

OCD - HOBBS  
08/08/2016  
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## Murchison Oil and Gas

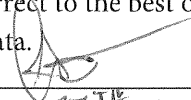
Jackson Unit Section 20  
Bettis 20 State Com 3H

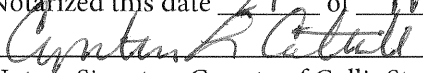
Survey: Bettis 20 State Com 3H

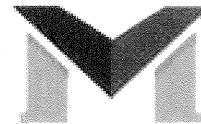
## MOJO Standard Survey

27 May, 2014

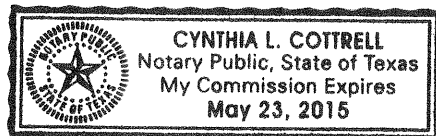
This survey is correct to the best of my knowledge and is supported  
by actual field data.

 (Signature)  
Notarized this date 27<sup>th</sup> of May, 2014

  
Notary Signature County of Collin State of Texas



**MOJO**  
DIRECTIONAL CORPORATION



<b>Company:</b>	Murchison Oil and Gas			<b>Local Co-ordinate Reference:</b>	Well Bettis 20 State Com 3H
<b>Project:</b>	Jackson Unit Section 20			<b>TVD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Site:</b>	Bettis 20 State Com 3H			<b>MD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Well:</b>	Bettis 20 State Com 3H			<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Bettis 20 State Com 3H			<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H			<b>Database:</b>	EDM 5000.1 Single User Db

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

<b>Site</b>	Bettis 20 State Com 3H				
<b>Site Position:</b>		<b>Northing:</b>	435,990.35 usft	<b>Latitude:</b>	32° 11' 47.213 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	770,319.11 usft	<b>Longitude:</b>	103° 35' 35.091 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.39 °

<b>Well</b>	Bettis 20 State Com 3H					
<b>Well Position</b>	+N/-S	0.0 usft	<b>Northing:</b>	435,990.35 usft	<b>Latitude:</b>	32° 11' 47.213 N
	+E/-W	0.0 usft	<b>Easting:</b>	770,319.11 usft	<b>Longitude:</b>	103° 35' 35.091 W
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	3,533.1 usft

<b>Wellbore</b>	Bettis 20 State Com 3H				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b> (°)	<b>Dip Angle</b> (°)	<b>Field Strength</b> (nT)
	IGRF2010	07/04/2014	7.25	60.09	48,315

<b>Design</b>	Bettis 20 State Com 3H				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b> (usft)	<b>+N/-S</b> (usft)	<b>+E/-W</b> (usft)	<b>Direction</b> (°)	
	0.0	0.0	0.0	359.67	

<b>Survey Program</b>	<b>Date</b>	27/05/2014			
<b>From</b> (usft)	<b>To</b> (usft)	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
100.0	15,805.0	Bettis 20 State Com 3H (Bettis 20 State C	MWD	MWD - Standard	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:				Well Bettis 20 State Com 3H		
Project:	Jackson Unit Section 20	TVD Reference:				WELL @ 3555.1usft (Original Well Elev)		
Site:	Bettis 20 State Com 3H	MD Reference:				WELL @ 3555.1usft (Original Well Elev)		
Well:	Bettis 20 State Com 3H	North Reference:				Grid		
Wellbore:	Bettis 20 State Com 3H	Survey Calculation Method:				Minimum Curvature		
Design:	Bettis 20 State Com 3H	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	-3,555.1	0.0	0.0	0.0	0.00	435,990.35	770,319.11	
100.0	0.36	54.34	100.0	-3,455.1	0.2	0.3	0.2	0.36	435,990.53	770,319.36	
200.0	0.31	43.28	200.0	-3,355.1	0.6	0.7	0.6	0.08	435,990.91	770,319.80	
300.0	0.27	32.60	300.0	-3,255.1	1.0	1.0	1.0	0.07	435,991.31	770,320.12	
400.0	0.15	23.73	400.0	-3,155.1	1.3	1.2	1.3	0.12	435,991.63	770,320.30	
500.0	0.11	347.24	500.0	-3,055.1	1.5	1.2	1.5	0.09	435,991.84	770,320.33	
600.0	0.31	304.13	600.0	-2,955.1	1.7	1.0	1.7	0.24	435,992.09	770,320.08	
700.0	0.47	292.13	700.0	-2,855.1	2.0	0.4	2.0	0.18	435,992.39	770,319.48	
800.0	0.67	285.13	800.0	-2,755.1	2.3	-0.6	2.4	0.21	435,992.70	770,318.53	
900.0	0.74	284.57	900.0	-2,655.1	2.7	-1.8	2.7	0.07	435,993.02	770,317.34	
1,000.0	0.84	282.35	1,000.0	-2,555.1	3.0	-3.1	3.0	0.10	435,993.34	770,316.00	
1,100.0	0.81	280.77	1,100.0	-2,455.1	3.3	-4.5	3.3	0.04	435,993.62	770,314.59	
1,170.1	0.75	274.19	1,170.1	-2,385.0	3.4	-5.5	3.4	0.15	435,993.75	770,313.65	
Rustler											
1,200.0	0.73	271.09	1,200.0	-2,355.1	3.4	-5.8	3.5	0.15	435,993.77	770,313.26	
1,259.0	0.70	266.16	1,258.9	-2,296.2	3.4	-6.6	3.4	0.12	435,993.75	770,312.53	
13 3/8"											
1,300.0	0.68	262.49	1,299.9	-2,255.2	3.4	-7.1	3.4	0.12	435,993.70	770,312.04	
1,400.0	0.67	264.70	1,399.9	-2,155.2	3.2	-8.2	3.3	0.03	435,993.57	770,310.87	
1,500.0	0.64	257.04	1,499.9	-2,055.2	3.0	-9.4	3.1	0.09	435,993.39	770,309.74	
1,600.0	0.62	258.96	1,599.9	-1,955.2	2.8	-10.4	2.9	0.03	435,993.16	770,308.66	
1,700.0	0.62	256.85	1,699.9	-1,855.2	2.6	-11.5	2.7	0.02	435,992.94	770,307.61	
1,800.0	0.48	274.73	1,799.9	-1,755.2	2.5	-12.4	2.6	0.22	435,992.85	770,306.66	
1,900.0	0.46	302.29	1,899.9	-1,655.2	2.7	-13.2	2.8	0.22	435,993.10	770,305.91	
2,000.0	0.49	310.45	1,999.9	-1,555.2	3.2	-13.9	3.3	0.07	435,993.59	770,305.24	
2,100.0	0.62	311.29	2,099.9	-1,455.2	3.9	-14.6	4.0	0.13	435,994.22	770,304.51	
2,200.0	0.69	309.88	2,199.9	-1,355.2	4.6	-15.5	4.7	0.07	435,994.97	770,303.64	

