



Company: COG Operating, LLC (Concho)
Lease/Well: Bultaco State No. 002H/
Location: S36 T22s R31e
Rig Name: McVay 7
State/County: New Mexico/Eddy
Latitude: 32.34, Longitude: -103.73
GRID North is 0.32 Degrees East of True North
VS-Azi: 0.00 Degrees



RKB : 17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: bultaco state #2h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 11/5/2013 / 14:00

Vaughn Energy Services

Gardendale, TX 79758

(432) 563-5444

Surveyor: Dustin Wedel

Bultaco State No. 002H / API 30-015-41298

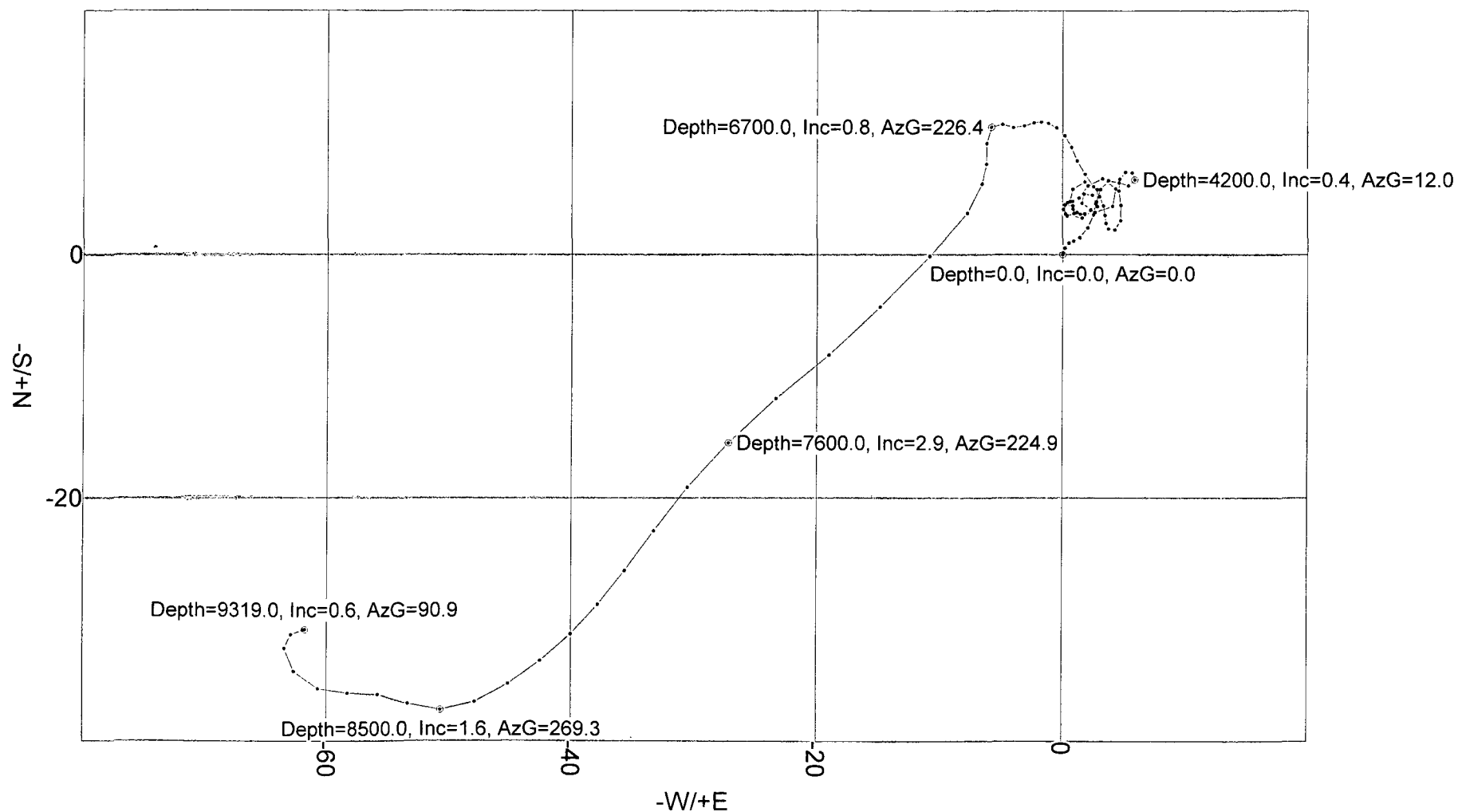
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.17	10.88	100.00	0.14	0.03	0.14	10.88	0.17
200.00	0.33	25.77	200.00	0.54	0.18	0.57	18.33	0.18
300.00	0.27	53.08	300.00	0.95	0.50	1.07	27.66	0.15
400.00	0.22	80.40	400.00	1.12	0.87	1.42	37.89	0.13
500.00	0.48	54.70	499.99	1.39	1.40	1.98	45.11	0.30
600.00	0.74	29.01	599.99	2.20	2.06	3.01	43.01	0.37
700.00	0.61	16.62	699.98	3.28	2.52	4.14	37.55	0.20
800.00	0.48	4.22	799.98	4.21	2.71	5.01	32.73	0.18
900.00	0.47	309.49	899.97	4.89	2.42	5.46	26.38	0.43
1000.00	0.45	246.75	999.97	4.99	1.75	5.29	19.30	0.48
1100.00	0.74	162.84	1099.97	4.22	1.58	4.51	20.46	0.82
1200.00	1.02	98.94	1199.96	3.47	2.64	4.36	37.29	0.96
1300.00	0.98	39.97	1299.95	3.99	4.07	5.70	45.59	0.98
1400.00	0.94	339.00	1399.93	5.41	4.33	6.93	38.65	0.97
1500.00	0.91	274.28	1499.92	6.23	3.24	7.03	27.49	0.99
1600.00	0.87	211.57	1599.91	5.64	2.06	6.01	20.02	0.93
1700.00	0.54	224.76	1699.91	4.66	1.33	4.85	15.90	0.37
1800.00	0.20	285.96	1799.90	4.38	0.83	4.46	10.71	0.47

