

A GYRO TECHNOLOGIES INC. COMPANY

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

30-015 41445

March 25, 2014

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

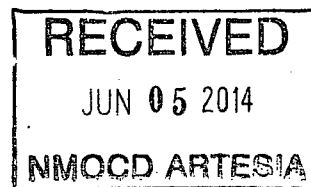
Attn: Kanicia Castillo

RE: **Puckett 12 Federal No. 028H**

Please find enclosed a copy of the survey from 0.00' to 4820.00' ran on the above referenced well.

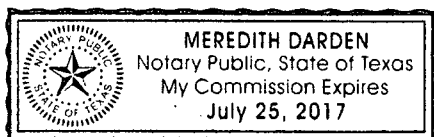
Sincerely,

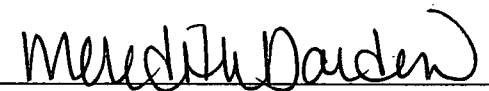

Keith Havelka
Operations



STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 25th day of March,
A.D., 2014, by Keith Havelka.




Meredith Darden
Notary Public, State of Texas

Company: COG OPERATING , LLC (CONCHO)

Lease/Well: PUCKETT 12 FEDERAL /NO. 028H



Rig Name: UNITED RIG # 43

State/County: NEW MEXICO/EDDY

Latitude: 32.86, Longitude: -103.82

GRID North is 0.28 Degrees East of True North

VS-Azi: 178.28 Degrees



Depth Reference : RKB = 14'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: PUCKETT 28H.ut

Minimum Curvature Method

Report Date/Time: 3/25/2014 / 11:44

VAUGHN ENERGY SERVICES

MIDLAND, TX

432-563-5444

SURVEYOR : JAVIER ESTRADA

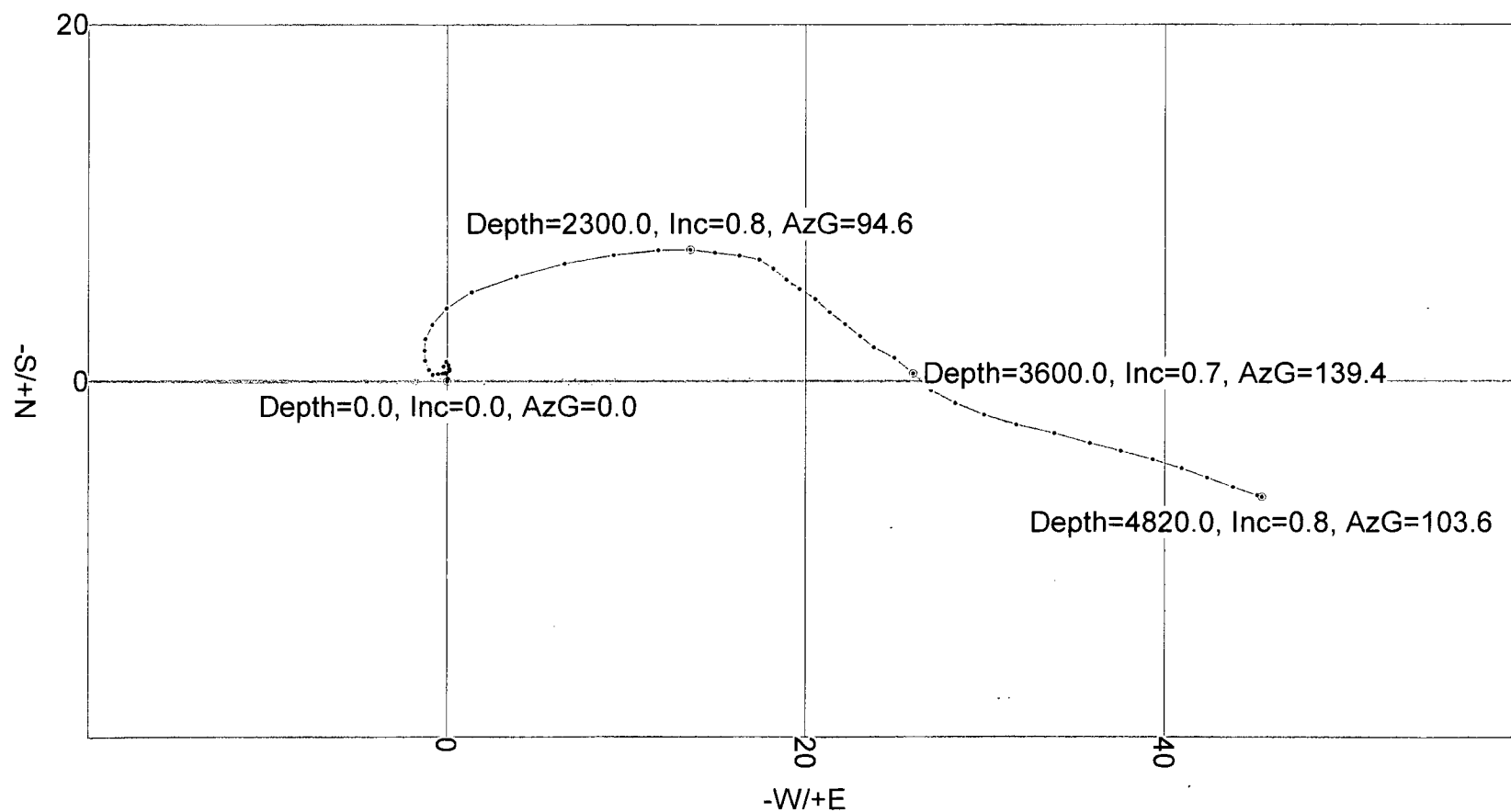
PUCKETT 12 FEDERAL NO. 028H / API 30-015-41445

