



Gyrodata Inc. 10000
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Oviedo, FL 32765

30-015-39955
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October 25, 2012

Cimarex Energy Company
600 N. Marienfeld, Suite 600
Midland, Texas 79701

30-015-39955

Attn: Terri Stathem

Re: Chaparral 32 State #21H

Please find enclosed a copy of the survey from 0' to 7298.20' ran on the above referenced well.

If any additional information is required, please feel free to contact me.

Sincerely,

Holly Walker

Operations Assistant - Midland, Texas

STATE OF TEXAS &
&
COUNTY OF MIDLAND &

This instrument was acknowledged before me on this the 25th day of October, 2012, by

Deirda Lyn Rountree



Notary Public, State of Texas

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

CIMAREX ENERGY

Lease: CHAPARRAL 32 STATE Well: 21H, 4 1/2 XO DRILLPIPE
Location: KEY 881, EDDY COUNTY, NEW MEXICO

Job Number: MD0612GDM391

Run Date: 30 Jun 2012

Surveyor: Che Garcia

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Hand Held GPS

Survey Latitude: 32.624111 deg. N Longitude: 104.102694 deg. W

Azimuth Correction:

Gyro: -0.12000 deg to Grid North

Depth Reference: Rotary Table

Rotary Table Elevation: 20.00

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
0.00	0.00	0.00	N 0 0 E	0.00	0.00	0.0	0.0	0.00 N 0.00 E
0 - 7298.20 FT RATE GYROSCOPIC DROP MULTISHOT SURVEY TO RUN INSIDE 4 1/2 INCH DRILLPIPE ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO KEY 881 WITH A R.K.B 20FT								
61.50	0.54	158.30	S 21 42 E	0.88	61.50	0.3	158.3	0.27 S 0.11 E
125.00	0.50	148.96	S 31 2 E	0.15	125.00	0.9	155.3	0.78 S 0.36 E
188.50	0.63	138.84	S 41 10 E	0.26	188.49	1.5	150.3	1.28 S 0.73 E
252.00	0.81	133.82	S 46 11 E	0.30	251.99	2.3	145.3	1.86 S 1.29 E
315.40	1.01	121.95	S 58 3 E	0.43	315.38	3.2	139.8	2.46 S 2.08 E
378.90	1.09	115.95	S 64 3 E	0.21	378.87	4.3	134.3	3.02 S 3.10 E
442.40	1.12	110.93	S 69 4 E	0.16	442.36	5.5	129.7	3.51 S 4.23 E
505.90	1.04	108.39	S 71 37 E	0.15	505.85	6.6	126.2	3.91 S 5.35 E
569.40	1.37	104.15	S 75 51 E	0.54	569.33	7.9	122.8	4.28 S 6.63 E
632.80	1.68	100.46	S 79 32 E	0.51	632.71	9.5	119.2	4.64 S 8.28 E
696.30	1.92	93.92	S 86 5 E	0.50	696.18	11.4	115.4	4.88 S 10.26 E
759.80	2.07	92.89	S 87 7 E	0.24	759.64	13.4	111.9	5.01 S 12.47 E
823.30	2.25	101.89	S 78 7 E	0.60	823.10	15.8	109.7	5.32 S 14.83 E
886.80	2.29	90.98	S 89 1 E	0.68	886.55	18.2	107.9	5.60 S 17.32 E
950.20	2.49	81.12	N 81 7 E	0.72	949.89	20.7	105.2	5.41 S 19.95 E
1013.70	2.28	78.83	N 78 50 E	0.36	1013.34	23.1	102.4	4.95 S 22.55 E
1077.20	1.59	96.04	S 83 58 E	1.41	1076.80	25.1	101.0	4.80 S 24.66 E
1140.70	1.12	119.91	S 60 5 E	1.14	1140.28	26.6	101.3	5.20 S 26.08 E
1204.20	0.92	136.68	S 43 19 E	0.56	1203.77	27.6	102.3	5.88 S 26.97 E

