Results of Directional Survey

API number:	30-025-40951				
OGRID:		Operator:	COG OPERATING LLC		
		Property:	CORAZON STATE UNIT		# 9H

surface	ULSTR:	A	10	T	21S	R	33E
				100	FNL	330	FEL
BH Loc	ULSTR:	P	10	T	21S	R	33E
16220	MD	11683.0	TVD	340	FSL	363	FEL
				4940	FNL		
Top Perf/OH	ULSTR:	A	10	T	21S	R	33E
11826	MD	11563.9	TVD	560	FNL	367	FEL
Bot Perf/OH	ULSTR:	P	10	T	21S	R	33E
15980	MD	11682.3	TVD	580	FSL	363	FEL
				4700	FNL		

	MD	N/S	E/W	VD
	11794	-429.80	-31.40	11555.4
TOP PERFS/OH	**11826**	-460.20	-36.60	11563.90
	11826	-460.20	-36.60	11563.90
	15961	-4580.50	-33.00	11682.20
BOT PERFS/OH	**15980**	-4599.50	-33.08	11682.30
	16056	-4675.50	-33.40	11682.70

NEXT TO LAST	16171	-4790.50	-33.40	11682.80
LAST READING	16220	-4839.50	-33.20	11683.00
TD	**16220**	-4839.50	-33.20	11683.00

Surface Location	100	FN	330	FE
Projected BHL	4940	FN	363	FE
Location of				
Top Perfs/OH	560	FN	367	FE
Bottom Perfs/OH	4700	FN	363	FE

SUMMARY of Subsurface Locations

Surface Location	A-10-21S-33E	100	FN	330	FE	Vert. Depth
Top Perfs/OH	A-10-21S-33E	560	FN	367	FE	11563.90
Bottom Perfs/OH	P-10-21S-33E	4700	FN	363	FE	11682.30
Projected TD	P-10-21S-33E	4940	FN	363	FE	11683.00

AUG 0 5 2014

McVAY DRILLING COMPANY
P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

Well Name and Num: Corazon State Unit #9H
Location: Sec 10, T21S, R33E
Operator: COG
Drilling Contractor: McVay Drilling Company

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

Degrees @	Depth	Degrees @	Depth	Degrees @	Depth
0.90	341	1.50	6187	89.90	12236
0.90	717	1.40	6579	85.50	12612
0.50	1099	0.70	6993	89.00	12895
0.80	1445	0.01	7311	90.30	13084
0.10	1818	0.50	7723	89.80	13558
0.80	2299	0.30	8133	88.00	14031
0.90	2645	0.50	8809	87.00	14506
0.50	3023	0.80	9124	86.30	14981
0.40	3401	1.10	9531	89.80	15358
0.60	3812	1.20	10175	91.90	15738
0.80	4050	2.20	10460	89.80	16171
1.90	4241	2.10	10865		
2.90	4452	7.10	11076		
1.80	4639	20.00	11201		
2.00	5046	50.60	11484		
2.80	5394	73.80	11738		
1.60	5787	77.60	11859		

By: Hubert Cone Jr.

Subscribed and sworn to before me this 24th day of April, 2014

Tina Flemens
Notary Public, Lea County, New Mexico

OFFICIAL SEAL
TINA FLEMENS
Notary Public
State of New Mexico
My Comm. Expires 9-16-17

VES
VAUGHN ENERGY SERVICES
A GYRO TECHNOLOGIES INC. COMPANY

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

April 28, 2014

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

Attn: Kanicia Castillo

RE: **Corazon State Unit 9H**

Please find enclosed a copy of the survey from 0.00' to 10865.00' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
§
COUNTY OF NUECES §

This instrument was acknowledged before me on the 28th day of April, A.D., 2014, by Keith Havelka.