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	0.19	17.88	100.00	0.16	0.05	-0.16	0.17	17.88	0.19
200.00	0.28	306.74	200.00	0.46	-0.09	-0.46	0.47	349.01	0.28
300.00	0.28	18.43	300.00	0.84	-0.20	-0.84	0.86	346.29	0.33
400.00	0.10	70.50	400.00	1.10	-0.04	-1.10	1.10	357.83	0.23
500.00	0.25	168.58	500.00	0.92	0.09	-0.92	0.92	5.34	0.28
600.00	0.02	151.85	600.00	0.69	0.14	-0.69	0.71	11.22	0.23
700.00	0.08	190.84	700.00	0.61	0.13	-0.60	0.62	12.35	0.07
800.00	0.20	238.35	800.00	0.44	-0.03	-0.45	0.45	356.29	0.16
900.00	0.13	324.99	900.00	0.45	-0.24	-0.45	0.51	331.52	0.23
1000.00	0.26	240.45	1000.00	0.43	-0.50	-0.44	0.66	310.38	0.28
1100.00	0.14	299.77	1100.00	0.38	-0.80	-0.40	0.89	295.11	0.22
1200.00	0.29	330.61	1199.99	0.66	-1.03	-0.69	1.22	302.41	0.18
1300.00	0.35	344.11	1299.99	1.17	-1.24	-1.20	1.70	313.24	0.10
1400.00	0.33	10.10	1399.99	1.74	-1.27	-1.78	2.16	323.91	0.15
1500.00	0.42	359.06	1499.99	2.39	-1.23	-2.43	2.69	332.88	0.11
1600.00	0.67	42.41	1599.99	3.19	-0.83	-3.21	3.30	345.34	0.47
1700.00	0.71	39.82	1699.98	4.10	-0.04	-4.10	4.10	359.45	0.05
1800.00	1.33	68.31	1799.96	5.01	1.44	-4.96	5.21	16.01	0.78

