



Cimarex Energy Co.

Location: Eddy County, NM
Field (Crescent) Sec 11, T19S, R30E
Facility: Crescent Hale 11 No. 1H

Slot: No. 1H SHL
Well: No. 1H
Wellbore: No. 1H PWB

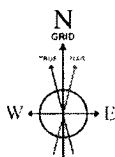


Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8229.10	2.230	183.260	8226.41	-58.76	-22.57	0.79	59.23
Est KOP	8310.00	2.230	183.260	8307.25	-61.90	-22.75	0.00	62.37
End of Curve	8802.89	89.000	180.950	8620.00	-381.38	-28.53	17.60	381.90
End of Hold	11184.89	89.000	180.950	8661.57	-2762.69	-68.02	0.00	2763.51
TVD 8662, INC 90	11233.98	90.000	180.925	8662.00	-2811.77	-68.82	2.04	2812.59
End of Turn	11235.65	90.000	180.959	8662.00	-2813.44	-68.85	2.00	2814.27
No. 1H PBHL	13026.41	90.000	180.959	8662.00	-4603.95	-98.81	0.00	4605.01

30-015-38494

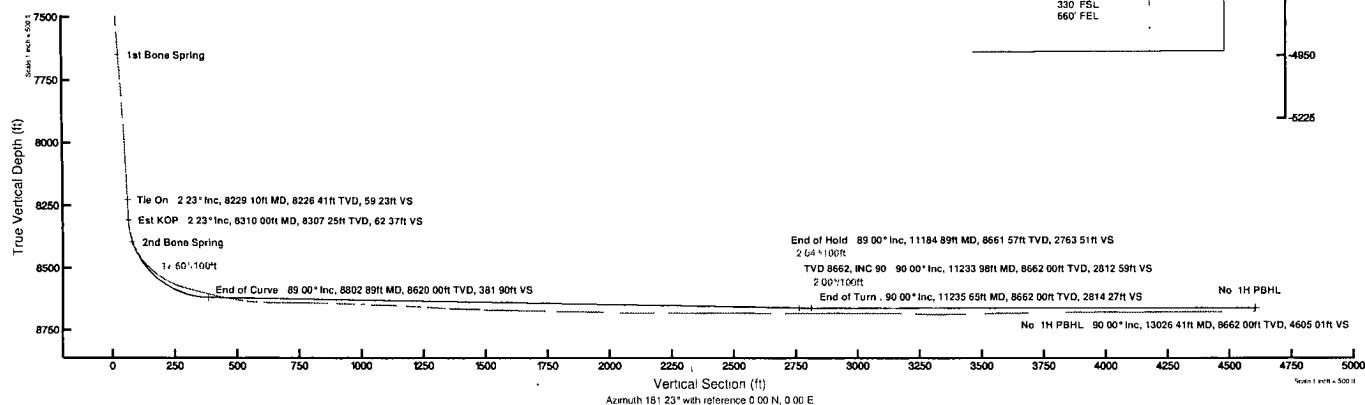
Plot reference wellpath is Plan 2.	
True vertical depths are referenced to Rig on No. 1H SHL (GL)	Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 1H SHL (GL)	North Reference: Grid north
Rig on No. 1H SHL (GL) to Mean Sea Level: 3499 feet	Scale: True distance
Mean Sea Level to Mud line (Facility: Crescent Hale 11 No. 1H): 3481 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: calypso on 3/25/2011



BGGM (1945.0 to 2012.0) Dip: 60.56° Field: 48913.5 nT
Magnetic North is 7.88 degrees East of True North (at 3/1/2011)
Grid North is 0.21 degrees East of True North
To correct azimuth from True to Grid subtract 0.21 degrees
To correct azimuth from Magnetic to Grid add 7.67 degrees
For example: if the Magnetic North Azimuth = 90 degrees, then the Grid North Azimuth = 90 + 7.67 = 97.67

End of Hold: 8661.57ft TVD, 2762.69ft S, 68.02ft W
TVD 8662, INC 90: 8662.00ft TVD, 2811.77ft S, 68.82ft W
End of Turn: 8662.00ft TVD, 2813.44ft S, 68.85ft W

