Results of Directional Survey

API number:	30-025-41688							
OGRID:		Operator:	COG OPERATING LLC					
		Property:	SEBASTIAN FEDERAL COM					# 3H

surface	ULSTR:	B	18	T	24S	R	34E	
				190	FNL	1770	FEL	

BH Loc	ULSTR:	O	18	T	24S	R	34E	
15469	MD	11055.0	TVD	345	FSL	1712	FEL	
				4935	FNL			

Top Perf/OH	ULSTR:	B	18	T	24S	R	34E	
11154	MD	10924.3	TVD	625	FNL	1717	FEL	

Bot Perf/OH	ULSTR:	O	18	T	24S	R	34E	
15365	MD	11051.7	TVD	450	FSL	1711	FEL	
				4830	FNL			

	MD	N/S	E/W	VD
	11122	-403.80	53.20	10915.3
TOP PERFS/OH	**11154**	-434.50	53.00	10924.30
	11154	-434.50	53.00	10924.30
	15362	-4638.00	59.10	11051.60
BOT PERFS/OH	**15365**	-4639.78	59.06	11051.70
	15411	-4667.00	58.40	11053.20

NEXT TO LAST	15411.00	-4687.00	58.40	11053.20
LAST READING	15457.00	-4733.00	57.80	11054.60
TD	**15469**	-4745.00	57.64	11054.97

Surface Location	190	FN	1770	FE
Projected BHL	4935	FN	1712	FE
Location of				
Top Perfs/OH	625	FN	1717	FE
Bottom Perfs/OH	4830	FN	1711	FE

SUMMARY of Subsurface Locations

Surface Location	B-18-24S-34E	190	FN	1770	FE	Vert. Depth
Top Perfs/OH	B-18-24S-34E	625	FN	1717	FE	10924.30
Bottom Perfs/OH	O-18-24S-34E	4830	FN	1711	FE	11051.70
Projected TD	O-18-24S-34E	4935	FN	1712	FE	11054.97

NOV 10 2014

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

August 29, 2014

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

RE: Sebastian Federal Com #3H
190' FSL & 1770' FEL
Sec. 18, T24S, R34E
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 29th day of August, 2014.

Notary Public

OFFICIAL SEAL
REGINIA L. GARNER
NOTARY PUBLIC - STATE OF NEW MEXICO
My commission expires Aug 30, 2016

Sebastian Fed Com #3H

Date	Depth	Deviation	Direction	TVD	Horiz Disp
8/3/2014	287	1.00			
8/4/2014	552	0.60			
8/4/2014	825	0.40			
8/4/2014	1046	0.60			
8/5/2014	1327	0.90			
8/6/2014	1454	0.40	132.90	1453.99	
8/7/2014	1738	0.60	340.00	1737.98	2.77
8/7/2014	2023	0.90	340.20	2022.96	0.75
8/7/2014	2307	1.20	317.20		
8/7/2014	2592	1.60	316.80		
8/7/2014	2876	1.30	326.90		
8/7/2014	3160	1.40	356.40	3159.60	
8/7/2014	3444	1.70	23.80	3443.00	
8/8/2014	3729	1.50	46.40	3728.45	0.23
8/8/2014	4013	1.90	52.60	4012.30	
8/8/2014	4298	1.90	62.00	4297.17	
8/8/2014	4583	2.90	84.90	4581.92	
8/9/2014	4868	2.80	103.20	4866.58	
8/9/2014	5123	2.30	109.00	5121.32	
8/11/2014	5218	2.90			
8/11/2014	5311	1.30			
8/11/2014	5406	1.30			
8/11/2014	5501	1.00			
8/11/2014	5753	0.90			
8/11/2014	6007	0.40			
8/11/2014	6229	0.20			
8/11/2014	6450	0.50			
8/11/2014	6735	0.30			
8/12/2014	7020	0.30			
8/12/2014	7302	0.30			
8/12/2014	7621	0.30			
8/12/2014	7906	0.50			
8/13/2014	8191	0.30			
8/13/2014	8507	0.30			
8/13/2014	8614	0.10			
8/14/2014	8919	0.30			
8/14/2014	9201	0.90			
8/15/2014	9488	1.70			
8/15/2014	9775	1.70			
8/16/2014	10060	1.70			
8/16/2014	10392	0.90			
8/17/2014	10459	5.00	191.60		
8/17/2014	10491	8.40	187.00	10488.21	

