Results of Directional Survey

API number:	30-025-40874			
OGRID:		Operator:	COG OPERATING LLC	
		Property:	GETTYSBURG STATE	# 2H

surface	ULSTR:	C	16	T	23S	R	34E
				330	FNL	1980	FWL
BH Loc	ULSTR:	F	21	T	23S	R	34E
17526 MD		10452.0 TVD		2309	FNL	2059	FWL
				7589	FNL		
Top Perf/OH	ULSTR:	C	16	T	23S	R	34E
10484 MD		10315.3 TVD		551	FNL	1972	FWL
Bot Perf/OH	ULSTR:	F	21	T	23S	R	34E
17414 MD		10449.6 TVD		2197	FNL	2054	FWL
				7477	FNL		

	MD	N/S	E/W	VD
	10448	-186.40	-9.70	10305
TOP PERFS/OH	**10484**	-220.80	-8.00	10315.30
	10484	-220.80	-8.00	10315.30
	17393	-7126.20	72.70	10449.20
BOT PERFS/OH	**17414**	-7147.17	73.72	10449.64
	17525.3	-7258.30	79.10	10452.00

NEXT TO LAST	17525.3	-7258.30	79.10	10452.00
LAST READING	17526	-7259.00	79.20	10452.00
TD	**17526**	-7259.00	79.20	10452.00

Surface Location	330	FN	1980	FW
Projected BHL	7589	FN	2059	FW
Location of				
Top Perfs/OH	551	FN	1972	FW
Bottom Perfs/OH	7477	FN	2054	FW

SUMMARY of Subsurface Locations

Surface Location	C-16-23S-34E	330	FN	1980	FW	Vert. Depth
Top Perfs/OH	C-16-23S-34E	551	FN	1972	FW	10315.30
Bottom Perfs/OH	F-21-23S-34E	7477	FN	2054	FW	10449.64
Projected TD	F-21-23S-34E	7589	FN	2059	FW	10452.00

JAN 23 2014

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

February 21, 2013

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

Attn: Kanicia Castillo

Re: **Gettysburg State No 002H**

Please find enclosed a copy of the survey from 0' to 11,300' 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 21st day of February, A.D., 2013, by Keith Havelka.

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

Laura Ballew
Notary Public, State of Texas

Company: COG Operating LLC (Concho)
Lease/Well: Gettysburg State/No 002H
Location: S16 T23s R34e
Rig Name: Precision 105
State/County: New Mexico/Lea
Latitude: 32.31, Longitude: -103.48
GRID North is 0.46 Degrees East of True North
VS-Azi: 0.00 Degrees

RKB : 25 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: ... state com #2h gyro survey.ut
Minimum Curvature Method
Report Date/Time: 2/21/2013 / 08:44

Vaughn Energy Services
(432) 563-5444
Gardendale, TX
Surveyor: Dustin Wedel
Gettysburg State No 002H / API 30-025-40874

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	0.09	197.76	100.00	-0.07	-0.02	0.08	197.76	0.09
200.00	0.37	343.38	200.00	0.16	-0.14	0.21	319.01	0.45
300.00	0.11	240.05	300.00	0.42	-0.32	0.53	323.02	0.41
400.00	0.25	277.98	400.00	0.40	-0.62	0.74	303.23	0.17
500.00	0.66	298.07	499.99	0.70	-1.34	1.51	297.79	0.41
600.00	1.20	293.48	599.98	1.39	-2.80	3.13	296.40	0.54
700.00	2.23	289.47	699.94	2.46	-5.60	6.11	293.70	1.04
800.00	3.20	291.84	799.82	4.14	-10.03	10.85	292.46	0.98
900.00	4.34	295.96	899.60	6.84	-16.02	17.42	293.12	1.17
1000.00	4.41	302.48	999.31	10.56	-22.66	25.00	294.98	0.50
1100.00	4.67	303.30	1099.00	14.86	-29.31	32.86	296.88	0.26
1200.00	4.37	297.64	1198.69	18.86	-36.09	40.72	297.60	0.54
1300.00	4.05	294.97	1298.42	22.12	-42.66	48.05	297.41	0.38
1400.00	4.04	295.91	1398.17	25.15	-49.03	55.10	297.16	0.07
1500.00	2.91	290.68	1497.98	27.59	-54.58	61.15	296.82	1.17
1600.00	2.74	287.54	1597.86	29.21	-59.24	66.04	296.25	0.23
1700.00	2.80	284.22	1697.75	30.53	-63.88	70.80	295.54	0.17
1800.00	2.90	281.91	1797.62	31.65	-68.73	75.67	294.73	0.15

