



May 22, 2015

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

HOBBS OCD

OCT 19 2015

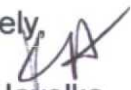
Attn: Kanicia Castillo

RECEIVED

RE: **Stratosphere 36 State Com 3H**

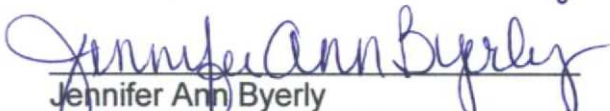
Please find enclosed a copy of the survey from 0' to 10,200' ran on the above referenced well.

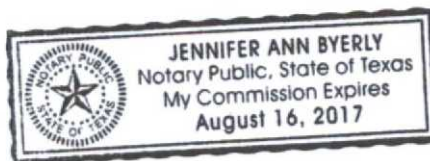
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 22 day of May, A.D., 2015, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas



OCT 22 2015



Company: Cog Operating LLC
Lease/Well: Stratosphere 36 State Com/3H



Rig Name: Mcvay 6
State/County: New Mexico /Lea
VS-Azi: 0.00 Degrees
Latitude: 32.53568, Longitude: -103.50682
Grid Convergence Applied = -0.44 degs (NAD 27)
Grid North = True North -0.44 degs

Depth Reference : R.K.B = 17 FT

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename:re 36 state well 3h -de_01.ut

Minimum Curvature Method

Report Date/Time: 5/22/2015 / 12:35

VES Survey International
(432) 563-5444
West Texas

Surveyor: Javier Estrada

Stratosphere 36 State Com 3H / API 30-025-42034

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	0.53	160.98	100.00	-0.44	0.15	-0.44	0.47	160.98	0.53
200.00	0.61	170.70	199.99	-1.41	0.39	-1.41	1.46	164.51	0.12
300.00	0.54	167.17	299.99	-2.39	0.58	-2.39	2.46	166.36	0.09
400.00	0.34	125.24	399.99	-3.02	0.92	-3.02	3.16	162.98	0.36
500.00	0.36	124.30	499.98	-3.36	1.42	-3.36	3.65	157.11	0.02
600.00	0.12	266.73	599.98	-3.54	1.57	-3.54	3.88	156.11	0.46
700.00	0.12	27.30	699.98	-3.46	1.51	-3.46	3.77	156.40	0.21
800.00	0.16	267.89	799.98	-3.37	1.42	-3.37	3.66	157.22	0.24
900.00	0.68	297.51	899.98	-3.10	0.75	-3.10	3.19	166.42	0.54
1000.00	0.51	325.81	999.98	-2.47	-0.02	-2.47	2.47	180.51	0.33
1100.00	0.58	307.43	1099.97	-1.79	-0.67	-1.79	1.92	200.55	0.19
1200.00	0.50	309.67	1199.97	-1.21	-1.41	-1.21	1.86	229.51	0.08
1300.00	0.04	188.85	1299.96	-0.96	-1.76	-0.96	2.00	241.27	0.53
1400.00	0.26	296.17	1399.96	-0.90	-1.96	-0.90	2.16	245.35	0.27
1500.00	0.08	63.37	1499.96	-0.77	-2.10	-0.77	2.24	249.88	0.31
1600.00	0.12	259.47	1599.96	-0.76	-2.14	-0.76	2.27	250.54	0.20

