

Results of Directional Survey

API number:	30-025-40974		
OGRID:		Operator:	MURCHISON OIL & GAS INC
		Property:	JACKSON UNIT # 18H

surface	ULSTR:	M	21	T 24S	R 33E
				200 FSL	770 FWL

BH Loc	ULSTR:	D	21	T 24S	R 33E
15674	MD	11078.6	TVD	340 FNL	371 FWL
				4940 FSL	

Top Perf/OH	ULSTR:	M	21	T 24S	R 33E
11559	MD	11131.3	TVD	828 FSL	375 FWL

Bot Perf/OH	ULSTR:	D	21	T 24S	R 33E
15610	MD	11078.4	TVD	404 FNL	374 FWL
				4876 FSL	

	MD	N/S	E/W	VD
	11557	625.70	-395.30	11131.4
TOP PERFS/OH	11559	627.70	-395.31	11131.34
	11654	722.60	-395.60	11128.40
	15522	4588.50	-393.60	11078.00
BOT PERFS/OH	15610	4676.41	-396.23	11078.36
	15619	4685.40	-396.50	11078.40

NEXT TO LAST	15660	4726.40	-398.10	11078.60
LAST READING	15674	4740.40	-398.70	11078.60
TD	15674	4740.40	-398.70	11078.60

Surface Location	200	FS	770	FW
Projected BHL	4940	FS	371	FW
Location of				
Top Perfs/OH	828	FS	375	FW
Bottom Perfs/OH	4876	FS	374	FW

SUMMARY of Subsurface Locations

Surface Location	M-21-24S-33E	200	FS	770	FW	Vert. Depth
Top Perfs/OH	M-21-24S-33E	828	FS	375	FW	11131.34
Bottom Perfs/OH	D-21-24S-33E	4876	FS	374	FW	11078.36
Projected TD	D-21-24S-33E	4940	FS	371	FW	11078.60

AUG 26 2013



HOBBS OCD

JUL 18 2013

RECEIVED

Murchison Oil and Gas

Jackson Unit Section 21

Jackson Unit 18

Survey: Jackson Unit 18

MOJO Standard Survey

02 July, 2013

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

Notarized this date 2nd of July,
2013. Cynthia L. Cottrell Notary
Signature County of Collin State of Texas



MOJO
DIRECTIONAL CORPORATION



Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Site Jackson Unit 18
Project:	Jackson Unit Section 21	TVD Reference:	WELL @ 3553.5usft (Original Well Elev)
Site:	Jackson Unit 18	MD Reference:	WELL @ 3553.5usft (Original Well Elev)
Well:	Jackson Unit 18	North Reference:	Grid
Wellbore:	Jackson Unit 18	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 18	Database:	EDM 5000.1 Single User Db

Project	Jackson Unit Section 21		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Jackson Unit 18		
Site Position:		Northing:	436,007.00 usft
From:	Lat/Long	Easting:	773,348.58 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 47.170 N
		Longitude:	103° 34' 59.835 W
		Grid Convergence:	0.40 °

Well	Jackson Unit 18		
Well Position	+N/-S	0.0 usft	Northing: 436,007.00 usft
	+E/-W	0.0 usft	Easting: 773,348.58 usft
Position Uncertainty	0.0 usft		Wellhead Elevation: usft
			Latitude: 32° 11' 47.170 N
			Longitude: 103° 34' 59.835 W
			Ground Level: 3,531.5 usft

Wellbore	Jackson Unit 18				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	28/01/2013	7.39	60.12	48,435

Design	Jackson Unit 18			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	354.50

Survey Program	Date 02/07/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
24.0	15,674.0	Jackson Unit 18 (Jackson Unit 18)	MWD	MWD - Standard

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Site Jackson Unit 18
Project:	Jackson Unit Section 21	TVD Reference:	WELL @ 3553.5usft (Original Well Elev)
Site:	Jackson Unit 18	MD Reference:	WELL @ 3553.5usft (Original Well Elev)
Well:	Jackson Unit 18	North Reference:	Grid
Wellbore:	Jackson Unit 18	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 18	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	-3,553.5	0.0	0.0	0.0	0.00	436,007.00	773,348.58	
24.0	0.25	211.62	24.0	-3,529.5	0.0	0.0	0.0	1.04	436,006.96	773,348.55	
120.0	0.73	204.03	120.0	-3,433.5	-0.8	-0.4	-0.7	0.50	436,006.22	773,348.19	
216.0	0.92	202.09	216.0	-3,337.5	-2.1	-0.9	-2.0	0.20	436,004.95	773,347.65	
312.0	0.90	204.37	312.0	-3,241.5	-3.5	-1.5	-3.3	0.04	436,003.55	773,347.05	
408.0	0.71	221.92	408.0	-3,145.5	-4.6	-2.2	-4.3	0.32	436,002.42	773,346.34	
504.0	0.67	242.01	504.0	-3,049.5	-5.3	-3.1	-5.0	0.25	436,001.71	773,345.45	
600.0	0.61	260.47	600.0	-2,953.5	-5.6	-4.1	-5.2	0.22	436,001.36	773,344.45	
696.0	0.61	287.69	695.9	-2,857.6	-5.6	-5.1	-5.1	0.30	436,001.43	773,343.46	
792.0	0.88	302.64	791.9	-2,761.6	-5.0	-6.2	-4.4	0.34	436,001.99	773,342.35	
888.0	1.17	303.53	887.9	-2,665.6	-4.1	-7.7	-3.3	0.30	436,002.92	773,340.91	
1,016.0	1.37	308.92	1,015.9	-2,537.6	-2.4	-9.9	-1.4	0.18	436,004.61	773,338.63	
1,112.0	0.80	309.00	1,111.9	-2,441.6	-1.2	-11.4	-0.2	0.59	436,005.75	773,337.22	
1,193.0	0.65	311.73	1,192.9	-2,360.6	-0.6	-12.1	0.6	0.19	436,006.41	773,336.44	
Rustler											
1,208.0	0.62	312.38	1,207.9	-2,345.6	-0.5	-12.3	0.7	0.19	436,006.52	773,336.31	
1,225.0	0.61	312.63	1,224.9	-2,328.6	-0.4	-12.4	0.8	0.09	436,006.64	773,336.18	
13 3/8"											
1,304.0	0.54	313.99	1,303.9	-2,249.6	0.2	-13.0	1.4	0.09	436,007.19	773,335.60	
1,400.0	0.31	304.20	1,399.9	-2,153.6	0.6	-13.5	1.9	0.25	436,007.65	773,335.06	
1,496.0	0.28	298.18	1,495.9	-2,057.6	0.9	-13.9	2.2	0.04	436,007.90	773,334.64	
1,592.0	0.31	320.73	1,591.9	-1,961.6	1.2	-14.3	2.6	0.12	436,008.22	773,334.27	
1,688.0	0.53	330.73	1,687.9	-1,865.6	1.8	-14.7	3.2	0.24	436,008.80	773,333.89	
1,784.0	0.57	323.22	1,783.8	-1,769.7	2.6	-15.2	4.0	0.09	436,009.57	773,333.39	
1,880.0	0.76	336.32	1,879.8	-1,673.7	3.5	-15.7	5.0	0.25	436,010.54	773,332.85	
1,976.0	0.89	326.39	1,975.8	-1,577.7	4.7	-16.4	6.3	0.20	436,011.74	773,332.18	
2,072.0	0.86	323.18	2,071.8	-1,481.7	5.9	-17.2	7.6	0.06	436,012.94	773,331.33	