RECEIVED
SEP 30 2011
NMOCD ARTESIA





Actual Wellpath Report

No. 1H AWP

Page 1 of 7



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 11, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 11 No. 1H		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Gentbry
Scale	0.999926	Report Generated	4/4/2011 at 10:38:13 AM
Convergence at slot	0.21° East	Database/Source file	WA Midland/No._1H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	663634.20	611763.80	32°40'52.152"N	103°56'09.051"W
Facility Reference Pt			663634.20	611763.80	32°40'52.152"N	103°56'09.051"W
Field Reference Pt			663634.20	611763.80	32°40'52.152"N	103°56'09.051"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 1H SHL (GL) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Slot	Rig on No. 1H SHL (GL) to Mean Sea Level	3499.00ft
Vertical Reference Pt	Rig on No. 1H SHL (GL)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 1H SHL (GL)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	181.23°



Actual Wellpath Report

No. 1H AWP

Page 2 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 11, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 11 No. 1H		

WELLPATH DATA (216 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	94.950	0.00	0.00	0.00	0.00	663634.20	611763.80	32°40'52.152"N	103°56'09.051"W	0.00	
18.00	0.000	94.950	18.00	0.00	0.00	0.00	663634.20	611763.80	32°40'52.152"N	103°56'09.051"W	0.00	
115.70	0.660	94.950	115.70	0.04	-0.05	0.56	663634.76	611763.75	32°40'52.152"N	103°56'09.044"W	0.68	
174.70	0.640	97.640	174.69	0.10	-0.12	1.23	663635.43	611763.68	32°40'52.151"N	103°56'09.036"W	0.06	
236.40	0.640	102.310	236.39	0.20	-0.24	1.90	663636.10	611763.56	32°40'52.150"N	103°56'09.028"W	0.08	
297.80	0.560	105.620	297.79	0.34	-0.39	2.53	663636.73	611763.41	32°40'52.148"N	103°56'09.021"W	0.14	
358.10	0.500	108.990	358.08	0.49	-0.56	3.06	663637.26	611763.24	32°40'52.146"N	103°56'09.015"W	0.11	
417.40	0.430	112.110	417.38	0.65	-0.73	3.51	663637.71	611763.07	32°40'52.145"N	103°56'09.010"W	0.13	
478.80	0.370	114.070	478.78	0.81	-0.90	3.91	663638.11	611762.90	32°40'52.143"N	103°56'09.005"W	0.10	
538.60	0.300	113.370	538.58	0.95	-1.04	4.23	663638.43	611762.76	32°40'52.142"N	103°56'09.001"W	0.12	
599.50	0.320	115.450	599.48	1.08	-1.17	4.53	663638.73	611762.63	32°40'52.140"N	103°56'08.998"W	0.04	
663.10	0.400	119.630	663.08	1.25	-1.36	4.88	663639.08	611762.44	32°40'52.138"N	103°56'08.994"W	0.13	
726.70	0.400	117.610	726.68	1.46	-1.57	5.27	663639.47	611762.23	32°40'52.136"N	103°56'08.989"W	0.02	
790.20	0.370	113.340	790.17	1.63	-1.76	5.65	663639.85	611762.04	32°40'52.134"N	103°56'08.985"W	0.07	
853.80	0.360	102.400	853.77	1.75	-1.88	6.04	663640.24	611761.92	32°40'52.133"N	103°56'08.980"W	0.11	
917.40	0.280	86.850	917.37	1.78	-1.91	6.39	663640.59	611761.89	32°40'52.133"N	103°56'08.976"W	0.18	
981.00	0.270	82.330	980.97	1.74	-1.89	6.69	663640.89	611761.91	32°40'52.133"N	103°56'08.972"W	0.04	
1044.60	0.250	88.360	1044.57	1.71	-1.86	6.98	663641.18	611761.94	32°40'52.133"N	103°56'08.969"W	0.05	