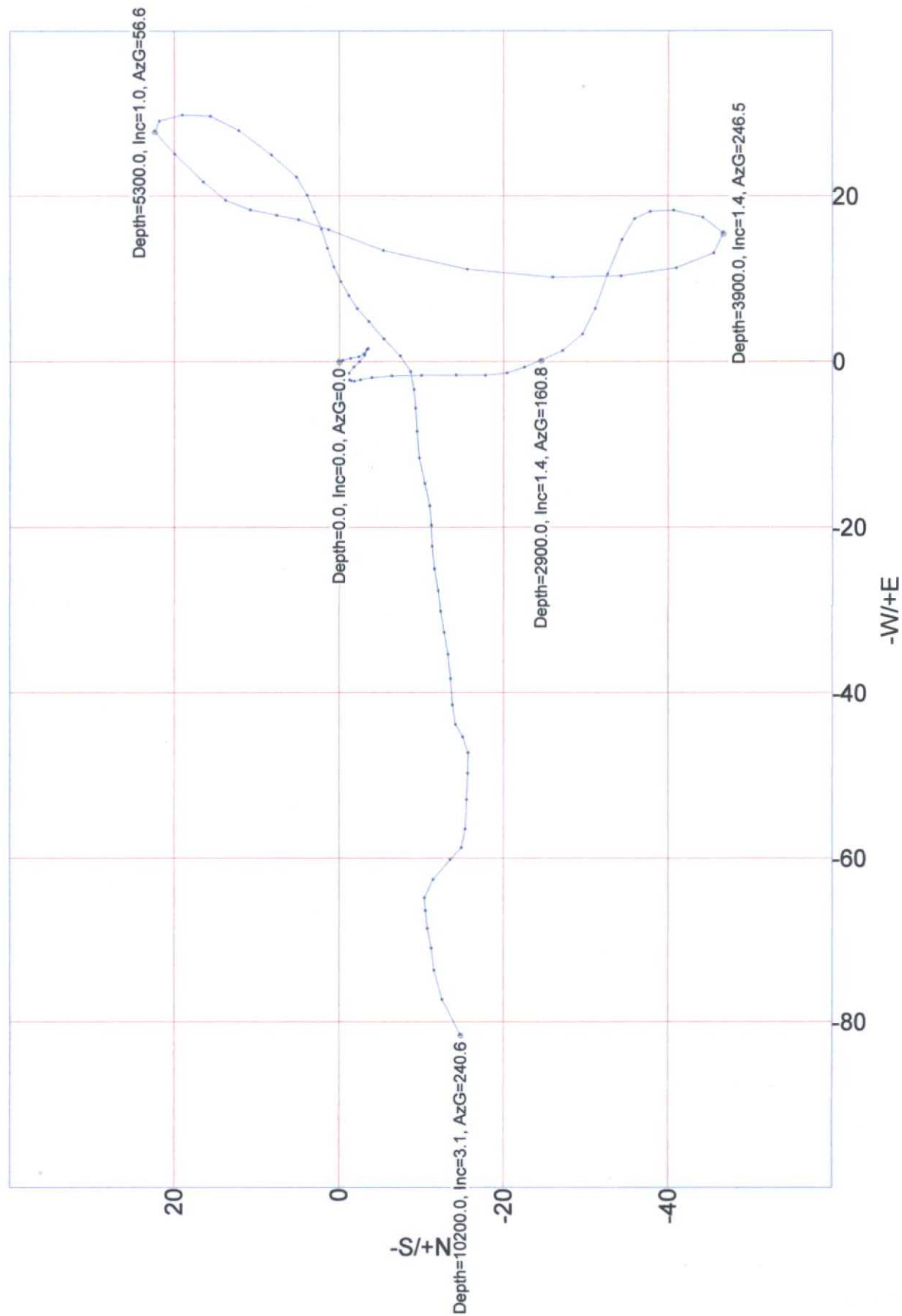
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/S FT	+E/W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1700.00	0.27	186.92	1699.96	-1.01	-2.28	-1.01	2.49	246.11	0.26
1800.00	0.10	107.32	1799.96	-1.26	-2.22	-1.26	2.56	240.37	0.27
1900.00	0.28	229.16	1899.96	-1.45	-2.33	-1.45	2.74	238.11	0.34
2000.00	0.30	157.10	1999.96	-1.85	-2.41	-1.85	3.04	232.44	0.34
2100.00	0.57	170.94	2099.96	-2.59	-2.23	-2.59	3.42	220.67	0.29
2200.00	1.04	168.78	2199.95	-3.98	-1.97	-3.98	4.44	206.35	0.47
2300.00	1.78	179.08	2299.92	-6.43	-1.77	-6.43	6.67	195.40	0.78
2400.00	2.34	178.56	2399.85	-10.02	-1.69	-10.02	10.17	189.59	0.56
2500.00	2.47	180.57	2499.76	-14.22	-1.66	-14.22	14.32	186.68	0.15
2600.00	1.59	180.08	2599.70	-17.76	-1.69	-17.76	17.84	185.43	0.88
2700.00	1.45	167.51	2699.67	-20.38	-1.42	-20.38	20.43	183.97	0.36
2800.00	1.13	153.33	2799.64	-22.50	-0.70	-22.50	22.51	181.78	0.45
2900.00	1.38	160.84	2899.62	-24.52	0.14	-24.52	24.52	179.67	0.30
3000.00	1.91	152.45	2999.58	-27.14	1.31	-27.14	27.17	177.24	0.58
3100.00	1.75	127.68	3099.53	-29.55	3.28	-29.55	29.73	173.66	0.80
3200.00	2.28	108.66	3199.46	-31.12	6.38	-31.12	31.77	168.42	0.85
3300.00	2.82	110.36	3299.37	-32.61	10.57	-32.61	34.28	162.04	0.55
3400.00	2.37	115.80	3399.26	-34.37	14.74	-34.37	37.40	156.78	0.51
3500.00	1.04	135.31	3499.22	-35.92	17.25	-35.92	39.84	154.35	1.43
3600.00	1.47	169.18	3599.19	-37.83	18.13	-37.83	41.94	154.39	0.84
3700.00	1.85	183.24	3699.15	-40.70	18.28	-40.70	44.62	155.82	0.56
3800.00	2.43	201.42	3799.08	-44.29	17.41	-44.29	47.59	158.54	0.89
3900.00	1.43	246.53	3899.03	-46.76	15.50	-46.76	49.26	161.67	1.75
4000.00	2.35	322.82	3998.99	-45.62	13.11	-45.62	47.47	163.96	2.45
4100.00	3.49	349.07	4098.86	-41.00	11.30	-41.00	42.52	164.60	1.73
4200.00	4.32	354.27	4198.63	-34.26	10.34	-34.26	35.78	163.20	0.90
4300.00	5.23	2.68	4298.28	-25.95	10.18	-25.95	27.88	158.59	1.14
4400.00	6.77	7.41	4397.73	-15.56	11.15	-15.56	19.14	144.37	1.62
4500.00	5.29	19.26	4497.18	-5.36	13.43	-5.36	14.46	111.76	1.93
4600.00	2.87	23.48	4596.92	1.28	15.95	1.28	16.00	85.41	2.44
4700.00	1.54	8.80	4696.84	4.90	17.15	4.90	17.84	74.05	1.44
4800.00	1.61	13.75	4796.80	7.59	17.69	7.59	19.25	66.78	0.15
4900.00	2.13	9.75	4896.75	10.78	18.34	10.78	21.27	59.55	0.53
5000.00	1.68	35.88	4996.70	13.79	19.51	13.79	23.89	54.74	0.96
5100.00	2.34	41.62	5096.64	16.50	21.72	16.50	27.28	52.77	0.69
5200.00	3.16	45.70	5196.52	19.95	25.04	19.95	32.02	51.46	0.84
5300.00	1.03	56.58	5296.45	22.37	27.77	22.37	35.66	51.14	2.15
5400.00	1.33	153.13	5396.43	21.83	29.04	21.83	36.33	53.07	1.77
5500.00	2.05	173.14	5496.39	19.03	29.78	19.03	35.34	57.42	0.92

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
5600.00	1.90	192.86	5596.33	15.63	29.62	15.63	33.49	62.18	0.69
5700.00	2.62	216.45	5696.26	12.18	27.90	12.18	30.44	66.42	1.16
5800.00	3.05	217.05	5796.13	8.22	24.94	8.22	26.26	71.76	0.43
5900.00	1.63	228.99	5896.05	5.17	22.27	5.17	22.86	76.94	1.50
6000.00	1.31	251.96	5996.02	3.88	20.11	3.88	20.48	79.07	0.66
6100.00	1.24	242.33	6095.99	3.02	18.06	3.02	18.31	80.49	0.23
6200.00	1.31	251.77	6195.97	2.16	16.01	2.16	16.16	82.30	0.22
6300.00	1.47	252.95	6295.94	1.43	13.69	1.43	13.77	84.04	0.16
6400.00	1.27	249.26	6395.91	0.66	11.43	0.66	11.45	86.69	0.23
6500.00	1.04	237.47	6495.89	-0.22	9.63	-0.22	9.64	91.31	0.32
6600.00	1.18	243.26	6595.87	-1.17	7.95	-1.17	8.03	98.38	0.18
6700.00	0.97	228.24	6695.85	-2.20	6.40	-2.20	6.77	108.96	0.35
6800.00	1.45	228.49	6795.83	-3.60	4.82	-3.60	6.02	126.75	0.48
6900.00	1.73	229.27	6895.79	-5.42	2.73	-5.42	6.07	153.29	0.29
7000.00	1.58	221.68	6995.75	-7.44	0.67	-7.44	7.47	174.87	0.27
7100.00	1.18	256.08	7095.72	-8.71	-1.25	-8.71	8.80	188.15	0.90
7200.00	1.32	263.54	7195.70	-9.09	-3.40	-9.09	9.71	200.48	0.22
7300.00	1.27	265.91	7295.67	-9.30	-5.65	-9.30	10.88	211.29	0.07
7400.00	1.93	267.01	7395.63	-9.47	-8.44	-9.47	12.68	221.72	0.65
7500.00	1.76	262.46	7495.58	-9.76	-11.64	-9.76	15.19	230.04	0.22
7600.00	1.85	252.55	7595.53	-10.44	-14.71	-10.44	18.04	234.63	0.33
7700.00	1.32	265.00	7695.49	-11.03	-17.40	-11.03	20.60	237.63	0.63
7800.00	1.38	265.80	7795.47	-11.22	-19.75	-11.22	22.71	240.40	0.07
7900.00	1.53	269.27	7895.43	-11.32	-22.29	-11.32	25.00	243.07	0.17
8000.00	1.61	259.65	7995.40	-11.59	-25.00	-11.59	27.56	245.12	0.27
8100.00	1.47	260.83	8095.36	-12.05	-27.65	-12.05	30.16	246.45	0.14
8200.00	1.44	264.94	8195.33	-12.37	-30.17	-12.37	32.61	247.72	0.11
8300.00	1.51	255.76	8295.29	-12.80	-32.70	-12.80	35.12	248.62	0.25
8400.00	1.61	265.00	8395.26	-13.25	-35.38	-13.25	37.78	249.47	0.27
8500.00	1.75	263.36	8495.22	-13.54	-38.29	-13.54	40.62	250.52	0.14
8600.00	1.92	267.56	8595.16	-13.79	-41.48	-13.79	43.71	251.61	0.22
8700.00	0.86	247.74	8695.13	-14.15	-43.85	-14.15	46.07	252.12	1.15
8800.00	1.15	234.09	8795.12	-15.02	-45.35	-15.02	47.78	251.68	0.37
8900.00	1.25	266.16	8895.10	-15.68	-47.25	-15.68	49.78	251.64	0.67
9000.00	1.59	274.05	8995.07	-15.65	-49.72	-15.65	52.13	252.52	0.39
9100.00	2.06	271.43	9095.02	-15.51	-52.90	-15.51	55.13	253.66	0.48
9200.00	2.01	273.44	9194.95	-15.36	-56.46	-15.36	58.51	254.78	0.09
9300.00	0.73	308.06	9294.92	-14.86	-58.71	-14.86	60.57	255.80	1.47
9400.00	1.52	314.50	9394.90	-13.54	-60.16	-13.54	61.67	257.32	0.79

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
9500.00	2.15	307.93	9494.85	-11.45	-62.59	-11.45	63.63	259.63	0.66
9600.00	0.82	262.85	9594.82	-10.39	-64.78	-10.39	65.61	260.89	1.67
9700.00	1.10	266.52	9694.80	-10.54	-66.45	-10.54	67.28	260.99	0.28
9800.00	1.39	261.74	9794.78	-10.77	-68.61	-10.77	69.45	261.08	0.31
9900.00	1.40	256.14	9894.75	-11.24	-71.00	-11.24	71.89	261.01	0.14
10000.00	1.76	268.16	9994.71	-11.58	-73.73	-11.58	74.63	261.07	0.49
10100.00	2.56	245.82	10094.64	-12.54	-77.30	-12.54	78.31	260.78	1.15
10200.00	3.07	240.59	10194.52	-14.77	-81.67	-14.77	83.00	259.75	0.57



VES Survey International
(432) 563-5444
West Texas
Surveyor: Javier Estrada
Stratosphere 36 State Com 3H / API 30-025-42034



Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Site:	Stratosphere 36 State Com 3H	MD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Well:	3H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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

Site		Stratosphere 36 State Com 3H			
Site Position:		Northing:	559,582.10 usft	Latitude:	32° 32' 8.46 N
From:	Map	Easting:	754,716.50 usft	Longitude:	103° 30' 24.57 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.44 °

Well	3H					
Well Position	+N/-S	0.00 usft	Northing:	559,582.10 usft	Latitude:	32° 32' 8.46 N
	+E/-W	0.00 usft	Easting:	754,716.50 usft	Longitude:	103° 30' 24.57 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,761.00 usft

Wellbore	Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/1/2015	6.97	60.55	48,490

Design	Surveys			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.71

Survey Program	Date	5/27/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	10,200.00	Gyro (Lateral)	GYRO-NS	Gyrocompass Gyro	
10,354.00	15,815.00	MWD (Lateral)	MWD+HDGM	OWSG MWD + HDGM	

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stratosphere 36 State Com 3H SHL									
100.00	0.53	160.98	100.00	-0.44	0.15	0.44	0.53	0.53	0.00
200.00	0.61	170.70	199.99	-1.40	0.39	1.40	0.13	0.08	9.72
300.00	0.54	167.17	299.99	-2.38	0.58	2.39	0.08	-0.07	-3.53
400.00	0.34	125.24	399.99	-3.02	0.93	3.02	0.37	-0.20	-41.93
500.00	0.36	124.30	499.98	-3.36	1.43	3.37	0.02	0.02	-0.94
600.00	0.12	266.73	599.98	-3.55	1.58	3.55	0.46	-0.24	142.43
700.00	0.12	27.30	699.98	-3.46	1.53	3.47	0.21	0.00	120.57
800.00	0.16	267.89	799.98	-3.37	1.43	3.38	0.24	0.04	-119.41

Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Site:	Stratosphere 36 State Com 3H	MD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Well:	3H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
900.00	0.68	297.51	899.98	-3.10	0.77	3.11	0.55	0.52	29.62
1,000.00	0.51	325.81	999.97	-2.46	-0.01	2.46	0.33	-0.17	28.30
1,100.00	0.58	307.43	1,099.97	-1.78	-0.66	1.78	0.19	0.07	-18.38
1,200.00	0.50	309.67	1,199.97	-1.20	-1.40	1.19	0.08	-0.08	2.24
1,300.00	0.04	188.85	1,299.96	-0.95	-1.74	0.95	0.52	-0.46	-120.82
1,400.00	0.26	296.17	1,399.96	-0.89	-1.95	0.88	0.27	0.22	107.32
1,500.00	0.08	63.37	1,499.96	-0.76	-2.09	0.75	0.31	-0.18	127.20
1,600.00	0.12	259.47	1,599.96	-0.75	-2.13	0.73	0.20	0.04	-163.90
1,700.00	0.27	186.92	1,699.96	-1.00	-2.26	0.99	0.26	0.15	-72.55
1,800.00	0.10	107.32	1,799.96	-1.26	-2.21	1.25	0.27	-0.17	-79.60
1,900.00	0.28	229.16	1,899.96	-1.44	-2.31	1.43	0.34	0.18	121.84
2,000.00	0.30	157.10	1,999.96	-1.84	-2.39	1.83	0.34	0.02	-72.06
2,100.00	0.57	170.94	2,099.96	-2.58	-2.21	2.57	0.29	0.27	13.84
2,200.00	1.04	168.78	2,199.95	-3.96	-1.96	3.95	0.47	0.47	-2.16
2,300.00	1.78	179.08	2,299.92	-6.40	-1.75	6.39	0.78	0.74	10.30
2,400.00	2.34	178.56	2,399.85	-10.00	-1.68	9.99	0.56	0.56	-0.52
2,500.00	2.47	180.57	2,499.76	-14.19	-1.65	14.18	0.15	0.13	2.01
2,600.00	1.59	180.08	2,599.70	-17.73	-1.67	17.72	0.88	-0.88	-0.49
2,700.00	1.45	167.51	2,699.67	-20.36	-1.40	20.35	0.36	-0.14	-12.57
2,800.00	1.13	153.33	2,799.64	-22.47	-0.68	22.47	0.45	-0.32	-14.18
2,900.00	1.38	160.84	2,899.62	-24.49	0.15	24.49	0.30	0.25	7.51
3,000.00	1.91	152.45	2,999.58	-27.11	1.32	27.11	0.58	0.53	-8.39
3,100.00	1.75	127.68	3,099.53	-29.52	3.30	29.53	0.80	-0.16	-24.77
3,200.00	2.28	108.66	3,199.47	-31.09	6.39	31.12	0.85	0.53	-19.02
3,300.00	2.82	110.36	3,299.37	-32.58	10.58	32.63	0.55	0.54	1.70
3,400.00	2.37	115.80	3,399.26	-34.33	14.75	34.41	0.51	-0.45	5.44
3,500.00	1.04	135.31	3,499.22	-35.88	17.25	35.97	1.43	-1.33	19.51
3,600.00	1.47	169.18	3,599.19	-37.78	18.13	37.88	0.84	0.43	33.87
3,700.00	1.85	183.24	3,699.15	-40.66	18.28	40.75	0.55	0.38	14.06
3,800.00	2.43	201.42	3,799.08	-44.24	17.41	44.33	0.89	0.58	18.18
3,900.00	1.43	246.53	3,899.03	-46.71	15.50	46.79	1.74	-1.00	45.11
4,000.00	2.35	322.82	3,998.99	-45.58	13.11	45.64	2.44	0.92	76.29
4,100.00	3.49	349.07	4,098.86	-40.95	11.30	41.01	1.73	1.14	26.25
4,200.00	4.32	354.27	4,198.63	-34.22	10.34	34.27	0.90	0.83	5.20
4,300.00	5.23	2.68	4,298.28	-25.92	10.18	25.97	1.15	0.91	8.41
4,400.00	6.77	7.41	4,397.73	-15.52	11.15	15.57	1.62	1.54	4.73
4,500.00	5.29	19.26	4,497.18	-5.32	13.43	5.39	1.93	-1.48	11.85
4,600.00	2.87	23.48	4,596.92	1.33	15.95	-1.25	2.44	-2.42	4.22
4,700.00	1.54	8.80	4,696.84	4.95	17.15	-4.87	1.43	-1.33	-14.68
4,800.00	1.61	13.75	4,796.81	7.65	17.69	-7.56	0.15	0.07	4.95
4,900.00	2.13	9.75	4,896.75	10.84	18.34	-10.75	0.54	0.52	-4.00
5,000.00	1.68	35.88	4,996.70	13.86	19.52	-13.76	0.97	-0.45	26.13
5,100.00	2.34	41.62	5,096.64	16.57	21.73	-16.46	0.69	0.66	5.74

Archer

Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Site:	Stratosphere 36 State Com 3H	MD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Well:	3H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
5,200.00	3.16	45.70	5,196.52	20.03	25.06	-19.90	0.84	0.82	4.08
5,300.00	1.03	56.58	5,296.45	22.45	27.78	-22.30	2.16	-2.13	10.88
5,400.00	1.33	153.13	5,396.43	21.91	29.06	-21.76	1.77	0.30	96.55
5,500.00	2.05	173.14	5,496.39	19.09	29.80	-18.94	0.92	0.72	20.01
5,600.00	1.90	192.86	5,596.33	15.70	29.64	-15.55	0.69	-0.15	19.72
5,700.00	2.62	216.45	5,696.26	12.25	27.91	-12.11	1.16	0.72	23.59
5,800.00	3.05	217.05	5,796.13	8.29	24.95	-8.16	0.43	0.43	0.60
5,900.00	1.63	228.99	5,896.05	5.23	22.28	-5.12	1.49	-1.42	11.94
6,000.00	1.31	251.96	5,996.02	3.94	20.12	-3.84	0.66	-0.32	22.97
6,100.00	1.24	242.33	6,095.99	3.09	18.07	-2.99	0.23	-0.07	-9.63
6,200.00	1.31	251.77	6,195.97	2.23	16.03	-2.14	0.22	0.07	9.44
6,300.00	1.47	252.95	6,295.94	1.49	13.72	-1.42	0.16	0.16	1.18
6,400.00	1.27	249.26	6,395.91	0.72	11.45	-0.67	0.22	-0.20	-3.69
6,500.00	1.04	237.47	6,495.89	-0.16	9.65	0.21	0.33	-0.23	-11.79
6,600.00	1.18	243.26	6,595.87	-1.11	7.97	1.15	0.18	0.14	5.79
6,700.00	0.97	228.24	6,695.85	-2.14	6.42	2.17	0.35	-0.21	-15.02
6,800.00	1.45	228.49	6,795.83	-3.54	4.84	3.56	0.48	0.48	0.25
6,900.00	1.73	229.27	6,895.79	-5.36	2.75	5.37	0.28	0.28	0.78
7,000.00	1.58	221.68	6,995.75	-7.38	0.69	7.38	0.27	-0.15	-7.59
7,100.00	1.18	256.08	7,095.72	-8.65	-1.23	8.65	0.90	-0.40	34.40
7,200.00	1.32	263.54	7,195.70	-9.03	-3.38	9.01	0.21	0.14	7.46
7,300.00	1.27	265.91	7,295.67	-9.24	-5.62	9.21	0.07	-0.05	2.37
7,400.00	1.93	267.01	7,395.63	-9.41	-8.41	9.36	0.66	0.66	1.10
7,500.00	1.76	262.46	7,495.58	-9.69	-11.62	9.64	0.22	-0.17	-4.55
7,600.00	1.85	252.55	7,595.53	-10.38	-14.68	10.31	0.32	0.09	-9.91
7,700.00	1.32	265.00	7,695.49	-10.96	-17.37	10.88	0.63	-0.53	12.45
7,800.00	1.38	265.80	7,795.47	-11.15	-19.71	11.05	0.06	0.06	0.80
7,900.00	1.53	269.27	7,895.43	-11.26	-22.25	11.15	0.17	0.15	3.47
8,000.00	1.61	259.65	7,995.40	-11.53	-24.97	11.40	0.28	0.08	-9.62
8,100.00	1.47	260.83	8,095.36	-11.98	-27.61	11.84	0.14	-0.14	1.18
8,200.00	1.44	264.94	8,195.33	-12.30	-30.13	12.15	0.11	-0.03	4.11
8,300.00	1.51	255.76	8,295.29	-12.74	-32.66	12.57	0.25	0.07	-9.18
8,400.00	1.61	265.00	8,395.26	-13.18	-35.34	13.00	0.27	0.10	9.24
8,500.00	1.75	263.36	8,495.21	-13.48	-38.25	13.29	0.15	0.14	-1.64
8,600.00	1.92	267.56	8,595.16	-13.73	-41.44	13.52	0.22	0.17	4.20
8,700.00	0.86	247.74	8,695.13	-14.08	-43.81	13.86	1.15	-1.06	-19.82
8,800.00	1.15	234.09	8,795.12	-14.96	-45.32	14.73	0.37	0.29	-13.65
8,900.00	1.25	266.16	8,895.10	-15.62	-47.22	15.38	0.67	0.10	32.07
9,000.00	1.59	274.05	8,995.07	-15.59	-49.69	15.34	0.39	0.34	7.89
9,100.00	2.06	271.43	9,095.02	-15.45	-52.87	15.18	0.48	0.47	-2.62
9,200.00	2.01	273.44	9,194.95	-15.30	-56.42	15.01	0.09	-0.05	2.01
9,300.00	0.73	308.06	9,294.92	-14.80	-58.67	14.50	1.47	-1.28	34.62
9,400.00	1.52	314.50	9,394.90	-13.48	-60.12	13.18	0.80	0.79	6.44

Archer

Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Site:	Stratosphere 36 State Com 3H	MD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Well:	3H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
9,500.00	2.15	307.93	9,494.85	-11.40	-62.55	11.08	0.66	0.63	-6.57
9,600.00	0.82	262.85	9,594.82	-10.33	-64.74	10.00	1.67	-1.33	-45.08
9,700.00	1.10	266.52	9,694.80	-10.48	-66.40	10.14	0.29	0.28	3.87
9,800.00	1.39	261.74	9,794.78	-10.71	-68.56	10.37	0.31	0.29	-4.78
9,900.00	1.40	256.14	9,894.75	-11.18	-70.95	10.82	0.14	0.01	-5.60
10,000.00	1.76	268.16	9,994.71	-11.52	-73.67	11.15	0.49	0.36	12.02
10,100.00	2.56	245.82	10,094.64	-12.49	-77.24	12.09	1.15	0.80	-22.34
10,200.00	3.07	240.59	10,194.52	-14.72	-81.61	14.30	0.57	0.51	-5.23
10,354.00	1.10	264.40	10,348.41	-16.89	-86.68	16.45	1.37	-1.28	15.46
10,460.00	1.50	254.80	10,454.39	-17.35	-89.03	16.90	0.43	0.38	-9.06
10,555.00	1.80	251.60	10,549.35	-18.15	-91.64	17.68	0.33	0.32	-3.37
10,649.00	1.50	267.60	10,643.31	-18.66	-94.27	18.18	0.58	-0.32	17.02
10,743.00	1.70	278.30	10,737.27	-18.51	-96.88	18.02	0.38	0.21	11.38
10,837.00	5.20	270.70	10,831.09	-18.26	-102.52	17.74	3.75	3.72	-8.09
10,900.00	8.90	265.70	10,893.60	-18.59	-110.24	18.03	5.95	5.87	-7.94
10,931.00	12.10	274.40	10,924.08	-18.52	-115.87	17.93	11.49	10.32	28.06
10,963.00	13.20	267.00	10,955.30	-18.46	-122.87	17.83	6.11	3.44	-23.13
10,994.00	12.90	256.70	10,985.51	-19.44	-129.77	18.78	7.55	-0.97	-33.23
11,026.00	12.90	249.40	11,016.70	-21.52	-136.59	20.82	5.09	0.00	-22.81
11,052.00	13.30	241.30	11,042.03	-23.97	-141.93	23.25	7.22	1.54	-31.15
11,085.00	15.30	233.20	11,074.01	-28.40	-148.75	27.65	8.56	6.06	-24.55
11,117.00	17.80	224.00	11,104.68	-34.45	-155.53	33.66	11.30	7.81	-28.75
11,148.00	20.90	217.70	11,133.93	-42.24	-162.20	41.42	12.04	10.00	-20.32
11,179.00	24.40	211.10	11,162.54	-52.10	-168.90	51.24	13.94	11.29	-21.29
11,210.00	28.00	204.80	11,190.36	-64.20	-175.26	63.31	14.66	11.61	-20.32
11,242.00	32.50	200.10	11,218.00	-79.10	-181.37	78.18	15.88	14.06	-14.69
11,274.00	36.10	196.90	11,244.43	-96.20	-187.06	95.25	12.58	11.25	-10.00
11,305.00	39.70	194.60	11,268.89	-114.53	-192.22	113.55	12.47	11.61	-7.42
11,337.00	42.80	192.70	11,292.95	-135.03	-197.18	134.02	10.45	9.69	-5.94
11,368.00	46.70	190.20	11,314.96	-156.41	-201.50	155.39	13.80	12.58	-8.06
11,400.00	51.30	188.40	11,335.95	-180.24	-205.39	179.20	14.99	14.38	-5.63
11,431.00	55.50	186.70	11,354.43	-204.91	-208.65	203.84	14.24	13.55	-5.48
11,463.00	58.50	184.60	11,371.86	-231.61	-211.28	230.53	10.87	9.38	-6.56
11,494.00	61.70	182.70	11,387.31	-258.42	-212.98	257.34	11.61	10.32	-6.13
11,526.00	64.70	181.30	11,401.74	-286.96	-213.98	285.87	10.16	9.38	-4.38
11,557.00	67.90	180.70	11,414.19	-315.34	-214.47	314.25	10.47	10.32	-1.94
11,588.00	72.00	180.40	11,424.82	-344.46	-214.75	343.36	13.26	13.23	-0.97
11,620.00	76.60	179.40	11,433.48	-375.25	-214.69	374.16	14.69	14.38	-3.13
11,643.00	80.40	179.00	11,438.06	-397.78	-214.38	396.69	16.61	16.52	-1.74
11,675.00	82.40	178.80	11,442.85	-429.42	-213.77	428.33	6.28	6.25	-0.63
11,706.00	83.30	178.70	11,446.71	-460.17	-213.10	459.08	2.92	2.90	-0.32
11,738.00	83.30	178.70	11,450.44	-491.94	-212.38	490.86	0.00	0.00	0.00
11,769.00	83.50	178.50	11,454.00	-522.73	-211.62	521.65	0.91	0.65	-0.65
11,802.00	83.80	178.40	11,457.65	-555.51	-210.74	554.44	0.96	0.91	-0.30

Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Site:	Stratosphere 36 State Com 3H	MD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Well:	3H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
11,833.00	85.30	178.00	11,460.60	-586.36	-209.77	585.28	5.01	4.84	-1.29
11,843.00	86.50	177.80	11,461.31	-596.32	-209.40	595.25	12.16	12.00	-2.00
11,865.00	89.40	177.10	11,462.10	-618.29	-208.42	617.22	13.56	13.18	-3.18
11,959.00	91.30	176.60	11,461.52	-712.14	-203.26	711.10	2.09	2.02	-0.53
12,054.00	90.90	175.40	11,459.70	-806.89	-196.63	805.88	1.33	-0.42	-1.26
12,117.00	90.10	175.20	11,459.15	-869.67	-191.47	868.69	1.31	-1.27	-0.32
12,180.00	90.50	174.80	11,458.82	-932.43	-185.98	931.47	0.90	0.63	-0.63
12,274.00	88.60	175.00	11,459.56	-1,026.05	-177.63	1,025.14	2.03	-2.02	0.21
12,368.00	89.90	175.00	11,460.79	-1,119.68	-169.43	1,118.81	1.38	1.38	0.00
12,463.00	89.10	174.50	11,461.62	-1,214.28	-160.74	1,213.45	0.99	-0.84	-0.53
12,557.00	88.20	174.50	11,463.83	-1,307.82	-151.73	1,307.03	0.96	-0.96	0.00
12,652.00	86.90	174.40	11,467.89	-1,402.29	-142.56	1,401.54	1.37	-1.37	-0.11
12,746.00	88.30	174.60	11,471.83	-1,495.77	-133.55	1,495.07	1.50	1.49	0.21
12,840.00	88.10	175.50	11,474.78	-1,589.37	-125.45	1,588.71	0.98	-0.21	0.96
12,934.00	89.60	179.40	11,476.67	-1,683.24	-121.27	1,682.60	4.44	1.60	4.15
13,028.00	89.20	175.00	11,477.65	-1,777.10	-116.68	1,776.48	4.70	-0.43	-4.68
13,122.00	88.30	175.50	11,479.71	-1,870.75	-108.90	1,870.18	1.10	-0.96	0.53
13,216.00	87.00	174.70	11,483.56	-1,964.33	-100.87	1,963.79	1.62	-1.38	-0.85
13,310.00	88.40	175.00	11,487.33	-2,057.87	-92.44	2,057.37	1.52	1.49	0.32
13,404.00	87.60	174.70	11,490.61	-2,151.43	-84.01	2,150.98	0.91	-0.85	-0.32
13,499.00	87.50	175.60	11,494.67	-2,246.00	-75.99	2,245.59	0.95	-0.11	0.95
13,593.00	87.80	176.30	11,498.53	-2,339.69	-69.35	2,339.31	0.81	0.32	0.74
13,688.00	88.00	176.70	11,502.01	-2,434.45	-63.56	2,434.10	0.47	0.21	0.42
13,783.00	88.30	177.10	11,505.08	-2,529.26	-58.42	2,528.93	0.53	0.32	0.42
13,877.00	89.10	176.30	11,507.21	-2,623.08	-53.01	2,622.78	1.20	0.85	-0.85
13,971.00	89.50	176.90	11,508.36	-2,716.91	-47.44	2,716.63	0.77	0.43	0.64
14,065.00	88.40	176.90	11,510.08	-2,810.75	-42.36	2,810.50	1.17	-1.17	0.00
14,159.00	87.50	177.70	11,513.44	-2,904.58	-37.93	2,904.35	1.28	-0.96	0.85
14,253.00	89.10	176.90	11,516.23	-2,998.44	-33.50	2,998.23	1.90	1.70	-0.85
14,348.00	88.70	176.90	11,518.05	-3,093.28	-28.37	3,093.09	0.42	-0.42	0.00
14,441.00	87.60	176.70	11,521.06	-3,186.08	-23.18	3,185.93	1.20	-1.18	-0.22
14,536.00	88.30	175.00	11,524.46	-3,280.77	-16.31	3,280.64	1.93	0.74	-1.79
14,630.00	87.00	174.80	11,528.31	-3,374.32	-7.96	3,374.23	1.40	-1.38	-0.21
14,724.00	87.30	175.90	11,532.98	-3,467.89	-0.35	3,467.84	1.21	0.32	1.17
14,818.00	87.50	176.30	11,537.25	-3,561.58	6.04	3,561.56	0.48	0.21	0.43
14,913.00	88.10	177.10	11,540.89	-3,656.35	11.50	3,656.36	1.05	0.63	0.84
15,006.00	90.20	178.20	11,542.27	-3,749.25	15.31	3,749.28	2.55	2.26	1.18
15,100.00	89.40	177.30	11,542.60	-3,843.18	19.01	3,843.22	1.28	-0.85	-0.96
15,195.00	88.70	177.60	11,544.18	-3,938.07	23.23	3,938.14	0.80	-0.74	0.32
15,289.00	87.70	177.60	11,547.13	-4,031.94	27.17	4,032.03	1.06	-1.06	0.00
15,383.00	87.60	178.70	11,550.98	-4,125.81	30.20	4,125.91	1.17	-0.11	1.17
15,477.00	88.70	179.70	11,554.02	-4,219.75	31.51	4,219.85	1.58	1.17	1.06
15,572.00	89.10	179.20	11,555.84	-4,314.73	32.42	4,314.84	0.67	0.42	-0.53

Archer

Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM	TVD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Site:	Stratosphere 36 State Com 3H	MD Reference:	3761' GL + 19' RKB @ 3780.00usft (McVay 6)
Well:	3H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
15,666.00	90.20	178.20	11,556.42	-4,408.70	34.55	4,408.82	1.58	1.17	-1.06
15,761.00	89.80	177.20	11,556.42	-4,503.62	38.37	4,503.76	1.13	-0.42	-1.05
15,815.00	89.80	177.20	11,556.61	-4,557.56	41.00	4,557.70	0.00	0.00	0.00
Stratosphere 36 State Com 3H PBHL - Stratosphere 36 State Com 3H BHL									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Stratosphere 36 State C - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	559,582.10	754,716.50	32° 32' 8.46 N	103° 30' 24.57 W
Stratosphere 36 State C - actual wellpath hits target center - Point	0.00	0.00	11,556.61	-4,557.56	41.00	555,024.55	754,757.50	32° 31' 23.36 N	103° 30' 24.50 W

COG OPERATING, LLC

Field: Lea County, NM
 Site: Stratosphere 36 State Com 3H
 Well: 3H
 Wellbore: Lateral
 Plan: Surveys

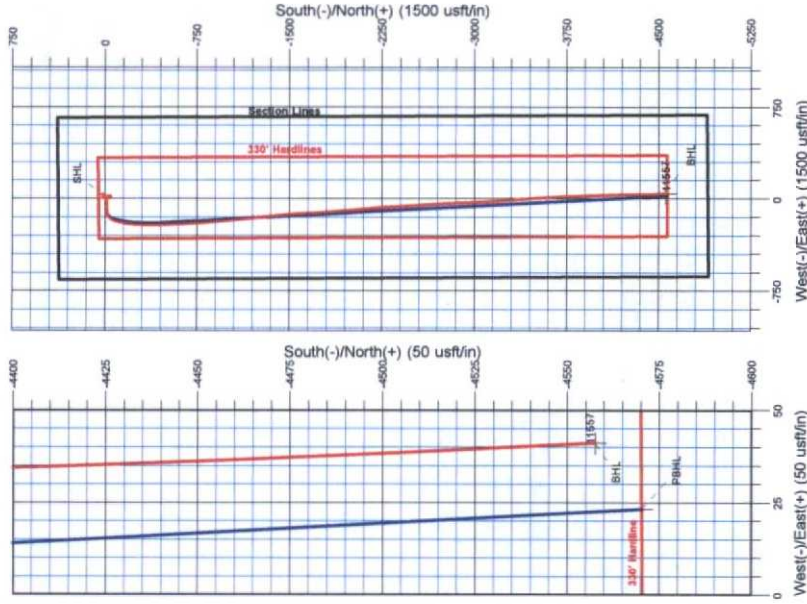
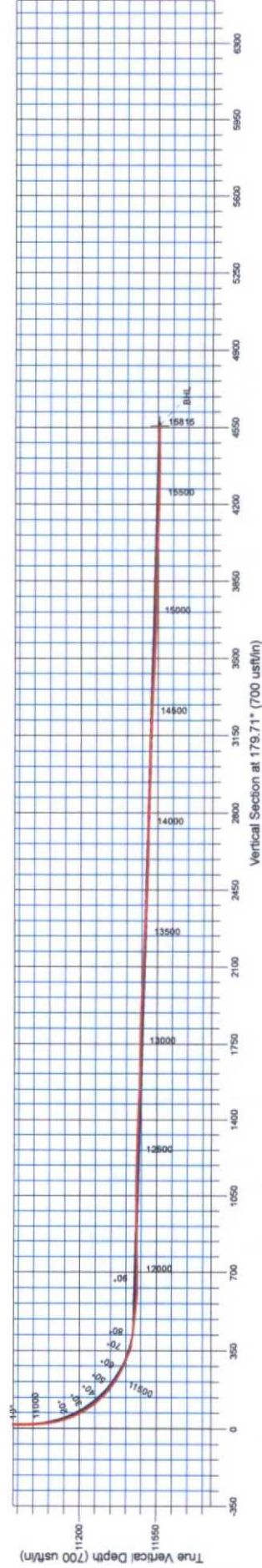
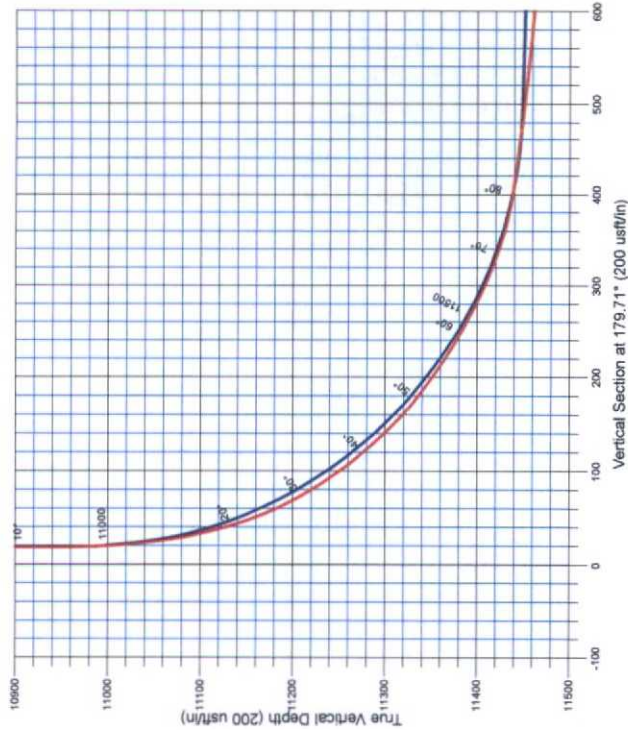


TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Stratosphere 36 State Com 3H SHL	0.00	0.00	0.00	559582.10	754716.50	32° 32' 8.46" N	103° 30' 24.57" W
Stratosphere 36 State Com 3H BHL	11556.60	-4557.56	41.00	555024.54	754757.50	32° 31' 23.36" N	103° 30' 24.50" W

Section Distances

Sec36, T20S, R34E
 SHL - Unit A
 380°FNL, 660°FEL
 BHL - Unit P
 342°FSL, 642°FEL



LEGEND

- 3H, Lateral, Plan #3 V0
- Surveys

Archer

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Design: Surveys (3H/Lateral)
 Created By: Keith Neack
 Date: 9/24, May 27 2015