

30-015-40964

A Gyrodata Directional Survey

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 25 2014

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FINAL DEFINITIVE COPY

for

BOPCO LP

Lease: POKER LAKE UNIT Well: 410H, 4 1/2 DRILLPIPE
Location: MCVAY DRILLING RIG 5, EDDY COUNTY, NEW MEXICO

gyrodata

Job Number: MD0514GDM526

Azimuth Correction:

Gyro: -0.30000 deg to Grid North

Run Date: 22 May 2014

Report Generated: 27 May 2014 12:23

Depth Reference: Rotary Table

Surveyor: Charles Lee Tatum

Air Gap (RKB to Ground / RKB to MSL): 19.50

Calculation Method: MINIMUM CURVATURE

Vertical Section Calculated from Well Head Location

Survey surface coordinates obtained from: Well Plan/Plot

Closure Calculated from Well Head Location

Survey Latitude: 32.197522 deg. N Longitude: 103.778142 deg. W

Horizontal Coordinates Calculated from Well Head Location

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
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0.00	0.00	0.00	0.00	0.00	0.0 0.0	0.00 N 0.00 E
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0 - 7,408 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4 1/2" DRILLPIPE
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO MCVAY DRILLING RIG #5 R.K.B. HEIGHT OF 19.5 FT.

524.66	1.61	232.98	0.31	524.59	7.4 233.0	4.44 S 5.89 W
618.96	1.97	235.23	0.39	618.84	10.3 233.3	6.16 S 8.27 W
713.26	2.14	238.05	0.21	713.08	13.7 234.2	8.02 S 11.10 W
807.56	2.31	240.87	0.21	807.31	17.3 235.3	9.87 S 14.25 W
901.86	2.42	242.31	0.13	901.53	21.2 236.4	11.72 S 17.68 W
996.16	2.51	243.50	0.11	995.75	25.2 237.5	13.57 S 21.29 W
1090.46	2.17	243.55	0.36	1089.97	29.1 238.3	15.29 S 24.73 W
1184.76	0.73	231.42	1.55	1184.23	31.5 238.5	16.46 S 26.80 W
1279.06	0.65	231.18	0.08	1278.53	32.6 238.2	17.17 S 27.69 W
1373.35	0.60	235.71	0.07	1372.81	33.6 238.1	17.78 S 28.51 W
1467.65	0.48	244.38	0.15	1467.11	34.5 238.1	18.23 S 29.28 W
1561.95	0.32	243.91	0.17	1561.41	35.1 238.2	18.51 S 29.87 W
1656.25	0.13	232.48	0.21	1655.70	35.5 238.2	18.70 S 30.19 W
1750.55	0.09	144.64	0.16	1750.00	35.6 238.1	18.82 S 30.23 W
1844.85	0.14	121.42	0.07	1844.30	35.6 237.8	18.94 S 30.09 W
1939.15	0.15	111.50	0.03	1938.60	35.4 237.5	19.05 S 29.88 W
2033.45	0.14	110.37	0.01	2032.90	35.3 237.2	19.13 S 29.66 W

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2127.75	0.02	91.47	0.13	2127.20	35.2 237.0	19.17 S 29.53 W
2222.05	0.01	270.75	0.03	2221.50	35.2 237.0	19.17 S 29.52 W
2316.34	0.01	216.29	0.01	2315.79	35.2 237.0	19.18 S 29.54 W
2410.64	0.06	163.34	0.06	2410.09	35.2 236.9	19.23 S 29.53 W
2504.94	0.10	154.12	0.04	2504.39	35.3 236.7	19.36 S 29.48 W
2599.24	0.11	157.17	0.01	2598.69	35.3 236.4	19.51 S 29.41 W
2693.54	0.11	159.02	0.00	2692.99	35.3 236.1	19.68 S 29.34 W
2787.84	0.08	150.11	0.04	2787.29	35.4 235.9	19.82 S 29.27 W
2882.14	0.10	151.92	0.02	2881.59	35.4 235.7	19.95 S 29.20 W
2976.44	0.10	141.65	0.02	2975.89	35.4 235.4	20.09 S 29.11 W
3070.74	0.19	119.39	0.11	3070.19	35.3 235.0	20.23 S 28.92 W
3165.03	0.33	97.52	0.18	3164.48	35.0 234.5	20.34 S 28.52 W
3259.33	0.32	88.92	0.05	3258.78	34.6 233.9	20.37 S 27.99 W
3353.63	0.20	80.90	0.13	3353.08	34.3 233.6	20.34 S 27.56 W
3447.93	0.22	74.48	0.03	3447.38	33.9 233.3	20.27 S 27.22 W
3542.23	0.29	93.18	0.11	3541.68	33.6 233.0	20.23 S 26.81 W
3636.53	0.52	109.23	0.27	3635.97	33.2 232.1	20.39 S 26.17 W
3730.83	0.77	115.85	0.28	3730.27	32.7 230.5	20.80 S 25.19 W
3825.13	0.99	117.61	0.24	3824.56	32.1 228.1	21.46 S 23.90 W
3919.43	1.01	124.95	0.14	3918.84	31.7 225.2	22.31 S 22.50 W
4013.73	0.41	157.54	0.74	4013.14	31.7 223.2	23.10 S 21.69 W
4108.02	0.38	180.74	0.17	4107.42	32.1 222.3	23.72 S 21.56 W

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4202.32	0.45	146.62	0.27	4201.72	32.4 221.3	24.35 S 21.36 W
4296.62	0.28	135.92	0.19	4296.02	32.5 220.2	24.82 S 21.00 W
4390.92	0.12	154.31	0.18	4390.32	32.6 219.7	25.07 S 20.80 W
4485.22	0.09	236.83	0.15	4484.62	32.7 219.6	25.20 S 20.82 W
4579.52	0.14	231.55	0.05	4578.92	32.9 219.6	25.32 S 20.97 W
4673.82	0.16	222.28	0.03	4673.22	33.1 219.7	25.49 S 21.15 W
4768.12	0.20	218.32	0.04	4767.52	33.4 219.7	25.71 S 21.34 W
4862.42	0.22	208.40	0.04	4861.82	33.8 219.6	26.00 S 21.53 W
4956.72	0.21	195.32	0.05	4956.12	34.1 219.4	26.33 S 21.66 W
5051.02	0.28	193.26	0.07	5050.42	34.5 219.2	26.72 S 21.76 W
5145.31	0.23	190.53	0.05	5144.70	34.8 218.8	27.13 S 21.84 W
5239.61	0.13	191.80	0.11	5239.00	35.1 218.6	27.42 S 21.90 W
5333.91	0.09	196.93	0.04	5333.30	35.3 218.5	27.59 S 21.94 W
5428.21	0.10	184.04	0.02	5427.60	35.4 218.4	27.75 S 21.97 W
5522.51	0.11	202.63	0.04	5521.90	35.5 218.3	27.91 S 22.01 W
5616.81	0.11	207.58	0.01	5616.20	35.7 218.2	28.08 S 22.09 W
5711.11	0.04	179.13	0.08	5710.50	35.8 218.1	28.19 S 22.13 W
5805.41	0.20	57.19	0.24	5804.80	35.7 218.0	28.13 S 21.99 W
5899.71	0.38	53.00	0.19	5899.10	35.3 217.8	27.86 S 21.60 W
5994.01	0.41	55.87	0.04	5993.40	34.6 217.5	27.48 S 21.07 W
6088.30	0.17	96.91	0.32	6087.69	34.2 217.1	27.31 S 20.66 W

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6182.60	0.21	139.93	0.15	6181.99	34.2 216.6	27.46 S 20.41 W
6276.90	0.23	158.07	0.08	6276.29	34.3 216.1	27.76 S 20.22 W
6371.20	0.27	153.41	0.05	6370.59	34.6 215.5	28.14 S 20.05 W
6465.50	0.38	152.60	0.12	6464.88	34.8 214.7	28.61 S 19.81 W
6559.80	0.40	157.32	0.04	6559.18	35.1 213.8	29.19 S 19.54 W
6654.10	0.48	163.63	0.10	6653.48	35.6 212.9	29.88 S 19.30 W
6748.40	0.56	175.80	0.14	6747.78	36.2 212.0	30.72 S 19.16 W
6842.70	0.67	181.30	0.13	6842.07	37.1 211.1	31.73 S 19.14 W
6936.99	0.63	170.27	0.14	6936.35	37.9 210.2	32.79 S 19.06 W
7031.29	0.72	171.36	0.10	7030.65	38.8 209.1	33.89 S 18.88 W
7125.59	0.83	179.10	0.16	7124.94	39.9 208.1	35.15 S 18.78 W
7219.89	0.83	178.10	0.02	7219.23	41.1 207.2	36.52 S 18.75 W
7314.19	1.04	171.57	0.25	7313.52	42.4 206.1	38.05 S 18.60 W
7408.49	1.10	164.82	0.15	7407.80	43.8 204.6	39.77 S 18.24 W

Final Station Closure: Distance: 43.75 ft Az: 204.64 deg.