



Archer Directional Drilling Services.
911 Regional Park Drive
Houston, Texas 77060
Tel: 281-934-9600
Fax: 281-951-2101

MWD Survey Certification

State of New Mexico
County of Eddy

I, Martin Campbell, certify that; I am employed by Archer Directional Drilling Services; that I did on the day(s) of 08/04/12 through 08/18/12, conduct or supervise the taking of MWD surveys from a depth of 5521 feet to a depth of 11157 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Archer Directional Drilling Services; that I am authorized and qualified to make this report; that these surveys were conducted at the request of Concho Resources for the Puckett 12 FED 7H (Well ID: 30-015-39476), Well located in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Archer Directional Drilling Services.

Martin Campbell
MWD Coordinator

Provide survey to 5500'



Company: Concho Resources

Job Number: 03821-433-22

Calculation Method

Minimum Curvature

Well: Puckett 12 FED 7H

Mag Decl.: 7.33

Proposed Azimuth

358.3

Location: Eddy County, New Mexico

Dir Driller:

Depth Reference

KBG

Rig: JW #2

MWD Eng:

Raul Lopez

Tie Into: Gyro Survey

Job Date: 08/04/12 -08/18/12

Survey Number	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Direction Azimuth			
Tie In	5500.00	0.46	3.2	0	5499.2	6.99	5.80 N	39.64 W					
1	5521	0.7	26.1	21	5520.20	7.19	6.00 N	39.58 W	40.03	278.62	1.57	1.14	109.05
2	5552	0.7	3.6	31	5551.20	7.55	6.36 N	39.48 W	39.99	279.15	0.88	0.00	-72.58
3	5583	0.7	15.7	31	5582.19	7.92	6.73 N	39.42 W	39.99	279.69	0.48	0.00	39.03
4	5615	0.7	12.6	32	5614.19	8.29	7.11 N	39.32 W	39.96	280.25	0.12	0.00	-9.69
5	5646	0.5	351.8	31	5645.19	8.61	7.43 N	39.30 W	40.00	280.70	0.94	-0.65	1094.19
6	5677	0.7	357.5	31	5676.19	8.93	7.75 N	39.33 W	40.09	281.15	0.67	0.65	18.39
7	5708	0.7	0.7	31	5707.19	9.31	8.13 N	39.34 W	40.17	281.68	0.13	0.00	-1150.97
8	5740	0.6	19.3	32	5739.18	9.66	8.48 N	39.28 W	40.18	282.19	0.73	-0.31	58.13
9	5771	0.5	14.7	31	5770.18	9.95	8.77 N	39.19 W	40.16	282.61	0.35	-0.32	-14.84
10	5802	0.5	349.2	31	5801.18	10.21	9.03 N	39.18 W	40.21	282.98	0.71	0.00	1079.03
11	5833	0.4	343.7	31	5832.18	10.45	9.27 N	39.24 W	40.32	283.29	0.35	-0.32	-17.74
12	5864	0.5	359.9	31	5863.18	10.69	9.51 N	39.27 W	40.40	283.61	0.52	0.32	52.26
13	5895	0.3	359.5	31	5894.18	10.90	9.72 N	39.27 W	40.45	283.91	0.65	-0.65	-1.29
14	5928	0.3	354.9	33	5927.18	11.08	9.89 N	39.28 W	40.50	284.14	0.07	0.00	-13.94
15	5960	0.3	1.8	32	5959.18	11.24	10.06 N	39.28 W	40.55	284.37	0.11	0.00	-1103.44
16	5991	2.3	357.7	31	5990.17	11.95	10.76 N	39.30 W	40.75	285.32	6.45	6.45	1148.06
17	6022	7.0	358.5	31	6021.06	14.46	13.28 N	39.38 W	41.56	288.63	15.16	15.16	2.58
18	6053	11.9	0.6	31	6051.63	19.54	18.36 N	39.40 W	43.46	294.99	15.84	15.81	-1154.52
19	6085	16.6	0.6	32	6082.63	27.41	26.24 N	39.31 W	47.26	303.72	14.69	14.69	0.00
20	6116	20.9	359.7	31	6111.98	37.37	36.20 N	39.30 W	53.43	312.65	13.90	13.87	1158.39
21	6147	25.1	358.5	31	6140.51	49.48	48.31 N	39.50 W	62.40	320.73	13.63	13.55	-3.87
22	6178	29.4	357.9	31	6168.06	63.67	62.49 N	39.95 W	74.17	327.41	13.90	13.87	-1.94
23	6209	33.1	357.6	31	6194.56	79.75	78.56 N	40.58 W	88.42	332.68	11.95	11.94	-0.97
24	6240	36.4	357.8	31	6220.03	97.41	96.21 N	41.29 W	104.70	336.77	10.65	10.65	0.65
25	6272	40.0	358.0	32	6245.17	117.20	115.98 N	42.01 W	123.36	340.09	11.26	11.25	0.62
26	6303	42.2	358.9	31	6268.53	137.58	136.35 N	42.56 W	142.84	342.67	7.35	7.10	2.90
27	6335	44.4	359.5	32	6291.82	159.52	158.30 N	42.86 W	164.00	344.85	6.99	6.87	1.88
28	6366	46.4	0.4	31	6313.59	181.58	180.37 N	42.88 W	185.39	346.63	6.77	6.45	-1158.39
29	6397	48.9	359.7	31	6334.47	204.48	203.27 N	42.86 W	207.74	348.09	8.24	8.06	1159.03
30	6428	51.6	359.2	31	6354.29	228.30	227.11 N	43.09 W	231.16	349.26	8.80	8.71	-1.61
31	6459	54.6	358.9	31	6372.90	253.09	251.89 N	43.51 W	255.62	350.20	9.71	9.68	-0.97
32	6491	58.2	358.6	32	6390.61	279.74	278.53 N	44.09 W	282.00	351.01	11.28	11.25	-0.94
33	6523	62.1	358.5	32	6406.53	307.49	306.27 N	44.79 W	309.53	351.68	12.19	12.19	-0.31
34	6554	65.3	358.5	31	6420.26	335.27	334.05 N	45.52 W	337.14	352.24	10.32	10.32	0.00
35	6585	68.3	358.3	31	6432.47	363.76	362.53 N	46.32 W	365.48	352.72	9.70	9.68	-0.65
36	6616	70.8	358.4	31	6443.30	392.81	391.56 N	47.15 W	394.39	353.13	8.07	8.06	0.32
37	6648	73.2	358.8	32	6453.19	423.24	421.98 N	47.89 W	424.69	353.52	7.59	7.50	1.25



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Job Date: 08/04/12 -08/18/12

Survey Number	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Direction Azimuth			
38	6679	75.3	359.4	31	6461.61	453.07	451.81 N	48.36 W	454.40	353.89	7.03	6.77	1.94
39	6711	78.3	359.7	32	6468.91	484.21	482.96 N	48.61 W	485.40	354.25	9.42	9.38	0.94
40	6742	80.5	359.5	31	6474.61	514.67	513.43 N	48.82 W	515.75	354.57	7.13	7.10	-0.65
41	6773	82.2	359.1	31	6479.28	545.31	544.08 N	49.19 W	546.30	354.83	5.63	5.48	-1.29
42	6804	83.9	358.5	31	6483.03	576.08	574.84 N	49.84 W	577.00	355.04	5.81	5.48	-1.94
43	6835	86.3	358.3	31	6485.68	606.97	605.71 N	50.70 W	607.83	355.22	7.77	7.74	-0.65
44	6876	89.8	358.4	41	6487.07	647.94	646.67 N	51.88 W	648.74	355.41	8.54	8.54	0.24
45	6898	90.0	358.5	22	6487.11	669.94	668.66 N	52.48 W	670.71	355.51	1.02	0.91	0.45
46	6993	90.5	358.8	95	6486.69	764.93	763.63 N	54.71 W	765.59	355.90	0.61	0.53	0.32
47	7087	90.5	358.9	94	6485.87	858.93	857.61 N	56.60 W	859.47	356.22	0.11	0.00	0.11
48	7180	90.3	358.6	93	6485.22	951.92	950.58 N	58.63 W	952.39	356.47	0.39	-0.22	-0.32
49	7274	89.6	358.5	94	6485.31	1045.92	1044.55 N	61.01 W	1046.33	356.66	0.75	-0.74	-0.11
50	7368	90.4	358.1	94	6485.31	1139.92	1138.51 N	63.80 W	1140.30	356.79	0.95	0.85	-0.43
51	7462	92.8	358.5	94	6482.68	1233.87	1232.42 N	66.58 W	1234.22	356.91	2.59	2.55	0.43
52	7556	93.2	358.6	94	6477.76	1327.74	1326.27 N	68.96 W	1328.06	357.02	0.44	0.43	0.11
53	7650	91.3	358.3	94	6474.07	1421.67	1420.15 N	71.50 W	1421.95	357.12	2.05	-2.02	-0.32
54	7744	91.7	358.5	94	6471.61	1515.63	1514.09 N	74.12 W	1515.90	357.20	0.48	0.43	0.21
55	7838	92.1	359.0	94	6468.50	1609.58	1608.01 N	76.17 W	1609.81	357.29	0.68	0.43	0.53
56	7931	90.3	359.5	93	6466.55	1702.54	1700.98 N	77.39 W	1702.74	357.39	2.01	-1.94	0.54
57	8025	91.1	359.9	94	6465.40	1796.50	1794.97 N	77.88 W	1796.66	357.52	0.95	0.85	0.43
58	8119	91.6	0.3	94	6463.18	1890.43	1888.94 N	77.72 W	1890.54	357.64	0.68	0.53	-382.55
59	8212	90.8	0.3	93	6461.24	1983.35	1981.92 N	77.23 W	1983.42	357.77	0.86	-0.86	0.00
60	8307	89.9	359.9	95	6460.66	2078.30	2076.92 N	77.07 W	2078.35	357.87	1.04	-0.95	378.53
61	8400	89.7	0.3	93	6460.98	2171.25	2169.92 N	76.90 W	2171.28	357.97	0.48	-0.22	-386.67
62	8493	88.6	358.7	93	6462.36	2264.21	2262.90 N	77.71 W	2264.23	358.03	2.09	-1.18	385.38
63	8587	89.0	358.3	94	6464.33	2358.19	2356.84 N	80.17 W	2358.21	358.05	0.60	0.43	-0.43
64	8680	90.9	357.8	93	6464.41	2451.19	2449.79 N	83.34 W	2451.20	358.05	2.11	2.04	-0.54
65	8774	92.4	357.8	94	6461.70	2545.14	2543.68 N	86.95 W	2545.16	358.04	1.60	1.60	0.00
66	8869	90.1	357.4	95	6459.63	2640.11	2638.56 N	90.92 W	2640.13	358.03	2.46	-2.42	-0.42
67	8962	90.2	357.5	93	6459.39	2733.10	2731.47 N	95.06 W	2733.12	358.01	0.15	0.11	0.11
68	9056	89.8	357.5	94	6459.39	2827.09	2825.38 N	99.16 W	2827.12	357.99	0.43	-0.43	0.00
69	9150	90.5	357.5	94	6459.14	2921.08	2919.29 N	103.26 W	2921.12	357.97	0.74	0.74	0.00
70	9244	90.9	357.3	94	6457.99	3015.06	3013.19 N	107.52 W	3015.10	357.96	0.48	0.43	-0.21
71	9338	92.5	359.0	94	6455.21	3109.01	3107.09 N	110.56 W	3109.06	357.96	2.48	1.70	1.81
72	9431	90.9	357.2	93	6452.45	3201.96	3199.99 N	113.64 W	3202.01	357.97	2.59	-1.72	-1.94
73	9525	92.6	358.5	94	6449.58	3295.91	3293.88 N	117.17 W	3295.96	357.96	2.28	1.81	1.38
74	9618	91.8	359.9	93	6446.01	3388.83	3386.79 N	118.46 W	3388.87	358.00	1.73	-0.86	1.51
75	9712	91.6	359.4	94	6443.22	3482.76	3480.75 N	119.04 W	3482.79	358.04	0.57	-0.21	-0.53
76	9805	90.8	358.9	93	6441.27	3575.73	3573.72 N	120.42 W	3575.75	358.07	1.01	-0.86	-0.54



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Job Date: 08/04/12 -08/18/12

Survey Number	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Direction Azimuth			
77	9899	91.2	359.0	94	6439.63	3669.70	3667.69 N	122.14 W	3669.72	358.09	0.44	0.43	0.11
78	9992	91.5	0.0	93	6437.44	3762.66	3760.66 N	122.95 W	3762.67	358.13	1.12	0.32	-386.02
79	10086	91.3	0.2	94	6435.14	3856.58	3854.63 N	122.79 W	3856.59	358.18	0.30	-0.21	0.21
80	10180	92.5	359.8	94	6432.02	3950.48	3948.58 N	122.79 W	3950.49	358.22	1.35	1.28	382.55
81	10273	92.4	358.8	93	6428.05	4043.38	4041.48 N	123.92 W	4043.38	358.24	1.08	-0.11	-1.08
82	10366	92.4	359.6	93	6424.15	4136.29	4134.39 N	125.22 W	4136.29	358.27	0.86	0.00	0.86
83	10460	92.4	358.9	94	6420.22	4230.19	4228.30 N	126.45 W	4230.19	358.29	0.74	0.00	-0.74
84	10554	92.6	359.5	94	6416.12	4324.09	4322.20 N	127.76 W	4324.09	358.31	0.67	0.21	0.64
85	10648	91.6	359.9	94	6412.67	4417.99	4416.14 N	128.25 W	4418.00	358.34	1.15	-1.06	0.43
86	10741	90.8	359.2	93	6410.73	4510.95	4509.11 N	128.98 W	4510.96	358.36	1.14	-0.86	-0.75
87	10835	89.6	359.2	94	6410.40	4604.94	4603.10 N	130.29 W	4604.94	358.38	1.28	-1.28	0.00
88	10929	89.5	358.1	94	6411.14	4698.93	4697.07 N	132.51 W	4698.94	358.38	1.18	-0.11	-1.17
89	11022	89.7	358.5	93	6411.78	4791.93	4790.03 N	135.27 W	4791.94	358.38	0.48	0.22	0.43
90	11085	89.7	358.2	63	6412.11	4854.93	4853.00 N	137.08 W	4854.93	358.38	0.48	0.00	-0.48
Proj.	11157	89.7	358.2	72	6412.49	4926.92	4924.96 N	139.34 W	4926.93	358.38	0.00	0.00	0.00