

DRILL HOLE RECORD

 Drill Hole No.: MDDH-13 Inclination: 63° N25E

 Date: Started 1/17/1977, completed 1/21/1977

 Property: Fancy Hill

 Drilled By: Sprague & Henwood - Sam Grathaler

Co-ordinates: North _____ East _____

 Logged By: Les Farrington

Elevation: _____

 Total Depth: 144'

DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	Ba\$04	Cond.	
0.0	5.0	20%		1.0'			Lt. yellow to dk. orange, iron stained clays.
5.0	9.0	23%		.9'			Sandy shale (?) altered to clays; stained lt. yellow to dk. orange by iron oxides.
9.0	10.0	100%		1.0'			Sandy shale (?) with scattered lenses med. gray shale (ama .01' wide), both mostly altered to clays; stained lt. yellow to dk. orange by iron oxides.
10.0	12.5	40%		1.0'			Sandy shale, gradational to sandstone, with lenses and clasts (ama .03' wide) med. gray shale, both largely altered to clays. Sealed, iron and manganese oxide filled fractures.
12.5	15.0	4%		.1'			Sandstone, stained lt. yellow to dk. orange by iron oxides.
15.0	25.0	84%		8.4'			Lt. gray sandstone, locally stained dk. orange by iron oxides, with lenses and clasts (ama .15' wide)

MINERAL REFERRED TO AS SCORODITE IS CHLORITE



MINERAL DIVISION

FANCY HILL, ARKANSAS

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FROM	TO			Sp. Gr.	Ba\$04	Cond.	
15.0	25.0						dk. gray shale.
							Very closely spaced, mostly sealed, iron and manganese oxide stained fractures. Locally offsets in bedding along fractures ama .03'.
25.0	32.0	63%		4.4'			Lt. to med. gray sandstone, locally stained orange/purple by iron oxides, with isolated clasts (<.01' wide) dk. gray shale.
							Very closely spaced, mostly sealed, iron and manganese oxide stained fractures.
32.0	41.5	82%		6.1'			Med. gray sandstone, mottled by lt. gray lenses, with scattered clasts (<.01' wide) dk. gray and black shale. Last 1' very broken.
							Very closely spaced, mostly sealed, heavily iron/manganese oxide stained fractures, some quartz filled Moderately closely spaced, sealed, carbon filled fractures. Very closely spaced, unmineralized fractures last 1'.
				1.7'			Black shale. Ama 2-3% pyrite along bedding



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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
32.0	41.5						planes.
							Unmineralized fractures.
41.5	45.0	97%		.1'			Black shale.
				3.3'			Dk. gray, very sandy shale, gradational to
							sandstone, with lenses and clasts (ama .05'
							wide) black shale. Locally ama 1% pyrite,
							along bedding planes/between contacts.
							Very closely spaced, unmineralized fractures.
45.0	49.5	74%		3.3'			Dk. gray, very sandy shale, gradational to sand-
							stone, with scattered lenses and clasts (ama
							.03' wide) black shale and isolated lenses (ama
							.01' wide) lt. to med. gray sandy shale. Banded
							appearance. Locally ama 1-2% pyrite, along
							bedding planes/between contacts. Locally barite
							along bedding planes. Core very friable and
							broken last 2'.
							Very closely spaced, unmineralized fractures.



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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
49.5	56.5	100%		.7'			Dk. gray to black, very sandy shale containing ama 20-25% carbon rich nodules (ama .02' diam.), partially replaced by barite. Unmineralized fracture.
				6.5'			Dk. gray sandy shale with black shale lenses (ama .2' wide). Locally lenses contain ama 3-4% nodules (ama .03' diam.) partially to completely replaced by barite.
							55.2 - 55.5 5-10% Partially sealed, carbon filled fracture (.01' wide) at 54.0.
56.5	57.5	100%		1.0'			Med. to dk. gray shale with lenses dk. gray sandy shale. Lenses ^{locally} contain ama 4-6% nodules (ama .04' diam.) and nodular lenses (<.01' wide) partially replaced by barite.
57.5	60.5	100%		3.0'			Med. to dk. gray and black shales with lenses (ama .15' wide) med. to dk. gray sandy shale. Locally lenses contain nodules (ama .02' diam.)



