

Results of Directional Survey

API number:	30-025-40557		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	EAST LUSK 15 FEDERAL COM # 2H

surface	ULSTR:	I	15	T 19S	R 32E
				2350 FSL	330 FEL

BH Loc	ULSTR:	L	15	T 19S	R 32E
13863 MD		9513.9	TVD	1947 FSL	327 FWL
					4953 FEL

Top Perf/OH	ULSTR:	I	15	T 19S	R 32E
9400 MD		9365.6	TVD	2331 FSL	559 FEL

Bot Perf/OH	ULSTR:	L	15	T 19S	R 32E
13842 MD		9514.6	TVD	1950 FSL	348 FWL
					4932 FEL

	MD	N/S	E/W	VD
	9376	-17.53	-213.57	9347.3
TOP PERFS/OH	9400	-19.01	-229.08	9365.55
	9408	-19.50	-234.25	9371.63
	13805	-395.57	-4565.25	9515.97
BOT PERFS/OH	13842	-400.07	-4601.97	9514.64
	13863	-402.63	-4622.81	9513.88

NEXT TO LAST	13805	-395.57	-4565.25	9515.97
LAST READING	13863	-402.63	-4622.81	9513.88
TD	13863	-402.63	-4622.81	9513.88

Surface Location	2350 FS	330 FE
Projected BHL	1947 FS	4953 FE
Location of		
Top Perfs/OH	2331 FS	559 FE
Bottom Perfs/OH	1950 FS	4932 FE

SUMMARY of Subsurface Locations

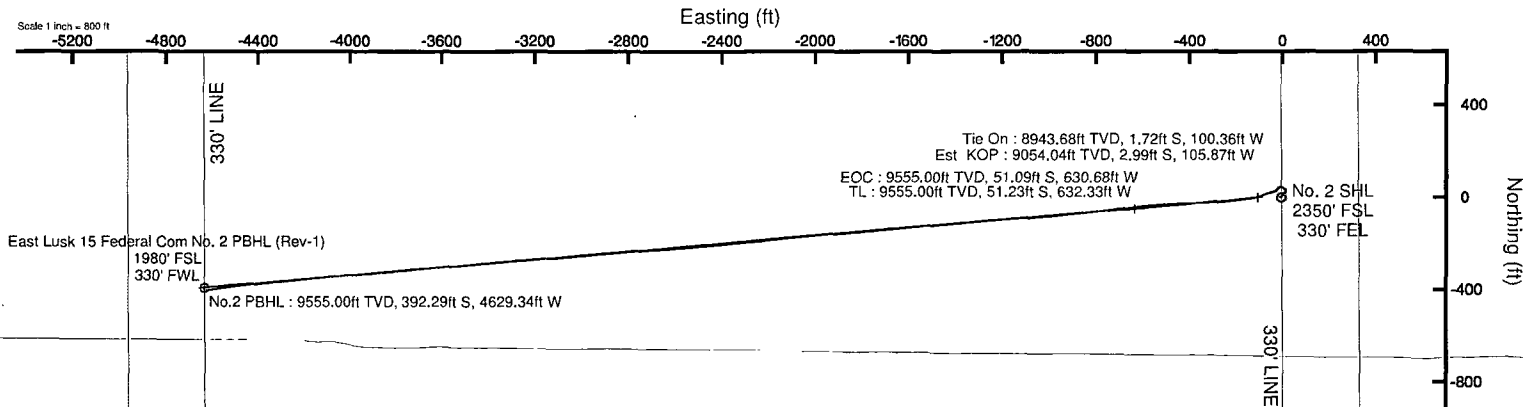
Surface Location	I-15-19S-32E	2350 FS	330 FE	Vert. Depth
Top Perfs/OH	I-15-19S-32E	2331 FS	559 FE	9365.55
Bottom Perfs/OH	L-15-19S-32E	1950 FS	4932 FE	9514.64
Projected TD	L-15-19S-32E	1947 FS	4953 FE	9513.88



Cimarex Energy Co.

Location: Lea County, NM
Field: (East 15) Sec 15, T19S, R32E
Facility: East Lusk 15 Federal Com No. 2

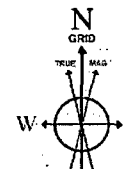
Slot: No. 2 SHL
Well: No. 2
Wellbore: No. 2 PWB



