

Results of Directional Survey

API number:	30-025-40856		
OGRID:		Operator:	COG PRODUCTION, LLC
		Property:	BEBIDAS STATE # 3H

surface	ULSTR:	O	16	T	23S	R	33E
				391	FSL	1887	FEL

BH Loc	ULSTR:	B	16	T	23S	R	33E
15104	MD	10827.3	TVD	339	FNL	1887	FEL
				4941	FSL		

Top Perf/OH	ULSTR:	O	16	T	23S	R	33E
10986	MD	10811.4	TVD	827	FSL	1870	FEL

Bot Perf/OH	ULSTR:	B	16	T	23S	R	33E
15050	MD	10830.1	TVD	393	FNL	1887	FEL
				4887	FSL		

	MD	N/S	E/W	VD
	10955	406.70	16.60	10801.7
TOP PERFS/OH	10986	436.20	16.80	10811.40
	10986	436.20	16.80	10811.40
	14942	4388.20	-0.90	10835.40
BOT PERFS/OH	15050	4496.01	-0.14	10830.09
	15056	4502.00	-0.10	10829.80

NEXT TO LAST	15056	4502.00	-0.10	10829.80
LAST READING	15104	4549.90	-0.40	10827.30
TD	15104	4549.90	-0.40	10827.30

Surface Location	391	FS	1887	FE
Projected BHL	4941	FS	1887	FE
Location of				
Top Perfs/OH	827	FS	1870	FE
Bottom Perfs/OH	4887	FS	1887	FE

SUMMARY of Subsurface Locations

Surface Location	O-16-23S-33E	391	FS	1887	FE	Vert. Depth
Top Perfs/OH	O-16-23S-33E	827	FS	1870	FE	10811.40
Bottom Perfs/OH	B-16-23S-33E	4887	FS	1887	FE	10830.09
Projected TD	B-16-23S-33E	4941	FS	1887	FE	10827.30

DEC 17 2014



September 22, 2014

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

Attn: Kanicia Castillo

RE: **Bebidas State No. 003H**

Please find enclosed a copy of the survey from 0.00' to 9800.00' ran on the above referenced well.

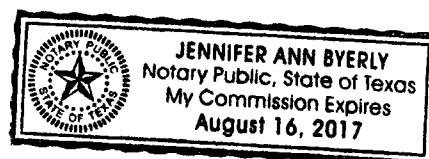
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 22 day of September A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: COG Operating, LLC (Concho)
Lease/Well: Bebidas State/No. 003H
Location: S16 T23S R33E
Rig Name: Basic 46
State/County: New Mexico/Lea
Latitude: 32.30, Longitude: -103.57
GRID North is 0.41 Degrees East of True North
VS-Azi: 360.00 Degrees



Depth Reference : RKB = 22 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 9/22/2014 / 09:52

VES Survey International

Midland, TX

432-563-5444

Surveyor: Andrew Askew

Bebidas State No. 003H / API 30-025-40856

RECEIVED
DEC 12 2014
HOBBS OGD

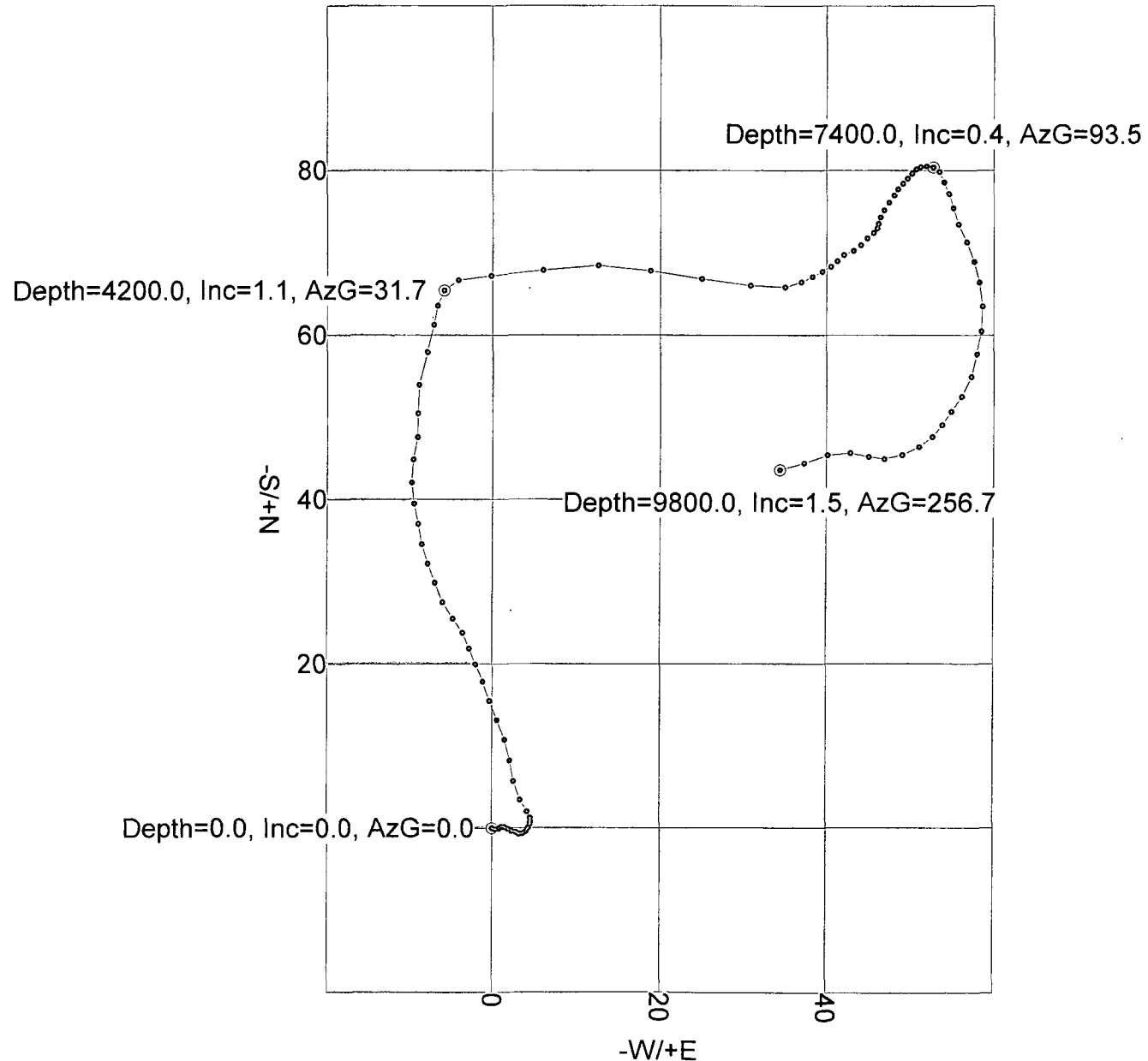
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.41	108.32	100.00	-0.11	0.34	-0.11	0.36	108.32	0.41
200.00	0.25	41.41	200.00	-0.06	0.82	-0.06	0.83	94.33	0.39
300.00	0.15	62.06	300.00	0.16	1.08	0.16	1.10	81.48	0.12
400.00	0.32	99.07	400.00	0.18	1.47	0.18	1.48	83.03	0.22
500.00	0.28	138.07	500.00	-0.05	1.91	-0.05	1.91	91.40	0.20
600.00	0.34	114.98	599.99	-0.36	2.35	-0.36	2.38	98.64	0.14
700.00	0.31	88.88	699.99	-0.48	2.89	-0.48	2.93	99.38	0.15
800.00	0.17	196.26	799.99	-0.61	3.12	-0.61	3.18	101.09	0.40
900.00	0.16	78.62	899.99	-0.72	3.22	-0.72	3.30	102.69	0.28
1000.00	0.35	80.86	999.99	-0.65	3.65	-0.65	3.71	100.07	0.19
1100.00	0.27	27.69	1099.99	-0.40	4.06	-0.40	4.08	95.56	0.28
1200.00	0.29	35.10	1199.99	0.02	4.32	0.02	4.32	89.73	0.05
1300.00	0.30	12.18	1299.99	0.49	4.52	0.49	4.55	83.83	0.12
1400.00	0.15	35.01	1399.99	0.85	4.65	0.85	4.73	79.63	0.18
1500.00	0.38	342.71	1499.98	1.27	4.62	1.27	4.79	74.62	0.31
1600.00	0.61	326.02	1599.98	2.03	4.23	2.03	4.69	64.35	0.27
1700.00	1.29	331.99	1699.97	3.46	3.40	3.46	4.85	44.50	0.69
1800.00	1.46	347.52	1799.94	5.70	2.60	5.70	6.26	24.51	0.41
1900.00	1.50	352.83	1899.90	8.24	2.16	8.24	8.52	14.68	0.14

