

Results of Directional Survey

API number:	30-025-41439		
OGRID:		Operator:	MURCHISON OIL & GAS INC
		Property:	BETTIS 20 STATE COM # 5H

surface	ULSTR:	M	20	T 24S	R 33E
				200 FSL	380 FWL

BH Loc	ULSTR:	D	20	T 24S	R 33E
15829	MD	11127.0	TVD	223 FNL	343 FWL
5057 FSL					

Top Perf/OH	ULSTR:	M	20	T 24S	R 33E
11390	MD	11142.8	TVD	621 FSL	421 FWL

Bot Perf/OH	ULSTR:	D	20	T 24S	R 33E
15465	MD	11129.0	TVD	586 FNL	358 FWL
4694 FSL					

	MD	N/S	E/W	VD
	11358	391.00	41.60	11133
TOP PERFS/OH	11390	421.40	40.80	11142.80
	11390	421.40	40.80	11142.80
	15418	4446.60	-21.20	11130.10
BOT PERFS/OH	15465	4493.60	-22.45	11128.95
	15512	4540.60	-23.70	11127.80

NEXT TO LAST	15822	4850.30	-36.40	11127.00
LAST READING	15829	4857.30	-36.80	11127.00
TD	15829	4857.30	-36.80	11127.00

Surface Location	200	FS	380	FW
Projected BHL	5057	FS	343	FW
Location of				
Top Perfs/OH	621	FS	421	FW
Bottom Perfs/OH	4694	FS	358	FW

SUMMARY of Subsurface Locations

Surface Location	M-20-24S-33E	200	FS	380	FW	Vert. Depth
Top Perfs/OH	M-20-24S-33E	621	FS	421	FW	11142.80
Bottom Perfs/OH	D-20-24S-33E	4694	FS	358	FW	11128.95
Projected TD	D-20-24S-33E	5057	FS	343	FW	11127.00

OCT 15 2014

 MURCHISON OIL & GAS, INC.

Murchison Oil and Gas

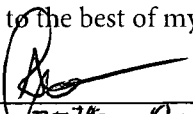
Jackson Unit Section 20
Bettis 20 State Com 5H

Survey: Bettis 20 State Com 5H

MOJO Standard Survey

27 August, 2014

This survey is correct to the best of my knowledge and is supported
by actual field data.

 (Signature)
Notarized this date 27th of August, 2014


Notary Signature County of Collin State of Texas



RECEIVED

SEP 02 2014

HOBBS OCD



Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Bettis 20 State Com 5H
Project:	Jackson Unit Section 20	TVD Reference:	WELL @ 3560.1usft (Original Well Elev)
Site:	Bettis 20 State Com 5H	MD Reference:	WELL @ 3560.1usft (Original Well Elev)
Well:	Bettis 20 State Com 5H	North Reference:	Grid
Wellbore:	Bettis 20 State Com 5H	Survey Calculation Method:	Minimum Curvature
Design:	Bettis 20 State Com 5H	Database:	EDM 5000.1 Single User Db

Project	Jackson Unit Section 20		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	Bettis 20 State Com 5H		
Site Position:		Northing:	435,978.92 usft
From:	Lat/Long	Easting:	767,673.98 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 47.279 N
		Longitude:	103° 36' 5.874 W
		Grid Convergence:	0.39 °

Well	Bettis 20 State Com 5H		
Well Position	+N/-S	0.0 usft	Northing: 435,978.92 usft
	+E/-W	0.0 usft	Easting: 767,673.98 usft
Position Uncertainty	0.0 usft		Wellhead Elevation: usft
			Latitude: 32° 11' 47.279 N
			Longitude: 103° 36' 5.874 W
			Ground Level: 3,538.1 usft

Wellbore	Bettis 20 State Com 5H		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	07/04/2014	(°)
			7.25
			Dip Angle (°)
			60.09
			Field Strength (nT)
			48,314

Design	Bettis 20 State Com 5H		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			359.55

Survey Program	Date 27/08/2014		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	15,829.0	Bettis 20 State Com 5H (Bettis 20 State C	MWD
			Description
			MWD - Standard

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Wellbore:	Bettis 20 State Com 5H	Survey Calculation Method:	Minimum Curvature
Design:	Bettis 20 State Com 5H	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-3,560.1	0.0	0.0	0.0	0.00	435,978.92	767,673.98	
100.0	0.28	156.38	100.0	-3,460.1	-0.2	0.1	-0.2	0.28	435,978.69	767,674.08	
200.0	0.41	129.02	200.0	-3,360.1	-0.7	0.5	-0.7	0.21	435,978.24	767,674.45	
300.0	0.41	131.68	300.0	-3,260.1	-1.1	1.0	-1.1	0.02	435,977.78	767,675.00	
400.0	0.47	135.40	400.0	-3,160.1	-1.7	1.6	-1.7	0.07	435,977.25	767,675.55	
500.0	0.38	139.34	500.0	-3,060.1	-2.2	2.1	-2.2	0.09	435,976.71	767,676.06	
600.0	0.23	167.92	600.0	-2,960.1	-2.7	2.3	-2.7	0.21	435,976.26	767,676.31	
700.0	0.19	149.34	700.0	-2,860.1	-3.0	2.5	-3.0	0.08	435,975.92	767,676.44	
800.0	0.10	117.54	800.0	-2,760.1	-3.2	2.6	-3.2	0.12	435,975.74	767,676.60	
900.0	0.19	61.29	900.0	-2,660.1	-3.1	2.8	-3.2	0.16	435,975.78	767,676.83	
1,000.0	0.22	68.27	1,000.0	-2,560.1	-3.0	3.2	-3.0	0.04	435,975.93	767,677.15	
1,100.0	0.23	92.42	1,100.0	-2,460.1	-2.9	3.6	-3.0	0.09	435,975.99	767,677.53	
1,200.0	0.35	111.53	1,200.0	-2,360.1	-3.0	4.0	-3.1	0.15	435,975.87	767,678.01	
1,205.0	0.36	112.45	1,205.0	-2,355.1	-3.1	4.1	-3.1	0.16	435,975.86	767,678.04	
13 3/8"											
1,300.0	0.48	125.30	1,300.0	-2,260.1	-3.4	4.7	-3.4	0.16	435,975.52	767,678.64	
1,400.0	0.52	132.57	1,400.0	-2,160.1	-4.0	5.3	-4.0	0.07	435,974.97	767,679.31	
1,500.0	0.61	140.58	1,500.0	-2,060.1	-4.7	6.0	-4.7	0.12	435,974.25	767,679.99	
1,600.0	0.66	144.42	1,600.0	-1,960.1	-5.5	6.7	-5.6	0.07	435,973.37	767,680.66	
1,700.0	0.71	137.64	1,700.0	-1,860.1	-6.5	7.4	-6.5	0.10	435,972.44	767,681.41	
1,800.0	0.91	140.98	1,799.9	-1,760.2	-7.5	8.4	-7.6	0.21	435,971.37	767,682.33	
1,900.0	1.07	138.02	1,899.9	-1,660.2	-8.9	9.5	-8.9	0.17	435,970.06	767,683.45	
2,000.0	1.26	136.28	1,999.9	-1,560.2	-10.3	10.9	-10.4	0.19	435,968.57	767,684.84	
2,100.0	1.44	135.88	2,099.9	-1,460.2	-12.0	12.5	-12.1	0.18	435,966.87	767,686.47	
2,200.0	1.62	135.61	2,199.9	-1,360.2	-14.0	14.4	-14.1	0.18	435,964.96	767,688.34	
2,300.0	1.76	131.82	2,299.8	-1,260.3	-16.0	16.5	-16.1	0.18	435,962.93	767,690.47	
2,400.0	2.00	131.06	2,399.8	-1,160.3	-18.2	19.0	-18.3	0.24	435,960.76	767,692.93	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Bettis 20 State Com 5H
Project:	Jackson Unit Section 20	TVD Reference:	WELL @ 3560.1usft (Original Well Elev)
Site:	Bettis 20 State Com 5H	MD Reference:	WELL @ 3560.1usft (Original Well Elev)
Well:	Bettis 20 State Com 5H	North Reference:	Grid
Wellbore:	Bettis 20 State Com 5H	Survey Calculation Method:	Minimum Curvature
Design:	Bettis 20 State Com 5H	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,500.0	2.05	130.60	2,499.7	-1,060.4	-20.5	21.6	-20.6	0.05	435,958.45	767,695.60	
2,600.0	2.28	129.41	2,599.6	-960.5	-22.9	24.5	-23.1	0.23	435,956.02	767,698.50	
2,700.0	2.58	128.14	2,699.5	-860.6	-25.6	27.8	-25.8	0.30	435,953.37	767,701.81	
2,800.0	2.83	129.39	2,799.4	-760.7	-28.5	31.5	-28.8	0.26	435,950.41	767,705.48	
2,900.0	3.06	128.62	2,899.3	-660.8	-31.7	35.5	-32.0	0.23	435,947.18	767,709.48	
3,000.0	3.34	126.65	2,999.1	-561.0	-35.1	39.9	-35.5	0.30	435,943.77	767,713.90	
3,100.0	3.71	127.25	3,098.9	-461.2	-38.8	44.8	-39.2	0.37	435,940.07	767,718.81	
3,200.0	3.95	128.20	3,198.7	-361.4	-42.9	50.1	-43.3	0.25	435,935.99	767,724.09	
3,300.0	4.21	130.86	3,298.5	-261.6	-47.5	55.6	-47.9	0.32	435,931.46	767,729.58	
3,400.0	4.46	133.11	3,398.2	-161.9	-52.5	61.2	-53.0	0.30	435,926.40	767,735.19	
3,500.0	4.72	131.93	3,497.9	-62.2	-57.9	67.1	-58.5	0.28	435,920.99	767,741.09	
3,600.0	4.96	130.37	3,597.5	37.4	-63.5	73.5	-64.1	0.27	435,915.44	767,747.44	
3,700.0	3.64	127.73	3,697.2	137.1	-68.2	79.3	-68.8	1.33	435,910.70	767,753.25	
3,800.0	1.47	112.48	3,797.1	237.0	-70.7	83.0	-71.3	2.26	435,908.27	767,756.94	
3,900.0	1.42	110.42	3,897.1	337.0	-71.6	85.3	-72.2	0.07	435,907.34	767,759.29	
4,000.0	1.47	112.69	3,997.0	436.9	-72.5	87.7	-73.2	0.08	435,906.42	767,761.64	
4,100.0	1.40	109.94	4,097.0	536.9	-73.4	90.0	-74.1	0.10	435,905.50	767,763.97	
4,200.0	1.30	109.85	4,197.0	636.9	-74.2	92.2	-74.9	0.10	435,904.70	767,766.18	
4,300.0	1.37	113.90	4,297.0	736.9	-75.1	94.4	-75.8	0.12	435,903.83	767,768.34	
4,400.0	1.97	115.58	4,396.9	836.8	-76.3	97.0	-77.1	0.60	435,902.61	767,770.99	
4,500.0	2.26	117.70	4,496.9	936.8	-78.0	100.3	-78.8	0.30	435,900.95	767,774.28	
4,600.0	3.12	93.74	4,596.7	1,036.6	-79.1	104.8	-79.9	1.40	435,899.85	767,778.74	
4,700.0	3.00	80.92	4,696.6	1,136.5	-78.8	110.1	-79.7	0.69	435,900.09	767,784.04	
4,800.0	2.14	90.35	4,796.5	1,236.4	-78.4	114.5	-79.3	0.96	435,900.49	767,788.49	
4,900.0	2.03	97.18	4,896.4	1,336.3	-78.7	118.1	-79.6	0.27	435,900.26	767,792.12	
4,961.0	2.10	98.20	4,957.4	1,397.3	-79.0	120.3	-79.9	0.13	435,899.96	767,794.30	

