



A GYRO TECHNOLOGIES INC. COMPANY

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

April 16, 2014

30-015-41815

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

Attn: Kanicia Castillo

RE: **Hobgoblin 7 Federal Com UBB No. 004H**

Please find enclosed a copy of the survey from 0.00' to 4412.00' ran on the
above referenced well.

Sincerely,

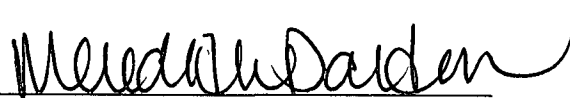

Keith Havelka
Operations

STATE OF TEXAS §

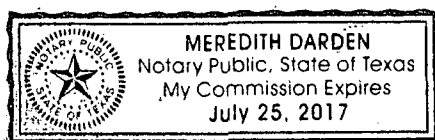
§

COUNTY OF NUECES §

This instrument was acknowledged before me on the 16th day of April,
A.D., 2014, by Keith Havelka.



Meredith Darden
Notary Public, State of Texas





Company: COG OPERATING, LLC
Lease/Well: HOBGOBLIN 7 FEDERAL COM UBB /No. 004H

Rig Name: UNITED #43
State/County: NEW MEXICO/EDDY
Latitude: 32.85, Longitude: -104.00
GRID North is 0.18 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB:14.5 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 4/16/2014 / 08:51

VES Survey International
West, Texas
(432) 563-5444

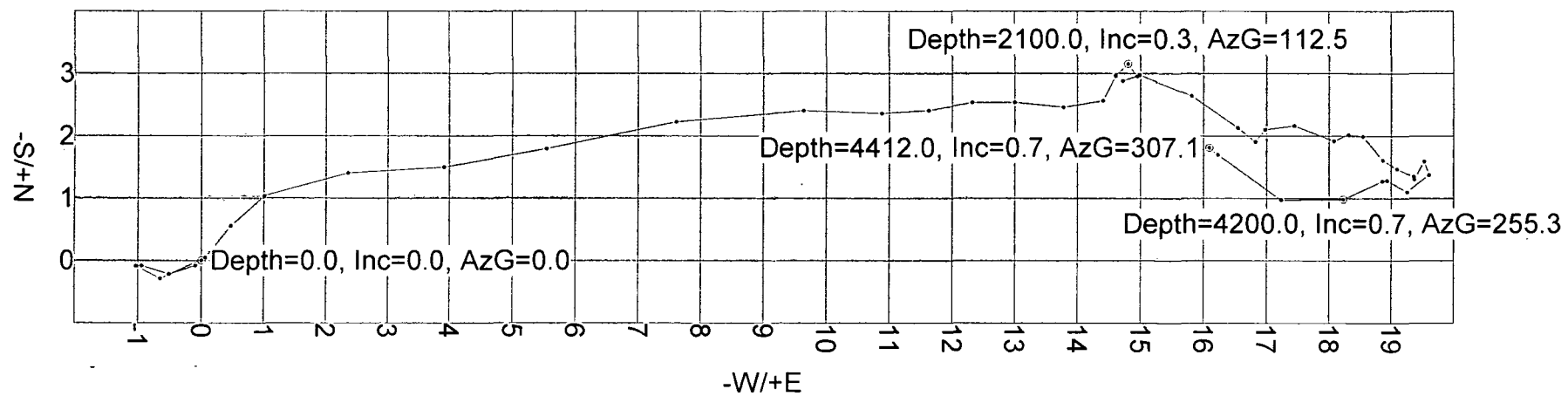
Surveyor: Jordan Shelleby
Hobgoblin 7 Federal Com UBB NO. 004H / API 30-015-41815

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	0.15	230.22	100.00	-0.08	-0.10	-0.08	0.13	230.22	0.15
200.00	0.36	260.67	200.00	-0.22	-0.51	-0.22	0.55	246.98	0.24
300.00	0.26	325.56	300.00	-0.08	-0.94	-0.08	0.95	265.03	0.34
400.00	0.22	169.16	400.00	-0.09	-1.04	-0.09	1.04	265.24	0.47
500.00	0.40	92.07	500.00	-0.29	-0.65	-0.29	0.71	246.07	0.41
600.00	0.57	45.68	599.99	0.05	0.06	0.05	0.08	50.86	0.42
700.00	0.18	17.83	699.99	0.55	0.47	0.55	0.72	40.29	0.42
800.00	0.68	55.87	799.99	1.04	1.01	1.04	1.44	44.18	0.55
900.00	0.98	87.58	899.98	1.40	2.35	1.40	2.74	59.19	0.54
1000.00	0.81	85.40	999.97	1.50	3.92	1.50	4.20	69.09	0.17
1100.00	1.08	75.34	1099.95	1.79	5.54	1.79	5.82	72.07	0.31
1200.00	1.35	80.38	1199.93	2.23	7.61	2.23	7.93	73.68	0.29
1300.00	1.01	91.21	1299.91	2.41	9.64	2.41	9.94	76.00	0.40
1400.00	0.41	93.93	1399.90	2.36	10.88	2.36	11.14	77.75	0.59
1500.00	0.44	79.01	1499.90	2.41	11.62	2.41	11.87	78.28	0.11
1600.00	0.37	80.71	1599.89	2.54	12.32	2.54	12.58	78.37	0.07
1700.00	0.41	98.13	1699.89	2.54	13.00	2.54	13.24	78.95	0.13
1800.00	0.48	93.65	1799.89	2.46	13.78	2.46	13.99	79.87	0.08

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.28	58.24	1899.89	2.56	14.41	2.56	14.63	79.91	0.30
2000.00	0.31	357.84	1999.89	2.97	14.61	2.97	14.90	78.52	0.30
2100.00	0.25	112.51	2099.89	3.16	14.80	3.16	15.13	77.96	0.48
2200.00	0.15	208.88	2199.88	2.95	14.94	2.95	15.23	78.82	0.31
2300.00	0.19	285.82	2299.88	2.88	14.72	2.88	15.00	78.92	0.22
2400.00	0.49	83.28	2399.88	2.98	14.98	2.98	15.27	78.76	0.67
2500.00	0.64	133.58	2499.88	2.64	15.81	2.64	16.03	80.51	0.50
2600.00	0.41	110.62	2599.87	2.13	16.55	2.13	16.68	82.66	0.31
2700.00	0.13	207.95	2699.87	1.90	16.83	1.90	16.93	83.54	0.45
2800.00	0.42	34.12	2799.87	2.10	16.98	2.10	17.11	82.94	0.55
2900.00	0.41	132.54	2899.87	2.16	17.45	2.16	17.58	82.93	0.63
3000.00	0.42	89.91	2999.87	1.92	18.07	1.92	18.18	83.93	0.30
3100.00	0.19	309.30	3099.87	2.02	18.31	2.02	18.42	83.69	0.57
3200.00	0.44	110.40	3199.87	2.00	18.54	2.00	18.65	83.86	0.62
3300.00	0.29	188.56	3299.87	1.61	18.86	1.61	18.93	85.12	0.47
3400.00	0.33	67.53	3399.87	1.47	19.09	1.47	19.15	85.59	0.54
3500.00	0.27	178.22	3499.86	1.35	19.36	1.35	19.41	86.01	0.49
3600.00	0.21	1.02	3599.86	1.30	19.37	1.30	19.42	86.15	0.48
3700.00	0.22	56.58	3699.86	1.60	19.54	1.60	19.60	85.33	0.20
3800.00	0.39	194.73	3799.86	1.37	19.61	1.37	19.66	85.99	0.57
3900.00	0.31	281.76	3899.86	1.10	19.26	1.10	19.29	86.72	0.49
4000.00	0.16	335.96	3999.86	1.28	18.93	1.28	18.98	86.12	0.26
4100.00	0.16	188.57	4099.86	1.28	18.86	1.28	18.90	86.13	0.30
4200.00	0.72	255.32	4199.86	0.98	18.22	0.98	18.25	86.92	0.68
4300.00	0.47	291.57	4299.85	0.97	17.23	0.97	17.26	86.78	0.44
4400.00	0.98	312.64	4399.84	1.70	16.23	1.70	16.32	84.03	0.57
4412.00	0.74	307.06	4411.84	1.81	16.09	1.81	16.19	83.57	2.08



VES Survey International
West, Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Hobgoblin 7 Federal Com UBB NO. 004H / API 30-015-41815





Survey Report

with Projection

Service Company: NZONE GUIDANCE

Location: LOCO HILLS

Well: HOBGOBLIN 7 FEDERAL #4H

Rig: UNITED 43

API or UWI: 30-015-4185

Job Number: COG-NM-013

State: NEW MEXICO

Operating Company: COG

County: EDDY

Magnetic Declination: 0.00

Comment:

Proposed Azimuth: 269.93

North Reference: GRID

Tie-In Data:

MD	Inclination	Azimuth	TVD	NS	EW
4412.00	0.74	307.60	4411.85	1.54	16.13

Survey Data:

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
4509.00	0.50	298.80	4508.84	2.13	15.26	82.07	15.41	-15.27	0.27
4541.00	1.10	291.40	4540.84	2.31	14.85	81.18	15.03	-14.86	1.90
4572.00	3.20	292.80	4571.82	2.75	13.78	78.72	14.05	-13.78	6.78
4604.00	6.90	290.70	4603.69	3.78	11.16	71.31	11.78	-11.16	11.57
4635.00	10.90	287.90	4634.31	5.33	6.62	51.15	8.51	-6.63	12.97
4667.00	15.30	287.20	4665.47	7.51	-0.29	357.78	7.52	0.28	13.76
4699.00	19.50	286.80	4696.00	10.31	-9.44	317.51	13.98	9.43	13.13
4730.00	23.00	284.30	4724.89	13.30	-20.27	303.28	24.24	20.25	11.66
4762.00	26.60	282.20	4753.93	16.36	-33.33	296.14	37.13	33.31	11.58
4793.00	29.60	279.10	4781.27	19.04	-47.68	291.77	51.34	47.66	10.76
4825.00	32.20	276.60	4808.73	21.27	-63.96	288.39	67.40	63.93	9.06
4856.00	34.80	277.00	4834.58	23.30	-80.94	286.06	84.23	80.92	8.42
4888.00	37.10	275.90	4860.48	25.40	-99.61	284.31	102.80	99.58	7.47
4919.00	39.60	274.50	4884.79	27.14	-118.76	282.87	121.82	118.73	8.54
4951.00	41.90	270.60	4909.04	28.05	-139.62	281.36	142.41	139.59	10.72
4982.00	45.00	270.30	4931.54	28.22	-160.94	279.94	163.39	160.90	10.02
5014.00	48.40	271.30	4953.48	28.55	-184.22	278.81	186.42	184.18	10.87
5046.00	51.90	270.30	4973.98	28.88	-208.78	277.88	210.77	208.74	11.20

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
5077.00	52.60	272.00	4992.96	29.38	-233.29	277.18	235.13	233.25	4.89
5109.00	54.90	270.30	5011.89	29.89	-259.08	276.58	260.80	259.05	8.37
5140.00	58.60	269.20	5028.88	29.77	-285.00	275.96	286.55	284.97	12.30
5172.00	63.00	268.90	5044.49	29.31	-312.93	275.35	314.29	312.89	13.77
5204.00	65.50	270.60	5058.39	29.19	-341.74	274.88	342.99	341.71	9.16
5235.00	69.90	269.60	5070.15	29.23	-370.42	274.51	371.57	370.38	14.50
5266.00	74.30	267.80	5079.68	28.56	-399.90	274.08	400.92	399.87	15.23
5298.00	77.90	266.10	5087.36	26.90	-430.91	273.57	431.75	430.88	12.38
5329.00	82.90	265.70	5092.53	24.72	-461.39	273.07	462.05	461.36	16.18
5361.00	86.40	267.50	5095.52	22.83	-493.19	272.65	493.72	493.16	12.29
5424.00	87.30	269.90	5098.98	21.40	-556.07	272.20	556.48	556.05	4.06
5487.00	91.00	271.00	5099.91	21.90	-619.05	272.03	619.44	619.02	6.13
5582.00	92.20	272.00	5097.26	24.38	-713.98	271.96	714.40	713.95	1.64
5676.00	92.40	271.30	5093.49	27.09	-807.86	271.92	808.32	807.83	0.77
5771.00	92.60	271.00	5089.34	28.99	-902.75	271.84	903.22	902.72	0.38
5865.00	93.10	270.60	5084.67	30.30	-996.63	271.74	997.09	996.59	0.68
5960.00	91.70	270.30	5080.69	31.05	-1091.54	271.63	1091.98	1091.50	1.51
6054.00	92.20	269.20	5077.49	30.64	-1185.48	271.48	1185.88	1185.44	1.28
6149.00	90.60	268.90	5075.17	29.06	-1280.44	271.30	1280.77	1280.40	1.71
6243.00	88.90	267.50	5075.58	26.11	-1374.39	271.09	1374.63	1374.35	2.34
6338.00	89.40	267.50	5076.99	21.97	-1469.28	270.86	1469.45	1469.26	0.53
6433.00	89.40	267.10	5077.99	17.49	-1564.17	270.64	1564.27	1564.15	0.42
6527.00	90.60	268.50	5077.99	13.88	-1658.10	270.48	1658.16	1658.08	1.96
6621.00	90.40	269.90	5077.17	12.57	-1752.08	270.41	1752.13	1752.07	1.50
6716.00	90.60	270.30	5076.34	12.74	-1847.08	270.40	1847.12	1847.06	0.47
6810.00	90.80	269.90	5075.19	12.90	-1941.07	270.38	1941.12	1941.06	0.48
6905.00	90.80	269.90	5073.86	12.74	-2036.06	270.36	2036.10	2036.05	0.00
7000.00	91.00	269.60	5072.37	12.32	-2131.05	270.33	2131.09	2131.03	0.38
7094.00	90.60	269.20	5071.06	11.34	-2225.04	270.29	2225.06	2225.02	0.60
7188.00	90.80	269.20	5069.91	10.02	-2319.02	270.25	2319.04	2319.01	0.21
7283.00	90.40	268.90	5068.91	8.45	-2414.00	270.20	2414.02	2413.99	0.53
7377.00	90.40	268.50	5068.26	6.32	-2507.97	270.14	2507.98	2507.97	0.43
7472.00	90.60	268.90	5067.43	4.16	-2602.95	270.09	2602.95	2602.94	0.47
7567.00	90.80	268.50	5066.27	2.01	-2697.91	270.04	2697.92	2697.91	0.47
7661.00	91.00	268.90	5064.79	-0.13	-2791.88	270.00	2791.88	2791.88	0.48

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
7755.00	90.80	268.90	5063.31	-1.93	-2885.85	269.96	2885.85	2885.85	0.21
7850.00	90.10	269.90	5062.57	-2.92	-2980.84	269.94	2980.84	2980.84	1.28
7945.00	90.10	269.60	5062.40	-3.34	-3075.84	269.94	3075.84	3075.84	0.32
8039.00	91.70	270.60	5060.93	-3.18	-3169.82	269.94	3169.82	3169.82	2.01
8134.00	92.20	270.60	5057.69	-2.18	-3264.76	269.96	3264.76	3264.76	0.53
8228.00	92.20	270.30	5054.09	-1.44	-3358.69	269.98	3358.69	3358.69	0.32
8322.00	92.40	270.30	5050.31	-0.95	-3452.61	269.98	3452.61	3452.61	0.21
8417.00	92.20	270.30	5046.50	-0.45	-3547.53	269.99	3547.53	3547.53	0.21
8511.00	92.60	269.90	5042.56	-0.29	-3641.45	270.00	3641.45	3641.45	0.60
8606.00	92.40	269.90	5038.42	-0.46	-3736.36	269.99	3736.36	3736.36	0.21
8700.00	92.90	269.90	5034.07	-0.62	-3830.26	269.99	3830.26	3830.26	0.53
8795.00	92.20	269.90	5029.85	-0.79	-3925.17	269.99	3925.17	3925.16	0.74
8890.00	90.30	269.60	5027.77	-1.20	-4020.14	269.98	4020.14	4020.14	2.02
8985.00	90.30	269.60	5027.28	-1.86	-4115.13	269.97	4115.13	4115.13	0.00
9079.00	90.30	269.60	5026.79	-2.52	-4209.13	269.97	4209.13	4209.13	0.00
9174.00	90.30	269.20	5026.29	-3.51	-4304.12	269.95	4304.13	4304.12	0.42
9269.00	90.10	268.50	5025.96	-5.42	-4399.10	269.93	4399.11	4399.11	0.77
9363.00	90.10	268.50	5025.79	-7.88	-4493.07	269.90	4493.08	4493.08	0.00
9458.00	89.90	268.20	5025.79	-10.62	-4588.03	269.87	4588.04	4588.04	0.38
9469.00	89.90	267.80	5025.81	-11.00	-4599.02	269.86	4599.04	4599.03	3.64

Projection Data:

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
9529.00	89.90	267.80	5025.92	-13.30	-4658.98	269.84	4659.00	4658.99	0.00