VES
VAUGHN ENERGY SERVICES
A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

30-015-40736

May 30, 2013

COG Operating LLC (Concho)
One Concho Center
600 W. Illinois Avenue
Midland, TX 79701

Attn: Kanicia Castillo

Re: **Puckett 13 Federal No 006H**

Please find enclosed a copy of the survey from 0' to 5,910' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
§
COUNTY OF NUECES §

This instrument was acknowledged before me on the 30th day of May, A.D., 2013, by Keith Havelka.

Laura Ballew
Notary Public, State of Texas

LAURA BALLEW
Notary Public, State of Texas
My Commission Expires
January 28, 2014

Company: COG Operating LLC (Concho)
Lease/Well: Puckett 13 Federal/No 006H
Location: S13 T17s R31e
Rig Name: UDI 40
State/County: New Mexico/Eddy
Latitude: 32.84, Longitude: -103.82
GRID North is 0.28 Degrees East of True North
VS-Azi: 0.00 Degrees

RKB : 14 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: ...13 fed com #6h gyro survey.ut
Minimum Curvature Method
Report Date/Time: 5/30/2013 / 10:47

Vaughn Energy Services
(432) 563-5444
Gardendale, TX
Surveyor: Dustin Wedel

Puckett 13 Federal No 006H / API 30-015-40736

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.26	322.31	100.00	0.18	-0.14	0.23	322.31	0.26
200.00	0.07	309.99	200.00	0.41	-0.33	0.52	320.80	0.19
300.00	0.18	350.39	300.00	0.60	-0.41	0.73	325.98	0.13
400.00	0.26	321.92	400.00	0.94	-0.57	1.10	328.53	0.13
500.00	0.28	299.16	500.00	1.23	-0.92	1.54	323.15	0.11
600.00	0.21	193.63	600.00	1.17	-1.18	1.66	314.78	0.39
700.00	0.57	223.78	699.99	0.63	-1.57	1.69	291.86	0.40
800.00	0.28	152.00	799.99	0.06	-1.80	1.80	271.77	0.55
900.00	0.48	56.67	899.99	0.07	-1.34	1.34	273.06	0.58
1000.00	0.33	341.51	999.99	0.57	-1.08	1.22	297.99	0.51
1100.00	0.13	328.36	1099.99	0.94	-1.23	1.54	307.42	0.21
1200.00	0.33	346.24	1199.99	1.31	-1.35	1.88	314.12	0.21
1300.00	0.51	334.28	1299.98	1.99	-1.61	2.56	320.99	0.20
1400.00	0.37	287.49	1399.98	2.49	-2.12	3.27	319.65	0.37
1500.00	0.43	332.21	1499.98	2.92	-2.60	3.91	318.31	0.31
1600.00	0.53	350.18	1599.98	3.71	-2.85	4.68	322.43	0.18
1700.00	0.28	33.27	1699.97	4.37	-2.80	5.19	327.35	0.38
1800.00	0.31	41.88	1799.97	4.77	-2.49	5.38	332.48	0.05