VES Survey Date: 02/12/2013

Depth FT	Angle Deg	Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	2.82	287.69	1897.50	32.92	-73.55	80.58	294.11	0.30
2000.00	2.59	293.20	1997.39	34.56	-77.97	85.29	293.90	0.35
2100.00	2.34	303.72	2097.29	36.58	-81.75	89.56	294.11	0.52
2200.00	2.06	319.80	2197.22	39.09	-84.60	93.19	294.80	0.67
2300.00	1.97	330.45	2297.16	41.95	-86.61	96.24	295.85	0.38
2400.00	1.99	346.00	2397.10	45.14	-87.88	98.80	297.19	0.64
2500.00	2.12	359.87	2497.04	48.68	-88.31	100.83	298.87	0.61
2600.00	2.53	15.19	2596.96	52.66	-87.73	102.32	300.97	0.74
2700.00	2.71	24.26	2696.85	56.94	-86.18	103.29	303.45	0.45
2800.00	3.32	35.74	2796.71	61.45	-83.52	103.69	306.34	0.85
2900.00	3.68	42.71	2896.53	66.09	-79.71	103.55	309.66	0.49
3000.00	3.79	49.64	2996.33	70.52	-75.08	103.00	313.21	0.49
3100.00	3.62	59.20	3096.12	74.28	-69.85	101.96	316.76	0.64
3200.00	3.57	60.82	3195.92	77.41	-64.42	100.71	320.23	0.11
3300.00	3.72	62.56	3295.72	80.43	-58.82	99.64	323.82	0.19
3400.00	3.32	66.40	3395.53	83.08	-53.29	98.70	327.33	0.47
3500.00	2.98	65.25	3495.38	85.33	-48.27	98.04	330.50	0.34
3600.00	3.46	55.94	3595.22	88.11	-43.41	98.22	333.77	0.71
3700.00	3.04	48.81	3695.06	91.55	-38.91	99.47	336.97	0.58
3800.00	2.34	42.06	3794.95	94.81	-35.55	101.26	339.45	0.77
3900.00	1.07	41.50	3894.90	97.03	-33.56	102.67	340.92	1.27
4000.00	1.02	26.27	3994.89	98.53	-32.54	103.76	341.72	0.28
4100.00	0.14	86.10	4094.88	99.33	-32.03	104.37	342.13	0.96
4200.00	1.58	79.61	4194.87	99.59	-30.55	104.17	342.95	1.44
4300.00	1.62	43.85	4294.83	100.86	-28.22	104.73	344.37	0.98
4400.00	2.14	73.81	4394.78	102.40	-25.44	105.52	346.05	1.10
4500.00	2.93	61.83	4494.68	104.13	-21.39	106.31	348.39	0.95
4600.00	2.81	73.01	4594.56	106.06	-16.78	107.38	351.01	0.57
4700.00	2.98	73.37	4694.43	107.52	-11.95	108.18	353.66	0.16
4800.00	2.32	83.80	4794.32	108.48	-7.44	108.74	356.07	0.81
4900.00	1.21	84.96	4894.27	108.79	-4.38	108.88	357.69	1.12
5000.00	1.72	86.05	4994.24	108.99	-1.83	109.01	359.04	0.52
5100.00	1.35	73.06	5094.20	109.44	0.79	109.44	0.42	0.51
5200.00	1.10	62.05	5194.18	110.23	2.77	110.27	1.44	0.34
5300.00	1.32	89.97	5294.16	110.68	4.77	110.78	2.47	0.62
5400.00	1.39	90.61	5394.13	110.67	7.14	110.90	3.69	0.07
5500.00	0.99	86.19	5494.11	110.71	9.21	111.09	4.76	0.41
5600.00	1.30	67.70	5594.09	111.20	11.12	111.76	5.71	0.48
5700.00	1.22	60.90	5694.06	112.15	13.11	112.92	6.67	0.17