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	1.67	71.98	1899.93	5.89	3.90	-5.77	7.06	33.52	0.35
2000.00	1.49	78.18	1999.89	6.61	6.56	-6.41	9.31	44.81	0.25
2100.00	1.68	81.88	2099.85	7.08	9.29	-6.80	11.68	52.68	0.21
2200.00	1.20	85.80	2199.82	7.36	11.78	-7.01	13.89	57.98	0.49
2300.00	0.85	94.55	2299.80	7.38	13.55	-6.97	15.43	61.43	0.38
2400.00	0.74	99.68	2399.79	7.21	14.93	-6.76	16.58	64.21	0.13
2500.00	0.83	93.30	2499.78	7.06	16.29	-6.57	17.75	66.55	0.13
2600.00	0.49	115.16	2599.78	6.84	17.40	-6.31	18.70	68.55	0.42
2700.00	0.59	130.96	2699.77	6.32	18.18	-5.77	19.25	70.84	0.18
2800.00	0.51	127.29	2799.77	5.71	18.92	-5.14	19.77	73.21	0.09
2900.00	0.52	125.24	2899.76	5.18	19.65	-4.59	20.32	75.22	0.02
3000.00	0.69	120.91	2999.76	4.61	20.53	-3.99	21.04	77.34	0.18
3100.00	0.58	145.02	3099.75	3.89	21.34	-3.25	21.69	79.67	0.29
3200.00	0.73	114.43	3199.75	3.21	22.20	-2.55	22.43	81.76	0.37
3300.00	0.55	148.66	3299.74	2.54	23.03	-1.84	23.17	83.71	0.41
3400.00	0.64	112.37	3399.74	1.91	23.80	-1.20	23.88	85.41	0.38
3500.00	0.84	121.64	3499.73	1.31	24.94	-0.57	24.98	86.98	0.23
3600.00	0.74	139.35	3599.72	0.44	25.99	0.34	25.99	89.03	0.26
3700.00	0.82	127.83	3699.71	-0.49	26.98	1.30	26.98	91.05	0.18
3800.00	0.95	111.10	3799.70	-1.23	28.32	2.08	28.34	92.49	0.29
3900.00	1.03	113.05	3899.68	-1.88	29.92	2.78	29.98	93.60	0.08
4000.00	1.16	101.55	3999.66	-2.44	31.74	3.39	31.83	94.39	0.26
4100.00	1.31	103.41	4099.64	-2.90	33.84	3.92	33.97	94.90	0.15
4200.00	1.05	108.75	4199.62	-3.46	35.82	4.54	35.99	95.52	0.28
4300.00	0.99	99.63	4299.60	-3.90	37.54	5.03	37.74	95.94	0.18
4400.00	1.14	109.83	4399.59	-4.38	39.32	5.56	39.57	96.36	0.24
4500.00	0.80	103.56	4499.57	-4.88	40.93	6.11	41.22	96.80	0.35
4600.00	0.94	116.07	4599.56	-5.41	42.35	6.67	42.69	97.28	0.23
4700.00	0.86	102.91	4699.55	-5.93	43.81	7.24	44.21	97.71	0.22
4800.00	0.76	116.18	4799.54	-6.39	45.13	7.74	45.58	98.06	0.21
4820.00	0.79	103.61	4819.54	-6.48	45.39	7.84	45.85	98.13	0.87



VAUGHN ENERGY SERVICES
MIDLAND, TX
432-563-5444
SURVEYOR : JAVIER ESTRADA
PUCKETT 12.FEDERAL NO. 028H / API 30-015-41445





Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Puckett 12 Federal Well No. 28H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Site:	Puckett 12 Federal	MD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Well:	Puckett 12 Federal Well No. 28H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Database

Project	Eddy County, New Mexico		
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	Puckett 12 Federal		
Site Position:		Northing:	675,427.40 usft
From:	Map	Easting:	659,029.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 20.74314390 N
		Longitude:	103° 48' 55.66210110 W
		Grid Convergence:	0.28 °