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	0.34	238.38	1899.90	4.27	0.41	4.29	5.46	0.25
2000.00	0.47	190.79	1999.90	3.72	0.08	3.72	1.27	0.35
2100.00	0.46	109.89	2099.90	3.18	0.38	3.20	6.82	0.60
2200.00	0.44	28.99	2199.90	3.38	0.94	3.51	15.56	0.58
2300.00	0.47	314.85	2299.89	4.01	0.84	4.10	11.86	0.55
2400.00	0.49	240.72	2399.89	4.09	0.18	4.09	2.56	0.57
2500.00	0.78	140.31	2499.89	3.36	0.25	3.36	4.19	0.99
2600.00	1.07	78.90	2599.88	3.01	1.60	3.41	27.92	0.98
2700.00	0.95	23.09	2699.86	3.95	2.84	4.86	35.67	0.95
2800.00	0.82	332.29	2799.85	5.35	2.83	6.05	27.87	0.77
2900.00	0.78	269.38	2899.84	5.97	1.81	6.24	16.85	0.84
3000.00	0.74	206.47	2999.84	5.39	0.84	5.45	8.83	0.80
3100.00	0.51	171.21	3099.83	4.36	0.62	4.40	8.04	0.44
3200.00	0.28	135.96	3199.83	3.74	0.86	3.84	12.92	0.33
3300.00	0.21	121.81	3299.83	3.46	1.19	3.66	18.92	0.10
3400.00	0.14	107.66	3399.83	3.33	1.46	3.63	23.66	0.08
3500.00	0.27	75.86	3499.83	3.35	1.80	3.81	28.31	0.17
3600.00	0.41	44.06	3599.83	3.66	2.28	4.32	31.93	0.23
3700.00	0.55	27.42	3699.82	4.34	2.75	5.14	32.35	0.19
3800.00	0.68	10.79	3799.82	5.35	3.08	6.18	29.93	0.22
3900.00	0.63	73.38	3899.81	6.10	3.72	7.14	31.39	0.68
4000.00	0.57	135.98	3999.81	5.89	4.59	7.47	37.93	0.63
4100.00	0.50	73.99	4099.80	5.66	5.36	7.79	43.48	0.56
4200.00	0.43	12.00	4199.80	6.15	5.86	8.50	43.64	0.49
4300.00	0.40	305.92	4299.80	6.72	5.66	8.79	40.09	0.46
4400.00	0.36	239.84	4399.80	6.77	5.10	8.48	37.01	0.42
4500.00	0.51	203.86	4499.79	6.20	4.65	7.75	36.85	0.30
4600.00	0.65	167.87	4599.79	5.24	4.59	6.96	41.21	0.38
4700.00	0.70	176.49	4699.78	4.07	4.75	6.25	49.39	0.11
4800.00	0.76	185.11	4799.77	2.80	4.72	5.49	59.36	0.12
4900.00	0.49	256.65	4899.77	2.04	4.25	4.71	64.31	0.76
5000.00	0.23	328.18	4999.77	2.12	3.72	4.28	60.36	0.48
5100.00	0.34	343.62	5099.77	2.57	3.53	4.37	53.91	0.13
5200.00	0.44	359.07	5199.76	3.24	3.44	4.73	46.70	0.15
5300.00	0.46	343.83	5299.76	4.01	3.32	5.21	39.60	0.12
5400.00	0.48	332.60	5399.76	4.77	3.02	5.65	32.28	0.09
5500.00	0.62	326.55	5499.75	5.60	2.52	6.14	24.24	0.15
5600.00	0.77	324.50	5599.75	6.60	1.83	6.85	15.53	0.14
5700.00	0.71	335.49	5699.74	7.71	1.19	7.80	8.76	0.15

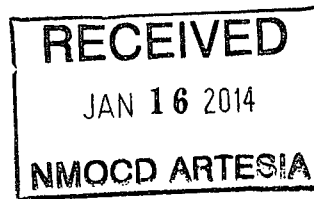
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.66	338.47	5799.73	8.81	0.72	8.84	4.66	0.06
5900.00	0.58	322.12	5899.72	9.75	0.19	9.75	1.14	0.19
6000.00	0.51	305.77	5999.72	10.41	-0.48	10.42	357.38	0.17
6100.00	0.39	287.82	6099.72	10.77	-1.16	10.84	353.85	0.18
6200.00	0.28	269.88	6199.71	10.88	-1.73	11.01	350.96	0.15
6300.00	0.40	258.73	6299.71	10.81	-2.32	11.05	347.89	0.14
6400.00	0.53	247.58	6399.71	10.56	-3.09	11.01	343.69	0.15
6500.00	0.54	273.79	6499.71	10.42	-3.99	11.15	339.06	0.24
6600.00	0.55	299.99	6599.70	10.69	-4.87	11.74	335.52	0.25
6700.00	0.77	226.40	6699.70	10.46	-5.76	11.94	331.15	0.81
6800.00	0.99	172.80	6799.69	9.14	-6.14	11.01	326.10	0.82
6900.00	0.97	189.21	6899.67	7.45	-6.17	9.67	320.36	0.28
7000.00	0.95	195.61	6999.66	5.81	-6.53	8.74	311.70	0.11
7100.00	2.14	211.29	7099.62	3.42	-7.72	8.44	293.93	1.25
7200.00	3.33	226.98	7199.51	-0.15	-10.81	10.81	269.22	1.39
7300.00	3.32	221.41	7299.34	-4.30	-14.84	15.45	253.85	0.32
7400.00	3.31	231.83	7399.17	-8.25	-19.02	20.73	246.55	0.60
7500.00	3.13	228.35	7499.01	-11.85	-23.33	26.16	243.08	0.27
7600.00	2.94	224.86	7598.87	-15.48	-27.18	31.27	240.34	0.26
7700.00	2.71	219.88	7698.75	-19.11	-30.50	35.99	237.93	0.34
7800.00	2.47	214.89	7798.65	-22.69	-33.25	40.26	235.69	0.33
7900.00	2.18	217.09	7898.57	-25.98	-35.63	44.10	233.90	0.31
8000.00	1.88	219.28	7998.50	-28.77	-37.82	47.52	232.74	0.30
8100.00	1.89	225.20	8098.45	-31.20	-40.03	50.76	232.06	0.19
8200.00	1.89	231.11	8198.40	-33.40	-42.48	54.04	231.83	0.20
8300.00	1.82	237.80	8298.34	-35.28	-45.11	57.27	231.97	0.23
8400.00	1.74	244.49	8398.30	-36.78	-47.83	60.34	232.44	0.22
8500.00	1.63	269.26	8498.25	-37.46	-50.62	62.97	233.50	0.73
8600.00	1.52	294.03	8598.22	-36.94	-53.25	64.81	235.25	0.68
8700.00	1.49	279.87	8698.18	-36.18	-55.73	66.44	237.01	0.37
8800.00	1.45	265.70	8798.15	-36.05	-58.28	68.52	238.26	0.36
8900.00	1.45	290.88	8898.12	-35.69	-60.73	70.44	239.56	0.63
9000.00	1.45	320.06	8998.09	-34.27	-62.73	71.48	241.35	0.73
9100.00	1.05	1.59	9098.07	-32.38	-63.51	71.29	242.98	0.96
9200.00	0.64	67.12	9198.06	-31.25	-62.97	70.30	243.61	0.97
9300.00	0.57	69.29	9298.05	-30.86	-61.99	69.25	243.54	0.07
9319.00	0.55	90.93	9317.05	-30.83	-61.81	69.08	243.49	1.11



Vaughn Energy Services
Gardendale, TX 79758
(432) 563-5444
Surveyor: Dustin Wedel
Bultaco State No. 002H / API 30-015-41298



VES Survey Date: 10/24/2013



COG Production LLC

Eddy County, NM(NAD 27 NME)

