

Results of Directional Survey

API number:	30-025-41633		
OGRID:		Operator:	COG OPERATING LLC
		Property:	STRATOCONE 32 STATE # 2H

surface	ULSTR:	M	32	T	20S	R	35E
				330	FSL	190	FWL

BH Loc	ULSTR:	P	32	T	20S	R	35E
15390	MD	10772.6	TVD	477	FSL	339	FEL
						4941	FWL

Top Perf/OH	ULSTR:	M	32	T	20S	R	35E
11064	MD	10856.9	TVD	405	FSL	629	FWL

Bot Perf/OH	ULSTR:	P	32	T	20S	R	35E
15275	MD	10776.7	TVD	464	FSL	453	FEL
						4827	FWL

	MD	N/S	E/W	VD
	11032	68.20	408.40	10849.3
TOP PERFS/OH	11064	74.50	438.80	10856.90
	11064	74.50	438.80	10856.90
	15220	128.00	4582.20	10778.80
BOT PERFS/OH	15275	134.12	4636.84	10776.72
	15326	139.80	4687.50	10774.80

NEXT TO LAST	15326	139.80	4687.50	10774.80
LAST READING	15390	147.40	4751.00	10772.60
TD	15390	147.40	4751.00	10772.60

Surface Location	330	FS	190	FW
Projected BHL	477	FS	4941	FW
Location of				
Top Perfs/OH	405	FS	629	FW
Bottom Perfs/OH	464	FS	4827	FW

SUMMARY of Subsurface Locations

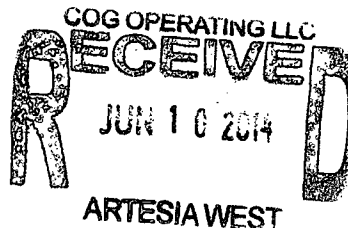
Surface Location	M-32-20S-35E	330	FS	190	FW	Vert. Depth
Top Perfs/OH	M-32-20S-35E	405	FS	629	FW	10856.90
Bottom Perfs/OH	P-32-20S-35E	464	FS	4827	FW	10776.72
Projected TD	P-32-20S-35E	477	FS	4941	FW	10772.60

AUG 11 2014

**McVAY DRILLING COMPANY**

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

Well Name and Num: Stratocone 32 State #2H
Location: Sec 32, T20S, R35E
Operator: COG
Drilling Contractor: McVay Drilling Company



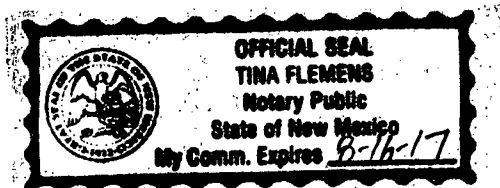
The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
0.30	319	1.60	2793	3.00	10202	92.00	15326
0.60	592	3.60	3362	7.90	10300		
0.30	844	2.40	3646	21.90	10459		
0.30	1254	2.60	3931	37.60	10619		
0.30	1563	1.80	4408	44.50	10715		
6.90	1858	1.80	5575	48.60	10874		
3.40	1676	1.20	6227	79.40	11064		
4.90	1739	0.70	6358	91.50	11250		
5.80	1784	1.10	6739	91.80	11631		
6.20	1816	0.60	7089	90.50	12008		
1.00	1545	0.90	7818	93.60	12481		
0.80	1577	0.10	8199	92.80	12766		
5.40	1790	0.70	8617	62.50	13237		
8.00	1922	2.70	9125	86.60	13710		
8.40	2005	3.60	9377	88.40	14121		
5.10	2194	3.80	9408	93.10	14562		
3.29	2320	3.30	9902	92.10	15032		

By: Hunter Crane

Subscribed and sworn to before me this 6th day of June, 2014

Tina Flemens
Notary Public, Lea County, New Mexico





May 23, 2014

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

Attn: Kanicia Castillo

RE: **Stratacone 32 State No. 002H**

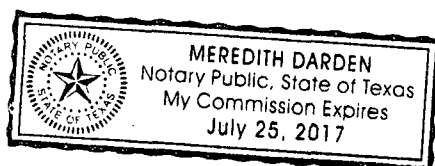
Please find enclosed a copy of the survey from 0.00' to 9,330.00' ran on the above referenced well.

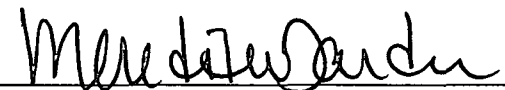
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 23rd day of May,
A.D., 2014, by Keith Havelka.




