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

30 015 40790

January 8, 2013

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

Attn: Kanicia Castillo

RE: **Chicken Dinner 36 State Com No. 001H**

Please find enclosed a copy of the survey from 0.00' to 9950.00' 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
My Commission Expires
January 28, 2014

Laura Ballew
Notary Public, State of Texas

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

Rig Name: Precision #105
State/County: New Mexico / Eddy
Latitude: 32.71, Longitude: -103.81
GRID North is 0.28 Degrees East of True North
VS-Azi: 0.00 Degrees

Depth Reference : RKB = 25'

DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: ...en dinner 36 state com #1h.ut
Minimum Curvature Method
Report Date/Time: 1/8/2013 / 09:39

Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Logan Henry

Chicken Dinner 36 State Com No. 001H / API 30-015-40790

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	0.34	152.93	100.00	-0.26	0.13	-0.26	0.29	152.93	0.34
200.00	0.35	60.06	200.00	-0.37	0.53	-0.37	0.65	124.78	0.50
300.00	0.35	73.96	300.00	-0.13	1.09	-0.13	1.10	96.85	0.09
400.00	0.36	85.86	399.99	-0.02	1.70	-0.02	1.70	90.79	0.07
500.00	0.35	165.52	499.99	-0.29	2.09	-0.29	2.11	98.00	0.45
600.00	0.33	245.19	599.99	-0.71	1.90	-0.71	2.02	110.47	0.44
700.00	0.24	196.44	699.99	-1.03	1.57	-1.03	1.88	123.37	0.25
800.00	0.15	147.69	799.99	-1.35	1.58	-1.35	2.08	130.52	0.18
900.00	0.17	124.62	899.99	-1.55	1.78	-1.55	2.36	131.10	0.07
1000.00	0.19	101.54	999.99	-1.67	2.07	-1.67	2.66	128.96	0.08
1100.00	0.23	118.77	1099.99	-1.80	2.41	-1.80	3.00	126.81	0.07
1200.00	0.27	136.00	1199.99	-2.07	2.74	-2.07	3.43	126.97	0.08
1300.00	0.28	141.84	1299.99	-2.42	3.06	-2.42	3.90	128.42	0.03
1400.00	0.28	149.68	1399.99	-2.83	3.33	-2.83	4.37	130.34	0.04
1500.00	0.42	137.52	1499.98	-3.31	3.70	-3.31	4.97	131.82	0.15
1600.00	0.56	125.36	1599.98	-3.87	4.35	-3.87	5.82	131.64	0.17
1700.00	0.38	115.70	1699.98	-4.29	5.04	-4.29	6.62	130.40	0.20
1800.00	0.19	108.04	1799.98	-4.48	5.50	-4.48	7.09	129.21	0.19

VES Survey Date: 12/28/2012

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	0.63	72.48	1899.97	-4.37	6.18	-4.37	7.57	125.24	0.49
2000.00	1.08	36.92	1999.96	-3.45	7.28	-3.45	8.05	115.37	0.67
2100.00	1.58	48.46	2099.93	-1.78	8.88	-1.78	9.05	101.36	0.57
2200.00	2.09	60.00	2199.88	0.05	11.49	0.05	11.49	89.77	0.63
2300.00	2.23	65.74	2299.81	1.76	14.84	1.76	14.95	83.25	0.25
2400.00	2.36	71.47	2399.73	3.21	18.57	3.21	18.84	80.19	0.27
2500.00	1.66	60.81	2499.67	4.57	21.79	4.57	22.26	78.15	0.79
2600.00	0.97	30.16	2599.64	6.01	23.48	6.01	24.24	75.64	0.97
2700.00	0.81	6.66	2699.63	7.44	23.98	7.44	25.11	72.77	0.39
2800.00	0.65	343.16	2799.62	8.69	23.90	8.69	25.43	70.03	0.33
2900.00	0.69	338.97	2899.62	9.79	23.52	9.79	25.48	67.40	0.06
3000.00	0.72	336.77	2999.61	10.93	23.06	10.93	25.52	64.65	0.04
3100.00	1.03	314.63	3099.60	12.14	22.17	12.14	25.27	61.30	0.46
3200.00	1.35	292.48	3199.58	13.22	20.44	13.22	24.34	57.10	0.55
3300.00	1.57	282.00	3299.55	13.96	18.01	13.96	22.78	52.22	0.35
3400.00	1.79	271.52	3399.50	14.28	15.11	14.28	20.79	46.60	0.38
3500.00	1.79	273.14	3499.45	14.41	11.99	14.41	18.74	39.75	0.05
3600.00	1.79	276.76	3599.40	14.68	8.88	14.68	17.16	31.16	0.11
3700.00	1.38	277.78	3699.37	15.03	6.14	15.03	16.23	22.22	0.41
3800.00	0.96	278.80	3799.35	15.32	4.12	15.32	15.86	15.06	0.41
3900.00	1.14	278.48	3899.33	15.59	2.30	15.59	15.76	8.40	0.18
4000.00	1.33	276.16	3999.31	15.86	0.16	15.86	15.86	0.59	0.19
4100.00	1.17	284.86	4099.28	16.25	-1.97	16.25	16.37	353.09	0.25
4200.00	1.00	293.55	4199.26	16.86	-3.76	16.86	17.27	347.44	0.23
4300.00	0.74	280.24	4299.25	17.33	-5.20	17.33	18.09	343.30	0.33
4400.00	0.48	266.92	4399.25	17.42	-6.26	17.42	18.51	340.24	0.30
4500.00	0.61	266.66	4499.24	17.36	-7.21	17.36	18.80	337.45	0.13
4600.00	0.74	264.39	4599.23	17.27	-8.38	17.27	19.20	334.11	0.13
4700.00	0.56	255.90	4699.23	17.09	-9.50	17.09	19.55	330.93	0.20
4800.00	0.38	247.41	4799.23	16.84	-10.28	16.84	19.73	328.59	0.19
4900.00	0.31	198.52	4899.22	16.45	-10.68	16.45	19.62	327.02	0.30
5000.00	0.24	149.64	4999.22	16.01	-10.66	16.01	19.24	326.35	0.24
5100.00	0.20	235.13	5099.22	15.73	-10.70	15.73	19.02	325.78	0.30
5200.00	0.17	320.62	5199.22	15.74	-10.94	15.74	19.17	325.21	0.25
5300.00	0.26	256.22	5299.22	15.80	-11.25	15.80	19.40	324.55	0.24
5400.00	0.35	187.82	5399.22	15.44	-11.51	15.44	19.26	323.30	0.35
5500.00	0.32	168.79	5499.22	14.86	-11.50	14.86	18.79	322.27	0.12
5600.00	0.29	149.75	5599.22	14.36	-11.31	14.36	18.28	321.77	0.11
5700.00	0.41	140.74	5699.21	13.86	-10.96	13.86	17.67	321.68	0.13