Bultaco 36 State

#2H

OH

Plan: Post Gyro

Survey Report - Geographic

05 November, 2013





Nexus Directional Solutions L.P.
Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Site Bultaco 36 State
Project:	Eddy County, NM(NAD 27 NME)	TVD Reference:	WELL @ 3501.9usft (Original Well Elev)
Site:	Bultaco 36 State	MD Reference:	WELL @ 3501.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Post Gyro	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM(NAD 27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Bultaco 36 State		
Site Position:		Northing:	488,339.10 usft
From:	Map	Easting:	686,352.70 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 20' 28.021 N
		Longitude:	103° 43' 47.804 W
		Grid Convergence:	0.32 °

Well	#2H		
Well Position	+N/-S	0.0 usft	Northing: 488,339.10 usft
	+E/-W	0.0 usft	Easting: 686,352.70 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Ground Level:	3,475.9 usft
		Latitude:	32° 20' 28.021 N
		Longitude:	103° 43' 47.804 W

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	10/09/13	7.38
			Dip Angle
			(°)
			60.21
			Field Strength
			(nT)
			48,437

Design	Post Gyro		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 9,319.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			0.57

Survey Tool Program	Date 10/25/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	9,319.0	Gyro Survey (OH)	MWD
9,319.0	14,690.6	Post Gyro (OH)	MWD - Standard

Planned Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting		
(usft)			(usft)			(usft)	(usft)		
0.0	0.00	0.00	0.0	0.0	0.0	488,339.10	686,352.70	32° 20' 28.021 N	103° 43' 47.804 W
100.0	0.17	10.88	100.0	0.1	0.0	488,339.25	686,352.72	32° 20' 28.022 N	103° 43' 47.804 W
200.0	0.33	25.77	200.0	0.6	0.2	488,339.65	686,352.88	32° 20' 28.026 N	103° 43' 47.802 W
300.0	0.27	53.08	300.0	1.0	0.5	488,340.05	686,353.19	32° 20' 28.030 N	103° 43' 47.798 W
400.0	0.22	80.40	400.0	1.1	0.9	488,340.23	686,353.57	32° 20' 28.032 N	103° 43' 47.794 W
500.0	0.48	54.70	500.0	1.4	1.4	488,340.50	686,354.10	32° 20' 28.035 N	103° 43' 47.788 W
600.0	0.74	29.01	600.0	2.2	2.1	488,341.31	686,354.75	32° 20' 28.043 N	103° 43' 47.780 W
700.0	0.61	16.62	700.0	3.3	2.5	488,342.38	686,355.22	32° 20' 28.053 N	103° 43' 47.774 W
800.0	0.48	4.22	800.0	4.2	2.7	488,343.31	686,355.40	32° 20' 28.062 N	103° 43' 47.772 W
900.0	0.47	309.49	900.0	4.9	2.4	488,343.99	686,355.12	32° 20' 28.069 N	103° 43' 47.776 W
1,000.0	0.45	246.75	1,000.0	5.0	1.7	488,344.09	686,354.44	32° 20' 28.070 N	103° 43' 47.783 W



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Site Bultaco 36 State
Project:	Eddy County, NM(NAD 27 NME)	TVD Reference:	WELL @ 3501.9usft (Original Well Elev)
Site:	Bultaco 36 State	MD Reference:	WELL @ 3501.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Post Gyro	Database:	EDM 5000.1 Single User Db

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,100.0	0.74	162.84	1,100.0	4.2	1.6	488,343.32	686,354.27	32° 20' 28.063 N	103° 43' 47.785 W
1,200.0	1.02	98.94	1,200.0	3.5	2.6	488,342.57	686,355.34	32° 20' 28.055 N	103° 43' 47.773 W
1,300.0	0.98	39.97	1,299.9	4.0	4.1	488,343.08	686,356.77	32° 20' 28.060 N	103° 43' 47.756 W
1,400.0	0.94	339.00	1,399.9	5.4	4.3	488,344.50	686,357.02	32° 20' 28.074 N	103° 43' 47.753 W
1,500.0	0.91	274.28	1,499.9	6.2	3.2	488,345.33	686,355.94	32° 20' 28.082 N	103° 43' 47.766 W
1,600.0	0.87	211.57	1,599.9	5.6	2.1	488,344.74	686,354.75	32° 20' 28.077 N	103° 43' 47.780 W
1,700.0	0.54	224.76	1,699.9	4.7	1.3	488,343.76	686,354.02	32° 20' 28.067 N	103° 43' 47.788 W
1,800.0	0.20	285.96	1,799.9	4.4	0.8	488,343.47	686,353.52	32° 20' 28.064 N	103° 43' 47.794 W
1,900.0	0.34	238.38	1,899.9	4.3	0.4	488,343.37	686,353.10	32° 20' 28.063 N	103° 43' 47.799 W
2,000.0	0.47	190.79	1,999.9	3.7	0.1	488,342.81	686,352.77	32° 20' 28.058 N	103° 43' 47.803 W
2,100.0	0.46	109.89	2,099.9	3.2	0.4	488,342.27	686,353.07	32° 20' 28.052 N	103° 43' 47.800 W
2,200.0	0.44	28.99	2,199.9	3.4	0.9	488,342.47	686,353.63	32° 20' 28.054 N	103° 43' 47.793 W
2,300.0	0.47	314.85	2,299.9	4.0	0.8	488,343.09	686,353.53	32° 20' 28.060 N	103° 43' 47.794 W
2,400.0	0.49	240.72	2,399.9	4.1	0.2	488,343.17	686,352.86	32° 20' 28.061 N	103° 43' 47.802 W
2,500.0	0.78	140.31	2,499.9	3.3	0.2	488,342.44	686,352.93	32° 20' 28.054 N	103° 43' 47.801 W
2,600.0	1.07	78.90	2,599.9	3.0	1.6	488,342.10	686,354.28	32° 20' 28.050 N	103° 43' 47.785 W
2,700.0	0.95	23.09	2,699.9	3.9	2.8	488,343.04	686,355.52	32° 20' 28.060 N	103° 43' 47.771 W
2,800.0	0.82	332.29	2,799.9	5.3	2.8	488,344.43	686,355.51	32° 20' 28.074 N	103° 43' 47.771 W
2,900.0	0.78	269.38	2,899.8	6.0	1.8	488,345.06	686,354.50	32° 20' 28.080 N	103° 43' 47.783 W
3,000.0	0.74	206.47	2,999.8	5.4	0.8	488,344.48	686,353.53	32° 20' 28.074 N	103° 43' 47.794 W
3,100.0	0.51	171.21	3,099.8	4.4	0.6	488,343.46	686,353.31	32° 20' 28.064 N	103° 43' 47.797 W
3,200.0	0.28	135.96	3,199.8	3.7	0.9	488,342.84	686,353.55	32° 20' 28.058 N	103° 43' 47.794 W
3,300.0	0.21	121.81	3,299.8	3.5	1.2	488,342.57	686,353.87	32° 20' 28.055 N	103° 43' 47.790 W
3,400.0	0.14	107.66	3,399.8	3.3	1.4	488,342.44	686,354.15	32° 20' 28.054 N	103° 43' 47.787 W
3,500.0	0.27	75.86	3,499.8	3.4	1.8	488,342.46	686,354.49	32° 20' 28.054 N	103° 43' 47.783 W
3,600.0	0.41	44.06	3,599.8	3.7	2.3	488,342.77	686,354.97	32° 20' 28.057 N	103° 43' 47.777 W
3,700.0	0.55	27.42	3,699.8	4.4	2.7	488,343.45	686,355.44	32° 20' 28.064 N	103° 43' 47.772 W
3,800.0	0.68	10.79	3,799.8	5.4	3.1	488,344.46	686,355.77	32° 20' 28.074 N	103° 43' 47.768 W
3,900.0	0.63	73.38	3,899.8	6.1	3.7	488,345.20	686,356.41	32° 20' 28.081 N	103° 43' 47.760 W
4,000.0	0.57	135.98	3,999.8	5.9	4.6	488,345.00	686,357.28	32° 20' 28.079 N	103° 43' 47.750 W
4,100.0	0.50	73.99	4,099.8	5.7	5.3	488,344.77	686,358.04	32° 20' 28.077 N	103° 43' 47.741 W
4,200.0	0.43	12.00	4,199.8	6.2	5.8	488,345.25	686,358.54	32° 20' 28.081 N	103° 43' 47.736 W
4,300.0	0.40	305.92	4,299.8	6.7	5.6	488,345.83	686,358.34	32° 20' 28.087 N	103° 43' 47.738 W
4,400.0	0.36	239.84	4,399.8	6.8	5.1	488,345.87	686,357.78	32° 20' 28.088 N	103° 43' 47.744 W
4,500.0	0.51	203.86	4,499.8	6.2	4.6	488,345.31	686,357.33	32° 20' 28.082 N	103° 43' 47.750 W
4,600.0	0.65	167.87	4,599.8	5.2	4.6	488,344.35	686,357.27	32° 20' 28.073 N	103° 43' 47.750 W
4,700.0	0.70	176.49	4,699.8	4.1	4.7	488,343.18	686,357.43	32° 20' 28.061 N	103° 43' 47.749 W
4,800.0	0.76	185.11	4,799.8	2.8	4.7	488,341.91	686,357.41	32° 20' 28.048 N	103° 43' 47.749 W
4,900.0	0.49	256.65	4,899.8	2.1	4.2	488,341.15	686,356.93	32° 20' 28.041 N	103° 43' 47.755 W
5,000.0	0.23	328.18	4,999.8	2.1	3.7	488,341.22	686,356.41	32° 20' 28.042 N	103° 43' 47.761 W
5,100.0	0.34	343.62	5,099.8	2.6	3.5	488,341.68	686,356.22	32° 20' 28.046 N	103° 43' 47.763 W
5,200.0	0.44	359.07	5,199.8	3.2	3.4	488,342.35	686,356.13	32° 20' 28.053 N	103° 43' 47.764 W
5,300.0	0.46	343.83	5,299.8	4.0	3.3	488,343.12	686,356.01	32° 20' 28.060 N	103° 43' 47.765 W
5,400.0	0.48	332.60	5,399.8	4.8	3.0	488,343.87	686,355.71	32° 20' 28.068 N	103° 43' 47.769 W
5,500.0	0.62	326.55	5,499.8	5.6	2.5	488,344.70	686,355.22	32° 20' 28.076 N	103° 43' 47.774 W
5,600.0	0.77	324.50	5,599.7	6.6	1.8	488,345.70	686,354.53	32° 20' 28.086 N	103° 43' 47.782 W
5,700.0	0.71	335.49	5,699.7	7.7	1.2	488,346.81	686,353.88	32° 20' 28.097 N	103° 43' 47.790 W
5,800.0	0.66	338.47	5,799.7	8.8	0.7	488,347.91	686,353.41	32° 20' 28.108 N	103° 43' 47.795 W
5,900.0	0.58	322.12	5,899.7	9.7	0.2	488,348.84	686,352.89	32° 20' 28.117 N	103° 43' 47.801 W
6,000.0	0.51	305.77	5,999.7	10.4	-0.5	488,349.50	686,352.22	32° 20' 28.124 N	103° 43' 47.809 W
6,100.0	0.39	287.82	6,099.7	10.8	-1.2	488,349.87	686,351.53	32° 20' 28.127 N	103° 43' 47.817 W
6,200.0	0.28	269.88	6,199.7	10.9	-1.7	488,349.97	686,350.96	32° 20' 28.129 N	103° 43' 47.824 W
6,300.0	0.40	258.73	6,299.7	10.8	-2.3	488,349.90	686,350.38	32° 20' 28.128 N	103° 43' 47.830 W
6,400.0	0.53	247.58	6,399.7	10.6	-3.1	488,349.66	686,349.61	32° 20' 28.126 N	103° 43' 47.839 W
6,500.0	0.54	273.79	6,499.7	10.4	-4.0	488,349.51	686,348.71	32° 20' 28.124 N	103° 43' 47.850 W



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Site Bultaco 36 State
Project:	Eddy County, NM(NAD 27 NME)	TVD Reference:	WELL @ 3501.9usft (Original Well Elev)
Site:	Bultaco 36 State	MD Reference:	WELL @ 3501.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Post Gyro	Database:	EDM 5000.1 Single User Db

