

30-015-39392

Job Number: 700004483-WT-WT
 Company: BOPCO
 Lease/Well: Poker Lake Unit # 325H
 Location: Eddy County
 Rig Name: Latshaw Drilling # 3
 RKB: 22
 G.L. or M.S.L.: ☐

State/Country: NM
 Declination: 7.66
 Grid: 7.42
 File name: C:\DOCUME~1\DD\DESKTOP\4483.SVY
 Date/Time: 10-Jan-12 / 10:36
 Curve Name: SURVEYS

SURVEYS

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 325.22
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
GYRODATA TIE-IN									
6967.00	.96	204.22	6965.55	-78.55	-21.87	-52.04	81.54	195.56	.00
7095.00	.97	214.14	7093.53	-80.42	-22.92	-52.98	83.63	195.91	.13
7126.00	1.06	220.29	7124.53	-80.86	-23.25	-53.15	84.14	196.04	.46
7157.00	1.49	312.31	7155.52	-80.81	-23.73	-52.83	84.22	196.37	6.00
7188.00	5.63	332.18	7186.46	-79.19	-24.74	-50.93	82.97	197.35	13.74
7219.00	8.62	341.05	7217.21	-75.65	-26.21	-47.18	80.06	199.11	10.25
7250.00	10.38	337.98	7247.79	-70.86	-28.01	-42.23	76.20	201.57	5.91
7281.00	13.45	333.49	7278.12	-65.04	-30.67	-35.93	71.91	205.24	10.34
7312.00	17.85	332.97	7307.96	-57.58	-34.44	-27.65	67.09	210.88	14.20
7344.00	22.34	333.26	7338.00	-47.78	-39.40	-16.77	61.93	219.51	14.03
7375.00	25.50	333.30	7366.34	-36.55	-45.05	-4.32	58.02	230.95	10.19
7406.00	27.79	332.18	7394.04	-24.20	-51.43	9.46	56.83	244.80	7.56

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
7437.00	29.63	332.00	7421.23	-11.04	-58.40	24.24	59.43	259.30	5.94
7468.00	31.66	333.76	7447.90	3.03	-65.59	39.90	65.66	272.64	7.16
7499.00	33.59	333.85	7474.01	18.02	-72.97	56.43	75.16	283.87	6.23
7532.00	36.93	332.79	7500.95	35.04	-81.53	75.28	88.74	293.26	10.29
7563.00	42.03	332.97	7524.87	52.58	-90.51	94.81	104.67	300.15	16.46
7595.00	47.04	332.97	7547.67	72.56	-100.70	117.04	124.12	305.77	15.66
7626.00	52.06	332.79	7567.78	93.55	-111.46	140.42	145.51	310.01	16.20
7657.00	56.37	332.00	7585.90	115.83	-123.11	165.36	169.03	313.25	14.06
7688.00	61.55	332.00	7601.88	139.27	-135.58	191.73	194.36	315.77	16.71
7719.00	67.36	332.53	7615.25	164.02	-148.58	219.47	221.31	317.83	18.81
7750.00	73.25	333.58	7625.69	190.03	-161.80	248.37	249.58	319.59	19.27
7781.00	78.52	333.49	7633.25	216.93	-175.19	278.11	278.84	321.08	17.00
7813.00	82.66	333.67	7638.48	245.20	-189.24	309.34	309.73	322.34	12.95
7844.00	85.03	333.23	7641.80	272.77	-203.01	339.84	340.02	323.34	7.77
7875.00	87.32	333.32	7643.87	300.39	-216.92	370.46	370.53	324.17	7.39
7907.00	87.85	333.14	7645.22	328.94	-231.32	402.12	402.13	324.88	1.75
7938.00	88.72	332.97	7646.14	356.56	-245.36	432.82	432.82	325.47	2.86
7969.00	89.08	333.23	7646.74	384.20	-259.38	463.52	463.56	325.98	1.43
8015.00	91.80	334.20	7646.39	425.44	-279.75	509.01	509.17	326.67	6.28
8116.00	91.28	332.88	7643.67	515.82	-324.74	608.91	609.53	327.81	1.40
8180.00	91.19	333.93	7642.29	573.04	-353.38	672.24	673.24	328.34	1.65
8243.00	89.43	330.07	7641.95	628.65	-382.95	734.78	736.10	328.65	6.73
8339.00	90.13	323.83	7642.32	709.07	-435.28	830.69	832.02	328.46	6.54
8435.00	92.42	322.60	7640.18	785.93	-492.75	926.60	927.63	327.91	2.71
8532.00	92.24	321.98	7636.24	862.61	-552.03	1023.39	1024.12	327.38	.67
8628.00	92.15	321.63	7632.56	938.00	-611.35	1119.15	1119.64	326.91	.38
8723.00	93.47	323.56	7627.91	1013.37	-668.98	1213.93	1214.27	326.57	2.46
8817.00	91.89	324.35	7623.51	1089.29	-724.23	1307.80	1308.07	326.38	1.88
8912.00	90.04	324.62	7621.91	1166.60	-779.41	1402.78	1403.01	326.25	1.97
9008.00	89.96	322.51	7621.91	1243.83	-836.42	1498.73	1498.90	326.08	2.20
9104.00	93.30	322.33	7619.18	1319.87	-894.93	1594.57	1594.67	325.86	3.48
9200.00	93.12	322.51	7613.80	1395.83	-953.39	1690.30	1690.35	325.67	.26
9295.00	91.98	324.44	7609.58	1472.09	-1009.87	1785.16	1785.19	325.55	2.36
9391.00	92.07	323.12	7606.19	1549.49	-1066.56	1881.06	1881.08	325.46	1.38

