

## DRILL HOLE RECORD

Drill Hole No.: MDDH-4 Inclination: 36° N20EProperty: Fancy Hill

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

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

Date: Started 10/6/1976, completed 10/14/1976Drilled By: Sprague & Henwood - Bill DeiningerLogged By: Les FarringtonTotal Depth: 153'

DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
							Interbedded sandstone, sandy shale, shale, and claystone. Sandstone is fine grained, micaceous, and lt. to dk. gray in color. Med. to dk. gray, micaceous sandy shale and dk. gray to black shale lenses are thinly laminated (<.01'). Shale lenses (.01' - 1.2', generally less than .05' wide) are irregularly spaced except as otherwise noted. Disseminated pyrite is pervasive in most members and occurs in high concentrations locally along bedding planes, between contacts, and surrounding or mostly comprising spherical and elongate nodules (ama .05' diam.) within the members.
							Barite partially to completely replaces carbon (?) rich spherical and vermicular nodules (ama .08' diam.) and nodular lenses ( generally less than .04' wide) in the interbedded sandy shale and shale members. Locally, barite, massive in texture is observed in widths ama 1'. Lower estimated percentages generally reflect larger amounts of
NOTE: 5/12/77 MINERAL REFERRED TO AS SCORODITE IS CHLORITE TERM "CARBON" IS INCLUSIONS IN OR DISCOLORATION OF CRYSTALLINE MATERIAL							

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[illegible]

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	Ba\$04	Cond.	
0.0	6.0						stained.
							Closely spaced, heavily iron stained fractures.
6.0	12.0	20%		1.2'			Black shale with interbedded lt. to med. gray sandstone lenses. Sandstone stained orange by iron oxides.
							Closely spaced, heavily iron stained fractures.
12.0	19.0	60%		4.2'			Lt. to med. gray sandstone, locally heavily iron stained. 1.8' very friable.
							Very closely spaced, heavily iron stained, carbon &/or quartz filled fractures, approx. 1' of which contain slickensides and show offset along sealed carbon filled fractures of .01'.
19.0	27.0	60%		1.3'			Lt. to med. gray sandstone, locally stained dark orange by iron oxides, with lenses and clasts (ama .02' wide) black shale.
				3.5'			Lt. gray sandy claystone, stained orange by iron oxides. Very friable.

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
27.0	32.0	90%		2.0'			Med. gray sandstone with lenses of black shale (ama .05' wide).
							Very closely spaced, unmineralized fractures.
				2.5'			Medium gray sandstone. Very friable.
							Very closely spaced, pyrite filled fractures.
							sandstone
32.0	38.0	70%		4.2'			Med. gray with scattered lt. gray lenses sandstone. Very friable 37.0 - 38.0, broken 35.5 - 36.5.
							Closely to very closely spaced, carbon or pyrite and barite filled fractures.
38.0	48.0	97%		2.4'			Med. gray sandstone with scattered lt. gray lenses sandstone. Very broken 39.5 - 40.5.
							Very closely spaced, carbon filled fractures.
							Closely spaced pyrite and barite filled fractures.
							Slickensides at 39.0, 40.5.
				7.3'			Med. gray sandstone mottled by lt. gray lenses; sporadic lenses and clasts ( .01' wide) black shale. Shale lens .1' wide at 41.5.

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FROM	TO			Sp. Gr.	BaSO4	Cond.	
38.0	48.0						Very closely spaced carbon and pyrite filled fractures, 41.5 - 44.5, 45.0 - 47.5. Closely spaced barite and pyrite filled fractures.
48.0	58.0	35%		3.5'			Med. gray sandstone mottled by lt. gray lenses; sporadic clasts ( .01') black shale. Locally heavy concentrations of barite and pyrite along bedding planes.
		Core barrel mismatched due to broken spring.					
		Replaced round face bit					
		10-20 STONES/CARAT (4 water way)					Closely to very closely spaced, carbon filled fractures.
		30-40 STONES PER CARAT bit (6 water way).					
58.0	62.0	70%		.2'			Med gray sandstone.
				.5'			Med. gray expansive clay (fault gouge (?)).
							Contains brecciated fragments of quartz (ama .02').
				1.9'			Med. gray sandstone. Very friable.
							Very closely spaced, carbon and pyrite filled fractures.
				.2'			Med. to dk. gray sandy shale. Heavy concentration of pyrite along bedding.

