

Results of Directional Survey

API number:	30-025-41332		
OGRID:		Operator:	COG OPERATING LLC
		Property:	ROY BATTY FEDERAL COM # 2H

surface	ULSTR:	N	11	T 24S	R 33E
				190 FSL	1887 FWL

BH Loc	ULSTR:	C	11	T 24S	R 33E
15660	MD	11101.1	TVD	362 FNL	1883 FWL
				4918 FSL	

Top Perf/OH	ULSTR:	N	11	T 24S	R 33E
11274	MD	11079.7	TVD	538 FSL	2035 FWL

Bot Perf/OH	ULSTR:	C	11	T 24S	R 33E
15589	MD	11103.2	TVD	433 FNL	1887 FWL
				4847 FSL	

	MD	N/S	E/W	VD
	11242	317.10	148.60	11071.1
TOP PERFS/OH	11274	347.90	148.00	11079.70
	11274	347.90	148.00	11079.70
	15576	4644.50	0.50	11103.60
BOT PERFS/OH	15589	4657.47	-0.18	11103.24
	15616	4684.40	-1.60	11102.50

NEXT TO LAST	15616	4684.40	-1.60	11102.50
LAST READING	15660	4728.30	-4.00	11101.10
TD	15660	4728.30	-4.00	11101.10

Surface Location	190	FS	1887	FW
Projected BHL	4918	FS	1883	FW
Location of				
Top Perfs/OH	538	FS	2035	FW
Bottom Perfs/OH	4847	FS	1887	FW

SUMMARY of Subsurface Locations

Surface Location	N-11-24S-33E	190	FS	1887	FW	Vert. Depth
Top Perfs/OH	N-11-24S-33E	538	FS	2035	FW	11079.70
Bottom Perfs/OH	C-11-24S-33E	4847	FS	1887	FW	11103.24
Projected TD	C-11-24S-33E	4918	FS	1883	FW	11101.10

APR 14 2014



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

COG OPER, LLC
RECEIVED
DEC 09 2013
ARTESIA WEST

November 25, 2013

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

HOBBS OCD

MAR 10 2014

RECEIVED

RE: Roy Batty Federal Com #2H
190' FSL & 1887' FWL
Sec. 11, T24S, R33E
Lea County, New Mexico

Dear Sir,

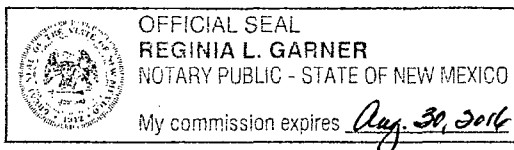
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

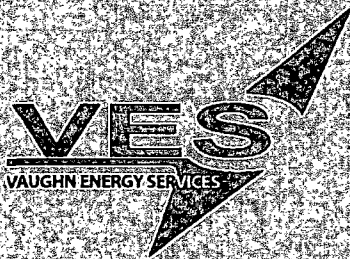
The foregoing was acknowledged before me this 25th day of November, 2013.

Notary Public

Roy Batty Fed Com #2H

Date	Depth	Deviation	Direction	TVD	Horiz Disp
11/1/2013	265	0.20	0.00	0.00	0.00
11/1/2013	500	0.10	0.00	0.00	0.00
11/1/2013	690	0.30	0.00	0.00	0.00
11/2/2013	960	0.70	0.00	0.00	0.00
11/4/2013	1508	0.50	0.00	0.00	0.00
11/4/2013	1763	1.30	0.00	0.00	0.00
11/4/2013	1984	1.30	0.00	0.00	0.00
11/4/2013	2236	0.10	0.00	0.00	0.00
11/4/2013	2724	0.70	0.00	0.00	0.00
11/4/2013	2947	0.50	0.00	0.00	0.00
11/5/2013	3206	0.50	0.00	0.00	0.00
11/5/2013	3459	0.60	0.00	0.00	0.00
11/5/2013	3712	0.30	0.00	0.00	0.00
11/5/2013	4008	0.40	0.00	0.00	0.00
11/5/2013	4213	1.30	0.00	0.00	0.00
11/6/2013	4282	0.10	0.00	0.00	0.00
11/6/2013	4535	0.20	0.00	0.00	0.00
11/6/2013	4784	1.70	0.00	0.00	0.00
11/7/2013	5158	2.20	0.00	0.00	0.00
11/8/2013	5382	1.90	0.00	0.00	0.00
11/8/2013	5635	2.00	0.00	0.00	0.00
11/9/2013	5864	2.10	0.00	0.00	0.00
11/9/2013	6092	1.50	0.00	0.00	0.00
11/9/2013	6370	1.40	0.00	0.00	0.00
11/9/2013	6624	1.00	0.00	0.00	0.00
11/9/2013	7130	1.10	0.00	0.00	0.00
11/9/2013	7478	1.30	0.00	0.00	0.00
11/9/2013	7732	1.20	0.00	0.00	0.00
11/10/2013	8175	1.10	0.00	0.00	0.00
11/10/2013	8463	0.80	0.00	0.00	0.00
11/10/2013	8777	0.50	0.00	0.00	0.00
11/11/2013	9093	0.90	0.00	0.00	0.00
11/11/2013	9453	1.40	0.00	0.00	0.00
11/13/2013	9874	2.30	0.00	0.00	0.00
11/14/2013	10189	2.60	0.00	0.00	0.00
11/15/2013	10578	1.54	76.30	0.00	0.00
11/15/2013	10641	7.43	351.40	0.00	0.00
11/15/2013	10704	14.20	0.63	0.00	0.00
11/16/2013	10958	42.73	1.33	0.00	0.00
11/16/2013	10984	35.47	1.33	0.00	0.00
11/16/2013	10990	45.80	0.10	0.00	0.00
11/16/2013	11021	48.80	359.40	0.00	0.00
11/16/2013	11211	69.80	358.00	11061.00	286.86

Date	Depth	Deviation	Direction	TVD	Horiz Disp
11/16/2013	11242	72.79	358.00	11071.00	316.20
11/16/2013	11274	76.09	359.00	11079.00	347.00
11/16/2013	11306	79.41	359.00	11086.00	378.00
11/17/2013	11337	82.20	359.75	0.00	0.00
11/17/2013	11365	83.52	359.70	0.00	0.00
11/17/2013	11491	89.40	359.30	0.00	0.00
11/17/2013	11681	91.00	389.60	0.00	0.00
11/17/2013	11776	88.60	388.70	0.00	0.00
11/18/2013	11871	88.66	358.00	11102.00	942.00
11/18/2013	11966	89.80	358.00	11103.00	1037.00
11/18/2013	12061	88.13	358.00	11105.00	1132.00
11/18/2013	12346	89.93	357.99	0.00	0.00
11/18/2013	12441	92.04	358.00	0.00	0.00
11/18/2013	12536	91.60	359.06	0.00	0.00
11/18/2013	12821	89.30	358.20	0.00	0.00
11/18/2013	13011	92.00	356.70	0.00	0.00
11/18/2013	13107	90.30	356.10	0.00	0.00
11/19/2013	13202	89.67	356.29	0.00	0.00
11/19/2013	13297	88.60	356.15	0.00	0.00
11/19/2013	13392	90.02	356.24	0.00	0.00
11/19/2013	13487	90.15	357.41	0.00	0.00
11/19/2013	13677	88.66	356.50	0.00	0.00
11/19/2013	13687	91.12	356.85	0.00	0.00
11/19/2013	13772	89.85	357.11	0.00	0.00
11/19/2013	14057	91.60	357.20	0.00	0.00
11/19/2013	14152	92.80	358.80	0.00	0.00
11/19/2013	14342	89.80	359.70	0.00	0.00
11/20/2013	14437	88.57	358.70	0.00	0.00
11/20/2013	14532	89.27	358.52	0.00	0.00
11/20/2013	14627	89.63	358.26	0.00	0.00
11/20/2013	14912	89.45	357.38	0.00	0.00
11/20/2013	15007	90.99	358.17	0.00	0.00
11/20/2013	15292	89.10	357.30	0.00	0.00
11/21/2013	15576	91.30	357.38	0.00	0.00
11/21/2013	15616	91.82	356.76	0.00	0.00



