

PATRIOT DRILLING, LLC

15-42497

RECEIVED

OPERATOR: COG Operating, LLC
WELL/LEASE: Craig State 5H
COUNTY: Eddy Co., New Mexico
Sec. 36, T 25S, R 26E

**STATE OF NEW MEXICO
DEVIATION REPORT**

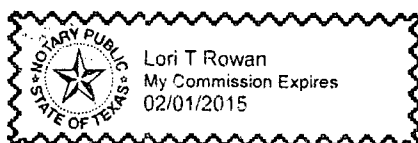
<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
219	1 1/2	2,446	3/4
359	3/4	2,920	1/2
441	1	3,394	1 1/2
529	1 1/2	4,347	1 1/2
612	2	4,942	1 1/2
699	1 1/2	5,450	2
888	1 1/4	5,929	1/2
983	1 1/2	6,400	2
1,078	1 1/2	6,878	3/4
1,173	1 1/4	6,910	1 3/4
1,458	1 1/2	6,941	5 1/2
1,553	2		
1,647	2		
1,743	1 1/2		
1,838	1 1/4		
1,931	1 1/4		

Patriot Drilling, LLC

M. Leroy Peterson, Executive Vice-President

The foregoing instrument was acknowledged before me on this 27th day of October, 2014 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2015



Lori T. Rowan
Notary Public for Ector Co., Texas



October 31, 2014

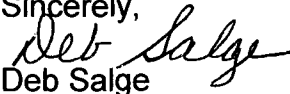
Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: **Craig State No. 005H**

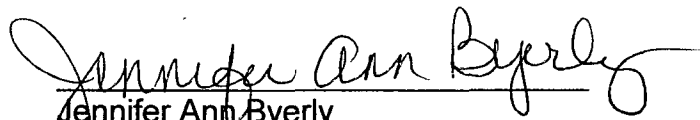
Please find enclosed a copy of the survey from 0.00' to 6817.00' ran on the
above referenced well.

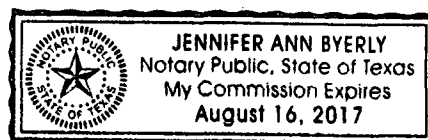
Sincerely,


Deb Salge
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 31 day of October
A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas



Company: COG Operating, LLC (Concho)

Lease/Well: Craig State/No. 005H



Rig Name: Patriot 2

State/County: New Mexico/Eddy

Latitude: 32.09, Longitude: -104.24

GRID North is 0.05 Degrees East of True North

VS-Azi: 0.00 Degrees



NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 12 2015
RECEIVED

Depth Reference : RKB: 18'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 10/31/2014 / 10:19

