

PATRIOT DRILLING, LLC

OPERATOR: COG Operating, LLC
WELL/LEASE: Magnum Pronto St 6H
COUNTY: Lea Co., New Mexico
Sec. 32, T 19S, R 32E

HOBSOCD

JAN 20 2015

RECEIVED

STATE OF NEW MEXICO
DEVIATION REPORT

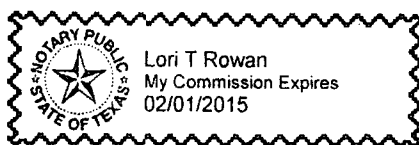
<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
300	3/4	3,441	1 1/2
840	1/2	4,130	1
1,033	3/4	4,590	3/4
1,222	1	5,024	1 1/4
1,412	1 1/4	5,501	1/2
1,602	1 1/4	5,975	1/2
1,793	1 1/4	7,008	1 1/4
1,983	2 1/2	7,501	1 1/2
2,363	3/4	7,981	1/2
2,680	1 1/4	8,387	1 3/4
2,871	1 1/2	8,417	3 1/2
3,062	1 1/2		
3,251	1 3/4		

Patriot Drilling, LLC

M. Leroy Peterson, Executive Vice-President

The foregoing instrument was acknowledged before me on this 6th day of November, 2014 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2015



Lori T. Rowan
Notary Public for Ector Co., Texas

JAN 28²⁹ 2015



October 31, 2014

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

HOBBSD

JAN 20 2015

RECEIVED

Attn: Kanicia Castillo

RE: **Magnum Pronto State No. 006H**

Please find enclosed a copy of the survey from 0.00' to 8500.00' ran on the above referenced well.

Sincerely,

Deb Salge
Deb Salge
Operations

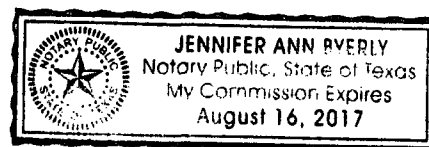
STATE OF TEXAS §

§

COUNTY OF NUECES §

This instrument was acknowledged before me on the 31 day of October A.D., 2014, by Keith Havelka.

Jennifer Ann Byerly
Jennifer Ann Byerly
Notary Public, State of Texas



Company: COG Operating, LLC (Concho)
Lease/Well: MAGNUM PRONTO STATE/No. 006H



Rig Name: PATRIOT #6
State/County: NEW MEXICO/LEA
Latitude: 32.62, Longitude: -103.80
GRID North is 0.29 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB: 17 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 10/31/2014 / 10:46

VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Magnum Pronto State No. 006H / API 30-025-41977