1108.10	0.250	85.060	1108.07	1.69	-1.85	7.25	663641.45	611761.95	32°40'52.134"N	103°56'08.966"W	0.02	
1171.70	0.260	84.110	1171.67	1.66	-1.82	7.54	663641.74	611761.98	32°40'52.134"N	103°56'08.963"W	0.02	
1235.30	0.320	81.540	1235.27	1.61	-1.78	7.86	663642.06	611762.02	32°40'52.134"N	103°56'08.959"W	0.10	
1298.90	0.410	77.740	1298.87	1.53	-1.70	8.25	663642.45	611762.10	32°40'52.135"N	103°56'08.954"W	0.15	
1362.50	0.450	72.840	1362.47	1.39	-1.58	8.71	663642.91	611762.22	32°40'52.136"N	103°56'08.949"W	0.09	
1426.00	0.440	73.000	1425.96	1.24	-1.44	9.19	663643.39	611762.36	32°40'52.137"N	103°56'08.943"W	0.02	
1489.60	0.440	68.320	1489.56	1.07	-1.27	9.65	663643.85	611762.53	32°40'52.139"N	103°56'08.938"W	0.06	
1553.20	0.510	63.560	1553.16	0.84	-1.06	10.13	663644.33	611762.74	32°40'52.141"N	103°56'08.932"W	0.13	
1616.80	0.730	55.900	1616.76	0.48	-0.71	10.72	663644.92	611763.09	32°40'52.145"N	103°56'08.925"W	0.37	
1680.40	0.870	53.200	1680.35	-0.06	-0.19	11.44	663645.64	611763.61	32°40'52.150"N	103°56'08.917"W	0.23	
1743.90	0.960	51.460	1743.84	-0.69	0.43	12.24	663646.44	611764.23	32°40'52.156"N	103°56'08.907"W	0.15	
1807.50	1.010	50.090	1807.43	-1.40	1.12	13.09	663647.29	611764.92	32°40'52.163"N	103°56'08.897"W	0.09	
1871.10	0.970	50.370	1871.02	-2.12	1.83	13.93	663648.13	611765.63	32°40'52.170"N	103°56'08.888"W	0.06	
1934.70	0.640	45.490	1934.62	-2.73	2.42	14.60	663648.80	611766.22	32°40'52.175"N	103°56'08.880"W	0.53	
1998.30	0.460	34.370	1998.21	-3.20	2.88	15.00	663649.20	611766.68	32°40'52.180"N	103°56'08.875"W	0.33	
2061.80	0.380	23.190	2061.71	-3.61	3.28	15.22	663649.42	611767.08	32°40'52.184"N	103°56'08.872"W	0.18	
2125.40	0.360	20.590	2125.31	-3.99	3.66	15.38	663649.58	611767.46	32°40'52.188"N	103°56'08.871"W	0.04	
2189.00	0.390	16.450	2188.91	-4.39	4.06	15.51	663649.71	611767.86	32°40'52.192"N	103°56'08.869"W	0.06	
2252.60	0.370	10.410	2252.51	-4.80	4.47	15.61	663649.81	611768.27	32°40'52.196"N	103°56'08.868"W	0.07	
2316.20	0.410	7.470	2316.11	-5.23	4.89	15.67	663649.87	611768.69	32°40'52.200"N	103°56'08.867"W	0.07	
2379.70	0.330	4.600	2379.61	-5.64	5.30	15.72	663649.92	611769.10	32°40'52.204"N	103°56'08.867"W	0.13	
2443.30	0.100	346.710	2443.20	-5.87	5.54	15.72	663649.92	611769.34	32°40'52.206"N	103°56'08.866"W	0.37	
2506.90	0.060	226.830	2506.80	-5.91	5.57	15.68	663649.88	611769.37	32°40'52.207"N	103°56'08.867"W	0.22	
2570.50	0.080	210.520	2570.40	-5.84	5.51	15.64	663649.83	611769.31	32°40'52.206"N	103°56'08.867"W	0.04	
2634.10	0.090	227.460	2634.00	-5.77	5.44	15.58	663649.78	611769.24	32°40'52.205"N	103°56'08.868"W	0.04	
2697.60	0.080	273.180	2697.50	-5.74	5.41	15.50	663649.69	611769.21	32°40'52.205"N	103°56'08.869"W	0.11	
2761.20	0.090	258.640	2761.10	-5.73	5.40	15.40	663649.60	611769.20	32°40'52.205"N	103°56'08.870"W	0.04	



Actual Wellpath Report

No. 1H AWP

Page 3 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 11, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 11 No. 1H		

WELLPATH DATA (216 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2824.80	0.100	268.520	2824.70	-5.71	5.39	15.30	663649.50	611769.19	32°40'52.205"N	103°56'08.871"W	0.03	
2888.40	0.100	263.280	2888.30	-5.70	5.38	15.19	663649.39	611769.18	32°40'52.205"N	103°56'08.873"W	0.01	
2952.00	0.110	273.430	2951.90	-5.70	5.38	15.07	663649.27	611769.18	32°40'52.205"N	103°56'08.874"W	0.03	
3015.50	0.100	240.790	3015.40	-5.67	5.35	14.96	663649.16	611769.15	32°40'52.204"N	103°56'08.875"W	0.09	
3079.10	0.080	248.100	3079.00	-5.63	5.31	14.87	663649.07	611769.11	32°40'52.204"N	103°56'08.876"W	0.04	
3142.70	0.210	309.810	3142.60	-5.68	5.37	14.74	663648.94	611769.17	32°40'52.205"N	103°56'08.878"W	0.29	
3206.30	0.300	322.900	3206.20	-5.89	5.57	14.55	663648.75	611769.37	32°40'52.207"N	103°56'08.880"W	0.17	
3269.90	0.280	326.930	3269.80	-6.14	5.84	14.37	663648.57	611769.64	32°40'52.209"N	103°56'08.882"W	0.04	
3333.40	0.190	3.740	3333.30	-6.38	6.07	14.29	663648.49	611769.87	32°40'52.212"N	103°56'08.883"W	0.27	
3397.00	0.250	4.710	3396.90	-6.62	6.32	14.31	663648.51	611770.12	32°40'52.214"N	103°56'08.883"W	0.09	
3460.60	0.280	7.470	3460.50	-6.91	6.61	14.34	663648.54	611770.41	32°40'52.217"N	103°56'08.883"W	0.05	
3524.20	0.180	26.760	3524.10	-7.16	6.85	14.40	663648.60	611770.65	32°40'52.219"N	103°56'08.882"W	0.20	
3587.80	0.290	23.690	3587.70	-7.40	7.09	14.51	663648.71	611770.89	32°40'52.222"N	103°56'08.881"W	0.17	
3651.30	0.290	49.600	3651.20	-7.65	7.34	14.70	663648.90	611771.14	32°40'52.224"N	103°56'08.878"W	0.20	
3714.90	0.290	58.930	3714.80	-7.85	7.53	14.96	663649.16	611771.33	32°40'52.226"N	103°56'08.875"W	0.07	
3778.50	0.290	41.070	3778.40	-8.06	7.73	15.20	663649.40	611771.53	32°40'52.228"N	103°56'08.872"W	0.14	
3842.10	0.250	34.200	3842.00	-8.30	7.97	15.39	663649.59	611771.77	32°40'52.230"N	103°56'08.870"W	0.08	
3905.70	0.290	51.810	3905.60	-8.51	8.18	15.59	663649.79	611771.98	32°40'52.232"N	103°56'08.868"W	0.14	
3969.20	0.400	32.890	3969.09	-8.81	8.47	15.84	663650.04	611772.27	32°40'52.235"N	103°56'08.865"W	0.25	
4032.80	0.280	17.370	4032.69	-9.14	8.80	16.01	663650.20	611772.60	32°40'52.239"N	103°56'08.863"W	0.24	
4096.40	0.330	351.970	4096.29	-9.47	9.13	16.03	663650.23	611772.93	32°40'52.242"N	103°56'08.863"W	0.22	
4160.00	0.320	344.540	4159.89	-9.82	9.48	15.95	663650.15	611773.28	32°40'52.245"N	103°56'08.864"W	0.07	
4223.60	0.210	338.220	4223.49	-10.10	9.76	15.86	663650.06	611773.56	32°40'52.248"N	103°56'08.865"W	0.18	
4287.10	0.110	324.510	4286.99	-10.26	9.92	15.78	663649.98	611773.72	32°40'52.250"N	103°56'08.866"W	0.17	
4350.70	0.090	186.430	4350.59	-10.26	9.92	15.74	663649.94	611773.72	32°40'52.250"N	103°56'08.866"W	0.29	
4414.30	0.260	178.380	4414.19	-10.06	9.73	15.74	663649.94	611773.53	32°40'52.248"N	103°56'08.866"W	0.27	
4477.90	0.480	183.320	4477.79	-9.65	9.32	15.73	663649.93	611773.12	32°40'52.244"N	103°56'08.866"W	0.35	
4541.50	0.660	178.850	4541.39	-9.02	8.69	15.72	663649.92	611772.48	32°40'52.237"N	103°56'08.866"W	0.29	
4605.00	0.710	174.970	4604.88	-8.26	7.93	15.76	663649.96	611771.73	32°40'52.230"N	103°56'08.866"W	0.11	
4668.60	0.780	174.740	4668.48	-7.44	7.10	15.84	663650.04	611770.90	32°40'52.222"N	103°56'08.865"W	0.11	
4732.20	0.930	174.970	4732.07	-6.50	6.16	15.92	663650.12	611769.96	32°40'52.212"N	103°56'08.864"W	0.24	
4795.80	1.030	176.780	4795.66	-5.42	5.07	16.00	663650.20	611768.87	32°40'52.202"N	103°56'08.863"W	0.16	
4859.40	0.970	175.300	4859.25	-4.31	3.97	16.08	663650.28	611767.77	32°40'52.191"N	103°56'08.862"W	0.10	
4922.90	0.930	170.760	4922.74	-3.27	2.92	16.20	663650.40	611766.72	32°40'52.180"N	103°56'08.861"W	0.13	
4986.50	0.880	169.350	4986.33	-2.28	1.93	16.38	663650.58	611765.73	32°40'52.171"N	103°56'08.859"W	0.09	
5050.10	0.830	166.670	5049.93	-1.36	1.00	16.57	663650.77	611764.80	32°40'52.161"N	103°56'08.857"W	0.10	
5113.70	0.770	159.450	5113.52	-0.52	0.16	16.83	663651.03	611763.96	32°40'52.153"N	103°56'08.854"W	0.18	
5177.30	0.720	154.320	5177.11	0.24	-0.60	17.15	663651.35	611763.20	32°40'52.145"N	103°56'08.850"W	0.13	
5240.80	0.630	148.530	5240.61	0.89	-1.26	17.51	663651.71	611762.54	32°40'52.139"N	103°56'08.846"W	0.18	
5304.40	0.580	140.430	5304.21	-1.42	-1.81	17.90	663652.09	611761.99	32°40'52.134"N	103°56'08.841"W	0.16	
5368.00	0.570	134.170	5367.80	1.88	-2.28	18.33	663652.53	611761.52	32°40'52.129"N	103°56'08.836"W	0.10	
5431.60	0.540	118.810	5431.40	2.24	-2.64	18.82	663653.02	611761.16	32°40'52.125"N	103°56'08.831"W	0.24	
5495.20	0.540	104.470	5495.00	2.44	-2.86	19.37	663653.57	611760.94	32°40'52.123"N	103°56'08.824"W	0.21	
5558.70	0.570	92.750	5558.49	2.52	-2.95	19.98	663654.17	611760.85	32°40'52.122"N	103°56'08.817"W	0.18	
5622.30	0.620	82.860	5622.09	2.48	-2.92	20.63	663654.83	611760.88	32°40'52.122"N	103°56'08.809"W	0.18	