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FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
62.0	70.0	99%		2.5'			Med. gray sandstone mottled by lt. gray lenses with interbedded med. to dk. gray sandy shale and black shale lenses (ama .2' wide, black shale also occurring as clasts). Locally heavy concentrations of pyrite and barite along bedding planes.
							Closely spaced pyrite and barite filled fractures.
				3.5'			Med. gray sandstone mottled by lt. gray lenses. Isolated clasts (ama .02') black shale and carbon and/or pyrite bearing nodules (ama .01' diam.).
							Closely spaced, pyrite and barite filled fractures, very closely spaced 65.5 to 67.5. Closely spaced, carbon filled fractures 63.0 - 68.0.
				1.9'			Med. to dk. gray sandstone with interbedded med. to dk. gray sandy shale and black shale lenses (ama .03' wide) and clasts. Scattered, carbon bearing nodules (ama .01' diam.). Locally heavy concentrations of pyrite and barite along bedding. Very closely spaced, unmineralized fractures.
							69.0 - 69.5.

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
70.0	80.0	91%		6.1'			Interbedded med. to dk. gray sandstone and med. to dk. gray sandy shale (ama .5' wide lenses) with black shale lenses and clasts (ama .1' wide). Locally heavy concentrations of pyrite and barite along bedding planes. Closely to moderately closely spaced, carbon, pyrite, and quartz filled fractures 71.0 - 78.0. Very closely spaced, lt. yellow, limonite stained clay filled fractures 74.0 - 75.0, 76.0 - 77.0.
				3.0'			Dk. gray sandy shale with black shale lenses and clasts (ama .08' wide). Locally heavy concentrations of pyrite along bedding planes. Scattered carbon bearing nodules (ama .01' diam.).
80.0	90.0	82%		.9'			Dk. gray sandy shale with black shale lenses and clasts (ama .1' wide).
				4.7'			Med. gray sandstone mottled by lt. gray lenses; with sporadic clasts (ama .01') black shale. Last .7' contains pyrite filled nodules (ama .03' diam., scattered).

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FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
80.0	90.0						Very closely spaced, barite filled fractures.
				1.3'			Med. gray sandstone with interbedded dk. gray
							sandy shale lenses and black shale lenses and
							clasts, lenses ama .13' wide.
							Very closely spaced, barite filled fractures.
				1.3'			Lt. to med. gray sandstone with lt. gray sandy
							shale lenses (ama .3' wide). Very friable.
							Core loss interval (?).
90.0	100.0	98%		4.3'			Med gray sandstone mottled by lt. gray lenses;
							with sporadic lenses and clasts (ama .03' wide)
							black shale. Contains scattered pyrite bearing
							nodules (ama .03' diam.).
							Moderately closely spaced, barite filled or
							unmineralized fractures.
				5.5'			Dk. gray sandy shale with interbedded black shale
							lenses (ama .4' wide). Contains scattered pyrite
							bearing nodules (ama .05'). Locally high concen-
							trations of pyrite and barite along bedding.
							Moderately closely spaced, barite filled or



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FROM	TO			Sp. Gr.	BaSO4	Cond.	
90.0	100.0						unmineralized fractures, very closely spaced
							98.0 - 99.0.
100.0	110.0	98%		1.8'			Med. gray sandstone with lenses and clasts (ama
							.06' wide) black shale. Contains scattered,
							pyrite bearing nodules (.01').
							Very closely spaced, unmineralized fractures
							100.0 - 100.5.
				8.0'			Med. to dk. gray sandy shale with black shale
							lenses (ama .1' wide). Pyrite locally heavily
							disseminated or in high concentrations along
							bedding planes. Contains spherical and vermic-
							ular, carbon rich nodules and nodular lenses,
							partially replaced by barite.
							102.0 - 102.5 very friable due to high concentrat-
							ion of spherical nodules (.01')
							102.0 - 103.0 nodules locally rimmed by pyrite.
							103.0 - 107.0 ama 2% barite
							107.0 - 107.5 ama 15% barite
							107.5 - 110.0 ama 5% barite

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FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
100.0	110.0	98%					Closely spaced, barite crystal lined fractures
							104.5 - 110.0, very closely spaced 108.0 - 108.5,
							109.5 - 110.0.
110.0	117.5	95%		3.5'			Med. to dk. gray sandy shale with black shale lens-
							es (ama .03' wide). Locally high concentrations
							of pyrite along bedding planes. Contains carbon
							&/or pyrite bearing nodules (ama .02' diam.).
							Locally very friable and broken.
				2.1'			Med. gray sandstone with med. to dk. gray sandy
							shale lenses (ama .3' wide) and black shale lenses
							and clasts (ama .07' wide).
				1.5'			Med. to dk. gray sandy shale with black shale
							lenses (ama .2' wide).
							.5' interval very closely spaced, unmineralized
							fractures.
117.5	122.0	100%		.8'			Med. to dk. gray sandy shale with black shale
							lenses (ama .2' wide).
				3.4'			Med. to dk. gray sandy shale with interbedded