VES Survey Date: 12/28/2012

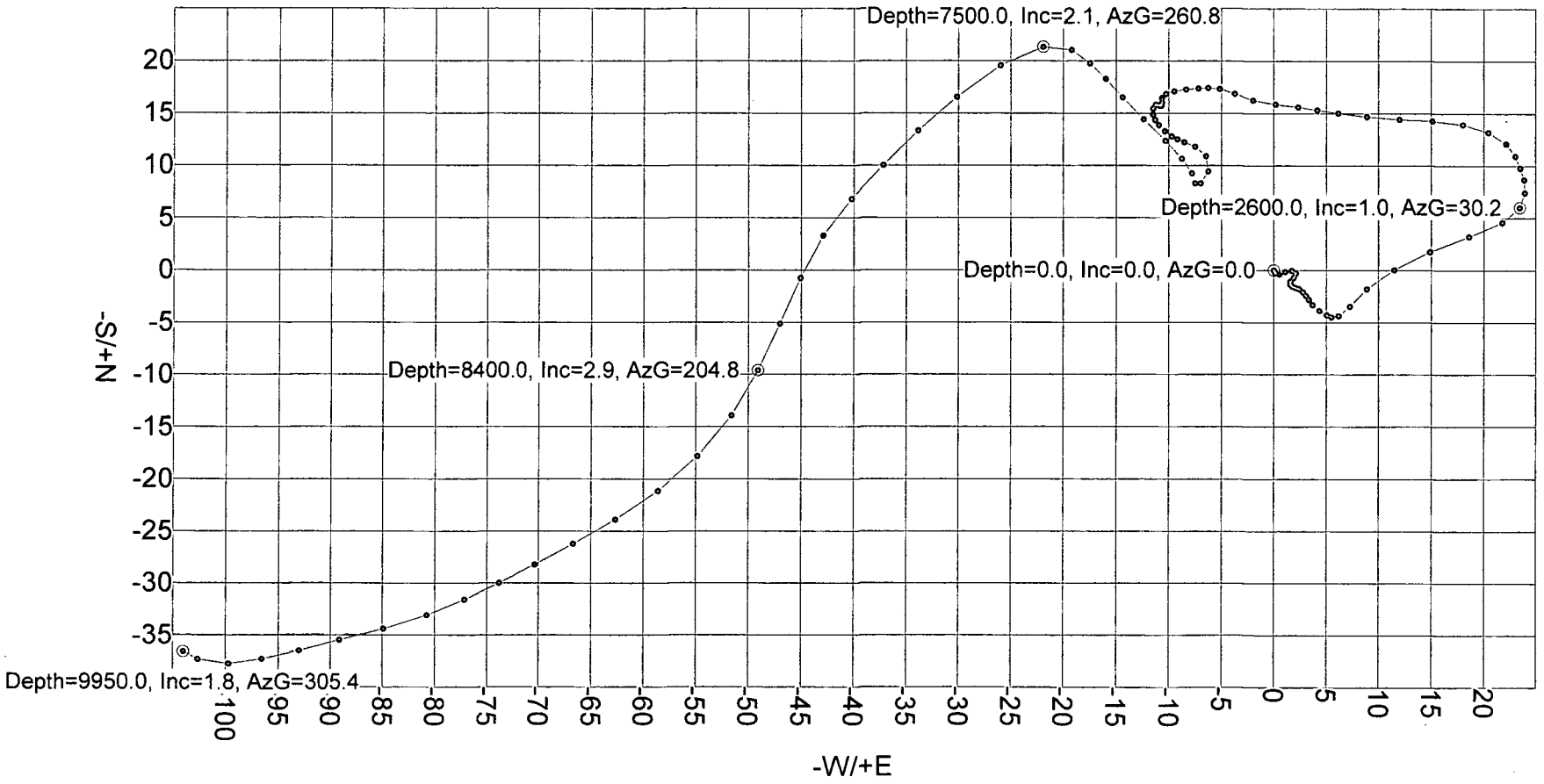
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.53	131.73	5799.21	13.28	-10.39	13.28	16.86	321.97	0.14
5900.00	0.41	121.09	5899.21	12.79	-9.74	12.79	16.08	322.71	0.15
6000.00	0.29	112.45	5999.21	12.51	-9.20	12.51	15.53	323.66	0.13
6100.00	0.52	112.12	6099.20	12.24	-8.55	12.24	14.93	325.08	0.24
6200.00	0.76	113.79	6199.20	11.80	-7.51	11.80	13.99	327.52	0.24
6300.00	0.87	144.81	6299.19	10.91	-6.47	10.91	12.68	329.35	0.45
6400.00	0.99	195.84	6399.18	9.46	-6.26	9.46	11.34	326.50	0.81
6500.00	0.69	235.28	6499.17	8.29	-6.99	8.29	10.84	319.83	0.63
6600.00	0.40	354.72	6599.16	8.29	-7.52	8.29	11.19	317.77	0.96
6700.00	0.78	336.83	6699.16	9.26	-7.82	9.26	12.12	319.82	0.42
6800.00	1.16	318.94	6799.14	10.66	-8.76	10.66	13.79	320.58	0.48
6900.00	1.50	315.84	6899.12	12.36	-10.33	12.36	16.11	320.09	0.34
7000.00	1.83	314.73	6999.07	14.42	-12.38	14.42	19.00	319.35	0.33
7100.00	1.52	317.59	7099.03	16.52	-14.40	16.52	21.92	318.91	0.32
7200.00	1.20	318.46	7199.00	18.28	-15.99	18.28	24.29	318.82	0.31
7300.00	1.22	310.74	7298.98	19.76	-17.49	19.76	26.39	318.48	0.16
7400.00	1.23	303.03	7398.96	21.03	-19.19	21.03	28.47	317.62	0.16
7500.00	2.13	260.78	7498.92	21.32	-21.93	21.32	30.58	314.19	1.48
7600.00	3.04	236.54	7598.82	19.56	-25.98	19.56	32.52	306.98	1.40
7700.00	2.89	231.53	7698.68	16.53	-30.16	16.53	34.40	298.72	0.30
7800.00	2.74	226.52	7798.56	13.32	-33.87	13.32	36.39	291.47	0.29
7900.00	2.61	223.66	7898.45	10.03	-37.17	10.03	38.50	285.10	0.18
8000.00	2.48	222.79	7998.36	6.79	-40.22	6.79	40.79	279.58	0.13
8100.00	2.59	212.95	8098.26	3.30	-42.92	3.30	43.05	274.40	0.45
8200.00	2.71	203.11	8198.15	-0.77	-45.08	-0.77	45.08	269.02	0.47
8300.00	2.78	204.97	8298.04	-5.14	-47.03	-5.14	47.31	263.77	0.12
8400.00	2.86	204.83	8397.92	-9.60	-49.10	-9.60	50.03	258.94	0.08
8500.00	2.89	214.80	8497.79	-13.93	-51.59	-13.93	53.44	254.88	0.50
8600.00	2.93	224.78	8597.66	-17.82	-54.83	-17.82	57.65	251.99	0.51
8700.00	2.86	232.40	8697.54	-21.16	-58.60	-21.16	62.31	250.15	0.39
8800.00	2.80	240.02	8797.41	-23.90	-62.70	-23.90	67.10	249.13	0.38
8900.00	2.52	240.13	8897.31	-26.21	-66.72	-26.21	71.68	248.55	0.27
9000.00	2.25	242.23	8997.22	-28.22	-70.36	-28.22	75.81	248.14	0.29
9100.00	2.17	244.29	9097.14	-29.96	-73.80	-29.96	79.65	247.91	0.11
9200.00	2.10	244.34	9197.08	-31.58	-77.17	-31.58	83.38	247.74	0.07
9300.00	2.36	249.77	9297.00	-33.08	-80.75	-33.08	87.27	247.72	0.34
9400.00	2.62	255.21	9396.90	-34.38	-84.90	-34.38	91.60	247.95	0.35
9500.00	2.41	255.93	9496.81	-35.48	-89.15	-35.48	95.95	248.30	0.22
9600.00	2.19	254.65	9596.73	-36.49	-93.03	-36.49	99.94	248.58	0.22

VES Survey Date: 12/28/2012

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	1.95	259.52	9696.66	-37.31	-96.55	-37.31	103.51	248.87	0.30
9800.00	1.70	264.38	9796.61	-37.77	-99.71	-37.77	106.62	249.25	0.29
9900.00	1.79	291.72	9896.57	-37.33	-102.63	-37.33	109.21	250.01	0.83
9950.00	1.83	305.39	9946.54	-36.58	-104.01	-36.58	110.25	250.62	0.86

VES Survey Date: 12/28/2012

Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Logan Henry
Chicken Dinner 36 State Com No. 001H / API 30-015-40790



VES Survey Date: 12/28/2012

CONCHO

COG Operating, LLC

Eddy County, NM (NAD 27)
Sec 36, T18S, R31E
Chicken Dinner 36 State Com #1H

Wellbore #1

Design: Wellbore #1

DDC Survey Report

16 January, 2013

DDC
The DIRECTIONAL DRILLING COMPANY

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Chicken Dinner 36 State Com #1H
Project:	Eddy County, NM (NAD 27)	**TVD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Site:	Sec 36, T18S, R31E	**MD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Well:	Chicken Dinner 36 State Com #1H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Project Eddy County, NM (NAD 27)

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 Sec 36, T18S, R31E

Site Position:		**Northing:**	622,179.00 usft	**Latitude:**	32° 42' 33.818 N
From:	Map	**Easting:**	659,602.40 usft	**Longitude:**	103° 48' 52.007 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.28 °

Well Chicken Dinner 36 State Com #1H

Well Position	**+N/-S**	0.0 usft	**Northing:**	622,179.00 usft	**Latitude:**	32° 42' 33.818 N
	+E/-W	0.0 usft	**Easting:**	659,602.40 usft	**Longitude:**	103° 48' 52.007 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,670.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/19/2012	7.55	60.56	48,729

Design Wellbore #1

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	268.25

Survey Program **Date** 1/16/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	9,950.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
10,075.0	14,793.0	MWD (Wellbore #1)	MWD default	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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.34	152.93	100.0	-0.3	0.1	-0.1	0.34	0.34	0.00
200.0	0.35	60.06	200.0	-0.4	0.5	-0.5	0.50	0.01	-92.87
300.0	0.35	73.96	300.0	-0.1	1.1	-1.1	0.08	0.00	13.90
400.0	0.36	85.86	400.0	0.0	1.7	-1.7	0.07	0.01	11.90
500.0	0.35	165.52	500.0	-0.3	2.1	-2.1	0.45	-0.01	79.66
600.0	0.33	245.19	600.0	-0.7	1.9	-1.9	0.44	-0.02	79.67
700.0	0.24	196.44	700.0	-1.0	1.6	-1.6	0.25	-0.09	-48.75
800.0	0.15	147.69	800.0	-1.4	1.6	-1.6	0.18	-0.09	-48.75
900.0	0.17	124.62	900.0	-1.5	1.8	-1.7	0.07	0.02	-23.07

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Chicken Dinner 36 State Com #1H
Project:	Eddy County, NM (NAD 27)	**TVD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Site:	Sec 36, T18S, R31E	**MD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Well:	Chicken Dinner 36 State Com #1H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.0	0.19	101.54	1,000.0	-1.7	2.1	-2.0	0.07	0.02	-23.08
1,100.0	0.23	118.77	1,100.0	-1.8	2.4	-2.4	0.07	0.04	17.23
1,200.0	0.27	136.00	1,200.0	-2.1	2.7	-2.7	0.08	0.04	17.23
1,300.0	0.28	141.84	1,300.0	-2.4	3.1	-3.0	0.03	0.01	5.84
1,400.0	0.28	149.68	1,400.0	-2.8	3.3	-3.3	0.04	0.00	7.84
1,500.0	0.42	137.52	1,500.0	-3.3	3.7	-3.6	0.16	0.14	-12.16
1,600.0	0.56	125.36	1,600.0	-3.9	4.4	-4.2	0.17	0.14	-12.16
1,700.0	0.38	115.70	1,700.0	-4.3	5.1	-4.9	0.20	-0.18	-9.66
1,800.0	0.19	108.04	1,800.0	-4.5	5.5	-5.4	0.19	-0.19	-7.66
1,900.0	0.63	72.48	1,900.0	-4.4	6.2	-6.1	0.49	0.44	-35.56
2,000.0	1.08	36.92	2,000.0	-3.5	7.3	-7.2	0.68	0.45	-35.56
2,100.0	1.58	48.46	2,099.9	-1.8	8.9	-8.8	0.56	0.50	11.54
2,200.0	2.09	60.00	2,199.9	0.0	11.5	-11.5	0.63	0.51	11.54
2,300.0	2.23	65.74	2,299.8	1.8	14.8	-14.9	0.26	0.14	5.74
2,400.0	2.36	71.47	2,399.7	3.2	18.6	-18.7	0.26	0.13	5.73
2,500.0	1.66	60.81	2,499.7	4.6	21.8	-21.9	0.79	-0.70	-10.66
2,600.0	0.97	30.16	2,599.6	6.0	23.5	-23.6	0.96	-0.69	-30.65
2,700.0	0.81	6.66	2,699.6	7.4	24.0	-24.2	0.39	-0.16	-23.50
2,800.0	0.65	343.16	2,799.6	8.7	23.9	-24.2	0.34	-0.16	-23.50
2,900.0	0.69	338.97	2,899.6	9.8	23.5	-23.8	0.06	0.04	-4.19
3,000.0	0.72	336.77	2,999.6	10.9	23.1	-23.4	0.04	0.03	-2.20
3,100.0	1.03	314.63	3,099.6	12.1	22.2	-22.5	0.45	0.31	-22.14
3,200.0	1.35	292.48	3,199.6	13.2	20.4	-20.8	0.55	0.32	-22.15
3,300.0	1.57	282.00	3,299.5	14.0	18.0	-18.4	0.35	0.22	-10.48
3,400.0	1.79	271.52	3,399.5	14.3	15.1	-15.5	0.38	0.22	-10.48
3,500.0	1.79	273.14	3,499.5	14.4	12.0	-12.4	0.05	0.00	1.62
3,600.0	1.79	276.76	3,599.4	14.7	8.9	-9.3	0.11	0.00	3.62
3,700.0	1.38	277.78	3,699.4	15.0	6.1	-6.6	0.41	-0.41	1.02
3,800.0	0.96	278.80	3,799.3	15.3	4.1	-4.6	0.42	-0.42	1.02
3,900.0	1.14	278.48	3,899.3	15.6	2.3	-2.8	0.18	0.18	-0.32
4,000.0	1.33	276.16	3,999.3	15.9	0.2	-0.6	0.20	0.19	-2.32
4,100.0	1.17	284.86	4,099.3	16.2	-2.0	1.5	0.25	-0.16	8.70
4,200.0	1.00	293.55	4,199.3	16.9	-3.8	3.2	0.24	-0.17	8.69
4,300.0	0.74	280.24	4,299.3	17.3	-5.2	4.7	0.33	-0.26	-13.31
4,400.0	0.48	266.92	4,399.2	17.4	-6.3	5.7	0.29	-0.26	-13.32
4,500.0	0.61	266.66	4,499.2	17.4	-7.2	6.7	0.13	0.13	-0.26
4,600.0	0.74	264.39	4,599.2	17.3	-8.4	7.8	0.13	0.13	-2.27
4,700.0	0.56	255.90	4,699.2	17.1	-9.5	9.0	0.20	-0.18	-8.49
4,800.0	0.38	247.41	4,799.2	16.8	-10.3	9.8	0.19	-0.18	-8.49
4,900.0	0.31	198.52	4,899.2	16.5	-10.7	10.2	0.29	-0.07	-48.89
5,000.0	0.24	149.64	4,999.2	16.0	-10.6	10.1	0.24	-0.07	-48.88
5,100.0	0.20	235.13	5,099.2	15.7	-10.7	10.2	0.30	-0.04	85.49
5,200.0	0.17	320.62	5,199.2	15.8	-10.9	10.4	0.25	-0.03	85.49

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Chicken Dinner 36 State Com #1H
Project:	Eddy County, NM (NAD 27)	**TVD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Site:	Sec 36, T18S, R31E	**MD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Well:	Chicken Dinner 36 State Com #1H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	0.26	256.22	5,299.2	15.8	-11.2	10.7	0.24	0.09	-64.40
5,400.0	0.35	187.82	5,399.2	15.5	-11.5	11.0	0.35	0.09	-68.40
5,500.0	0.32	168.79	5,499.2	14.9	-11.5	11.0	0.11	-0.03	-19.03
5,600.0	0.29	149.75	5,599.2	14.4	-11.3	10.9	0.11	-0.03	-19.04
5,700.0	0.41	140.74	5,699.2	13.9	-10.9	10.5	0.13	0.12	-9.01
5,800.0	0.53	131.73	5,799.2	13.3	-10.4	10.0	0.14	0.12	-9.01
5,900.0	0.41	121.09	5,899.2	12.8	-9.7	9.3	0.15	-0.12	-10.64
6,000.0	0.29	112.45	5,999.2	12.5	-9.2	8.8	0.13	-0.12	-8.64
6,100.0	0.52	112.12	6,099.2	12.3	-8.5	8.2	0.23	0.23	-0.33
6,200.0	0.76	113.79	6,199.2	11.8	-7.5	7.1	0.24	0.24	1.67
6,300.0	0.87	144.81	6,299.2	10.9	-6.5	6.1	0.45	0.11	31.02
6,400.0	0.99	195.84	6,399.2	9.5	-6.3	6.0	0.81	0.12	51.03
6,500.0	0.69	235.28	6,499.2	8.3	-7.0	6.7	0.63	-0.30	39.44
6,600.0	0.40	354.72	6,599.2	8.3	-7.5	7.3	0.95	-0.29	119.44
6,700.0	0.78	336.83	6,699.2	9.3	-7.8	7.5	0.42	0.38	-17.89
6,800.0	1.16	318.94	6,799.1	10.7	-8.7	8.4	0.48	0.38	-17.89
6,900.0	1.50	315.84	6,899.1	12.4	-10.3	9.9	0.35	0.34	-3.10
7,000.0	1.83	314.73	6,999.1	14.4	-12.4	11.9	0.33	0.33	-1.11
7,100.0	1.52	317.59	7,099.0	16.5	-14.4	13.9	0.32	-0.31	2.86
7,200.0	1.20	318.46	7,199.0	18.3	-16.0	15.4	0.32	-0.32	0.87
7,300.0	1.22	310.74	7,299.0	19.8	-17.5	16.9	0.16	0.02	-7.72
7,400.0	1.23	303.03	7,399.0	21.1	-19.2	18.5	0.17	0.01	-7.71
7,500.0	2.13	260.78	7,498.9	21.4	-21.9	21.3	1.47	0.90	-42.25
7,600.0	3.04	236.54	7,598.8	19.6	-26.0	25.4	1.40	0.91	-24.24
7,700.0	2.89	231.53	7,698.7	16.6	-30.2	29.6	0.30	-0.15	-5.01
7,800.0	2.74	226.52	7,798.6	13.4	-33.9	33.4	0.29	-0.15	-5.01
7,900.0	2.61	223.66	7,898.5	10.1	-37.2	36.9	0.19	-0.13	-2.86
8,000.0	2.48	222.79	7,998.4	6.8	-40.2	40.0	0.14	-0.13	-0.87
8,100.0	2.59	212.95	8,098.3	3.3	-42.9	42.8	0.45	0.11	-9.84
8,200.0	2.71	203.11	8,198.2	-0.7	-45.1	45.1	0.47	0.12	-9.84
8,300.0	2.78	204.97	8,298.0	-5.1	-47.0	47.2	0.11	0.07	1.86
8,400.0	2.86	204.83	8,397.9	-9.6	-49.1	49.4	0.08	0.08	-0.14
8,500.0	2.89	214.80	8,497.8	-13.9	-51.6	52.0	0.50	0.03	9.97
8,600.0	2.93	224.78	8,597.7	-17.8	-54.8	55.3	0.51	0.04	9.98
8,700.0	2.86	232.40	8,697.5	-21.1	-58.6	59.2	0.39	-0.07	7.62
8,800.0	2.80	240.02	8,797.4	-23.9	-62.7	63.4	0.38	-0.06	7.62
8,900.0	2.52	240.13	8,897.3	-26.2	-66.7	67.5	0.28	-0.28	0.11
9,000.0	2.25	242.23	8,997.2	-28.2	-70.4	71.2	0.28	-0.27	2.10
9,100.0	2.17	244.29	9,097.1	-29.9	-73.8	74.7	0.11	-0.08	2.06
9,200.0	2.10	244.34	9,197.1	-31.5	-77.2	78.1	0.07	-0.07	0.05
9,300.0	2.36	249.77	9,297.0	-33.0	-80.7	81.7	0.33	0.26	5.43
9,400.0	2.62	255.21	9,396.9	-34.3	-84.9	85.9	0.35	0.26	5.44
9,500.0	2.41	255.93	9,496.8	-35.4	-89.1	90.2	0.21	-0.21	0.72

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Chicken Dinner 36 State Com #1H
Project:	Eddy County, NM (NAD 27)	**TVD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Site:	Sec 36, T18S, R31E	**MD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Well:	Chicken Dinner 36 State Com #1H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,600.0	2.19	254.65	9,596.7	-36.4	-93.0	94.1	0.23	-0.22	-1.28
9,700.0	1.95	259.52	9,696.7	-37.3	-96.5	97.6	0.30	-0.24	4.87
9,800.0	1.70	264.38	9,796.6	-37.7	-99.7	100.8	0.29	-0.25	4.86
9,900.0	1.79	291.72	9,896.6	-37.3	-102.6	103.7	0.83	0.09	27.34
TIE IN @ 9950' MD / 9947' TVD									
9,950.0	1.83	305.39	9,946.5	-36.5	-104.0	105.0	0.87	0.08	27.34
10,075.0	4.10	336.60	10,071.4	-31.3	-107.4	108.3	2.16	1.82	24.97
10,109.0	3.90	338.50	10,105.3	-29.1	-108.3	109.1	0.71	-0.59	5.59
10,141.0	5.10	294.00	10,137.2	-27.5	-110.0	110.8	11.19	3.75	-139.06
10,172.0	8.40	275.30	10,168.0	-26.7	-113.5	114.3	12.66	10.65	-60.32
10,202.0	12.80	272.50	10,197.5	-26.4	-119.0	119.8	14.76	14.67	-9.33
10,233.0	16.00	275.10	10,227.5	-25.8	-126.7	127.4	10.53	10.32	8.39
10,265.0	17.90	277.80	10,258.1	-24.8	-136.0	136.7	6.43	5.94	8.44
10,297.0	20.30	276.60	10,288.3	-23.5	-146.3	147.0	7.60	7.50	-3.75
10,328.0	22.70	272.40	10,317.2	-22.6	-157.7	158.3	9.19	7.74	-13.55
10,360.0	25.00	271.50	10,346.4	-22.2	-170.6	171.2	7.28	7.19	-2.81
10,391.0	28.80	268.90	10,374.1	-22.1	-184.6	185.2	12.83	12.26	-8.39
10,423.0	30.60	267.50	10,401.9	-22.7	-200.5	201.1	6.03	5.63	-4.38
10,455.0	32.60	265.70	10,429.1	-23.7	-217.2	217.8	6.91	6.25	-5.63
10,486.0	34.20	262.30	10,455.0	-25.4	-234.2	234.8	7.94	5.16	-10.97
10,518.0	34.30	260.10	10,481.5	-28.2	-252.0	252.7	3.88	0.31	-6.88
10,550.0	35.60	259.60	10,507.7	-31.4	-270.0	270.8	4.16	4.06	-1.56
10,582.0	37.30	258.90	10,533.4	-35.0	-288.7	289.6	5.47	5.31	-2.19
10,613.0	38.70	258.70	10,557.9	-38.7	-307.4	308.4	4.53	4.52	-0.65
10,645.0	41.30	260.20	10,582.4	-42.4	-327.6	328.8	8.67	8.13	4.69
10,677.0	47.60	264.70	10,605.2	-45.3	-349.8	351.0	22.00	19.69	14.06
10,708.0	53.80	268.90	10,624.8	-46.6	-373.8	375.0	22.57	20.00	13.55
10,735.0	59.80	270.50	10,639.6	-46.7	-396.3	397.6	22.77	22.22	5.93
10,771.0	69.40	270.10	10,655.0	-46.6	-428.8	430.0	26.69	26.67	-1.11
10,800.0	76.90	269.30	10,663.4	-46.7	-456.5	457.8	26.00	25.86	-2.76
CROSSED HARD LINE @ 10823' MD / 10667' TVD									
10,822.5	82.99	268.90	10,667.4	-47.1	-478.7	479.9	27.11	27.06	-1.78
10,834.0	86.10	268.70	10,668.5	-47.3	-490.1	491.4	27.11	27.06	-1.74
10,898.0	90.80	270.10	10,670.2	-48.0	-554.1	555.3	7.66	7.34	2.19
10,929.0	91.20	270.50	10,669.7	-47.8	-585.1	586.3	1.82	1.29	1.29
10,993.0	90.90	270.10	10,668.5	-47.5	-649.1	650.2	0.78	-0.47	-0.63
11,056.0	91.70	270.60	10,667.1	-47.1	-712.1	713.2	1.50	1.27	0.79
11,119.0	92.30	271.70	10,664.9	-45.8	-775.0	776.0	1.99	0.95	1.75
11,214.0	91.50	270.80	10,661.7	-43.8	-869.9	870.9	1.27	-0.84	-0.95
11,309.0	92.60	269.90	10,658.3	-43.2	-964.9	965.7	1.50	1.16	-0.95
11,404.0	92.90	269.50	10,653.7	-43.7	-1,059.7	1,060.6	0.53	0.32	-0.42
11,499.0	90.90	268.70	10,650.6	-45.2	-1,154.7	1,155.5	2.27	-2.11	-0.84
11,563.0	88.30	268.70	10,651.0	-46.6	-1,218.7	1,219.5	4.06	-4.06	0.00
11,626.0	89.80	269.40	10,652.1	-47.7	-1,281.6	1,282.5	2.63	2.38	1.11

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Chicken Dinner 36 State Com #1H
Project:	Eddy County, NM (NAD 27)	**TVD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Site:	Sec 36, T18S, R31E	**MD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Well:	Chicken Dinner 36 State Com #1H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**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)
11,690.0	92.30	269.50	10,650.9	-48.3	-1,345.6	1,346.5	3.91	3.91	0.16
11,753.0	93.40	270.10	10,647.8	-48.5	-1,408.5	1,409.4	1.99	1.75	0.95
11,816.0	93.80	270.00	10,643.8	-48.5	-1,471.4	1,472.2	0.65	0.63	-0.16
11,880.0	93.10	268.60	10,640.0	-49.2	-1,535.3	1,536.1	2.44	-1.09	-2.19
11,943.0	93.30	267.10	10,636.5	-51.6	-1,598.1	1,599.0	2.40	0.32	-2.38
12,006.0	92.40	265.20	10,633.3	-55.8	-1,660.9	1,661.9	3.33	-1.43	-3.02
12,102.0	94.10	267.80	10,627.9	-61.7	-1,756.6	1,757.6	3.23	1.77	2.71
12,197.0	93.10	266.50	10,621.9	-66.4	-1,851.3	1,852.4	1.72	-1.05	-1.37
12,260.0	92.20	267.30	10,619.0	-69.8	-1,914.1	1,915.3	1.91	-1.43	1.27
12,324.0	92.40	267.30	10,616.4	-72.8	-1,978.0	1,979.3	0.31	0.31	0.00
12,387.0	92.30	267.40	10,613.9	-75.7	-2,040.9	2,042.2	0.22	-0.16	0.16
12,418.0	92.20	267.90	10,612.6	-77.0	-2,071.8	2,073.2	1.64	-0.32	1.61
12,450.0	90.70	267.20	10,611.8	-78.4	-2,103.8	2,105.2	5.17	-4.69	-2.19
12,481.0	91.30	266.50	10,611.3	-80.1	-2,134.7	2,136.2	2.97	1.94	-2.26
12,513.0	93.40	267.90	10,610.0	-81.6	-2,166.7	2,168.1	7.88	6.56	4.38
12,576.0	94.80	269.80	10,605.5	-82.9	-2,229.5	2,231.0	3.74	2.22	3.02
12,640.0	92.10	268.90	10,601.6	-83.6	-2,293.3	2,294.8	4.45	-4.22	-1.41
12,735.0	94.20	270.20	10,596.4	-84.3	-2,388.2	2,389.7	2.60	2.21	1.37
12,829.0	92.00	269.50	10,591.3	-84.6	-2,482.1	2,483.5	2.46	-2.34	-0.74
12,893.0	92.70	269.00	10,588.7	-85.4	-2,546.0	2,547.4	1.34	1.09	-0.78
12,956.0	96.80	269.60	10,583.5	-86.2	-2,608.8	2,610.2	6.58	6.51	0.95
13,051.0	101.40	270.60	10,568.5	-86.0	-2,702.5	2,703.9	4.95	4.84	1.05
13,114.0	100.10	270.70	10,556.7	-85.3	-2,764.4	2,765.7	2.07	-2.06	0.16
13,209.0	97.00	270.20	10,542.6	-84.6	-2,858.4	2,859.6	3.30	-3.26	-0.53
13,304.0	94.10	269.40	10,533.4	-84.9	-2,952.9	2,954.1	3.17	-3.05	-0.84
13,367.0	92.30	268.90	10,529.9	-85.9	-3,015.8	3,017.0	2.96	-2.86	-0.79
13,462.0	89.20	266.00	10,528.6	-90.1	-3,110.7	3,112.0	4.47	-3.26	-3.05
13,526.0	90.30	266.30	10,528.9	-94.4	-3,174.5	3,175.9	1.78	1.72	0.47
13,589.0	92.30	268.00	10,527.5	-97.5	-3,237.4	3,238.9	4.17	3.17	2.70
13,684.0	93.80	268.80	10,522.4	-100.2	-3,332.2	3,333.7	1.79	1.58	0.84
13,779.0	92.50	269.40	10,517.2	-101.7	-3,427.1	3,428.6	1.51	-1.37	0.63
13,874.0	91.70	269.30	10,513.7	-102.7	-3,522.0	3,523.5	0.85	-0.84	-0.11
13,969.0	92.30	270.20	10,510.4	-103.2	-3,617.0	3,618.4	1.14	0.63	0.95
14,064.0	92.90	270.00	10,506.1	-103.0	-3,711.9	3,713.3	0.67	0.63	-0.21
14,159.0	91.90	268.70	10,502.1	-104.1	-3,806.8	3,808.2	1.73	-1.05	-1.37
14,254.0	92.80	268.70	10,498.2	-106.2	-3,901.7	3,903.1	0.95	0.95	0.00
14,349.0	92.50	268.50	10,493.8	-108.5	-3,996.5	3,998.0	0.38	-0.32	-0.21
14,444.0	91.10	266.80	10,490.9	-112.4	-4,091.4	4,092.9	2.32	-1.47	-1.79
14,539.0	91.30	266.40	10,488.9	-118.1	-4,186.2	4,187.9	0.47	0.21	-0.42
14,634.0	91.50	266.30	10,486.5	-124.1	-4,281.0	4,282.8	0.24	0.21	-0.11
14,729.0	91.40	266.10	10,484.1	-130.4	-4,375.7	4,377.7	0.24	-0.11	-0.21
14,746.0	91.30	265.80	10,483.7	-131.6	-4,392.7	4,394.7	1.86	-0.59	-1.76

TD @ 14793' MD / 10483' TVD

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Chicken Dinner 36 State Com #1H
Project:	Eddy County, NM (NAD 27)	**TVD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Site:	Sec 36, T18S, R31E	**MD Reference:**	WELL @ 3696.0usft (Perscicion #105)
Well:	Chicken Dinner 36 State Com #1H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**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)
14,793.0	91.30	265.80	10,482.7	-135.0	-4,439.6	4,441.6	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
9,950.0	9,946.5	-36.5	-104.0	TIE IN @ 9950' MD / 9947' TVD
10,822.5	10,667.4	-47.1	-478.7	CROSSED HARD LINE @ 10823' MD / 10667' TVD
14,793.0	10,482.7	-135.0	-4,439.6	TD @ 14793' MD / 10483' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: COG Operating, LLC
Chicken Dinner 36 State Com #1H
Eddy County, NM (NAD 27)
Rig: Perscicion #105
Created By: Dina Chance
Date: 1/16/13

Chicken Dinner 36 State Com #1H
Eddy County, NM (NAD 27)
Q120966 & WT-12967
Design #3

CONCHO

PDC The DIRECTIONAL DRILLING COMPANY

PROJECT DETAILS:	Eddy County, NM (NAD 27)
Geodetic System:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	New Mexico East 3001
System Datum:	Mean Sea Level

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
9950.0	1.83	305.39	9946.5	-36.6	-104.0	105.0	212.1	TIE IN @ 9950' MD / 9947' TVD
10822.5	82.99	268.90	10667.4	-47.1	-478.7	479.9	594.5	CROSSED HARD LINE @ 10823' MD / 10667' TVD
14793.0	91.30	266.80	10482.7	-135.0	-4439.6	4441.6	4557.6	TD @ 14793' MD / 10483' TVD

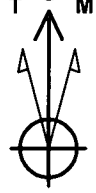
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL Chicken Dinner 36 State Com Design #0 - plan hits target center	480.0	-135.6	-4440.0	622043.56	655162.39	32° 42' 32.690 N	103° 49' 43.979 W

WELL DETAILS: Chicken Dinner 36 State Com #1H

Ground Level: 3670.0

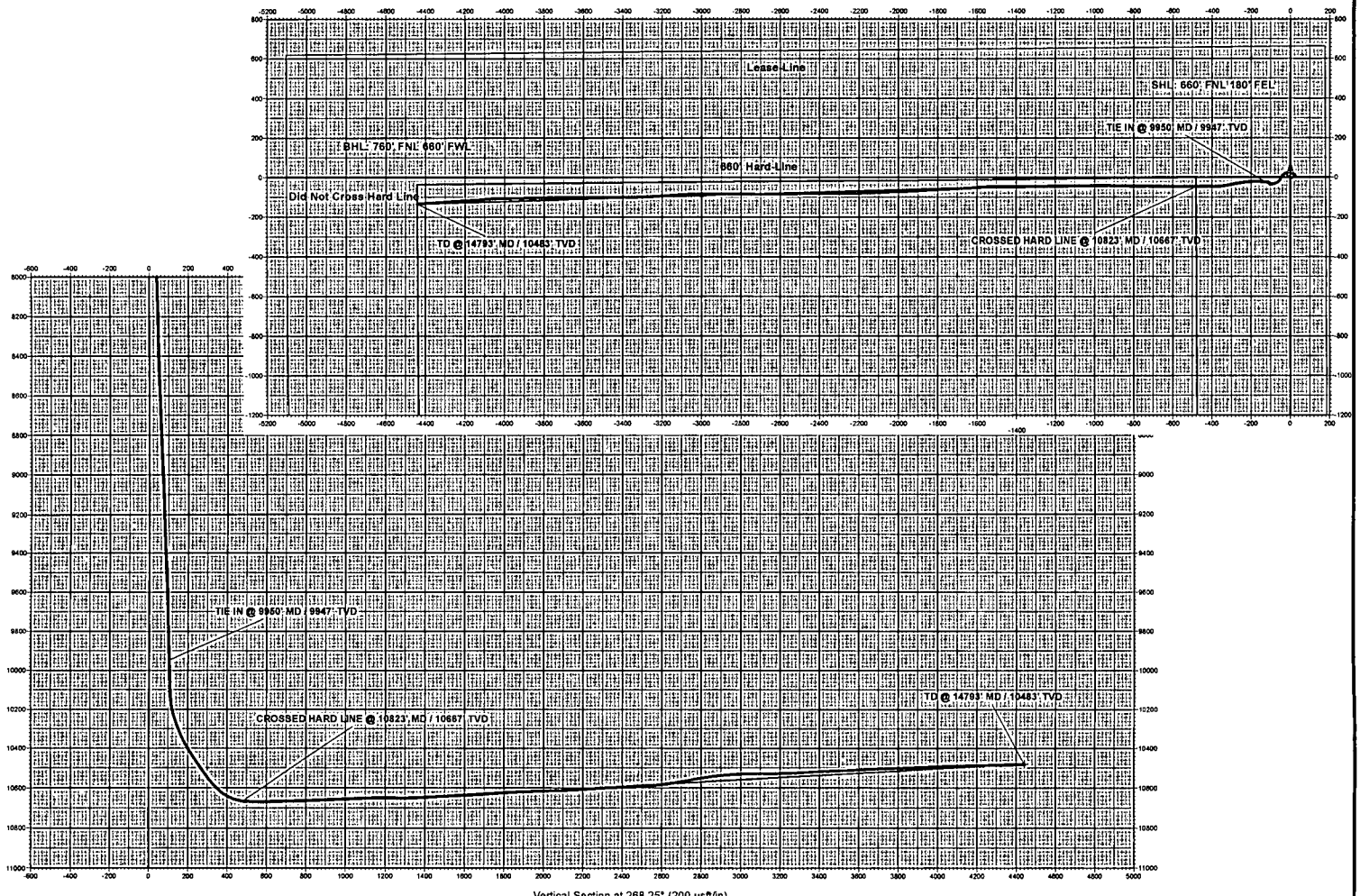
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	622179.00	659602.40	32° 42' 33.818 N	103° 48' 52.007 W



Azimuths to Grid North

Magnetic North: 7.27°

Magnetic Field
Strength: 48728.7snT
Dip Angle: 60.56°
Date: 12/19/2012
Model: IGRF2010



Vertical Section at 268.25° (200 usft/in)

Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705

A State #061 API# 30-015-40838
Eddy County, New Mexico 630' FNL & 330' FWL, UL: D 26-17S-28E

420	4.20	0.25	0.44	1.84	1.84
539	1.19	0.20	0.35	0.42	2.25
838	2.99	0.30	0.53	1.57	3.82
1051	2.13	0.80	1.40	2.98	6.81
1307	2.56	3.30	5.78	14.78	21.59
1567	2.60	3.40	5.95	15.47	37.06
1734	1.67	3.40	5.95	9.94	47.00
1990	2.56	3.50	6.13	15.68	62.68
2508	5.18	3.60	6.30	32.63	95.31
2972	4.64	3.80	6.65	30.86	126.17
3143	1.71	3.70	6.48	11.07	137.24
3570	4.27	3.20	5.60	23.91	161.15
3746	1.76	2.50	4.38	7.70	168.85
3997	2.51	3.40	5.95	14.93	183.79
4168	1.71	3.30	5.78	9.88	193.66
4339	1.71	3.40	5.95	10.17	203.83
4637	2.98	3.80	6.65	19.82	223.65
4841	2.04	4.30	7.53	15.35	239.00
5107	2.66	3.70	6.48	17.22	256.23
5278	1.71	3.40	5.95	10.17	266.40
5491	2.13	3.20	5.60	11.93	278.33
5710	2.19	2.90	5.08	11.11	289.44

Archie Brown - General Manager

The attached instrument was acknowledged before me on the 6th day of May, 2013 by Archie Brown - General Manager, CapStar Drilling, Inc.

Jacki Ann Zent
Notary Public

JACKI ANN ZENT
Notary Public, State of Texas
My Commission Expires
March 03, 2015

Apache

Apache Corporation

Eddy County, New Mexico (NAD 83)
Sec 26, T17S, R28E
A State #61 API# 30-015-40838

Wellbore #1

Survey: MWD

DDC Survey Report

16 May, 2013

DDC
The DIRECTIONAL DRILLING COMPANY

The DIRECTIONAL DRILLING COMPANY

Survey Certification Sheet

Apache Corporation	WT-13329	5/16/13
Company	Job Number	Date

Sec 26,T17S,R28E	A State #61	Eddy, NM
Lease	Well Name	County & State

API: 30-015-40838

Surveyed from a depth of: 500 feet to 5710 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Jason Briggs

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by **The Directional Drilling Company (DDC)**. This report represents a true and correct Directional survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Digitally signed by Larry Wright
DN: cn=Larry Wright, o=The Directional Drilling Company, ou=GM of Guidance Services, email=larryw@directionaldrillers.com, c=US
Date: 2013.05.21 10:05:06 -05'00'

Larry Wright
MWD General Manager

o 11390 FM 830 o Willis, Texas 77318 o
o PH 936-856-4332 o FAX 936-856-8678 o

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well A State #61
Project:	Eddy County, New Mexico (NAD 83)	**TVD Reference:**	WELL @ 3599.0usft (Capstar #118)
Site:	Sec 26, T17S, R28E	**MD Reference:**	WELL @ 3599.0usft (Capstar #118)
Well:	A State #61	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Project Eddy County, New Mexico (NAD 83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Sec 26, T17S, R28E

Site Position:		**Northing:**	658,870.37 usft	**Latitude:**	32° 48' 40.089 N
From:	Map	**Easting:**	596,341.82 usft	**Longitude:**	104° 9' 15.477 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.10 °

Well A State #61

Well Position	**+N/-S**	0.0 usft	**Northing:**	658,870.37 usft	**Latitude:**	32° 48' 40.089 N
	+E/-W	0.0 usft	**Easting:**	596,341.82 usft	**Longitude:**	104° 9' 15.477 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,588.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/17/2013	7.67	60.58	48,720

Design Wellbore #1

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	0.69

Survey Program **Date** 5/16/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
539.0	5,710.0	MWD (Wellbore #1)	MWD default	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)
500.0	0.30	12.75	500.0	3.2	2.0	3.2	0.00	0.00	0.00
TIE IN @ 500' MD / 500' TVD									
500.1	0.30	12.75	500.1	3.2	2.0	3.2	0.00	0.00	0.00
539.0	0.20	46.50	539.0	3.3	2.0	3.3	0.45	-0.26	86.76
667.0	0.40	347.20	667.0	3.9	2.1	3.9	0.27	0.16	-46.33
838.0	0.20	318.60	838.0	4.7	1.8	4.7	0.14	-0.12	-16.73
965.0	0.40	301.70	965.0	5.1	1.3	5.1	0.17	0.16	-13.31
1,051.0	0.80	328.80	1,051.0	5.8	0.7	5.8	0.56	0.47	31.51
1,136.0	2.00	10.70	1,135.9	7.7	0.7	7.8	1.77	1.41	49.29
1,221.0	3.50	0.80	1,220.8	11.8	1.0	11.8	1.84	1.76	-11.65
1,307.0	3.30	358.90	1,306.7	16.9	1.0	16.9	0.27	-0.23	-2.21

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well A State #61
Project:	Eddy County, New Mexico (NAD 83)	**TVD Reference:**	WELL @ 3599.0usft (Capstar #118)
Site:	Sec 26, T17S, R28E	**MD Reference:**	WELL @ 3599.0usft (Capstar #118)
Well:	A State #61	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,392.0	2.80	354.80	1,391.6	21.4	0.7	21.4	0.64	-0.59	-4.82
1,478.0	3.70	359.10	1,477.4	26.3	0.5	26.3	1.08	1.05	5.00
1,563.0	3.40	356.40	1,562.3	31.5	0.3	31.5	0.40	-0.35	-3.18
1,649.0	3.60	7.60	1,648.1	36.8	0.5	36.8	0.83	0.23	13.02
1,734.0	3.40	4.90	1,733.0	41.9	1.0	41.9	0.30	-0.24	-3.18
1,819.0	3.60	2.90	1,817.8	47.1	1.4	47.1	0.28	0.24	-2.35
1,905.0	3.60	0.90	1,903.6	52.5	1.6	52.5	0.15	0.00	-2.33
1,990.0	3.50	0.70	1,988.5	57.8	1.7	57.8	0.12	-0.12	-0.24
2,118.0	3.40	358.70	2,116.2	65.5	1.6	65.5	0.12	-0.08	-1.56
2,204.0	4.80	2.60	2,202.0	71.6	1.7	71.6	1.66	1.63	4.53
2,289.0	4.90	3.20	2,286.7	78.8	2.1	78.8	0.13	0.12	0.71
2,374.0	4.00	4.20	2,371.4	85.4	2.5	85.4	1.06	-1.06	1.18
2,460.0	4.20	8.70	2,457.2	91.5	3.2	91.5	0.44	0.23	5.23
2,545.0	3.50	4.10	2,542.0	97.1	3.9	97.2	0.90	-0.82	-5.41
2,630.0	3.40	356.70	2,626.9	102.2	3.9	102.3	0.54	-0.12	-8.71
2,716.0	3.50	0.20	2,712.7	107.4	3.8	107.4	0.27	0.12	4.07
2,801.0	3.50	0.40	2,797.6	112.6	3.8	112.6	0.01	0.00	0.24
2,887.0	3.20	2.70	2,883.4	117.6	3.9	117.6	0.38	-0.35	2.67
2,972.0	3.80	3.30	2,968.3	122.8	4.2	122.8	0.71	0.71	0.71
3,058.0	3.80	0.30	3,054.1	128.5	4.4	128.5	0.23	0.00	-3.49
3,143.0	3.70	2.20	3,138.9	134.0	4.5	134.1	0.19	-0.12	2.24
3,228.0	2.90	3.40	3,223.7	138.9	4.7	139.0	0.94	-0.94	1.41
3,314.0	3.00	2.90	3,309.6	143.4	5.0	143.4	0.12	0.12	-0.58
3,399.0	3.00	6.60	3,394.5	147.8	5.3	147.8	0.23	0.00	4.35
3,484.0	2.90	3.00	3,479.4	152.1	5.7	152.2	0.25	-0.12	-4.24
3,570.0	3.20	8.00	3,565.3	156.7	6.1	156.8	0.47	0.35	5.81
3,655.0	3.20	357.40	3,650.2	161.4	6.4	161.5	0.70	0.00	-12.47
3,741.0	2.50	3.80	3,736.0	165.7	6.4	165.7	0.89	-0.81	7.44
3,826.0	3.40	5.80	3,820.9	170.0	6.8	170.1	1.07	1.06	2.35
3,911.0	3.60	9.30	3,905.8	175.2	7.5	175.3	0.34	0.24	4.12
3,997.0	3.40	6.00	3,991.6	180.4	8.2	180.5	0.33	-0.23	-3.84
4,082.0	3.50	4.90	4,076.5	185.5	8.6	185.6	0.14	0.12	-1.29
4,168.0	3.30	9.40	4,162.3	190.5	9.3	190.6	0.39	-0.23	5.23
4,253.0	3.30	349.70	4,247.2	195.3	9.2	195.4	1.33	0.00	-23.18
4,339.0	3.40	5.50	4,333.0	200.3	9.0	200.4	1.08	0.12	18.37
4,424.0	3.30	9.90	4,417.9	205.2	9.7	205.3	0.32	-0.12	5.18
4,509.0	4.10	356.20	4,502.7	210.7	9.9	210.8	1.40	0.94	-16.12
4,595.0	3.80	1.20	4,588.5	216.6	9.8	216.7	0.53	-0.35	5.81
4,680.0	3.60	0.01	4,673.3	222.1	9.8	222.2	0.25	-0.24	-1.41
4,765.0	3.50	3.00	4,758.2	227.3	10.0	227.4	0.25	-0.12	3.52
4,841.0	4.30	4.20	4,834.0	232.5	10.3	232.6	1.06	1.05	1.58
4,936.0	4.00	2.90	4,928.7	239.4	10.7	239.5	0.33	-0.32	-1.37
5,022.0	4.00	7.90	5,014.5	245.3	11.3	245.4	0.41	0.00	5.81

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well A State #61
Project:	Eddy County, New Mexico (NAD 83)	**TVD Reference:**	WELL @ 3599.0usft (Capstar #118)
Site:	Sec 26, T17S, R28E	**MD Reference:**	WELL @ 3599.0usft (Capstar #118)
Well:	A State #61	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,107.0	3.60	9.20	5,099.3	250.9	12.1	251.0	0.48	-0.47	1.53
5,192.0	3.60	359.10	5,184.2	256.2	12.5	256.3	0.75	0.00	-11.88
5,278.0	3.40	354.60	5,270.0	261.4	12.2	261.6	0.39	-0.23	-5.23
5,363.0	3.40	5.60	5,354.9	266.5	12.2	266.6	0.77	0.00	12.94
5,449.0	3.20	3.90	5,440.7	271.4	12.6	271.5	0.26	-0.23	-1.98
5,534.0	3.00	3.20	5,525.6	276.0	12.9	276.1	0.24	-0.24	-0.82
5,662.0	2.90	9.90	5,653.4	282.5	13.7	282.7	0.28	-0.08	5.23
TD @ 5710' MD / 5701' TVD									
5,710.0	2.90	9.90	5,701.4	284.9	14.1	285.1	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.1	500.1	3.2	2.0	TIE IN @ 500' MD / 500' TVD
5,710.0	5,701.4	284.9	14.1	TD @ 5710' MD / 5701' TVD

Checked By: _____ Approved By: _____ Date: _____