A GYRO TECHNOLOGIES INC. COMPANY

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

December 3, 2013

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

HOBBS OCD

MAR 10 2014

RECEIVED

Attn: Kanicia Castillo

RE: Roy Batty Federal Com No. 002H

Please find enclosed a copy of the survey from 0.00' to 10520.00' ran on the above referenced well

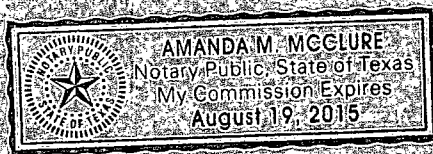
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 3 day of December,
A.D., 2013, by Keith Havelka.


Amanda McClure
Notary Public, State of Texas





Company: COG Operating, LLC (Concho)
Lease/Well: Roy Batty Federal Com /No. 002H
Location: Sec 11 T24S R33E
Rig Name: Silver Oak12
State/County: New Mexico/Lea
Latitude: 32.23, Longitude: -103.55
GRID North is 0.42 Degrees East of True North
VS-Azi: 359.65 Degrees



Depth Reference : RKB = 18 Feet

HOBBS OCD

MAR 10 2014

RECEIVED

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: roy batty fed com #2h-de_01.ut

Minimum Curvature Method

Report Date/Time: 12/3/2013 / 14:16

Vaughn Energy Services

West, Texas

432-563-5444

Surveyor: Chris Bankson

Roy Batty Federal Com No. 002H / API 30-025-41332

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	67.83	100.00	0.06	0.15	0.06	0.17	67.83	0.19
200.00	0.10	76.40	200.00	0.15	0.39	0.14	0.42	69.61	0.09
300.00	0.18	89.73	300.00	0.17	0.64	0.16	0.66	75.33	0.09
400.00	0.30	105.09	400.00	0.10	1.05	0.09	1.06	84.68	0.14
500.00	0.22	117.60	500.00	-0.06	1.48	-0.07	1.48	92.31	0.10
600.00	0.41	124.99	600.00	-0.35	1.94	-0.36	1.97	100.29	0.19
700.00	0.25	123.70	699.99	-0.68	2.42	-0.69	2.51	105.71	0.15
800.00	0.30	109.40	799.99	-0.89	2.85	-0.91	2.98	107.35	0.08
900.00	0.62	95.07	899.99	-1.02	3.63	-1.05	3.78	105.74	0.34
1000.00	0.99	74.36	999.98	-0.84	5.01	-0.87	5.08	99.52	0.46
1100.00	1.02	66.14	1099.96	-0.25	6.65	-0.29	6.65	92.13	0.15
1200.00	1.10	45.75	1199.95	0.78	8.15	0.73	8.19	84.53	0.38
1300.00	1.27	47.81	1299.93	2.19	9.65	2.13	9.90	77.21	0.18
1400.00	0.97	46.18	1399.91	3.52	11.09	3.45	11.63	72.38	0.30
1500.00	0.43	326.86	1499.90	4.42	11.49	4.35	12.31	68.94	0.99
1600.00	0.54	258.14	1599.90	4.64	10.82	4.58	11.78	66.77	0.56
1700.00	0.53	222.05	1699.89	4.21	10.05	4.15	10.90	67.30	0.33
1800.00	0.51	213.60	1799.89	3.49	9.50	3.43	10.12	69.82	0.08