VES Survey Date: 02/12/2013

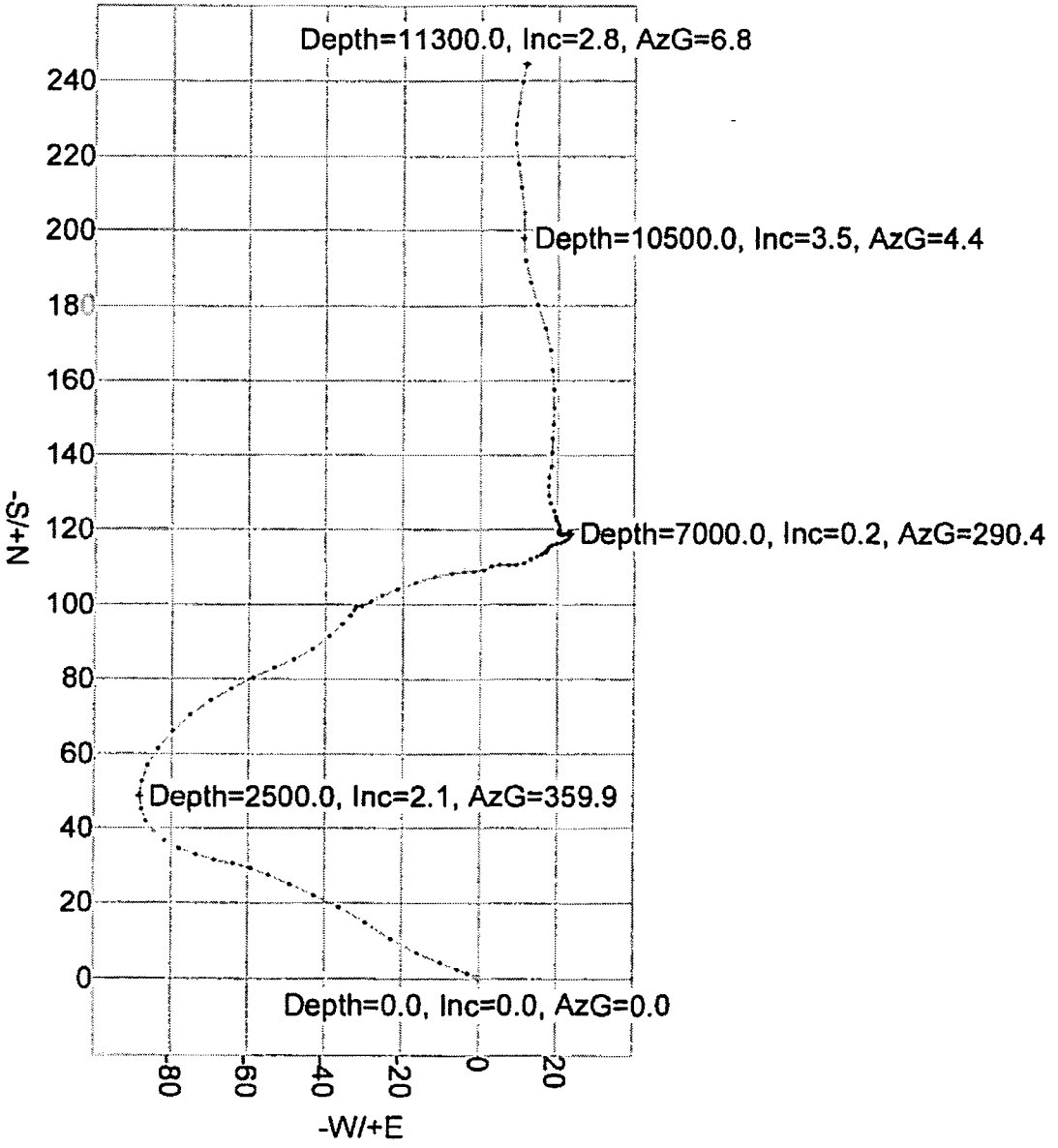
Depth FT	Angle Deg	Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.81	75.38	5794.05	112.85	14.73	113.81	7.43	0.48
5900.00	0.78	50.88	5894.04	113.46	15.94	114.57	8.00	0.34
6000.00	0.53	61.70	5994.03	114.10	16.87	115.34	8.41	0.28
6100.00	0.55	21.44	6094.03	114.77	17.45	116.09	8.65	0.37
6200.00	0.23	41.17	6194.03	115.37	17.76	116.72	8.75	0.34
6300.00	0.91	61.39	6294.02	115.90	18.59	117.38	9.11	0.70
6400.00	0.64	90.61	6394.01	116.27	19.85	117.96	9.69	0.47
6500.00	0.68	68.18	6494.01	116.49	20.95	118.36	10.20	0.26
6600.00	0.65	51.21	6594.00	117.06	21.94	119.10	10.62	0.20
6700.00	0.54	66.13	6693.99	117.61	22.81	119.80	10.98	0.19
6800.00	0.43	336.10	6793.99	118.14	23.09	120.37	11.06	0.89
6900.00	0.41	53.65	6893.99	118.69	23.22	120.94	11.07	
7000.00	0.25	290.45	6993.99	118.98	23.31	121.24	11.09	0.59
7100.00	0.25	336.46	7093.99	119.25	23.03	121.46	10.93	0.19
7200.00	0.47	225.37	7193.99	119.16	22.64	121.30	10.76	0.61
7300.00	0.31	273.47	7293.98	118.89	22.08	120.92	10.52	0.35
7400.00	0.17	192.01	7393.98	118.76	21.78	120.74	10.39	0.33
7500.00	0.21	294.28	7493.98	118.68	21.68	120.63	10.31	0.30
7600.00	0.38	242.57	7593.98	118.60	21.12	120.47	10.10	0.30
7700.00	0.19	1.86	7693.98	118.62	20.83	120.43	9.96	0.51
7800.00	0.29	297.22	7793.98	118.90	20.61	120.67	9.84	0.27
7900.00	0.32	59.49	7893.98	119.16	20.63	120.92	9.82	0.53
8000.00	0.27	153.26	7993.98	119.08	20.97	120.91	9.99	0.43
8100.00	0.39	319.47	8093.98	119.13	20.86	120.94	9.93	0.66
8200.00	0.26	272.71	8193.98	119.40	20.41	121.13	9.70	0.29
8300.00	0.11	41.61	8293.98	119.48	20.25	121.18	9.62	0.24
8400.00	0.60	31.48	8393.97	120.00	20.59	121.75	9.73	
8500.00	0.88	336.68	8493.97	121.15	20.55	122.88	9.63	0.73
8600.00	0.69	322.62	8593.96	122.34	19.88	123.94	9.23	0.27
8700.00	0.66	357.98	8693.95	123.39	19.49	124.92	8.98	0.41
8800.00	1.28	339.19	8793.94	125.01	19.08	126.46	8.68	0.69
8900.00	1.28	334.64	8893.91	127.07	18.20	128.37	8.15	0.10
9000.00	1.26	359.02	8993.89	129.18	17.70	130.39	7.80	0.54
9100.00	1.57	355.15	9093.86	131.64	17.57	132.81	7.60	0.33
9200.00	1.30	16.69	9193.83	134.09	17.78	135.26	7.55	0.60
9300.00	2.10	6.52	9293.78	137.00	18.31	138.22	7.61	0.85
9400.00	2.12	359.39	9393.71	140.67	18.50	141.88	7.49	0.26
9500.00	2.12	4.31	9493.65	144.35	18.62	145.55	7.35	0.18
9600.00	2.30	2.76	9593.57	148.20	18.85	149.40	7.25	0.20