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FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
117.5	122.0						lenses dk. gray to black shale (lenses approx .09' wide) and lt. to med. gray sandstone (lenses approx .1' wide). Banded appearance. Contains scattered, carbon bearing nodules (approx .01' diam.). Very broken 120.5 - 121.5.
							Very closely spaced, barite crystal lined fractures 119.0 - 121.5.
				.3'			Black shale. Heavy concentration of pyrite at contact with sandy shale.
122.0	132.0	100%		.2'			Black shale.
				9.8'			Barite replacing interbedded sandy shale and shale. Pyrite locally heavily disseminated or concentrated along bedding planes. Unreplaced to partially replaced shale lenses approx .35' wide.
							122.2 - 123.7 avg. 40-45%
							123.7 - 124.8 75-80%
							124.8 - 125.6 40-45%
							125.6 - 125.9 75-80%
							125.9 - 128.4 50-55%



MINERAL DIVISION

FANCY HILL, ARKANSAS

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FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
122.0	132.0						128.4 - 129.1 75-80%
							129.1 - 130.2 40-45%
							130.2 - 130.6 10-15%
							130.6 - 131.0 40-45%
							131.0 - 131.6 35-40%
							131.6 - 132.0 65-70%
							Core very broken 131.0 - 132.0.
							Very closely spaced, barite (some with pyrite)
							filled fractures 122.0 - 132.0. Very closely
							spaced, carbon filled fractures 128.5 - 129.0.
132.0	138.5	100%		6.5'			Barite replacing interbedded sandy shale and shale.
							Pyrite locally heavily concentrated along bedding
							planes or disseminated. Unreplaced to partially
							replaced shale lenses approx .12' wide.
							132.0 - 132.8 50-55%
							132.8 - 133.5 60-65%
							133.5 - 135.1 45-50%
							135.1 - 135.9 80-85%
							135.9 - 137.2 40-45%

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FROM	TO			Sp. Gr.	BaSO <sub>4</sub>	Cond.	
132.0	138.5						137.2 - 138.5
							Core Very broken 137.0 - 138.5.
							Very closely spaced, barite crystal lined fract-
							ures.
138.5	147.0	33%		1.5'			Barite replacing interbedded sandy shale and shale.
							.5' 30-35%
							.9' 55-60%
							Very closely spaced, barite crystal lined fract-
							ures.
							core loss interval (?)
							.2' black expansive clay
							1.0' 35-40%
							.2' black expansive clay
							core loss interval 143.0 - 147.0.
147.0	153.0	97%		4.0'			Barite replacing interbedded sandy shale and shale.
							.4' 55-60%
							.2' black shale
							.7' 35-40%
							.6' interbedded med. to dk. gray sandy shale
							and black shale

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FROM	TO			Sp. Gr.	BaSO4	Cond.	
147.0	153.0						.5' 30-35%
							.3' interbedded dk. gray sandy shale and black shale
							.5' 30-35%
							.8' 20-25%
				1.8'			Black shale with interbedded dk. gray sandy shale lenses. Locally heavy concentrations of pyrite along bedding planes.
							Very closely spaced barite &/or quartz filled fractures (ama .02' wide) 147.0 - 151.5.
							.2' chert (not recovered)
							Really bottom or novaculite?
							explanation: fractures
							very closely spaced = <1'
							closely spaced = 1' - 3'
							moderately closely spaced = >3'
							note: Mineralized fractures are generally sealed fractures.

SAMPLE	LOG #	DEPTH	INTERVAL	A.P. SPECIFIC GRAVITY	CALCULATED % BaSO <sub>4</sub>
MDDH-4					
#1A		*103.0-106.5	3.50	3.050	24.76
#2A		*106.5-110.0	3.50	3.250	39.33
#1	619	122.2-124.3	2.10	3.760	69.48
#2	620	124.3-126.4	2.10	3.750	68.97
#3	621	126.4-128.6	2.10	3.850	73.97
#4	622	128.6-130.7	2.10	3.750	68.97
#5	623	130.7-132.8	2.10	3.760	69.48
#6	624	132.8-135.0	2.20	3.870	74.94
#7	625	135.0-137.1	2.10	3.850	73.97
#8	626	137.1-139.2	2.10	3.790	71.00
#9	627	139.2-141.4	2.20	3.760	69.48
#10	628	141.4-143.5	2.10	3.860	74.76
#11	629	<sup>1</sup> 143.5-145.6 (2.10)		NO RECOVERY	
#12	630	145.6-147.8	2.20	3.630	62.60
#13	631	147.8-149.9	2.10	3.430	51.00
#14	632	149.9-151.0	1.10	3.800	71.50
		TOTAL	33.60		
COMPOSITE		MEASURED		3.750	66.3
COMPOSITE		CALCULATED		3.630	62.64
*Not included in composite measured					
<sup>1</sup> Not included in calculated composite					