

Results of Directional Survey

API number:	30-025-40618		
OGRID:		Operator:	COG OPERATING LLC
		Property:	STRATOSPHERE 36 STATE # 1H

surface	ULSTR:	I	36	T	20S	R	34E
				1980	FSL	50	FEL

BH Loc	ULSTR:	L	36	T	20S	R	34E
15539	MD	10672.0	TVD	1892	FSL	328	FWL
						4952	FEL

Top Perf/OH	ULSTR:	I	36	T	20S	R	34E
11100	MD	10820.7	TVD	1900	FSL	522	FEL

Bot Perf/OH	ULSTR:	L	36	T	20S	R	34E
15460	MD	10679.2	TVD	1894	FSL	406	FWL
						4874	FEL

	MD	N/S	E/W	VD
	11099	-80.39	-470.87	10820.57
TOP PERFS/OH	11100	-80.40	-471.86	10820.68
	11128	-80.73	-499.70	10823.62
	15346	-81.90	-4709.92	10688.16
BOT PERFS/OH	15460	-85.51	-4823.51	10679.15
	15470	-85.83	-4833.47	10678.36

NEXT TO LAST	15470	-85.83	-4833.47	10678.36
LAST READING	15539	-88.19	-4902.13	10671.96
TD	15539	-88.19	-4902.13	10671.96

Surface Location	1980	FS	50	FE
Projected BHL	1892	FS	4952	FE
Location of				
Top Perfs/OH	1900	FS	522	FE
Bottom Perfs/OH	1894	FS	4874	FE

SUMMARY of Subsurface Locations

Surface Location	I-36-20S-34E	1980	FS	50	FE	Vert. Depth
Top Perfs/OH	I-36-20S-34E	1900	FS	522	FE	10820.68
Bottom Perfs/OH	L-36-20S-34E	1894	FS	4874	FE	10679.15
Projected TD	L-36-20S-34E	1892	FS	4952	FE	10671.96

MAR 14 2013

**McVAY DRILLING COMPANY**

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

30025-40618

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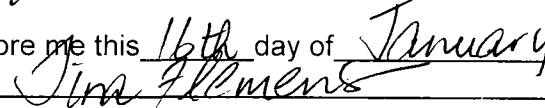
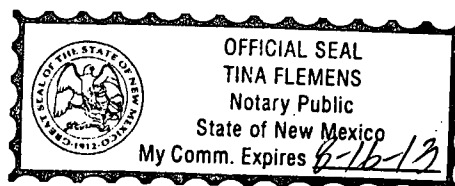
JAN 21 2013

ARIZONA WEST

Well Name and Num: Stratosphere 36 State 1H
Location: Sec. 36, T20S, R34E
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>
0.20	375	0.73	4376	3.40	9417	91.19	11224
0.40	773	3.08	4659	2.20	9648	95.94	11728
0.70	1154	2.81	4817	2.11	9914	95.57	12005
0.80	1533	2.64	4849	2.20	10229	95.50	12190
1.00	1770	2.11	5184	1.93	10705	90.31	12562
1.14	1970	3.52	5419	2.20	10897	88.02	13024
2.02	2445	3.42	5609	2.20	10992	85.91	13197
3.87	2729	2.50	5992	2.80	11281	92.42	13303
4.66	2919	2.60	6247	5.28	11696	90.57	13767
5.96	3110	2.20	6501	2.20	10213	95.43	14140
4.84	3204	0.60	6910	14.30	10340	93.40	14235
4.66	3268	1.70	7410	20.40	10436	91.70	14606
3.08	3458	2.70	8397	29.70	10531	90.20	15069
2.64	3743	2.50	8653	45.90	10721	95.30	15470
2.64	3775	2.40	8809	48.19	10747	95.30	15470
2.61	4154	3.00	9129	53.70	10810		
2.20	4249	3.10	9278	60.50	10875		

By: Subscribed and sworn to before me this 16th day of January, 2013
Notary Public, Lea County, New Mexico



A GYRO TECHNOLOGIES INC. COMPANY

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

January 8, 2013

HOEBS OCD

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

Attn: Kanicia Castillo

RE: **Stratosphere 36 State No. 001H**

Please find enclosed a copy of the survey from 0.00' to 11700.00' ran on the above referenced well.

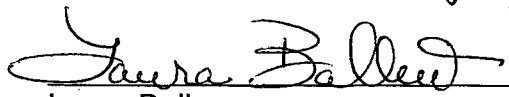
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 8th day of January
A.D., 2013, by Keith Havelka.





Laura Ballew
Notary Public, State of Texas

Company: COG Operating LLC (Concho)
Lease/Well: Stratosphere 36 State / No. 001H



Rig Name: McVay 7
State/County: New Mexico / Lea
Latitude: 32.53, Longitude: -103.50
GRID North is 0.45 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 17.5'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 1/8/2013 / 09:18

Vaughn Energy Services
Midland, Texas
432-563-5444

Surveyor: Tim Dillon

Stratosphere 36 State No. 001H / API 30-025-40618

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30-025-40618

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W 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	****
100.00	0.33	331.00	100.00	0.25	-0.14	0.29	331.00	0.33
200.00	0.22	324.14	200.00	0.66	-0.39	0.77	329.28	0.11
300.00	0.19	303.42	300.00	0.91	-0.64	1.11	324.65	0.08
400.00	0.16	282.71	400.00	1.03	-0.92	1.38	318.25	0.07
500.00	0.20	282.87	500.00	1.10	-1.23	1.65	311.87	0.04
600.00	0.24	283.03	600.00	1.18	-1.60	1.99	306.49	0.04
700.00	0.32	316.05	699.99	1.43	-2.00	2.46	305.63	0.18
800.00	0.40	349.06	799.99	1.98	-2.26	3.01	311.22	0.22
900.00	0.49	337.88	899.99	2.73	-2.49	3.69	317.57	0.12
1000.00	0.58	326.70	999.99	3.54	-2.93	4.60	320.42	0.13
1100.00	0.57	290.56	1099.98	4.14	-3.67	5.53	318.42	0.36
1200.00	0.57	254.42	1199.98	4.18	-4.61	6.23	312.18	0.35
1300.00	0.48	258.04	1299.97	3.96	-5.50	6.78	305.79	0.10
1400.00	0.38	261.67	1399.97	3.83	-6.23	7.32	301.55	0.09
1500.00	0.50	259.09	1499.97	3.70	-6.99	7.91	297.86	0.12
1600.00	0.61	256.52	1599.96	3.49	-7.94	8.68	293.72	0.12
1700.00	0.69	248.26	1699.96	3.14	-9.02	9.55	289.20	0.12
1800.00	0.76	240.00	1799.95	2.59	-10.15	10.48	284.30	0.13

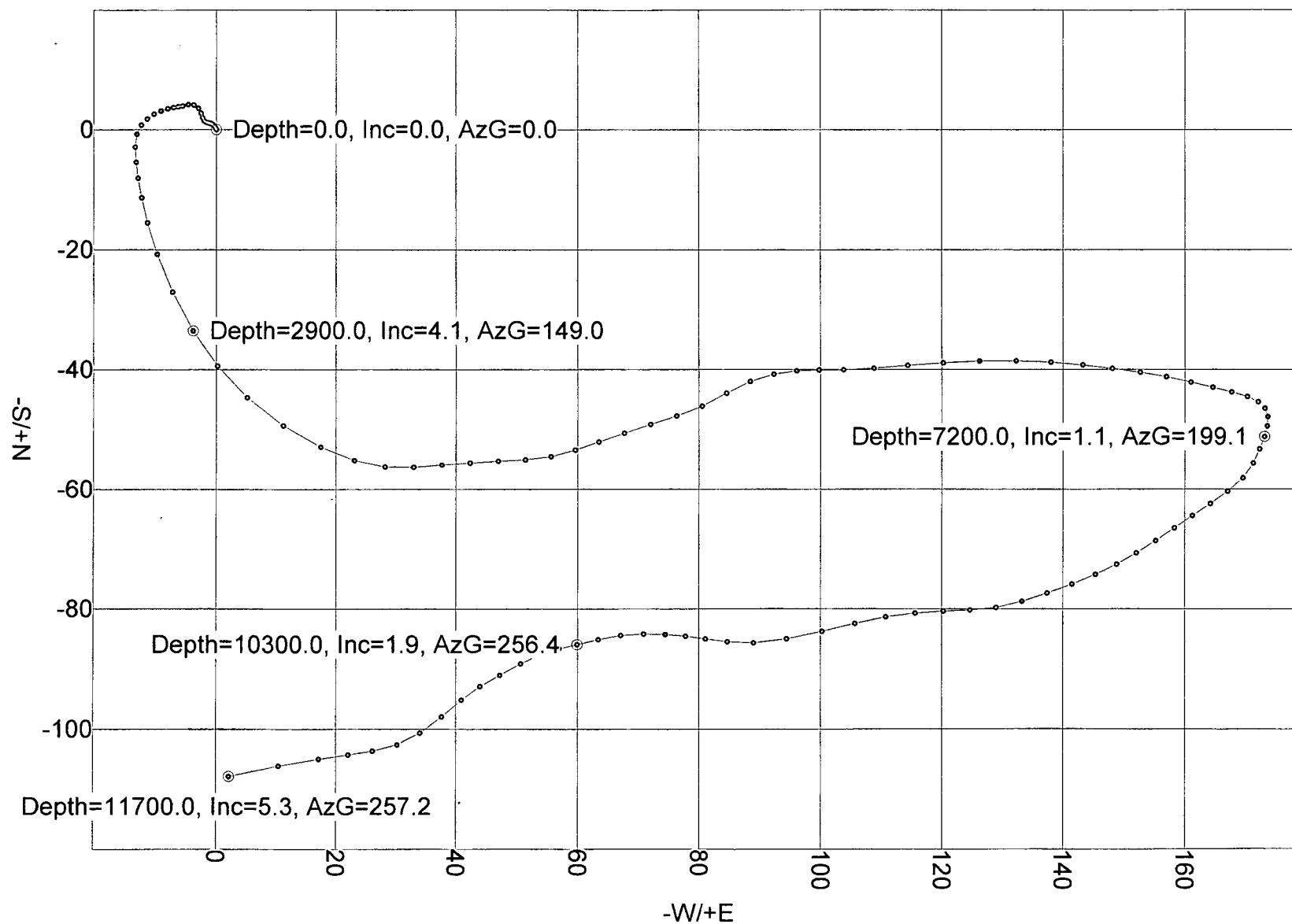
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.80	228.72	1899.94	1.80	-11.25	11.40	279.06	0.16
2000.00	0.84	217.45	1999.93	0.75	-12.22	12.25	273.53	0.17
2100.00	1.11	197.85	2099.91	-0.75	-12.97	12.99	266.68	0.43
2200.00	1.39	178.25	2199.89	-2.89	-13.23	13.54	257.67	0.51
2300.00	1.50	174.86	2299.86	-5.41	-13.07	14.15	247.53	0.14
2400.00	1.61	171.48	2399.82	-8.09	-12.75	15.10	237.59	0.14
2500.00	2.18	168.76	2499.77	-11.34	-12.17	16.64	227.02	0.58
2600.00	2.75	166.04	2599.67	-15.53	-11.22	19.16	215.85	0.58
2700.00	3.50	161.05	2699.52	-20.75	-9.65	22.88	204.95	0.80
2800.00	4.26	156.07	2799.29	-27.03	-7.15	27.96	194.82	0.83
2900.00	4.15	148.98	2899.03	-33.53	-3.78	33.74	186.43	0.53
3000.00	4.04	141.89	2998.77	-39.40	0.26	39.40	179.63	0.52
3100.00	4.26	132.76	3098.51	-44.69	5.16	44.99	173.42	0.70
3200.00	4.48	123.62	3198.22	-49.38	11.14	50.62	167.29	0.73
3300.00	3.82	115.21	3297.96	-52.96	17.41	55.75	161.81	0.90
3400.00	3.15	106.79	3397.77	-55.17	23.05	59.80	157.32	0.84
3500.00	2.90	96.05	3497.63	-56.24	28.20	62.91	153.37	0.62
3600.00	2.64	85.32	3597.52	-56.31	33.01	65.28	149.62	0.58
3700.00	2.67	85.73	3697.41	-55.95	37.63	67.43	146.08	0.04
3800.00	2.71	86.15	3797.30	-55.62	42.32	69.89	142.74	0.04
3900.00	2.60	86.49	3897.19	-55.32	46.94	72.56	139.68	0.11
4000.00	2.50	86.84	3997.09	-55.06	51.39	75.32	136.98	0.11
4100.00	2.40	78.75	4097.00	-54.53	55.62	77.90	134.43	0.36
4200.00	2.31	70.66	4196.92	-53.46	59.58	80.04	131.90	0.35
4300.00	2.47	70.77	4296.83	-52.08	63.51	82.13	129.36	0.16
4400.00	2.63	70.88	4396.73	-50.62	67.71	84.54	126.78	0.16
4500.00	2.61	71.61	4496.63	-49.15	72.04	87.21	124.30	0.04
4600.00	2.58	72.34	4596.53	-47.75	76.35	90.05	122.02	0.04
4700.00	2.60	65.39	4696.42	-46.12	80.56	92.83	119.79	0.32
4800.00	2.62	58.43	4796.32	-43.98	84.58	95.33	117.47	0.32
4900.00	2.42	68.19	4896.22	-41.99	88.49	97.94	115.39	0.47
5000.00	2.21	77.94	4996.14	-40.81	92.33	100.95	113.84	0.44
5100.00	2.14	84.70	5096.07	-40.23	96.07	104.16	112.72	0.27
5200.00	2.06	91.45	5196.00	-40.11	99.72	107.49	111.91	0.26
5300.00	2.60	88.38	5295.92	-40.09	103.79	111.26	111.12	0.56
5400.00	3.15	85.30	5395.79	-39.80	108.79	115.84	110.09	0.56
5500.00	3.30	85.64	5495.64	-39.35	114.39	120.97	108.99	0.15
5600.00	3.45	85.98	5595.46	-38.93	120.25	126.40	107.94	0.15
5700.00	3.45	88.35	5695.28	-38.63	126.26	132.03	107.01	0.14

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	3.45	90.73	5795.10	-38.58	132.27	137.78	106.26	0.14
5900.00	3.15	93.75	5894.94	-38.80	138.02	143.37	105.70	0.35
6000.00	2.85	96.77	5994.80	-39.27	143.23	148.51	105.33	0.34
6100.00	2.72	97.56	6094.68	-39.88	148.05	153.32	105.07	0.14
6200.00	2.59	98.35	6194.57	-40.52	152.63	157.92	104.87	0.14
6300.00	2.43	101.04	6294.48	-41.25	156.94	162.27	104.73	0.20
6400.00	2.27	103.72	6394.39	-42.12	160.94	166.36	104.67	0.20
6500.00	2.00	103.46	6494.32	-43.00	164.56	170.09	104.64	0.26
6600.00	1.74	103.19	6594.27	-43.75	167.74	173.36	104.62	0.26
6700.00	1.35	111.86	6694.23	-44.54	170.32	176.05	104.66	0.45
6800.00	0.96	120.52	6794.21	-45.41	172.14	178.03	104.78	0.43
6900.00	0.89	148.60	6894.20	-46.50	173.27	179.40	105.02	0.46
7000.00	0.83	176.69	6994.19	-47.89	173.72	180.20	105.41	0.42
7100.00	0.99	187.88	7094.18	-49.46	173.64	180.55	105.90	0.24
7200.00	1.15	199.06	7194.16	-51.26	173.20	180.62	106.49	0.26
7300.00	1.37	202.79	7294.14	-53.31	172.40	180.46	107.18	0.24
7400.00	1.60	206.52	7394.10	-55.67	171.32	180.13	108.00	0.25
7500.00	1.84	220.86	7494.06	-58.13	169.64	179.33	108.91	0.49
7600.00	2.07	235.19	7594.00	-60.37	167.12	177.69	109.86	0.54
7700.00	2.05	235.39	7693.94	-62.42	164.16	175.63	110.82	0.02
7800.00	2.03	235.58	7793.87	-64.43	161.23	173.63	111.78	0.02
7900.00	2.10	235.52	7893.81	-66.47	158.26	171.65	112.78	0.08
8000.00	2.18	235.46	7993.74	-68.59	155.18	169.66	113.84	0.08
8100.00	2.16	238.45	8093.67	-70.65	152.01	167.63	114.93	0.12
8200.00	2.13	241.45	8193.60	-72.53	148.77	165.51	115.99	0.11
8300.00	2.31	245.26	8293.52	-74.26	145.31	163.18	117.07	0.23
8400.00	2.48	249.08	8393.43	-75.87	141.46	160.53	118.21	0.23
8500.00	2.50	250.78	8493.34	-77.36	137.39	157.67	119.38	0.08
8600.00	2.51	252.49	8593.24	-78.74	133.24	154.77	120.58	0.08
8700.00	2.50	260.33	8693.15	-79.76	129.00	151.67	121.73	0.34
8800.00	2.48	268.17	8793.06	-80.20	124.69	148.26	122.75	0.34
8900.00	2.60	266.72	8892.96	-80.40	120.26	144.66	123.76	0.14
9000.00	2.73	265.27	8992.85	-80.72	115.63	141.02	124.92	0.14
9100.00	2.91	260.36	9092.73	-81.34	110.75	137.41	126.30	0.31
9200.00	3.10	255.45	9192.59	-82.45	105.63	134.00	127.98	0.32
9300.00	3.29	257.11	9292.43	-83.77	100.21	130.61	129.89	0.21
9400.00	3.47	258.76	9392.26	-85.00	94.45	127.06	131.99	0.21
9500.00	2.81	268.24	9492.11	-85.67	89.02	123.55	133.90	0.84
9600.00	2.15	277.72	9592.02	-85.49	84.71	120.35	135.26	0.78

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
9700.00	1.99	277.70	9691.95	-85.00	81.13	117.51	136.34	0.15
9800.00	1.84	277.68	9791.90	-84.56	77.81	114.91	137.38	0.15
9900.00	1.99	273.39	9891.84	-84.24	74.49	112.45	138.52	0.21
10000.00	2.14	269.09	9991.77	-84.17	70.88	110.04	139.90	0.22
10100.00	2.17	262.93	10091.70	-84.43	67.13	107.87	141.51	0.23
10200.00	2.20	256.77	10191.63	-85.10	63.39	106.12	143.32	0.24
10300.00	1.90	256.42	10291.57	-85.93	59.92	104.75	145.11	0.30
10400.00	1.60	256.06	10391.52	-86.65	56.95	103.69	146.68	0.30
10500.00	1.95	249.06	10491.47	-87.60	54.01	102.91	148.35	0.41
10600.00	2.31	242.06	10591.40	-89.15	50.64	102.53	150.40	0.44
10700.00	2.19	240.57	10691.33	-91.03	47.20	102.54	152.59	0.13
10800.00	2.06	239.07	10791.26	-92.89	43.99	102.78	154.66	0.13
10900.00	2.34	229.15	10891.18	-95.15	40.91	103.57	156.74	0.47
11000.00	2.61	230.22	10991.09	-97.94	37.62	104.91	158.99	0.28
11100.00	2.52	235.09	11090.99	-100.66	34.06	106.26	161.30	0.23
11200.00	2.44	250.96	11190.90	-102.61	30.24	106.97	163.58	0.69
11300.00	2.40	260.79	11290.81	-103.64	26.16	106.89	165.83	0.42
11400.00	2.37	261.63	11390.72	-104.28	22.05	106.58	168.06	0.05
11500.00	3.38	261.65	11490.60	-105.00	17.09	106.39	170.76	1.01
11600.00	4.40	259.46	11590.36	-106.13	10.40	106.64	174.40	1.02
11700.00	5.29	257.17	11690.01	-107.86	2.14	107.88	178.86	0.92



Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Tim Dillon
Stratosphere 36 State No. 001H / API 30-025-40618



VES Survey Date: 12/31/2012



COG Stratosphere 36 State #1H Gyro + MWD Off to 15539ft Survey Geodetic Report (Def Survey)



Report Date: January 14, 2013 - 03:24 PM
Client: NM Lea County (NAD 27)
Field: COG Stratosphere 36 State #1H / COG Stratosphere 36 State #1H
Structure / Slot: COG Stratosphere 36 State #1H
Well: COG Stratosphere 36 State #1H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: COG Stratosphere 36 State #1H Gyro + MWD Off to 15539ft
Survey Date: January 14, 2013
Tort / AHD / DDI / ERD Ratio: 209.529 * / 5334.076 ft / 6.205 / 0.493
Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 31' 39.57230", W 103° 30' 17.51247"
Location Grid N/E Y/X: N 556667.400 ftUS, E 755343.100 ftUS
CRS Grid Convergence Angle: 0.4455 *
Grid Scale Factor: 0.99998376

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 269.540 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3770.000 ft above
Seabed / Ground Elevation: 3753.000 ft above
Magnetic Declination: 7.487 *
Total Gravity Field Strength: 999.1561 mgn (9.8 based)
Total Magnetic Field Strength: 48630.591 nT
Magnetic Dip Angle: 60.404 *
Declination Date: January 14, 2013
Magnetic Declination Model: BGGM 2012
North Reference: Grid North
Grid Convergence Used: 0.4455 *
Total Corr Mag North->Grid North: 7.0411 *

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Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Tie-In	0.00	0.00	0.00	0.00	-3770.00	0.00	0.00	0.00	N/A	556667.40	755343.10	N 32 31 39.57	W 103 30 17.51
	100.00	0.33	331.00	100.00	-3670.00	0.14	0.25	-0.14	0.33	556667.65	755342.96	N 32 31 39.57	W 103 30 17.51
	200.00	0.22	324.14	200.00	-3570.00	0.39	0.66	-0.39	0.11	556668.06	755342.71	N 32 31 39.58	W 103 30 17.52
	300.00	0.19	303.42	300.00	-3470.00	0.64	0.91	-0.64	0.08	556668.31	755342.46	N 32 31 39.58	W 103 30 17.52
	400.00	0.16	282.71	400.00	-3370.00	0.91	1.03	-0.92	0.07	556668.43	755342.18	N 32 31 39.58	W 103 30 17.52
	500.00	0.20	282.87	500.00	-3270.00	1.21	1.10	-1.22	0.04	556668.50	755341.88	N 32 31 39.58	W 103 30 17.53
	600.00	0.24	283.03	600.00	-3170.00	1.59	1.18	-1.60	0.04	556668.58	755341.50	N 32 31 39.58	W 103 30 17.53
	700.00	0.32	316.05	699.99	-3070.01	1.98	1.43	-2.00	0.18	556668.63	755341.10	N 32 31 39.59	W 103 30 17.54
	800.00	0.40	349.06	799.99	-2970.01	2.24	1.98	-2.26	0.22	556668.68	755340.84	N 32 31 39.59	W 103 30 17.54
	900.00	0.49	337.88	899.99	-2870.01	2.46	2.71	-2.48	0.12	556670.11	755340.62	N 32 31 39.60	W 103 30 17.54
	1000.00	0.58	326.70	999.99	-2770.01	2.89	3.53	-2.92	0.14	556670.93	755340.18	N 32 31 39.61	W 103 30 17.55
	1100.00	0.57	290.56	1099.98	-2670.02	3.63	4.13	-3.67	0.36	556671.53	755339.43	N 32 31 39.61	W 103 30 17.55
	1200.00	0.57	254.42	1199.98	-2570.02	4.58	4.17	-4.61	0.35	556671.57	755338.49	N 32 31 39.61	W 103 30 17.57
	1300.00	0.48	258.04	1299.97	-2470.03	5.47	3.95	-5.50	0.10	556671.35	755337.60	N 32 31 39.61	W 103 30 17.58
	1400.00	0.38	261.67	1399.97	-2370.03	6.21	3.82	-6.24	0.10	556671.22	755336.86	N 32 31 39.61	W 103 30 17.58
	1500.00	0.50	259.09	1499.97	-2270.03	6.96	3.69	-6.99	0.12	556671.09	755336.11	N 32 31 39.61	W 103 30 17.59
	1600.00	0.61	256.52	1599.96	-2170.04	7.91	3.48	-7.94	0.11	556670.88	755335.16	N 32 31 39.61	W 103 30 17.60
	1700.00	0.69	248.26	1699.96	-2070.04	8.99	3.13	-9.02	0.12	556670.53	755334.08	N 32 31 39.60	W 103 30 17.62
	1800.00	0.76	240.00	1799.95	-1970.05	10.13	2.58	-10.15	0.13	556669.98	755332.95	N 32 31 39.60	W 103 30 17.63
	1900.00	0.80	228.72	1899.94	-1870.06	11.23	1.79	-11.25	0.16	556669.19	755331.85	N 32 31 39.59	W 103 30 17.64
	2000.00	0.84	217.45	1999.93	-1770.07	12.21	0.74	-12.22	0.17	556668.14	755330.88	N 32 31 39.58	W 103 30 17.66
	2100.00	1.11	197.85	2099.91	-1670.09	12.97	-0.76	-12.96	0.43	556666.64	755330.14	N 32 31 39.57	W 103 30 17.66
	2200.00	1.39	178.25	2199.89	-1570.11	13.24	-2.89	-13.22	0.51	556664.51	755329.88	N 32 31 39.54	W 103 30 17.67
	2300.00	1.50	174.86	2299.86	-1470.14	13.11	-5.41	-13.07	0.14	556661.99	755330.03	N 32 31 39.52	W 103 30 17.67
	2400.00	1.61	171.48	2399.82	-1370.18	12.81	-8.10	-12.74	0.14	556659.30	755330.36	N 32 31 39.49	W 103 30 17.66
	2500.00	2.18	168.76	2499.77	-1270.23	12.25	-11.36	-12.16	0.58	556656.04	755330.94	N 32 31 39.46	W 103 30 17.66
	2600.00	2.75	166.04	2599.67	-1170.33	11.34	-15.55	-11.21	0.58	556651.85	755331.89	N 32 31 39.42	W 103 30 17.64
	2700.00	3.50	161.05	2699.52	-1070.48	9.81	-20.77	-9.84	0.80	556646.63	755333.46	N 32 31 39.37	W 103 30 17.63
	2800.00	4.26	156.07	2799.29	-970.71	7.36	-27.05	-7.15	0.83	556640.35	755335.95	N 32 31 39.31	W 103 30 17.60
	2900.00	4.15	148.98	2899.03	-870.97	4.04	-33.54	-3.78	0.53	556638.86	755339.33	N 32 31 39.24	W 103 30 17.56
	3000.00	4.04	141.89	2998.77	-771.23	0.05	-39.42	0.26	0.52	556627.98	755343.36	N 32 31 39.18	W 103 30 17.51
	3100.00	4.26	132.76	3098.51	-671.49	-4.81	-44.71	5.16	0.70	556622.69	755348.26	N 32 31 39.13	W 103 30 17.46
	3200.00	4.48	123.62	3198.22	-571.78	-10.75	-49.39	11.14	0.73	556618.01	755354.24	N 32 31 39.08	W 103 30 17.39
	3300.00	3.82	116.21	3297.96	-472.04	-16.98	-52.98	17.41	0.90	556614.43	755360.51	N 32 31 39.05	W 103 30 17.31
	3400.00	3.15	106.79	3397.77	-372.23	-22.61	-55.19	23.05	0.84	556612.21	755366.15	N 32 31 39.02	W 103 30 17.25
	3500.00	2.90	96.05	3497.64	-272.36	-27.75	-56.25	28.20	0.62	556611.15	755371.30	N 32 31 39.01	W 103 30 17.19
	3600.00	2.64	85.32	3597.52	-172.48	-32.56	-56.33	33.01	0.58	556611.07	755376.11	N 32 31 39.01	W 103 30 17.13
	3700.00	2.67	85.73	3697.41	-72.59	-37.18	-55.97	37.63	0.04	556611.43	755380.73	N 32 31 39.02	W 103 30 17.08
	3800.00	2.71	86.15	3797.30	27.30	-41.86	-55.63	42.31	0.04	556611.77	755385.41	N 32 31 39.02	W 103 30 17.02
	3900.00	2.60	86.49	3897.19	127.19	-46.49	-55.34	46.93	0.11	556612.06	755390.03	N 32 31 39.02	W 103 30 16.97
	4000.00	2.50	86.84	3997.10	227.10	-50.93	-55.08	51.38	0.10	556612.32	755394.47	N 32 31 39.02	W 103 30 16.92
	4100.00	2.40	78.75	4097.00	327.00	-55.17	-54.55	55.61	0.36	556612.85	755398.71	N 32 31 39.03	W 103 30 16.87
	4200.00	2.31	70.66	4196.92	426.92	-59.13	-53.47	59.56	0.34	556613.93	755402.66	N 32 31 39.04	W 103 30 16.82
	4300.00	2.47	70.77	4296.83	526.83	-63.08	-52.10	63.50	0.16	556615.31	755406.60	N 32 31 39.05	W 103 30 16.78
	4400.00	2.63	70.88	4396.73	626.73	-67.29	-50.63	67.70	0.16	556616.77	755410.80	N 32 31 39.07	W 103 30 16.73
	4500.00	2.61	71.61	4496.63	726.63	-71.63	-49.16	72.03	0.04	556618.24	755415.13	N 32 31 39.08	W 103 30 16.68
	4600.00	2.58	72.34	4596.53	826.53	-75.95	-47.76	76.33	0.04	556619.64	755419.43	N 32 31 39.09	W 103 30 16.63
	4700.00	2.60	65.39	4696.42	926.42	-80.17	-46.14	80.54	0.31	556621.26	755423.64	N 32 31 39.11	W 103 30 16.58
	4800.00	2.62	58.43	4796.32	1026.32	-84.19	-43.99	84.55	0.32	556623.41	755427.65	N 32 31 39.13	W 103 30 16.53
	4900.00	2.42	68.19	4896.23	1126.23	-88.12	-42.01	88.46	0.47	556625.39	755431.56	N 32 31 39.15	W 103 30 16.48
	5000.00	2.21	77.94	4996.14	1226.14	-91.97	-40.83	92.30	0.45	556626.57	755435.40	N 32 31 39.16	W 103 30 16.44
	5100.00	2.14	84.70	5096.07	1326.07	-95.72	-40.25	96.05	0.27	556627.15	755439.15	N 32 31 39.17	W 103 30 16.39
	5200.00	2.06	91.45	5196.00	1426.00	-99.38	-40.12	99.70	0.26	556627.28	755442.80	N 32 31 39.17	W 103 30 16.35
	5300.00	2.60	88.38	5295.92	1525.92	-103.44	-40.11	103.77	0.55	556627.29	755446.87	N 32 31 39.17	W 103 30 16.30
	5400.00	3.15	85.30	5395.80	1625.80	-108.45	-39.82	108.77	0.57	556627.58	755451.87	N 32 31 39.17	W 103 30 16.25
	5500.00	3.30	85.64	5495.64	1725.64	-114.06	-39.37	114.38	0.15	556628.03	755457.48	N 32 31 39.17	W 103 30 16.18
	5600.00	3.45	85.98	5595.46	1825.46	-119.94	-38.94	120.25	0.15	556628.46	755463.35	N 32 31 39.18	W 103 30 16.11
	5700.00	3.45	88.35	5695.28	1925.28	-125.95	-38.65	126.26	0.14	556628.76	755469.36	N 32 31 39.18	W 103 30 16.04
	5800.00	3.45	90.73	5795.10	2025.10	-131.96	-38.60	132.28	0.14	556628.80	755475.38	N 32 31 39.18	W 103 30 15.97
	5900.00	3.15	93.75	5894.94	2124.94	-137.71	-38.82	138.03	0.35	556628.59	755481.13	N 32 31 39.18	W 103 30 15.90
	6000.00	2.85	96.77	5994.80	2224.80	-142.92	-39.29	143.24	0.34	556628.11	755486.34	N 32 31 39.17	W 103 30 15.84
	6100.00	2.72	97.56	6094.68	2324.68	-147.73	-39.89	148.06	0.14	556627.51	755491.16	N 32 31 39.17	W 103 30 15.79
	6200.00	2.59	98.35	6194.57	2424.57	-152.32	-40.53	152.65	0.14	556626.87	755495.74	N 32 31 39.16	W 103 30 15.73
	6300.00	2.43	101.04	6294.48	2524.48	-156.63	-41.27	156.96	0.20	556626.13	755500.06	N 32 31 39.15	W 103 30 15.68
	6400.00	2.27	103.72	6394.39	2624.39	-160.62	-42.14	160.97	0.19	556625.26	755504.06	N 32 31 39.14	W 103 30 15.64
	6500.00	2.00	103.46	6494.32	2724.32	-164.24	-43.02	164.59	0.27	556624.38	755507.69	N 32 31 39.13	W 103 30 15.59
	6600.00	1.74	103.19	6594.27	2824.27	-167.41	-43.77	1					

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7200.00	1.15	199.06	7194.16	3424.16	-172.78	-51.28	173.20	0.26	556616.12	755516.30	N 32 31 39.05	W 103 30 15.49
	7300.00	1.37	202.79	7294.14	3524.14	-171.98	-53.33	172.41	0.23	556614.07	755515.51	N 32 31 39.03	W 103 30 15.50
	7400.00	1.60	206.52	7394.10	3624.10	-170.87	-55.68	171.32	0.25	556611.72	755514.42	N 32 31 39.01	W 103 30 15.52
	7500.00	1.84	220.86	7494.06	3724.06	-169.18	-58.14	169.65	0.49	556609.26	755512.75	N 32 31 38.98	W 103 30 15.54
	7600.00	2.07	235.19	7594.00	3824.00	-166.63	-60.39	167.12	0.54	556607.01	755510.21	N 32 31 38.96	W 103 30 15.57
	7700.00	2.05	235.39	7693.94	3923.94	-163.65	-62.44	164.16	0.02	556604.97	755507.26	N 32 31 38.94	W 103 30 15.60
	7800.00	2.03	235.58	7793.87	4023.87	-160.71	-64.45	161.23	0.02	556602.95	755504.33	N 32 31 38.92	W 103 30 15.64
	7900.00	2.10	235.52	7893.81	4123.81	-157.72	-66.49	158.26	0.07	556600.91	755501.35	N 32 31 38.90	W 103 30 15.67
	8000.00	2.18	235.46	7993.74	4223.74	-154.62	-68.61	155.18	0.08	556598.79	755498.28	N 32 31 38.88	W 103 30 15.71
	8100.00	2.16	238.45	8093.67	4323.67	-151.44	-70.67	152.01	0.11	556596.73	755495.10	N 32 31 38.86	W 103 30 15.74
	8200.00	2.13	241.45	8193.60	4423.60	-148.18	-72.55	148.77	0.12	556594.86	755491.87	N 32 31 38.84	W 103 30 15.78
	8300.00	2.31	245.26	8293.52	4523.52	-144.71	-74.28	145.31	0.23	556593.12	755488.40	N 32 31 38.83	W 103 30 15.82
	8400.00	2.48	249.08	8393.43	4623.43	-140.84	-75.89	141.46	0.23	556591.51	755484.55	N 32 31 38.81	W 103 30 15.87
	8500.00	2.50	250.78	8493.34	4723.34	-136.75	-77.38	137.37	0.08	556590.02	755480.47	N 32 31 38.80	W 103 30 15.92
	8600.00	2.51	252.49	8593.24	4823.24	-132.59	-78.76	133.23	0.08	556588.64	755476.32	N 32 31 38.78	W 103 30 15.96
	8700.00	2.50	260.33	8693.15	4923.15	-128.34	-79.78	128.99	0.34	556587.62	755472.09	N 32 31 38.77	W 103 30 16.01
	8800.00	2.48	268.17	8793.05	5023.05	-124.03	-80.22	124.68	0.34	556587.18	755467.77	N 32 31 38.77	W 103 30 16.06
	8900.00	2.60	266.72	8892.96	5122.96	-119.60	-80.42	120.25	0.14	556586.99	755463.35	N 32 31 38.77	W 103 30 16.12
	9000.00	2.73	265.27	8992.85	5222.85	-114.96	-80.75	115.61	0.15	556586.66	755458.71	N 32 31 38.76	W 103 30 16.17
	9100.00	2.91	260.38	9092.73	5322.73	-110.08	-81.37	110.74	0.30	556586.03	755453.83	N 32 31 38.76	W 103 30 16.23
	9200.00	3.10	255.45	9192.59	5422.59	-104.95	-82.47	105.62	0.32	556584.93	755448.71	N 32 31 38.75	W 103 30 16.29
	9300.00	3.29	257.11	9292.43	5522.43	-99.53	-83.79	100.20	0.21	556583.61	755443.30	N 32 31 38.74	W 103 30 16.35
	9400.00	3.47	258.76	9392.26	5622.26	-93.75	-85.02	94.44	0.20	556582.38	755437.53	N 32 31 38.72	W 103 30 16.42
	9500.00	2.81	268.24	9492.11	5722.11	-88.33	-85.69	89.02	0.84	556581.72	755432.12	N 32 31 38.72	W 103 30 16.48
	9600.00	2.15	277.72	9592.02	5822.02	-84.02	-85.51	84.71	0.77	556581.89	755427.81	N 32 31 38.72	W 103 30 16.53
	9700.00	1.99	277.70	9691.95	5921.95	-80.44	-85.02	81.13	0.16	556582.38	755424.23	N 32 31 38.72	W 103 30 16.57
	9800.00	1.84	277.68	9791.89	6021.89	-77.14	-84.58	77.82	0.15	556582.82	755420.92	N 32 31 38.73	W 103 30 16.61
	9900.00	1.99	273.39	9891.84	6121.84	-73.81	-84.26	74.49	0.21	556583.14	755417.59	N 32 31 38.73	W 103 30 16.65
	10000.00	2.14	269.09	9991.77	6221.77	-70.22	-84.19	70.89	0.22	556583.21	755413.99	N 32 31 38.73	W 103 30 16.69
	10100.00	2.17	262.93	10091.70	6321.70	-66.47	-84.45	67.15	0.23	556582.95	755410.25	N 32 31 38.73	W 103 30 16.74
	10200.00	2.20	258.77	10191.63	6421.63	-62.72	-85.12	63.40	0.24	556582.28	755406.50	N 32 31 38.73	W 103 30 16.78
	10213.00	2.20	265.08	10204.62	6434.62	-62.22	-85.20	62.91	2.45	556582.20	755406.01	N 32 31 38.72	W 103 30 16.79
	10245.00	2.46	263.67	10236.59	6466.59	-60.93	-85.33	61.61	0.83	556582.07	755404.71	N 32 31 38.72	W 103 30 16.80
	10278.00	6.60	263.58	10267.49	6497.49	-58.49	-85.60	59.18	13.35	556581.80	755402.28	N 32 31 38.72	W 103 30 16.83
	10308.00	11.96	265.95	10298.06	6529.06	-53.35	-86.04	54.04	16.79	556581.36	755397.14	N 32 31 38.72	W 103 30 16.89
	10340.00	14.33	265.95	10330.22	6560.22	-46.09	-86.56	46.78	7.41	556580.85	755389.88	N 32 31 38.71	W 103 30 16.97
	10372.00	17.59	266.57	10360.98	6590.98	-37.30	-87.12	38.01	10.20	556580.28	755381.10	N 32 31 38.71	W 103 30 17.08
	10404.00	17.67	264.85	10391.48	6621.48	-27.64	-87.85	28.34	1.65	556579.55	755371.44	N 32 31 38.70	W 103 30 17.19
	10436.00	20.40	268.81	10421.73	6651.73	-17.22	-88.40	17.93	9.43	556579.00	755361.03	N 32 31 38.70	W 103 30 17.31
	10467.00	24.71	270.75	10450.35	6680.35	-5.33	-88.43	6.04	14.11	556578.97	755349.14	N 32 31 38.70	W 103 30 17.45
	10499.00	27.70	272.15	10479.06	6709.06	8.79	-88.06	-8.08	9.54	556579.34	755335.02	N 32 31 38.70	W 103 30 17.61
	10531.00	29.70	270.62	10507.13	6737.13	24.15	-87.70	-23.44	6.66	556579.70	755319.66	N 32 31 38.71	W 103 30 17.79
	10562.00	30.60	270.41	10533.93	6763.93	39.71	-87.56	-39.01	2.92	556579.84	755304.09	N 32 31 38.71	W 103 30 17.98
	10594.00	33.77	271.47	10561.01	6791.01	56.75	-87.27	-56.05	10.06	556580.13	755287.05	N 32 31 38.71	W 103 30 18.18
	10626.00	36.76	271.02	10587.14	6817.14	75.22	-86.87	-74.52	9.38	556580.53	755268.58	N 32 31 38.72	W 103 30 18.39
	10657.00	39.22	271.56	10611.57	6841.57	94.25	-86.44	-93.60	8.01	556580.96	755249.50	N 32 31 38.72	W 103 30 18.61
	10689.00	43.35	271.49	10635.61	6865.61	115.38	-85.88	-114.70	12.91	556581.52	755228.40	N 32 31 38.73	W 103 30 18.86
	10721.00	45.90	273.01	10658.38	6888.38	137.83	-84.99	-137.16	8.64	556582.41	755205.95	N 32 31 38.74	W 103 30 19.12
	10747.00	48.19	272.89	10676.10	6906.10	156.83	-84.01	-156.16	8.81	556583.39	755186.94	N 32 31 38.75	W 103 30 19.34
	10778.00	50.39	271.54	10696.32	6926.32	180.30	-83.11	-179.64	7.83	556584.29	755163.47	N 32 31 38.76	W 103 30 19.62
	10811.00	53.70	270.95	10716.61	6946.61	206.30	-82.55	-205.85	10.13	556584.86	755137.46	N 32 31 38.77	W 103 30 19.92
	10843.00	57.07	270.95	10734.78	6964.78	232.63	-82.11	-231.98	10.53	556585.29	755111.13	N 32 31 38.78	W 103 30 20.23
	10875.00	60.50	272.45	10751.37	6981.37	259.97	-81.29	-259.33	11.44	556586.11	755083.78	N 32 31 38.79	W 103 30 20.55
	10906.00	63.75	271.04	10785.86	6995.86	287.35	-80.46	-286.71	11.23	556586.94	755056.39	N 32 31 38.80	W 103 30 20.87
	10938.00	66.83	270.65	10779.23	7009.23	316.41	-80.03	-315.78	9.69	556587.37	755027.33	N 32 31 38.80	W 103 30 21.21
	10970.00	70.52	270.18	10790.87	7020.87	346.21	-79.82	-345.58	11.61	556587.58	754997.53	N 32 31 38.81	W 103 30 21.56
	11001.00	73.60	269.58	10800.42	7030.42	375.70	-79.88	-375.07	10.10	556587.52	754968.04	N 32 31 38.81	W 103 30 21.80
	11033.00	76.50	269.85	10808.67	7038.67	406.61	-80.04	-405.98	9.10	556587.36	754937.13	N 32 31 38.81	W 103 30 22.26
	11064.00	79.49	269.78	10815.12	7045.12	436.93	-80.13	-436.30	9.65	556587.27	754906.81	N 32 31 38.81	W 103 30 22.62
	11099.00	82.60	269.38	10820.57	7050.57	471.50	-80.39	-470.87	8.96	556587.01	754872.24	N 32 31 38.81	W 103 30 23.02
	11128.00	85.30	269.28	10823.62	7053.62	500.33	-80.73	-499.70	9.32	556586.68	754843.41	N 32 31 38.81	W 103 30 23.36
	11160.00	87.67	269.08	10825.58	7055.58	532.27	-81.18	-531.64	7.43	556586.22	754811.47	N 32 31 38.81	W 103 30 23.73
	11192.00	90.75	269.46	10826.03	7056.03	564.26	-81.59	-563.63	9.70	556585.81	754779.48	N 32 31 38.81	W 103 30 24.10
	11224.00	91.19	269.79	10825.48	7055.48	596.26	-81.80	-595.62	1.72	556585.60	754747.49	N 32 31 38.81	W 103 30 24.48
	11256.00	91.10	269.69	10824.84	7054.84	628.25	-81.95	-627.61	0.42	556585.46	754715.50	N 32 31 38.81	W 103 30 24.85
	11350.00	92.95	268.66	10821.52	7051.52	722.19	-83.30	-721.54	2.25	556584.10	754621.57	N 32 31 38.80	W 103 30 25.95
	11445.00	92.33	268.18	10817.15	7047.15	817.07	-85.91	-816.40	0.83	556581.49	754526.71	N 32 31 38.78	W 103 30 27.06
	11540.00	93.30	268.31	10812.48	7042.48	911.93	-88.82	-911.24	1.03	556578.58	754431.87	N 32 31 38.76	W 103 30 28.16
	11635.00	92.59	268.07	10807.60	7037.60	1006.77	-91.82	-1006.07	0.79	556575.59	754337.05	N 32 31 38.74	W 103 30 29.27
	11728.00	95.84	269.70	10800.68	7030.68	1099.49	-93.62	-1098.78	4.00	556573.78	754244.34	N 32 31 38.73	W 103 30 30.35
	11820.00	96.81	270.25	10790.47	7020.47	1190.92	-93.66	-1190.21	1.12	556573.74	754152.92	N 32 31 38.74	W 103 30 31.42
	11913.00	97.43	269.75										

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	14329.00	90.13	270.21	10719.24	6949.24	3694.19	-59.45	-3693.83	3.48	556607.93	751649.33	N 32 31 39.27	W 103 31 0.66
	14421.00	91.98	269.53	10717.54	6947.54	3786.17	-59.66	-3785.81	2.14	556607.74	751557.36	N 32 31 39.27	W 103 31 1.73
	14514.00	93.39	268.74	10713.19	6943.19	3879.06	-61.06	-3878.70	1.74	556606.34	751464.47	N 32 31 39.26	W 103 31 2.82
	14606.00	91.71	268.06	10709.09	6939.09	3970.95	-63.63	-3970.57	1.97	556603.77	751372.61	N 32 31 39.25	W 103 31 3.89
	14697.00	92.33	268.25	10705.89	6935.89	4061.87	-66.56	-4061.46	0.71	556600.84	751281.71	N 32 31 39.22	W 103 31 4.95
	14791.00	90.57	267.70	10703.51	6933.51	4155.80	-69.88	-4155.37	1.96	556597.52	751187.81	N 32 31 39.20	W 103 31 6.05
	14883.00	92.33	267.80	10701.18	6931.18	4247.72	-73.49	-4247.26	1.92	556593.91	751095.91	N 32 31 39.17	W 103 31 7.12
	14976.00	92.24	268.82	10697.47	6927.47	4340.62	-76.23	-4340.15	1.10	556591.17	751003.03	N 32 31 39.15	W 103 31 8.21
	15069.00	90.22	269.94	10695.48	6925.48	4433.59	-77.23	-4433.12	2.48	556590.17	750910.06	N 32 31 39.15	W 103 31 9.29
	15161.00	90.66	269.22	10694.77	6924.77	4525.59	-77.91	-4525.11	0.92	556589.49	750818.07	N 32 31 39.15	W 103 31 10.37
	15253.00	91.89	268.76	10692.72	6922.72	4617.56	-79.53	-4617.07	1.43	556587.87	750726.11	N 32 31 39.14	W 103 31 11.44
	15346.00	93.74	268.32	10688.16	6918.16	4710.43	-81.90	-4709.92	2.04	556585.51	750633.26	N 32 31 39.12	W 103 31 12.53
Last Survey	15470.00	95.32	268.03	10678.36	6908.36	4834.00	-85.83	-4833.47	1.30	556581.57	750509.72	N 32 31 39.09	W 103 31 13.97
Projection To Bit	15539.00	95.32	268.03	10671.96	6901.96	4902.68	-88.19	-4902.13	0.00	556579.21	750441.06	N 32 31 39.07	W 103 31 14.77

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	17.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	ST01 / COG Stratosphere 36 State #1H Gyro + MWD 0ft to 15539ft
	17.000	10200.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	ST01 / COG Stratosphere 36 State #1H Gyro + MWD 0ft to ST01 / COG Stratosphere 36
	10200.000	15539.000	Act Stns	30.000	30.000	SLB_MWD-STD	State #1H Gyro + MWD 0ft to



COG

PATHFINDER
A Schlumberger Company

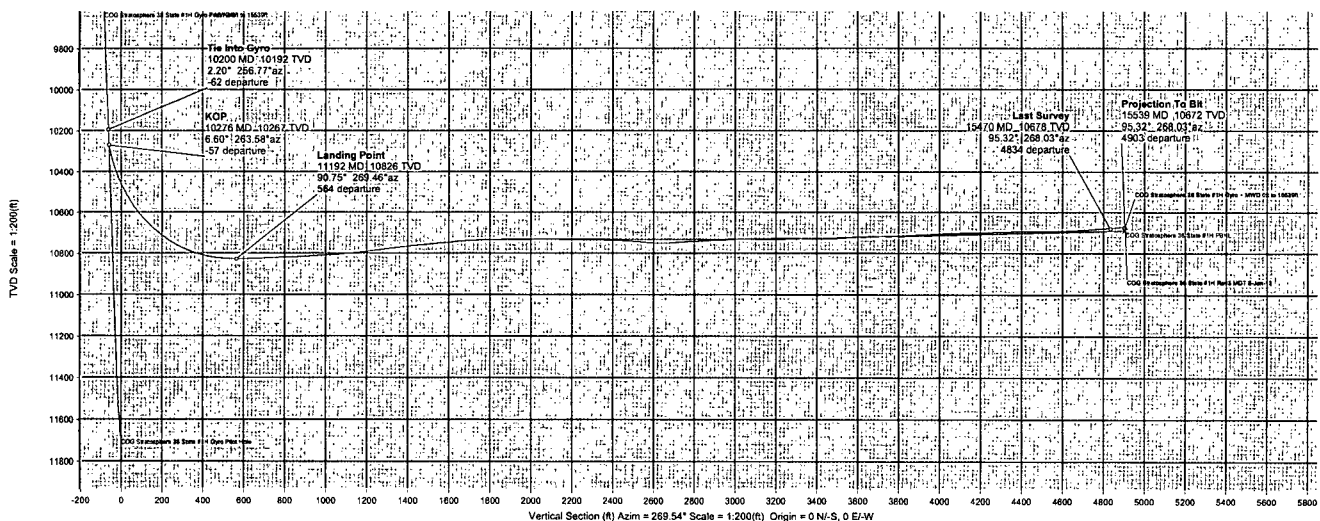
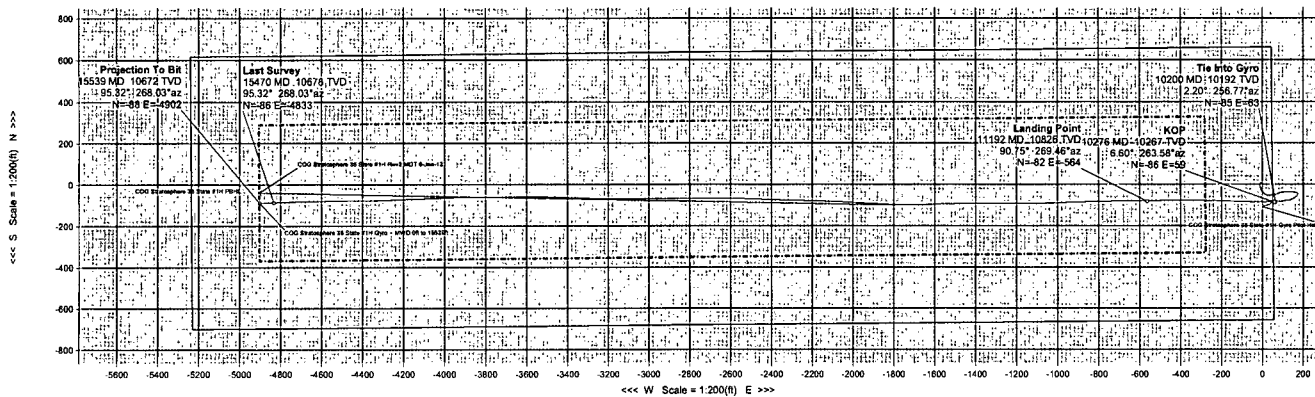
WELL	COG Stratosphere 36 State #1H	FIELD	NM Lea County (NAD 27)	STRUCTURE	McVay7
Magnetic Parameters	Dip: 60.455° Mag Dec: 7.490°	Date: January 02, 2013 FS: 48434 NoT	Surface Location Lat: N 32 31 19.572 Lon: W 101 30 17.512	NAD27 New Mexico State Plane, Eastern Zone, US Feet Northing: 556687.40 RUS Easting: 755343.10 RUS Grid Conv: 0.445° Scale Fact: 0.99998376	Master/Source Site: Stratosphere 36 State #1H Plan: Rev3 MDT 8-Jan-13 TVD Ref: RKB37706 (above) Srvy Date: January 02, 2013

Legend

COG Stratosphere 36 State #1H Plan
COG Stratosphere 36 State #1H Lateral View
COG Stratosphere 36 State #1H 100' Plan
COG Stratosphere 36 State #1H 100' Plan 10 Jan 13
COG Stratosphere 36 State #1H 100' Plan 100' Plan Update
COG Stratosphere 36 State #1H 100' Plan 100' Plan
COG Stratosphere 36 State #1H 100' Plan 100' Plan Update



Grid North
Tot Corr (M->G
7.0449°)
Mag Dec (7.490°)
Grid Conv (0.445°)



Drawn By: Current User
Data Created: January 05, 2013 03:36:38 PM
Checked By:
Approved By:
Approved Date: