

## DRILL HOLE RECORD

Drill Hole No.: MDDH-1 Inclination: 53° N25EProperty: Fancy Hill

Co-ordinates: North \_\_\_\_\_ East \_\_\_\_\_

Elevation: \_\_\_\_\_

Date: Started 9/16/1976, completed 9/23/1976Drilled By: Sprague & Herwood - Bill DeiningerLogged By: Bruce Templeton

Total Depth: \_\_\_\_\_

DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
0.0	3.0	67%		1.4'			Lt. gray sandstone, stained orange by iron oxides, black shale lenses (ama .04' wide).
3.0	5.0	95%		.4'			Black shale. Heavily iron stained along bedding planes.
				1.5'			Lt. gray sandstone, stained orange by iron oxides, with black shale lenses (ama .03' wide).
5.0	7.0	50%		1.0'			Lt. gray sandstone, stained orange by iron oxides, with black shale lenses.
7.0	10.0	46%		1.4'			Lt. gray sandstone, stained orange by iron oxides, with black shale lenses.
10.0	12.0	65%		1.3'			Lt. gray sandstone, stained orange by iron oxides, with black shale lenses (ama .05' wide).
12.0	16.0	100%		4.0'			Lt. gray sandstone, stained orange by iron oxides, with lenses and clasts of black shale.

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
16.0	20.0	88%		3.5'			Med. gray sandstone, stained orange by iron oxides to 16.5.
20.0	29.0	98%					Dk. grey to black micaceous sandstone. 0.3' black shale interbed at 25.2'. Occasional bleb shale scattered throughout. Numerous random fractures recemented by quartz and pyrite.
29.0	30.4	98%	box 3				Med. to dk. grey sandstone with occasional shaly interbed.
30.4	34.0	98%					Med. grey micaceous sandst one with occasional quartz and pyrite cemented fract re.
34.0	37.0	95%					Med. grey micaceous sandstone. Trace chalcopyrite and pyrite at 34.2'. 0.2' black shale at 36.0'.
37.0	39.1	99%					Medium to dark grey sandstone. Traces pyrite disseminated throughout.
39.1	41.3	98%	box 4				Interbedded dark grey to black shale and sandstone.

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FROM	TO			Sp. Gr.	BaSO4	Cond.	
39.1	41.3						Pyrite and quartz on fractures.
41.3	43.0	95%					Banded medium to dark grey sandstone. Pyrite on fractures.
43.0	51.5	98%					Uniform medium grey sandstone. Several thin shale interbeds at 49.5.
51.5	52.3	98%	box 5				Uniform grey sandstone.
52.3	61.5	99%					Uniform medium grey sandstone with irregular splotches of light grey.
61.5	63.6	98%	box 6				Uniform medium grey sandstone with irregular splotches of light grey. Quartz cemented fractures 61.5 - 62.0.
63.6	68.5	96%					Medium grey sandstone with blotches of lighter color. Mud seam (gouge ?) at 64.9'.

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
68.5	69.5	99%					Dark grey sandstone. Quartz and pyrite on fractures.
69.5	74.4	99%	box 7				Uniform medium grey sandstone.
74.4	75.5	99%					Uniform medium grey sandstone.
75.5	85.1	99%	box 8				Uniform medium grey sandstone. Several narrow barite and pyrite filled fractures at 78.3 - 79.3 and 81.9 - 82.5. Massive pyrite bleb at 82.2.
85.1	87.5	98%					Medium to dark grey sandstone interbedded with thin beds black shale.
87.5	96.0	98%					Medium to dark grey sandstone grading into black shale approximately 92.0 - 96.0. Vuggy barite filled fracture 88.6 - 90.2.
96.0	104.0	96%					Dark grey sandstone with numerous 1/8" - 1" black

## DRILL HOLE RECORD

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
96.0	104.0						Shale beds and blebs. Many millimeter fractures roughly paralleling bedding and limonite (?) filled.
104.0	107.6	83%	box 10				Dark grey sandstone with numerous 1/8" - 1" black shale beds and blebs. Many millimeter fractures roughly paralleling bedding and limonite (?) filled.
107.6	112.0	98%					Uniform medium to dark grey sandstone, 0.1' shale bed at 108.8'. Traces barite and pyrite on fractures.
112.0	114.0	95%					Dark grey banded sandstone with interbedded black shale lenses and beds. Blebs of pyrite on bedding planes.
114.0	115.8	99%					Black shale with occasional 1/8" - 1/2" band light gray sandstone.

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
115.8	118.0	99%	box 11				Medium grey sandstone with small lenses and clasts of black shale.
118.0	122.5	93%					Medium gray sandstone grading into dark grey at bottom of interval. Pyritic black shale lenses dominant 121.8 - 122.5.
122.5	129.0	99%	box 12				Dark grey sandstone with numerous thin lenses and clasts of black shale. Abundant pyrite as irregular blebs.
129.0	131.0	99%					Grey to black sandstone grading into black shale with numerous 1/8" - 3/8" barite nodules. Minor pyrite on bedding planes.
131.0	133.0	75%					Soft black shale with disseminated pyrite. Mud seam 131.7 to 132.5.
133.0	138.5	80%					Soft black shale with disseminated and banded pyrite. Badly decomposed approx. 134 - 135.

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FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
138.5	141.4	98%	box 13				Soft black shale with numerous $\pm 1/8"$ barite nodules roughly forming bands along bedding planes. Local concentrations may reach 30%.
141.4	145.5	80%					Soft black shale with occasional lighter bed. Scattered $1/8"$ barite nodules. Rock quite decomposed, muddy 143.8 - 145.5 - poor recovery.
145.5	149.5	95%					Soft black shale. Occasional unreplaced "mud ball", some encased in pyrite. Broken core.
149.5	150.7	98%					Interbedded black shale and loosely cemented (or decomposed) dark grey sandstone.
150.7	153.0	95%	box 14				Loosely cemented (or decomposed) dark grey sandstone.
153.0	159.7	98%					Very soft banded black shale, sandy texture. Good solid core recovery.

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
159.7	162.5	99%					Barite replacing shale. Generally banded in appearance, often with numerous growth centers evident in shaly matrix. Excellent solid core. Fine crystalline barite on fractures.
162.5	164.4	98%	box 15				Barite replacing shale. Generally banded in appearance, often with numerous growth centers evident in shaly matrix. Excellent solid core. Fine crystalline barite on fractures.
164.4	173.0	99%					Barite replacing shale. Generally banded in appearance, often with numerous growth centers evident in shaly matrix. Excellent solid core. Fine crystalline barite on fractures.
173.0	175.5	99%	box 16				Barite replacing shale. Generally banded in appearance, often with numerous growth centers evident in shaly matrix. Excellent solid core. Fine crystalline barite on fractures.



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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
175.5	180.6	98%					Barite replacing shale. Generally banded in appearance, often with numerous growth centers evident in shaly matrix. Barite replacement appears to be more complete than in higher intervals (65-80%). Excellent solid core. Fine crystalline barite on fractures.
Artesian flow encountered approx. 178'.							
180.6	183.5	7%					Mud seam. Dense black mud with occasional fine crystal pyrite or barite.
183.5	184.3	98%					Dense black mud. Shaly origins evident at bottom of interval. Possible artesian waterflow from this zone.
184.3	184.7	99%					Barite replacing shale. Generally banded in appearance, often with numerous growth centers evident in shaly matrix. Contact with mud seam (shale) quite sharp. Replacement approx. 90% complete.

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
184.7	186.5	33%					Black shale partially replaced by barite. Fine barite crystals on fractures. Probably altered to mud at bottom of interval - washed away. Contact with barite above quite sharp.
186.5	188.5	85%					Barite replacing shale. Approximately 80-90% complete. Several thin shale seams remaining. Abundant barite crystals on fractures. Broken core.
188.5	189.2	99%					Barite replacing shale. Replacement 80-90% complete.
189.2	189.4	75%					Partially decomposed black shale.
189.4	189.8		box 17				Barite replacing shale. Approximately 60% complete. Numerous growth centers evident.
189.8	190.4	90%					Unreplaced light grey shale.*

\* Light grey shale might be more properly called mudstone.

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FROM	TO			Sp. Gr.	BaSO4	Cond.	
190.4	192.6	95%					Barite replacing shale. 191.8 - 192.6 thin un-replaced shaly beds yield banded appearance.
							Barite crystals on fractures.
192.6	194.0	70%					Unreplaced light grey shale.
194.0	195.5	60%					Soft black shale altering to mud (washed out). 0.2' light grey shale.
195.5	196.1	99%					Barite partially replacing shale. Numerous growth centers.
196.1	200.0	95%					Light grey shale with occasional nodule of barite. 199.6 - 200.0 soft black shale.
200.0	201.5	90%	box 18				Medium grey to black shale with occasional barite nodule.
201.5	207.5	92%					Soft black shale. Mud seam at bottom of interval with fragments of novaculite.

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[illegible]

## FANCY HILL · DIAMOND DRILL HOLES - PHASE II

INDIVIDUAL CORE ANALYSES BY INTERVALS

SAMPLE	LOG #	DEPTH	INTERVAL	A.P. SPECIFIC GRAVITY	CALCULATED % BaSO <sub>4</sub>
MDDH-1					
#1	596	159.7-162.4	2.7	3.530	56.96
#2	597	162.4-165.1	2.7	3.570	59.26
#3	598	165.1-167.8	2.7	3.740	68.45
#4	599	167.8-170.5	2.7	3.710	66.89
#5	600	170.5-173.2	2.7	3.660	64.23
#6	601	173.2-175.9	2.7	3.860	74.46
#7	602	175.9-178.6	2.7	3.740	68.45
#8	603	178.6-181.3	2.7	3.780	70.50
#9	604	181.3-184.0	2.7	3.020	22.40
#10	605	184.0-186.7	2.7	3.610	61.50
#11	606	186.7-189.4	2.7	3.930	77.79
#12	607	189.4-192.7	2.7	3.860	74.46
-	-	192.7-194.0	1.3	2.761	0.00
#1A		*194.0-196.1	2.1	3.000	20.81
#2A		*196.1-199.6	<u>3.5</u>	2.990	20.00
		TOTAL 38.0			
COMPOSITE	624	MEASURED		3.720	66.3
COMPOSITE		CALCULATED		3.542	57.63
*Not included in composite measured.					