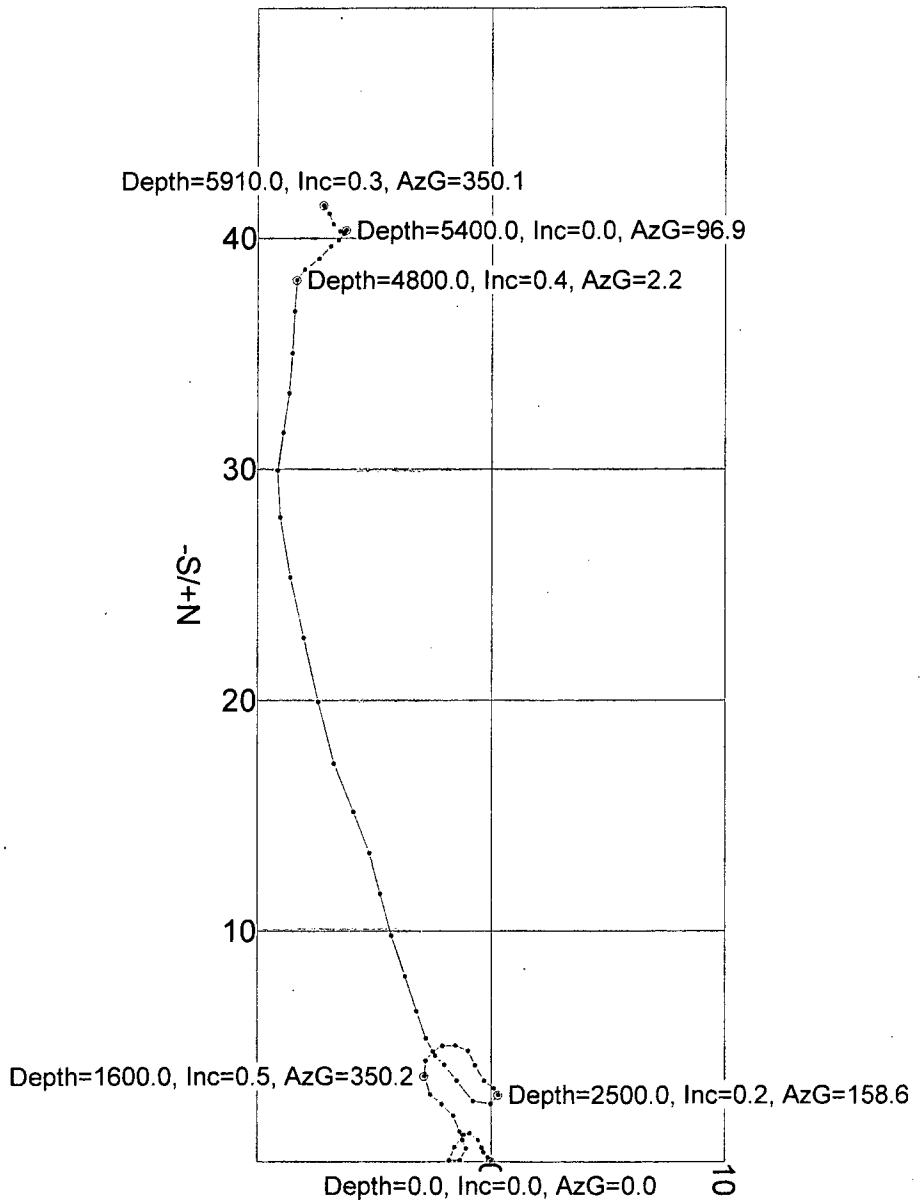
VES Survey Date: 05/19/2013

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.27	75.83	1899.97	5.03	-2.08	5.44	337.52	0.17
2000.00	0.38	99.64	1999.97	5.03	-1.53	5.26	343.11	0.18
2100.00	0.30	128.66	2099.97	4.81	-0.99	4.91	348.34	0.19
2200.00	0.56	168.35	2199.96	4.17	-0.69	4.22	350.64	0.38
2300.00	0.39	122.11	2299.96	3.50	-0.30	3.52	355.14	0.40
2400.00	0.22	138.60	2399.96	3.18	0.12	3.18	2.15	0.19
2500.00	0.18	158.56	2499.96	2.89	0.30	2.91	5.98	0.08
2600.00	0.53	237.18	2599.96	2.50	-0.03	2.50	359.38	0.52
2700.00	0.60	316.24	2699.95	2.63	-0.77	2.74	343.59	0.72
2800.00	0.70	326.51	2799.95	3.51	-1.47	3.81	337.28	0.15
2900.00	0.31	311.28	2899.94	4.19	-2.01	4.65	334.43	0.41
3000.00	0.32	320.57	2999.94	4.59	-2.39	5.17	332.52	0.05
3100.00	0.67	337.81	3099.94	5.34	-2.78	6.03	332.48	0.37
3200.00	0.77	343.77	3199.93	6.53	-3.19	7.27	333.95	0.13
3300.00	1.04	340.91	3299.92	8.04	-3.68	8.84	335.41	0.27
3400.00	1.09	341.51	3399.90	9.80	-4.28	10.69	336.42	0.05
3500.00	1.08	349.02	3499.88	11.63	-4.76	12.57	337.74	0.14
3600.00	1.01	341.74	3599.87	13.39	-5.21	14.37	338.73	0.15
3700.00	1.19	337.15	3699.85	15.19	-5.89	16.29	338.79	0.21
3800.00	1.37	339.29	3799.82	17.26	-6.72	18.53	338.73	0.18
3900.00	1.79	350.82	3899.78	19.93	-7.39	21.25	339.64	0.53
4000.00	1.47	343.34	3999.74	22.71	-8.01	24.08	340.56	0.38
4100.00	1.61	351.17	4099.71	25.33	-8.60	26.75	341.25	0.25
4200.00	1.39	349.82	4199.67	27.91	-9.03	29.34	342.08	0.22
4300.00	0.97	7.42	4299.65	29.95	-9.13	31.31	343.04	0.55
4400.00	0.93	9.21	4399.64	31.59	-8.89	32.82	344.28	0.05
4500.00	1.04	7.13	4499.62	33.29	-8.65	34.40	345.43	0.11
4600.00	0.96	1.54	4599.61	35.03	-8.52	36.05	346.34	0.12
4700.00	1.11	4.55	4699.59	36.84	-8.42	37.79	347.13	0.16
4800.00	0.44	2.18	4799.58	38.19	-8.32	39.08	347.70	0.68
4900.00	0.37	77.53	4899.58	38.64	-8.00	39.46	348.31	0.50
5000.00	0.58	36.62	4999.58	39.11	-7.38	39.80	349.31	0.38
5100.00	0.28	53.58	5099.57	39.66	-6.89	40.25	350.14	0.32
5200.00	0.20	47.96	5199.57	39.92	-6.56	40.46	350.66	0.08
5300.00	0.21	30.92	5299.57	40.19	-6.34	40.69	351.04	0.06
5400.00	0.01	96.87	5399.57	40.35	-6.24	40.83	351.21	0.20
5500.00	0.10	226.98	5499.57	40.29	-6.29	40.78	351.12	0.10
5600.00	0.19	293.03	5599.57	40.30	-6.50	40.82	350.83	0.17
5700.00	0.32	333.06	5699.57	40.61	-6.78	41.17	350.52	0.21

VES Survey Date: 05/19/2013

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.26	345.29	5799.57	41.07	-6.96	41.66	350.38	0.08
5900.00	0.21	302.50	5899.57	41.39	-7.18	42.01	350.17	0.18
5910.00	0.30	350.09	5909.57	41.43	-7.20	42.05	350.15	2.22

Vaughn Energy Services
(432) 563-5444
Gardendale, TX
Surveyor: Dustin Wedel
Puckett 13 Federal No 006H / API 30-015-40736



VES Survey Date: 05/19/2013

Archer

Archer Directional Drilling Services.
12101 Cutten Road
Houston, Texas 77066
Tel: 281-301-2600
Fax: 281-301-2795

COG Operating, LLC
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

June 3, 2013

Re: COG Operating, LLC
Puckett 13 Fed Com #6H
Field: Grayburg Jackson
Rig: United 40
Eddy County, New Mexico
API # 30-015-40736

Enclosed please find the original of the surveys performed on the referenced well by Archer Directional Drilling Services. Other information required by your office is as follows:

Name & Title Of Surveyor	Wellhole Number	Survey Depths	Dates Performed	Type Survey
Justin Warnack Field Engineer	Original Hole	6020-11281	05/19/13-05/29/13	MWD

If additional information is required, please contact the undersigned at the letterhead address and phone number.

Amador Baggerly
MWD Coordinator

Archer

Archer Directional Drilling Services.
12101 Cutten Road
Houston, Texas 77066
Tel: 281-301-2600
Fax: 281-301-2795

MWD Survey Certification

State of New Mexico
County of Eddy

I, Amador Baggerly, certify that; I am employed by Archer Directional Drilling Services; that I did on the day(s) of 05/19/13 through 05/29/13 , conduct or supervise the taking of MWD surveys from a depth of 6020 feet to a depth of 11281 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 COG Operating, LLC for the Puckett 13 Fed Com #6H (API # 30-015-40736), Well located in Eddy County, New Mexico; and that I have reviewed this report and find that if conforms to the principles and procedures as set forth by Archer Directional Drilling Services

Amador Baggerly
MWD Coordinator

State of Texas
County of Harris

Before me, a notary public, on this day personally appeared Amador Baggerly, on this 3 day of June, 2013, known to me to be the person whose name is subscribed to the foregoing document and, being by me first duly sworn, declared that the statement therein contained are true and correct.

Notary Public's Signature

DUSTIN MICHAEL TREVINO
Notary Public, State of Texas
My Commission Expires
February 26, 2017

Archer

Company:	COG Operating, LLC	**Job Number:**	04250-433-22	**Calculation Method**	Minimum Curvature
Well:	Puckett 13 Fed Com 6H	**Mag Decl.:**	7.24	**Proposed Azimuth**	180.1
Location:	Eddy County, New Mexico	**Dir Driller:**	Cody Styles	**Depth Reference**	KBG
Rig:	UDI 40	**MWD Eng:**	Justin Warnack	**Tie Into:**	Gyro Survey
Job Date:	05/19/13 - 05/29/13				

Survey Number	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	Closure Distance (ft)	Closure Direction Azimuth	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
Tie In	**5910.00**	**0.3**	**350.09**	0	**5909.57**	**41.41**	**41.42 N**	**7.19 W**	0.00	0.00	**0**	**0**	**0**
1	6020	0.7	176.9	110	6019.57	-41.02	41.03 N	7.20 W	41.66	350.04	0.91	0.36	-157.45
2	6052	4.1	177.2	32	6051.54	-39.69	39.69 N	7.14 W	40.33	349.81	10.63	10.63	0.94
3	6084	7.5	182.6	32	6083.37	-36.46	36.46 N	7.18 W	37.16	348.87	10.75	10.63	16.88
4	6115	10.2	183.5	31	6114.00	-31.69	31.70 N	7.44 W	32.56	346.80	8.72	8.71	2.90
5	6147	13.4	185.1	32	6145.31	-25.17	25.18 N	7.94 W	26.40	342.50	10.05	10.00	5.00
6	6179	17.0	183.5	32	6176.19	-16.80	16.81 N	8.55 W	18.87	333.04	11.33	11.25	-5.00
7	6210	20.3	182.0	31	6205.56	-6.90	6.91 N	9.02 W	11.36	307.48	10.76	10.65	-4.84
8	6242	23.2	181.4	32	6235.28	4.95	4.94 S	9.37 W	10.59	242.20	9.09	9.06	-1.87
9	6274	26.2	181.9	32	6264.35	18.31	18.30 S	9.75 W	20.74	208.06	9.40	9.38	1.56
10	6306	29.1	182.7	32	6292.69	33.15	33.14 S	10.35 W	34.72	197.35	9.14	9.06	2.50
11	6337	32.3	183.0	31	6319.34	48.96	48.94 S	11.14 W	50.20	192.83	10.33	10.32	0.97
12	6369	35.8	183.8	32	6345.85	66.84	66.82 S	12.21 W	67.93	190.36	11.03	10.94	2.50
13	6401	38.5	184.8	32	6371.35	86.11	86.09 S	13.67 W	87.17	189.02	8.65	8.44	3.13
14	6432	41.5	184.7	31	6395.10	105.97	105.95 S	15.31 W	107.05	188.23	9.68	9.68	-0.32
15	6464	45.0	184.3	32	6418.40	127.82	127.80 S	17.03 W	128.93	187.59	10.97	10.94	-1.25
16	6496	48.2	184.4	32	6440.39	151.01	150.98 S	18.80 W	152.15	187.10	10.00	10.00	0.31
17	6528	51.0	184.0	32	6461.13	175.31	175.29 S	20.58 W	176.49	186.70	8.80	8.75	-1.25
18	6559	53.6	183.9	31	6480.08	199.78	199.75 S	22.27 W	200.99	186.36	8.39	8.39	-0.32
19	6591	56.9	184.1	32	6498.32	226.01	225.98 S	24.10 W	227.26	186.09	10.33	10.31	0.62
20	6623	59.8	183.9	32	6515.11	253.18	253.15 S	26.00 W	254.48	185.86	9.08	9.06	-0.62
21	6655	62.4	183.8	32	6530.57	281.13	281.10 S	27.88 W	282.48	185.66	8.13	8.13	-0.31
22	6686	65.1	184.5	31	6544.28	308.86	308.83 S	29.90 W	310.27	185.53	8.94	8.71	2.26
23	6718	68.4	185.0	32	6556.91	338.16	338.12 S	32.33 W	339.66	185.46	10.41	10.31	1.56
24	6750	71.9	185.0	32	6567.78	368.14	368.10 S	34.96 W	369.76	185.42	10.94	10.94	0.00
25	6781	74.6	185.0	31	6576.71	397.72	397.67 S	37.54 W	399.44	185.39	8.71	8.71	0.00
26	6813	77.1	184.3	32	6584.53	428.64	428.59 S	40.06 W	430.46	185.34	8.10	7.81	-2.19
27	6845	80.0	183.9	32	6590.88	459.93	459.87 S	42.30 W	461.82	185.26	9.14	9.06	-1.25
28	6876	82.9	184.2	31	6595.49	490.50	490.45 S	44.46 W	492.46	185.18	9.40	9.35	0.97
29	6908	85.5	183.4	32	6598.72	522.27	522.21 S	46.57 W	524.29	185.10	8.50	8.12	-2.50
30	6940	88.1	183.2	32	6600.51	554.17	554.11 S	48.41 W	556.22	184.99	8.15	8.12	-0.63
31	6972	90.0	182.9	32	6601.04	586.12	586.06 S	50.11 W	588.19	184.89	6.01	5.94	-0.94
32	7003	90.1	182.8	31	6601.01	617.08	617.02 S	51.65 W	619.18	184.79	0.46	0.32	-0.32
33	7099	90.5	181.4	96	6600.51	713.02	712.95 S	55.17 W	715.08	184.43	1.52	0.42	-1.46
34	7194	91.1	181.4	95	6599.19	807.98	807.91 S	57.49 W	809.95	184.07	0.63	0.63	0.00
35	7289	91.4	180.5	95	6597.11	902.95	902.87 S	59.07 W	904.80	183.74	1.00	0.32	-0.95
36	7384	91.6	180.1	95	6594.63	997.91	997.84 S	59.57 W	999.62	183.42	0.47	0.21	-0.42