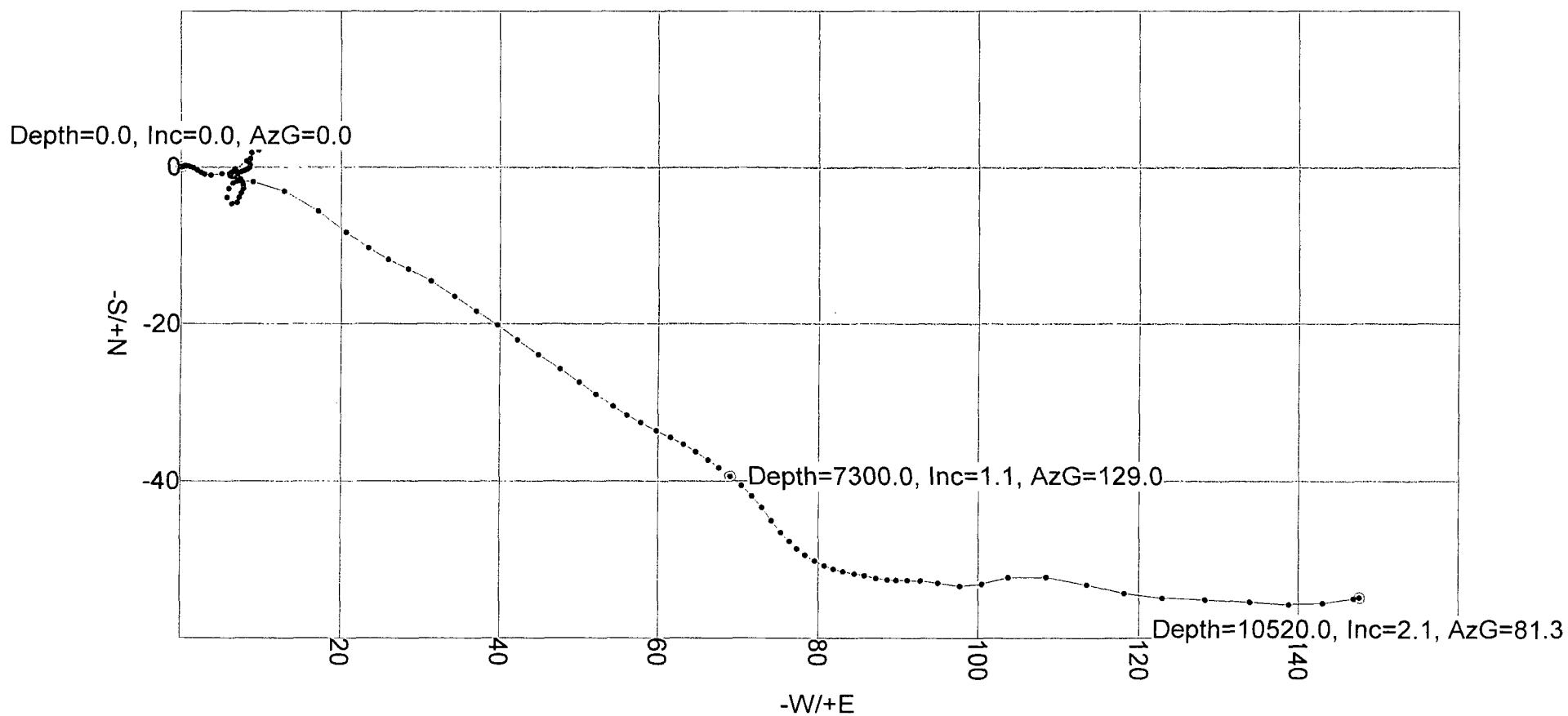
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.57	205.51	1899.89	2.67	9.04	2.62	9.42	73.53	0.09
2000.00	0.42	191.86	1999.88	1.86	8.75	1.81	8.94	77.98	0.18
2100.00	0.48	188.74	2099.88	1.09	8.61	1.03	8.68	82.80	0.06
2200.00	0.34	178.87	2199.88	0.38	8.55	0.33	8.56	87.47	0.16
2300.00	0.20	223.93	2299.88	-0.04	8.44	-0.10	8.44	90.30	0.24
2400.00	0.18	240.07	2399.87	-0.25	8.18	-0.30	8.18	91.74	0.06
2500.00	0.27	243.24	2499.87	-0.43	7.83	-0.48	7.84	93.17	0.09
2600.00	0.19	256.75	2599.87	-0.58	7.46	-0.62	7.48	94.43	0.09
2700.00	0.20	262.62	2699.87	-0.64	7.12	-0.68	7.15	95.13	0.02
2800.00	0.16	278.59	2799.87	-0.64	6.80	-0.68	6.83	95.37	0.06
2900.00	0.20	273.61	2899.87	-0.61	6.49	-0.65	6.52	95.35	0.04
3000.00	0.15	244.76	2999.87	-0.65	6.20	-0.69	6.24	95.99	0.10
3100.00	0.19	218.10	3099.87	-0.83	5.99	-0.87	6.05	97.92	0.09
3200.00	0.20	132.35	3199.87	-1.08	6.02	-1.11	6.11	100.14	0.26
3300.00	0.24	91.00	3299.87	-1.19	6.35	-1.23	6.46	100.66	0.16
3400.00	0.18	96.47	3399.87	-1.22	6.71	-1.26	6.82	100.28	0.06
3500.00	0.21	116.73	3499.87	-1.32	7.02	-1.36	7.15	100.61	0.07
3600.00	0.24	138.09	3599.87	-1.55	7.33	-1.60	7.49	101.96	0.09
3700.00	0.23	160.89	3699.87	-1.89	7.53	-1.94	7.76	104.11	0.09
3800.00	0.23	160.12	3799.87	-2.26	7.66	-2.31	7.99	106.47	0.00
3900.00	0.36	184.88	3899.86	-2.76	7.70	-2.81	8.18	109.74	0.18
4000.00	0.36	227.65	3999.86	-3.29	7.44	-3.33	8.14	113.84	0.26
4100.00	0.40	186.71	4099.86	-3.85	7.17	-3.89	8.14	118.24	0.27
4200.00	0.43	212.94	4199.86	-4.51	6.92	-4.56	8.27	123.11	0.19
4300.00	0.55	288.44	4299.86	-4.68	6.27	-4.72	7.82	126.74	0.61
4400.00	0.77	347.77	4399.85	-3.87	5.67	-3.90	6.86	124.32	0.68
4500.00	0.67	36.07	4499.84	-2.74	5.87	-2.77	6.48	115.01	0.60
4600.00	0.33	40.53	4599.84	-2.04	6.40	-2.08	6.72	107.70	0.34
4700.00	0.40	83.11	4699.84	-1.78	6.94	-1.82	7.17	104.38	0.28
4800.00	1.85	94.57	4799.81	-1.87	8.90	-1.92	9.10	101.84	1.46
4900.00	2.90	114.89	4899.73	-3.06	12.81	-3.14	13.17	103.44	1.33
5000.00	2.84	126.57	4999.60	-5.60	17.09	-5.71	17.99	108.15	0.59
5100.00	2.21	128.52	5099.51	-8.28	20.59	-8.41	22.20	111.91	0.63
5200.00	1.77	121.84	5199.45	-10.30	23.42	-10.44	25.58	113.74	0.50
5300.00	1.58	117.98	5299.40	-11.76	25.95	-11.92	28.49	114.38	0.22
5400.00	1.65	113.47	5399.36	-12.98	28.48	-13.15	31.30	114.50	0.14
5500.00	2.10	121.67	5499.31	-14.51	31.36	-14.70	34.55	114.83	0.53
5600.00	1.93	127.20	5599.25	-16.49	34.26	-16.70	38.02	115.71	0.26
5700.00	1.87	121.14	5699.19	-18.35	36.99	-18.58	41.30	116.39	0.21

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	1.85	125.82	5799.14	-20.14	39.70	-20.39	44.52	116.90	0.15
5900.00	1.81	126.87	5899.09	-22.04	42.28	-22.30	47.68	117.53	0.05
6000.00	1.88	123.39	5999.04	-23.89	44.91	-24.16	50.87	118.01	0.13
6100.00	1.93	123.62	6098.98	-25.72	47.68	-26.01	54.18	118.35	0.06
6200.00	1.45	126.64	6198.94	-27.41	50.09	-27.71	57.10	118.68	0.49
6300.00	1.56	125.18	6298.90	-28.95	52.22	-29.26	59.71	119.00	0.12
6400.00	1.45	125.02	6398.87	-30.46	54.37	-30.79	62.32	119.26	0.11
6500.00	0.91	120.09	6498.85	-31.58	56.09	-31.92	64.37	119.38	0.55
6600.00	1.35	119.09	6598.83	-32.55	57.80	-32.90	66.34	119.38	0.44
6700.00	1.20	114.88	6698.80	-33.56	59.78	-33.92	68.55	119.31	0.18
6800.00	1.11	116.45	6798.78	-34.43	61.59	-34.81	70.56	119.20	0.09
6900.00	0.96	119.78	6898.77	-35.28	63.19	-35.66	72.37	119.17	0.16
7000.00	1.10	123.04	6998.75	-36.22	64.73	-36.62	74.17	119.23	0.15
7100.00	1.05	124.98	7098.73	-37.27	66.29	-37.68	76.05	119.35	0.06
7200.00	0.86	127.95	7198.72	-38.26	67.63	-38.67	77.70	119.50	0.20
7300.00	1.15	129.00	7298.70	-39.35	69.00	-39.77	79.43	119.70	0.29
7400.00	0.95	133.87	7398.69	-40.56	70.38	-40.98	81.22	119.95	0.21
7500.00	1.16	136.32	7498.67	-41.86	71.67	-42.30	83.00	120.29	0.21
7600.00	1.08	144.00	7598.65	-43.35	72.92	-43.80	84.84	120.73	0.17
7700.00	1.26	143.72	7698.63	-45.00	74.13	-45.45	86.72	121.26	0.17
7800.00	0.95	138.11	7798.61	-46.50	75.33	-46.96	88.52	121.69	0.33
7900.00	0.81	137.99	7898.60	-47.64	76.35	-48.10	89.99	121.96	0.14
8000.00	0.71	132.86	7998.59	-48.58	77.27	-49.05	91.28	122.16	0.12
8100.00	0.81	123.10	8098.58	-49.39	78.32	-49.86	92.59	122.24	0.17
8200.00	0.82	118.14	8198.57	-50.11	79.54	-50.60	94.01	122.21	0.07
8300.00	0.75	116.08	8298.56	-50.74	80.76	-51.23	95.37	122.14	0.08
8400.00	0.66	108.66	8398.56	-51.21	81.89	-51.71	96.58	122.02	0.13
8500.00	0.78	101.24	8498.55	-51.52	83.10	-52.03	97.78	121.80	0.15
8600.00	0.86	100.63	8598.54	-51.79	84.51	-52.31	99.12	121.50	0.08
8700.00	0.61	105.55	8698.53	-52.08	85.76	-52.60	100.33	121.27	0.26
8800.00	1.08	100.22	8798.52	-52.38	87.20	-52.92	101.73	121.00	0.48
8900.00	0.57	92.73	8898.51	-52.58	88.63	-53.12	103.05	120.68	0.52
9000.00	0.72	92.38	8998.50	-52.63	89.75	-53.17	104.04	120.39	0.14
9100.00	0.87	87.96	9098.49	-52.62	91.13	-53.18	105.24	120.00	0.17
9200.00	1.02	94.80	9198.48	-52.67	92.78	-53.24	106.69	119.58	0.19
9300.00	1.54	99.29	9298.45	-52.96	94.99	-53.54	108.76	119.14	0.53
9400.00	1.61	96.90	9398.42	-53.35	97.71	-53.95	111.33	118.63	0.10
9500.00	1.60	71.86	9498.38	-53.08	100.44	-53.70	113.60	117.86	0.70
9600.00	2.31	78.93	9598.32	-52.26	103.74	-52.89	116.16	116.74	0.75

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
9700.00	3.12	98.07	9698.21	-52.26	108.42	-52.92	120.35	115.73	1.20
9800.00	2.81	102.79	9798.07	-53.18	113.50	-53.87	125.34	115.11	0.39
9900.00	2.70	103.55	9897.96	-54.27	118.18	-55.00	130.05	114.67	0.12
10000.00	2.82	92.28	9997.84	-54.92	122.92	-55.67	134.64	114.08	0.55
10100.00	3.37	92.17	10097.70	-55.13	128.32	-55.92	139.66	113.25	0.55
10200.00	3.05	93.60	10197.54	-55.41	133.91	-56.23	144.92	112.48	0.33
10300.00	2.54	93.80	10297.42	-55.72	138.77	-56.57	149.54	111.88	0.51
10400.00	2.32	81.76	10397.33	-55.58	142.99	-56.45	153.41	111.24	0.55
10500.00	2.17	80.95	10497.25	-54.99	146.87	-55.89	156.82	110.53	0.15
10520.00	2.08	81.34	10517.24	-54.88	147.60	-55.78	157.47	110.40	0.48



Vaughn Energy Services
West, Texas
432-563-5444
Surveyor: Chris Bankson
Roy Batty Federal Com No. 002H / API 30-025-41332





COG Production LLC

Lea County, NM (NAD27 NME)

Roy Batty Fed Com

2H

OH

Design: OH

Survey Report - Geographic

26 November, 2013

HOBBS OCD
MAR 10 2014
RECEIVED

NEXUS
DIRECTIONAL SOLUTIONS, L.P.



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3621.7usft (Original Well Elev)
Site:	Roy Batty Fed Com	MD Reference:	WELL @ 3621.7usft (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:	Roy Batty Fed Com				
Site Position:		Northing:	446,694.70 usft	Latitude:	32° 13' 32.331 N
From:	Map	Easting:	742,531.00 usft	Longitude:	103° 32' 56.565 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	2H					
Well Position	+N/-S	0.0 usft	Northing:	446,564.70 usft	Latitude:	32° 13' 30.955 N
	+E/-W	0.0 usft	Easting:	743,757.70 usft	Longitude:	103° 32' 42.296 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,603.7 usft

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/08/13	7.29	60.13	48,387

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)	Direction (°)	
	0.0	0.0	0.0	110.41	

Survey Program	Date: 11/26/13			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	10,520.0	VES Gyro Surveys (OH)	MWD	MWD - Standard
10,578.0	15,660.0	Nexus MWD (OH)	MWD	MWD - Standard

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.0	0.00	0.00	0.0	0.0	0.0	446,564.70	743,757.70	32° 13' 30.955 N	103° 32' 42.296 W	
100.0	0.19	67.83	100.0	0.1	0.2	446,564.76	743,757.85	32° 13' 30.956 N	103° 32' 42.294 W	
200.0	0.10	76.40	200.0	0.1	0.4	446,564.85	743,758.09	32° 13' 30.957 N	103° 32' 42.292 W	
300.0	0.18	89.73	300.0	0.2	0.6	446,564.87	743,758.33	32° 13' 30.957 N	103° 32' 42.289 W	
400.0	0.30	105.09	400.0	0.1	1.0	446,564.80	743,758.74	32° 13' 30.956 N	103° 32' 42.284 W	
500.0	0.22	117.60	500.0	-0.1	1.5	446,564.64	743,759.16	32° 13' 30.955 N	103° 32' 42.279 W	
600.0	0.41	124.99	600.0	-0.4	1.9	446,564.35	743,759.63	32° 13' 30.952 N	103° 32' 42.274 W	
700.0	0.25	123.70	700.0	-0.7	2.4	446,564.02	743,760.10	32° 13' 30.949 N	103° 32' 42.268 W	
800.0	0.30	109.40	800.0	-0.9	2.8	446,563.81	743,760.53	32° 13' 30.946 N	103° 32' 42.263 W	
900.0	0.62	95.07	900.0	-1.0	3.6	446,563.68	743,761.32	32° 13' 30.945 N	103° 32' 42.254 W	
1,000.0	0.99	74.36	1,000.0	-0.8	5.0	446,563.86	743,762.69	32° 13' 30.947 N	103° 32' 42.238 W	



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3621.7usft (Original Well Elev)
Site:	Roy Batty Fed Com	MD Reference:	WELL @ 3621.7usft (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
1,100.0	1.02	66.14	1,100.0	-0.2	6.6	446,564.46	743,764.33	32° 13' 30.953 N	103° 32' 42.219 W
1,200.0	1.10	45.75	1,199.9	0.8	8.1	446,565.49	743,765.83	32° 13' 30.963 N	103° 32' 42.201 W
1,300.0	1.27	47.81	1,299.9	2.2	9.6	446,566.90	743,767.34	32° 13' 30.976 N	103° 32' 42.184 W
1,400.0	0.97	46.18	1,399.9	3.5	11.1	446,568.23	743,768.77	32° 13' 30.990 N	103° 32' 42.167 W
1,500.0	0.43	326.86	1,499.9	4.4	11.5	446,569.13	743,769.18	32° 13' 30.998 N	103° 32' 42.162 W
1,600.0	0.54	258.14	1,599.9	4.6	10.8	446,569.35	743,768.51	32° 13' 31.001 N	103° 32' 42.170 W
1,700.0	0.53	222.05	1,699.9	4.2	10.0	446,568.91	743,767.74	32° 13' 30.996 N	103° 32' 42.179 W
1,800.0	0.51	213.60	1,799.9	3.5	9.5	446,568.19	743,767.19	32° 13' 30.989 N	103° 32' 42.185 W
1,900.0	0.57	205.51	1,899.9	2.7	9.0	446,567.38	743,766.73	32° 13' 30.981 N	103° 32' 42.191 W
2,000.0	0.42	191.86	1,999.9	1.9	8.7	446,566.57	743,766.44	32° 13' 30.973 N	103° 32' 42.194 W
2,100.0	0.48	188.74	2,099.9	1.1	8.6	446,565.79	743,766.30	32° 13' 30.966 N	103° 32' 42.196 W
2,200.0	0.34	178.87	2,199.9	0.4	8.5	446,565.08	743,766.24	32° 13' 30.959 N	103° 32' 42.197 W
2,300.0	0.20	223.93	2,299.9	0.0	8.4	446,564.66	743,766.12	32° 13' 30.954 N	103° 32' 42.198 W
2,400.0	0.18	240.07	2,399.9	-0.2	8.2	446,564.46	743,765.87	32° 13' 30.952 N	103° 32' 42.201 W
2,500.0	0.27	243.24	2,499.9	-0.4	7.8	446,564.27	743,765.52	32° 13' 30.951 N	103° 32' 42.205 W
2,600.0	0.19	256.75	2,599.9	-0.6	7.5	446,564.13	743,765.15	32° 13' 30.949 N	103° 32' 42.209 W
2,700.0	0.20	262.62	2,699.9	-0.6	7.1	446,564.07	743,764.81	32° 13' 30.949 N	103° 32' 42.213 W
2,800.0	0.16	278.59	2,799.9	-0.6	6.8	446,564.07	743,764.50	32° 13' 30.949 N	103° 32' 42.217 W
2,900.0	0.20	273.61	2,899.9	-0.6	6.5	446,564.10	743,764.19	32° 13' 30.949 N	103° 32' 42.221 W
3,000.0	0.15	244.76	2,999.9	-0.6	6.2	446,564.05	743,763.90	32° 13' 30.949 N	103° 32' 42.224 W
3,100.0	0.19	218.10	3,099.9	-0.8	6.0	446,563.87	743,763.68	32° 13' 30.947 N	103° 32' 42.227 W
3,200.0	0.20	132.35	3,199.9	-1.1	6.0	446,563.62	743,763.70	32° 13' 30.944 N	103° 32' 42.226 W
3,300.0	0.24	91.00	3,299.9	-1.2	6.3	446,563.50	743,764.04	32° 13' 30.943 N	103° 32' 42.222 W
3,400.0	0.18	96.47	3,399.9	-1.2	6.7	446,563.48	743,764.41	32° 13' 30.943 N	103° 32' 42.218 W
3,500.0	0.21	116.73	3,499.9	-1.3	7.0	446,563.38	743,764.73	32° 13' 30.942 N	103° 32' 42.214 W
3,600.0	0.24	138.09	3,599.9	-1.6	7.3	446,563.14	743,765.03	32° 13' 30.939 N	103° 32' 42.211 W
3,700.0	0.23	160.89	3,699.9	-1.9	7.5	446,562.79	743,765.24	32° 13' 30.936 N	103° 32' 42.209 W
3,800.0	0.23	160.12	3,799.9	-2.3	7.7	446,562.41	743,765.37	32° 13' 30.932 N	103° 32' 42.207 W
3,900.0	0.36	184.88	3,899.9	-2.8	7.7	446,561.91	743,765.41	32° 13' 30.927 N	103° 32' 42.207 W
4,000.0	0.36	227.65	3,999.9	-3.3	7.5	446,561.39	743,765.15	32° 13' 30.922 N	103° 32' 42.210 W
4,100.0	0.40	186.71	4,099.9	-3.9	7.2	446,560.83	743,764.88	32° 13' 30.917 N	103° 32' 42.213 W
4,200.0	0.43	212.94	4,199.9	-4.5	6.9	446,560.17	743,764.64	32° 13' 30.910 N	103° 32' 42.216 W
4,300.0	0.55	288.44	4,299.9	-4.7	6.3	446,560.01	743,763.98	32° 13' 30.908 N	103° 32' 42.223 W
4,400.0	0.77	347.77	4,399.8	-3.9	5.7	446,560.81	743,763.38	32° 13' 30.917 N	103° 32' 42.230 W
4,500.0	0.67	36.07	4,499.8	-2.8	5.9	446,561.94	743,763.58	32° 13' 30.928 N	103° 32' 42.228 W
4,600.0	0.33	40.53	4,599.8	-2.1	6.4	446,562.63	743,764.11	32° 13' 30.934 N	103° 32' 42.222 W
4,700.0	0.40	83.11	4,699.8	-1.8	6.9	446,562.90	743,764.65	32° 13' 30.937 N	103° 32' 42.215 W
4,800.0	1.85	94.57	4,799.8	-1.9	8.9	446,562.81	743,766.60	32° 13' 30.936 N	103° 32' 42.193 W
4,900.0	2.90	114.89	4,899.7	-3.1	12.8	446,561.62	743,770.51	32° 13' 30.924 N	103° 32' 42.147 W
5,000.0	2.84	126.57	4,999.6	-5.6	17.1	446,559.07	743,774.79	32° 13' 30.898 N	103° 32' 42.098 W
5,100.0	2.21	128.52	5,099.5	-8.3	20.6	446,556.40	743,778.29	32° 13' 30.872 N	103° 32' 42.057 W
5,200.0	1.77	121.84	5,199.4	-10.3	23.4	446,554.38	743,781.11	32° 13' 30.852 N	103° 32' 42.025 W
5,300.0	1.58	117.98	5,299.4	-11.8	25.9	446,552.92	743,783.64	32° 13' 30.837 N	103° 32' 41.995 W
5,400.0	1.65	113.47	5,399.4	-13.0	28.5	446,551.70	743,786.18	32° 13' 30.825 N	103° 32' 41.966 W
5,500.0	2.10	121.67	5,499.3	-14.5	31.4	446,550.17	743,789.06	32° 13' 30.809 N	103° 32' 41.932 W
5,600.0	1.93	127.20	5,599.2	-16.5	34.3	446,548.19	743,791.96	32° 13' 30.789 N	103° 32' 41.899 W
5,700.0	1.87	121.14	5,699.2	-18.4	37.0	446,546.32	743,794.69	32° 13' 30.771 N	103° 32' 41.867 W
5,800.0	1.85	125.82	5,799.1	-20.2	39.7	446,544.53	743,797.40	32° 13' 30.753 N	103° 32' 41.836 W
5,900.0	1.81	126.87	5,899.1	-22.1	42.3	446,542.64	743,799.97	32° 13' 30.734 N	103° 32' 41.806 W
6,000.0	1.88	123.39	5,999.0	-23.9	44.9	446,540.79	743,802.61	32° 13' 30.716 N	103° 32' 41.775 W
6,100.0	1.93	123.62	6,099.0	-25.7	47.7	446,538.96	743,805.38	32° 13' 30.697 N	103° 32' 41.743 W
6,200.0	1.45	126.64	6,198.9	-27.4	50.1	446,537.27	743,807.79	32° 13' 30.680 N	103° 32' 41.715 W
6,300.0	1.56	125.18	6,298.9	-29.0	52.2	446,535.73	743,809.92	32° 13' 30.665 N	103° 32' 41.691 W
6,400.0	1.45	125.02	6,398.9	-30.5	54.4	446,534.22	743,812.07	32° 13' 30.650 N	103° 32' 41.666 W
6,500.0	0.91	120.09	6,498.8	-31.6	56.1	446,533.10	743,813.79	32° 13' 30.639 N	103° 32' 41.646 W



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company	COG Production LLC	Local Co-ordinate Reference	Well 2H
Project	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3621.7usft (Original Well Elev)
Site	Roy Batty Fed Com	MD Reference:	WELL @ 3621.7usft (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
6,600.0	1.35	119.09	6,598.8	-32.6	57.8	446,532.13	743,815.51	32° 13' 30.629 N	103° 32' 41.626 W
6,700.0	1.20	114.88	6,698.8	-33.6	59.8	446,531.11	743,817.49	32° 13' 30.619 N	103° 32' 41.603 W
6,800.0	1.11	116.45	6,798.8	-34.5	61.6	446,530.24	743,819.31	32° 13' 30.610 N	103° 32' 41.582 W
6,900.0	0.96	119.78	6,898.8	-35.3	63.2	446,529.39	743,820.90	32° 13' 30.601 N	103° 32' 41.563 W
7,000.0	1.10	123.04	6,998.8	-36.2	64.7	446,528.45	743,822.43	32° 13' 30.592 N	103° 32' 41.546 W
7,100.0	1.05	124.98	7,098.7	-37.3	66.3	446,527.40	743,823.99	32° 13' 30.582 N	103° 32' 41.528 W
7,200.0	0.86	127.95	7,198.7	-38.3	67.6	446,526.42	743,825.33	32° 13' 30.572 N	103° 32' 41.512 W
7,300.0	1.15	129.00	7,298.7	-39.4	69.0	446,525.32	743,826.70	32° 13' 30.561 N	103° 32' 41.496 W
7,400.0	0.95	133.87	7,398.7	-40.6	70.4	446,524.12	743,828.08	32° 13' 30.549 N	103° 32' 41.480 W
7,500.0	1.16	136.32	7,498.7	-41.9	71.7	446,522.81	743,829.38	32° 13' 30.536 N	103° 32' 41.465 W
7,600.0	1.08	144.00	7,598.7	-43.4	72.9	446,521.32	743,830.63	32° 13' 30.521 N	103° 32' 41.451 W
7,700.0	1.26	143.72	7,698.6	-45.0	74.1	446,519.67	743,831.83	32° 13' 30.504 N	103° 32' 41.437 W
7,800.0	0.95	138.11	7,798.6	-46.5	75.3	446,518.17	743,833.04	32° 13' 30.489 N	103° 32' 41.423 W
7,900.0	0.81	137.99	7,898.6	-47.7	76.4	446,517.02	743,834.07	32° 13' 30.478 N	103° 32' 41.411 W
8,000.0	0.71	132.86	7,998.6	-48.6	77.3	446,516.08	743,834.99	32° 13' 30.469 N	103° 32' 41.401 W
8,100.0	0.81	123.10	8,098.6	-49.4	78.3	446,515.27	743,836.04	32° 13' 30.461 N	103° 32' 41.388 W
8,200.0	0.82	118.14	8,198.6	-50.2	79.6	446,514.55	743,837.26	32° 13' 30.453 N	103° 32' 41.374 W
8,300.0	0.75	116.08	8,298.6	-50.8	80.8	446,513.92	743,838.48	32° 13' 30.447 N	103° 32' 41.360 W
8,400.0	0.66	108.66	8,398.6	-51.3	81.9	446,513.45	743,839.61	32° 13' 30.442 N	103° 32' 41.347 W
8,500.0	0.78	101.24	8,498.5	-51.6	83.1	446,513.13	743,840.83	32° 13' 30.439 N	103° 32' 41.333 W
8,600.0	0.86	100.63	8,598.5	-51.8	84.5	446,512.86	743,842.23	32° 13' 30.436 N	103° 32' 41.317 W
8,700.0	0.61	105.55	8,698.5	-52.1	85.8	446,512.58	743,843.48	32° 13' 30.433 N	103° 32' 41.302 W
8,800.0	1.08	100.22	8,798.5	-52.4	87.2	446,512.27	743,844.92	32° 13' 30.430 N	103° 32' 41.285 W
8,900.0	0.57	92.73	8,898.5	-52.6	88.7	446,512.08	743,846.35	32° 13' 30.428 N	103° 32' 41.269 W
9,000.0	0.72	92.38	8,998.5	-52.7	89.8	446,512.03	743,847.47	32° 13' 30.428 N	103° 32' 41.256 W
9,100.0	0.87	87.96	9,098.5	-52.7	91.2	446,512.03	743,848.86	32° 13' 30.428 N	103° 32' 41.240 W
9,200.0	1.02	94.80	9,198.5	-52.7	92.8	446,511.98	743,850.50	32° 13' 30.427 N	103° 32' 41.220 W
9,300.0	1.54	99.29	9,298.5	-53.0	95.0	446,511.69	743,852.72	32° 13' 30.424 N	103° 32' 41.195 W
9,400.0	1.61	96.90	9,398.4	-53.4	97.7	446,511.30	743,855.44	32° 13' 30.420 N	103° 32' 41.163 W
9,500.0	1.60	71.86	9,498.4	-53.1	100.5	446,511.57	743,858.16	32° 13' 30.422 N	103° 32' 41.131 W
9,600.0	2.31	78.93	9,598.3	-52.3	103.8	446,512.39	743,861.46	32° 13' 30.430 N	103° 32' 41.093 W
9,700.0	3.12	98.07	9,698.2	-52.3	108.4	446,512.40	743,866.14	32° 13' 30.430 N	103° 32' 41.038 W
9,800.0	2.81	102.79	9,798.1	-53.2	113.5	446,511.47	743,871.22	32° 13' 30.420 N	103° 32' 40.979 W
9,900.0	2.70	103.55	9,898.0	-54.3	118.2	446,510.38	743,875.90	32° 13' 30.409 N	103° 32' 40.925 W
10,000.0	2.82	92.28	9,997.8	-55.0	123.0	446,509.73	743,880.65	32° 13' 30.402 N	103° 32' 40.870 W
10,100.0	3.37	92.17	10,097.7	-55.2	128.3	446,509.52	743,886.04	32° 13' 30.400 N	103° 32' 40.807 W
10,200.0	3.05	93.60	10,197.5	-55.5	133.9	446,509.24	743,891.64	32° 13' 30.397 N	103° 32' 40.742 W
10,300.0	2.54	93.80	10,297.4	-55.8	138.8	446,508.93	743,896.50	32° 13' 30.393 N	103° 32' 40.685 W
10,400.0	2.32	81.76	10,397.3	-55.6	143.0	446,509.07	743,900.72	32° 13' 30.395 N	103° 32' 40.636 W
10,500.0	2.17	80.95	10,497.3	-55.0	146.9	446,509.66	743,904.59	32° 13' 30.400 N	103° 32' 40.591 W
10,520.0	2.08	81.34	10,517.2	-54.9	147.6	446,509.77	743,905.32	32° 13' 30.401 N	103° 32' 40.582 W
10,578.0	1.54	76.30	10,575.2	-54.6	149.4	446,510.12	743,907.12	32° 13' 30.404 N	103° 32' 40.561 W
10,609.0	2.73	13.20	10,606.2	-53.8	150.0	446,510.93	743,907.69	32° 13' 30.412 N	103° 32' 40.555 W
10,641.0	7.43	351.40	10,638.1	-51.0	149.9	446,513.72	743,907.56	32° 13' 30.440 N	103° 32' 40.556 W
10,673.0	10.81	1.94	10,669.7	-45.9	149.7	446,518.77	743,907.35	32° 13' 30.490 N	103° 32' 40.558 W
10,704.0	14.20	0.63	10,699.9	-39.2	149.8	446,525.48	743,907.49	32° 13' 30.556 N	103° 32' 40.556 W
10,736.0	18.24	358.87	10,730.6	-30.3	149.7	446,534.41	743,907.43	32° 13' 30.645 N	103° 32' 40.556 W
10,768.0	21.85	356.32	10,760.7	-19.3	149.3	446,545.37	743,906.95	32° 13' 30.753 N	103° 32' 40.560 W
10,799.0	24.62	357.82	10,789.2	-7.1	148.6	446,557.58	743,906.34	32° 13' 30.874 N	103° 32' 40.567 W
10,831.0	27.56	359.40	10,817.9	6.9	148.3	446,571.65	743,906.01	32° 13' 31.013 N	103° 32' 40.569 W
10,863.0	31.03	1.16	10,845.8	22.6	148.4	446,587.30	743,906.10	32° 13' 31.168 N	103° 32' 40.567 W
10,894.0	35.47	1.33	10,871.7	39.6	148.8	446,604.29	743,906.47	32° 13' 31.336 N	103° 32' 40.561 W
10,926.0	39.03	0.89	10,897.2	59.0	149.1	446,623.65	743,906.84	32° 13' 31.528 N	103° 32' 40.555 W
10,958.0	42.73	1.33	10,921.4	79.9	149.6	446,644.59	743,907.25	32° 13' 31.735 N	103° 32' 40.549 W
10,989.0	45.80	0.10	10,943.6	101.5	149.8	446,666.22	743,907.51	32° 13' 31.949 N	103° 32' 40.544 W



