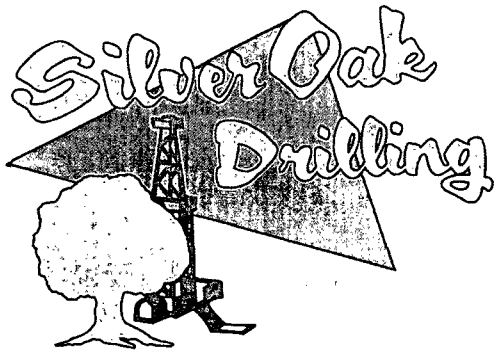




PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 12 2015

15-41620

RECEIVED

November 17, 2014

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

RE: Hoofprint Federal Com #1H
330' FSL & 430' FWL
Sec. 29, T24S, R32E
Lea County, New Mexico

Dear Sir,

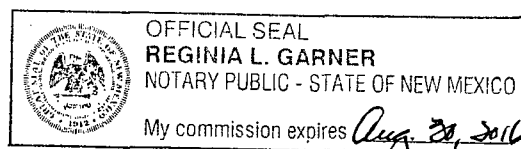
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 17th day of November, 2014.

Notary Public

Hoofprint Fed Com #1H

Date	Depth	Deviation	Direction	TVD	Horiz Disp
10/25/2014	162	0.40	119.66		
10/26/2014	249	0.40	173.00		
10/26/2014	337	0.67	178.00		
10/26/2014	427	0.48	168.13		
10/26/2014	573	0.62	175.00		
10/26/2014	648	1.01	178.00		
10/26/2014	807	1.01	176.35		
10/28/2014	954	1.10	95.67		
10/28/2014	1016	0.88	44.25		
10/28/2014	1111	0.11	286.55		
10/28/2014	1137	0.88	222.14		
10/28/2014	1162	0.88	181.67		
10/28/2014	1221	1.01	120.76		
10/28/2014	1503	0.88	166.95		
10/28/2014	1778	1.10	219.95		
10/28/2014	1960	1.01	9.27		
10/29/2014	2145	1.01	158.00		
10/29/2014	2238	1.19	58.90		
10/29/2014	2334	1.10	318.00		
10/29/2014	2427	1.10	206.00		
10/29/2014	2522	1.30	90.60		
10/29/2014	2710	1.00	262.40		
10/29/2014	2900	1.19	318.00		
10/29/2014	2994	1.01	316.36		
10/29/2014	3089	0.88	212.87		
10/29/2014	3278	0.79	13.45		
10/29/2014	3372	0.88	262.53		
10/29/2014	3562	1.01	24.96		
10/30/2014	3654	1.10	278.00		
10/30/2014	3749	0.80	190.00		
10/30/2014	3843	1.10	89.00		
10/30/2014	3940	0.70	7.30		
10/30/2014	4032	0.70	279.00		
10/30/2014	4128	1.10	148.00		
10/30/2014	4317	0.88	366.46		
10/30/2014	4412	1.10	263.54		
10/30/2014	4506	1.10	158.25		
11/1/2014	4670	1.02	104.86		
11/1/2014	4765	0.88	99.57		
11/1/2014	4859	0.08	102.14		
11/3/2014	4955	0.31	160.87		
11/3/2014	5051	0.40	191.85		
11/3/2014	5146	0.22	130.86		

Date	Depth	Deviation	Direction	TVD	Horiz Disp
11/3/2014	5241	0.40	81.06		
11/3/2014	5431	0.40	112.44		
11/3/2014	5524	0.40	0.99		
11/3/2014	5619	0.40	96.66		
11/3/2014	5715	0.40	100.85		
11/3/2014	5809	0.40	92.43		
11/3/2014	5905	0.31	114.95		
11/3/2014	5998	0.62	107.06		
11/3/2014	6090	0.62	105.17		
11/4/2014	6342	0.62	145.53		
11/4/2014	6436	0.88	155.13		
11/4/2014	6455	0.71	153.55		
11/4/2014	6593	0.88	138.60		
11/4/2014	6686	1.01	154.25		
11/5/2014	6706	0.88	159.77		
11/5/2014	6845	0.49	171.14		
11/5/2014	6940	0.71	151.44		
11/5/2014	7031	0.49	168.36		
11/5/2014	7129	0.71	184.93		
11/5/2014	7222	0.49	196.74		
11/5/2014	7316	0.49	183.65		
11/5/2014	7411	0.88	188.76		
11/5/2014	7506	1.02	196.56		
11/6/2014	7646	0.88	168.93		
11/7/2014	7792	20.60	3.50	7988.00	6.25
11/7/2014	7834	1.90	348.60	7833.28	
11/7/2014	7866	4.10	353.20	7865.00	
11/7/2014	7897	7.80	359.90	7896.07	
11/7/2014	7929	11.90	1.90	7927.00	
11/7/2014	7960	16.20	2.70	7957.65	16.32
11/7/2014	8055	28.50	60.20	8045.27	19.99
11/7/2014	8086	32.90	358.50	8071.92	357.10
11/8/2014	8118	37.10	356.20	8089.13	54.40
11/8/2014	8150	40.50	355.80	8198.50	74.05
11/8/2014	8181	43.40	356.00	8146.11	94.72
11/8/2014	8213	46.60	356.70	8168.74	117.31
11/8/2014	8245	49.40	358.20	8190.15	
11/8/2014	8276	51.90	359.50	8210.00	
11/8/2014	8308	54.00	0.80	8229.00	
11/9/2014	8371	61.90	202.00	8263.00	293.76
11/9/2014	8402	65.80	0.50	8277.00	271.57
11/9/2014	8434	69.70	358.60	8277.00	271.57
11/10/2014	8593	83.90	357.50	8321.00	456.27
11/10/2014	8625	85.80	358.80	8324.00	488.13
11/10/2014	8718	89.80	359.40	8327.00	581.04

Date	Depth	Deviation	Direction	TVD	Horiz Disp
11/10/2014	8969	89.20	357.80	8326.93	
11/10/2014	9064	91.20	357.70	8326.60	
11/10/2014	9158	90.00	357.00	8325.04	
11/10/2014	9253	88.60	356.10	8326.20	1115.83
11/10/2014	9347	88.60	354.50	8328.49	1209.53
11/10/2014	9441	90.30	356.30	8329.40	1303.26
11/11/2014	9725	92.40	358.90	8326.00	1587.10
11/11/2014	9820	91.70	0.50	8323.00	1682.03
11/11/2014	10010	91.40	0.50	8321.23	
11/11/2014	10104	90.90	359.90	8319.34	
11/11/2014	10193	90.60	359.10	8318.93	
11/11/2014	10387	92.30	359.10	8316.55	2248.92
11/11/2014	10482	90.80	358.60	8313.98	2343.88
11/11/2014	10577	88.70	358.01	8314.40	2438.84
11/12/2014	10669	89.10	357.80	8316.00	2530.79
11/12/2014	10763	91.60	357.70	8315.00	2624.73
11/12/2014	11046	90.20	357.70	8306.74	2907.48
11/12/2014	11140	90.40	357.40	8306.25	3061.42
11/12/2014	11235	90.30	357.60	8305.67	3096.35
11/12/2014	11329	89.00	357.70	8306.24	3190.28
11/12/2014	11423	88.90	357.40	8307.97	3284.20
11/13/2014	11517	90.20	356.60	8303.00	3378.09
11/13/2014	11612	90.90	358.10	8307.00	3473.01
11/13/2014	11801	89.10	0.60	8308.24	
11/13/2014	11896	90.50	0.30	8308.76	3756.97
11/13/2014	11990	91.20	359.40	8307.37	3850.95
11/13/2014	12084	88.00	358.80	8308.02	3944.94
11/13/2014	12179	88.70	358.50	8310.76	4039.88
11/13/2014	12274	90.70	359.30	8311.26	4134.97
11/14/2014	12368	90.80	358.80	8309.00	4228.84
11/14/2014	12463	93.50	358.30	8304.00	4323.72
11/14/2014	12683	90.70	357.20	8296.37	4545.41



November 20, 2014

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

Attn: Kanicia Castillo

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 12 2015
RECEIVED

RE: Hoofprint Federal Com 1H

Please find enclosed a copy of the survey from 0.00' to 7700.80' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 20 day of November A.D., 2014, by Keith Havelka.

Jennifer Ann Byerly
Notary Public, State of Texas





Company: CONCHO
Well: HOOFPRIENT FEDERAL COM 1H

Rig Name: SILVER OAK #7
State/County: NEW MEXICO /EDDY
Latitude: 32.23, Longitude: -103.74
GRID North is 0.32 Degrees East of True North
VS-Azi: 0.00 Degrees



NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 12 2015
RECEIVED

Depth Reference : RKB 18'

DRILLOG INFLEX CONTINUOUS GYRO SURVEY CALCULATIONS

Filename: hoofprint fed com 1h inrun.ut
Minimum Curvature Method
Report Date/Time: 11/20/2014 / 14:18

VES Survey International
Corpus Christi, Texas
800-606-4976

Survey Engineer: David Wittliff
Hoofprint Federal Com 1H / API 30-015-41620

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	****
25.00	0.21	125.90	25.00	-0.03	0.04	-0.03	0.05	125.90	0.85
50.00	0.24	134.53	50.00	-0.09	0.11	-0.09	0.14	129.00	0.17
75.00	0.22	123.11	75.00	-0.15	0.19	-0.15	0.25	129.02	0.20
100.00	0.20	123.65	100.00	-0.21	0.27	-0.21	0.34	127.46	0.08
125.00	0.19	141.75	125.00	-0.26	0.33	-0.26	0.42	128.44	0.25
150.00	0.21	148.61	150.00	-0.33	0.38	-0.33	0.51	131.27	0.12
175.00	0.22	150.42	175.00	-0.41	0.43	-0.41	0.59	134.08	0.06
200.00	0.25	147.93	200.00	-0.50	0.48	-0.50	0.69	136.26	0.11
225.00	0.28	139.11	225.00	-0.59	0.55	-0.59	0.81	137.24	0.20
250.00	0.34	150.21	250.00	-0.70	0.62	-0.70	0.94	138.39	0.37
275.00	0.34	145.14	275.00	-0.83	0.70	-0.83	1.09	139.67	0.12
300.00	0.39	144.23	300.00	-0.96	0.80	-0.96	1.25	140.31	0.19
325.00	0.43	150.27	325.00	-1.11	0.89	-1.11	1.42	141.19	0.23
350.00	0.45	152.87	350.00	-1.28	0.98	-1.28	1.61	142.42	0.12
375.00	0.54	167.92	374.99	-1.48	1.05	-1.48	1.82	144.57	0.62
400.00	0.57	170.80	399.99	-1.72	1.10	-1.72	2.04	147.43	0.19
425.00	0.60	170.51	424.99	-1.97	1.14	-1.97	2.28	149.97	0.10
450.00	0.65	169.45	449.99	-2.24	1.19	-2.24	2.53	152.07	0.19

