

Results of Directional Survey

API number:	30-025-41809		
OGRID:		Operator:	COG OPERATING LLC
		Property:	ALBATROSS STATE COM # 1H

surface	ULSTR:	A	30	T 18S	R 35E
				190 FNL	990 FEL

BH Loc	ULSTR:	P	30	T 18S	R 35E
14488	MD	10019.2	TVD	316 FSL	337 FEL
			4964 FNL		

Top Perf/OH	ULSTR:	A	30	T 18S	R 35E
9990	MD	9816.6	TVD	512 FNL	895 FEL

Bot Perf/OH	ULSTR:	P	30	T 18S	R 35E
14370	MD	10014.0	TVD	434 FSL	341 FEL
			4846 FNL		

	MD	N/S	E/W	VD
	9958	-291.60	93.60	9807.6
TOP PERFS/OH	9990	-322.30	95.40	9816.60
	9990	-322.30	95.40	9816.60
	14351	-4637.20	647.80	10013.10
BOT PERFS/OH	14370	-4656.17	648.55	10014.01
	14424	-4710.10	650.70	10016.60

NEXT TO LAST	14424	-4710.10	650.70	10016.60
LAST READING	14469	-4755.00	652.60	10018.40
TD	14488	-4773.96	653.40	10019.16

Surface Location	190	FN	990	FE
Projected BHL	4964	FN	337	FE
Location of				
Top Perfs/OH	512	FN	895	FE
Bottom Perfs/OH	4846	FN	341	FE

SUMMARY of Subsurface Locations

Surface Location	A-30-18S-35E	190	FN	990	FE	Vert. Depth
Top Perfs/OH	A-30-18S-35E	512	FN	895	FE	9816.60
Bottom Perfs/OH	P-30-18S-35E	4846	FN	341	FE	10014.01
Projected TD	P-30-18S-35E	4964	FN	337	FE	10019.16

SEP 17 2014



June 26, 2014

HOBBS OCD

SEP 08 2014

RECEIVED

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

Attn: Kanicia Castillo

RE: **Albatross State Com No. 001H**

Please find enclosed a copy of the survey from 0.00' to 7,830.00' ran on the above referenced well.

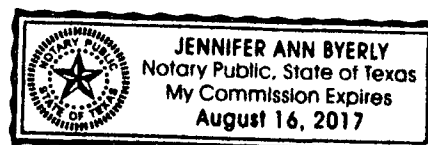
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 26 day of June, A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: COG Operating, LLC (Concho)
Lease/Well: Albatross State Com/No. 001H
Location: S30 T18S R35E
Rig Name: McVay 7
State/County: New Mexico/Lea
Latitude: 32.73, Longitude: -103.49
GRID North is 0.46 Degrees East of True North
VS-Azi: 172.16 Degrees



Depth Reference : R.K.B. = 17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 6/24/2014 / 14:59

