

Results of Directional Survey

API number:	30-025-40855		
OGRID:		Operator:	COG PRODUCTION, LLC
		Property:	BEBIDAS STATE # 2H

surface	ULSTR:	N	16	T	23S	R	33E
				392	FSL	1887	FWL

BH Loc	ULSTR:	C	16	T	23S	R	33E
15581	MD	11175.4	TVD	331	FNL	1834	FWL
				4949	FSL		

Top Perf/OH	ULSTR:	N	16	T	23S	R	33E
11359	MD	11156.8	TVD	734	FSL	1942	FWL

Bot Perf/OH	ULSTR:	C	16	T	23S	R	33E
15463	MD	11175.3	TVD	352	FNL	1834	FWL
				4928	FSL		

	MD	N/S	E/W	VD
	11327	310.70	57.30	11149
TOP PERFS/OH	11359	341.60	54.80	11156.80
	11359	341.60	54.80	11156.80
	15771	4416.60	-53.90	11175.40
BOT PERFS/OH	15463	4535.66	-53.25	11175.27
	15533	4508.60	-53.40	11175.30

NEXT TO LAST	15533	4508.60	-53.40	11175.30
LAST READING	15581	4556.60	-53.30	11175.40
TD	15581	4556.60	-53.30	11175.40

Surface Location	392	FS	1887	FW
Projected BHL	4949	FS	1834	FW
Location of				
Top Perfs/OH	734	FS	1942	FW
Bottom Perfs/OH	4928	FS	1834	FW

SUMMARY of Subsurface Locations

Surface Location	N-16-23S-33E	392	FS	1887	FW	Vert. Depth
Top Perfs/OH	N-16-23S-33E	734	FS	1942	FW	11156.80
Bottom Perfs/OH	C-16-23S-33E	4928	FS	1834	FW	11175.27
Projected TD	C-16-23S-33E	4949	FS	1834	FW	11175.40

JAN 23 2014



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

HOBES OCD

DEC 04 2013

RECEIVED

September 30, 2013

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Bebidas State #2H
392' FSL & 1887' FWL
Sec. 16, T23S, R33E
Lea County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

Very truly yours,

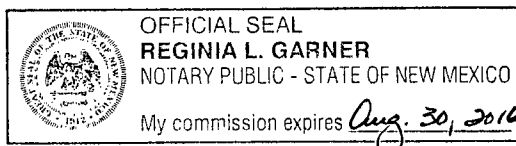
A handwritten signature in black ink, appearing to read "Eddie LaRue".

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 30th day of September, 2013.

A handwritten signature in black ink, appearing to read "Regina L. Garner".

Notary Public

BEBIDAS STATE 2H

Date	Depth	Deviation	Direction	TVD	Horiz
9/1/2013	219	0.20	0.00	0.00	0.00
9/2/2013	430	0.20	0.00	0.00	0.00
9/2/2013	636	0.40	0.00	0.00	0.00
9/2/2013	887	0.30	0.00	0.00	0.00
9/2/2013	1140	0.80	0.00	0.00	0.00
9/4/2013	1346	1.00	325.61	1345.00	0.00
9/4/2013	1378	0.80	337.60	1377.00	0.00
9/4/2013	1472	0.66	326.40	1471.00	0.00
9/4/2013	1567	1.23	322.71	1566.00	0.00
9/4/2013	1757	0.90	0.00	0.00	0.00
9/4/2013	1945	0.70	0.00	0.00	0.00
9/4/2013	2231	0.10	0.00	0.00	0.00
9/5/2013	2325	0.40	0.00	0.00	0.00
9/5/2013	2420	0.40	0.00	0.00	0.00
9/5/2013	2515	0.30	0.00	0.00	0.00
9/5/2013	2610	0.50	0.00	0.00	0.00
9/5/2013	2705	0.30	0.00	0.00	0.00
9/5/2013	2800	0.40	0.00	0.00	0.00
9/5/2013	2990	0.40	238.10	2989.00	0.00
9/5/2013	3085	0.40	301.60	3084.00	0.00
9/5/2013	3180	0.22	337.40	3175.00	0.00
9/5/2013	3275	0.10	14.50	3274.00	0.00
9/5/2013	3370	0.40	323.20	3369.00	0.00
9/5/2013	3465	0.10	25.60	3464.00	0.00
9/5/2013	3559	0.30	0.00	0.00	0.00
9/5/2013	3749	0.30	0.00	0.00	0.00
9/5/2013	3938	0.80	0.00	0.00	0.00
9/6/2013	4128	0.90	92.40	0.00	0.00
9/6/2013	4349	1.50	134.10	0.00	0.00
9/6/2013	4443	2.40	129.35	0.00	0.00
9/6/2013	4507	2.70	0.00	0.00	0.00
9/6/2013	4633	2.50	0.00	0.00	0.00
9/6/2013	4728	2.20	0.00	0.00	0.00
9/7/2013	4822	2.40	126.90	0.00	0.00
9/7/2013	4949	2.20	133.70	0.00	0.00
9/9/2013	5260	0.90	0.00	0.00	0.00
9/9/2013	5670	1.00	0.00	0.00	0.00
9/10/2013	6017	1.00	0.00	0.00	0.00
9/10/2013	6270	0.50	0.00	0.00	0.00
9/10/2013	6523	0.10	0.00	0.00	0.00
9/10/2013	6775	0.20	0.00	0.00	0.00
9/10/2013	6965	0.20	0.00	0.00	0.00
9/10/2013	7075	0.50	0.00	0.00	0.00