Actual Wellpath Report

No. 1H AWP

Page 4 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 11, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 11 No. 1H		

WELLPATH DATA (216 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5685.90	0.650	78.420	5685.69	2.35	-2.81	21.33	663655.53	611760.99	32°40'52.123"N	103°56'08.801"W	0.09	
5749.50	0.680	83.270	5749.28	2.22	-2.69	22.06	663656.25	611761.11	32°40'52.125"N	103°56'08.793"W	0.10	
5813.10	0.700	83.720	5812.88	2.11	-2.60	22.82	663657.02	611761.20	32°40'52.125"N	103°56'08.784"W	0.03	
5876.60	0.760	77.010	5876.37	1.96	-2.47	23.61	663657.81	611761.33	32°40'52.127"N	103°56'08.774"W	0.16	
5940.20	0.760	69.660	5939.97	1.70	-2.23	24.42	663658.62	611761.57	32°40'52.129"N	103°56'08.765"W	0.15	
6003.80	0.720	61.750	6003.56	1.35	-1.89	25.17	663659.36	611761.91	32°40'52.132"N	103°56'08.756"W	0.17	
6067.40	0.610	53.420	6067.16	0.95	-1.50	25.79	663659.99	611762.30	32°40'52.136"N	103°56'08.749"W	0.23	
6131.00	0.500	23.260	6130.76	0.48	-1.04	26.17	663660.37	611762.76	32°40'52.141"N	103°56'08.744"W	0.48	
6194.50	0.510	6.460	6194.25	-0.06	-0.51	26.31	663660.51	611763.29	32°40'52.146"N	103°56'08.743"W	0.23	
6258.10	0.570	345.330	6257.85	-0.64	0.08	26.27	663660.46	611763.88	32°40'52.152"N	103°56'08.743"W	0.32	
6321.70	0.590	327.300	6321.45	-1.22	0.66	26.01	663660.21	611764.46	32°40'52.158"N	103°56'08.746"W	0.29	
6385.30	0.730	305.040	6385.04	-1.72	1.17	25.50	663659.70	611764.97	32°40'52.163"N	103°56'08.752"W	0.46	
6448.90	0.840	297.670	6448.64	-2.15	1.62	24.75	663658.95	611765.42	32°40'52.167"N	103°56'08.761"W	0.23	
6512.40	0.890	290.760	6512.13	-2.52	2.01	23.88	663658.08	611765.81	32°40'52.171"N	103°56'08.771"W	0.18	
6576.00	0.920	284.390	6575.72	-2.80	2.31	22.93	663657.12	611766.11	32°40'52.174"N	103°56'08.782"W	0.16	
6639.60	0.890	280.660	6639.31	-3.00	2.53	21.95	663656.14	611766.33	32°40'52.176"N	103°56'08.794"W	0.10	
6703.20	0.760	270.890	6702.91	-3.08	2.63	21.04	663655.24	611766.43	32°40'52.177"N	103°56'08.804"W	0.30	
6766.80	0.700	262.080	6766.50	-3.01	2.58	20.23	663654.43	611766.38	32°40'52.177"N	103°56'08.814"W	0.20	
6830.30	0.790	248.260	6830.00	-2.78	2.37	19.44	663653.64	611766.17	32°40'52.175"N	103°56'08.823"W	0.32	
6893.90	0.970	241.120	6893.59	-2.34	1.94	18.56	663652.76	611765.74	32°40'52.171"N	103°56'08.833"W	0.33	
6957.50	1.300	239.270	6957.18	-1.69	1.31	17.47	663651.67	611765.11	32°40'52.164"N	103°56'08.846"W	0.52	
7021.10	1.620	236.500	7020.76	-0.80	0.45	16.10	663650.30	611764.25	32°40'52.156"N	103°56'08.862"W	0.52	
