

Results of Directional Survey

API number:	30-025-41087		
OGRID:		Operator:	MURCHISON OIL & GAS INC
		Property:	JACKSON UNIT # 17H

surface	ULSTR:	A	15	T 24S	R 33E
				200 FNL	970 FEL

BH Loc	ULSTR:	P	15	T 24S	R 33E
15782	MD	11185.7	TVD	262 FSL	903 FEL
				5018 FNL	

Top Perf/OH	ULSTR:	A	15	T 24S	R 33E
11280	MD	11129.3	TVD	520 FNL	947 FEL

Bot Perf/OH	ULSTR:	P	15	T 24S	R 33E
15690	MD	11179.0	TVD	354 FSL	902 FEL
				4926 FNL	

	MD	N/S	E/W	VD
	11278	-318.50	22.50	11128.8
TOP PERFS/OH	11280	-320.45	22.53	11129.25
	11310	-349.70	23.00	11136.00
	15632	-4668.50	68.50	11174.40
BOT PERFS/OH	15690	-4726.32	67.84	11178.99
	15728	-4764.20	67.40	11182.00

NEXT TO LAST	15757	-4793.10	67.30	11184.00
LAST READING	15782	-4818.00	67.30	11185.70
TD	15782	-4818.00	67.30	11185.70

Surface Location	200	FN	970	FE
Projected BHL	5018	FN	903	FE
Location of				
Top Perfs/OH	520	FN	947	FE
Bottom Perfs/OH	4926	FN	902	FE

SUMMARY of Subsurface Locations

Surface Location	A-15-24S-33E	200	FN	970	FE	Vert. Depth
Top Perfs/OH	A-15-24S-33E	520	FN	947	FE	11129.25
Bottom Perfs/OH	P-15-24S-33E	4926	FN	902	FE	11178.99
Projected TD	P-15-24S-33E	5018	FN	903	FE	11185.70

JUL 01 2014



Job Number: SVMO-140348
 Company: Murchison Oil & Gas
 Lease/Well: Jackson Unit 17H
 Location: Lea County, NM
 Rig Name: Nabors #M51
 RKB: 23.1'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.86°
 Grid: East To Grid North
 File name: Y:\WINSER~1\2014SU~1\MURCHI~1\MO\JACUNI~1\17H.SVY
 Date/Time: 25-Mar-14 / 09:12
 Curve Name: Surface - 5192' M.D. (Rate Gyro)

HOBBS OCD

MAY 07 2014

RECEIVED

MS Survey

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 179.27
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
~~Surface~~ MD to 5192 MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
Travis Pack 3/25/14
 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	.70	118.96	100.00	-.30	.53	.30	.61	118.96	.70
200.00	.70	118.01	199.99	-.88	1.61	.90	1.83	118.64	.01
300.00	.80	129.15	299.98	-1.61	2.69	1.64	3.13	120.85	.18
400.00	.80	137.50	399.97	-2.56	3.70	2.61	4.50	124.68	.12
500.00	.84	149.11	499.96	-3.71	4.55	3.76	5.87	129.16	.17
600.00	.90	151.44	599.95	-5.02	5.30	5.09	7.30	133.46	.07
700.00	.86	154.05	699.94	-6.39	6.01	6.46	8.77	136.77	.06
800.00	.81	153.23	799.93	-7.69	6.65	7.78	10.17	139.15	.05
900.00	.70	156.72	899.92	-8.89	7.21	8.98	11.45	140.94	.12

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	.85	163.92	999.91	-10.16	7.66	10.26	12.72	142.99	.18
1100.00	1.13	165.50	1099.89	-11.83	8.11	11.93	14.34	145.56	.28
1200.00	1.15	168.09	1199.88	-13.76	8.57	13.87	16.21	148.11	.06
1300.00	1.10	162.43	1299.86	-15.66	9.06	15.78	18.09	149.95	.12
1400.00	1.11	166.55	1399.84	-17.52	9.58	17.64	19.97	151.34	.08
1500.00	.84	164.48	1499.82	-19.17	10.00	19.29	21.62	152.45	.27
1600.00	.65	158.57	1599.81	-20.40	10.40	20.53	22.90	152.98	.20
1700.00	.54	163.16	1699.81	-21.38	10.75	21.52	23.93	153.32	.12
1800.00	.48	159.09	1799.80	-22.22	11.03	22.36	24.81	153.60	.07
1900.00	.51	160.87	1899.80	-23.03	11.33	23.18	25.67	153.81	.03
2000.00	.39	157.08	1999.80	-23.77	11.61	23.91	26.45	153.97	.12
2100.00	.22	163.13	2099.80	-24.27	11.79	24.41	26.98	154.08	.17
2200.00	.17	164.79	2199.80	-24.59	11.89	24.74	27.32	154.20	.05
2300.00	.09	236.64	2299.80	-24.78	11.86	24.93	27.47	154.42	.17
2400.00	.19	268.85	2399.80	-24.83	11.63	24.97	27.41	154.90	.12
2500.00	.23	272.62	2499.79	-24.82	11.26	24.96	27.26	155.59	.04
2600.00	.22	284.65	2599.79	-24.76	10.88	24.90	27.05	156.28	.05
2700.00	.29	316.49	2699.79	-24.53	10.52	24.66	26.69	156.79	.16
2800.00	.29	330.04	2799.79	-24.13	10.22	24.25	26.20	157.05	.07
2900.00	.45	340.13	2899.79	-23.54	9.96	23.66	25.56	157.07	.17
3000.00	.54	348.36	2999.79	-22.71	9.73	22.83	24.70	156.81	.11
3100.00	.66	351.55	3099.78	-21.68	9.55	21.80	23.69	156.22	.12
3200.00	.82	355.32	3199.77	-20.39	9.41	20.51	22.46	155.24	.17
3300.00	.92	357.37	3299.76	-18.88	9.31	19.00	21.05	153.75	.10
3400.00	.96	1.33	3399.75	-17.24	9.29	17.36	19.58	151.67	.08
3500.00	.99	3.19	3499.73	-15.54	9.36	15.66	18.14	148.93	.04
3600.00	.93	8.28	3599.72	-13.87	9.53	13.99	16.83	145.52	.10
3700.00	.81	14.24	3699.71	-12.38	9.82	12.51	15.80	141.60	.15
3800.00	.50	36.55	3799.70	-11.35	10.25	11.48	15.29	137.91	.40

