

Drill Hole No. MH-103

Date: 3/20/78

Bearing: N 82 1/2° E Inclination: 60° N

Robert Kesty
Drilled By: Boyles Bros. Quinton Barton

Coordinates: North 626,600.40 East 455,663.02
626,601.0 455,666.0

Logged By: Ferryl C. Gale

Elevation: 973.48

Total Depth: 475.0 Cored 0.0-475.0

DEPTH		%	SAMPLE	SAMPLE	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO	RECOVERY	NUMBER	INTERVAL	Sp. Gr.	BaSO ₄		
0.0	15.0							Cased hole, no sample recovery. Weathered, oxidized zone.
15.0	21.0							Black shale, highly broken fractured zone, limonite staining along fractures.
21.0	29.8							Black shale, w/ interbedded lenses of light gray fine-grained sandstone. Moderately fractured. Occasional fractures filled w/ limonite stain.
29.8	42.0							Black shales, (at 29.8-31.0 highly broken) interbedded sandstone lamina. True dip 71°S. Carbon filled fractures.
42.0	63.0							Black shales, w/ interbedded sandstone lamina.
63.0	64.2							Lt. gray fine-grained sandstone gypsum filling fracture at contact of shale sandstone.
64.2	78.8							Black shales, w/ interbedded gray sandstone lamina, (sandstone lense at 75.0-75.8) true bedding dip at 66.0' 71°N. (76.0 dip 83°S)
78.8	88.0							Black shales w/ interbedded gray sandstone lenses at 78.8-79.0 and 83.0-83.5; wisps of black shale in sandstone. Bedding Dip 70°S.

Occasional veinlets of qtz & calcite.

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FROM	TO	RECOVERY	NUMBER	INTERVAL	Sp. Gr.	BaSO ₄		
88.0	90.5							Lt. gray fine-grained sandstone, leached vugs filled w/ black metallic concordial fractural mineral. Mineral unknown at present.
90.5	101.0							Black shales w/ interbedded gray sandstone as before; (sandstone lenses 94.0-97.2) Bedding Dip at 90.5= 77°S.
101.0	113.6							Same as before plus veinlets of qtz & calcite.
113.6	126.2							As before. Dip Bedding 74°N. (120.0 small fault) occasional small brecciated areas re-cemented w/ qtz & calcite.
126.2	136.9							Black shales as before, mod. broken along bedding planes. Bedding dip at 131.5 71°S.
136.9	139.0							Black shales, as before
139.0	147.0							Lt. gray fine-grained sandstone (highly broken, shear zone, 139.0-141.0)
147.0	158.0							Sandstone, as before w/ lenses of black shale at 147.0-147.3. Bedding dip 68°S; darker gray locally. Brecciated locally minor movement, numerous qtz veinlets.
158.0	169.0							Sandstone as before. Black shale lenses 164.2-166.5. Bedding dip 166.0 68°S.

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FROM	TO	RECOVERY	NUMBER	INTERVAL	Sp. Gr.	BaSO ₄		
169.0	177.0							Sandstone as before, occasional wisps of black shale, occasional qtz. stringers.
177.0	180.0							Interbedded thin lamina of black shales & gray sandstone. Bedding dip 65°S.
180.0	191.0							Sandstone as before, w/ occasional thin lamina of black shale, occasional qtz. veinlets, Bedding dip 70°S.
191.0	201.9							Sandstone and interbedded shales as before, Bedding Dip 68°S.
201.9	213.4							Sandstone as before
224.6	236.5							Sandstone as before, bedding dip 65°N. (Fault breccia recemented at 229.0-229.5
236.5	246.8							Sandstone as before, black shales lenses at 241.0-243.0) Slicken sides along shale & sandstone contact.
248.6	257.0							Sandstone as before, occasional thin lamina of black shale w/ slicken sides along contact. Bedding dip 65°S.
257.0	267.8							Sandstone as before, occasional qtz. & calcite fracture fillings (266.0-267.0

fault zone, carbon rich filling slicken sides.

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FROM	TO	RECOVERY	NUMBER	INTERVAL	Sp. Gr.	BaSO ₄		
267.8	278.7							Sandstone as before, occasional thin lamina of black shales. Scattered qtz. veinlets. (Bedding dip 82°S.
278.7	290.0							Sandstone as before, scattered lamina of black shales. 86°S. Bedding Dip.
290.0	293.0							Sandstone as before, occasional wisps of black shale, Bedding dip 82°S.
293.0	300.7							Interbedded black shales & gray sandstone, dark gray locally.
300.7	312.1							Interbedded lenses of black shales & gray sandstone, fracture filled w/ pyrite or marcasite?. Occasional fractures & slicken sides.
312.1	321.5							Sandstone as before. Fault zone 318.0-321.5 highly broken, slicken sides, darker gray locally due to carbon content.
321.5	333.3							Sandstone as before shear zone 328.0-333.0
333.3	343.8							Interbedded black shales & sandstone, locally very thin lamina of sandstone w/ siliceous cement. Bedding Dip 76°S.
343.8	355.0							Sandstone as before, well cemented.