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MEASURED DEPTH feet	I N C L deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
1267.60	1.11	166.20	S 13 48 E	0.87	1267.16	28.3 104.0	6.85 S 27.46 E
1331.10	1.26	164.21	S 15 47 E	0.24	1330.65	29.0 106.3	8.12 S 27.80 E
1394.60	1.28	163.73	S 16 16 E	0.04	1394.13	29.7 108.6	9.47 S 28.19 E
1458.10	1.33	178.43	S 1 34 E	0.53	1457.62	30.4 111.0	10.89 S 28.41 E
1521.60	1.41	172.48	S 7 31 E	0.26	1521.10	31.1 113.5	12.40 S 28.53 E
1585.00	1.34	179.54	S 0 28 E	0.29	1584.48	31.8 115.9	13.91 S 28.64 E
1648.50	1.23	179.38	S 0 37 E	0.17	1647.96	32.5 118.2	15.34 S 28.65 E
1712.00	1.16	179.36	S 0 38 E	0.11	1711.45	33.2 120.2	16.66 S 28.66 E
1775.50	1.17	182.74	S 2 44 W	0.11	1774.94	33.8 122.1	17.95 S 28.64 E
1839.00	1.48	167.87	S 12 8 E	0.73	1838.42	34.7 124.0	19.40 S 28.78 E
1902.40	1.57	174.78	S 5 13 E	0.32	1901.80	35.9 126.0	21.07 S 29.03 E
1965.90	1.57	176.50	S 3 30 E	0.07	1965.27	37.0 128.0	22.80 S 29.17 E
2092.90	1.47	248.18	S 68 11 W	1.40	2092.24	37.5 132.2	25.14 S 27.76 E
2156.40	1.24	178.30	S 1 42 E	2.46	2155.73	37.6 134.0	26.13 S 27.02 E
2219.80	0.88	187.16	S 7 10 W	0.62	2219.12	38.4 135.3	27.30 S 26.98 E
2283.30	0.78	201.39	S 21 23 W	0.36	2282.61	38.9 136.5	28.19 S 26.76 E
2346.80	0.85	213.49	S 33 29 W	0.29	2346.10	39.2 137.7	28.98 S 26.35 E
2410.30	0.76	203.64	S 23 38 W	0.26	2409.60	39.5 139.0	29.76 S 25.92 E
2473.80	0.70	218.36	S 38 22 W	0.31	2473.09	39.7 140.0	30.45 S 25.51 E
2537.20	0.75	206.73	S 26 44 W	0.24	2536.49	40.0 141.1	31.13 S 25.08 E
2600.70	0.84	181.20	S 1 12 W	0.57	2599.98	40.5 142.1	31.96 S 24.89 E

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Location: KEY 881, EDDY COUNTY, NEW MEXICO

Job Number: MD0612GDM391

MEASURED DEPTH feet	I N C L deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
2664.20	1.17	161.32	S 18 41 E	0.75	2663.47	41.5 142.8	33.04 S 25.08 E
2727.70	1.04	175.09	S 4 55 E	0.46	2726.96	42.6 143.5	34.23 S 25.34 E
2791.20	0.97	202.80	S 22 48 W	0.77	2790.45	43.4 144.5	35.30 S 25.18 E
2854.60	0.88	197.44	S 17 26 W	0.20	2853.84	43.9 145.6	36.26 S 24.83 E
2981.60	0.75	203.22	S 23 13 W	0.12	2980.83	45.0 147.5	37.96 S 24.21 E
3045.10	0.51	217.82	S 37 49 W	0.45	3044.32	45.4 148.2	38.56 S 23.87 E
3108.60	0.43	240.91	S 60 55 W	0.32	3107.82	45.4 148.9	38.90 S 23.49 E
3172.00	0.44	231.01	S 51 1 W	0.12	3171.22	45.5 149.5	39.17 S 23.09 E
3235.50	0.56	218.29	S 38 17 W	0.26	3234.72	45.6 150.1	39.57 S 22.71 E
3299.00	0.58	260.06	S 80 4 W	0.64	3298.22	45.6 150.9	39.86 S 22.20 E
3362.50	0.67	265.93	S 85 56 W	0.17	3361.71	45.4 151.7	39.95 S 21.51 E
3426.00	0.63	280.82	N 79 11 W	0.27	3425.21	45.0 152.5	39.91 S 20.80 E
3489.40	0.53	281.69	N 78 19 W	0.16	3488.60	44.6 153.1	39.78 S 20.17 E
3552.90	0.68	267.74	S 87 44 W	0.33	3552.10	44.3 153.9	39.74 S 19.51 E
3616.40	0.89	278.48	N 81 31 W	0.40	3615.59	43.8 154.8	39.68 S 18.64 E
3679.90	1.11	269.11	S 89 7 W	0.43	3679.09	43.3 156.1	39.62 S 17.54 E
3743.40	1.07	274.46	N 85 32 W	0.17	3742.57	42.8 157.6	39.58 S 16.33 E
3806.80	1.17	283.86	N 76 8 W	0.33	3805.96	42.2 159.0	39.38 S 15.12 E
3870.30	1.39	292.03	N 67 58 W	0.45	3869.45	41.3 160.5	38.93 S 13.77 E
3933.80	1.26	290.76	N 69 14 W	0.21	3932.93	40.4 162.1	38.40 S 12.40 E
3997.30	1.06	298.34	N 61 40 W	0.40	3996.42	39.5 163.5	37.87 S 11.24 E
4060.80	1.12	301.51	N 58 29 W	0.13	4059.90	38.6 164.7	37.27 S 10.19 E