Company: Murchison Oil and Gas		Local Co-ordinate Reference:				Site Jackson Unit 18	
Project: Jackson Unit Section 21		TVD Reference:				WELL @ 3553.5usft (Original Well Elev)	
Site: Jackson Unit 18		MD Reference:				WELL @ 3553.5usft (Original Well Elev)	
Well: Jackson Unit 18		North Reference:				Grid	
Wellbore: Jackson Unit 18		Survey Calculation Method:				Minimum Curvature	
Design: Jackson Unit 18		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)	
2,168.0	0.85	328.24	2,167.8	-1,385.7	7.1	-18.0	8.8	0.08	436,014.12	773,330.53	
2,264.0	0.78	333.78	2,263.8	-1,289.7	8.3	-18.7	10.1	0.11	436,015.31	773,329.86	
2,360.0	0.74	316.18	2,359.8	-1,193.7	9.3	-19.4	11.2	0.25	436,016.35	773,329.14	
2,456.0	0.75	323.98	2,455.8	-1,097.7	10.3	-20.2	12.2	0.11	436,017.30	773,328.35	
2,552.0	0.84	319.37	2,551.8	-1,001.7	11.3	-21.1	13.3	0.11	436,018.35	773,327.52	
2,648.0	0.67	306.78	2,647.8	-905.7	12.2	-22.0	14.3	0.25	436,019.22	773,326.61	
2,744.0	0.91	293.31	2,743.8	-809.7	12.9	-23.1	15.0	0.31	436,019.85	773,325.46	
2,840.0	0.55	289.00	2,839.8	-713.7	13.3	-24.3	15.6	0.38	436,020.30	773,324.33	
2,936.0	0.58	285.48	2,935.7	-617.8	13.6	-25.2	15.9	0.05	436,020.58	773,323.42	
3,032.0	0.32	270.15	3,031.7	-521.8	13.7	-25.9	16.1	0.30	436,020.72	773,322.68	
3,128.0	0.26	257.24	3,127.7	-425.8	13.7	-26.4	16.1	0.09	436,020.67	773,322.20	
3,224.0	0.25	233.71	3,223.7	-329.8	13.5	-26.8	16.0	0.11	436,020.50	773,321.82	
3,320.0	0.81	161.00	3,319.7	-233.8	12.7	-26.7	15.2	0.81	436,019.73	773,321.88	
3,416.0	1.08	152.82	3,415.7	-137.8	11.3	-26.1	13.7	0.31	436,018.28	773,322.51	
3,512.0	1.04	155.95	3,511.7	-41.8	9.7	-25.3	12.1	0.07	436,016.68	773,323.28	
3,608.0	0.72	151.19	3,607.7	54.2	8.4	-24.7	10.7	0.34	436,015.36	773,323.92	
3,704.0	1.05	135.96	3,703.7	150.2	7.2	-23.7	9.4	0.42	436,014.20	773,324.83	
3,800.0	1.48	141.93	3,799.7	246.2	5.6	-22.4	7.7	0.47	436,012.59	773,326.20	
3,896.0	1.18	171.78	3,895.6	342.1	3.6	-21.5	5.7	0.77	436,010.64	773,327.11	
3,992.0	1.02	152.07	3,991.6	438.1	1.9	-20.9	3.9	0.43	436,008.90	773,327.65	
4,088.0	0.96	105.77	4,087.6	534.1	0.9	-19.8	2.8	0.81	436,007.93	773,328.82	
4,184.0	0.99	65.59	4,183.6	630.1	1.1	-18.2	2.8	0.70	436,008.05	773,330.35	
4,280.0	1.46	83.40	4,279.6	726.1	1.5	-16.3	3.1	0.62	436,008.54	773,332.32	
4,376.0	2.10	121.99	4,375.5	822.0	0.7	-13.5	2.0	1.38	436,007.74	773,335.03	
4,472.0	2.33	131.31	4,471.5	918.0	-1.5	-10.6	-0.5	0.44	436,005.52	773,337.99	
4,568.0	2.62	130.64	4,567.4	1,013.9	-4.2	-7.5	-3.5	0.30	436,002.81	773,341.12	
4,664.0	3.67	147.31	4,663.2	1,109.7	-8.2	-4.1	-7.8	1.44	435,998.79	773,344.44	

Company: Murchison Oil and Gas		Local Co-ordinate Reference: Site Jackson Unit 18			
Project: Jackson Unit Section 21		TVD Reference: WELL @ 3553.5usft (Original Well Elev)			
Site: Jackson Unit 18		MD Reference: WELL @ 3553.5usft (Original Well Elev)			
Well: Jackson Unit 18		North Reference: Grid			
Wellbore: Jackson Unit 18		Survey Calculation Method: Minimum Curvature			
Design: Jackson Unit 18		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)	
4,760.0	4.35	152.86	4,759.0	1,205.5	-14.0	-0.8	-13.9	0.81	435,992.97	773,347.76	
4,856.0	5.04	159.76	4,854.7	1,301.2	-21.2	2.3	-21.4	0.93	435,985.77	773,350.88	
4,952.0	4.23	154.14	4,950.4	1,396.9	-28.4	5.3	-28.8	0.97	435,978.63	773,353.89	
5,048.0	3.61	154.40	5,046.1	1,492.6	-34.3	8.2	-34.9	0.65	435,972.72	773,356.74	
5,080.0	3.06	156.31	5,078.1	1,524.6	-36.0	8.9	-36.7	1.75	435,971.03	773,357.51	
5,105.0	2.91	143.22	5,103.0	1,549.5	-37.1	9.6	-37.8	2.78	435,969.91	773,358.16	
Delaware											
5,113.0	2.90	138.84	5,111.0	1,557.5	-37.4	9.8	-38.2	2.78	435,969.59	773,358.42	
9 5/8"											
5,164.0	3.20	112.50	5,162.0	1,608.5	-38.9	12.0	-39.9	2.78	435,968.07	773,360.58	
5,260.0	3.30	106.40	5,257.8	1,704.3	-40.7	17.1	-42.2	0.37	435,966.27	773,365.71	
5,357.0	2.40	104.20	5,354.7	1,801.2	-42.0	21.8	-43.9	0.93	435,964.98	773,370.35	
5,451.0	1.90	110.10	5,448.6	1,895.1	-43.0	25.2	-45.2	0.58	435,963.96	773,373.73	
5,548.0	1.30	107.50	5,545.6	1,992.1	-43.9	27.7	-46.4	0.62	435,963.08	773,376.29	
5,644.0	0.40	112.40	5,641.6	2,088.1	-44.4	29.1	-47.0	0.94	435,962.63	773,377.63	
5,741.0	0.40	105.70	5,738.6	2,185.1	-44.6	29.7	-47.2	0.05	435,962.41	773,378.27	
5,837.0	0.40	119.40	5,834.6	2,281.1	-44.9	30.3	-47.5	0.10	435,962.15	773,378.89	
5,933.0	0.30	196.10	5,930.6	2,377.1	-45.3	30.5	-48.0	0.46	435,961.74	773,379.11	
6,029.0	0.50	327.30	6,026.6	2,473.1	-45.1	30.2	-47.8	0.76	435,961.85	773,378.81	
6,117.0	0.77	338.66	6,114.6	2,561.1	-44.3	29.8	-46.9	0.34	435,962.73	773,378.39	
Cherry Canyon											
6,125.0	0.80	339.30	6,122.6	2,569.1	-44.2	29.8	-46.8	0.34	435,962.83	773,378.35	
6,221.0	0.90	341.80	6,218.5	2,665.0	-42.8	29.3	-45.4	0.11	435,964.18	773,377.88	
6,318.0	0.80	336.50	6,315.5	2,762.0	-41.5	28.8	-44.0	0.13	435,965.52	773,377.37	
6,414.0	0.80	318.80	6,411.5	2,858.0	-40.4	28.1	-42.9	0.26	435,966.64	773,376.66	
6,510.0	0.80	316.00	6,507.5	2,954.0	-39.4	27.2	-41.8	0.04	435,967.63	773,375.75	
6,607.0	0.70	336.60	6,604.5	3,051.0	-38.3	26.5	-40.7	0.29	435,968.66	773,375.05	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Site Jackson Unit 18
Project:	Jackson Unit Section 21	TVD Reference:	WELL @ 3553.5usft (Original Well Elev)
Site:	Jackson Unit 18	MD Reference:	WELL @ 3553.5usft (Original Well Elev)
Well:	Jackson Unit 18	North Reference:	Grid
Wellbore:	Jackson Unit 18	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 18	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)
6,703.0	0.60	317.60	6,700.5	3,147.0	-37.4	25.9	-39.7	0.25	435,969.57	773,374.48
6,800.0	0.60	343.00	6,797.5	3,244.0	-36.6	25.4	-38.8	0.27	435,970.43	773,373.99
6,895.0	0.60	335.20	6,892.5	3,339.0	-35.6	25.1	-37.9	0.09	435,971.36	773,373.63
6,991.0	0.60	308.40	6,988.5	3,435.0	-34.9	24.5	-37.1	0.29	435,972.12	773,373.03
7,087.0	0.50	304.60	7,084.5	3,531.0	-34.3	23.7	-36.4	0.11	435,972.67	773,372.29
7,183.0	0.40	321.00	7,180.5	3,627.0	-33.8	23.2	-35.9	0.17	435,973.17	773,371.73
7,280.0	0.50	309.70	7,277.5	3,724.0	-33.3	22.6	-35.3	0.14	435,973.71	773,371.19
7,376.0	0.50	268.00	7,373.5	3,820.0	-33.0	21.9	-35.0	0.37	435,973.96	773,370.45
7,473.0	1.60	278.40	7,470.5	3,917.0	-32.9	20.1	-34.6	1.15	435,974.14	773,368.69
7,556.0	3.06	266.31	7,553.4	3,999.9	-32.8	16.8	-34.3	1.85	435,974.17	773,365.33
Brushy Canyon										
7,569.0	3.30	265.40	7,566.4	4,012.9	-32.9	16.0	-34.3	1.85	435,974.12	773,364.61
7,663.0	4.30	261.80	7,660.2	4,106.7	-33.6	9.8	-34.4	1.09	435,973.40	773,358.43
7,727.0	5.00	263.50	7,723.9	4,170.4	-34.3	4.7	-34.6	1.11	435,972.74	773,353.28
7,759.0	5.10	263.20	7,755.8	4,202.3	-34.6	1.9	-34.6	0.32	435,972.41	773,350.48
7,854.0	6.80	275.10	7,850.3	4,296.8	-34.6	-7.9	-33.7	2.20	435,972.41	773,340.69
7,950.0	7.70	275.30	7,945.5	4,392.0	-33.5	-20.0	-31.4	0.94	435,973.51	773,328.62
8,046.0	9.30	274.00	8,040.5	4,487.0	-32.4	-34.1	-28.9	1.68	435,974.65	773,314.48
8,142.0	9.50	276.10	8,135.2	4,581.7	-31.0	-49.7	-26.1	0.41	435,976.03	773,298.86
8,183.0	9.80	277.20	8,175.6	4,622.1	-30.2	-56.5	-24.6	0.86	435,976.83	773,292.04
8,206.0	10.30	278.30	8,198.3	4,644.8	-29.6	-60.5	-23.7	2.33	435,977.37	773,288.06
8,238.0	10.80	276.30	8,229.7	4,676.2	-28.9	-66.3	-22.4	1.94	435,978.11	773,282.25
8,270.0	11.50	275.20	8,261.1	4,707.6	-28.3	-72.5	-21.2	2.29	435,978.73	773,276.09
8,303.0	12.00	275.50	8,293.4	4,739.9	-27.6	-79.2	-19.9	1.53	435,979.36	773,269.40
8,335.0	11.90	271.90	8,324.7	4,771.2	-27.2	-85.8	-18.9	2.35	435,979.78	773,262.79
8,368.0	11.30	268.80	8,357.1	4,803.6	-27.2	-92.4	-18.2	2.62	435,979.83	773,256.16
8,400.0	11.20	266.50	8,388.4	4,834.9	-27.4	-98.7	-17.8	1.44	435,979.57	773,249.92