VES Survey International

Midland, TX

432-563-5444

Surveyor: Andrew Askew

Albatross State Com No. 001H / API 30-025-41809

RECEIVED
SEP 08 2014
HOBBS OCD

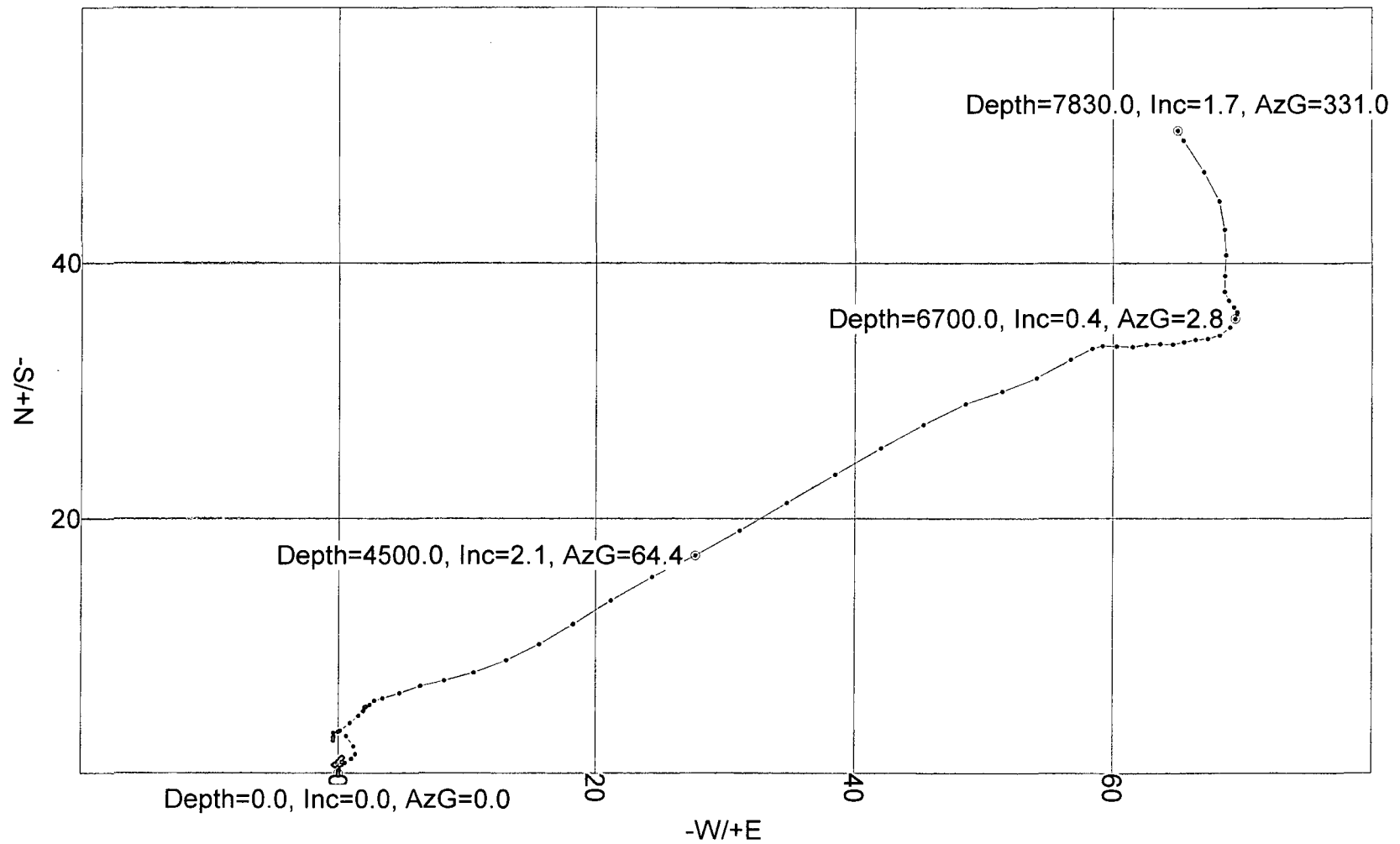
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.19	5.55	100.00	0.17	0.02	-0.16	0.17	5.55	0.19
200.00	0.12	162.95	200.00	0.23	0.06	-0.22	0.24	15.55	0.31
300.00	0.18	340.68	300.00	0.27	0.04	-0.26	0.28	9.10	0.30
400.00	0.23	18.33	400.00	0.61	0.05	-0.59	0.61	5.15	0.14
500.00	0.15	333.46	500.00	0.92	0.06	-0.90	0.92	3.58	0.16
600.00	0.11	69.13	600.00	1.07	0.09	-1.05	1.07	4.59	0.20
700.00	0.13	86.94	700.00	1.11	0.28	-1.06	1.14	14.35	0.04
800.00	0.14	353.53	800.00	1.23	0.38	-1.17	1.29	17.11	0.19
900.00	0.10	235.97	900.00	1.30	0.30	-1.25	1.34	12.76	0.20
1000.00	0.15	220.27	1000.00	1.15	0.14	-1.12	1.16	6.84	0.06
1100.00	0.19	222.03	1100.00	0.93	-0.06	-0.93	0.93	356.33	0.04
1200.00	0.14	244.70	1200.00	0.75	-0.28	-0.78	0.80	339.31	0.08
1300.00	0.07	192.67	1300.00	0.64	-0.41	-0.69	0.76	327.22	0.11
1400.00	0.22	100.49	1400.00	0.54	-0.23	-0.56	0.59	336.72	0.24
1500.00	0.19	61.67	1500.00	0.58	0.11	-0.56	0.59	10.49	0.14
1600.00	0.02	49.57	1600.00	0.67	0.27	-0.63	0.72	21.66	0.17
1700.00	0.31	62.98	1699.99	0.81	0.52	-0.73	0.96	32.94	0.30
1800.00	0.39	52.42	1799.99	1.14	1.04	-0.99	1.54	42.32	0.10

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	0.19	14.01	1899.99	1.51	1.35	-1.31	2.03	41.73	0.27
2000.00	0.56	335.52	1999.99	2.12	1.19	-1.94	2.43	29.26	0.42
2100.00	0.62	313.93	2099.98	2.94	0.60	-2.83	3.00	11.50	0.23
2200.00	0.27	261.11	2199.98	3.27	-0.02	-3.25	3.27	359.66	0.50
2300.00	0.17	252.58	2299.98	3.19	-0.39	-3.22	3.22	352.99	0.10
2400.00	0.33	148.34	2399.98	2.90	-0.38	-2.93	2.93	352.45	0.41
2500.00	0.23	248.25	2499.98	2.58	-0.42	-2.61	2.61	350.84	0.43
2600.00	0.40	33.25	2599.98	2.80	-0.41	-2.83	2.83	351.69	0.60
2700.00	0.49	53.07	2699.98	3.35	0.12	-3.30	3.35	2.08	0.18
2800.00	0.63	50.76	2799.97	3.95	0.89	-3.79	4.05	12.69	0.15
2900.00	0.40	51.40	2899.97	4.52	1.59	-4.26	4.79	19.40	0.23
3000.00	0.21	32.52	2999.97	4.89	1.96	-4.58	5.27	21.87	0.22
3100.00	0.16	359.94	3099.96	5.18	2.06	-4.85	5.58	21.67	0.11
3200.00	0.16	129.13	3199.96	5.23	2.17	-4.89	5.67	22.52	0.29
3300.00	0.36	41.55	3299.96	5.38	2.49	-4.99	5.92	24.83	0.39
3400.00	0.22	58.47	3399.96	5.71	2.86	-5.27	6.38	26.58	0.16
3500.00	0.55	79.60	3499.96	5.89	3.49	-5.36	6.85	30.63	0.35
3600.00	1.07	69.92	3599.95	6.30	4.84	-5.58	7.95	37.52	0.54
3700.00	0.93	73.07	3699.93	6.86	6.50	-5.91	9.45	43.44	0.15
3800.00	1.22	79.62	3799.92	7.29	8.32	-6.09	11.06	48.78	0.31
3900.00	1.51	71.02	3899.89	7.91	10.61	-6.39	13.24	53.30	0.36
4000.00	1.61	66.51	3999.85	8.90	13.15	-7.02	15.88	55.91	0.16
4100.00	1.64	61.00	4099.81	10.15	15.69	-7.92	18.69	57.09	0.16
4200.00	1.85	56.94	4199.76	11.73	18.30	-9.12	21.73	57.34	0.24
4300.00	2.07	57.34	4299.71	13.59	21.17	-10.57	25.16	57.31	0.22
4400.00	2.16	62.25	4399.64	15.44	24.36	-11.97	28.85	57.64	0.20
4500.00	2.13	64.40	4499.57	17.12	27.71	-13.18	32.57	58.29	0.09
4600.00	2.40	57.29	4599.49	19.06	31.15	-14.63	36.52	58.54	0.39
4700.00	2.44	60.63	4699.40	21.23	34.77	-16.29	40.74	58.59	0.15
4800.00	2.54	57.91	4799.31	23.45	38.50	-17.98	45.08	58.65	0.16
4900.00	2.10	61.13	4899.22	25.52	41.98	-19.55	49.13	58.71	0.46
5000.00	2.24	60.85	4999.15	27.35	45.29	-20.92	52.91	58.87	0.14
5100.00	1.93	66.29	5099.09	28.98	48.54	-22.09	56.54	59.16	0.37
5200.00	1.52	77.26	5199.04	29.95	51.38	-22.67	59.48	59.76	0.52
5300.00	1.80	61.10	5299.00	31.01	54.06	-23.34	62.32	60.16	0.54
5400.00	1.65	62.15	5398.95	32.44	56.71	-24.40	65.33	60.23	0.16
5500.00	0.49	63.64	5498.93	33.30	58.36	-25.03	67.19	60.29	1.16
5600.00	0.49	86.37	5598.93	33.52	59.18	-25.13	68.01	60.47	0.19
5700.00	0.75	95.73	5698.92	33.48	60.26	-24.95	68.94	60.94	0.28