Meredith Darden
Notary Public, State of Texas

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

Company: Cog Operating LLC (Concho)
Lease/Well: Corazon State Unit /9H
Location: Sec10 T21S R33E
Rig Name: McVay 7
State/County: New Mexico/Lea
Latitude: 32.50, Longitude: -103.55
GRID North is 0.42 Degrees East of True North
VS-Azi: 0.00 Degrees

Depth Reference : RKB = 17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: ...state unit #9h gyro -de_01.ut
Minimum Curvature Method
Report Date/Time: 4/28/2014 / 09:16

VES Survey International
West Texas
432-563-5444
Surveyor: Chris Bankson
Corazon State Unit 9H / 30-025-40951

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	0.50	45.35	100.00	0.31	0.31	0.31	0.44	45.35	0.50
200.00	0.33	41.57	200.00	0.83	0.81	0.83	1.16	44.42	0.18
300.00	0.53	47.78	299.99	1.35	1.35	1.35	1.91	44.81	0.21
400.00	0.73	44.68	399.99	2.12	2.13	2.12	3.01	45.24	0.20
500.00	0.64	44.25	499.98	2.97	2.97	2.97	4.20	45.02	0.09
600.00	0.82	41.44	599.97	3.90	3.83	3.90	5.47	44.47	0.18
700.00	0.50	56.16	699.97	4.68	4.67	4.68	6.61	44.91	0.36
800.00	0.60	61.56	799.96	5.17	5.49	5.17	7.54	46.69	0.11
900.00	0.50	72.25	899.96	5.55	6.36	5.55	8.44	48.87	0.14
1000.00	0.41	85.56	999.95	5.71	7.13	5.71	9.13	51.28	0.14
1100.00	0.48	96.74	1099.95	5.69	7.90	5.69	9.73	54.22	0.11
1200.00	0.49	111.43	1199.95	5.49	8.72	5.49	10.30	57.81	0.12
1300.00	0.48	112.59	1299.94	5.17	9.51	5.17	10.82	61.47	0.01
1400.00	0.25	115.86	1399.94	4.91	10.09	4.91	11.22	64.05	0.24
1500.00	0.15	117.31	1499.94	4.75	10.40	4.75	11.44	65.44	0.10
1600.00	0.12	120.98	1599.94	4.64	10.61	4.64	11.58	66.39	0.03
1700.00	0.35	127.07	1699.94	4.40	10.94	4.40	11.80	68.09	0.23
1800.00	0.26	135.43	1799.94	4.06	11.35	4.06	12.05	70.32	0.10

VES Survey Date: 04/12/2014

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.30	134.41	1899.94	3.71	11.69	3.71	12.27	72.39	0.04
2000.00	0.55	92.06	1999.93	3.51	12.36	3.51	12.85	74.15	0.39
2100.00	0.75	50.26	2099.93	3.91	13.35	3.91	13.91	73.68	0.50
2200.00	0.64	50.81	2199.92	4.68	14.29	4.68	15.04	71.85	0.11
2300.00	0.79	55.85	2299.91	5.42	15.29	5.42	16.23	70.47	0.16
2400.00	0.84	44.07	2399.90	6.34	16.38	6.34	17.56	68.83	0.18
2500.00	0.89	33.58	2499.89	7.52	17.32	7.52	18.88	66.54	0.16
2600.00	0.76	15.35	2599.88	8.80	17.92	8.80	19.97	63.85	0.29
2700.00	0.74	14.93	2699.87	10.06	18.26	10.06	20.85	61.16	0.02
2800.00	0.93	16.25	2799.86	11.45	18.65	11.45	21.89	58.45	0.19
2900.00	0.50	7.31	2899.85	12.66	18.94	12.66	22.78	56.24	0.44
3000.00	0.54	8.40	2999.85	13.56	19.06	13.56	23.39	54.57	0.05
3100.00	0.43	1.60	3099.85	14.40	19.14	14.40	23.95	53.04	0.13
3200.00	0.29	4.22	3199.84	15.03	19.17	15.03	24.36	51.90	0.13
3300.00	0.30	5.15	3299.84	15.54	19.21	15.54	24.71	51.03	0.01
3400.00	0.52	6.53	3399.84	16.25	19.29	16.25	25.22	49.88	0.22
3500.00	0.32	17.46	3499.84	16.97	19.42	16.97	25.79	48.86	0.21
3600.00	0.46	20.75	3599.84	17.61	19.65	17.61	26.38	48.13	0.14
3700.00	0.48	26.72	3699.83	18.35	19.97	18.35	27.13	47.42	0.05
3800.00	0.56	48.60	3799.83	19.05	20.53	19.05	28.01	47.14	0.22
3900.00	0.15	61.10	3899.83	19.44	21.01	19.44	28.62	47.23	0.42
4000.00	0.12	77.10	3999.83	19.52	21.23	19.52	28.84	47.40	0.04
4100.00	0.65	86.57	4099.82	19.58	21.90	19.58	29.38	48.20	0.53
4200.00	1.39	77.18	4199.81	19.88	23.65	19.88	30.90	49.95	0.76
4300.00	2.06	66.07	4299.76	20.88	26.48	20.88	33.72	51.74	0.74
4400.00	3.15	66.24	4399.66	22.71	30.63	22.71	38.13	53.44	1.09
4500.00	2.87	67.31	4499.52	24.79	35.45	24.79	43.26	55.04	0.28
4600.00	2.55	80.62	4599.41	26.11	39.95	26.11	47.73	56.83	0.70
4700.00	1.58	85.38	4699.34	26.59	43.53	26.59	51.00	58.58	0.98
4800.00	1.65	68.01	4799.30	27.24	46.23	27.24	53.66	59.50	0.49
4900.00	1.65	67.60	4899.26	28.32	48.89	28.32	56.51	59.92	0.01
5000.00	1.64	53.50	4999.22	29.72	51.37	29.72	59.35	59.95	0.40
5100.00	1.82	56.59	5099.17	31.44	53.84	31.44	62.35	59.72	0.21
5200.00	1.89	45.95	5199.12	33.46	56.35	33.46	65.54	59.30	0.35
5300.00	1.78	40.94	5299.07	35.78	58.56	35.78	68.62	58.57	0.20
5400.00	2.54	51.28	5399.00	38.34	61.30	38.34	72.30	57.98	0.85
5500.00	2.31	55.47	5498.91	40.87	64.69	40.87	76.52	57.72	0.29
5600.00	1.76	43.72	5598.85	43.12	67.42	43.12	80.03	57.39	0.69
5700.00	1.52	46.62	5698.81	45.15	69.44	45.15	82.83	56.97	0.26

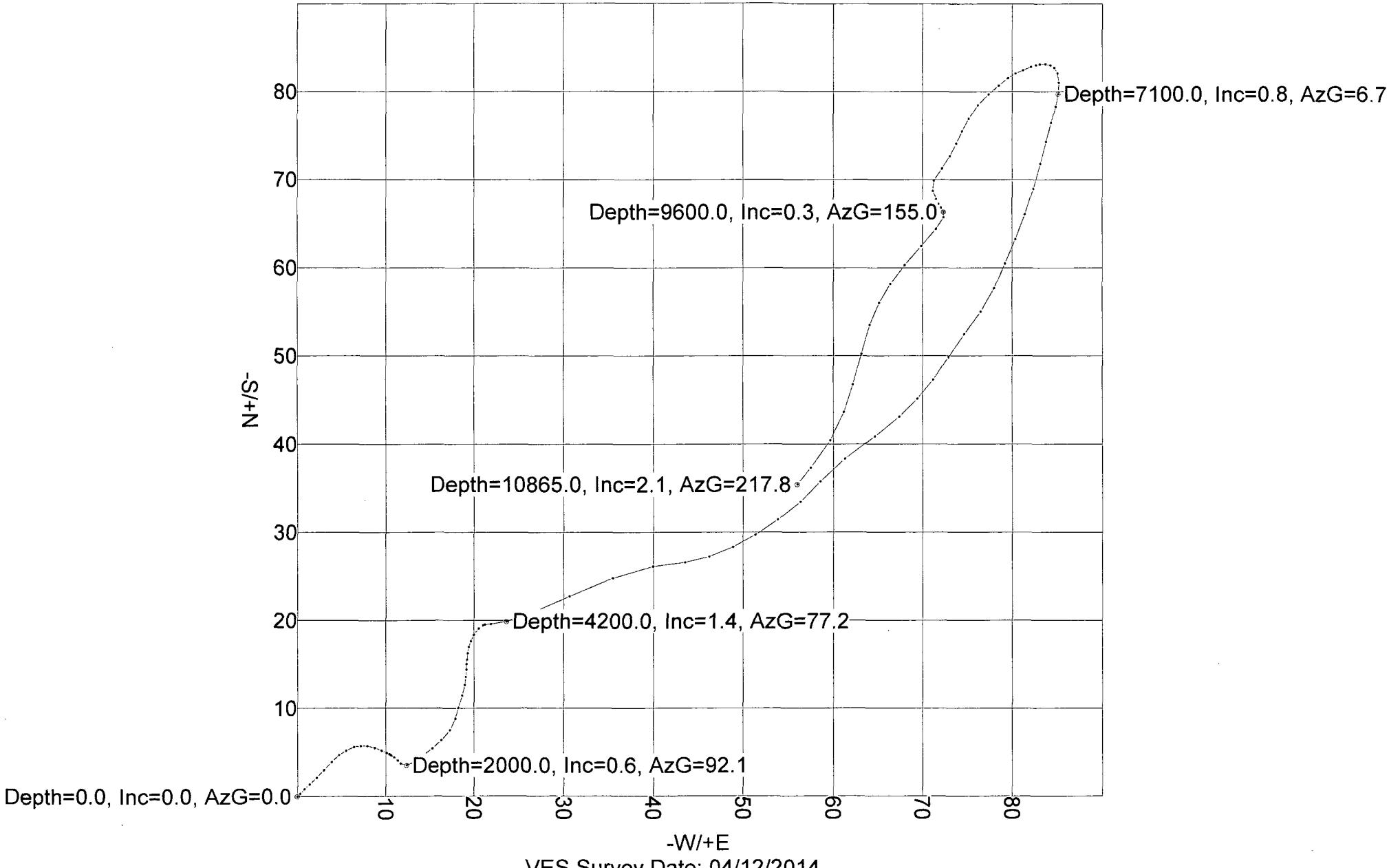
VES Survey Date: 04/12/2014

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	1.72	32.65	5798.77	47.32	71.22	47.32	85.51	56.40	0.44
5900.00	1.77	34.35	5898.72	49.86	72.90	49.86	88.32	55.63	0.07
6000.00	1.83	34.11	5998.67	52.46	74.67	52.46	91.26	54.91	0.06
6100.00	1.79	37.52	6098.62	55.02	76.52	55.02	94.25	54.28	0.11
6200.00	1.77	21.13	6198.57	57.71	78.03	57.71	97.05	53.51	0.51
6300.00	1.71	24.38	6298.53	60.51	79.20	60.51	99.67	52.62	0.11
6400.00	1.73	21.72	6398.48	63.27	80.37	63.27	102.29	51.79	0.08
6500.00	1.71	18.51	6498.44	66.09	81.41	66.09	104.85	50.93	0.10
6600.00	1.76	16.60	6598.39	68.97	82.32	68.97	107.39	50.04	0.07
6700.00	1.60	14.90	6698.35	71.79	83.11	71.79	109.83	49.18	0.16
6800.00	1.38	13.74	6798.31	74.31	83.76	74.31	111.97	48.42	0.23
6900.00	1.19	15.84	6898.29	76.48	84.33	76.48	113.84	47.80	0.19
7000.00	0.93	14.19	6998.27	78.27	84.81	78.27	115.41	47.30	0.26
7100.00	0.77	6.71	7098.26	79.73	85.09	79.73	116.60	46.86	0.20
7200.00	0.71	358.89	7198.25	81.02	85.16	81.02	117.54	46.43	0.12
7300.00	0.51	345.24	7298.25	82.07	85.03	82.07	118.18	46.02	0.25
7400.00	0.36	310.29	7398.24	82.71	84.68	82.71	118.37	45.68	0.30
7500.00	0.26	291.09	7498.24	82.99	84.23	82.99	118.25	45.42	0.15
7600.00	0.39	277.90	7598.24	83.12	83.68	83.12	117.94	45.19	0.15