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
2000.00	1.50	339.37	1999.87	10.77	1.53	10.77	10.88	8.11	0.35
2100.00	1.45	337.34	2099.84	13.17	0.58	13.17	13.18	2.54	0.07
2200.00	1.40	341.16	2199.81	15.49	-0.30	15.49	15.50	358.89	0.11
2300.00	1.46	339.44	2299.78	17.84	-1.14	17.84	17.88	356.34	0.07
2400.00	1.15	336.18	2399.75	19.95	-1.99	19.95	20.05	354.29	0.32
2500.00	1.22	339.73	2499.73	21.88	-2.77	21.88	22.05	352.78	0.10
2600.00	1.17	334.57	2599.71	23.80	-3.58	23.80	24.07	351.45	0.12
2700.00	1.25	316.64	2699.68	25.52	-4.76	25.52	25.96	349.42	0.38
2800.00	1.50	336.48	2799.66	27.51	-6.03	27.51	28.16	347.63	0.53
2900.00	1.41	340.07	2899.62	29.86	-6.98	29.86	30.67	346.85	0.13
3000.00	1.45	338.42	2999.59	32.20	-7.86	32.20	33.14	346.28	0.06
3100.00	1.38	348.53	3099.56	34.56	-8.57	34.56	35.60	346.08	0.26
3200.00	1.51	351.17	3199.53	37.04	-9.01	37.04	38.12	346.33	0.15
3300.00	1.33	346.44	3299.50	39.47	-9.48	39.47	40.59	346.49	0.21
3400.00	1.69	359.20	3399.46	42.08	-9.78	42.08	43.20	346.92	0.49
3500.00	1.51	9.24	3499.43	44.85	-9.59	44.85	45.87	347.94	0.34
3600.00	1.67	11.14	3599.39	47.58	-9.09	47.58	48.44	349.18	0.17
3700.00	1.69	350.47	3699.35	50.46	-9.06	50.46	51.27	349.82	0.60
3800.00	2.35	10.59	3799.28	53.93	-8.93	53.93	54.66	350.60	0.96
3900.00	2.39	17.10	3899.20	57.93	-7.94	57.93	58.47	352.20	0.27
4000.00	1.54	9.36	3999.14	61.25	-7.11	61.25	61.66	353.38	0.89
4100.00	1.19	13.95	4099.11	63.58	-6.64	63.58	63.93	354.04	0.36
4200.00	1.11	31.71	4199.09	65.42	-5.88	65.42	65.68	354.87	0.37
4300.00	1.48	69.79	4299.07	66.69	-4.16	66.69	66.82	356.43	0.91
4400.00	3.22	88.61	4398.98	67.20	-0.14	67.20	67.20	359.88	1.88
4500.00	3.97	80.06	4498.78	67.87	6.07	67.87	68.14	5.11	0.92
4600.00	3.62	90.24	4598.57	68.45	12.64	68.45	69.61	10.46	0.75
4700.00	3.57	101.79	4698.37	67.80	18.84	67.80	70.37	15.53	0.73
4800.00	3.55	96.30	4798.18	66.83	24.96	66.83	71.34	20.48	0.34
4900.00	3.27	99.42	4898.00	66.02	30.85	66.02	72.87	25.05	0.33
5000.00	1.57	79.09	4997.91	65.81	35.02	65.81	74.55	28.02	1.88
5100.00	0.79	56.26	5097.89	66.46	36.94	66.46	76.03	29.07	0.90
5200.00	0.91	71.02	5197.88	67.10	38.27	67.10	77.24	29.70	0.25
5300.00	0.67	52.10	5297.87	67.72	39.49	67.72	78.39	30.25	0.35
5400.00	0.67	66.78	5397.86	68.31	40.49	68.31	79.41	30.65	0.17
5500.00	0.57	28.19	5497.86	68.98	41.26	68.98	80.37	30.88	0.42
5600.00	0.72	60.17	5597.85	69.73	42.04	69.73	81.42	31.09	0.39
5700.00	0.73	72.88	5697.84	70.23	43.20	70.23	82.45	31.60	0.16
5800.00	0.64	30.38	5797.83	70.90	44.09	70.90	83.50	31.88	0.51
5900.00	0.67	54.19	5897.83	71.73	44.85	71.73	84.60	32.02	0.27

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
6000.00	0.51	41.37	5997.82	72.41	45.62	72.41	85.58	32.21	0.21
6100.00	0.27	34.02	6097.82	72.93	46.04	72.93	86.25	32.26	0.24
6200.00	0.44	5.97	6197.82	73.51	46.22	73.51	86.83	32.16	0.24
6300.00	0.49	25.98	6297.82	74.27	46.44	74.27	87.60	32.02	0.17
6400.00	0.62	25.50	6397.81	75.15	46.86	75.15	88.56	31.95	0.13
6500.00	0.64	39.50	6497.80	76.07	47.45	76.07	89.65	31.96	0.15
6600.00	0.59	32.43	6597.80	76.93	48.08	76.93	90.71	32.00	0.09
6700.00	0.47	36.84	6697.80	77.69	48.60	77.69	91.64	32.03	0.12
6800.00	0.54	40.22	6797.79	78.38	49.15	78.38	92.51	32.09	0.07
6900.00	0.42	45.13	6897.79	78.99	49.71	78.99	93.33	32.18	0.13
7000.00	0.51	35.47	6997.78	79.61	50.23	79.61	94.13	32.25	0.12
7100.00	0.31	57.60	7097.78	80.12	50.72	80.12	94.83	32.33	0.25
7200.00	0.38	64.76	7197.78	80.41	51.25	80.41	95.35	32.51	0.08
7300.00	0.50	99.45	7297.78	80.48	51.98	80.48	95.80	32.86	0.29
7400.00	0.41	93.50	7397.77	80.38	52.77	80.38	96.16	33.28	0.10
7500.00	0.76	147.81	7497.77	79.80	53.48	79.80	96.07	33.83	0.62
7600.00	0.82	162.28	7597.76	78.56	54.05	78.56	95.36	34.53	0.21
7700.00	0.92	155.22	7697.75	77.14	54.61	77.14	94.51	35.30	0.15
7800.00	1.14	171.23	7797.73	75.42	55.10	75.42	93.40	36.15	0.36
7900.00	1.28	153.55	7897.71	73.44	55.75	73.44	92.20	37.20	0.40
8000.00	1.44	157.44	7997.68	71.28	56.73	71.28	91.10	38.51	0.18
8100.00	1.44	161.19	8097.65	68.94	57.61	68.94	89.84	39.89	0.09
8200.00	1.59	170.87	8197.62	66.38	58.24	66.38	88.31	41.26	0.30
8300.00	1.75	172.75	8297.57	63.50	58.65	63.50	86.44	42.73	0.17
8400.00	1.78	192.53	8397.53	60.47	58.50	60.47	84.14	44.05	0.61
8500.00	1.47	190.31	8497.49	57.68	57.94	57.68	81.76	45.12	0.32
8600.00	1.78	195.79	8597.45	54.93	57.28	54.93	79.36	46.20	0.34
8700.00	1.34	216.74	8697.41	52.50	56.16	52.50	76.88	46.93	0.71
8800.00	1.20	212.80	8797.39	50.68	54.89	50.68	74.71	47.29	0.16
8900.00	1.03	213.57	8897.37	49.05	53.83	49.05	72.82	47.66	0.18
9000.00	1.11	222.35	8997.35	47.59	52.68	47.59	70.99	47.91	0.18
9100.00	1.23	241.98	9097.33	46.37	51.08	46.37	68.99	47.77	0.42
9200.00	1.29	245.61	9197.30	45.40	49.11	45.40	66.88	47.25	0.10
9300.00	1.29	268.72	9297.28	44.91	46.96	44.91	64.98	46.28	0.52
9400.00	0.93	289.87	9397.26	45.16	45.08	45.16	63.81	44.95	0.54
9500.00	1.68	277.61	9497.23	45.63	42.85	45.63	62.60	43.20	0.80
9600.00	1.54	250.26	9597.20	45.37	40.14	45.37	60.58	41.50	0.77
9700.00	1.90	251.82	9697.15	44.40	37.30	44.40	57.99	40.03	0.37
9800.00	1.53	256.74	9797.11	43.58	34.42	43.58	55.53	38.30	0.40



VES Survey International
Midland, TX
432-563-5444
Surveyor: Andrew Askew
Bebidas State No. 003H / API 30-025-40856



V.E.S. Survey Date: 09/15/2014



HOBBSOCD

DEC 12 2014

RECEIVED

COG Production LLC

Lea County, NM

Bebidas State

3H

OH

Design: OH

Survey Report - Geographic

22 September, 2014



Am



TDS
Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	KB @ 3743.0usft
Site:	Bebidas State	MD Reference:	KB @ 3743.0usft
Well:	3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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	Bebidas State		
Site Position:		Northing:	473,114.40 usft
From:	Map	Easting:	734,487.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 17' 54.337 N
		Longitude:	103° 34' 28.023 W
		Grid Convergence:	0.41 °

Well	3H		
Well Position	+N/-S	0.0 usft	Northing: 473,114.40 usft
	+E/-W	0.0 usft	Easting: 734,487.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Ground Level:	3,721.0 usft
		Latitude:	32° 17' 54.337 N
		Longitude:	103° 34' 28.023 W

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	8/21/2014	7.20
			Dip Angle (°)
			60.18
			Field Strength (nT)
			48,340

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			38.31

Survey Program	Date 9/22/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	9,800.0	Gyro #1 (OH)	MWD
9,882.0	15,104.0	MWD #1 (OH)	MWD
			Description
			MWD - Standard
			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
0.0	0.00	0.00	0.0	0.0	0.0	473,114.40	734,487.40	32° 17' 54.337 N	103° 34' 28.023 W
100.0	0.41	108.32	100.0	-0.1	0.3	473,114.29	734,487.74	32° 17' 54.336 N	103° 34' 28.019 W
200.0	0.25	41.41	200.0	-0.1	0.8	473,114.34	734,488.22	32° 17' 54.336 N	103° 34' 28.013 W
300.0	0.15	62.06	300.0	0.2	1.1	473,114.56	734,488.48	32° 17' 54.338 N	103° 34' 28.010 W
400.0	0.32	99.07	400.0	0.2	1.5	473,114.58	734,488.87	32° 17' 54.339 N	103° 34' 28.006 W
500.0	0.28	138.07	500.0	0.0	1.9	473,114.36	734,489.31	32° 17' 54.336 N	103° 34' 28.001 W
600.0	0.34	114.98	600.0	-0.4	2.3	473,114.05	734,489.74	32° 17' 54.333 N	103° 34' 27.996 W
700.0	0.31	88.88	700.0	-0.5	2.9	473,113.93	734,490.28	32° 17' 54.332 N	103° 34' 27.989 W
800.0	0.17	196.26	800.0	-0.6	3.1	473,113.79	734,490.51	32° 17' 54.331 N	103° 34' 27.987 W
900.0	0.16	78.62	900.0	-0.7	3.2	473,113.68	734,490.61	32° 17' 54.330 N	103° 34' 27.986 W
1,000.0	0.35	80.86	1,000.0	-0.6	3.6	473,113.75	734,491.04	32° 17' 54.330 N	103° 34' 27.980 W



