubble				SW to MW	S4 to S5		
100	99.5 - 100.0 Moderately weathered (III), weak (R2), black SHALE, intensely fractured, slight reaction with HCl (HERMOSA FORMATION) Boring completed at 100 ft.		5384.9 99.5									to SW	to R2		
105															
110															
115															

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: R. Schipper  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-28

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/31/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,594,158.70 E: 2,062,299.20

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 5.0 Loose to compact, light brown, very fine grained sandy SILT (ML), trace gravel, trace cobbles, trace roots, dry (LOESS)	ML												
5		5.0 - 13.0 Compact to dense, light tan to light reddish brown, well-graded SAND (SW), little silt, little gravel, little cobbles, dry (LOESS) / Trace DEBRIS FLOW ALLUVIUM	SW		5477.3 5.0	1	MC	--7-15--	22	1 1	■			Many Cobbles and Gravel from 5 to 7 feet	
10		13.0 - 18.0 Hard, reddish brown, silty CLAY (CL), trace very fine sand, weakly to moderately cemented, dry (LOESS)	CL		5469.3 13.0	2	MC	--31-32--	>50	1 1		>> ■			
15		18.0 - 23.0 Loose to very loose, light gray, well-graded GRAVEL (GW), little to some sand, little silt, little clay, dry (DEBRIS FLOW ALLUVIUM)	GW		5464.3 18.0	3	MC	--50/5"----	-	0.42		>> ■			Gravelly from 18 to 23 feet is easily broken with hammer into powdery dry clay
20		Log continued on next page									■				

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-28

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/31/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,594,158.70 E: 2,062,299.20  
 ELEVATION: 5482.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA	18.0 - 23.0 Loose to very loose, light gray, well-graded GRAVEL (GW), little to some sand, little silt, little clay, dry (DEBRIS FLOW ALLUVIUM) <i>(Continued)</i>	GW		5459.3	5	SH	-----	-	1.5 2					Shelby tube advanced from 21 to 22 feet at 200psi, and 22 to 23 feet at 500psi. The bottom foot was slightly pinched by a cobble.          No cuttings reached the ground surface while drilling from 25 to 40 feet          Noticably harder drilling at 37 feet
		23.0 - 24.0 Stiff, dark brown CLAYSTONE, trace silt, trace fine sand, trace gypsum, dry (HERMOSA FORMATION)				23.0									
		24.0 - 27.0 Highly weathered (IV), medium strong (R3), white to dark gray GYPSUM / ANHYDRITE gravel and cobbles (HERMOSA FORMATION - PARADOX MEMBER)		24.0	6	MC	--21-14--	35	1 1						
25				5455.3											
		27.0 - 37.0 Soft to firm, olive gray CLAYSTONE, embedded harder nodules of similar material, trace gypsum, dry (HERMOSA FORMATION - PARADOX MEMBER)		27.0	7	MC	--5-3--	8	1 1						
30															
					8	MC	--5-6--	11	1 1						
35															
			37.0 - 40.0 Medium strong (R3), white to gray GYPSUM / ANHYDRITE (HERMOSA FORMATION - PARADOX MEMBER)		5445.3	9	MC	--50/3.5----	-	0.33 0.3					
40		Boring completed at 40 ft.													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-29

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/15/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,594,158.70 E: 2,062,849.30

ELEVATION: 5473.8  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W	W <sub>L</sub>		W <sub>u</sub>
0	8" OD 4.25" ID HSA	0.0 - 3.0 Loose to compact, moderate brown, very fine grained sandy SILT (ML), trace roots, no reaction with HCl, moist (LOESS)	ML		5470.8										
3		3.0 - 6.0 Compact, light reddish brown, very fine to fine grained silty SAND (SM), little medium to coarse sand, little fine to coarse gravel, occasional cobble, very strong reaction with HCl, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5467.8	1	MC	--26-50/4"--	50/4"	0.83 0.83				3 feet: Final blow count of MC sample went 4 inches in 25 blows and then 0 inches in the next 25 blows due to cobble	
5		6.0 - 13.0 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace gravel, occasional cobble, very strong reaction with HCl, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5467.8	2	SS	--50/4"----	-	0.17 0.33					
10		13.0 - 25.0 Hard, mottled olive and gray CLAYSTONE, intensely and irregularly fractured, no reaction with HCl, dry (HERMOSA FORMATION)	SM		5460.8	3	MC	--50/4"----	-	0 0.33					
15		13.0 - 25.0 Hard, mottled olive and gray CLAYSTONE, intensely and irregularly fractured, no reaction with HCl, dry (HERMOSA FORMATION)	SM		5460.8	4	MC	--48-50/3"--	50/3"	0.83 0.75				Driller notes hard drilling at 13 feet  Some claystone layers much easier to drill through than others.	
20		Log continued on next page		5453.8											

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008









# RECORD OF DRILLHOLE GA-BH-29

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/15/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,594,158.70 E: 2,062,849.30

ELEVATION: 5473.8  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION			
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	RQD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.							
			DEPTH (ft)					TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS										
65	56.5 - 70.0 Fresh (I), weak (R2), white and gray GYPSUM with black banding, marbled color, massive structure, no reaction with HCl (HERMOSA FORMATION - PARADOX MEMBER) (Continued)		5403.8	8	10.0 10.0	100	1.5		64.9-64.9 J, PL,SM,None		85	to FR	R2 to R4					
									66.3-66.3 J, PL,SM,CA		85							
									66.7-66.7 J, PL,SM,CA		70							
									67.3-67.3 J, PL,SM,None		85							
									68.0-68.0 J, PL,SM,CA		80							
									68.4-68.4 J, PL,SM,CA		75							
									69.0-69.0 J, PL,SM,None		90							
70			70.0 - 92.4 Fresh (I), weak (R2), white and gray GYPSUM with frequent ANHYDRITE layers, marbled color, massive structure, "glassy" fracture surfaces, no reaction with HCl (HERMOSA FORMATION - PARADOX MEMBER)		70.0	9	9.6 10.0	56	2-3		70.7-70.7 J, I,SM,None					90		
											71.3-71.3 J, I,SM,None					90		
											71.9-71.9 J, I,SM,None					90		
									72.1-72.1 J, PL,SM,None		85							
									72.5-72.5 J, PL,SM,None		90							
									73.3-73.3 J, PL,SM,None		90							
									74.0-74.0 J, PL,SM,None		90							
									74.7-74.7 J, PL,SM,None		75							
									75.0-75.0 J, ST,SM,None		90							
									75.7-75.7 J, PL,SM,None		80							
							76.9-76.9 J, I,SM,None		75									
							77.2-77.2 J, PL,SM,None		90									
							77.6-77.6 J, PL,SM,None		90									
							77.7-80.0 every 1 to 3 inches, J, PL,SM,None		85-90									
80	Log continued on next page			10	9.8 10.0	83	2		80.4-80.4 J, PL,SM,None		90							
									80.8-80.8 J, PL,SM,None		85							
									81.5-81.5 J, PL,P,None		85							
									81.8-81.8 J, PL,SM,None		80							
									82.4-82.4 J, U,P,None		75							
									82.8-82.8 J, PL,SM,None		80							
									83.2-83.2 J, PL,P,None		90							
									83.7-83.7 J, PL,SM,None		80							
									84.4-84.4 J, PL,P,None		90							
85																		

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-29

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/15/07  
 DRILL RIG: Diedrich 120

DATUM: AZIMUTH: N/A  
 INCLINATION: -90  
 COORDINATES: N: 1,594,158.70 E: 2,062,849.30

DEPTH (feet)	ROCK TYPE		LEGEND										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION								
	DESCRIPTION	GRAPHIC LOG	J-Joint		FO-Foliation		ST-Stepped		SM-Smooth		CA-Calcite					DISCONTINUITY DATA	ISRM WEATHERING INDEX	ISRM STRENGTH INDEX					
			F-Fault	PL-Planar	I-Irregular	R-Rough	CL-Clay	CT-Contact	RD-Redrilled	Fe-Iron Oxides													
			ELEV. (ft)	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS		GRAPHIC LOG	FRACTURE ORIENT.												
85	70.0 - 92.4 Fresh (I), weak (R2), white and gray GYPSUM with frequent ANHYDRITE layers, marbled color, massive structure, "glassy" fracture surfaces, no reaction with HCl (HERMOSA FORMATION - PARADOX MEMBER) (Continued)			10	9.8 10.0	83	2	84.9-84.9	J, PL,P, None		90	to FR	R2 to R4	Driller notes softer drilling towards end of Run 10 (near depth of 90 feet).									
			85.6-85.6					J, PL,P, None		90													
			85.9-85.9					J, PL,P, None		90													
			86.3-86.3					J, PL,P, None		85													
			86.8-86.8					J, PL,P, None		90													
			87.1-87.1					J, PL,P, None		90													
			87.4-87.4					J, PL,P, None		90													
			87.8-87.8					J, PL,P, None		90													
			88.1-88.1					J, PL,P, None		90													
			88.4-88.4					J, PL,P, None		90													
			88.6-88.6					J, PL,P, None		90													
			89.2-89.2					J, PL,P, None		85													
			89.4-89.4					J, PL,P, None		70													
			90.1-90.1					J, PL,P, None		80													
			90.4-90.4					J, PL,P, None		85													
90	92.4 - 98.9 No recovery		5381.4	11	3.5 10.0	14	>10	90.8-90.8	J, PL,P, None		85	MW to HW	to R0	Driller did not feel a change in material type. GYPSUM recovery was assumed to be from top of Run 11.									
			91.0-91.0					J, PL,P, None		90													
			91.4-91.4					J, PL,P, None		90													
			92.0-92.0					J, PL,P, None		90													
			92.2-92.2					J, PL,P, None		90													
			92.2-92.4					J, PL,P, None		90													
			Rubble																				
95			98.9 - 100.0 Moderately to highly weathered (III-IV), extremely weak (R0), dark brown to black SHALE, no reaction with HCl (HERMOSA FORMATION - PARADOX MEMBER) Boring completed at 100 ft.						5374.9								98.9-100.0	Rubble					

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-30

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 11/1/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,593,658.60 E: 2,060,648.70

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
0		0.0 - 2.0 Loose to compact, brown to reddish brown, very fine grained sandy SILT (ML), slightly moist (LOESS)	ML												
		2.0 - 4.0 Compact, light reddish brown, very fine grained silty SAND (SM), little fine to coarse sand, trace gravel, weakly to moderately cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5490.3 2.0	1	MC	--21-22--	43	1 1				■	1/2 inch zone of moderate cementation noted between 2 and 4 feet
		4.0 - 7.0 Compact to dense, light reddish brown, well-graded SAND (SW), trace to little gravel, weakly cemented, dry (DEBRIS FLOW ALLUVIUM)	SW		5488.3 4.0	2	MC	--26-32--	>50	1 1				>>■	
		7.0 - 28.0 Compact to dense, light reddish brown, very fine grained silty SAND (SW-SM), trace fine to coarse sand, trace gravel, weakly cemented, dry (LOESS)	SW-SM		5485.3 7.0	3	MC	--30-36--	>50	0.75 1				>>■	
			SW-SM			4	MC	--24-38--	>50	0.7 1				>>■	
			SW-SM			5	MC	--17-26--	43	1 1				■	