VES Survey International

Midland, TX

(432)-563-5444

Surveyor: Tim Dillon

Craig State No. 005H / API 30-015-42497

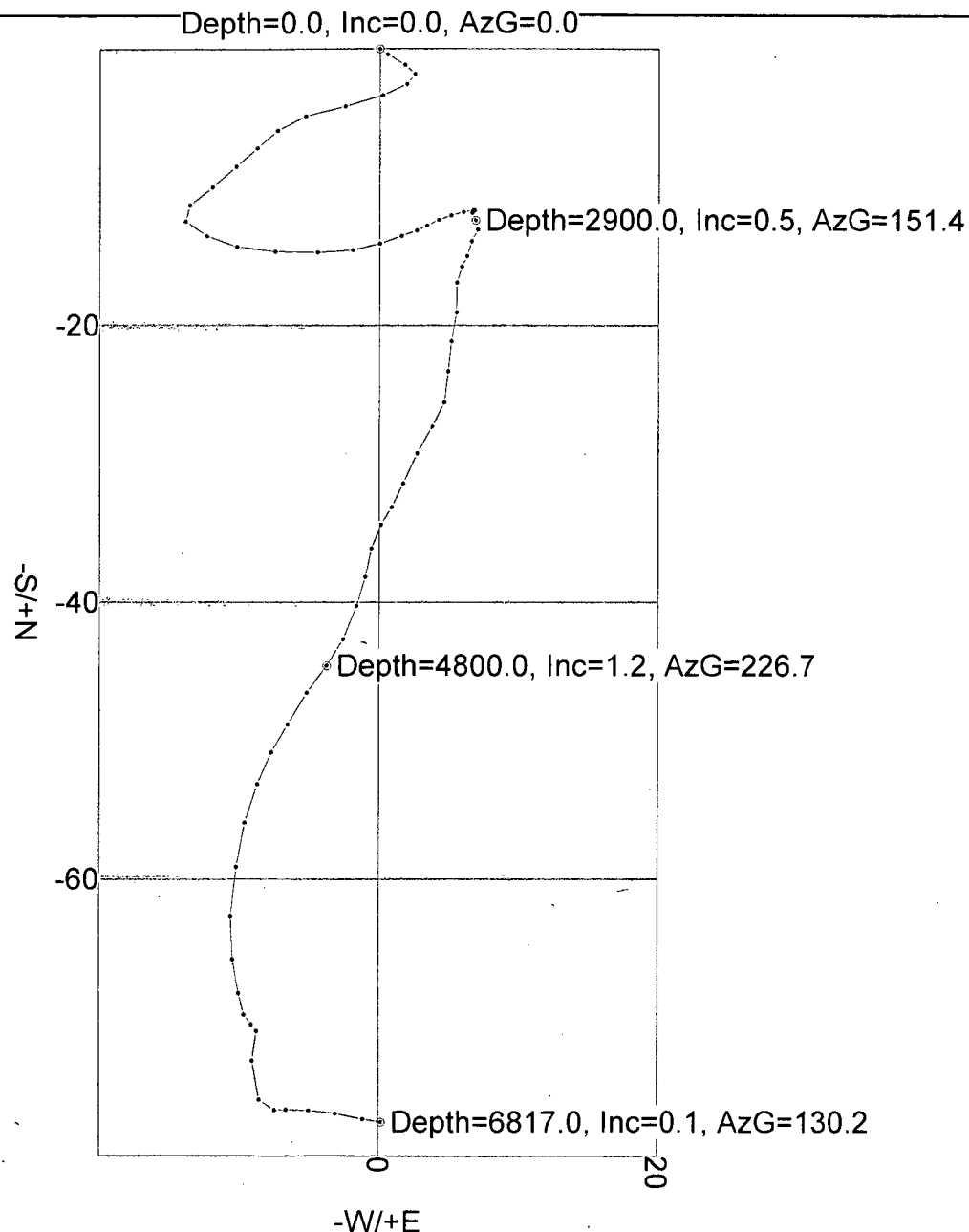
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.79	126.00	100.00	-0.41	0.56	-0.41	0.69	126.00	0.79
200.00	0.89	117.58	199.99	-1.17	1.81	-1.17	2.16	122.96	0.16
300.00	0.35	172.57	299.98	-1.84	2.54	-1.84	3.14	125.89	0.75
400.00	0.86	236.66	399.98	-2.56	1.96	-2.56	3.22	142.60	0.77
500.00	1.36	250.25	499.96	-3.37	0.21	-3.37	3.38	176.38	0.56
600.00	1.83	255.91	599.92	-4.16	-2.45	-4.16	4.83	210.53	0.50
700.00	1.49	255.17	699.88	-4.88	-5.27	-4.88	7.18	227.16	0.34
800.00	1.16	226.67	799.85	-5.91	-7.27	-5.91	9.37	230.85	0.73
900.00	1.03	231.30	899.83	-7.18	-8.71	-7.18	11.28	230.51	0.16
1000.00	1.30	226.68	999.81	-8.52	-10.24	-8.52	13.32	230.24	0.28
1100.00	1.29	230.15	1099.78	-10.01	-11.92	-10.01	15.57	229.98	0.08
1200.00	1.09	231.96	1199.76	-11.32	-13.53	-11.32	17.64	230.09	0.20
1300.00	0.83	142.76	1299.75	-12.48	-13.84	-12.48	18.64	227.97	1.36
1400.00	1.35	114.60	1399.74	-13.54	-12.34	-13.54	18.32	222.33	0.73
1500.00	1.29	105.27	1499.71	-14.33	-10.18	-14.33	17.57	215.38	0.22
1600.00	1.88	91.41	1599.67	-14.67	-7.45	-14.67	16.45	206.91	0.70
1700.00	1.58	91.05	1699.62	-14.73	-4.42	-14.73	15.38	196.70	0.30
1800.00	1.31	79.66	1799.59	-14.55	-1.91	-14.55	14.68	187.49	0.40