TDS
Survey Report - Geographic



Company: COG Production LLC	Local Co-ordinate Reference: Well 3H
Project: Lea County, NM	TVD Reference: KB @ 3743.0usft
Site: Bebidas State	MD Reference: KB @ 3743.0usft
Well: 3H	North Reference: Grid
Wellbore: OH	Survey Calculation Method: Minimum Curvature
Design: OH	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
1,100.0	0.27	27.70	1,100.0	-0.4	4.1	473,114.01	734,491.46	32° 17' 54.333 N	103° 34' 27.976 W
1,200.0	0.29	35.10	1,200.0	0.0	4.3	473,114.43	734,491.71	32° 17' 54.337 N	103° 34' 27.973 W
1,300.0	0.30	12.18	1,300.0	0.5	4.5	473,114.89	734,491.91	32° 17' 54.341 N	103° 34' 27.970 W
1,400.0	0.15	35.01	1,400.0	0.9	4.6	473,115.25	734,492.04	32° 17' 54.345 N	103° 34' 27.969 W
1,500.0	0.38	342.71	1,500.0	1.3	4.6	473,115.68	734,492.02	32° 17' 54.349 N	103° 34' 27.969 W
1,600.0	0.61	326.02	1,600.0	2.0	4.2	473,116.43	734,491.62	32° 17' 54.357 N	103° 34' 27.973 W
1,700.0	1.29	331.99	1,700.0	3.5	3.4	473,117.87	734,490.80	32° 17' 54.371 N	103° 34' 27.983 W
1,800.0	1.46	347.52	1,799.9	5.7	2.6	473,120.11	734,489.99	32° 17' 54.393 N	103° 34' 27.992 W
1,900.0	1.50	352.83	1,899.9	8.2	2.2	473,122.65	734,489.55	32° 17' 54.418 N	103° 34' 27.997 W
2,000.0	1.50	339.37	1,999.9	10.8	1.5	473,125.17	734,488.93	32° 17' 54.443 N	103° 34' 28.004 W
2,100.0	1.45	337.34	2,099.8	13.2	0.6	473,127.56	734,487.98	32° 17' 54.467 N	103° 34' 28.015 W
2,200.0	1.40	341.16	2,199.8	15.5	-0.3	473,129.89	734,487.10	32° 17' 54.490 N	103° 34' 28.025 W
2,300.0	1.46	339.44	2,299.8	17.8	-1.1	473,132.24	734,486.26	32° 17' 54.514 N	103° 34' 28.035 W
2,400.0	1.15	336.18	2,399.7	19.9	-2.0	473,134.35	734,485.40	32° 17' 54.534 N	103° 34' 28.044 W
2,500.0	1.22	339.73	2,499.7	21.9	-2.8	473,136.27	734,484.63	32° 17' 54.553 N	103° 34' 28.053 W
2,600.0	1.17	334.57	2,599.7	23.8	-3.6	473,138.19	734,483.82	32° 17' 54.573 N	103° 34' 28.063 W
2,700.0	1.25	316.64	2,699.7	25.5	-4.8	473,139.90	734,482.64	32° 17' 54.590 N	103° 34' 28.076 W
2,800.0	1.50	336.48	2,799.7	27.5	-6.0	473,141.89	734,481.36	32° 17' 54.609 N	103° 34' 28.091 W
2,900.0	1.41	340.07	2,899.6	29.9	-7.0	473,144.25	734,480.42	32° 17' 54.633 N	103° 34' 28.102 W
3,000.0	1.45	338.42	2,999.6	32.2	-7.9	473,146.58	734,479.54	32° 17' 54.656 N	103° 34' 28.112 W
3,100.0	1.38	348.53	3,099.6	34.5	-8.6	473,148.94	734,478.83	32° 17' 54.679 N	103° 34' 28.120 W
3,200.0	1.51	351.17	3,199.5	37.0	-9.0	473,151.42	734,478.39	32° 17' 54.704 N	103° 34' 28.125 W
3,300.0	1.33	346.44	3,299.5	39.5	-9.5	473,153.85	734,477.92	32° 17' 54.728 N	103° 34' 28.130 W
3,400.0	1.69	359.20	3,399.5	42.1	-9.8	473,156.46	734,477.62	32° 17' 54.754 N	103° 34' 28.133 W
3,500.0	1.51	9.24	3,499.4	44.8	-9.6	473,159.23	734,477.82	32° 17' 54.781 N	103° 34' 28.131 W
3,600.0	1.67	11.14	3,599.4	47.6	-9.1	473,161.96	734,478.31	32° 17' 54.808 N	103° 34' 28.125 W
3,700.0	1.69	350.47	3,699.3	50.4	-9.1	473,164.84	734,478.35	32° 17' 54.837 N	103° 34' 28.124 W
3,800.0	2.35	10.59	3,799.3	53.9	-8.9	473,168.31	734,478.48	32° 17' 54.871 N	103° 34' 28.122 W
3,900.0	2.39	17.11	3,899.2	57.9	-7.9	473,172.32	734,479.47	32° 17' 54.911 N	103° 34' 28.110 W
4,000.0	1.54	9.36	3,999.1	61.2	-7.1	473,175.64	734,480.30	32° 17' 54.943 N	103° 34' 28.100 W
4,100.0	1.19	13.96	4,099.1	63.6	-6.6	473,177.97	734,480.77	32° 17' 54.966 N	103° 34' 28.095 W
4,200.0	1.11	31.71	4,199.1	65.4	-5.9	473,179.81	734,481.53	32° 17' 54.985 N	103° 34' 28.086 W
4,300.0	1.48	69.79	4,299.1	66.7	-4.1	473,181.08	734,483.25	32° 17' 54.997 N	103° 34' 28.066 W
4,400.0	3.22	88.61	4,399.0	67.2	-0.1	473,181.59	734,487.27	32° 17' 55.002 N	103° 34' 28.019 W
4,500.0	3.97	80.06	4,498.8	67.9	6.1	473,182.26	734,493.49	32° 17' 55.008 N	103° 34' 27.946 W
4,600.0	3.62	90.24	4,598.6	68.4	12.7	473,182.84	734,500.05	32° 17' 55.013 N	103° 34' 27.870 W
4,700.0	3.57	101.79	4,698.4	67.8	18.9	473,182.19	734,506.26	32° 17' 55.006 N	103° 34' 27.798 W
4,800.0	3.55	96.31	4,798.2	66.8	25.0	473,181.21	734,512.38	32° 17' 54.996 N	103° 34' 27.726 W
4,900.0	3.27	99.42	4,898.0	66.0	30.9	473,180.41	734,518.28	32° 17' 54.988 N	103° 34' 27.658 W
5,000.0	1.57	79.09	4,997.9	65.8	35.0	473,180.20	734,522.43	32° 17' 54.986 N	103° 34' 27.609 W
5,100.0	0.79	56.26	5,097.9	66.4	37.0	473,180.84	734,524.35	32° 17' 54.992 N	103° 34' 27.587 W
5,200.0	0.91	71.02	5,197.9	67.1	38.3	473,181.48	734,525.68	32° 17' 54.998 N	103° 34' 27.571 W
5,300.0	0.67	52.10	5,297.9	67.7	39.5	473,182.10	734,526.89	32° 17' 55.004 N	103° 34' 27.557 W
5,400.0	0.67	66.78	5,397.9	68.3	40.5	473,182.69	734,527.89	32° 17' 55.010 N	103° 34' 27.546 W
5,500.0	0.57	28.19	5,497.9	69.0	41.3	473,183.36	734,528.66	32° 17' 55.016 N	103° 34' 27.536 W
5,600.0	0.72	80.17	5,597.8	69.7	42.0	473,184.11	734,529.44	32° 17' 55.024 N	103° 34' 27.527 W
5,700.0	0.73	72.88	5,697.8	70.2	43.2	473,184.61	734,530.59	32° 17' 55.029 N	103° 34' 27.514 W
5,800.0	0.64	30.38	5,797.8	70.9	44.1	473,185.28	734,531.49	32° 17' 55.035 N	103° 34' 27.503 W
5,900.0	0.67	54.19	5,897.8	71.7	44.8	473,186.10	734,532.24	32° 17' 55.043 N	103° 34' 27.495 W
6,000.0	0.51	41.37	5,997.8	72.4	45.6	473,186.78	734,533.01	32° 17' 55.050 N	103° 34' 27.486 W
6,100.0	0.27	34.02	6,097.8	72.9	46.0	473,187.31	734,533.44	32° 17' 55.055 N	103° 34' 27.481 W
6,200.0	0.44	5.97	6,197.8	73.5	46.2	473,187.89	734,533.61	32° 17' 55.061 N	103° 34' 27.478 W
6,300.0	0.49	25.98	6,297.8	74.3	46.4	473,188.65	734,533.84	32° 17' 55.068 N	103° 34' 27.476 W
6,400.0	0.62	25.50	6,397.8	75.1	46.9	473,189.53	734,534.26	32° 17' 55.077 N	103° 34' 27.471 W
6,500.0	0.64	39.50	6,497.8	76.0	47.4	473,190.44	734,534.84	32° 17' 55.086 N	103° 34' 27.464 W



TDS
Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	KB @ 3743.0usft
Site:	Bebidas State	MD Reference:	KB @ 3743.0usft
Well:	3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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
6,600.0	0.59	32.43	6,597.8	76.9	48.1	473,191.31	734,535.47	32° 17' 55.095 N	103° 34' 27.456 W
6,700.0	0.47	36.84	6,697.8	77.7	48.6	473,192.07	734,536.00	32° 17' 55.102 N	103° 34' 27.450 W
6,800.0	0.54	40.22	6,797.8	78.4	49.2	473,192.76	734,536.55	32° 17' 55.109 N	103° 34' 27.444 W
6,900.0	0.42	45.13	6,897.8	79.0	49.7	473,193.38	734,537.11	32° 17' 55.115 N	103° 34' 27.437 W
7,000.0	0.51	35.47	6,997.8	79.6	50.2	473,194.00	734,537.63	32° 17' 55.121 N	103° 34' 27.431 W
7,100.0	0.31	57.60	7,097.8	80.1	50.7	473,194.51	734,538.12	32° 17' 55.126 N	103° 34' 27.425 W
7,200.0	0.38	64.76	7,197.8	80.4	51.2	473,194.79	734,538.64	32° 17' 55.129 N	103° 34' 27.419 W
7,300.0	0.50	99.45	7,297.8	80.5	52.0	473,194.86	734,539.37	32° 17' 55.130 N	103° 34' 27.411 W
7,400.0	0.41	93.51	7,397.8	80.4	52.8	473,194.77	734,540.16	32° 17' 55.129 N	103° 34' 27.402 W
7,500.0	0.76	147.81	7,497.8	79.8	53.5	473,194.19	734,540.87	32° 17' 55.123 N	103° 34' 27.393 W
7,600.0	0.82	162.28	7,597.8	78.5	54.0	473,192.94	734,541.44	32° 17' 55.110 N	103° 34' 27.387 W
7,700.0	0.92	155.22	7,697.7	77.1	54.6	473,191.53	734,542.00	32° 17' 55.096 N	103° 34' 27.380 W
7,800.0	1.14	171.23	7,797.7	75.4	55.1	473,189.82	734,542.49	32° 17' 55.079 N	103° 34' 27.375 W
7,900.0	1.28	153.56	7,897.7	73.4	55.7	473,187.84	734,543.14	32° 17' 55.060 N	103° 34' 27.367 W
8,000.0	1.44	157.44	7,997.7	71.3	56.7	473,185.68	734,544.11	32° 17' 55.038 N	103° 34' 27.356 W
8,100.0	1.44	161.19	8,097.7	68.9	57.6	473,183.33	734,545.00	32° 17' 55.015 N	103° 34' 27.346 W
8,200.0	1.59	170.87	8,197.6	66.4	58.2	473,180.77	734,545.63	32° 17' 54.990 N	103° 34' 27.339 W
8,300.0	1.75	172.75	8,297.6	63.5	58.6	473,177.88	734,546.04	32° 17' 54.961 N	103° 34' 27.334 W
8,400.0	1.78	192.53	8,397.5	60.5	58.5	473,174.85	734,545.90	32° 17' 54.931 N	103° 34' 27.336 W
8,500.0	1.47	190.31	8,497.5	57.7	57.9	473,172.08	734,545.33	32° 17' 54.904 N	103° 34' 27.343 W
8,600.0	1.78	195.79	8,597.4	54.9	57.3	473,169.32	734,544.68	32° 17' 54.876 N	103° 34' 27.351 W
8,700.0	1.34	216.73	8,697.4	52.5	56.2	473,166.89	734,543.55	32° 17' 54.852 N	103° 34' 27.364 W
8,800.0	1.20	212.79	8,797.4	50.7	54.9	473,165.07	734,542.29	32° 17' 54.834 N	103° 34' 27.379 W
8,900.0	1.03	213.57	8,897.4	49.0	53.8	473,163.44	734,541.22	32° 17' 54.818 N	103° 34' 27.392 W
9,000.0	1.11	222.35	8,997.3	47.6	52.7	473,161.98	734,540.07	32° 17' 54.804 N	103° 34' 27.405 W
9,100.0	1.23	241.98	9,097.3	46.4	51.1	473,160.76	734,538.47	32° 17' 54.792 N	103° 34' 27.424 W
9,200.0	1.29	245.61	9,197.3	45.4	49.1	473,159.79	734,536.50	32° 17' 54.783 N	103° 34' 27.447 W
9,300.0	1.29	268.72	9,297.3	44.9	47.0	473,159.30	734,534.35	32° 17' 54.778 N	103° 34' 27.472 W
9,400.0	0.93	289.87	9,397.3	45.1	45.1	473,159.55	734,532.46	32° 17' 54.781 N	103° 34' 27.494 W
9,500.0	1.68	277.61	9,497.2	45.6	42.9	473,160.02	734,530.25	32° 17' 54.785 N	103° 34' 27.520 W
9,600.0	1.54	250.25	9,597.2	45.4	40.1	473,159.76	734,527.53	32° 17' 54.783 N	103° 34' 27.552 W
9,700.0	1.90	251.82	9,697.2	44.4	37.3	473,158.79	734,524.69	32° 17' 54.774 N	103° 34' 27.585 W
9,800.0	1.53	256.74	9,797.1	43.6	34.4	473,157.96	734,521.82	32° 17' 54.766 N	103° 34' 27.618 W
9,882.0	2.60	262.90	9,879.1	43.1	31.5	473,157.48	734,518.90	32° 17' 54.761 N	103° 34' 27.652 W
9,979.0	0.50	223.70	9,976.0	42.5	29.0	473,156.90	734,516.43	32° 17' 54.755 N	103° 34' 27.681 W
10,073.0	0.30	168.00	10,070.0	42.0	28.8	473,156.37	734,516.20	32° 17' 54.750 N	103° 34' 27.684 W
10,167.0	0.30	288.20	10,164.0	41.8	28.6	473,156.20	734,516.01	32° 17' 54.749 N	103° 34' 27.686 W
10,262.0	0.40	297.20	10,259.0	42.0	28.1	473,156.43	734,515.48	32° 17' 54.751 N	103° 34' 27.692 W
10,293.0	0.50	313.90	10,290.0	42.2	27.9	473,156.58	734,515.29	32° 17' 54.752 N	103° 34' 27.694 W
10,325.0	2.90	1.50	10,322.0	43.1	27.8	473,157.48	734,515.21	32° 17' 54.761 N	103° 34' 27.695 W
10,357.0	7.50	8.70	10,353.9	46.0	28.1	473,160.36	734,515.55	32° 17' 54.790 N	103° 34' 27.691 W
10,388.0	12.50	6.40	10,384.4	51.3	28.8	473,165.69	734,516.23	32° 17' 54.842 N	103° 34' 27.683 W
10,420.0	17.50	1.20	10,415.3	59.6	29.3	473,173.95	734,516.71	32° 17' 54.924 N	103° 34' 27.676 W
10,451.0	21.50	357.30	10,444.5	69.9	29.1	473,184.29	734,516.54	32° 17' 55.026 N	103° 34' 27.678 W
10,483.0	24.40	355.70	10,474.0	82.3	28.4	473,196.74	734,515.77	32° 17' 55.150 N	103° 34' 27.686 W
10,514.0	27.20	355.90	10,501.9	95.8	27.4	473,210.20	734,514.78	32° 17' 55.283 N	103° 34' 27.696 W
10,546.0	29.80	356.80	10,530.0	111.0	26.4	473,225.43	734,513.82	32° 17' 55.434 N	103° 34' 27.706 W
10,577.0	32.10	357.30	10,556.6	127.0	25.6	473,241.35	734,513.00	32° 17' 55.591 N	103° 34' 27.714 W
10,608.0	34.30	357.80	10,582.5	143.9	24.9	473,258.31	734,512.28	32° 17' 55.759 N	103° 34' 27.721 W
10,640.0	37.30	357.60	10,608.5	162.6	24.1	473,277.01	734,511.52	32° 17' 55.944 N	103° 34' 27.728 W
10,672.0	40.40	358.20	10,633.4	182.7	23.4	473,297.07	734,510.79	32° 17' 56.143 N	103° 34' 27.735 W
10,703.0	43.20	358.50	10,656.5	203.3	22.8	473,317.72	734,510.20	32° 17' 56.347 N	103° 34' 27.740 W
10,735.0	46.50	359.60	10,679.2	225.9	22.4	473,340.28	734,509.83	32° 17' 56.571 N	103° 34' 27.743 W
10,766.0	48.80	0.10	10,700.0	248.8	22.4	473,363.19	734,509.77	32° 17' 56.797 N	103° 34' 27.742 W
10,798.0	51.10	358.70	10,720.6	273.3	22.1	473,387.68	734,509.51	32° 17' 57.040 N	103° 34' 27.743 W



TDS
Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	KB @ 3743.0usft
Site:	Bebidas State	MD Reference:	KB @ 3743.0usft
Well:	3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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
10,829.0	53.10	356.80	10,739.7	297.7	21.1	473,412.12	734,508.55	32° 17' 57.282 N	103° 34' 27.752 W
10,860.0	55.80	356.20	10,757.7	322.9	19.6	473,437.29	734,507.00	32° 17' 57.531 N	103° 34' 27.768 W
10,892.0	59.60	356.90	10,774.8	349.9	18.0	473,464.29	734,505.38	32° 17' 57.798 N	103° 34' 27.785 W
10,923.0	64.60	358.50	10,789.3	377.3	16.9	473,491.65	734,504.29	32° 17' 58.069 N	103° 34' 27.795 W
10,955.0	69.60	0.30	10,801.7	406.7	16.6	473,521.12	734,503.99	32° 17' 58.360 N	103° 34' 27.796 W
10,986.0	74.30	0.50	10,811.4	436.2	16.8	473,550.59	734,504.20	32° 17' 58.652 N	103° 34' 27.791 W
11,018.0	77.50	0.80	10,819.1	467.2	17.2	473,581.62	734,504.55	32° 17' 58.959 N	103° 34' 27.785 W
11,066.0	83.00	1.40	10,827.3	514.5	18.1	473,628.89	734,505.46	32° 17' 59.427 N	103° 34' 27.770 W
11,069.9	83.34	1.40	10,827.7	518.4	18.2	473,632.78	734,505.55	32° 17' 59.465 N	103° 34' 27.769 W
EOC (BS #3H/OH)									
11,097.0	85.70	1.40	10,830.3	545.3	18.8	473,659.73	734,506.21	32° 17' 59.732 N	103° 34' 27.759 W
11,129.0	87.60	1.60	10,832.2	577.3	19.7	473,691.66	734,507.05	32° 18' 0.048 N	103° 34' 27.746 W
11,160.0	88.90	1.90	10,833.1	608.2	20.6	473,722.64	734,507.99	32° 18' 0.354 N	103° 34' 27.733 W
11,255.0	89.30	0.40	10,834.6	703.2	22.5	473,817.60	734,509.90	32° 18' 1.294 N	103° 34' 27.703 W
11,349.0	89.40	357.50	10,835.7	797.2	20.8	473,911.57	734,508.18	32° 18' 2.224 N	103° 34' 27.715 W
11,444.0	91.10	357.90	10,835.3	892.1	17.0	474,006.49	734,504.37	32° 18' 3.163 N	103° 34' 27.752 W
11,538.0	89.80	358.90	10,834.5	986.0	14.3	474,100.45	734,501.74	32° 18' 4.093 N	103° 34' 27.774 W
11,633.0	90.70	359.00	10,834.1	1,081.0	12.6	474,195.43	734,500.00	32° 18' 5.033 N	103° 34' 27.787 W
11,727.0	89.70	358.00	10,833.8	1,175.0	10.1	474,289.39	734,497.54	32° 18' 5.963 N	103° 34' 27.808 W
11,822.0	88.40	358.20	10,835.4	1,269.9	7.0	474,384.33	734,494.39	32° 18' 6.903 N	103° 34' 27.837 W
11,916.0	89.60	358.40	10,837.0	1,363.9	4.2	474,478.27	734,491.60	32° 18' 7.833 N	103° 34' 27.861 W
12,011.0	90.90	357.90	10,836.6	1,458.8	1.1	474,573.22	734,488.54	32° 18' 8.772 N	103° 34' 27.889 W
12,105.0	89.30	358.60	10,836.4	1,552.8	-1.7	474,667.17	734,485.67	32° 18' 9.702 N	103° 34' 27.915 W
12,200.0	88.40	358.50	10,838.3	1,647.7	-4.1	474,762.12	734,483.26	32° 18' 10.642 N	103° 34' 27.935 W
12,295.0	89.40	358.10	10,840.2	1,742.7	-7.0	474,857.06	734,480.44	32° 18' 11.582 N	103° 34' 27.960 W
12,389.0	90.80	357.60	10,840.0	1,836.6	-10.5	474,950.99	734,476.92	32° 18' 12.511 N	103° 34' 27.994 W
12,483.0	90.60	358.20	10,838.9	1,930.5	-13.9	475,044.92	734,473.47	32° 18' 13.441 N	103° 34' 28.026 W
12,578.0	89.80	358.80	10,838.5	2,025.5	-16.4	475,139.88	734,470.99	32° 18' 14.381 N	103° 34' 28.047 W
12,672.0	88.70	359.30	10,839.8	2,119.5	-18.0	475,233.86	734,469.43	32° 18' 15.311 N	103° 34' 28.057 W
12,767.0	90.90	359.20	10,840.1	2,214.4	-19.2	475,328.85	734,468.19	32° 18' 16.251 N	103° 34' 28.064 W
12,862.0	88.40	359.60	10,840.7	2,309.4	-20.2	475,423.83	734,467.19	32° 18' 17.191 N	103° 34' 28.068 W
12,956.0	88.10	359.30	10,843.5	2,403.4	-21.1	475,517.78	734,466.29	32° 18' 18.121 N	103° 34' 28.071 W
13,050.0	88.60	359.10	10,846.2	2,497.3	-22.4	475,611.73	734,464.98	32° 18' 19.051 N	103° 34' 28.078 W
13,145.0	89.80	359.30	10,847.6	2,592.3	-23.7	475,706.71	734,463.65	32° 18' 19.991 N	103° 34' 28.086 W
13,239.0	89.70	358.90	10,848.0	2,686.3	-25.2	475,800.70	734,462.17	32° 18' 20.921 N	103° 34' 28.095 W
13,334.0	88.50	359.90	10,849.5	2,781.3	-26.2	475,895.68	734,461.18	32° 18' 21.861 N	103° 34' 28.099 W
13,428.0	88.80	359.80	10,851.7	2,875.3	-26.5	475,989.65	734,460.93	32° 18' 22.791 N	103° 34' 28.094 W
13,523.0	86.70	359.40	10,855.4	2,970.2	-27.1	476,084.57	734,460.27	32° 18' 23.730 N	103° 34' 28.094 W
13,617.0	89.60	0.60	10,858.5	3,064.1	-27.1	476,178.51	734,460.27	32° 18' 24.659 N	103° 34' 28.086 W
13,712.0	90.90	1.30	10,858.0	3,159.1	-25.6	476,273.50	734,461.85	32° 18' 25.599 N	103° 34' 28.060 W
13,806.0	91.10	0.70	10,856.4	3,253.1	-23.9	476,367.47	734,463.49	32° 18' 26.529 N	103° 34' 28.033 W
13,902.0	88.70	359.80	10,856.6	3,349.1	-23.5	476,463.46	734,463.91	32° 18' 27.479 N	103° 34' 28.020 W
13,996.0	92.10	0.60	10,855.9	3,443.0	-23.2	476,557.44	734,464.23	32° 18' 28.409 N	103° 34' 28.009 W
14,091.0	92.70	0.00	10,851.9	3,538.0	-22.7	476,652.35	734,464.73	32° 18' 29.348 N	103° 34' 27.995 W
14,185.0	93.40	359.80	10,846.9	3,631.8	-22.8	476,746.22	734,464.57	32° 18' 30.277 N	103° 34' 27.989 W
14,280.0	92.50	0.30	10,842.0	3,726.7	-22.7	476,841.09	734,464.65	32° 18' 31.216 N	103° 34' 27.981 W
14,374.0	91.40	2.00	10,838.8	3,820.6	-20.9	476,935.02	734,466.54	32° 18' 32.145 N	103° 34' 27.951 W
14,469.0	90.50	2.20	10,837.3	3,915.5	-17.4	477,029.94	734,470.02	32° 18' 33.084 N	103° 34' 27.902 W
14,563.0	88.30	2.70	10,838.3	4,009.4	-13.4	477,123.84	734,474.03	32° 18' 34.013 N	103° 34' 27.848 W
14,658.0	89.80	2.10	10,839.8	4,104.3	-9.4	477,218.74	734,478.01	32° 18' 34.952 N	103° 34' 27.794 W
14,753.0	90.50	1.90	10,839.6	4,199.3	-6.1	477,313.68	734,481.33	32° 18' 35.891 N	103° 34' 27.747 W
14,847.0	91.00	1.60	10,838.3	4,293.2	-3.2	477,407.63	734,484.20	32° 18' 36.820 N	103° 34' 27.706 W
14,942.0	92.60	1.20	10,835.4	4,388.2	-0.9	477,502.55	734,486.52	32° 18' 37.759 N	103° 34' 27.671 W
15,056.0	93.00	359.60	10,829.8	4,502.0	-0.1	477,616.41	734,487.31	32° 18' 38.886 N	103° 34' 27.653 W



TDS
Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	KB @ 3743.0usft
Site:	Bebidas State	MD Reference:	KB @ 3743.0usft
Well:	3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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
15,104.0	93.00	359.60	10,827.3	4,549.9	-0.4	477,664.34	734,486.98	32° 18' 39.360 N	103° 34' 27.652 W
EOL/BHL (BS #3H/OH)									

Checked By: _____ Approved By: _____ Date: _____