Date	Depth	Deviation	Direction	TVD	Horiz Disp
8/17/2014	10554	15.70	180.50	10549.81	
8/17/2014	10618	23.30	179.40	10610.08	
8/18/2014	10650	26.70	179.20	10638.07	
8/18/2014	10713	33.40	180.20	10693.55	
8/18/2014	10808	44.40	181.70		
8/18/2014	10840	48.20	180.50		
8/18/2014	10871	51.70	179.20		
8/18/2014	10935	58.90	178.80		
8/18/2014	10966	62.50	179.30		
8/19/2014	10996	66.20	179.80		
8/19/2014	11027	69.80	180.20		
8/19/2014	11059	71.60	180.90		
8/19/2014	11091	73.10	180.50		
8/19/2014	11122	72.50	180.20		
8/19/2014	11212	80.00	180.10		
8/19/2014	11344	85.50	180.20		
8/20/2014	11470	88.00	179.30		
8/20/2014	11661	89.60	180.10		
8/20/2014	11756	88.40	181.80		
8/21/2014	11850	89.10	181.20	10962.64	1128.36
8/21/2014	12040	87.90	180.70	10968.00	1318.21
8/21/2014	12135	86.40	180.10	10923.15	1413.08
8/21/2014	12324	87.10	180.10		
8/21/2014	12419	87.60	180.70		
8/21/2014	12609	89.70	179.50		
8/21/2014	12704	89.30	179.30		
8/22/2014	12799	88.10	179.30	10994.00	2076.00
8/23/2014	12894	86.50	179.20	10999.00	2171.40
8/23/2014	12990	87.00	178.10	11004.00	2267.00
8/23/2014	13085	88.40	177.50	11082.00	2362.20
8/23/2014	13174	88.50	177.40		
8/23/2014	13275	89.10	179.00		
8/23/2014	13465	89.50	179.70		
8/23/2014	13560	89.70	179.40		
8/23/2014	13654	89.20	180.50		
8/23/2014	13749	88.80	180.10		
8/23/2014	13844	89.00	179.80		
8/23/2014	13870	89.50	179.20		
8/24/2014	13939	87.60	180.20	11020.67	3215.94
8/24/2014	14034	88.30	180.70	11026.00	3310.00
8/24/2014	14129	88.70	180.80	11028.50	3405.00
8/24/2014	14159	88.90	180.20		
8/24/2014	14223	88.60	180.20		
8/24/2014	14414	88.40	179.60		
8/24/2014	14603	89.30	180.00	11039.10	

Date	Depth	Deviation	Direction	TVD	Horiz Disp
8/24/2014	14698	89.14	180.80	11040.48	
8/24/2014	14793	88.90	181.20	11042.13	
8/25/2014	14888	89.80	181.10	11043.21	4164.50
8/25/2014	14982	90.30	180.20	11043.13	4258.53
8/25/2014	15077	89.40	180.10	11043.38	4353.00
8/25/2014	15172	88.20	179.80	11045.37	4448.50
8/25/2014	15267	88.20	180.20	11048.33	4543.45
8/25/2014	15362	88.00	180.80	11051.50	4368.38

VES SURVEY INTERNATIONAL

September 5, 2014

HOBBS OCD

NOV 06 2014

RECEIVED

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

Attn: Kanicia Castillo

RE: **Sebastian Federal Com 3H**

Please find enclosed a copy of the survey from 0.00' to 10,345.00' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
§
COUNTY OF NUECES §

This instrument was acknowledged before me on the 5 day of September A.D., 2014, by Keith Havelka.

Jennifer Ann Byerly
Notary Public, State of Texas

JENNIFER ANN BYERLY
Notary Public, State of Texas
My Commission Expires
August 16, 2017

VES Survey International
P.O. Box 261021 Corpus Christi, TX 78426
T (361) 767-0602 F (361) 767-0612
www.vessurvey.com

Company: COG Operating
Lease/Well: Sebastian Federal Com/3H
Location: S18 - T24/S - R34/E
Rig Name: Silver Oak 12
State/County: New Mexico/Lea
Latitude: 32.22, Longitude: -103.51
GRID North is 0.44 Degrees East of True North
VS-Azi: 0.00 Degrees

Depth Reference : RKB = 18FT

DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 9/4/2014 / 13:00

VES Survey International
West Texas
(432) 563-5444
Surveyor: Cody Johnson
Sebastian Federal Com 3H / API 30-025-41688