<b>Company:</b>	Murchison Oil and Gas	<b>Local Co-ordinate Reference:</b>	Well Bettis 20 State Com 3H
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<b>Site:</b>	Bettis 20 State Com 3H	<b>MD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Well:</b>	Bettis 20 State Com 3H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Bettis 20 State Com 3H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H	<b>Database:</b>	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)	
2,300.0	0.84	302.80	2,299.9	-1,255.2	5.4	-16.5	5.5	0.18	435,995.75	770,302.56	
2,400.0	0.94	312.99	2,399.9	-1,155.2	6.4	-17.8	6.5	0.19	435,996.71	770,301.35	
2,500.0	0.98	324.12	2,499.9	-1,055.2	7.6	-18.9	7.7	0.19	435,997.96	770,300.24	
2,600.0	1.16	332.38	2,599.8	-955.3	9.2	-19.8	9.3	0.24	435,999.55	770,299.27	
2,700.0	1.31	342.15	2,699.8	-855.3	11.2	-20.7	11.3	0.26	436,001.53	770,298.45	
2,800.0	1.79	357.48	2,799.8	-755.3	13.8	-21.1	14.0	0.63	436,004.18	770,298.04	
2,900.0	2.21	6.41	2,899.7	-655.4	17.3	-20.9	17.4	0.52	436,007.66	770,298.18	
3,000.0	2.48	8.74	2,999.6	-555.5	21.4	-20.4	21.5	0.29	436,011.71	770,298.73	
3,100.0	2.75	8.00	3,099.5	-455.6	25.9	-19.7	26.0	0.27	436,016.23	770,299.39	
3,200.0	2.91	8.38	3,199.4	-355.7	30.8	-19.0	30.9	0.16	436,021.11	770,300.09	
3,300.0	2.48	9.58	3,299.3	-255.8	35.4	-18.3	35.5	0.43	436,025.76	770,300.82	
3,400.0	2.26	7.39	3,399.2	-155.9	39.5	-17.7	39.6	0.24	436,029.84	770,301.44	
3,500.0	2.04	7.67	3,499.1	-56.0	43.2	-17.2	43.3	0.22	436,033.56	770,301.93	
3,600.0	1.82	13.12	3,599.1	44.0	46.5	-16.6	46.6	0.29	436,036.87	770,302.53	
3,700.0	0.79	88.96	3,699.1	144.0	48.1	-15.5	48.2	1.80	436,038.43	770,303.58	
3,800.0	1.29	115.71	3,799.1	244.0	47.6	-13.8	47.7	0.68	436,037.96	770,305.28	
3,900.0	1.44	122.98	3,899.0	343.9	46.4	-11.8	46.5	0.23	436,036.79	770,307.35	
4,000.0	1.40	126.73	3,999.0	443.9	45.0	-9.7	45.1	0.10	436,035.37	770,309.38	
4,100.0	1.60	128.63	4,099.0	543.9	43.4	-7.7	43.5	0.21	436,033.77	770,311.45	
4,200.0	2.44	130.97	4,198.9	643.8	41.2	-5.0	41.2	0.84	436,031.50	770,314.15	
4,300.0	3.38	131.28	4,298.8	743.7	37.8	-1.1	37.8	0.94	436,028.16	770,317.97	
4,400.0	2.86	147.79	4,398.6	843.5	33.8	2.4	33.7	1.03	436,024.11	770,321.52	
4,500.0	2.85	157.48	4,498.5	943.4	29.3	4.7	29.3	0.48	436,019.70	770,323.80	
4,600.0	3.63	152.53	4,598.3	1,043.2	24.2	7.1	24.2	0.83	436,014.59	770,326.21	
4,700.0	3.24	156.81	4,698.2	1,143.1	18.8	9.7	18.8	0.47	436,009.19	770,328.78	
4,800.0	1.95	166.72	4,798.1	1,243.0	14.6	11.2	14.5	1.36	436,004.93	770,330.29	
4,853.0	1.71	176.76	4,851.0	1,295.9	12.9	11.4	12.8	0.75	436,003.27	770,330.54	

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<b>Site:</b>	Bettis 20 State Com 3H	<b>MD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Well:</b>	Bettis 20 State Com 3H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Bettis 20 State Com 3H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H	<b>Database:</b>	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)	
5,030.0	1.62	186.40	5,027.9	1,472.8	7.8	11.3	7.7	0.17	435,998.15	770,330.41	
9 5/8"											
5,046.2	1.61	187.33	5,044.1	1,489.0	7.3	11.2	7.3	0.17	435,997.70	770,330.35	
Delaware											
5,080.0	1.60	189.30	5,077.9	1,522.8	6.4	11.1	6.3	0.17	435,996.76	770,330.22	
5,176.0	1.60	195.30	5,173.9	1,618.8	3.8	10.5	3.7	0.17	435,994.14	770,329.65	
5,271.0	1.70	195.60	5,268.9	1,713.8	1.2	9.8	1.1	0.11	435,991.51	770,328.92	
5,367.0	1.50	259.70	5,364.8	1,809.7	-0.4	8.2	-0.5	1.78	435,989.91	770,327.30	
5,462.0	1.50	263.60	5,459.8	1,904.7	-0.8	5.7	-0.8	0.11	435,989.55	770,324.84	
5,557.0	1.50	261.80	5,554.8	1,999.7	-1.1	3.3	-1.1	0.05	435,989.23	770,322.37	
5,652.0	0.30	282.60	5,649.7	2,094.6	-1.2	1.8	-1.3	1.29	435,989.11	770,320.90	
5,748.0	0.40	295.20	5,745.7	2,190.6	-1.0	1.2	-1.1	0.13	435,989.31	770,320.35	
5,842.0	0.40	287.00	5,839.7	2,284.6	-0.8	0.6	-0.8	0.06	435,989.54	770,319.74	
5,937.0	0.60	281.10	5,934.7	2,379.6	-0.6	-0.2	-0.6	0.22	435,989.74	770,318.94	
6,032.0	0.60	268.70	6,029.7	2,474.6	-0.5	-1.2	-0.5	0.14	435,989.82	770,317.95	
6,063.4	0.60	267.56	6,061.1	2,506.0	-0.5	-1.5	-0.5	0.04	435,989.81	770,317.62	
Cherry Canyon											
6,128.0	0.60	265.20	6,125.7	2,570.6	-0.6	-2.2	-0.6	0.04	435,989.77	770,316.95	
6,224.0	0.60	270.70	6,221.7	2,666.6	-0.6	-3.2	-0.6	0.06	435,989.73	770,315.94	
6,320.0	0.60	270.20	6,317.7	2,762.6	-0.6	-4.2	-0.6	0.01	435,989.74	770,314.94	
6,416.0	0.70	275.00	6,413.7	2,858.6	-0.6	-5.3	-0.5	0.12	435,989.79	770,313.85	
6,511.0	0.70	275.50	6,508.7	2,953.6	-0.5	-6.4	-0.4	0.01	435,989.90	770,312.70	
6,607.0	0.60	274.50	6,604.7	3,049.6	-0.4	-7.5	-0.3	0.10	435,989.99	770,311.61	
6,798.0	0.80	257.00	6,795.7	3,240.6	-0.6	-9.8	-0.5	0.15	435,989.77	770,309.32	
6,985.0	1.00	252.90	6,982.7	3,427.6	-1.4	-12.6	-1.3	0.11	435,989.00	770,306.48	
7,174.0	0.60	205.00	7,171.6	3,616.5	-2.7	-14.6	-2.7	0.39	435,987.62	770,304.49	
7,366.0	0.90	222.40	7,363.6	3,808.5	-4.8	-16.1	-4.7	0.19	435,985.59	770,303.05	