Well	Puckett 12 Federal Well No. 28H					
Well Position	+N/-S	0.00 usft	Northing:	675,427.40 usft	Latitude:	32° 51' 20.74314390 N
	+E/-W	0.00 usft	Easting:	659,029.50 usft	Longitude:	103° 48' 55.66210110 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,011.00 usft	

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/17/2014	7.43	60.66	48,705

Design		Surveys:Original: Hole		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	178.28



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well: Puckett 12 Federal Well No: 28H
Project:	Eddy County New Mexico	TVD Reference:	RKB=4011+13'5" @ 4024'50usft (United #43)
Site:	Puckett 12 Federal	MD Reference:	RKB=4011+13'5" @ 4024'50usft (United #43)
Well:	Puckett 12 Federal Well No: 28H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM:5000.1 Database

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	3/17/2014	100.00	4,820.00	Gyro (Original Hole)	NS-GYRO-MS	North sensing gyrocompassing m/s
		4,843.00	9,915.00	MWD (Original Hole)	MWD	MWD - Standard

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	675,427.40	659,029.50
100.00	0.19	17.88	100.00	0.16	0.05	0.19	-0.16	675,427.56	659,029.55
Gyro									
200.00	0.28	306.74	200.00	0.46	-0.09	0.28	-0.46	675,427.86	659,029.41
300.00	0.28	18.43	300.00	0.84	-0.21	0.33	-0.85	675,428.24	659,029.29
400.00	0.10	70.50	400.00	1.10	-0.05	0.23	-1.10	675,428.50	659,029.45
500.00	0.25	168.58	500.00	0.92	0.07	0.28	-0.91	675,428.32	659,029.57
600.00	0.02	151.85	600.00	0.69	0.12	0.23	-0.68	675,428.09	659,029.62
700.00	0.08	190.84	700.00	0.60	0.12	0.07	-0.60	675,428.00	659,029.62
800.00	0.20	238.35	800.00	0.44	-0.04	0.16	-0.44	675,427.84	659,029.46
900.00	0.13	324.99	900.00	0.44	-0.26	0.23	-0.45	675,427.84	659,029.24
1,000.00	0.26	240.45	1,000.00	0.42	-0.52	0.28	-0.44	675,427.82	659,028.98
1,100.00	0.14	299.77	1,100.00	0.37	-0.82	0.22	-0.40	675,427.77	659,028.68
1,200.00	0.29	330.61	1,199.99	0.65	-1.05	0.18	-0.69	675,428.05	659,028.45
1,300.00	0.35	344.11	1,299.99	1.17	-1.26	0.10	-1.21	675,428.57	659,028.24
1,400.00	0.33	10.10	1,399.99	1.75	-1.29	0.15	-1.78	675,429.15	659,028.21
1,500.00	0.42	359.06	1,499.99	2.40	-1.25	0.12	-2.43	675,429.80	659,028.25
1,600.00	0.67	42.41	1,599.99	3.19	-0.86	0.46	-3.22	675,430.59	659,028.64
1,700.00	0.71	39.82	1,699.98	4.10	-0.07	0.05	-4.10	675,431.50	659,029.43
1,800.00	1.33	68.31	1,799.96	5.01	1.41	0.78	-4.96	675,432.41	659,030.91
1,900.00	1.67	71.98	1,899.93	5.89	3.87	0.35	-5.77	675,433.29	659,033.37



Standard_report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Puckett 12 Federal Well No. 28H
Project:	Eddy County New Mexico	TVD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Site:	Puckett 12 Federal	MD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Well:	Puckett 12 Federal Well No. 28H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Database