8" OD 4.25" ID HSA

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-30

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,658.60 E: 2,060,648.70

ELEVATION: 5492.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W	W <sub>L</sub>		W <sub>U</sub>	
20	8" OD 4.25" ID HSA	7.0 - 28.0 Compact to dense, light reddish brown, very fine grained silty SAND (SW-SM), trace fine to coarse sand, trace gravel, weakly cemented, dry (LOESS) (Continued)	SW-SM	[Graphic Log: Dotted pattern]	5464.3											
25					6	MC	--40-50/3.5"--	50/3.5"	1 0.8	>> ■						
30		28.0 - 37.5 Very dense, reddish gray, well-graded SAND (SW), trace silt, trace gravel, dry (DEBRIS FLOW ALLUVIUM)	SW	[Graphic Log: Dotted pattern]	28.0											
30					7	MC	--50/4"----	-	0.25 0.3	>> ■ Small amount of light gray shale-like rock found in top of sample						
35					8	MC	--50/2"----	-	0.25 0.2	>> ■						
40		37.5 - 43.0 Very dense, reddish gray, poorly-graded SAND (SP), very fine to medium sand, weakly to moderately cemented, dry (LOESS)	SP	[Graphic Log: Dotted pattern]	5454.8											
40					9	MC	--50/4"----	-	0.5 0.33	>> ■						
		Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR. CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-30

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,658.60 E: 2,060,648.70

ELEVATION: 5492.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>			
40	8" OD 4.25" ID HSA	37.5 - 43.0 Very dense, reddish gray, poorly-graded SAND (SP), very fine to medium sand, weakly to moderately cemented, dry (LOESS) <i>(Continued)</i>	SP	[Stippled Pattern]	5449.3											
		43.0 - 60.0 Very dense, light reddish brown, white and gray, poorly-graded SAND (SP), fine to medium sand, trace coarse sand, moderate cementation with areas of strong cementation, dry (LOESS)	SP	[Stippled Pattern]	43.0											
						10	MC	--50/3"----	-	0.25					>> ■	
45																
						11	MC	--50/0"----	-	0					>> ■	Driller notes layers of varying cementation levels
50																
						12	MC	--50/2"----	-	0					>> ■	
55																
						13	MC	--50/1"----	-	0					>> ■	
60			Boring completed at 60 ft.													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-31

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/13/07-11/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.50 E: 2,061,198.80

ELEVATION: 5494.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		W <sub>p</sub>
0	8" OD 4.25" ID HSA	0.0 - 5.0 Loose to compact, light brown to white sandy CLAY (CL), dry (LOESS)	CL	[Hatched Pattern]	5489.2										
5		5.0 - 8.0 Loose to compact, reddish brown, very fine grained sandy SILT (ML), little clay, trace fine to coarse sand, dry (LOESS)	ML	[Vertical Lines]	5.0	1	MC	--8-13--	21	1	1	■			
10		8.0 - 17.0 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace to some gravel, no cementation, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM	[Dotted Pattern]	8.0	2	MC	--30-39--	>50	1	1	■	>>	Becomes weakly cemented with trace fossiliferous markings.	
15		12 feet: soil becomes weakly cemented, trace fossiliferous markings			5482.2 12.0	3	MC	--28-36--	>50	1	1	■	>>		
20		17.0 - 28.0 Compact to dense, light reddish brown, very fine grained silty SAND (SM), little clay, trace micro stringers of gypsum throughout, weakly cemented, dry (LOESS)	SM	[Dotted Pattern]	5477.2 17.0										
		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-31

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/13/07-11/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.50 E: 2,061,198.80  
 ELEVATION: 5494.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>	W <sub>s</sub>			
20	8" OD 4.25" ID HSA	17.0 - 28.0 Compact to dense, light reddish brown, very fine grained silty SAND (SM), little clay, trace micro stringers of gypsum throughout, weakly cemented, dry (LOESS) <i>(Continued)</i>	SM		5466.2	4	MC	--34-42--	>50	1 1					>> ■		
25						5466.2	5	MC	--22-34--	>50	1 1					>> ■	
30		28.0 - 37.0 Dense to very dense, reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained clayey SAND (SC), weakly to moderately cemented, dry (LOESS)			SM-SC		5466.2	6	SH	-----	-	0.67 0.8					>> ■
35								5466.2	7	MC	--50/4"----	-	0.3 0.3				
40				5466.2			8	MC	--30-50/5"--	50/5"	0.8 0.9					>> ■	
37.0			37.0 - 38.5 Dense to very dense, reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained clayey SAND (SC), little to some gravel, trace cobbles, weakly to moderately cemented, dry (LOESS / DEBRIS FLOW ALLUVIUM)	SM-SC		5457.2											
38.5			38.5 - 47.0 Very stiff to hard, light reddish brown, very fine grained silty SAND (SM), weakly cemented with fine to medium gravel-sized pieces of moderately cemented sandstone, dry (LOESS)	SM		5455.7											
		Log continued on next page															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-31

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/13/07-11/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.50 E: 2,061,198.80  
 ELEVATION: 5494.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
40	8" OD 4.25" ID HSA	38.5 - 47.0 Very stiff to hard, light reddish brown, very fine grained silty SAND (SM), weakly cemented with fine to medium gravel-sized pieces of moderately cemented sandstone, dry (LOESS) <i>(Continued)</i>	SM	[Graphic Log: Dotted pattern]	5447.2	9	MC	--24-36--	>50	1 1	>>				■
45					47.0	10	MC	--50/2"----	-	0.3 0.2	>>	■			
50		47.0 - 52.0 Very dense, reddish brown, very fine grained sandy SILT (ML), trace to little clay, weakly cemented, dry (LOESS)	ML	[Graphic Log: Vertical lines]	5442.2	11	MC	--50/5.5"----	-	0.6 0.46	>>				■
55					52.0	12	MC	--38-50/3"--	50/3"	0.7 0.75	>>	■			
60	Log continued on next page		SM	[Graphic Log: Dotted pattern]										>>	■

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-31

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/13/07-11/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.50 E: 2,061,198.80  
 ELEVATION: 5494.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>g</sub>
60	8" OD 4.25" ID HSA	52.0 - 61.0 Dense to very dense, light reddish brown, very fine grained silty SAND (SM), weakly cemented, dry (LOESS) <i>(Continued)</i>	SM	[Graphic Log: Dotted pattern]	5433.2 61.0	13	MC	--50/5.5"----	-	0.25 0.46					60 to 65 feet: drilling through interbedded hard and soft layers 3 to 6 inches thick  Auger refusal is met due to cobble at 65 feet - begin coring
		61.0 - 65.0 Interbedded silty SAND (SM) as above, with very dense, pinkish brown, well cemented sandy SILT (ML), dry (LOESS)	SM-ML	[Graphic Log: Vertical lines]											
65		Continued as cored hole. See Drillhole log report.													
70															
75															
80															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-31

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/13/07-11/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.50 E: 2,061,198.80  
 ELEVATION: 5494.2  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION				
	DESCRIPTION	GRAPHIC LOG	ELEV.				DISCONTINUITY DATA												
			ELEV.	DEPTH (ft)	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS										
65	Continued from non-cored borehole. See Borehole log report. 65.0 - 80.0 Very dense, light reddish brown silty SAND (SM), weakly cemented, dry, with thin (1-4mm) interbeds of silty clay (LOESS)		5429.2	65.0															
70			1	0.0 10.0	0	>10													
75	80.0 - 89.6 Very dense, light reddish brown silty SAND (SM), some fine to coarse sand, some fine to coarse gravel, weakly cemented, dry (possibly highly weathered conglomerate) (LOESS / Some DEBRIS FLOW ALLUVIUM)		5414.2	80.0															to RES  MC Sample collected at 75 feet; 50-4", 4" recovered
80			2	0.0 10.0	0	>10													
85	Log continued on next page																		

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF DRILLHOLE GA-BH-31

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/13/07-11/14/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.50 E: 2,061,198.80  
 ELEVATION: 5494.2  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		<div style="font-size: 8px; display: flex; justify-content: space-between; margin-bottom: 2px;"> <span>J-Joint F-Fault S-Shear B-Bedding M-Mechanical</span> <span>FO-Foliation PL-Planar C-Curved U-Undulating</span> <span>ST-Stepped I-Irregular P-Polished K-Slickensided</span> <span>SM-Smooth R-Rough VR-V.Rough Fr-Fracture</span> <span>CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides</span> </div>												ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.						
			DEPTH (ft)	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS													
105	103.0 - 110.0 Hard (S6), mottled yellow, tan, brown, reddish brown, and olive CLAYSTONE, irregular fractures throughout, dry (HERMOSA FORMATION) <i>(Continued)</i>														to RES		SS sample collected at 110 feet; 24-39-50/4"; 16" recovery. The hole was saturated at 110 feet overnight and this sample taken the following morning.
			5	0.2 10.0	0	>10											
110	Boring completed at 110 ft.																
115																	
120																	
125																	

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-32

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,658.50 E: 2,061,749.00

ELEVATION: 5491.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 4.0 Loose to compact, brown clayey SILT (ML), moist (LOESS)	ML		5487.4										
5		4.0 - 8.0 Compact, mottled light tan and reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, weakly cemented, dry (LOESS)	SM		4.0	1	MC	--21-20--	41	1 1			■		
10		8.0 - 11.0 Compact, reddish brown, clayey SILT (ML), trace very fine sand throughout, trace medium to coarse sand in zones, trace micro stringers of gypsum throughout, weakly cemented, dry (LOESS)	ML		5483.4	8.0	2	MC	--25-22--	47	1 1			■	Driller notes cobbles from 7 to 9 feet
15		11.0 - 18.0 Compact, reddish brown, very fine grained sandy SILT (ML), trace fine to coarse sand, trace gravel, trace clay, trace micro stringers of gypsum throughout, dry (LOESS)	ML		5480.4	11.0	3	MC	--24-31--	>50	1 1			>>■	Shelby tube pushed from 14 to 14.25 feet at 1000 psi
20		18.0 - 31.0 Dense to very dense, light reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained sandy-clayey SILT (ML), trace to little fine to coarse sand, trace to little gravel, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM-ML		5473.4	18.0	4	SH	-----	-	0.5 0.25			>>■	Driller notes few cobbles near 14 feet
20		Log continued on next page				5	MC	--36-49--	>50	1 1					

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-32

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,658.50 E: 2,061,749.00

ELEVATION: 5491.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA	18.0 - 31.0 Dense to very dense, light reddish brown, interbedded very fine grained silty SAND (SM) and very fine grained sandy-clayey SILT (ML), trace to little fine to coarse sand, trace to little gravel, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM) (Continued)	SM-ML	[Graphic Log: Dotted pattern]											
25					6	MC	--40-50/5.5"--	50/5.5"	1 0.96			>> ■			
30					7	MC	--31-50/2"--	50/2"	0 0.67			>> ■			
31					Boring completed at 31 ft.										