Archer

Company:	COG Operating, LLC	**Job Number:**	04250-433-22	**Calculation Method**	Minimum Curvature
Well:	Puckett 13 Fed Com 6H	**Mag Decl.:**	7.24	**Proposed Azimuth**	180.1
Location:	Eddy County, New Mexico	**Dir Driller:**	Cody Styles	**Depth Reference**	KBG
Rig:	UDI 40	**MWD Eng:**	Justin Warnack	**Tie Into:**	Gyro Survey
Job Date:	05/19/13 - 05/29/13				

Survey Number	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	Closure Distance (ft)	Closure Direction Azimuth	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
37	7479	90.2	179.8	95	6593.13	1092.90	1092.83 S	59.48 W	1094.44	183.12	1.51	-1.47	-0.32
38	7574	90.0	179.0	95	6592.97	1187.89	1187.82 S	58.49 W	1189.26	182.82	0.87	-0.21	-0.84
39	7669	90.9	179.3	95	6592.22	1282.87	1282.81 S	57.08 W	1284.07	182.55	1.00	0.95	0.32
40	7764	90.3	179.1	95	6591.23	1377.86	1377.79 S	55.75 W	1378.92	182.32	0.67	-0.63	-0.21
41	7859	90.4	178.1	95	6590.65	1472.82	1472.76 S	53.43 W	1473.73	182.08	1.06	0.11	-1.05
42	7954	90.9	177.0	95	6589.57	1567.72	1567.66 S	49.37 W	1568.44	181.80	1.27	0.53	-1.16
43	8049	91.7	177.7	95	6587.41	1662.59	1662.54 S	44.98 W	1663.15	181.55	1.12	0.84	0.74
44	8144	91.3	178.9	95	6584.93	1757.51	1757.46 S	42.16 W	1757.97	181.37	1.33	-0.42	1.26
45	8240	91.3	179.9	96	6582.75	1853.48	1853.43 S	41.16 W	1853.89	181.27	1.04	0.00	1.04
46	8335	91.6	179.4	95	6580.34	1948.45	1948.40 S	40.58 W	1948.82	181.19	0.61	0.32	-0.53
47	8430	90.4	180.1	95	6578.69	2043.43	2043.38 S	40.16 W	2043.77	181.13	1.46	-1.26	0.74
48	8524	90.8	180.4	94	6577.70	2137.42	2137.37 S	40.57 W	2137.76	181.09	0.53	0.43	0.32
49	8620	91.9	180.3	96	6575.44	2233.39	2233.34 S	41.16 W	2233.72	181.06	1.15	1.15	-0.10
50	8715	91.2	180.0	95	6572.87	2328.36	2328.31 S	41.41 W	2328.68	181.02	0.80	-0.74	-0.32
51	8810	90.4	179.9	95	6571.54	2423.35	2423.30 S	41.32 W	2423.65	180.98	0.85	-0.84	-0.11
52	8905	90.6	179.8	95	6570.72	2518.34	2518.29 S	41.08 W	2518.63	180.93	0.24	0.21	-0.11
53	9000	91.6	179.8	95	6568.89	2613.32	2613.27 S	40.74 W	2613.59	180.89	1.05	1.05	0.00
54	9095	90.7	179.2	95	6566.99	2708.30	2708.25 S	39.92 W	2708.54	180.84	1.14	-0.95	-0.63
55	9190	91.2	179.1	95	6565.41	2803.27	2803.23 S	38.51 W	2803.49	180.79	0.54	0.53	-0.11
56	9285	91.6	179.2	95	6563.09	2898.23	2898.19 S	37.10 W	2898.42	180.73	0.43	0.42	0.11
57	9381	90.4	178.9	96	6561.41	2994.20	2994.16 S	35.51 W	2994.37	180.68	1.29	-1.25	-0.31
58	9476	90.2	178.8	95	6560.92	3089.18	3089.14 S	33.60 W	3089.32	180.62	0.24	-0.21	-0.11
59	9571	90.8	178.7	95	6560.09	3184.15	3184.11 S	31.53 W	3184.27	180.57	0.64	0.63	-0.11
60	9666	91.0	178.4	95	6558.60	3279.10	3279.07 S	29.12 W	3279.20	180.51	0.38	0.21	-0.32
61	9761	91.9	178.2	95	6556.19	3374.02	3373.99 S	26.31 W	3374.10	180.45	0.97	0.95	-0.21
62	9856	90.8	179.2	95	6553.95	3468.97	3468.94 S	24.15 W	3469.02	180.40	1.56	-1.16	1.05
63	9951	91.0	178.9	95	6552.46	3563.94	3563.92 S	22.58 W	3563.99	180.36	0.38	0.21	-0.32
64	10046	91.4	178.5	95	6550.47	3658.89	3658.87 S	20.42 W	3658.93	180.32	0.60	0.42	-0.42
65	10141	90.2	178.9	95	6549.14	3753.85	3753.83 S	18.27 W	3753.88	180.28	1.33	-1.26	0.42
66	10237	89.7	178.5	96	6549.23	3849.83	3849.81 S	16.09 W	3849.84	180.24	0.67	-0.52	-0.42
67	10331	90.3	178.0	94	6549.23	3943.78	3943.76 S	13.22 W	3943.79	180.19	0.83	0.64	-0.53
68	10426	91.5	177.6	95	6547.74	4038.69	4038.68 S	9.57 W	4038.69	180.14	1.33	1.26	-0.42
69	10521	91.4	179.0	95	6545.33	4133.61	4133.61 S	6.76 W	4133.61	180.09	1.48	-0.11	1.47
70	10618	91.6	180.6	97	6542.79	4230.57	4230.57 S	6.42 W	4230.57	180.09	1.66	0.21	1.65
71	10713	91.6	180.6	95	6540.14	4325.53	4325.53 S	7.41 W	4325.53	180.10	0.00	0.00	0.00
72	10808	90.6	181.3	95	6538.32	4420.50	4420.49 S	8.99 W	4420.50	180.12	1.28	-1.05	0.74
73	10903	90.5	181.3	95	6537.40	4515.48	4515.47 S	11.14 W	4515.48	180.14	0.11	-0.11	0.00
74	10998	90.5	181.3	95	6536.58	4610.45	4610.44 S	13.30 W	4610.46	180.17	0.00	0.00	0.00

Archer

Company:	COG Operating, LLC	**Job Number:**	04250-433-22	**Calculation Method**	Minimum Curvature
Well:	Puckett 13 Fed Com 6H	**Mag Decl.:**	7.24	**Proposed Azimuth**	180.1
Location:	Eddy County, New Mexico	**Dir Driller:**	Cody Styles	**Depth Reference**	KBG
Rig:	UDI 40	**MWD Eng:**	Justin Warnack	**Tie Into:**	Gyro Survey
Job Date:	05/19/13 - 05/29/13				

Survey Number	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	Closure Distance (ft)	Closure Direction Azimuth	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
75	11093	90.3	181.3	95	6535.91	4705.43	4705.41 S	15.45 W	4705.44	180.19	0.21	-0.21	0.00
76	11188	90.3	181.4	95	6535.42	4800.40	4800.38 S	17.69 W	4800.42	180.21	0.11	0.00	0.11
77	11220	90.2	181.4	32	6535.28	4832.39	4832.37 S	18.47 W	4832.41	180.22	0.31	-0.31	0.00
Proj.	11281	90.2	181.4	61	6535.06	4893.38	4893.35 S	19.96 W	4893.40	180.23	0.00	0.00	0.00