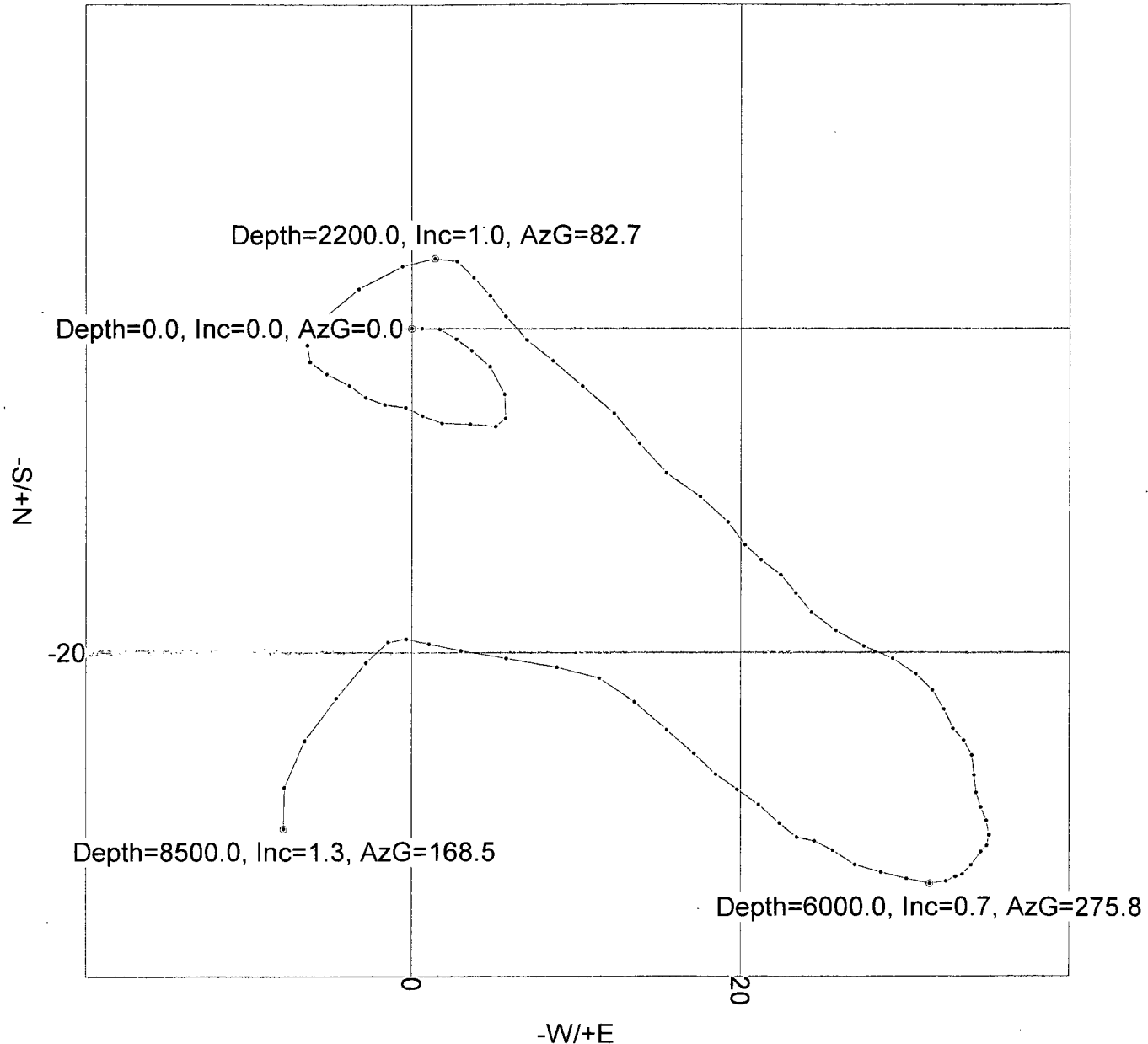
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.70	89.09	100.00	0.01	0.61	0.01	0.61	89.09	0.70
200.00	0.54	96.32	199.99	-0.03	1.69	-0.03	1.69	91.10	0.18
300.00	0.89	136.82	299.98	-0.65	2.69	-0.65	2.77	103.59	0.59
400.00	0.49	108.89	399.98	-1.36	3.63	-1.36	3.88	110.49	0.51
500.00	1.26	140.62	499.97	-2.34	4.73	-2.34	5.28	116.34	0.88
600.00	1.00	167.11	599.95	-4.05	5.62	-4.05	6.93	125.73	0.57
700.00	0.75	191.95	699.93	-5.54	5.68	-5.54	7.94	134.29	0.45
800.00	0.56	287.38	799.93	-6.04	5.08	-6.04	7.89	139.95	0.98
900.00	1.22	269.39	899.92	-5.91	3.54	-5.91	6.89	149.05	0.71
1000.00	0.74	277.15	999.90	-5.84	1.83	-5.84	6.12	162.58	0.50
1100.00	0.77	302.98	1099.89	-5.39	0.63	-5.39	5.43	173.35	0.34
1200.00	0.54	287.74	1199.89	-4.89	-0.38	-4.89	4.90	184.43	0.28
1300.00	0.96	272.56	1299.88	-4.71	-1.66	-4.71	4.99	199.48	0.47
1400.00	0.61	320.76	1399.87	-4.26	-2.84	-4.26	5.12	213.71	0.72
1500.00	0.84	296.85	1499.86	-3.51	-3.83	-3.51	5.20	227.50	0.38
1600.00	0.95	296.40	1599.85	-2.81	-5.23	-2.81	5.94	241.75	0.10
1700.00	0.54	324.87	1699.84	-2.06	-6.25	-2.06	6.58	251.78	0.54
1800.00	0.75	9.51	1799.84	-1.02	-6.41	-1.02	6.49	260.93	0.53

