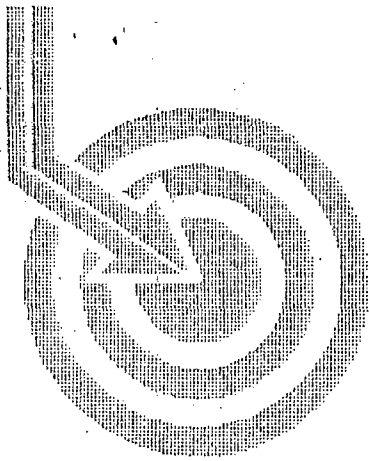




Scientific Drilling

MURCHISON OIL & GAS

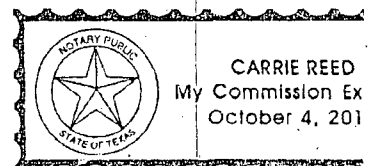
Field: Dog Canyon
Site: Eddy County, NM
Well: Carbon Valley 31 Federal Com #1H
Wellpath: VH - Job #32K0610420
Survey: 06/05/10

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

Richardson
Company Representative

Notarized this date 26th of July, 2010.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International, Inc.

Survey Report

Company: MURCHISON OIL & GAS
Field: Dog Canyon
Site: Eddy County, NM
Well: Carbon Valley 31 Federal Com #
Wellpath: VH - Job #32K0610420

Date: 6/14/2010 Time: 14:56:52 Page: 1
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,269.65Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 06/05/10 Start Date: 6/5/2010
KSRG 0'-6110'
Company: Scientific Drilling Internatio Engineer: Garza/Williams/Lopez
Tool: Keeper, Keeper Gyro Tied-to: From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00
100.0	0.15	67.88	100.0	-0.1	0.0	0.1	0.15	0.1	67.88
200.0	0.31	111.30	200.0	-0.5	0.0	0.5	0.23	0.5	89.96
300.0	0.09	200.22	300.0	-0.7	-0.2	0.7	0.32	0.7	103.42
400.0	0.10	47.80	400.0	-0.8	-0.2	0.8	0.18	0.8	103.86
500.0	0.10	216.04	500.0	-0.8	-0.2	0.8	0.20	0.8	104.46
600.0	0.19	228.13	600.0	-0.6	-0.4	0.6	0.09	0.7	122.54
700.0	0.15	261.53	700.0	-0.3	-0.5	0.3	0.10	0.6	146.11
800.0	0.17	248.53	800.0	-0.1	-0.6	0.1	0.04	0.6	172.68
900.0	0.26	298.91	900.0	0.3	-0.5	-0.3	0.20	0.6	206.36
1000.0	0.18	278.57	1000.0	0.6	-0.4	-0.6	0.11	0.7	237.32
1100.0	0.38	325.47	1100.0	1.0	-0.1	-1.0	0.29	1.0	264.14
1200.0	0.33	312.01	1200.0	1.4	0.4	-1.4	0.10	1.4	285.11
1300.0	0.32	297.86	1300.0	1.8	0.7	-1.8	0.08	1.9	290.77
1400.0	0.32	281.71	1400.0	2.3	0.9	-2.3	0.09	2.5	290.55
1500.0	0.43	271.01	1500.0	3.0	0.9	-3.0	0.13	3.1	287.47
1600.0	0.42	266.30	1600.0	3.7	0.9	-3.7	0.04	3.8	283.91
1700.0	0.91	261.35	1700.0	4.9	0.8	-4.9	0.49	4.9	279.09
1800.0	1.31	260.00	1800.0	6.8	0.5	-6.8	0.40	6.8	273.90
1900.0	1.26	258.06	1899.9	9.0	0.0	-9.0	0.07	9.0	270.24
2000.0	1.27	254.96	1999.9	11.1	-0.5	-11.1	0.07	11.2	267.54
2100.0	0.94	252.69	2099.9	13.0	-1.0	-13.0	0.33	13.0	265.56
2200.0	0.75	258.92	2199.9	14.4	-1.4	-14.4	0.21	14.5	264.54
2300.0	0.84	262.69	2299.9	15.8	-1.6	-15.8	0.10	15.9	264.22
2400.0	0.76	262.88	2399.9	17.2	-1.8	-17.2	0.08	17.3	264.10
2500.0	0.76	263.13	2499.9	18.5	-1.9	-18.5	0.00	18.6	264.02
2600.0	0.73	259.10	2599.8	19.8	-2.1	-19.8	0.06	19.9	263.84
2700.0	0.56	236.94	2699.8	20.8	-2.5	-20.8	0.30	21.0	263.09
2800.0	0.64	231.20	2799.8	21.7	-3.1	-21.7	0.10	21.9	261.75
2900.0	0.59	226.28	2899.8	22.5	-3.8	-22.5	0.07	22.8	260.29
3000.0	0.56	226.60	2999.8	23.2	-4.5	-23.2	0.03	23.6	258.93
3100.0	0.54	210.49	3099.8	23.8	-5.3	-23.8	0.16	24.4	257.49
3200.0	0.52	220.34	3199.8	24.4	-6.0	-24.3	0.09	25.1	256.07
3300.0	0.60	205.48	3299.8	24.9	-6.8	-24.8	0.17	25.8	254.58
3400.0	0.28	196.63	3399.8	25.2	-7.6	-25.1	0.33	26.2	253.27
3500.0	0.57	185.28	3499.8	25.3	-8.3	-25.2	0.30	26.6	251.83
3600.0	0.37	185.04	3599.8	25.4	-9.1	-25.3	0.20	26.9	250.23
3700.0	0.52	202.59	3699.8	25.6	-9.8	-25.5	0.20	27.4	248.91
3800.0	0.42	210.77	3799.8	25.9	-10.6	-25.9	0.12	28.0	247.78
3900.0	0.17	222.02	3899.8	26.2	-11.0	-26.2	0.26	28.4	247.20
4000.0	0.11	193.89	3999.8	26.4	-11.2	-26.3	0.09	28.6	246.92
4100.0	0.07	39.29	4099.8	26.3	-11.3	-26.3	0.18	28.6	246.82
4200.0	0.19	50.50	4199.8	26.2	-11.1	-26.1	0.12	28.4	246.97
4300.0	0.06	314.63	4299.8	26.1	-11.0	-26.0	0.21	28.2	247.17
4400.0	0.17	238.35	4399.8	26.3	-11.0	-26.2	0.17	28.4	247.22
4500.0	0.20	243.22	4499.8	26.5	-11.2	-26.5	0.03	28.7	247.15
4600.0	0.27	232.77	4599.8	26.9	-11.4	-26.8	0.08	29.1	247.01
4700.0	0.26	223.68	4699.8	27.2	-11.7	-27.2	0.04	29.6	246.72
4800.0	0.07	306.76	4799.8	27.4	-11.8	-27.4	0.26	29.8	246.65



Scientific Drilling International, Inc.

Survey Report

Company: MURCHISON OIL & GAS	Date: 6/14/2010	Time: 14:56:52	Page: 2
Field: Dog Canyon	Co-ordinate(NF) Reference:	Site: Eddy County, NM, Grid North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: Carbon Valley 31 Federal Com #	Section (VS) Reference:	Well (0.00N,0.00E,269.65Azi)	
Wellpath: VH - Job #32K0610420	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.0	0.08	297.18	4899.8	27.5	-11.7	-27.5	0.02	29.9	246.86
5000.0	0.11	291.31	4999.8	27.7	-11.7	-27.6	0.03	30.0	247.09
5100.0	0.17	263.76	5099.8	27.9	-11.7	-27.9	0.09	30.2	247.30
5200.0	0.23	178.55	5199.8	28.1	-11.9	-28.0	0.27	30.4	247.03
5300.0	0.41	141.19	5299.8	27.8	-12.4	-27.8	0.27	30.4	246.02
5400.0	0.32	147.69	5399.8	27.5	-12.9	-27.4	0.10	30.3	244.85
5500.0	0.31	148.01	5499.8	27.2	-13.3	-27.1	0.01	30.2	243.81
5600.0	0.39	149.74	5599.8	26.9	-13.9	-26.8	0.08	30.2	242.66
5700.0	0.53	95.37	5699.8	26.2	-14.2	-26.2	0.44	29.8	241.52
5800.0	0.86	93.28	5799.8	25.0	-14.3	-24.9	0.33	28.7	240.22
5900.0	1.07	77.28	5899.8	23.4	-14.1	-23.3	0.34	27.2	238.78
6000.0	1.72	78.41	5999.7	21.0	-13.6	-20.9	0.65	24.9	236.94
6100.0	1.46	77.90	6099.7	18.3	-13.0	-18.2	0.26	22.4	234.37
6110.0	1.54	87.28	6109.7	18.0	-13.0	-17.9	2.58	22.2	234.05

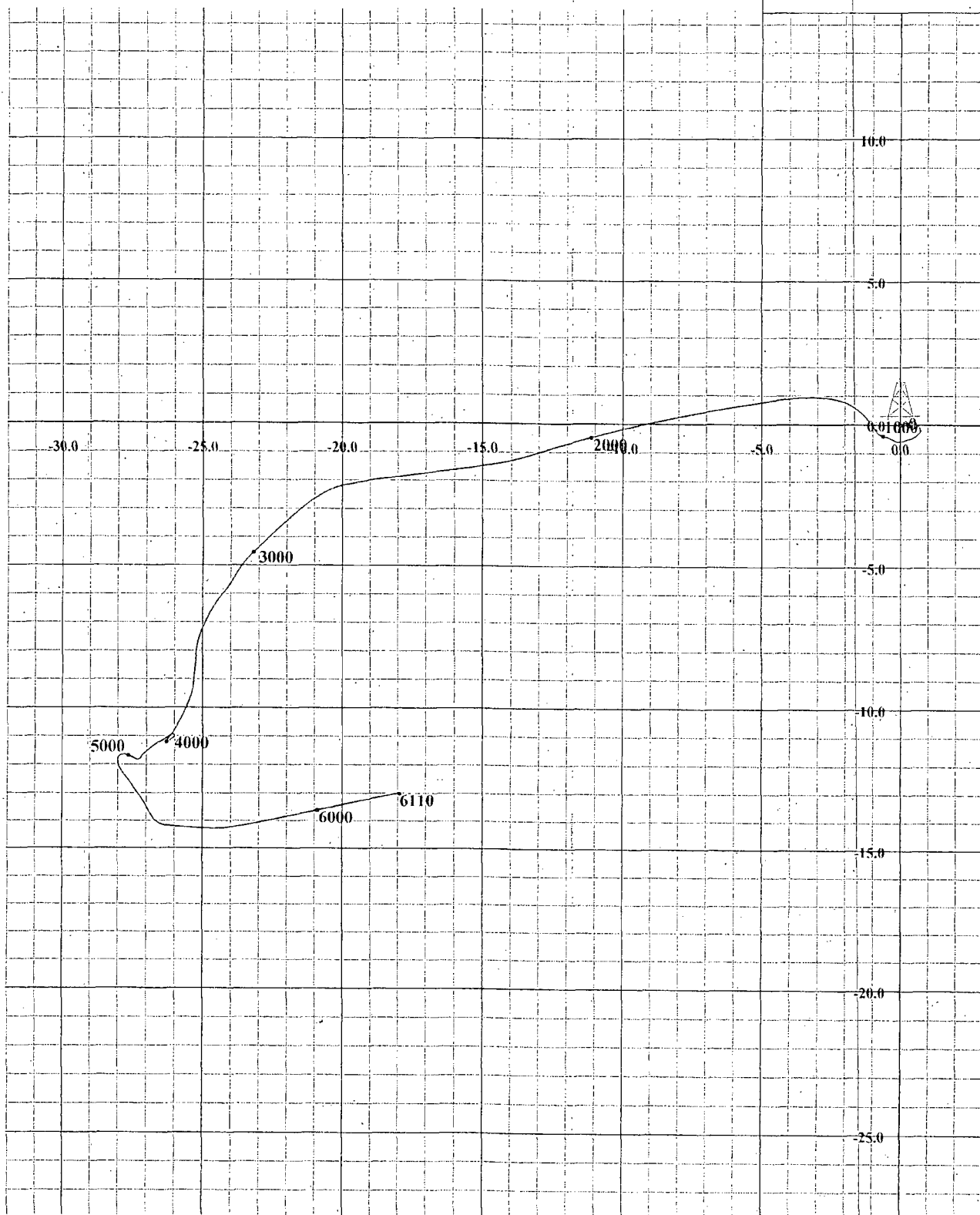


Field: Dog Canyon
Site: Eddy County, NM
Well: Carbon Valley 31 Federal Com #1H
Survey: 06/05/10
Scientific Drilling



Azimuths to G/T/M
True Nor
Magnetic Nor
Magne
Dip Ang
Date: 6
Model:

South(-)/North(+) [5ft/in]



West(-)/East(+) [5ft/in]

OPERATOR
WELL/LEASE
COUNTY

MURCHISON OIL AND GAS INC.
CARBON VALLEY 31 FED COM #1H
EDDY

STATE OF NEW MEXICO
DEVIATION REPORT

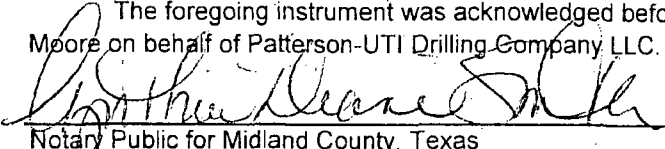
230	0.50
497	1.00
711	0.75
1,008	0.05
1,310	0.25
1,798	1.75
1,890	1.00
2,220	1.50
2,337	0.75
2,460	1.00
2,557	1.00
2,811	0.75
3,250	1.00
3,762	0.50
4,239	1.00
5,192	0.75
5,701	0.75
6,749	0.75

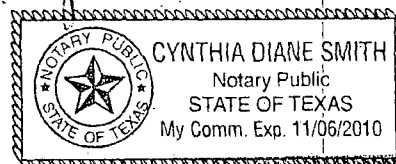
STATE OF TEXAS

COUNTY OF MIDLAND

BY: 

The foregoing instrument was acknowledged before me on August 2, 2010, by Steve Moore on behalf of Patterson-UTI Drilling Company LLC.


Notary Public for Midland County, Texas
My Commission Expires:



PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
Rig: PATTERSON 74

PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: JOHN OVERTON
JOHN MAYERS
BILLY RICHARD

Survey Calculations by RX5 V6.03A using Minimum Curvature

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.52.33.0748 N LON: 104.12.24.6119 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 538836.0000 Y: 682370.4000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.98° EAST TO GRID
Vertical Section Plane: 272.88
Survey Vert. Reference: 21.50' Kelly Bushing To Ground
Altitude: 3558.00' Ground To MSL

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
0.00	0.00	0.00	-0.00	0.00	0.00	0.00 S	0.00 W	0.00@	218.76	0.00
THE FOLLOWING ARE SCIENTIFIC DRILLING GYROSCOPIC SURVEYS.										
100.00	0.15	67.88	100.00	100.00	-0.12	0.05 N	0.12 E	0.13@	68.40	0.15
200.00	0.31	111.30	200.00	100.00	-0.49	0.00 S	0.49 E	0.49@	90.18	0.23
300.00	0.09	200.22	300.00	100.00	-0.73	0.17 S	0.72 E	0.74@	103.59	0.32
400.00	0.10	47.80	400.00	100.00	-0.76	0.19 S	0.76 E	0.78@	104.02	0.19
500.00	0.10	216.04	500.00	100.00	-0.78	0.20 S	0.77 E	0.79@	104.62	0.20
600.00	0.19	228.13	599.99	100.00	-0.61	0.38 S	0.59 E	0.71@	122.73	0.09
700.00	0.15	261.53	699.99	100.00	-0.37	0.51 S	0.34 E	0.62@	146.32	0.10
800.00	0.17	248.53	799.99	100.00	-0.10	0.59 S	0.07 E	0.59@	172.84	0.04
900.00	0.26	298.91	899.99	100.00	0.24	0.53 S	0.26 W	0.59@	206.41	0.20
1000.00	0.18	278.57	999.99	100.00	0.60	0.40 S	0.62 W	0.73@	237.26	0.11
1100.00	0.38	325.47	1099.99	100.00	0.95	0.10 S	0.96 W	0.97@	264.04	0.29
1200.00	0.33	312.01	1199.99	100.00	1.38	0.37 N	1.36 W	1.41@	285.02	0.10
1300.00	0.32	297.86	1299.99	100.00	1.86	0.69 N	1.82 W	1.95@	290.70	0.08
1400.00	0.32	281.71	1399.99	100.00	2.38	0.88 N	2.34 W	2.50@	290.50	0.09
1500.00	0.43	271.01	1499.98	100.00	3.04	0.94 N	2.99 W	3.14@	287.43	0.13
1600.00	0.42	266.30	1599.98	100.00	3.77	0.92 N	3.73 W	3.85@	283.88	0.04
1700.00	0.91	261.35	1699.97	100.00	4.92	0.78 N	4.88 W	4.95@	279.07	0.49
1800.00	1.31	260.00	1799.96	100.00	6.81	0.46 N	6.79 W	6.81@	273.88	0.40
1900.00	1.26	258.06	1899.93	100.00	8.99	0.04 N	9.00 W	9.00@	270.23	0.07
2000.00	1.27	254.96	1999.91	100.00	11.10	0.48 S	11.14 W	11.15@	267.53	0.07
2100.00	0.94	252.69	2099.89	100.00	12.93	1.01 S	13.00 W	13.03@	265.55	0.33
2200.00	0.75	258.92	2199.88	100.00	14.33	1.38 S	14.42 W	14.49@	264.53	0.21
2300.00	0.84	262.69	2299.87	100.00	15.69	1.60 S	15.79 W	15.87@	264.21	0.10
2400.00	0.76	262.88	2399.86	100.00	17.06	1.78 S	17.18 W	17.27@	264.10	0.08

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG:PATTERSON 74

Page 02/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
2500.00	0.76	263.13	2499.85	100.00	18.37	1.94 S	18.49 W	18.59@	264.02	0.00
2600.00	0.73	259.10	2599.84	100.00	19.64	2.14 S	19.78 W	19.89@	263.83	0.06
2700.00	0.56	236.94	2699.83	100.00	20.66	2.52 S	20.81 W	20.96@	263.08	0.30
2800.00	0.64	231.20	2799.83	100.00	21.47	3.14 S	21.66 W	21.88@	261.75	0.10
2900.00	0.59	226.28	2899.82	100.00	22.24	3.85 S	22.46 W	22.79@	260.28	0.07
3000.00	0.56	226.60	2999.82	100.00	22.93	4.54 S	23.19 W	23.63@	258.93	0.03
3100.00	0.54	210.49	3099.81	100.00	23.49	5.28 S	23.78 W	24.36@	257.48	0.16
3200.00	0.52	220.34	3199.81	100.00	23.98	6.03 S	24.32 W	25.05@	256.07	0.09
3300.00	0.60	205.48	3299.80	100.00	24.46	6.85 S	24.84 W	25.76@	254.58	0.17
3400.00	0.28	196.63	3399.80	100.00	24.72	7.56 S	25.13 W	26.24@	253.26	0.33
3500.00	0.57	185.28	3499.80	100.00	24.80	8.29 S	25.25 W	26.57@	251.83	0.30
3600.00	0.37	185.04	3599.79	100.00	24.83	9.10 S	25.32 W	26.91@	250.23	0.20
3700.00	0.52	202.59	3699.79	100.00	25.00	9.84 S	25.52 W	27.36@	248.91	0.20
3800.00	0.42	210.77	3799.79	100.00	25.32	10.58 S	25.89 W	27.96@	247.77	0.12
3900.00	0.17	222.02	3899.79	100.00	25.59	11.00 S	26.17 W	28.39@	247.20	0.25
4000.00	0.11	193.89	3999.79	100.00	25.70	11.21 S	26.30 W	28.58@	246.92	0.09
4100.00	0.07	39.29	4099.79	100.00	25.68	11.25 S	26.28 W	28.59@	246.82	0.18
4200.00	0.19	50.50	4199.79	100.00	25.52	11.10 S	26.11 W	28.37@	246.97	0.12
4300.00	0.06	314.63	4299.79	100.00	25.44	10.96 S	26.02 W	28.23@	247.16	0.20
4400.00	0.17	238.35	4399.79	100.00	25.60	11.00 S	26.19 W	28.40@	247.22	0.17
4500.00	0.20	243.22	4499.79	100.00	25.87	11.15 S	26.47 W	28.72@	247.15	0.03
4600.00	0.27	232.77	4599.78	100.00	26.21	11.38 S	26.81 W	29.12@	247.01	0.08
4700.00	0.26	223.68	4699.78	100.00	26.53	11.68 S	27.16 W	29.56@	246.72	0.04
4800.00	0.07	306.76	4799.78	100.00	26.73	11.81 S	27.36 W	29.80@	246.65	0.26
4900.00	0.08	297.18	4899.78	100.00	26.85	11.74 S	27.47 W	29.88@	246.86	0.02
5000.00	0.11	291.31	4999.78	100.00	27.00	11.68 S	27.62 W	29.99@	247.09	0.03
5100.00	0.17	263.76	5099.78	100.00	27.24	11.66 S	27.86 W	30.20@	247.30	0.09
5200.00	0.23	178.55	5199.78	100.00	27.37	11.87 S	28.00 W	30.42@	247.02	0.27

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG: PATTERSON 74

Page 03/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
5300.00	0.41	141.19	5299.78	100.00	27.12	12.35 S	27.77 W	30.40@	246.02	0.27
5400.00	0.32	147.69	5399.78	100.00	26.72	12.87 S	27.40 W	30.27@	244.84	0.10
5500.00	0.31	148.01	5499.78	100.00	26.40	13.33 S	27.11 W	30.21@	243.81	0.01
5600.00	0.39	149.74	5599.78	100.00	26.06	13.86 S	26.79 W	30.16@	242.65	0.08
5700.00	0.53	95.37	5699.77	100.00	25.41	14.19 S	26.16 W	29.76@	241.52	0.44
5800.00	0.86	93.28	5799.76	100.00	24.20	14.28 S	24.95 W	28.75@	240.22	0.33
5900.00	1.07	77.28	5899.75	100.00	22.55	14.12 S	23.29 W	27.24@	238.78	0.34
TIED INTO SCIENTIFIC DRILLING GYROSCOPIC SURVEY AT 6000' MD.										
6000.00	1.72	78.41	5999.72	100.00	20.20	13.61 S	20.91 W	24.95@	236.94	0.65
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
6023.00	0.88	75.28	6022.71	23.00	19.70	13.50 S	20.40 W	24.46@	236.51	3.66
6055.00	1.06	275.41	6054.71	32.00	19.76	13.41 S	20.46 W	24.46@	236.76	5.97
6086.00	4.75	277.25	6085.67	31.00	21.33	13.22 S	22.02 W	25.68@	239.02	11.91
6118.00	8.53	276.05	6117.45	32.00	25.02	12.80 S	25.69 W	28.70@	243.52	11.82
6150.00	12.31	274.44	6148.91	32.00	30.80	12.28 S	31.46 W	33.77@	248.67	11.85
6182.00	16.27	272.15	6179.92	32.00	38.69	11.85 S	39.34 W	41.09@	253.23	12.50
6213.00	20.05	272.38	6209.37	31.00	48.35	11.47 S	48.99 W	50.32@	256.83	12.19
6245.00	23.83	273.45	6239.05	32.00	60.31	10.85 S	60.93 W	61.89@	259.90	11.88
6277.00	27.44	275.08	6267.89	32.00	74.14	9.81 S	74.73 W	75.37@	262.52	11.49
6309.00	31.22	274.87	6295.78	32.00	89.81	8.45 S	90.34 W	90.74@	264.66	11.82
6340.00	34.82	275.02	6321.77	31.00	106.68	6.99 S	107.17 W	107.40@	266.27	11.62
6372.00	38.87	275.13	6347.38	32.00	125.86	5.30 S	126.28 W	126.39@	267.60	12.66
6404.00	42.82	274.90	6371.58	32.00	146.77	3.47 S	147.13 W	147.17@	268.65	12.35
6435.00	46.78	274.40	6393.57	31.00	168.59	1.70 S	168.89 W	168.90@	269.42	12.83
6467.00	50.74	273.69	6414.66	32.00	192.65	0.01 S	192.89 W	192.89@	270.00	12.49
6499.00	54.78	272.84	6434.02	32.00	218.12	1.44 N	218.32 W	218.32@	270.38	12.80
6531.00	59.00	272.17	6451.50	32.00	244.91	2.60 N	245.09 W	245.11@	270.61	13.30
6563.00	63.40	272.36	6466.91	32.00	272.95	3.71 N	273.10 W	273.13@	270.78	13.76
6594.00	67.88	273.01	6479.69	31.00	301.18	5.04 N	301.31 W	301.35@	270.96	14.58

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG:PATTERSON 74

Page 04/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
6625.00	71.84	274.01	6490.37	31.00	330.28	6.82 N	330.35 W	330.42@	271.18	13.13
6657.00	74.57	274.46	6499.61	32.00	360.90	9.09 N	360.90 W	361.01@	271.44	8.64
6688.00	77.03	274.79	6507.22	31.00	390.94	11.51 N	390.85 W	391.02@	271.69	8.00
6720.00	79.14	274.87	6513.82	32.00	422.23	14.15 N	422.05 W	422.29@	271.92	6.60
6752.00	79.67	275.18	6519.71	32.00	453.66	16.90 N	453.38 W	453.70@	272.13	1.91
6784.00	83.19	275.25	6524.47	32.00	485.27	19.78 N	484.89 W	485.29@	272.34	11.00
6815.00	85.30	275.11	6527.58	31.00	516.09	22.56 N	515.60 W	516.10@	272.51	6.82
6847.00	89.10	275.67	6529.15	32.00	548.01	25.56 N	547.42 W	548.02@	272.67	12.00
6879.00	89.78	275.61	6529.46	32.00	579.97	28.71 N	579.26 W	579.97@	272.84	2.13
6910.00	89.61	275.77	6529.62	31.00	610.94	31.78 N	610.11 W	610.94@	272.98	0.75
6941.00	89.10	275.34	6529.97	31.00	641.90	34.78 N	640.96 W	641.90@	273.11	2.15
6973.00	88.82	275.88	6530.55	32.00	673.86	37.91 N	672.80 W	673.87@	273.22	1.90
7005.00	90.78	275.85	6530.66	32.00	705.81	41.18 N	704.63 W	705.84@	273.34	6.13
7036.00	91.84	276.12	6529.96	31.00	736.76	44.41 N	735.46 W	736.80@	273.46	3.53
7068.00	91.90	276.44	6528.91	32.00	768.69	47.91 N	767.25 W	768.74@	273.57	1.02
7100.00	91.79	276.48	6527.88	32.00	800.61	51.51 N	799.03 W	800.69@	273.69	0.36
7132.00	92.18	276.37	6526.77	32.00	832.53	55.09 N	830.81 W	832.63@	273.79	1.27
7163.00	92.46	276.05	6525.52	31.00	863.45	58.44 N	861.60 W	863.58@	273.88	1.37
7195.00	91.51	276.00	6524.41	32.00	895.38	61.79 N	893.40 W	895.54@	273.96	2.97
7226.00	90.95	275.94	6523.74	31.00	926.33	65.02 N	924.23 W	926.51@	274.02	1.82
7258.00	90.67	275.89	6523.29	32.00	958.28	68.31 N	956.05 W	958.49@	274.09	0.89
7290.00	90.62	275.80	6522.93	32.00	990.23	71.57 N	987.89 W	990.48@	274.14	0.32
7321.00	91.12	275.66	6522.46	31.00	1021.19	74.67 N	1018.73 W	1021.46@	274.19	1.67
7353.00	92.01	274.21	6521.59	32.00	1053.16	77.42 N	1050.60 W	1053.44@	274.21	5.32
7385.00	92.24	274.02	6520.40	32.00	1085.13	79.71 N	1082.49 W	1085.42@	274.21	0.93
7417.00	91.62	272.57	6519.32	32.00	1117.11	81.55 N	1114.42 W	1117.40@	274.19	4.92
7448.00	91.68	272.87	6518.43	31.00	1148.10	83.02 N	1145.37 W	1148.38@	274.15	0.99
7480.00	92.58	272.85	6517.24	32.00	1180.07	84.62 N	1177.31 W	1180.35@	274.11	2.81

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG:PATTERSON 74

Page 05/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
7512.00	93.25	272.96	6515.61	32.00	1212.03	86.24 N	1209.23 W	1212.30@	274.08	2.12
7543.00	93.25	272.97	6513.86	31.00	1242.98	87.84 N	1240.14 W	1243.24@	274.05	0.03
7575.00	93.19	272.91	6512.06	32.00	1274.93	89.48 N	1272.04 W	1275.19@	274.02	0.27
7606.00	93.30	273.43	6510.30	31.00	1305.88	91.19 N	1302.95 W	1306.13@	274.00	1.71
7638.00	93.42	273.31	6508.43	32.00	1337.83	93.07 N	1334.84 W	1338.08@	273.99	0.53
7670.00	91.79	272.64	6506.97	32.00	1369.79	94.73 N	1366.76 W	1370.04@	273.96	5.51
7702.00	91.79	272.94	6505.97	32.00	1401.78	96.28 N	1398.70 W	1402.01@	273.94	0.94
7733.00	92.02	273.01	6504.94	31.00	1432.76	97.89 N	1429.65 W	1432.99@	273.92	0.78
7765.00	92.13	273.35	6503.79	32.00	1464.74	99.66 N	1461.58 W	1464.97@	273.90	1.12
7795.00	91.96	273.17	6502.71	30.00	1494.72	101.37 N	1491.51 W	1494.95@	273.89	0.82
7827.00	92.29	273.60	6501.53	32.00	1526.69	103.26 N	1523.43 W	1526.93@	273.88	1.69
7859.00	92.69	273.60	6500.14	32.00	1558.66	105.26 N	1555.34 W	1558.89@	273.87	1.25
7890.00	92.86	273.09	6498.64	31.00	1589.62	107.07 N	1586.25 W	1589.86@	273.86	1.73
7921.00	92.97	273.16	6497.06	31.00	1620.58	108.76 N	1617.16 W	1620.81@	273.85	0.42
7953.00	93.19	272.77	6495.34	32.00	1652.54	110.41 N	1649.07 W	1652.76@	273.83	1.40
7985.00	92.74	272.42	6493.69	32.00	1684.49	111.86 N	1681.00 W	1684.71@	273.81	1.78
8017.00	92.97	272.03	6492.09	32.00	1716.45	113.10 N	1712.93 W	1716.66@	273.78	1.41
8048.00	92.80	271.94	6490.53	31.00	1747.41	114.17 N	1743.87 W	1747.61@	273.75	0.62
8080.00	93.02	271.65	6488.91	32.00	1779.36	115.17 N	1775.82 W	1779.55@	273.71	1.14
8112.00	92.46	270.66	6487.38	32.00	1811.31	115.82 N	1807.77 W	1811.48@	273.67	3.55
8144.00	92.41	270.96	6486.02	32.00	1843.26	116.27 N	1839.74 W	1843.41@	273.62	0.95
8175.00	91.34	269.98	6485.00	31.00	1874.22	116.52 N	1870.72 W	1874.35@	273.56	4.68
8207.00	91.29	269.79	6484.27	32.00	1906.16	116.46 N	1902.72 W	1906.28@	273.50	0.61
8239.00	92.01	270.39	6483.35	32.00	1938.11	116.51 N	1934.70 W	1938.21@	273.45	2.93
8271.00	91.12	270.05	6482.47	32.00	1970.06	116.63 N	1966.69 W	1970.14@	273.39	2.98
8303.00	91.40	269.68	6481.77	32.00	2002.01	116.56 N	1998.68 W	2002.08@	273.34	1.45
8334.00	90.56	268.54	6481.24	31.00	2032.94	116.08 N	2029.67 W	2032.99@	273.27	4.57
8366.00	90.28	268.16	6481.01	32.00	2064.84	115.15 N	2061.66 W	2064.87@	273.20	1.48

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG:PATTERSON 74

Page 06/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
(ft)	(deg)	(deg)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(deg)	(dg/100ft)
8398.00	90.56	269.06	6480.77	32.00	2096.75	114.38 N	2093.65 W	2096.77@	273.13	2.95
8430.00	90.95	268.31	6480.35	32.00	2128.66	113.64 N	2125.64 W	2128.67@	273.06	2.64
8462.00	89.83	267.36	6480.13	32.00	2160.54	112.43 N	2157.61 W	2160.54@	272.98	4.59
8494.00	89.89	266.98	6480.21	32.00	2192.38	110.85 N	2189.57 W	2192.38@	272.90	1.20
8525.00	90.17	266.97	6480.19	31.00	2223.21	109.22 N	2220.53 W	2223.21@	272.82	0.90
8557.00	90.34	266.86	6480.05	32.00	2255.04	107.50 N	2252.48 W	2255.05@	272.73	0.63
8589.00	89.83	266.53	6480.00	32.00	2286.85	105.65 N	2284.43 W	2286.87@	272.65	1.90
8621.00	90.06	266.35	6480.03	32.00	2318.65	103.66 N	2316.37 W	2318.69@	272.56	0.91
8652.00	89.50	267.06	6480.15	31.00	2349.47	101.88 N	2347.32 W	2349.53@	272.49	2.92
8684.00	89.38	267.63	6480.47	32.00	2381.32	100.40 N	2379.28 W	2381.40@	272.42	1.82
8716.00	89.72	267.14	6480.72	32.00	2413.17	98.94 N	2411.24 W	2413.27@	272.35	1.86
8748.00	89.44	267.49	6480.95	32.00	2445.02	97.44 N	2443.21 W	2445.15@	272.28	1.40
8780.00	89.10	267.92	6481.36	32.00	2476.89	96.16 N	2475.18 W	2477.05@	272.22	1.71
8811.00	89.27	267.65	6481.80	31.00	2507.76	94.96 N	2506.15 W	2507.95@	272.17	1.03
8843.00	89.22	268.46	6482.22	32.00	2539.64	93.88 N	2538.13 W	2539.87@	272.12	2.54
8875.00	89.44	268.63	6482.60	32.00	2571.55	93.06 N	2570.12 W	2571.80@	272.07	0.87
8906.00	89.66	268.13	6482.84	31.00	2602.45	92.19 N	2601.11 W	2602.74@	272.03	1.76
8938.00	90.06	267.77	6482.92	32.00	2634.33	91.04 N	2633.09 W	2634.66@	271.98	1.68
8970.00	89.16	268.61	6483.14	32.00	2666.23	90.03 N	2665.07 W	2666.59@	271.93	3.85
9002.00	89.05	269.21	6483.64	32.00	2698.14	89.42 N	2697.06 W	2698.54@	271.90	1.91
9034.00	88.82	269.86	6484.23	32.00	2730.09	89.16 N	2729.05 W	2730.51@	271.87	2.16
9066.00	88.60	270.42	6484.95	32.00	2762.04	89.24 N	2761.04 W	2762.49@	271.85	1.88
9098.00	90.06	271.26	6485.32	32.00	2794.02	89.71 N	2793.04 W	2794.48@	271.84	5.26
9129.00	90.84	271.73	6485.08	31.00	2825.01	90.52 N	2824.03 W	2825.48@	271.84	2.94
9161.00	90.78	271.63	6484.63	32.00	2857.00	91.46 N	2856.01 W	2857.47@	271.83	0.36
9193.00	91.23	272.92	6484.07	32.00	2888.99	92.73 N	2887.98 W	2889.47@	271.84	4.27
9225.00	91.46	273.65	6483.32	32.00	2920.98	94.56 N	2919.92 W	2921.45@	271.85	2.39
9256.00	91.51	273.75	6482.51	31.00	2951.96	96.56 N	2950.84 W	2952.42@	271.87	0.36

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG:PATTERSON 74

Page 07/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
9288.00	92.18	273.78	6481.48	32.00	2983.94	98.66 N	2982.75 W	2984.39@	271.89	2.10
9320.00	92.18	273.91	6480.27	32.00	3015.92	100.81 N	3014.66 W	3016.34@	271.92	0.41
9352.00	92.24	274.11	6479.03	32.00	3047.89	103.04 N	3046.56 W	3048.30@	271.94	0.65
9384.00	92.47	273.81	6477.72	32.00	3079.85	105.25 N	3078.45 W	3080.25@	271.96	1.18
9416.00	92.46	273.92	6476.34	32.00	3111.82	107.40 N	3110.35 W	3112.21@	271.98	0.35
9447.00	91.46	274.01	6475.28	31.00	3142.80	109.55 N	3141.26 W	3143.17@	272.00	3.24
9479.00	91.29	274.29	6474.51	32.00	3174.78	111.86 N	3173.17 W	3175.14@	272.02	1.02
9511.00	91.46	274.24	6473.74	32.00	3206.76	114.24 N	3205.07 W	3207.10@	272.04	0.55
9543.00	91.51	274.23	6472.92	32.00	3238.74	116.60 N	3236.97 W	3239.07@	272.06	0.16
9574.00	91.68	274.17	6472.05	31.00	3269.72	118.87 N	3267.87 W	3270.04@	272.08	0.58
9606.00	90.11	274.54	6471.55	32.00	3301.70	121.30 N	3299.78 W	3302.01@	272.11	5.04
9638.00	89.50	274.85	6471.66	32.00	3333.69	123.92 N	3331.67 W	3333.97@	272.13	2.14
9670.00	89.78	274.88	6471.86	32.00	3365.67	126.64 N	3363.55 W	3365.94@	272.16	0.88
9701.00	89.83	275.11	6471.97	31.00	3396.65	129.33 N	3394.44 W	3396.90@	272.18	0.76
9733.00	89.50	274.97	6472.15	32.00	3428.62	132.15 N	3426.31 W	3428.86@	272.21	1.12
9765.00	89.33	274.91	6472.48	32.00	3460.60	134.90 N	3458.19 W	3460.82@	272.23	0.56
9796.00	89.22	275.18	6472.87	31.00	3491.58	137.63 N	3489.07 W	3491.78@	272.26	0.94
9828.00	89.83	274.98	6473.14	32.00	3523.55	140.46 N	3520.94 W	3523.74@	272.28	2.01
9860.00	89.94	274.83	6473.20	32.00	3555.53	143.20 N	3552.82 W	3555.71@	272.31	0.58
9891.00	89.61	274.71	6473.33	31.00	3586.51	145.77 N	3583.72 W	3586.68@	272.33	1.13
9923.00	89.44	274.99	6473.59	32.00	3618.49	148.48 N	3615.60 W	3618.65@	272.35	1.02
9955.00	89.55	274.85	6473.87	32.00	3650.47	151.22 N	3647.48 W	3650.61@	272.37	0.56
9986.00	89.94	274.72	6474.01	31.00	3681.45	153.81 N	3678.37 W	3681.59@	272.39	1.33
10018.00	90.22	274.64	6473.97	32.00	3713.44	156.42 N	3710.27 W	3713.56@	272.41	0.91
10050.00	90.67	274.60	6473.72	32.00	3745.42	159.00 N	3742.16 W	3745.54@	272.43	1.41
10082.00	90.45	274.32	6473.40	32.00	3777.41	161.49 N	3774.06 W	3777.52@	272.45	1.11
10114.00	90.78	273.88	6473.06	32.00	3809.40	163.77 N	3805.98 W	3809.50@	272.46	1.72
10144.00	90.84	273.50	6472.64	30.00	3839.39	165.71 N	3835.91 W	3839.49@	272.47	1.28

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG:PATTERSON 74

Page 08/08

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
10176.00	90.84	273.49	6472.17	32.00	3871.39	167.66 N	3867.85 W	3871.48@	272.48	0.03
10208.00	90.73	273.30	6471.73	32.00	3903.38	169.55 N	3899.79 W	3903.48@	272.49	0.69
10240.00	90.50	273.38	6471.39	32.00	3935.38	171.41 N	3931.73 W	3935.47@	272.50	0.76
10271.00	90.73	273.17	6471.05	31.00	3966.38	173.19 N	3962.68 W	3966.47@	272.50	1.00
10303.00	90.84	273.15	6470.61	32.00	3998.38	174.95 N	3994.63 W	3998.46@	272.51	0.35
10335.00	91.73	273.21	6469.90	32.00	4030.37	176.72 N	4026.57 W	4030.45@	272.51	2.79
10367.00	91.90	273.06	6468.88	32.00	4062.35	178.47 N	4058.51 W	4062.43@	272.52	0.71
10398.00	91.57	273.02	6467.94	31.00	4093.34	180.12 N	4089.45 W	4093.42@	272.52	1.07
10430.00	90.89	272.91	6467.26	32.00	4125.33	181.77 N	4121.40 W	4125.41@	272.53	2.15
10462.00	90.28	272.61	6466.93	32.00	4157.33	183.31 N	4153.36 W	4157.41@	272.53	2.12
10494.00	90.95	272.52	6466.59	32.00	4189.32	184.74 N	4185.33 W	4189.40@	272.53	2.11
10524.00	90.95	272.39	6466.09	30.00	4219.32	186.03 N	4215.30 W	4219.40@	272.53	0.43
10556.00	90.78	272.34	6465.61	32.00	4251.31	187.35 N	4247.27 W	4251.40@	272.53	0.55
10588.00	90.62	272.26	6465.22	32.00	4283.31	188.63 N	4279.24 W	4283.39@	272.52	0.56
10619.00	90.62	272.16	6464.88	31.00	4314.31	189.83 N	4310.21 W	4314.39@	272.52	0.32
10650.00	90.39	272.22	6464.61	31.00	4345.30	191.01 N	4341.19 W	4345.39@	272.52	0.77
10681.00	90.39	272.34	6464.40	31.00	4376.30	192.25 N	4372.16 W	4376.39@	272.52	0.39
10712.00	91.68	272.99	6463.84	31.00	4407.29	193.69 N	4403.12 W	4407.38@	272.52	4.66
10744.00	92.41	273.23	6462.69	32.00	4439.27	195.42 N	4435.06 W	4439.36@	272.52	2.40
10776.00	91.90	273.17	6461.49	32.00	4471.25	197.21 N	4466.98 W	4471.33@	272.53	1.60
10807.00	91.51	272.94	6460.57	31.00	4502.24	198.86 N	4497.93 W	4502.32@	272.53	1.46
10839.00	91.46	272.71	6459.74	32.00	4534.23	200.44 N	4529.88 W	4534.31@	272.53	0.74
10869.00	91.01	272.26	6459.09	30.00	4564.22	201.74 N	4559.84 W	4564.30@	272.53	2.12
10901.00	91.01	272.39	6458.53	32.00	4596.21	203.03 N	4591.81 W	4596.30@	272.53	0.41
10933.00	91.29	272.89	6457.89	32.00	4628.20	204.51 N	4623.77 W	4628.29@	272.53	1.79
10964.00	91.51	273.63	6457.13	31.00	4659.19	206.27 N	4654.71 W	4659.28@	272.54	2.49
10993.00	91.85	274.25	6456.28	29.00	4688.18	208.26 N	4683.63 W	4688.26@	272.55	2.44
STRAIGHT LINE PROJECTION TO BIT AT 11050' MD.										
11050.00	91.85	274.25	6454.44	57.00	4745.13	212.48 N	4740.44 W	4745.20@	272.57	0.00

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS, INC
CARBON VALLEY 31 FED COM 1H
EDDY COUNTY, NEW MEXICO
RIG:PATTERSON 74

Page 09/08

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.