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	.42	52.56	3899.70	-10.78	10.80	10.91	15.26	134.93	.15
4000.00	.22	93.04	3999.70	-10.56	11.28	10.71	15.46	133.11	.29
4100.00	.11	149.10	4099.70	-10.66	11.52	10.80	15.70	132.76	.18
4200.00	.20	212.67	4199.70	-10.88	11.48	11.03	15.82	133.48	.18
4300.00	.40	217.27	4299.69	-11.31	11.17	11.45	15.90	135.34	.20
4400.00	.53	177.14	4399.69	-12.05	10.99	12.19	16.31	137.64	.34
4500.00	1.06	135.63	4499.68	-13.17	11.66	13.32	17.59	138.49	.75
4600.00	1.58	118.97	4599.65	-14.50	13.51	14.67	19.82	137.03	.64
4700.00	2.34	102.77	4699.60	-15.62	16.71	15.83	22.87	133.08	.93
4800.00	3.27	100.03	4799.48	-16.57	21.51	16.84	27.15	127.61	.94
4900.00	3.16	98.22	4899.32	-17.46	27.04	17.80	32.19	122.85	.15
5000.00	2.51	95.89	4999.20	-18.08	31.95	18.48	36.71	119.50	.66
5100.00	1.03	36.69	5099.15	-17.58	34.66	18.02	38.87	116.89	2.17
Last Survey Depth Recorded									
5192.00	.51	346.26	5191.14	-16.52	35.06	16.97	38.76	115.23	.88

 MURCHISON OIL & GAS, INC.

HOBBS OCD

MAY 07 2014

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Murchison Oil and Gas

Jackson Unit Section 15

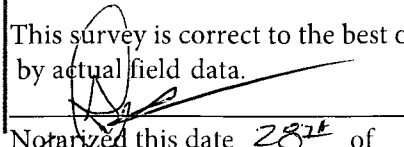
Jackson Unit 17H

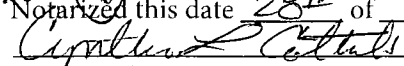
Survey: Jackson Unit 17H

MOJO Standard Survey

14 April, 2014

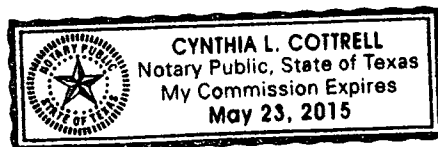
This survey is correct to the best of my knowledge and is supported
by actual field data.

 (Signature)
Notarized this date 28th of April, 2014


Notary Signature County of Collin State of Texas



MOJO
DIRECTIONAL CORPORATION



Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	Database:	EDM 5000.1 Single User Db

Project	Jackson Unit Section 15		
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	Jackson Unit 17H		
Site Position:		Northing:	446,211.54 usft
From:	Lat/Long	Easting:	782,089.34 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 13' 27.531 N
		Longitude:	103° 33' 17.257 W
		Grid Convergence:	0.42 °

Well	Jackson Unit 17H		
Well Position	+N/-S	0.0 usft	Northing: 446,211.54 usft
	+E/-W	0.0 usft	Easting: 782,089.34 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 13' 27.531 N
		Longitude:	103° 33' 17.257 W
		Ground Level:	3,612.6 usft

Wellbore	Jackson Unit 17H		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	10/05/2013	7.34
		Dip Angle (°)	60.14
		Field Strength (nT)	48.427

Design	Jackson Unit 17H		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
		Direction (°)	179.27

Survey Program	Date	14/04/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	15,782.0	Jackson Unit 17H (Jackson Unit 17H)	MWD	MWD - Standard

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	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	-3,634.6	0.0	0.0	0.0	0.00	446,211.54	782,089.34	
100.0	0.70	118.96	100.0	-3,534.6	-0.3	0.5	0.3	0.70	446,211.25	782,089.87	
200.0	0.70	118.01	200.0	-3,434.6	-0.9	1.6	0.9	0.01	446,210.66	782,090.95	
300.0	0.80	129.15	300.0	-3,334.6	-1.6	2.7	1.6	0.18	446,209.94	782,092.03	
400.0	0.80	137.50	400.0	-3,234.6	-2.6	3.7	2.6	0.12	446,208.98	782,093.04	
500.0	0.84	149.11	500.0	-3,134.6	-3.7	4.5	3.8	0.17	446,207.84	782,093.89	
600.0	0.90	151.44	600.0	-3,034.6	-5.0	5.3	5.1	0.07	446,206.52	782,094.64	
700.0	0.86	154.05	699.9	-2,934.7	-6.4	6.0	6.5	0.06	446,205.15	782,095.34	
800.0	0.81	153.23	799.9	-2,834.7	-7.7	6.7	7.8	0.05	446,203.85	782,095.99	
900.0	0.70	156.72	899.9	-2,734.7	-8.9	7.2	9.0	0.12	446,202.66	782,096.55	
1,000.0	0.85	163.92	999.9	-2,634.7	-10.2	7.7	10.3	0.18	446,201.38	782,097.00	
1,100.0	1.13	165.50	1,099.9	-2,534.7	-11.8	8.1	11.9	0.28	446,199.72	782,097.45	
1,200.0	1.15	168.09	1,199.9	-2,434.7	-13.8	8.6	13.9	0.06	446,197.78	782,097.90	
1,276.7	1.11	163.79	1,276.6	-2,358.0	-15.2	8.9	15.3	0.12	446,196.31	782,098.27	
Rustler											
1,300.0	1.10	162.43	1,299.9	-2,334.7	-15.7	9.1	15.8	0.12	446,195.88	782,098.40	
13 3/8"											
1,400.0	1.11	166.55	1,399.8	-2,234.8	-17.5	9.6	17.6	0.08	446,194.02	782,098.92	
1,500.0	0.84	164.48	1,499.8	-2,134.8	-19.2	10.0	19.3	0.27	446,192.38	782,099.34	
1,600.0	0.65	158.57	1,599.8	-2,034.8	-20.4	10.4	20.5	0.20	446,191.14	782,099.74	
1,700.0	0.54	163.16	1,699.8	-1,934.8	-21.4	10.7	21.5	0.12	446,190.16	782,100.08	
1,800.0	0.48	159.09	1,799.8	-1,834.8	-22.2	11.0	22.4	0.07	446,189.32	782,100.37	
1,900.0	0.51	160.87	1,899.8	-1,734.8	-23.0	11.3	23.2	0.03	446,188.51	782,100.67	
2,000.0	0.39	157.08	1,999.8	-1,634.8	-23.8	11.6	23.9	0.12	446,187.78	782,100.94	
2,100.0	0.22	163.13	2,099.8	-1,534.8	-24.3	11.8	24.4	0.17	446,187.28	782,101.13	
2,200.0	0.17	164.79	2,199.8	-1,434.8	-24.6	11.9	24.7	0.05	446,186.95	782,101.23	
2,300.0	0.09	236.64	2,299.8	-1,334.8	-24.8	11.9	24.9	0.17	446,186.76	782,101.20	