Very hard slow drilling from 30 to 31 feet. Met auger refusal at 31 feet on boulder/cobble. Rig moved forward (east) 8 feet to drill GA-BH-32B

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





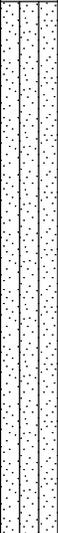
# RECORD OF BOREHOLE GA-BH-32B

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,658.50 E: 2,061,757.00

ELEVATION: 5491.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>	
20	8" OD 4.25" ID HSA	0.0 - 30.0 See Soil Log for GA-BH-32 (Continued)														
30		30.0 - 37.0 Dense to very dense, light reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, trace gravel, weakly cemented, dry (LOESS)	SM		5461.4 30.0	1	MC	--37-48--	>50	1 1					>> ■	
35		37.0 - 39.0 Very stiff, tanish white very fine grained sandy CLAY (CL), dry (LOESS)	CL		5454.4 37.0	2	MC	--44-50/5.5"--	50/5.5	1 0.96						>> ■
40		39.0 - 40.0 Log continued on next page	SM		5452.4 39.0	3	MC	--38-44--	>50	1 1						>> ■

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-32B

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,658.50 E: 2,061,757.00

ELEVATION: 5491.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
40	8" OD 4.25" ID HSA	39.0 - 43.0 Dense, reddish brown, silty SAND (SM), little gravel, trace clay, weakly to moderately cemented, dry (LOESS / Little DEBRIS FLOW ALLUVIUM) (Continued)	SM	[Graphic Log: Dotted pattern]	5448.4 43.0										
45		43.0 - 50.0 Hard, mottled light gray and olive brown CLAYSTONE, slightly moist (HERMOSA FORMATION)		[Graphic Log: Horizontal lines]		4	MC	--38-50/4"--	50/4"	0.75 0.8			>> ■		
50		Boring completed at 50 ft.					5	MC	--50/2.5"----	-	0 0.2			>> ■	
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-33

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/6/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.60 E: 2,062,299.20

ELEVATION: 5490.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>	
0	8" OD 4.25" ID HSA	0.0 - 2.0 Loose to compact, reddish brown, very fine to fine grained silty SAND (SM), no reaction with HCl, moist (LOESS)	SM		5488.7 2.0											
		2.0 - 4.5 Loose to compact, reddish brown, very fine to fine grained silty SAND (SM), no reaction with HCl, dry (LOESS)	SM													
5		4.5 - 10.5 Very stiff, light reddish brown to white, fine to very fine grained silty, clayey SAND (SC-SM), very strong reaction with HCl, dry, becoming more sandy with depth (LOESS)	SC-SM		5486.2 4.5	1	MC	--12-22--	34	1 1			■			
10		10.5 - 16.0 Compact to dense, reddish brown, very fine grained sandy SILT (ML), trace fine to coarse sand, trace micro stringers of gypsum throughout, weakly cemented, moderate to very strong reaction with HCl, dry (LOESS)	ML		5480.2 10.5	2	MC	--20-34--	>50	1 1			■	>>		
15		16.0 - 21.0 Very stiff, reddish brown sandy CLAY (CL), micro stringers of gypsum throughout, very strong reaction with HCl, dry - interbedded with - Very stiff, brown sandy SILT (ML), micro stringers of gypsum throughout, very strong reaction with HCl, dry (LOESS)	CL-ML		5474.7 16.0	3	MC	--27-27--	>50	1 1			■	>>		
20		Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-33

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/6/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.60 E: 2,062,299.20  
 ELEVATION: 5490.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA		CL-ML	[Hatched Pattern]	5469.7 21.0	4	MC	--20-28--	48	1 1					Driller notes cobbles beginning at 20 feet  >> ■  >> ■  >> ■  >> ■
		21.0 - 26.0 Dense to very dense, reddish brown, very fine grained silty SAND (SM), little to some subangular gravel and cobbles, weakly cemented, very strong reaction with HCl, dry (LOESS / Some DEBRIS FLOW ALLUVIUM)	SM	[Dotted Pattern]											
25					5464.7 26.0	5	MC	--31-49--	>50	0.1 1					
		26.0 - 37.5 Dense, reddish brown, very fine grained silty SAND (SM), very weakly cemented, slight to very strong reaction with HCl, dry (LOESS)	SM	[Dotted Pattern]											
30															
35															
40		37.5 - 46.0 Dense to very dense, reddish brown, very fine to fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, very strong reaction with HCl, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM	[Dotted Pattern]	5453.2 37.5									Driller notes change in drilling conditions at 37.5 feet	

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-33

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/6/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.60 E: 2,062,299.20

ELEVATION: 5490.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											$W_p$  -----  $W_u$ 20 40 60 80				
40	8" OD 4.25" ID HSA	37.5 - 46.0 Dense to very dense, reddish brown, very fine to fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, very strong reaction with HCl, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM) <i>(Continued)</i>	SM	[Dotted Pattern]	5444.7 46.0	8	MC	--50/3"----	-	0 0.3					>> ■ 40 feet: No Recovery from Ca. Barrel. Run SS sampler to get recovery (SS#1)  >> ■  >> ■  >> ■
45		46.0 - 55.0 Hard, reddish brown sandy CLAY (CL), sand is well-graded, little to some gravel, very strong reaction with HCl, dry (LOESS / DEBRIS FLOW ALLUVIUM)				CL	[Diagonal Hatching]	9	SS	--41-50/5"--	50/5"	1 0.9			
50		55.0 - 62.0 Very stiff to hard, mottled olive and brown silty CLAYSTONE, irregularly fractured and brittle, moderate reaction with HCl, dry (HERMOSA FORMATION)	CL	[Horizontal Hatching]	5435.7 55.0			10	SS	--50/5"----	-	0.3 0.3			
55	60	Log continued on next page			11	SS	--50/5"----	-	0.5 0.6						

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-33

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/6/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.60 E: 2,062,299.20

ELEVATION: 5490.7  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
60	8" OD 4.25" ID HSA	55.0 - 62.0 Very stiff to hard, mottled olive and brown silty CLAYSTONE, irregularly fractured and brittle, moderate reaction with HCl, dry (HERMOSA FORMATION) <i>(Continued)</i>		[Horizontal lines]	5428.7	12	SS	-50/3"----	-	0 0.25					62 feet: Claystone becomes much harder to auger through (this is likely the CLAYSTONE/GYPSUM contact)
		62.0 - 65.0 Slightly weathered (I), weak (R2), mottled black and white GYPSUM, no reaction with HCl, no infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER)		[Dotted pattern]	62.0										
65		<i>Continued as cored hole. See Drillhole log report.</i>													65 feet: end augering, begin coring
70															
75															
80															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-33

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/6/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.60 E: 2,062,299.20

ELEVATION: 5490.7  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		DISCONTINUITY DATA										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION	
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS		GRAPHIC LOG	FRACTURE ORIENT.					
								FO-Foliation PL-Planar C-Curved U-Undulating M-Mechanical	ST-Stepped I-Irregular P-Polished K-Slickensided			SM-Smooth R-Rough VR-V.Rough Fr-Fracture				CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides
65	Continued from non-cored borehole. See Borehole log report.		5425.7 65.0													Drilling Method: Air coring with intermittent water injection.
	65.0 - 66.3 NO RECOVERY															
	66.3 - 69.4 Slightly weathered (II), weak (R2), mottled black and white GYPSUM, no reaction with HCl, no infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER)		5424.4 66.3	1	3.7 5.0	0	6-8									
	69.4 - 69.7 Brown and gray CLAY (CL) stringer with 2-4 mm calcite veins throughout (HERMOSA FORMATION - PARADOX MEMBER)		5421.3 69.4													
	69.7 - 70.3 NO RECOVERY		5421.0 69.7													
	70.3 - 75.0 Slightly weathered (II), weak (R2), mottled black and white GYPSUM, no reaction with HCl, some clay infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER)		5420.4 70.3	2	4.7 5.0	46	2-3									
	75.0 - 77.3 NO RECOVERY		5415.7 75.0													
	77.3 - 80.0 Slightly weathered (II), weak (R2), mottled black and white GYPSUM, no reaction with HCl, some clay infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER)		5413.4 77.3													
	80.0 - 86.4 Slightly weathered (II) with occasional zones of moderate to high (III-IV) weathering, weak (R2), mottled black and white GYPSUM, no reaction with HCl, some clay infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER)		5410.7 80.0	3	7.7 10.0	40	3-4									
85	Log continued on next page						>10									

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-33

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 12/6/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,658.60 E: 2,062,299.20  
 ELEVATION: 5490.7  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.				
			DEPTH (ft)					TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS							
85			5404.4	4	9.8 10.0	63	>10	J, PL, SM, Clay 79.5-79.5 J, PL, SM, CA 79.7-79.7 J, PL, VR, None 79.9-80.0 J, I, SM, None 80.4-80.5 J, PL, SM, None 80.7-80.7 J, PL, SM, None 81.1-81.5 Rubble 81.4-81.4 J, PL, VR, CA 81.8-81.8 J, I, R, Clay 81.8-82.1 Rubble 82.8-82.8 J, I, R, Clay 83.1-83.1 J, PL, SM, Clay 83.1-83.7 Rubble 83.5-83.7 J, I, S, None 83.9-83.9 J, PL, SM, Clay 84.2-84.2 J, I, R, Clay 84.2-85.2 Rubble 85.3-85.4 J, I, SM, None 85.5-85.6 J, I, SM, None 85.5-85.9 Rubble 85.9-86.4 J, PL, SM, None 87.5-87.5 J, PL, SM, None 87.6-87.6	50 50 50	to SW					
86.4 - 93.2	Fresh (I), weak (R2), mottled black and white GYPSUM, no reaction with HCl, some clay infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER)		86.4				1-2			65 85 0-45 80 85 80					
90			5397.5				0			40					
93.2 - 95.0	Moderately to highly weathered (III-IV), stiff to very stiff (S4-S5), mottled brown, black, and light gray MUDSTONE, frequent veins and pockets of evaporite, no reaction with HCl (HERMOSA FORMATION - PARADOX MEMBER)		93.2				0-1			90		MW to HW	S4 to S5		
95			5395.7												
95.0 - 96.9	Fresh (I), weak (R2), mottled black and white GYPSUM, no reaction with HCl, some clay infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER)		95.0				4			80 75 85 90 25 90 60		to FR	to R2		
96.9 - 99.4	Moderately to highly weathered (III-IV), stiff to very stiff (S4-S5), mottled brown, black, and light gray MUDSTONE, frequent veins and pockets of evaporite, no reaction with HCl (HERMOSA FORMATION - PARADOX MEMBER)		96.9	5	5.0 5.0	15	>10					MW to HW	S4 to S5		
99.4 - 100.0	Fresh (I), weak (R2), mottled black and white GYPSUM, no reaction with HCl, some clay infilling in fractures (HERMOSA FORMATION - PARADOX MEMBER) Boring completed at 100 ft.		99.4				4			65 65-90 90 55		to FR	to R2		
100			5393.8												
105			5391.3												