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Site Jackson Unit 18
Project:	Jackson Unit Section 21	TVD Reference:	WELL @ 3553.5usft (Original Well Elev)
Site:	Jackson Unit 18	MD Reference:	WELL @ 3553.5usft (Original Well Elev)
Well:	Jackson Unit 18	North Reference:	Grid
Wellbore:	Jackson Unit 18	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 18	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)	
8,415.0	11.30	266.30	8,403.2	4,849.7	-27.6	-101.6	-17.7	0.72	435,979.39	773,247.00	
8,454.0	10.60	263.50	8,441.4	4,887.9	-28.3	-109.0	-17.7	2.25	435,978.74	773,239.62	
8,486.0	10.20	258.80	8,472.9	4,919.4	-29.1	-114.7	-18.0	2.93	435,977.85	773,233.92	
8,519.0	10.40	254.00	8,505.4	4,951.9	-30.5	-120.4	-18.9	2.67	435,976.47	773,228.19	
8,551.0	10.90	249.30	8,536.8	4,983.3	-32.4	-126.0	-20.2	3.13	435,974.60	773,222.58	
8,583.0	11.10	244.30	8,568.2	5,014.7	-34.8	-131.6	-22.0	3.05	435,972.19	773,216.98	
8,616.0	11.40	240.40	8,600.6	5,047.1	-37.8	-137.3	-24.5	2.48	435,969.21	773,211.28	
8,649.0	11.70	236.30	8,632.9	5,079.4	-41.3	-142.9	-27.4	2.65	435,965.74	773,205.66	
8,681.0	12.40	230.60	8,664.2	5,110.7	-45.2	-148.3	-30.8	4.31	435,961.76	773,200.31	
8,746.0	12.20	228.50	8,727.8	5,174.3	-54.2	-158.8	-38.8	0.75	435,952.78	773,189.77	
8,811.0	12.00	228.20	8,791.3	5,237.8	-63.3	-169.0	-46.8	0.32	435,943.72	773,179.59	
8,843.0	12.10	230.00	8,822.6	5,269.1	-67.7	-174.0	-50.7	1.22	435,939.35	773,174.54	
8,907.0	12.00	229.10	8,885.2	5,331.7	-76.3	-184.2	-58.3	0.33	435,930.68	773,164.37	
8,940.0	11.90	230.30	8,917.5	5,364.0	-80.7	-189.4	-62.2	0.81	435,926.26	773,159.16	
9,004.0	11.50	231.40	8,980.1	5,426.6	-88.9	-199.5	-69.4	0.72	435,918.07	773,149.10	
9,037.0	11.50	234.10	9,012.5	5,459.0	-92.9	-204.7	-72.9	1.63	435,914.08	773,143.86	
9,069.0	12.00	239.60	9,043.8	5,490.3	-96.5	-210.2	-75.9	3.83	435,910.53	773,138.41	
9,077.0	11.95	240.07	9,051.6	5,498.1	-97.3	-211.6	-76.6	1.37	435,909.70	773,136.97	
Bone Spring											
9,134.0	11.60	243.50	9,107.4	5,553.9	-102.8	-221.8	-81.1	1.37	435,904.20	773,126.73	
9,199.0	11.30	244.40	9,171.1	5,617.6	-108.5	-233.4	-85.6	0.54	435,898.53	773,115.14	
9,210.0	11.16	244.64	9,181.9	5,628.4	-109.4	-235.4	-86.3	1.32	435,897.61	773,113.21	
Avalon Shale											
9,231.0	10.90	245.10	9,202.6	5,649.1	-111.1	-239.0	-87.7	1.32	435,895.90	773,109.57	
9,329.0	9.00	246.80	9,299.1	5,745.6	-118.0	-254.5	-93.1	1.96	435,888.98	773,094.12	
9,361.0	8.90	246.90	9,330.7	5,777.2	-120.0	-259.0	-94.6	0.32	435,887.02	773,089.54	
9,426.0	8.80	248.10	9,394.9	5,841.4	-123.8	-268.3	-97.5	0.32	435,883.19	773,080.30	