Meredith Darden
Notary Public, State of Texas

Company: COG Operating, LLC (Concho)
Lease/Well: STRATACONE 32 STATE/NO. 002H



Rig Name: McVAY #7
State/County: NEW MEXICO/LEA
Latitude: 32.52, Longitude: -103.49
GRID North is 0.46 Degrees East of True North
VS-Azi: 0.00 Degrees



RKB : 17 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 5/23/2014 / 14:18

VES Survey International
West, Texas
(432) 563-5444
Surveyor: Neil Bates
Stratacone 32 State No. 002H / API 30-025-41633

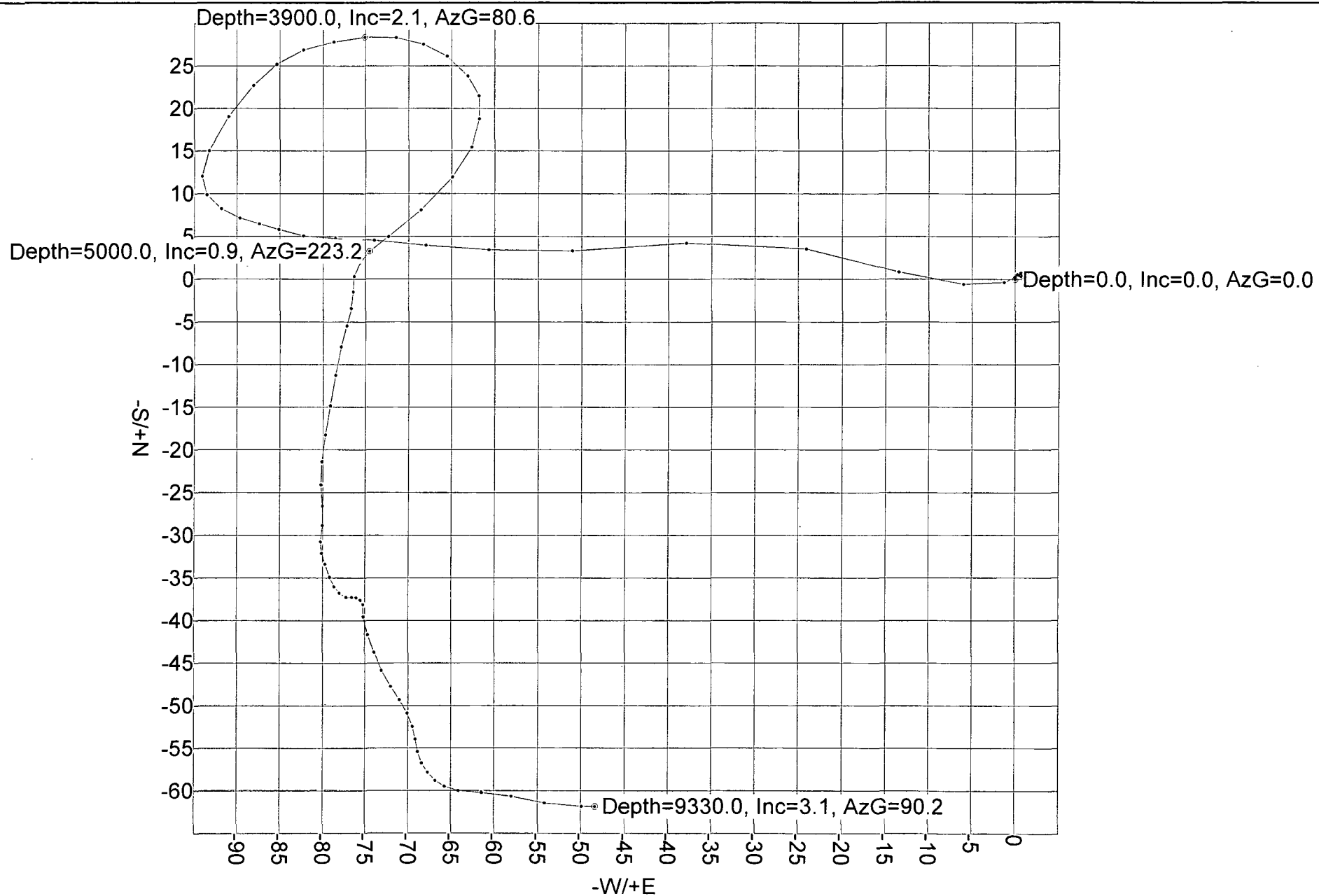
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.08	8.70	100.00	0.07	0.01	0.07	0.07	8.70	0.08
200.00	0.21	352.21	200.00	0.31	0.00	0.31	0.31	359.11	0.14
300.00	0.34	71.51	300.00	0.59	0.26	0.59	0.64	23.35	0.37
400.00	0.22	156.73	400.00	0.51	0.61	0.51	0.80	50.16	0.39
500.00	0.10	352.95	500.00	0.43	0.68	0.43	0.80	57.74	0.32
600.00	0.18	171.70	600.00	0.36	0.69	0.36	0.78	62.41	0.28
700.00	0.21	69.03	700.00	0.27	0.89	0.27	0.93	72.99	0.31
800.00	0.16	350.99	800.00	0.47	1.04	0.47	1.14	65.48	0.24
900.00	0.21	26.28	900.00	0.77	1.10	0.77	1.34	54.88	0.12
1000.00	0.12	270.38	1000.00	0.94	1.08	0.94	1.43	48.99	0.28
1100.00	0.10	187.79	1100.00	0.85	0.96	0.85	1.28	48.59	0.15
1200.00	0.11	202.32	1200.00	0.67	0.91	0.67	1.13	53.81	0.03
1300.00	0.22	309.34	1300.00	0.70	0.72	0.70	1.01	46.05	0.28
1400.00	0.11	122.84	1400.00	0.77	0.66	0.77	1.01	40.59	0.33
1500.00	0.37	222.63	1499.99	0.47	0.52	0.47	0.70	47.56	0.41
1600.00	1.92	249.08	1599.97	-0.36	-1.27	-0.36	1.32	254.02	1.60
1700.00	3.61	276.84	1699.86	-0.59	-5.96	-0.59	5.99	264.37	2.11
1800.00	5.17	283.77	1799.56	0.86	-13.46	0.86	13.49	273.66	1.65

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
1900.00	7.42	284.52	1898.95	3.55	-24.10	3.55	24.36	278.39	2.25
2000.00	8.74	262.96	1997.98	4.24	-37.90	4.24	38.14	276.39	3.28
2100.00	6.46	270.05	2097.09	3.32	-51.07	3.32	51.18	273.72	2.46
2200.00	4.55	271.55	2196.63	3.43	-60.67	3.43	60.77	273.23	1.91
2300.00	3.86	277.00	2296.36	3.95	-67.98	3.95	68.10	273.32	0.80
2400.00	3.07	274.02	2396.17	4.55	-73.99	4.55	74.13	273.52	0.81
2500.00	2.19	270.62	2496.07	4.75	-78.57	4.75	78.72	273.46	0.89
2600.00	2.08	278.57	2596.00	5.05	-82.28	5.05	82.43	273.51	0.32
2700.00	1.35	294.05	2695.95	5.80	-85.15	5.80	85.34	273.89	0.86
2800.00	1.40	279.48	2795.92	6.48	-87.42	6.48	87.66	274.24	0.35
2900.00	1.31	293.95	2895.90	7.14	-89.66	7.14	89.95	274.55	0.35
3000.00	1.48	298.90	2995.87	8.22	-91.83	8.22	92.20	275.12	0.21
3100.00	1.32	330.74	3095.84	9.85	-93.52	9.85	94.04	276.01	0.78
3200.00	1.36	359.62	3195.81	12.04	-94.09	12.04	94.86	277.29	0.67
3300.00	2.26	24.38	3295.76	15.02	-93.29	15.02	94.49	279.15	1.18
3400.00	3.08	34.45	3395.66	19.03	-90.95	19.03	92.92	281.82	0.94
3500.00	2.29	43.17	3495.55	22.70	-88.07	22.70	90.95	284.45	0.89
3600.00	1.92	52.02	3595.48	25.19	-85.38	25.19	89.02	286.44	0.49
3700.00	2.16	69.84	3695.42	26.87	-82.28	26.87	86.56	288.09	0.68
3800.00	2.07	81.24	3795.35	27.80	-78.73	27.80	83.49	289.45	0.43
3900.00	2.14	80.61	3895.28	28.38	-75.10	28.38	80.29	290.70	0.08
4000.00	2.08	101.65	3995.21	28.32	-71.49	28.32	76.89	291.61	0.77
4100.00	1.69	106.06	4095.16	27.54	-68.29	27.54	73.64	291.96	0.41
4200.00	1.94	127.11	4195.11	26.11	-65.53	26.11	70.54	291.73	0.71
4300.00	1.94	140.66	4295.05	23.79	-63.11	23.79	67.44	290.65	0.46
4400.00	1.20	166.44	4395.02	21.46	-61.79	21.46	65.41	289.15	1.00
4500.00	1.94	186.90	4494.98	18.76	-61.75	18.76	64.54	286.90	0.92
4600.00	2.05	203.29	4594.92	15.44	-62.66	15.44	64.53	283.84	0.58
4700.00	2.77	219.27	4694.83	11.92	-64.90	11.92	65.98	280.41	0.98
4800.00	3.34	227.44	4794.69	8.08	-68.57	8.08	69.05	276.72	0.71
4900.00	2.29	235.07	4894.57	4.97	-72.35	4.97	72.52	273.93	1.11
5000.00	0.88	223.16	4994.53	3.27	-74.51	3.27	74.58	272.51	1.44
5100.00	1.08	217.03	5094.51	1.96	-75.60	1.96	75.63	271.49	0.22
5200.00	1.03	190.86	5194.50	0.33	-76.33	0.33	76.33	270.25	0.48
5300.00	1.07	178.02	5294.48	-1.48	-76.47	-1.48	76.48	268.89	0.24
5400.00	1.20	194.24	5394.46	-3.42	-76.69	-3.42	76.77	267.45	0.34
5500.00	1.24	194.97	5494.44	-5.48	-77.23	-5.48	77.42	265.94	0.04
5600.00	1.67	195.10	5594.41	-7.93	-77.89	-7.93	78.29	264.19	0.43
5700.00	2.20	188.14	5694.35	-11.24	-78.54	-11.24	79.34	261.86	0.58

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	1.96	191.41	5794.28	-14.82	-79.15	-14.82	80.53	259.40	0.27
5900.00	2.04	187.41	5894.22	-18.25	-79.72	-18.25	81.78	257.10	0.16
6000.00	1.59	188.05	5994.17	-21.39	-80.14	-21.39	82.95	255.06	0.45
6100.00	1.53	176.35	6094.13	-24.10	-80.25	-24.10	83.79	253.29	0.32
6200.00	1.33	175.01	6194.10	-26.59	-80.07	-26.59	84.36	251.63	0.21
6300.00	1.27	185.33	6294.08	-28.85	-80.07	-28.85	85.11	250.18	0.24
6400.00	0.92	186.72	6394.06	-30.75	-80.26	-30.75	85.95	249.04	0.36
6500.00	0.67	159.69	6494.05	-32.10	-80.15	-32.10	86.34	248.18	0.44
6600.00	0.89	163.65	6594.04	-33.39	-79.73	-33.39	86.44	247.28	0.22
6700.00	0.96	155.73	6694.03	-34.89	-79.17	-34.89	86.52	246.22	0.15
6800.00	0.47	153.30	6794.02	-36.02	-78.64	-36.02	86.50	245.39	0.49
6900.00	0.65	131.01	6894.01	-36.76	-78.03	-36.76	86.26	244.77	0.28
7000.00	0.46	109.02	6994.01	-37.26	-77.23	-37.26	85.75	244.24	0.28
7100.00	0.36	66.46	7094.01	-37.27	-76.56	-37.27	85.15	244.05	0.31
7200.00	0.33	123.77	7194.01	-37.30	-76.04	-37.30	84.70	243.87	0.33
7300.00	0.35	116.30	7294.00	-37.60	-75.53	-37.60	84.37	243.54	0.05
7400.00	0.44	175.33	7394.00	-38.11	-75.22	-38.11	84.33	243.13	0.40
7500.00	1.18	179.41	7493.99	-39.52	-75.18	-39.52	84.94	242.27	0.74
7600.00	1.39	155.53	7593.97	-41.66	-74.67	-41.66	85.50	240.84	0.57
7700.00	1.15	166.31	7693.94	-43.73	-73.93	-43.73	85.90	239.39	0.34
7800.00	1.48	152.54	7793.92	-45.85	-73.10	-45.85	86.29	237.90	0.46
7900.00	1.02	147.72	7893.89	-47.75	-72.03	-47.75	86.42	236.46	0.47
8000.00	1.12	146.42	7993.88	-49.32	-71.01	-49.32	86.46	235.22	0.10
8100.00	0.98	153.84	8093.86	-50.90	-70.09	-50.90	86.62	234.01	0.20
8200.00	0.95	164.11	8193.84	-52.47	-69.49	-52.47	87.07	232.94	0.18
8300.00	0.77	171.07	8293.83	-53.93	-69.15	-53.93	87.70	232.05	0.21
8400.00	0.97	168.02	8393.82	-55.42	-68.88	-55.42	88.40	231.18	0.20
8500.00	0.68	150.34	8493.81	-56.76	-68.41	-56.76	88.89	230.32	0.38
8600.00	0.79	144.59	8593.80	-57.84	-67.71	-57.84	89.05	229.50	0.13
8700.00	0.74	130.84	8693.79	-58.82	-66.82	-58.82	89.03	228.64	0.19
8800.00	0.73	112.82	8793.79	-59.49	-65.75	-59.49	88.67	227.86	0.23
8900.00	1.25	103.92	8893.77	-60.00	-64.10	-60.00	87.80	226.89	0.54
9000.00	1.84	88.69	8993.73	-60.23	-61.43	-60.23	86.03	225.57	0.71
9100.00	2.16	103.74	9093.67	-60.64	-57.99	-60.64	83.90	223.72	0.61
9200.00	2.28	100.11	9193.60	-61.44	-54.20	-61.44	81.93	221.42	0.18
9300.00	2.67	91.14	9293.51	-61.83	-49.91	-61.83	79.46	218.91	0.54
9330.00	3.12	90.18	9323.47	-61.85	-48.40	-61.85	78.53	218.04	1.51



VES Survey International
West, Texas
(432) 563-5444
Surveyor: Neil Bates
Stratacone 32 State No. 002H / API 30-025-41633



V.E.S. Survey Date: 05/18/2014



COG Operating LLC

Lea County, NM (NAD27 NME)

Stratocone 32 State

#2H

OH

Survey: MWD #1

Standard Survey Report

09 June, 2014



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3749.8usft (Original Well Elev)
Site:	Stratocone 32 State	MD Reference:	WELL @ 3749.8usft (Original Well Elev)
Well:	#2H	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	Stratocone 32 State				
Site Position:		Northing:	555,060.20 usft	Latitude:	32° 31' 23.238 N
From:	Map	Easting:	760,885.60 usft	Longitude:	103° 29' 12.929 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.46 °

Well	#2H				
Well Position	+N/-S	0.0 usft	Northing:	555,060.20 usft	Latitude: 32° 31' 23.238 N
	+E/-W	0.0 usft	Easting:	760,885.60 usft	Longitude: 103° 29' 12.929 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level: 3,732.8 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/21/2014	7.22	60.41	48,518

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		218.04

Survey Program	Date 6/9/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	9,330.0	GYRO (OH)	MWD	MWD - Standard
9,374.0	15,390.0	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)	
9,330.0	3.12	90.18	9,323.5	-61.9	-48.4	78.6	0.00	0.00	0.00	
9,374.0	3.80	79.50	9,367.4	-61.6	-45.8	76.7	2.12	1.55	-24.27	
9,456.0	4.30	55.20	9,449.2	-59.4	-40.6	71.8	2.16	0.61	-29.63	
9,520.0	3.30	57.30	9,513.0	-57.0	-37.1	67.7	1.58	-1.56	3.28	
9,552.0	2.80	53.90	9,545.0	-56.0	-35.7	66.1	1.66	-1.56	-10.63	
9,619.0	2.40	58.90	9,611.9	-54.3	-33.1	63.2	0.69	-0.60	7.46	
9,712.0	2.60	72.30	9,704.8	-52.7	-29.5	59.7	0.66	0.22	14.41	
9,807.0	2.40	50.50	9,799.8	-50.8	-25.9	55.9	1.02	-0.21	-22.95	
9,902.0	3.30	56.20	9,894.6	-48.0	-22.1	51.4	0.99	0.95	6.00	
9,998.0	3.30	46.10	9,990.5	-44.5	-17.8	46.0	0.60	0.00	-10.52	



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3749.8usft (Original Well Elev)
Site:	Stratocone 32 State	MD Reference:	WELL @ 3749.8usft (Original Well Elev)
Well:	#2H	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)
10,062.0	3.20	29.50	10,054.4	-41.7	-15.6	42.4	1.47	-0.16	-25.94
10,125.0	3.00	9.10	10,117.3	-38.6	-14.4	39.3	1.77	-0.32	-32.38
10,202.0	3.00	359.70	10,194.2	-34.5	-14.1	35.9	0.64	0.00	-12.21
10,236.0	3.30	359.00	10,228.1	-32.7	-14.2	34.5	0.89	0.88	-2.06
10,268.0	4.70	44.70	10,260.1	-30.8	-13.3	32.4	10.51	4.38	142.81
10,300.0	7.90	67.90	10,291.9	-29.1	-10.3	29.2	12.59	10.00	72.50
10,331.0	11.90	73.30	10,322.4	-27.3	-5.3	24.8	13.23	12.90	17.42
10,363.0	15.50	72.40	10,353.5	-25.1	2.0	18.5	11.27	11.25	-2.81
10,395.0	17.80	71.40	10,384.1	-22.2	10.7	10.9	7.24	7.19	-3.13
10,427.0	20.40	72.20	10,414.4	-19.0	20.6	2.2	8.17	8.13	2.50
10,459.0	21.90	75.20	10,444.2	-15.8	31.7	-7.1	5.78	4.69	9.38
10,491.0	24.30	78.50	10,473.7	-12.9	44.0	-16.9	8.52	7.50	10.31
10,523.0	26.60	77.50	10,502.5	-10.1	57.4	-27.5	7.31	7.19	-3.13
10,555.0	27.80	78.30	10,531.0	-7.0	71.7	-38.7	3.92	3.75	2.50
10,587.0	32.60	78.90	10,558.7	-3.8	87.5	-50.9	15.03	15.00	1.88
10,619.0	37.60	79.60	10,584.8	-0.4	105.5	-64.7	15.68	15.63	2.19
10,651.0	42.80	81.40	10,609.3	3.0	125.9	-80.0	16.65	16.25	5.63
10,683.0	45.10	79.80	10,632.3	6.6	147.8	-96.3	7.98	7.19	-5.00
10,715.0	44.50	76.90	10,655.0	11.2	169.9	-113.5	6.65	-1.88	-9.06
10,746.0	42.80	75.00	10,677.4	16.4	190.7	-130.4	6.93	-5.48	-6.13
10,778.0	41.60	75.50	10,701.1	21.8	211.4	-147.5	3.89	-3.75	1.56
10,810.0	43.30	75.30	10,724.8	27.3	232.3	-164.7	5.33	5.31	-0.63
10,842.0	45.90	76.50	10,747.5	32.8	254.1	-182.4	8.54	8.13	3.75
10,874.0	48.60	76.60	10,769.3	38.2	277.0	-200.8	8.44	8.44	0.31
10,905.0	52.00	76.20	10,789.1	43.8	300.2	-219.5	11.01	10.97	-1.29
10,937.0	55.80	76.50	10,807.9	49.9	325.3	-239.8	11.90	11.88	0.94
10,969.0	60.90	77.70	10,824.7	56.0	351.8	-260.9	16.25	15.94	3.75
11,000.0	66.80	77.80	10,838.4	61.9	379.0	-282.3	19.03	19.03	0.32
11,032.0	73.10	77.90	10,849.3	68.2	408.4	-305.4	19.69	19.69	0.31
11,064.0	79.40	78.70	10,856.9	74.5	438.8	-329.1	19.84	19.69	2.50
11,091.0	85.00	77.80	10,860.6	80.0	465.0	-349.5	21.00	20.74	-3.33
11,155.0	90.10	78.80	10,863.3	92.9	527.6	-398.3	8.12	7.97	1.56
11,250.0	91.50	80.30	10,862.0	110.2	621.0	-469.4	2.16	1.47	1.58
11,346.0	92.90	81.60	10,858.3	125.2	715.7	-539.7	1.99	1.46	1.35
11,441.0	91.90	83.10	10,854.3	137.9	809.8	-607.6	1.90	-1.05	1.58
11,537.0	91.00	84.70	10,851.9	148.1	905.2	-674.5	1.91	-0.94	1.67
11,631.0	91.80	86.70	10,849.6	155.1	998.9	-737.7	2.29	0.85	2.13
11,724.0	91.60	88.00	10,846.8	159.4	1,091.8	-798.4	1.41	-0.22	1.40
11,818.0	90.10	90.10	10,845.4	161.0	1,185.7	-857.5	2.75	-1.60	2.23
11,913.0	89.80	91.80	10,845.5	159.4	1,280.7	-914.8	1.82	-0.32	1.79
12,008.0	90.50	92.00	10,845.3	156.3	1,375.7	-970.8	0.77	0.74	0.21
12,103.0	88.70	91.90	10,845.9	153.0	1,470.6	-1,026.8	1.90	-1.89	-0.11
12,198.0	90.60	92.00	10,846.5	149.8	1,565.5	-1,082.7	2.00	2.00	0.11



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3749.8usft (Original Well Elev)
Site:	Stratocone 32 State	MD Reference:	WELL @ 3749.8usft (Original Well Elev)
Well:	#2H	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)
12,292.0	90.20	91.70	10,845.9	146.8	1,659.5	-1,138.2	0.53	-0.43	-0.32
12,386.0	93.40	92.60	10,842.9	143.2	1,753.4	-1,193.3	3.54	3.40	0.96
12,481.0	93.60	92.00	10,837.1	139.4	1,848.1	-1,248.7	0.66	0.21	-0.63
12,576.0	93.40	91.10	10,831.3	136.9	1,942.9	-1,305.1	0.97	-0.21	-0.95
12,671.0	93.60	90.80	10,825.5	135.3	2,037.7	-1,362.3	0.38	0.21	-0.32
12,766.0	92.80	91.30	10,820.2	133.6	2,132.5	-1,419.4	0.99	-0.84	0.53
12,860.0	91.70	92.20	10,816.5	130.7	2,226.4	-1,475.0	1.51	-1.17	0.96
12,955.0	91.60	92.50	10,813.8	126.8	2,321.3	-1,530.4	0.33	-0.11	0.32
13,048.0	92.40	92.30	10,810.5	122.9	2,414.2	-1,584.5	0.89	0.86	-0.22
13,143.0	93.70	92.60	10,805.5	118.8	2,508.9	-1,639.7	1.40	1.37	0.32
13,237.0	92.50	91.10	10,800.4	115.8	2,602.8	-1,695.2	2.04	-1.28	-1.60
13,332.0	93.20	90.90	10,795.7	114.2	2,697.6	-1,752.3	0.77	0.74	-0.21
13,427.0	92.50	90.30	10,791.0	113.2	2,792.5	-1,810.0	0.97	-0.74	-0.63
13,520.0	89.40	90.00	10,789.4	112.9	2,885.5	-1,867.1	3.35	-3.33	-0.32
13,615.0	88.00	90.30	10,791.6	112.7	2,980.4	-1,925.4	1.51	-1.47	0.32
13,710.0	86.60	90.10	10,796.0	112.3	3,075.3	-1,983.7	1.49	-1.47	-0.21
13,805.0	86.50	89.70	10,801.8	112.5	3,170.2	-2,042.2	0.43	-0.11	-0.42
13,899.0	86.60	90.60	10,807.4	112.3	3,264.0	-2,099.8	0.96	0.11	0.96
13,994.0	86.90	91.10	10,812.8	110.9	3,358.8	-2,157.2	0.61	0.32	0.53
14,089.0	88.40	91.20	10,816.7	109.0	3,453.7	-2,214.2	1.58	1.58	0.11
14,184.0	87.60	90.70	10,820.0	107.4	3,548.7	-2,271.4	0.99	-0.84	-0.53
14,279.0	89.50	91.20	10,822.4	105.8	3,643.6	-2,328.7	2.07	2.00	0.53
14,372.0	91.10	91.20	10,821.9	103.9	3,736.6	-2,384.5	1.72	1.72	0.00
14,468.0	92.20	91.20	10,819.2	101.8	3,832.5	-2,442.0	1.15	1.15	0.00
14,562.0	93.00	91.00	10,814.9	100.0	3,926.4	-2,498.4	0.88	0.85	-0.21
14,657.0	94.20	90.30	10,808.9	99.0	4,021.2	-2,556.0	1.46	1.26	-0.74
14,749.0	94.20	89.70	10,802.2	99.0	4,113.0	-2,612.6	0.65	0.00	-0.65
14,842.0	94.30	88.80	10,795.3	100.2	4,205.7	-2,670.7	0.97	0.11	-0.97
14,937.0	92.00	85.50	10,790.1	104.9	4,300.4	-2,732.7	4.23	-2.42	-3.47
15,032.0	92.10	85.70	10,786.7	112.2	4,395.1	-2,796.8	0.24	0.11	0.21
15,126.0	92.60	85.50	10,782.8	119.4	4,488.7	-2,860.2	0.57	0.53	-0.21
15,220.0	92.30	84.00	10,778.8	128.0	4,582.2	-2,924.6	1.63	-0.32	-1.60
15,326.0	92.00	83.20	10,774.8	139.8	4,687.5	-2,998.8	0.81	-0.28	-0.75
15,390.0	92.00	83.20	10,772.6	147.4	4,751.0	-3,043.9	0.00	0.00	0.00

PBHL(SC#32H)

Checked By: _____ Approved By: _____ Date: _____



NEXUS

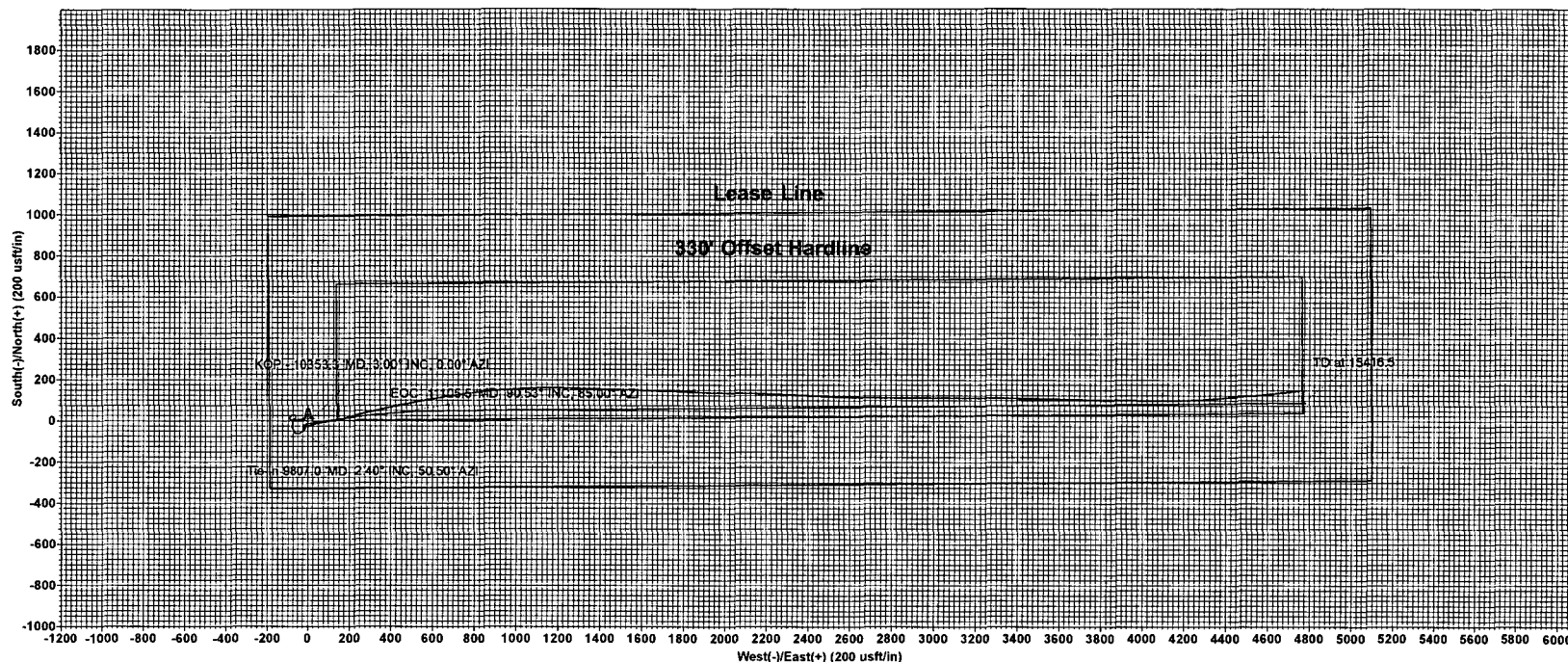
DIRECTIONAL SOLUTIONS, L.P.



Azimuths to Grid North
True North: -0.46°
Magnetic North: 6.76°

Magnetic Field
Strength: 48517.75nT
Dip Angle: 60.41°
Date: 4/21/2014
Model: IGRF2010

Stratocone 32 State #2H
Lea County, NM (NAD27 NME)
Northing: (Y) 555060.20
Easting: (X) 760885.60
Plan #3



WELL DETAILS:

WELL @ 3749.8usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	555060.20	760885.60	32° 31' 23.238 N	103° 29' 12.929 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target
9807.0	2.40	50.50	9799.8	-50.8	-25.9	0.00	0.00	-26.8	
10043.6	3.00	0.00	10036.1	-41.4	-22.0	1.00	-101.96	-22.8	
10353.3	3.00	0.00	10345.4	-25.2	-22.0	0.00	0.00	-22.5	
11105.5	90.53	85.00	10820.0	41.7	455.8	12.00	84.98	456.5	
11253.8	90.53	89.45	10818.6	48.9	603.8	3.00	89.96	604.6	
15416.5	90.53	89.45	10780.0	89.0	4766.2	0.00	0.00	4767.0	PBHL(SC#32H)

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 #2H, Grid North

Latitude: 32° 31' 23.238 N
Longitude: 103° 29' 12.929 W

Grid East: 760885.60
Grid North: 555060.20
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 21-Apr-14
Magnetic Declination: 7.22°
Dip Angle from Horizontal: 60.41°
Magnetic Field Strength: 48518

To convert a Magnetic Direction to a Grid Direction, Add 6.76°
To convert a Magnetic Direction to a True Direction, Add 7.22° East
To convert a True Direction to a Grid Direction, Subtract 0.46°

LEGEND

— #2H, OH, MWD #1
• Plan #3