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5,028.0	2.10	2.10	96.74	5,024.3	1,464.2	-79.3	122.8	-80.2	0.08	435,899.64	767,796.73
9 5/8"											
5,053.0	2.10	2.10	96.20	5,049.3	1,489.2	-79.4	123.7	-80.3	0.08	435,899.54	767,797.64
5,148.0	2.10	2.10	84.60	5,144.3	1,584.2	-79.4	127.1	-80.4	0.45	435,899.52	767,801.10
5,243.0	2.20	2.20	84.50	5,239.2	1,679.1	-79.1	130.7	-80.1	0.11	435,899.86	767,804.65
5,339.0	2.00	2.00	87.60	5,335.1	1,775.0	-78.8	134.2	-79.9	0.24	435,900.10	767,808.16
5,434.0	2.20	2.20	87.40	5,430.1	1,870.0	-78.7	137.7	-79.7	0.21	435,900.25	767,811.64
5,529.0	1.90	1.90	90.60	5,525.0	1,964.9	-78.6	141.1	-79.7	0.34	435,900.32	767,815.03
5,624.0	2.00	2.00	90.30	5,620.0	2,059.9	-78.6	144.3	-79.8	0.11	435,900.30	767,818.26
5,719.0	1.90	1.90	87.50	5,714.9	2,154.8	-78.6	147.5	-79.7	0.15	435,900.36	767,821.50
5,815.0	2.20	2.20	84.80	5,810.8	2,250.7	-78.3	150.9	-79.5	0.33	435,900.59	767,824.92
5,910.0	2.20	2.20	86.10	5,905.8	2,345.7	-78.0	154.6	-79.2	0.05	435,900.88	767,828.56
6,005.0	1.90	1.90	86.10	6,000.7	2,440.6	-77.8	158.0	-79.0	0.32	435,901.11	767,831.95
6,100.0	2.00	2.00	89.70	6,095.7	2,535.6	-77.7	161.2	-79.0	0.17	435,901.23	767,835.17
6,195.0	0.60	0.60	142.60	6,190.6	2,630.5	-78.1	163.2	-79.4	1.80	435,900.84	767,837.13
6,289.0	2.00	2.00	250.50	6,284.6	2,724.5	-79.0	161.9	-80.3	2.40	435,899.90	767,835.89
6,384.0	2.30	2.30	250.00	6,379.5	2,819.4	-80.2	158.6	-81.5	0.32	435,898.70	767,832.53
6,478.0	2.40	2.40	252.60	6,473.5	2,913.4	-81.5	154.9	-82.7	0.16	435,897.46	767,828.88
6,574.0	2.50	2.50	256.30	6,569.4	3,009.3	-82.6	151.0	-83.7	0.19	435,896.37	767,824.93
6,669.0	2.50	2.50	253.50	6,664.3	3,104.2	-83.6	147.0	-84.8	0.13	435,895.29	767,820.93
6,764.0	2.60	2.60	252.90	6,759.2	3,199.1	-84.9	142.9	-86.0	0.11	435,894.07	767,816.89
6,858.0	2.70	2.70	256.60	6,853.1	3,293.0	-86.0	138.7	-87.1	0.21	435,892.93	767,812.69
6,953.0	2.70	2.70	254.60	6,948.0	3,387.9	-87.1	134.4	-88.2	0.10	435,891.81	767,808.36
7,047.0	2.60	2.60	251.50	7,041.9	3,481.8	-88.4	130.2	-89.4	0.19	435,890.55	767,804.20
7,141.0	2.80	2.80	256.20	7,135.8	3,575.7	-89.6	126.0	-90.6	0.32	435,889.33	767,799.95
7,236.0	2.70	2.70	256.60	7,230.7	3,670.6	-90.7	121.5	-91.6	0.11	435,888.25	767,795.52
7,330.0	2.80	2.80	257.10	7,324.6	3,764.5	-91.7	117.2	-92.6	0.11	435,887.23	767,791.13

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7,425.0	2.80	256.90	256.90	7,419.5	3,859.4	-92.7	112.6	-93.6	0.01	435,886.18	767,786.61
7,519.0	2.70	255.90	255.90	7,513.3	3,953.2	-93.8	108.3	-94.6	0.12	435,885.12	767,782.23
7,613.0	2.90	245.80	245.80	7,607.2	4,047.1	-95.3	103.9	-96.1	0.57	435,883.61	767,777.91
7,708.0	2.60	254.80	254.80	7,702.1	4,142.0	-96.9	99.7	-97.6	0.55	435,882.06	767,773.64
7,802.0	2.60	253.60	253.60	7,796.0	4,235.9	-98.0	95.6	-98.8	0.06	435,880.90	767,769.54
7,897.0	2.80	249.20	249.20	7,890.9	4,330.8	-99.5	91.3	-100.2	0.30	435,879.47	767,765.30
7,992.0	2.70	250.80	250.80	7,985.8	4,425.7	-101.0	87.0	-101.7	0.13	435,877.91	767,761.02
8,086.0	1.70	255.50	255.50	8,079.7	4,519.6	-102.1	83.6	-102.7	1.08	435,876.83	767,757.58
8,181.0	1.40	244.60	244.60	8,174.7	4,614.6	-102.9	81.2	-103.6	0.44	435,875.98	767,755.16
8,275.0	1.30	237.50	237.50	8,268.7	4,708.6	-104.0	79.3	-104.6	0.21	435,874.91	767,753.23
8,370.0	1.50	231.90	231.90	8,363.7	4,803.6	-105.4	77.4	-106.0	0.25	435,873.57	767,751.34
8,464.0	1.50	230.80	230.80	8,457.6	4,897.5	-106.9	75.4	-107.5	0.03	435,872.03	767,749.42
8,559.0	1.10	225.10	225.10	8,552.6	4,992.5	-108.3	73.8	-108.9	0.44	435,870.60	767,747.81
8,654.0	1.20	207.30	207.30	8,647.6	5,087.5	-109.8	72.7	-110.4	0.39	435,869.07	767,746.71
8,748.0	1.00	210.90	210.90	8,741.6	5,181.5	-111.4	71.9	-112.0	0.23	435,867.50	767,745.83
8,842.0	1.20	198.40	198.40	8,835.5	5,275.4	-113.1	71.1	-113.6	0.33	435,865.86	767,745.10
8,936.0	1.10	201.40	201.40	8,929.5	5,369.4	-114.8	70.5	-115.4	0.12	435,864.08	767,744.46
9,031.0	1.10	202.20	202.20	9,024.5	5,464.4	-116.5	69.8	-117.1	0.02	435,862.39	767,743.79
9,125.0	0.80	210.20	210.20	9,118.5	5,558.4	-117.9	69.1	-118.5	0.35	435,860.99	767,743.11
9,220.0	0.70	291.40	291.40	9,213.5	5,653.4	-118.3	68.3	-118.8	1.03	435,860.63	767,742.24
9,315.0	0.80	288.10	288.10	9,308.5	5,748.4	-117.9	67.1	-118.4	0.11	435,861.04	767,741.07
9,409.0	1.30	302.10	302.10	9,402.5	5,842.4	-117.1	65.6	-117.6	0.59	435,861.81	767,739.54
9,504.0	1.70	276.80	276.80	9,497.4	5,937.3	-116.4	63.3	-116.9	0.80	435,862.55	767,737.23
9,598.0	1.50	258.40	258.40	9,591.4	6,031.3	-116.4	60.7	-116.9	0.58	435,862.47	767,734.64
9,692.0	1.60	287.00	287.00	9,685.4	6,125.3	-116.3	58.2	-116.8	0.82	435,862.61	767,732.18
9,787.0	0.50	327.80	327.80	9,780.3	6,220.2	-115.6	56.7	-116.0	1.33	435,863.35	767,730.69
9,881.0	1.60	355.40	355.40	9,874.3	6,314.2	-113.9	56.4	-114.4	1.26	435,865.00	767,730.37

Company: Murchison Oil and Gas		Local Co-ordinate Reference:				Well Bettis 20 State Com 5H	
Project: Jackson Unit Section 20		TVD Reference:				WELL @ 3560.1usft (Original Well Elev)	
Site: Bettis 20 State Com 5H		MD Reference:				WELL @ 3560.1usft (Original Well Elev)	
Well: Bettis 20 State Com 5H		North Reference:				Grid	
Wellbore: Bettis 20 State Com 5H		Survey Calculation Method:				Minimum Curvature	
Design: Bettis 20 State Com 5H		Database:				EDM 5000.1 Single User Db	

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,976.0	1.60	35.80		9,969.3	6,409.2	-111.5	57.1	-112.0	1.16	435,867.40	767,731.04
10,070.0	1.30	16.50		10,063.3	6,503.2	-109.4	58.1	-109.9	0.61	435,869.49	767,732.11
10,165.0	1.20	315.00		10,158.2	6,598.1	-107.7	57.7	-108.1	1.35	435,871.22	767,731.71
10,259.0	1.40	0.70		10,252.2	6,692.1	-105.9	57.1	-106.3	1.09	435,873.07	767,731.03
10,354.0	1.80	2.10		10,347.2	6,787.1	-103.2	57.1	-103.6	0.42	435,875.72	767,731.10
10,448.0	1.90	15.70		10,441.1	6,881.0	-100.2	57.6	-100.7	0.48	435,878.69	767,731.57
10,510.0	4.72	4.47		10,503.0	6,942.9	-96.7	58.1	-97.1	4.65	435,882.23	767,732.05
7"											
10,542.0	6.20	2.70		10,534.9	6,974.8	-93.7	58.3	-94.1	4.65	435,885.27	767,732.23
10,574.0	8.10	9.90		10,566.6	7,006.5	-89.7	58.7	-90.2	6.55	435,889.21	767,732.70
10,605.0	10.60	5.80		10,597.2	7,037.1	-84.7	59.4	-85.2	8.34	435,894.20	767,733.37
10,637.0	13.70	4.50		10,628.5	7,068.4	-78.0	60.0	-78.5	9.72	435,900.91	767,733.96
10,668.0	17.40	6.80		10,658.4	7,098.3	-69.7	60.8	-70.2	12.10	435,909.18	767,734.80
10,700.0	18.70	359.80		10,688.8	7,128.7	-59.9	61.4	-60.3	7.90	435,919.06	767,735.35
10,731.0	20.60	354.60		10,718.0	7,157.9	-49.5	60.8	-49.9	8.32	435,929.46	767,734.82
10,763.0	23.70	351.90		10,747.6	7,187.5	-37.5	59.4	-38.0	10.19	435,941.43	767,733.38
10,794.0	26.10	349.30		10,775.7	7,215.6	-24.6	57.3	-25.1	8.51	435,954.30	767,731.24
10,826.0	27.40	349.70		10,804.3	7,244.2	-10.5	54.6	-10.9	4.10	435,968.46	767,728.61
10,857.0	29.90	350.70		10,831.5	7,271.4	4.2	52.1	3.8	8.21	435,983.11	767,726.09
10,889.0	33.50	352.40		10,858.7	7,298.6	20.8	49.7	20.4	11.59	435,999.74	767,723.63
10,920.0	36.10	353.60		10,884.2	7,324.1	38.4	47.5	38.0	8.67	436,017.30	767,721.48
10,950.0	39.30	355.70		10,907.9	7,347.8	56.6	45.8	56.3	11.49	436,035.56	767,719.78
10,982.0	42.20	355.80		10,932.2	7,372.1	77.5	44.3	77.1	9.06	436,056.39	767,718.24
11,013.0	44.40	356.80		10,954.7	7,394.6	98.7	42.9	98.3	7.43	436,077.60	767,716.87
11,044.0	47.70	357.50		10,976.2	7,416.1	121.0	41.8	120.6	10.77	436,099.89	767,715.76
11,057.0	48.96	357.96		10,984.9	7,424.8	130.7	41.4	130.3	10.03	436,109.59	767,715.38
Cross South Hard Boundary @ 11057ftMD											

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Bettis 20 State Com 5H
Project:	Jackson Unit Section 20	TVD Reference:	WELL @ 3560.1usft (Original Well Elev)
Site:	Bettis 20 State Com 5H	MD Reference:	WELL @ 3560.1usft (Original Well Elev)
Well:	Bettis 20 State Com 5H	North Reference:	Grid
Wellbore:	Bettis 20 State Com 5H	Survey Calculation Method:	Minimum Curvature
Design:	Bettis 20 State Com 5H	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
11,076.0	50.80	358.60	10,997.1	7,437.0	145.2	41.0	144.9	10.03	436,124.11	767,714.94	
11,107.0	53.30	0.60	11,016.2	7,456.1	169.6	40.8	169.3	9.53	436,148.55	767,714.78	
11,139.0	56.90	1.30	11,034.5	7,474.4	195.9	41.2	195.5	11.39	436,174.79	767,715.22	
11,170.0	59.10	0.10	11,050.9	7,490.8	222.2	41.6	221.8	7.82	436,201.07	767,715.54	
11,201.0	59.90	359.80	11,066.7	7,506.6	248.9	41.5	248.5	2.71	436,227.78	767,715.51	
11,233.0	62.70	359.60	11,082.0	7,521.9	276.9	41.4	276.6	8.77	436,255.84	767,715.37	
11,264.0	64.70	0.70	11,095.8	7,535.7	304.7	41.5	304.4	7.19	436,283.63	767,715.44	
11,295.0	65.70	1.10	11,108.8	7,548.7	332.9	41.9	332.5	3.43	436,311.77	767,715.88	
11,327.0	66.90	359.40	11,121.6	7,561.5	362.2	42.0	361.8	6.14	436,341.07	767,716.01	
11,358.0	70.20	358.70	11,133.0	7,572.9	391.0	41.6	390.7	10.85	436,369.91	767,715.53	
11,390.0	73.80	358.30	11,142.8	7,582.7	421.4	40.8	421.1	11.31	436,400.33	767,714.73	
11,420.0	80.00	358.30	11,149.6	7,589.5	450.6	39.9	450.3	20.67	436,429.52	767,713.86	
11,452.0	84.30	358.20	11,154.0	7,593.9	482.3	38.9	482.0	13.44	436,461.20	767,712.90	
11,483.0	89.20	359.60	11,155.8	7,595.7	513.2	38.3	512.9	16.44	436,492.13	767,712.30	
11,514.0	90.60	0.30	11,155.8	7,595.7	544.2	38.3	543.9	5.05	436,523.13	767,712.28	
11,546.0	90.60	359.90	11,155.5	7,595.4	576.2	38.4	575.9	1.25	436,555.12	767,712.33	
11,575.0	91.30	359.80	11,155.0	7,594.9	605.2	38.3	604.9	2.44	436,584.12	767,712.26	
11,669.0	92.30	359.90	11,152.0	7,591.9	699.2	38.0	698.9	1.07	436,678.07	767,712.01	
11,763.0	90.80	0.00	11,149.5	7,589.4	793.1	38.0	792.8	1.60	436,772.03	767,711.93	
11,858.0	90.80	0.50	11,148.2	7,588.1	888.1	38.4	887.8	0.53	436,867.01	767,712.34	
11,952.0	89.70	359.40	11,147.8	7,587.7	982.1	38.3	981.8	1.65	436,961.01	767,712.26	
12,046.0	90.80	358.60	11,147.4	7,587.3	1,076.1	36.6	1,075.8	1.45	437,054.99	767,710.62	
12,141.0	91.70	358.60	11,145.3	7,585.2	1,171.1	34.3	1,170.7	0.95	437,149.93	767,708.30	
12,235.0	92.20	358.30	11,142.1	7,582.0	1,265.0	31.8	1,264.7	0.62	437,243.84	767,705.76	
12,330.0	90.60	358.30	11,139.8	7,579.7	1,359.9	29.0	1,359.6	1.68	437,338.76	767,702.94	
12,423.0	91.60	358.60	11,138.0	7,577.9	1,452.8	26.4	1,452.6	1.12	437,431.71	767,700.43	
12,517.0	90.50	357.10	11,136.3	7,576.2	1,546.8	22.9	1,546.5	1.98	437,525.62	767,696.90	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Bettis 20 State Com 5H
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Site:	Bettis 20 State Com 5H	MD Reference:	WELL @ 3560.1usft (Original Well Elev)
Well:	Bettis 20 State Com 5H	North Reference:	Grid
Wellbore:	Bettis 20 State Com 5H	Survey Calculation Method:	Minimum Curvature
Design:	Bettis 20 State Com 5H	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
12,612.0	90.80	356.00	11,135.2	7,575.1	1,641.6	17.2	1,641.4	1.20	437,620.44	767,691.18
12,704.0	90.20	356.80	11,134.4	7,574.3	1,733.4	11.4	1,733.2	1.09	437,712.25	767,685.41
12,797.0	89.10	357.80	11,134.9	7,574.8	1,826.3	7.0	1,826.2	1.60	437,805.14	767,681.03
12,889.0	90.80	0.00	11,135.0	7,574.9	1,918.3	5.3	1,918.2	3.02	437,897.11	767,679.26
12,983.0	90.10	0.50	11,134.3	7,574.2	2,012.2	5.7	2,012.1	0.92	437,991.10	767,679.67
13,077.0	89.60	358.40	11,134.5	7,574.4	2,106.2	4.8	2,106.1	2.30	438,085.09	767,678.77
13,171.0	89.60	358.30	11,135.2	7,575.1	2,200.2	2.1	2,200.1	0.11	438,179.04	767,676.06
13,266.0	89.00	358.30	11,136.4	7,576.3	2,295.1	-0.7	2,295.1	0.63	438,273.99	767,673.25
13,360.0	90.10	359.30	11,137.1	7,577.0	2,389.1	-2.7	2,389.1	1.58	438,367.96	767,671.28
13,454.0	90.40	359.10	11,136.7	7,576.6	2,483.1	-4.0	2,483.1	0.38	438,461.95	767,669.96
13,549.0	90.60	359.10	11,135.9	7,575.8	2,578.1	-5.5	2,578.1	0.21	438,556.93	767,668.47
13,641.0	88.80	359.30	11,136.3	7,576.2	2,670.1	-6.8	2,670.1	1.97	438,648.91	767,667.19
13,734.0	89.40	358.70	11,137.8	7,577.7	2,763.1	-8.4	2,763.0	0.91	438,741.88	767,665.56
13,825.0	89.10	358.30	11,139.0	7,578.9	2,854.0	-10.8	2,854.0	0.55	438,832.84	767,663.18
13,920.0	89.30	0.20	11,140.3	7,580.2	2,949.0	-12.0	2,949.0	2.01	438,927.82	767,661.94
14,013.0	90.20	359.90	11,140.7	7,580.6	3,042.0	-12.0	3,042.0	1.02	439,020.81	767,662.02
14,107.0	90.20	359.00	11,140.4	7,580.3	3,136.0	-12.9	3,136.0	0.96	439,114.80	767,661.12
14,200.0	90.20	357.70	11,140.1	7,580.0	3,228.9	-15.5	3,229.0	1.40	439,207.76	767,658.44
14,293.0	91.30	358.30	11,138.8	7,578.7	3,321.9	-18.8	3,321.9	1.35	439,300.69	767,655.20
14,388.0	90.90	358.40	11,137.0	7,576.9	3,416.8	-21.5	3,416.9	0.43	439,395.63	767,652.46
14,479.0	90.00	1.10	11,136.3	7,576.2	3,507.8	-21.9	3,507.9	3.13	439,486.61	767,652.06
14,572.0	90.60	0.70	11,135.8	7,575.7	3,600.8	-20.5	3,600.8	0.78	439,579.60	767,653.52
14,666.0	90.80	0.70	11,134.7	7,574.6	3,694.8	-19.3	3,694.8	0.21	439,673.58	767,654.67
14,761.0	90.40	0.80	11,133.7	7,573.6	3,789.8	-18.1	3,789.8	0.43	439,768.56	767,655.92
14,855.0	91.30	1.20	11,132.3	7,572.2	3,883.7	-16.4	3,883.8	1.05	439,862.53	767,657.56
14,950.0	89.20	0.00	11,131.9	7,571.8	3,978.7	-15.4	3,978.7	2.55	439,957.52	767,658.55
15,043.0	89.80	359.60	11,132.7	7,572.6	4,071.7	-15.8	4,071.7	0.78	440,050.51	767,658.23

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Bettis 20 State Com 5H
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Site:	Bettis 20 State Com 5H	MD Reference:	WELL @ 3560.1usft (Original Well Elev)
Well:	Bettis 20 State Com 5H	North Reference:	Grid
Wellbore:	Bettis 20 State Com 5H	Survey Calculation Method:	Minimum Curvature
Design:	Bettis 20 State Com 5H	Database:	EDM 5000.1 Single User Db

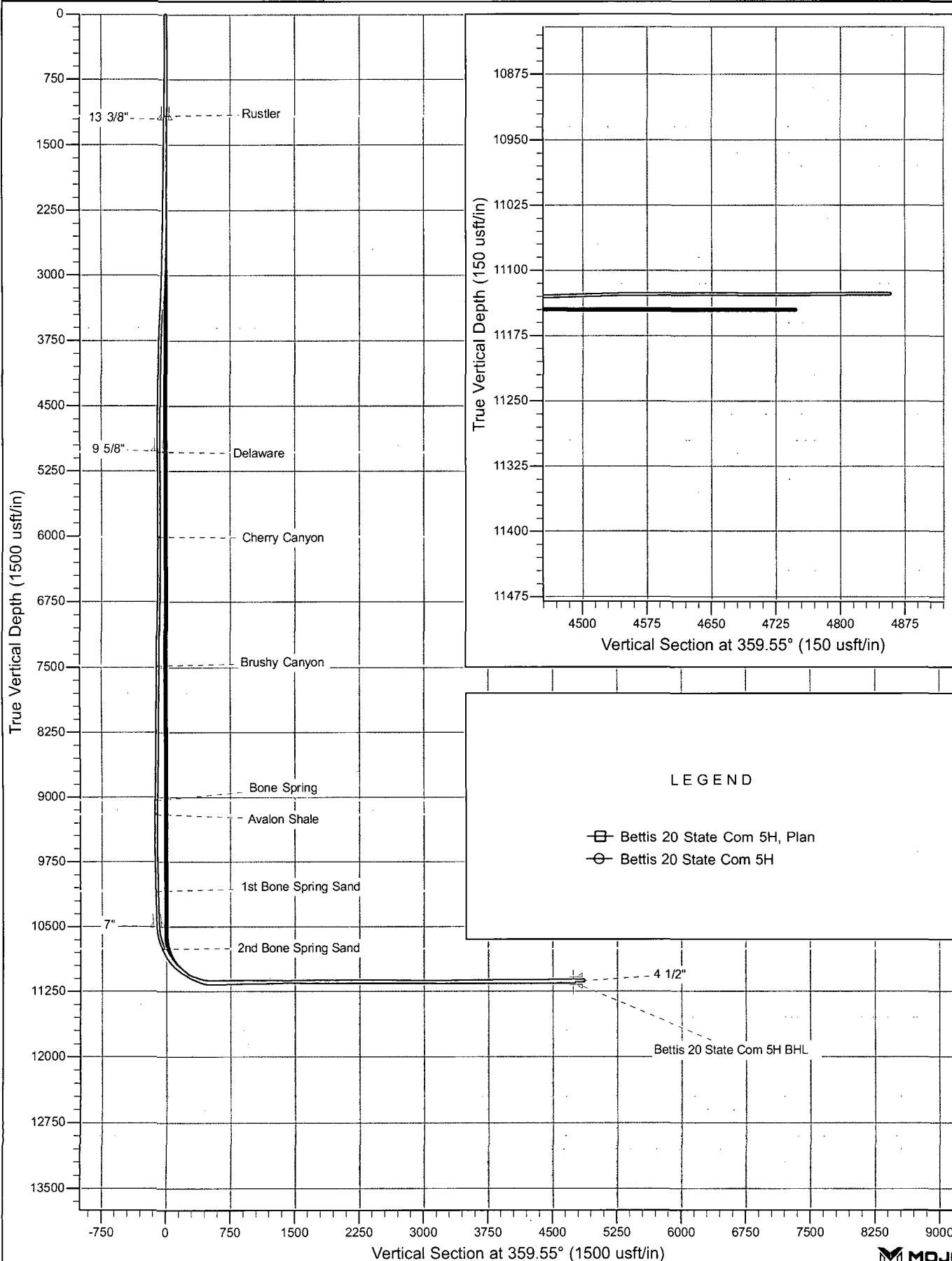
Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
15,136.0	90.80	0.20	11,132.2	7,572.1	4,164.7	-15.9	4,164.7	1.25	440,143.50	767,658.06
15,231.0	89.80	359.00	11,131.7	7,571.6	4,259.7	-16.6	4,259.7	1.64	440,238.49	767,657.40
15,324.0	90.30	358.50	11,131.6	7,571.5	4,352.7	-18.6	4,352.7	0.76	440,331.47	767,655.37
15,418.0	91.60	358.30	11,130.1	7,570.0	4,446.6	-21.2	4,446.7	1.40	440,425.41	767,652.75
15,512.0	91.20	358.70	11,127.8	7,567.7	4,540.6	-23.7	4,540.6	0.60	440,519.35	767,650.29
15,604.0	89.40	357.40	11,127.3	7,567.2	4,632.5	-26.8	4,632.6	2.41	440,611.29	767,647.16
15,698.0	90.00	358.20	11,127.8	7,567.7	4,726.4	-30.4	4,726.5	1.06	440,705.21	767,643.55
15,718.0	90.13	357.85	11,127.7	7,567.6	4,746.4	-31.1	4,746.5	1.88	440,725.20	767,642.86
Cross North Hard Boundary @ 15718ftMD										
15,777.0	90.50	356.80	11,127.4	7,567.3	4,805.4	-33.9	4,805.5	1.88	440,784.13	767,640.10
15,822.0	90.50	356.80	11,127.0	7,566.9	4,850.3	-36.4	4,850.4	0.00	440,829.06	767,637.59
4 1/2"										
15,829.0	90.50	356.80	11,127.0	7,566.9	4,857.3	-36.8	4,857.4	0.00	440,836.05	767,637.20