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (%/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
2,000.00	1.49	78.18	1,999.89	6.60	6.53	0.25	-6.40	675,434.00	659,036.03	
2,100.00	1.68	81.88	2,099.85	7.08	9.25	0.22	-6.80	675,434.48	659,038.75	
2,200.00	1.20	85.80	2,199.82	7.36	11.75	0.49	-7.00	675,434.76	659,041.25	
2,300.00	0.85	94.55	2,299.80	7.38	13.53	0.38	-6.97	675,434.78	659,043.03	
2,400.00	0.74	99.68	2,399.79	7.21	14.91	0.13	-6.76	675,434.61	659,044.41	
2,500.00	0.83	93.30	2,499.78	7.06	16.27	0.13	-6.57	675,434.46	659,045.77	
2,600.00	0.49	115.16	2,599.78	6.84	17.38	0.42	-6.31	675,434.24	659,046.88	
2,700.00	0.59	130.96	2,699.77	6.32	18.15	0.18	-5.77	675,433.72	659,047.65	
2,800.00	0.51	127.29	2,799.77	5.71	18.90	0.09	-5.14	675,433.11	659,048.40	
2,900.00	0.52	125.24	2,899.76	5.18	19.62	0.02	-4.59	675,432.58	659,049.12	
3,000.00	0.69	120.91	2,999.76	4.61	20.51	0.18	-3.99	675,432.01	659,050.01	
3,100.00	0.58	145.02	3,099.75	3.88	21.31	0.29	-3.24	675,431.28	659,050.81	
3,200.00	0.73	114.43	3,199.75	3.21	22.18	0.37	-2.54	675,430.61	659,051.68	
3,300.00	0.55	148.66	3,299.74	2.53	23.01	0.41	-1.84	675,429.93	659,052.51	
3,400.00	0.64	112.37	3,399.74	1.91	23.78	0.38	-1.20	675,429.31	659,053.28	
3,500.00	0.84	121.64	3,499.73	1.31	24.92	0.23	-0.56	675,428.71	659,054.42	
3,600.00	0.74	139.35	3,599.72	0.44	25.97	0.26	0.34	675,427.84	659,055.47	
3,700.00	0.82	127.83	3,699.71	-0.49	26.95	0.18	1.30	675,426.91	659,056.45	
3,800.00	0.95	111.10	3,799.70	-1.23	28.29	0.29	2.08	675,426.17	659,057.79	
3,900.00	1.03	113.05	3,899.68	-1.88	29.89	0.09	2.77	675,425.52	659,059.39	
4,000.00	1.16	101.55	3,999.66	-2.43	31.71	0.25	3.38	675,424.97	659,061.21	
4,100.00	1.31	103.41	4,099.64	-2.90	33.81	0.16	3.91	675,424.50	659,063.31	
4,200.00	1.05	108.75	4,199.62	-3.46	35.79	0.28	4.53	675,423.94	659,065.29	
4,300.00	0.99	99.63	4,299.60	-3.90	37.51	0.17	5.02	675,423.50	659,067.01	
4,400.00	1.14	109.83	4,399.59	-4.38	39.30	0.24	5.56	675,423.02	659,068.80	
4,500.00	0.80	103.56	4,499.57	-4.88	40.91	0.36	6.11	675,422.52	659,070.41	
4,600.00	0.94	116.07	4,599.56	-5.41	42.33	0.24	6.67	675,421.99	659,071.83	



Standard_report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Puckett 12 Federal Well No. 28H
Project:	Eddy County New Mexico	TVD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Site:	Puckett 12 Federal	MD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Well:	Puckett 12 Federal Well No. 28H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Database