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	1.34	39.51	1899.82	0.53	-5.56	0.53	5.58	275.42	0.79
2000.00	2.13	56.81	1999.77	2.45	-3.26	2.45	4.07	306.92	0.94
2100.00	1.37	71.51	2099.73	3.84	-0.57	3.84	3.88	351.53	0.88
2200.00	0.98	82.65	2199.71	4.33	1.41	4.33	4.55	18.04	0.44
2300.00	0.64	120.41	2299.70	4.16	2.74	4.16	4.98	33.41	0.62
2400.00	1.04	144.12	2399.69	3.14	3.75	3.14	4.90	50.05	0.52
2500.00	0.68	128.80	2499.67	2.04	4.75	2.04	5.17	66.78	0.42
2600.00	1.16	151.37	2599.66	0.78	5.70	0.78	5.75	82.24	0.59
2700.00	1.12	126.42	2699.64	-0.69	6.97	-0.69	7.00	95.64	0.49
2800.00	1.22	132.20	2799.62	-1.98	8.54	-1.98	8.77	103.07	0.16
2900.00	1.49	130.51	2899.59	-3.55	10.32	-3.55	10.91	108.96	0.28
3000.00	1.45	132.18	2999.56	-5.24	12.25	-5.24	13.33	113.17	0.06
3100.00	1.34	148.71	3099.53	-7.09	13.80	-7.09	15.51	117.21	0.42
3200.00	1.52	128.31	3199.50	-8.92	15.45	-8.92	17.84	120.00	0.54
3300.00	1.39	122.06	3299.47	-10.38	17.52	-10.38	20.37	120.66	0.21
3400.00	1.30	144.02	3399.44	-11.94	19.21	-11.94	22.62	121.87	0.52
3500.00	0.72	142.70	3499.43	-13.36	20.26	-13.36	24.27	123.41	0.57
3600.00	0.84	125.10	3599.42	-14.28	21.24	-14.28	25.60	123.92	0.26
3700.00	0.92	129.03	3699.40	-15.21	22.46	-15.21	27.13	124.10	0.10
3800.00	0.78	154.72	3799.39	-16.33	23.38	-16.33	28.52	124.94	0.40
3900.00	1.00	130.55	3899.38	-17.51	24.33	-17.51	29.98	125.75	0.43
4000.00	1.12	124.78	3999.37	-18.63	25.79	-18.63	31.82	125.85	0.16
4100.00	1.12	114.95	4099.35	-19.60	27.47	-19.60	33.75	125.50	0.19
4200.00	1.07	112.41	4199.33	-20.37	29.22	-20.37	35.62	124.88	0.07
4300.00	0.94	137.76	4299.31	-21.33	30.63	-21.33	37.32	124.85	0.46
4400.00	0.70	130.87	4399.30	-22.33	31.64	-22.33	38.73	125.21	0.25
4500.00	0.95	162.96	4499.29	-23.53	32.35	-23.53	40.00	126.03	0.52
4600.00	0.58	141.51	4599.28	-24.72	32.91	-24.72	41.16	126.91	0.46
4700.00	0.54	135.58	4699.28	-25.45	33.56	-25.45	42.12	127.18	0.07
4800.00	0.70	163.93	4799.27	-26.38	34.05	-26.38	43.07	127.76	0.34
4900.00	0.74	182.71	4899.27	-27.61	34.19	-27.61	43.95	128.92	0.24
5000.00	0.54	160.58	4999.26	-28.70	34.32	-28.70	44.74	129.91	0.32
5100.00	0.53	164.98	5099.26	-29.60	34.60	-29.60	45.53	130.55	0.04
5200.00	0.49	149.47	5199.25	-30.42	34.94	-30.42	46.32	131.05	0.14
5300.00	0.60	185.81	5299.25	-31.31	35.10	-31.31	47.04	131.73	0.35
5400.00	0.18	210.53	5399.25	-31.96	34.97	-31.96	47.38	132.43	0.44
5500.00	0.43	226.95	5499.24	-32.35	34.62	-32.35	47.38	133.06	0.26
5600.00	0.75	210.76	5599.24	-33.17	34.01	-33.17	47.51	134.28	0.36
5700.00	0.23	267.12	5699.23	-33.74	33.48	-33.74	47.53	135.23	0.65