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.98	71.79	1899.57	-14.08	0.02	-14.08	14.08	179.91	0.37
2000.00	0.93	69.11	1999.56	-13.52	1.59	-13.52	13.62	173.29	0.06
2100.00	0.40	71.64	2099.55	-13.12	2.68	-13.12	13.40	168.45	0.53
2200.00	0.53	59.31	2199.55	-12.78	3.41	-12.78	13.23	165.05	0.16
2300.00	0.56	68.41	2299.54	-12.36	4.26	-12.36	13.08	160.99	0.09
2400.00	0.52	72.87	2399.54	-12.05	5.15	-12.05	13.10	156.87	0.05
2500.00	0.53	75.91	2499.54	-11.80	6.03	-11.80	13.26	152.92	0.03
2600.00	0.31	84.37	2599.53	-11.66	6.76	-11.66	13.48	149.92	0.23
2700.00	0.22	254.96	2699.53	-11.69	6.84	-11.69	13.54	149.66	0.53
2800.00	0.14	172.20	2799.53	-11.86	6.67	-11.86	13.61	150.65	0.25
2900.00	0.53	151.39	2899.53	-12.39	6.91	-12.39	14.19	150.86	0.40
3000.00	0.31	193.56	2999.53	-13.06	7.07	-13.06	14.85	151.59	0.37
3100.00	0.79	213.24	3099.52	-13.90	6.63	-13.90	15.40	154.52	0.51
3200.00	0.59	174.56	3199.52	-14.99	6.30	-14.99	16.26	157.21	0.49
3300.00	0.55	240.48	3299.51	-15.75	5.93	-15.75	16.83	159.37	0.62
3400.00	1.05	176.91	3399.50	-16.89	5.56	-16.89	17.79	161.79	0.94
3500.00	1.43	182.58	3499.48	-19.05	5.55	-19.05	19.84	163.75	0.40
3600.00	1.03	199.90	3599.46	-21.14	5.19	-21.14	21.77	166.21	0.54
3700.00	1.52	176.41	3699.43	-23.32	4.97	-23.32	23.84	167.98	0.71
3800.00	1.13	201.84	3799.41	-25.56	4.68	-25.56	25.99	169.62	0.70
3900.00	1.13	210.85	3899.39	-27.33	3.81	-27.33	27.59	172.07	0.18
4000.00	1.40	207.64	3999.36	-29.25	2.74	-29.25	29.38	174.66	0.27
4100.00	1.35	202.06	4099.33	-31.43	1.73	-31.43	31.47	176.85	0.14
4200.00	0.85	211.91	4199.32	-33.15	0.89	-33.15	33.16	178.45	0.54
4300.00	0.82	210.86	4299.30	-34.39	0.13	-34.39	34.39	179.78	0.03
4400.00	1.30	196.83	4399.29	-36.10	-0.56	-36.10	36.10	180.90	0.54
4500.00	1.11	185.33	4499.27	-38.15	-0.98	-38.15	38.16	181.48	0.31
4600.00	1.46	204.45	4599.24	-40.27	-1.60	-40.27	40.30	182.27	0.55
4700.00	1.50	199.58	4699.21	-42.66	-2.56	-42.66	42.73	183.44	0.13
4800.00	1.15	226.71	4799.18	-44.58	-3.73	-44.58	44.74	184.79	0.71
4900.00	1.66	208.05	4899.15	-46.55	-5.15	-46.55	46.83	186.31	0.68
5000.00	1.39	214.26	4999.12	-48.83	-6.51	-48.83	49.26	187.59	0.31
5100.00	1.28	205.65	5099.09	-50.84	-7.68	-50.84	51.41	188.59	0.23
5200.00	1.60	201.37	5199.06	-53.14	-8.67	-53.14	53.84	189.26	0.34
5300.00	1.75	194.87	5299.01	-55.92	-9.57	-55.92	56.73	189.71	0.25
5400.00	1.99	186.71	5398.96	-59.13	-10.16	-59.13	59.99	189.76	0.36
5500.00	2.10	185.84	5498.90	-62.67	-10.55	-62.67	63.56	189.56	0.12
5600.00	1.57	166.33	5598.85	-65.83	-10.42	-65.83	66.65	188.99	0.82
5700.00	1.26	174.61	5698.82	-68.25	-9.99	-68.25	68.97	188.33	0.37

