

30-015-42638

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

For

BOPCO, LP

Lease: BIG EDDY UNIT D14 Well: #269H, 5" DRILLPIPE
Location: INDEPENDENCE DRILLING #202, EDDY COUNTY, NEW MEXICO

NM OIL CONSERVATION
ARTESIA DISTRICT
NOV 21 2016
RECEIVED

Job Number: MD0115GBM162

Run Date: 29 Jan 2015
Report Generated: 20 Oct 2016 04:35

Surveyor: Jason Solomon

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Well Plan/Plot
Survey Latitude: 32.608514 deg. N Longitude: 103.889075 deg. W

Azimuth Correction:
Gyro: -0.24000 deg to Grid North
Depth Reference: Rotary Table

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	INCL	AZIMUTH	DOGLEG SEVERITY	VERTICAL DEPTH	CLOSURE DIST.	AZIMUTH deg.	HORIZONTAL COORDINATES
feet	deg.	deg.	deg./ 100 ft.	feet	feet	deg.	feet

0 TO 7993 FT. RATE GYROSCOPIC BATTERY MULTISHOT RUN INSIDE 5" DRILLPIPE
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO INDEPENDENCE DRILLING #202 AND RKB HEIGHT OF 30 FT.

100.00	0.13	110.04	0.13	100.00	0.1	110.0	0.04 S	0.11 E
200.00	0.10	81.63	0.06	200.00	0.3	102.3	0.07 S	0.30 E
300.00	0.06	74.53	0.04	300.00	0.4	95.0	0.04 S	0.44 E
400.00	0.09	97.94	0.04	400.00	0.6	93.6	0.04 S	0.56 E
500.00	0.48	132.31	0.41	500.00	1.0	109.0	0.33 S	0.95 E
600.00	0.59	133.17	0.11	599.99	1.9	120.4	0.96 S	1.64 E
700.00	0.66	132.62	0.07	699.99	3.0	125.0	1.70 S	2.44 E
800.00	0.56	139.34	0.12	799.98	4.0	127.8	2.47 S	3.18 E
900.00	0.54	142.57	0.04	899.98	5.0	130.3	3.21 S	3.78 E
1000.00	0.47	149.35	0.09	999.97	5.8	132.6	3.94 S	4.28 E
1100.00	2.10	108.24	1.77	1099.95	7.9	128.0	4.86 S	6.23 E
1200.00	2.11	108.27	0.01	1199.88	11.4	121.8	6.01 S	9.72 E
1300.00	1.84	108.81	0.27	1299.82	14.8	118.7	7.11 S	12.98 E
1400.00	1.77	109.83	0.08	1399.77	17.9	117.1	8.15 S	15.96 E
1500.00	1.59	109.41	0.18	1499.73	20.8	116.0	9.14 S	18.72 E
1600.00	1.45	104.23	0.20	1599.69	23.4	115.0	9.91 S	21.25 E
1700.00	1.25	99.03	0.23	1699.66	25.7	113.8	10.39 S	23.56 E
1800.00	1.23	93.58	0.12	1799.64	27.8	112.5	10.63 S	25.71 E

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MEASURED DEPTH	INCL deg.	INCL deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
1900.00	1.13	90.35	0.12	1899.62	29.8	111.1	10.70 S 27.76 E
2000.00	1.07	85.25	0.11	1999.60	31.5	109.7	10.63 S 29.68 E
2100.00	1.01	84.11	0.06	2099.58	33.2	108.4	10.46 S 31.49 E
2200.00	0.91	82.49	0.10	2199.57	34.7	107.2	10.27 S 33.15 E
2300.00	0.74	79.20	0.18	2299.56	36.0	106.2	10.04 S 34.57 E
2400.00	0.69	77.00	0.06	2399.55	37.1	105.3	9.79 S 35.79 E
2500.00	0.70	80.73	0.05	2499.54	38.2	104.5	9.55 S 36.98 E
2600.00	0.91	78.21	0.21	2599.53	39.5	103.6	9.29 S 38.36 E
2700.00	0.86	92.27	0.22	2699.52	40.9	102.9	9.16 S 39.89 E
2800.00	0.65	75.05	0.31	2799.51	42.2	102.4	9.04 S 41.19 E
2900.00	0.85	17.80	0.74	2899.51	42.8	101.0	8.19 S 41.96 E
3000.00	1.70	342.34	1.12	2999.48	42.2	98.3	6.07 S 41.74 E
3100.00	1.73	326.76	0.47	3099.44	40.6	94.8	3.39 S 40.46 E
3200.00	1.77	294.87	0.96	3199.39	38.3	92.2	1.48 S 38.23 E
3300.00	2.13	286.22	0.46	3299.34	35.0	90.5	0.31 S 35.05 E
3400.00	2.41	303.68	0.74	3399.26	31.5	87.5	1.37 N 31.51 E
3500.00	2.52	324.81	0.91	3499.17	28.8	81.4	4.33 N 28.50 E
3600.00	2.38	326.20	0.15	3599.08	27.2	73.2	7.86 N 26.08 E
3700.00	2.05	327.76	0.34	3699.00	26.4	65.2	11.09 N 23.97 E
3800.00	1.92	328.28	0.13	3798.94	26.2	57.6	14.03 N 22.13 E
3900.00	2.03	324.03	0.18	3898.88	26.3	50.1	16.89 N 20.21 E
4000.00	0.80	313.43	1.25	3998.85	26.5	44.8	18.80 N 18.66 E

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4100.00	0.17	291.87	0.64	4098.85	26.4	43.0	19.34 N 18.02 E
4200.00	1.02	125.33	1.19	4198.84	26.5	44.6	18.88 N 18.61 E
4300.00	0.93	124.64	0.09	4298.83	26.8	48.2	17.90 N 20.00 E
4400.00	0.96	123.06	0.04	4398.81	27.3	51.5	16.99 N 21.37 E
4500.00	1.03	124.12	0.07	4498.80	27.9	54.9	16.02 N 22.82 E
4600.00	1.92	135.60	0.93	4598.76	28.6	59.9	14.32 N 24.73 E
4700.00	2.19	139.96	0.31	4698.70	29.5	66.7	11.66 N 27.13 E
4800.00	2.14	141.03	0.06	4798.63	30.8	73.5	8.75 N 29.54 E
4900.00	2.18	150.86	0.37	4898.56	32.1	79.9	5.64 N 31.64 E
5000.00	2.11	150.61	0.07	4998.49	33.6	85.9	2.37 N 33.47 E
5100.00	2.26	149.21	0.16	5098.42	35.4	91.5	0.93 S 35.38 E
5200.00	2.04	173.59	0.93	5198.35	36.9	96.8	4.39 S 36.59 E
5300.00	1.84	176.18	0.22	5298.29	37.7	101.9	7.76 S 36.89 E
5400.00	0.29	151.83	1.58	5398.27	38.3	104.5	9.59 S 37.12 E
5500.00	0.19	115.82	0.18	5498.27	38.7	104.8	9.88 S 37.39 E
5600.00	0.03	89.69	0.16	5598.27	38.9	104.8	9.95 S 37.56 E
5700.00	0.17	104.94	0.14	5698.27	39.0	104.8	9.99 S 37.73 E
5800.00	0.12	78.62	0.08	5798.27	39.3	104.8	10.01 S 37.98 E
5900.00	0.19	50.73	0.10	5898.27	39.5	104.5	9.88 S 38.21 E
6000.00	0.20	44.37	0.02	5998.27	39.7	104.1	9.65 S 38.46 E
6100.00	0.34	17.94	0.18	6098.27	39.8	103.4	9.25 S 38.67 E

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feet	deg.	deg.	deg./ 100 ft.	feet	feet	deg.	feet
6200.00	0.40	13.22	0.07	6198.26	39.8	102.5	8.62 S 38.85 E
6300.00	0.53	15.69	0.13	6298.26	39.8	101.4	7.84 S 39.05 E
6400.00	0.58	17.72	0.05	6398.26	39.9	100.0	6.91 S 39.33 E
6500.00	0.61	13.38	0.05	6498.25	40.0	98.5	5.91 S 39.61 E
6600.00	0.74	15.23	0.13	6598.24	40.2	96.8	4.77 S 39.90 E
6700.00	0.52	6.26	0.24	6698.24	40.3	95.3	3.70 S 40.12 E
6800.00	0.71	218.51	1.18	6798.24	40.0	95.4	3.73 S 39.78 E
6900.00	0.77	236.55	0.24	6898.23	39.1	96.7	4.59 S 38.84 E
7000.00	0.80	244.17	0.11	6998.22	38.0	98.0	5.26 S 37.65 E
7100.00	0.62	242.86	0.18	7098.21	37.0	99.0	5.81 S 36.54 E
7200.00	0.86	232.77	0.27	7198.20	36.1	100.4	6.51 S 35.46 E
7300.00	0.26	173.12	0.76	7298.20	35.6	101.6	7.19 S 34.89 E
7400.00	0.25	163.01	0.05	7398.20	35.8	102.3	7.62 S 34.98 E
7500.00	0.13	174.40	0.13	7498.20	35.9	102.8	7.95 S 35.05 E
7600.00	0.13	183.37	0.02	7598.20	36.0	103.1	8.17 S 35.06 E
7700.00	0.30	130.33	0.24	7698.19	36.3	103.5	8.46 S 35.25 E
7800.00	0.54	107.72	0.29	7798.19	37.0	103.7	8.77 S 35.90 E
7900.00	0.55	116.79	0.09	7898.19	37.9	103.9	9.13 S 36.78 E
7993.00	0.32	123.87	0.25	7991.18	38.6	104.2	9.47 S 37.39 E

Final Station Closure: Distance: 38.57 ft Az: 104.22 deg.