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FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
57.5	60.5						and nodular lenses (ama .02' wide) replaced by barite. Locally ama 1-2% disseminated pyrite. Core very graphitic and broken last .5'.
							57.5 - 58.3 <3%
							58.3 - 58.9 10-20%
							58.9 - 59.1 3-5%
							59.1 - 59.3 10-15%
							59.3 - 59.5 <3%
							59.5 - 59.6
							59.6 - 59.7 3-5%
							59.7 - 60.5 <1%
							Locally very closely spaced, sealed, pyrite filled veinlets.
60.5	64.5	95%		.6'			Dk. gray, very sandy shale containing nodules (ama .02' diam.) and nodular lenses (<.01' wide) partially replaced by barite. Core very friable and broken.
							60.5 - 60.7 15-20%
				.1'			Med. gray clay. Core loss interval.



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FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
60.5	64.5			3.1'			Dk. gray and black shales with lenses (ama .07' wide) dk. gray sandy shale. Locally lenses contain nodules (ama .03' diam.) and nodular lenses (ama .02' wide) replaced by barite. Locally ama 2-3% pyrite, disseminated/rimming nodules. Core very broken.
							61.4 - 61.5 5-10%
							61.5 - 61.9 <2%
							61.9 - 62.0 5-10%
							62.0 - 62.7 <2%
							62.7 - 63.4 4-6%
							63.4 - 64.5 <3%
64.5	68.5	100%		4.0'			Dk. gray and black shales with lenses (ama .1' wide) dk. gray sandy shale. Locally lenses contain nodules (ama .04' diam.) and nodular lenses (ama .03' wide) replaced by barite. Locally ama 2-3% pyrite, disseminated/along bedding planes/between contacts/rimming nodules. Core locally very friable and broken.



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Elevation: _____

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
64.5	68.5	100%		4.0'			64.5 - 64.8 4-6%
							64.8 - 65.0 10-15%
							65.0 - 65.8 <2%
							65.8 - 66.1 3-4%
							66.1 - 66.4 10-15%
							66.4 - 67.0 5-10%
							67.0 - 67.3 10-15%
							67.3 - 67.8 <2%
							67.8 - 68.1 3-5%
							68.1 - 68.3 10-20%
68.5	72.0	91%		3.2'			Dk. gray and black shales with lenses (ama .43' wide) dk. gray sandy shale (gradational to sandstone last 1.5'). Locally lenses contain ama 25-35% carbon rich nodules (ama .03' diam.) partially replaced by barite. Locally ama 2-3% pyrite, along bedding planes/disseminated/rimming nodules.
							Very closely spaced, mostly sealed, carbon and pyrite filled fractures last 1.0'.



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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO4	Cond.	
72.0	75.0	93%		2.5'			Med. to dk. gray sandy shale with lenses (ama .08' wide) dk. gray and black shale. Locally ama 3-4% pyrite, disseminated/lenses <.01' wide/ between contacts/along bedding planes. Locally lenses contain ama 3-5% carbon rich nodules (ama .01' diam.). Closely spaced unmineralized fractures.
				.3'			Barite replacing nodules (ama .02' diam) and nodular lenses (ama .02' wide) in dk. gray sandy shale.
							74.6 - 74.9 30-40%
75.0	80.0	98%		4.9'			Barite replacing nodules (ama .04' diam.) and nodular lenses (ama .03' wide) in interbedded med. to dk. gray and black shales and med. to dk. gray sandy shales (shale lenses ama .7'+). Locally ama 3-4% pyrite, disseminated/lenses (.01' wide)/ rimming nodules/between contacts/ along bedding planes. Finely disseminated arsenopyrite (?) 76.0 - 76.5.



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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
75.0	80.0						74.9 - 75.2 55-65%
							75.2 - 75.3 25-35%
							75.3 - 75.4 <3%
							75.4 - 75.6 3-5%
							75.6 - 76.0 10-20%
							76.0 - 76.3 35-45%
							76.3 - 76.5 5-15%
							76.5 - 76.7 <3%
							76.7 - 76.9 15-25%
							76.9 - 77.1 <3%
							77.1 - 77.7 15-25%
							77.7 - 78.2 25-35%
							78.2 - 78.4 <5%
							78.4 - 78.6 shale
							78.6 - 78.8 35-45%
							78.8 - 78.9 15-20%
							78.9 - 79.1 30-40%
							79.1 - 79.4 5-15%
							79.4 - 79.8 25-35%
							Moderately closely spaced, unmineralized fract-

DRILL HOLE RECORD

Drill Hole No.: 4DDH-13 Inclination: _____

Date: _____

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Co-ordinates: North _____ East _____

Logged By: _____

Elevation: _____

Total Depth: _____

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DRILL HOLE RECORD

Drill Hole No.: MDDH-13 Inclination:

Date: _____

Property: Fancy Hill

Drilled By: _____

Co-ordinates: North _____ East _____

Logged By: _____

Elevation: _____

Total Depth: _____

[illegible]

DRILL HOLE RECORD

Drill Hole No.: MDDH-13 Inclination: _____

Date: _____

Property: Fancy Hill

Drilled By: _____

Co-ordinates: North _____ East _____

Logged By: _____

Elevation: _____

Total Depth: _____

[illegible]

DRILL HOLE RECORD

Drill Hole No.: MDDH-13 Inclination: _____

Date: _____

Property: Fancy Hill

Drilled By: _____

Co-ordinates: North _____ East _____

Logged By: _____

Elevation: _____

Total Depth: _____

[illegible]

DRILL HOLE RECORD

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Date: _____

Property: Fancy Hill

Drilled By: _____

Co-ordinates: North _____ East _____

Logged By: _____

Elevation: _____

Total Depth: _____

[illegible]

DRILL HOLE RECORD

Drill Hole No.: MDDH-13 Inclination: _____

Date: _____

Property: Fancy Hill

Drilled By: _____

Co-ordinates: North _____ East _____

Logged By: _____

Elevation: _____

Total Depth: _____

[illegible]

DRILL HOLE RECORD

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Drilled By: _____

Co-ordinates: North _____ East _____

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Total Depth: _____

[illegible]

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
98.0	106.0						104.0 - 104.3 35-45%
							104.3 - 104.5 45-55%
							104.5 - 104.6 5-10%
							104.6 - 104.7 35-45%
							104.7 - 105.0 5-15%
							105.0 - 105.3 40-50%
							105.3 - 105.4 65-75%
							105.4 - 105.6 25-35%
							105.6 - 106.1 65-75%
							Closely to very closely spaced, unmineralized fractures.
106.0	111.0	100%		5.0'			Barite nodules (ama .02' diam.) and nodular lenses (ama .04' wide) in med. gray sandy shale (gradational to sandy shale 106.4 - 107.4) with dk. gray and black shale lenses (ama .05' wide). Lenses locally silicified prior (?) to barite replacement. Locally ama 1-3% pyrite, disseminated.
							106.1 - 106.2 65-75%

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[illegible]

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[illegible]

