Silver Oak Drilling

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

30-015-41563

March 9, 2014

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

RE: ~~Hoofprint Federal Com #2H~~ Seabiscuit Fed Com # 4H
330' FSL & 2200' FWL
Sec. 12, T24S, R31E
Eddy 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 9th day of March, 2014.

Regina L. Garner
Notary Public

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

Hoofprint Fed Com #2H

Date	Depth	Deviation	Direction
1/30/2014	211	0.90	0.00
1/30/2014	422	0.90	0.00
1/30/2014	630	0.70	0.00
1/30/2014	846	0.70	0.00
2/1/2014	984	0.10	163.60
2/1/2014	1079	0.20	159.80
2/1/2014	1173	0.60	252.50
2/1/2014	1236	0.70	0.00
2/1/2014	1362	0.80	244.90
2/1/2014	1552	0.70	774.70
2/1/2014	2118	0.90	0.00
2/1/2014	2495	0.80	0.00
2/2/2014	2873	1.00	216.00
2/2/2014	3060	0.40	191.70
2/2/2014	3249	0.20	341.70
2/2/2014	3438	0.60	0.00
2/2/2014	3626	0.90	0.00
2/3/2014	3814	1.20	350.50
2/3/2014	4003	0.80	26.80
2/3/2014	4045	17.00	13.20
2/3/2014	4286	0.70	152.00
2/5/2014	4640	0.60	0.00
2/5/2014	4766	0.60	0.00
2/5/2014	4955	0.60	0.00
2/6/2014	5144	0.60	225.50
2/6/2014	5332	0.50	240.30
2/6/2014	5521	0.50	281.30
2/6/2014	5899	1.00	284.90
2/6/2014	6088	1.20	276.50
2/6/2014	6276	1.10	261.60
2/6/2014	6464	1.30	0.00
2/6/2014	6653	1.30	0.00
2/6/2014	6842	1.20	0.00
2/7/2014	7031	1.50	195.40
2/7/2014	7125	1.10	203.90
2/7/2014	7313	1.20	198.20
2/8/2014	7407	1.90	186.90
2/8/2014	7501	1.60	190.00
2/8/2014	7727	1.80	221.60
2/8/2014	7974	1.70	0.00
2/9/2014	8165	2.40	192.90
2/9/2014	8542	1.50	196.10
2/9/2014	8637	1.20	196.40

Date	Depth	Deviation	Direction
2/9/2014	8825	1.50	0.00
2/9/2014	9013	2.50	0.00
2/10/2014	9297	1.10	181.30
2/11/2014	9493	1.90	0.00
2/11/2014	9417	2.50	0.00
2/12/2014	9744	2.50	0.00
2/12/2014	9858	1.00	0.00
2/12/2014	9952	0.70	184.40
2/12/2014	10047	0.60	202.70
2/12/2014	10329	0.70	0.00
2/13/2014	10518	0.70	0.00
2/13/2014	10706	0.70	191.50
2/18/2014	10066	1.00	345.70
2/18/2014	10097	5.70	355.40
2/19/2014	10128	12.50	355.00
2/19/2014	10160	18.20	355.20
2/19/2014	10191	21.80	357.20
2/19/2014	10223	24.40	354.80
2/19/2014	10255	27.60	352.40
2/19/2014	10286	30.30	353.70
2/19/2014	10318	32.70	357.30
2/19/2014	10381	39.00	0.30
2/19/2014	10444	43.40	0.20
2/19/2014	10475	47.60	359.90
2/19/2014	10506	50.70	359.30
2/19/2014	10538	53.30	358.80
2/20/2014	10566	55.60	359.90
2/20/2014	10601	58.10	1.00
2/20/2014	10632	61.10	1.90
2/20/2014	10663	64.00	2.70
2/20/2014	10695	66.30	3.00
2/20/2014	10727	67.70	3.10
2/20/2014	10758	70.20	2.90
2/20/2014	10789	73.50	1.70
2/20/2014	10821	77.10	0.60
2/20/2014	10852	80.40	0.50
2/20/2014	10884	82.90	0.40
2/22/2014	10478	89.10	359.50
2/22/2014	10915	84.10	0.00
2/22/2014	10946	86.40	359.50
2/22/2014	11135	89.80	0.10
2/22/2014	11229	89.80	1.50
2/23/2014	11324	89.70	2.00
2/23/2014	11418	89.90	2.40
2/24/2014	11512	90.90	2.60

Date	Depth	Deviation	Direction
2/24/2014	11605	91.20	2.80
2/24/2014	11700	91.30	2.40
2/24/2014	11794	91.30	1.50
2/24/2014	11889	90.60	0.00
2/24/2014	11983	91.20	0.00
2/24/2014	12172	91.70	2.90
2/24/2014	12361	89.80	2.50
2/24/2014	12455	90.60	2.50
2/25/2014	12549	91.60	2.00
2/25/2014	12643	92.40	2.30
2/25/2014	12738	91.50	1.70
2/25/2014	12832	90.50	0.80
2/25/2014	12977	89.80	0.02
2/25/2014	13116	90.20	0.00
2/25/2014	13210	89.60	0.50
2/25/2014	13399	90.30	0.70
2/25/2014	13493	90.40	0.70
2/26/2014	13587	89.80	0.50
2/26/2014	13682	90.10	0.60
2/26/2014	13776	90.80	359.90
2/26/2014	13870	90.70	0.00
2/26/2014	13964	84.30	0.00
3/3/2014	14153	91.40	1.00
3/3/2014	14247	91.10	0.80
3/3/2014	14341	90.70	0.30
3/3/2014	14437	90.60	359.90
3/3/2014	14531	90.70	1.00
3/3/2014	14627	91.10	1.90
3/3/2014	14816	90.60	1.10
3/3/2014	14912	90.70	2.50
3/3/2014	14965	90.60	2.40

VAUGHN ENERGY SERVICES
A GYRO TECHNOLOGIES INC. COMPANY

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

March 3, 2014

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

Attn: Kanicia Castillo

RE: Hoofprint Fed No. 002H

Please find enclosed a copy of the survey from 0.00' to 10800.00' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
§
COUNTY OF NUECES §

This instrument was acknowledged before me on the 3rd day of March, A.D., 2014, by Keith Havelka.