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	0.94	115.93	100.00	-0.36	0.73	-0.36	0.82	115.93	0.94
200.00	0.87	104.32	199.98	-0.90	2.20	-0.90	2.38	112.27	0.20
300.00	0.41	102.14	299.98	-1.16	3.28	-1.16	3.48	109.51	0.45
400.00	0.68	99.37	399.97	-1.34	4.22	-1.34	4.43	107.56	0.27
500.00	0.71	99.56	499.96	-1.54	5.42	-1.54	5.63	105.82	0.04
600.00	0.76	94.75	599.96	-1.69	6.69	-1.69	6.90	104.20	0.08
700.00	0.71	93.28	699.95	-1.78	7.98	-1.78	8.17	102.61	0.05
800.00	0.45	93.33	799.94	-1.84	8.98	-1.84	9.17	101.59	0.27
900.00	0.27	118.49	899.94	-1.98	9.58	-1.98	9.78	101.66	0.23
1000.00	0.56	110.41	999.94	-2.26	10.25	-2.26	10.49	102.44	0.30
1100.00	0.75	104.12	1099.93	-2.59	11.34	-2.59	11.64	102.87	0.20
1200.00	0.89	109.58	1199.92	-3.01	12.71	-3.01	13.06	103.33	0.16
1300.00	0.85	104.01	1299.91	-3.45	14.16	-3.45	14.57	103.70	0.09
1400.00	0.52	103.46	1399.90	-3.74	15.32	-3.74	15.77	103.71	0.33
1500.00	0.08	94.18	1499.90	-3.85	15.83	-3.85	16.29	103.66	0.44
1600.00	0.08	73.27	1599.90	-3.83	15.96	-3.83	16.42	103.50	0.03
1700.00	0.23	21.48	1699.90	-3.63	16.10	-3.63	16.51	102.69	0.19
1800.00	0.43	359.56	1799.90	-3.06	16.17	-3.06	16.46	100.72	0.23

VES Survey Date: 08/16/2014

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	0.65	332.00	1899.89	-2.19	15.91	-2.19	16.05	97.83	0.33
2000.00	0.37	355.92	1999.89	-1.36	15.62	-1.36	15.68	94.99	0.35
2100.00	0.44	0.67	2099.89	-0.66	15.60	-0.66	15.61	92.42	0.08
2200.00	0.68	336.78	2199.88	0.27	15.37	0.27	15.37	89.00	0.33
2300.00	0.99	315.09	2299.87	1.42	14.53	1.42	14.60	84.40	0.44
2400.00	1.15	331.46	2399.86	2.91	13.44	2.91	13.75	77.76	0.34
2500.00	1.45	331.11	2499.83	4.90	12.35	4.90	13.29	68.37	0.30
2600.00	1.32	333.11	2599.80	7.03	11.22	7.03	13.24	57.94	0.14
2700.00	1.18	317.23	2699.78	8.81	10.00	8.81	13.33	48.62	0.37
2800.00	0.89	326.96	2799.76	10.22	8.88	10.22	13.53	40.99	0.35
2900.00	0.92	347.13	2899.75	11.65	8.28	11.65	14.29	35.39	0.32
3000.00	1.09	353.10	2999.73	13.38	7.98	13.38	15.58	30.82	0.20
3100.00	1.33	359.37	3099.71	15.48	7.86	15.48	17.36	26.90	0.27
3200.00	1.14	9.61	3199.69	17.62	8.01	17.62	19.35	24.44	0.29
3300.00	1.12	14.03	3299.67	19.54	8.41	19.54	21.28	23.28	0.09
3400.00	1.11	8.01	3399.65	21.45	8.78	21.45	23.18	22.26	0.12
3500.00	1.51	25.69	3499.62	23.60	9.49	23.60	25.43	21.91	0.56
3600.00	1.58	26.25	3599.59	26.02	10.67	26.02	28.12	22.30	0.07
3700.00	1.98	28.51	3699.54	28.78	12.10	28.78	31.22	22.81	0.41
3800.00	1.98	53.60	3799.48	31.32	14.32	31.32	34.44	24.57	0.86
3900.00	1.69	52.16	3899.43	33.25	16.88	33.25	37.29	26.91	0.30
4000.00	1.63	49.14	3999.39	35.08	19.11	35.08	39.95	28.58	0.11
4100.00	1.63	47.56	4099.35	36.98	21.24	36.98	42.64	29.87	0.05
4200.00	1.68	54.25	4199.31	38.79	23.48	38.79	45.35	31.19	0.20
4300.00	1.85	67.37	4299.26	40.27	26.16	40.27	48.02	33.01	0.44
4400.00	2.77	72.46	4399.18	41.62	29.96	41.62	51.28	35.74	0.95
4500.00	2.93	82.06	4499.05	42.70	34.80	42.70	55.09	39.18	0.50
4600.00	2.75	76.74	4598.93	43.61	39.67	43.61	58.95	42.29	0.32
4700.00	2.77	83.78	4698.81	44.42	44.41	44.42	62.82	45.00	0.34
4800.00	2.79	92.67	4798.70	44.57	49.25	44.57	66.42	47.85	0.43
4900.00	2.96	102.51	4898.57	43.90	54.19	43.90	69.74	50.99	0.52
5000.00	2.57	102.52	4998.46	42.85	58.90	42.85	72.84	53.96	0.39
5100.00	2.27	100.67	5098.37	42.00	63.04	42.00	75.75	56.33	0.31
5200.00	1.71	104.29	5198.31	41.26	66.43	41.26	78.20	58.15	0.58
5300.00	1.24	103.21	5298.27	40.65	68.92	40.65	80.02	59.47	0.47
5400.00	1.36	112.90	5398.25	39.94	71.06	39.94	81.52	60.66	0.25
5500.00	0.96	108.65	5498.23	39.21	72.95	39.21	82.82	61.74	0.41
5600.00	1.12	112.81	5598.21	38.57	74.64	38.57	84.02	62.68	0.18
5700.00	0.90	113.71	5698.19	37.87	76.26	37.87	85.15	63.59	0.22