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<b>Wellbore:</b>	Bettis 20 State Com 3H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H	<b>Database:</b>	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)	
7,489.5	0.18	86.60	7,487.1	3,932.0	-5.5	-16.5	-5.4	0.84	435,984.89	770,302.59	
<b>Brushy Canyon</b>											
7,555.0	0.70	58.20	7,552.6	3,997.5	-5.2	-16.1	-5.2	0.84	435,985.10	770,303.03	
7,746.0	0.00	352.40	7,743.6	4,188.5	-4.6	-15.1	-4.5	0.37	435,985.72	770,304.02	
7,937.0	0.20	211.30	7,934.6	4,379.5	-4.9	-15.3	-4.8	0.10	435,985.43	770,303.85	
8,128.0	0.30	177.40	8,125.6	4,570.5	-5.7	-15.4	-5.6	0.09	435,984.65	770,303.70	
8,318.0	0.70	182.40	8,315.6	4,760.5	-7.4	-15.4	-7.3	0.21	435,982.99	770,303.67	
8,507.0	0.80	187.50	8,504.6	4,949.5	-9.8	-15.7	-9.7	0.06	435,980.53	770,303.45	
8,697.0	1.00	189.20	8,694.6	5,139.5	-12.8	-16.1	-12.7	0.11	435,977.58	770,303.01	
8,887.0	0.90	100.40	8,884.5	5,329.4	-14.7	-14.9	-14.6	0.70	435,975.67	770,304.21	
9,077.0	0.70	135.60	9,074.5	5,519.4	-15.8	-12.6	-15.7	0.27	435,974.58	770,306.49	
9,079.6	0.70	136.03	9,077.1	5,522.0	-15.8	-12.6	-15.7	0.21	435,974.55	770,306.51	
<b>Bone Spring</b>											
9,224.6	0.84	156.61	9,222.1	5,667.0	-17.4	-11.6	-17.4	0.21	435,972.93	770,307.56	
<b>Avalon Shale</b>											
9,266.0	0.90	161.10	9,263.5	5,708.4	-18.0	-11.3	-17.9	0.21	435,972.35	770,307.78	
9,457.0	0.90	177.30	9,454.5	5,899.4	-20.9	-10.8	-20.9	0.13	435,969.43	770,308.34	
9,649.0	1.40	170.80	9,646.4	6,091.3	-24.7	-10.3	-24.7	0.27	435,965.61	770,308.78	
9,839.0	1.50	100.70	9,836.4	6,281.3	-27.5	-7.5	-27.5	0.88	435,962.85	770,311.60	
10,031.0	1.20	188.20	10,028.4	6,473.3	-30.0	-5.3	-29.9	0.98	435,960.40	770,313.78	
10,117.8	1.33	194.12	10,115.1	6,560.0	-31.8	-5.7	-31.8	0.21	435,958.52	770,313.41	
<b>1st Bone Spring Sand</b>											
10,220.0	1.50	199.70	10,217.3	6,662.2	-34.2	-6.4	-34.2	0.21	435,956.11	770,312.67	
10,411.0	1.90	190.50	10,408.2	6,853.1	-39.7	-7.9	-39.7	0.25	435,950.64	770,311.25	
10,602.0	1.40	166.20	10,599.2	7,044.1	-45.1	-7.9	-45.0	0.44	435,945.26	770,311.23	
10,617.0	0.86	160.67	10,614.1	7,059.0	-45.4	-7.8	-45.3	3.66	435,944.98	770,311.31	
<b>7"</b>											
10,634.0	0.30	130.00	10,631.1	7,076.0	-45.5	-7.7	-45.5	3.66	435,944.83	770,311.38	

<b>Company:</b>	Murchison Oil and Gas	<b>Local Co-ordinate Reference:</b>	Well Bettis 20 State Com 3H
<b>Project:</b>	Jackson Unit Section 20	<b>TVD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Site:</b>	Bettis 20 State Com 3H	<b>MD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Well:</b>	Bettis 20 State Com 3H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Bettis 20 State Com 3H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H	<b>Database:</b>	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)	
10,661.0	4.00	15.30	10,658.1	7,103.0	-44.7	-7.4	-44.6	15.31	435,945.69	770,311.69	
10,698.0	7.60	17.00	10,694.9	7,139.8	-41.1	-6.4	-41.0	9.74	435,949.28	770,312.74	
10,729.0	9.00	15.20	10,725.6	7,170.5	-36.8	-5.1	-36.7	4.59	435,953.58	770,313.98	
10,761.0	11.10	13.00	10,757.1	7,202.0	-31.4	-3.8	-31.3	6.67	435,959.00	770,315.33	
10,793.0	13.90	11.40	10,788.4	7,233.3	-24.6	-2.3	-24.6	8.82	435,965.77	770,316.78	
10,804.1	14.90	7.92	10,799.1	7,244.0	-21.9	-1.9	-21.9	11.91	435,968.49	770,317.24	
2nd Bone Spring Sand											
10,825.0	16.90	2.50	10,819.2	7,264.1	-16.2	-1.4	-16.2	11.91	435,974.19	770,317.74	
10,856.0	21.20	359.30	10,848.5	7,293.4	-6.1	-1.2	-6.0	14.27	435,984.30	770,317.87	
10,888.0	24.80	1.70	10,878.0	7,322.9	6.4	-1.1	6.4	11.62	435,996.79	770,318.00	
10,920.0	28.70	3.00	10,906.5	7,351.4	20.8	-0.5	20.8	12.32	436,011.18	770,318.60	
10,952.0	33.30	3.00	10,933.9	7,378.8	37.3	0.4	37.3	14.37	436,027.63	770,319.46	
10,984.0	37.50	2.50	10,960.0	7,404.9	55.8	1.2	55.8	13.16	436,046.15	770,320.35	
11,047.0	47.60	2.60	11,006.4	7,451.3	98.3	3.1	98.3	16.03	436,088.65	770,322.24	
11,079.0	52.00	1.80	11,027.0	7,471.9	122.7	4.1	122.7	13.88	436,113.07	770,323.18	
11,111.0	57.30	0.50	11,045.5	7,490.4	148.8	4.6	148.8	16.89	436,139.15	770,323.69	
11,142.0	62.10	359.80	11,061.2	7,506.1	175.6	4.6	175.5	15.61	436,165.91	770,323.76	
11,174.0	67.20	0.30	11,074.9	7,519.8	204.5	4.7	204.4	16.00	436,194.81	770,323.78	
11,206.0	70.40	0.40	11,086.4	7,531.3	234.3	4.9	234.3	10.00	436,224.64	770,323.97	
11,238.0	73.70	1.50	11,096.3	7,541.2	264.7	5.4	264.7	10.82	436,255.08	770,324.47	
11,269.0	77.00	1.00	11,104.1	7,549.0	294.7	6.0	294.7	10.76	436,285.06	770,325.13	
11,301.0	80.80	1.50	11,110.3	7,555.2	326.1	6.7	326.1	11.97	436,316.44	770,325.81	
11,332.0	83.00	1.50	11,114.7	7,559.6	356.8	7.5	356.7	7.10	436,347.12	770,326.62	
11,364.0	85.80	1.50	11,117.8	7,562.7	388.6	8.3	388.6	8.75	436,378.95	770,327.45	
11,460.0	90.50	1.30	11,120.9	7,565.8	484.5	10.7	484.4	4.90	436,474.84	770,329.79	
11,555.0	91.50	1.50	11,119.2	7,564.1	579.5	13.0	579.4	1.07	436,569.80	770,332.11	
11,651.0	92.20	1.00	11,116.1	7,561.0	675.4	15.1	675.3	0.90	436,665.72	770,334.21	



<b>Company:</b>	Murchison Oil and Gas	<b>Local Co-ordinate Reference:</b>	Well Bettis 20 State Com 3H
<b>Project:</b>	Jackson Unit Section 20	<b>TVD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Site:</b>	Bettis 20 State Com 3H	<b>MD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Well:</b>	Bettis 20 State Com 3H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Bettis 20 State Com 3H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H	<b>Database:</b>	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)
11,747.0	91.30	1.60	11,113.2	7,558.1	771.3	17.3	771.2	1.13	436,761.65	770,336.38
11,842.0	92.30	2.50	11,110.2	7,555.1	866.2	20.7	866.1	1.42	436,856.53	770,339.78
11,937.0	89.50	1.70	11,108.7	7,553.6	961.1	24.2	961.0	3.07	436,951.44	770,343.26
12,033.0	89.80	0.40	11,109.3	7,554.2	1,057.1	25.9	1,056.9	1.39	437,047.42	770,345.02
12,129.0	90.60	359.90	11,109.0	7,553.9	1,153.1	26.2	1,152.9	0.98	437,143.42	770,345.27
12,225.0	91.70	359.00	11,107.0	7,551.9	1,249.1	25.2	1,248.9	1.48	437,239.39	770,344.35
12,320.0	92.00	358.70	11,104.0	7,548.9	1,344.0	23.3	1,343.8	0.45	437,334.32	770,342.44
12,416.0	90.20	358.00	11,102.1	7,547.0	1,439.9	20.6	1,439.8	2.01	437,430.25	770,339.68
12,511.0	91.10	357.70	11,101.1	7,546.0	1,534.9	17.0	1,534.7	1.00	437,525.17	770,336.12
12,607.0	90.80	357.00	11,099.5	7,544.4	1,630.8	12.6	1,630.7	0.79	437,621.05	770,331.68
12,703.0	91.70	356.70	11,097.4	7,542.3	1,726.6	7.3	1,726.5	0.99	437,716.88	770,326.40
12,798.0	92.00	356.20	11,094.3	7,539.2	1,821.4	1.4	1,821.3	0.61	437,811.65	770,320.53
12,893.0	90.70	357.90	11,092.1	7,537.0	1,916.2	-3.5	1,916.2	2.25	437,906.49	770,315.64
12,989.0	91.40	357.70	11,090.3	7,535.2	2,012.1	-7.2	2,012.1	0.76	438,002.40	770,311.95
13,083.0	91.90	357.40	11,087.6	7,532.5	2,106.0	-11.2	2,106.0	0.62	438,096.27	770,307.94
13,179.0	90.10	358.50	11,085.9	7,530.8	2,201.9	-14.6	2,201.9	2.20	438,192.18	770,304.50
13,273.0	90.60	357.90	11,085.3	7,530.2	2,295.9	-17.6	2,295.9	0.83	438,286.13	770,301.55
13,367.0	90.90	357.70	11,084.1	7,529.0	2,389.8	-21.2	2,389.9	0.38	438,380.05	770,297.94
13,462.0	91.30	357.80	11,082.3	7,527.2	2,484.7	-24.9	2,484.8	0.43	438,474.96	770,294.22
13,557.0	91.10	358.50	11,080.3	7,525.2	2,579.6	-28.0	2,579.7	0.77	438,569.88	770,291.15
13,653.0	91.70	358.10	11,078.0	7,522.9	2,675.5	-30.8	2,675.7	0.75	438,665.81	770,288.30
13,748.0	90.70	359.50	11,076.0	7,520.9	2,770.5	-32.8	2,770.6	1.81	438,760.76	770,286.31
13,843.0	91.10	358.80	11,074.5	7,519.4	2,865.5	-34.2	2,865.6	0.85	438,855.74	770,284.90
13,937.0	90.90	0.30	11,072.8	7,517.7	2,959.5	-34.9	2,959.6	1.61	438,949.71	770,284.17
14,033.0	90.20	2.50	11,071.9	7,516.8	3,055.4	-32.6	3,055.5	2.40	439,045.67	770,286.51
14,129.0	90.60	1.20	11,071.2	7,516.1	3,151.4	-29.5	3,151.5	1.42	439,141.61	770,289.61
14,224.0	91.20	0.70	11,069.8	7,514.7	3,246.3	-27.9	3,246.4	0.82	439,236.58	770,291.19



