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A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

CONOCO PHILLIPS

Lease: STAMPEDE FED 27 Well: 1M, 4 INCH DRILLPIPE

Location: H & P DRILLING RIG 486, EDDY COUNTY, NEW MEXICO

Job Number: MD0514GDM483

Run Date: 08 May 2014

Report Generated: 14 May 2014 10:36

Surveyor: Michael Robles, Miguel Ramirez

Calculation Method: MINIMUM-CURVATURE

Survey surface coordinates obtained from: Company Man

Survey Latitude: 32.011964 deg. N Longitude: 103.769833 deg. W

Azimuth Correction:

Gyro: -0.30000 deg to Grid North.

Depth Reference: Rotary Table

Air Gap (RKB to Ground / RKB to MSL): 25:00

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
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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 TO 14050 FT RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4" DRILLPIPE

ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO H & P DRILLING RIG # 486 R.K.B. 25 FT

59.64	0.14	132.33	0.23	59.64	0.1	132.3	0.05 S 0.05 E
154.17	0.15	131.83	0.01	154.17	0.3	132.1	0.21 S 0.23 E
248.70	0.45	112.72	0.33	248.70	0.8	123.2	0.44 S 0.67 E
343.23	0.51	117.28	0.08	343.22	1.6	119.2	0.77 S 1.38 E
437.76	0.51	129.56	0.12	437.75	2.4	120.6	1.23 S 2.08 E
532.29	0.51	144.26	0.14	532.28	3.2	124.8	1.84 S 2.65 E
626.82	0.58	152.84	0.11	626.80	4.1	129.9	2.61 S 3.11 E
721.35	0.75	163.88	0.22	721.33	5.0	136.0	3.63 S 3.51 E
815.88	1.19	171.83	0.49	815.84	6.4	143.7	5.19 S 3.82 E
910.41	1.73	172.11	0.57	910.34	8.6	151.3	7.58 S 4.15 E
1004.94	2.01	176.62	0.33	1004.82	11.5	157.3	10.65 S 4.45 E
1099.47	1.43	169.37	0.65	1099.31	14.3	160.5	13.46 S 4.76 E
1194.00	1.68	123.01	1.32	1193.81	16.6	158.2	15.38 S 6.14 E
1288.53	1.70	122.97	0.02	1288.30	18.9	153.4	16.89 S 8.48 E
1383.06	0.53	283.53	2.33	1382.82	19.8	152.3	17.56 S 9.23 E
1477.59	0.54	283.29	0.01	1477.34	19.3	154.2	17.35 S 8.37 E
1572.12	0.83	285.13	0.31	1571.86	18.6	156.9	17.07 S 7.28 E

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MEASURED DEPTH feet	I N C L deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
1666.65	0.85	285.30	0.02	1666.38	17.7	160.4	16.71 S 5.94 E
1761.18	0.85	288.36	0.05	1760.90	16.9	164.2	16.30 S 4.60 E
1855.71	0.84	296.59	0.13	1855.42	16.1	168.1	15.77 S 3.31 E
1950.24	0.85	298.27	0.03	1949.94	15.3	172.2	15.13 S 2.08 E
2044.77	0.84	298.70	0.01	2044.46	14.5	176.6	14.46 S 0.85 E
2139.30	0.76	290.44	0.15	2138.98	13.9	181.4	13.91 S 0.34 W
2233.83	0.77	292.12	0.03	2233.51	13.5	186.4	13.45 S 1.52 W
2328.36	1.18	354.66	1.13	2328.02	12.4	190.2	12.24 S 2.20 W
2422.89	1.40	5.77	0.35	2422.53	10.4	192.1	10.13 S 2.17 W
2517.42	0.91	8.91	0.52	2517.04	8.5	193.3	8.24 S 1.94 W
2611.95	0.97	10.52	0.07	2611.56	6.9	194.1	6.71 S 1.68 W
2706.48	0.97	10.58	0.00	2706.07	5.3	195.1	5.13 S 1.39 W
2801.01	0.69	16.17	0.31	2800.59	4.0	195.9	3.80 S 1.08 W
2895.54	0.66	5.52	0.14	2895.12	2.8	197.8	2.71 S 0.87 W
2990.07	0.46	352.03	0.25	2989.64	2.0	205.9	1.79 S 0.87 W
3084.60	0.36	349.33	0.11	3084.17	1.5	221.0	1.13 S 0.98 W
3179.13	0.25	349.05	0.12	3178.70	1.2	239.5	0.63 S 1.07 W
3273.66	0.18	350.61	0.07	3273.23	1.2	256.0	0.28 S 1.14 W
3368.19	0.28	113.48	0.43	3367.76	1.0	256.4	0.23 S 0.95 W
3462.72	0.28	113.54	0.00	3462.29	0.7	231.8	0.41 S 0.52 W
3557.25	0.85	124.49	0.61	3556.81	0.9	163.6	0.90 S 0.27 E
3651.78	1.01	123.68	0.17	3651.33	2.3	138.9	1.76 S 1.54 E

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MEASURED DEPTH	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
3746.31	1.01	120.85	0.05	3745.84	4.0	132.0	2.65 S 2.95 E
3840.84	1.29	124.38	0.31	3840.36	5.8	129.0	3.68 S 4.54 E
3935.37	1.41	126.21	0.13	3934.86	8.1	128.0	4.97 S 6.36 E
4029.90	1.27	121.60	0.19	4029.36	10.3	127.2	6.20 S 8.19 E
4124.43	1.11	117.23	0.19	4123.87	12.2	125.9	7.17 S 9.89 E
4218.96	1.02	115.22	0.10	4218.39	14.0	124.7	7.95 S 11.47 E
4313.49	0.81	106.55	0.27	4312.90	15.4	123.4	8.50 S 12.87 E
4408.02	0.42	80.11	0.50	4407.43	16.3	121.9	8.63 S 13.85 E
4502.55	0.48	340.03	0.73	4501.96	16.3	120.2	8.20 S 14.06 E
4597.08	0.48	339.92	0.00	4596.48	15.7	118.4	7.45 S 13.79 E
4691.61	0.61	329.04	0.18	4691.01	15.0	116.4	6.65 S 13.39 E
4786.14	0.62	314.90	0.16	4785.53	14.0	114.6	5.86 S 12.77 E
4880.67	0.66	307.65	0.10	4880.06	13.0	113.3	5.16 S 11.98 E
4975.20	0.69	298.40	0.12	4974.58	11.9	112.4	4.56 S 11.04 E
5069.73	0.73	291.67	0.10	5069.11	10.8	112.2	4.07 S 9.98 E
5164.26	0.73	291.63	0.00	5163.63	9.6	112.2	3.62 S 8.87 E
5258.79	0.73	291.63	0.00	5258.15	8.4	112.3	3.18 S 7.75 E
5353.32	0.72	284.31	0.10	5352.67	7.2	113.0	2.81 S 6.61 E
5447.85	0.74	280.23	0.06	5447.19	6.0	115.2	2.55 S 5.43 E
5542.38	0.88	274.52	0.17	5541.72	4.8	120.2	2.39 S 4.11 E
5636.91	0.93	271.39	0.07	5636.23	3.5	131.4	2.31 S 2.62 E