VES Survey Date: 02/12/2013

Measured Depth FT	Inclination Angle Deg	Azimuth Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
9700.00	2.80	0.33	9693.47	152.65	18.97	153.82	7.08	0.50
9800.00	2.88	359.09	9793.35	157.60	18.94	158.73	6.85	0.10
9900.00	3.14	352.63	9893.21	162.83	18.54	163.88	6.50	0.43
10000.00	3.08	354.35	9993.07	168.22	17.92	169.17	6.08	0.11
10100.00	3.68	342.07	10092.89	173.95	16.67	174.75	5.47	0.94
10200.00	3.90	340.68	10192.67	180.21	14.56	180.80	4.62	0.23
10300.00	3.32	345.86	10292.47	186.23	12.73	186.66	3.91	0.66
10400.00	3.44	349.92	10392.30	191.99	11.49	192.33	3.43	0.27
10500.00	3.54	4.44	10492.12	198.02	11.21	198.34	3.24	0.89
10600.00	4.02	355.47	10591.90	204.59	11.17	204.90	3.12	0.76
10700.00	4.05	351.76	10691.65	211.58	10.38	211.83	2.81	0.26
10800.00	3.30	353.63	10791.45	217.94	9.56	218.15	2.51	0.77
10900.00	2.90	353.58	10891.30	223.31	8.96	223.49	2.30	0.41
11000.00	3.09	5.86	10991.16	228.51	8.95	228.68	2.24	0.67
11100.00	3.52	8.27	11091.00	234.22	9.67	234.42	2.36	0.46
11200.00	2.79	13.70	11190.85	239.62	10.68	239.86	2.55	0.78
11300.00	2.82	6.82	11290.73	244.42	11.55	244.70	2.71	0.34

