

Results of Directional Survey

API number:	30-025-40182		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	BONDURANT FEDERAL # 12H

surface	ULSTR:	B	01	T 19S	R 32E
				330 FNL	1916 FEL

BH Loc	ULSTR:	O	01	T 19S	R 32E
13131	MD	8876.3	TVD	4741 FNL	1917 FEL

Top Perf/OH	ULSTR:	B	01	T 19S	R 32E
8703	MD	8646.6	TVD	349 FNL	1931 FEL

Bot Perf/OH	ULSTR:	B	01	T 19S	R 32E
13070	MD	8875.0	TVD	4680 FNL	1917 FEL

	MD	N/S	E/W	VD
	8696	-13.12	-15.82	8637.76
TOP PERFS/OH	8703	-18.69	-15.46	8646.60
	8728	-38.56	-14.18	8678.17
	13046	-4325.94	-1.76	8874.58
BOT PERFS/OH	13070	-4349.93	-1.47	8875.02
	13086	-4365.93	-1.28	8875.31

NEXT TO LAST	13086	-4365.93	-1.28	8875.31
LAST READING	13131	-4410.91	-0.73	8876.25
TD	13131	-4410.91	-0.73	8876.25

Surface Location	330	FN	1916	FE
Projected BHL	4741	FN	1917	FE
Location of				
Top Perfs/OH	349	FN	1931	FE
Bottom Perfs/OH	4680	FN	1917	FE

SUMMARY of Subsurface Locations

Surface Location	B-01-19S-32E	330	FN	1916	FE	Vert. Depth
Top Perfs/OH	B-01-19S-32E	349	FN	1931	FE	8646.60
Bottom Perfs/OH	B-01-19S-32E	4680	FN	1917	FE	8875.02
Projected TD	O-01-19S-32E	4741	FN	1917	FE	8876.25



Company: Cimarex Energy
Lease/Well: Bondurant FED #12

Rig Name: Key 881
State/County: New Mexico/Lea
Latitude: 32.70
GRID North is 0.33 Degrees East of True North
VS-Azi: 0.00 Degrees



HOBBS OCD
FEB 09 2012
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SUR: B-01-19s-32e, 330/N & 1916/E
BHL: O-01-19s-32e, 4741/N & 1917/E
API # 30-025-40182

RKB : 20 feet

DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: bondurantfed#12gyro_ed.ut
Minimum Curvature Method
Report Date/Time: 9/16/2011 / 14:32
Vaughn Energy Services
Fort Worth, Texas
817-741-3610
Surveyor: Ray Seago
Bondurant FED #12

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	0.47	326.04	100.00	0.34	-0.23	0.34	0.41	326.04	0.47
200.00	0.56	12.35	200.00	1.15	-0.35	1.15	1.21	342.94	0.41
300.00	0.83	15.67	299.99	2.32	-0.06	2.32	2.32	358.64	0.27
400.00	0.56	15.93	399.98	3.49	0.27	3.49	3.50	4.49	0.27
500.00	0.13	68.47	499.98	4.00	0.51	4.00	4.03	7.29	0.49
600.00	0.43	354.34	599.98	4.41	0.58	4.41	4.45	7.46	0.41
700.00	0.67	13.24	699.97	5.35	0.68	5.35	5.39	7.19	0.30
800.00	1.14	61.17	799.96	6.40	1.68	6.40	6.62	14.72	0.85
900.00	1.63	85.46	899.93	7.00	3.97	7.00	8.04	29.58	0.75
1000.00	1.18	93.43	999.90	7.05	6.41	7.05	9.53	42.31	0.49
1100.00	0.97	82.09	1099.88	7.10	8.28	7.10	10.91	49.39	0.30
1200.00	0.62	33.88	1199.88	7.67	9.43	7.67	12.15	50.87	0.73
1300.00	0.61	20.66	1299.87	8.62	9.92	8.62	13.14	49.01	0.14
1400.00	0.62	354.01	1399.86	9.66	10.05	9.66	13.94	46.14	0.28
1500.00	0.69	341.63	1499.86	10.77	9.81	10.77	14.57	42.32	0.16
1600.00	0.83	347.33	1599.85	12.04	9.46	12.04	15.31	38.14	0.16
1700.00	0.85	348.09	1699.84	13.48	9.15	13.48	16.29	34.16	0.03
1800.00	0.90	343.34	1799.83	14.96	8.77	14.96	17.34	30.37	0.09

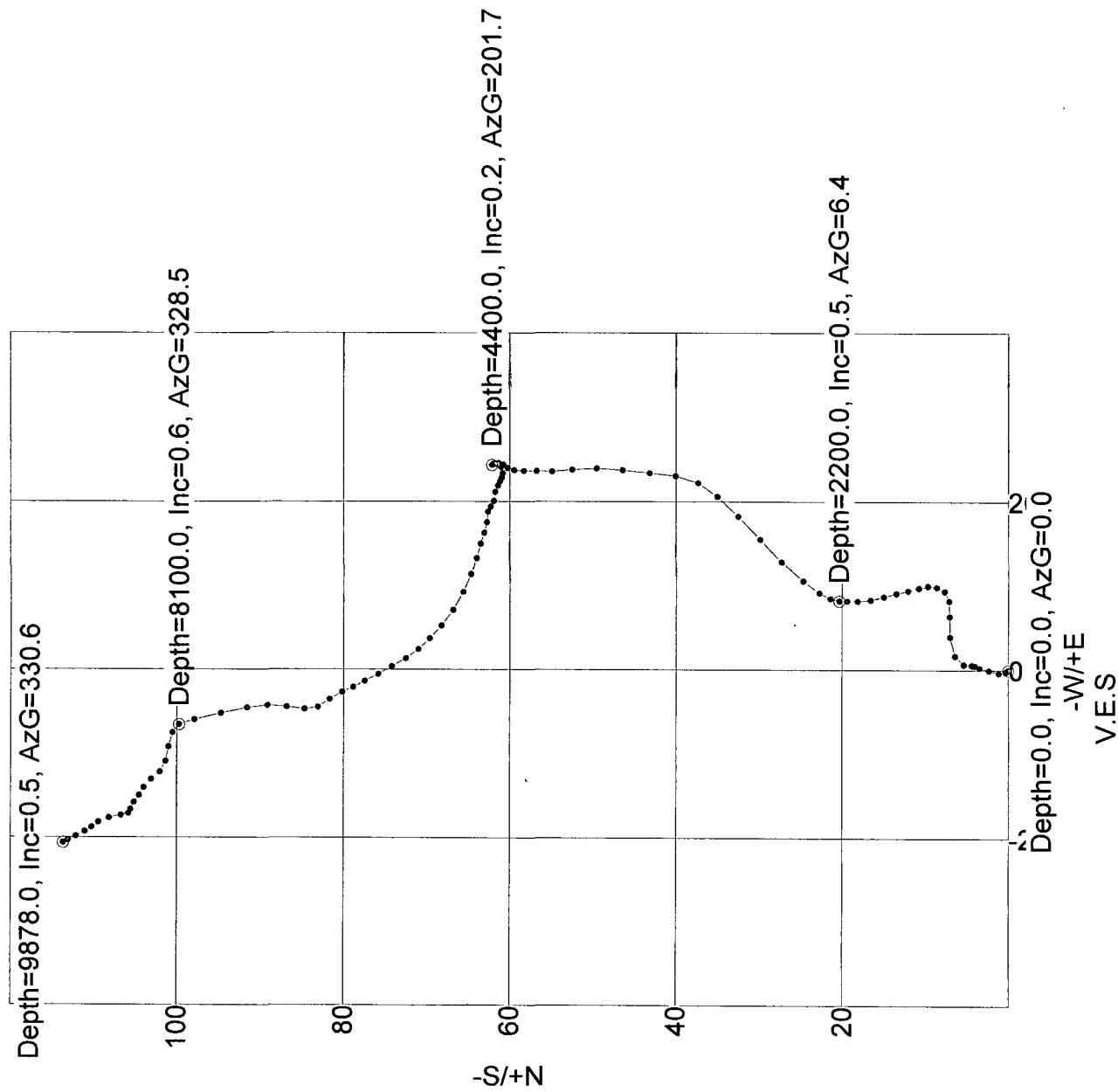
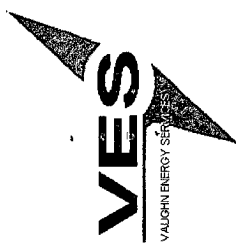
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S		+E/-W		Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
				FT		FT					
1900.00	0.96	347.69	1899.81	16.54		8.36		16.54	18.53	26.83	0.09
2000.00	0.89	3.38	1999.80	18.13		8.23		18.13	19.91	24.42	0.26
2100.00	0.56	356.49	2099.79	19.39		8.25		19.39	21.07	23.04	0.34
2200.00	0.48	6.38	2199.79	20.29		8.26		20.29	21.91	22.16	0.12
2300.00	0.81	18.15	2299.78	21.38		8.53		21.38	23.02	21.75	0.35
2400.00	0.93	33.67	2399.77	22.73		9.20		22.73	24.52	22.04	0.27
2500.00	1.84	37.50	2499.74	24.68		10.63		24.68	26.87	23.30	0.91
2600.00	2.07	44.21	2599.68	27.25		12.87		27.25	30.13	25.28	0.33
2700.00	2.15	47.04	2699.61	29.82		15.50		29.82	33.61	27.47	0.13
2800.00	2.22	44.49	2799.54	32.48		18.23		32.48	37.25	29.31	0.12
2900.00	1.73	41.46	2899.48	35.00		20.59		35.00	40.61	30.47	0.50
3000.00	1.55	27.22	2999.44	37.34		22.21		37.34	43.44	30.75	0.44
3100.00	1.73	7.09	3099.40	40.04		23.02		40.04	46.18	29.90	0.60
3200.00	1.92	5.52	3199.35	43.20		23.36		43.20	49.11	28.41	0.20
3300.00	1.81	6.92	3299.30	46.43		23.72		46.43	52.14	27.06	0.12
3400.00	1.75	0.51	3399.25	49.52		23.92		49.52	55.00	25.78	0.21
3500.00	1.63	352.82	3499.21	52.46		23.76		52.46	57.59	24.36	0.26
3600.00	1.15	359.25	3599.18	54.88		23.57		54.88	59.72	23.24	0.50