Date	Depth	Deviation	Direction	TVD	Horiz
9/10/2013	7358	0.20	0.00	0.00	0.00
9/11/2013	7629	0.50	0.00	0.00	0.00
9/11/2013	7881	0.80	0.00	0.00	0.00
9/11/2013	8135	0.70	0.00	0.00	0.00
9/11/2013	8483	1.10	0.00	0.00	0.00
9/11/2013	8593	0.60	0.00	0.00	0.00
9/11/2013	8877	1.20	0.00	0.00	0.00
9/12/2013	9130	1.50	0.00	0.00	0.00
9/12/2013	9402	0.70	0.00	0.00	0.00
9/12/2013	9606	2.00	0.00	0.00	0.00
9/13/2013	9803	3.00	0.00	0.00	0.00
9/14/2013	10104	2.80	0.00	0.00	0.00
9/15/2013	10122	2.90	0.00	0.00	0.00
9/15/2013	10291	2.60	0.00	0.00	0.00
9/15/2013	10512	0.80	0.00	0.00	0.00
9/15/2013	10635	0.90	0.00	0.00	0.00
9/16/2013	10663	0.90	255.30	0.00	0.00
9/16/2013	10695	1.80	356.30	0.00	0.00
9/17/2013	10726	5.80	13.91	0.00	0.00
9/17/2013	10758	10.11	2.56	0.00	0.00
9/17/2013	10790	14.50	23.05	0.00	0.00
9/17/2013	10821	18.55	22.26	0.00	0.00
9/17/2013	10853	21.89	22.61	0.00	0.00
9/17/2013	10916	29.40	20.86	0.00	0.00
9/17/2013	10980	34.50	20.24	0.00	0.00
9/17/2013	11043	42.50	19.60	0.00	0.00
9/17/2013	11075	46.00	19.40	0.00	0.00
9/17/2013	11106	50.40	18.00	0.00	0.00
9/17/2013	11138	54.30	15.30	0.00	0.00
9/18/2013	11232	65.49	5.62	0.00	0.00
9/18/2013	11264	68.88	1.78	0.00	0.00
9/18/2013	11296	71.78	357.30	0.00	0.00
9/18/2013	11422	81.27	353.87	0.00	0.00
9/19/2013	11454	82.40	353.70	0.00	0.00
9/19/2013	11486	83.69	354.05	0.00	0.00
9/19/2013	11517	84.22	354.31	0.00	0.00
9/19/2013	11549	85.01	354.31	0.00	0.00
9/19/2013	11581	87.30	354.40	0.00	0.00
9/19/2013	11612	89.58	353.87	0.00	0.00
9/19/2013	11644	89.50	354.50	0.00	0.00
9/19/2013	11739	90.60	354.60	0.00	0.00
9/20/2013	11834	88.80	354.31	0.00	0.00
9/20/2013	11929	88.53	353.70	0.00	0.00
9/20/2013	12024	88.31	354.05	0.00	0.00
9/20/2013	12119	89.85	355.45	0.00	0.00

Date	Depth	Deviation	Direction	TVD	Horiz
9/20/2013	12214	90.86	356.25	0.00	0.00
9/20/2013	12404	89.80	358.20	0.00	0.00
9/20/2013	12594	89.00	358.30	0.00	0.00
9/20/2013	12689	89.70	0.40	0.00	0.00
9/21/2013	12784	89.54	0.11	0.00	0.00
9/21/2013	12878	89.90	359.59	0.00	0.00
9/21/2013	12973	89.50	0.11	0.00	0.00
9/21/2013	13069	89.87	359.76	0.00	0.00
9/21/2013	13757	88.92	359.41	0.00	0.00
9/21/2013	13352	89.50	359.40	0.00	0.00
9/21/2013	13447	90.60	359.70	0.00	0.00
9/21/2013	13543	90.30	359.10	0.00	0.00
9/22/2013	13648	91.60	359.76	0.00	0.00
9/22/2013	13732	91.78	359.41	0.00	0.00
9/22/2013	13828	91.47	0.64	0.00	0.00
9/22/2013	14112	90.50	0.99	11182.79	3087.97
9/23/2013	14206	89.50	0.30	0.00	0.00
9/23/2013	14301	89.90	359.80	0.00	0.00
9/24/2013	14396	89.58	359.50	0.00	0.00
9/24/2013	14491	89.93	359.67	0.00	0.00
9/24/2013	14586	90.51	359.23	0.00	0.00
9/24/2013	14776	90.99	359.23	1118.26	3751.92
9/24/2013	14871	90.24	359.15	11180.00	384.60
9/24/2013	14966	90.70	359.90	11179.50	3941.90
9/24/2013	15156	90.10	359.80	0.00	0.00
9/25/2013	15346	90.42	0.55	0.00	0.00
9/25/2013	15441	90.24	0.55	0.00	0.00
9/25/2013	15533	89.59	0.11	0.00	0.00

EOF



A GYRO TECHNOLOGIES INC. COMPANY

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

September 19, 2013

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

Attn: Kanicia Castillo

RE: **Bebidas State No. 002H**

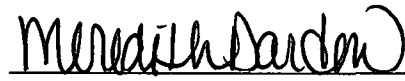
Please find enclosed a copy of the survey from 0.00' to 10600.00' ran on the above referenced well.

