

30-DIS-42479

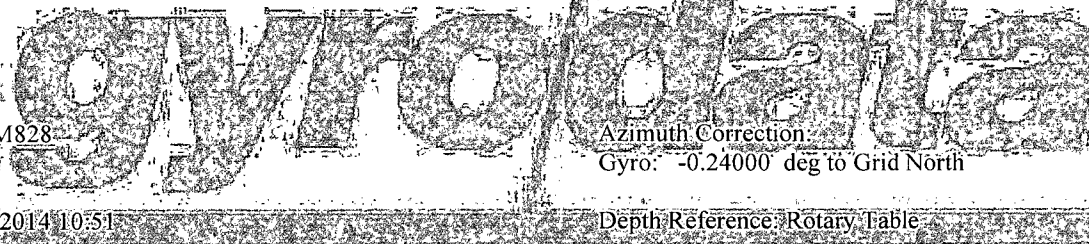
A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

BOPCO, LP.

Lease: BIG EDDY UNIT D14 Well: #270, 5" DRILLPIPE
Location: LATSHAW RIG #18, EDDY COUNTY, NEW MEXICO



Job Number: MD0814GDM828

Run Date: 18 Aug 2014

Report Generated: 26 Aug 2014 10:51

Azimuth Correction:
Gyro: -0.24000 deg to Grid North

Depth Reference: Rotary Table

Surveyor: Jason Solomon

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Well Plan/Plot

Survey Latitude: 32.607562 deg. N Longitude: 103.889579 deg. W

Air Gap (RKB to Ground / RKB to MSL): 30.00

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.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00 N 0.00 E
0 TO 7810 FT. RATE GYROSCOPIC MULTISHOT DROP RUN INSIDE 5" DRILLPIPE							
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO LATSHAW RIG #18 RKB 30 FT.							
101.96	0.55	14.98	0.54	101.96	0.5	15.0	0.47 N 0.13 E
192.56	0.80	357.22	0.36	192.55	1.5	7.8	1.52 N 0.21 E
280.56	0.51	359.39	0.33	280.55	2.5	3.9	2.53 N 0.17 E
371.07	0.28	311.70	0.42	371.05	3.1	0.1	3.08 N 0.00 E
463.27	0.18	300.57	0.12	463.25	3.3	355.0	3.30 N 0.29 W
553.69	0.17	279.93	0.07	553.67	3.4	350.9	3.40 N 0.54 W
645.36	0.18	293.63	0.05	645.34	3.6	346.9	3.48 N 0.81 W
734.73	0.21	290.02	0.04	734.71	3.8	343.1	3.59 N 1.09 W
824.42	0.23	296.58	0.04	824.40	4.0	339.3	3.73 N 1.41 W
918.82	0.19	290.43	0.05	918.80	4.2	336.0	3.87 N 1.72 W
1013.22	0.19	288.90	0.01	1013.20	4.5	333.1	3.97 N 2.02 W
1107.62	0.11	300.88	0.09	1107.60	4.6	331.1	4.07 N 2.24 W
1202.02	0.37	102.81	0.50	1202.00	4.5	333.4	4.05 N 2.02 W
1296.42	0.85	112.32	0.52	1296.39	3.9	343.8	3.72 N 1.08 W
1390.82	1.69	116.35	0.89	1390.77	2.9	16.1	2.83 N 0.82 E
1485.22	2.38	116.37	0.73	1485.11	4.0	70.6	1.34 N 3.82 E
1579.62	2.71	115.06	0.35	1579.42	7.6	93.6	0.47 S 7.60 E
1674.02	2.65	114.27	0.07	1673.71	11.8	101.3	2.31 S 11.61 E
1768.42	2.60	116.36	0.11	1768.01	16.1	105.0	4.16 S 15.52 E

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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
1862.82	2.54	114.57	0.11	1862.32	20.2 107.2	5.98 S 19.34 E
1957.22	1.96	106.27	0.70	1956.65	23.9 107.8	7.30 S 22.79 E
2051.62	1.80	99.34	0.29	2051.00	27.0 107.2	8.00 S 25.80 E
2146.02	1.53	87.15	0.47	2145.36	29.7 106.0	8.18 S 28.52 E
2240.42	1.11	45.10	1.09	2239.73	31.3 103.8	7.47 S 30.43 E
2334.82	0.52	28.54	0.67	2334.12	31.9 101.6	6.45 S 31.28 E
2429.22	0.48	292.62	0.79	2428.52	31.7 100.8	5.92 S 31.12 E
2523.62	0.61	271.87	0.25	2522.92	30.8 100.8	5.75 S 30.26 E
2618.02	0.66	267.66	0.07	2617.31	29.8 101.1	5.75 S 29.21 E
2712.42	0.39	255.71	0.31	2711.71	29.0 101.7	5.86 S 28.35 E
2806.82	0.44	234.08	0.17	2806.10	28.4 102.5	6.15 S 27.75 E
2901.22	0.56	235.24	0.13	2900.50	27.9 103.7	6.62 S 27.08 E
2995.62	0.55	239.92	0.05	2994.90	27.3 105.1	7.11 S 26.31 E
3090.02	0.25	248.71	0.32	3089.29	26.8 106.1	7.42 S 25.72 E
3184.42	0.38	244.08	0.14	3183.69	26.4 106.8	7.63 S 25.25 E
3278.82	0.65	275.71	0.41	3278.09	25.6 107.5	7.71 S 24.43 E
3373.22	1.25	312.53	0.88	3372.48	24.2 106.7	6.96 S 23.14 E
3467.62	1.71	329.03	0.66	3466.84	22.2 103.1	5.06 S 21.66 E
3562.02	1.61	338.99	0.32	3561.21	20.6 97.3	2.61 S 20.46 E
3656.42	1.09	330.85	0.59	3655.58	19.6 91.7	0.59 S 19.55 E
3750.82	1.13	308.83	0.45	3749.96	18.4 87.6	0.78 N 18.38 E
3845.22	1.29	306.15	0.18	3844.34	16.9 83.2	1.99 N 16.80 E
3939.62	1.33	307.56	0.05	3938.72	15.4 77.7	3.28 N 15.07 E

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4034.02	1.25	283.26	0.58	4033.09	13.9	72.4	4.19 N 13.20 E
4128.42	1.40	288.77	0.21	4127.47	12.1	66.7	4.79 N 11.11 E
4222.82	1.41	292.74	0.10	4221.84	10.6	57.9	5.61 N 8.95 E
4317.22	0.43	249.33	1.20	4316.23	9.6	51.8	5.94 N 7.54 E
4411.62	0.35	213.39	0.27	4410.62	9.0	51.7	5.57 N 7.05 E
4506.02	0.36	213.83	0.01	4505.02	8.4	52.9	5.09 N 6.73 E
4600.42	0.35	221.01	0.05	4599.42	7.9	54.1	4.62 N 6.38 E
4694.82	0.19	262.01	0.26	4693.82	7.5	54.0	4.38 N 6.03 E
4789.22	0.25	273.16	0.08	4788.22	7.2	52.4	4.37 N 5.67 E
4883.62	0.29	188.33	0.39	4882.62	6.8	52.6	4.15 N 5.43 E
4978.02	0.32	269.80	0.42	4977.02	6.5	52.7	3.91 N 5.13 E
5072.42	0.31	218.78	0.29	5071.42	6.0	51.8	3.71 N 4.71 E
5166.82	0.30	217.95	0.01	5165.81	5.5	53.0	3.32 N 4.40 E
5261.22	0.27	146.32	0.35	5260.21	5.3	56.1	2.94 N 4.37 E
5355.62	0.45	122.56	0.24	5354.61	5.4	62.0	2.55 N 4.80 E
5450.02	0.48	119.94	0.04	5449.01	5.9	68.5	2.15 N 5.46 E
5544.42	0.43	118.03	0.06	5543.41	6.4	73.7	1.79 N 6.11 E
5638.82	0.46	115.39	0.04	5637.80	6.9	77.8	1.46 N 6.77 E
5733.22	0.38	72.79	0.33	5732.20	7.5	79.4	1.39 N 7.41 E
5827.62	0.33	56.22	0.12	5826.60	8.1	78.4	1.64 N 7.94 E
5922.02	0.29	36.92	0.12	5921.00	8.5	76.6	1.98 N 8.31 E
6016.42	0.32	28.56	0.06	6015.40	8.9	74.4	2.40 N 8.57 E
6110.82	0.36	21.27	0.06	6109.79	9.3	71.7	2.91 N 8.81 E

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6205.22	0.40	22.32	0.04	6204.19	9.7	68.9	3.49 N 9.04 E
6299.62	0.44	20.17	0.05	6298.59	10.2	66.0	4.13 N 9.29 E
6394.02	0.49	13.79	0.08	6392.99	10.7	62.9	4.87 N 9.51 E
6488.42	0.51	353.57	0.19	6487.38	11.1	59.3	5.68 N 9.56 E
6582.82	0.59	348.19	0.10	6581.78	11.5	55.1	6.57 N 9.42 E
6677.22	0.67	324.53	0.29	6676.17	11.7	50.2	7.49 N 8.99 E
6771.62	0.76	344.46	0.28	6770.57	12.1	44.9	8.55 N 8.50 E
6866.02	1.00	351.10	0.28	6864.96	12.9	39.5	9.96 N 8.21 E
6960.42	0.23	84.57	0.10	6959.35	13.6	37.5	10.80 N 8.27 E
7054.82	0.64	106.57	0.46	7053.75	13.9	40.1	10.66 N 8.96 E
7149.22	0.65	90.03	0.20	7148.14	14.5	43.6	10.51 N 10.01 E
7243.62	0.77	67.18	0.32	7242.53	15.5	46.0	10.76 N 11.13 E
7338.02	0.76	79.96	0.18	7336.93	16.6	48.0	11.11 N 12.33 E
7432.42	0.53	101.95	0.35	7431.32	17.4	50.2	11.13 N 13.37 E
7526.82	0.40	141.44	0.36	7525.72	17.7	52.4	10.78 N 14.00 E
7621.22	0.16	128.01	0.26	7620.12	17.7	53.9	10.45 N 14.31 E
7715.62	0.83	1.62	0.99	7714.51	18.2	52.6	11.05 N 14.44 E
7810.02	0.63	37.29	0.51	7808.91	19.1	50.6	12.14 N 14.77 E

Final Station Closure: Distance: 19.12 ft Az: 50.57 deg.