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FROM	TO	RECOVERY	NUMBER	INTERVAL	Sp. Gr.	BaSO ₄		
355.0	356.6							Sandstone as before.
346.6	357.7		2864	1.1'				Barite zone, black shale w/ elongated nodular barite along bedded plane; low grade, approx. 10% BaSO ₄ , Bedding dip 89°S.
357.7	365.4							Lt. gray sandstone, fine grained, well cemented, locally black
365.4	376.8							Sandstone as before, mottled appearance; Bedding dip Bedding slip 375.0
376.8	379.9							Sandstone as before, numerous qtz. veinlets Bedding Dip 87°S.
379.9	381.0		2852	1.1'				Barite zone, scattered spherical nodules in black silicious shales approx. 5% BaSO ₄ low grade. Bedding dip 80°N.
381.0	384.5							Dark gray fine-grained sandstone. Occasional wisps of black shales.
384.5	385.0		2853	0.5'				Barite zone, scattered spherical nodules in dark gray sandstone. approx. 5% Barite.
385.0	385.9							Dark gray sandstone as before.
385.9	386.8							Barite zone; scattered elongated nodular barite in sandstone approx 5%. Bedding Dip 87°S.

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FROM	TO	RECOVERY	NUMBER	INTERVAL	Sp. Gr.	BaSO ₄		
386.8	388.3							Sandstone as before.
388.3	391.0		2854	3.7'				Barite zone, med. grade approx. 50% BaSO ₄ , thinly bedded barite along bedding plane, possible witherite? Calcite present. Bedding Dip <u>88°S</u> . Host rock gray silica shale.
391.0	395.2		2855	4.2'				Barite zone, Med. grade barite approx 40% numerous barite nodules. Bedding Dip <u>88°S</u> . Host thinly bedded silicious gray shales.
395.2	398.3		2856	3.1'				Barite zone, Med to high grade, approx 70%, numerous large barite nodules and also thinly bedded barite. Host rock thinly bedded gray silicious shales. Bedding Dip. <u>88°S</u> .
398.3	402.0		2857	4.3'				Barite zone, med to high grade, approx 70% 70% BaSO ₄ , numerous thinly bedded barite along bedding plane. Host gray silicious shales.
402.0	406.0		2858	4.0'				Barite zone, low grade approx 10% BaSO ₄ . scattered nodules barite in gray shales. Locally grade is higher than in other locals in this section of core. Bedding Dip <u>88°S</u> .
406.0	409.3		2859	3.3'				Barite zone, low grade approx 10%, scattered

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FROM	TO				Sp. Gr.	BaSO ₄		
								large barite nodules elongated along bedding plane. Bedding Plane Dip <u>89°S.</u>
409.3	413.0		2860	3.7'				Barite zone, low grade approx 15% BaSO ₄ , scattered large barite nodules in gray siliceous shales. Bedding Dip <u>89°N.</u>
413.0	416.5		2861	3.5'				Barite zone, low grade approx 15%, occasional thin elongated nodules along bedding plane, also scattered spherical nodules barite. Bedding Dip <u>89°N.</u>
416.5	419.5		2862	3.0'				Barite zone, low grade scattered nodules barite in siliceous gray shales. Bedding Dip
419.5	420.3							Dark gray sandstone, fine grained, occasional qtz. veinlets. Bedding dip <u>89°N.</u>
420.3	422.0		2863	1.7'				Barite zone, low grade approx 5% BaSO ₄ , occasional barite nodules, Host rock very fine grained gray sandstone, darker gray locally. Bedding Dip. <u>89°S.</u>
422.0	431.8							Gray to dark gray very fine-grained sandstone. Locally interbedded carbon rich sandstone and gray shales, well cemented, Bedding Dip <u>88°S.</u>

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FROM	TO	RECOVERY	NUMBER	INTERVAL	Sp. Gr.	BaSO ₄		
431.8	443.5							Sandstone as above. Bedding dip <u>87°S.</u>
443.5	454.0							Interbedded gray fine-grained sandstone & black carbon rich shales, shal s have been recemented w/ silica. (445.0-446.0- squeezed up sandstone & shale, gnarled bedding), scattered bledds of pyrite, occasional veinlets of calcite & qtz. Bedding Dip <u>78°S.</u>
454.0	465.0							Gray fine-grained sandstone mottled appearance, well cemented, very uniform. Bedding dip
465.0	474.3							Gray sandstone as before. Bedding Dip. <u>75°S.</u>
								Numerous calcite & qtz filled fractures (473.8-474.3 fault) bedding plane fault, carbon rich & calcite & qtz fracture fillings in fault.
474.3	475.0							Arkansas Novaculite, cherty, fine-grained, dark gray conchoidal fracture.
								Bottom of Hole 475.0'

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10/77

FANCY HILL - DIAMOND DRILL HOLES
INDIVIDUAL CORE ANALYSES BY INTERVALS

SAMPLE	LOG #	DEPTH	INTERVAL	A.P. SPECIFIC GRAVITY	CALCULATED % BaSO ₄
MH - 103					
2864	2412	356.6-357.7	1.1	2.900	12.51
2852	2400	379.9-381.0	1.1	2.847	7.87
-	-	381.0-385.9	4.9	2.761	0.00
2853	2401	385.9-386.8	0.9	2.816	5.08
-	-	386.8-388.3	1.5	2.761	0.00
2854	2402	388.3-391.0	2.7	3.292	42.17
2855	2403	391.0-395.2	4.2	3.089	27.75
2856	2404	395.2-398.3	3.1	3.313	43.56
2857	2405	398.3-402.0	3.7	3.259	39.95
2858	2406	402.0-406.0	4.0	2.919	14.13
2859	2407	406.0-409.3	3.3	2.959	17.47
2860	2408	409.3-413.0	3.7	2.983	19.44
2861	2409	413.0-416.5	3.5	2.926	14.72
2862	2410	416.5-419.5	3.0	2.877	10.52
-	-	419.5-420.3	0.8	2.761	0.00
2863	2411	420.3-422.0	1.7	2.805	4.07
		Total	43.2		
		Weighted Average		2.987	19.78