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
475.00	0.72	173.39	474.99	-2.53	1.23	-2.53	2.82	154.09	0.36
500.00	0.74	175.59	499.99	-2.85	1.26	-2.85	3.12	156.13	0.13
525.00	0.77	178.29	524.98	-3.18	1.28	-3.18	3.43	158.09	0.21
550.00	0.82	176.53	549.98	-3.53	1.29	-3.53	3.76	159.85	0.22
575.00	0.95	178.81	574.98	-3.91	1.31	-3.91	4.13	161.50	0.53
600.00	1.14	175.52	599.98	-4.37	1.33	-4.37	4.57	163.03	0.78
625.00	1.22	175.21	624.97	-4.88	1.37	-4.88	5.07	164.27	0.34
650.00	1.24	177.24	649.96	-5.42	1.41	-5.42	5.60	165.41	0.18
675.00	1.25	174.98	674.96	-5.96	1.45	-5.96	6.13	166.35	0.20
700.00	1.24	176.58	699.95	-6.50	1.49	-6.50	6.67	167.11	0.15
725.00	1.23	175.65	724.95	-7.04	1.52	-7.04	7.20	167.78	0.08
750.00	1.22	176.73	749.94	-7.57	1.56	-7.57	7.73	168.36	0.11
775.00	1.18	176.15	774.94	-8.09	1.59	-8.09	8.25	168.88	0.16
800.00	1.08	173.65	799.93	-8.58	1.63	-8.58	8.74	169.22	0.46
825.00	0.98	174.12	824.93	-9.03	1.68	-9.03	9.18	169.44	0.41
850.00	0.92	173.35	849.92	-9.44	1.73	-9.44	9.60	169.63	0.22
875.00	0.88	167.54	874.92	-9.83	1.79	-9.83	9.99	169.66	0.41
900.00	0.79	151.21	899.92	-10.17	1.92	-10.17	10.34	169.32	1.01
925.00	0.75	131.51	924.92	-10.43	2.12	-10.43	10.64	168.49	1.07
950.00	0.82	103.69	949.91	-10.58	2.42	-10.58	10.85	167.12	1.54
975.00	0.88	79.46	974.91	-10.58	2.78	-10.58	10.94	165.27	1.45
1000.00	0.83	60.89	999.91	-10.46	3.13	-10.46	10.92	163.35	1.12
1025.00	0.72	44.20	1024.91	-10.26	3.40	-10.26	10.81	161.68	1.01
1050.00	0.62	11.61	1049.90	-10.01	3.53	-10.01	10.62	160.56	1.55
1075.00	0.60	338.52	1074.90	-9.76	3.51	-9.76	10.37	160.20	1.40
1100.00	0.59	297.68	1099.90	-9.58	3.35	-9.58	10.15	160.71	1.66
1125.00	0.58	268.04	1124.90	-9.52	3.11	-9.52	10.02	161.91	1.20
1150.00	0.61	237.25	1149.90	-9.60	2.87	-9.60	10.02	163.34	1.27
1175.00	0.62	202.62	1174.90	-9.80	2.71	-9.80	10.16	164.55	1.46
1200.00	0.65	164.59	1199.90	-10.06	2.69	-10.06	10.41	165.01	1.67
1225.00	0.73	127.92	1224.89	-10.29	2.86	-10.29	10.68	164.49	1.76
1250.00	0.81	100.05	1249.89	-10.42	3.15	-10.42	10.89	163.16	1.51
1275.00	0.79	81.86	1274.89	-10.43	3.50	-10.43	11.00	161.45	1.01
1300.00	0.80	54.12	1299.89	-10.30	3.81	-10.30	10.98	159.69	1.53
1325.00	0.79	21.10	1324.88	-10.04	4.02	-10.04	10.81	158.19	1.81
1350.00	0.86	342.08	1349.88	-9.70	4.02	-9.70	10.50	157.48	2.23
1375.00	0.99	323.68	1374.88	-9.34	3.83	-9.34	10.10	157.69	1.29
1400.00	1.08	310.55	1399.88	-9.02	3.53	-9.02	9.68	158.63	1.00
1425.00	1.02	294.82	1424.87	-8.77	3.15	-8.77	9.32	160.26	1.17

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
1450.00	0.88	265.47	1449.87	-8.69	2.75	-8.69	9.12	162.42	2.01
1475.00	0.74	229.61	1474.87	-8.81	2.44	-8.81	9.14	164.53	2.06
1500.00	0.69	199.50	1499.86	-9.06	2.27	-9.06	9.34	165.96	1.50
1525.00	0.71	159.74	1524.86	-9.34	2.27	-9.34	9.62	166.35	1.90
1550.00	0.76	125.54	1549.86	-9.59	2.46	-9.59	9.90	165.62	1.74
1575.00	0.73	82.88	1574.86	-9.66	2.75	-9.66	10.05	164.11	2.18
1600.00	0.77	53.73	1599.86	-9.54	3.05	-9.54	10.02	162.30	1.52
1625.00	0.84	26.69	1624.85	-9.28	3.26	-9.28	9.84	160.62	1.54
1650.00	0.95	6.63	1649.85	-8.91	3.37	-8.91	9.53	159.27	1.31
1675.00	0.95	338.56	1674.85	-8.51	3.32	-8.51	9.13	158.69	1.84
1700.00	0.92	311.03	1699.84	-8.18	3.09	-8.18	8.75	159.31	1.79
1725.00	0.99	293.15	1724.84	-7.97	2.74	-7.97	8.43	161.02	1.22
1750.00	0.97	273.62	1749.84	-7.87	2.33	-7.87	8.21	163.51	1.34
1775.00	1.01	249.75	1774.83	-7.93	1.91	-7.93	8.16	166.45	1.64
1800.00	0.94	220.18	1799.83	-8.16	1.57	-8.16	8.31	169.10	2.01
1825.00	0.89	194.99	1824.83	-8.51	1.39	-8.51	8.62	170.73	1.61
1850.00	0.83	171.42	1849.82	-8.88	1.37	-8.88	8.98	171.25	1.43
1875.00	0.77	142.98	1874.82	-9.19	1.49	-9.19	9.31	170.77	1.59
1900.00	0.79	100.31	1899.82	-9.35	1.76	-9.35	9.52	169.32	2.27
1925.00	0.80	64.00	1924.82	-9.31	2.09	-9.31	9.54	167.34	1.98
1950.00	0.76	32.73	1949.82	-9.09	2.34	-9.09	9.39	165.58	1.69
1975.00	0.85	6.12	1974.81	-8.77	2.45	-8.77	9.10	164.40	1.52
2000.00	0.90	345.08	1999.81	-8.39	2.42	-8.39	8.73	163.94	1.30
2025.00	0.91	325.48	2024.81	-8.04	2.25	-8.04	8.35	164.34	1.23
2050.00	0.85	300.44	2049.80	-7.78	1.98	-7.78	8.03	165.72	1.54
2075.00	0.79	267.11	2074.80	-7.70	1.65	-7.70	7.87	167.90	1.89
2100.00	0.81	234.14	2099.80	-7.81	1.34	-7.81	7.92	170.30	1.81
2125.00	0.89	203.71	2124.80	-8.09	1.11	-8.09	8.17	172.15	1.81
2150.00	0.89	172.15	2149.79	-8.46	1.06	-8.46	8.53	172.84	1.94
2175.00	0.96	130.47	2174.79	-8.79	1.25	-8.79	8.88	171.91	2.64
2200.00	1.03	104.06	2199.79	-8.98	1.63	-8.98	9.13	169.73	1.85
2225.00	1.06	84.91	2224.78	-9.01	2.08	-9.01	9.25	167.02	1.40
2250.00	1.07	62.58	2249.78	-8.89	2.52	-8.89	9.24	164.19	1.65
2275.00	1.03	36.07	2274.77	-8.60	2.85	-8.60	9.06	161.63	1.93
2300.00	0.96	6.47	2299.77	-8.21	3.01	-8.21	8.74	159.86	2.04
2325.00	0.98	334.29	2324.77	-7.81	2.94	-7.81	8.34	159.36	2.15
2350.00	1.01	315.78	2349.76	-7.46	2.69	-7.46	7.93	160.14	1.29
2375.00	0.90	296.05	2374.76	-7.21	2.36	-7.21	7.59	161.86	1.38
2400.00	0.92	258.02	2399.76	-7.17	1.99	-7.17	7.44	164.48	2.37

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
2425.00	0.89	235.42	2424.75	-7.32	1.63	-7.32	7.50	167.41	1.42
2450.00	0.85	213.58	2449.75	-7.59	1.37	-7.59	7.71	169.75	1.33
2475.00	0.81	182.57	2474.75	-7.92	1.26	-7.92	8.02	170.94	1.78
2500.00	0.91	142.39	2499.75	-8.25	1.37	-8.25	8.36	170.54	2.39
2525.00	1.04	101.39	2524.74	-8.45	1.72	-8.45	8.62	168.51	2.77
2550.00	1.17	71.26	2549.74	-8.41	2.18	-8.41	8.69	165.46	2.35
2575.00	1.26	57.86	2574.73	-8.19	2.66	-8.19	8.61	162.02	1.19
2600.00	1.23	46.80	2599.73	-7.86	3.08	-7.86	8.44	158.57	0.97
2625.00	1.06	28.48	2624.72	-7.47	3.39	-7.47	8.20	155.60	1.60
2650.00	0.88	350.38	2649.72	-7.08	3.47	-7.08	7.88	153.91	2.61
2675.00	0.81	317.94	2674.72	-6.76	3.32	-6.76	7.53	153.87	1.91
2700.00	0.80	301.78	2699.71	-6.53	3.05	-6.53	7.21	154.99	0.91
2725.00	0.78	278.78	2724.71	-6.42	2.73	-6.42	6.97	156.95	1.27
2750.00	0.74	242.65	2749.71	-6.47	2.42	-6.47	6.90	159.50	1.90
2775.00	0.82	207.46	2774.71	-6.70	2.19	-6.70	7.05	161.90	1.92
2800.00	0.80	183.42	2799.71	-7.03	2.10	-7.03	7.34	163.40	1.35
2825.00	0.73	153.09	2824.70	-7.35	2.16	-7.35	7.66	163.63	1.62
2850.00	0.63	114.41	2849.70	-7.55	2.36	-7.55	7.91	162.66	1.84
2875.00	0.67	72.18	2874.70	-7.56	2.62	-7.56	8.00	160.87	1.89
2900.00	0.82	34.76	2899.70	-7.37	2.86	-7.37	7.90	158.76	2.00
2925.00	0.98	15.17	2924.70	-7.01	3.02	-7.01	7.64	156.68	1.39
2950.00	1.10	1.94	2949.69	-6.56	3.09	-6.56	7.25	154.81	1.07
2975.00	1.15	344.02	2974.69	-6.08	3.03	-6.08	6.79	153.55	1.41
3000.00	1.04	329.91	2999.68	-5.65	2.84	-5.65	6.32	153.27	1.15
3025.00	0.84	309.30	3024.68	-5.33	2.59	-5.33	5.93	154.12	1.57
3050.00	0.69	286.33	3049.68	-5.18	2.30	-5.18	5.66	156.02	1.35
3075.00	0.66	262.66	3074.67	-5.15	2.01	-5.15	5.53	158.64	1.11
3100.00	0.74	231.33	3099.67	-5.27	1.75	-5.27	5.55	161.66	1.54
3125.00	0.88	203.83	3124.67	-5.55	1.54	-5.55	5.76	164.44	1.62
3150.00	0.93	187.16	3149.67	-5.92	1.44	-5.92	6.09	166.32	1.07
3175.00	0.92	169.28	3174.66	-6.32	1.45	-6.32	6.48	167.04	1.15
3200.00	0.88	138.53	3199.66	-6.66	1.62	-6.66	6.85	166.35	1.91
3225.00	0.81	114.53	3224.66	-6.88	1.91	-6.88	7.14	164.51	1.43
3250.00	0.76	73.44	3249.66	-6.90	2.23	-6.90	7.25	162.12	2.22
3275.00	0.73	34.00	3274.65	-6.72	2.48	-6.72	7.16	159.78	2.02
3300.00	0.74	4.40	3299.65	-6.43	2.58	-6.43	6.93	158.16	1.50
3325.00	0.86	338.03	3324.65	-6.09	2.52	-6.09	6.59	157.54	1.53
3350.00	0.90	309.88	3349.65	-5.79	2.30	-5.79	6.23	158.36	1.72
3375.00	0.87	280.26	3374.64	-5.63	1.96	-5.63	5.97	160.81	1.81