Company: Murchison Oil and Gas		Local Co-ordinate Reference: Site Jackson Unit 18	
Project: Jackson Unit Section 21		TVD Reference: WELL @ 3553.5usft (Original Well Elev)	
Site: Jackson Unit 18		MD Reference: WELL @ 3553.5usft (Original Well Elev)	
Well: Jackson Unit 18		North Reference: Grid	
Wellbore: Jackson Unit 18		Survey Calculation Method: Minimum Curvature	
Design: Jackson Unit 18		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)
9,458.0	9.10	246.20	9,426.5	5,873.0	-125.7	-272.9	-99.0	1.32	435,881.26	773,075.72
9,491.0	9.80	243.80	9,459.1	5,905.6	-128.0	-277.8	-100.8	2.43	435,878.97	773,070.81
9,523.0	9.90	244.90	9,490.6	5,937.1	-130.4	-282.7	-102.7	0.67	435,876.60	773,065.87
9,588.0	9.20	245.80	9,554.7	6,001.2	-134.9	-292.5	-106.2	1.10	435,872.10	773,056.07
9,620.0	8.60	245.00	9,586.3	6,032.8	-137.0	-297.0	-107.9	1.91	435,870.04	773,051.57
9,652.0	7.90	241.90	9,618.0	6,064.5	-139.0	-301.1	-109.5	2.59	435,867.99	773,047.46
9,685.0	7.60	241.70	9,650.7	6,097.2	-141.1	-305.0	-111.2	0.91	435,865.89	773,043.54
9,717.0	7.60	247.20	9,682.4	6,128.9	-142.9	-308.8	-112.7	2.27	435,864.06	773,039.73
9,750.0	7.10	253.00	9,715.1	6,161.6	-144.4	-312.8	-113.7	2.71	435,862.62	773,035.77
9,782.0	6.80	256.00	9,746.9	6,193.4	-145.4	-316.5	-114.4	1.47	435,861.59	773,032.04
9,814.0	7.40	263.10	9,778.6	6,225.1	-146.1	-320.4	-114.7	3.32	435,860.88	773,028.15
9,846.0	8.20	269.10	9,810.4	6,256.9	-146.4	-324.8	-114.6	3.56	435,860.60	773,023.82
9,879.0	8.30	273.10	9,843.0	6,289.5	-146.3	-329.5	-114.1	1.77	435,860.69	773,019.09
9,911.0	7.70	277.10	9,874.7	6,321.2	-145.9	-333.9	-113.2	2.56	435,861.08	773,014.66
9,943.0	7.10	285.30	9,906.4	6,352.9	-145.1	-338.0	-112.1	3.79	435,861.86	773,010.62
9,976.0	6.60	291.00	9,939.2	6,385.7	-143.9	-341.7	-110.5	2.56	435,863.08	773,006.89
10,008.0	8.00	294.40	9,970.9	6,417.4	-142.3	-345.4	-108.6	4.58	435,864.66	773,003.14
10,041.0	10.20	298.10	10,003.5	6,450.0	-140.0	-350.1	-105.8	6.90	435,866.99	772,998.47
10,073.0	11.80	306.20	10,034.9	6,481.4	-136.7	-355.2	-102.1	6.94	435,870.25	772,993.33
10,105.0	13.20	309.20	10,066.2	6,512.7	-132.5	-360.7	-97.3	4.82	435,874.50	772,987.86
10,116.0	13.74	310.71	10,076.9	6,523.4	-130.9	-362.7	-95.5	5.88	435,876.14	772,985.90
1st Bone Spring Sand										
10,137.0	14.80	313.30	10,097.2	6,543.7	-127.4	-366.5	-91.7	5.88	435,879.61	772,982.05
10,170.0	16.20	317.80	10,129.0	6,575.5	-121.1	-372.7	-84.8	5.59	435,885.91	772,975.89
10,202.0	17.20	322.60	10,159.7	6,606.2	-114.0	-378.6	-77.2	5.32	435,892.98	772,970.02
10,234.0	17.50	326.40	10,190.2	6,636.7	-106.3	-384.1	-69.0	3.66	435,900.74	772,964.48
10,267.0	17.80	330.90	10,221.7	6,668.2	-97.7	-389.3	-60.0	4.23	435,909.28	772,959.29

Company: Murchison Oil and Gas		Local Co-ordinate Reference:						Site Jackson Unit 18		
Project: Jackson Unit Section 21		TVD Reference:						WELL @ 3553.5usft (Original Well Elev)		
Site: Jackson Unit 18		MD Reference:						WELL @ 3553.5usft (Original Well Elev)		
Well: Jackson Unit 18		North Reference:						Grid		
Wellbore: Jackson Unit 18		Survey Calculation Method:						Minimum Curvature		
Design: Jackson Unit 18		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)	
10,299.0	17.80	334.40	10,252.1	6,698.6	-89.0	-393.8	-50.9	3.34	435,917.97	772,954.79	
10,331.0	18.90	337.30	10,282.5	6,729.0	-79.8	-397.9	-41.3	4.47	435,927.16	772,950.68	
10,363.0	20.90	340.30	10,312.6	6,759.1	-69.7	-401.8	-30.9	7.02	435,937.32	772,946.76	
10,395.0	22.00	342.90	10,342.4	6,788.9	-58.6	-405.5	-19.4	4.54	435,948.42	772,943.07	
10,427.0	21.60	345.10	10,372.1	6,818.6	-47.2	-408.8	-7.8	2.84	435,959.84	772,939.79	
10,460.0	21.40	346.60	10,402.8	6,849.3	-35.4	-411.7	4.2	1.77	435,971.57	772,936.83	
10,492.0	21.90	348.40	10,432.5	6,879.0	-23.9	-414.3	15.9	2.60	435,983.09	772,934.28	
10,525.0	22.20	351.20	10,463.1	6,909.6	-11.7	-416.5	28.3	3.31	435,995.28	772,932.09	
10,557.0	22.40	353.70	10,492.7	6,939.2	0.3	-418.1	40.4	3.03	436,007.32	772,930.50	
10,589.0	22.20	358.20	10,522.3	6,968.8	12.4	-418.9	52.5	5.37	436,019.42	772,929.64	
10,622.0	22.60	0.50	10,552.9	6,999.4	25.0	-419.1	65.0	2.92	436,031.99	772,929.50	
10,654.0	23.30	358.80	10,582.3	7,028.8	37.5	-419.2	77.5	3.01	436,044.47	772,929.42	
10,686.0	23.40	358.30	10,611.7	7,058.2	50.1	-419.5	90.1	0.69	436,057.15	772,929.10	
10,718.0	22.10	1.30	10,641.2	7,087.7	62.5	-419.5	102.4	5.44	436,069.52	772,929.04	
10,751.0	21.20	4.00	10,671.9	7,118.4	74.7	-419.0	114.5	4.07	436,081.68	772,929.60	
10,783.0	22.60	5.60	10,701.6	7,148.1	86.6	-418.0	126.2	4.76	436,093.57	772,930.61	
10,798.0	23.15	5.79	10,715.4	7,161.9	92.4	-417.4	132.0	3.67	436,099.37	772,931.18	
2nd Bone Spring Sand											
10,816.0	23.80	6.00	10,731.9	7,178.4	99.5	-416.7	139.0	3.67	436,106.50	772,931.92	
10,848.0	23.90	5.90	10,761.2	7,207.7	112.4	-415.3	151.7	0.34	436,119.37	772,933.26	
10,880.0	23.70	5.50	10,790.5	7,237.0	125.2	-414.0	164.3	0.80	436,132.22	772,934.54	
10,913.0	24.30	4.90	10,820.6	7,267.1	138.6	-412.8	177.5	1.96	436,145.59	772,935.76	
10,945.0	24.30	4.20	10,849.8	7,296.3	151.7	-411.8	190.5	0.90	436,158.71	772,936.80	
10,963.0	24.25	4.09	10,866.2	7,312.7	159.1	-411.2	197.8	0.39	436,166.10	772,937.34	
7"											
10,978.0	24.20	4.00	10,879.9	7,326.4	165.2	-410.8	203.8	0.39	436,172.23	772,937.77	
11,037.0	24.60	3.70	10,933.6	7,380.1	189.6	-409.2	227.9	0.71	436,196.55	772,939.41	