7084.70	1.780	234.100	7084.33	0.31	-0.63	14.55	663648.75	611763.17	32°40'52.145"N	103°56'08.880"W	0.28	
7148.20	2.000	232.670	7147.79	1.60	-1.88	12.87	663647.07	611761.92	32°40'52.133"N	103°56'08.900"W	0.35	
7211.80	2.290	230.160	7211.35	3.13	-3.36	11.01	663645.21	611760.44	32°40'52.118"N	103°56'08.922"W	0.48	
7275.40	2.650	226.980	7274.89	4.99	-5.18	8.96	663643.16	611758.62	32°40'52.100"N	103°56'08.946"W	0.61	
7339.00	3.190	224.220	7338.41	7.31	-7.45	6.65	663640.85	611756.35	32°40'52.078"N	103°56'08.973"W	0.88	
7402.60	3.640	219.580	7401.89	10.18	-10.28	4.13	663638.33	611753.53	32°40'52.050"N	103°56'09.003"W	0.83	
7466.10	4.120	217.880	7465.25	13.60	-13.63	1.45	663635.65	611750.17	32°40'52.017"N	103°56'09.034"W	0.78	
7529.70	4.470	217.240	7528.67	17.43	-17.41	-1.46	663632.74	611746.40	32°40'51.980"N	103°56'09.068"W	0.56	
7593.30	4.660	215.100	7592.07	21.58	-21.49	-4.44	663629.76	611742.31	32°40'51.940"N	103°56'09.104"W	0.40	
7656.90	4.780	213.920	7655.45	25.96	-25.81	-7.40	663626.80	611738.00	32°40'51.897"N	103°56'09.138"W	0.24	
7720.50	5.000	211.910	7718.82	30.57	-30.36	-10.35	663623.85	611733.45	32°40'51.852"N	103°56'09.173"W	0.44	
7784.00	4.720	210.460	7782.09	35.23	-34.96	-13.14	663621.07	611728.84	32°40'51.807"N	103°56'09.206"W	0.48	
7847.60	4.190	209.060	7845.50	39.57	-39.24	-15.59	663618.61	611724.56	32°40'51.764"N	103°56'09.235"W	0.85	
7911.20	3.850	204.860	7908.94	43.58	-43.21	-17.62	663616.58	611720.59	32°40'51.725"N	103°56'09.259"W	0.71	
7974.80	3.410	202.780	7972.42	47.30	-46.89	-19.25	663614.95	611716.91	32°40'51.689"N	103°56'09.278"W	0.72	
8038.40	3.010	202.620	8035.92	50.61	-50.18	-20.62	663613.58	611713.62	32°40'51.656"N	103°56'09.294"W	0.63	
8101.90	2.680	195.760	8099.34	53.60	-53.15	-21.67	663612.54	611710.66	32°40'51.627"N	103°56'09.306"W	0.75	
8165.50	2.680	188.360	8162.87	56.51	-56.05	-22.29	663611.92	611707.75	32°40'51.598"N	103°56'09.314"W	0.54	
8229.10	2.230	183.260	8226.41	59.23	-58.76	-22.57	663611.63	611705.05	32°40'51.572"N	103°56'09.317"W	0.79	
8294.00	1.900	186.500	8291.27	61.56	-61.09	-22.77	663611.44	611702.72	32°40'51.548"N	103°56'09.320"W	0.54	
8326.00	4.700	175.000	8323.21	63.39	-62.92	-22.71	663611.49	611700.89	32°40'51.530"N	103°56'09.319"W	8.95	
8357.00	11.700	173.800	8353.88	67.78	-67.31	-22.26	663611.94	611696.49	32°40'51.487"N	103°56'09.314"W	22.59	
8389.00	17.200	175.700	8384.85	75.71	-75.26	-21.56	663612.65	611688.54	32°40'51.408"N	103°56'09.306"W	17.25	