Meredith Darden
Notary Public, State of Texas

MEREDITH DARDEN
Notary Public, State of Texas
My Commission Expires
July 25, 2017

Company: COG Operating LLC (Concho)
Lease/Well: Hoofprint Fed/No. 002H
Location: S12 T24S R31E
Rig Name: Silver Oak 12
State/County: New Mexico/New Mexico
Latitude: 32.23, Longitude: -103.73
GRID North is 0.32 Degrees East of True North
VS-Azi: 0.00 Degrees

Depth Reference : RKB = 18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: hoofprint fed #2h gyro survey.ut
Minimum Curvature Method
Report Date/Time: 3/3/2014 / 10:02

Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Chris Ellis
Hoofprint Fed No. 002H / API 30-015-41563

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	0.77	302.86	100.00	0.37	-0.57	0.37	0.67	302.86	0.77
200.00	0.95	277.89	199.99	0.84	-1.95	0.84	2.12	293.40	0.41
300.00	1.02	265.67	299.97	0.89	-3.66	0.89	3.76	283.69	0.22
400.00	0.92	250.00	399.96	0.55	-5.30	0.55	5.33	275.91	0.28
500.00	0.91	232.66	499.94	-0.21	-6.68	-0.21	6.69	268.22	0.28
600.00	0.78	223.67	599.93	-1.18	-7.79	-1.18	7.88	261.36	0.18
700.00	0.72	228.82	699.93	-2.09	-8.73	-2.09	8.98	256.63	0.09
800.00	0.60	207.20	799.92	-2.97	-9.45	-2.97	9.90	252.52	0.28
900.00	0.30	184.34	899.92	-3.71	-9.71	-3.71	10.39	249.10	0.34
1000.00	0.31	191.46	999.91	-4.23	-9.78	-4.23	10.66	246.59	0.04
1100.00	0.19	180.97	1099.91	-4.66	-9.84	-4.66	10.89	244.65	0.13
1200.00	0.67	243.60	1199.91	-5.09	-10.37	-5.09	11.55	243.87	0.61
1300.00	0.47	237.26	1299.91	-5.57	-11.23	-5.57	12.54	243.64	0.21
1400.00	0.86	253.26	1399.90	-6.00	-12.29	-6.00	13.68	243.97	0.43
1500.00	0.80	244.58	1499.89	-6.52	-13.64	-6.52	15.12	244.46	0.14
1600.00	0.72	285.86	1599.88	-6.64	-14.88	-6.64	16.29	245.93	0.54
1700.00	0.74	290.12	1699.87	-6.25	-16.09	-6.25	17.26	248.77	0.06
1800.00	0.84	286.03	1799.86	-5.83	-17.40	-5.83	18.35	251.48	0.11

VES Survey Date: 02/13/2014

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	0.85	276.69	1899.85	-5.54	-18.84	-5.54	19.63	253.62	0.14
2000.00	0.96	280.12	1999.84	-5.30	-20.40	-5.30	21.08	255.43	0.13
2100.00	0.78	277.91	2099.83	-5.06	-21.90	-5.06	22.48	256.98	0.19
2200.00	0.89	313.85	2199.82	-4.43	-23.13	-4.43	23.55	259.16	0.53
2300.00	0.73	305.84	2299.81	-3.52	-24.21	-3.52	24.47	261.73	0.20
2400.00	0.84	314.49	2399.80	-2.63	-25.25	-2.63	25.39	264.05	0.16
2500.00	0.80	318.11	2499.79	-1.60	-26.24	-1.60	26.29	266.52	0.06
2600.00	1.08	293.60	2599.77	-0.70	-27.58	-0.70	27.59	268.56	0.49
2700.00	1.10	295.74	2699.76	0.10	-29.31	0.10	29.31	270.20	0.04
2800.00	0.89	240.00	2799.74	0.13	-30.84	0.13	30.84	270.24	0.95
2900.00	0.78	215.53	2899.73	-0.81	-31.91	-0.81	31.92	268.55	0.37
3000.00	0.59	207.69	2999.73	-1.82	-32.54	-1.82	32.59	266.81	0.21
3100.00	0.70	181.61	3099.72	-2.88	-32.79	-2.88	32.92	264.99	0.31
3200.00	0.16	307.19	3199.72	-3.40	-32.92	-3.40	33.09	264.10	0.80
3300.00	0.34	236.07	3299.72	-3.49	-33.28	-3.49	33.46	264.02	0.33
3400.00	0.38	261.87	3399.72	-3.70	-33.85	-3.70	34.06	263.76	0.17
3500.00	0.62	301.42	3499.71	-3.47	-34.64	-3.47	34.82	264.28	0.41
3600.00	0.72	289.60	3599.70	-2.97	-35.70	-2.97	35.82	265.24	0.17
3700.00	0.76	303.22	3699.70	-2.40	-36.85	-2.40	36.93	266.28	0.18
3800.00	0.99	321.97	3799.68	-1.35	-37.94	-1.35	37.97	267.96	0.36
3900.00	1.25	0.91	3899.67	0.42	-38.46	0.42	38.46	270.62	0.78
4000.00	0.85	13.08	3999.65	2.23	-38.27	2.23	38.34	273.33	0.45
4100.00	0.53	13.26	4099.64	3.39	-38.00	3.39	38.15	275.10	0.32
4200.00	0.23	3.30	4199.64	4.04	-37.88	4.04	38.10	276.08	0.31
4300.00	0.55	136.64	4299.64	3.88	-37.54	3.88	37.74	275.91	0.72
4400.00	0.93	145.89	4399.63	2.87	-36.76	2.87	36.87	274.46	0.40
4500.00	0.81	145.55	4499.62	1.61	-35.91	1.61	35.94	272.57	0.12
4600.00	0.60	174.14	4599.61	0.51	-35.46	0.51	35.46	270.83	0.40
4700.00	0.59	186.87	4699.61	-0.52	-35.46	-0.52	35.47	269.16	0.13
4800.00	0.47	188.37	4799.60	-1.44	-35.58	-1.44	35.61	267.69	0.12
4900.00	0.54	196.46	4899.60	-2.29	-35.78	-2.29	35.85	266.33	0.10
5000.00	0.58	197.81	4999.59	-3.22	-36.06	-3.22	36.21	264.89	0.04
5100.00	0.70	216.88	5099.59	-4.19	-36.59	-4.19	36.82	263.47	0.24
5200.00	0.66	235.88	5199.58	-5.00	-37.43	-5.00	37.76	262.39	0.23
5300.00	0.58	255.46	5299.58	-5.45	-38.40	-5.45	38.78	261.92	0.23
5400.00	0.28	234.28	5399.57	-5.73	-39.09	-5.73	39.51	261.67	0.33
5500.00	0.81	276.36	5499.57	-5.81	-39.82	-5.81	40.24	261.70	0.44
5600.00	0.57	291.43	5599.56	-5.57	-40.81	-5.57	41.19	262.23	0.16
5700.00	0.51	285.93	5699.56	-5.27	-41.70	-5.27	42.03	262.80	0.07

VES Survey Date: 02/13/2014

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	0.60	277.66	5799.55	-5.07	-42.65	-5.07	42.96	263.22	0.12
5900.00	0.82	272.56	5899.55	-4.97	-43.89	-4.97	44.18	263.64	0.23
6000.00	0.96	283.02	5999.53	-4.75	-45.43	-4.75	45.68	264.03	0.21
6100.00	1.14	270.68	6099.52	-4.55	-47.24	-4.55	47.46	264.50	0.29
6200.00	1.05	269.07	6199.50	-4.55	-49.15	-4.55	49.36	264.71	0.09
6300.00	1.18	255.13	6299.48	-4.83	-51.06	-4.83	51.29	264.59	0.30
6400.00	1.10	239.09	6399.46	-5.59	-52.88	-5.59	53.17	263.97	0.33
6500.00	1.26	235.23	6499.44	-6.71	-54.60	-6.71	55.01	263.00	0.18
6600.00	1.25	230.69	6599.42	-8.02	-56.34	-8.02	56.91	261.90	0.10
6700.00	1.41	228.99	6699.39	-9.52	-58.12	-9.52	58.89	260.69	0.17
6800.00	1.20	227.20	6799.36	-11.04	-59.81	-11.04	60.82	259.54	0.22
6900.00	0.90	206.63	6899.35	-12.45	-60.93	-12.45	62.19	258.45	0.47
7000.00	1.19	197.19	6999.33	-14.14	-61.59	-14.14	63.19	257.07	0.34
7100.00	1.01	191.33	7099.31	-16.00	-62.07	-16.00	64.10	255.55	0.21
7200.00	1.37	191.62	7199.29	-18.03	-62.48	-18.03	65.03	253.90	0.36
7300.00	1.42	208.97	7299.26	-20.29	-63.32	-20.29	66.49	252.24	0.42
7400.00	1.25	185.32	7399.23	-22.46	-64.03	-22.46	67.85	250.67	0.57
7500.00	1.26	206.67	7499.21	-24.52	-64.62	-24.52	69.12	249.22	0.46
7600.00	1.11	198.06	7599.19	-26.43	-65.42	-26.43	70.56	248.00	0.23
7700.00	1.25	200.09	7699.17	-28.38	-66.09	-28.38	71.93	246.76	0.15
7800.00	1.64	202.19	7799.14	-30.73	-67.01	-30.73	73.72	245.36	0.39
7900.00	1.33	194.51	7899.10	-33.19	-67.84	-33.19	75.52	243.93	0.36
8000.00	1.94	198.93	7999.06	-35.92	-68.68	-35.92	77.51	242.39	0.62
8100.00	2.01	197.19	8099.00	-39.20	-69.75	-39.20	80.02	240.66	0.09
8200.00	2.11	194.74	8198.94	-42.66	-70.74	-42.66	82.61	238.91	0.13
8300.00	0.62	201.29	8298.91	-44.93	-71.40	-44.93	84.37	237.82	1.50
8400.00	0.98	195.17	8398.90	-46.26	-71.82	-46.26	85.43	237.22	0.37
8500.00	1.43	185.39	8498.87	-48.32	-72.16	-48.32	86.84	236.19	0.49
8600.00	1.23	191.04	8598.85	-50.61	-72.48	-50.61	88.40	235.08	0.24
8700.00	0.60	152.41	8698.84	-52.12	-72.45	-52.12	89.25	234.27	0.85
8800.00	1.23	128.66	8798.82	-53.26	-71.36	-53.26	89.05	233.26	0.73
8900.00	1.73	143.98	8898.79	-55.16	-69.63	-55.16	88.83	231.62	0.63
9000.00	2.41	153.95	8998.72	-58.26	-67.82	-58.26	89.41	229.34	0.77
9100.00	1.77	147.40	9098.66	-61.45	-66.07	-61.45	90.23	227.07	0.68
9200.00	2.31	138.07	9198.59	-64.25	-63.89	-64.25	90.61	224.84	0.63
9300.00	1.23	178.58	9298.55	-66.82	-62.52	-66.82	91.51	223.09	1.59
9400.00	0.92	221.71	9398.53	-68.49	-63.02	-68.49	93.08	222.62	0.84
9500.00	1.81	239.27	9498.50	-69.90	-64.91	-69.90	95.39	222.88	0.98
9600.00	2.41	236.35	9598.43	-71.87	-68.02	-71.87	98.96	223.42	0.61

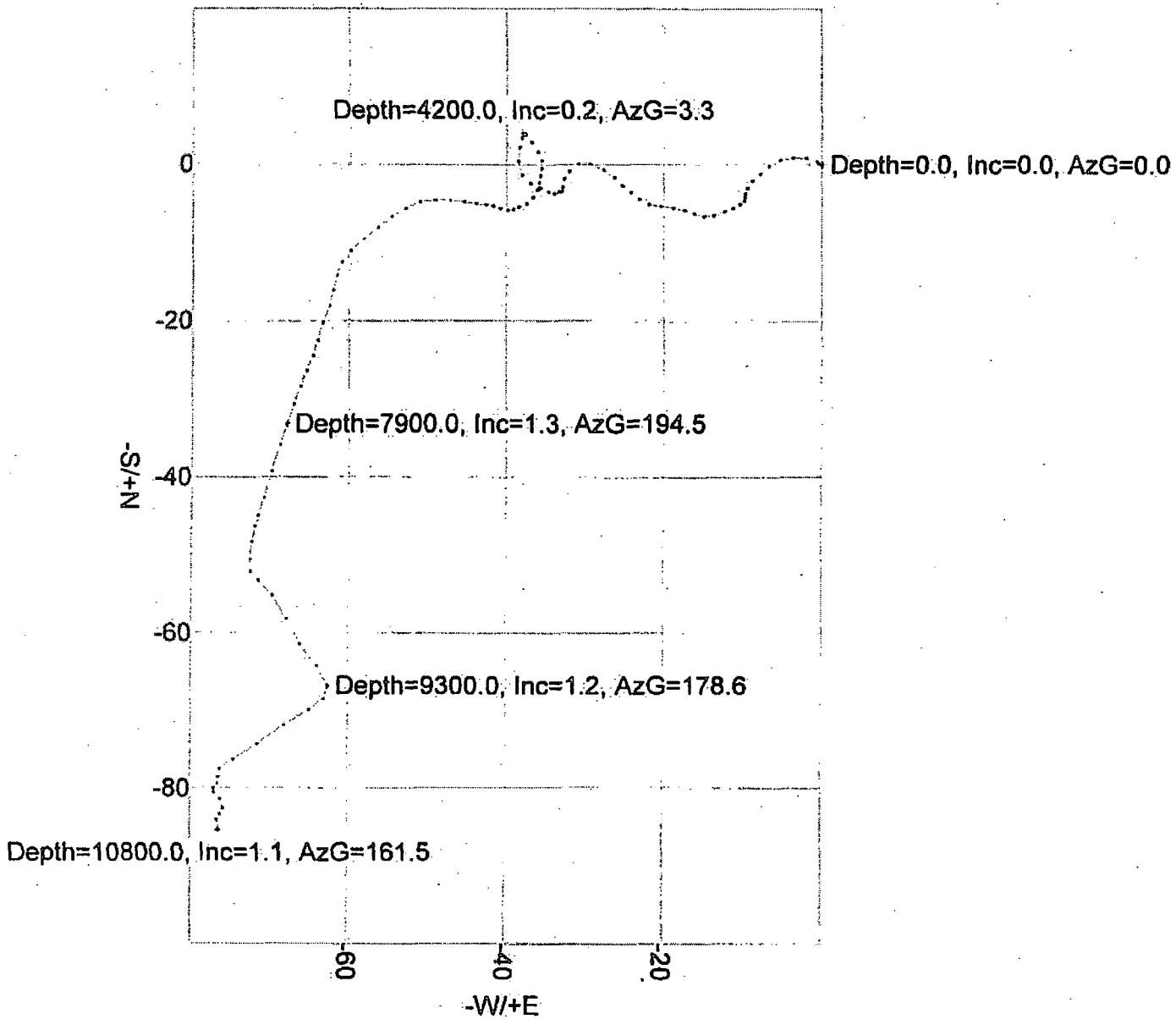
VES Survey Date: 02/13/2014

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	2.40	233.15	9698.35	-74.29	-71.44	-74.29	103.07	223.88	0.14
9800.00	1.78	242.45	9798.28	-76.27	-74.50	-76.27	106.61	224.33	0.70
9900.00	0.64	209.06	9898.26	-77.47	-76.15	-77.47	108.63	224.51	1.30
10000.00	0.69	177.94	9998.25	-78.56	-76.40	-78.56	109.59	224.20	0.36
10100.00	0.38	208.61	10098.25	-79.45	-76.54	-79.45	110.32	223.93	0.41
10200.00	0.43	228.64	10198.24	-79.99	-76.98	-79.99	111.02	223.90	0.15
10300.00	0.52	133.06	10298.24	-80.55	-76.93	-80.55	111.38	223.68	0.70
10400.00	0.79	140.59	10398.23	-81.39	-76.16	-81.39	111.47	223.10	0.29
10500.00	0.69	189.50	10498.23	-82.52	-75.82	-82.52	112.07	222.58	0.62
10600.00	0.43	224.39	10598.22	-83.39	-76.18	-83.39	112.95	222.42	0.42
10700.00	0.51	193.43	10698.22	-84.09	-76.55	-84.09	113.71	222.31	0.26
10800.00	1.08	161.50	10798.21	-85.41	-76.35	-85.41	114.57	221.79	0.70

CONCHO

Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Chris Ellis
Hoofprint Fed No. 002H / API 30-015-41563

VES SURVEY INTERNATIONAL



VES Survey Date: 02/13/2014

COG Production LLC

Eddy County, NM(NAD 27 NME)
Hoofprint Fed
2H

OH

Design: OH

Standard Survey Report

04 March, 2014

Nexus Directional Solutions, LP

Survey Report

Company:	COG Production LLC	**Local Co-ordinate Reference:**	Site Hoofprint Fed
Project:	Eddy County, NM(NAD 27 NME)	**TVD Reference:**	WELL @ 3582.8usft (Original Well Elev)
Site:	Hoofprint Fed	**MD Reference:**	WELL @ 3582.8usft (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 Eddy County, NM(NAD 27 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 Hoofprint Fed

Site Position:		**Northing:**	446,242.90 usft	**Latitude:**	32° 13' 31.478 N
From:	Map	**Easting:**	685,808.60 usft	**Longitude:**	103° 43' 56.894 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.32 °

Well 2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	446,242.90 usft	**Latitude:**	32° 13' 31.478 N
	+E/-W	0.0 usft	**Easting:**	685,808.60 usft	**Longitude:**	103° 43' 56.894 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,564.8 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/7/2014	7.35	60.10	48,342