Company: Murchison Oil and Gas		Local Co-ordinate Reference:				Well Jackson Unit 17H	
Project: Jackson Unit Section 15		TVD Reference:				RKB @ 3634.6usft	
Site: Jackson Unit 17H		MD Reference:				RKB @ 3634.6usft	
Well: Jackson Unit 17H		North Reference:				Grid	
Wellbore: Jackson Unit 17H		Survey Calculation Method:				Minimum Curvature	
Design: Jackson Unit 17H		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)	Northings (usft)	Easting (usft)	
2,400.0	0.19	268.85	2,399.8	-1,234.8	-24.8	11.6	25.0	0.12	446,186.72	782,100.97	
2,500.0	0.23	272.62	2,499.8	-1,134.8	-24.8	11.3	25.0	0.04	446,186.72	782,100.60	
2,600.0	0.22	284.65	2,599.8	-1,034.8	-24.8	10.9	24.9	0.05	446,186.78	782,100.22	
2,700.0	0.29	316.49	2,699.8	-934.8	-24.5	10.5	24.7	0.16	446,187.01	782,099.86	
2,800.0	0.29	330.04	2,799.8	-834.8	-24.1	10.2	24.3	0.07	446,187.42	782,099.56	
2,900.0	0.45	340.13	2,899.8	-734.8	-23.5	10.0	23.7	0.17	446,188.01	782,099.30	
3,000.0	0.54	348.36	2,999.8	-634.8	-22.7	9.7	22.8	0.11	446,188.84	782,099.07	
3,100.0	0.66	351.55	3,099.8	-534.8	-21.7	9.5	21.8	0.12	446,189.87	782,098.89	
3,200.0	0.82	355.32	3,199.8	-434.8	-20.4	9.4	20.5	0.17	446,191.15	782,098.74	
3,300.0	0.92	357.37	3,299.8	-334.8	-18.9	9.3	19.0	0.10	446,192.67	782,098.65	
3,400.0	0.96	1.33	3,399.7	-234.9	-17.2	9.3	17.4	0.08	446,194.30	782,098.63	
3,500.0	0.99	3.19	3,499.7	-134.9	-15.5	9.4	15.7	0.04	446,196.00	782,098.70	
3,600.0	0.93	8.28	3,599.7	-34.9	-13.9	9.5	14.0	0.10	446,197.67	782,098.86	
3,700.0	0.81	14.24	3,699.7	65.1	-12.4	9.8	12.5	0.15	446,199.16	782,099.15	
3,800.0	0.50	36.55	3,799.7	165.1	-11.3	10.3	11.5	0.40	446,200.19	782,099.59	
3,900.0	0.42	52.56	3,899.7	265.1	-10.8	10.8	10.9	0.15	446,200.77	782,100.14	
4,000.0	0.22	93.04	3,999.7	365.1	-10.6	11.3	10.7	0.29	446,200.98	782,100.62	
4,100.0	0.11	149.10	4,099.7	465.1	-10.7	11.5	10.8	0.18	446,200.89	782,100.86	
4,200.0	0.20	212.67	4,199.7	565.1	-10.9	11.5	11.0	0.18	446,200.66	782,100.82	
4,300.0	0.40	217.27	4,299.7	665.1	-11.3	11.2	11.5	0.20	446,200.23	782,100.51	
4,400.0	0.53	177.14	4,399.7	765.1	-12.0	11.0	12.2	0.34	446,199.49	782,100.32	
4,500.0	1.06	135.63	4,499.7	865.1	-13.2	11.7	13.3	0.75	446,198.37	782,100.99	
4,600.0	1.58	118.97	4,599.7	965.1	-14.5	13.5	14.7	0.64	446,197.04	782,102.85	
4,700.0	2.34	102.77	4,699.6	1,065.0	-15.6	16.7	15.8	0.93	446,195.92	782,106.04	
4,800.0	3.27	100.03	4,799.5	1,164.9	-16.6	21.5	16.8	0.94	446,194.97	782,110.84	
4,900.0	3.16	98.22	4,899.3	1,264.7	-17.5	27.0	17.8	0.15	446,194.08	782,116.38	
5,000.0	2.51	95.89	4,999.2	1,364.6	-18.1	31.9	18.5	0.66	446,193.47	782,121.29	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	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)	
5,100.0	1.03	36.69	5,099.2	1,464.6	-17.6	34.7	18.0	2.17	446,193.96	782,124.00	
5,192.0	0.51	346.26	5,191.1	1,556.5	-16.5	35.1	17.0	0.88	446,195.02	782,124.40	
5,247.5	0.55	294.88	5,246.6	1,612.0	-16.2	34.8	16.6	0.83	446,195.37	782,124.10	
Delaware											
5,268.0	0.65	281.72	5,267.1	1,632.5	-16.1	34.6	16.5	0.83	446,195.44	782,123.90	
9 5/8"											
5,307.0	0.90	266.50	5,306.1	1,671.5	-16.1	34.0	16.5	0.83	446,195.46	782,123.38	
5,401.0	2.10	296.60	5,400.1	1,765.5	-15.4	31.8	15.8	1.49	446,196.19	782,121.10	
5,497.0	2.30	299.20	5,496.0	1,861.4	-13.6	28.5	14.0	0.23	446,197.92	782,117.84	
5,591.0	2.30	298.50	5,590.0	1,955.4	-11.8	25.2	12.1	0.03	446,199.74	782,114.54	
5,685.0	2.30	299.80	5,683.9	2,049.3	-10.0	21.9	10.2	0.06	446,201.57	782,111.25	
5,780.0	2.40	297.00	5,778.8	2,144.2	-8.1	18.5	8.4	0.16	446,203.43	782,107.82	
5,875.0	2.50	291.50	5,873.7	2,239.1	-6.5	14.8	6.6	0.27	446,205.09	782,104.12	
5,969.0	2.50	291.00	5,967.6	2,333.0	-5.0	11.0	5.1	0.02	446,206.57	782,100.30	
6,064.0	2.50	291.50	6,062.5	2,427.9	-3.5	7.1	3.6	0.02	446,208.08	782,096.44	
6,159.0	0.90	261.50	6,157.5	2,522.9	-2.8	4.4	2.9	1.87	446,208.72	782,093.77	
6,241.1	0.37	245.26	6,239.6	2,605.0	-3.0	3.6	3.1	0.67	446,208.52	782,092.89	
Cherry Canyon											
6,254.0	0.30	237.70	6,252.5	2,617.9	-3.1	3.5	3.1	0.67	446,208.48	782,092.82	
6,348.0	0.20	249.00	6,346.5	2,711.9	-3.3	3.1	3.3	0.12	446,208.29	782,092.46	
6,442.0	0.20	254.50	6,440.5	2,805.9	-3.4	2.8	3.4	0.02	446,208.19	782,092.15	
6,536.0	0.20	244.80	6,534.5	2,899.9	-3.5	2.5	3.5	0.04	446,208.07	782,091.84	
6,631.0	0.20	259.80	6,629.5	2,994.9	-3.6	2.2	3.6	0.05	446,207.97	782,091.53	
6,726.0	0.10	241.40	6,724.5	3,089.9	-3.6	2.0	3.7	0.12	446,207.91	782,091.29	
6,821.0	0.30	254.20	6,819.5	3,184.9	-3.7	1.6	3.8	0.21	446,207.80	782,090.98	
6,916.0	0.10	255.50	6,914.5	3,279.9	-3.8	1.3	3.8	0.21	446,207.71	782,090.66	
7,010.0	0.20	256.80	7,008.5	3,373.9	-3.9	1.1	3.9	0.11	446,207.65	782,090.42	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	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)	
7,105.0	0.00	298.70	7,103.5	3,468.9	-3.9	0.9	3.9	0.21	446,207.61	782,090.26	
7,200.0	0.10	205.80	7,198.5	3,563.9	-4.0	0.9	4.0	0.11	446,207.54	782,090.23	
7,295.0	0.00	168.10	7,293.5	3,658.9	-4.1	0.9	4.1	0.11	446,207.46	782,090.19	
7,390.0	0.10	168.50	7,388.5	3,753.9	-4.2	0.9	4.2	0.11	446,207.38	782,090.21	
7,590.1	0.23	205.26	7,588.6	3,954.0	-4.7	0.7	4.7	0.08	446,206.84	782,090.07	
Brushy Canyon											
7,673.0	0.30	210.00	7,671.5	4,036.9	-5.0	0.5	5.0	0.08	446,206.50	782,089.88	
7,768.0	0.20	172.50	7,766.5	4,131.9	-5.4	0.4	5.4	0.20	446,206.12	782,089.78	
7,863.0	0.20	181.30	7,861.5	4,226.9	-5.8	0.5	5.8	0.03	446,205.79	782,089.80	
7,958.0	0.10	205.00	7,956.5	4,321.9	-6.0	0.4	6.0	0.12	446,205.55	782,089.76	
8,052.0	0.30	150.70	8,050.5	4,415.9	-6.3	0.5	6.3	0.27	446,205.26	782,089.85	
8,148.0	0.60	170.10	8,146.5	4,511.9	-7.0	0.7	7.0	0.35	446,204.55	782,090.06	
8,243.0	0.50	176.60	8,241.5	4,606.9	-7.9	0.8	7.9	0.12	446,203.64	782,090.17	
8,337.0	0.70	181.40	8,335.5	4,700.9	-8.9	0.8	8.9	0.22	446,202.66	782,090.18	
8,432.0	0.80	165.40	8,430.5	4,795.9	-10.1	1.0	10.1	0.24	446,201.44	782,090.33	
8,526.0	0.70	150.40	8,524.4	4,889.8	-11.2	1.4	11.3	0.23	446,200.30	782,090.78	
8,621.0	0.80	164.50	8,619.4	4,984.8	-12.4	1.9	12.4	0.22	446,199.16	782,091.24	
8,716.0	1.20	159.10	8,714.4	5,079.8	-14.0	2.4	14.0	0.43	446,197.59	782,091.77	
8,812.0	1.10	156.30	8,810.4	5,175.8	-15.7	3.2	15.8	0.12	446,195.81	782,092.50	
8,906.0	0.40	26.50	8,904.4	5,269.8	-16.3	3.7	16.3	1.48	446,195.28	782,093.01	
9,001.0	0.30	23.50	8,999.4	5,364.8	-15.7	3.9	15.8	0.11	446,195.80	782,093.26	
9,095.0	0.50	8.60	9,093.4	5,458.8	-15.1	4.1	15.2	0.24	446,196.43	782,093.42	
9,114.2	0.51	357.72	9,112.6	5,478.0	-14.9	4.1	15.0	0.50	446,196.60	782,093.43	
Bone Spring											
9,191.0	0.70	325.10	9,189.4	5,554.8	-14.2	3.8	14.3	0.50	446,197.33	782,093.15	
9,220.2	0.66	312.02	9,218.6	5,584.0	-14.0	3.6	14.0	0.55	446,197.58	782,092.92	
Avalon Shale											

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	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)	
9,285.0	0.70	281.90	9,283.4	5,648.8	-13.6	2.9	13.7	0.55	446,197.92	782,092.26	
9,381.0	0.40	277.10	9,379.4	5,744.8	-13.5	2.0	13.5	0.32	446,198.08	782,091.35	
9,475.0	0.60	223.20	9,473.4	5,838.8	-13.8	1.3	13.8	0.52	446,197.76	782,090.69	
9,570.0	1.00	209.30	9,568.4	5,933.8	-14.9	0.6	14.9	0.46	446,196.67	782,089.94	
9,664.0	1.10	164.20	9,662.4	6,027.8	-16.5	0.4	16.5	0.86	446,195.09	782,089.79	
9,759.0	1.00	157.60	9,757.3	6,122.7	-18.1	1.0	18.1	0.17	446,193.45	782,090.35	
9,853.0	0.10	77.90	9,851.3	6,216.7	-18.8	1.4	18.9	1.05	446,192.71	782,090.74	
9,948.0	1.60	32.10	9,946.3	6,311.7	-17.7	2.2	17.7	1.61	446,193.85	782,091.53	
10,042.0	2.40	17.20	10,040.3	6,405.7	-14.7	3.5	14.7	1.01	446,196.84	782,092.81	
10,137.0	2.40	27.30	10,135.2	6,500.6	-11.0	5.0	11.1	0.44	446,200.51	782,094.31	
10,157.4	2.44	26.57	10,155.6	6,521.0	-10.3	5.4	10.3	0.26	446,201.28	782,094.70	
1st Bone SpringmSand											
10,232.0	2.60	24.10	10,230.1	6,595.5	-7.3	6.8	7.4	0.26	446,204.24	782,096.10	
10,326.0	2.50	25.90	10,324.0	6,689.4	-3.5	8.5	3.6	0.14	446,208.03	782,097.87	
10,422.0	2.70	25.90	10,419.9	6,785.3	0.4	10.4	-0.3	0.21	446,211.95	782,099.77	
10,516.0	2.40	36.70	10,513.8	6,879.2	4.0	12.6	-3.8	0.60	446,215.52	782,101.91	
10,611.0	2.30	44.50	10,608.7	6,974.1	6.9	15.1	-6.7	0.35	446,218.47	782,104.44	
10,686.0	2.82	144.37	10,683.7	7,049.1	6.5	17.2	-6.3	5.24	446,218.05	782,106.57	
7"											
10,772.0	7.00	166.20	10,769.4	7,134.8	-0.3	19.7	0.6	5.24	446,211.24	782,109.05	
10,804.0	14.20	171.40	10,800.8	7,166.2	-6.1	20.8	6.4	22.68	446,205.45	782,110.10	
10,836.0	19.40	177.00	10,831.4	7,196.8	-15.3	21.6	15.6	17.00	446,196.26	782,110.97	
10,867.0	23.10	177.10	10,860.3	7,225.7	-26.5	22.2	26.8	11.94	446,185.04	782,111.55	
10,899.0	26.10	181.00	10,889.4	7,254.8	-39.8	22.4	40.1	10.66	446,171.73	782,111.74	
10,905.9	26.72	181.65	10,895.6	7,261.0	-42.9	22.3	43.2	9.92	446,168.65	782,111.67	
2nd Bone Spring Sand											
10,931.0	29.00	183.80	10,917.8	7,283.2	-54.6	21.8	54.9	9.92	446,156.95	782,111.10	
10,964.0	33.20	182.70	10,946.0	7,311.4	-71.6	20.8	71.9	12.84	446,139.93	782,110.15	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	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)
10,994.0	37.30	181.10	10,970.5	7,335.9	-88.9	20.2	89.2	14.01	446,122.64	782,109.59
11,025.0	41.40	180.10	10,994.5	7,359.9	-108.6	20.0	108.8	13.38	446,102.99	782,109.39
11,057.0	43.90	178.70	11,018.0	7,383.4	-130.2	20.3	130.5	8.36	446,081.31	782,109.62
11,088.0	47.70	178.50	11,039.6	7,405.0	-152.4	20.8	152.7	12.27	446,059.10	782,110.16
11,121.0	53.20	179.00	11,060.6	7,426.0	-177.9	21.4	178.1	16.71	446,033.67	782,110.72
11,148.0	59.30	179.50	11,075.6	7,441.0	-200.3	21.7	200.6	22.64	446,011.23	782,111.01
11,183.0	62.50	180.10	11,092.6	7,458.0	-230.9	21.8	231.2	9.26	445,980.65	782,111.11
11,216.0	65.10	180.00	11,107.2	7,472.6	-260.5	21.7	260.8	7.88	445,951.05	782,111.08
11,247.0	69.40	179.20	11,119.2	7,484.6	-289.1	21.9	289.3	14.07	445,922.47	782,111.29
11,278.0	74.30	178.80	11,128.8	7,494.2	-318.5	22.5	318.8	15.85	445,893.03	782,111.80
11,310.0	79.90	179.30	11,136.0	7,501.4	-349.7	23.0	350.0	17.57	445,861.85	782,112.32
11,341.0	83.70	181.50	11,140.4	7,505.8	-380.4	22.8	380.6	14.13	445,831.18	782,112.10
11,373.0	86.00	183.50	11,143.3	7,508.7	-412.2	21.4	412.5	9.51	445,799.34	782,110.71
11,404.0	90.30	183.00	11,144.3	7,509.7	-443.1	19.6	443.4	13.96	445,768.41	782,108.95
11,467.0	90.80	180.50	11,143.7	7,509.1	-506.1	17.7	506.3	4.05	445,705.45	782,107.03
11,499.0	90.70	180.10	11,143.3	7,508.7	-538.1	17.5	538.3	1.29	445,673.46	782,106.86
11,531.0	90.50	180.40	11,142.9	7,508.3	-570.1	17.4	570.3	1.13	445,641.46	782,106.72
11,657.0	90.80	179.40	11,141.5	7,506.9	-696.1	17.6	696.3	0.83	445,515.47	782,106.94
11,751.0	89.00	179.10	11,141.7	7,507.1	-790.1	18.8	790.2	1.94	445,421.49	782,108.17
11,844.0	88.80	179.70	11,143.4	7,508.8	-883.1	19.8	883.2	0.68	445,328.51	782,109.15
11,939.0	88.40	178.80	11,145.8	7,511.2	-978.0	21.1	978.2	1.04	445,233.55	782,110.39
12,033.0	88.00	178.60	11,148.7	7,514.1	-1,071.9	23.2	1,072.2	0.48	445,139.63	782,112.52
12,128.0	89.00	178.40	11,151.2	7,516.6	-1,166.9	25.7	1,167.1	1.07	445,044.69	782,115.01
12,222.0	90.00	179.20	11,152.0	7,517.4	-1,260.9	27.6	1,261.1	1.36	444,950.72	782,116.98
12,317.0	90.80	178.10	11,151.4	7,516.8	-1,355.8	29.9	1,356.1	1.43	444,855.76	782,119.21
12,412.0	91.00	177.50	11,149.9	7,515.3	-1,450.7	33.5	1,451.0	0.67	444,760.84	782,122.86
12,506.0	90.10	179.60	11,149.0	7,514.4	-1,544.7	35.9	1,545.0	2.43	444,666.88	782,125.24