3700.00	0.99	4.51	3699.16	56.75		23.62		56.75	61.47	22.60	0.19
3800.00	0.81	355.94	3799.15	58.31		23.64		58.31	62.92	22.07	0.22
3900.00	0.53	14.02	3899.14	59.47		23.70		59.47	64.02	21.73	0.35
4000.00	0.41	27.73	3999.14	60.24		23.98		60.24	64.84	21.71	0.16
4100.00	0.35	44.92	4099.13	60.77		24.36		60.77	65.47	21.84	0.13
4200.00	0.39	358.36	4199.13	61.33		24.56		61.33	66.06	21.83	0.29
4300.00	0.37	346.51	4299.13	61.98		24.48		61.98	66.64	21.55	0.08
4400.00	0.20	201.74	4399.13	62.13		24.34		62.13	66.73	21.40	0.54
4500.00	0.28	127.07	4499.13	61.82		24.47		61.82	66.49	21.60	0.30
4600.00	0.26	246.29	4599.13	61.58		24.46		61.58	66.26	21.66	0.47
4700.00	0.17	133.11	4699.13	61.39		24.36		61.39	66.04	21.64	0.36
4800.00	0.47	237.80	4799.13	61.07		24.12		61.07	65.66	21.55	0.54
4900.00	0.49	268.63	4899.12	60.84		23.35		60.84	65.17	20.99	0.25
5000.00	0.18	324.63	4999.12	60.96		22.83		60.96	65.09	20.53	0.42
5100.00	0.35	278.55	5099.12	61.13		22.44		61.13	65.12	20.15	0.26
5200.00	0.37	312.63	5199.12	61.40		21.89		61.40	65.18	19.62	0.21
5300.00	0.60	280.56	5299.12	61.72		21.14		61.72	65.24	18.91	0.34
5400.00	0.68	280.05	5399.11	61.91		20.05		61.91	65.08	17.94	0.08
5500.00	0.31	341.77	5499.11	62.27		19.38		62.27	65.22	17.29	0.59
5600.00	0.56	276.16	5599.10	62.59		18.81		62.59	65.35	16.73	0.52
5700.00	0.90	276.52	5699.10	62.73		17.54		62.73	65.13	15.62	0.34