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-34

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,593,658.50 E: 2,062,849.30

ELEVATION: 5493.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		W <sub>u</sub>	
20	8" OD 4.25" ID HSA	10.0 - 27.0 Compact, light brown, fine grained sandy SILT (ML), some fine to coarse gravel, some 4-inch cobbles, little gypsum, trace concretions, weakly cemented, dry (LOESS / Some DEBRIS FLOW ALLUVIUM) <i>(Continued)</i>	ML			5	MC	--49-50/3"--	50/3"	0.75 0.75					>> ■	
25							6	MC	--28-22/2"--	22/2"	0.7 0.7					>> ■
			27.0 - 27.5 GYPSUM and silty CLAY (CL) (LOESS)	CL												
			27.5 - 30.0 Dense to very dense, light brown, fine grained sandy SILT (ML), some fine to coarse gravel, some 4-inch cobbles, little gypsum, trace concretions, weakly cemented, dry (LOESS / DEBRIS FLOW ALLUVIUM)	ML												
			30.0 - 36.0 Very dense, light brown, fine grained sandy SILT (ML), some fine to coarse gravel, some 4-inch cobbles, little gypsum, trace concretions, strong cementation, dry (LOESS / DEBRIS FLOW ALLUVIUM)	ML												
30							7	MC	--100/5"----	-	0.2 0.42					>> ■
							8	MC	--100/4"----	-	0 0.3					>> ■
		Boring completed at 36 ft.													End of bore hole due to auguer refusal	

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-35

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 1024/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,158.40 E: 2,061,198.80

ELEVATION: 5506.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>	
0	8" OD 4.25" ID HSA	0.0 - 1.5 Loose, grayish brown silty CLAY (CL), few organics, moist (LOESS)	CL		5505.4 1.5											
		1.5 - 5.0 Compact, reddish brown, clayey SILT (ML), trace very fine sand (LOESS)	ML		5502.9 4.0	1	MC	--16-16--	32	1 1						
		few cobbles and coarse gravel near 4 feet														
5		5.0 - 7.0 Firm, grayish brown CLAY (CL), moist (LOESS)	CL		5501.9 5.0											
		7.0 - 12.0 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace gravel, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5499.9 7.0	2	MC	--17-31--	48	1 1						
10		12.0 - 20.0 Compact to dense, reddish brown, very fine grained clayey SAND (SC), little gravel, dry (LOESS / Little DEBRIS FLOW ALLUVIUM)	SC		5494.9 12.0	3	MC	--17-24--	41	1 1						
15																
20					4	MC	--32-32--	>50	1 1							
		Log continued on next page		5486.9												

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

17- 18 feet: heavy cobbles and gravel

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





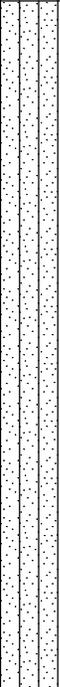
# RECORD OF BOREHOLE GA-BH-35

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 1024/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,593,158.40 E: 2,061,198.80

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION						
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)									
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>					
40	8" OD 4.25" ID HSA	32.0 - 49.0 Compact, light rusty brown silty SAND (SM), little clay, little very fine sand, dry (LOESS) <i>(Continued)</i>	SM		5457.9 49.0	9	MC	--22-38--	>50	1 1	>> ■									
45																				
50												49.0 - 65.0 Very dense, rusty brown, silty, clayey SAND (SC-SM), trace to little very fine to fine sand, weakly cemented, dry (LOESS)	SC-SM		5446.9	10	MC	--50/3"----	-	0 0.25
55	11	MC	--50/5"----	-	0.67 0.42	>> ■	Harder drilling conditions													
60							12	MC	--50/0"----	-	0 0									

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08  
 SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



Log continued on next page

# RECORD OF BOREHOLE GA-BH-35

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 1024/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,158.40 E: 2,061,198.80

ELEVATION: 5506.9  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>		
60	8" OD 4.25" ID HSA	49.0 - 65.0 Very dense, rusty brown, silty, clayey SAND (SC-SM), trace to little very fine to fine sand, weakly cemented, dry (LOESS) <i>(Continued)</i>  gravelly / cobbley zone from 60 to 62 feet (DEBRIS FLOW ALLUVIUM)	SC-SM		60.0												
		5443.9 63.0															
		5441.9 65.0															
65		65.0 - 70.0 Very dense, rusty brown, sandy-clayey SILT (ML), trace to little gravel, weakly to moderately cemented, dry (LOESS / DEBRIS FLOW ALLUVIUM)			ML												
65																	
70		Boring completed at 70 ft.															
75																	
80																	

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08



Sample at 69 feet driven beyond the first 50 blows to obtain recovery

70 feet: drillers used all the inner rod they brought to the site and definitive bedrock was not reached

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-36

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/14/07-11/15/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,158.40 E: 2,061,749.00

ELEVATION: 5505.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
0	8" OD 4.25" ID HSA	0.0 - 7.0 Loose, light yellowish brown, interbedded sandy SILT (ML) and silty SAND (SM), fine to very fine sand, dry (LOESS)	ML-SM												
5		1													MC
7.0		7.0 - 12.0 Loose, light yellowish brown, well-graded silty SAND (SM), some silt, trace gravel, trace cobbles, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM												
10		2													
12.0	12.0 - 18.0 Compact, reddish brown to brown, very fine grained sandy SILT (ML), trace fine to coarse sand, trace micro stringers of gypsum, weakly cemented, dry (LOESS)	ML													
15	3														MC
18.0	18.0 - 21.0 Compact to dense, light reddish brown, well-graded SAND (SW), little to some gravel and cobbles, very weakly cemented (LOESS / Some DEBRIS FLOW ALLUVIUM)	SW													
20	Log continued on next page														Driller notes cobbles at 18 and 19 feet

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-36

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/14/07-11/15/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,158.40 E: 2,061,749.00

ELEVATION: 5505.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>			
20	8" OD 4.25" ID HSA		SW		5484.3 21.0	4	MC	--30-40--	>50	1 1					>> ■	
		21.0 - 26.0 Very dense, reddish brown to white GRAVEL and COBBLES (predominantly sandstone) in a very fine grained sandy clay matrix, dry (DEBRIS FLOW ALLUVIUM)	GW													>> ■
25					5479.3 26.0	5	MC	--50/4"----	-	0.5 0.3						>> ■
		26.0 - 37.5 Compact to very dense, reddish brown, very fine grained silty SAND (SM), weakly cemented, dry (LOESS)	SP													
30						6	MC	--25-50/5"--	50/5"	0.9 0.9						>> ■
35					7	MC	--38-50/5"--	50/5"	0 0.9						>> ■	
		37.5 - 44.0 Dense to very dense, light reddish brown, very fine to fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5467.8 37.5											
40		Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

>> ■ No recovery - chased cal. sample at 35 feet with split spoon to get recovery

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-36

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/14/07-11/15/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,158.40 E: 2,061,749.00

ELEVATION: 5505.3  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>			
40	8" OD 4.25" ID HSA	37.5 - 44.0 Dense to very dense, light reddish brown, very fine to fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM) (Continued)	SM	[Dotted pattern]	5461.3	8	MC	--38-50/5"--	50/5"	1	0.9					Full sample barrel, likely accounting for high final blow count
		44.0														
45		44.0 - 51.0 Dense to very dense, light reddish brown, very fine to fine grained silty SAND (SM), trace to little medium to coarse sand, little gravel, weakly cemented, dry (LOESS)	SM	[Dotted pattern]	5454.3	9	MC	--50/4.5"----	-	0	0.38					No recovery - chased cal. sample at 45 feet with split spoon to get loggable sample
					51.0											
50	51.0 - 59.0 Dense to very dense, reddish brown, very fine grained silty SAND (SM), little clay, very weakly cemented, dry (LOESS)	SM			[Dotted pattern]	5454.3	10	MC	--50/3.5"----	-	0	0.5				
			51.0													
55		59.0 - 62.0 Very stiff to hard, reddish brown CLAY (CL), little very fine sand, moderate plasticity, slightly moist (LOESS)	CL	[Diagonal lines]	5446.3	11	SS	38-38-50--	>50	2	1.5					Full sample barrel, likely accounting for high final blow count
		59.0														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



Log continued on next page



# RECORD OF DRILLHOLE GA-BH-36

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/14/07-11/15/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,158.40 E: 2,061,749.00  
 ELEVATION: 5505.3  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE	DESCRIPTION	GRAPHIC LOG	LEGEND										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION
				J-Joint		FO-Foliation		ST-Stepped		SM-Smooth		CA-Calcite				
				F-Fault	PL-Planar	PL-Planar	I-Irregular	R-Rough	R-Rough	CL-Clay	CT-Contact	RD-Redrilled	Fe-Iron Oxides			
ELEV.		RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.	ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION				
DEPTH (ft)	TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS															
75		Continued from non-cored borehole. See Borehole log report.		5430.3	1	0.9 5.0	7	>10								Drilling Method: Air coring with intermittent water injection. Polymer additive used in water.
		75.0 - 79.1 NO RECOVERY		75.0												
		79.1 - 80.0 Slightly weathered (II), very weak (R1), reddish brown SILTSTONE, trace gypsum nodules (<2mm dia.) (MOENKOPI FORMATION)		5426.2				4	79.1-79.5 Rubble							All core is part of CUTLER FORMATION
		80.0 - 80.4 NO RECOVERY		79.1					79.5-79.5 B, PL,SM,None							
		80.4 - 82.6 Slightly weathered (II), extremely weak to very weak (R0-R1), reddish brown, very fine to fine grained silty SANDSTONE, horizontally stratified, thinly bedded, very weak bedding planes (MOENKOPI FORMATION)		5425.3				>10	79.6-76.6 B, PL,SM,None							Packer test conducted from 80 to 90 feet
		82.6 - 85.0 Slightly weathered (II), very weak (R1), reddish brown, sandy SILTSTONE, horizontally stratified, very thinly bedded, weak bedding planes (MOENKOPI FORMATION)		80.0				4	79.9-79.9 B, PL,SM,None							
		85.0 - 86.0 NO RECOVERY		5424.9					80.0-80.0 B, PL,SM,None							Driller notes change @ 93 feet
		86.0 - 86.2 Slightly weathered (II), very weak (R1), reddish brown, sandy SILTSTONE, horizontally stratified, very thinly bedded, weak bedding planes (CUTLER FORMATION)		80.4				2	80.6-80.6 B, PL,R,None							
		86.2 - 90.0 Fresh to slightly weathered (I - II), very weak (R1), reddish brown and purplish brown SANDSTONE, with stringers and pockets of very light gray to reddish white evaporite - similar strength as SS until wetted		5422.7	2	4.6 5.0	30	2	80.7-80.7 B, PL,R,None							
		Evaporite stringer from 87.5 to 87.8 feet		82.6				2-3	81.1-81.1 J, PL,SM,None							
		Evaporite stringer from 88.0 to 88.2 feet		5420.3				6	81.2-81.2 B, PL,R,None							
		Evaporite stringer from 89.3 to 90.0 feet		85.0					81.3-81.4 J, I,R,None							
		90.0 - 90.8 Slightly weathered (II), very weak (R1), light gray, fine to medium grained SANDSTONE		5419.3					81.4-81.4 B, PL,SM,None							
		90.8 - 91.9 Slightly weathered (II), weak (R2), reddish brown SILTSTONE, oxidized		86.0					81.8-81.8 B, PL,SM,None							
		91.9 - 95.6 NO RECOVERY		5419.1					81.9-81.9 J, PL,SM,None							
		Log continued on next page		86.2					81.9-82.0 Rubble							
				5417.8	3	4.0 5.0	58		82.0-82.0 B, PL,R,None							
				87.5					82.6-82.6 B, PL,SM,None							
				5417.3					83.4-83.5 J, ST,SM,None							
				88.0					83.5-83.7 J, PL,SM,None							
				5416.0					83.7-84.6 Rubble							
				89.3					83.8-83.8 B, PL,SM,None							
				5415.3					83.8-84.1 J, ST,SM,None							
				90.0					84.6-84.6 J							
				5414.6					84.9-85.0 J, PL,SM,None							
				90.8					86.2-86.2 J, C,SM,None							
				5413.4					86.3-86.8 J, PL,R,None							
				91.9					86.8-86.8 B, PL,SM,None							
				95.6					87.0-87.0 B, PL,SM,None							
				95.6					87.2-87.2 B, PL,SM,None							
				95.6					87.8-87.8 J, I,R,None							
				95.6					88.2-88.2 B, PL,SM,None							
				95.6					88.4-88.4 B, PL,SM,None							
				95.6					88.8-88.8 B, PL,SM,None							
				95.6					89.5-89.5 J, PL,SM,None							
				95.6					89.8-89.8 B, PL,SM,None							
				95.6					90.0-90.0 B, PL,SM,None							