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
9486.00	91.10	323.56	7603.56	1625.67	-1123.26	1975.98	1975.98	325.36	1.12
9581.00	92.24	323.30	7600.79	1701.93	-1179.83	2070.89	2070.89	325.27	1.23
9676.00	91.45	322.77	7597.73	1777.80	-1236.93	2165.77	2165.77	325.17	1.00
9769.00	90.75	323.12	7595.95	1852.00	-1292.96	2258.68	2258.68	325.08	.84
9866.00	91.19	324.53	7594.30	1930.29	-1350.20	2355.63	2355.64	325.03	1.52
9960.00	89.69	323.65	7593.58	2006.42	-1405.33	2449.61	2449.63	324.99	1.85
10055.00	91.45	325.50	7592.64	2083.82	-1460.39	2544.59	2544.61	324.98	2.69
10150.00	89.96	325.85	7591.47	2162.27	-1513.95	2639.57	2639.59	325.00	1.61
10246.00	90.04	325.10	7591.47	2241.36	-1568.36	2735.57	2735.59	325.02	.79
10340.00	91.45	324.08	7590.24	2317.96	-1622.82	2829.56	2829.58	325.00	1.85
10435.00	90.84	325.02	7588.35	2395.33	-1677.91	2924.53	2924.55	324.99	1.18
10530.00	89.78	326.24	7587.83	2473.74	-1731.54	3019.52	3019.54	325.01	1.70
10625.00	90.75	325.45	7587.39	2552.36	-1784.87	3114.51	3114.53	325.03	1.32
10721.00	90.57	325.58	7586.29	2631.48	-1839.22	3210.51	3210.52	325.05	.23
10816.00	89.25	326.15	7586.44	2710.11	-1892.53	3305.50	3305.51	325.07	1.51
10911.00	91.63	325.84	7585.71	2788.86	-1945.66	3400.48	3400.49	325.10	2.53
11007.00	90.66	326.23	7583.79	2868.46	-1999.28	3496.45	3496.45	325.12	1.09
11103.00	91.10	325.79	7582.31	2948.05	-2052.94	3592.43	3592.43	325.15	.65
11198.00	90.04	326.11	7581.37	3026.76	-2106.13	3687.41	3687.41	325.17	1.17
11294.00	91.71	325.63	7579.90	3106.21	-2159.98	3783.39	3783.39	325.19	1.81
11388.00	90.31	325.36	7578.25	3183.66	-2213.22	3877.37	3877.37	325.19	1.52
11484.00	90.48	324.91	7577.58	3262.42	-2268.10	3973.37	3973.37	325.19	.50
11579.00	91.45	324.67	7575.98	3340.03	-2322.87	4068.35	4068.36	325.18	1.05
11676.00	90.66	325.02	7574.20	3419.32	-2378.71	4165.33	4165.34	325.17	.89
11770.00	91.98	324.27	7572.03	3495.97	-2433.08	4259.30	4259.30	325.16	1.61
11867.00	88.81	324.78	7571.36	3574.95	-2489.37	4356.28	4356.28	325.15	3.31
11962.00	89.69	324.96	7572.61	3652.64	-2544.03	4451.27	4451.27	325.14	.95
12058.00	91.28	324.48	7571.80	3731.00	-2599.47	4547.26	4547.26	325.13	1.73
12154.00	90.48	324.53	7570.32	3809.15	-2655.21	4643.24	4643.25	325.12	.83
12250.00	91.19	324.26	7568.92	3887.19	-2711.09	4739.22	4739.23	325.11	.79
12344.00	91.10	323.62	7567.04	3963.17	-2766.41	4833.18	4833.19	325.08	.69
12440.00	90.66	323.87	7565.57	4040.57	-2823.18	4929.13	4929.15	325.06	.53
12535.00	92.33	322.66	7563.09	4116.68	-2879.97	5024.04	5024.07	325.02	2.17
12631.00	91.63	323.07	7559.77	4193.16	-2937.89	5119.90	5119.94	324.98	.84

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
12726.00	89.08	324.48	7559.19	4269.79	-2994.03	5214.86	5214.91	324.96	3.07
12822.00	88.37	325.20	7561.32	4348.25	-3049.30	5310.83	5310.89	324.96	1.05
12918.00	89.08	324.40	7563.46	4426.68	-3104.62	5406.80	5406.86	324.96	1.11
13012.00	89.87	323.64	7564.32	4502.74	-3159.84	5500.78	5500.84	324.94	1.17
13108.00	90.92	324.63	7563.66	4580.54	-3216.08	5596.76	5596.83	324.93	1.50
13204.00	89.69	327.95	7563.15	4660.38	-3269.35	5692.72	5692.79	324.95	3.69
13300.00	90.40	326.01	7563.07	4740.87	-3321.66	5788.67	5788.72	324.98	2.15
13396.00	88.81	322.18	7563.73	4818.61	-3377.95	5884.63	5884.69	324.97	4.32
13491.00	91.28	322.68	7563.66	4893.90	-3435.87	5979.51	5979.59	324.93	2.65
13587.00	89.69	320.10	7562.85	4968.91	-3495.76	6075.28	6075.39	324.87	3.16
13682.00	89.87	323.34	7563.21	5043.47	-3554.61	6170.09	6170.24	324.82	3.42
13777.00	90.66	323.80	7562.77	5119.90	-3611.02	6265.05	6265.21	324.81	.96
13873.00	90.04	325.19	7562.18	5198.05	-3666.77	6361.04	6361.21	324.80	1.59
13969.00	91.10	327.11	7561.23	5277.77	-3720.24	6457.01	6457.17	324.82	2.28
14063.00	89.96	325.35	7560.36	5355.90	-3772.49	6550.99	6551.13	324.84	2.23
14158.00	91.10	327.46	7559.48	5435.02	-3825.05	6645.96	6646.09	324.86	2.52
14254.00	91.28	327.00	7557.49	5515.73	-3877.00	6741.88	6741.99	324.90	.51
14349.00	93.39	328.29	7553.62	5595.91	-3927.79	6836.71	6836.79	324.93	2.60
14381.00	93.65	328.44	7551.65	5623.10	-3944.54	6868.60	6868.67	324.95	.94
Straight line to TD.									
14441.00	93.65	328.44	7547.83	5674.12	-3975.88	6928.38	6928.44	324.98	.00

A Gyrodata Directional Survey

for

BOPCO LP

Lease: POKER LAKE UNIT Well: 325H, 5" DRILLPIPE
Location: LATSHAW # 3, EDDY COUNTY, NEW MEXICO

Job Number: MD1211GDM516

Run Date: 16 Dec 2011

Surveyor: Michael Hattar

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Well Plan/Plot

Survey Latitude: 32.204214 deg. N Longitude: 103.874064 deg. W

Azimuth Correction:

Gyro: -0.24000 deg to Grid North

Depth Reference: Rotary Table

Rotary Table Elevation: 23.00

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

A Gyrodata Directional Survey

BOPCO LP

Lease: POKER LAKE UNIT Well: 325H, 5" DRILLPIPE

Location: LATSHAW # 3, EDDY COUNTY, NEW MEXICO

Job Number: MD1211GDM516

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
0 TO 7000 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 5" DRILL PIPE						
ALL MEASURED DEPTHS AND COORDINATES ARE REFERENCED TO LATSHAW DRILLING RIG # 3 AND R.K.B. HEIGHT OF 23 FT.						
100.00	0.38	146.70	0.38	100.00	0.3 146.7	0.28 S 0.18 E
200.00	0.46	130.40	0.14	200.00	1.1 140.6	0.81 S 0.67 E
300.00	0.64	141.41	0.21	299.99	2.0 138.8	1.51 S 1.32 E
400.00	0.53	144.52	0.11	399.99	3.0 140.1	2.32 S 1.94 E
500.00	0.60	165.12	0.21	499.98	4.0 143.8	3.21 S 2.34 E
600.00	1.03	158.92	0.44	599.97	5.3 148.4	4.55 S 2.80 E
700.00	1.68	170.09	0.70	699.94	7.6 153.7	6.83 S 3.38 E
800.00	2.37	176.68	0.73	799.88	11.0 160.1	10.34 S 3.75 E
893.70	2.60	181.65	0.34	893.49	14.9 165.2	14.40 S 3.80 E
987.00	2.80	184.99	0.27	986.69	19.1 169.3	18.79 S 3.54 E
1080.30	2.77	189.29	0.23	1079.88	23.5 172.7	23.28 S 2.98 E
1173.50	2.29	195.54	0.59	1172.99	27.4 175.6	27.30 S 2.12 E
1266.80	2.24	198.34	0.13	1266.21	30.8 178.1	30.82 S 1.04 E
1360.10	2.27	196.17	0.10	1359.44	34.3 180.1	34.33 S 0.05 W
1453.30	2.17	191.96	0.21	1452.57	37.8 181.4	37.83 S 0.92 W
1546.60	1.82	191.13	0.38	1545.82	41.0 182.2	41.01 S 1.58 W
1639.90	1.05	196.09	0.84	1639.09	43.3 182.8	43.29 S 2.10 W

A Gyrodata Directional Survey

BOPCO LP

Lease: POKER LAKE UNIT Well: 325H, 5" DRILLPIPE

Location: LATSHAW # 3, EDDY COUNTY, NEW MEXICO

Job Number: MD1211GDM516

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
1733.20	0.70	206.73	0.41	1732.38	44.7 183.3	44.62 S 2.59 W
1826.40	0.64	205.51	0.07	1825.57	45.7 183.9	45.59 S 3.07 W
1919.70	0.56	171.14	0.39	1918.86	46.6 184.0	46.52 S 3.23 W
2013.00	0.77	171.22	0.23	2012.16	47.7 183.7	47.59 S 3.06 W
2106.20	0.90	163.38	0.19	2105.35	49.0 183.2	48.91 S 2.76 W
2199.50	0.72	140.01	0.40	2198.64	50.1 182.5	50.06 S 2.17 W
2292.80	0.58	158.07	0.26	2291.93	51.0 181.8	50.94 S 1.62 W
2386.00	0.66	162.34	0.10	2385.13	51.9 181.4	51.89 S 1.28 W
2479.30	0.68	167.29	0.07	2478.42	53.0 181.1	52.95 S 0.99 W
2572.60	1.00	176.58	0.37	2571.71	54.3 180.9	54.30 S 0.82 W
2665.80	0.95	183.52	0.14	2664.90	55.9 180.8	55.88 S 0.82 W
2759.10	0.19	158.67	0.84	2758.19	56.8 180.8	56.80 S 0.81 W
2852.40	0.02	146.40	0.18	2851.49	57.0 180.8	56.95 S 0.75 W
2945.70	0.11	279.06	0.13	2944.79	57.0 180.8	56.95 S 0.83 W
3038.90	0.20	9.24	0.25	3037.99	56.8 180.9	56.78 S 0.89 W
3132.20	0.80	73.45	0.79	3131.29	56.4 180.2	56.43 S 0.24 W
3225.50	1.21	88.29	0.52	3224.57	56.2 178.6	56.22 S 1.37 E
3318.70	0.74	98.95	0.54	3317.76	56.4 177.0	56.28 S 2.95 E
3412.00	1.28	108.58	0.60	3411.05	56.9 175.4	56.71 S 4.53 E
3505.30	2.15	117.50	0.97	3504.30	58.3 173.0	57.85 S 7.07 E
3598.60	2.27	126.93	0.41	3597.53	60.6 170.4	59.77 S 10.10 E
3691.80	1.48	139.52	0.95	3690.68	63.0 168.7	61.79 S 12.36 E