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.62	148.40	5798.80	-69.80	-9.60	-69.80	70.46	187.83	0.75
5900.00	0.39	133.98	5898.80	-70.50	-9.07	-70.50	71.08	187.33	0.26
6000.00	0.31	151.36	5998.80	-70.98	-8.70	-70.98	71.51	186.99	0.13
6100.00	2.24	192.91	6098.77	-73.12	-9.00	-73.12	73.67	187.02	2.02
6200.00	1.49	133.69	6198.72	-75.92	-8.50	-75.92	76.40	186.39	1.96
6300.00	0.25	51.91	6298.71	-76.69	-7.39	-76.69	77.05	185.51	1.47
6400.00	0.73	98.29	6398.71	-76.65	-6.59	-76.65	76.93	184.91	0.59
6500.00	1.11	88.94	6498.69	-76.73	-4.98	-76.73	76.89	183.72	0.41
6600.00	1.10	104.99	6598.68	-76.96	-3.08	-76.96	77.02	182.29	0.31
6700.00	1.20	96.77	6698.66	-77.33	-1.12	-77.33	77.34	180.83	0.19
6817.00	0.11	130.23	6815.65	-77.54	0.18	-77.54	77.54	179.86	0.95



VES Survey International
Midland, TX
(432)-563-5444
Surveyor: Tim Dillon
Craig State No. 005H / API 30-015-42497



V.E.S Survey Date: 10/18/2014



COG Operating LLC

Eddy County, NM

Craig State #5H

Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A

BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P

Survey: MWD #1

Survey Report - Geographic

22 October, 2014



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A
Project:	Eddy County, NM	TVD Reference:	WELL @ 3281.7usft (Original Well Elev)
Site:	Craig State #5H	MD Reference:	WELL @ 3281.7usft (Original Well Elev)
Well:	Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A	North Reference:	Grid
Wellbore:	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Craig State #5H		
Site Position:		Northing:	397,526.70 usft
From:	Map	Easting:	529,025.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 5' 34.376 N
		Longitude:	104° 14' 22.583 W
		Grid Convergence:	0.05 °

Well	Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A		
Well Position	+N/-S	0.0 usft	Northing: 397,526.70 usft
	+E/-W	0.0 usft	Easting: 529,025.50 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 5' 34.376 N
		Longitude:	104° 14' 22.583 W
		Ground Level:	3,264.7 usft

Wellbore	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/10/2014	7.51	59.88	48,159

Design	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	180.08

Survey Program	Date 10/22/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	6,817.0	GYRO (BHL: 330' FSL, 380' FEL, Sec 36,	MWD	MWD - Standard
6,878.0	11,874.0	MWD #1 (BHL: 330' FSL, 380' FEL, Sec 3	MWD	MWD - Standard

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
6,817.0	0.11	130.23	6,815.6	-77.5	0.2	397,449.19	529,025.66	32° 5' 33.609 N	104° 14' 22.582 W	
6,878.0	0.70	302.10	6,876.6	-77.3	-0.1	397,449.35	529,025.39	32° 5' 33.610 N	104° 14' 22.585 W	
6,910.0	1.60	212.80	6,908.6	-77.6	-0.5	397,449.08	529,024.98	32° 5' 33.608 N	104° 14' 22.590 W	
6,941.0	5.50	222.30	6,939.6	-79.1	-1.8	397,447.62	529,023.75	32° 5' 33.593 N	104° 14' 22.605 W	
6,973.0	9.50	206.40	6,971.3	-82.6	-4.0	397,444.12	529,021.54	32° 5' 33.559 N	104° 14' 22.630 W	
7,005.0	13.90	201.90	7,002.6	-88.5	-6.6	397,438.18	529,018.93	32° 5' 33.500 N	104° 14' 22.661 W	
7,037.0	18.10	200.10	7,033.4	-96.8	-9.7	397,429.95	529,015.79	32° 5' 33.418 N	104° 14' 22.697 W	
7,068.0	21.50	198.70	7,062.5	-106.7	-13.2	397,420.04	529,012.31	32° 5' 33.320 N	104° 14' 22.738 W	