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
4,700.00	0.86	102.91	4,699.55	-5.93	43.80	0.22	7.25	675,421.47	659,073.30	
4,800.00	0.76	116.18	4,799.54	-6.39	45.12	0.21	7.75	675,421.01	659,074.62	
4,820.00	0.79	103.61	4,819.54	-6.49	45.38	0.86	7.84	675,420.91	659,074.88	
4,843.00	0.80	116.10	4,842.53	-6.59	45.67	0.75	7.96	675,420.81	659,075.17	
MWD surveys										
4,874.00	2.00	145.80	4,873.53	-7.14	46.17	4.40	8.52	675,420.26	659,075.67	
4,906.00	6.20	166.80	4,905.44	-9.28	46.88	13.72	10.68	675,418.12	659,076.38	
4,937.00	10.60	166.30	4,936.10	-13.68	47.94	14.20	15.12	675,413.72	659,077.44	
4,968.00	14.20	172.70	4,966.37	-20.23	49.10	12.41	21.69	675,407.17	659,078.60	
5,000.00	17.80	178.70	4,997.13	-29.01	49.71	12.37	30.49	675,398.39	659,079.21	
5,031.00	20.00	180.70	5,026.46	-39.05	49.75	7.40	40.53	675,388.35	659,079.25	
5,063.00	21.90	180.00	5,056.34	-50.49	49.68	5.99	51.96	675,376.91	659,079.18	
5,094.00	23.60	177.50	5,084.93	-62.48	49.96	6.31	63.95	675,364.92	659,079.46	
5,126.00	26.20	173.90	5,113.95	-75.90	50.99	9.40	77.40	675,351.50	659,080.49	
5,157.00	27.40	172.80	5,141.62	-89.78	52.61	4.19	91.32	675,337.62	659,082.11	
5,189.00	29.80	175.50	5,169.72	-105.02	54.15	8.52	106.60	675,322.38	659,083.65	
5,217.00	31.25	175.68	5,193.83	-119.20	55.25	5.17	120.80	675,308.20	659,084.75	
330 Hard line intercept @ 5217 MD 330 FNL 390 FEL										
5,220.00	31.40	175.70	5,196.40	-120.75	55.36	5.17	122.36	675,306.65	659,084.86	
5,252.00	34.00	176.40	5,223.32	-138.00	56.55	8.21	139.63	675,289.40	659,086.05	
5,283.00	36.00	177.10	5,248.72	-155.75	57.56	6.58	157.41	675,271.65	659,087.06	
5,315.00	38.40	177.70	5,274.20	-175.07	58.43	7.59	176.75	675,252.33	659,087.93	
5,346.00	41.30	177.60	5,298.00	-194.92	59.25	9.36	196.61	675,232.48	659,088.75	
5,378.00	44.70	177.00	5,321.40	-216.72	60.28	10.70	218.43	675,210.68	659,089.78	
5,409.00	48.40	177.40	5,342.72	-239.19	61.37	11.97	240.93	675,188.21	659,090.87	
5,441.00	49.80	178.60	5,363.67	-263.36	62.22	5.21	265.11	675,164.04	659,091.72	
5,472.00	51.80	179.50	5,383.26	-287.38	62.61	6.83	289.13	675,140.02	659,092.11	



—Standard_report—



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Puckett 12 Federal Well No. 28H
Project:	Eddy County New Mexico	TVD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Site:	Puckett 12 Federal	MD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Well:	Puckett 12 Federal Well No. 28H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM/5000.1 Database

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
5,504.00	54.80	180.20	5,402.38	-313.03	62.68	9.54	314.77	675,114.37	659,092.18	
5,535.00	57.80	180.10	5,419.58	-338.82	62.61	9.68	340.55	675,088.58	659,092.11	
5,566.00	60.50	180.50	5,435.47	-365.43	62.47	8.78	367.14	675,061.97	659,091.97	
5,598.00	63.10	178.50	5,450.60	-393.63	62.72	9.82	395.33	675,033.77	659,092.22	
5,630.00	67.10	178.40	5,464.07	-422.64	63.51	12.50	424.35	675,004.76	659,093.01	
5,661.00	70.70	179.10	5,475.23	-451.55	64.13	11.80	453.27	674,975.85	659,093.63	
5,692.00	74.70	179.50	5,484.44	-481.14	64.49	12.96	482.86	674,946.26	659,093.99	
5,724.00	78.60	179.30	5,491.83	-512.26	64.82	12.20	513.98	674,915.14	659,094.32	
5,755.00	82.50	179.20	5,496.92	-542.83	65.22	12.58	544.55	674,884.57	659,094.72	
5,784.00	85.50	178.90	5,499.95	-571.67	65.70	10.40	573.38	674,855.73	659,095.20	
5,816.00	87.10	178.90	5,502.01	-603.60	66.31	5.00	605.31	674,823.80	659,095.81	
5,847.00	88.20	179.30	5,503.29	-634.56	66.80	3.78	636.28	674,792.84	659,096.30	
5,879.00	88.90	179.80	5,504.09	-666.55	67.05	2.69	668.27	674,760.85	659,096.55	
5,942.00	89.60	180.50	5,504.92	-729.55	66.89	1.57	731.23	674,697.85	659,096.39	
6,036.00	90.60	180.40	5,504.76	-823.54	66.15	1.07	825.16	674,603.86	659,095.65	
6,131.00	91.50	180.20	5,503.01	-918.52	65.65	0.97	920.08	674,508.88	659,095.15	
6,225.00	92.90	179.90	5,499.41	-1,012.45	65.57	1.52	1,013.96	674,414.95	659,095.07	
6,319.00	94.00	179.70	5,493.75	-1,106.28	65.89	1.19	1,107.76	674,321.12	659,095.39	
6,414.00	93.60	179.90	5,487.45	-1,201.07	66.23	0.47	1,202.52	674,226.33	659,095.73	
6,508.00	93.50	179.30	5,481.63	-1,294.89	66.88	0.65	1,296.31	674,132.51	659,096.38	
6,603.00	91.80	179.30	5,477.24	-1,389.78	68.04	1.79	1,391.19	674,037.62	659,097.54	
6,698.00	90.10	179.10	5,475.67	-1,484.75	69.37	1.80	1,486.16	673,942.65	659,098.87	
6,792.00	90.00	179.20	5,475.58	-1,578.74	70.76	0.15	1,580.15	673,848.66	659,100.26	
6,886.00	90.40	178.60	5,475.26	-1,672.72	72.57	0.77	1,674.14	673,754.68	659,102.07	
6,980.00	90.70	178.50	5,474.35	-1,766.69	74.94	0.34	1,768.14	673,660.71	659,104.44	
7,075.00	90.90	178.30	5,473.03	-1,861.64	77.60	0.30	1,863.13	673,565.76	659,107.10	
7,169.00	91.50	177.00	5,471.06	-1,955.54	81.45	1.52	1,957.10	673,471.86	659,110.95	



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well:Puckett,12,Federal,Well No. 28H
Project:	Eddy County New Mexico	TVD Reference:	RKB=4011+13.5,@ 4024.50usft.(United #43)
Site:	Puckett 12 Federal	MD Reference:	RKB=4011+13.5,@ 4024.50usft.(United #43)
Well:	Puckett 12 Federal Well No. 28H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Database

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
7,263.00	91.50	177.30	5,468.60	-2,049.39	86.12	0.32	2,051.05	673,378.01	659,115.62	
7,358.00	90.70	178.70	5,466.77	-2,144.31	89.44	1.70	2,146.03	673,283.09	659,118.94	
7,452.00	90.40	180.80	5,465.87	-2,238.30	89.85	2.26	2,239.99	673,189.10	659,119.35	
7,547.00	89.80	182.10	5,465.71	-2,333.27	87.44	1.51	2,334.84	673,094.13	659,116.94	
7,641.00	91.60	181.50	5,464.56	-2,427.21	84.49	2.02	2,428.65	673,000.19	659,113.99	
7,735.00	92.30	181.10	5,461.36	-2,521.13	82.36	0.86	2,522.47	672,906.27	659,111.86	
7,830.00	94.10	181.30	5,456.06	-2,615.96	80.37	1.91	2,617.19	672,811.44	659,109.87	
7,924.00	94.10	181.50	5,449.34	-2,709.69	78.08	0.21	2,710.81	672,717.71	659,107.58	
8,018.00	91.40	182.10	5,444.83	-2,803.52	75.13	2.94	2,804.52	672,623.88	659,104.63	
8,113.00	92.00	181.50	5,442.01	-2,898.43	72.15	0.89	2,899.29	672,528.97	659,101.65	
8,207.00	91.20	179.30	5,439.38	-2,992.39	71.49	2.49	2,993.19	672,435.01	659,100.99	
8,301.00	90.50	177.60	5,437.99	-3,086.34	74.04	1.96	3,087.17	672,341.06	659,103.54	
8,396.00	89.00	177.10	5,438.40	-3,181.24	78.43	1.66	3,182.16	672,246.16	659,107.93	
8,490.00	88.50	177.30	5,440.45	-3,275.10	83.02	0.57	3,276.12	672,152.30	659,112.52	
8,584.00	89.20	177.40	5,442.34	-3,368.98	87.36	0.75	3,370.08	672,058.42	659,116.86	
8,679.00	89.90	177.10	5,443.09	-3,463.87	91.92	0.80	3,465.07	671,963.53	659,121.42	
8,773.00	89.60	177.80	5,443.50	-3,557.77	96.10	0.81	3,559.05	671,869.63	659,125.60	
8,867.00	90.30	178.70	5,443.58	-3,651.73	98.97	1.21	3,653.05	671,775.67	659,128.47	
8,961.00	90.70	178.10	5,442.76	-3,745.69	101.60	0.77	3,747.05	671,681.71	659,131.10	
9,056.00	91.30	177.40	5,441.10	-3,840.60	105.33	0.97	3,842.03	671,586.80	659,134.83	
9,150.00	89.60	179.30	5,440.36	-3,934.55	108.03	2.71	3,936.02	671,492.85	659,137.53	
9,244.00	88.20	181.50	5,442.17	-4,028.52	107.38	2.77	4,029.93	671,398.88	659,136.88	
9,339.00	88.60	181.50	5,444.82	-4,123.45	104.89	0.42	4,124.74	671,303.95	659,134.39	
9,433.00	88.90	181.50	5,446.87	-4,217.40	102.43	0.32	4,218.57	671,210.00	659,131.93	
9,527.00	90.40	181.70	5,447.44	-4,311.35	99.81	1.61	4,312.41	671,116.05	659,129.31	
9,622.00	92.20	180.60	5,445.29	-4,406.31	97.90	2.22	4,407.26	671,021.09	659,127.40	
9,716.00	94.30	180.60	5,439.96	-4,500.14	96.92	2.23	4,501.03	670,927.26	659,126.42	



Company:	C&G Operating LLC	Local Co-ordinate Reference:	Well Puckett 12 Federal Well No. 28H
Project:	Eddy County New Mexico	TVD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Site:	Puckett 12 Federal	MD Reference:	RKB=4011+13.5 @ 4024.50usft (United #43)
Well:	Puckett 12 Federal Well No. 28H	North Reference:	Grid
Wellbore:	Original Hole	Survey/Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM:5000.1 Database

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
9,811.00	91.40	179.20	5,435.24	-4,595.01	97.09	3.39	4,595.86	670,832.39	659,126.59
9,860.00	91.20	178.80	5,434.12	-4,643.99	97.94	0.91	4,644.84	670,783.41	659,127.44
9,915.00	91.20	178.80	5,432.97	-4,698.97	99.09	0.00	4,699.83	670,728.43	659,128.59
Survey projected to 9915.00 MD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.00	100.00	0.16	0.05	Gyro
4,843.00	4,842.53	-6.59	45.67	MWD surveys
5,217.00	5,193.83	-119.20	55.25	330 Hard line intercept @ 5217 MD 330 FNL 390 FEL
9,915.00	5,432.97	-4,698.97	99.09	Survey projected to 9915.00 MD