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	0.63	88.43	5798.92	33.43	61.46	-24.73	69.97	61.46	0.15
5900.00	0.62	73.12	5898.91	33.60	62.53	-24.76	70.99	61.75	0.17
6000.00	0.63	99.87	5998.91	33.67	63.58	-24.68	71.95	62.10	0.29
6100.00	0.50	81.92	6098.90	33.63	64.55	-24.51	72.79	62.48	0.22
6200.00	0.50	74.05	6198.90	33.81	65.40	-24.58	73.63	62.66	0.07
6300.00	0.54	81.27	6298.89	34.01	66.29	-24.65	74.50	62.84	0.08
6400.00	0.56	88.50	6398.89	34.09	67.25	-24.60	75.39	63.12	0.07
6500.00	0.57	57.58	6498.88	34.37	68.16	-24.75	76.33	63.24	0.30
6600.00	0.58	47.50	6598.88	34.98	68.95	-25.25	77.32	63.10	0.10
6700.00	0.38	2.80	6698.88	35.65	69.34	-25.86	77.97	62.79	0.41
6800.00	0.14	68.75	6798.87	36.03	69.47	-26.21	78.25	62.59	0.35
6900.00	0.15	312.84	6898.87	36.16	69.48	-26.35	78.33	62.50	0.25
7000.00	0.37	332.75	6998.87	36.54	69.24	-26.76	78.29	62.17	0.23
7100.00	0.39	313.87	7098.87	37.06	68.85	-27.33	78.19	61.70	0.12
7200.00	0.55	352.29	7198.87	37.77	68.54	-28.07	78.26	61.14	0.34
7300.00	0.90	5.41	7298.86	39.03	68.55	-29.31	78.88	60.35	0.39
7400.00	0.96	0.67	7398.85	40.64	68.63	-30.90	79.76	59.37	0.09
7500.00	1.34	356.91	7498.83	42.65	68.58	-32.89	80.76	58.12	0.39
7600.00	1.28	341.81	7598.80	44.88	68.17	-35.16	81.61	56.64	0.35
7700.00	1.70	325.31	7698.77	47.16	66.97	-37.58	81.91	54.85	0.59
7800.00	1.65	329.12	7798.72	49.61	65.39	-40.22	82.08	52.82	0.12
7830.00	1.72	330.98	7828.71	50.37	64.95	-41.04	82.20	52.21	0.31



VES Survey International
Midland, TX
432-563-5444
Surveyor: Andrew Askew
Albatross State Com No. 001H / API 30-025-41809



V.E.S. Survey Date: 06/18/2014



COG Operating LLC

Lea County, NM (NAD27 NME)

Albatross State Com

#1H

OH

Survey: MWD #1

Standard Survey Report

15 July, 2014



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3953.7usft (Original Well Elev)
Site:	Albatross State Com	MD Reference:	WELL @ 3953.7usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site		Albatross State Com			
Site Position:		Northing:	628,626.00 usft	Latitude:	32° 43' 31.369 N
From:	Map	Easting:	758,068.30 usft	Longitude:	103° 29' 39.047 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well	#1H					
Well Position	+N/-S	0.0 usft	Northing:	628,629.40 usft	Latitude:	32° 43' 31.325 N
	+E/-W	0.0 usft	Easting:	759,058.50 usft	Longitude:	103° 29' 27.457 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,936.7 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/22/2014	7.22	60.59	48,628

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	172.16	

Survey Program	Date 7/15/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	14,469.0	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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.19	5.55	100.0	0.2	0.0	-0.2	0.19	0.19	0.00
200.0	0.12	162.95	200.0	0.2	0.1	-0.2	0.30	-0.07	157.40
300.0	0.18	340.68	300.0	0.3	0.0	-0.3	0.30	0.06	177.73
400.0	0.23	18.33	400.0	0.6	0.1	-0.6	0.14	0.05	37.65
500.0	0.15	333.46	500.0	0.9	0.1	-0.9	0.16	-0.08	-44.87
600.0	0.11	69.13	600.0	1.1	0.1	-1.1	0.19	-0.04	95.67
700.0	0.13	86.94	700.0	1.1	0.3	-1.1	0.04	0.02	17.81
800.0	0.14	353.53	800.0	1.2	0.4	-1.2	0.20	0.01	-93.41
900.0	0.10	235.97	900.0	1.3	0.3	-1.3	0.21	-0.04	-117.56



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3953.7usft (Original Well Elev)
Site:	Albatross State Com	MD Reference:	WELL @ 3953.7usft (Original Well Elev)
Well:	#1H	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	0.15	220.27	1,000.0	1.2	0.1	-1.1	0.06	0.05	-15.70	
1,100.0	0.19	222.03	1,100.0	0.9	0.0	-0.9	0.04	0.04	1.76	
1,200.0	0.14	244.70	1,200.0	0.8	-0.3	-0.8	0.08	-0.05	22.67	
1,300.0	0.07	192.67	1,300.0	0.7	-0.4	-0.7	0.11	-0.07	-52.03	
1,400.0	0.22	100.49	1,400.0	0.6	-0.2	-0.6	0.23	0.15	-92.18	
1,500.0	0.19	61.67	1,500.0	0.6	0.1	-0.6	0.14	-0.03	-38.82	
1,600.0	0.02	49.57	1,600.0	0.7	0.3	-0.7	0.17	-0.17	-12.10	
1,700.0	0.31	62.98	1,700.0	0.8	0.5	-0.8	0.29	0.29	13.41	
1,800.0	0.39	52.42	1,800.0	1.2	1.0	-1.0	0.10	0.08	-10.56	
1,900.0	0.19	14.01	1,900.0	1.5	1.4	-1.3	0.27	-0.20	-38.41	
2,000.0	0.56	335.52	2,000.0	2.1	1.2	-2.0	0.43	0.37	-38.49	
2,100.0	0.62	313.93	2,100.0	3.0	0.6	-2.8	0.23	0.06	-21.59	
2,200.0	0.27	261.11	2,200.0	3.3	0.0	-3.3	0.50	-0.35	-52.82	
2,300.0	0.17	252.58	2,300.0	3.2	-0.4	-3.2	0.10	-0.10	-8.53	
2,400.0	0.33	148.34	2,400.0	2.9	-0.4	-2.9	0.41	0.16	-104.24	
2,500.0	0.23	248.25	2,500.0	2.6	-0.4	-2.6	0.43	-0.10	99.91	
2,600.0	0.40	33.25	2,600.0	2.8	-0.4	-2.9	0.60	0.17	145.00	
2,700.0	0.49	53.07	2,700.0	3.4	0.1	-3.3	0.18	0.09	19.82	
2,800.0	0.63	50.76	2,800.0	4.0	0.9	-3.8	0.14	0.14	-2.31	
2,900.0	0.40	51.40	2,900.0	4.5	1.6	-4.3	0.23	-0.23	0.64	
3,000.0	0.21	32.52	3,000.0	4.9	1.9	-4.6	0.21	-0.19	-18.88	
3,100.0	0.16	359.94	3,100.0	5.2	2.0	-4.9	0.11	-0.05	-32.58	
3,200.0	0.16	129.13	3,200.0	5.3	2.2	-4.9	0.29	0.00	129.19	
3,300.0	0.36	41.55	3,300.0	5.4	2.5	-5.0	0.39	0.20	-87.58	
3,400.0	0.22	58.47	3,400.0	5.7	2.8	-5.3	0.16	-0.14	16.92	
3,500.0	0.55	79.60	3,500.0	5.9	3.5	-5.4	0.35	0.33	21.13	
3,600.0	1.07	69.92	3,599.9	6.3	4.8	-5.6	0.54	0.52	-9.68	
3,700.0	0.93	73.07	3,699.9	6.9	6.5	-5.9	0.15	-0.14	3.15	
3,800.0	1.22	79.62	3,799.9	7.3	8.3	-6.1	0.31	0.29	6.55	
3,900.0	1.51	71.02	3,899.9	7.9	10.6	-6.4	0.35	0.29	-8.60	
4,000.0	1.61	66.51	3,999.9	8.9	13.1	-7.1	0.16	0.10	-4.51	
4,100.0	1.64	61.00	4,099.8	10.2	15.7	-7.9	0.16	0.03	-5.51	
4,200.0	1.85	56.94	4,199.8	11.8	18.3	-9.2	0.24	0.21	-4.06	
4,300.0	2.07	57.34	4,299.7	13.6	21.2	-10.6	0.22	0.22	0.40	
4,400.0	2.16	62.25	4,399.6	15.5	24.3	-12.0	0.20	0.09	4.91	
4,500.0	2.13	64.40	4,499.6	17.1	27.7	-13.2	0.09	-0.03	2.15	
4,600.0	2.40	57.29	4,599.5	19.1	31.1	-14.7	0.39	0.27	-7.11	
4,700.0	2.44	60.63	4,699.4	21.3	34.7	-16.3	0.15	0.04	3.34	
4,800.0	2.54	57.91	4,799.3	23.5	38.5	-18.0	0.15	0.10	-2.72	
4,900.0	2.10	61.13	4,899.2	25.5	42.0	-19.6	0.46	-0.44	3.22	
5,000.0	2.24	60.85	4,999.2	27.4	45.3	-20.9	0.14	0.14	-0.28	
5,100.0	1.93	66.29	5,099.1	29.0	48.5	-22.1	0.37	-0.31	5.44	
5,200.0	1.52	77.26	5,199.0	30.0	51.3	-22.7	0.52	-0.41	10.97	
5,300.0	1.80	61.10	5,299.0	31.0	54.0	-23.4	0.54	0.28	-16.16	



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3953.7usft (Original Well Elev)
Site:	Albatross State Com	MD Reference:	WELL @ 3953.7usft (Original Well Elev)
Well:	#1H	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)	
5,400.0	1.65	62.15	5,399.0	32.5	56.7	-24.4	0.15	-0.15	1.05	
5,500.0	0.49	63.64	5,498.9	33.3	58.3	-25.1	1.16	-1.16	1.49	
5,600.0	0.49	86.37	5,598.9	33.5	59.1	-25.2	0.19	0.00	22.73	
5,700.0	0.75	95.73	5,698.9	33.5	60.2	-25.0	0.28	0.26	9.36	
5,800.0	0.63	88.43	5,798.9	33.4	61.4	-24.8	0.15	-0.12	-7.30	
5,900.0	0.62	73.12	5,898.9	33.6	62.5	-24.8	0.17	-0.01	-15.31	
6,000.0	0.63	99.87	5,998.9	33.7	63.5	-24.7	0.29	0.01	26.75	
6,100.0	0.50	81.92	6,098.9	33.6	64.5	-24.5	0.22	-0.13	-17.95	
6,200.0	0.50	74.05	6,198.9	33.8	65.4	-24.6	0.07	0.00	-7.87	
6,300.0	0.54	81.27	6,298.9	34.0	66.2	-24.7	0.08	0.04	7.22	
6,400.0	0.56	88.50	6,398.9	34.1	67.2	-24.6	0.07	0.02	7.23	
6,500.0	0.57	57.58	6,498.9	34.4	68.1	-24.8	0.30	0.01	-30.92	
6,600.0	0.58	47.50	6,598.9	35.0	68.9	-25.3	0.10	0.01	-10.08	
6,700.0	0.38	2.80	6,698.9	35.7	69.3	-25.9	0.41	-0.20	-44.70	
6,800.0	0.14	68.75	6,798.9	36.0	69.4	-26.2	0.35	-0.24	65.95	
6,900.0	0.15	312.84	6,898.9	36.2	69.4	-26.4	0.25	0.01	-115.91	
7,000.0	0.37	332.75	6,998.9	36.6	69.2	-26.8	0.23	0.22	19.91	
7,100.0	0.39	313.87	7,098.9	37.1	68.8	-27.3	0.13	0.02	-18.88	
7,200.0	0.55	352.29	7,198.9	37.8	68.5	-28.1	0.34	0.16	38.42	
7,300.0	0.90	5.41	7,298.9	39.0	68.5	-29.3	0.39	0.35	13.12	
7,400.0	0.96	0.67	7,398.8	40.7	68.6	-30.9	0.10	0.06	-4.74	
7,500.0	1.34	356.91	7,498.8	42.7	68.5	-32.9	0.39	0.38	-3.76	
7,600.0	1.28	341.81	7,598.8	44.9	68.1	-35.2	0.35	-0.06	-15.10	
7,700.0	1.70	325.31	7,698.8	47.2	66.9	-37.6	0.60	0.42	-16.50	
7,800.0	1.65	329.12	7,798.7	49.6	65.3	-40.3	0.12	-0.05	3.81	
7,830.0	1.72	330.98	7,828.7	50.4	64.9	-41.1	0.30	0.23	6.20	
7,863.0	0.90	32.00	7,861.7	51.1	64.8	-41.7	4.56	-2.48	184.91	
8,054.0	2.70	315.30	8,052.6	55.5	62.4	-46.5	1.38	0.94	-40.16	
8,150.0	3.00	293.90	8,148.5	58.1	58.5	-49.6	1.14	0.31	-22.29	
8,245.0	2.50	304.40	8,243.4	60.3	54.6	-52.3	0.75	-0.53	11.05	
8,341.0	1.80	296.60	8,339.3	62.2	51.5	-54.6	0.79	-0.73	-8.13	
8,435.0	2.70	290.90	8,433.3	63.6	48.1	-56.5	0.99	0.96	-6.06	
8,528.0	0.90	277.80	8,526.2	64.5	45.3	-57.7	1.97	-1.94	-14.09	
8,623.0	0.50	298.00	8,621.2	64.8	44.2	-58.2	0.49	-0.42	21.26	
8,719.0	0.30	268.50	8,717.2	65.0	43.6	-58.4	0.29	-0.21	-30.73	
8,815.0	0.10	180.70	8,813.2	64.9	43.3	-58.4	0.33	-0.21	-91.46	
9,006.0	1.10	58.70	9,004.2	65.7	44.9	-59.0	0.61	0.52	-63.87	
9,102.0	1.40	51.40	9,100.2	66.9	46.6	-59.9	0.35	0.31	-7.60	
9,229.0	1.80	70.90	9,227.1	68.5	49.7	-61.1	0.53	0.31	15.35	
9,261.0	1.80	82.70	9,259.1	68.8	50.7	-61.2	1.16	0.00	36.88	
9,293.0	2.70	144.60	9,291.1	68.2	51.6	-60.5	7.62	2.81	193.44	
9,323.0	6.60	159.80	9,321.0	66.0	52.6	-58.2	13.52	13.00	50.67	
9,355.0	11.50	163.70	9,352.6	61.2	54.2	-53.3	15.42	15.31	12.19	



Wellplanning

Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3953.7usft (Original Well Elev)
Site:	Albatross State Com	MD Reference:	WELL @ 3953.7usft (Original Well Elev)
Well:	#1H	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)
9,386.0	14.90	167.00	9,382.7	54.4	55.9	-46.2	11.23	10.97	10.65
9,418.0	16.30	169.30	9,413.6	45.9	57.7	-37.6	4.78	4.38	7.19
9,450.0	18.60	171.90	9,444.1	36.5	59.2	-28.1	7.59	7.19	8.13
9,482.0	21.20	173.80	9,474.2	25.7	60.6	-17.2	8.37	8.13	5.94
9,513.0	23.90	175.00	9,502.8	13.8	61.7	-5.3	8.83	8.71	3.87
9,545.0	26.50	176.10	9,531.8	0.3	62.8	8.3	8.26	8.13	3.44
9,577.0	29.20	176.10	9,560.0	-14.7	63.8	23.2	8.44	8.44	0.00
9,608.0	31.80	175.70	9,586.8	-30.3	64.9	38.9	8.41	8.39	-1.29
9,641.0	35.10	174.70	9,614.3	-48.5	66.5	57.1	10.14	10.00	-3.03
9,673.0	38.60	173.50	9,639.9	-67.6	68.4	76.3	11.17	10.94	-3.75
9,705.0	41.90	172.60	9,664.3	-88.1	70.9	96.9	10.47	10.31	-2.81
9,737.0	44.80	171.80	9,687.6	-109.8	73.9	118.9	9.22	9.06	-2.50
9,768.0	47.60	172.00	9,709.0	-132.0	77.1	141.3	9.04	9.03	0.65
9,800.0	50.20	172.70	9,730.1	-155.9	80.3	165.4	8.29	8.13	2.19
9,830.0	53.30	173.20	9,748.6	-179.3	83.2	188.9	10.42	10.33	1.67
9,862.0	57.10	173.40	9,766.9	-205.4	86.2	215.2	11.89	11.88	0.63
9,894.0	62.00	174.40	9,783.1	-232.8	89.2	242.8	15.55	15.31	3.13
9,926.0	67.70	175.70	9,796.7	-261.6	91.7	271.7	18.19	17.81	4.06
9,958.0	72.40	176.70	9,807.6	-291.6	93.6	301.7	14.98	14.69	3.13
9,990.0	75.00	176.60	9,816.6	-322.3	95.4	332.3	8.13	8.13	-0.31
10,022.0	77.90	176.50	9,824.1	-353.3	97.3	363.3	9.07	9.06	-0.31
10,054.0	81.20	176.00	9,829.9	-384.7	99.4	394.7	10.43	10.31	-1.56
10,144.0	82.40	174.70	9,842.7	-473.5	106.6	483.6	1.95	1.33	-1.44
10,240.0	87.20	175.50	9,851.4	-568.7	114.8	579.1	5.07	5.00	0.83
10,336.0	88.40	175.60	9,855.1	-664.4	122.2	674.8	1.25	1.25	0.10
10,463.0	86.00	174.50	9,861.3	-790.7	133.1	801.5	2.08	-1.89	-0.87
10,559.0	86.60	173.20	9,867.5	-886.0	143.4	897.3	1.49	0.63	-1.35
10,654.0	88.10	172.20	9,871.9	-980.1	155.5	992.2	1.90	1.58	-1.05
10,750.0	87.70	171.70	9,875.4	-1,075.1	168.9	1,088.1	0.67	-0.42	-0.52
10,845.0	87.10	170.90	9,879.7	-1,168.9	183.3	1,183.0	1.05	-0.63	-0.84
10,939.0	88.10	170.80	9,883.7	-1,261.6	198.2	1,276.9	1.07	1.06	-0.11
11,033.0	88.10	169.80	9,886.8	-1,354.2	214.0	1,370.8	1.06	0.00	-1.06
11,128.0	87.90	169.20	9,890.1	-1,447.6	231.3	1,465.6	0.67	-0.21	-0.63
11,223.0	87.60	168.90	9,893.8	-1,540.8	249.3	1,560.4	0.45	-0.32	-0.32
11,318.0	87.20	168.60	9,898.1	-1,633.9	267.9	1,655.1	0.53	-0.42	-0.32
11,411.0	85.90	169.80	9,903.7	-1,725.0	285.3	1,747.8	1.90	-1.40	1.29
11,506.0	85.90	171.10	9,910.5	-1,818.5	301.0	1,842.5	1.36	0.00	1.37
11,600.0	86.90	171.50	9,916.4	-1,911.2	315.2	1,936.4	1.15	1.06	0.43
11,692.0	89.00	171.90	9,919.7	-2,002.2	328.4	2,028.3	2.32	2.28	0.43
11,787.0	88.80	171.60	9,921.5	-2,096.2	342.1	2,123.3	0.38	-0.21	-0.32
11,882.0	88.80	172.70	9,923.5	-2,190.3	355.0	2,218.2	1.16	0.00	1.16
11,976.0	89.00	172.60	9,925.3	-2,283.5	367.1	2,312.2	0.24	0.21	-0.11
12,072.0	89.40	172.40	9,926.7	-2,378.7	379.6	2,408.2	0.47	0.42	-0.21



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3953.7usft (Original Well Elev)
Site:	Albatross State Com	MD Reference:	WELL @ 3953.7usft (Original Well Elev)
Well:	#1H	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)	
12,166.0	90.00	172.20	9,927.2	-2,471.8	392.2	2,502.2	0.67	0.64	-0.21	
12,261.0	89.70	172.20	9,927.4	-2,565.9	405.1	2,597.2	0.32	-0.32	0.00	
12,356.0	89.30	172.50	9,928.3	-2,660.1	417.7	2,692.2	0.53	-0.42	0.32	
12,450.0	86.50	172.20	9,931.7	-2,753.2	430.2	2,786.1	3.00	-2.98	-0.32	
12,641.0	86.60	172.90	9,943.2	-2,942.2	454.9	2,976.8	0.37	0.05	0.37	
12,736.0	84.70	173.00	9,950.4	-3,036.2	466.6	3,071.5	2.00	-2.00	0.11	
12,832.0	86.30	172.40	9,957.9	-3,131.2	478.7	3,167.2	1.78	1.67	-0.63	
12,927.0	86.30	172.00	9,964.1	-3,225.1	491.6	3,262.0	0.42	0.00	-0.42	
13,022.0	88.50	171.20	9,968.4	-3,319.0	505.5	3,356.9	2.46	2.32	-0.84	
13,117.0	89.80	170.70	9,969.8	-3,412.8	520.4	3,451.8	1.47	1.37	-0.53	
13,212.0	88.90	170.00	9,970.9	-3,506.4	536.3	3,546.8	1.20	-0.95	-0.74	
13,306.0	88.50	171.00	9,973.0	-3,599.1	551.8	3,640.7	1.15	-0.43	1.06	
13,401.0	90.40	171.80	9,973.9	-3,693.0	566.0	3,735.7	2.17	2.00	0.84	
13,497.0	89.40	171.00	9,974.1	-3,787.9	580.4	3,831.7	1.33	-1.04	-0.83	
13,592.0	89.90	171.90	9,974.6	-3,881.9	594.5	3,926.7	1.08	0.53	0.95	
13,687.0	89.50	171.80	9,975.1	-3,975.9	608.0	4,021.7	0.43	-0.42	-0.11	
13,781.0	88.70	174.60	9,976.6	-4,069.2	619.1	4,115.6	3.10	-0.85	2.98	
13,876.0	86.90	176.70	9,980.3	-4,163.9	626.3	4,210.4	2.91	-1.89	2.21	
13,971.0	86.40	177.10	9,985.8	-4,258.6	631.4	4,304.9	0.67	-0.53	0.42	
14,066.0	86.70	176.90	9,991.5	-4,353.3	636.4	4,399.4	0.38	0.32	-0.21	
14,161.0	85.10	177.60	9,998.3	-4,447.9	641.0	4,493.8	1.84	-1.68	0.74	
14,256.0	85.20	178.10	10,006.4	-4,542.5	644.5	4,588.0	0.53	0.11	0.53	
14,351.0	86.70	177.90	10,013.1	-4,637.2	647.8	4,682.2	1.59	1.58	-0.21	
14,424.0	87.70	177.60	10,016.6	-4,710.1	650.7	4,754.8	1.43	1.37	-0.41	
14,469.0	87.70	177.60	10,018.4	-4,755.0	652.6	4,799.6	0.00	0.00	0.00	
PBHL(AS#1)										

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------



COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Albatross State Com
Well: #1H
Wellbore: OH
Plan: Plan #3 (#1H/OH)

WELL DETAILS: #1H

Ground Elevation:: 3936.7
RKB Elevation: WELL @ 3953.7usft (Original Well Elev)
Rig Name: Original Well Elev

Northing 628629.40 Easting 759058.50 Latitude 32° 43' 31.325 N Longitude 103° 29' 27.457 W

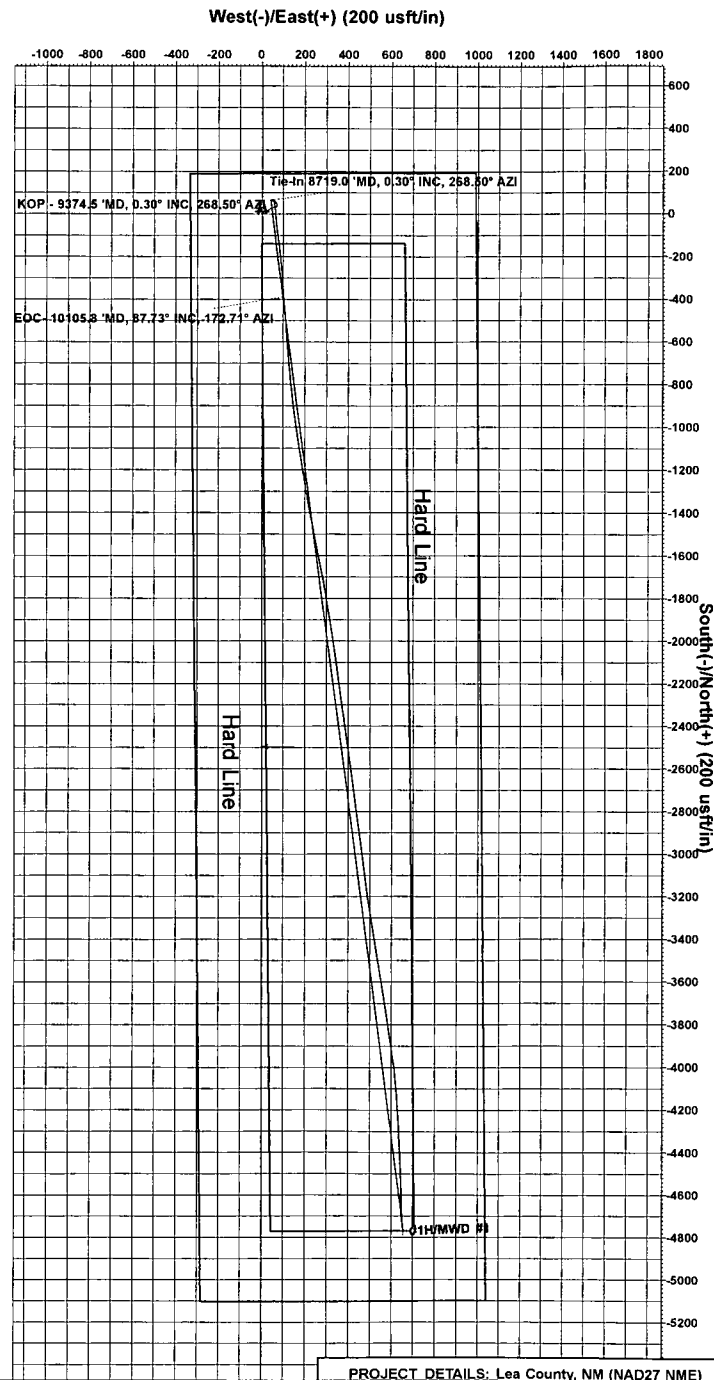
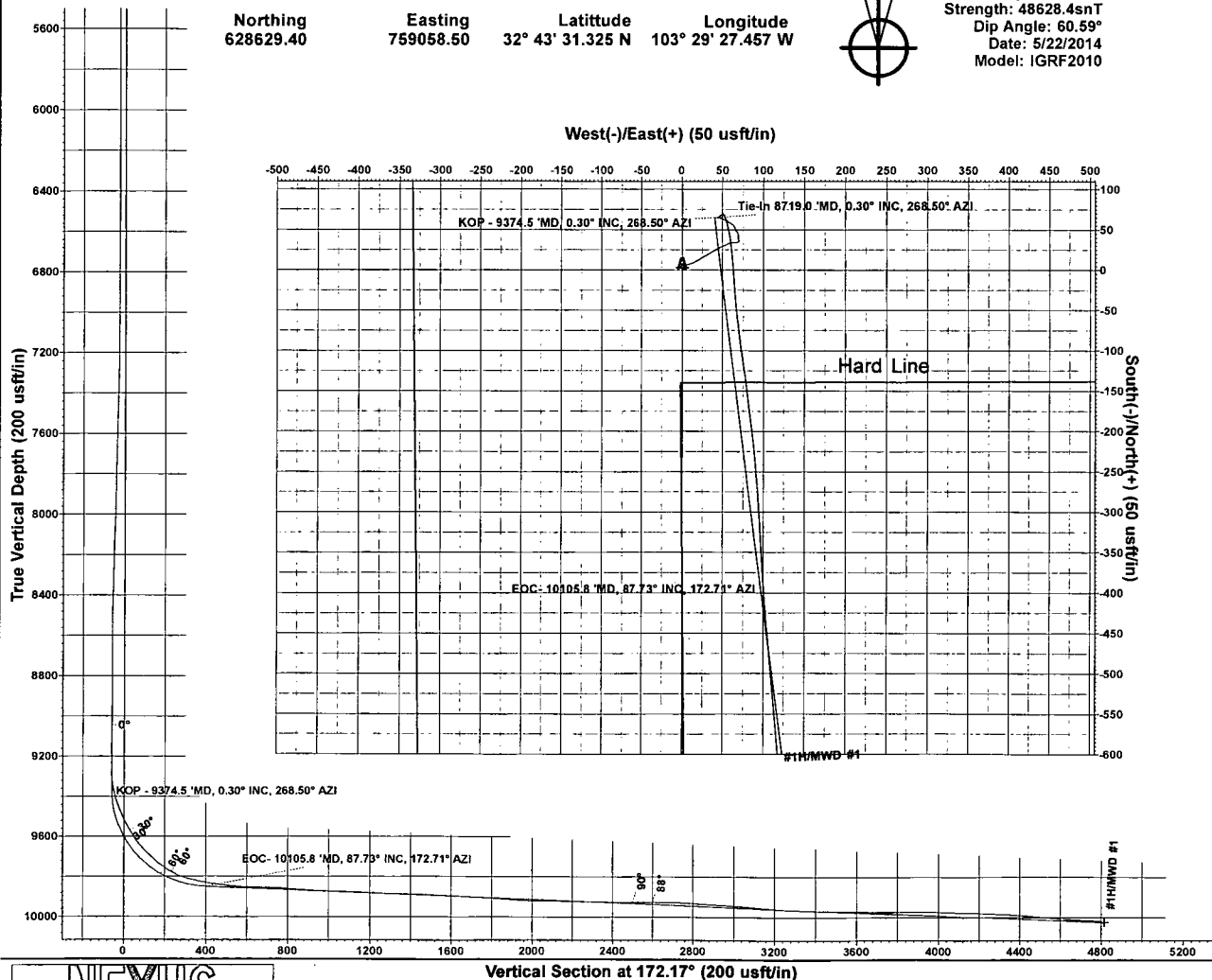
Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	8719.0	0.30	268.50	8717.2	65.0	43.6	0.00	0.00	-58.5
2	9374.5	0.30	268.50	9372.7	64.9	40.2	0.00	0.00	-58.8
3	10105.8	87.73	172.71	9850.0	-390.2	96.0	12.00	-95.80	399.7
4	14525.0	87.73	172.71	10025.0	-4770.3	656.3	0.00	0.00	4815.2



Azimuths to Grid North
True North: -0.46°
Magnetic North: 6.77°

Magnetic Field
Strength: 48628.4snT
Dip Angle: 60.59°
Date: 5/22/2014
Model: IGRF2010



Vertical Section at 172.17° (200 usft/in)

Nexus Directional Solutions

PROJECT DETAILS: Lea County, NM (NAD27 NME)
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