



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

May 27, 2013

30-015-39904

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Dodd Federal Unit #575
1100' FSL & 2370' FEL
Sec. 10, T17S, R29E
Eddy County, New Mexico

Dear Sir,

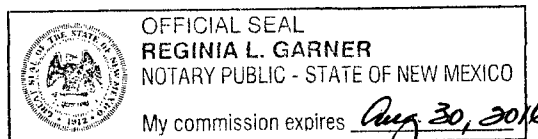
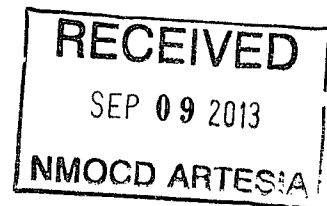
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 27th day of May, 2013.

Notary Public

Dodd Federal Unit #575

Date	Depth	Deviation	Direction
5/15/2013	105	0.70	
5/15/2013	185	0.80	
5/16/2013	348	0.80	
5/16/2013	613	1.80	
5/16/2013	897	1.20	
5/17/2013	936	1.70	77.90
5/18/2013	1031	1.70	57.90
5/18/2013	1125	2.30	11.90
5/18/2013	1219	5.10	349.40
5/18/2013	1312	7.20	350.21
5/18/2013	1406	8.00	342.90
5/18/2013	1437	8.60	343.50
5/18/2013	1470	9.10	342.70
5/18/2013	1501	9.90	341.50
5/18/2013	1602	10.10	341.10
5/18/2013	1665	10.50	343.50
5/18/2013	1728	10.30	344.70
5/19/2013	1821	10.10	
5/19/2013	1915	10.10	348.30
5/19/2013	1010	10.10	346.40
5/19/2013	2104	10.80	343.30
5/19/2013	2198	10.80	344.00
5/19/2013	2293	10.70	346.80
5/19/2013	2386	11.10	345.80
5/19/2013	2482	10.40	348.70
5/19/2013	2576	10.30	349.00
5/19/2013	2669	10.50	343.50
5/19/2013	2464	10.90	345.50
5/19/2013	2857	10.90	344.60
5/19/2013	2951	10.50	345.80
5/19/2013	3045	10.50	347.00
5/20/2013	3233	10.50	346.60
5/20/2013	3326	9.60	344.70
5/20/2013	3420	9.30	344.20
5/20/2013	3514	11.10	349.00
5/20/2013	3608	909.00	344.00
5/20/2013	3701	9.50	343.70
5/20/2013	3795	9.80	347.50
5/20/2013	3889	10.80	346.10
5/20/2013	3982	10.60	345.90
5/20/2013	4076	10.20	347.40
5/20/2013	4170	909.00	347.80
5/21/2013	4615	8.70	344.40

Company: COG Operating, LLCJob Number: 04255-433-21

Calculation Method

Minimum Curvature

Well: Dodd Federal Unit #575Mag Decl.: 60.31Proposed Azimuth 347.8Location: Eddy County, New MexicoDir Driller: MartyDepth Reference KBGRig: SILVER OAK #11MWD Eng: CODY HASHTie Into: Gyro SurveyJob Date: 05/17/13 - 05/21/13

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	848.00	1.8	67.5	0	847.86	0.51	3.23 N	12.49 E					
1	938	1.7	77.9	90	937.82	0.75	4.05 N	15.10 E	15.64	74.98	0.37	-0.11	11.56
2	1031	1.7	57.9	93	1030.78	1.22	5.07 N	17.62 E	18.33	73.94	0.63	0.00	-21.51
3	1125	2.3	11.9	94	1124.73	3.41	7.66 N	19.19 E	20.66	68.24	1.76	0.64	-48.94
4	1219	5.1	349.4	94	1218.53	9.31	13.61 N	18.81 E	23.22	54.10	3.30	2.98	359.04
5	1312	7.2	350.2	93	1310.98	19.27	23.42 N	17.06 E	28.97	36.06	2.26	2.26	0.86
6	1406	8.0	342.9	94	1404.16	31.67	35.48 N	14.13 E	38.19	21.72	1.33	0.85	-7.77
7	1501	9.9	341.5	95	1498.00	46.38	49.54 N	9.59 E	50.46	10.96	2.01	2.00	-1.47
8	1602	10.0	342.2	101	1597.48	63.74	66.13 N	4.16 E	66.26	3.60	0.16	0.10	0.69
9	1665	10.5	343.5	63	1659.47	74.91	76.84 N	0.86 E	76.84	0.64	0.87	0.79	2.06
10	1728	10.3	344.7	63	1721.44	86.26	87.77 N	2.26 W	87.80	358.53	0.47	-0.32	1.90
11	1821	10.1	342.4	93	1812.97	102.68	103.57 N	6.92 W	103.80	356.18	0.49	-0.22	-2.47
12	1915	10.1	348.3	94	1905.52	119.13	119.49 N	11.08 W	120.01	354.70	1.10	0.00	6.28
13	2010	10.1	346.4	95	1999.04	135.78	135.75 N	14.73 W	136.54	353.81	0.35	0.00	-2.00
14	2104	10.8	343.3	94	2091.49	152.80	152.19 N	19.20 W	153.40	352.81	0.95	0.74	-3.30
15	2198	10.8	344.0	94	2183.82	170.37	169.10 N	24.16 W	170.81	351.87	0.14	0.00	0.74
16	2292	10.7	346.7	94	2276.17	187.88	186.05 N	28.59 W	188.24	351.26	0.55	-0.11	2.87
17	2387	11.1	345.8	95	2369.46	205.84	203.50 N	32.87 W	206.14	350.83	0.46	0.42	-0.95
18	2482	10.4	348.7	95	2462.79	223.56	220.78 N	36.79 W	223.82	350.54	0.93	-0.74	3.05
19	2576	10.3	349.0	94	2555.26	240.44	237.35 N	40.06 W	240.70	350.42	0.12	-0.11	0.32
20	2669	10.5	343.5	93	2646.73	257.20	253.63 N	44.05 W	257.43	350.15	1.09	0.22	-5.91
21	2764	10.9	345.5	95	2740.08	274.81	270.63 N	48.76 W	274.99	349.79	0.57	0.42	2.11
22	2857	10.9	344.6	93	2831.41	292.38	287.62 N	53.29 W	292.51	349.50	0.18	0.00	-0.97
23	2951	10.5	345.8	94	2923.77	309.81	304.49 N	57.75 W	309.92	349.26	0.49	-0.43	1.28
24	3045	10.5	347.0	94	3016.20	326.94	321.14 N	61.78 W	327.03	349.11	0.23	0.00	1.28
25	3139	10.8	346.8	94	3108.58	344.31	338.06 N	65.72 W	344.39	349.00	0.32	0.32	-0.21
26	3233	10.5	346.6	94	3200.96	361.68	354.97 N	69.72 W	361.75	348.89	0.32	-0.32	-0.21
27	3326	9.6	344.7	93	3292.53	377.89	370.69 N	73.73 W	377.95	348.75	1.03	-0.97	-2.04
28	3420	9.3	344.2	94	3385.25	393.30	385.56 N	77.86 W	393.34	348.58	0.33	-0.32	-0.53
29	3514	11.1	349.0	94	3477.77	409.93	401.75 N	81.66 W	409.96	348.51	2.12	1.91	5.11
30	3608	9.9	344.0	94	3570.19	427.04	418.40 N	85.61 W	427.07	348.44	1.60	-1.28	-5.32
31	3701	9.5	343.7	93	3661.86	442.67	433.45 N	89.97 W	442.69	348.27	0.43	-0.43	-0.32
32	3795	9.8	347.5	94	3754.53	458.41	448.71 N	93.88 W	458.42	348.18	0.75	0.32	4.04
33	3889	10.8	346.1	94	3847.02	475.21	465.07 N	97.72 W	475.22	348.13	1.10	1.06	-1.49
34	3982	10.6	345.9	93	3938.40	492.47	481.82 N	101.90 W	492.48	348.06	0.22	-0.22	-0.22
35	4076	10.2	347.4	94	4030.86	509.44	498.33 N	105.82 W	509.44	348.01	0.51	-0.43	1.60
36	4170	9.9	347.8	94	4123.41	525.84	514.35 N	109.35 W	525.85	348.00	0.33	-0.32	0.43

ArcherCompany: COG Operating, LLCJob Number: 04255-433-21

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Minimum Curvature

Well: Dodd Federal Unit #575Mag Decl.: 60.31

Proposed Azimuth

347.8Location: Eddy County, New MexicoDir Driller: Marty

Depth Reference

KBGRig: SILVER OAK #11MWD Eng: CODY HASHTie Into: Gyro SurveyJob Date: 05/17/13 - 05/21/13

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			
37	4264	9.6	347.8	94	4216.06	541.76	529.91 N	112.71 W	541.76	347.99	0.32	-0.32	0.00
38	4358	9.6	348.4	94	4308.74	557.43	545.25 N	115.94 W	557.44	348.00	0.11	0.00	0.64
39	4452	9.0	343.3	94	4401.51	572.60	559.97 N	119.63 W	572.61	347.94	1.08	-0.64	-5.43
40	4546	8.7	343.1	94	4494.39	587.02	573.81 N	123.81 W	587.02	347.82	0.32	-0.32	-0.21
41	4615	8.7	344.4	69	4562.59	597.43	583.83 N	126.73 W	597.43	347.75	0.28	0.00	1.88
Proj.	4651	8.7	344.4	36	4598.18	602.87	589.08 N	128.20 W	602.87	347.72	0.00	0.00	0.00