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	0.27	239.05	5799.23	-33.87	33.07	-33.87	47.34	135.69	0.13
5900.00	0.51	245.29	5899.23	-34.18	32.47	-34.18	47.14	136.47	0.24
6000.00	0.67	275.79	5999.23	-34.30	31.48	-34.30	46.56	137.46	0.35
6100.00	0.97	286.49	6099.22	-34.00	30.08	-34.00	45.40	138.50	0.34
6200.00	0.85	280.82	6199.20	-33.62	28.54	-33.62	44.10	139.68	0.15
6300.00	1.05	291.45	6299.19	-33.15	26.96	-33.15	42.73	140.88	0.26
6400.00	0.85	319.33	6399.18	-32.26	25.62	-32.26	41.20	141.54	0.49
6500.00	0.72	270.41	6499.17	-31.69	24.51	-31.69	40.07	142.28	0.66
6600.00	0.57	298.92	6599.16	-31.44	23.45	-31.44	39.23	143.29	0.35
6700.00	1.02	314.83	6699.15	-30.58	22.38	-30.58	37.89	143.79	0.50
6800.00	0.96	308.48	6799.14	-29.43	21.10	-29.43	36.21	144.36	0.13
6900.00	0.88	302.99	6899.12	-28.49	19.80	-28.49	34.69	145.20	0.12
7000.00	0.97	307.76	6999.11	-27.55	18.48	-27.55	33.18	146.14	0.12
7100.00	1.18	320.52	7099.09	-26.24	17.16	-26.24	31.35	146.81	0.32
7200.00	1.40	303.65	7199.07	-24.77	15.49	-24.77	29.21	147.98	0.44
7300.00	1.63	317.33	7299.03	-23.04	13.50	-23.04	26.71	149.63	0.42
7400.00	1.43	290.07	7399.00	-21.57	11.37	-21.57	24.38	152.21	0.75
7500.00	1.63	279.67	7498.96	-20.90	8.79	-20.90	22.67	157.20	0.34
7600.00	1.91	280.14	7598.92	-20.37	5.74	-20.37	21.16	164.27	0.28
7700.00	1.31	279.85	7698.88	-19.88	2.97	-19.88	20.10	171.50	0.61
7800.00	0.95	284.99	7798.86	-19.47	1.04	-19.47	19.50	176.94	0.37
7900.00	0.67	278.30	7898.85	-19.17	-0.34	-19.17	19.17	181.02	0.29
8000.00	0.70	242.62	7998.84	-19.36	-1.47	-19.36	19.42	184.33	0.42
8100.00	1.46	219.36	8098.82	-20.63	-2.82	-20.63	20.82	187.78	0.86
8200.00	1.80	219.40	8198.78	-22.83	-4.62	-22.83	23.29	191.45	0.35
8300.00	1.93	213.76	8298.73	-25.45	-6.56	-25.45	26.28	194.46	0.22
8400.00	1.71	191.08	8398.68	-28.31	-7.78	-28.31	29.36	195.37	0.75
8500.00	1.29	168.54	8498.64	-30.88	-7.85	-30.88	31.86	194.26	0.72



VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Magnum Pronto State No. 006H / API 30-025-41977



V.E.S. Survey Date: 10/20/2014



COG Operating LLC

Lea County, NM

Magnum Pronto State

#6H

OH

Survey: MWD #1

Standard Survey Report

26 October, 2014

HOBBSOCD

JAN 20 2015

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43



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #6H
Project:	Lea County, NM	TVD Reference:	WELL @ 3562.7usft (Original Well Elev)
Site:	Magnum Pronto State	MD Reference:	WELL @ 3562.7usft (Original Well Elev)
Well:	#6H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM		
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		Magnum Pronto State			
Site Position:		Northing:	590,975.20 usft	Latitude:	32° 37' 24.752 N
From:	Map	Easting:	665,622.50 usft	Longitude:	103° 47' 43.401 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.29 °

Well	#6H					
Well Position	+N/-S	0.0 usft	Northing:	590,975.20 usft	Latitude:	32° 37' 24.752 N
	+E/-W	0.0 usft	Easting:	665,622.50 usft	Longitude:	103° 47' 43.401 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,544.7 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/3/2014	7.31	60.44	48,501

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	179.40

Survey Program	Date 10/26/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,500.0	GYRO (OH)	MWD	MWD - Standard
8,651.0	13,750.0	MWD #1 (OH)	MWD	MWD - Standard