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,600.0	0.55	299.99	6,599.7	10.7	-4.9	488,349.78	686,347.82	32° 20' 28.127 N	103° 43' 47.860 W
6,700.0	0.77	226.40	6,699.7	10.5	-5.8	488,349.56	686,346.92	32° 20' 28.125 N	103° 43' 47.871 W
6,800.0	0.99	172.80	6,799.7	9.1	-6.2	488,348.24	686,346.54	32° 20' 28.112 N	103° 43' 47.875 W
6,900.0	0.97	189.21	6,899.7	7.4	-6.2	488,346.55	686,346.52	32° 20' 28.095 N	103° 43' 47.876 W
7,000.0	0.95	195.61	6,999.7	5.8	-6.5	488,344.91	686,346.16	32° 20' 28.079 N	103° 43' 47.880 W
7,100.0	2.14	211.29	7,099.6	3.4	-7.7	488,342.52	686,344.96	32° 20' 28.055 N	103° 43' 47.894 W
7,200.0	3.33	226.98	7,199.5	-0.2	-10.8	488,338.94	686,341.87	32° 20' 28.020 N	103° 43' 47.930 W
7,300.0	3.32	221.41	7,299.3	-4.3	-14.9	488,334.79	686,337.83	32° 20' 27.979 N	103° 43' 47.978 W
7,400.0	3.31	231.83	7,399.2	-8.3	-19.0	488,330.83	686,333.65	32° 20' 27.940 N	103° 43' 48.027 W
7,500.0	3.13	228.35	7,499.0	-11.9	-23.4	488,327.23	686,329.34	32° 20' 27.905 N	103° 43' 48.077 W
7,600.0	2.94	224.86	7,598.9	-15.5	-27.2	488,323.60	686,325.49	32° 20' 27.869 N	103° 43' 48.122 W
7,700.0	2.71	219.88	7,698.8	-19.1	-30.5	488,319.97	686,322.16	32° 20' 27.833 N	103° 43' 48.161 W
7,800.0	2.47	214.89	7,798.6	-22.7	-33.3	488,316.39	686,319.42	32° 20' 27.798 N	103° 43' 48.193 W
7,900.0	2.18	217.09	7,898.6	-26.0	-35.7	488,313.10	686,317.04	32° 20' 27.766 N	103° 43' 48.221 W
8,000.0	1.88	219.28	7,998.5	-28.8	-37.8	488,310.32	686,314.85	32° 20' 27.738 N	103° 43' 48.247 W
8,100.0	1.89	225.20	8,098.4	-31.2	-40.1	488,307.88	686,312.64	32° 20' 27.714 N	103° 43' 48.273 W
8,200.0	1.89	231.11	8,198.4	-33.4	-42.5	488,305.69	686,310.19	32° 20' 27.693 N	103° 43' 48.302 W
8,300.0	1.82	237.80	8,298.3	-35.3	-45.1	488,303.80	686,307.56	32° 20' 27.674 N	103° 43' 48.332 W
8,400.0	1.74	244.49	8,398.3	-36.8	-47.8	488,302.30	686,304.85	32° 20' 27.659 N	103° 43' 48.364 W
8,500.0	1.63	269.26	8,498.3	-37.5	-50.6	488,301.63	686,302.06	32° 20' 27.653 N	103° 43' 48.397 W
8,600.0	1.52	294.03	8,598.2	-36.9	-53.3	488,302.15	686,299.42	32° 20' 27.658 N	103° 43' 48.427 W
8,700.0	1.49	279.87	8,698.2	-36.2	-55.8	488,302.92	686,296.93	32° 20' 27.666 N	103° 43' 48.456 W
8,800.0	1.45	265.70	8,798.1	-36.1	-58.3	488,303.05	686,294.39	32° 20' 27.667 N	103° 43' 48.486 W
8,900.0	1.45	290.88	8,898.1	-35.7	-60.8	488,303.40	686,291.94	32° 20' 27.671 N	103° 43' 48.515 W
9,000.0	1.45	320.06	8,998.1	-34.3	-62.7	488,304.82	686,289.95	32° 20' 27.685 N	103° 43' 48.538 W
9,100.0	1.05	1.59	9,098.1	-32.4	-63.5	488,306.71	686,289.16	32° 20' 27.704 N	103° 43' 48.547 W
9,200.0	0.64	67.12	9,198.1	-31.3	-63.0	488,307.84	686,289.70	32° 20' 27.715 N	103° 43' 48.540 W
9,300.0	0.57	69.29	9,298.1	-30.9	-62.0	488,308.23	686,290.68	32° 20' 27.719 N	103° 43' 48.529 W
9,319.0	0.55	90.93	9,317.1	-30.8	-61.8	488,308.27	686,290.86	32° 20' 27.719 N	103° 43' 48.527 W
Start Drop -2.00									
9,346.5	0.00	0.00	9,344.6	-30.8	-61.7	488,308.26	686,290.99	32° 20' 27.719 N	103° 43' 48.525 W
Start Build 12.00									
9,364.0	0.70	90.90	9,362.0	-30.8	-61.6	488,308.26	686,291.10	32° 20' 27.719 N	103° 43' 48.524 W
9,396.0	2.80	1.80	9,394.0	-30.1	-61.4	488,309.04	686,291.32	32° 20' 27.727 N	103° 43' 48.521 W
9,400.0	3.05	2.74	9,398.0	-29.9	-61.4	488,309.24	686,291.33	32° 20' 27.729 N	103° 43' 48.521 W
9,410.3	3.69	4.58	9,408.3	-29.3	-61.3	488,309.85	686,291.37	32° 20' 27.735 N	103° 43' 48.521 W
Start DLS 7.31 TFO -114.59									
9,428.0	4.80	6.60	9,426.0	-27.9	-61.2	488,311.15	686,291.50	32° 20' 27.748 N	103° 43' 48.519 W
9,450.0	6.79	6.21	9,447.9	-25.7	-61.0	488,313.36	686,291.75	32° 20' 27.770 N	103° 43' 48.516 W
9,460.0	7.70	6.10	9,457.8	-24.5	-60.8	488,314.61	686,291.88	32° 20' 27.782 N	103° 43' 48.515 W
9,491.0	10.10	6.80	9,488.4	-19.7	-60.3	488,319.38	686,292.42	32° 20' 27.829 N	103° 43' 48.508 W
9,500.0	10.81	10.53	9,497.2	-18.1	-60.0	488,320.99	686,292.67	32° 20' 27.845 N	103° 43' 48.505 W
9,523.0	12.80	18.10	9,519.8	-13.6	-58.8	488,325.54	686,293.86	32° 20' 27.890 N	103° 43' 48.491 W
9,555.0	13.10	20.30	9,550.9	-6.8	-56.5	488,332.31	686,296.22	32° 20' 27.957 N	103° 43' 48.463 W
9,587.0	16.20	19.80	9,581.9	0.8	-53.7	488,339.91	686,298.99	32° 20' 28.032 N	103° 43' 48.430 W
9,600.0	17.17	21.07	9,594.4	4.3	-52.4	488,343.41	686,300.29	32° 20' 28.066 N	103° 43' 48.415 W
9,619.0	18.60	22.70	9,612.4	9.7	-50.2	488,348.82	686,302.47	32° 20' 28.120 N	103° 43' 48.389 W
9,651.0	20.60	23.80	9,642.6	19.6	-46.0	488,358.68	686,306.71	32° 20' 28.217 N	103° 43' 48.339 W
9,682.0	22.20	23.00	9,671.4	30.0	-41.5	488,369.06	686,311.20	32° 20' 28.320 N	103° 43' 48.286 W
9,700.0	22.03	22.38	9,688.1	36.2	-38.9	488,375.31	686,313.81	32° 20' 28.381 N	103° 43' 48.255 W
9,714.0	21.90	21.90	9,701.1	41.1	-36.9	488,380.16	686,315.79	32° 20' 28.429 N	103° 43' 48.232 W
9,744.0	23.80	21.40	9,728.7	51.9	-32.6	488,390.99	686,320.08	32° 20' 28.536 N	103° 43' 48.181 W
9,750.0	24.23	21.28	9,734.2	54.2	-31.7	488,393.27	686,320.97	32° 20' 28.559 N	103° 43' 48.170 W
9,776.0	26.10	20.80	9,757.8	64.5	-27.8	488,403.58	686,324.94	32° 20' 28.661 N	103° 43' 48.123 W
9,800.0	27.35	15.93	9,779.2	74.7	-24.4	488,413.82	686,328.33	32° 20' 28.762 N	103° 43' 48.083 W



Nexus Directional Solutions L.P.
Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Site Bultaco 36 State
Project:	Eddy County, NM(NAD 27 NME)	TVD Reference:	WELL @ 3501.9usft (Original Well Elev)
Site:	Bultaco 36 State	MD Reference:	WELL @ 3501.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Post Gyro	Database:	EDM 5000.1 Single User Db

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,808.0	27.80	14.40	9,786.3	78.3	-23.4	488,417.40	686,329.30	32° 20' 28.797 N	103° 43' 48.072 W
9,840.0	29.10	14.10	9,814.4	93.1	-19.6	488,432.17	686,333.05	32° 20' 28.943 N	103° 43' 48.027 W
9,872.0	30.50	13.10	9,842.2	108.5	-15.9	488,447.63	686,336.79	32° 20' 29.096 N	103° 43' 47.982 W
9,903.0	33.20	12.60	9,868.5	124.5	-12.3	488,463.58	686,340.42	32° 20' 29.253 N	103° 43' 47.939 W
9,933.0	36.40	13.30	9,893.2	141.2	-8.4	488,480.26	686,344.26	32° 20' 29.418 N	103° 43' 47.893 W
9,950.0	38.01	13.44	9,906.7	151.2	-6.1	488,490.26	686,346.64	32° 20' 29.517 N	103° 43' 47.865 W
9,971.0	40.00	13.60	9,923.0	164.0	-3.0	488,503.11	686,349.73	32° 20' 29.644 N	103° 43' 47.828 W
10,003.0	42.90	13.40	9,947.0	184.6	2.0	488,523.71	686,354.67	32° 20' 29.848 N	103° 43' 47.769 W
10,035.0	45.00	13.00	9,970.0	206.2	7.0	488,545.33	686,359.74	32° 20' 30.061 N	103° 43' 47.708 W
10,050.0	45.70	12.14	9,980.6	216.6	9.4	488,555.74	686,362.06	32° 20' 30.164 N	103° 43' 47.681 W
10,067.0	46.50	11.20	9,992.4	228.6	11.8	488,567.74	686,364.54	32° 20' 30.283 N	103° 43' 47.651 W
10,099.0	49.00	9.20	10,013.9	251.9	16.0	488,591.05	686,368.73	32° 20' 30.513 N	103° 43' 47.601 W
10,100.0	49.08	9.28	10,014.5	252.7	16.2	488,591.79	686,368.85	32° 20' 30.521 N	103° 43' 47.599 W
10,131.0	51.60	11.70	10,034.3	276.2	20.5	488,615.25	686,373.20	32° 20' 30.752 N	103° 43' 47.547 W
10,150.0	52.73	11.76	10,046.0	290.8	23.6	488,629.94	686,376.25	32° 20' 30.898 N	103° 43' 47.510 W
10,163.0	53.50	11.80	10,053.8	301.0	25.7	488,640.12	686,378.37	32° 20' 30.998 N	103° 43' 47.485 W
10,194.0	54.60	12.10	10,072.0	325.6	30.9	488,664.67	686,383.57	32° 20' 31.241 N	103° 43' 47.423 W
10,200.0	55.09	12.02	10,075.4	330.4	31.9	488,669.47	686,384.60	32° 20' 31.288 N	103° 43' 47.411 W
10,226.0	57.20	11.70	10,089.9	351.5	36.3	488,690.60	686,389.03	32° 20' 31.497 N	103° 43' 47.357 W
10,250.0	60.95	10.18	10,102.2	371.7	40.2	488,710.81	686,392.93	32° 20' 31.697 N	103° 43' 47.311 W
10,258.0	62.20	9.70	10,106.1	378.6	41.5	488,717.74	686,394.15	32° 20' 31.765 N	103° 43' 47.296 W
10,275.0	64.32	9.27	10,113.7	393.6	44.0	488,732.71	686,396.65	32° 20' 31.914 N	103° 43' 47.266 W
10,290.0	66.20	8.90	10,120.0	407.1	46.1	488,746.17	686,398.80	32° 20' 32.047 N	103° 43' 47.240 W
10,300.0	66.76	8.71	10,124.0	416.1	47.5	488,755.23	686,400.20	32° 20' 32.136 N	103° 43' 47.223 W
10,322.0	68.00	8.30	10,132.4	436.2	50.5	488,775.31	686,403.21	32° 20' 32.335 N	103° 43' 47.187 W
10,354.0	69.40	6.40	10,144.1	465.8	54.3	488,804.88	686,407.02	32° 20' 32.627 N	103° 43' 47.140 W
10,386.0	71.60	6.10	10,154.7	495.8	57.6	488,834.86	686,410.30	32° 20' 32.924 N	103° 43' 47.100 W
10,400.0	72.51	5.61	10,159.0	509.0	59.0	488,848.11	686,411.66	32° 20' 33.055 N	103° 43' 47.083 W
10,412.0	73.30	5.20	10,162.6	520.4	60.0	488,859.53	686,412.74	32° 20' 33.168 N	103° 43' 47.070 W
10,444.0	74.50	5.10	10,171.4	551.1	62.8	488,890.15	686,415.50	32° 20' 33.470 N	103° 43' 47.036 W
10,476.0	74.90	4.90	10,179.9	581.8	65.5	488,920.90	686,418.19	32° 20' 33.775 N	103° 43' 47.002 W
10,508.0	76.50	4.30	10,187.8	612.7	68.0	488,951.81	686,420.68	32° 20' 34.080 N	103° 43' 46.971 W
10,540.0	77.90	3.50	10,194.9	643.8	70.1	488,982.94	686,422.80	32° 20' 34.388 N	103° 43' 46.945 W
10,571.0	79.40	2.60	10,201.0	674.2	71.7	489,013.29	686,424.42	32° 20' 34.688 N	103° 43' 46.924 W
10,603.0	80.50	2.40	10,206.6	705.7	73.1	489,044.77	686,425.79	32° 20' 35.000 N	103° 43' 46.906 W
10,635.0	81.90	1.80	10,211.5	737.3	74.3	489,076.37	686,426.95	32° 20' 35.312 N	103° 43' 46.890 W
10,667.0	83.30	1.40	10,215.6	769.0	75.1	489,108.09	686,427.83	32° 20' 35.626 N	103° 43' 46.878 W
10,685.9	83.83	1.22	10,217.7	787.7	75.6	489,126.83	686,428.26	32° 20' 35.812 N	103° 43' 46.872 W
Start DLS 0.02 TFO -90.00									
10,699.0	84.20	1.10	10,219.1	800.8	75.8	489,139.89	686,428.53	32° 20' 35.941 N	103° 43' 46.868 W
10,700.0	84.23	1.08	10,219.2	801.8	75.9	489,140.88	686,428.55	32° 20' 35.951 N	103° 43' 46.867 W
10,731.0	85.10	0.40	10,222.1	832.6	76.2	489,171.75	686,428.95	32° 20' 36.256 N	103° 43' 46.861 W
10,763.0	86.10	0.10	10,224.5	864.6	76.4	489,203.65	686,429.08	32° 20' 36.572 N	103° 43' 46.857 W
10,795.0	87.50	359.50	10,226.3	896.5	76.3	489,235.60	686,428.97	32° 20' 36.888 N	103° 43' 46.856 W
10,800.0	87.73	359.41	10,226.5	901.5	76.2	489,240.60	686,428.92	32° 20' 36.938 N	103° 43' 46.856 W
10,827.0	89.00	358.90	10,227.3	928.5	75.8	489,267.58	686,428.53	32° 20' 37.205 N	103° 43' 46.859 W
10,900.0	89.85	357.98	10,228.0	1,001.4	73.8	489,340.55	686,426.54	32° 20' 37.927 N	103° 43' 46.878 W
10,922.0	90.10	357.70	10,228.0	1,023.4	73.0	489,362.53	686,425.71	32° 20' 38.144 N	103° 43' 46.886 W
11,000.0	90.99	357.13	10,227.3	1,101.3	69.5	489,440.45	686,422.19	32° 20' 38.916 N	103° 43' 46.922 W
11,018.0	91.20	357.00	10,226.9	1,119.3	68.6	489,458.42	686,421.27	32° 20' 39.093 N	103° 43' 46.931 W
11,100.0	92.05	356.74	10,224.6	1,201.2	64.1	489,540.27	686,416.80	32° 20' 39.904 N	103° 43' 46.978 W
11,114.0	92.20	356.70	10,224.1	1,215.1	63.3	489,554.23	686,416.00	32° 20' 40.042 N	103° 43' 46.986 W
11,209.0	91.10	357.40	10,221.3	1,310.0	58.4	489,649.07	686,411.11	32° 20' 40.981 N	103° 43' 47.037 W
11,305.0	90.00	357.80	10,220.4	1,405.9	54.4	489,744.98	686,407.09	32° 20' 41.930 N	103° 43' 47.078 W
11,400.0	88.60	359.50	10,221.6	1,500.8	52.2	489,839.94	686,404.85	32° 20' 42.870 N	103° 43' 47.098 W



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Site Bultaco 36 State
Project:	Eddy County, NM(NAD 27 NME)	TVD Reference:	WELL @ 3501.9usft (Original Well Elev)
Site:	Bultaco 36 State	MD Reference:	WELL @ 3501.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Post Gyro	Database:	EDM 5000.1 Single User Db

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,496.0	89.40	358.70	10,223.3	1,596.8	50.6	489,935.91	686,403.34	32° 20' 43.820 N	103° 43' 47.109 W
11,500.0	89.36	358.75	10,223.3	1,600.8	50.6	489,939.91	686,403.26	32° 20' 43.859 N	103° 43' 47.110 W
11,591.0	88.50	0.00	10,225.0	1,691.8	49.6	490,030.88	686,402.27	32° 20' 44.759 N	103° 43' 47.115 W
11,600.0	88.54	359.93	10,225.2	1,700.8	49.6	490,039.88	686,402.26	32° 20' 44.848 N	103° 43' 47.115 W
11,685.0	88.90	359.30	10,227.1	1,785.8	49.0	490,124.86	686,401.69	32° 20' 45.689 N	103° 43' 47.116 W
11,700.0	88.88	359.46	10,227.4	1,800.8	48.8	490,139.85	686,401.53	32° 20' 45.838 N	103° 43' 47.117 W
11,778.0	88.80	0.30	10,229.0	1,878.7	48.7	490,217.84	686,401.37	32° 20' 46.609 N	103° 43' 47.113 W
11,800.0	88.94	0.21	10,229.4	1,900.7	48.8	490,239.83	686,401.47	32° 20' 46.827 N	103° 43' 47.111 W
11,872.0	89.40	359.90	10,230.5	1,972.7	48.8	490,311.82	686,401.53	32° 20' 47.540 N	103° 43' 47.105 W
11,900.0	89.64	359.87	10,230.7	2,000.7	48.8	490,339.82	686,401.48	32° 20' 47.817 N	103° 43' 47.104 W
11,967.0	90.20	359.80	10,230.8	2,067.7	48.6	490,406.82	686,401.28	32° 20' 48.480 N	103° 43' 47.102 W
12,000.0	90.34	359.66	10,230.7	2,100.7	48.4	490,439.82	686,401.13	32° 20' 48.806 N	103° 43' 47.102 W
12,060.0	90.60	359.40	10,230.2	2,160.7	47.9	490,499.82	686,400.63	32° 20' 49.400 N	103° 43' 47.103 W
12,100.0	90.47	0.22	10,229.8	2,200.7	47.8	490,539.82	686,400.50	32° 20' 49.796 N	103° 43' 47.102 W
12,153.0	90.30	1.30	10,229.4	2,253.7	48.5	490,592.81	686,401.20	32° 20' 50.320 N	103° 43' 47.091 W
12,200.0	90.59	1.10	10,229.1	2,300.7	49.5	490,639.80	686,402.19	32° 20' 50.785 N	103° 43' 47.076 W
12,249.0	90.90	0.90	10,228.4	2,349.7	50.3	490,688.79	686,403.05	32° 20' 51.270 N	103° 43' 47.063 W
12,300.0	91.12	0.74	10,227.5	2,400.7	51.1	490,739.77	686,403.77	32° 20' 51.774 N	103° 43' 47.051 W
12,343.0	91.30	0.60	10,226.6	2,443.7	51.6	490,782.76	686,404.28	32° 20' 52.200 N	103° 43' 47.042 W
12,400.0	90.51	0.66	10,225.7	2,500.6	52.2	490,839.75	686,404.90	32° 20' 52.764 N	103° 43' 47.031 W
12,437.0	90.00	0.70	10,225.6	2,537.6	52.6	490,876.75	686,405.34	32° 20' 53.130 N	103° 43' 47.024 W
12,500.0	90.27	0.30	10,225.4	2,600.6	53.2	490,939.74	686,405.89	32° 20' 53.753 N	103° 43' 47.013 W
12,531.0	90.40	0.10	10,225.2	2,631.6	53.3	490,970.74	686,406.00	32° 20' 54.060 N	103° 43' 47.010 W
12,600.0	91.13	0.10	10,224.3	2,700.6	53.4	491,039.74	686,406.12	32° 20' 54.742 N	103° 43' 47.004 W
12,625.0	91.40	0.10	10,223.7	2,725.6	53.5	491,064.73	686,406.16	32° 20' 54.990 N	103° 43' 47.002 W
12,700.0	90.22	1.05	10,222.7	2,800.6	54.2	491,139.72	686,406.91	32° 20' 55.732 N	103° 43' 46.988 W
12,720.0	89.90	1.30	10,222.7	2,820.6	54.6	491,159.71	686,407.32	32° 20' 55.930 N	103° 43' 46.982 W
12,800.0	90.33	1.13	10,222.5	2,900.6	56.3	491,239.69	686,409.02	32° 20' 56.721 N	103° 43' 46.957 W
12,814.0	90.40	1.10	10,222.4	2,914.6	56.6	491,253.69	686,409.29	32° 20' 56.859 N	103° 43' 46.953 W
12,908.0	88.40	1.10	10,223.4	3,008.6	58.4	491,347.66	686,411.10	32° 20' 57.789 N	103° 43' 46.926 W
13,003.0	89.20	0.60	10,225.4	3,103.5	59.8	491,442.63	686,412.50	32° 20' 58.729 N	103° 43' 46.903 W
13,096.0	89.50	0.40	10,226.5	3,196.5	60.6	491,535.62	686,413.32	32° 20' 59.649 N	103° 43' 46.887 W
13,100.0	89.53	0.37	10,226.5	3,200.5	60.6	491,539.62	686,413.34	32° 20' 59.689 N	103° 43' 46.887 W
13,190.0	90.20	359.60	10,226.7	3,290.5	60.6	491,629.62	686,413.32	32° 21' 0.579 N	103° 43' 46.881 W
13,200.0	90.25	359.59	10,226.7	3,300.5	60.5	491,639.62	686,413.25	32° 21' 0.678 N	103° 43' 46.881 W
13,284.0	90.70	359.50	10,226.0	3,384.5	59.9	491,723.61	686,412.58	32° 21' 1.509 N	103° 43' 46.884 W
13,300.0	90.75	359.42	10,225.8	3,400.5	59.7	491,739.61	686,412.43	32° 21' 1.668 N	103° 43' 46.884 W
13,379.0	91.00	359.00	10,224.6	3,479.5	58.6	491,818.59	686,411.33	32° 21' 2.449 N	103° 43' 46.892 W
13,400.0	90.80	358.93	10,224.2	3,500.5	58.3	491,839.59	686,410.96	32° 21' 2.657 N	103° 43' 46.895 W
13,473.0	90.10	358.70	10,223.6	3,573.5	56.8	491,912.57	686,409.45	32° 21' 3.380 N	103° 43' 46.908 W
13,500.0	90.33	358.56	10,223.5	3,600.5	56.1	491,939.56	686,408.80	32° 21' 3.647 N	103° 43' 46.914 W
13,567.0	90.90	358.20	10,222.8	3,667.4	54.2	492,006.53	686,406.91	32° 21' 4.309 N	103° 43' 46.931 W
13,600.0	90.30	358.24	10,222.5	3,700.4	53.2	492,039.51	686,405.88	32° 21' 4.636 N	103° 43' 46.941 W
13,661.0	89.20	358.30	10,222.7	3,761.4	51.3	492,100.48	686,404.03	32° 21' 5.239 N	103° 43' 46.959 W
13,700.0	89.49	358.05	10,223.2	3,800.4	50.1	492,139.46	686,402.79	32° 21' 5.625 N	103° 43' 46.970 W
13,755.0	89.90	357.70	10,223.5	3,855.3	48.1	492,194.42	686,400.75	32° 21' 6.169 N	103° 43' 46.991 W
13,800.0	90.18	357.51	10,223.5	3,900.3	46.2	492,239.38	686,398.87	32° 21' 6.614 N	103° 43' 47.010 W
13,850.0	90.50	357.30	10,223.2	3,950.2	43.9	492,289.33	686,396.61	32° 21' 7.109 N	103° 43' 47.033 W
13,900.0	89.97	357.51	10,222.9	4,000.2	41.7	492,339.28	686,394.35	32° 21' 7.603 N	103° 43' 47.056 W
13,944.0	89.50	357.70	10,223.2	4,044.1	39.8	492,383.24	686,392.51	32° 21' 8.038 N	103° 43' 47.074 W
14,000.0	88.25	358.06	10,224.3	4,100.1	37.7	492,439.19	686,390.44	32° 21' 8.592 N	103° 43' 47.095 W
14,038.0	87.40	358.30	10,225.7	4,138.0	36.5	492,477.14	686,389.23	32° 21' 8.967 N	103° 43' 47.106 W
14,100.0	86.68	359.34	10,228.9	4,199.9	35.3	492,539.05	686,387.96	32° 21' 9.580 N	103° 43' 47.117 W
14,133.0	86.30	359.90	10,230.9	4,232.9	35.0	492,571.98	686,387.74	32° 21' 9.906 N	103° 43' 47.118 W
14,200.0	87.08	1.03	10,234.8	4,299.8	35.6	492,638.87	686,388.28	32° 21' 10.568 N	103° 43' 47.107 W



Nexus Directional Solutions L.P.

Survey Report - Geographic



Company:	COG Production LLC	Local Co-ordinate Reference:	Site Bultaco 36 State
Project:	Eddy County, NM(NAD 27 NME)	TVD Reference:	WELL @ 3501.9usft (Original Well Elev)
Site:	Bultaco 36 State	MD Reference:	WELL @ 3501.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Post Gyro	Database:	EDM 5000.1 Single User Db

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,228.0	87.40	1.50	10,236.1	4,327.7	36.2	492,666.83	686,388.90	32° 21' 10.845 N	103° 43' 47.098 W
14,300.0	87.93	1.27	10,239.1	4,399.6	37.9	492,738.75	686,390.64	32° 21' 11.556 N	103° 43' 47.073 W
14,323.0	88.10	1.20	10,239.9	4,422.6	38.4	492,761.73	686,391.14	32° 21' 11.783 N	103° 43' 47.065 W
14,400.0	88.76	1.45	10,242.0	4,499.6	40.2	492,838.68	686,392.91	32° 21' 12.545 N	103° 43' 47.040 W
14,417.0	88.90	1.50	10,242.3	4,516.6	40.7	492,855.67	686,393.35	32° 21' 12.713 N	103° 43' 47.033 W
14,500.0	89.34	1.59	10,243.6	4,599.5	42.9	492,938.63	686,395.59	32° 21' 13.534 N	103° 43' 47.002 W
14,512.0	89.40	1.60	10,243.7	4,611.5	43.2	492,950.62	686,395.92	32° 21' 13.652 N	103° 43' 46.997 W
14,605.0	90.50	1.80	10,243.8	4,704.5	46.0	493,043.58	686,398.68	32° 21' 14.572 N	103° 43' 46.959 W
14,650.0	90.50	1.80	10,243.4	4,749.5	47.4	493,088.56	686,400.09	32° 21' 15.017 N	103° 43' 46.940 W

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
Target 1 - plan misses target center by 34.0usft at 10649.2usft MD (10213.4 TVD, 751.3 N, 74.7 E) - Point	0.00	0.00	10,230.0	750.0	45.0	489,089.10	686,397.70	32° 20' 35.440 N	103° 43' 47.230 W
PBHL Bultaco 36 State # - plan misses target center by 22.4usft at 14650.0usft MD (10243.4 TVD, 4749.5 N, 47.4 E) - Point	0.00	0.00	10,230.0	4,754.7	30.2	493,093.80	686,382.90	32° 21' 15.070 N	103° 43' 47.140 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9319	9317	-31	-62	Start Drop -2.00
9346	9345	-31	-62	Start Build 12.00
9410	9408	-33	-58	Start DLS 7.31 TFO -114.59
10,686	10,230	750	45	Start DLS 0.02 TFO -90.00
14,691	10,230	4755	30	TD at 14690.6

Checked By: _____ Approved By: _____ Date: _____