7700.00	0.34	258.17	7698.24	83.10	83.05	83.10	117.49	44.98	0.14
7800.00	0.18	257.35	7798.24	83.01	82.61	83.01	117.11	44.86	0.16
7900.00	0.49	247.16	7898.24	82.81	82.07	82.81	116.59	44.74	0.31
8000.00	0.60	246.11	7998.23	82.44	81.20	82.44	115.71	44.57	0.11
8100.00	0.43	246.69	8098.23	82.07	80.38	82.07	114.88	44.40	0.16
8200.00	0.73	232.85	8198.22	81.54	79.52	81.54	113.90	44.28	0.32
8300.00	0.78	228.70	8298.21	80.71	78.50	80.71	112.59	44.21	0.08
8400.00	0.96	227.99	8398.20	79.70	77.37	79.70	111.08	44.15	0.17
8500.00	1.02	218.92	8498.19	78.44	76.19	78.44	109.36	44.16	0.17
8600.00	1.05	208.19	8598.17	76.94	75.20	76.94	107.58	44.34	0.20
8700.00	0.80	205.72	8698.16	75.50	74.46	75.50	106.04	44.60	0.25
8800.00	0.99	204.83	8798.15	74.09	73.79	74.09	104.57	44.89	0.19
8900.00	0.83	208.81	8898.13	72.67	73.08	72.67	103.07	45.16	0.17
9000.00	1.09	215.22	8998.12	71.26	72.19	71.26	101.44	45.37	0.28
9100.00	0.81	212.20	9098.10	69.89	71.26	69.89	99.81	45.56	0.28
9200.00	0.70	155.19	9198.10	68.73	71.14	68.73	98.92	45.99	0.73
9300.00	0.47	157.68	9298.09	67.80	71.55	67.80	98.57	46.54	0.23
9400.00	0.21	149.87	9398.09	67.26	71.80	67.26	98.38	46.87	0.27
9500.00	0.38	143.81	9498.09	66.83	72.09	66.83	98.30	47.16	0.17
9600.00	0.29	154.97	9598.09	66.34	72.39	66.34	98.19	47.49	0.11

VES Survey Date: 04/12/2014

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
9700.00	0.46	199.38	9698.09	65.74	72.36	65.74	97.76	47.75	0.32
9800.00	1.33	217.28	9798.07	64.43	71.52	64.43	96.27	47.98	0.91
9900.00	1.60	222.85	9898.04	62.49	69.87	62.49	93.74	48.19	0.30
10000.00	1.67	218.45	9998.00	60.32	68.01	60.32	90.91	48.43	0.15
10100.00	1.36	214.06	10097.96	58.19	66.44	58.19	88.32	48.79	0.33
10200.00	1.51	207.41	10197.93	56.04	65.17	56.04	85.95	49.31	0.22
10300.00	1.63	198.83	10297.89	53.52	64.10	53.52	83.51	50.14	0.26
10400.00	2.28	194.15	10397.84	50.25	63.16	50.25	80.71	51.49	0.67
10500.00	1.85	196.69	10497.77	46.77	62.21	46.77	77.83	53.06	0.43
10600.00	1.91	198.90	10597.72	43.64	61.20	43.64	75.17	54.51	0.09
10700.00	2.21	211.30	10697.65	40.42	59.66	40.42	72.06	55.88	0.53
10800.00	2.14	218.96	10797.58	37.32	57.49	37.32	68.54	57.01	0.30
10865.00	2.10	217.82	10862.54	35.44	55.99	35.44	66.26	57.67	0.09

VES Survey International
West Texas
432-563-5444
Surveyor: Chris Bankson
Corazon State Unit 9H / 30-025-40951



VES Survey Date: 04/12/2014

COG Operating LLC

Lea County, NM (NAD27 NME)
Corazon State Unit
#9H

OH

Survey: MWD #1

Standard Survey Report

21 April, 2014

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	WELL @ 3842.0usft (Original Well Elev)
Site:	Corazon State Unit	**MD Reference:**	WELL @ 3842.0usft (Original Well Elev)
Well:	#9H	**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	Corazon State Unit				
Site Position:		**Northing:**	546,560.20 usft	**Latitude:**	32° 30' 0.651 N
From:	Map	**Easting:**	740,765.70 usft	**Longitude:**	103° 33' 8.632 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.42 °

Well	#9H					
Well Position	**+N/-S**	0.0 usft	**Northing:**	546,560.20 usft	**Latitude:**	32° 30' 0.651 N
	+E/-W	0.0 usft	**Easting:**	740,765.70 usft	**Longitude:**	103° 33' 8.632 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,817.0 usft

Wellbore	OH			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	3/18/2014	7.26	60.38	48,506

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	180.06

Survey Program **Date** 4/21/2014

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
100.0	10,865.0	GYRO (OH)	MWD	MWD - Standard
10,976.0	16,220.0	MWD #1 (OH)	MWD	MWD - Standard

Survey

Measured Depth (usft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Vertical Section (usft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
10,865.0	2.10	217.82	10,862.5	35.5	56.0	-35.5	0.00	0.00	0.00
10,976.0	2.20	221.70	10,973.5	32.3	53.3	-32.3	0.16	0.09	3.50
11,013.0	2.40	228.70	11,010.4	31.2	52.3	-31.3	0.93	0.54	18.92
11,045.0	4.40	271.80	11,042.4	30.8	50.5	-30.9	9.73	6.25	134.69
11,076.0	7.10	237.40	11,073.2	29.8	47.7	-29.9	13.76	8.71	-110.97
11,106.0	10.20	219.30	11,102.9	26.8	44.5	-26.8	13.63	10.33	-60.33
11,137.0	12.40	208.50	11,133.3	21.7	41.2	-21.8	9.82	7.10	-34.84
11,169.0	15.60	206.30	11,164.3	14.8	37.6	-14.9	10.14	10.00	-6.88
11,201.0	20.00	204.00	11,194.8	6.0	33.5	-6.0	13.92	13.75	-7.19
11,233.0	23.80	201.90	11,224.5	-5.0	28.9	5.0	12.12	11.88	-6.56

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	WELL @ 3842.0usft (Original Well Elev)
Site:	Corazon State Unit	**MD Reference:**	WELL @ 3842.0usft (Original Well Elev)
Well:	#9H	**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)
11,264.0	28.40	197.00	11,252.3	-17.9	24.4	17.8	16.38	14.84	-15.81
11,296.0	31.90	193.90	11,280.0	-33.4	20.1	33.3	11.97	10.94	-9.69
11,327.0	35.20	194.10	11,305.8	-50.0	16.0	50.0	10.65	10.65	0.65
11,359.0	38.50	192.10	11,331.4	-68.7	11.6	68.7	10.97	10.31	-6.25
11,389.0	42.50	188.00	11,354.2	-87.9	8.3	87.8	16.01	13.33	-13.67
11,421.0	45.80	184.60	11,377.2	-110.0	5.8	110.0	12.69	10.31	-10.63
11,453.0	47.30	182.90	11,399.2	-133.2	4.3	133.2	6.07	4.69	-5.31
11,484.0	50.60	183.80	11,419.6	-156.5	2.9	156.5	10.87	10.65	2.90
11,516.0	55.40	184.80	11,438.8	-182.0	1.0	182.0	15.21	15.00	3.13
11,548.0	57.50	185.30	11,456.5	-208.6	-1.3	208.6	6.69	6.56	1.56
11,580.0	56.30	186.20	11,474.0	-235.2	-4.0	235.2	4.43	-3.75	2.81
11,611.0	57.60	188.50	11,490.9	-261.0	-7.3	261.0	7.50	4.19	7.42
11,643.0	62.90	188.60	11,506.7	-288.5	-11.5	288.5	16.56	16.56	0.31
11,674.0	69.10	188.10	11,519.3	-316.5	-15.6	316.5	20.05	20.00	-1.61
11,706.0	73.30	187.60	11,529.7	-346.5	-19.7	346.5	13.21	13.13	-1.56
11,738.0	72.80	187.60	11,539.0	-376.8	-23.8	376.8	1.56	-1.56	0.00
11,763.0	72.60	188.10	11,546.4	-400.5	-27.0	400.5	2.07	-0.80	2.00
11,794.0	73.60	189.00	11,555.4	-429.8	-31.4	429.8	4.26	3.23	2.90
11,826.0	75.90	190.30	11,563.9	-460.2	-36.6	460.3	8.19	7.19	4.06
11,858.0	76.40	190.80	11,571.5	-490.8	-42.3	490.8	2.18	1.56	1.56
11,889.0	77.60	189.80	11,578.5	-520.5	-47.7	520.5	4.99	3.87	-3.23
11,921.0	79.50	189.30	11,584.8	-551.4	-52.9	551.5	6.13	5.94	-1.56
11,952.0	80.60	187.70	11,590.2	-581.6	-57.4	581.7	6.20	3.55	-5.16
11,984.0	83.30	187.00	11,594.7	-613.0	-61.5	613.1	8.71	8.44	-2.19
12,015.0	84.10	188.80	11,598.1	-643.5	-65.7	643.6	6.32	2.58	5.81
12,046.0	87.50	188.80	11,600.3	-674.1	-70.4	674.2	10.97	10.97	0.00
12,141.0	91.60	188.20	11,601.1	-768.0	-84.5	768.1	4.36	4.32	-0.63
12,236.0	89.80	187.20	11,599.9	-862.2	-97.2	862.3	2.17	-1.89	-1.05
12,329.0	88.80	183.50	11,601.1	-954.7	-105.9	954.8	4.12	-1.08	-3.98
12,423.0	86.50	179.00	11,604.9	-1,048.6	-107.9	1,048.7	5.37	-2.45	-4.79
12,518.0	86.20	175.80	11,611.0	-1,143.3	-103.6	1,143.4	3.38	-0.32	-3.37
12,612.0	85.50	175.70	11,617.8	-1,236.8	-96.7	1,236.9	0.75	-0.74	-0.11
12,706.0	87.40	175.60	11,623.6	-1,330.3	-89.6	1,330.4	2.02	2.02	-0.11
12,800.0	87.00	175.60	11,628.2	-1,423.9	-82.3	1,424.0	0.43	-0.43	0.00
12,895.0	89.00	175.50	11,631.5	-1,518.6	-75.0	1,518.7	2.11	2.11	-0.11
12,990.0	88.40	174.70	11,633.7	-1,613.2	-66.9	1,613.3	1.05	-0.63	-0.84
13,084.0	90.30	176.40	11,634.7	-1,706.9	-59.6	1,707.0	2.71	2.02	1.81
13,179.0	90.00	176.30	11,634.5	-1,801.7	-53.5	1,801.8	0.33	-0.32	-0.11
13,273.0	89.80	175.50	11,634.6	-1,895.5	-46.8	1,895.5	0.88	-0.21	-0.85
13,368.0	89.30	178.50	11,635.4	-1,990.3	-41.8	1,990.4	3.20	-0.53	3.16
13,463.0	89.80	180.10	11,636.1	-2,085.3	-40.7	2,085.4	1.76	0.53	1.68
13,558.0	89.80	179.10	11,636.5	-2,180.3	-40.0	2,180.4	1.05	0.00	-1.05
13,653.0	89.00	178.90	11,637.5	-2,275.3	-38.4	2,275.3	0.87	-0.84	-0.21

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	WELL @ 3842.0usft (Original Well Elev)
Site:	Corazon State Unit	**MD Reference:**	WELL @ 3842.0usft (Original Well Elev)
Well:	#9H	**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)
13,748.0	88.60	178.80	11,639.4	-2,370.3	-36.5	2,370.3	0.43	-0.42	-0.11
13,842.0	88.50	178.30	11,641.8	-2,464.2	-34.1	2,464.2	0.54	-0.11	-0.53
13,936.0	88.40	177.30	11,644.4	-2,558.1	-30.5	2,558.1	1.07	-0.11	-1.06
14,031.0	88.00	176.70	11,647.4	-2,652.9	-25.5	2,652.9	0.76	-0.42	-0.63
14,126.0	89.10	176.30	11,649.8	-2,747.7	-19.7	2,747.7	1.23	1.16	-0.42
14,221.0	88.60	177.90	11,651.7	-2,842.6	-14.9	2,842.6	1.76	-0.53	1.68
14,316.0	89.50	180.30	11,653.2	-2,937.5	-13.4	2,937.5	2.70	0.95	2.53
14,411.0	89.60	180.10	11,654.0	-3,032.5	-13.7	3,032.5	0.24	0.11	-0.21
14,506.0	87.00	179.00	11,656.8	-3,127.5	-13.0	3,127.5	2.97	-2.74	-1.16
14,600.0	86.80	178.80	11,661.9	-3,221.3	-11.2	3,221.3	0.30	-0.21	-0.21
14,695.0	86.70	180.30	11,667.3	-3,316.2	-10.4	3,316.2	1.58	-0.11	1.58
14,790.0	85.80	179.90	11,673.5	-3,411.0	-10.6	3,411.0	1.04	-0.95	-0.42
14,885.0	84.00	179.90	11,681.9	-3,505.6	-10.4	3,505.6	1.89	-1.89	0.00
14,981.0	86.30	180.60	11,690.0	-3,601.2	-10.9	3,601.2	2.50	2.40	0.73
15,076.0	88.90	181.30	11,694.0	-3,696.1	-12.4	3,696.1	2.83	2.74	0.74
15,171.0	89.60	182.90	11,695.3	-3,791.0	-15.9	3,791.1	1.84	0.74	1.68
15,263.0	88.30	182.20	11,697.0	-3,882.9	-20.0	3,883.0	1.60	-1.41	-0.76
15,358.0	89.80	180.80	11,698.5	-3,977.9	-22.5	3,977.9	2.16	1.58	-1.47
15,453.0	92.10	181.20	11,697.0	-4,072.9	-24.2	4,072.9	2.46	2.42	0.42
15,548.0	91.80	181.90	11,693.7	-4,167.8	-26.7	4,167.8	0.80	-0.32	0.74
15,643.0	91.80	181.00	11,690.7	-4,262.7	-29.1	4,262.7	0.95	0.00	-0.95
15,738.0	91.90	180.80	11,687.7	-4,357.6	-30.6	4,357.7	0.24	0.11	-0.21
15,865.0	92.10	180.70	11,683.2	-4,484.5	-32.3	4,484.6	0.18	0.16	-0.08
15,961.0	89.20	180.20	11,682.2	-4,580.5	-33.0	4,580.5	3.07	-3.02	-0.52
16,056.0	90.10	180.20	11,682.7	-4,675.5	-33.4	4,675.5	0.95	0.95	0.00
16,171.0	89.80	179.80	11,682.8	-4,790.5	-33.4	4,790.5	0.43	-0.26	-0.35
16,220.0	89.80	179.80	11,683.0	-4,839.5	-33.2	4,839.5	0.00	0.00	0.00
PBHL(CSU#9H)									

Checked By: _____ Approved By: _____ Date: _____

CONCHO

NEXUS DIRECTIONAL SOLUTIONS, L.P.

Corazon State Unit #9H
Lea County, NM (NAD27 NME)
Northing: (Y) 546560.20
Easting: (X) 740765.70
Plan #2

G
T M

Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.84°

Magnetic Field
Strength: 48505.6snT
Dip Angle: 60.38°
Date: 3/18/2014
Model: IGRF2010

To convert a Magnetic Direction to a Grid Direction, Add 6.84°
To convert a True Direction to a Grid Direction, Subtract 0.42°

WELL DETAILS:

WELL @ 3842.0usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	546560.20	740765.70	32° 30' 0.651 N	103° 33' 8.632 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
10865.0	2.10	217.82	10862.5	35.5	56.0	0.00	0.00	-35.5	
11125.0	0.00	0.00	11122.5	31.7	53.1	0.81	180.00	-31.8	
11864.5	88.71	189.00	11600.0	-429.4	-20.0	12.00	189.00	429.4	
12350.5	88.71	179.28	11611.0	-913.5	-55.0	2.00	-90.14	913.5	
16290.5	88.71	179.28	11700.0	-4852.1	-5.3	0.00	0.00	4852.1	PBHL(CSU#9H)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL(CSU#9H)	11700.0	-4852.1	-5.3	541708.10	740760.40

LEGEND

— #9H, OH, MWD #1
+ Plan #2

Matt Shipp
6:15, April 21 2014

Nexus Directional Solutions
3925 CR 1285
Odessa TX 79765

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

Local Origin: Well #9H, Grid North

Latitude: 32° 30' 0.651 N
Longitude: 103° 33' 8.632 W

Grid East: 740765.70
Grid North: 546560.20
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 18-Mar-14
Magnetic Declination: 7.26°
Dip Angle from Horizontal: 60.38°
Magnetic Field Strength: 48506

To convert a Magnetic Direction to a Grid Direction, Add 6.84°
To convert a Magnetic Direction to a True Direction, Add 7.26° East
To convert a True Direction to a Grid Direction, Subtract 0.42°