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)
8,500.0	1.29	168.54	8,498.6	-30.9	-7.8	30.8	0.00	0.00	0.00
8,651.0	1.20	146.90	8,649.6	-33.9	-6.6	33.8	0.32	-0.06	-14.33
8,682.0	1.40	157.80	8,680.6	-34.5	-6.3	34.4	1.02	0.65	35.16
8,714.0	3.50	167.70	8,712.6	-35.8	-5.9	35.7	6.67	6.56	30.94
8,746.0	6.90	174.70	8,744.4	-38.7	-5.5	38.6	10.79	10.63	21.88
8,778.0	10.60	178.20	8,776.1	-43.5	-5.3	43.5	11.68	11.56	10.94
8,809.0	14.80	178.90	8,806.3	-50.3	-5.1	50.3	13.56	13.55	2.26
8,841.0	19.50	179.60	8,836.9	-59.8	-5.0	59.7	14.70	14.69	2.19
8,872.0	24.10	179.30	8,865.6	-71.3	-4.9	71.2	14.84	14.84	-0.97
8,902.0	25.50	179.60	8,892.9	-83.9	-4.8	83.8	4.69	4.67	1.00



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #6H
Project:	Lea County, NM	TVD Reference:	WELL @ 3562.7usft (Original Well Elev)
Site:	Magnum Pronto State	MD Reference:	WELL @ 3562.7usft (Original Well Elev)
Well:	#6H	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)
8,934.0	25.70	177.90	8,921.7	-97.7	-4.5	97.6	2.38	0.63	-5.31
8,966.0	27.40	174.00	8,950.4	-111.9	-3.4	111.9	7.61	5.31	-12.19
8,997.0	30.30	174.40	8,977.5	-126.8	-1.9	126.8	9.38	9.35	1.29
9,029.0	33.30	176.50	9,004.7	-143.6	-0.6	143.6	9.99	9.38	6.56
9,061.0	36.40	177.90	9,031.0	-161.9	0.3	161.9	10.00	9.69	4.38
9,092.0	39.60	178.60	9,055.4	-181.0	0.9	181.0	10.42	10.32	2.26
9,124.0	42.90	178.20	9,079.4	-202.0	1.5	202.1	10.35	10.31	-1.25
9,156.0	47.00	177.50	9,102.1	-224.6	2.3	224.6	12.91	12.81	-2.19
9,187.0	51.40	175.80	9,122.3	-248.1	3.7	248.1	14.79	14.19	-5.48
9,219.0	54.70	174.70	9,141.6	-273.5	5.8	273.6	10.67	10.31	-3.44
9,251.0	57.50	175.10	9,159.4	-300.0	8.2	300.1	8.81	8.75	1.25
9,283.0	61.10	175.80	9,175.7	-327.4	10.4	327.5	11.41	11.25	2.19
9,314.0	65.60	176.10	9,189.6	-355.0	12.3	355.2	14.54	14.52	0.97
9,346.0	69.50	175.80	9,201.9	-384.5	14.4	384.7	12.22	12.19	-0.94
9,377.0	72.00	175.80	9,212.1	-413.7	16.5	413.9	8.06	8.06	0.00
9,409.0	74.80	175.40	9,221.2	-444.3	18.9	444.5	8.83	8.75	-1.25
9,441.0	76.50	176.10	9,229.2	-475.2	21.2	475.4	5.72	5.31	2.19
9,472.0	77.40	176.10	9,236.2	-505.3	23.2	505.6	2.90	2.90	0.00
9,504.0	79.20	175.80	9,242.6	-536.6	25.5	536.8	5.70	5.63	-0.94
9,536.0	82.20	175.10	9,247.8	-568.1	28.0	568.3	9.62	9.38	-2.19
9,567.0	84.10	174.70	9,251.5	-598.7	30.7	599.0	6.26	6.13	-1.29
9,658.0	86.40	176.60	9,259.0	-689.1	37.6	689.5	3.27	2.53	2.09
9,753.0	85.20	175.90	9,266.0	-783.7	43.8	784.1	1.46	-1.26	-0.74
9,848.0	88.10	176.80	9,271.6	-878.3	49.8	878.8	3.20	3.05	0.95
9,943.0	87.30	175.90	9,275.4	-973.0	55.9	973.6	1.27	-0.84	-0.95
10,038.0	87.70	176.80	9,279.5	-1,067.8	61.9	1,068.4	1.04	0.42	0.95
10,133.0	87.50	177.30	9,283.5	-1,162.6	66.8	1,163.2	0.57	-0.21	0.53
10,228.0	86.60	176.80	9,288.4	-1,257.3	71.7	1,258.0	1.08	-0.95	-0.53
10,323.0	87.80	177.50	9,293.0	-1,352.1	76.4	1,352.8	1.46	1.26	0.74
10,418.0	86.80	176.80	9,297.5	-1,446.8	81.1	1,447.6	1.28	-1.05	-0.74
10,545.0	87.00	176.10	9,304.4	-1,573.4	89.0	1,574.3	0.57	0.16	-0.55
10,671.0	88.40	178.30	9,309.4	-1,699.1	95.1	1,700.1	2.07	1.11	1.75
10,798.0	87.40	178.00	9,314.1	-1,826.0	99.2	1,826.9	0.82	-0.79	-0.24
10,924.0	86.40	178.90	9,320.9	-1,951.8	102.6	1,952.7	1.07	-0.79	0.71
11,051.0	88.10	178.30	9,327.0	-2,078.6	105.7	2,079.6	1.42	1.34	-0.47
11,178.0	87.90	177.30	9,331.4	-2,205.4	110.6	2,206.4	0.80	-0.16	-0.79
11,273.0	87.70	180.10	9,335.1	-2,300.3	112.7	2,301.4	2.95	-0.21	2.95
11,368.0	87.70	180.10	9,338.9	-2,395.2	112.6	2,396.3	0.00	0.00	0.00
11,463.0	88.20	180.10	9,342.3	-2,490.2	112.4	2,491.2	0.53	0.53	0.00
11,558.0	88.20	178.70	9,345.3	-2,585.1	113.4	2,586.2	1.47	0.00	-1.47
11,653.0	87.30	179.40	9,349.0	-2,680.0	115.0	2,681.1	1.20	-0.95	0.74
11,748.0	87.60	181.20	9,353.2	-2,774.9	114.5	2,776.0	1.92	0.32	1.89
11,843.0	86.60	181.00	9,358.0	-2,869.8	112.6	2,870.8	1.07	-1.05	-0.21