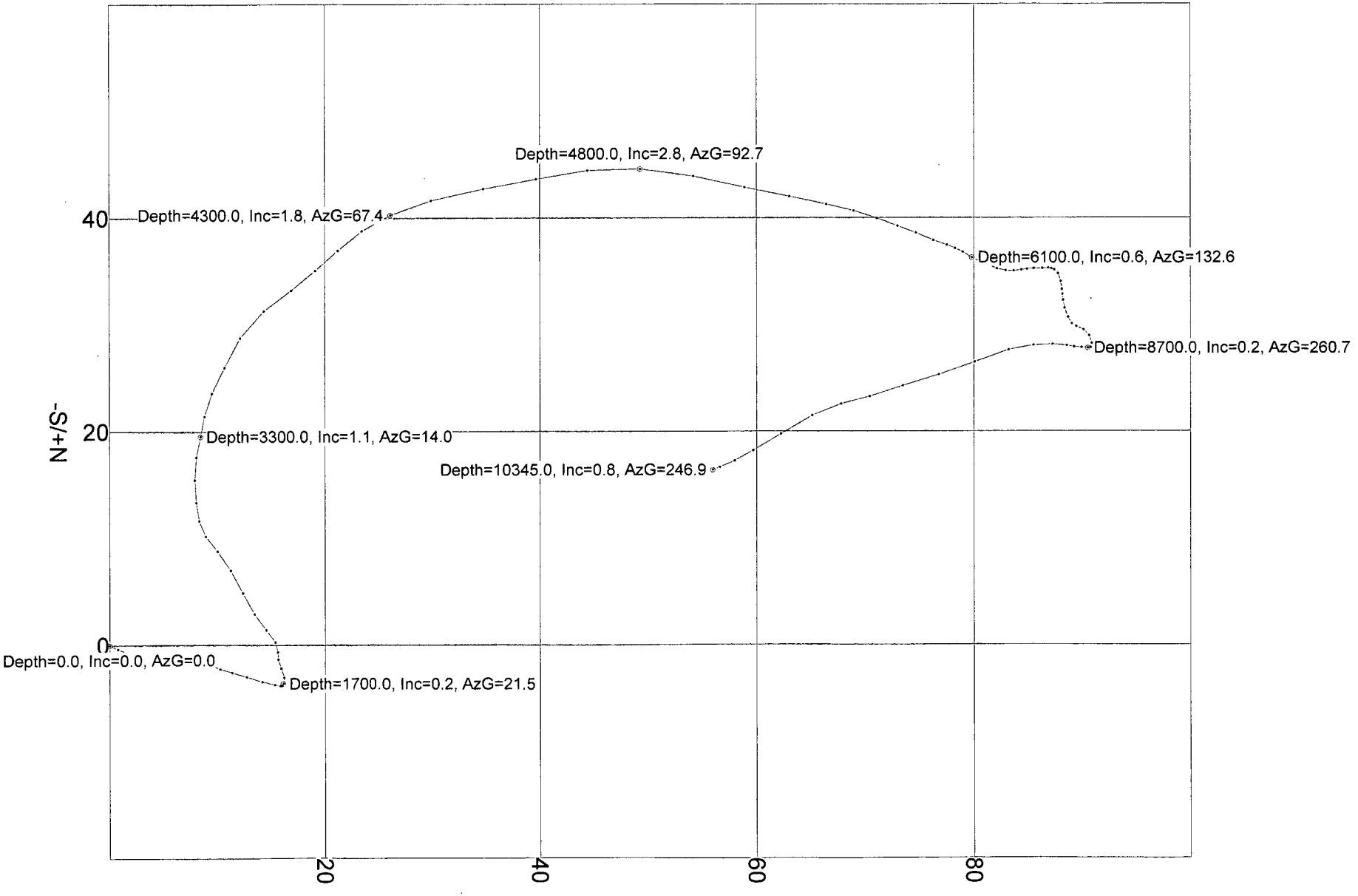
VES Survey Date: 08/16/2014

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	0.62	103.38	5798.18	37.43	77.51	37.43	86.07	64.22	0.30
5900.00	0.33	130.56	5898.18	37.12	78.25	37.12	86.61	64.62	0.37
6000.00	0.58	109.04	5998.18	36.77	78.95	36.77	87.09	65.02	0.30
6100.00	0.58	132.59	6098.17	36.26	79.80	36.26	87.65	65.56	0.24
6200.00	0.47	100.52	6198.17	35.84	80.57	35.84	88.19	66.02	0.31
6300.00	0.47	120.09	6298.17	35.56	81.33	35.56	88.77	66.38	0.16
6400.00	0.54	105.95	6398.16	35.23	82.14	35.23	89.37	66.79	0.14
6500.00	0.42	98.29	6498.16	35.05	82.96	35.05	90.05	67.10	0.14
6600.00	0.43	85.41	6598.16	35.02	83.69	35.02	90.73	67.29	0.10
6700.00	0.40	82.00	6698.15	35.10	84.41	35.10	91.42	67.42	0.04
6800.00	0.21	83.11	6798.15	35.17	84.94	35.17	91.94	67.51	0.19
6900.00	0.50	85.45	6898.15	35.23	85.56	35.23	92.53	67.62	0.29
7000.00	0.42	88.56	6998.15	35.27	86.37	35.27	93.29	67.78	0.08
7100.00	0.19	92.12	7098.14	35.28	86.90	35.28	93.79	67.91	0.24
7200.00	0.16	107.84	7198.14	35.23	87.20	35.23	94.04	68.00	0.06
7300.00	0.19	111.82	7298.14	35.13	87.48	35.13	94.27	68.12	0.04
7400.00	0.41	146.65	7398.14	34.77	87.83	34.77	94.46	68.40	0.28
7500.00	0.51	174.54	7498.14	34.03	88.07	34.03	94.41	68.87	0.24
7600.00	0.34	169.67	7598.14	33.30	88.16	33.30	94.24	69.31	0.17
7700.00	0.22	178.46	7698.14	32.81	88.22	32.81	94.12	69.60	0.13
7800.00	0.40	172.00	7798.13	32.28	88.27	32.28	93.99	69.91	0.18
7900.00	0.48	168.04	7898.13	31.52	88.41	31.52	93.86	70.38	0.09
8000.00	0.58	151.21	7998.13	30.67	88.74	30.67	93.89	70.94	0.18
8100.00	0.21	151.04	8098.12	30.07	89.07	30.07	94.01	71.35	0.37
8200.00	0.42	105.86	8198.12	29.81	89.51	29.81	94.35	71.58	0.31
8300.00	0.42	127.31	8298.12	29.49	90.16	29.49	94.85	71.89	0.16
8400.00	0.47	144.60	8398.12	28.93	90.68	28.93	95.19	72.30	0.14
8500.00	0.42	182.94	8498.11	28.23	90.90	28.23	95.18	72.75	0.30
8600.00	0.09	245.43	8598.11	27.83	90.81	27.83	94.98	72.96	0.39
8700.00	0.22	260.69	8698.11	27.76	90.56	27.76	94.72	72.95	0.13
8800.00	0.45	282.92	8798.11	27.82	89.98	27.82	94.19	72.82	0.27
8900.00	0.36	267.02	8898.11	27.89	89.28	27.89	93.54	72.65	0.15
9000.00	0.43	292.22	8998.11	28.02	88.62	28.02	92.95	72.45	0.19
9100.00	1.11	267.83	9098.10	28.13	87.31	28.13	91.73	72.14	0.73
9200.00	0.93	267.50	9198.08	28.06	85.53	28.06	90.02	71.84	0.17
9300.00	1.78	254.56	9298.05	27.61	83.22	27.61	87.68	71.65	0.90
9400.00	2.08	246.32	9398.00	26.46	80.06	26.46	84.32	71.71	0.40
9500.00	1.94	254.98	9497.93	25.30	76.76	25.30	80.83	71.76	0.33
9600.00	2.08	250.91	9597.87	24.27	73.42	24.27	77.32	71.71	0.20

VES Survey Date: 08/16/2014

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	1.59	252.39	9697.82	23.25	70.38	23.25	74.12	71.72	0.49
9800.00	1.50	258.61	9797.79	22.58	67.78	22.58	71.44	71.58	0.19
9900.00	1.84	238.56	9897.74	21.48	65.13	21.48	68.58	71.75	0.67
10000.00	2.00	239.36	9997.69	19.75	62.25	19.75	65.31	72.39	0.17
10100.00	1.44	238.52	10097.64	18.21	59.68	18.21	62.40	73.03	0.57
10200.00	0.81	244.36	10197.62	17.25	57.97	17.25	60.49	73.43	0.63
10300.00	0.89	248.45	10297.61	16.66	56.61	16.66	59.01	73.61	0.10
10345.00	0.84	246.89	10342.61	16.40	55.98	16.40	58.33	73.67	0.12

VES Survey International
West Texas
(432) 563-5444
Surveyor: Cody Johnson
Sebastian Federal Com 3H / API 30-025-41688



VES Survey Date: 08/16/2014

COG Operating LLC

Lea County, NM (NAD27 NME)
Sebastian Fed Com
#3H

OH

Survey: MWD #1

Survey Report - Geographic

02 September, 2014

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	WELL @ 3601.2usft (Original Well Elev)
Site:	Sebastian Fed Com	**MD Reference:**	WELL @ 3601.2usft (Original Well Elev)
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 (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	Sebastian Fed Com				
Site Position:		**Northing:**	446,271.70 usft	**Latitude:**	32° 13' 27.044 N
From:	Map	**Easting:**	757,317.50 usft	**Longitude:**	103° 30' 4.480 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.44 °

Well	#3H					
Well Position	**+N/-S**	0.0 usft	**Northing:**	446,260.70 usft	**Latitude:**	32° 13' 27.042 N
	+E/-W	0.0 usft	**Easting:**	755,928.00 usft	**Longitude:**	103° 30' 20.655 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,583.2 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	7/22/2014	7.17	60.12	48,312

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	179.52	

Survey Program **Date** 9/2/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	10,345.0	GYRO (OH)	MWD	MWD - Standard
10,459.0	15,457.0	MWD #1 (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
10,345.0	0.84	246.89	10,342.6	16.4	56.0	446,277.09	755,983.98	32° 13' 27.199 N	103° 30' 20.002 W
EOG Government "L" Com #1									
10,459.0	5.00	191.60	10,456.4	11.2	54.2	446,271.89	755,982.21	32° 13' 27.148 N	103° 30' 20.023 W
10,491.0	8.40	187.00	10,488.2	7.5	53.6	446,268.20	755,981.65	32° 13' 27.112 N	103° 30' 20.030 W
10,523.0	11.90	182.20	10,519.7	1.9	53.2	446,262.58	755,981.23	32° 13' 27.056 N	103° 30' 20.035 W
10,554.0	15.70	180.50	10,549.8	-5.5	53.1	446,255.19	755,981.07	32° 13' 26.983 N	103° 30' 20.038 W
10,586.0	19.60	180.10	10,580.3	-15.2	53.0	446,245.49	755,981.03	32° 13' 26.887 N	103° 30' 20.039 W
10,618.0	23.30	179.40	10,610.1	-26.9	53.1	446,233.79	755,981.08	32° 13' 26.771 N	103° 30' 20.040 W
10,650.0	26.70	179.20	10,639.1	-40.4	53.3	446,220.27	755,981.25	32° 13' 26.637 N	103° 30' 20.039 W
10,681.0	30.10	179.80	10,666.3	-55.2	53.4	446,205.53	755,981.38	32° 13' 26.492 N	103° 30' 20.039 W
10,713.0	33.40	180.20	10,693.6	-72.0	53.4	446,188.69	755,981.37	32° 13' 26.325 N	103° 30' 20.041 W

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	WELL @ 3601.2usft (Original Well Elev)
Site:	Sebastian Fed Com	**MD Reference:**	WELL @ 3601.2usft (Original Well Elev)
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
10,745.0	36.90	180.80	10,719.7	-90.4	53.2	446,170.27	755,981.21	32° 13' 26.143 N	103° 30' 20.044 W
10,776.0	40.40	181.40	10,743.9	-109.8	52.8	446,150.92	755,980.83	32° 13' 25.951 N	103° 30' 20.050 W
10,808.0	44.40	181.30	10,767.5	-131.3	52.3	446,129.35	755,980.32	32° 13' 25.738 N	103° 30' 20.058 W
10,840.0	48.20	180.50	10,789.6	-154.5	52.0	446,106.22	755,979.97	32° 13' 25.509 N	103° 30' 20.064 W
10,871.0	51.70	179.20	10,809.6	-178.2	52.0	446,082.50	755,980.04	32° 13' 25.274 N	103° 30' 20.066 W
10,903.0	55.20	178.60	10,828.6	-203.9	52.5	446,056.80	755,980.53	32° 13' 25.020 N	103° 30' 20.062 W
10,935.0	58.90	178.80	10,846.0	-230.7	53.1	446,029.96	755,981.14	32° 13' 24.754 N	103° 30' 20.057 W
10,966.0	62.50	179.30	10,861.2	-257.8	53.6	446,002.93	755,981.59	32° 13' 24.487 N	103° 30' 20.055 W
11,027.0	69.80	180.23	10,885.9	-313.5	53.8	445,947.18	755,981.80	32° 13' 23.935 N	103° 30' 20.057 W
11,059.0	71.60	180.40	10,896.4	-343.7	53.6	445,916.98	755,981.64	32° 13' 23.636 N	103° 30' 20.062 W
11,091.0	73.10	180.50	10,906.1	-374.2	53.4	445,886.49	755,981.40	32° 13' 23.335 N	103° 30' 20.067 W
11,122.0	72.50	180.20	10,915.3	-403.8	53.2	445,856.88	755,981.22	32° 13' 23.042 N	103° 30' 20.072 W
11,154.0	74.70	180.50	10,924.3	-434.5	53.0	445,826.18	755,981.03	32° 13' 22.738 N	103° 30' 20.077 W
11,185.0	77.40	180.10	10,931.8	-464.6	52.9	445,796.10	755,980.87	32° 13' 22.440 N	103° 30' 20.082 W
11,217.0	80.00	180.10	10,938.1	-496.0	52.8	445,764.72	755,980.82	32° 13' 22.130 N	103° 30' 20.085 W
11,249.0	83.10	180.40	10,942.8	-527.6	52.7	445,733.07	755,980.68	32° 13' 21.817 N	103° 30' 20.089 W
11,280.0	85.30	180.60	10,945.9	-558.5	52.4	445,702.24	755,980.41	32° 13' 21.511 N	103° 30' 20.095 W
11,312.0	85.80	180.60	10,948.4	-590.4	52.1	445,670.33	755,980.07	32° 13' 21.196 N	103° 30' 20.102 W
11,344.0	85.50	180.20	10,950.8	-622.3	51.9	445,638.43	755,979.85	32° 13' 20.880 N	103° 30' 20.108 W
11,375.0	86.40	179.40	10,953.0	-653.2	52.0	445,607.51	755,979.96	32° 13' 20.574 N	103° 30' 20.109 W
11,406.0	87.40	179.80	10,954.7	-684.1	52.2	445,576.55	755,980.18	32° 13' 20.268 N	103° 30' 20.109 W
11,439.0	87.30	179.30	10,956.2	-717.1	52.4	445,543.59	755,980.43	32° 13' 19.942 N	103° 30' 20.109 W
11,470.0	88.00	179.30	10,957.5	-748.1	52.8	445,512.62	755,980.81	32° 13' 19.635 N	103° 30' 20.108 W
11,502.0	89.20	179.20	10,958.3	-780.1	53.2	445,480.63	755,981.23	32° 13' 19.318 N	103° 30' 20.106 W
11,534.0	89.80	178.90	10,958.6	-812.1	53.8	445,448.64	755,981.76	32° 13' 19.002 N	103° 30' 20.102 W
11,565.0	89.70	178.80	10,958.7	-843.1	54.4	445,417.64	755,982.38	32° 13' 18.695 N	103° 30' 20.098 W
11,661.0	89.60	180.10	10,959.3	-939.0	55.3	445,321.65	755,983.31	32° 13' 17.745 N	103° 30' 20.096 W
11,756.0	88.40	181.80	10,960.9	-1,034.0	53.7	445,226.68	755,981.73	32° 13' 16.806 N	103° 30' 20.123 W
11,850.0	89.10	181.20	10,963.0	-1,128.0	51.3	445,132.74	755,979.27	32° 13' 15.876 N	103° 30' 20.160 W
11,945.0	88.20	181.00	10,965.2	-1,222.9	49.5	445,037.78	755,977.45	32° 13' 14.937 N	103° 30' 20.189 W
12,040.0	87.90	180.70	10,968.5	-1,317.8	48.0	444,942.85	755,976.04	32° 13' 13.997 N	103° 30' 20.214 W
12,135.0	86.40	180.10	10,973.2	-1,412.7	47.4	444,847.97	755,975.38	32° 13' 13.059 N	103° 30' 20.231 W
12,229.0	87.00	180.00	10,978.6	-1,506.6	47.3	444,754.13	755,975.29	32° 13' 12.130 N	103° 30' 20.240 W
12,324.0	87.10	180.10	10,983.5	-1,601.4	47.2	444,659.26	755,975.21	32° 13' 11.191 N	103° 30' 20.249 W
12,419.0	87.60	180.20	10,987.9	-1,696.3	47.0	444,564.36	755,974.96	32° 13' 10.252 N	103° 30' 20.261 W
12,514.0	89.10	179.10	10,990.6	-1,791.3	47.5	444,469.40	755,975.54	32° 13' 9.312 N	103° 30' 20.263 W
12,609.0	89.70	179.50	10,991.6	-1,886.3	48.7	444,374.42	755,976.70	32° 13' 8.372 N	103° 30' 20.258 W
12,704.0	89.30	179.30	10,992.4	-1,981.3	49.7	444,279.42	755,977.70	32° 13' 7.432 N	103° 30' 20.254 W
12,799.0	88.10	179.30	10,994.6	-2,076.2	50.9	444,184.46	755,978.86	32° 13' 6.493 N	103° 30' 20.249 W
12,895.0	86.50	179.20	10,999.1	-2,172.1	52.1	444,088.58	755,980.11	32° 13' 5.544 N	103° 30' 20.243 W
12,990.0	87.00	178.10	11,004.5	-2,266.9	54.4	443,993.76	755,982.35	32° 13' 4.605 N	103° 30' 20.226 W
13,085.0	88.40	177.50	11,008.3	-2,361.8	58.0	443,898.91	755,985.99	32° 13' 3.666 N	103° 30' 20.192 W
13,179.0	88.50	177.40	11,010.9	-2,455.7	62.2	443,805.03	755,990.17	32° 13' 2.737 N	103° 30' 20.152 W
13,275.0	89.10	179.00	11,012.9	-2,551.6	65.2	443,709.11	755,993.19	32° 13' 1.788 N	103° 30' 20.125 W
13,370.0	89.50	179.20	11,014.0	-2,646.6	66.7	443,614.12	755,994.68	32° 13' 0.848 N	103° 30' 20.116 W
13,465.0	89.50	179.70	11,014.9	-2,741.6	67.6	443,519.13	755,995.59	32° 12' 59.908 N	103° 30' 20.114 W
13,560.0	89.70	179.40	11,015.5	-2,836.6	68.3	443,424.14	755,996.34	32° 12' 58.968 N	103° 30' 20.114 W
13,654.0	89.20	180.50	11,016.4	-2,930.6	68.4	443,330.14	755,996.42	32° 12' 58.038 N	103° 30' 20.122 W
13,749.0	88.80	180.10	11,018.1	-3,025.5	67.9	443,235.16	755,995.92	32° 12' 57.098 N	103° 30' 20.136 W
13,844.0	89.00	179.80	11,019.9	-3,120.5	68.0	443,140.18	755,996.01	32° 12' 56.158 N	103° 30' 20.144 W
13,939.0	87.60	180.20	11,022.7	-3,215.5	68.0	443,045.22	755,996.01	32° 12' 55.218 N	103° 30' 20.152 W
14,034.0	88.30	180.70	11,026.1	-3,310.4	67.3	442,950.29	755,995.26	32° 12' 54.279 N	103° 30' 20.169 W
14,129.0	88.70	180.80	11,028.6	-3,405.4	66.0	442,855.33	755,994.02	32° 12' 53.339 N	103° 30' 20.192 W
14,223.0	88.60	180.20	11,030.8	-3,499.3	65.2	442,761.36	755,993.20	32° 12' 52.409 N	103° 30' 20.210 W
14,317.0	88.70	180.00	11,033.0	-3,593.3	65.0	442,667.38	755,993.03	32° 12' 51.480 N	103° 30' 20.220 W

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	WELL @ 3601.2usft (Original Well Elev)
Site:	Sebastian Fed Com	**MD Reference:**	WELL @ 3601.2usft (Original Well Elev)
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
14,414.0	88.40	179.60	11,035.5	-3,690.3	65.4	442,570.42	755,993.37	32° 12' 50.520 N	103° 30' 20.225 W
14,509.0	88.90	180.20	11,037.7	-3,785.3	65.5	442,475.44	755,993.54	32° 12' 49.580 N	103° 30' 20.232 W
14,603.0	89.30	180.00	11,039.2	-3,879.2	65.4	442,381.46	755,993.37	32° 12' 48.650 N	103° 30' 20.242 W
14,698.0	89.10	180.80	11,040.5	-3,974.2	64.7	442,286.47	755,992.71	32° 12' 47.710 N	103° 30' 20.258 W
14,793.0	88.90	181.20	11,042.2	-4,069.2	63.1	442,191.50	755,991.05	32° 12' 46.771 N	103° 30' 20.286 W
14,888.0	89.80	181.10	11,043.3	-4,164.2	61.1	442,096.52	755,989.15	32° 12' 45.831 N	103° 30' 20.317 W
14,982.0	90.30	180.20	11,043.2	-4,258.2	60.1	442,002.53	755,988.08	32° 12' 44.901 N	103° 30' 20.338 W
15,077.0	89.40	180.10	11,043.4	-4,353.2	59.8	441,907.53	755,987.83	32° 12' 43.961 N	103° 30' 20.349 W
15,172.0	88.20	179.80	11,045.4	-4,448.1	59.9	441,812.56	755,987.91	32° 12' 43.021 N	103° 30' 20.357 W
15,267.0	88.20	180.20	11,048.4	-4,543.1	59.9	441,717.60	755,987.91	32° 12' 42.081 N	103° 30' 20.365 W
15,362.0	88.00	180.80	11,051.6	-4,638.0	59.1	441,622.66	755,987.09	32° 12' 41.142 N	103° 30' 20.383 W
15,411.0	88.20	180.80	11,053.2	-4,687.0	58.4	441,573.69	755,986.40	32° 12' 40.658 N	103° 30' 20.396 W
15,457.0	88.20	180.80	11,054.6	-4,733.0	57.8	441,527.72	755,985.76	32° 12' 40.203 N	103° 30' 20.407 W
PBHL(SFC#3H)									

Checked By: _____ Approved By: _____ Date: _____