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3621.7usft (Original Well Elev)
Site:	Roy Batty Fed Com	MD Reference:	WELL @ 3621.7usft (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
11,021.0	48.88	359.40	10,965.3	125.0	149.7	446,689.75	743,907.40	32° 13' 32.182 N	103° 32' 40.543 W
11,053.0	51.87	0.63	10,985.7	149.7	149.7	446,714.39	743,907.42	32° 13' 32.426 N	103° 32' 40.541 W
11,084.0	55.82	1.16	11,004.0	174.7	150.1	446,739.41	743,907.81	32° 13' 32.673 N	103° 32' 40.534 W
11,116.0	59.56	0.28	11,021.1	201.8	150.4	446,766.45	743,908.15	32° 13' 32.941 N	103° 32' 40.528 W
11,148.0	63.52	359.40	11,036.3	229.9	150.4	446,794.58	743,908.06	32° 13' 33.219 N	103° 32' 40.526 W
11,179.0	66.81	358.70	11,049.3	258.0	149.9	446,822.70	743,907.59	32° 13' 33.498 N	103° 32' 40.529 W
11,211.0	69.85	358.78	11,061.1	287.7	149.2	446,852.43	743,906.94	32° 13' 33.792 N	103° 32' 40.534 W
11,242.0	72.79	358.61	11,071.1	317.1	148.6	446,881.79	743,906.27	32° 13' 34.082 N	103° 32' 40.540 W
11,274.0	76.09	359.14	11,079.7	347.9	148.0	446,912.60	743,905.67	32° 13' 34.387 N	103° 32' 40.544 W
11,306.0	79.47	359.58	11,086.4	379.2	147.6	446,943.87	743,905.32	32° 13' 34.697 N	103° 32' 40.545 W
11,337.0	82.20	359.75	11,091.4	409.8	147.4	446,974.47	743,905.14	32° 13' 35.000 N	103° 32' 40.545 W
11,365.0	83.52	359.75	11,094.8	437.6	147.3	447,002.26	743,905.02	32° 13' 35.274 N	103° 32' 40.544 W
11,396.0	85.58	359.40	11,097.8	468.4	147.1	447,033.11	743,904.79	32° 13' 35.580 N	103° 32' 40.544 W
11,428.0	88.18	359.22	11,099.5	500.4	146.7	447,065.06	743,904.41	32° 13' 35.896 N	103° 32' 40.546 W
11,459.0	89.23	359.58	11,100.2	531.4	146.4	447,096.05	743,904.08	32° 13' 36.203 N	103° 32' 40.547 W
11,491.0	89.49	359.31	11,100.6	563.3	146.1	447,128.05	743,903.77	32° 13' 36.519 N	103° 32' 40.548 W
11,586.0	90.46	358.78	11,100.6	658.3	144.5	447,223.03	743,902.19	32° 13' 37.459 N	103° 32' 40.558 W
11,681.0	91.03	359.58	11,099.4	753.3	143.1	447,318.01	743,900.83	32° 13' 38.399 N	103° 32' 40.566 W
11,776.0	88.26	358.70	11,100.0	848.3	141.7	447,412.99	743,899.40	32° 13' 39.339 N	103° 32' 40.574 W
11,871.0	88.66	358.87	11,102.5	943.2	139.7	447,507.93	743,897.39	32° 13' 40.279 N	103° 32' 40.589 W
11,966.0	89.80	358.43	11,103.8	1,038.2	137.5	447,602.90	743,895.15	32° 13' 41.219 N	103° 32' 40.607 W
12,061.0	88.13	358.87	11,105.5	1,133.2	135.2	447,697.85	743,892.91	32° 13' 42.159 N	103° 32' 40.625 W
12,156.0	88.50	358.90	11,108.3	1,228.1	133.4	447,792.79	743,891.07	32° 13' 43.098 N	103° 32' 40.639 W
12,251.0	90.29	358.70	11,109.3	1,323.1	131.4	447,887.76	743,889.08	32° 13' 44.038 N	103° 32' 40.654 W
12,346.0	89.93	357.99	11,109.1	1,418.0	128.6	447,982.72	743,886.33	32° 13' 44.978 N	103° 32' 40.678 W
12,441.0	92.04	358.43	11,107.5	1,513.0	125.7	448,077.66	743,883.37	32° 13' 45.918 N	103° 32' 40.704 W
12,536.0	91.60	359.05	11,104.5	1,607.9	123.6	448,172.58	743,881.28	32° 13' 46.857 N	103° 32' 40.720 W
12,631.0	92.00	359.40	11,101.5	1,702.8	122.3	448,267.53	743,879.99	32° 13' 47.797 N	103° 32' 40.727 W
12,726.0	89.19	358.26	11,100.5	1,797.8	120.4	448,362.49	743,878.05	32° 13' 48.737 N	103° 32' 40.742 W
12,821.0	89.32	358.17	11,101.8	1,892.7	117.4	448,457.44	743,875.09	32° 13' 49.676 N	103° 32' 40.768 W
12,916.0	89.41	356.85	11,102.8	1,987.6	113.3	448,552.34	743,870.97	32° 13' 50.616 N	103° 32' 40.808 W
13,011.0	91.96	356.59	11,101.7	2,082.5	107.8	448,647.17	743,865.53	32° 13' 51.555 N	103° 32' 40.863 W
13,107.0	90.33	356.06	11,099.8	2,178.3	101.7	448,742.95	743,859.38	32° 13' 52.503 N	103° 32' 40.926 W
13,202.0	89.67	356.24	11,099.8	2,273.0	95.3	448,837.74	743,853.00	32° 13' 53.441 N	103° 32' 40.993 W
13,297.0	88.66	356.15	11,101.1	2,367.8	89.0	448,932.51	743,846.70	32° 13' 54.379 N	103° 32' 41.058 W
13,392.0	90.02	356.24	11,102.2	2,462.6	82.7	449,027.30	743,840.40	32° 13' 55.318 N	103° 32' 41.123 W
13,487.0	90.15	357.47	11,102.1	2,557.5	77.5	449,122.15	743,835.18	32° 13' 56.257 N	103° 32' 41.176 W
13,582.0	88.00	356.85	11,103.6	2,652.3	72.8	449,217.02	743,830.48	32° 13' 57.196 N	103° 32' 41.222 W
13,677.0	88.66	356.50	11,106.4	2,747.1	67.3	449,311.82	743,824.97	32° 13' 58.134 N	103° 32' 41.278 W
13,772.0	89.85	357.11	11,107.6	2,842.0	62.0	449,406.66	743,819.68	32° 13' 59.073 N	103° 32' 41.332 W
13,867.0	91.12	356.85	11,106.8	2,936.8	57.0	449,501.52	743,814.67	32° 14' 0.012 N	103° 32' 41.382 W
13,962.0	90.77	357.55	11,105.3	3,031.7	52.3	449,596.39	743,810.03	32° 14' 0.952 N	103° 32' 41.428 W
14,057.0	91.60	357.20	11,103.3	3,126.6	48.0	449,691.27	743,805.68	32° 14' 1.891 N	103° 32' 41.470 W
14,152.0	92.88	358.87	11,099.6	3,221.4	44.7	449,786.14	743,802.43	32° 14' 2.830 N	103° 32' 41.500 W
14,247.0	90.07	0.01	11,097.1	3,316.4	43.8	449,881.09	743,801.50	32° 14' 3.769 N	103° 32' 41.503 W
14,342.0	89.85	359.66	11,097.2	3,411.4	43.5	449,976.09	743,801.22	32° 14' 4.709 N	103° 32' 41.498 W
14,437.0	88.57	358.70	11,098.5	3,506.4	42.2	450,071.07	743,799.87	32° 14' 5.649 N	103° 32' 41.506 W
14,532.0	89.27	358.52	11,100.3	3,601.3	39.9	450,166.02	743,797.56	32° 14' 6.589 N	103° 32' 41.524 W
14,627.0	89.63	358.26	11,101.2	3,696.3	37.2	450,260.98	743,794.89	32° 14' 7.529 N	103° 32' 41.547 W
14,722.0	91.12	358.43	11,100.6	3,791.2	34.5	450,355.94	743,792.15	32° 14' 8.469 N	103° 32' 41.571 W
14,817.0	89.23	358.08	11,100.3	3,886.2	31.6	450,450.89	743,789.26	32° 14' 9.409 N	103° 32' 41.597 W
14,912.0	89.45	357.38	11,101.4	3,981.1	27.8	450,545.81	743,785.49	32° 14' 10.348 N	103° 32' 41.632 W
15,007.0	90.99	358.17	11,101.0	4,076.0	24.1	450,640.73	743,781.81	32° 14' 11.288 N	103° 32' 41.667 W
15,102.0	88.79	358.17	11,101.2	4,171.0	21.1	450,735.68	743,778.77	32° 14' 12.227 N	103° 32' 41.695 W
15,197.0	89.10	357.47	11,103.0	4,265.9	17.5	450,830.59	743,775.16	32° 14' 13.167 N	103° 32' 41.728 W



Nexus Directional Solutions L.P.
Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Well 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3621.7usft (Original Well Elev)
Site:	Roy Batty Fed Com	MD Reference:	WELL @ 3621.7usft (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
15,292.0	89.05	357.29	11,104.5	4,360.8	13.1	450,925.48	743,770.82	32° 14' 14.106 N	103° 32' 41.771 W
15,386.0	89.41	357.82	11,105.8	4,454.7	9.1	451,019.38	743,766.81	32° 14' 15.036 N	103° 32' 41.810 W
15,481.0	90.95	357.20	11,105.5	4,549.6	5.0	451,114.29	743,762.68	32° 14' 15.975 N	103° 32' 41.849 W
15,576.0	91.30	357.38	11,103.6	4,644.5	0.5	451,209.17	743,758.19	32° 14' 16.914 N	103° 32' 41.894 W
15,616.0	91.82	356.76	11,102.5	4,684.4	-1.6	451,249.10	743,756.15	32° 14' 17.310 N	103° 32' 41.914 W
15,660.0	91.82	356.76	11,101.1	4,728.3	-4.0	451,293.01	743,753.66	32° 14' 17.744 N	103° 32' 41.939 W
PBHL Roy Batty Fee #2H									

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------