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	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)
12,601.0	90.20	179.60	11,148.7	7,514.1	-1,639.7	36.6	1,640.0	0.11	444,571.89	782,125.90
12,696.0	89.50	178.00	11,149.0	7,514.4	-1,734.7	38.6	1,735.0	1.84	444,476.92	782,127.89
12,790.0	89.50	178.80	11,149.8	7,515.2	-1,828.6	41.2	1,829.0	0.85	444,382.96	782,130.51
12,885.0	90.80	177.60	11,149.5	7,514.9	-1,923.6	44.2	1,924.0	1.86	444,288.01	782,133.50
12,979.0	89.80	178.30	11,149.0	7,514.4	-2,017.5	47.5	2,018.0	1.30	444,194.08	782,136.86
13,073.0	90.80	178.00	11,148.5	7,513.9	-2,111.5	50.6	2,111.9	1.11	444,100.13	782,139.90
13,167.0	92.20	177.80	11,146.1	7,511.5	-2,205.4	54.0	2,205.9	1.50	444,006.23	782,143.34
13,261.0	90.10	178.80	11,144.2	7,509.6	-2,299.3	56.8	2,299.8	2.47	443,912.30	782,146.13
13,355.0	89.60	178.20	11,144.4	7,509.8	-2,393.3	59.2	2,393.8	0.83	443,818.34	782,148.59
13,451.0	88.10	180.10	11,146.4	7,511.8	-2,489.2	60.7	2,489.8	2.52	443,722.38	782,150.01
13,641.0	88.10	179.10	11,152.7	7,518.1	-2,679.1	62.0	2,679.7	0.53	443,532.49	782,151.34
13,735.0	88.00	178.70	11,155.9	7,521.3	-2,773.0	63.8	2,773.6	0.44	443,438.57	782,153.14
13,830.0	87.90	178.70	11,159.3	7,524.7	-2,868.0	66.0	2,868.6	0.11	443,343.65	782,155.29
13,924.0	89.70	177.30	11,161.2	7,526.6	-2,961.9	69.2	2,962.5	2.43	443,249.74	782,158.57
14,019.0	89.90	177.30	11,161.6	7,527.0	-3,056.8	73.7	3,057.5	0.21	443,154.85	782,163.05
14,115.0	90.10	176.60	11,161.6	7,527.0	-3,152.6	78.8	3,153.4	0.76	443,058.99	782,168.16
14,210.0	90.10	179.70	11,161.4	7,526.8	-3,247.6	81.9	3,248.4	3.26	442,964.05	782,171.22
14,306.0	90.40	178.20	11,161.0	7,526.4	-3,343.6	83.6	3,344.3	1.59	442,868.07	782,172.98
14,401.0	90.20	180.10	11,160.5	7,525.9	-3,438.5	85.1	3,439.3	2.01	442,773.09	782,174.39
14,496.0	91.20	179.20	11,159.3	7,524.7	-3,533.5	85.6	3,534.3	1.42	442,678.11	782,174.97
14,590.0	89.80	178.30	11,158.5	7,523.9	-3,627.5	87.7	3,628.3	1.77	442,584.14	782,177.02
14,685.0	90.00	179.10	11,158.7	7,524.1	-3,722.5	89.8	3,723.3	0.87	442,489.16	782,179.18
14,779.0	90.80	178.30	11,158.0	7,523.4	-3,816.4	92.0	3,817.3	1.20	442,395.20	782,181.31
14,874.0	90.60	180.30	11,156.9	7,522.3	-3,911.4	93.1	3,912.3	2.12	442,300.22	782,182.47
14,970.0	89.90	181.90	11,156.4	7,521.8	-4,007.4	91.3	4,008.2	1.82	442,204.24	782,180.63
15,065.0	88.20	181.70	11,158.0	7,523.4	-4,102.3	88.3	4,103.1	1.80	442,109.31	782,177.64
15,158.0	89.80	182.10	11,159.6	7,525.0	-4,195.3	85.2	4,196.0	1.77	442,016.38	782,174.56

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	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)
15,253.0	90.80	183.10	11,159.1	7,524.5	-4,290.2	80.9	4,290.8	1.49	441,921.48	782,170.25
15,348.0	89.20	181.50	11,159.1	7,524.5	-4,385.1	77.1	4,385.7	2.38	441,826.57	782,166.44
15,442.0	87.70	181.90	11,161.7	7,527.1	-4,479.0	74.3	4,479.6	1.65	441,732.65	782,163.65
15,537.0	85.90	181.90	11,167.0	7,532.4	-4,573.8	71.2	4,574.3	1.89	441,637.85	782,160.51
15,632.0	85.10	181.30	11,174.4	7,539.8	-4,668.5	68.5	4,669.0	1.05	441,543.19	782,157.86
15,728.0	85.90	180.10	11,182.0	7,547.4	-4,764.2	67.4	4,764.6	1.50	441,447.50	782,156.69
15,736.0	86.00	180.10	11,182.5	7,547.9	-4,772.1	67.3	4,772.6	1.25	441,439.52	782,156.68
15,757.0	86.00	180.10	11,184.0	7,549.4	-4,793.1	67.3	4,793.6	0.00	441,418.57	782,156.64
4 1/2"										
15,782.0	86.00	180.10	11,185.7	7,551.1	-4,818.0	67.3	4,818.5	0.00	441,393.63	782,156.60

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,300.0	1,299.9	13 3/8"	13-3/8	16	
5,268.0	5,267.1	9 5/8"	9-5/8	12-1/4	
10,686.0	10,683.7	7"	7	8-1/2	
15,757.0	11,184.0	4 1/2"	4-1/2	6-1/8	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Jackson Unit 17H
Project:	Jackson Unit Section 15	TVD Reference:	RKB @ 3634.6usft
Site:	Jackson Unit 17H	MD Reference:	RKB @ 3634.6usft
Well:	Jackson Unit 17H	North Reference:	Grid
Wellbore:	Jackson Unit 17H	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 17H	Database:	EDM 5000.1 Single User Db

Formations			
Measured Depth (usft)	Vertical Depth (usft)	Name	Dip (°)
6,241.1	6,239.6	Cherry Canyon	0.00
10,157.4	10,155.6	1st Bone SpringmSand	0.00
10,905.9	10,895.6	2nd Bone Spring Sand	0.00
1,276.7	1,276.6	Rustler	0.00
9,220.2	9,218.6	Avalon Shale	0.00
5,247.5	5,246.6	Delaware	0.00
7,590.1	7,588.6	Brushy Canyon	0.00
9,114.2	9,112.6	Bone Spring	0.00

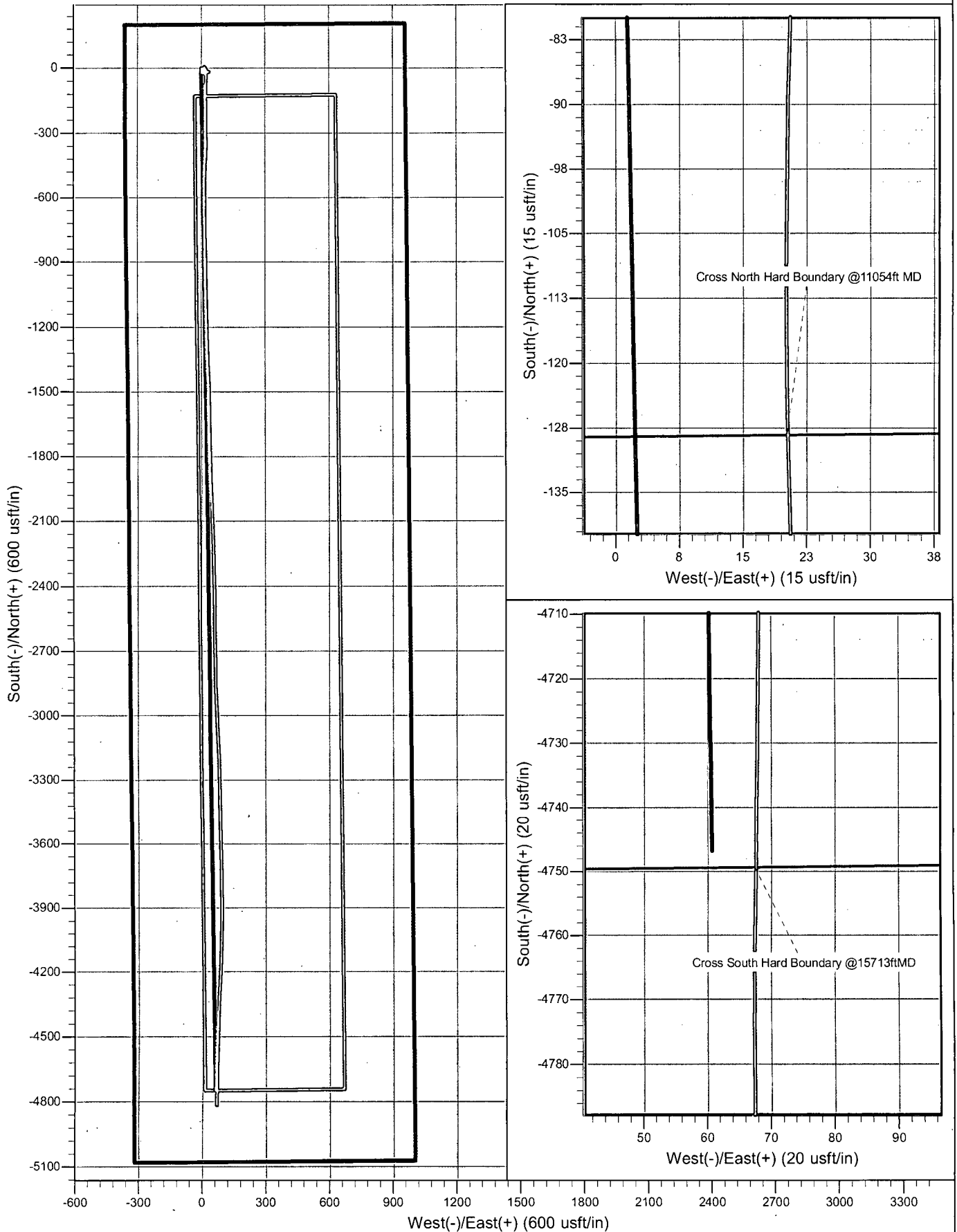
Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,054.0	11,015.8	-128.2	20.2	Cross North Hard Boundary @11054ft MD
15,713.0	11,180.9	-4,749.2	67.4	Cross South Hard Boundary @15713ftMD

Checked By: _____	Approved By: _____	Date: _____
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Project: Jackson Unit Section 15
Site: Jackson Unit 17H
Well: Jackson Unit 17H
Wellbore: Jackson Unit 17H
Design: Jackson Unit 17H



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.93°
Magnetic Field
Strength: 48426.7nT
Dip Angle: 60.14°
Date: 10/05/2013
Model: IGRF2010

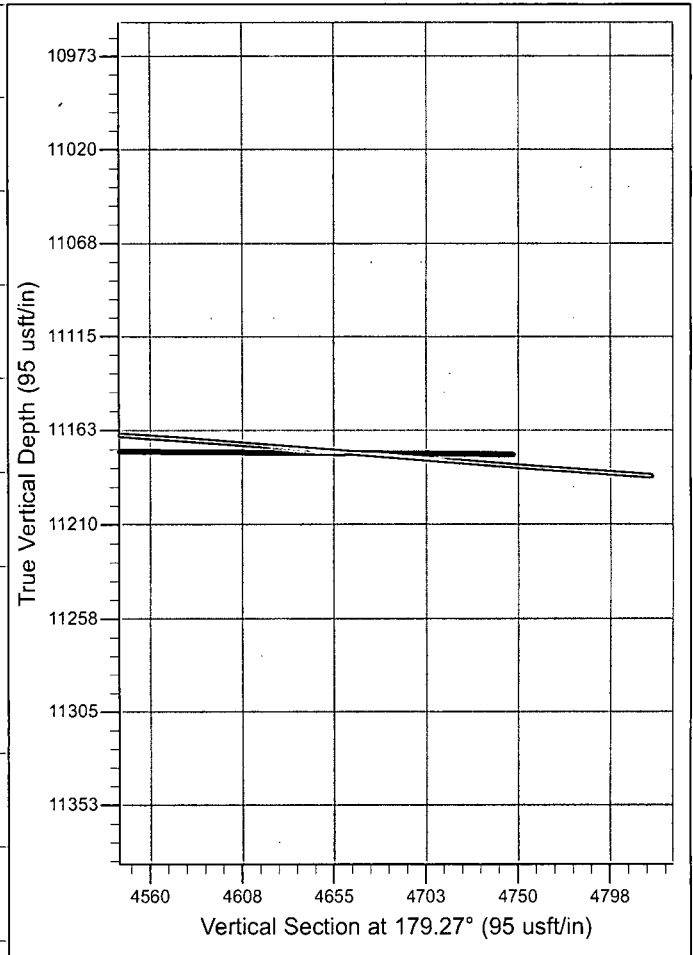
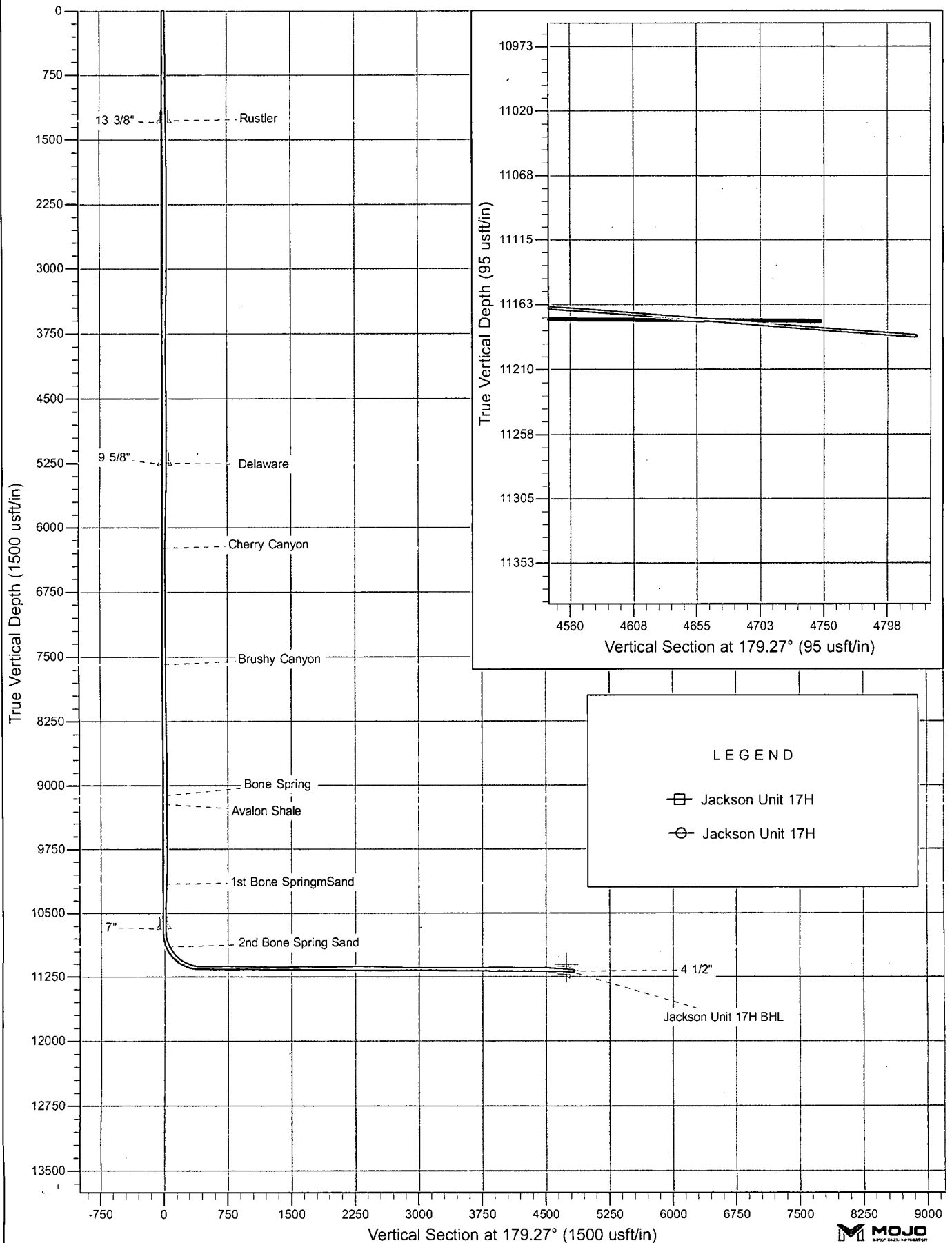


Project: Jackson Unit Section 15
 Site: Jackson Unit 17H
 Well: Jackson Unit 17H
 Wellbore: Jackson Unit 17H
 Design: Jackson Unit 17H

 **MURCHISON OIL & GAS, INC.**



Azimuths to Grid North
 True North: -0.41°
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 Magnetic Field
 Strength: 48426.7nT
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LEGEND

-  Jackson Unit 17H
-  Jackson Unit 17H