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
4124.20	1.08	290.48	N 69 31 W	0.34	4123.29	37.8 166.1	36.74 S 9.10 E
4187.70	0.87	294.67	N 65 20 W	0.35	4186.78	37.2 167.4	36.33 S 8.10 E
4251.20	0.83	288.49	N 71 31 W	0.16	4250.28	36.7 168.6	35.98 S 7.23 E
4314.70	1.01	293.60	N 66 24 W	0.31	4313.77	36.2 170.0	35.61 S 6.28 E
4378.20	1.06	294.94	N 65 4 W	0.09	4377.26	35.5 171.5	35.14 S 5.23 E
4441.60	0.99	285.48	N 74 31 W	0.29	4440.65	35.0 173.1	34.74 S 4.17 E
4505.10	1.06	272.99	N 87 1 W	0.37	4504.14	34.7 174.9	34.57 S 3.06 E
4568.60	1.16	265.77	S 85 46 W	0.27	4567.63	34.6 177.0	34.58 S 1.83 E
4632.10	1.26	272.11	N 87 53 W	0.26	4631.11	34.6 179.2	34.60 S 0.49 E
4695.60	1.25	272.18	N 87 49 W	0.02	4694.60	34.6 181.5	34.55 S 0.90 W
4759.00	1.30	107.39	S 72 37 E	3.99	4757.99	34.8 181.5	34.74 S 0.90 W
4822.50	1.48	260.67	S 80 40 W	4.26	4821.48	35.1 181.7	35.09 S 1.02 W
4886.00	1.52	251.60	S 71 36 W	0.38	4884.96	35.6 184.2	35.49 S 2.63 W
4949.50	1.50	252.76	S 72 46 W	0.06	4948.44	36.2 186.7	36.00 S 4.22 W
5013.00	1.62	322.12	N 37 53 W	2.80	5011.92	36.0 188.9	35.54 S 5.57 W
5076.40	1.65	253.44	S 73 26 W	2.91	5075.30	35.8 191.3	35.09 S 7.00 W
5139.90	1.78	252.46	S 72 28 W	0.21	5138.77	36.7 193.9	35.65 S 8.81 W
5203.40	1.76	255.07	S 75 4 W	0.13	5202.24	37.7 196.5	36.20 S 10.69 W
5266.90	1.68	249.98	S 69 59 W	0.27	5265.71	38.8 198.8	36.77 S 12.51 W
5330.40	1.80	244.08	S 64 5 W	0.34	5329.18	40.1 200.8	37.52 S 14.28 W
5393.80	1.80	242.29	S 62 17 W	0.09	5392.55	41.6 202.7	38.42 S 16.06 W
5457.30	1.68	248.72	S 68 43 W	0.36	5456.02	43.1 204.4	39.22 S 17.81 W

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5520.80	1.75	247.62	S 67 37 W	0.12	5519.50	44.5 206.1	39.93 S 19.57 W
5584.30	1.93	259.26	S 79 16 W	0.65	5582.96	45.9 208.0	40.50 S 21.52 W
5647.80	2.14	254.05	S 74 3 W	0.44	5646.42	47.4 210.0	41.02 S 23.71 W
5711.20	2.07	271.28	N 88 43 W	1.00	5709.78	48.8 212.2	41.32 S 25.99 W
5774.70	1.99	285.21	N 74 47 W	0.79	5773.24	49.8 214.5	41.01 S 28.21 W
5838.20	1.87	291.17	N 68 50 W	0.37	5836.71	50.4 216.8	40.34 S 30.24 W
5901.70	1.79	292.97	N 67 2 W	0.16	5900.17	51.0 219.1	39.58 S 32.11 W
5965.20	1.61	281.39	N 78 37 W	0.61	5963.65	51.7 221.0	39.02 S 33.90 W
6028.60	1.46	296.74	N 63 16 W	0.69	6027.02	52.4 222.7	38.48 S 35.50 W
6092.10	1.15	309.28	N 50 43 W	0.66	6090.51	52.6 224.2	37.71 S 36.71 W
6155.60	0.82	316.97	N 43 2 W	0.56	6154.00	52.7 225.4	36.98 S 37.52 W
6219.10	0.84	333.71	N 26 17 W	0.38	6217.49	52.5 226.4	36.23 S 38.03 W
6282.60	0.82	346.56	N 13 26 W	0.29	6280.98	52.2 227.3	35.37 S 38.34 W
6346.00	0.89	351.89	N 8 7 W	0.17	6344.38	51.7 228.2	34.44 S 38.52 W
6409.50	1.03	347.04	N 12 58 W	0.25	6407.87	51.1 229.2	33.39 S 38.72 W
6473.00	1.15	350.13	N 9 52 W	0.21	6471.36	50.5 230.4	32.21 S 38.95 W
6536.50	1.07	350.44	N 9 34 W	0.13	6534.84	49.9 231.6	31.00 S 39.16 W
6600.00	0.95	349.68	N 10 19 W	0.19	6598.33	49.4 232.8	29.90 S 39.35 W
6663.40	0.70	345.62	N 14 23 W	0.40	6661.73	49.0 233.7	29.00 S 39.54 W
6726.90	0.42	356.10	N 3 54 W	0.47	6725.23	48.8 234.4	28.40 S 39.66 W
6790.40	0.17	26.36	N 26 22 E	0.45	6788.72	48.6 234.7	28.08 S 39.63 W

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MEASURED DEPTH feet	I N C L deg.	A Z I M U T H deg.	B O R E H O L E B E A R I N G deg. min.	D O G L E G S E V E R I T Y deg./ 100 ft.	V E R T I C A L D E P T H feet	C L O S U R E D I S T. A Z I M U T H feet deg.	H O R I Z O N T A L C O O R D I N A T E S feet
6853.90	0.08	33.21	N 33 13 E	0.14	6852.22	48.4 234.8	27.96 S 39.56 W
6917.40	0.13	334.04	N 25 58 W	0.18	6915.72	48.4 234.9	27.86 S 39.57 W
6980.80	0.14	313.19	N 46 49 W	0.08	6979.12	48.4 235.0	27.74 S 39.66 W
7044.30	0.34	231.27	S 51 16 W	0.55	7042.62	48.6 235.1	27.80 S 39.86 W
7107.80	0.92	223.25	S 43 15 W	0.92	7106.12	49.3 235.0	28.29 S 40.36 W
7171.30	1.46	227.79	S 47 47 W	0.86	7169.61	50.6 234.7	29.21 S 41.31 W
7234.80	1.91	231.63	S 51 38 W	0.73	7233.08	52.4 234.6	30.41 S 42.74 W
7298.20	1.90	233.82	S 53 49 W	0.12	7296.44	54.6 234.5	31.68 S 44.41 W

Final Station Closure: Distance: 54.56 ft Az: 234.50 deg