Company: Murchison Oil and Gas			Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:					Site Jackson Unit 18 WELL @ 3553.5usft (Original Well Elev) WELL @ 3553.5usft (Original Well Elev) Grid Minimum Curvature EDM 5000.1 Single User Db			
Project: Jackson Unit Section 21											
Site: Jackson Unit 18											
Well: Jackson Unit 18											
Wellbore: Jackson Unit 18											
Design: Jackson Unit 18											
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)	
11,070.0	28.90	2.00	10,963.0	7,409.5	204.4	-408.4	242.6	13.23	436,211.38	772,940.13	
11,102.0	34.10	0.90	10,990.3	7,436.8	221.1	-408.0	259.2	16.35	436,228.09	772,940.54	
11,135.0	39.30	0.90	11,016.8	7,463.3	240.8	-407.7	278.8	15.76	436,247.80	772,940.85	
11,167.0	44.40	2.10	11,040.6	7,487.1	262.1	-407.2	300.0	16.13	436,269.14	772,941.42	
11,232.0	55.00	2.10	11,082.6	7,529.1	311.6	-405.3	349.0	16.31	436,318.61	772,943.24	
11,264.0	61.20	1.80	11,099.5	7,546.0	338.7	-404.4	375.9	19.39	436,345.75	772,944.16	
11,318.0	72.10	2.80	11,120.9	7,567.4	388.2	-402.4	425.0	20.26	436,395.21	772,946.16	
11,362.0	81.50	4.10	11,130.9	7,577.4	430.9	-399.8	467.3	21.56	436,437.92	772,948.75	
11,394.0	89.60	3.30	11,133.4	7,579.9	462.7	-397.8	498.7	25.43	436,469.73	772,950.80	
11,427.0	91.00	2.00	11,133.2	7,579.7	495.7	-396.2	531.4	5.79	436,502.69	772,952.33	
11,459.0	89.80	0.10	11,133.0	7,579.5	527.7	-395.7	563.2	7.02	436,534.68	772,952.91	
11,492.0	90.10	0.50	11,133.0	7,579.5	560.7	-395.5	596.0	1.52	436,567.68	772,953.09	
11,524.0	91.70	0.00	11,132.5	7,579.0	592.7	-395.3	627.8	5.24	436,599.68	772,953.23	
11,557.0	92.00	0.00	11,131.4	7,577.9	625.7	-395.3	660.7	0.91	436,632.66	772,953.23	
11,654.0	91.60	359.70	11,128.4	7,574.9	722.6	-395.6	757.2	0.52	436,729.61	772,952.97	
11,752.0	92.60	0.00	11,124.8	7,571.3	820.5	-395.9	854.7	1.07	436,827.54	772,952.72	
11,850.0	91.60	0.40	11,121.2	7,567.7	918.5	-395.5	952.2	1.10	436,925.48	772,953.06	
11,948.0	90.90	359.90	11,119.1	7,565.6	1,016.5	-395.3	1,049.7	0.88	437,023.45	772,953.31	
12,047.0	90.40	358.00	11,117.9	7,564.4	1,115.4	-397.1	1,148.3	1.98	437,122.42	772,951.50	
12,112.0	90.80	357.70	11,117.3	7,563.8	1,180.4	-399.5	1,213.2	0.77	437,187.37	772,949.06	
12,144.0	90.50	357.40	11,116.9	7,563.4	1,212.3	-400.9	1,245.2	1.33	437,219.34	772,947.69	
12,242.0	90.80	356.80	11,115.8	7,562.3	1,310.2	-405.8	1,343.1	0.68	437,317.21	772,942.74	
12,339.0	91.10	357.30	11,114.2	7,560.7	1,407.1	-410.8	1,440.0	0.60	437,414.07	772,937.75	
12,437.0	89.70	356.70	11,113.5	7,560.0	1,504.9	-416.0	1,537.9	1.55	437,511.93	772,932.62	
12,535.0	89.50	358.90	11,114.2	7,560.7	1,602.8	-419.7	1,635.7	2.25	437,609.85	772,928.85	
12,632.0	91.30	359.70	11,113.5	7,560.0	1,699.8	-420.9	1,732.3	2.03	437,706.83	772,927.67	
12,728.0	90.10	359.90	11,112.3	7,558.8	1,795.8	-421.2	1,827.9	1.27	437,802.82	772,927.33	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Site Jackson Unit 18
Project:	Jackson Unit Section 21	TVD Reference:	WELL @ 3553.5usft (Original Well Elev)
Site:	Jackson Unit 18	MD Reference:	WELL @ 3553.5usft (Original Well Elev)
Well:	Jackson Unit 18	North Reference:	Grid
Wellbore:	Jackson Unit 18	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 18	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)
12,825.0	89.80	359.50	11,112.4	7,558.9	1,892.8	-421.7	1,924.5	0.52	437,899.82	772,926.83
12,890.0	91.10	359.90	11,111.9	7,558.4	1,957.8	-422.1	1,989.3	2.09	437,964.82	772,926.49
12,921.0	91.10	359.30	11,111.3	7,557.8	1,988.8	-422.3	2,020.1	1.94	437,995.81	772,926.27
12,952.0	91.90	0.10	11,110.5	7,557.0	2,019.8	-422.5	2,051.0	3.65	438,026.80	772,926.11
12,985.0	92.10	0.90	11,109.3	7,555.8	2,052.8	-422.2	2,083.8	2.50	438,059.78	772,926.40
13,017.0	93.40	2.30	11,107.8	7,554.3	2,084.7	-421.3	2,115.5	5.97	438,091.73	772,927.29
13,081.0	93.40	2.10	11,104.0	7,550.5	2,148.6	-418.8	2,178.8	0.31	438,155.57	772,929.74
13,113.0	93.60	1.80	11,102.1	7,548.6	2,180.5	-417.7	2,210.5	1.13	438,187.49	772,930.83
13,177.0	92.80	2.60	11,098.5	7,545.0	2,244.3	-415.3	2,273.8	1.77	438,251.34	772,933.28
13,209.0	92.40	2.60	11,097.0	7,543.5	2,276.3	-413.8	2,305.5	1.25	438,283.27	772,934.73
13,271.0	90.70	2.20	11,095.4	7,541.9	2,338.2	-411.2	2,366.8	2.82	438,345.20	772,937.33
13,304.0	90.60	1.90	11,095.0	7,541.5	2,371.2	-410.1	2,399.6	0.96	438,378.17	772,938.51
13,367.0	91.30	2.00	11,093.9	7,540.4	2,434.1	-407.9	2,462.0	1.12	438,441.13	772,940.65
13,400.0	91.10	1.50	11,093.3	7,539.8	2,467.1	-406.9	2,494.7	1.63	438,474.10	772,941.66
13,496.0	90.90	1.60	11,091.6	7,538.1	2,563.1	-404.3	2,590.0	0.23	438,570.05	772,944.25
13,560.0	91.70	2.60	11,090.1	7,536.6	2,627.0	-402.0	2,653.4	2.00	438,633.99	772,946.60
13,594.0	91.50	1.70	11,089.2	7,535.7	2,661.0	-400.7	2,687.1	2.71	438,667.96	772,947.87
13,690.0	89.80	1.90	11,088.1	7,534.6	2,756.9	-397.7	2,782.3	1.78	438,763.90	772,950.89
13,786.0	89.20	1.60	11,088.9	7,535.4	2,852.8	-394.8	2,877.6	0.70	438,859.85	772,953.82
13,883.0	89.30	2.00	11,090.2	7,536.7	2,949.8	-391.7	2,973.8	0.43	438,956.79	772,956.87
13,981.0	89.80	1.00	11,091.0	7,537.5	3,047.8	-389.1	3,071.0	1.14	439,054.75	772,959.43
14,078.0	90.10	1.00	11,091.0	7,537.5	3,144.7	-387.5	3,167.4	0.31	439,151.74	772,961.12
14,175.0	90.20	0.90	11,090.8	7,537.3	3,241.7	-385.8	3,263.8	0.15	439,248.73	772,962.73
14,270.0	89.40	0.60	11,091.1	7,537.6	3,336.7	-384.6	3,358.2	0.90	439,343.72	772,963.98
14,367.0	90.30	0.40	11,091.4	7,537.9	3,433.7	-383.8	3,454.7	0.95	439,440.71	772,964.82
14,463.0	89.00	0.10	11,092.0	7,538.5	3,529.7	-383.3	3,550.2	1.39	439,536.71	772,965.24
14,560.0	90.10	359.70	11,092.7	7,539.2	3,626.7	-383.5	3,646.8	1.21	439,633.70	772,965.07

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Site Jackson Unit 18
Project:	Jackson Unit Section 21	TVD Reference:	WELL @ 3553.5usft (Original Well Elev)
Site:	Jackson Unit 18	MD Reference:	WELL @ 3553.5usft (Original Well Elev)
Well:	Jackson Unit 18	North Reference:	Grid
Wellbore:	Jackson Unit 18	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 18	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)
14,624.0	89.80	359.70	11,092.8	7,539.3	3,690.7	-383.8	3,710.5	0.47	439,697.70	772,964.74
14,656.0	89.80	359.90	11,092.9	7,539.4	3,722.7	-384.0	3,742.4	0.62	439,729.70	772,964.62
14,720.0	91.10	359.70	11,092.4	7,538.9	3,786.7	-384.2	3,806.1	2.06	439,793.70	772,964.40
14,752.0	91.20	359.70	11,091.8	7,538.3	3,818.7	-384.3	3,837.9	0.31	439,825.69	772,964.23
14,848.0	90.90	359.40	11,090.0	7,536.5	3,914.7	-385.1	3,933.6	0.44	439,921.67	772,963.48
14,944.0	91.00	359.60	11,088.4	7,534.9	4,010.7	-385.9	4,029.2	0.23	440,017.65	772,962.64
15,041.0	91.40	359.30	11,086.4	7,532.9	4,107.6	-386.9	4,125.8	0.52	440,114.63	772,961.71
15,137.0	91.30	359.30	11,084.1	7,530.6	4,203.6	-388.0	4,221.4	0.10	440,210.59	772,960.54
15,234.0	91.30	359.80	11,081.9	7,528.4	4,300.6	-388.8	4,318.0	0.52	440,307.57	772,959.78
15,330.0	91.60	359.00	11,079.5	7,526.0	4,396.5	-389.8	4,413.6	0.89	440,403.53	772,958.77
15,426.0	90.20	359.00	11,078.0	7,524.5	4,492.5	-391.5	4,509.3	1.46	440,499.50	772,957.10
15,522.0	89.80	358.50	11,078.0	7,524.5	4,588.5	-393.6	4,605.1	0.67	440,595.48	772,955.00
15,619.0	89.70	358.00	11,078.4	7,524.9	4,685.4	-396.5	4,701.9	0.53	440,692.43	772,952.04
15,660.0	89.85	357.55	11,078.6	7,525.1	4,726.4	-398.1	4,742.8	1.15	440,733.40	772,950.45
4 1/2"										
15,674.0	89.90	357.40	11,078.6	7,525.1	4,740.4	-398.7	4,756.8	1.15	440,747.38	772,949.83

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,225.0	1,224.9	13 3/8"	13-3/8	17-1/2
5,113.0	5,111.0	9 5/8"	9-5/8	12-1/4
10,963.0	10,866.2	7"	7	7-1/2
15,660.0	11,078.6	4 1/2"	5-1/2	6

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Site Jackson Unit 18
Project:	Jackson Unit Section 21	TVD Reference:	WELL @ 3553.5usft (Original Well Elev)
Site:	Jackson Unit 18	MD Reference:	WELL @ 3553.5usft (Original Well Elev)
Well:	Jackson Unit 18	North Reference:	Grid
Wellbore:	Jackson Unit 18	Survey Calculation Method:	Minimum Curvature
Design:	Jackson Unit 18	Database:	EDM 5000.1 Single User Db

Formations				
Measured Depth (usft)	Vertical Depth (usft)	Name	Dip (°)	
9,210.0	9,181.9	Avalon Shale	0.00	
5,105.0	5,103.0	Delaware	0.00	
9,077.0	9,051.6	Bone Spring	0.00	
7,556.0	7,553.4	Brushy Canyon	0.00	
10,116.0	10,076.9	1st Bone Spring Sand	0.00	
1,193.0	1,192.9	Rustler	0.00	
6,117.0	6,114.6	Cherry Canyon	0.00	
10,798.0	10,715.4	2nd Bone Spring Sand	0.00	

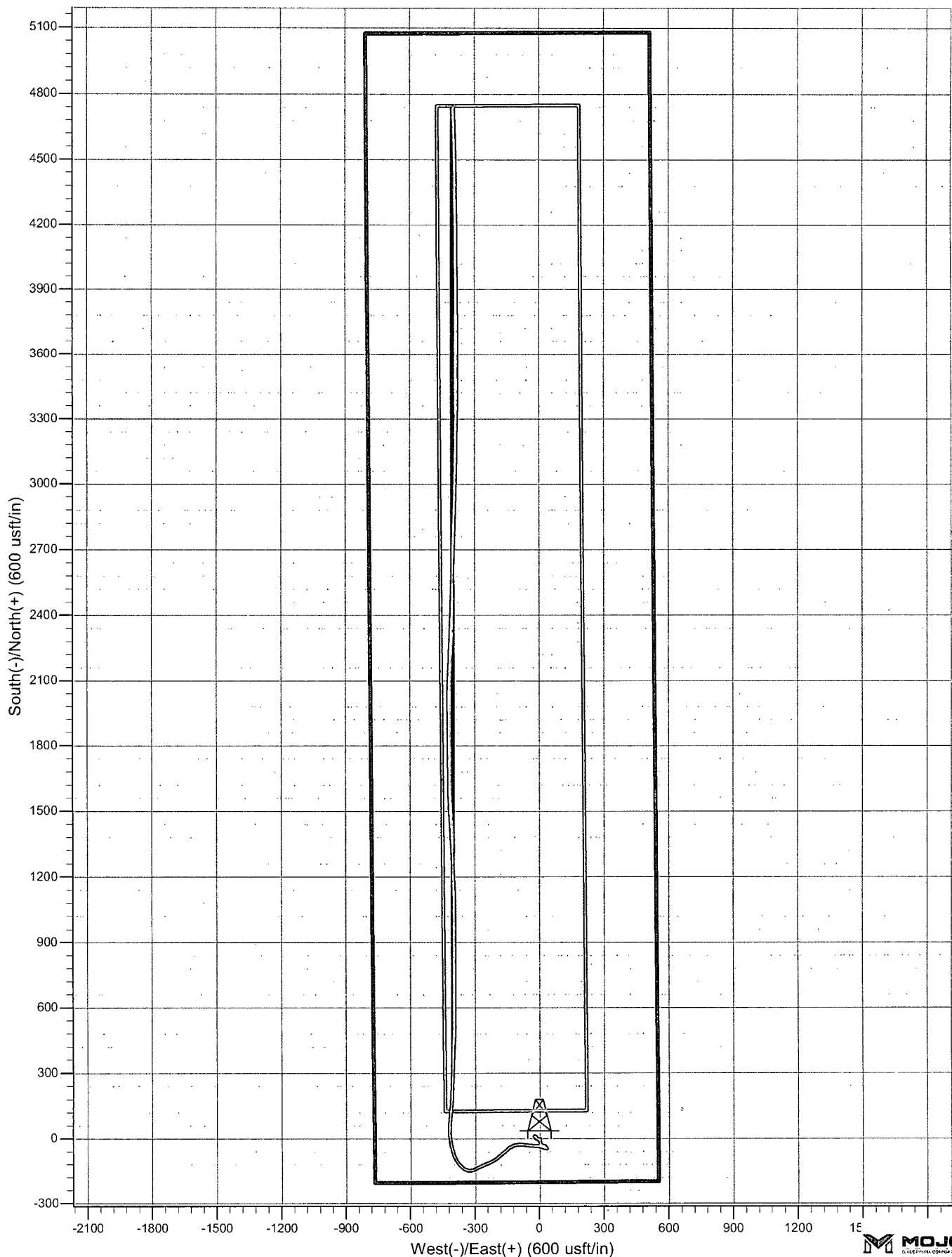
Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,674.0	11,078.6	4,740.4	-398.7	Projection to Bit

Checked By: _____	Approved By: 	Date: 07/02/2013
-------------------	---	------------------

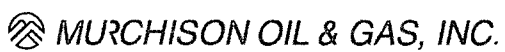
Project: Jackson Unit Section 21
Site: Jackson Unit 18
Well: Jackson Unit 18
Wellbore: Jackson Unit 18
Design: Jackson Unit 18



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.99°
Magnetic Field
Strength: 48435.4 nT
Dip Angle: 60.12°
Date: 28/01/2013
Model: IGRF2010



Project: Jackson Unit Section 21
Site: Jackson Unit 18
Well: Jackson Unit 18
Wellbore: Jackson Unit 18
Design: Jackson Unit 18



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.99°

Magnetic Field
Strength: 48435.4nT
Dip Angle: 60.12°
Date: 28/01/2013
Model: IGRF2010