VES Survey Date: 02/12/2013

Vaughn Energy Services
(432) 563-5444
Gardendale, TX
Surveyor: Dustin Wedel
Gettysburg State No 002H / API 30-025-40874



VES Survey Date: 02/12/2013

The DIRECTIONAL DRILLING COMPANY

Survey Certification Sheet

COG Operating, LLC	WT-13108	3/04/13
Company	Job Number	Date

Sec 16,T23S,R34E	Gettysburg State Com 2H	Lea, NM
Lease	Well Name	County & State

API: 30-025-40874

Surveyed from a depth of: 9700 feet to 17526 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Clayton Keck

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by **The Directional Drilling Company (DDC)**. This report represents a true and correct Directional survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Digitally signed by Larry Wright
DN: cn=Larry Wright, o=The Directional Drilling Company, ou=GM of Guidance Services, email=larry@directionaldrillers.com, c=US
Date: 2013.03.08 13:15:00 -06'00'

Larry Wright
MWD General Manager

• *11390 FM 830 • Willis, Texas 77318* •
• *PH 936-856-4332 • FAX 936-856-8678* •

CONCHO

COG Operating, LLC

Lea County, NM
Sec 16, T23-S, R34-E
Gettysburg State Com #2H

Wellbore #1

Survey: MWD

DDC Survey Report

04 March, 2013

DDC
The DIRECTIONAL DRILLING COMPANY

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Gettysburg State Com #2H
Project:	Lea County, NM	**TVD Reference:**	WELL @ 3446.0usft (Precision #105)
Site:	Sec 16, T23-S, R34-E	**MD Reference:**	WELL @ 3446.0usft (Precision #105)
Well:	Gettysburg State Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Project Lea 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 Sec 16, T23-S, R34-E

Site Position:		**Northing:**	478,042.00 usft	**Latitude:**	32° 18' 40.748 N
From:	Map	**Easting:**	765,915.40 usft	**Longitude:**	103° 28' 21.433 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.46 °

Well Gettysburg State Com #2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	477,861.60 usft	**Latitude:**	32° 18' 39.062 N
	+E/-W	0.0 usft	**Easting:**	764,659.70 usft	**Longitude:**	103° 28' 36.080 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,420.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/17/2013	7.35	60.24	48,520

Design Wellbore #1

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	179.47

Survey Program Date 3/4/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	9,700.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
9,757.0	17,526.0	MWD (Wellbore #1)	MWD default	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Tie-In									
9,700.0	2.80	0.33	9,693.5	152.7	19.0	-152.5	0.00	0.00	0.00
9,757.0	0.90	150.00	9,750.5	153.7	19.2	-153.5	6.33	-3.33	262.58
9,788.0	3.00	212.60	9,781.4	152.8	18.9	-152.6	8.73	6.77	201.94
9,820.0	6.10	207.50	9,813.3	150.5	17.6	-150.4	9.76	9.69	-15.94
9,851.0	9.50	200.60	9,844.0	146.7	16.0	-146.5	11.36	10.97	-22.26
9,883.0	12.50	196.40	9,875.5	140.9	14.1	-140.8	9.70	9.38	-13.13
9,914.0	14.50	197.40	9,905.6	134.0	12.0	-133.9	6.50	6.45	3.23
9,946.0	17.50	197.80	9,936.4	125.6	9.3	-125.5	9.38	9.38	1.25
9,974.0	20.00	199.70	9,962.9	117.0	6.4	-117.0	9.19	8.93	6.79