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N-S FT	+E/-W FT	Vertical Section FT	Closure		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
5800.00	0.63	294.03	5799.09	63.04	16.26	63.04	65.10	14.46	0.36
5900.00	0.91	283.76	5899.08	63.45	14.99	63.45	65.20	13.29	0.32
6000.00	1.12	287.82	5999.06	63.94	13.28	63.94	65.31	11.73	0.22
6100.00	1.20	294.10	6099.04	64.67	11.39	64.67	65.66	9.99	0.15
6200.00	1.42	293.24	6199.01	65.59	9.29	65.59	66.24	8.06	0.22
6300.00	1.41	304.93	6298.98	66.78	7.14	66.78	67.16	6.10	0.29
6400.00	1.29	310.51	6398.96	68.22	5.27	68.22	68.42	4.42	0.18
6500.00	1.10	313.25	6498.93	69.61	3.72	69.61	69.71	3.06	0.20
6600.00	1.06	319.24	6598.92	70.97	2.42	70.97	71.01	1.95	0.12
6700.00	1.12	329.30	6698.90	72.51	1.31	72.51	72.52	1.04	0.20
6800.00	1.10	330.70	6798.88	74.19	0.34	74.19	74.19	0.26	0.03
6900.00	1.03	330.13	6898.86	75.80	-0.57	75.80	75.81	359.57	0.08
7000.00	1.08	334.50	6998.85	77.43	-1.42	77.43	77.44	358.95	0.09
7100.00	0.74	330.59	7098.83	78.84	-2.15	78.84	78.87	358.44	0.34
7200.00	0.88	342.97	7198.82	80.14	-2.69	80.14	80.18	358.08	0.22
7300.00	1.15	319.38	7298.81	81.63	-3.57	81.63	81.71	357.50	0.49
7400.00	0.82	336.22	7398.79	83.05	-4.51	83.05	83.17	356.89	0.44
7500.00	1.09	2.53	7498.78	84.65	-4.76	84.65	84.79	356.78	0.51
7600.00	1.42	10.63	7598.76	86.82	-4.49	86.82	86.94	357.04	0.38
7700.00	1.22	356.96	7698.73	89.11	-4.31	89.11	89.21	357.23	0.38
7800.00	1.60	351.00	7798.70	91.55	-4.59	91.55	91.66	357.13	0.41
7900.00	2.08	345.98	7898.65	94.69	-5.25	94.69	94.83	356.83	0.50
8000.00	1.66	346.90	7998.59	97.86	-6.01	97.86	98.04	356.48	0.42
8100.00	0.56	328.50	8098.57	99.69	-6.60	99.69	99.91	356.21	1.14
8200.00	0.92	298.10	8198.57	100.49	-7.57	100.49	100.77	355.69	0.52
8300.00	1.10	275.24	8298.55	100.96	-9.24	100.96	101.38	354.77	0.44
8400.00	0.96	288.80	8398.53	101.32	-10.99	101.32	101.91	353.81	0.28
8500.00	0.70	313.14	8498.52	102.01	-12.24	102.01	102.74	353.16	0.43
8600.00	0.87	325.47	8598.51	103.06	-13.12	103.06	103.89	352.75	0.24
8700.00	0.72	296.96	8698.50	103.97	-14.11	103.97	104.92	352.27	0.42
8800.00	0.51	304.98	8798.50	104.51	-15.03	104.51	105.58	351.82	0.23
8900.00	0.69	309.86	8898.49	105.15	-15.86	105.15	106.34	351.42	0.19
9000.00	0.45	274.88	8998.49	105.57	-16.71	105.57	106.88	351.01	0.41
9100.00	0.25	337.63	9098.49	105.81	-17.18	105.81	107.19	350.77	0.40
9200.00	0.78	349.11	9198.48	106.68	-17.40	106.68	108.09	350.74	0.54
9300.00	0.91	346.81	9298.47	108.13	-17.71	108.13	109.57	350.70	0.13
9400.00	0.68	327.02	9398.46	109.40	-18.21	109.40	110.91	350.55	0.36
9500.00	0.47	320.16	9498.46	110.22	-18.80	110.22	111.81	350.32	0.21
9600.00	0.63	334.62	9598.45	111.03	-19.30	111.03	112.69	350.14	0.21

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	0.75	331.01	9698.45	112.10	-19.85	112.10	113.84	349.96	0.13
9800.00	0.46	337.67	9798.44	113.04	-20.32	113.04	114.86	349.81	0.30
9878.00	0.54	330.61	9876.44	113.66	-20.62	113.66	115.51	349.72	0.13



Vaughn Energy Services
Fort Worth, Texas
817-741-3610
Surveyor: Ray Seago
Bondurant FED #12



HOBBS OCD



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Actual Wellpath Report

No.12H AWP

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RECEIVED

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 12H SHL
Area	Lea County, NM	Well	No. 12H
Field	(Bondurant) Sec 1, T19S, R32E	Wellbore	No.12H AWB
Facility	Bondurant 1 Fed No.12H		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Gentbry
Scale	0.99995	Report Generated	2/7/2012 at 3:34:46 PM
Convergence at slot	0.33° East	Database/Source file	WA Midland/No.12H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	730800.60	617381.00	32°41'44.560"N	103°43'02.812"W
Facility Reference Pt			730800.60	617381.00	32°41'44.560"N	103°43'02.812"W
Field Reference Pt			730800.60	617381.00	32°41'44.560"N	103°43'02.812"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 12H SHL (RT) to Facility Vertical Datum	20.00ft
Horizontal Reference Pt	Slot	Rig on No. 12H SHL (RT) to Mean Sea Level	3721.00ft
Vertical Reference Pt	Rig on No. 12H SHL (RT)	Rig on No. 12H SHL (RT) to Mud Line at Slot (No. 12H SHL)	20.00ft
MD Reference Pt	Rig on No. 12H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.57°

SUR: B-01-19s-32e, 330/N & 1916/E
 BHL: O-01-19s-32e, 4741/N & 1917/E
 API # 30-025-40182



Actual Wellpath Report

No.12H AWP

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BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 12H SHL
Area	Lea County, NM	Well	No. 12H
Field	(Bondurant) Sec 1, T19S, R32E	Wellbore	No.12H AWB
Facility	Bondurant 1 Fed No.12H		

WELLPATH DATA (173 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	326.040	0.00	0.00	0.00	0.00	730800.60	617381.00	32°41'44.560"N	103°43'02.812"W	0.00	
20.00	0.000	326.040	20.00	0.00	0.00	0.00	730800.60	617381.00	32°41'44.560"N	103°43'02.812"W	0.00	
100.00	0.470	326.040	100.00	-0.27	0.27	-0.18	730800.42	617381.27	32°41'44.562"N	103°43'02.814"W	0.59	
200.00	0.560	12.350	200.00	-1.09	1.09	-0.31	730800.29	617382.09	32°41'44.570"N	103°43'02.815"W	0.41	
300.00	0.830	15.670	299.99	-2.26	2.26	-0.01	730800.59	617383.26	32°41'44.582"N	103°43'02.812"W	0.27	
400.00	0.560	15.930	399.98	-3.43	3.43	0.32	730800.92	617384.43	32°41'44.594"N	103°43'02.808"W	0.27	
500.00	0.130	68.470	499.98	-3.94	3.94	0.56	730801.16	617384.94	32°41'44.599"N	103°43'02.805"W	0.49	
600.00	0.430	354.340	599.98	-4.35	4.36	0.63	730801.23	617385.36	32°41'44.603"N	103°43'02.804"W	0.41	
700.00	0.670	13.240	699.97	-5.30	5.30	0.73	730801.33	617386.30	32°41'44.612"N	103°43'02.803"W	0.30	
800.00	1.140	61.170	799.96	-6.34	6.35	1.73	730802.33	617387.35	32°41'44.622"N	103°43'02.791"W	0.85	
900.00	1.630	85.460	899.93	-6.91	6.94	4.02	730804.62	617387.94	32°41'44.628"N	103°43'02.764"W	0.75	
1000.00	1.180	93.430	999.90	-6.94	6.99	6.47	730807.07	617387.99	32°41'44.628"N	103°43'02.735"W	0.49	
1100.00	0.970	82.090	1099.89	-6.99	7.05	8.33	730808.93	617388.05	32°41'44.629"N	103°43'02.714"W	0.30	
1200.00	0.620	33.880	1199.88	-7.54	7.61	9.47	730810.07	617388.61	32°41'44.634"N	103°43'02.700"W	0.72	
1300.00	0.610	20.660	1299.87	-8.49	8.56	9.96	730810.56	617389.56	32°41'44.644"N	103°43'02.694"W	0.14	
1400.00	0.620	354.010	1399.87	-9.52	9.60	10.09	730810.69	617390.60	32°41'44.654"N	103°43'02.693"W	0.28	
1500.00	0.690	341.630	1499.86	-10.63	10.71	9.85	730810.45	617391.71	32°41'44.665"N	103°43'02.696"W	0.16	
1600.00	0.830	347.330	1599.85	-11.91	11.98	9.50	730810.10	617392.98	32°41'44.678"N	103°43'02.700"W	0.16	
1700.00	0.850	348.090	1699.84	-13.35	13.42	9.19	730809.79	617394.42	32°41'44.692"N	103°43'02.703"W	0.02	
1800.00	0.900	343.340	1799.83	-14.83	14.90	8.81	730809.41	617395.89	32°41'44.707"N	103°43'02.708"W	0.09	
1900.00	0.960	347.690	1899.81	-16.40	16.47	8.41	730809.01	617397.47	32°41'44.722"N	103°43'02.712"W	0.09	
2000.00	0.890	3.380	1999.80	-18.00	18.06	8.27	730808.87	617399.06	32°41'44.738"N	103°43'02.714"W	0.26	
2100.00	0.560	356.490	2099.79	-19.26	19.32	8.29	730808.89	617400.32	32°41'44.750"N	103°43'02.713"W	0.34	
2200.00	0.480	6.380	2199.79	-20.16	20.23	8.31	730808.90	617401.23	32°41'44.759"N	103°43'02.713"W	0.12	
2300.00	0.810	18.150	2299.78	-21.25	21.31	8.57	730809.17	617402.31	32°41'44.770"N	103°43'02.710"W	0.35	
2400.00	0.930	33.670	2399.77	-22.59	22.66	9.24	730809.84	617403.66	32°41'44.783"N	103°43'02.702"W	0.26	
2500.00	1.840	37.500	2499.74	-24.53	24.61	10.67	730811.27	617405.61	32°41'44.803"N	103°43'02.685"W	0.91	
2600.00	2.070	44.210	2599.68	-27.08	27.18	12.91	730813.51	617408.18	32°41'44.828"N	103°43'02.659"W	0.32	
2700.00	2.150	47.040	2699.62	-29.64	29.75	15.54	730816.14	617410.75	32°41'44.853"N	103°43'02.628"W	0.13	
2800.00	2.220	44.490	2799.54	-32.27	32.41	18.27	730818.87	617413.41	32°41'44.879"N	103°43'02.596"W	0.12	
2900.00	1.730	41.460	2899.48	-34.77	34.93	20.62	730821.22	617415.92	32°41'44.904"N	103°43'02.568"W	0.50	
3000.00	1.550	27.220	2999.44	-37.09	37.26	22.24	730822.84	617418.26	32°41'44.927"N	103°43'02.549"W	0.44	
3100.00	1.730	7.090	3099.40	-39.79	39.96	23.05	730823.65	617420.96	32°41'44.954"N	103°43'02.539"W	0.60	
3200.00	1.920	5.520	3199.35	-42.95	43.13	23.40	730823.99	617424.12	32°41'44.985"N	103°43'02.535"W	0.20	
3300.00	1.810	6.920	3299.30	-46.18	46.36	23.75	730824.35	617427.36	32°41'45.017"N	103°43'02.531"W	0.12	
3400.00	1.750	0.510	3399.25	-49.27	49.45	23.95	730824.55	617430.45	32°41'45.048"N	103°43'02.528"W	0.21	
3500.00	1.630	352.820	3499.21	-52.21	52.39	23.79	730824.39	617433.39	32°41'45.077"N	103°43'02.530"W	0.26	
3600.00	1.150	359.250	3599.18	-54.63	54.81	23.60	730824.19	617435.80	32°41'45.101"N	103°43'02.532"W	0.50	
3700.00	0.990	4.510	3699.16	-56.49	56.67	23.65	730824.25	617437.67	32°41'45.119"N	103°43'02.531"W	0.19	
3800.00	0.810	355.940	3799.15	-58.06	58.24	23.67	730824.27	617439.24	32°41'45.134"N	103°43'02.531"W	0.22	
3900.00	0.530	14.020	3899.14	-59.21	59.39	23.73	730824.33	617440.39	32°41'45.146"N	103°43'02.530"W	0.35	
4000.00	0.410	27.730	3999.14	-59.98	60.16	24.01	730824.61	617441.15	32°41'45.153"N	103°43'02.527"W	0.16	
4100.00	0.350	44.920	4099.13	-60.51	60.69	24.39	730824.99	617441.69	32°41'45.159"N	103°43'02.522"W	0.13	
4200.00	0.390	358.360	4199.13	-61.06	61.25	24.60	730825.20	617442.24	32°41'45.164"N	103°43'02.520"W	0.29	
4300.00	0.370	346.510	4299.13	-61.72	61.90	24.51	730825.11	617442.90	32°41'45.171"N	103°43'02.521"W	0.08	



Actual Wellpath Report

No.12H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 12H SHL
Area	Lea County, NM	Well	No. 12H
Field	(Bondurant) Sec 1, T19S, R32E	Wellbore	No.12H AWB
Facility	Bondurant 1 Fed No.12H		

WELLPATH DATA (173 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4400.00	0.200	201.740	4399.13	-61.87	62.05	24.37	730824.97	617443.05	32°41'45.172"N	103°43'02.522"W	0.55	
4500.00	0.280	127.070	4499.13	-61.56	61.74	24.50	730825.10	617442.74	32°41'45.169"N	103°43'02.521"W	0.30	
4600.00	0.260	246.290	4599.13	-61.32	61.50	24.49	730825.09	617442.50	32°41'45.167"N	103°43'02.521"W	0.47	
4700.00	0.170	133.110	4699.13	-61.13	61.31	24.39	730824.99	617442.31	32°41'45.165"N	103°43'02.522"W	0.36	
4800.00	0.470	237.800	4799.13	-60.81	60.99	24.15	730824.75	617441.99	32°41'45.162"N	103°43'02.525"W	0.54	
4900.00	0.490	268.630	4899.12	-60.59	60.76	23.38	730823.98	617441.76	32°41'45.159"N	103°43'02.534"W	0.26	
5000.00	0.180	324.630	4999.12	-60.71	60.88	22.86	730823.46	617441.88	32°41'45.161"N	103°43'02.540"W	0.42	
5100.00	0.350	278.550	5099.12	-60.89	61.06	22.47	730823.06	617442.05	32°41'45.162"N	103°43'02.545"W	0.26	
5200.00	0.370	312.630	5199.12	-61.15	61.32	21.93	730822.52	617442.32	32°41'45.165"N	103°43'02.551"W	0.21	
5300.00	0.600	280.560	5299.12	-61.47	61.63	21.17	730821.77	617442.63	32°41'45.168"N	103°43'02.560"W	0.35	
5400.00	0.680	280.050	5399.11	-61.68	61.83	20.07	730820.67	617442.83	32°41'45.170"N	103°43'02.573"W	0.08	
5500.00	0.310	341.770	5499.11	-62.05	62.19	19.41	730820.00	617443.19	32°41'45.174"N	103°43'02.580"W	0.60	
5600.00	0.560	276.160	5599.10	-62.36	62.50	18.84	730819.43	617443.50	32°41'45.177"N	103°43'02.587"W	0.52	
5700.00	0.900	276.520	5699.10	-62.51	62.64	17.57	730818.17	617443.64	32°41'45.178"N	103°43'02.602"W	0.34	
5800.00	0.630	294.030	5799.09	-62.83	62.96	16.29	730816.89	617443.95	32°41'45.182"N	103°43'02.617"W	0.35	
5900.00	0.910	283.760	5899.08	-63.26	63.37	15.01	730815.61	617444.37	32°41'45.186"N	103°43'02.632"W	0.31	
6000.00	1.120	287.820	5999.06	-63.76	63.86	13.31	730813.91	617444.86	32°41'45.191"N	103°43'02.652"W	0.22	
6100.00	1.200	294.100	6099.04	-64.50	64.59	11.43	730812.02	617445.58	32°41'45.198"N	103°43'02.674"W	0.15	
6200.00	1.420	293.240	6199.02	-65.43	65.50	9.33	730809.93	617446.50	32°41'45.207"N	103°43'02.698"W	0.22	
6300.00	1.410	304.930	6298.99	-66.64	66.70	7.18	730807.78	617447.69	32°41'45.219"N	103°43'02.723"W	0.29	
6400.00	1.290	310.510	6398.96	-68.09	68.13	5.32	730805.92	617449.13	32°41'45.233"N	103°43'02.745"W	0.18	
6500.00	1.100	313.250	6498.94	-69.49	69.52	3.76	730804.36	617450.52	32°41'45.247"N	103°43'02.763"W	0.20	
6600.00	1.060	319.240	6598.92	-70.86	70.88	2.46	730803.06	617451.87	32°41'45.261"N	103°43'02.778"W	0.12	
6700.00	1.120	329.300	6698.90	-72.41	72.42	1.36	730801.96	617453.42	32°41'45.276"N	103°43'02.791"W	0.20	
6800.00	1.100	330.700	6798.88	-74.09	74.10	0.39	730800.99	617455.09	32°41'45.293"N	103°43'02.802"W	0.03	
6900.00	1.030	330.130	6898.86	-75.71	75.71	-0.53	730800.07	617456.71	32°41'45.309"N	103°43'02.813"W	0.07	
7000.00	1.080	334.500	6998.85	-77.35	77.34	-1.38	730799.22	617458.34	32°41'45.325"N	103°43'02.823"W	0.09	
7100.00	0.740	330.590	7098.83	-78.77	78.76	-2.10	730798.50	617459.75	32°41'45.339"N	103°43'02.831"W	0.35	
7200.00	0.880	342.970	7198.82	-80.07	80.05	-2.65	730797.95	617461.05	32°41'45.352"N	103°43'02.837"W	0.22	
7300.00	1.150	319.380	7298.81	-81.57	81.55	-3.52	730797.08	617462.54	32°41'45.367"N	103°43'02.847"W	0.49	
7400.00	0.820	336.220	7398.79	-83.00	82.97	-4.47	730796.13	617463.96	32°41'45.381"N	103°43'02.858"W	0.44	
7500.00	1.090	2.530	7498.78	-84.60	84.57	-4.71	730795.89	617465.57	32°41'45.397"N	103°43'02.861"W	0.51	
7600.00	1.420	10.630	7598.76	-86.77	86.74	-4.44	730796.16	617467.73	32°41'45.418"N	103°43'02.858"W	0.37	
7700.00	1.220	356.960	7698.73	-89.05	89.02	-4.27	730796.33	617470.01	32°41'45.441"N	103°43'02.856"W	0.37	
7800.00	1.600	351.000	7798.70	-91.49	91.46	-4.55	730796.06	617472.46	32°41'45.465"N	103°43'02.859"W	0.41	
7900.00	2.080	345.980	7898.65	-94.64	94.60	-5.20	730795.40	617475.60	32°41'45.496"N	103°43'02.866"W	0.51	
8000.00	1.660	346.900	7998.59	-97.81	97.77	-5.97	730794.63	617478.77	32°41'45.527"N	103°43'02.875"W	0.42	
8100.00	0.560	328.500	8098.57	-99.65	99.60	-6.55	730794.05	617480.59	32°41'45.545"N	103°43'02.882"W	1.14	
8200.00	0.920	298.100	8198.57	-100.45	100.39	-7.52	730793.08	617481.39	32°41'45.553"N	103°43'02.893"W	0.52	
8300.00	1.100	275.240	8298.55	-100.93	100.86	-9.18	730791.42	617481.85	32°41'45.558"N	103°43'02.912"W	0.44	
8400.00	0.960	288.800	8398.54	-101.30	101.22	-10.93	730789.67	617482.21	32°41'45.562"N	103°43'02.933"W	0.28	
8442.00	3.200	203.800	8440.51	-100.34	100.26	-11.74	730788.86	617481.25	32°41'45.552"N	103°43'02.942"W	7.76	
8474.00	8.400	192.000	8472.34	-97.24	97.15	-12.58	730788.02	617478.15	32°41'45.522"N	103°43'02.952"W	16.59	
8505.00	15.300	187.100	8502.66	-90.97	90.87	-13.56	730787.04	617471.87	32°41'45.460"N	103°43'02.964"W	22.47	
8537.00	21.300	186.500	8533.03	-81.01	80.90	-14.74	730785.86	617461.89	32°41'45.361"N	103°43'02.979"W	18.76	



Actual Wellpath Report

No.12H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 12H SHL
Area	Lea County, NM	Well	No. 12H
Field	(Bondurant) Sec 1, T19S, R32E	Wellbore	No.12H AWP
Facility	Bondurant 1 Fed No.12H		

WELLPATH DATA (173 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8569.00	28.300	186.500	8562.06	-67.69	67.57	-16.26	730784.34	617448.57	32°41'45.229"N	103°43'02.997"W	21.87	
8600.00	33.600	184.100	8588.63	-51.83	51.70	-17.71	730782.89	617432.70	32°41'45.072"N	103°43'03.015"W	17.55	
8632.00	40.000	179.200	8614.25	-32.70	32.56	-18.20	730782.40	617413.56	32°41'44.883"N	103°43'03.022"W	21.99	
8664.00	45.400	176.500	8637.76	-11.02	10.89	-17.36	730783.24	617391.89	32°41'44.668"N	103°43'03.014"W	17.82	
8696.00	52.200	176.200	8658.83	13.01	-13.12	-15.82	730784.78	617367.88	32°41'44.431"N	103°43'02.998"W	21.26	
8728.00	53.400	176.400	8678.17	38.45	-38.56	-14.18	730786.42	617342.44	32°41'44.179"N	103°43'02.980"W	3.78	
8760.00	56.300	177.600	8696.60	64.59	-64.69	-12.81	730787.79	617316.32	32°41'43.920"N	103°43'02.966"W	9.57	
8791.00	59.000	177.900	8713.18	90.76	-90.85	-11.79	730788.81	617290.15	32°41'43.661"N	103°43'02.956"W	8.75	
8823.00	62.300	178.200	8728.86	118.64	-118.72	-10.84	730789.76	617262.28	32°41'43.386"N	103°43'02.947"W	10.34	
8855.00	65.400	178.100	8742.97	147.35	-147.43	-9.91	730790.69	617233.58	32°41'43.101"N	103°43'02.938"W	9.69	
8886.00	68.200	179.000	8755.18	175.84	-175.91	-9.19	730791.41	617205.10	32°41'42.820"N	103°43'02.931"W	9.42	
8918.00	72.000	178.400	8766.07	205.92	-205.99	-8.51	730792.09	617175.02	32°41'42.522"N	103°43'02.925"W	12.01	
8950.00	75.900	178.500	8774.91	236.66	-236.72	-7.68	730792.92	617144.29	32°41'42.218"N	103°43'02.918"W	12.19	
8982.00	79.200	178.200	8781.81	267.89	-267.95	-6.78	730793.82	617113.06	32°41'41.909"N	103°43'02.909"W	10.35	
9014.00	82.300	178.400	8786.95	299.47	-299.52	-5.84	730794.76	617081.50	32°41'41.596"N	103°43'02.900"W	9.71	
9046.00	86.000	178.700	8790.21	331.29	-331.34	-5.04	730795.56	617049.68	32°41'41.282"N	103°43'02.893"W	11.60	
9078.00	89.300	179.000	8791.53	363.26	-363.30	-4.39	730796.21	617017.72	32°41'40.965"N	103°43'02.888"W	10.35	
9110.00	89.500	179.200	8791.86	395.25	-395.29	-3.89	730796.71	616985.73	32°41'40.649"N	103°43'02.884"W	0.88	
9141.00	89.600	178.800	8792.10	426.25	-426.29	-3.35	730797.25	616954.74	32°41'40.342"N	103°43'02.880"W	1.33	
9173.00	89.900	179.000	8792.24	458.25	-458.28	-2.74	730797.86	616922.74	32°41'40.025"N	103°43'02.875"W	1.13	
9237.00	89.500	179.300	8792.58	522.24	-522.27	-1.79	730798.81	616858.75	32°41'39.392"N	103°43'02.868"W	0.78	
9300.00	88.200	179.300	8793.84	585.23	-585.25	-1.02	730799.58	616795.78	32°41'38.769"N	103°43'02.863"W	2.06	
9365.00	89.400	181.100	8795.21	650.21	-650.24	-1.24	730799.36	616730.80	32°41'38.126"N	103°43'02.870"W	3.33	
9428.00	87.700	180.000	8796.80	713.18	-713.21	-1.85	730798.75	616667.83	32°41'37.503"N	103°43'02.882"W	3.21	
9491.00	87.800	179.600	8799.27	776.13	-776.16	-1.63	730798.97	616604.88	32°41'36.880"N	103°43'02.883"W	0.65	
9554.00	88.200	179.100	8801.47	839.09	-839.12	-0.91	730799.69	616541.93	32°41'36.257"N	103°43'02.879"W	1.02	
9618.00	88.400	179.200	8803.37	903.06	-903.08	0.03	730800.63	616477.97	32°41'35.624"N	103°43'02.873"W	0.35	
9682.00	88.800	180.300	8804.93	967.04	-967.06	0.31	730800.91	616413.99	32°41'34.991"N	103°43'02.874"W	1.83	
9746.00	88.000	180.200	8806.72	1031.01	-1031.03	0.03	730800.63	616350.02	32°41'34.358"N	103°43'02.881"W	1.26	
9809.00	88.800	181.200	8808.48	1093.97	-1094.00	-0.74	730799.86	616287.05	32°41'33.735"N	103°43'02.895"W	2.03	
9869.00	88.200	181.700	8810.05	1153.91	-1153.96	-2.25	730798.35	616227.10	32°41'33.142"N	103°43'02.916"W	1.30	
9932.00	88.800	181.600	8811.70	1216.85	-1216.92	-4.07	730796.53	616164.15	32°41'32.519"N	103°43'02.942"W	0.97	
9995.00	88.700	181.000	8813.07	1279.81	-1279.88	-5.50	730795.11	616101.18	32°41'31.896"N	103°43'02.963"W	0.97	
10059.00	89.100	180.500	8814.30	1343.78	-1343.87	-6.33	730794.27	616037.20	32°41'31.263"N	103°43'02.977"W	1.00	
10123.00	87.100	178.500	8816.42	1407.74	-1407.82	-5.78	730794.82	615973.25	32°41'30.631"N	103°43'02.975"W	4.42	
10187.00	87.200	179.100	8819.61	1471.66	-1471.73	-4.44	730796.16	615909.35	32°41'29.998"N	103°43'02.964"W	0.95	
10250.00	87.200	179.300	8822.68	1534.58	-1534.65	-3.56	730797.04	615846.43	32°41'29.376"N	103°43'02.958"W	0.32	
10312.00	87.600	178.900	8825.50	1596.51	-1596.58	-2.59	730798.01	615784.51	32°41'28.763"N	103°43'02.950"W	0.91	
10376.00	87.900	178.800	8828.01	1660.46	-1660.51	-1.30	730799.30	615720.57	32°41'28.130"N	103°43'02.940"W	0.49	
10441.00	88.700	178.300	8829.94	1725.42	-1725.46	0.34	730800.94	615655.63	32°41'27.487"N	103°43'02.925"W	1.45	
10505.00	89.600	178.900	8830.89	1789.40	-1789.44	1.91	730802.51	615591.66	32°41'26.854"N	103°43'02.911"W	1.69	
10568.00	89.900	178.400	8831.16	1852.39	-1852.42	3.39	730803.99	615528.68	32°41'26.231"N	103°43'02.898"W	0.93	
10631.00	88.900	176.800	8831.82	1915.35	-1915.36	6.03	730806.63	615465.74	32°41'25.608"N	103°43'02.871"W	2.99	
10695.00	89.600	176.500	8832.66	1979.26	-1979.24	9.77	730810.37	615401.86	32°41'24.976"N	103°43'02.832"W	1.19	
10758.00	87.500	175.200	8834.25	2042.10	-2042.05	14.32	730814.92	615339.05	32°41'24.354"N	103°43'02.783"W	3.92	



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 12H SHL
Area	Lea County, NM	Well	No. 12H
Field	(Bondurant) Sec 1, T19S, R32E	Wellbore	No.12H AWB
Facility	Bondurant 1 Fed No.12H		

WELLPATH DATA (173 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10822.00	88.000	176.300	8836.77	2105.91	-2105.82	19.06	730819.66	615275.28	32°41'23.723"N	103°43'02.732"W	1.89	
10886.00	87.000	175.100	8839.56	2169.70	-2169.58	23.86	730824.46	615211.53	32°41'23.092"N	103°43'02.680"W	2.44	
10946.00	89.000	178.400	8841.65	2229.58	-2229.44	27.25	730827.85	615151.68	32°41'22.499"N	103°43'02.644"W	6.43	
11013.00	89.200	178.600	8842.71	2296.56	-2296.41	29.01	730829.61	615084.71	32°41'21.837"N	103°43'02.628"W	0.42	
11076.00	89.100	177.800	8843.64	2359.53	-2359.37	30.99	730831.59	615021.75	32°41'21.214"N	103°43'02.609"W	1.28	
11140.00	89.100	177.300	8844.64	2423.49	-2423.30	33.72	730834.32	614957.82	32°41'20.581"N	103°43'02.582"W	0.78	
11203.00	89.000	177.900	8845.69	2486.44	-2486.24	36.36	730836.96	614894.89	32°41'19.958"N	103°43'02.555"W	0.97	
11267.00	88.900	177.900	8846.86	2550.40	-2550.18	38.71	730839.30	614830.95	32°41'19.325"N	103°43'02.532"W	0.16	
11331.00	88.000	177.100	8848.59	2614.33	-2614.10	41.50	730842.09	614767.04	32°41'18.693"N	103°43'02.504"W	1.88	
11395.00	87.900	178.000	8850.88	2678.25	-2678.00	44.23	730844.83	614703.14	32°41'18.060"N	103°43'02.476"W	1.41	
11458.00	88.300	177.600	8852.97	2741.19	-2740.92	46.65	730847.24	614640.23	32°41'17.438"N	103°43'02.452"W	0.90	
11522.00	88.700	178.100	8854.65	2805.14	-2804.85	49.05	730849.64	614576.30	32°41'16.805"N	103°43'02.428"W	1.00	
11585.00	87.200	177.400	8856.90	2868.06	-2867.76	51.52	730852.12	614513.39	32°41'16.182"N	103°43'02.404"W	2.63	
11649.00	90.100	182.100	8858.41	2932.02	-2931.72	51.80	730852.39	614449.44	32°41'15.550"N	103°43'02.405"W	8.63	
11712.00	88.400	180.800	8859.23	2994.98	-2994.69	50.20	730850.80	614386.47	32°41'14.927"N	103°43'02.428"W	3.40	
11776.00	91.400	184.900	8859.35	3058.85	-3058.59	47.02	730847.62	614322.57	32°41'14.295"N	103°43'02.469"W	7.94	
11840.00	90.800	184.200	8858.12	3122.60	-3122.37	41.94	730842.54	614258.79	32°41'13.664"N	103°43'02.533"W	1.44	
11903.00	90.500	182.900	8857.40	3185.44	-3185.25	38.04	730838.64	614195.92	32°41'13.042"N	103°43'02.583"W	2.12	
11967.00	90.300	182.200	8856.96	3249.35	-3249.18	35.20	730835.80	614131.99	32°41'12.409"N	103°43'02.621"W	1.14	
12030.00	90.400	182.200	8856.57	3312.28	-3312.13	32.78	730833.38	614069.04	32°41'11.787"N	103°43'02.653"W	0.16	
12094.00	91.400	182.500	8855.57	3376.20	-3376.07	30.15	730830.75	614005.11	32°41'11.154"N	103°43'02.688"W	1.63	
12157.00	91.100	183.100	8854.19	3439.09	-3438.98	27.08	730827.68	613942.20	32°41'10.532"N	103°43'02.728"W	1.06	
12221.00	92.200	184.300	8852.35	3502.89	-3502.82	22.95	730823.55	613878.36	32°41'09.901"N	103°43'02.781"W	2.54	
12284.00	90.900	185.100	8850.64	3565.61	-3565.58	17.79	730818.39	613815.60	32°41'09.280"N	103°43'02.846"W	2.42	
12347.00	90.900	185.600	8849.65	3628.29	-3628.30	11.92	730812.52	613752.89	32°41'08.660"N	103°43'02.919"W	0.79	
12411.00	89.500	185.200	8849.43	3691.95	-3692.01	5.89	730806.49	613689.18	32°41'08.030"N	103°43'02.993"W	2.28	
12474.00	87.900	184.300	8850.86	3754.68	-3754.78	0.68	730801.28	613626.42	32°41'07.409"N	103°43'03.059"W	2.91	
12538.00	87.900	182.600	8853.21	3818.49	-3818.62	-3.17	730797.43	613562.58	32°41'06.777"N	103°43'03.108"W	2.65	
12602.00	88.200	182.300	8855.38	3882.37	-3882.52	-5.90	730794.70	613498.68	32°41'06.145"N	103°43'03.144"W	0.66	
12664.00	88.400	180.900	8857.22	3944.30	-3944.47	-7.64	730792.97	613436.74	32°41'05.533"N	103°43'03.169"W	2.28	
12728.00	87.300	179.600	8859.62	4008.25	-4008.42	-7.91	730792.69	613372.79	32°41'04.900"N	103°43'03.176"W	2.66	
12791.00	85.800	179.300	8863.41	4071.13	-4071.30	-7.31	730793.29	613309.91	32°41'04.278"N	103°43'03.174"W	2.43	
12855.00	86.400	178.500	8867.77	4134.98	-4135.14	-6.09	730794.52	613246.08	32°41'03.646"N	103°43'03.164"W	1.56	
12918.00	87.200	178.000	8871.28	4197.86	-4198.01	-4.16	730796.44	613183.21	32°41'03.024"N	103°43'03.145"W	1.50	
12982.00	88.900	179.200	8873.46	4261.81	-4261.95	-2.60	730798.00	613119.27	32°41'02.391"N	103°43'03.132"W	3.25	
13046.00	89.100	179.300	8874.58	4325.80	-4325.94	-1.76	730798.84	613055.29	32°41'01.758"N	103°43'03.126"W	0.35	
13086.00	88.800	179.300	8875.31	4365.79	-4365.93	-1.28	730799.32	613015.30	32°41'01.362"N	103°43'03.123"W	0.75	
13131.00	88.800	179.300	8876.25	4410.78	-4410.91	-0.73	730799.87	612970.32	32°41'00.917"N	103°43'03.120"W	0.00	Proj to Bit



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 12H SHL
Area	Lea County, NM	Well	No. 12H
Field	(Bondurant) Sec 1, T19S, R32E	Wellbore	No.12H AWB
Facility	Bondurant 1 Fed No.12H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No. 12H PBHL		8847.50	-4624.65	-1355.34	729445.33	612756.59	32°40'58.880"N	103°43'18.983"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.12H-AWB					Ref Wellpath: No.12H AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment	Wellbore
20.00	8300.00	Generic gyro - northseeking (Standard)			VES Gyro <100-9878>	No.12H AWB
8300.00	13131.00	NaviTrak (Standard)			MWD NaviTrak <8400 - XXXX>	No.12H AWB