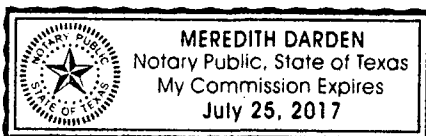
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 19th day of September A.D., 2013, by Keith Havelka.


Meredith Darden
Notary Public, State of Texas



Company: COG Operating, LLC (Concho)

Lease/Well: Bebidas State/No. 002H



Rig Name: Silver Oak 12

State/County: New Mexico/Lea

Latitude: 32.298, Longitude: -103.579

GRID North is 0.400 Degrees East of True North

VS-Azi: 0.000 Degrees



Depth Reference : RKB = 18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ha gyro-de_01.ut

Minimum Curvature Method

Report Date/Time: 9/19/2013 / 15:29

Vaughn Energy Services

Gardendale, TX

432-563-5444

Surveyor: Charles Hines

Bebidas State No. 002H / API 30-025-40855

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
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.183	68.647	100.000	0.058	0.149	0.058	0.159	68.647	0.183
200.000	0.282	48.729	199.999	0.279	0.482	0.279	0.557	59.983	0.127
300.000	0.273	39.473	299.998	0.625	0.819	0.625	1.030	52.646	0.046
400.000	0.218	69.682	399.997	0.875	1.148	0.875	1.443	52.701	0.139
500.000	0.296	43.902	499.996	1.127	1.506	1.127	1.881	53.187	0.138
600.000	0.284	51.216	599.995	1.468	1.878	1.468	2.384	51.979	0.039
700.000	0.113	54.397	699.994	1.681	2.151	1.681	2.730	51.997	0.172
800.000	0.127	354.854	799.994	1.848	2.221	1.848	2.889	50.238	0.119
900.000	0.231	8.454	899.993	2.157	2.240	2.157	3.110	46.090	0.112
1000.000	0.299	337.284	999.992	2.596	2.169	2.596	3.383	39.878	0.157
1100.000	0.420	335.681	1099.990	3.172	1.917	3.172	3.706	31.156	0.122
1200.000	0.745	332.128	1199.985	4.080	1.463	4.080	4.335	19.719	0.326
1300.000	1.071	331.246	1299.972	5.474	0.709	5.474	5.520	7.383	0.326
1400.000	0.798	339.253	1399.959	6.944	0.013	6.944	6.944	0.109	0.302
1500.000	0.917	315.302	1499.948	8.164	-0.796	8.164	8.203	354.430	0.374
1600.000	0.957	316.175	1599.935	9.335	-1.937	9.335	9.533	348.278	0.042
1700.000	0.970	309.835	1699.921	10.479	-3.165	10.479	10.947	343.195	0.107
1800.000	0.859	304.449	1799.908	11.446	-4.433	11.446	12.274	338.827	0.140

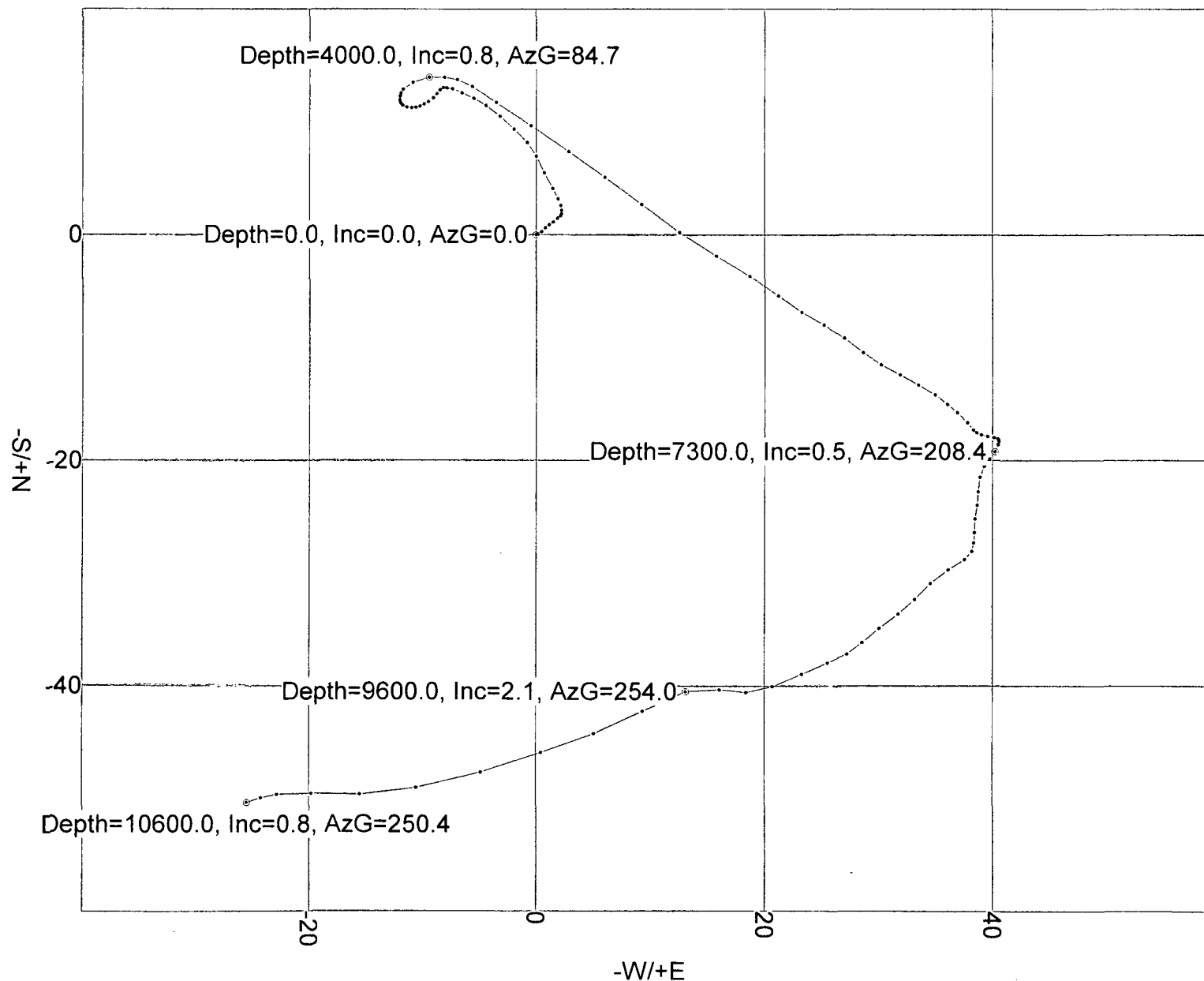
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.000	0.584	292.953	1899.900	12.069	-5.521	12.069	13.272	335.417	0.310
2000.000	0.729	296.478	1999.893	12.551	-6.560	12.551	14.162	332.405	0.150
2100.000	0.329	284.957	2099.889	12.909	-7.407	12.909	14.883	330.153	0.412
2200.000	0.250	272.615	2199.888	12.993	-7.902	12.993	15.207	328.694	0.100
2300.000	0.117	282.164	2299.887	13.024	-8.219	13.024	15.401	327.746	0.136
2400.000	0.321	218.666	2399.886	12.827	-8.493	12.827	15.384	326.490	0.288
2500.000	0.203	219.484	2499.885	12.472	-8.781	12.472	15.253	324.854	0.118
2600.000	0.348	220.858	2599.884	12.106	-9.092	12.106	15.140	323.093	0.146
2700.000	0.277	244.589	2699.883	11.772	-9.509	11.772	15.133	321.070	0.146
2800.000	0.235	238.812	2799.882	11.562	-9.903	11.562	15.224	319.420	0.050
2900.000	0.219	246.196	2899.881	11.379	-10.253	11.379	15.317	317.979	0.033
3000.000	0.210	259.753	2999.880	11.269	-10.609	11.269	15.477	316.730	0.051
3100.000	0.226	270.177	3099.880	11.237	-10.986	11.237	15.715	315.648	0.043
3200.000	0.278	284.710	3199.879	11.300	-11.418	11.300	16.064	314.701	0.082
3300.000	0.189	308.660	3299.878	11.464	-11.782	11.464	16.439	314.217	0.130
3400.000	0.117	333.785	3399.877	11.659	-11.956	11.659	16.700	314.280	0.097
3500.000	0.201	356.598	3499.877	11.926	-12.011	11.926	16.926	314.795	0.103
3600.000	0.184	8.400	3599.876	12.260	-11.998	12.260	17.154	315.618	0.043
3700.000	0.146	20.421	3699.876	12.538	-11.930	12.538	17.307	316.423	0.051
3800.000	0.305	32.165	3799.875	12.883	-11.744	12.883	17.433	317.649	0.165
3900.000	0.926	62.493	3899.869	13.482	-10.885	13.482	17.328	321.083	0.680
4000.000	0.828	84.653	3999.858	13.923	-9.449	13.923	16.826	325.837	0.351
4100.000	0.710	96.262	4099.849	13.923	-8.113	13.923	16.114	329.769	0.195
4200.000	0.617	104.613	4199.842	13.719	-6.976	13.719	15.391	333.047	0.134
4300.000	1.056	119.570	4299.831	13.129	-5.653	13.129	14.294	336.702	0.486
4400.000	1.886	125.637	4399.798	11.715	-3.515	11.715	12.231	343.300	0.844
4500.000	2.329	122.533	4499.730	9.663	-0.464	9.663	9.675	357.251	0.457
4600.000	2.305	126.705	4599.648	7.369	2.862	7.369	7.905	21.223	0.170
4700.000	2.188	124.328	4699.571	5.090	6.051	5.090	7.907	49.929	0.150
4800.000	2.408	129.163	4799.491	2.686	9.256	2.686	9.638	73.816	0.293
4900.000	2.338	123.950	4899.405	0.221	12.577	0.221	12.579	88.994	0.227
5000.000	2.041	122.343	4999.332	-1.871	15.773	-1.871	15.883	96.764	0.303
5100.000	1.903	120.267	5099.273	-3.660	18.711	-3.660	19.065	101.067	0.155
5200.000	1.570	130.812	5199.227	-5.392	21.181	-5.392	21.856	104.281	0.460
5300.000	1.337	118.172	5299.195	-6.837	23.246	-6.837	24.230	106.391	0.395
5400.000	1.251	121.699	5399.170	-7.962	25.203	-7.962	26.430	107.532	0.117
5500.000	1.231	124.362	5499.146	-9.141	27.018	-9.141	28.522	108.693	0.061
5600.000	1.168	130.202	5599.124	-10.405	28.683	-10.405	30.512	109.940	0.137
5700.000	1.046	118.109	5699.106	-11.493	30.266	-11.493	32.375	110.794	0.263

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
5800.000	1.117	118.934	5799.088	-12.395	31.924	-12.395	34.246	111.219	0.074
5900.000	0.982	119.196	5899.071	-13.285	33.526	-13.285	36.062	111.616	0.135
6000.000	0.974	122.859	5999.056	-14.164	34.988	-14.164	37.746	112.039	0.063
6100.000	0.613	134.792	6099.047	-15.002	36.082	-15.002	39.076	112.577	0.395
6200.000	0.685	127.973	6199.040	-15.747	36.932	-15.747	40.149	113.092	0.105
6300.000	0.763	141.975	6299.032	-16.638	37.813	-16.638	41.312	113.750	0.193
6400.000	0.189	135.622	6399.029	-17.280	38.339	-17.280	42.053	114.263	0.575
6500.000	0.218	124.702	6499.028	-17.506	38.610	-17.506	42.393	114.390	0.048
6600.000	0.315	109.526	6599.027	-17.706	39.025	-17.706	42.854	114.405	0.120
6700.000	0.350	97.806	6699.025	-17.840	39.588	-17.840	43.422	114.258	0.076
6800.000	0.321	104.379	6799.024	-17.951	40.161	-17.951	43.990	114.083	0.049
6900.000	0.071	132.612	6899.023	-18.062	40.478	-18.062	44.325	114.048	0.260
7000.000	0.088	164.644	6999.023	-18.178	40.544	-18.178	44.433	114.149	0.047
7100.000	0.037	185.374	7099.023	-18.284	40.561	-18.284	44.492	114.265	0.055
7200.000	0.302	195.783	7199.022	-18.570	40.486	-18.570	44.542	114.640	0.266
7300.000	0.474	208.418	7299.020	-19.188	40.218	-19.188	44.561	115.506	0.191
7400.000	0.452	222.254	7399.017	-19.844	39.755	-19.844	44.433	116.526	0.114
7500.000	0.472	211.153	7499.013	-20.488	39.277	-20.488	44.300	117.548	0.091
7600.000	0.717	194.646	7599.008	-21.446	38.906	-21.446	44.425	118.865	0.296
7700.000	0.789	179.348	7698.999	-22.740	38.755	-22.740	44.934	120.402	0.213
7800.000	0.593	189.888	7798.992	-23.938	38.674	-23.938	45.483	121.756	0.232
7900.000	0.808	188.864	7898.985	-25.145	38.477	-25.145	45.964	123.165	0.215
8000.000	0.586	173.613	7998.977	-26.349	38.425	-26.349	46.591	124.439	0.287
8100.000	0.494	198.436	8098.973	-27.266	38.346	-27.266	47.051	125.415	0.249
8200.000	0.386	183.018	8198.970	-28.012	38.191	-28.012	47.363	126.258	0.160
8300.000	0.833	236.556	8298.965	-28.749	37.567	-28.749	47.305	127.425	0.679
8400.000	1.103	237.484	8398.950	-29.667	36.149	-29.667	46.764	129.375	0.270
8500.000	1.168	227.246	8498.931	-30.876	34.589	-30.876	46.365	131.753	0.213
8600.000	1.101	221.780	8598.911	-32.284	33.201	-32.284	46.309	134.198	0.127
8700.000	1.129	233.746	8698.893	-33.583	31.766	-33.583	46.227	136.593	0.234
8800.000	1.260	232.027	8798.871	-34.842	30.105	-34.842	46.047	139.172	0.136
8900.000	0.974	226.228	8898.852	-36.107	28.624	-36.107	46.077	141.594	0.307
9000.000	0.990	238.968	8998.837	-37.141	27.270	-37.141	46.077	143.713	0.219
9100.000	1.181	250.307	9098.819	-37.934	25.559	-37.934	45.741	146.029	0.286
9200.000	1.697	244.239	9198.787	-38.924	23.255	-38.924	45.342	149.144	0.538
9300.000	1.500	249.614	9298.748	-40.024	20.695	-40.024	45.058	152.658	0.248
9400.000	1.260	266.211	9398.720	-40.552	18.371	-40.552	44.520	155.628	0.464
9500.000	1.443	284.727	9498.692	-40.305	16.056	-40.305	43.385	158.279	0.471
9600.000	2.082	254.038	9598.647	-40.484	13.092	-40.484	42.549	162.080	1.118

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
9700.000	2.701	238.464	9698.560	-42.216	9.337	-42.216	43.237	167.529	0.892
9800.000	2.709	251.140	9798.450	-44.213	5.092	-44.213	44.505	173.430	0.597
9900.000	2.984	248.460	9898.326	-45.932	0.435	-45.932	45.934	179.458	0.306
10000.00	3.412	254.802	9998.171	-47.668	-4.858	-47.668	47.915	185.819	0.555
10100.00	3.291	258.117	10098.00	-49.039	-10.538	-49.039	50.159	192.128	0.228
10200.00	2.388	270.167	10197.88	-49.624	-15.430	-49.624	51.968	197.273	1.078
10300.00	2.623	271.467	10297.78	-49.560	-19.801	-49.560	53.369	201.779	0.243
10400.00	0.883	259.405	10397.73	-49.643	-22.847	-49.643	54.648	204.713	1.770
10500.00	0.772	254.669	10497.72	-49.963	-24.254	-49.963	55.538	205.894	0.130
10600.00	0.755	250.434	10597.71	-50.361	-25.525	-50.361	56.461	206.878	0.059



Vaughn Energy Services
Gardendale, TX
432-563-5444
Surveyor: Charles Hines
Bebidas State No. 002H / API 30-025-40855



-W/+E
VES Survey Date: 09/15/2013



COG Operating LLC

Lea County, NM (NAD27 NME)

Bebidas State

2H

OH

Survey: Nexus Surveys

Survey Report - Geographic

07 October, 2013

NEXUS
DIRECTIONAL SOLUTIONS, L.P.



Nexus Directional Solutions L.P.
Survey Report - Geographic



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3732.5usft (Original Well Elev)
Site:	Bebidas State	MD Reference:	WELL @ 3732.5usft (Original Well Elev)
Well:	2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1:Single User-Db

Project:	Lea County, NM (NAD27 NME)		
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:	0.00 usft
From:	Map	Easting:	0.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	30° 59' 24.512 N
		Longitude:	105° 55' 44.137 W
		Grid Convergence:	-0.82 °

Well:	2H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 17' 54.358 N
		Longitude:	103° 34' 45.222 W
		Ground Level:	3,715.0 usft

Wellbore:	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	08/29/13	7.32
			Dip Angle
			(°)
			60.20
			Field Strength
			(nT)
			48,438

Design:	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			359.58

Survey Program	Date: 10/07/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	10,600.0	Gyro Survey (OH)	MWD
10,663.0	15,581.0	Nexus Surveys (OH)	MWD
			Description
			MWD - Standard
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting		
(usft)			(usft)			(usft)	(usft)		
10,600.0	0.76	250.43	10,597.7	-50.4	-25.5	473,055.74	732,985.58	32° 17' 53.861 N	103° 34' 45.524 W
10,663.0	0.88	255.35	10,660.7	-50.6	-26.4	473,055.48	732,984.72	32° 17' 53.859 N	103° 34' 45.534 W
10,695.0	1.85	356.33	10,692.7	-50.2	-26.7	473,055.93	732,984.45	32° 17' 53.863 N	103° 34' 45.537 W
10,726.0	5.80	13.91	10,723.6	-48.1	-26.3	473,057.95	732,984.79	32° 17' 53.883 N	103° 34' 45.533 W
10,758.0	10.11	21.56	10,755.3	-44.0	-24.9	473,062.14	732,986.21	32° 17' 53.925 N	103° 34' 45.516 W
10,790.0	14.51	23.05	10,786.6	-37.7	-22.3	473,068.44	732,988.81	32° 17' 53.987 N	103° 34' 45.485 W
10,821.0	18.55	22.26	10,816.3	-29.5	-18.9	473,076.58	732,992.20	32° 17' 54.067 N	103° 34' 45.445 W
10,853.0	21.89	22.61	10,846.3	-19.3	-14.7	473,086.80	732,996.43	32° 17' 54.168 N	103° 34' 45.395 W
10,885.0	26.11	21.65	10,875.5	-7.2	-9.8	473,098.86	733,001.32	32° 17' 54.287 N	103° 34' 45.337 W
10,916.0	29.49	20.86	10,902.9	6.2	-4.5	473,112.33	733,006.56	32° 17' 54.420 N	103° 34' 45.275 W
10,948.0	31.38	20.59	10,930.5	21.4	1.2	473,127.49	733,012.29	32° 17' 54.569 N	103° 34' 45.207 W



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3732.5usft (Original Well Elev)
Site:	Bebidas State	MD Reference:	WELL @ 3732.5usft (Original Well Elev)
Well:	2H	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	
10,980.0	34.51	20.24	10,957.4	37.7	7.3	473,143.80	733,018.36	32° 17' 54.730 N	103° 34' 45.135 W	
11,011.0	38.73	19.98	10,982.3	55.1	13.6	473,161.16	733,024.71	32° 17' 54.902 N	103° 34' 45.059 W	
11,043.0	42.42	19.62	11,006.6	74.6	20.7	473,180.74	733,031.76	32° 17' 55.095 N	103° 34' 44.976 W	
11,075.0	46.02	19.36	11,029.5	95.7	28.1	473,201.78	733,039.20	32° 17' 55.303 N	103° 34' 44.887 W	
11,106.0	50.37	17.95	11,050.2	117.6	35.5	473,223.67	733,046.58	32° 17' 55.519 N	103° 34' 44.799 W	
11,138.0	54.33	15.32	11,069.7	141.8	42.7	473,247.94	733,053.82	32° 17' 55.758 N	103° 34' 44.713 W	
11,169.0	58.02	12.24	11,087.0	166.8	48.8	473,272.95	733,059.94	32° 17' 56.005 N	103° 34' 44.640 W	
11,201.0	61.67	8.99	11,103.0	194.0	53.9	473,300.14	733,065.02	32° 17' 56.274 N	103° 34' 44.578 W	
11,232.0	65.49	5.65	11,116.8	221.6	57.4	473,327.66	733,068.54	32° 17' 56.546 N	103° 34' 44.535 W	
11,264.0	68.88	1.78	11,129.2	251.0	59.3	473,357.09	733,070.44	32° 17' 56.837 N	103° 34' 44.511 W	
11,296.0	71.78	357.30	11,140.0	281.1	59.1	473,387.20	733,070.19	32° 17' 57.135 N	103° 34' 44.511 W	
11,327.0	74.51	355.89	11,149.0	310.7	57.3	473,416.82	733,068.42	32° 17' 57.429 N	103° 34' 44.529 W	
11,359.0	77.19	354.75	11,156.8	341.6	54.8	473,447.74	733,065.89	32° 17' 57.735 N	103° 34' 44.556 W	
11,391.0	79.65	354.31	11,163.2	372.8	51.8	473,478.94	733,062.90	32° 17' 58.044 N	103° 34' 44.588 W	
11,422.0	81.27	353.87	11,168.4	403.2	48.7	473,509.35	733,059.75	32° 17' 58.345 N	103° 34' 44.623 W	
11,454.0	82.46	353.70	11,172.9	434.7	45.2	473,540.84	733,056.32	32° 17' 58.657 N	103° 34' 44.660 W	
11,486.0	83.69	354.05	11,176.8	466.3	41.8	473,572.43	733,052.93	32° 17' 58.969 N	103° 34' 44.697 W	
11,517.0	84.22	354.31	11,180.0	497.0	38.7	473,603.09	733,049.81	32° 17' 59.273 N	103° 34' 44.731 W	
11,549.0	85.01	354.31	11,183.0	528.7	35.6	473,634.80	733,046.65	32° 17' 59.587 N	103° 34' 44.765 W	
11,581.0	87.30	354.40	11,185.2	560.5	32.4	473,666.57	733,043.51	32° 17' 59.902 N	103° 34' 44.799 W	
11,612.0	89.58	353.87	11,186.0	591.3	29.2	473,697.39	733,040.34	32° 18' 0.207 N	103° 34' 44.833 W	
11,644.0	89.45	354.49	11,186.3	623.1	26.0	473,729.22	733,037.10	32° 18' 0.522 N	103° 34' 44.868 W	
11,739.0	90.59	354.58	11,186.3	717.7	17.0	473,823.79	733,028.05	32° 18' 1.459 N	103° 34' 44.966 W	
11,834.0	88.88	354.31	11,186.7	812.2	7.8	473,918.34	733,018.85	32° 18' 2.395 N	103° 34' 45.065 W	
11,929.0	88.53	353.70	11,188.8	906.7	-2.2	474,012.80	733,008.93	32° 18' 3.330 N	103° 34' 45.173 W	
12,024.0	88.31	354.05	11,191.5	1,001.1	-12.3	474,107.22	732,998.80	32° 18' 4.265 N	103° 34' 45.284 W	
12,119.0	89.85	355.45	11,193.0	1,095.7	-21.0	474,201.80	732,990.11	32° 18' 5.202 N	103° 34' 45.377 W	
12,214.0	90.86	356.25	11,192.4	1,190.4	-27.9	474,296.55	732,983.24	32° 18' 6.140 N	103° 34' 45.449 W	
12,309.0	91.03	356.51	11,190.8	1,285.2	-33.9	474,391.35	732,977.24	32° 18' 7.078 N	103° 34' 45.512 W	
12,404.0	89.85	358.18	11,190.1	1,380.1	-38.3	474,486.24	732,972.84	32° 18' 8.018 N	103° 34' 45.555 W	
12,499.0	89.19	357.65	11,190.9	1,475.1	-41.7	474,581.17	732,969.38	32° 18' 8.957 N	103° 34' 45.588 W	
12,594.0	89.01	358.27	11,192.4	1,570.0	-45.1	474,676.10	732,966.00	32° 18' 9.897 N	103° 34' 45.619 W	
12,689.0	89.67	0.38	11,193.5	1,665.0	-46.2	474,771.08	732,964.88	32° 18' 10.837 N	103° 34' 45.624 W	
12,784.0	89.58	0.11	11,194.1	1,760.0	-45.8	474,866.08	732,965.29	32° 18' 11.777 N	103° 34' 45.612 W	
12,878.0	89.93	359.59	11,194.5	1,854.0	-46.1	474,960.07	732,965.04	32° 18' 12.707 N	103° 34' 45.607 W	
12,973.0	89.54	0.11	11,195.0	1,949.0	-46.3	475,055.07	732,964.79	32° 18' 13.647 N	103° 34' 45.602 W	
13,069.0	89.89	359.76	11,195.4	2,045.0	-46.4	475,151.07	732,964.68	32° 18' 14.597 N	103° 34' 45.596 W	
13,162.0	89.32	359.06	11,196.1	2,138.0	-47.4	475,244.06	732,963.73	32° 18' 15.517 N	103° 34' 45.599 W	
13,257.0	88.92	359.41	11,197.5	2,232.9	-48.6	475,339.04	732,962.46	32° 18' 16.457 N	103° 34' 45.606 W	
13,353.0	89.58	359.41	11,198.8	2,328.9	-49.6	475,435.03	732,961.47	32° 18' 17.407 N	103° 34' 45.610 W	
13,448.0	90.59	359.67	11,198.6	2,423.9	-50.4	475,530.02	732,960.71	32° 18' 18.347 N	103° 34' 45.611 W	
13,543.0	90.29	359.15	11,197.9	2,518.9	-51.4	475,625.02	732,959.73	32° 18' 19.287 N	103° 34' 45.614 W	
13,638.0	91.65	359.76	11,196.3	2,613.9	-52.3	475,720.00	732,958.83	32° 18' 20.227 N	103° 34' 45.617 W	
13,732.0	91.78	359.41	11,193.5	2,707.8	-53.0	475,813.95	732,958.15	32° 18' 21.157 N	103° 34' 45.617 W	
13,828.0	91.47	0.64	11,190.8	2,803.8	-52.9	475,909.91	732,958.19	32° 18' 22.106 N	103° 34' 45.609 W	
13,923.0	91.82	0.38	11,188.0	2,898.8	-52.1	476,004.87	732,959.03	32° 18' 23.046 N	103° 34' 45.591 W	
14,017.0	92.04	0.20	11,184.9	2,992.7	-51.6	476,098.81	732,959.51	32° 18' 23.976 N	103° 34' 45.578 W	
14,112.0	90.51	0.99	11,182.8	3,087.7	-50.6	476,193.78	732,960.49	32° 18' 24.915 N	103° 34' 45.559 W	
14,206.0	89.45	0.29	11,182.8	3,181.7	-49.6	476,287.77	732,961.54	32° 18' 25.845 N	103° 34' 45.539 W	
14,301.0	89.89	359.85	11,183.3	3,276.7	-49.4	476,382.77	732,961.66	32° 18' 26.785 N	103° 34' 45.530 W	
14,396.0	89.58	359.50	11,183.8	3,371.7	-50.0	476,477.77	732,961.12	32° 18' 27.725 N	103° 34' 45.528 W	
14,491.0	89.93	359.67	11,184.2	3,466.7	-50.7	476,572.76	732,960.43	32° 18' 28.665 N	103° 34' 45.529 W	
14,586.0	90.51	359.23	11,183.8	3,561.7	-51.6	476,667.76	732,959.52	32° 18' 29.605 N	103° 34' 45.531 W	
14,681.0	90.81	359.32	11,182.7	3,656.6	-52.8	476,762.74	732,958.32	32° 18' 30.545 N	103° 34' 45.538 W	
14,776.0	90.99	359.23	11,181.2	3,751.6	-54.0	476,857.72	732,957.12	32° 18' 31.485 N	103° 34' 45.544 W	



Nexus Directional Solutions L.P.
Survey Report - Geographic



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Site:	Bebidas State	MD Reference:	WELL @ 3732.5usft (Original Well Elev)
Well:	2H	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
14,871.0	90.20	359.15	11,180.3	3,846.6	-55.3	476,952.71	732,955.77	32° 18' 32.425 N	103° 34' 45.552 W
14,966.0	90.73	359.94	11,179.5	3,941.6	-56.1	477,047.70	732,955.02	32° 18' 33.365 N	103° 34' 45.553 W
15,061.0	90.51	359.85	11,178.5	4,036.6	-56.3	477,142.70	732,954.85	32° 18' 34.305 N	103° 34' 45.547 W
15,156.0	90.99	359.85	11,177.2	4,131.6	-56.5	477,237.69	732,954.60	32° 18' 35.245 N	103° 34' 45.542 W
15,251.0	90.07	0.82	11,176.3	4,226.6	-55.9	477,332.68	732,955.15	32° 18' 36.185 N	103° 34' 45.528 W
15,346.0	90.42	0.55	11,175.9	4,321.6	-54.8	477,427.67	732,956.29	32° 18' 37.125 N	103° 34' 45.507 W
15,441.0	90.24	0.55	11,175.4	4,416.6	-53.9	477,522.67	732,957.20	32° 18' 38.065 N	103° 34' 45.488 W
15,533.0	89.89	0.11	11,175.3	4,508.6	-53.4	477,614.66	732,957.73	32° 18' 38.976 N	103° 34' 45.475 W
15,581.0	89.89	0.11	11,175.4	4,556.6	-53.3	477,662.66	732,957.82	32° 18' 39.451 N	103° 34' 45.470 W
PBHL 2H									

Checked By: _____ Approved By: _____ Date: _____