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Gettysburg State Com #2H
Project:	Lea County, NM	**TVD Reference:**	WELL @ 3446.0usft (Precision #105)
Site:	Sec 16, T23-S, R34-E	**MD Reference:**	WELL @ 3446.0usft (Precision #105)
Well:	Gettysburg State Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,009.0	22.60	196.40	9,995.5	105.0	2.5	-104.9	8.18	7.43	-9.43
10,040.0	25.10	195.00	10,023.8	92.9	-0.9	-92.9	8.27	8.06	-4.52
10,068.0	27.40	191.50	10,048.9	80.8	-3.7	-80.9	9.90	8.21	-12.50
10,103.0	29.60	189.90	10,079.7	64.4	-6.8	-64.5	6.65	6.29	-4.57
10,135.0	32.10	187.80	10,107.2	48.2	-9.3	-48.3	8.51	7.81	-6.56
10,164.0	33.90	186.50	10,131.5	32.5	-11.3	-32.7	6.67	6.21	-4.48
10,200.0	38.30	184.60	10,160.6	11.4	-13.3	-11.6	12.61	12.22	-5.28
Cross hardline @ 10216' MD / 10173' TVD									
10,215.8	40.85	184.23	10,172.7	1.4	-14.1	-1.5	16.20	16.13	-2.37
10,231.0	43.30	183.90	10,184.0	-8.8	-14.8	8.6	16.20	16.13	-2.14
10,258.0	46.70	182.50	10,203.1	-27.8	-15.9	27.7	13.11	12.59	-5.19
10,294.0	50.40	179.90	10,226.9	-54.8	-16.4	54.6	11.61	10.28	-7.22
10,326.0	53.40	176.50	10,246.7	-79.9	-15.6	79.8	12.56	9.38	-10.63
10,354.0	56.30	176.90	10,262.8	-102.8	-14.3	102.7	10.42	10.36	1.43
10,389.0	61.60	176.70	10,280.9	-132.7	-12.6	132.6	15.15	15.14	-0.57
10,421.0	66.10	176.90	10,295.0	-161.4	-11.0	161.3	14.07	14.06	0.63
10,448.0	70.30	177.20	10,305.0	-186.4	-9.7	186.3	15.59	15.56	1.11
10,484.0	76.20	177.10	10,315.3	-220.8	-8.0	220.8	16.39	16.39	-0.28
10,516.0	81.70	179.20	10,321.5	-252.2	-7.0	252.1	18.35	17.19	6.56
10,542.0	87.20	178.40	10,324.0	-278.1	-6.5	278.0	21.37	21.15	-3.08
10,580.0	89.40	178.60	10,325.1	-316.0	-5.5	316.0	5.81	5.79	0.53
10,612.0	89.30	178.60	10,325.5	-348.0	-4.7	348.0	0.31	-0.31	0.00
10,707.0	89.10	179.00	10,326.8	-443.0	-2.7	443.0	0.47	-0.21	0.42
10,738.0	89.10	178.80	10,327.3	-474.0	-2.1	474.0	0.65	0.00	-0.65
10,833.0	89.20	180.00	10,328.7	-569.0	-1.1	568.9	1.27	0.11	1.26
10,928.0	89.20	179.70	10,330.0	-664.0	-0.9	663.9	0.32	0.00	-0.32
11,023.0	88.70	178.10	10,331.8	-758.9	0.9	758.9	1.76	-0.53	-1.68
11,111.0	88.10	178.10	10,334.2	-846.8	3.9	846.8	0.68	-0.68	0.00
11,213.0	88.70	178.10	10,337.1	-948.7	7.2	948.8	0.59	0.59	0.00
11,309.0	88.50	178.80	10,339.4	-1,044.7	9.8	1,044.7	0.76	-0.21	0.73
11,403.0	90.00	179.20	10,340.7	-1,138.7	11.5	1,138.7	1.65	1.60	0.43
11,499.0	89.60	179.00	10,341.0	-1,234.6	13.0	1,234.7	0.47	-0.42	-0.21
11,593.0	89.70	177.90	10,341.6	-1,328.6	15.5	1,328.7	1.18	0.11	-1.17
11,688.0	89.40	179.50	10,342.3	-1,423.6	17.7	1,423.7	1.71	-0.32	1.68
11,784.0	89.30	177.80	10,343.4	-1,519.5	19.9	1,519.7	1.77	-0.10	-1.77
11,878.0	89.10	179.90	10,344.7	-1,613.5	21.8	1,613.6	2.24	-0.21	2.23
11,974.0	88.60	178.40	10,346.6	-1,709.5	23.3	1,709.6	1.65	-0.52	-1.56
12,069.0	89.00	179.30	10,348.6	-1,804.4	25.2	1,804.6	1.04	0.42	0.95
12,164.0	88.60	178.30	10,350.6	-1,899.4	27.1	1,899.6	1.13	-0.42	-1.05
12,259.0	88.90	179.70	10,352.7	-1,994.4	28.8	1,994.5	1.51	0.32	1.47
12,355.0	88.80	178.80	10,354.6	-2,090.3	30.1	2,090.5	0.94	-0.10	-0.94
12,450.0	89.70	180.20	10,355.9	-2,185.3	30.9	2,185.5	1.75	0.95	1.47
12,545.0	89.70	181.30	10,356.4	-2,280.3	29.6	2,280.5	1.16	0.00	1.16