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<b>Site:</b>	Bettis 20 State Com 3H	<b>MD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Well:</b>	Bettis 20 State Com 3H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Bettis 20 State Com 3H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H	<b>Database:</b>	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)	
14,320.0	89.80	1.10	11,068.9	7,513.8	3,342.3	-26.4	3,342.4	1.52	439,332.56	770,292.69	
14,416.0	90.20	359.60	11,068.9	7,513.8	3,438.3	-25.8	3,438.4	1.62	439,428.56	770,293.28	
14,512.0	89.80	358.80	11,068.9	7,513.8	3,534.3	-27.2	3,534.4	0.93	439,524.54	770,291.94	
14,607.0	89.80	358.10	11,069.2	7,514.1	3,629.3	-29.7	3,629.4	0.74	439,619.50	770,289.37	
14,703.0	90.30	358.60	11,069.2	7,514.1	3,725.2	-32.5	3,725.3	0.74	439,715.46	770,286.61	
14,798.0	90.60	359.40	11,068.4	7,513.3	3,820.2	-34.2	3,820.3	0.90	439,810.44	770,284.95	
14,893.0	91.00	358.60	11,067.1	7,512.0	3,915.2	-35.8	3,915.3	0.94	439,905.41	770,283.29	
14,989.0	90.90	358.10	11,065.5	7,510.4	4,011.1	-38.6	4,011.3	0.53	440,001.35	770,280.53	
15,085.0	90.90	356.80	11,064.0	7,508.9	4,107.0	-42.9	4,107.2	1.35	440,097.24	770,276.26	
15,180.0	87.90	359.60	11,065.0	7,509.9	4,201.9	-45.8	4,202.1	4.32	440,192.17	770,273.27	
15,210.0	88.40	359.30	11,066.0	7,510.9	4,231.9	-46.1	4,232.1	1.94	440,222.15	770,272.98	
15,275.0	88.50	359.30	11,067.7	7,512.6	4,296.9	-46.9	4,297.1	0.15	440,287.12	770,272.19	
15,371.0	90.50	1.00	11,068.5	7,513.4	4,392.9	-46.7	4,393.1	2.73	440,383.10	770,272.44	
15,466.0	92.00	1.50	11,066.5	7,511.4	4,487.8	-44.6	4,488.0	1.66	440,478.05	770,274.51	
15,561.0	91.10	1.70	11,063.9	7,508.8	4,582.8	-41.9	4,582.9	0.97	440,572.98	770,277.17	
15,657.0	91.90	0.50	11,061.4	7,506.3	4,678.7	-40.1	4,678.9	1.50	440,668.92	770,279.01	
15,753.0	90.50	359.40	11,059.4	7,504.3	4,774.7	-40.2	4,774.8	1.85	440,764.89	770,278.92	
15,804.0	90.50	359.40	11,058.9	7,503.8	4,825.7	-40.7	4,825.8	0.00	440,815.89	770,278.39	
5 1/2"											
15,805.0	90.50	359.40	11,058.9	7,503.8	4,826.7	-40.7	4,826.8	0.00	440,816.89	770,278.38	

<b>Company:</b>	Murchison Oil and Gas	<b>Local Co-ordinate Reference:</b>	Well Bettis 20 State Com 3H
<b>Project:</b>	Jackson Unit Section 20	<b>TVD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Site:</b>	Bettis 20 State Com 3H	<b>MD Reference:</b>	WELL @ 3555.1usft (Original Well Elev)
<b>Well:</b>	Bettis 20 State Com 3H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Bettis 20 State Com 3H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Bettis 20 State Com 3H	<b>Database:</b>	EDM 5000.1 Single User Db

Formations				
Measured Depth (usft)	Vertical Depth (usft)	Name		Dip (°)
9,079.6	9,077.1	Bone Spring		0.00
10,117.8	10,115.1	1st Bone Spring Sand		0.00
7,489.5	7,487.1	Brushy Canyon		0.00
5,046.2	5,044.1	Delaware		0.00
9,224.6	9,222.1	Avalon Shale		0.00
10,804.1	10,799.1	2nd Bone Spring Sand		0.00
6,063.4	6,061.1	Cherry Canyon		0.00
1,170.1	1,170.1	Rustler		0.00

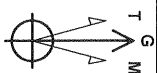
Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,090.5	11,033.9	131.9	4.3	Cross South Hard Boundary at 11091ftMD
15,725.5	11,059.7	4,747.2	-40.0	Cross North Hard Bounadry at 15725ft MD

Checked By: _____	Approved By: _____	Date: _____
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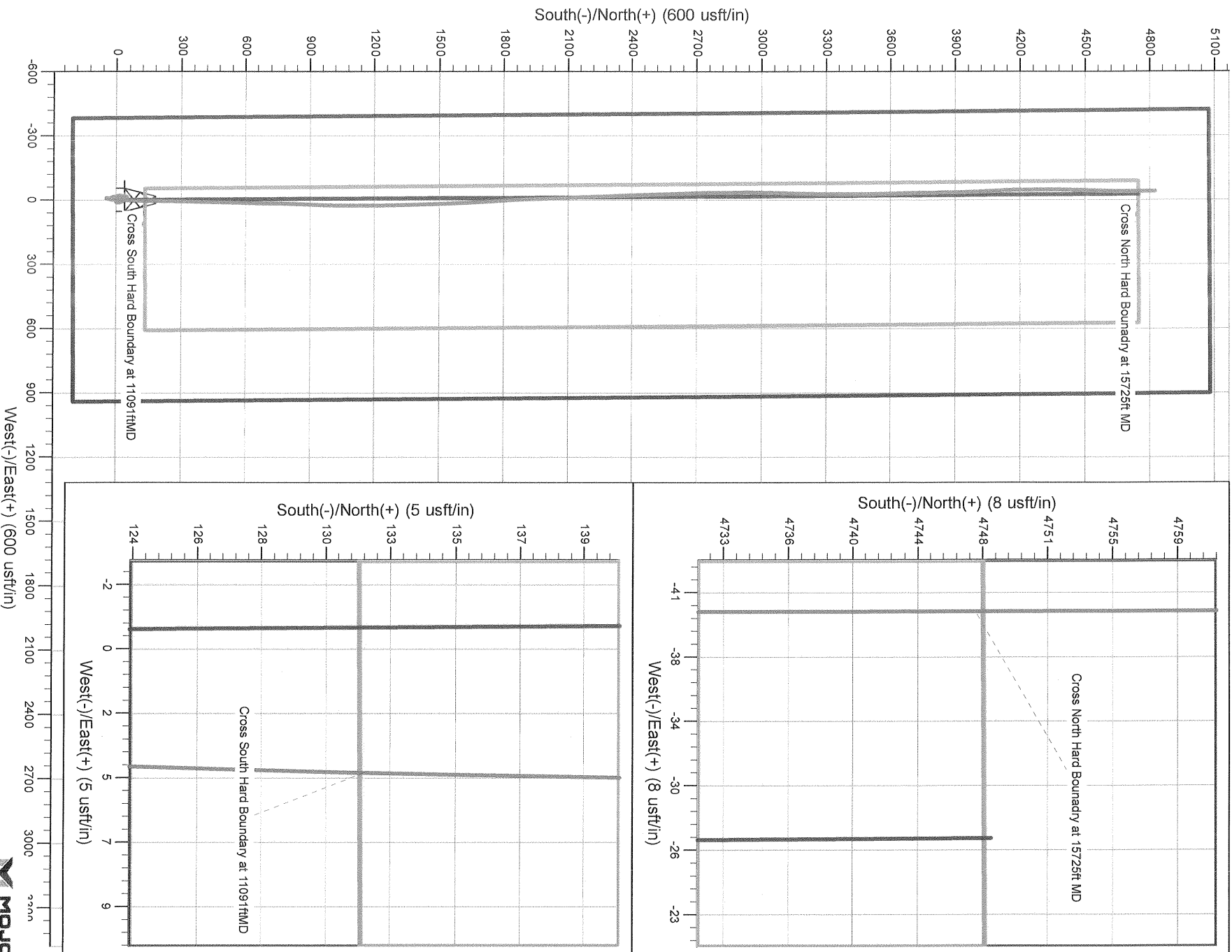
Project: Jackson Unit Section 20  
 Site: Bettis 20 State Com 3H  
 Well: Bettis 20 State Com 3H  
 Wellbore: Bettis 20 State Com 3H  
 Design: Bettis 20 State Com 3H



MURCHISON OIL & GAS, INC.



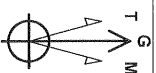
Azimuths to Grid North  
 True North: -0.38°  
 Magnetic North: 6.85°  
 Magnetic Field  
 Strength: 48315.35nT  
 Dip Angle: 60.09°  
 Date: 07/04/2014  
 Model: IGRF2010



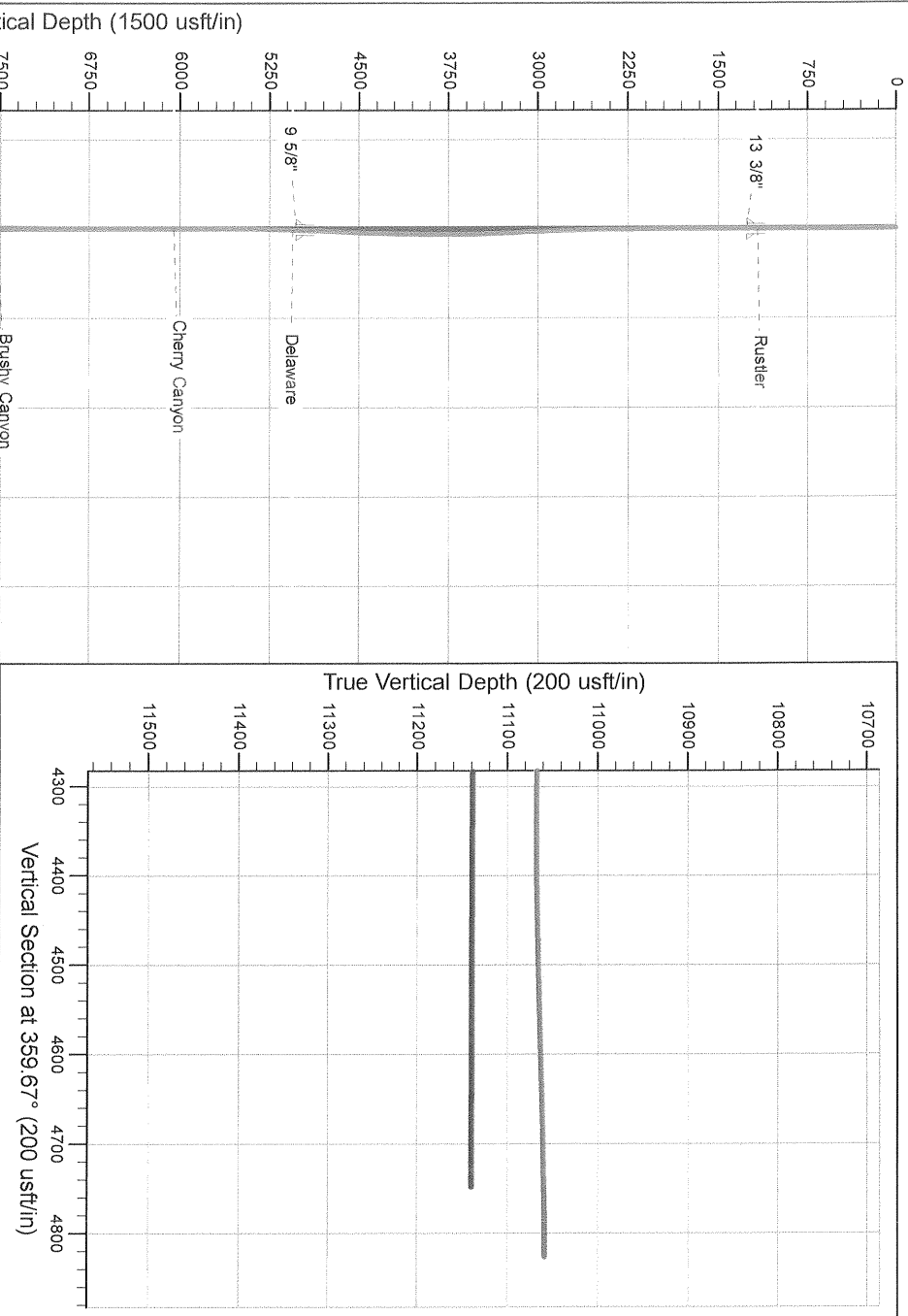
Project: Jackson Unit Section 20  
 Site: Bettis 20 State Com 3H  
 Well: Bettis 20 State Com 3H  
 Wellbore: Bettis 20 State Com 3H  
 Design: Bettis 20 State Com 3H



MURCHISON OIL & GAS, INC.



Azimuths to Grid North  
 True North: -0.39°  
 Magnetic North: 6.85°  
 Magnetic Field  
 Strength: 48315.35uT  
 Dip Angle: 60.09°  
 Date: 07/04/2014  
 Model: IGRF2010



# LEGEND

- Bettis 20 State Com 3H, Plan
- Bettis 20 State Com 3H