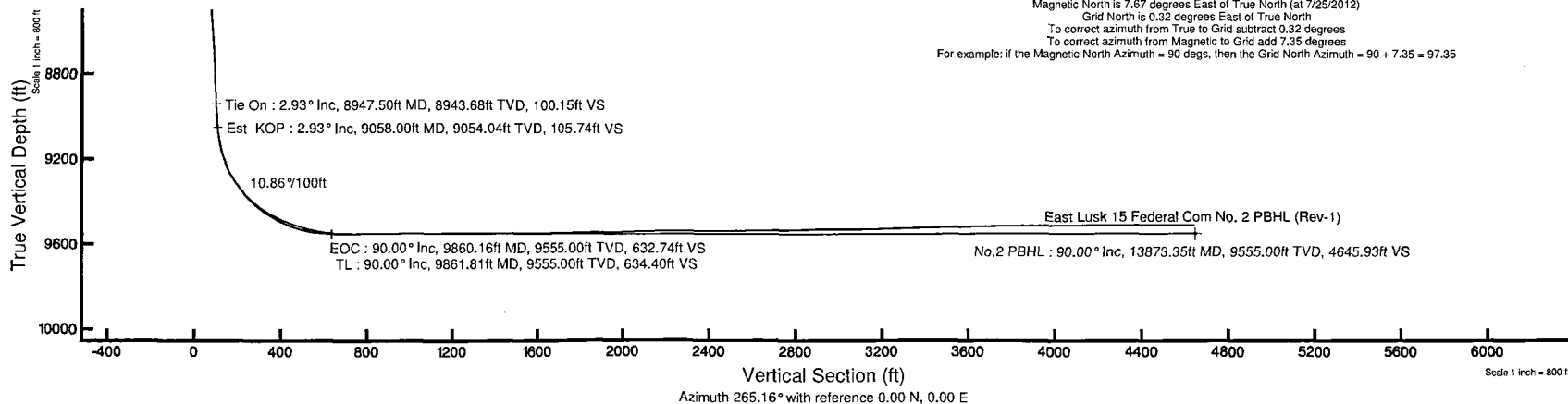
Well Profile Data

Design Comment	MD (ft)	Inc. (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8947.50	2.930	257.040	8943.68	-1.72	-100.36	0.00	100.15
Est KOP	9058.00	2.930	257.040	9054.04	-2.99	-105.87	0.00	105.74
EOC	9860.16	90.000	265.156	9555.00	-51.09	-630.68	10.86	632.74
TL	9861.81	90.000	265.123	9555.00	-51.23	-632.33	2.00	634.40
No.2 PBHL	13873.35	90.000	265.123	9555.00	-392.29	-4629.34	0.00	4645.93

Plot reference wellpath is Rev-D.0	
True vertical depths are referenced to NorAm 23 (RT)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to NorAm 23 (RT)	North Reference: Grid north
NorAm 23 (RT) to Mean Sea Level: 3656.6 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No. 2 SHL): -3628 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: harrick on 8/7/2012



BGGM (1945.0 to 2014.0) Dip: 60.50° Field: 48742 nT
Magnetic North is 7.67 degrees East of True North (at 7/25/2012)
Grid North is 0.32 degrees East of True North
To correct azimuth from True to Grid subtract 0.32 degrees
To correct azimuth from Magnetic to Grid add 7.35 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.35 = 97.35



SUR: L-15-19s-32e, 2350/S & 330/E
BHL: L-15-19s-32e, 1947/S & 4953/E
API # 30-025-40557

Rev-D.0



Actual Wellpath Report

No. 2 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2 AWB
Facility	East Lusk 15 Federal Com No. 2		

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	Harrkol
Scale	0.999946	Report Generated	8/16/2012 at 8:45:29 AM
Convergence at slot	0.32° East	Database/Source file	WA Midland/No. 2_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	721926.60	604189.70	32°39'34.532"N	103°44'47.508"W
Facility Reference Pt			721926.60	604189.70	32°39'34.532"N	103°44'47.508"W
Field Reference Pt			721939.70	602500.30	32°39'17.815"N	103°44'47.464"W

WELLPATH DATUM

Calculation method	Minimum curvature	NorAm 23 (RT) to Facility Vertical Datum	28.60ft
Horizontal Reference Pt	Slot	NorAm 23 (RT) to Mean Sea Level	3656.60ft
Vertical Reference Pt	NorAm 23 (RT)	NorAm 23 (RT) to Mud Line at Slot (No. 2 SHL)	28.60ft
MD Reference Pt	NorAm 23 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	265.16°



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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2 AWB
Facility	East Lusk 15 Federal Com No. 2		

WELLPATH DATA (172 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
0.00	0.000	317.170	0.00	0.00	0.00	0.00	721926.60	604189.70	32°39'34.532"N	103°44'47.508"W	0.00	
100.00	0.450	317.170	100.00	0.24	0.29	-0.27	721926.33	604189.99	32°39'34.535"N	103°44'47.511"W	0.45	
200.00	0.460	269.050	200.00	0.88	0.57	-0.94	721925.66	604190.27	32°39'34.538"N	103°44'47.519"W	0.37	
300.00	0.460	265.070	299.99	1.69	0.53	-1.74	721924.86	604190.23	32°39'34.537"N	103°44'47.528"W	0.03	
400.00	0.530	262.810	399.99	2.55	0.44	-2.60	721924.00	604190.14	32°39'34.536"N	103°44'47.539"W	0.07	
500.00	0.370	232.120	499.99	3.28	0.18	-3.31	721923.29	604189.88	32°39'34.534"N	103°44'47.547"W	0.28	
600.00	0.390	248.930	599.98	3.88	-0.14	-3.88	721922.72	604189.56	32°39'34.531"N	103°44'47.554"W	0.11	
700.00	0.240	233.300	699.98	4.38	-0.39	-4.37	721922.23	604189.31	32°39'34.528"N	103°44'47.559"W	0.17	
800.00	0.490	210.040	799.98	4.81	-0.88	-4.75	721921.85	604188.82	32°39'34.523"N	103°44'47.564"W	0.29	
900.00	0.560	236.670	899.98	5.48	-1.52	-5.37	721921.23	604188.18	32°39'34.517"N	103°44'47.571"W	0.25	
1000.00	0.700	223.130	999.97	6.36	-2.24	-6.20	721920.40	604187.46	32°39'34.510"N	103°44'47.581"W	0.20	
1050.00	0.540	255.270	1049.97	6.82	-2.52	-6.63	721919.97	604187.18	32°39'34.507"N	103°44'47.586"W	0.75	
1145.20	0.640	259.060	1145.16	7.79	-2.73	-7.59	721919.01	604186.97	32°39'34.505"N	103°44'47.597"W	0.11	
1240.30	0.280	249.130	1240.26	8.55	-2.92	-8.33	721918.27	604186.78	32°39'34.503"N	103°44'47.606"W	0.39	
1335.50	0.250	280.920	1335.46	8.97	-2.96	-8.75	721917.85	604186.74	32°39'34.503"N	103°44'47.611"W	0.16	
1430.60	0.140	289.270	1430.56	9.27	-2.88	-9.06	721917.54	604186.82	32°39'34.504"N	103°44'47.614"W	0.12	
1525.80	0.220	86.870	1525.76	9.20	-2.84	-8.99	721917.61	604186.86	32°39'34.504"N	103°44'47.614"W	0.37	
1620.90	0.300	87.060	1620.86	8.77	-2.81	-8.56	721918.04	604186.89	32°39'34.505"N	103°44'47.609"W	0.08	
1716.10	0.460	76.160	1716.05	8.14	-2.71	-7.94	721918.66	604186.99	32°39'34.506"N	103°44'47.601"W	0.18	
1811.20	0.610	70.050	1811.15	7.27	-2.44	-7.09	721919.51	604187.26	32°39'34.508"N	103°44'47.591"W	0.17	
1906.40	0.780	54.900	1906.34	6.23	-1.90	-6.09	721920.51	604187.80	32°39'34.513"N	103°44'47.580"W	0.26	
2001.50	1.050	51.090	2001.43	4.94	-0.98	-4.88	721921.72	604188.72	32°39'34.522"N	103°44'47.565"W	0.29	
2096.70	1.650	49.260	2096.60	3.11	0.46	-3.16	721923.44	604190.16	32°39'34.537"N	103°44'47.545"W	0.63	
2191.80	2.130	44.890	2191.65	0.65	2.61	-0.88	721925.72	604192.31	32°39'34.558"N	103°44'47.518"W	0.53	
2287.00	2.190	46.060	2286.78	-2.11	5.12	1.68	721928.28	604194.82	32°39'34.582"N	103°44'47.488"W	0.08	
2382.10	2.220	48.100	2381.81	-4.99	7.61	4.36	721930.96	604197.31	32°39'34.607"N	103°44'47.457"W	0.09	
2477.30	2.340	48.150	2476.94	-8.01	10.14	7.18	721933.78	604199.84	32°39'34.632"N	103°44'47.424"W	0.13	
2572.40	2.420	52.270	2571.96	-11.25	12.67	10.21	721936.81	604202.37	32°39'34.657"N	103°44'47.388"W	0.20	
2667.60	2.490	48.700	2667.07	-14.60	15.26	13.36	721939.96	604204.96	32°39'34.682"N	103°44'47.351"W	0.18	
2762.70	1.980	43.300	2762.10	-17.48	17.82	16.04	721942.64	604207.52	32°39'34.707"N	103°44'47.319"W	0.58	
2857.90	1.520	37.620	2857.25	-19.56	20.02	17.94	721944.53	604209.72	32°39'34.729"N	103°44'47.297"W	0.52	
2953.00	0.930	29.860	2952.33	-20.85	21.69	19.09	721945.69	604211.38	32°39'34.745"N	103°44'47.284"W	0.64	
3048.20	0.680	9.560	3047.52	-21.43	22.91	19.57	721946.17	604212.61	32°39'34.758"N	103°44'47.278"W	0.39	
3143.30	0.650	343.770	3142.61	-21.47	23.99	19.51	721946.11	604213.69	32°39'34.768"N	103°44'47.278"W	0.31	
3238.50	0.570	351.650	3237.81	-21.33	24.97	19.29	721945.89	604214.67	32°39'34.778"N	103°44'47.281"W	0.12	
3333.60	0.360	6.910	3332.91	-21.36	25.74	19.26	721945.86	604215.44	32°39'34.786"N	103°44'47.281"W	0.25	
3428.80	0.110	12.040	3428.11	-21.45	26.13	19.31	721945.91	604215.82	32°39'34.789"N	103°44'47.281"W	0.26	
3523.90	0.080	335.250	3523.21	-21.45	26.28	19.30	721945.90	604215.97	32°39'34.791"N	103°44'47.281"W	0.07	
3619.10	0.110	190.800	3618.41	-21.41	26.25	19.26	721945.86	604215.94	32°39'34.791"N	103°44'47.281"W	0.19	
3714.20	0.160	224.350	3713.51	-21.28	26.06	19.15	721945.75	604215.76	32°39'34.789"N	103°44'47.283"W	0.10	
3809.40	0.190	260.490	3808.70	-21.02	25.94	18.90	721945.50	604215.64	32°39'34.788"N	103°44'47.285"W	0.12	
3904.50	0.350	345.530	3903.80	-20.82	26.20	18.67	721945.27	604215.89	32°39'34.790"N	103°44'47.288"W	0.40	
3999.70	0.360	346.540	3999.00	-20.73	26.77	18.53	721945.13	604216.47	32°39'34.796"N	103°44'47.290"W	0.01	
4094.80	0.550	357.150	4094.10	-20.70	27.51	18.44	721945.04	604217.21	32°39'34.803"N	103°44'47.291"W	0.22	
4190.00	0.640	355.880	4189.29	-20.72	28.50	18.38	721944.98	604218.20	32°39'34.813"N	103°44'47.291"W	0.10	



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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2 AWB
Facility	East Lusk 15 Federal Com No. 2		

WELLPATH DATA (172 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
4285.10	0.600	351.830	4284.39	-20.70	29.52	18.27	721944.87	604219.22	32°39'34.823"N	103°44'47.293"W	0.06	
4380.30	0.280	340.510	4379.59	-20.61	30.24	18.12	721944.72	604219.93	32°39'34.830"N	103°44'47.294"W	0.35	
4475.40	0.250	295.890	4474.68	-20.37	30.55	17.86	721944.46	604220.24	32°39'34.833"N	103°44'47.297"W	0.21	
4570.60	0.410	258.090	4569.88	-19.86	30.57	17.34	721943.94	604220.26	32°39'34.833"N	103°44'47.303"W	0.28	
4665.70	0.290	275.680	4664.98	-19.28	30.52	16.76	721943.36	604220.22	32°39'34.833"N	103°44'47.310"W	0.17	
4760.90	0.180	282.910	4760.18	-18.90	30.58	16.38	721942.98	604220.28	32°39'34.834"N	103°44'47.315"W	0.12	
4856.00	0.090	175.660	4855.28	-18.76	30.54	16.24	721942.84	604220.23	32°39'34.833"N	103°44'47.316"W	0.24	
4951.20	0.170	50.980	4950.48	-18.87	30.55	16.35	721942.95	604220.25	32°39'34.833"N	103°44'47.315"W	0.25	
5046.30	0.230	95.080	5045.58	-19.18	30.62	16.65	721943.25	604220.32	32°39'34.834"N	103°44'47.311"W	0.17	
5141.50	0.140	29.080	5140.78	-19.43	30.71	16.90	721943.50	604220.41	32°39'34.835"N	103°44'47.309"W	0.23	
5236.60	0.200	356.390	5235.88	-19.50	30.97	16.95	721943.55	604220.67	32°39'34.837"N	103°44'47.308"W	0.12	
5331.80	0.260	313.960	5331.08	-19.36	31.29	16.78	721943.38	604220.99	32°39'34.841"N	103°44'47.310"W	0.18	
5426.90	0.650	298.190	5426.17	-18.77	31.69	16.15	721942.75	604221.39	32°39'34.845"N	103°44'47.317"W	0.43	
5522.10	0.900	303.400	5521.37	-17.73	32.36	15.05	721941.65	604222.06	32°39'34.851"N	103°44'47.330"W	0.27	
5617.20	1.320	308.290	5616.45	-16.34	33.45	13.57	721940.17	604223.15	32°39'34.862"N	103°44'47.347"W	0.45	
5712.40	1.650	306.230	5711.62	-14.51	34.94	11.60	721938.20	604224.64	32°39'34.877"N	103°44'47.370"W	0.35	
5807.50	1.660	302.940	5806.68	-12.39	36.50	9.34	721935.94	604226.20	32°39'34.893"N	103°44'47.397"W	0.10	
5902.70	1.790	303.650	5901.83	-10.13	38.07	6.94	721933.54	604227.77	32°39'34.908"N	103°44'47.425"W	0.14	
5997.80	1.630	310.200	5996.89	-8.02	39.77	4.68	721931.27	604229.47	32°39'34.925"N	103°44'47.451"W	0.27	
6093.00	1.380	310.550	6092.06	-6.25	41.39	2.77	721929.37	604231.09	32°39'34.941"N	103°44'47.473"W	0.26	
6188.10	1.240	286.870	6187.13	-4.49	42.43	0.92	721927.52	604232.13	32°39'34.952"N	103°44'47.495"W	0.58	
6283.30	1.220	277.790	6282.31	-2.55	42.87	-1.07	721925.53	604232.56	32°39'34.956"N	103°44'47.518"W	0.21	