A Gyrodata Directional Survey

BOPCO LP

Lease: POKER LAKE UNIT Well: 325H, 5" DRILLPIPE

Location: LATSHAW # 3, EDDY COUNTY, NEW MEXICO

Job Number: MD1211GDM516

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
3785.10	0.14	229.88	1.59	3783.97	64.1 168.3	62.78 S 13.05 E
3878.40	0.29	289.24	0.27	3877.27	64.1 168.5	62.78 S 12.74 E
3971.60	0.27	292.43	0.03	3970.47	63.8 168.9	62.62 S 12.32 E
4064.90	0.25	288.18	0.03	4063.77	63.6 169.2	62.47 S 11.92 E
4158.20	0.23	293.00	0.03	4157.07	63.4 169.5	62.33 S 11.55 E
4251.40	0.23	283.02	0.04	4250.27	63.2 169.8	62.22 S 11.20 E
4344.70	0.26	278.51	0.04	4343.57	63.1 170.1	62.14 S 10.81 E
4438.00	0.45	266.30	0.22	4436.87	63.0 170.6	62.14 S 10.23 E
4531.30	0.53	268.72	0.09	4530.16	62.9 171.4	62.17 S 9.44 E
4624.50	0.65	269.45	0.13	4623.36	62.8 172.2	62.18 S 8.48 E
4717.80	0.85	268.16	0.22	4716.65	62.6 173.3	62.21 S 7.26 E
4811.10	0.92	265.55	0.09	4809.94	62.6 174.7	62.29 S 5.82 E
4904.30	0.92	263.30	0.04	4903.13	62.6 176.0	62.44 S 4.33 E
4997.60	0.88	262.69	0.04	4996.41	62.7 177.4	62.61 S 2.87 E
5090.90	0.88	262.48	0.00	5089.70	62.8 178.7	62.80 S 1.45 E
5184.10	0.85	264.88	0.05	5182.89	63.0 180.0	62.95 S 0.05 E
5277.40	0.88	275.10	0.17	5276.18	63.0 181.2	62.95 S 1.35 W
5370.70	0.95	273.30	0.08	5369.47	62.9 182.6	62.84 S 2.83 W
5463.90	0.91	269.85	0.07	5462.66	63.0 184.0	62.80 S 4.35 W
5557.20	0.75	266.07	0.18	5555.95	63.1 185.2	62.85 S 5.70 W
5650.50	0.64	257.00	0.17	5649.24	63.4 186.2	63.01 S 6.81 W

A Gyrodata Directional Survey

BOPCO LP

Lease: POKER LAKE UNIT Well: 325H, 5" DRILLPIPE

Location: LATSHAW # 3, EDDY COUNTY, NEW MEXICO

Job Number: MD1211GDM516

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLE SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
5743.80	0.54	248.00	0.15	5742.54	63.8 187.0	63.29 S 7.73 W
5837.00	0.58	232.60	0.17	5835.73	64.3 187.6	63.74 S 8.51 W
5930.30	0.81	223.39	0.27	5929.03	65.2 188.2	64.50 S 9.34 W
6023.60	0.89	221.34	0.09	6022.32	66.3 188.9	65.53 S 10.27 W
6116.80	1.14	228.62	0.30	6115.50	67.7 189.7	66.68 S 11.44 W
6210.10	1.23	233.63	0.15	6208.78	69.1 190.8	67.89 S 12.95 W
6303.40	1.25	235.08	0.04	6302.06	70.6 191.9	69.07 S 14.59 W
6396.60	1.21	228.79	0.15	6395.24	72.1 192.9	70.30 S 16.16 W
6489.90	1.05	226.13	0.18	6488.52	73.7 193.8	71.54 S 17.52 W
6583.20	0.97	215.96	0.21	6581.80	75.1 194.3	72.77 S 18.60 W
6676.50	1.02	212.50	0.08	6675.09	76.6 194.7	74.11 S 19.51 W
6769.70	1.00	210.92	0.04	6768.28	78.2 195.1	75.51 S 20.37 W
6863.00	1.01	203.51	0.14	6861.56	79.8 195.3	76.96 S 21.12 W
6925.00	0.95	207.21	0.14	6923.55	80.8 195.5	77.92 S 21.57 W
6967.00	0.96	204.22	0.12	6965.55	81.5 195.6	78.55 S 21.87 W

Final Station Closure: Distance: 81.54 ft Az: 195.56 deg.