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #6H
Project:	Lea County, NM	TVD Reference:	WELL @ 3562.7usft (Original Well Elev)
Site:	Magnum Pronto State	MD Reference:	WELL @ 3562.7usft (Original Well Elev)
Well:	#6H	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)	
11,969.0	88.00	180.50	9,364.0	-2,995.6	111.0	2,996.6	1.18	1.11	-0.40	
12,096.0	87.60	180.10	9,368.8	-3,122.5	110.3	3,123.5	0.45	-0.31	-0.31	
12,223.0	90.00	181.30	9,371.5	-3,249.5	108.8	3,250.4	2.11	1.89	0.94	
12,350.0	89.40	180.50	9,372.2	-3,376.5	106.8	3,377.4	0.79	-0.47	-0.63	
12,476.0	88.30	179.60	9,374.7	-3,502.4	106.7	3,503.4	1.13	-0.87	-0.71	
12,603.0	88.20	182.00	9,378.6	-3,629.3	104.9	3,630.2	1.89	-0.08	1.89	
12,729.0	88.80	181.50	9,381.9	-3,755.2	101.1	3,756.1	0.62	0.48	-0.40	
12,824.0	89.30	180.80	9,383.4	-3,850.2	99.2	3,851.0	0.91	0.53	-0.74	
12,919.0	90.00	182.60	9,384.0	-3,945.2	96.3	3,946.0	2.03	0.74	1.89	
13,014.0	89.40	181.90	9,384.5	-4,040.1	92.6	4,040.8	0.97	-0.63	-0.74	
13,109.0	88.80	181.50	9,386.0	-4,135.0	89.8	4,135.7	0.76	-0.63	-0.42	
13,236.0	88.10	181.00	9,389.4	-4,262.0	87.0	4,262.6	0.68	-0.55	-0.39	
13,331.0	87.40	182.60	9,393.2	-4,356.8	84.0	4,357.5	1.84	-0.74	1.68	
13,458.0	90.20	183.10	9,395.8	-4,483.6	77.7	4,484.2	2.24	2.20	0.39	
13,585.0	90.00	182.60	9,395.6	-4,610.5	71.4	4,611.0	0.42	-0.16	-0.39	
13,750.0	90.00	182.60	9,395.6	-4,775.3	63.9	4,775.7	0.00	0.00	0.00	
PBHL(MPS#6H)										