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Gettysburg State Com #2H
Project:	Lea County, NM	**TVD Reference:**	WELL @ 3446.0usft (Precision #105)
Site:	Sec 16, T23-S, R34-E	**MD Reference:**	WELL @ 3446.0usft (Precision #105)
Well:	Gettysburg State Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,639.0	89.50	180.00	10,357.0	-2,374.3	28.6	2,374.5	1.40	-0.21	-1.38
12,734.0	89.80	180.70	10,357.6	-2,469.3	28.0	2,469.4	0.80	0.32	0.74
12,830.0	89.30	180.40	10,358.3	-2,565.3	27.1	2,565.4	0.61	-0.52	-0.31
12,925.0	88.90	180.40	10,359.8	-2,660.3	26.4	2,660.4	0.42	-0.42	0.00
13,020.0	88.20	180.70	10,362.2	-2,755.2	25.5	2,755.3	0.80	-0.74	0.32
13,115.0	87.80	182.10	10,365.6	-2,850.1	23.2	2,850.2	1.53	-0.42	1.47
13,210.0	88.50	180.60	10,368.6	-2,945.1	20.9	2,945.1	1.74	0.74	-1.58
13,305.0	88.50	179.30	10,371.1	-3,040.0	21.0	3,040.1	1.37	0.00	-1.37
13,400.0	88.00	179.30	10,374.0	-3,135.0	22.2	3,135.0	0.53	-0.53	0.00
13,495.0	87.80	179.00	10,377.5	-3,229.9	23.6	3,230.0	0.38	-0.21	-0.32
13,590.0	88.70	179.70	10,380.4	-3,324.8	24.7	3,324.9	1.20	0.95	0.74
13,685.0	88.60	180.60	10,382.6	-3,419.8	24.4	3,419.9	0.95	-0.11	0.95
13,781.0	88.60	182.00	10,385.0	-3,515.8	22.3	3,515.8	1.46	0.00	1.46
13,876.0	89.20	179.30	10,386.8	-3,610.7	21.2	3,610.8	2.91	0.63	-2.84
13,971.0	89.10	179.90	10,388.2	-3,705.7	21.8	3,705.8	0.64	-0.11	0.63
14,067.0	88.80	180.20	10,390.0	-3,801.7	21.8	3,801.7	0.44	-0.31	0.31
14,161.0	88.60	179.70	10,392.1	-3,895.7	21.8	3,895.7	0.57	-0.21	-0.53
14,257.0	88.30	180.00	10,394.7	-3,991.6	22.1	3,991.7	0.44	-0.31	0.31
14,352.0	90.30	179.50	10,395.9	-4,086.6	22.5	4,086.7	2.17	2.11	-0.53
14,447.0	90.10	179.90	10,395.5	-4,181.6	23.0	4,181.7	0.47	-0.21	0.42
14,542.0	89.90	179.20	10,395.5	-4,276.6	23.7	4,276.7	0.77	-0.21	-0.74
14,637.0	90.00	179.30	10,395.6	-4,371.6	25.0	4,371.7	0.15	0.11	0.11
14,732.0	89.50	178.80	10,396.0	-4,466.6	26.6	4,466.7	0.74	-0.53	-0.53
14,827.0	89.70	178.80	10,396.7	-4,561.6	28.6	4,561.6	0.21	0.21	0.00
14,922.0	89.40	179.20	10,397.4	-4,656.6	30.2	4,656.6	0.53	-0.32	0.42
15,017.0	89.20	178.80	10,398.6	-4,751.5	31.9	4,751.6	0.47	-0.21	-0.42
15,112.0	88.80	179.00	10,400.3	-4,846.5	33.7	4,846.6	0.47	-0.42	0.21
15,207.0	88.60	178.80	10,402.4	-4,941.5	35.5	4,941.6	0.30	-0.21	-0.21
15,302.0	87.90	178.60	10,405.3	-5,036.4	37.7	5,036.5	0.77	-0.74	-0.21
15,397.0	89.00	179.20	10,407.9	-5,131.3	39.5	5,131.5	1.32	1.16	0.63
15,493.0	88.70	179.20	10,409.8	-5,227.3	40.8	5,227.5	0.31	-0.31	0.00
15,587.0	90.50	179.90	10,410.5	-5,321.3	41.6	5,321.5	2.05	1.91	0.74
15,682.0	90.00	180.20	10,410.1	-5,416.3	41.5	5,416.4	0.61	-0.53	0.32
15,778.0	90.00	180.40	10,410.1	-5,512.3	41.0	5,512.4	0.21	0.00	0.21
15,873.0	89.10	180.20	10,410.8	-5,607.3	40.5	5,607.4	0.97	-0.95	-0.21
15,968.0	88.80	180.00	10,412.5	-5,702.3	40.3	5,702.4	0.38	-0.32	-0.21
16,062.0	88.40	180.00	10,414.8	-5,796.2	40.3	5,796.4	0.43	-0.43	0.00
16,157.0	88.00	179.90	10,417.8	-5,891.2	40.4	5,891.3	0.43	-0.42	-0.11
16,252.0	87.80	179.90	10,421.3	-5,986.1	40.6	5,986.3	0.21	-0.21	0.00
16,348.0	87.90	179.30	10,424.9	-6,082.1	41.2	6,082.2	0.63	0.10	-0.63
16,443.0	87.80	179.50	10,428.5	-6,177.0	42.2	6,177.1	0.24	-0.11	0.21
16,538.0	87.50	179.30	10,432.4	-6,271.9	43.2	6,272.0	0.38	-0.32	-0.21
16,632.0	89.30	179.00	10,435.0	-6,365.9	44.6	6,366.0	1.94	1.91	-0.32
16,727.0	89.10	178.30	10,436.3	-6,460.8	46.9	6,461.0	0.77	-0.21	-0.74

CONCHO

ADC
Survey Report

ADC

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Gettysburg State Com #2H
Project:	Lea County, NM	**TVD Reference:**	WELL @ 3446.0usft (Precision #105)
Site:	Sec 16, T23-S, R34-E	**MD Reference:**	WELL @ 3446.0usft (Precision #105)
Well:	Gettysburg State Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,822.0	88.60	178.10	10,438.2	-6,555.8	49.8	6,555.9	0.57	-0.53	-0.21
16,917.0	88.80	177.60	10,440.4	-6,650.7	53.4	6,650.9	0.57	0.21	-0.53
17,013.0	88.20	177.60	10,442.9	-6,746.5	57.4	6,746.8	0.63	-0.63	0.00
17,108.0	89.20	177.80	10,445.0	-6,841.4	61.2	6,841.7	1.07	1.05	0.21
17,203.0	89.20	177.80	10,446.4	-6,936.4	64.9	6,936.7	0.00	0.00	0.00
17,298.0	89.30	177.80	10,447.6	-7,031.3	68.5	7,031.6	0.11	0.11	0.00
17,393.0	88.80	177.20	10,449.2	-7,126.2	72.7	7,126.5	0.82	-0.53	-0.63
Cross hardline @ 17525' MD / 10452' TVD									
17,525.3	88.80	177.20	10,452.0	-7,258.3	79.1	7,258.7	0.00	0.00	0.00
Projection To Bit 17526' MD									
17,526.0	88.80	177.20	10,452.0	-7,259.0	79.2	7,259.4	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
9,700.0	9,693.5	152.7	19.0	Tie-In
10,215.8	10,172.7	1.4	-14.1	Cross hardline @ 10216' MD / 10173' TVD
17,525.3	10,452.0	-7,258.3	79.1	Cross hardline @ 17525' MD / 10452' TVD
17,526.0	10,452.0	-7,259.0	79.2	Projection To Bit 17526' MD

Checked By: _____ Approved By: _____ Date: _____