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5731.44	0.93	271.48	0.00	5730.75	2.5 154.5	2.27 S 1.09 E
5825.97	0.96	265.90	0.10	5825.27	2.4 191.5	2.31 S 0.47 W
5920.50	0.99	260.08	0.11	5919.78	3.2 219.5	2.51 S 2.07 W
6015.03	1.06	257.74	0.09	6014.30	4.7 232.7	2.83 S 3.72 W
6109.56	1.17	256.06	0.12	6108.81	6.4 239.5	3.25 S 5.52 W
6204.09	1.22	254.44	0.06	6203.32	8.3 243.2	3.76 S 7.42 W
6298.62	1.31	249.20	0.15	6297.83	10.4 244.9	4.41 S 9.40 W
6393.15	1.40	242.37	0.20	6392.33	12.6 245.0	5.33 S 11.43 W
6487.68	1.23	242.72	0.18	6486.84	14.8 244.7	6.33 S 13.36 W
6582.21	0.93	249.61	0.35	6581.35	16.6 244.8	7.06 S 14.98 W
6676.74	0.92	251.26	0.03	6675.87	18.1 245.2	7.57 S 16.42 W
6771.27	0.92	248.60	0.05	6770.38	19.6 245.6	8.09 S 17.84 W
6865.80	0.38	265.50	0.60	6864.91	20.6 246.0	8.39 S 18.86 W
6960.33	1.34	55.42	1.78	6959.43	19.9 246.9	7.79 S 18.27 W
7054.86	1.34	55.22	0.01	7053.94	17.7 248.3	6.53 S 16.45 W
7149.39	1.39	60.30	0.14	7148.44	15.5 249.9	5.34 S 14.54 W
7243.92	1.37	64.03	0.10	7242.94	13.2 251.2	4.27 S 12.53 W
7338.45	1.26	66.32	0.13	7337.45	11.1 252.4	3.36 S 10.57 W
7432.98	1.19	68.36	0.09	7431.95	9.1 253.5	2.58 S 8.70 W
7527.51	1.09	71.51	0.12	7526.47	7.2 254.4	1.93 S 6.94 W
7622.04	0.97	77.68	0.17	7620.98	5.5 254.4	1.48 S 5.30 W
7716.57	0.86	90.87	0.25	7715.50	4.0 250.9	1.32 S 3.81 W

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7811.10	0.86	91.04	0.00	7810.02	2.7	240.7	1.34 S 2.39 W
7905.63	0.75	109.86	0.30	7904.54	1.9	215.1	1.57 S 1.10 W
8000.16	0.74	123.45	0.19	7999.06	2.1	180.3	2.11 S 0.01 W
8094.69	0.42	143.86	0.40	8093.59	2.8	165.5	2.73 S 0.70 E
8189.22	0.26	179.94	0.27	8188.11	3.3	164.3	3.22 S 0.91 E
8283.75	0.22	246.76	0.28	8282.64	3.6	168.1	3.51 S 0.74 E
8378.28	0.38	198.44	0.30	8377.17	3.9	173.0	3.88 S 0.48 E
8472.81	0.46	190.81	0.10	8471.70	4.6	176.2	4.55 S 0.31 E
8567.34	0.25	257.62	0.45	8566.23	5.0	179.6	4.96 S 0.03 E
8661.87	1.08	278.34	0.90	8660.75	5.0	192.1	4.88 S 1.05 W
8756.40	2.09	259.09	1.19	8755.24	6.2	215.5	5.08 S 3.62 W
8850.93	2.09	259.34	0.01	8849.71	9.0	230.8	5.72 S 7.01 W
8945.46	2.41	258.59	0.34	8944.17	12.4	238.9	6.43 S 10.65 W
9039.99	2.12	259.80	0.31	9038.63	16.0	243.5	7.14 S 14.32 W
9134.52	1.29	262.54	0.88	9133.11	18.7	246.1	7.58 S 17.10 W
9229.05	0.87	269.73	0.47	9227.63	20.4	247.7	7.73 S 18.87 W
9323.58	0.63	293.26	0.41	9322.15	21.4	249.4	7.52 S 20.07 W
9418.11	0.53	301.17	0.14	9416.67	22.1	251.3	7.09 S 20.92 W
9512.64	0.45	296.60	0.09	9511.20	22.6	252.8	6.70 S 21.62 W
9607.17	0.36	325.22	0.23	9605.73	23.0	254.1	6.29 S 22.12 W
9701.70	0.16	121.72	0.54	9700.26	23.0	254.6	6.12 S 22.18 W
9796.23	0.68	144.71	0.57	9794.78	22.7	253.0	6.64 S 21.74 W

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9890.76	0.68	144.44	0.00	9889.31	22.4 250.3	7.56 S 21.09 W
9985.29	0.72	178.94	0.44	9983.83	22.5 247.5	8.61 S 20.76 W
10079.82	0.73	179.60	0.01	10078.35	22.9 244.7	9.80 S 20.74 W
10174.35	1.23	189.56	0.56	10172.87	23.8 241.4	11.41 S 20.91 W
10268.88	1.32	184.19	0.16	10267.38	25.1 237.5	13.49 S 21.15 W
10363.41	1.28	140.53	1.02	10361.88	25.7 233.2	15.39 S 20.56 W
10457.94	1.49	142.82	0.23	10456.39	25.7 228.1	17.19 S 19.15 W
10552.47	1.16	137.35	0.37	10550.89	25.9 223.3	18.87 S 17.76 W
10647.00	0.82	143.43	0.38	10645.41	26.1 219.7	20.12 S 16.71 W
10741.53	0.81	130.14	0.20	10739.93	26.3 216.8	21.09 S 15.79 W
10836.06	0.77	126.11	0.07	10834.45	26.4 214.0	21.90 S 14.77 W
10930.59	0.74	135.41	0.13	10928.97	26.6 211.3	22.71 S 13.83 W
11025.12	0.88	138.50	0.16	11023.49	27.0 208.6	23.68 S 12.92 W
11119.65	0.89	144.96	0.11	11118.01	27.6 205.8	24.83 S 12.02 W
11214.18	0.94	158.97	0.24	11212.53	28.5 203.4	26.15 S 11.32 W
11308.71	0.90	158.14	0.04	11307.04	29.6 201.3	27.57 S 10.76 W
11403.24	1.03	148.17	0.22	11401.56	30.7 199.1	28.98 S 10.04 W
11497.77	0.97	153.76	0.12	11496.08	31.8 196.9	30.42 S 9.23 W
11592.30	0.75	172.60	0.38	11590.60	32.9 195.5	31.75 S 8.80 W
11686.83	0.67	201.44	0.38	11685.12	34.1 195.2	32.88 S 8.92 W
11781.36	0.85	214.90	0.27	11779.64	35.3 195.7	33.97 S 9.53 W

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11875.89	0.57	221.31	0.31	11874.16	36.4	196.4	34.89 S 10.24 W
11970.42	0.18	1.75	0.76	11968.69	36.6	196.7	35.10 S 10.54 W
12064.95	0.38	310.48	0.32	12063.22	36.4	197.2	34.75 S 10.78 W
12159.48	1.07	278.37	0.82	12157.74	36.4	199.1	34.41 S 11.89 W
12254.01	1.39	284.72	0.37	12252.25	36.7	202.2	33.99 S 13.87 W
12348.54	1.58	293.38	0.31	12346.75	36.9	206.0	33.19 S 16.18 W
12443.07	1.18	310.02	0.59	12441.25	36.8	209.5	32.04 S 18.12 W
12537.60	1.21	308.06	0.05	12535.76	36.5	212.5	30.80 S 19.65 W
12632.13	1.09	306.77	0.13	12630.27	36.4	215.5	29.65 S 21.16 W
12726.66	0.81	313.04	0.32	12724.79	36.3	218.0	28.65 S 22.36 W
12821.19	0.54	9.89	0.72	12819.31	35.9	219.4	27.76 S 22.78 W
12915.72	0.40	19.56	0.17	12913.84	35.2	219.9	27.01 S 22.59 W
13010.25	0.34	282.80	0.59	13008.37	35.0	220.5	26.64 S 22.75 W
13104.78	0.62	277.80	0.30	13102.90	35.4	221.6	26.50 S 23.53 W
13199.31	0.71	279.65	0.10	13197.42	36.1	223.1	26.34 S 24.62 W
13293.84	0.70	292.79	0.17	13291.94	36.6	224.7	26.02 S 25.73 W
13388.37	0.71	298.33	0.07	13386.47	37.0	226.4	25.51 S 26.77 W
13482.90	0.64	300.69	0.08	13480.99	37.3	228.0	24.97 S 27.74 W
13577.43	0.58	308.57	0.11	13575.51	37.6	229.5	24.40 S 28.57 W
13671.96	0.52	314.32	0.09	13670.04	37.7	230.9	23.80 S 29.25 W
13766.49	0.50	320.40	0.06	13764.57	37.8	232.1	23.18 S 29.82 W
13861.02	0.47	321.45	0.03	13859.09	37.8	233.4	22.56 S 30.33 W

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13955.55	0.40	335.13	0.13	13953.62	37.8 234.4	21.96 S 30.71 W
14050.08	0.41	345.65	0.08	14048.15	37.6 235.4	21.33 S 30.93 W

Final Station Closure: Distance: 37.57 ft Az: 235.41 deg.