Checked By: _____	Approved By: _____	Date: _____
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COG Operating LLC
Project: Lea County, NM
Site: Magnum Pronto State
Well: #6H
Wellbore: OH
Plan: Plan #2 (#6H/OH)

WELL DETAILS: #6H

Ground Elevation:: 3544.7
RKB Elevation: WELL @ 3562.7usft (Original Well Elev)
Rig Name: Original Well Elev

Northing 590975.20 Easting 665622.50 Latitude 32° 37' 24.752 N Longitude 103° 47' 43.401 W

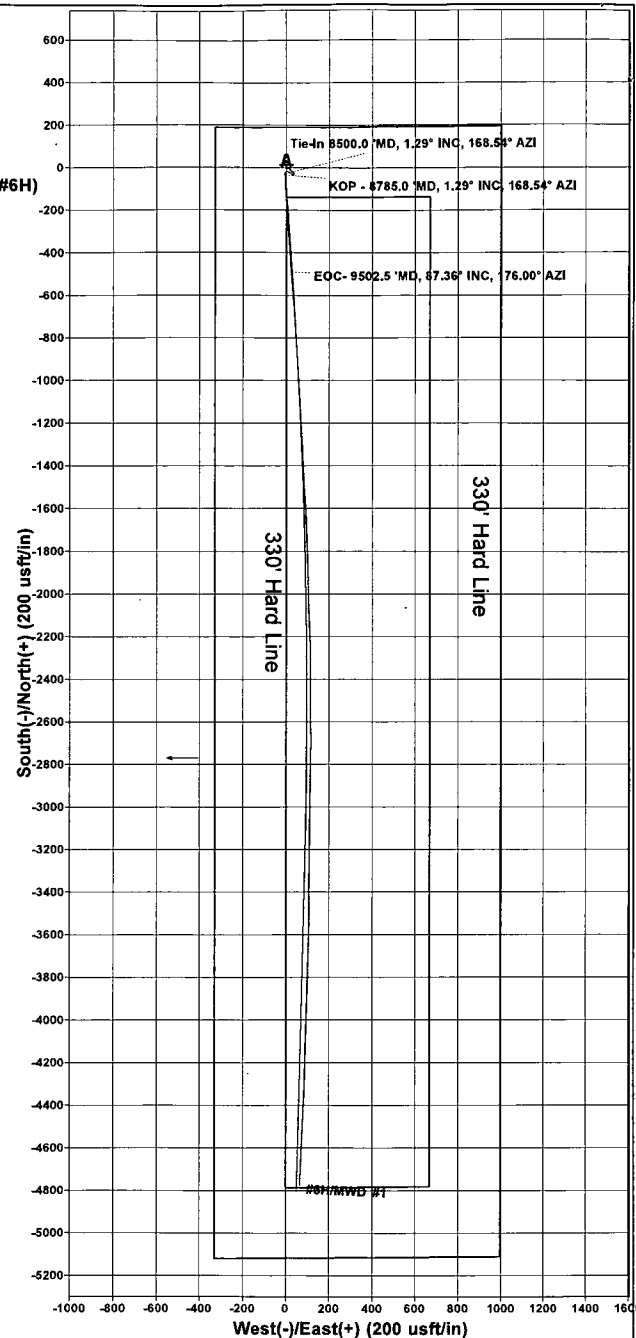
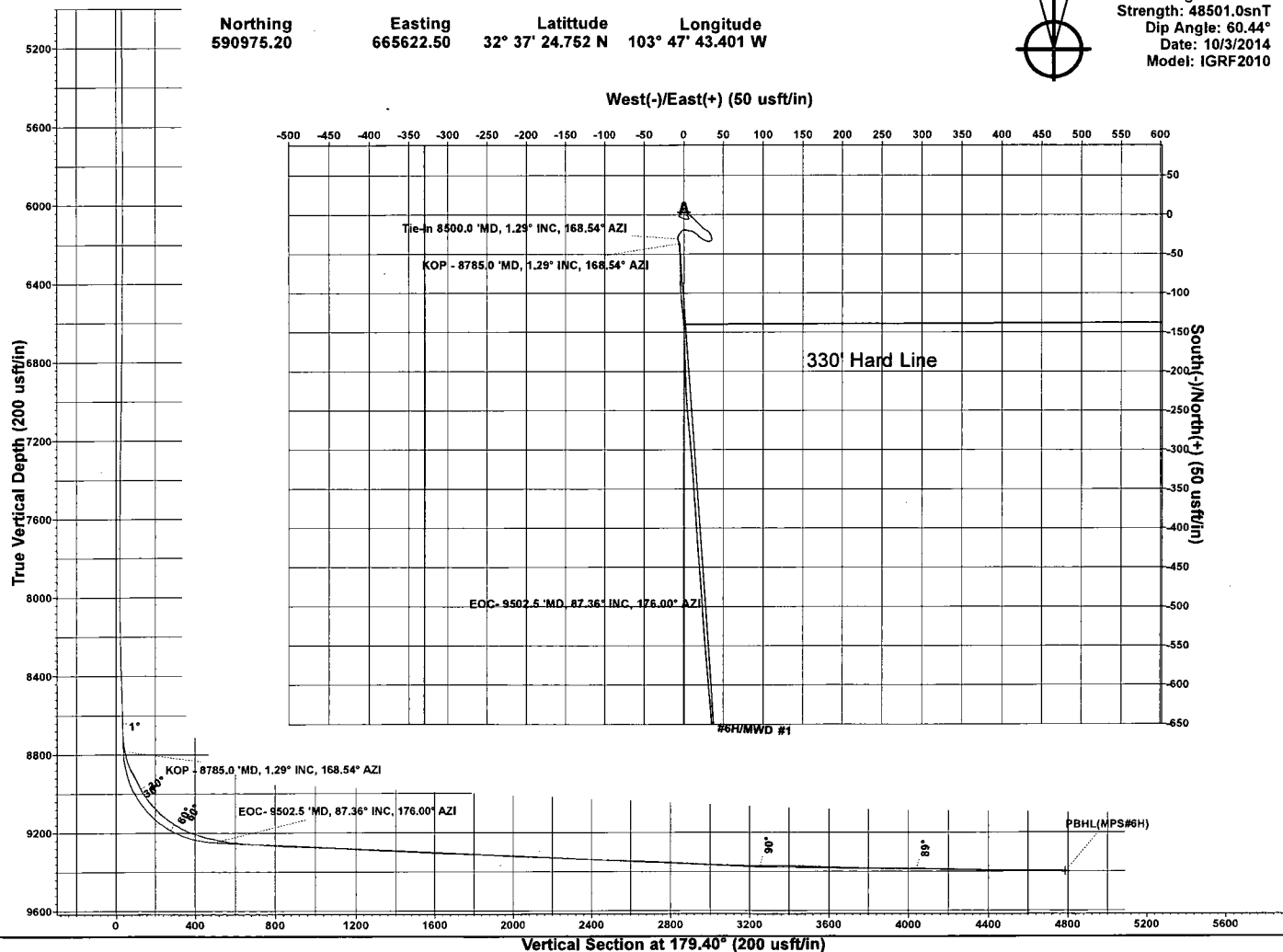
Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	
1	8500.0	1.29	168.54	8498.6	-30.9	-7.8	0.00	0.00	30.8	
2	8785.0	1.29	168.54	8783.6	-37.2	-6.5	0.00	0.00	37.1	
3	9502.5	87.36	176.00	9250.0	-491.4	26.5	12.00	7.47	491.7	
4	12214.5	87.36	181.38	9375.0	-3198.8	88.5	0.20	90.12	3199.6	
5	12304.0	89.15	181.38	9377.7	-3288.2	86.3	2.00	-0.13	3289.0	
6	13803.8	89.15	181.38	9400.0	-4787.4	50.3	0.00	0.00	4787.7	PBHL(MPS#6H)



Azimuths to Grid North
True North: -0.29°
Magnetic North: 7.02°

Magnetic Field
Strength: 48501.0snT
Dip Angle: 60.44°
Date: 10/3/2014
Model: IGRF2010



N-ZONE Guidance
921 W. New Hope DR. Suite 703
Cedar Park, TX 78613

PROJECT DETAILS: Lea County, NM
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid