

PathFinder Energy Services, Inc.

Survey Report

30-015-37003

MURCHISON OIL & GAS
FROSTY FEDERAL COM #1

EDDY COUNTY, NM

Rig: PATTERSON 74

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: DAVID BAKER

DEREK BOYD

JOHN OVERTON

Survey Calculations by RX5 V6.03C using Minimum Curvature

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.53.39.5497 N LON: 104.14.29.5664 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 528173.9000 Y: 689077.2000

North Aligned To: GRID NORTH

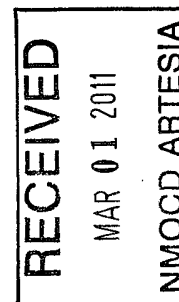
Total Magnetic Correction: 7.96° EAST TO GRID

Vertical Section Plane: 273.35

Survey Vert. Reference: 21.50' Kelly Bushing To Ground

Altitude: 3503.00' 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	-0.01	0.01 S	0.01 E	0.01@	113.86	0.00
THE FOLLOWING ARE SCIENTIFIC GYROSCOPIC SURVEYS.										
100.00	0.88	115.54	99.99	100.00	-0.72	0.34 S	0.70 E	0.78@	115.51	0.88
200.00	0.73	104.76	199.98	100.00	-2.06	0.83 S	2.01 E	2.18@	112.39	0.21
300.00	0.77	103.06	299.97	100.00	-3.35	1.14 S	3.28 E	3.48@	109.20	0.05
400.00	0.57	82.99	399.97	100.00	-4.50	1.23 S	4.43 E	4.60@	105.57	0.31
500.00	0.68	60.09	499.96	100.00	-5.48	0.88 S	5.44 E	5.51@	99.17	0.27
600.00	0.55	55.09	599.95	100.00	-6.36	0.31 S	6.35 E	6.36@	92.78	0.14
700.00	0.55	77.71	699.95	100.00	-7.19	0.07 N	7.21 E	7.21@	89.45	0.22
800.00	0.46	79.66	799.95	100.00	-8.05	0.24 N	8.07 E	8.08@	88.27	0.09
900.00	0.36	54.10	899.94	100.00	-8.68	0.50 N	8.72 E	8.74@	86.72	0.21
1000.00	0.20	72.39	999.94	100.00	-9.09	0.74 N	9.15 E	9.17@	85.40	0.18
1100.00	0.13	73.49	1099.94	100.00	-9.36	0.82 N	9.42 E	9.46@	85.02	0.07
1200.00	0.07	167.42	1199.94	100.00	-9.48	0.79 N	9.54 E	9.58@	85.24	0.15
1300.00	0.28	267.87	1299.94	100.00	-9.25	0.73 N	9.31 E	9.34@	85.55	0.30
1400.00	0.25	285.65	1399.94	100.00	-8.80	0.78 N	8.86 E	8.89@	85.00	0.09
1500.00	0.28	300.38	1499.94	100.00	-8.37	0.96 N	8.44 E	8.49@	83.52	0.07
1600.00	0.29	335.11	1599.94	100.00	-8.03	1.31 N	8.12 E	8.22@	80.83	0.17
1700.00	0.33	355.67	1699.94	100.00	-7.87	1.83 N	7.99 E	8.20@	77.12	0.12
1800.00	0.29	6.36	1799.94	100.00	-7.85	2.37 N	8.00 E	8.34@	73.52	0.07
1900.00	0.47	346.13	1899.93	100.00	-7.74	3.02 N	7.93 E	8.48@	69.17	0.22
2000.00	0.36	352.29	1999.93	100.00	-7.56	3.73 N	7.79 E	8.63@	64.43	0.12
2100.00	0.30	8.27	2099.93	100.00	-7.52	4.30 N	7.78 E	8.89@	61.10	0.11
2200.00	0.23	350.21	2199.93	100.00	-7.49	4.75 N	7.79 E	9.12@	58.60	0.11
2300.00	0.18	344.20	2299.93	100.00	-7.40	5.10 N	7.71 E	9.24@	56.50	0.05
2400.00	0.14	330.99	2399.93	100.00	-7.28	5.36 N	7.61 E	9.30@	54.83	0.05
2500.00	0.26	291.55	2499.93	100.00	-7.00	5.55 N	7.34 E	9.20@	52.89	0.18



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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)
2600.00	0.36	300.32	2599.92	100.00	-6.50	5.79 N	6.85 E	8.97@	49.80	0.11
2700.00	0.31	293.51	2699.92	100.00	-5.97	6.06 N	6.33 E	8.77@	46.28	0.06
2800.00	0.30	283.63	2799.92	100.00	-5.46	6.23 N	5.83 E	8.53@	43.12	0.05
2900.00	0.02	51.17	2899.92	100.00	-5.21	6.30 N	5.59 E	8.42@	41.59	0.31
3000.00	0.19	95.46	2999.92	100.00	-5.39	6.30 N	5.77 E	8.54@	42.51	0.18
3100.00	0.29	96.64	3099.92	100.00	-5.81	6.25 N	6.19 E	8.79@	44.70	0.10
3200.00	0.23	111.55	3199.92	100.00	-6.25	6.15 N	6.62 E	9.04@	47.14	0.09
3300.00	0.24	104.44	3299.92	100.00	-6.65	6.02 N	7.01 E	9.24@	49.35	0.03
3400.00	0.21	111.03	3399.92	100.00	-7.03	5.90 N	7.39 E	9.46@	51.37	0.04
3500.00	0.19	84.07	3499.92	100.00	-7.37	5.85 N	7.72 E	9.69@	52.84	0.10
3600.00	0.12	44.71	3599.92	100.00	-7.60	5.95 N	7.96 E	9.94@	53.25	0.12
3700.00	0.05	174.27	3699.92	100.00	-7.68	5.98 N	8.04 E	10.02@	53.37	0.16
3800.00	0.16	244.92	3799.92	100.00	-7.56	5.87 N	7.92 E	9.86@	53.43	0.15
3900.00	0.17	239.81	3899.92	100.00	-7.31	5.74 N	7.66 E	9.58@	53.16	0.02
4000.00	0.23	233.11	3999.92	100.00	-7.04	5.55 N	7.37 E	9.23@	53.06	0.06
4100.00	0.52	218.65	4099.91	100.00	-6.62	5.07 N	6.93 E	8.59@	53.81	0.30
4200.00	0.51	232.29	4199.91	100.00	-6.02	4.44 N	6.30 E	7.71@	54.78	0.12
4300.00	0.48	234.22	4299.91	100.00	-5.36	3.93 N	5.60 E	6.84@	54.97	0.03
4400.00	0.43	263.00	4399.90	100.00	-4.67	3.64 N	4.89 E	6.09@	53.37	0.23
4500.00	0.44	293.24	4499.90	100.00	-3.94	3.74 N	4.17 E	5.60@	48.06	0.23
4600.00	0.48	294.41	4599.90	100.00	-3.19	4.07 N	3.43 E	5.32@	40.16	0.04
4700.00	0.35	294.55	4699.89	100.00	-2.51	4.37 N	2.77 E	5.17@	32.41	0.13
4800.00	0.33	305.91	4799.89	100.00	-1.98	4.66 N	2.26 E	5.18@	25.87	0.07
4900.00	0.12	278.23	4899.89	100.00	-1.64	4.85 N	1.92 E	5.21@	21.65	0.23
5000.00	0.44	116.22	4999.89	100.00	-1.89	4.69 N	2.17 E	5.17@	24.77	0.56
5100.00	0.61	124.65	5099.89	100.00	-2.70	4.22 N	2.95 E	5.15@	34.93	0.19
5200.00	0.66	121.16	5199.88	100.00	-3.66	3.62 N	3.88 E	5.30@	46.98	0.06
5300.00	0.72	128.24	5299.87	100.00	-4.68	2.93 N	4.86 E	5.68@	58.92	0.10
5400.00	0.67	121.11	5399.87	100.00	-5.72	2.24 N	5.86 E	6.27@	69.07	0.10

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
5500.00	0.88	104.18	5499.86	100.00	-6.99	1.75 N	7.10 E	7.32@	76.15	0.31
** TIE-IN TO SCIENTIFIC DRILLING GYROSCOPIC SURVEY @ 5600'MD.										
5600.00	1.21	95.05	5599.84	100.00	-8.80	1.47 N	8.90 E	9.02@	80.62	0.37
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
5619.00	1.06	93.28	5618.84	19.00	-9.18	1.44 N	9.28 E	9.39@	81.16	0.81
5651.00	1.49	91.16	5650.83	32.00	-9.89	1.42 N	9.99 E	10.09@	81.92	1.35
5682.00	1.58	34.35	5681.82	31.00	-10.51	1.76 N	10.63 E	10.78@	80.59	4.72
5713.00	5.45	1.40	5712.76	31.00	-10.68	3.59 N	10.91 E	11.48@	71.80	13.59
5745.00	10.11	356.56	5744.45	32.00	-10.30	7.91 N	10.78 E	13.37@	53.71	14.69
5777.00	14.77	353.67	5775.69	32.00	-9.28	14.77 N	10.16 E	17.93@	34.51	14.69
5809.00	19.43	351.50	5806.27	32.00	-7.50	24.10 N	8.92 E	25.70@	20.31	14.70
5840.00	22.77	349.24	5835.19	31.00	-4.98	35.09 N	7.04 E	35.79@	11.34	11.09
5872.00	26.20	346.72	5864.31	32.00	-1.44	48.06 N	4.26 E	48.24@	5.06	11.20
5904.00	29.02	344.35	5892.66	32.00	3.11	62.41 N	0.54 E	62.41@	0.50	9.46
5936.00	30.25	339.85	5920.48	32.00	8.85	77.45 N	4.33 W	77.57@	356.80	7.94
5967.00	33.06	332.50	5946.87	31.00	16.30	92.29 N	10.93 W	92.94@	353.25	15.38
5999.00	36.67	327.07	5973.13	32.00	26.44	108.06 N	20.16 W	109.93@	349.43	14.87
6031.00	40.45	322.01	5998.16	32.00	38.96	124.27 N	31.75 W	128.27@	345.67	15.38
6062.00	43.70	316.07	6021.17	31.00	53.48	139.92 N	45.38 W	147.10@	342.03	16.57
6094.00	46.34	310.22	6043.80	32.00	70.87	155.37 N	61.90 W	167.24@	338.28	15.33
6126.00	48.89	304.52	6065.38	32.00	90.46	169.68 N	80.68 W	187.89@	334.57	15.38
6157.00	51.27	298.74	6085.28	31.00	111.38	182.12 N	100.91 W	208.21@	331.01	16.23
6189.00	52.85	292.72	6104.97	32.00	134.71	193.06 N	123.64 W	229.25@	327.36	15.63
6221.00	55.13	289.02	6123.78	32.00	159.39	202.26 N	147.82 W	250.52@	323.84	11.76
6253.00	57.07	286.69	6141.63	32.00	185.10	210.40 N	173.10 W	272.45@	320.56	8.56
6284.00	60.06	282.12	6157.80	31.00	211.05	216.96 N	198.71 W	294.20@	317.51	15.85
6316.00	63.05	277.93	6173.05	32.00	238.98	221.84 N	226.41 W	316.98@	314.42	14.82
6348.00	65.33	276.63	6186.98	32.00	267.72	225.49 N	254.98 W	340.38@	311.49	8.01
6379.00	68.06	275.96	6199.25	31.00	296.15	228.61 N	283.28 W	364.01@	308.90	9.03
6411.00	70.17	275.60	6210.65	32.00	326.02	231.62 N	313.02 W	389.39@	306.50	6.68