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
3400.00	0.86	261.25	3399.64	-5.63	1.59	-5.63	5.85	164.23	1.14
3425.00	0.84	238.09	3424.64	-5.76	1.25	-5.76	5.89	167.76	1.37
3450.00	0.81	205.44	3449.64	-6.01	1.02	-6.01	6.10	170.40	1.86
3475.00	0.92	162.66	3474.63	-6.36	1.00	-6.36	6.44	171.06	2.55
3500.00	1.00	138.18	3499.63	-6.72	1.21	-6.72	6.82	169.82	1.65
3525.00	1.01	110.17	3524.63	-6.95	1.56	-6.95	7.13	167.37	1.95
3550.00	0.95	78.59	3549.62	-6.99	1.97	-6.99	7.26	164.26	2.16
3575.00	0.92	30.35	3574.62	-6.77	2.28	-6.77	7.15	161.43	3.07
3600.00	0.95	2.95	3599.62	-6.39	2.39	-6.39	6.82	159.51	1.78
3625.00	0.91	326.70	3624.61	-6.02	2.29	-6.02	6.44	159.17	2.33
3650.00	0.94	303.19	3649.61	-5.74	2.01	-5.74	6.08	160.71	1.52
3675.00	1.01	285.55	3674.61	-5.57	1.62	-5.57	5.80	163.74	1.22
3700.00	1.04	263.06	3699.60	-5.54	1.19	-5.54	5.66	167.89	1.60
3725.00	1.07	231.33	3724.60	-5.71	0.78	-5.71	5.76	172.22	2.31
3750.00	1.05	217.89	3749.59	-6.04	0.46	-6.04	6.05	175.67	1.00
3775.00	0.90	209.99	3774.59	-6.39	0.22	-6.39	6.39	178.04	0.82
3800.00	0.73	179.73	3799.59	-6.71	0.12	-6.71	6.72	178.96	1.81
3825.00	0.75	129.11	3824.59	-6.98	0.25	-6.98	6.98	177.95	2.53
3850.00	0.93	97.70	3849.58	-7.11	0.58	-7.11	7.13	175.35	1.94
3875.00	1.04	81.70	3874.58	-7.10	1.00	-7.10	7.17	171.97	1.18
3900.00	1.05	64.24	3899.58	-6.97	1.43	-6.97	7.12	168.38	1.27
3925.00	0.99	45.52	3924.57	-6.72	1.80	-6.72	6.95	165.04	1.35
3950.00	0.87	18.37	3949.57	-6.39	2.01	-6.39	6.70	162.54	1.81
3975.00	0.80	351.75	3974.57	-6.03	2.04	-6.03	6.37	161.29	1.56
4000.00	0.76	329.53	3999.56	-5.72	1.94	-5.72	6.04	161.31	1.21
4025.00	0.75	306.36	4024.56	-5.48	1.72	-5.48	5.74	162.58	1.21
4050.00	0.69	293.04	4049.56	-5.32	1.45	-5.32	5.52	164.78	0.71
4075.00	0.62	269.26	4074.56	-5.27	1.17	-5.27	5.40	167.42	1.12
4100.00	0.63	221.77	4099.56	-5.37	0.95	-5.37	5.45	169.99	2.01
4125.00	0.88	184.06	4124.56	-5.67	0.84	-5.67	5.73	171.54	2.18
4150.00	1.17	160.27	4149.55	-6.10	0.92	-6.10	6.17	171.46	2.03
4175.00	1.39	135.19	4174.55	-6.56	1.22	-6.56	6.67	169.49	2.39
4200.00	1.37	115.66	4199.54	-6.90	1.70	-6.90	7.11	166.17	1.88
4225.00	1.24	101.69	4224.53	-7.08	2.23	-7.08	7.43	162.51	1.36
4250.00	1.12	87.75	4249.53	-7.13	2.74	-7.13	7.64	158.96	1.24
4275.00	1.02	72.43	4274.52	-7.05	3.20	-7.05	7.74	155.60	1.22
4300.00	0.86	48.63	4299.52	-6.86	3.55	-6.86	7.73	152.62	1.67
4325.00	0.74	19.23	4324.52	-6.58	3.75	-6.58	7.58	150.35	1.70
4350.00	0.72	351.08	4349.52	-6.27	3.78	-6.27	7.32	148.96	1.43

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
4375.00	0.76	323.55	4374.51	-5.99	3.65	-5.99	7.01	148.60	1.42
4400.00	0.93	293.46	4399.51	-5.77	3.37	-5.77	6.68	149.73	1.87
4425.00	1.02	274.47	4424.51	-5.67	2.96	-5.67	6.40	152.43	1.33
4450.00	1.04	248.25	4449.50	-5.74	2.53	-5.74	6.27	156.21	1.87
4475.00	1.01	230.76	4474.50	-5.96	2.15	-5.96	6.34	160.18	1.25
4500.00	0.99	208.18	4499.50	-6.29	1.88	-6.29	6.57	163.39	1.57
4525.00	1.04	173.26	4524.49	-6.71	1.80	-6.71	6.95	164.97	2.44
4550.00	1.11	149.63	4549.49	-7.14	1.95	-7.14	7.40	164.72	1.78
4575.00	1.08	127.74	4574.48	-7.50	2.26	-7.50	7.83	163.22	1.67
4600.00	1.05	116.76	4599.48	-7.74	2.65	-7.74	8.18	161.10	0.82
4625.00	1.04	108.97	4624.47	-7.92	3.07	-7.92	8.49	158.82	0.57
4650.00	1.01	112.62	4649.47	-8.08	3.49	-8.08	8.80	156.65	0.28
4675.00	0.96	108.83	4674.47	-8.23	3.89	-8.23	9.10	154.71	0.32
4700.00	0.97	112.84	4699.46	-8.38	4.28	-8.38	9.41	152.94	0.27
4725.00	0.94	112.36	4724.46	-8.54	4.67	-8.54	9.73	151.35	0.11
4750.00	0.94	112.47	4749.46	-8.70	5.04	-8.70	10.05	149.88	0.03
4775.00	0.89	112.34	4774.45	-8.85	5.41	-8.85	10.37	148.55	0.20
4800.00	0.91	111.07	4799.45	-8.99	5.77	-8.99	10.69	147.29	0.12
4825.00	0.88	113.80	4824.45	-9.14	6.13	-9.14	11.01	146.14	0.21
4850.00	0.87	115.14	4849.44	-9.30	6.48	-9.30	11.33	145.12	0.08
4875.00	0.79	113.85	4874.44	-9.45	6.81	-9.45	11.65	144.21	0.33
4900.00	0.74	119.57	4899.44	-9.60	7.11	-9.60	11.94	143.47	0.37
4925.00	0.68	125.99	4924.44	-9.77	7.37	-9.77	12.23	142.96	0.39
4950.00	0.46	149.83	4949.44	-9.94	7.54	-9.94	12.48	142.81	1.27
4975.00	0.33	166.59	4974.44	-10.10	7.61	-10.10	12.64	143.00	0.70
5000.00	0.32	167.44	4999.44	-10.24	7.64	-10.24	12.78	143.26	0.04
5025.00	0.30	194.72	5024.44	-10.37	7.64	-10.37	12.88	143.62	0.60
5050.00	0.28	191.86	5049.43	-10.49	7.61	-10.49	12.96	144.05	0.13
5075.00	0.24	203.97	5074.43	-10.60	7.58	-10.60	13.03	144.45	0.25
5100.00	0.21	203.63	5099.43	-10.69	7.54	-10.69	13.08	144.83	0.12
5125.00	0.21	201.55	5124.43	-10.78	7.50	-10.78	13.13	145.17	0.04
5150.00	0.17	210.66	5149.43	-10.85	7.47	-10.85	13.17	145.48	0.18
5175.00	0.18	181.46	5174.43	-10.92	7.45	-10.92	13.22	145.73	0.35
5200.00	0.23	156.99	5199.43	-11.01	7.46	-11.01	13.30	145.87	0.41
5225.00	0.27	130.18	5224.43	-11.09	7.53	-11.09	13.41	145.84	0.48
5250.00	0.34	113.46	5249.43	-11.16	7.64	-11.16	13.53	145.61	0.45
5275.00	0.37	110.54	5274.43	-11.22	7.78	-11.22	13.65	145.25	0.13
5300.00	0.42	110.45	5299.43	-11.28	7.94	-11.28	13.79	144.84	0.20
5325.00	0.48	106.62	5324.43	-11.34	8.13	-11.34	13.95	144.37	0.29
5350.00	0.42	119.09	5349.43	-11.42	8.31	-11.42	14.12	143.94	0.46

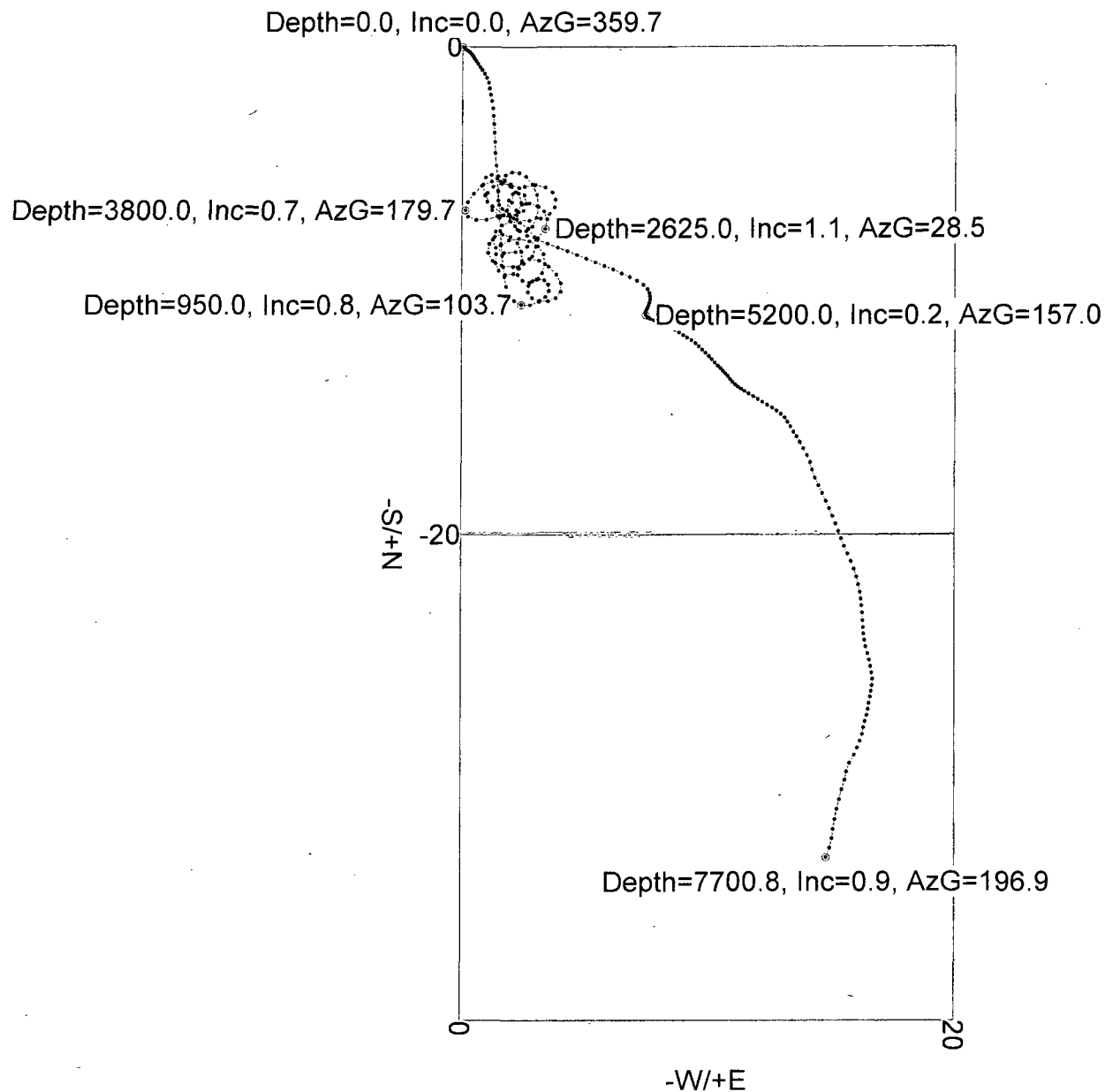
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5375.00	0.45	119.08	5374.43	-11.51	8.48	-11.51	14.29	143.62	0.12
5400.00	0.47	117.28	5399.43	-11.60	8.66	-11.60	14.48	143.28	0.09
5425.00	0.46	128.15	5424.43	-11.71	8.83	-11.71	14.67	143.00	0.36
5450.00	0.47	127.17	5449.43	-11.84	8.99	-11.84	14.86	142.79	0.04
5475.00	0.45	114.87	5474.43	-11.94	9.16	-11.94	15.05	142.51	0.40
5500.00	0.46	123.13	5499.43	-12.04	9.33	-12.04	15.23	142.22	0.27
5525.00	0.46	132.75	5524.42	-12.16	9.49	-12.16	15.42	142.03	0.31
5550.00	0.43	133.26	5549.42	-12.29	9.63	-12.29	15.61	141.92	0.13
5575.00	0.44	135.92	5574.42	-12.42	9.77	-12.42	15.80	141.83	0.08
5600.00	0.45	131.57	5599.42	-12.56	9.90	-12.56	15.99	141.74	0.14
5625.00	0.41	138.10	5624.42	-12.69	10.04	-12.69	16.18	141.65	0.24
5650.00	0.37	142.18	5649.42	-12.82	10.15	-12.82	16.35	141.64	0.19
5675.00	0.44	137.74	5674.42	-12.96	10.26	-12.96	16.53	141.62	0.29
5700.00	0.38	129.94	5699.42	-13.08	10.39	-13.08	16.71	141.54	0.32
5725.00	0.34	136.69	5724.42	-13.19	10.51	-13.19	16.86	141.46	0.24
5750.00	0.34	141.30	5749.42	-13.30	10.60	-13.30	17.01	141.44	0.11
5775.00	0.34	131.68	5774.42	-13.41	10.71	-13.41	17.16	141.39	0.23
5800.00	0.34	144.38	5799.42	-13.52	10.80	-13.52	17.31	141.37	0.30
5825.00	0.35	146.30	5824.42	-13.64	10.89	-13.64	17.46	141.40	0.05
5850.00	0.34	129.82	5849.42	-13.75	10.99	-13.75	17.60	141.37	0.40
5875.00	0.35	136.00	5874.42	-13.86	11.10	-13.86	17.75	141.30	0.15
5900.00	0.34	122.81	5899.42	-13.95	11.21	-13.95	17.90	141.20	0.32
5925.00	0.37	127.40	5924.42	-14.04	11.34	-14.04	18.05	141.07	0.16
5950.00	0.41	122.27	5949.42	-14.13	11.48	-14.13	18.21	140.92	0.20
5975.00	0.48	120.40	5974.41	-14.23	11.64	-14.23	18.39	140.72	0.30
6000.00	0.53	118.35	5999.41	-14.34	11.84	-14.34	18.60	140.47	0.21
6025.00	0.48	128.28	6024.41	-14.46	12.02	-14.46	18.81	140.27	0.40
6050.00	0.51	117.71	6049.41	-14.58	12.20	-14.58	19.01	140.08	0.38
6075.00	0.54	122.71	6074.41	-14.69	12.40	-14.69	19.23	139.84	0.23
6100.00	0.52	119.88	6099.41	-14.82	12.60	-14.82	19.45	139.63	0.14
6125.00	0.51	127.12	6124.41	-14.94	12.78	-14.94	19.66	139.44	0.26
6150.00	0.48	131.60	6149.41	-15.08	12.95	-15.08	19.88	139.33	0.19
6175.00	0.49	138.51	6174.41	-15.23	13.10	-15.23	20.09	139.29	0.23
6200.00	0.49	149.96	6199.41	-15.40	13.23	-15.40	20.30	139.34	0.39
6225.00	0.54	149.77	6224.40	-15.59	13.34	-15.59	20.52	139.46	0.20
6250.00	0.55	147.65	6249.40	-15.80	13.46	-15.80	20.76	139.56	0.09
6275.00	0.57	148.77	6274.40	-16.00	13.59	-16.00	21.00	139.66	0.08
6300.00	0.62	150.01	6299.40	-16.23	13.72	-16.23	21.25	139.78	0.23
6325.00	0.70	151.65	6324.40	-16.48	13.86	-16.48	21.54	139.93	0.32
6350.00	0.79	149.18	6349.40	-16.76	14.03	-16.76	21.86	140.08	0.37

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
6375.00	0.70	165.67	6374.40	-17.06	14.15	-17.06	22.16	140.32	0.92
6400.00	0.75	161.35	6399.39	-17.36	14.24	-17.36	22.46	140.64	0.30
6425.00	0.82	158.42	6424.39	-17.68	14.36	-17.68	22.78	140.92	0.32
6450.00	0.80	154.12	6449.39	-18.01	14.50	-18.01	23.12	141.16	0.26
6475.00	0.78	155.02	6474.39	-18.32	14.65	-18.32	23.46	141.35	0.08
6500.00	0.81	156.08	6499.38	-18.63	14.79	-18.63	23.79	141.55	0.12
6525.00	0.76	157.09	6524.38	-18.95	14.93	-18.95	24.12	141.77	0.19
6550.00	0.78	157.02	6549.38	-19.26	15.06	-19.26	24.45	141.97	0.06
6575.00	0.76	158.67	6574.38	-19.57	15.19	-19.57	24.77	142.19	0.11
6600.00	0.73	159.35	6599.37	-19.87	15.30	-19.87	25.08	142.40	0.13
6625.00	0.76	158.98	6624.37	-20.17	15.42	-20.17	25.39	142.61	0.13
6650.00	0.79	161.00	6649.37	-20.49	15.53	-20.49	25.71	142.84	0.16
6675.00	0.79	152.10	6674.37	-20.81	15.67	-20.81	26.05	143.02	0.49
6700.00	0.78	160.00	6699.37	-21.12	15.81	-21.12	26.38	143.18	0.43
6725.00	0.77	160.31	6724.36	-21.44	15.92	-21.44	26.70	143.39	0.03
6750.00	0.75	163.25	6749.36	-21.75	16.03	-21.75	27.02	143.62	0.18
6775.00	0.79	167.28	6774.36	-22.07	16.11	-22.07	27.33	143.88	0.27
6800.00	0.64	170.69	6799.36	-22.38	16.17	-22.38	27.61	144.15	0.64
6825.00	0.62	174.19	6824.36	-22.65	16.21	-22.65	27.85	144.41	0.17
6850.00	0.70	173.37	6849.35	-22.94	16.24	-22.94	28.10	144.70	0.31
6875.00	0.67	177.33	6874.35	-23.23	16.26	-23.23	28.36	145.01	0.22
6900.00	0.77	175.57	6899.35	-23.55	16.28	-23.55	28.63	145.33	0.41
6925.00	0.53	178.72	6924.35	-23.83	16.30	-23.83	28.87	145.63	0.95
6950.00	0.65	172.22	6949.35	-24.08	16.32	-24.08	29.09	145.88	0.55
6975.00	0.58	172.68	6974.35	-24.35	16.36	-24.35	29.33	146.11	0.30
7000.00	0.68	168.22	6999.34	-24.62	16.40	-24.62	29.58	146.33	0.45
7025.00	0.66	161.42	7024.34	-24.90	16.48	-24.90	29.86	146.50	0.32
7050.00	0.60	169.18	7049.34	-25.17	16.55	-25.17	30.12	146.67	0.43
7075.00	0.63	168.31	7074.34	-25.43	16.60	-25.43	30.37	146.86	0.13
7100.00	0.60	170.91	7099.34	-25.69	16.65	-25.69	30.61	147.05	0.17
7125.00	0.57	175.58	7124.34	-25.94	16.68	-25.94	30.84	147.26	0.22
7150.00	0.65	189.64	7149.34	-26.21	16.67	-26.21	31.06	147.55	0.67
7175.00	0.47	187.08	7174.33	-26.45	16.63	-26.45	31.24	147.84	0.71
7200.00	0.60	191.40	7199.33	-26.68	16.59	-26.68	31.42	148.12	0.56
7225.00	0.60	191.62	7224.33	-26.94	16.54	-26.94	31.61	148.45	0.03
7250.00	0.56	186.97	7249.33	-27.18	16.50	-27.18	31.80	148.75	0.25
7275.00	0.60	192.38	7274.33	-27.43	16.45	-27.43	31.99	149.04	0.27
7300.00	0.61	199.83	7299.33	-27.69	16.38	-27.69	32.17	149.39	0.32
7325.00	0.62	186.53	7324.33	-27.95	16.32	-27.95	32.36	149.71	0.57
7350.00	0.64	193.19	7349.33	-28.22	16.27	-28.22	32.57	150.03	0.31

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
7375.00	0.71	201.23	7374.32	-28.50	16.19	-28.50	32.77	150.40	0.46
7400.00	0.70	203.35	7399.32	-28.78	16.07	-28.78	32.96	150.83	0.11
7425.00	0.77	202.29	7424.32	-29.08	15.94	-29.08	33.16	151.26	0.27
7450.00	0.99	213.20	7449.32	-29.41	15.76	-29.41	33.37	151.82	1.11
7475.00	0.76	183.24	7474.31	-29.76	15.63	-29.76	33.62	152.29	2.02
7500.00	0.89	197.33	7499.31	-30.11	15.57	-30.11	33.90	152.66	0.95
7525.00	0.97	194.57	7524.31	-30.50	15.46	-30.50	34.20	153.13	0.37
7550.00	0.96	193.73	7549.30	-30.91	15.35	-30.91	34.51	153.59	0.08
7575.00	0.97	193.55	7574.30	-31.32	15.25	-31.32	34.84	154.03	0.07
7600.00	0.99	189.90	7599.30	-31.74	15.17	-31.74	35.18	154.46	0.26
7625.00	0.92	189.68	7624.29	-32.15	15.10	-32.15	35.52	154.85	0.27
7650.00	0.86	182.69	7649.29	-32.53	15.05	-32.53	35.85	155.17	0.50
7675.00	0.99	203.42	7674.29	-32.92	14.96	-32.92	36.16	155.56	1.43
7700.00	0.89	197.29	7699.28	-33.30	14.82	-33.30	36.45	156.02	0.58
7700.80	0.88	196.95	7700.08	-33.31	14.81	-33.31	36.46	156.03	0.92



VES Survey International
Corpus Christi, Texas
800-606-4976
Survey Engineer: David Wittliff
Hoofprint Federal Com 1H / API 30-015-41620



VES Survey Date: 11/5/2014

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 14 2015
RECEIVED

COG Operating, LLC.

Eddy County, N.M.

Section 12-24S-31E Hoofprint Federal Com #1H

Hoofprint Federal Com #1H

Orginal Hole

Design: Orginal Hole

Standard Survey Report

15 November, 2014

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Project	Eddy County, N.M.		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Section 12-24S-31E Hoofprint Federal Com #1H		
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Site Position:		Northing:	446,237.20 usft	Latitude:	32° 13' 31.516 N
From:	Map	Easting:	684,089.00 usft	Longitude:	103° 44' 16.913 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32 °

Well	Hoofprint Federal Com #1H				
Well Position	+N/-S	0.0 usft	Northing:	446,237.20 usft	Latitude: 32° 13' 31.516 N
	+E/-W	0.0 usft	Easting:	684,089.00 usft	Longitude: 103° 44' 16.913 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level: 3,561.0 usft

Wellbore	Original Hole				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/2/2014	7.26	60.08	48,268

Design	Original Hole				
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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	359.63

Survey Program		Date 11/15/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
25.0	7,700.0	VES Gyro Survey (Original Hole)	NSG-GYC_WL	Gyro in gyrocompassing mode on wireline	
7,731.0	12,739.0	MWD Survey (Original Hole)	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
25.0	0.21	125.90	25.0	0.0	0.0	0.0	0.84	0.84	0.00
50.0	0.24	134.53	50.0	-0.1	0.1	-0.1	0.18	0.12	34.52
75.0	0.22	123.11	75.0	-0.2	0.2	-0.2	0.20	-0.08	-45.68
100.0	0.20	123.65	100.0	-0.2	0.3	-0.2	0.08	-0.08	2.16
125.0	0.19	141.75	125.0	-0.3	0.3	-0.3	0.25	-0.04	72.40
150.0	0.21	148.61	150.0	-0.3	0.4	-0.3	0.12	0.08	27.44
175.0	0.22	150.42	175.0	-0.4	0.4	-0.4	0.05	0.04	7.24
200.0	0.25	147.93	200.0	-0.5	0.5	-0.5	0.13	0.12	-9.96
225.0	0.28	139.11	225.0	-0.6	0.5	-0.6	0.20	0.12	-35.28

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
250.0	0.34	150.21	250.0	-0.7	0.6	-0.7	0.34	0.24	44.40
275.0	0.34	145.14	275.0	-0.8	0.7	-0.8	0.12	0.00	-20.28
300.0	0.39	144.23	300.0	-1.0	0.8	-1.0	0.20	0.20	-3.64
325.0	0.43	150.27	325.0	-1.1	0.9	-1.1	0.24	0.16	24.16
350.0	0.45	152.87	350.0	-1.3	1.0	-1.3	0.11	0.08	10.40
375.0	0.54	167.92	375.0	-1.5	1.1	-1.5	0.63	0.36	60.20
400.0	0.57	170.80	400.0	-1.7	1.1	-1.7	0.16	0.12	11.52
425.0	0.60	170.51	425.0	-2.0	1.1	-2.0	0.12	0.12	-1.16
450.0	0.65	169.45	450.0	-2.2	1.2	-2.2	0.21	0.20	-4.24
475.0	0.72	173.39	475.0	-2.5	1.2	-2.5	0.34	0.28	15.76
500.0	0.74	175.59	500.0	-2.9	1.3	-2.9	0.14	0.08	8.80
525.0	0.77	178.29	525.0	-3.2	1.3	-3.2	0.19	0.12	10.80
550.0	0.82	176.53	550.0	-3.5	1.3	-3.5	0.22	0.20	-7.04
575.0	0.95	178.81	575.0	-3.9	1.3	-3.9	0.54	0.52	9.12
600.0	1.14	175.52	600.0	-4.4	1.3	-4.4	0.80	0.76	-13.16
625.0	1.22	175.21	625.0	-4.9	1.4	-4.9	0.32	0.32	-1.24
650.0	1.24	177.24	650.0	-5.4	1.4	-5.4	0.19	0.08	8.12
675.0	1.25	174.98	675.0	-6.0	1.4	-6.0	0.20	0.04	-9.04
700.0	1.24	176.58	700.0	-6.5	1.5	-6.5	0.14	-0.04	6.40
725.0	1.23	175.65	724.9	-7.0	1.5	-7.0	0.09	-0.04	-3.72
750.0	1.22	176.73	749.9	-7.6	1.6	-7.6	0.10	-0.04	4.32
775.0	1.18	176.15	774.9	-8.1	1.6	-8.1	0.17	-0.16	-2.32
800.0	1.08	173.65	799.9	-8.6	1.6	-8.6	0.45	-0.40	-10.00
825.0	0.98	174.12	824.9	-9.0	1.7	-9.0	0.40	-0.40	1.88
850.0	0.92	173.35	849.9	-9.4	1.7	-9.5	0.25	-0.24	-3.08
875.0	0.88	167.54	874.9	-9.8	1.8	-9.8	0.40	-0.16	-23.24
900.0	0.79	151.21	899.9	-10.2	1.9	-10.2	1.01	-0.36	-65.32
925.0	0.75	131.51	924.9	-10.4	2.1	-10.4	1.07	-0.16	-78.80
950.0	0.82	103.69	949.9	-10.6	2.4	-10.6	1.53	0.28	-111.28
975.0	0.88	79.46	974.9	-10.6	2.8	-10.6	1.45	0.24	-96.92
1,000.0	0.83	60.89	999.9	-10.5	3.1	-10.5	1.12	-0.20	-74.28
1,025.0	0.72	44.20	1,024.9	-10.3	3.4	-10.3	1.00	-0.44	-66.76
1,050.0	0.62	11.61	1,049.9	-10.0	3.5	-10.0	1.55	-0.40	-130.36
1,075.0	0.60	338.52	1,074.9	-9.8	3.5	-9.8	1.39	-0.08	-132.36
1,100.0	0.59	297.68	1,099.9	-9.6	3.3	-9.6	1.66	-0.04	-163.36
1,125.0	0.58	268.04	1,124.9	-9.5	3.1	-9.5	1.20	-0.04	-118.56
1,150.0	0.61	237.25	1,149.9	-9.6	2.9	-9.6	1.27	0.12	-123.16
1,175.0	0.62	202.62	1,174.9	-9.8	2.7	-9.8	1.46	0.04	-138.52
1,200.0	0.65	164.59	1,199.9	-10.1	2.7	-10.1	1.66	0.12	-152.12
1,225.0	0.73	127.92	1,224.9	-10.3	2.9	-10.3	1.76	0.32	-146.68
1,250.0	0.81	100.05	1,249.9	-10.4	3.2	-10.4	1.52	0.32	-111.48
1,275.0	0.79	81.86	1,274.9	-10.4	3.5	-10.5	1.01	-0.08	-72.76
1,300.0	0.80	54.12	1,299.9	-10.3	3.8	-10.3	1.53	0.04	-110.96

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)	
1,325.0	0.79	21.10	1,324.9	-10.0	4.0	-10.1	1.81	-0.04	-132.08	
1,350.0	0.86	342.08	1,349.9	-9.7	4.0	-9.7	2.22	0.28	-156.08	
1,375.0	0.99	323.68	1,374.9	-9.3	3.8	-9.4	1.29	0.52	-73.60	
1,400.0	1.08	310.55	1,399.9	-9.0	3.5	-9.0	1.01	0.36	-52.52	
1,425.0	1.02	294.82	1,424.9	-8.8	3.1	-8.8	1.17	-0.24	-62.92	
1,450.0	0.88	265.47	1,449.9	-8.7	2.8	-8.7	2.00	-0.56	-117.40	
1,475.0	0.74	229.61	1,474.9	-8.8	2.4	-8.8	2.06	-0.56	-143.44	
1,500.0	0.69	199.50	1,499.9	-9.1	2.3	-9.1	1.50	-0.20	-120.44	
1,525.0	0.71	159.74	1,524.9	-9.3	2.3	-9.4	1.91	0.08	-159.04	
1,550.0	0.76	125.54	1,549.9	-9.6	2.5	-9.6	1.74	0.20	-136.80	
1,575.0	0.73	82.88	1,574.9	-9.7	2.7	-9.7	2.17	-0.12	-170.64	
1,600.0	0.77	53.73	1,599.9	-9.5	3.0	-9.6	1.52	0.16	-116.60	
1,625.0	0.84	26.69	1,624.9	-9.3	3.3	-9.3	1.53	0.28	-108.16	
1,650.0	0.95	6.63	1,649.9	-8.9	3.4	-8.9	1.32	0.44	-80.24	
1,675.0	0.95	338.56	1,674.8	-8.5	3.3	-8.5	1.84	0.00	-112.28	
1,700.0	0.92	311.03	1,699.8	-8.2	3.1	-8.2	1.78	-0.12	-110.12	
1,725.0	0.99	293.15	1,724.8	-8.0	2.7	-8.0	1.22	0.28	-71.52	
1,750.0	0.97	273.62	1,749.8	-7.9	2.3	-7.9	1.33	-0.08	-78.12	
1,775.0	1.01	249.75	1,774.8	-7.9	1.9	-8.0	1.65	0.16	-95.48	
1,800.0	0.94	220.18	1,799.8	-8.2	1.6	-8.2	2.01	-0.28	-118.28	
1,825.0	0.89	194.99	1,824.8	-8.5	1.4	-8.5	1.61	-0.20	-100.76	
1,850.0	0.83	171.42	1,849.8	-8.9	1.4	-8.9	1.42	-0.24	-94.28	
1,875.0	0.77	142.98	1,874.8	-9.2	1.5	-9.2	1.59	-0.24	-113.76	
1,900.0	0.79	100.31	1,899.8	-9.4	1.8	-9.4	2.27	0.08	-170.68	
1,925.0	0.80	64.00	1,924.8	-9.3	2.1	-9.3	1.98	0.04	-145.24	
1,950.0	0.76	32.73	1,949.8	-9.1	2.3	-9.1	1.69	-0.16	-125.08	
1,975.0	0.85	6.12	1,974.8	-8.8	2.4	-8.8	1.52	0.36	-106.44	
2,000.0	0.90	345.08	1,999.8	-8.4	2.4	-8.4	1.29	0.20	-84.16	
2,025.0	0.91	325.48	2,024.8	-8.1	2.3	-8.1	1.23	0.04	-78.40	
2,050.0	0.85	300.44	2,049.8	-7.8	2.0	-7.8	1.54	-0.24	-100.16	
2,075.0	0.79	267.11	2,074.8	-7.7	1.6	-7.7	1.90	-0.24	-133.32	
2,100.0	0.81	234.14	2,099.8	-7.8	1.3	-7.8	1.82	0.08	-131.88	
2,125.0	0.89	203.71	2,124.8	-8.1	1.1	-8.1	1.81	0.32	-121.72	
2,150.0	0.89	172.15	2,149.8	-8.5	1.1	-8.5	1.94	0.00	-126.24	
2,175.0	0.96	130.47	2,174.8	-8.8	1.2	-8.8	2.65	0.28	-166.72	
2,200.0	1.03	104.06	2,199.8	-9.0	1.6	-9.0	1.84	0.28	-105.64	
2,225.0	1.06	84.91	2,224.8	-9.0	2.1	-9.0	1.40	0.12	-76.60	
2,250.0	1.07	62.58	2,249.8	-8.9	2.5	-8.9	1.65	0.04	-89.32	
2,275.0	1.03	36.07	2,274.8	-8.6	2.8	-8.6	1.93	-0.16	-106.04	
2,300.0	0.96	6.47	2,299.8	-8.2	3.0	-8.2	2.05	-0.28	-118.40	
2,325.0	0.98	334.29	2,324.8	-7.8	2.9	-7.8	2.15	0.08	-128.72	
2,350.0	1.01	315.78	2,349.8	-7.5	2.7	-7.5	1.29	0.12	-74.04	
2,375.0	0.90	296.05	2,374.8	-7.2	2.4	-7.2	1.38	-0.44	-78.92	

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
2,400.0	0.92	258.02	2,399.8	-7.2	2.0	-7.2	2.37	0.08	-152.12
2,425.0	0.89	235.42	2,424.8	-7.3	1.6	-7.3	1.42	-0.12	-90.40
2,450.0	0.85	213.58	2,449.8	-7.6	1.4	-7.6	1.33	-0.16	-87.36
2,475.0	0.81	182.57	2,474.7	-7.9	1.3	-7.9	1.78	-0.16	-124.04
2,500.0	0.91	142.39	2,499.7	-8.3	1.4	-8.3	2.39	0.40	-160.72
2,525.0	1.04	101.39	2,524.7	-8.5	1.7	-8.5	2.77	0.52	-164.00
2,550.0	1.17	71.26	2,549.7	-8.4	2.2	-8.4	2.35	0.52	-120.52
2,575.0	1.26	57.86	2,574.7	-8.2	2.7	-8.2	1.19	0.36	-53.60
2,600.0	1.23	46.80	2,599.7	-7.9	3.1	-7.9	0.97	-0.12	-44.24
2,625.0	1.06	28.48	2,624.7	-7.5	3.4	-7.5	1.61	-0.68	-73.28
2,650.0	0.88	350.38	2,649.7	-7.1	3.5	-7.1	2.62	-0.72	-152.40
2,675.0	0.81	317.94	2,674.7	-6.8	3.3	-6.8	1.91	-0.28	-129.76
2,700.0	0.80	301.78	2,699.7	-6.5	3.0	-6.6	0.91	-0.04	-64.64
2,725.0	0.78	278.78	2,724.7	-6.4	2.7	-6.4	1.26	-0.08	-92.00
2,750.0	0.74	242.65	2,749.7	-6.5	2.4	-6.5	1.89	-0.16	-144.52
2,775.0	0.82	207.46	2,774.7	-6.7	2.2	-6.7	1.91	0.32	-140.76
2,800.0	0.80	183.42	2,799.7	-7.0	2.1	-7.1	1.35	-0.08	-96.16
2,825.0	0.73	153.09	2,824.7	-7.4	2.2	-7.4	1.62	-0.28	-121.32
2,850.0	0.63	114.41	2,849.7	-7.6	2.4	-7.6	1.84	-0.40	-154.72
2,875.0	0.67	72.18	2,874.7	-7.6	2.6	-7.6	1.88	0.16	-168.92
2,900.0	0.82	34.76	2,899.7	-7.4	2.9	-7.4	1.99	0.60	-149.68
2,925.0	0.98	15.17	2,924.7	-7.0	3.0	-7.0	1.38	0.64	-78.36
2,950.0	1.10	1.94	2,949.7	-6.6	3.1	-6.6	1.07	0.48	-52.92
2,975.0	1.15	344.02	2,974.7	-6.1	3.0	-6.1	1.42	0.20	-71.68
3,000.0	1.04	329.91	2,999.7	-5.7	2.8	-5.7	1.16	-0.44	-56.44
3,025.0	0.84	309.30	3,024.7	-5.3	2.6	-5.4	1.56	-0.80	-82.44
3,050.0	0.69	286.33	3,049.7	-5.2	2.3	-5.2	1.35	-0.60	-91.88
3,075.0	0.66	262.66	3,074.7	-5.2	2.0	-5.2	1.11	-0.12	-94.68
3,100.0	0.74	231.33	3,099.7	-5.3	1.7	-5.3	1.54	0.32	-125.32
3,125.0	0.88	203.83	3,124.7	-5.6	1.5	-5.6	1.63	0.56	-110.00
3,150.0	0.93	187.16	3,149.7	-5.9	1.4	-5.9	1.07	0.20	-66.68
3,175.0	0.92	169.28	3,174.7	-6.3	1.5	-6.3	1.15	-0.04	-71.52
3,200.0	0.88	138.53	3,199.7	-6.7	1.6	-6.7	1.92	-0.16	-123.00
3,225.0	0.81	114.53	3,224.7	-6.9	1.9	-6.9	1.43	-0.28	-96.00
3,250.0	0.76	73.44	3,249.7	-6.9	2.2	-6.9	2.21	-0.20	-164.36
3,275.0	0.73	34.00	3,274.7	-6.7	2.5	-6.8	2.01	-0.12	-157.76
3,300.0	0.74	4.40	3,299.7	-6.4	2.6	-6.5	1.50	0.04	-118.40
3,325.0	0.86	338.03	3,324.7	-6.1	2.5	-6.1	1.53	0.48	-105.48
3,350.0	0.90	309.88	3,349.6	-5.8	2.3	-5.8	1.72	0.16	-112.60
3,375.0	0.87	280.26	3,374.6	-5.6	2.0	-5.7	1.81	-0.12	-118.48
3,400.0	0.86	261.25	3,399.6	-5.6	1.6	-5.7	1.14	-0.04	-76.04
3,425.0	0.84	238.09	3,424.6	-5.8	1.2	-5.8	1.37	-0.08	-92.64
3,450.0	0.81	205.44	3,449.6	-6.0	1.0	-6.0	1.86	-0.12	-130.60
3,475.0	0.92	162.66	3,474.6	-6.4	1.0	-6.4	2.56	0.44	-171.12

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
3,500.0	1.00	138.18	3,499.6	-6.7	1.2	-6.7	1.66	0.32	-97.92
3,525.0	1.01	110.17	3,524.6	-7.0	1.6	-7.0	1.95	0.04	-112.04
3,550.0	0.95	78.59	3,549.6	-7.0	2.0	-7.0	2.15	-0.24	-126.32
3,575.0	0.92	30.35	3,574.6	-6.8	2.3	-6.8	3.06	-0.12	-192.96
3,600.0	0.95	2.95	3,599.6	-6.4	2.4	-6.4	1.78	0.12	-109.60
3,625.0	0.91	326.70	3,624.6	-6.0	2.3	-6.1	2.32	-0.16	-145.00
3,650.0	0.94	303.19	3,649.6	-5.8	2.0	-5.8	1.51	0.12	-94.04
3,675.0	1.01	285.55	3,674.6	-5.6	1.6	-5.6	1.23	0.28	-70.56
3,700.0	1.04	263.06	3,699.6	-5.6	1.2	-5.6	1.60	0.12	-89.96
3,725.0	1.07	231.33	3,724.6	-5.7	0.8	-5.7	2.31	0.12	-126.92
3,750.0	1.05	217.89	3,749.6	-6.1	0.4	-6.1	1.00	-0.08	-53.76
3,775.0	0.90	209.99	3,774.6	-6.4	0.2	-6.4	0.80	-0.60	-31.60
3,800.0	0.73	179.73	3,799.6	-6.7	0.1	-6.7	1.82	-0.68	-121.04
3,825.0	0.75	129.11	3,824.6	-7.0	0.2	-7.0	2.53	0.08	-202.48
3,850.0	0.93	97.70	3,849.6	-7.1	0.6	-7.1	1.95	0.72	-125.64
3,875.0	1.04	81.70	3,874.6	-7.1	1.0	-7.1	1.18	0.44	-64.00
3,900.0	1.05	64.24	3,899.6	-7.0	1.4	-7.0	1.27	0.04	-69.84
3,925.0	0.99	45.52	3,924.6	-6.7	1.8	-6.8	1.35	-0.24	-74.88
3,950.0	0.87	18.37	3,949.6	-6.4	2.0	-6.4	1.81	-0.48	-108.60
3,975.0	0.80	351.75	3,974.6	-6.1	2.0	-6.1	1.56	-0.28	-106.48
4,000.0	0.76	329.53	3,999.6	-5.7	1.9	-5.8	1.21	-0.16	-88.88
4,025.0	0.75	306.36	4,024.6	-5.5	1.7	-5.5	1.21	-0.04	-92.68
4,050.0	0.69	293.04	4,049.6	-5.3	1.4	-5.4	0.71	-0.24	-53.28
4,075.0	0.62	269.26	4,074.6	-5.3	1.2	-5.3	1.11	-0.28	-95.12
4,100.0	0.63	221.77	4,099.6	-5.4	0.9	-5.4	2.01	0.04	-189.96
4,125.0	0.88	184.06	4,124.6	-5.7	0.8	-5.7	2.17	1.00	-150.84
4,150.0	1.17	160.27	4,149.6	-6.1	0.9	-6.1	2.04	1.16	-95.16
4,175.0	1.39	135.19	4,174.5	-6.6	1.2	-6.6	2.38	0.88	-100.32
4,200.0	1.37	115.66	4,199.5	-6.9	1.7	-6.9	1.87	-0.08	-78.12
4,225.0	1.24	101.69	4,224.5	-7.1	2.2	-7.1	1.37	-0.52	-55.88
4,250.0	1.12	87.75	4,249.5	-7.1	2.7	-7.2	1.24	-0.48	-55.76
4,275.0	1.02	72.43	4,274.5	-7.1	3.2	-7.1	1.21	-0.40	-61.28
4,300.0	0.86	48.63	4,299.5	-6.9	3.5	-6.9	1.67	-0.64	-95.20
4,325.0	0.74	19.23	4,324.5	-6.6	3.7	-6.6	1.69	-0.48	-117.60
4,350.0	0.72	351.08	4,349.5	-6.3	3.8	-6.3	1.42	-0.08	-112.60
4,375.0	0.76	323.55	4,374.5	-6.0	3.6	-6.0	1.42	0.16	-110.12
4,400.0	0.93	293.46	4,399.5	-5.8	3.4	-5.8	1.87	0.68	-120.36
4,425.0	1.02	274.47	4,424.5	-5.7	2.9	-5.7	1.33	0.36	-75.96
4,450.0	1.04	248.25	4,449.5	-5.8	2.5	-5.8	1.87	0.08	-104.88
4,475.0	1.01	230.76	4,474.5	-6.0	2.1	-6.0	1.25	-0.12	-69.96
4,500.0	0.99	208.18	4,499.5	-6.3	1.9	-6.3	1.57	-0.08	-90.32
4,525.0	1.04	173.26	4,524.5	-6.7	1.8	-6.7	2.44	0.20	-139.68
4,550.0	1.11	149.63	4,549.5	-7.2	1.9	-7.2	1.78	0.28	-94.52

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
4,575.0	1.08	127.74	4,574.5	-7.5	2.2	-7.5	1.67	-0.12	-87.56
4,600.0	1.05	116.76	4,599.5	-7.8	2.6	-7.8	0.82	-0.12	-43.92
4,625.0	1.04	108.97	4,624.5	-7.9	3.1	-8.0	0.57	-0.04	-31.16
4,650.0	1.01	112.62	4,649.5	-8.1	3.5	-8.1	0.29	-0.12	14.60
4,675.0	0.96	108.83	4,674.5	-8.3	3.9	-8.3	0.33	-0.20	-15.16
4,700.0	0.97	112.84	4,699.5	-8.4	4.3	-8.4	0.27	0.04	16.04
4,725.0	0.94	112.36	4,724.5	-8.6	4.7	-8.6	0.12	-0.12	-1.92
4,750.0	0.94	112.47	4,749.5	-8.7	5.0	-8.8	0.01	0.00	0.44
4,775.0	0.89	112.34	4,774.5	-8.9	5.4	-8.9	0.20	-0.20	-0.52
4,800.0	0.91	111.07	4,799.5	-9.0	5.8	-9.1	0.11	0.08	-5.08
4,825.0	0.88	113.80	4,824.4	-9.2	6.1	-9.2	0.21	-0.12	10.92
4,850.0	0.87	115.14	4,849.4	-9.3	6.5	-9.4	0.09	-0.04	5.36
4,875.0	0.79	113.85	4,874.4	-9.5	6.8	-9.5	0.33	-0.32	-5.16
4,900.0	0.74	119.57	4,899.4	-9.6	7.1	-9.7	0.36	-0.20	22.88
4,925.0	0.68	125.99	4,924.4	-9.8	7.4	-9.8	0.40	-0.24	25.68
4,950.0	0.46	149.83	4,949.4	-10.0	7.5	-10.0	1.28	-0.88	95.36
4,975.0	0.33	166.59	4,974.4	-10.1	7.6	-10.2	0.69	-0.52	67.04
5,000.0	0.32	167.44	4,999.4	-10.3	7.6	-10.3	0.04	-0.04	3.40
5,025.0	0.30	194.72	5,024.4	-10.4	7.6	-10.4	0.59	-0.08	109.12
5,050.0	0.28	191.86	5,049.4	-10.5	7.6	-10.6	0.10	-0.08	-11.44
5,075.0	0.24	203.97	5,074.4	-10.6	7.6	-10.7	0.27	-0.16	48.44
5,100.0	0.21	203.63	5,099.4	-10.7	7.5	-10.8	0.12	-0.12	-1.36
5,125.0	0.21	201.55	5,124.4	-10.8	7.5	-10.8	0.03	0.00	-8.32
5,150.0	0.17	210.66	5,149.4	-10.9	7.5	-10.9	0.20	-0.16	36.44
5,175.0	0.18	181.46	5,174.4	-10.9	7.4	-11.0	0.36	0.04	-116.80
5,200.0	0.23	156.99	5,199.4	-11.0	7.5	-11.1	0.40	0.20	-97.88
5,225.0	0.27	130.18	5,224.4	-11.1	7.5	-11.2	0.49	0.16	-107.24
5,250.0	0.34	113.46	5,249.4	-11.2	7.6	-11.2	0.45	0.28	-66.88
5,275.0	0.37	110.54	5,274.4	-11.2	7.8	-11.3	0.14	0.12	-11.68
5,300.0	0.42	110.45	5,299.4	-11.3	7.9	-11.3	0.20	0.20	-0.36
5,325.0	0.48	106.62	5,324.4	-11.4	8.1	-11.4	0.27	0.24	-15.32
5,350.0	0.42	119.09	5,349.4	-11.4	8.3	-11.5	0.46	-0.24	49.88
5,375.0	0.45	119.08	5,374.4	-11.5	8.5	-11.6	0.12	0.12	-0.04
5,400.0	0.47	117.28	5,399.4	-11.6	8.6	-11.7	0.10	0.08	-7.20
5,425.0	0.46	128.15	5,424.4	-11.7	8.8	-11.8	0.35	-0.04	43.48
5,450.0	0.47	127.17	5,449.4	-11.9	9.0	-11.9	0.05	0.04	-3.92
5,475.0	0.45	114.87	5,474.4	-12.0	9.1	-12.0	0.40	-0.08	-49.20
5,500.0	0.46	123.13	5,499.4	-12.1	9.3	-12.1	0.27	0.04	33.04
5,525.0	0.46	132.75	5,524.4	-12.2	9.5	-12.2	0.31	0.00	38.48
5,550.0	0.43	133.26	5,549.4	-12.3	9.6	-12.4	0.12	-0.12	2.04
5,575.0	0.44	135.92	5,574.4	-12.4	9.8	-12.5	0.09	0.04	10.64
5,600.0	0.45	131.57	5,599.4	-12.6	9.9	-12.6	0.14	0.04	-17.40
5,625.0	0.41	138.10	5,624.4	-12.7	10.0	-12.8	0.25	-0.16	26.12

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)	
5,650.0	0.37	142.18	5,649.4	-12.8	10.1	-12.9	0.19	-0.16	16.32	
5,675.0	0.44	137.74	5,674.4	-13.0	10.3	-13.0	0.31	0.28	-17.76	
5,700.0	0.38	129.94	5,699.4	-13.1	10.4	-13.2	0.33	-0.24	-31.20	
5,725.0	0.34	136.69	5,724.4	-13.2	10.5	-13.3	0.23	-0.16	27.00	
5,750.0	0.34	141.30	5,749.4	-13.3	10.6	-13.4	0.11	0.00	18.44	
5,775.0	0.34	131.68	5,774.4	-13.4	10.7	-13.5	0.23	0.00	-38.48	
5,800.0	0.34	144.38	5,799.4	-13.5	10.8	-13.6	0.30	0.00	50.80	
5,825.0	0.35	146.30	5,824.4	-13.7	10.9	-13.7	0.06	0.04	7.68	
5,850.0	0.34	129.82	5,849.4	-13.8	11.0	-13.8	0.40	-0.04	-65.92	
5,875.0	0.35	136.00	5,874.4	-13.9	11.1	-13.9	0.15	0.04	24.72	
5,900.0	0.34	122.81	5,899.4	-14.0	11.2	-14.0	0.32	-0.04	-52.76	
5,925.0	0.37	127.40	5,924.4	-14.1	11.3	-14.1	0.17	0.12	18.36	
5,950.0	0.41	122.27	5,949.4	-14.1	11.5	-14.2	0.21	0.16	-20.52	
5,975.0	0.48	120.40	5,974.4	-14.3	11.6	-14.3	0.29	0.28	-7.48	
6,000.0	0.53	118.35	5,999.4	-14.4	11.8	-14.4	0.21	0.20	-8.20	
6,025.0	0.48	128.28	6,024.4	-14.5	12.0	-14.6	0.40	-0.20	39.72	
6,050.0	0.51	117.71	6,049.4	-14.6	12.2	-14.7	0.38	0.12	-42.28	
6,075.0	0.54	122.71	6,074.4	-14.7	12.4	-14.8	0.22	0.12	20.00	
6,100.0	0.52	119.88	6,099.4	-14.8	12.6	-14.9	0.13	-0.08	-11.32	
6,125.0	0.51	127.12	6,124.4	-15.0	12.8	-15.0	0.26	-0.04	28.96	
6,150.0	0.48	131.60	6,149.4	-15.1	12.9	-15.2	0.20	-0.12	17.92	
6,175.0	0.49	138.51	6,174.4	-15.2	13.1	-15.3	0.24	0.04	27.64	
6,200.0	0.49	149.96	6,199.4	-15.4	13.2	-15.5	0.39	0.00	45.80	
6,225.0	0.54	149.77	6,224.4	-15.6	13.3	-15.7	0.20	0.20	-0.76	
6,250.0	0.55	147.65	6,249.4	-15.8	13.5	-15.9	0.09	0.04	-8.48	
6,275.0	0.57	148.77	6,274.4	-16.0	13.6	-16.1	0.09	0.08	4.48	
6,300.0	0.62	150.01	6,299.4	-16.2	13.7	-16.3	0.21	0.20	4.96	
6,325.0	0.70	151.65	6,324.4	-16.5	13.9	-16.6	0.33	0.32	6.56	
6,350.0	0.79	149.18	6,349.4	-16.8	14.0	-16.9	0.38	0.36	-9.88	
6,375.0	0.70	165.67	6,374.4	-17.1	14.1	-17.2	0.93	-0.36	65.96	
6,400.0	0.75	161.35	6,399.4	-17.4	14.2	-17.5	0.30	0.20	-17.28	
6,425.0	0.82	158.42	6,424.4	-17.7	14.3	-17.8	0.32	0.28	-11.72	
6,450.0	0.80	154.12	6,449.4	-18.0	14.5	-18.1	0.26	-0.08	-17.20	
6,475.0	0.78	155.02	6,474.4	-18.3	14.6	-18.4	0.09	-0.08	3.60	
6,500.0	0.81	156.08	6,499.4	-18.6	14.8	-18.7	0.13	0.12	4.24	
6,525.0	0.76	157.09	6,524.4	-19.0	14.9	-19.1	0.21	-0.20	4.04	
6,550.0	0.78	157.02	6,549.4	-19.3	15.0	-19.4	0.08	0.08	-0.28	
6,575.0	0.76	158.67	6,574.4	-19.6	15.2	-19.7	0.12	-0.08	6.60	
6,600.0	0.73	159.35	6,599.4	-19.9	15.3	-20.0	0.13	-0.12	2.72	
6,625.0	0.76	158.98	6,624.4	-20.2	15.4	-20.3	0.12	0.12	-1.48	
6,650.0	0.79	161.00	6,649.4	-20.5	15.5	-20.6	0.16	0.12	8.08	
6,675.0	0.79	152.10	6,674.4	-20.8	15.7	-20.9	0.49	0.00	-35.60	
6,700.0	0.78	160.00	6,699.4	-21.1	15.8	-21.2	0.43	-0.04	31.60	
6,725.0	0.77	160.31	6,724.4	-21.5	15.9	-21.6	0.04	-0.04	1.24	

Stryker Directional

Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
6,750.0	0.75	163.25	6,749.4	-21.8	16.0	-21.9	0.18	-0.08	11.76
6,775.0	0.79	167.28	6,774.4	-22.1	16.1	-22.2	0.27	0.16	16.12
6,800.0	0.64	170.69	6,799.4	-22.4	16.2	-22.5	0.62	-0.60	13.64
6,825.0	0.62	174.19	6,824.4	-22.7	16.2	-22.8	0.17	-0.08	14.00
6,850.0	0.70	173.37	6,849.4	-23.0	16.2	-23.1	0.32	0.32	-3.28
6,875.0	0.67	177.33	6,874.4	-23.3	16.3	-23.4	0.22	-0.12	15.84
6,900.0	0.77	175.57	6,899.4	-23.6	16.3	-23.7	0.41	0.40	-7.04
6,925.0	0.53	178.72	6,924.3	-23.9	16.3	-24.0	0.97	-0.96	12.60
6,950.0	0.65	172.22	6,949.3	-24.1	16.3	-24.2	0.55	0.48	-26.00
6,975.0	0.58	172.68	6,974.3	-24.4	16.3	-24.5	0.28	-0.28	1.84
7,000.0	0.68	168.22	6,999.3	-24.6	16.4	-24.7	0.45	0.40	-17.84
7,025.0	0.66	161.42	7,024.3	-24.9	16.5	-25.0	0.33	-0.08	-27.20
7,050.0	0.60	169.18	7,049.3	-25.2	16.5	-25.3	0.42	-0.24	31.04
7,075.0	0.63	168.31	7,074.3	-25.5	16.6	-25.6	0.13	0.12	-3.48
7,100.0	0.60	170.91	7,099.3	-25.7	16.6	-25.8	0.16	-0.12	10.40
7,125.0	0.57	175.58	7,124.3	-26.0	16.7	-26.1	0.23	-0.12	18.68
7,150.0	0.65	189.64	7,149.3	-26.2	16.7	-26.3	0.68	0.32	56.24
7,175.0	0.47	187.08	7,174.3	-26.5	16.6	-26.6	0.73	-0.72	-10.24
7,200.0	0.60	191.40	7,199.3	-26.7	16.6	-26.8	0.54	0.52	17.28
7,225.0	0.60	191.62	7,224.3	-27.0	16.5	-27.1	0.01	0.00	0.88
7,250.0	0.56	186.97	7,249.3	-27.2	16.5	-27.3	0.25	-0.16	-18.60
7,275.0	0.60	192.38	7,274.3	-27.5	16.4	-27.6	0.27	0.16	21.64
7,300.0	0.61	199.83	7,299.3	-27.7	16.4	-27.8	0.32	0.04	29.80
7,325.0	0.62	186.53	7,324.3	-28.0	16.3	-28.1	0.57	0.04	-53.20
7,350.0	0.64	193.19	7,349.3	-28.2	16.3	-28.3	0.30	0.08	26.64
7,375.0	0.71	201.23	7,374.3	-28.5	16.2	-28.6	0.47	0.28	32.16
7,400.0	0.70	203.35	7,399.3	-28.8	16.1	-28.9	0.11	-0.04	8.48
7,425.0	0.77	202.29	7,424.3	-29.1	15.9	-29.2	0.29	0.28	-4.24
7,450.0	0.99	213.20	7,449.3	-29.4	15.8	-29.5	1.10	0.88	43.64
7,475.0	0.76	183.24	7,474.3	-29.8	15.6	-29.9	2.02	-0.92	-119.84
7,500.0	0.89	197.33	7,499.3	-30.1	15.6	-30.2	0.96	0.52	56.36
7,525.0	0.97	194.57	7,524.3	-30.5	15.4	-30.6	0.37	0.32	-11.04
7,550.0	0.96	193.73	7,549.3	-30.9	15.3	-31.0	0.07	-0.04	-3.36
7,575.0	0.97	193.55	7,574.3	-31.3	15.2	-31.4	0.04	0.04	-0.72
7,600.0	0.99	189.90	7,599.3	-31.8	15.2	-31.9	0.26	0.08	-14.60
7,625.0	0.92	189.68	7,624.3	-32.2	15.1	-32.3	0.28	-0.28	-0.88
7,650.0	0.86	182.69	7,649.3	-32.6	15.0	-32.7	0.50	-0.24	-27.96
7,675.0	0.99	203.42	7,674.3	-32.9	15.0	-33.0	1.43	0.52	82.92
7,700.0	0.89	197.29	7,699.3	-33.3	14.8	-33.4	0.57	-0.40	-24.52
7,771.0	0.90	169.70	7,770.3	-34.4	14.7	-34.5	0.60	0.01	-38.86
7,803.0	0.30	281.40	7,802.3	-34.6	14.7	-34.7	3.28	-1.88	349.06
7,834.0	1.90	348.60	7,833.3	-34.1	14.5	-34.2	5.82	5.16	216.77
7,866.0	4.10	353.20	7,865.2	-32.5	14.3	-32.5	6.91	6.88	14.38