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-36

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/14/07-11/15/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,593,158.40 E: 2,061,749.00  
 ELEVATION: 5505.3  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical		FO-Foliation PL-Planar C-Curved U-Undulating		ST-Stepped I-Irregular P-Polished K-Slickensided		SM-Smooth R-Rough VR-V.Rough Fr-Fracture		CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides		ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION
	DESCRIPTION	GRAPHIC LOG	ELEV.	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.				
			DEPTH (ft)					TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS							
95	91.9 - 95.6 NO RECOVERY (Continued)		5409.7												
	95.6 - 98.3 Slightly weathered (II), weak (R2), reddish brown clayey SILTSTONE, clay infilling in fractures (CUTLER FORMATION)		95.6	5	4.4 5.0	36	2-3	90.1-90.2 J, PL,R,None 90.2-90.2 B, PL,SM,None 90.3-90.3 B, PL,SM,None 90.4-90.4 B, PL,SM,None 90.6-90.6 B, PL,SM,None 90.8-90.8 B, PL,SM,None 90.8-91.3 Rubble 91.2-91.2 J, PL,SM,None 91.5-91.5 B, PL,SM,None 91.5-92.0 Rubble 95.6-95.6 J, I,SM,Clay	70 90 80 -70 90 45 -35 -50 90 90 90 -70 -0 60			to FR	to R2		
	98.3 - 100.0 Moderately weathered (III), extremely weak (R0), very fine to fine grained clayey SANDSTONE, clay infilling in fractures, occasional evaporite pockets and veins (CUTLER FORMATION)		98.3											to MW	to R0
100	Boring completed at 100 ft.							96.0-96.0 J, I,SM,None 96.1-96.1 J, I,SM,Clay 96.7-96.7 J, I,SM,None 96.7-96.8 J, I,SM,None 96.8-97.0 J, PL,SM,None 97.0-97.1 J, I,P,Clay 97.2-97.2 B, PL,SM,None 97.3-97.3 B, PL,SM,None 98.0-98.0 B, PL,SM,None 98.3-98.3 B, PL,SM,None 98.7-98.7 B, PL,SM,None 98.9-98.9 B, PL,SM,None 99.2-99.2 J, PL,SM,Clay 99.2-99.2 J, PL,SM,Clay 99.5-99.5 J, PL,SM,Clay 99.5-99.5 J, PL,R,Clay 99.5-99.6 Rubble 99.9-99.9 J, PL,R,Clay	60						

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-37

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,158.40 E: 2,062,299.10

ELEVATION: 5504.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION					
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)									
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>	W <sub>p</sub>						
0	8" OD 4.25" ID HSA	0.0 - 7.0 Loose, light reddish brown, very fine grained silty SAND (SM), trace gravel, trace roots and organics, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM	[Stippled Pattern]	5497.2															
5																				
			7.0 - 11.0 Compact, light reddish brown, poorly-graded very fine grained SAND (SP), little fine to medium grained sand, trace gravel, trace silt, weakly cemented with gravel-sized zones of strong cementation, dry (DEBRIS FLOW ALLUVIUM)	SP	[Stippled Pattern]	7.0														
			11.0 - 22.0 Compact, reddish brown, very fine grained sandy SILT (ML), trace micro stringers of gypsum throughout, weakly cemented, dry (LOESS)	ML	[Vertical Lines]	5493.2														
20																				

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-37

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,593,158.40 E: 2,062,299.10

ELEVATION: 5504.2  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA	11.0 - 22.0 Compact, reddish brown, very fine grained sandy SILT (ML), trace micro stringers of gypsum throughout, weakly cemented, dry (LOESS) (Continued)	ML		5482.2 22.0										
25		22.0 - 37.5 Dense, reddish brown, very fine grained silty SAND (SM), little fine to coarse sand, trace gravel, trace cobbles, little to no cementation, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5472.2 32.0	5	MC	--31-49--	>50	1 1				>> ■	
30		32 feet: soil changes to very dense	SM		5472.2 32.0	6	MC	--34-45--	>50	1 1				>> ■	
35			SM		5472.2 32.0	7	MC	--50/2"----	-	0 0.2				>> ■	
40			37.5 - 48.0 Dense to very dense, light reddish brown, very fine grained sandy SILT (ML), weakly cemented, dry, with occasional interbedded layers of very stiff, brown sandy CLAY (CL), dry (LOESS)	ML,CL		5466.7 37.5	8	MC	--49-50/3"--	50/3"	0.75 0.75			>> ■	
40			Log continued on next page	ML,CL		5466.7 37.5								>> ■	

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08  
 SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008





# RECORD OF BOREHOLE GA-BH-37

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/31/07 AZIMUTH: -  
 DRILL RIG: CME-55 DRILL RIG: CME-55

ELEVATION: 5504.2  
 INCLINATION: -90  
 COORDINATES: N: 1,593,158.40 E: 2,062,299.10

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
60	8" OD 4.25" ID HSA	48.0 - 62.0 Very dense, reddish brown, very fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, weakly to moderately cemented, dry (LOESS) <i>(Continued)</i>	SM		5442.2 62.0										
		62.0 - 65.0 Very stiff to hard, mottled olive and gray silty CLAYSTONE, dry to slightly moist (HERMOSA FORMATION)					13	MC	--26-44--	>50	0.9 1			>> ■	
65		Boring completed at 65 ft.													
70															
75															
80															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-38

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/17/07-11/18/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,593,158.40 E: 2,062,849.30

ELEVATION: 5500.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>p</sub>
0		0.0 - 2.0 Loose to compact, reddish brown, very fine grained silty SAND (SM), trace clay, slightly moist (LOESS)	SM	[Dotted Pattern]	5498.4										
		2.0 - 3.0 Stiff to very stiff, white sandy CLAY (CL), dry (LOESS)	CL	[Diagonal Pattern]	5497.4 2.0										
		3.0 - 5.3 Loose to compact, interbedded white sandy CLAY (CL) and reddish brown very fine grained sandy SILT (ML), trace clay, dry (LOESS)	CL-ML	[Cross-hatch Pattern]	5495.1 3.0	1	MC	--15-19--	34	1/1					
5		5.3 - 18.0 Loose to compact, reddish brown, very fine to fine grained silty SAND (SM), little to some medium to coarse sand, trace to little gravel, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM	[Dotted Pattern]	5482.4 5.3	2	MC	--7-8--	15	1/1					
10	8" OD 4.25" ID HSA					3	MC	--32-50/4"--	50/4"	0.33 0.83					Cobble stuck in shoe accounts for high last blow count. Driller says he didn't feel any more cobbles through 15 feet.
15						4	SH	-----	-	1.58 1.5					
20		18.0 - 25.0 Dense, reddish brown, very fine to fine grained silty SAND (SM), little to some medium to coarse sand, trace to little gravel, trace cobbles, dry, cobbles and gravel are typically subangular sandstone (LOESS / DEBRIS FLOW ALLUVIUM)	SM	[Dotted Pattern]	18.0										Driller notes cobbles beginning at 18 feet

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



Log continued on next page

# RECORD OF BOREHOLE GA-BH-38

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/17/07-11/18/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,593,158.40 E: 2,062,849.30

ELEVATION: 5500.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>			
20	8" OD 4.25" ID HSA	18.0 - 25.0 Dense, reddish brown, very fine to fine grained silty SAND (SM), little to some medium to coarse sand, trace to little gravel, trace cobbles, dry, cobbles and gravel are typically subangular sandstone (LOESS / DEBRIS FLOW ALLUVIUM) (Continued)	SM		5475.4	5	MC	--36-32--	>50	1 1					>> ■	
25		25.0 - 29.0 Compact to dense, reddish brown, very fine grained silty SAND (SM), trace fine to coarse sand, dry (LOESS)	SM		25.0	6	MC	--22-42--	>50	1 1					>> ■	
30		29.0 - 37.5 Dense to very dense, light reddish brown, interbedded very fine grained sandy SILT (ML) and silty SAND (SM), trace to little clay, trace to little fine to coarse sand, trace to little gravel, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	ML-SM		5471.4	7	MC	--49-50/4"--	50/4"	$\frac{0.83}{0.83}$						>> ■
35		37.5 - 42.0 Dense to very dense, light reddish brown, very fine grained silty SAND (SM), some gravel, trace clay, trace fine to coarse sand, dry (LOESS / DEBRIS FLOW ALLUVIUM)	SM		5462.9	8	MC	--44-50/3"--	50/3"	$\frac{0.83}{0.75}$						>> ■
40	Log continued on next page															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-38

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/17/07-11/18/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,593,158.40 E: 2,062,849.30

ELEVATION: 5500.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W	W <sub>L</sub>	W <sub>u</sub>	
40	8" OD 4.25" ID HSA	37.5 - 42.0 Dense to very dense, light reddish brown, very fine grained silty SAND (SM), some gravel, trace clay, trace fine to coarse sand, dry (LOESS / DEBRIS FLOW ALLUVIUM) <i>(Continued)</i>	SM		5458.4 42.0	9	MC	--50/4.5"----	-	0.25 0.38					>> ■
45		42.0 - 48.0 Compact to very dense, reddish brown to light reddish brown, interbedded sandy SILT (ML) and silty SAND (SM), trace fine to coarse sand, weakly cemented, dry (LOESS)	ML-SM			10	MC	--34-50/4.5"--	50/4.5"	0.92 0.88					>> ■
50		48.0 - 58.0 Very stiff, yellowish brown, very fine grained sandy CLAY (CL), trace fine to coarse sand, weakly cemented, dry (Weathered HERMOSA FORMATION)	CL		5452.4 48.0	11	MC	--50/5"----	-	0.58 0.42					>> ■
55		58.0 - 75.0 Slightly to moderately weathered (II-III), hard (S6), mottled olive, gray, and brown CLAYSTONE, irregular fractures, occasional thin layer of weak to medium strong (R2-R3) evaporite, dry to slightly moist (HERMOSA FORMATION)			5442.4 58.0	12	MC	--50/1"----	-	0.08 0.08					>> ■
60		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008







# RECORD OF DRILLHOLE GA-BH-38

SHEET 2 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/17/07-11/18/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: N/A  
 COORDINATES: N: 1,593,158.40 E: 2,062,849.30  
 ELEVATION: 5500.4  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical				FO-Foliation PL-Planar C-Curved U-Undulating				ST-Stepped I-Irregular P-Polished K-Slickensided				SM-Smooth R-Rough VR-V.Rough Fr-Fracture				CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides				ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION
	DESCRIPTION		ELEV. DEPTH (ft)	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA				GRAPHIC LOG	FRACTURE ORIENT.	ISRM WEATHERING INDEX	ISRM STRENGTH INDEX										
								TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS																	
95	95.0 - 97.4 No recovery																Driller notes highly variable drilling conditions during Run 5  Packer Test conducted from 90 to 100 feet								
	97.4 - 98.2 CLAYSTONE as above (HERMOSA FORMATION)		5403.0 97.4	5	2.6 5.0	0	>10	97.4-97.4 97.4-97.7 Highly Fractured 97.7-97.7 97.9-97.9 97.9-97.9 98.2-98.2 J, PL,SM,Fe 98.3-98.3 J, PL,SM,Fe 98.5-98.5						to SW	to S6										
	98.2 - 99.8 Slightly to moderately weathered (II-III), medium strong (R3), light to dark gray SHALE, evaporites and iron staining present in fractures (HERMOSA FORMATION)		5402.2 98.2					98.2-98.2 J, PL,SM,Fe 98.3-98.3 J, PL,SM,Fe 98.5-98.5				45- 90			to R3										
100	99.8 - 100.0 Highly weathered (IV), extremely weak (R0), olive brown SANDSTONE (HERMOSA FORMATION)  Boring completed at 100 ft.		5400.6 99.8					J, PL,SM,Fe 98.7-98.9 J, PL,SM,Fe 98.7-99.8 Rubble 99.4-99.4 J, PL,SM,Fe				45- 90		SW to MW  to HW	to R0										

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008







# RECORD OF BOREHOLE GA-BH-39

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/10/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,592,658.30 E: 2,060,648.70

ELEVATION: 5515.8  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
40	8" OD 4.25" ID HSA	37.5 - 48.0 Very dense, reddish brown, interbedded very fine grained sandy SILT (ML) and silty SAND (SM), little to some gravel, trace cobbles, dry (LOESS / DEBRIS FLOW ALLUVIUM) (Continued)	ML-SM	[Graphic Log: Dotted pattern]	5467.8	9	MC	-50/3"----	-	0 0.25					>> ■ No sample recovery, cuttings continue to show same material as above
45					5467.8	10	MC	-50/4"----	-	0 0.33					
50					5467.8	11	MC	-50/3"----	-	0.25 0.25					
55		48.0 - 55.0 Dense/hard, reddish brown silty CLAY (CL), little very fine to coarse sand, trace to little gravel, trace cobbles, dry (Weathered MOENKOPI FORMATION)	CL	[Graphic Log: Diagonal hatching]	5460.8	12	MC	-50/0"----	-	0 0					>> ■ Driller used improvised catch, no recovery, sample barrel bouncing on cobble
60		55.0 - 69.0 Very weak (R1), brownish red SILTSTONE (MOENKOPI FORMATION)		[Graphic Log: Horizontal hatching]											>> ■

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

Log continued on next page

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-39

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/10/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,592,658.30 E: 2,060,648.70  
 ELEVATION: 5515.8  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
60	8" OD 4.25" ID HSA	55.0 - 69.0 Very weak (R1), brownish red SILTSTONE (MOENKOPI FORMATION) <i>(Continued)</i>		[Graphic Log: Vertical hatched pattern]		13	MC	--50/0"----	-	0 0.0					No recovery, sample barrel bounces. Driller chase cal. with a split spoon, get 1 inch penetration and no recovery with SS.  Augering becomes slower and more difficult below 60 feet, likely due to increased gravel and cobbles
65						14	MC	--50/0.5"----	-	0 0.04					>> ■
70		<i>Continued as cored hole. See Drillhole log report.</i>													69 feet: end augering, begin coring
75															
80															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008







# RECORD OF BOREHOLE GA-BH-40

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/24/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,592,658.20 E: 2,061,198.80

ELEVATION: 5520.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 5.0 Loose, rusty brown SILT (ML), trace sand, trace roots, dry (LOESS)	ML		5515.5 5.0	1	MC	--5-7--	12	1/1	■				
5		5.0 - 12.0 Compact, brown to yellowish brown clayey SILT (ML), trace white calcified veins, dry (LOESS)				ML		2	MC	--10-16--	26	1/1	■		
10		12.0 - 15.0 Hard, light rusty brown to white, clayey SAND (SC), dry to slightly moist (LOESS)	SC		3			MC	--40-50/5"--	50/5"	1/0.9	■	>>		
15		15.0 - 24.0 Very stiff to hard, mottled dark rusty brown and light rusty brown silty CLAY (CL), dry to slightly moist (LOESS)			CL		4	MC	--26-32--	>50	1/1	■	>>		
20	Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-40

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/24/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,592,658.20 E: 2,061,198.80

ELEVATION: 5520.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
20	8" OD 4.25" ID HSA	15.0 - 24.0 Very stiff to hard, mottled dark rusty brown and light rusty brown silty CLAY (CL), dry to slightly moist (LOESS) (Continued)	CL	[Hatched Pattern]	5496.5 24.0										
25		24.0 - 31.0 Dense to very dense, coarse gravel and cobbles in a sandy SILT (ML) matrix (probably over 50% gravel in some short intervals) (LOESS / DEBRIS FLOW ALLUVIUM)	ML	[Vertical Lines]		5	MC	--49-50/5"--	50/5"	0.67 0.9				>> ■ Driller notes very cobbly conditions below 24 feet. Cobbles vary in color from dark gray to white with shades of pink.	
30		31.0 - 42.0 Compact to dense, reddish brown, medium to coarse grained silty SAND (SM), trace gravel, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM	[Dotted Pattern]	5489.5 31.0		6	MC	--50/0"----	-	0/0			>> ■	
35							7	MC	--23-30--	>50	1/1			>> ■	
40						8	MC	--26-43--	>50	1/1			>> ■		

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-40

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/24/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,592,658.20 E: 2,061,198.80

ELEVATION: 5520.5  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
40	8" OD 4.25" ID HSA	31.0 - 42.0 Compact to dense, reddish brown, medium to coarse grained silty SAND (SM), trace gravel, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM) (Continued)	SM	[Graphic Log: Dotted pattern]	5478.5 42.0										
45		42.0 - 45.0 Dense, reddish brown, gravelly SILT (ML), little clay, dry (LOESS / DEBRIS FLOW ALLUVIUM)	ML	[Graphic Log: Vertical lines]	5475.5 45.0	9	MC	--40-45--	>50	1 1				Driller notes cobbley zone from 42 to 45 feet and 48 to 50	
50		45.0 - 48.0 Dense, reddish brown, clayey SILT (ML), dry (LOESS)	ML	[Graphic Log: Vertical lines]	5472.5 48.0	10	MC	-50/4"----	-	0 0.33				>>	
55		Boring completed at 50 ft.													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-41

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/24/07 AZIMUTH: -  
 DRILL RIG: CME-55

ELEVATION: 5517.0  
 INCLINATION: -90  
 COORDINATES: N: 1,592,658.30 E: 2,061,749.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
0	8" OD 4.25" ID HSA	0.0 - 12.0 Loose, light brown, very fine to fine grained sandy SILT (ML), trace medium to coarse sand, dry (LOESS)	ML												
5					1	MC	--6-8--	14	1/1	■					
10					2	MC	--7-7--	14	1/1	■					
12.0		12.0 - 17.0 Loose, light brown, very fine to fine grained sandy SILT (ML), little to some coarse gravel and cobbles, trace medium to coarse sand, dry (LOESS / DEBRIS FLOW ALLUVIUM)	ML		5505.0										
15	3	-			-	0	0								
17.0		17.0 - 28.0 Compact, light reddish brown, very fine grained silty SAND (SM), weakly cemented, dry (LOESS)	SM		5500.0										
20	4	MC			--12-17--	29	1/1	■							

Driller notes  
 gravelly/cobbly material  
 from 12 to 17 feet.

2-inch piece of gravel  
 (light yellowish brown fine  
 sandstone) recovered in  
 sample barrel

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

Log continued on next page

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-41

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA  
 DRILLING DATE: 10/24/07  
 DRILL RIG: CME-55

DATUM:  
 AZIMUTH: -  
 INCLINATION: -90  
 COORDINATES: N: 1,592,658.30 E: 2,061,749.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
20	8" OD 4.25" ID HSA	17.0 - 28.0 Compact, light reddish brown, very fine grained silty SAND (SM), weakly cemented, dry (LOESS) (Continued)	SM		5489.0	5	MC	--29-27--	>50	1/1	>> ■				
28.0		28.0			>> ■										
30		28.0 - 37.5 Compact to dense, light reddish brown, sandy, silty CLAY (CL-ML), trace gravel, weakly cemented, dry to slightly moist, interbedded with light brown, sandy SILT (ML) (LOESS / Trace DEBRIS FLOW ALLUVIUM)	CL-ML		5479.5	6	MC	--31-33--	>50	1/1	>> ■				
37.5		28.0			■										
35		37.5 - 45.0 Compact to very dense, light reddish brown SILT, little gravel, trace sand, dry (LOESS / Little DEBRIS FLOW ALLUVIUM)	ML		5479.5	8	MC	--24-50/3"--	50/3"	0.58 0.75	>> ■				
40	37.5	>> ■													

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-41

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/24/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,592,658.30 E: 2,061,749.00

ELEVATION: 5517.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>P</sub>		W <sub>L</sub>
40	8" OD 4.25" ID HSA	37.5 - 45.0 Compact to very dense, light reddish brown SILT, little gravel, trace sand, dry (LOESS / Little DEBRIS FLOW ALLUVIUM) <i>(Continued)</i>	ML												
45		45.0 - 50.0 Compact to very dense, light reddish brown SILT, little to some gravel, trace sand, trace cobbles, dry (LOESS / DEBRIS FLOW ALLUVIUM)	ML		5472.0 45.0	9	MC	--50/2"----	-	0 0.17				>> ■  Driller notes very cobbly conditions from 45 to 47 feet	
50		Boring completed at 50 ft.			10	MC	--50/0"----	-	0 0.0				>> ■		
55															
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-42

SHEET 1 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/15/07-11/16/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,592,658.20 E: 2,062,299.20

ELEVATION: 5515.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>	W <sub>s</sub>		
0	8" OD 4.25" ID HSA	0.0 - 1.5 Compact, brown, very fine grained silty SAND (SM), slightly moist (LOESS)	SM	[Dotted Pattern]	5513.9 1.5	1	MC	--11-23--	34	1 1	■					
		1.5 - 3.0 Stiff, light tan to white sandy CLAY (CL), dry (LOESS)	CL	[Hatched Pattern]	5512.4 3.0											
5		3.0 - 15.0 Compact, light brown to light yellowish brown, very fine grained silty SAND (SM), trace fine to coarse sand, dry (LOESS)	SM	[Dotted Pattern]		2	MC	--9-18--	27	1 1	■					
10		15.0 - 37.5 Dense to very dense, reddish brown to light tan, well-graded silty SAND (SW-SM) (LOESS / DEBRIS FLOW ALLUVIUM), little gravel, trace to little cobbles, dry, with occasional zone of silty GRAVEL (GM) (DEBRIS FLOW ALLUVIUM)	SW-SM	[Dotted Pattern]	5500.4 15.0	4	MC	--33-50/3"--	50/3"	1 0.75	■	>>				
15																
20																

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-42

SHEET 2 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/15/07-11/16/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,592,658.20 E: 2,062,299.20

ELEVATION: 5515.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)							
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>					
20	8" OD 4.25" ID HSA	15.0 - 37.5 Dense to very dense, reddish brown to light tan, well-graded silty SAND (SW-SM) (LOESS / DEBRIS FLOW ALLUVIUM), little gravel, trace to little cobbles, dry, with occasional zone of silty GRAVEL (GM) (DEBRIS FLOW ALLUVIUM) (Continued)	SW-SM		5477.9	5	MC	--28-50/5.5"--	50/5.5"	1 0.96					>> ■			
25					6	GR	-----	-	N/A									
30					7	SS	--50/4.5"----	-	0.65 0.65					>> ■				
35					8	GR	-----	-	4 4					>> ■				
37.5					9	SS	--50/3"----	-	0.25 0.25					>> ■				
40						37.5 - 44.0 Dense, light reddish brown, very fine to fine grained, poorly-graded silty SAND (SM), dry (LOESS)	SP-SM		37.5									>> ■
						Log continued on next page												>> ■

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

Driller notes harder drilling from 33 to 34 feet

35 feet: end drilling at 1929 on 11/15, resume drilling at 0737 on 11/16

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-42

SHEET 3 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/15/07-11/16/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,592,658.20 E: 2,062,299.20

ELEVATION: 5515.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION									
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)												
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>										
40	8" OD 4.25" ID HSA	37.5 - 44.0 Dense, light reddish brown, very fine to fine grained, poorly-graded silty SAND (SM), dry (LOESS) <i>(Continued)</i>	SP-SM	[Dotted Pattern]	5471.4	10	MC	--30-38--	>50	1	1	>> ■											
45		44.0 - 53.0 Very dense, light reddish brown, sandy CLAY (CL), little to some very fine sand, weakly cemented, dry (LOESS)			CL							[Diagonal Hatching]	44.0	11	MC	--50/5"----	-	0.65	0.65	>> ■ Hard drilling from 45 to 50 feet			
50		53.0 - 56.0 Very dense, reddish brown, well-graded silty SAND (SW-SM), little to some gravel, trace clay, dry (LOESS / DEBRIS FLOW ALLUVIUM)	SW-SM	[Dotted Pattern]		5462.4	12	MC	--50/3"----	-	0.45		0.25							>> ■			
55		56.0 - 70.0 Hard, light reddish brown silty CLAYSTONE, trace sand, trace gravel, dry - interbedded with - Very dense, light reddish brown, very fine grained clayey SANDSTONE, dry (MOENKOPI FORMATION)				[Horizontal Hatching]														5459.4	13	SS	--100/3"----
60		Log continued on next page	56.0																				

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-42

SHEET 4 of 4

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/15/07-11/16/07  
 DRILL RIG: Diedrich 120

DATUM:  
 AZIMUTH: -  
 COORDINATES: N: 1,592,658.20 E: 2,062,299.20

ELEVATION: 5515.4  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>
60	8" OD 4.25" ID HSA	56.0 - 70.0 Hard, light reddish brown silty CLAYSTONE, trace sand, trace gravel, dry - interbedded with - Very dense, light reddish brown, very fine grained clayey SANDSTONE, dry (MOENKOPI FORMATION) (Continued)	SS	█	14	SS	--100/3"----	-	0.25	>>	>>				
65									15		SS	--50/2"----	-	0.1 0.2	>>
70		Continued as cored hole. See Drillhole log report.									70 feet: auger refusal end augering, begin coring				
75											Drilling becomes harder				
80															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF DRILLHOLE GA-BH-42

SHEET 1 of 2

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: HSA and NX core  
 DRILLING DATE: 11/15/07-11/16/07  
 DRILL RIG: Diedrich 120

DATUM: -  
 AZIMUTH: -  
 COORDINATES: N: 1,592,658.20 E: 2,062,299.20  
 ELEVATION: 5515.4  
 INCLINATION: -90

DEPTH (feet)	ROCK TYPE		J-Joint F-Fault S-Shear B-Bedding M-Mechanical FO-Foliation PL-Planar C-Curved U-Undulating ST-Stepped I-Irregular P-Polished K-Slickensided SM-Smooth R-Rough VR-V.Rough Fr-Fracture CA-Calcite CL-Clay CT-Contact RD-Redrilled Fe-Iron Oxides										ISRM WEATHERING INDEX	ISRM STRENGTH INDEX	NOTES WATER LEVELS INSTRUMENTATION		
	DESCRIPTION	GRAPHIC LOG	ELEV.	DEPTH	RUN NO.	CORE RECOVERY	ROD %	FRACTURES PER FOOT	DISCONTINUITY DATA		GRAPHIC LOG	FRACTURE ORIENT.					
			(ft)	(ft)					TYPE, SURFACE DESCRIPTION, AND DIP wrt CORE AXIS								
70	Continued from non-cored borehole. See Borehole log report.		5445.4	70.0													
70-71.8	No recovery																
71.8-75.0	Fresh to highly weathered (I - IV), extremely to very weak (R0-R1), interbedded brownish red SANDSTONE and SILTSTONE, oxidized w/ occasional stringers of non-oxidized (white) sandstone, occasional zones of highly to completely weathered rock (MOENKOPI FORMATION)		5443.6	71.8	1	3.2 5.0	7	3-4	71.8-71.8 J, I,R,None 71.9-71.9 J, I,R,None 71.9-72.0 Rubble 72.0-72.0 J, ST,SM,None 72.5-72.5 B, PL,SM,None 72.8-72.8 B, PL,SM,None 73.0-73.0 B, PL,SM,None 73.1-73.1 B, PL,SM,None 73.4-73.4 B, PL,SM,None	60 70 60 70 45 85 90 90 90 90	FR to SW						
75	75.0 - 76.3 No recovery		5440.4	75.0				>10									
75-76.3	No recovery																
76.3-80.0	Fresh to highly weathered (I - IV), extremely to very weak (R0-R1), interbedded brownish red SANDSTONE and SILTSTONE, oxidized w/ occasional stringers of non-oxidized (white) sandstone, occasional zones of highly to completely weathered rock (MOENKOPI FORMATION)  Large, non-oxidized stringer from 76.9 to 77.7 feet with trace evaporites		5439.1	76.3	2	3.7 5.0	32	4-5	76.3-76.3 J, I,SM,None 76.4-76.5 J, PL,SM,None 76.5-76.8 J, PL,SM,None 76.6-76.6 J, I,R,None 76.8-76.8 J, I,R,None 77.6-77.6 J, PL,SM,None 78.2-78.2 J, U,SM,None 78.4-78.4 B, PL,SM,None 78.5-78.5 B, PL,SM,None 78.6-78.6 B, PL,SM,None 78.7-78.7 B, PL,SM,None 79.0-79.0 J, PL,SM,None 79.7-79.7 J, I,R,Clay 79.7-80.0 Rubble 81.9-81.9 J, I,SM,None 82.2-82.2 J, PL,SM,None 82.7-82.7 J, PL,SM,None 82.9-83.5 J, PL,SM,None 83.3-83.3 J, PL,SM,None 83.5-83.5 J, PL,SM,None 83.7-83.7 J, PL,SM,None 83.9-83.9 J, PL,SM,None 84.2-84.2 J, PL,SM,None 84.7-84.9 J, I,SM,Clay 84.7-84.9 Rubble 85.0-85.0 J, I,SM,Clay 86.0-86.2 Rubble 86.2-86.2 J, PL,R,None 86.3-86.3 J, PL,R,None 86.5-86.5 J, PL,R,None	80 45 80 0 80 90 90 85 85 85 70 80 70 75 75 5 90 90 90 90 -60 90 90 90 90 90 -40 -40 85 -30 40	FR to SW  MW to HW  R0 to R1  FR to SW  SW to MW  to SW  MW to CW						
80	80.0 - 81.9 No recovery		5435.4	80.0													
80-81.9	No recovery																
81.9-84.2	Fresh to highly weathered (I - IV), extremely to very weak (R0-R1), interbedded brownish red SANDSTONE and SILTSTONE, oxidized w/ occasional stringers of non-oxidized (white) sandstone, occasional zones of highly to completely weathered rock (MOENKOPI FORMATION)		5433.5	81.9	3	3.1 5.0	36	2									
81.9-84.2	Fresh to highly weathered (I - IV), extremely to very weak (R0-R1), interbedded brownish red SANDSTONE and SILTSTONE, oxidized w/ occasional stringers of non-oxidized (white) sandstone, occasional zones of highly to completely weathered rock (MOENKOPI FORMATION)																
84.2-85.0	Fresh to slightly weathered (I-II), weak (R2), light greenish gray MUDSTONE (MOENKOPI FORMATION)		5431.3	84.2				>10									
84.2-85.0	Fresh to slightly weathered (I-II), weak (R2), light greenish gray MUDSTONE (MOENKOPI FORMATION)																
85	85.0 - 86.0 No recovery		5430.4	85.0				3									
85-86.0	No recovery																
86.0-90.0	Slightly to completely weathered (II-V), weak (R2), brownish red and gray SILTSTONE, trace evaporites, occasional zones of completely weathered rock separating zones of slightly weathered rock (MOENKOPI FORMATION)		5429.4	86.0	4	4.0 5.0	26	1									
86.0-90.0	Slightly to completely weathered (II-V), weak (R2), brownish red and gray SILTSTONE, trace evaporites, occasional zones of completely weathered rock separating zones of slightly weathered rock (MOENKOPI FORMATION)																
90	Log continued on next page		5425.4					>10									

DRILLHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Josh

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008









# RECORD OF BOREHOLE GA-BH-43

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/24/07 AZIMUTH: -  
 DRILL RIG: CME-55 DRILL RIG: CME-55 COORDINATES: N: 1,592,658.20 E: 2,062,849.30

ELEVATION: 5512.1  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		
40	8" OD 4.25" ID HSA	37.5 - 46.0 Very dense, light rusty brown gravelly-sandy SILT (ML), dry (LOESS / DEBRIS FLOW ALLUVIUM) (Continued)	ML												where no recovery was achieved.
45				5466.1 46.0	9	MC	--50/0"----	-	0/0	>> ■					
50		46.0 - 50.0 Dense to very dense, light rusty brown, very fine grained sandy SILT (ML), dry (LOESS)	ML			10	MC	--37-50/2"--	50/2"	1/0.67	>> ■				
55		Boring completed at 50 ft.													
60															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008







# RECORD OF BOREHOLE GA-BH-45

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/23/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,591,533.70 E: 2,062,620.00

ELEVATION: 5538.8  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		
0	8" OD 4.25" ID HSA	0.0 - 3.0 Loose to compact, light reddish brown, very fine to fine grained silty SAND (SM), trace gravel, trace organics, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5535.8	1	MC	--11-12--	23	1	1	■			
5		3.0 - 18.0 Loose to compact, light reddish brown, very fine to fine grained silty SAND (SM), trace gravel, weakly cemented, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		3.0										
10				SM		2	MC	--8-9--	17	1	1	■			
15						3	MC	--8-10--	18	1	1	■			
20		18.0 - 50.0 Dense to very dense, mottled white and rusty brown, very fine grained sandy SILT (ML), weakly cemented, dry to slightly moist (LOESS)	ML		5520.8 18.0	4	MC	--50-50/5"--	50/5"	1	0.9	■	>>		
		Log continued on next page													

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008







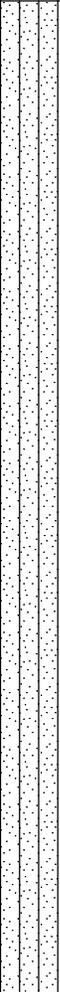
# RECORD OF BOREHOLE GA-BH-46

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/23/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,591,533.60 E: 2,062,159.80

ELEVATION: 5545.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION					
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)								
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>				
0	8" OD 4.25" ID HSA	0.0 - 13.0 Loose to compact, light rusty brown, fine to very fine grained silty SAND (SM), trace medium to coarse sand, trace gravel, dry (LOESS / Trace DEBRIS FLOW ALLUVIUM)	SM		5533.0 12.0  5532.0 13.0	1	MC	--8-10--	18	1 1	■								
5																			
10																			
12							3 to 4 inch cobbles found near 12 feet (DEBRIS FLOW ALLUVIUM)												
15		13.0 - 50.0 Compact to dense, reddish brown SAND (SM-SC), some silt, some clay, weakly cemented, dry to slightly moist (LOESS)	SM-SC																
13																			
14																			
20																			

Log continued on next page

# RECORD OF BOREHOLE GA-BH-46

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/23/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,591,533.60 E: 2,062,159.80

ELEVATION: 5545.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)						
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>				
20	8" OD 4.25" ID HSA	13.0 - 50.0 Compact to dense, reddish brown SAND (SM-SC), some silt, some clay, weakly cemented, dry to slightly moist (LOESS) <i>(Continued)</i>	SM-SC														
25																	
30		Frequent cobbles from 29 to 43 feet, density changes to dense to very dense below 29 feet (DEBRIS FLOW ALLUVIUM)				5516.0 29.0	6	MC	--50/5"----	-	0 0.42					>> ■ No cal. barrel recovery, chase with split spoon, no SS recovery. Driller believes he's pushing a cobble through the soil	
35					7	MC	--50/0"----	-	0 0					>> ■ Sample drive appears to be bouncing on a cobble			
40		Log continued on next page															

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR.CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-46

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 10/23/07 AZIMUTH: -  
 DRILL RIG: CME-55 COORDINATES: N: 1,591,533.60 E: 2,062,159.80

ELEVATION: 5545.0  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>	
40	8" OD 4.25" ID HSA	13.0 - 50.0 Compact to dense, reddish brown SAND (SM-SC), some silt, some clay, weakly cemented, dry to slightly moist (LOESS) <i>(Continued)</i>	SM-SC	[Hatched Pattern]												
					8	MC	-----	-	0							Sample drive appears to be bouncing on a cobble
45					9	MC	--38-39--	>50	1							
50	10	MC	--50/5"----	-	0							>> ■				
		Boring completed at 50 ft.														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Jerry

LOGGED: J. Elliott  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



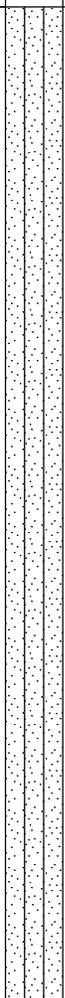
# RECORD OF BOREHOLE GA-BH-47

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,591,301.00 E: 2,061,116.00

ELEVATION: 5558  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>		W <sub>s</sub>	
0	8" OD 4.25" ID HSA	0.0 - 13.0 Loose, light brown silty SAND (SM), some fine to coarse gravel, occasional 4"-6" dia. cobbles, trace organics, dry (DEBRIS FLOW ALLUVIUM)	SM		5548.0	1	SH	-----	-	1.3 1.3					Boring Located between 'S' & 'E' of the 'Proposed 1-Acre Ore Pad' Label on GA's 'Proposed Phase II Geotechnical Borehole Locations' Drawing	
5					10.0	2	MC	--6-6--	12	1 1	■					
10					13.0	3	MC	--22-10--	32	1 1	■					
15					13.0	4	MC	--15-25--	40	1 1	■					
20		13.0 - 20.5 Compact, light brown, sandy SILT (ML), trace fine to medium gravel and concretions, weakly cemented, dry (LOESS / DEBRIS FLOW ALLUVIUM)	ML													

Log continued on next page

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008







# RECORD OF BOREHOLE GA-BH-48

SHEET 1 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,591,262.00 E: 2,061,811.00

ELEVATION: 5556  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)				
											W <sub>p</sub>	W <sub>L</sub>	W <sub>p</sub>		W <sub>L</sub>
0	8" OD 4.25" ID HSA	0.0 - 10.0 Compact, light brown sandy CLAY (CL), trace organics, dry (LOESS)	CL		5546.0	1	MC	--6-7--	13	1 1	■	20 40 60 80		Boring Located 400' North of PR1-19 on GA's 'Proposed Phase II Geotechnical Borehole Locations' Drawing	
5					2	MC	--8-12--	20	1 1	■	20 40 60 80				
10		10.0 - 15.0 Loose, light brown, fine to coarse grained silty SAND (SM), dry (LOESS)	SM		5546.0 10.0	3	MC	--6-7--	13	1 1	■	20 40 60 80			
15		15.0 - 23.0 Compact, light brown, sandy, silty CLAY (CL-ML), little concretions, weakly cemented, dry (LOESS)	CL-ML		5541.0 15.0	4	MC	--9-11--	20	1 1	■	20 40 60 80			
20		Log continued on next page									20 40 60 80				

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-48

SHEET 2 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50 COORDINATES: N: 1,591,262.00 E: 2,061,811.00

ELEVATION: 5556  
 INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W <sub>p</sub>	W <sub>L</sub>	W <sub>u</sub>			
20	8" OD 4.25" ID HSA	15.0 - 23.0 Compact, light brown, sandy, silty CLAY (CL-ML), little concretions, weakly cemented, dry (LOESS) <i>(Continued)</i>	CL-ML		5533.0	5	MC	--19-29--	48	1 1	■					
					23.0								>> ■			
25		23.0 - 35.0 Compact to dense, light brown, poorly-graded, fine to coarse grained SAND (SP-SM) with silt and some fine to coarse gravel, dry (LOESS / Some DEBRIS FLOW ALLUVIUM)	SP-SM			6	MC	--21-29/4"--	29/4"	0.8 0.8		>> ■				
30		30 feet: gravel content is reduced to trace			5526.0	7	MC	--25/0"----	-	0/0		>> ■				
					30.0											
35		35.0 - 44.0 Compact to dense, light brown, fine to coarse grained silty SAND (SM), some concretions, weakly cemented, dry (LOESS)	SM		5521.0	8	MC	--18-21--	39	1 1	■					
						35.0										
40		Log continued on next page														

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008



# RECORD OF BOREHOLE GA-BH-48

SHEET 3 of 3

PROJECT: Piñon Ridge Project  
 PROJECT NUMBER: 073-81694  
 LOCATION: Bedrock, CO

DRILLING METHOD: 8" OD 4.25" ID HSA DATUM:  
 DRILLING DATE: 11/1/07 AZIMUTH: -  
 DRILL RIG: Diedrich 50

ELEVATION: 5556  
 INCLINATION: -90  
 COORDINATES: N: 1,591,262.00 E: 2,061,811.00

DEPTH (feet)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS INSTRUMENTATION						
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WATER CONTENT (PERCENT)									
					DEPTH (ft)						W <sub>p</sub>	W	W <sub>L</sub>		W <sub>p</sub>	W	W <sub>L</sub>			
40	8" OD 4.25" ID HSA	35.0 - 44.0 Compact to dense, light brown, fine to coarse grained silty SAND (SM), some concretions, weakly cemented, dry (LOESS) <i>(Continued)</i>	SM		5512.0	9	MC	--26-24/4"--	24/4"	0.8 0.8	>> ■									
45		44.0 - 51.0 Compact to dense, light brown, fine to coarse grained silty SAND (SM), some fine to coarse gravel, occasional 3 to 4 inch cobbles, some concretions, weakly cemented, dry (DEBRIS FLOW ALLUVIUM)			SM						44.0	10	MC	--25/0"----	-	0/0	>> ■			
50		Boring completed at 51 ft.									SM							11	MC	--14-22--
55																				
60																				

BOREHOLE (WITH OR WITHOUT WELL) PHASE II BORING LOGS.GPJ GLDR\_CO.GDT 7/11/08

SCALE: 1 in = 2.5 ft  
 DRILLING CONTRACTOR: Dakota Drilling  
 DRILLER: Mike

LOGGED: J. White  
 CHECKED: L. Bowden  
 DATE: 1/23/2008

