

WELL NAME AND NUMBER Puckett 13 Federal No. 5H 30-015-39657
LOCATION Section 13, T17S, R31E, Lot B, 140 FNL, 1907 FEL, Eddy County
OPERATOR COG Operating LLC
DRILLING CONTRACTOR United Drilling, Inc.

The undersigned hereby certifies that he is an authorized representative of the drilling contractor who drilled the above described well and had conducted deviation test and obtained the following results:

Degrees @ Depth	Degrees @ Depth	Degrees @ Depth
.3° @ 202'		
.7° @ 326'		
.5° @ 449'		
.9° @ 742'		
.3° @ 1038'		
.7° @ 1500'		
1.4° @ 1950'		
1.0° @ 2312'		
.4° @ 2693'		
.9° @ 3137'		
.4° @ 3581'		
1.5° @ 4025'		
.9° @ 4374'		
.7° @ 4817'		
.4° @ 5261'		
.4° @ 5641'		

Drilling Contractor- UNITED DRILLING, INC.

By: Luisa Noriega
(Luisa Noriega)

Title: Asst. Office Manager

Subscribed and sworn to before me this 30th day of May, 2012.

My Commission Expires: 10/8/12

Charles Martin
Notary Public
Chaves New Mexico
County State

CRESCENT

DIRECTIONAL DRILLING

Minimum Curvature Calculation

Client: Concho Oil & Gas
Well: Puckett 13 Fed Com #5H
County: Eddy
Rig: UDI 40

M.W.D. OPERATORS: Stephen de Anda/ Dennis Scully
DIRECTIONAL DRILLERS: Donnie Hale/ Chris Pool
Tool Azimuth to Grid North: 7.36
Job #: PB-12270

Verticle Section Angle: 184.35 (deg)

Survey Number	Measured Depth-ft	Drift (Deg.)	Azimuth (Deg.)	Course Length	TVD (Ft.)	Vertical Section (Ft.)	N-S (Ft.)	E-W (Ft.)	DLS
Tie In:	5,980	0.1	271.3	n/a	5,979.62	-11.79	11.66	13.71	#VALUE!
1	6,032	0.2	156.7	52.0	6,031.62	-12.58	11.58	13.70	0.51
2	6,063	0.4	211.5	31.0	6,062.62	-12.44	11.44	13.66	1.06
3	6,095	3.6	190.5	32.0	6,094.60	-11.34	10.35	13.42	10.09
4	6,127	7.7	189.0	32.0	6,126.43	-8.20	7.25	12.90	12.82
5	6,158	11.6	185.9	31.0	6,156.99	-3.02	2.09	12.26	12.69
6	6,190	15.0	186.6	32.0	6,188.13	4.34	-5.22	11.45	10.64
7	6,222	18.6	188.3	32.0	6,218.76	13.57	-14.39	10.24	11.35
8	6,254	22.3	189.4	32.0	6,248.73	24.72	-25.43	8.51	11.62
9	6,285	25.9	188.9	31.0	6,277.03	37.33	-37.93	6.50	11.63
10	6,317	29.5	187.6	32.0	6,305.36	52.17	-52.65	4.37	11.41
11	6,349	32.7	185.9	32.0	6,332.75	68.68	-69.06	2.44	10.37
12	6,380	36.3	185.4	31.0	6,358.30	86.23	-86.53	0.72	11.65
13	6,412	40.4	185.9	32.0	6,383.39	106.07	-106.29	-1.24	12.85
14	6,444	43.7	187.1	32.0	6,407.15	127.49	-127.58	-3.67	10.61
15	6,476	47.0	187.8	32.0	6,429.63	150.21	-150.14	-6.63	10.43
16	6,507	49.9	188.2	31.0	6,450.19	173.36	-173.12	-9.86	9.40
17	6,539	53.8	187.1	32.0	6,469.95	198.48	-198.05	-13.20	12.48
18	6,571	57.4	186.9	32.0	6,488.03	224.85	-224.25	-16.42	11.26
19	6,603	61.2	186.6	32.0	6,504.37	252.34	-251.57	-19.65	11.90
20	6,634	64.2	186.6	31.0	6,518.58	279.86	-278.94	-22.82	9.68
21	6,666	67.5	186.8	32.0	6,531.67	309.03	-307.93	-26.22	10.33
22	6,698	71.1	186.1	32.0	6,542.98	338.94	-337.67	-29.58	11.43
23	6,729	73.5	185.4	31.0	6,552.41	368.46	-367.05	-32.54	8.04
24	6,761	75.8	184.7	32.0	6,560.88	399.32	-397.79	-35.26	7.49
25	6,793	77.8	184.3	32.0	6,568.18	430.47	-428.85	-37.70	6.37
26	6,824	80.4	184.7	31.0	6,574.04	460.91	-459.19	-40.09	8.48
27	6,858	82.5	184.7	34.0	6,579.10	494.53	-492.70	-42.84	6.18
28	6,890	83.4	185.1	32.0	6,583.03	526.28	-524.34	-45.56	3.07
29	6,922	84.4	185.4	32.0	6,586.43	558.10	-556.02	-48.47	3.26
30	6,953	85.8	185.6	31.0	6,589.08	588.98	-586.77	-51.43	4.56
31	6,985	87.5	185.8	32.0	6,590.95	620.91	-618.55	-54.60	5.35
32	7,017	88.5	185.9	32.0	6,592.06	652.88	-650.37	-57.86	3.14
33	7,049	89.1	185.4	32.0	6,592.73	684.87	-682.20	-61.01	2.44
34	7,080	89.4	184.8	31.0	6,593.14	715.86	-713.08	-63.76	2.16
35	7,112	89.7	185.1	32.0	6,593.39	747.86	-744.96	-66.53	1.33
36	7,207	89.8	185.1	95.0	6,593.80	842.85	-839.58	-74.97	0.11
37	7,302	90.0	185.1	95.0	6,593.97	937.84	-934.21	-83.42	0.21
38	7,398	90.1	185.3	96.0	6,593.89	1,033.83	-1,029.81	-92.12	0.23
39	7,493	90.0	185.5	95.0	6,593.80	1,128.81	-1,124.39	-101.06	0.24
40	7,588	90.3	184.6	95.0	6,593.55	1,223.81	-1,219.02	-109.42	1.00
41	7,683	91.0	184.1	95.0	6,592.48	1,318.80	-1,313.74	-116.62	0.91
42	7,778	92.9	184.8	95.0	6,589.24	1,413.74	-1,408.39	-123.99	2.13

43	7,873	91.3	181.8	95.0	6,585.76	1,508.62	-1,503.13	-129.45	3.58
44	7,968	91.5	180.7	95.0	6,583.44	1,603.45	-1,598.08	-131.52	1.18
45	8,063	90.2	181.8	95.0	6,582.03	1,698.29	-1,693.03	-133.59	1.79
46	8,158	89.7	183.0	95.0	6,582.12	1,793.23	-1,787.94	-137.57	1.37
47	8,253	89.3	183.3	95.0	6,582.94	1,888.20	-1,882.80	-142.79	0.53
48	8,348	89.5	183.6	95.0	6,583.94	1,983.19	-1,977.62	-148.51	0.38
49	8,443	91.5	184.7	95.0	6,583.11	2,078.17	-2,072.36	-155.38	2.40
50	8,539	91.8	185.1	96.0	6,580.35	2,174.13	-2,167.97	-163.58	0.52
51	8,634	91.8	184.7	95.0	6,577.36	2,269.08	-2,262.57	-171.69	0.42
52	8,729	91.3	184.3	95.0	6,574.79	2,364.04	-2,357.24	-179.14	0.67
53	8,824	90.3	184.9	95.0	6,573.47	2,459.03	-2,451.92	-186.76	1.23
54	8,919	90.7	185.3	95.0	6,572.64	2,554.01	-2,546.54	-195.20	0.60
55	9,015	91.6	185.4	96.0	6,570.71	2,649.98	-2,642.11	-204.15	0.94
56	9,110	92.2	184.9	95.0	6,567.56	2,744.92	-2,736.67	-212.68	0.82
57	9,205	93.5	184.7	95.0	6,562.84	2,839.79	-2,831.22	-220.62	1.38
58	9,300	91.9	184.6	95.0	6,558.36	2,934.68	-2,925.79	-228.31	1.69
59	9,395	91.0	186.3	95.0	6,555.96	3,029.62	-3,020.32	-237.33	2.02
60	9,490	90.6	185.7	95.0	6,554.63	3,124.57	-3,114.79	-247.26	0.76
61	9,585	91.2	185.7	95.0	6,553.14	3,219.53	-3,209.30	-256.69	0.63
62	9,681	90.9	184.7	96.0	6,551.38	3,315.50	-3,304.89	-265.39	1.09
63	9,776	90.4	184.2	95.0	6,550.30	3,410.49	-3,399.59	-272.76	0.74
64	9,871	90.9	183.7	95.0	6,549.23	3,505.48	-3,494.36	-279.30	0.74
65	9,966	91.4	183.2	95.0	6,547.32	3,600.45	-3,589.17	-285.02	0.74
66	10,061	90.8	185.3	95.0	6,545.50	3,695.41	-3,683.87	-292.06	2.30
67	10,157	91.2	184.2	96.0	6,543.82	3,791.40	-3,779.53	-300.00	1.22
68	10,252	89.2	183.2	95.0	6,543.49	3,886.37	-3,874.31	-306.13	2.35
69	10,347	89.6	183.3	95.0	6,544.48	3,981.35	-3,969.15	-311.52	0.43
70	10,442	90.1	183.3	95.0	6,544.73	4,076.33	-4,064.00	-316.99	0.53
71	10,537	90.5	182.6	95.0	6,544.23	4,171.30	-4,158.87	-321.88	0.85
72	10,632	91.8	183.6	95.0	6,542.33	4,266.26	-4,253.71	-327.01	1.73
73	10,727	91.5	183.2	95.0	6,539.59	4,361.20	-4,348.50	-332.64	0.53
74	10,823	90.9	183.9	96.0	6,537.58	4,457.17	-4,444.29	-338.59	0.96
75	10,918	91.3	183.6	95.0	6,535.76	4,552.15	-4,539.07	-344.80	0.53
76	11,013	92.0	183.2	95.0	6,533.02	4,647.09	-4,633.86	-350.43	0.85
77	11,108	92.5	182.5	95.0	6,529.29	4,741.99	-4,728.67	-355.15	0.91
PTB	11,181	92.5	182.5	73.0	6,526.11	4,814.88	-4,801.53	-358.33	0.00