Wellplanning

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A
Project:	Eddy County, NM	TVD Reference:	WELL @ 3281.7usft (Original Well Elev)
Site:	Craig State #5H	MD Reference:	WELL @ 3281.7usft (Original Well Elev)
Well:	Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A	North Reference:	Grid
Wellbore:	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,100.0	24.10	196.20	7,092.0	-118.5	-16.9	397,408.21	529,008.61	32° 5' 33.203 N	104° 14' 22.781 W
7,131.0	26.90	192.70	7,120.0	-131.4	-20.2	397,395.29	529,005.30	32° 5' 33.075 N	104° 14' 22.820 W
7,163.0	30.60	189.90	7,148.1	-146.5	-23.2	397,380.20	529,002.31	32° 5' 32.926 N	104° 14' 22.854 W
7,195.0	34.00	187.10	7,175.1	-163.4	-25.7	397,363.29	528,999.80	32° 5' 32.759 N	104° 14' 22.884 W
7,227.0	36.80	186.10	7,201.2	-181.8	-27.8	397,344.88	528,997.68	32° 5' 32.577 N	104° 14' 22.909 W
7,259.0	40.60	185.40	7,226.2	-201.7	-29.8	397,324.97	528,995.68	32° 5' 32.380 N	104° 14' 22.932 W
7,290.0	45.20	184.30	7,248.9	-222.7	-31.6	397,303.95	528,993.90	32° 5' 32.172 N	104° 14' 22.953 W
7,322.0	50.00	183.20	7,270.4	-246.3	-33.1	397,280.38	528,992.37	32° 5' 31.938 N	104° 14' 22.971 W
7,354.0	53.50	181.50	7,290.3	-271.4	-34.2	397,255.27	528,991.34	32° 5' 31.690 N	104° 14' 22.983 W
7,386.0	55.40	179.40	7,308.9	-297.5	-34.4	397,229.24	528,991.15	32° 5' 31.432 N	104° 14' 22.986 W
7,417.0	57.50	179.00	7,326.0	-323.3	-34.0	397,203.41	528,991.51	32° 5' 31.177 N	104° 14' 22.982 W
7,449.0	60.50	179.70	7,342.5	-350.7	-33.7	397,175.99	528,991.82	32° 5' 30.905 N	104° 14' 22.979 W
7,481.0	64.60	179.40	7,357.2	-379.1	-33.5	397,147.60	528,992.04	32° 5' 30.624 N	104° 14' 22.976 W
7,513.0	69.10	179.00	7,369.8	-408.5	-33.0	397,118.18	528,992.45	32° 5' 30.333 N	104° 14' 22.972 W
7,544.0	72.30	178.70	7,380.0	-437.8	-32.5	397,088.94	528,993.04	32° 5' 30.044 N	104° 14' 22.965 W
7,574.0	75.50	178.70	7,388.4	-466.6	-31.8	397,060.12	528,993.69	32° 5' 29.759 N	104° 14' 22.958 W
7,606.0	77.90	178.30	7,395.7	-497.7	-31.0	397,029.00	528,994.51	32° 5' 29.450 N	104° 14' 22.949 W
7,637.0	79.50	178.00	7,401.8	-528.1	-30.0	396,998.61	528,995.49	32° 5' 29.150 N	104° 14' 22.938 W
7,669.0	80.60	178.00	7,407.3	-559.6	-28.9	396,967.11	528,996.59	32° 5' 28.838 N	104° 14' 22.925 W
7,701.0	82.70	177.60	7,412.0	-591.2	-27.7	396,935.48	528,997.81	32° 5' 28.525 N	104° 14' 22.911 W
7,733.0	85.90	177.60	7,415.1	-623.0	-26.4	396,903.67	528,999.14	32° 5' 28.210 N	104° 14' 22.896 W
7,764.0	89.00	177.60	7,416.5	-654.0	-25.1	396,872.73	529,000.44	32° 5' 27.904 N	104° 14' 22.881 W
7,860.0	90.10	177.60	7,417.3	-749.9	-21.0	396,776.82	529,004.46	32° 5' 26.955 N	104° 14' 22.836 W
7,954.0	90.80	177.30	7,416.5	-843.8	-16.9	396,682.92	529,008.64	32° 5' 26.025 N	104° 14' 22.788 W
8,050.0	90.80	177.30	7,415.2	-939.7	-12.3	396,587.03	529,013.16	32° 5' 25.076 N	104° 14' 22.736 W
8,145.0	91.00	176.90	7,413.7	-1,034.5	-7.5	396,492.17	529,017.97	32° 5' 24.137 N	104° 14' 22.681 W
8,240.0	88.50	178.30	7,414.1	-1,129.4	-3.6	396,397.26	529,021.94	32° 5' 23.198 N	104° 14' 22.636 W
8,335.0	89.20	178.00	7,416.0	-1,224.4	-0.5	396,302.33	529,025.01	32° 5' 22.259 N	104° 14' 22.601 W
8,430.0	89.20	177.30	7,417.4	-1,319.3	3.4	396,207.42	529,028.91	32° 5' 21.319 N	104° 14' 22.557 W
8,525.0	90.10	176.60	7,417.9	-1,414.1	8.5	396,112.56	529,033.96	32° 5' 20.381 N	104° 14' 22.499 W
8,620.0	91.50	176.60	7,416.6	-1,509.0	14.1	396,017.74	529,039.59	32° 5' 19.442 N	104° 14' 22.435 W
8,716.0	90.80	178.70	7,414.7	-1,604.9	18.0	395,921.84	529,043.53	32° 5' 18.493 N	104° 14' 22.390 W
8,811.0	88.50	178.70	7,415.3	-1,699.8	20.2	395,826.87	529,045.68	32° 5' 17.553 N	104° 14' 22.366 W
8,906.0	89.40	178.30	7,417.0	-1,794.8	22.7	395,731.92	529,048.17	32° 5' 16.613 N	104° 14' 22.338 W
9,001.0	90.40	178.00	7,417.2	-1,889.7	25.7	395,636.97	529,051.24	32° 5' 15.674 N	104° 14' 22.303 W
9,096.0	91.70	177.30	7,415.4	-1,984.6	29.6	395,542.07	529,055.13	32° 5' 14.734 N	104° 14' 22.259 W
9,191.0	91.00	179.00	7,413.2	-2,079.5	32.7	395,447.15	529,058.20	32° 5' 13.795 N	104° 14' 22.224 W
9,286.0	90.30	181.50	7,412.1	-2,174.5	32.3	395,352.17	529,057.78	32° 5' 12.855 N	104° 14' 22.230 W
9,381.0	91.50	181.10	7,410.6	-2,269.5	30.1	395,257.21	529,055.63	32° 5' 11.915 N	104° 14' 22.256 W
9,476.0	88.90	182.20	7,410.3	-2,364.4	27.4	395,162.26	529,052.89	32° 5' 10.976 N	104° 14' 22.289 W
9,572.0	89.60	182.50	7,411.5	-2,460.4	23.5	395,066.35	529,048.96	32° 5' 10.026 N	104° 14' 22.336 W
9,667.0	90.40	182.20	7,411.5	-2,555.3	19.6	394,971.43	529,045.06	32° 5' 9.087 N	104° 14' 22.382 W
9,762.0	91.70	181.80	7,409.8	-2,650.2	16.2	394,876.50	529,041.75	32° 5' 8.148 N	104° 14' 22.421 W
9,857.0	90.30	183.20	7,408.1	-2,745.1	12.1	394,781.61	529,037.60	32° 5' 7.209 N	104° 14' 22.470 W
9,952.0	91.70	183.60	7,406.5	-2,839.9	6.5	394,686.80	529,031.97	32° 5' 6.270 N	104° 14' 22.537 W
10,047.0	90.40	184.60	7,404.7	-2,934.6	-0.3	394,592.06	529,025.18	32° 5' 5.333 N	104° 14' 22.617 W
10,142.0	88.30	185.00	7,405.8	-3,029.3	-8.3	394,497.40	529,017.23	32° 5' 4.396 N	104° 14' 22.710 W
10,238.0	89.20	185.00	7,407.9	-3,124.9	-16.6	394,401.79	529,008.87	32° 5' 3.450 N	104° 14' 22.808 W
10,333.0	88.00	183.20	7,410.2	-3,219.6	-23.4	394,307.07	529,002.08	32° 5' 2.513 N	104° 14' 22.888 W
10,428.0	88.30	182.50	7,413.3	-3,314.5	-28.1	394,212.24	528,997.35	32° 5' 1.574 N	104° 14' 22.944 W
10,523.0	89.40	182.20	7,415.2	-3,409.4	-32.0	394,117.34	528,993.46	32° 5' 0.635 N	104° 14' 22.990 W
10,618.0	89.90	181.50	7,415.8	-3,504.3	-35.1	394,022.39	528,990.39	32° 4' 59.695 N	104° 14' 23.027 W