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
111.0	120.0						Moderately closely spaced, unmineralized fractures. Locally very closely spaced, sealed, barite filled fractures.
120.0	126.5	100%		6.5'			Barite nodules (ama .03' diam.) and nodular lenses (ama .04' wide) in med. gray sandy shale with dk. gray and black shale lenses (ama .2' wide). Locally ama 3-5% pyrite, disseminated/between contacts/rimming nodules. 120.0 - 120.2 35-45% 120.2 - 120.4 50-60% 120.4 - 120.5 45-55% 120.5 - 120.9 35-45% 120.9 - 121.0 shale 121.0 - 121.3 25-35% 121.3 - 121.7 shale 121.7 - 122.0 20-30% 122.0 - 122.2 5-15% 122.2 - 122.4 40-50% 122.4 - 122.5 5-15%



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FROM	TO			Sp. Gr.	BaSO ₄	Cond.	
120.0	126.5						122.5 - 122.7 shale
							122.7 - 123.3 40-50%
							123.3 - 123.6 30-40%
							123.6 - 124.3 shale
							124.3 - 124.4 15-25%
							124.4 - 125.0 50-60%
							125.0 - 125.1 15-25%
							125.1 - 125.3 50-60%
							125.3 - 125.5 3-4%
							125.5 - 126.0 20-30%
							126.0 - 126.4 <2%
							126.4 - 126.5 5-10%
							Moderately closely to closely spaced, open,
							carbon and pyrite coated fractures. Barite
							crystal lined, sealed fracture at 125.0.
126.5	130.5	100%		4.0'			Interbedded med. to dk. gray and black shales,
							locally containing scattered ^{barite} nodules (ama
							.03' diam.) and nodular lenses (ama .02' wide).
							Locally ama 4-6% pyrite, disseminated/lenses

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DEPTH		SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES			DESCRIPTION OF MATERIAL DRILLED
FROM	TO			Sp. Gr.	Ba\$O4	Cond.	
126.5	130.5						ama .01' wide.
							126.5 - 126.7 <2%
							127.7 - 127.9 2-4%
							128.1 - 128.2 15-20%
130.5	136.5	100%		6.0'			Interbedded lt. to med. to dk. gray and black shales. Contain locally isolated nodules (ama .01' diam.) partially replaced by barite. Locally ama 5-7% pyrite, disseminated/lenses (ama .01' wide)/between contacts/along bedding planes.
							Closely to very closely spaced, mostly sealed, lt. yellow barite filled fractures, subparallel to bedding 132.5 - 136.5.
136.5	144.0	93%		6.6'			Interbedded lt. to med. to dk. gray and black shales, clayey last 3.3'. Locally ama 5-6% pyrite, lenses (ama .01' wide)/disseminated/along bedding planes.
							Closely to very closely spaced, sealed, lt.

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[illegible]

SAMPLE	LOG #	DEPTH	INTERVAL	CALCULATED SPECIFIC GRAVITY	X-RAY % BaSO ₄
MDDH-13					
#1A		*49.5-60.5	11.00	3.141	31.61
#2A		*60.5-68.4	7.90	3.308	43.26
#3A		*68.4-74.6	6.20	2.837	6.95
#4A		126.0-128.2	2.20	2.879	10.70
#1	717	74.6-78.5	3.90	3.198	35.7
#2	718	78.5-82.4	3.90	3.335	45.0
#3	719	82.4-86.3	3.90	3.544	57.8
#4	720	86.3-90.1	3.80	3.453	52.4
#5	721	90.1-94.0	3.90	3.346	45.7
#6	722	94.0-97.9	3.90	3.567	59.1
#7	723	97.9-101.8	3.90	3.335	45.0
#8	724	101.8-105.6	3.80	2.801	61.9
#9	725	105.6-109.5	3.90	4.123	86.4
#10	726	109.5-113.4	3.90	3.778	70.4
#11	727	113.4-117.3	3.90	3.587	60.2
#12	728	117.3-121.2	3.90	3.311	43.4
#13	729	121.2-125.1	3.90	3.137	31.3
#14	730	125.1-126.0	3.90	2.991	20.1
COMPOSITE	732	MEASURED		3.49	53.2
COMPOSITE		CALCULATED	81.70	3.33	44.71
*Not included in composite measured.					