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	0.44

Survey Program **Date** 3/4/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	10,000.0	GYRO (OH)	MWD	MWD - Standard
10,085.0	15,011.0	MWD #1 (OH)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.77	302.86	100.0	0.4	-0.6	0.4	0.77	0.77	0.00
200.0	0.95	277.89	200.0	0.8	-2.0	0.8	0.41	0.18	-24.97
300.0	1.02	265.67	300.0	0.9	-3.7	0.9	0.22	0.07	-12.22
400.0	0.92	250.00	400.0	0.5	-5.3	0.5	0.28	-0.10	-15.67
500.0	0.91	232.66	499.9	-0.2	-6.7	-0.3	0.26	-0.01	-17.34
600.0	0.78	223.67	599.9	-1.2	-7.8	-1.2	0.19	-0.13	-8.99
700.0	0.72	228.82	699.9	-2.1	-8.7	-2.2	0.09	-0.06	5.15
800.0	0.60	207.20	799.9	-3.0	-9.4	-3.0	0.27	-0.12	-21.62
900.0	0.30	184.34	899.9	-3.7	-9.7	-3.8	0.34	-0.30	-22.86

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Site:	Hoofprint Fed	**MD Reference:**	WELL @ 3582.8usft (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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.0	0.31	191.46	999.9	-4.2	-9.8	-4.3	0.04	0.01	7.12
1,100.0	0.19	180.97	1,099.9	-4.7	-9.8	-4.7	0.13	-0.12	-10.49
1,200.0	0.67	243.60	1,199.9	-5.1	-10.4	-5.2	0.61	0.48	62.63
1,300.0	0.47	237.26	1,299.9	-5.6	-11.2	-5.6	0.21	-0.20	-6.34
1,400.0	0.86	253.26	1,399.9	-6.0	-12.3	-6.1	0.43	0.39	16.00
1,500.0	0.80	244.58	1,499.9	-6.5	-13.6	-6.6	0.14	-0.06	-8.68
1,600.0	0.72	285.86	1,599.9	-6.6	-14.9	-6.8	0.54	-0.08	41.28
1,700.0	0.74	290.12	1,699.9	-6.2	-16.1	-6.4	0.06	0.02	4.26
1,800.0	0.64	286.03	1,799.9	-5.8	-17.4	-6.0	0.11	0.10	-4.09
1,900.0	0.85	276.69	1,899.9	-5.5	-18.8	-5.7	0.14	0.01	-9.34
2,000.0	0.96	280.12	1,999.8	-5.3	-20.4	-5.5	0.12	0.11	3.43
2,100.0	0.78	277.91	2,099.8	-5.1	-21.9	-5.2	0.18	-0.18	-2.21
2,200.0	0.89	313.85	2,199.8	-4.4	-23.1	-4.8	0.53	0.11	35.94
2,300.0	0.73	305.84	2,299.8	-3.5	-24.2	-3.7	0.20	-0.16	-8.01
2,400.0	0.84	314.49	2,399.8	-2.6	-25.2	-2.8	0.16	0.11	8.65
2,500.0	0.80	318.11	2,499.8	-1.8	-26.2	-1.8	0.07	-0.04	3.62
2,600.0	1.08	263.60	2,599.8	-0.7	-27.6	-0.8	0.48	0.28	-24.51
2,700.0	1.10	265.74	2,699.8	0.1	-29.3	-0.1	0.05	0.02	2.14
2,800.0	0.89	240.00	2,799.7	0.1	-30.8	-0.1	0.95	-0.21	-55.74
2,900.0	0.78	215.53	2,899.7	-0.8	-31.9	-1.1	0.37	-0.11	-24.47
3,000.0	0.59	207.69	2,999.7	-1.8	-32.5	-2.1	0.21	-0.19	-7.84
3,100.0	0.70	181.61	3,099.7	-2.9	-32.8	-3.1	0.31	0.11	-26.08
3,200.0	0.16	307.19	3,199.7	-3.4	-32.9	-3.7	0.80	-0.54	125.58
3,300.0	0.34	236.07	3,299.7	-3.5	-33.3	-3.8	0.33	0.18	-71.12
3,400.0	0.38	261.87	3,399.7	-3.7	-33.9	-4.0	0.17	0.04	25.80
3,500.0	0.62	301.42	3,499.7	-3.5	-34.6	-3.7	0.41	0.24	39.55
3,600.0	0.72	289.60	3,599.7	-3.0	-35.7	-3.3	0.17	0.10	-11.82
3,700.0	0.76	303.22	3,699.7	-2.4	-36.8	-2.7	0.18	0.04	13.62
3,800.0	0.99	321.97	3,799.7	-1.4	-37.9	-1.7	0.36	0.23	18.75
3,900.0	1.25	0.91	3,899.7	0.4	-38.4	0.1	0.79	0.26	38.94
4,000.0	0.85	13.08	3,999.7	2.2	-38.3	1.9	0.46	-0.40	12.17
4,100.0	0.53	13.26	4,099.6	3.4	-38.0	3.1	0.32	-0.32	0.18
4,200.0	0.23	3.30	4,199.6	4.0	-37.9	3.7	0.31	-0.30	-9.96
4,300.0	0.55	136.64	4,299.6	3.9	-37.5	3.6	0.73	0.32	133.34
4,400.0	0.93	145.89	4,399.6	2.9	-36.7	2.6	0.40	0.38	9.25
4,500.0	0.81	145.55	4,499.6	1.6	-35.9	1.3	0.12	-0.12	-0.34
4,600.0	0.60	174.14	4,599.6	0.5	-35.4	0.2	0.40	-0.21	28.59
4,700.0	0.59	186.87	4,699.6	-0.5	-35.4	-0.8	0.13	-0.01	12.73
4,800.0	0.47	188.37	4,799.6	-1.4	-35.6	-1.7	0.12	-0.12	1.50
4,900.0	0.54	196.46	4,899.6	-2.3	-35.8	-2.6	0.10	0.07	8.09
5,000.0	0.58	197.81	4,999.6	-3.2	-36.0	-3.5	0.04	0.04	1.35
5,100.0	0.70	216.88	5,099.6	-4.2	-36.6	-4.5	0.24	0.12	19.07
5,200.0	0.66	235.88	5,199.6	-5.0	-37.4	-5.3	0.23	-0.04	19.00

Nexus Directional Solutions, LP
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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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	0.58	255.46	5,299.6	-5.5	-38.4	-5.8	0.23	-0.08	19.58
5,400.0	0.28	234.28	5,399.6	-5.7	-39.1	-6.0	0.33	-0.30	-21.18
5,500.0	0.61	276.36	5,499.6	-5.8	-39.8	-6.1	0.44	0.33	42.08
5,600.0	0.57	291.43	5,599.6	-5.6	-40.8	-5.9	0.16	-0.04	15.07
5,700.0	0.51	285.93	5,699.6	-5.3	-41.7	-5.6	0.08	-0.06	-5.50
5,800.0	0.60	277.66	5,799.6	-5.1	-42.6	-5.4	0.12	0.09	-8.27
5,900.0	0.82	272.56	5,899.5	-5.0	-43.9	-5.3	0.23	0.22	-5.10
6,000.0	0.96	283.02	5,999.5	-4.8	-45.4	-5.1	0.21	0.14	10.46
6,100.0	1.14	270.68	6,099.5	-4.6	-47.2	-4.9	0.29	0.18	-12.34
6,200.0	1.05	269.07	6,199.5	-4.6	-49.1	-4.9	0.10	-0.09	-1.61
6,300.0	1.18	255.13	6,299.5	-4.8	-51.0	-5.2	0.30	0.13	-13.94
6,400.0	1.10	239.09	6,399.5	-5.6	-52.8	-6.0	0.33	-0.08	-16.04
6,500.0	1.26	235.23	6,499.4	-6.7	-54.6	-7.1	0.18	0.16	-3.86
6,600.0	1.25	230.68	6,599.4	-8.0	-56.3	-8.5	0.10	-0.01	-4.54
6,700.0	1.41	228.99	6,699.4	-9.5	-58.1	-10.0	0.16	0.16	-1.70
6,800.0	1.20	227.20	6,799.4	-11.1	-59.8	-11.5	0.21	-0.21	-1.79
6,900.0	0.90	206.63	6,899.3	-12.5	-60.9	-12.9	0.48	-0.30	-20.57
7,000.0	1.19	197.19	6,999.3	-14.2	-61.6	-14.6	0.34	0.29	-9.44
7,100.0	1.01	191.33	7,099.3	-16.0	-62.0	-16.5	0.21	-0.18	-5.86
7,200.0	1.37	191.62	7,199.3	-18.1	-62.5	-18.5	0.36	0.36	0.29
7,300.0	1.42	208.97	7,299.3	-20.3	-63.3	-20.8	0.42	0.05	17.35
7,400.0	1.25	185.32	7,399.2	-22.5	-64.0	-23.0	0.57	-0.17	-23.65
7,500.0	1.26	208.67	7,499.2	-24.5	-64.6	-25.0	0.47	0.01	21.35
7,600.0	1.11	198.06	7,599.2	-26.4	-65.4	-26.9	0.23	-0.15	-8.61
7,700.0	1.25	200.09	7,699.2	-28.4	-66.1	-28.9	0.15	0.14	2.03
7,800.0	1.64	202.19	7,799.1	-30.7	-67.0	-31.3	0.39	0.39	2.10
7,900.0	1.33	194.51	7,899.1	-33.2	-67.8	-33.7	0.37	-0.31	-7.68
8,000.0	1.94	198.93	7,999.1	-35.9	-68.6	-36.4	0.62	0.61	4.42
8,100.0	2.01	197.19	8,099.0	-39.2	-69.7	-39.7	0.09	0.07	-1.74
8,200.0	2.11	194.74	8,198.9	-42.6	-70.7	-43.2	0.13	0.10	-2.45
8,300.0	0.62	201.29	8,298.9	-44.9	-71.4	-45.5	1.50	-1.49	6.55
8,400.0	0.98	195.17	8,398.9	-46.3	-71.8	-46.8	0.37	0.36	-6.12
8,500.0	1.43	185.39	8,498.9	-48.3	-72.1	-48.9	0.49	0.45	-9.78
8,600.0	1.23	191.04	8,598.8	-50.6	-72.4	-51.2	0.24	-0.20	5.65
8,700.0	0.60	152.41	8,698.8	-52.1	-72.4	-52.7	0.85	-0.63	-38.63
8,800.0	1.23	128.66	8,798.8	-53.3	-71.3	-53.8	0.72	0.63	-23.75
8,900.0	1.73	143.98	8,898.8	-55.2	-69.6	-55.7	0.63	0.50	15.32
9,000.0	2.41	153.95	8,998.7	-58.3	-67.8	-58.8	0.77	0.68	9.97
9,100.0	1.77	147.40	9,098.7	-61.5	-66.0	-62.0	0.68	-0.64	-6.55
9,200.0	2.31	138.07	9,198.6	-64.3	-63.9	-64.8	0.63	0.54	-9.33
9,300.0	1.23	178.56	9,298.5	-66.8	-62.5	-67.3	1.59	-1.08	40.51
9,400.0	0.92	221.71	9,398.5	-68.5	-63.0	-69.0	0.84	-0.31	43.13
9,500.0	1.81	239.27	9,498.5	-69.9	-64.9	-70.4	0.97	0.89	17.56

Nexus Directional Solutions, LP

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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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,600.0	2.41	236.35	9,598.4	-71.9	-68.0	-72.4	0.61	0.60	-2.92
9,700.0	2.40	233.15	9,698.3	-74.3	-71.4	-74.9	0.13	-0.01	-3.20
9,800.0	1.78	242.45	9,798.3	-76.3	-74.5	-76.9	0.70	-0.62	9.30
9,900.0	0.64	209.06	9,898.3	-77.5	-76.1	-78.1	1.29	-1.14	-33.39
10,000.0	0.69	177.94	9,998.2	-78.6	-76.4	-79.2	0.36	0.05	-31.12
10,065.0	1.00	345.70	10,063.2	-78.4	-76.5	-79.0	2.59	0.48	258.09
10,097.0	6.90	355.40	10,095.2	-76.2	-76.7	-76.8	18.49	18.44	30.31
10,128.0	12.50	355.00	10,125.7	-71.0	-77.2	-71.6	18.07	18.06	-1.29
10,160.0	18.20	355.20	10,156.5	-62.6	-77.9	-63.2	17.81	17.81	0.63
10,191.0	21.80	357.20	10,185.7	-52.0	-78.6	-52.6	11.82	11.61	6.45
10,223.0	24.40	354.80	10,215.1	-39.5	-79.5	-40.1	8.64	8.13	-7.50
10,255.0	27.60	352.40	10,243.9	-25.6	-81.0	-26.2	10.52	10.00	-7.50
10,286.0	30.30	353.70	10,271.0	-10.7	-82.8	-11.3	8.84	8.71	4.19
10,318.0	32.70	357.30	10,298.3	6.0	-84.1	5.3	9.53	7.50	11.25
10,349.0	35.20	359.40	10,324.0	23.3	-84.6	22.6	8.91	8.06	6.77
10,381.0	39.00	0.30	10,349.5	42.6	-84.7	41.9	12.00	11.88	2.81
10,412.0	41.50	1.80	10,373.2	62.6	-84.3	62.0	8.73	8.06	5.16
10,444.0	43.90	0.20	10,396.7	84.3	-83.9	83.7	8.32	7.50	-5.31
10,475.0	47.60	359.90	10,418.3	106.5	-83.9	105.9	11.96	11.94	-0.97
10,506.0	50.70	359.30	10,438.6	130.0	-84.0	129.3	10.11	10.00	-1.94
10,538.0	53.30	358.80	10,458.3	155.2	-84.5	154.5	8.22	8.13	-1.56
10,569.0	55.60	359.90	10,476.3	180.4	-84.7	179.7	7.96	7.42	3.55
10,601.0	58.10	1.00	10,493.8	207.2	-84.5	206.5	8.33	7.81	3.44
10,632.0	61.10	1.90	10,509.5	233.9	-83.8	233.2	10.00	9.68	2.90
10,663.0	64.00	2.70	10,523.8	261.4	-82.7	260.7	9.63	9.35	2.58
10,695.0	66.30	3.00	10,537.2	290.4	-81.3	289.7	7.24	7.19	0.94
10,727.0	67.70	3.10	10,549.7	319.8	-79.7	319.2	4.38	4.38	0.31
10,758.0	70.20	2.90	10,560.9	348.7	-78.2	348.1	8.09	8.06	-0.65
10,789.0	73.50	1.70	10,570.5	378.1	-77.0	377.5	11.26	10.65	-3.87
10,821.0	77.10	0.60	10,578.6	409.1	-76.4	408.5	11.73	11.25	-3.44
10,852.0	80.40	0.50	10,584.7	439.5	-76.1	438.9	10.65	10.65	-0.32
10,884.0	82.90	0.40	10,589.3	471.1	-75.9	470.5	7.82	7.81	-0.31
10,915.0	84.10	0.00	10,592.8	501.9	-75.8	501.3	4.08	3.87	-1.29
10,946.0	86.40	359.50	10,595.4	532.8	-75.9	532.2	7.59	7.42	-1.61
10,978.0	89.10	359.50	10,596.7	564.8	-76.2	564.2	8.44	8.44	0.00
11,009.0	89.90	359.70	10,596.9	595.8	-76.4	595.2	2.66	2.58	0.65
11,041.0	90.50	0.10	10,596.8	627.8	-76.5	627.2	2.25	1.88	1.25
11,135.0	89.80	0.10	10,596.8	721.8	-76.3	721.2	0.74	-0.74	0.00
11,229.0	89.80	1.50	10,596.9	815.8	-75.0	815.2	1.49	0.00	1.49
11,324.0	89.70	2.00	10,597.3	910.7	-72.1	910.1	0.54	-0.11	0.53
11,418.0	89.90	2.40	10,597.6	1,004.6	-68.5	1,004.1	0.48	0.21	0.43
11,512.0	90.90	2.60	10,597.0	1,098.5	-64.4	1,098.0	1.08	1.06	0.21
11,605.0	91.20	2.80	10,595.3	1,191.4	-60.0	1,190.9	0.39	0.32	0.22
11,700.0	91.30	2.40	10,593.2	1,286.3	-55.7	1,285.8	0.43	0.11	-0.42

Nexus Directional Solutions, LP

Survey Report

Company:	COG Production LLC	**Local Co-ordinate Reference:**	Site Hoofprint Fed
Project:	Eddy County, NM(NAD 27 NME)	**TVD Reference:**	WELL @ 3582.8usft (Original Well Elev)
Site:	Hoofprint Fed	**MD Reference:**	WELL @ 3582.8usft (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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,794.0	91.30	1.50	10,591.1	1,380.2	-52.5	1,379.8	0.98	0.00	-0.98
11,889.0	90.60	1.40	10,589.5	1,475.2	-50.1	1,474.8	0.74	-0.74	-0.11
11,983.0	91.20	1.20	10,588.0	1,569.1	-47.9	1,568.7	0.67	0.64	-0.21
12,077.0	92.60	1.70	10,584.9	1,663.1	-45.6	1,662.7	1.58	1.49	0.53
12,172.0	91.70	2.90	10,581.3	1,757.9	-41.8	1,757.5	1.58	-0.95	1.26
12,266.0	89.40	2.80	10,580.4	1,851.8	-37.1	1,851.5	2.45	-2.45	-0.11
12,361.0	89.80	2.50	10,581.1	1,946.7	-32.7	1,946.4	0.53	0.42	-0.32
12,455.0	90.60	2.50	10,580.8	2,040.6	-28.6	2,040.3	0.85	0.85	0.00
12,549.0	91.60	2.00	10,579.0	2,134.5	-24.9	2,134.3	1.19	1.06	-0.53
12,643.0	92.40	2.30	10,575.7	2,228.4	-21.4	2,228.2	0.91	0.85	0.32
12,738.0	91.50	1.70	10,572.5	2,323.3	-18.1	2,323.1	1.14	-0.95	-0.63
12,832.0	90.50	0.80	10,570.8	2,417.2	-16.0	2,417.0	1.43	-1.06	-0.96
12,927.0	89.80	0.20	10,570.8	2,512.2	-15.2	2,512.0	0.97	-0.74	-0.63
13,021.0	89.80	0.40	10,570.9	2,606.2	-14.7	2,606.0	0.21	0.00	0.21
13,116.0	90.20	1.00	10,570.9	2,701.2	-13.5	2,701.0	0.76	0.42	0.63
13,210.0	89.60	0.50	10,571.1	2,795.2	-12.3	2,795.0	0.83	-0.64	-0.53
13,336.0	90.10	1.00	10,571.4	2,921.2	-10.7	2,921.0	0.56	0.40	0.40
13,399.0	90.30	0.70	10,571.2	2,984.2	-9.7	2,984.0	0.57	0.32	-0.48
13,493.0	90.90	0.70	10,570.2	3,078.2	-8.6	3,078.0	0.64	0.64	0.00
13,587.0	89.80	0.50	10,569.6	3,172.2	-7.6	3,172.0	1.19	-1.17	-0.21
13,682.0	90.10	0.60	10,569.7	3,267.2	-6.7	3,267.0	0.33	0.32	0.11
13,776.0	90.80	359.80	10,569.0	3,361.2	-6.3	3,361.0	1.05	0.74	-0.74
13,870.0	90.20	1.70	10,568.1	3,455.1	-5.0	3,455.0	2.02	-0.64	1.91
13,964.0	89.30	1.40	10,568.6	3,549.1	-2.4	3,549.0	1.01	-0.96	-0.32
14,057.0	90.80	0.90	10,568.5	3,642.1	-0.5	3,642.0	1.70	1.61	-0.54
14,153.0	91.40	1.00	10,566.6	3,738.0	1.0	3,737.9	0.63	0.63	0.10
14,247.0	91.10	0.80	10,564.6	3,832.0	2.5	3,831.9	0.38	-0.32	-0.21
14,341.0	90.70	0.30	10,563.1	3,926.0	3.4	3,925.9	0.68	-0.43	-0.53
14,437.0	90.60	359.90	10,562.0	4,022.0	3.6	4,021.9	0.43	-0.10	-0.42
14,531.0	90.70	1.00	10,560.9	4,116.0	4.3	4,115.9	1.17	0.11	1.17
14,627.0	91.10	1.90	10,559.4	4,211.9	6.8	4,211.9	1.03	0.42	0.94
14,721.0	91.00	1.70	10,557.7	4,305.9	9.7	4,305.8	0.24	-0.11	-0.21
14,816.0	90.60	1.10	10,556.4	4,400.8	12.0	4,400.8	0.76	-0.42	-0.63
14,912.0	90.70	2.50	10,555.3	4,496.8	15.0	4,496.8	1.46	0.10	1.46
14,965.0	90.60	2.40	10,554.7	4,549.7	17.3	4,549.7	0.27	-0.19	-0.19
15,011.0	90.60	2.40	10,554.2	4,595.7	19.2	4,595.7	0.00	0.00	0.00
PBHL Hoofprint Fed 2H									

Nexus Directional Solutions, LP

Survey Report

Company:	COG Production LLC	**Local Co-ordinate Reference:**	Site Hoofprint Fed
Project:	Eddy County, NM(NAD 27 NME)	**TVD Reference:**	WELL @ 3582.8usft (Original Well Elev)
Site:	Hoofprint Fed	**MD Reference:**	WELL @ 3582.8usft (Original Well Elev)
Well:	2H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	EDM 5000.1 Single User Db

Checked By: _____ Approved By: _____ Date: _____

CONCHO

Hoofprint Fed 2H
Eddy County, NM(NAD 27 NME)
Northing: (Y) 446242.90
Easting: (X) 685808.60
Plan #2

NEXUS
DIRECTIONAL SOLUTIONS, L.P.

Azimuths to Grid North
True North: -0.32°
Magnetic North: 7.03°

Magnetic Field
Strength: 48342.2snT
Dip Angle: 60.10°
Date: 1/7/2014
Model: IGRF2010

To convert a Magnetic Direction to a Grid Direction, Add 7.03°
To convert a True Direction to a Grid Direction, Subtract 0.32°

WELL DETAILS:

WELL @ 3582.8usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	446242.90	685808.60	32° 13' 31.478 N	103° 43' 56.894 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
10000.0	0.89	177.84	9998.2	-78.8	-76.4	0.00	0.00	-79.2	
10116.5	0.89	177.84	10116.7	-80.6	-76.3	0.00	0.00	-80.6	
10480.0	90.68	1.36	10500.0	403.0	-64.5	12.00	-178.58	402.5	
15103.6	90.68	1.36	10549.9	4625.1	35.7	0.00	0.00	4625.2	PBHL Hoofprint Fed 2H

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL Hoofprint Fed 2H	10550.0	4625.1	36.1	450868.00	685844.70

LEGEND

- 2H, OH, OH V0
- Plan #2

Well Shop
11:41, March 04 2014

Nexus Directional Solutions
3025 CR 1295
Odessa TX 79765

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Slot Hoofprint Fed, Grid North

Latitude: 32° 13' 31.478 N
Longitude: 103° 43' 56.894 W

Grid East: 685808.60
Grid North: 446242.90
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 07-Jan-14
Magnetic Declination: 7.35°
Dip Angle from Horizontal: 60.10°
Magnetic Field Strength: 48342

To convert a Magnetic Direction to a Grid Direction, Add 7.02°
To convert a Magnetic Direction to a True Direction, Add 7.35° East
To convert a True Direction to a Grid Direction, Subtract 0.32°