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A
Project:	Eddy County, NM	TVD Reference:	WELL @ 3281.7usft (Original Well Elev)
Site:	Craig State #5H	MD Reference:	WELL @ 3281.7usft (Original Well Elev)
Well:	Surface: 190' FNL, 660' FEL, Sec 36, T25S, R26E, Unit A	North Reference:	Grid
Wellbore:	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 330' FSL, 380' FEL, Sec 36, T25S, R26E, Unit P	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,714.0	90.60	180.80	7,415.4	-3,600.3	-37.0	393,926.41	528,988.47	32° 4' 58.746 N	104° 14' 23.050 W
10,809.0	91.50	180.10	7,413.6	-3,695.3	-37.8	393,831.43	528,987.72	32° 4' 57.806 N	104° 14' 23.060 W
10,904.0	92.20	179.70	7,410.6	-3,790.2	-37.6	393,736.48	528,987.89	32° 4' 56.866 N	104° 14' 23.059 W
10,999.0	89.40	179.40	7,409.2	-3,885.2	-36.9	393,641.50	528,988.63	32° 4' 55.926 N	104° 14' 23.051 W
11,095.0	90.80	179.70	7,409.1	-3,981.2	-36.1	393,545.51	528,989.39	32° 4' 54.976 N	104° 14' 23.043 W
11,190.0	91.70	179.00	7,407.0	-4,076.2	-35.0	393,450.54	528,990.46	32° 4' 54.036 N	104° 14' 23.032 W
11,285.0	93.60	179.40	7,402.6	-4,171.0	-33.7	393,355.65	528,991.79	32° 4' 53.097 N	104° 14' 23.017 W
11,380.0	92.00	179.70	7,398.0	-4,265.9	-33.0	393,260.77	528,992.53	32° 4' 52.158 N	104° 14' 23.010 W
11,476.0	89.90	180.10	7,396.4	-4,361.9	-32.8	393,164.79	528,992.70	32° 4' 51.208 N	104° 14' 23.009 W
11,571.0	91.30	180.10	7,395.4	-4,456.9	-33.0	393,069.80	528,992.54	32° 4' 50.268 N	104° 14' 23.012 W
11,666.0	89.40	180.80	7,394.8	-4,551.9	-33.7	392,974.81	528,991.79	32° 4' 49.328 N	104° 14' 23.021 W
11,761.0	90.40	180.40	7,395.0	-4,646.9	-34.7	392,879.82	528,990.79	32° 4' 48.388 N	104° 14' 23.034 W
11,828.0	91.10	180.10	7,394.1	-4,713.9	-35.0	392,812.82	528,990.50	32° 4' 47.725 N	104° 14' 23.038 W
11,873.1	91.10	180.10	7,393.2	-4,758.9	-35.1	392,767.78	528,990.42	32° 4' 47.279 N	104° 14' 23.039 W
PBHL(CS#5)									
11,874.0	91.10	180.10	7,393.2	-4,759.9	-35.1	392,766.83	528,990.42	32° 4' 47.270 N	104° 14' 23.039 W

Checked By: _____ Approved By: _____ Date: _____