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
7,897.0	7.80	359.90	7,896.1	-29.3	14.1	-29.3	12.12	11.94	21.61
7,929.0	11.90	1.90	7,927.6	-23.8	14.3	-23.9	12.86	12.81	6.25
7,960.0	16.20	2.70	7,957.6	-16.3	14.6	-16.4	13.88	13.87	2.58
7,992.0	20.60	3.50	7,988.0	-6.2	15.1	-6.3	13.77	13.75	2.50
8,023.0	24.50	2.50	8,016.6	5.7	15.7	5.6	12.64	12.58	-3.23
8,055.0	28.50	0.80	8,045.3	20.0	16.1	19.9	12.72	12.50	-5.31
8,086.0	32.90	358.50	8,071.9	35.8	16.0	35.7	14.69	14.19	-7.42
8,118.0	37.10	356.20	8,098.1	54.1	15.1	54.0	13.76	13.13	-7.19
8,150.0	40.50	355.80	8,123.0	74.1	13.7	74.0	10.65	10.63	-1.25
8,181.0	43.40	356.00	8,146.1	94.8	12.3	94.7	9.36	9.35	0.65
8,213.0	46.60	356.70	8,168.7	117.3	10.8	117.3	10.12	10.00	2.19
8,245.0	49.40	358.20	8,190.1	141.1	9.8	141.0	9.42	8.75	4.69
8,276.0	51.90	359.50	8,209.8	165.1	9.3	165.0	8.69	8.06	4.19
8,308.0	54.00	0.80	8,229.1	190.6	9.4	190.5	7.32	6.56	4.06
8,339.0	57.50	2.20	8,246.5	216.2	10.0	216.1	11.89	11.29	4.52
8,371.0	61.90	2.20	8,262.7	243.8	11.1	243.7	13.75	13.75	0.00
8,402.0	65.80	0.50	8,276.3	271.6	11.8	271.5	13.51	12.58	-5.48
8,434.0	69.70	358.60	8,288.4	301.2	11.5	301.2	13.37	12.19	-5.94
8,465.0	73.50	356.90	8,298.2	330.6	10.4	330.5	13.32	12.26	-5.48
8,498.0	78.40	356.80	8,306.2	362.6	8.6	362.5	14.85	14.85	-0.30
8,530.0	81.10	356.60	8,311.9	394.0	6.8	394.0	8.46	8.44	-0.63
8,562.0	82.90	357.00	8,316.4	425.6	5.0	425.6	5.76	5.63	1.25
8,593.0	83.90	357.50	8,319.9	456.4	3.5	456.4	3.60	3.23	1.61
8,625.0	85.80	358.40	8,322.8	488.3	2.4	488.2	6.57	5.94	2.81
8,656.0	87.50	359.00	8,324.6	519.2	1.7	519.2	5.81	5.48	1.94
8,688.0	88.20	359.10	8,325.8	551.2	1.2	551.1	2.21	2.19	0.31
8,718.0	89.80	359.40	8,326.3	581.2	0.8	581.1	5.43	5.33	1.00
8,750.0	90.60	359.40	8,326.2	613.2	0.4	613.1	2.50	2.50	0.00
8,781.0	91.10	359.50	8,325.8	644.2	0.1	644.1	1.64	1.61	0.32
8,874.0	90.00	358.60	8,324.9	737.1	-1.4	737.1	1.53	-1.18	-0.97
8,969.0	89.20	357.80	8,325.5	832.1	-4.4	832.1	1.19	-0.84	-0.84
9,064.0	91.20	357.70	8,325.2	927.0	-8.1	927.0	2.11	2.11	-0.11
9,158.0	90.00	357.00	8,324.2	1,020.9	-12.5	1,021.0	1.48	-1.28	-0.74
9,253.0	88.60	356.10	8,325.4	1,115.7	-18.2	1,115.8	1.75	-1.47	-0.95
9,347.0	88.60	354.50	8,327.7	1,209.4	-25.9	1,209.5	1.70	0.00	-1.70
9,441.0	90.30	356.30	8,328.6	1,303.1	-33.4	1,303.2	2.63	1.81	1.91
9,537.0	89.20	358.10	8,329.0	1,398.9	-38.1	1,399.1	2.20	-1.15	1.88
9,631.0	91.20	359.30	8,328.7	1,492.9	-40.2	1,493.1	2.48	2.13	1.28
9,725.0	92.40	358.90	8,325.7	1,586.8	-41.7	1,587.1	1.35	1.28	-0.43
9,820.0	91.70	0.50	8,322.3	1,681.8	-42.2	1,682.0	1.84	-0.74	1.68
9,915.0	89.60	0.50	8,321.2	1,776.8	-41.4	1,777.0	2.21	-2.21	0.00
10,010.0	91.40	0.50	8,320.4	1,871.7	-40.5	1,872.0	1.89	1.89	0.00
10,104.0	90.90	359.90	8,318.5	1,965.7	-40.2	1,965.9	0.83	-0.53	-0.64

Stryker Directional Survey Report

Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well Hoofprint Federal Com #1H
Project:	Eddy County, N.M.	TVD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Site:	Section 12-24S-31E Hoofprint Federal Com #1H	MD Reference:	GL 3561+18 @ 3579.0usft (Silver Oak 7)
Well:	Hoofprint Federal Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
10,198.0	89.50	359.10	8,318.2	2,059.7	-41.0	2,059.9	1.72	-1.49	-0.85
10,293.0	90.60	359.10	8,318.1	2,154.7	-42.5	2,154.9	1.16	1.16	0.00
10,387.0	92.30	359.10	8,315.7	2,248.7	-44.0	2,248.9	1.81	1.81	0.00
10,482.0	90.80	358.60	8,313.2	2,343.6	-45.9	2,343.9	1.66	-1.58	-0.53
10,577.0	88.70	358.40	8,313.6	2,438.6	-48.4	2,438.8	2.22	-2.21	-0.21
10,669.0	89.10	357.80	8,315.4	2,530.5	-51.5	2,530.8	0.78	0.43	-0.65
10,763.0	91.60	357.70	8,314.8	2,624.4	-55.1	2,624.7	2.66	2.66	-0.11
10,856.0	93.00	358.80	8,311.0	2,717.3	-58.0	2,717.6	1.91	1.51	1.18
10,950.0	91.50	358.30	8,307.4	2,811.2	-60.4	2,811.5	1.68	-1.60	-0.53
11,046.0	90.20	357.70	8,305.9	2,907.1	-63.7	2,907.5	1.49	-1.35	-0.63
11,140.0	90.40	357.40	8,305.4	3,001.0	-67.7	3,001.4	0.38	0.21	-0.32
11,235.0	90.30	357.60	8,304.9	3,095.9	-71.9	3,096.3	0.24	-0.11	0.21
11,329.0	89.00	357.50	8,305.4	3,189.8	-75.9	3,190.3	1.39	-1.38	-0.11
11,423.0	88.90	357.40	8,307.2	3,283.7	-80.1	3,284.2	0.15	-0.11	-0.11
11,517.0	90.20	356.60	8,307.9	3,377.6	-85.0	3,378.1	1.62	1.38	-0.85
11,612.0	90.90	358.10	8,307.0	3,472.5	-89.4	3,473.0	1.74	0.74	1.58
11,708.0	89.60	359.00	8,306.6	3,568.5	-91.8	3,569.0	1.65	-1.35	0.94
11,802.0	89.10	0.60	8,307.6	3,662.5	-92.1	3,663.0	1.78	-0.53	1.70
11,896.0	90.50	0.30	8,308.0	3,756.4	-91.4	3,757.0	1.52	1.49	-0.32
11,990.0	91.20	359.40	8,306.6	3,850.4	-91.6	3,850.9	1.21	0.74	-0.96
12,084.0	88.00	358.80	8,307.2	3,944.4	-93.1	3,944.9	3.46	-3.40	-0.64
12,179.0	88.70	358.50	8,310.0	4,039.3	-95.4	4,039.9	0.80	0.74	-0.32
12,274.0	90.70	359.30	8,310.5	4,134.3	-97.2	4,134.9	2.27	2.11	0.84
12,368.0	91.80	358.80	8,308.4	4,228.3	-98.7	4,228.8	1.29	1.17	-0.53
12,463.0	93.50	358.00	8,304.0	4,323.1	-101.4	4,323.7	1.98	1.79	-0.84
12,557.0	92.50	357.90	8,299.1	4,416.9	-104.7	4,417.5	1.07	-1.06	-0.11
12,683.0	90.70	357.20	8,295.6	4,542.8	-110.1	4,543.4	1.53	-1.43	-0.56
12,739.0	90.70	357.20	8,294.9	4,598.7	-112.9	4,599.3	0.00	0.00	0.00
12739' MD Projected to Bit									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,739.0	8,294.9	4,598.7	-112.9	12739' MD Projected to Bit



COMPANY: COG Operating, LLC.
WELL: Hoofprint Federal Com #1H
COUNTY: Eddy County, N.M.
DATUM: NAD 1927 (NADCON CONUS)
RIG: Silver Oak 7



OFFICE: 936.582.7296

GRID CORRECTION: To convert a Magnetic Direction to a Grid Direction, Add 6.94°

GEODETTIC ZONE: New Mexico East 3001					
GL 3561+18 @ 3579.0usft (Silver Oak 7)					
GROUND ELEVATION: 3561.0					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	446237.20	684089.00	32° 13' 31.516 N	103° 44' 16.913 W
					Slot

PLAN SECTIONS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target	
1	7700.8	0.88	196.95	7700.1	-33.3	14.8	0.00	0.00	-33.4		
2	7846.3	0.88	196.95	7845.6	-35.5	14.2	0.00	0.00	-35.6		
3	8606.7	90.41	358.33	8330.0	445.1	-2.2	12.00	161.38	445.1		
4	12786.1	90.41	358.33	8300.0	4622.6	-123°9'	0.00	0.00	4623.3	PBHL Hoofprint Fedcal Com #1H	