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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)
6443.00	72.72	275.06	6220.83	32.00	356.33	234.44 N	343.22 W	415.65@	304.33	8.13
6475.00	75.10	274.92	6229.70	32.00	387.07	237.11 N	373.85 W	442.70@	302.38	7.45
6506.00	77.38	274.27	6237.08	31.00	417.17	239.52 N	403.86 W	469.55@	300.67	7.63
6538.00	80.55	272.86	6243.20	32.00	448.57	241.47 N	435.20 W	497.71@	299.02	10.81
6570.00	83.01	271.77	6247.78	32.00	480.23	242.75 N	466.85 W	526.19@	297.47	8.39
6601.00	84.86	271.08	6251.05	31.00	511.04	243.52 N	497.66 W	554.05@	296.07	6.37
6622.00	85.96	270.32	6252.73	21.00	531.95	243.77 N	518.59 W	573.03@	295.18	6.36
6654.00	88.10	270.02	6254.39	32.00	563.86	243.87 N	550.55 W	602.14@	293.89	6.75
6686.00	89.16	269.68	6255.15	32.00	595.79	243.78 N	582.54 W	631.49@	292.71	3.48
6718.00	90.39	269.31	6255.28	32.00	627.71	243.50 N	614.54 W	661.02@	291.62	4.01
6749.00	90.90	269.39	6254.93	31.00	658.64	243.15 N	645.53 W	689.81@	290.64	1.67
6781.00	91.23	269.39	6254.34	32.00	690.55	242.81 N	677.52 W	719.72@	289.72	1.03
6813.00	91.51	269.65	6253.57	32.00	722.47	242.54 N	709.51 W	749.82@	288.87	1.19
6844.00	91.90	269.87	6252.65	31.00	753.40	242.41 N	740.50 W	779.17@	288.13	1.44
6875.00	92.30	270.22	6251.51	31.00	784.33	242.43 N	771.48 W	808.67@	287.45	1.71
6907.00	92.91	270.03	6250.06	32.00	816.24	242.50 N	803.45 W	839.25@	286.80	2.00
6938.00	93.41	270.09	6248.35	31.00	847.14	242.54 N	834.40 W	868.93@	286.21	1.62
6970.00	93.64	270.52	6246.38	32.00	879.04	242.71 N	866.34 W	899.69@	285.65	1.52
7002.00	93.98	270.71	6244.26	32.00	910.93	243.05 N	898.26 W	930.57@	285.14	1.22
7034.00	94.54	270.56	6241.88	32.00	942.81	243.40 N	930.17 W	961.49@	284.66	1.81
7065.00	94.82	271.04	6239.35	31.00	973.67	243.83 N	961.07 W	991.52@	284.24	1.79
7097.00	93.70	271.62	6236.97	32.00	1005.56	244.58 N	992.97 W	1022.65@	283.84	3.94
7129.00	92.46	271.92	6235.25	32.00	1037.51	245.56 N	1024.91 W	1053.91@	283.47	3.99
7160.00	92.41	272.05	6233.94	31.00	1068.47	246.64 N	1055.86 W	1084.28@	283.15	0.45
7191.00	92.13	272.28	6232.71	31.00	1099.44	247.81 N	1086.81 W	1114.71@	282.84	1.17
7223.00	92.18	272.83	6231.50	32.00	1131.41	249.23 N	1118.76 W	1146.18@	282.56	1.73
7255.00	90.78	272.70	6230.68	32.00	1163.40	250.77 N	1150.71 W	1177.72@	282.29	4.39
7287.00	91.23	273.04	6230.12	32.00	1195.39	252.38 N	1182.67 W	1209.29@	282.05	1.76
7318.00	91.51	273.42	6229.38	31.00	1226.38	254.12 N	1213.61 W	1239.93@	281.83	1.52

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7350.00	91.85	273.07	6228.44	32.00	1258.37	255.93 N	1245.54 W	1271.57@	281.61	1.52
7382.00	91.96	271.62	6227.37	32.00	1290.35	257.24 N	1277.50 W	1303.14@	281.39	4.54
7414.00	91.68	270.42	6226.36	32.00	1322.30	257.81 N	1309.48 W	1334.61@	281.14	3.85
7445.00	92.13	270.00	6225.33	31.00	1353.24	257.92 N	1340.46 W	1365.05@	280.89	1.99
7477.00	91.79	270.95	6224.23	32.00	1385.18	258.19 N	1372.44 W	1396.51@	280.65	3.15
7509.00	92.01	270.45	6223.17	32.00	1417.13	258.58 N	1404.42 W	1428.02@	280.43	1.71
7541.00	90.73	270.57	6222.41	32.00	1449.08	258.86 N	1436.41 W	1459.55@	280.22	4.02
7572.00	90.84	270.55	6221.98	31.00	1480.04	259.17 N	1467.40 W	1490.11@	280.02	0.36
7604.00	91.18	270.26	6221.42	32.00	1511.99	259.39 N	1499.40 W	1521.67@	279.81	1.40
7636.00	91.52	270.82	6220.66	32.00	1543.94	259.70 N	1531.39 W	1553.25@	279.62	2.05
7668.00	91.01	270.29	6219.96	32.00	1575.90	260.01 N	1563.38 W	1584.85@	279.44	2.30
7700.00	91.85	270.56	6219.16	32.00	1607.85	260.24 N	1595.37 W	1616.45@	279.26	2.76
7731.00	92.35	270.21	6218.02	31.00	1638.78	260.45 N	1626.34 W	1647.07@	279.10	1.97
7763.00	93.19	269.59	6216.48	32.00	1670.69	260.39 N	1658.31 W	1678.63@	278.92	3.26
7794.00	93.53	269.27	6214.66	31.00	1701.56	260.09 N	1689.25 W	1709.16@	278.75	1.51
7826.00	93.64	269.99	6212.66	32.00	1733.43	259.88 N	1721.19 W	1740.70@	278.59	2.27
7858.00	93.75	269.96	6210.60	32.00	1765.31	259.87 N	1753.12 W	1772.28@	278.43	0.36
7890.00	93.98	269.46	6208.44	32.00	1797.17	259.71 N	1785.05 W	1803.84@	278.28	1.72
7922.00	94.09	269.86	6206.19	32.00	1829.03	259.52 N	1816.97 W	1835.41@	278.13	1.29
7953.00	94.42	269.33	6203.89	31.00	1859.88	259.30 N	1847.88 W	1865.99@	277.99	2.01
7985.00	94.93	269.49	6201.28	32.00	1891.69	258.97 N	1879.77 W	1897.53@	277.84	1.67
8017.00	94.03	270.60	6198.78	32.00	1923.54	258.99 N	1911.67 W	1929.14@	277.72	4.46
8049.00	94.03	271.28	6196.53	32.00	1955.43	259.52 N	1943.59 W	1960.84@	277.61	2.12
8080.00	93.86	271.12	6194.40	31.00	1986.34	260.17 N	1974.51 W	1991.58@	277.51	0.75
8112.00	92.68	269.99	6192.57	32.00	2018.25	260.47 N	2006.46 W	2023.29@	277.40	5.10
8144.00	92.86	270.51	6191.03	32.00	2050.16	260.61 N	2038.42 W	2055.01@	277.29	1.72
8176.00	93.08	270.53	6189.37	32.00	2082.08	260.90 N	2070.37 W	2086.75@	277.18	0.69
8208.00	93.36	270.04	6187.57	32.00	2113.99	261.06 N	2102.32 W	2118.47@	277.08	1.76
8239.00	93.58	270.55	6185.69	31.00	2144.88	261.22 N	2133.26 W	2149.20@	276.98	1.79

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS
FROSTY FEDERAL COM #1
EDDY COUNTY, NM
RIG:PATTERSON 74

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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)
8271.00	93.75	271.56	6183.65	32.00	2176.79	261.81 N	2165.19 W	2180.97@	276.89	3.19
8303.00	94.09	271.19	6181.46	32.00	2208.70	262.58 N	2197.11 W	2212.74@	276.82	1.57
8335.00	92.35	271.47	6179.66	32.00	2240.63	263.32 N	2229.05 W	2244.55@	276.74	5.51
8367.00	92.74	271.47	6178.24	32.00	2272.58	264.14 N	2261.01 W	2276.38@	276.66	1.22
8398.00	93.13	271.26	6176.66	31.00	2303.52	264.88 N	2291.96 W	2307.21@	276.59	1.43
8430.00	93.36	271.17	6174.84	32.00	2335.45	265.55 N	2323.90 W	2339.02@	276.52	0.77
8462.00	93.75	271.77	6172.86	32.00	2367.37	266.37 N	2355.83 W	2370.84@	276.45	2.23
8494.00	93.97	271.45	6170.71	32.00	2399.28	267.27 N	2387.74 W	2402.65@	276.39	1.21
8526.00	94.20	271.72	6168.43	32.00	2431.18	268.15 N	2419.65 W	2434.46@	276.32	1.11
8557.00	94.48	271.60	6166.08	31.00	2462.08	269.05 N	2450.55 W	2465.27@	276.27	0.98
8589.00	94.48	270.77	6163.58	32.00	2493.96	269.71 N	2482.44 W	2497.05@	276.20	2.59
8621.00	94.76	270.29	6161.00	32.00	2525.82	270.00 N	2514.34 W	2528.79@	276.13	1.73
8653.00	94.99	270.19	6158.28	32.00	2557.65	270.14 N	2546.22 W	2560.51@	276.06	0.78
8684.00	94.60	269.85	6155.69	31.00	2588.49	270.15 N	2577.11 W	2591.23@	275.98	1.67
8716.00	93.64	269.17	6153.39	32.00	2620.34	269.87 N	2609.03 W	2622.95@	275.91	3.67
8748.00	93.25	269.53	6151.47	32.00	2652.20	269.51 N	2640.97 W	2654.68@	275.83	1.66
8780.00	93.70	269.43	6149.53	32.00	2684.07	269.22 N	2672.91 W	2686.43@	275.75	1.44
8811.00	93.52	269.35	6147.58	31.00	2714.94	268.89 N	2703.84 W	2717.18@	275.68	0.64
8843.00	93.70	269.43	6145.56	32.00	2746.80	268.55 N	2735.78 W	2748.93@	275.61	0.61
8875.00	93.53	269.97	6143.55	32.00	2778.67	268.39 N	2767.71 W	2780.70@	275.54	1.77
8906.00	93.52	269.46	6141.64	31.00	2809.55	268.23 N	2798.65 W	2811.48@	275.47	1.64
8938.00	93.81	269.73	6139.60	32.00	2841.41	268.01 N	2830.59 W	2843.25@	275.41	1.24
8970.00	94.31	270.01	6137.33	32.00	2873.27	267.93 N	2862.51 W	2875.02@	275.35	1.79
9001.00	93.47	270.29	6135.23	31.00	2904.15	268.01 N	2893.44 W	2905.82@	275.29	2.86
9033.00	92.69	269.50	6133.51	32.00	2936.05	267.96 N	2925.39 W	2937.64@	275.23	3.47
9065.00	93.08	269.29	6131.90	32.00	2967.93	267.62 N	2957.35 W	2969.43@	275.17	1.38
9097.00	93.53	269.88	6130.05	32.00	2999.81	267.39 N	2989.29 W	3001.23@	275.11	2.32
9128.00	92.74	269.27	6128.36	31.00	3030.69	267.16 N	3020.24 W	3032.04@	275.05	3.22
9160.00	92.74	269.45	6126.83	32.00	3062.58	266.80 N	3052.21 W	3063.84@	275.00	0.56

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS
FROSTY FEDERAL COM #1
EDDY COUNTY, NM
RIG: PATTERSON 74

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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)
9191.00	91.90	269.52	6125.57	31.00	3093.48	266.52 N	3083.18 W	3094.68@	274.94	2.72
9223.00	91.96	269.37	6124.49	32.00	3125.39	266.21 N	3115.16 W	3126.51@	274.88	0.50
9255.00	92.13	269.56	6123.35	32.00	3157.30	265.91 N	3147.14 W	3158.35@	274.83	0.80
9287.00	92.30	269.84	6122.12	32.00	3189.21	265.75 N	3179.11 W	3190.20@	274.78	1.02
9318.00	91.46	269.64	6121.10	31.00	3220.13	265.60 N	3210.10 W	3221.07@	274.73	2.79
9350.00	91.40	269.11	6120.30	32.00	3252.04	265.26 N	3242.08 W	3252.92@	274.68	1.67
9382.00	90.62	269.78	6119.74	32.00	3283.96	264.95 N	3274.08 W	3284.78@	274.63	3.21
9413.00	90.45	269.71	6119.45	31.00	3314.90	264.81 N	3305.08 W	3315.67@	274.58	0.59
9445.00	89.33	269.39	6119.51	32.00	3346.83	264.56 N	3337.07 W	3347.54@	274.53	3.64
9477.00	89.27	269.37	6119.90	32.00	3378.75	264.21 N	3369.07 W	3379.41@	274.48	0.20
9509.00	89.55	269.40	6120.23	32.00	3410.67	263.87 N	3401.07 W	3411.29@	274.44	0.88
9540.00	89.72	269.48	6120.43	31.00	3441.60	263.56 N	3432.06 W	3442.17@	274.39	0.61
9572.00	89.89	268.97	6120.53	32.00	3473.52	263.13 N	3464.06 W	3474.04@	274.34	1.68
9604.00	88.99	268.97	6120.85	32.00	3505.42	262.56 N	3496.05 W	3505.90@	274.29	2.81
9636.00	88.88	269.01	6121.44	32.00	3537.32	261.99 N	3528.04 W	3537.76@	274.25	0.36
9667.00	89.33	268.78	6121.93	31.00	3568.23	261.39 N	3559.03 W	3568.62@	274.20	1.63
9699.00	89.61	268.36	6122.22	32.00	3600.11	260.60 N	3591.02 W	3600.47@	274.15	1.58
9731.00	88.82	268.84	6122.66	32.00	3632.00	259.81 N	3623.01 W	3632.31@	274.10	2.89
9762.00	88.99	268.54	6123.25	31.00	3662.89	259.11 N	3654.00 W	3663.17@	274.06	1.11
9794.00	89.44	268.89	6123.69	32.00	3694.78	258.39 N	3685.98 W	3695.03@	274.01	1.78
9826.00	89.44	269.44	6124.00	32.00	3726.70	257.92 N	3717.98 W	3726.91@	273.97	1.72
9858.00	88.94	269.12	6124.46	32.00	3758.61	257.52 N	3749.97 W	3758.80@	273.93	1.85
9889.00	88.82	269.44	6125.06	31.00	3789.53	257.13 N	3780.97 W	3789.70@	273.89	1.10
9921.00	88.88	269.88	6125.70	32.00	3821.46	256.94 N	3812.96 W	3821.61@	273.86	1.39
9953.00	89.27	269.57	6126.22	32.00	3853.39	256.79 N	3844.95 W	3853.52@	273.82	1.56
9984.00	89.78	270.19	6126.48	31.00	3884.33	256.72 N	3875.95 W	3884.44@	273.79	2.59
10015.00	90.06	270.47	6126.52	31.00	3915.29	256.90 N	3906.95 W	3915.39@	273.76	1.28
10047.00	90.17	271.00	6126.46	32.00	3947.25	257.31 N	3938.95 W	3947.34@	273.74	1.69
10079.00	90.45	270.80	6126.28	32.00	3979.22	257.81 N	3970.94 W	3979.30@	273.71	1.08

PathFinder Energy Services, Inc.

Survey Report

MURCHISON OIL & GAS
FROSTY FEDERAL COM #1
EDDY COUNTY, NM
RIG:PATTERSON 74

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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)
10111.00	90.62	270.98	6125.99	32.00	4011.19	258.31 N	4002.94 W	4011.26@	273.69	0.77
10142.00	91.06	271.18	6125.53	31.00	4042.16	258.89 N	4033.93 W	4042.23@	273.67	1.56
10174.00	90.34	271.65	6125.14	32.00	4074.14	259.68 N	4065.92 W	4074.20@	273.65	2.69
10206.00	90.22	271.20	6124.98	32.00	4106.13	260.48 N	4097.91 W	4106.18@	273.64	1.45
10237.00	90.67	270.50	6124.74	31.00	4137.09	260.94 N	4128.90 W	4137.14@	273.62	2.68
10268.00	91.06	270.60	6124.27	31.00	4168.05	261.24 N	4159.90 W	4168.09@	273.59	1.30
10300.00	91.29	270.52	6123.62	32.00	4200.01	261.55 N	4191.89 W	4200.04@	273.57	0.76
10332.00	91.40	270.18	6122.87	32.00	4231.96	261.75 N	4223.88 W	4231.98@	273.55	1.12
10363.00	92.02	270.29	6121.94	31.00	4262.90	261.87 N	4254.87 W	4262.92@	273.52	2.03
10394.00	92.52	270.04	6120.71	31.00	4293.82	261.96 N	4285.84 W	4293.84@	273.50	1.80
10426.00	93.02	270.65	6119.17	32.00	4325.74	262.15 N	4317.80 W	4325.75@	273.47	2.46
10458.00	93.36	270.71	6117.39	32.00	4357.66	262.53 N	4349.75 W	4357.67@	273.45	1.08
10490.00	93.64	270.93	6115.43	32.00	4389.57	262.99 N	4381.69 W	4389.57@	273.43	1.11
10521.00	94.03	270.48	6113.36	31.00	4420.47	263.37 N	4412.62 W	4420.47@	273.42	1.92
10553.00	94.15	271.12	6111.08	32.00	4452.35	263.82 N	4444.53 W	4452.35@	273.40	2.03
10578.00	94.26	271.05	6109.24	25.00	4477.27	264.29 N	4469.46 W	4477.27@	273.38	0.52
STRAIGHT-LINE PROJECTION TO BIT AT 10634'MD.										
10634.00	94.26	271.05	6105.09	56.00	4533.07	265.31 N	4525.30 W	4533.07@	273.36	0.00

** 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.



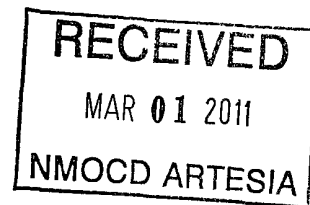
VIA CERTIFIED MAIL

February 25, 2011

State of New Mexico
Oil Conservation Division – District II
1301 W. Grand Avenue
Artesia, NM 88210

*Ready Date 2/8/11
Conf. Ends 5/9/11*

**RE: FROSTY FEDERAL COM #1
API # 30-015-37003
EDDY COUNTY, NM**



Ladies and Gentlemen:

Enclosed please find the following:

- 1) Amended Form C-104 (original & 5 copies)
- 2) Hi-Res Laterolog Array Micro-CFL/GR
- 3) Three Detector Litho-Density Compensated Neutron/GR
- 4) Amended Form C-102
- 5) Directional Survey
- 6) Deviation Survey

We hereby request that the enclosed logs and directional survey be kept confidential until 5/9/11 (90 days from the completion date of 2/8/11). If you have any questions, please contact me at 972-931-0700 ext. 109 or ccottrell@jdmii.com.

Very truly yours,

Cindy Cottrell
Regulatory Coordinator

Enclosures