Project: Jackson Unit Section 20
 Site: Bettis 20 State Com 5H
 Well: Bettis 20 State Com 5H
 Wellbore: Bettis 20 State Com 5H
 Design: Bettis 20 State Com 5H



Azimuths to Grid North
 True North: -0.39°
 Magnetic North: 6.88°

Magnetic Field
 Strength: 48314.4nT
 Dip Angle: 60.09°
 Date: 07/04/2014
 Model: IGRF2010



Project: Jackson Unit Section 20
 Site: Bettis 20 State Com 5H
 Well: Bettis 20 State Com 5H
 Wellbore: Bettis 20 State Com 5H
 Design: Bettis 20 State Com 5H

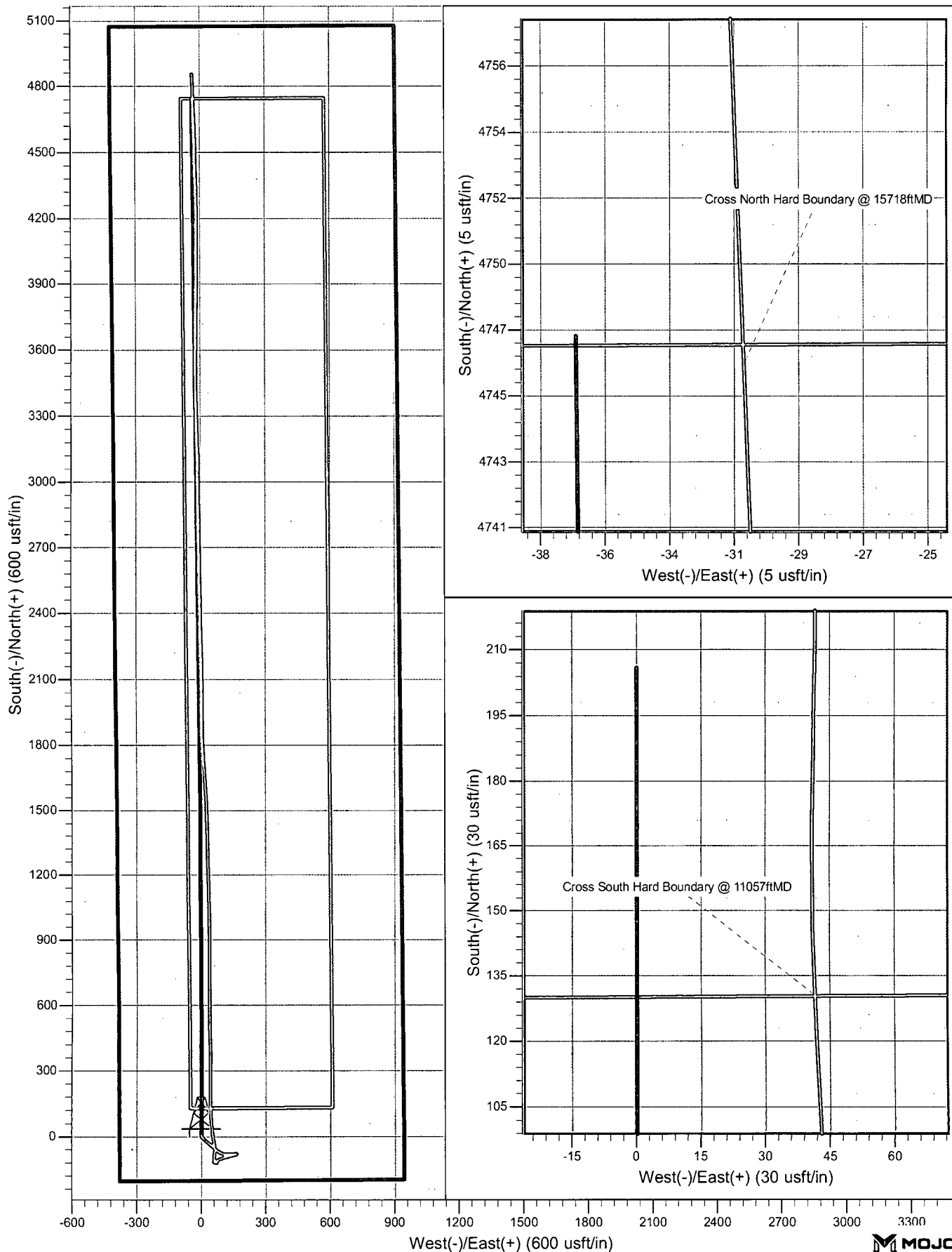


MURCHISON OIL & GAS, INC.



Azimuths to Grid North
 True North: -0.39°
 Magnetic North: 6.86°

Magnetic Field
 Strength: 48314.4snT
 Dip Angle: 60.09°
 Date: 07/04/2014
 Model: IGRF2010





Job Number: SVMO-141053
 Company: Murchison Oil & Gas
 Lease/Well: Bettis 20 State Com 5H
 Location: Lea County, NM
 Rig Name: Nabors #M29
 RKB: 22.6'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.85°
 Grid: East To Grid North
 File name: S:\2014SU~1\MURCHI~1\MO\BETTIS\20STC5H.SVY
 Date/Time: 06-Aug-14 / 10:44
 Curve Name: Surface - 4961' M.D. (Rate Gyro)

HOBBS OCD
 SEP 02 2014
 RECEIVED

MS SURVEY

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 359.55
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 4961' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
 Joseph Brock 8/6/14
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.28	156.38	100.00	-.22	.10	-.22	.24	156.38	.28
200.00	.41	129.02	200.00	-.67	.47	-.68	.82	144.85	.21
300.00	.41	131.68	300.00	-1.14	1.02	-1.14	1.53	138.11	.02
400.00	.47	135.40	399.99	-1.67	1.57	-1.68	2.29	136.63	.07
500.00	.38	139.34	499.99	-2.21	2.08	-2.23	3.03	136.76	.09
600.00	.23	167.92	599.99	-2.66	2.34	-2.68	3.54	138.68	.21
700.00	.19	149.34	699.99	-3.00	2.46	-3.02	3.88	140.58	.08
800.00	.10	117.54	799.99	-3.18	2.62	-3.20	4.12	140.46	.12
900.00	.19	61.29	899.99	-3.14	2.85	-3.16	4.24	137.80	.16

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	.22	68.27	999.99	-2.99	3.17	-3.01	4.36	133.31	.04
1100.00	.23	92.42	1099.99	-2.93	3.55	-2.95	4.60	129.50	.09
1200.00	.35	111.53	1199.98	-3.05	4.03	-3.08	5.06	127.06	.15
1300.00	.48	125.30	1299.98	-3.40	4.66	-3.44	5.77	126.12	.16
1400.00	.52	132.57	1399.98	-3.95	5.34	-3.99	6.64	126.51	.07
1500.00	.61	140.58	1499.97	-4.67	6.01	-4.72	7.61	127.84	.12
1600.00	.66	144.42	1599.97	-5.55	6.68	-5.60	8.69	129.70	.07
1700.00	.71	137.64	1699.96	-6.47	7.43	-6.53	9.86	131.05	.10
1800.00	.91	140.98	1799.95	-7.55	8.35	-7.61	11.26	132.11	.21
1900.00	1.07	138.02	1899.93	-8.86	9.48	-8.93	12.97	133.08	.17
2000.00	1.26	136.28	1999.91	-10.35	10.86	-10.43	15.00	133.62	.19
2100.00	1.44	135.88	2099.89	-12.05	12.50	-12.14	17.36	133.95	.18
2200.00	1.62	135.61	2199.85	-13.96	14.36	-14.07	20.03	134.19	.18
2300.00	1.76	131.82	2299.81	-15.99	16.49	-16.12	22.97	134.12	.18
2400.00	2.00	131.06	2399.75	-18.16	18.95	-18.31	26.25	133.78	.24
2500.00	2.05	130.60	2499.69	-20.47	21.63	-20.64	29.78	133.43	.05
2600.00	2.28	129.41	2599.62	-22.90	24.52	-23.09	33.55	133.04	.23
2700.00	2.58	128.14	2699.53	-25.55	27.83	-25.77	37.78	132.56	.30
2800.00	2.83	129.39	2799.42	-28.51	31.51	-28.76	42.49	132.14	.26
2900.00	3.06	128.62	2899.29	-31.74	35.50	-32.02	47.62	131.80	.23
3000.00	3.34	126.65	2999.13	-35.15	39.92	-35.46	53.19	131.36	.30
3100.00	3.71	127.25	3098.94	-38.84	44.83	-39.19	59.32	130.90	.37
3200.00	3.95	128.20	3198.72	-42.93	50.12	-43.32	65.99	130.58	.25
3300.00	4.21	130.86	3298.46	-47.46	55.60	-47.90	73.10	130.49	.32
3400.00	4.46	133.11	3398.18	-52.52	61.21	-53.00	80.66	130.63	.30
3500.00	4.72	131.93	3497.86	-57.93	67.11	-58.45	88.66	130.80	.28
3600.00	4.96	130.37	3597.50	-63.48	73.47	-64.05	97.09	130.83	.27
3700.00	3.64	127.73	3697.22	-68.22	79.27	-68.84	104.59	130.71	1.33
3800.00	1.47	112.48	3797.11	-70.65	82.97	-71.30	108.98	130.42	2.26

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3900.00	1.42	110.42	3897.08	-71.58	85.32	-72.24	111.36	130.00	.07
4000.00	1.47	112.69	3997.05	-72.50	87.66	-73.19	113.76	129.59	.08
4100.00	1.40	109.94	4097.02	-73.41	89.99	-74.12	116.14	129.21	.10
4200.00	1.30	109.85	4196.99	-74.22	92.21	-74.94	118.36	128.83	.10
4300.00	1.37	113.90	4296.96	-75.09	94.37	-75.82	120.59	128.51	.12
4400.00	1.97	115.58	4396.92	-76.31	97.01	-77.07	123.43	128.19	.60
4500.00	2.26	117.70	4496.85	-77.97	100.31	-78.76	127.05	127.86	.30
4600.00	3.12	93.74	4596.74	-79.06	104.77	-79.89	131.25	127.04	1.40
4700.00	3.00	80.92	4696.60	-78.83	110.07	-79.69	135.38	125.61	.69
4800.00	2.14	90.35	4796.50	-78.43	114.52	-79.32	138.80	124.41	.96
4900.00	2.03	97.18	4896.43	-78.66	118.14	-79.59	141.93	123.66	.27
Last Survey Depth Recorded									
4961.00	2.09	98.16	4957.39	-78.95	120.32	-79.90	143.91	123.27	.11