6378.40	1.220	276.290	6377.39	-0.57	43.12	-3.08	721923.52	604232.81	32°39'34.959"N	103°44'47.541"W	0.03	
6473.60	1.010	265.380	6472.57	1.27	43.16	-4.93	721921.67	604232.86	32°39'34.959"N	103°44'47.563"W	0.31	
6568.70	0.930	253.780	6567.66	2.86	42.88	-6.50	721920.10	604232.57	32°39'34.956"N	103°44'47.582"W	0.22	
6663.90	1.260	235.460	6662.84	4.53	42.07	-8.11	721918.49	604231.76	32°39'34.949"N	103°44'47.600"W	0.50	
6759.00	1.430	226.610	6757.92	6.36	40.66	-9.83	721916.77	604230.36	32°39'34.935"N	103°44'47.621"W	0.28	
6854.20	1.540	224.960	6853.08	8.27	38.94	-11.60	721915.00	604228.63	32°39'34.918"N	103°44'47.641"W	0.12	
6949.30	1.520	220.920	6948.15	10.15	37.08	-13.33	721913.27	604226.78	32°39'34.899"N	103°44'47.662"W	0.12	
7044.50	1.590	211.430	7043.31	11.84	35.00	-14.84	721911.76	604224.70	32°39'34.879"N	103°44'47.680"W	0.28	
7139.60	1.970	207.230	7138.37	13.48	32.42	-16.28	721910.32	604222.12	32°39'34.854"N	103°44'47.697"W	0.42	
7234.80	1.950	221.230	7233.51	15.52	29.75	-18.10	721908.50	604219.44	32°39'34.827"N	103°44'47.718"W	0.50	
7329.90	2.050	232.440	7328.56	18.12	27.49	-20.51	721906.09	604217.19	32°39'34.805"N	103°44'47.746"W	0.42	
7425.10	2.150	238.160	7423.69	21.14	25.51	-23.38	721903.22	604215.21	32°39'34.786"N	103°44'47.780"W	0.24	
7520.20	1.980	246.910	7518.73	24.29	23.93	-26.40	721900.20	604213.63	32°39'34.770"N	103°44'47.816"W	0.38	
7615.40	1.870	250.200	7613.88	27.35	22.76	-29.38	721897.22	604212.45	32°39'34.759"N	103°44'47.850"W	0.16	
7710.50	1.860	254.980	7708.93	30.37	21.83	-32.33	721894.27	604211.53	32°39'34.750"N	103°44'47.885"W	0.16	
7805.70	1.980	256.680	7804.07	33.52	21.05	-35.42	721891.18	604210.75	32°39'34.742"N	103°44'47.921"W	0.14	
7900.80	2.350	258.180	7899.11	37.08	20.27	-38.93	721887.67	604209.97	32°39'34.735"N	103°44'47.962"W	0.39	
7996.00	2.890	254.790	7994.21	41.38	19.24	-43.16	721883.45	604208.94	32°39'34.725"N	103°44'48.012"W	0.59	
8091.10	3.460	252.020	8089.16	46.53	17.73	-48.20	721878.40	604207.43	32°39'34.710"N	103°44'48.071"W	0.62	
8186.30	3.950	255.780	8184.16	52.56	16.04	-54.11	721872.49	604205.74	32°39'34.694"N	103°44'48.140"W	0.57	
8281.40	4.380	254.080	8279.01	59.36	14.24	-60.78	721865.83	604203.94	32°39'34.676"N	103°44'48.218"W	0.47	
8376.60	4.790	253.220	8373.90	66.81	12.09	-68.08	721858.53	604201.79	32°39'34.655"N	103°44'48.304"W	0.44	
8471.70	4.250	252.790	8468.71	74.14	9.90	-75.25	721851.36	604199.60	32°39'34.634"N	103°44'48.388"W	0.57	



Actual Wellpath Report

No. 2 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2 AWB
Facility	East Lusk 15 Federal Com No. 2		

WELLPATH DATA (172 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
8566.90	3.780	245.260	8563.67	80.54	7.55	-81.47	721845.14	604197.24	32°39'34.611"N	103°44'48.461"W	0.74	
8662.00	3.370	239.310	8658.59	86.00	4.81	-86.72	721839.89	604194.51	32°39'34.584"N	103°44'48.522"W	0.58	
8757.20	3.090	240.700	8753.64	90.85	2.12	-91.36	721835.24	604191.82	32°39'34.558"N	103°44'48.577"W	0.31	
8852.30	2.920	245.090	8848.61	95.46	-0.15	-95.79	721830.81	604189.55	32°39'34.536"N	103°44'48.629"W	0.30	
8947.50	2.930	257.040	8943.68	100.15	-1.72	-100.36	721826.24	604187.98	32°39'34.520"N	103°44'48.682"W	0.64	
9018.00	3.100	262.200	9014.09	103.84	-2.38	-104.01	721822.60	604187.32	32°39'34.514"N	103°44'48.725"W	0.45	
9049.00	3.200	256.700	9045.04	105.53	-2.69	-105.68	721820.93	604187.01	32°39'34.511"N	103°44'48.744"W	1.03	
9091.00	5.600	255.200	9086.91	108.71	-3.49	-108.80	721817.80	604186.21	32°39'34.503"N	103°44'48.781"W	5.72	
9123.00	9.400	255.700	9118.63	112.83	-4.53	-112.85	721813.76	604185.17	32°39'34.493"N	103°44'48.828"W	11.88	
9155.00	13.100	258.100	9150.01	119.00	-5.93	-118.93	721807.68	604183.77	32°39'34.480"N	103°44'48.900"W	11.65	
9186.00	16.300	261.400	9180.00	126.83	-7.30	-126.67	721799.94	604182.40	32°39'34.467"N	103°44'48.990"W	10.67	
9218.00	20.100	264.800	9210.39	136.82	-8.47	-136.59	721790.02	604181.23	32°39'34.456"N	103°44'49.106"W	12.33	
9250.00	24.100	263.300	9240.03	148.85	-9.73	-148.56	721778.05	604179.97	32°39'34.444"N	103°44'49.246"W	12.62	
9281.00	27.800	262.800	9267.90	162.40	-11.38	-162.02	721764.59	604178.32	32°39'34.428"N	103°44'49.404"W	11.96	
9313.00	31.500	262.500	9295.71	178.22	-13.40	-177.72	721748.89	604176.30	32°39'34.409"N	103°44'49.588"W	11.57	
9345.00	34.900	263.400	9322.48	195.72	-15.55	-195.11	721731.50	604174.15	32°39'34.389"N	103°44'49.791"W	10.74	
9376.00	38.700	264.300	9347.30	214.28	-17.53	-213.57	721713.05	604172.17	32°39'34.370"N	103°44'50.007"W	12.38	
9408.00	42.300	264.800	9371.63	235.06	-19.50	-234.25	721692.36	604170.20	32°39'34.352"N	103°44'50.249"W	11.30	
9440.00	46.300	265.900	9394.53	257.41	-21.31	-256.52	721670.09	604168.40	32°39'34.335"N	103°44'50.510"W	12.73	
9471.00	49.600	266.400	9415.29	280.42	-22.85	-279.49	721647.13	604166.85	32°39'34.321"N	103°44'50.779"W	10.71	
9503.00	53.600	266.100	9435.16	305.49	-24.49	-304.51	721622.11	604165.21	32°39'34.306"N	103°44'51.071"W	12.52	
9535.00	57.900	266.100	9453.16	331.93	-26.29	-330.89	721595.73	604163.41	32°39'34.290"N	103°44'51.380"W	13.44	
9566.00	61.300	268.500	9468.85	358.64	-27.54	-357.59	721569.03	604162.16	32°39'34.279"N	103°44'51.693"W	12.84	
9598.00	64.200	268.100	9483.50	387.04	-28.38	-386.02	721540.60	604161.32	32°39'34.272"N	103°44'52.025"W	9.13	
9630.00	66.700	268.100	9496.80	416.11	-29.35	-415.11	721511.51	604160.35	32°39'34.264"N	103°44'52.366"W	7.81	
9661.00	69.300	268.400	9508.41	444.81	-30.23	-443.84	721482.78	604159.48	32°39'34.257"N	103°44'52.702"W	8.43	
9693.00	71.600	268.200	9519.11	474.91	-31.12	-473.98	721452.65	604158.58	32°39'34.250"N	103°44'53.054"W	7.21	
9725.00	73.900	267.400	9528.60	505.44	-32.29	-504.52	721422.11	604157.41	32°39'34.240"N	103°44'53.411"W	7.57	
9756.00	77.100	265.100	9536.37	535.44	-34.26	-534.46	721392.17	604155.44	32°39'34.222"N	103°44'53.762"W	12.58	
9788.00	79.500	264.000	9542.85	566.77	-37.24	-565.65	721360.98	604152.46	32°39'34.194"N	103°44'54.127"W	8.22	
9820.00	82.900	263.000	9547.75	598.38	-40.82	-597.06	721329.57	604148.88	32°39'34.161"N	103°44'54.494"W	11.06	
9848.00	85.300	262.900	9550.63	626.21	-44.24	-624.70	721301.93	604145.47	32°39'34.128"N	103°44'54.818"W	8.58	
9880.00	87.800	263.000	9552.55	658.12	-48.16	-656.40	721270.24	604141.55	32°39'34.091"N	103°44'55.189"W	7.82	
9912.00	88.300	263.100	9553.64	690.08	-52.03	-688.15	721238.49	604137.68	32°39'34.055"N	103°44'55.561"W	1.59	
9944.00	88.300	262.600	9554.59	722.04	-56.01	-719.88	721206.76	604133.69	32°39'34.017"N	103°44'55.932"W	1.56	
9975.00	88.900	262.800	9555.35	753.00	-59.95	-750.62	721176.02	604129.76	32°39'33.980"N	103°44'56.292"W	2.04	
10007.00	89.700	263.300	9555.74	784.98	-63.82	-782.38	721144.26	604125.89	32°39'33.943"N	103°44'56.664"W	2.95	
10039.00	90.100	263.800	9555.80	816.97	-67.41	-814.18	721112.46	604122.29	32°39'33.909"N	103°44'57.036"W	2.00	
10070.00	89.900	263.900	9555.80	847.96	-70.73	-845.00	721081.64	604118.97	32°39'33.878"N	103°44'57.396"W	0.72	
10102.00	90.200	263.600	9555.77	879.95	-74.22	-876.81	721049.84	604115.49	32°39'33.845"N	103°44'57.769"W	1.33	
10134.00	90.000	264.000	9555.71	911.94	-77.67	-908.63	721018.02	604112.03	32°39'33.813"N	103°44'58.141"W	1.40	
10166.00	90.000	264.500	9555.71	943.94	-80.88	-940.46	720986.19	604108.83	32°39'33.783"N	103°44'58.514"W	1.56	
10260.00	91.100	265.700	9554.81	1037.93	-88.91	-1034.11	720892.54	604100.80	32°39'33.709"N	103°44'59.610"W	1.73	
10355.00	90.500	265.700	9553.48	1132.91	-96.03	-1128.84	720797.83	604093.68	32°39'33.643"N	103°45'00.718"W	0.63	
10450.00	89.800	265.300	9553.23	1227.91	-103.48	-1223.54	720703.13	604086.22	32°39'33.575"N	103°45'01.826"W	0.85	



Actual Wellpath Report

No. 2 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2 AWB
Facility	East Lusk 15 Federal Com No. 2		

WELLPATH DATA (172 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
10545.00	90.100	265.300	9553.32	1322.91	-111.27	-1318.22	720608.45	604078.44	32°39'33.503"N	103°45'02.934"W	0.32	
10640.00	89.700	264.900	9553.48	1417.91	-119.38	-1412.88	720513.80	604070.32	32°39'33.428"N	103°45'04.042"W	0.60	
10735.00	90.400	264.600	9553.40	1512.91	-128.08	-1507.48	720419.21	604061.63	32°39'33.347"N	103°45'05.149"W	0.80	
10830.00	90.400	264.700	9552.74	1607.90	-136.93	-1602.06	720324.63	604052.77	32°39'33.264"N	103°45'06.256"W	0.11	
10926.00	90.900	265.300	9551.65	1703.89	-145.30	-1697.69	720229.01	604044.41	32°39'33.187"N	103°45'07.375"W	0.81	
11021.00	91.000	265.100	9550.07	1798.88	-153.25	-1792.34	720134.36	604036.46	32°39'33.113"N	103°45'08.482"W	0.24	
11116.00	90.700	265.100	9548.66	1893.87	-161.36	-1886.98	720039.72	604028.35	32°39'33.038"N	103°45'09.590"W	0.32	
11211.00	91.500	265.000	9546.84	1988.85	-169.56	-1981.61	719945.10	604020.15	32°39'32.962"N	103°45'10.697"W	0.85	
11306.00	91.600	264.700	9544.27	2083.82	-178.08	-2076.19	719850.52	604011.63	32°39'32.883"N	103°45'11.804"W	0.33	
11401.00	91.300	264.100	9541.87	2178.78	-187.35	-2170.71	719756.01	604002.36	32°39'32.796"N	103°45'12.910"W	0.71	
11496.00	89.800	264.100	9540.95	2273.75	-197.11	-2265.20	719661.53	603992.60	32°39'32.705"N	103°45'14.016"W	1.58	
11591.00	89.600	264.800	9541.45	2368.74	-206.30	-2359.75	719566.98	603983.41	32°39'32.619"N	103°45'15.122"W	0.77	
11686.00	90.700	265.400	9541.20	2463.74	-214.42	-2454.40	719472.33	603975.30	32°39'32.544"N	103°45'16.230"W	1.32	
11781.00	90.600	265.900	9540.12	2558.73	-221.62	-2549.12	719377.62	603968.09	32°39'32.478"N	103°45'17.338"W	0.54	
11876.00	90.500	265.800	9539.21	2653.72	-228.49	-2643.87	719282.88	603961.22	32°39'32.415"N	103°45'18.447"W	0.15	
11971.00	91.400	265.400	9537.64	2748.70	-235.78	-2738.57	719188.18	603953.93	32°39'32.348"N	103°45'19.555"W	1.04	
12066.00	91.100	265.800	9535.57	2843.68	-243.07	-2833.27	719093.49	603946.64	32°39'32.281"N	103°45'20.663"W	0.53	
12161.00	90.600	265.200	9534.16	2938.66	-250.52	-2927.97	718998.80	603939.19	32°39'32.212"N	103°45'21.771"W	0.82	
12256.00	90.000	265.100	9533.66	3033.66	-258.55	-3022.63	718904.14	603931.16	32°39'32.138"N	103°45'22.879"W	0.64	
12351.00	90.600	265.200	9533.16	3128.66	-266.59	-3117.28	718809.49	603923.13	32°39'32.063"N	103°45'23.987"W	0.64	
12446.00	91.700	265.700	9531.25	3223.64	-274.12	-3211.96	718714.82	603915.60	32°39'31.994"N	103°45'25.095"W	1.27	
12541.00	91.500	265.600	9528.60	3318.60	-281.32	-3306.65	718620.13	603908.39	32°39'31.928"N	103°45'26.203"W	0.24	
12636.00	91.300	265.300	9526.28	3413.57	-288.86	-3401.32	718525.46	603900.86	32°39'31.858"N	103°45'27.311"W	0.38	
12731.00	90.500	265.000	9524.79	3508.56	-296.89	-3495.97	718430.82	603892.83	32°39'31.784"N	103°45'28.418"W	0.90	
12826.00	91.800	265.900	9522.88	3603.53	-304.42	-3590.65	718336.15	603885.29	32°39'31.714"N	103°45'29.526"W	1.66	
12921.00	91.100	265.800	9520.48	3698.49	-311.29	-3685.37	718241.43	603878.42	32°39'31.651"N	103°45'30.634"W	0.74	
13016.00	90.700	265.200	9518.99	3793.48	-318.75	-3780.07	718146.74	603870.97	32°39'31.583"N	103°45'31.742"W	0.76	
13110.00	90.000	265.000	9518.41	3887.48	-326.78	-3873.72	718053.10	603862.94	32°39'31.508"N	103°45'32.838"W	0.77	
13206.00	90.600	264.900	9517.91	3983.48	-335.23	-3969.35	717957.48	603854.49	32°39'31.430"N	103°45'33.957"W	0.63	
13301.00	90.500	265.100	9517.00	4078.47	-343.51	-4063.98	717862.85	603846.21	32°39'31.353"N	103°45'35.065"W	0.24	
13396.00	90.200	264.400	9516.42	4173.47	-352.20	-4158.58	717768.25	603837.52	32°39'31.272"N	103°45'36.172"W	0.80	
13491.00	89.900	264.300	9516.33	4268.46	-361.55	-4253.12	717673.72	603828.17	32°39'31.184"N	103°45'37.278"W	0.33	
13586.00	90.400	264.200	9516.09	4363.44	-371.07	-4347.64	717579.20	603818.65	32°39'31.095"N	103°45'38.384"W	0.54	
13681.00	90.400	263.600	9515.42	4458.42	-381.16	-4442.10	717484.75	603808.56	32°39'31.000"N	103°45'39.490"W	0.63	
13776.00	89.400	263.200	9515.59	4553.37	-392.08	-4536.47	717390.39	603797.64	32°39'30.897"N	103°45'40.594"W	1.13	
13805.00	89.100	263.000	9515.97	4582.35	-395.57	-4565.25	717361.60	603794.16	32°39'30.865"N	103°45'40.931"W	1.24	
13863.00	89.100	263.000	9516.88	4640.30	-402.63	-4622.81	717304.04	603787.09	32°39'30.798"N	103°45'41.605"W	0.00	Projection to bit



Actual Wellpath Report

No. 2 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2 AWB
Facility	East Lusk 15 Federal Com No. 2		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
East Lusk 15 Federal Com No. 2 PBHL (Rev-1)		9555.00	-392.29	-4629.34	717297.52	603797.43	32°39'30.900"N	103°45'41.681"W	point

WELLPATH COMPOSITION - Ref Wellbore: No. 2 AWB Ref Wellpath: No. 2 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	8947.50	Generic gyro - northseeking (Standard)	Gyrodata / Gyros <100-8947.5>	No. 2 AWB
8947.50	13805.00	NaviTrak (Standard)	NaviTrak <8947.5-13805>	No. 2 AWB
13805.00	13863.00	Blind Drilling (std)	Projection to bit	No. 2 AWB