Actual Wellpath Report

No. 1H AWP

Page 5 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 11, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 11 No. 1H		

WELLPATH DATA (216 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8421.00	24.200	176.200	8414.77	86.97	-86.54	-20.77	663613.44	611677.27	32°40'51.297"N	103°56'09.297"W	21.88	
8453.00	30.200	176.600	8443.22	101.54	-101.13	-19.85	663614.35	611662.68	32°40'51.152"N	103°56'09.287"W	18.76	
8485.00	37.800	176.800	8469.73	119.36	-118.98	-18.83	663615.38	611644.83	32°40'50.975"N	103°56'09.276"W	23.75	
8517.00	43.300	177.900	8494.03	140.11	-139.76	-17.88	663616.33	611624.05	32°40'50.770"N	103°56'09.266"W	17.33	
8548.00	49.600	180.600	8515.38	162.55	-162.21	-17.61	663616.59	611601.60	32°40'50.548"N	103°56'09.264"W	21.28	
8580.00	54.600	182.000	8535.03	187.79	-187.44	-18.19	663616.01	611576.37	32°40'50.298"N	103°56'09.272"W	16.00	
8612.00	61.000	183.300	8552.08	214.84	-214.48	-19.45	663614.75	611549.34	32°40'50.031"N	103°56'09.288"W	20.29	
8644.00	66.300	182.500	8566.27	243.50	-243.10	-20.90	663613.30	611520.71	32°40'49.747"N	103°56'09.306"W	16.71	
8676.00	73.200	181.700	8577.34	273.50	-273.09	-22.00	663612.21	611490.73	32°40'49.451"N	103°56'09.320"W	21.69	
8708.00	75.200	181.500	8586.06	304.29	-303.87	-22.85	663611.35	611459.96	32°40'49.146"N	103°56'09.331"W	6.28	
8740.00	75.400	181.300	8594.18	335.24	-334.81	-23.61	663610.59	611429.02	32°40'48.840"N	103°56'09.342"W	0.87	
8772.00	75.900	181.300	8602.11	366.24	-365.80	-24.31	663609.89	611398.02	32°40'48.534"N	103°56'09.351"W	1.56	
8803.00	76.500	181.000	8609.50	396.35	-395.90	-24.92	663609.28	611367.93	32°40'48.236"N	103°56'09.360"W	2.15	
8835.00	77.700	181.200	8616.65	427.54	-427.09	-25.52	663608.68	611336.74	32°40'47.927"N	103°56'09.368"W	3.80	
8867.00	79.400	180.500	8623.00	458.90	-458.45	-25.98	663608.22	611305.39	32°40'47.617"N	103°56'09.375"W	5.73	
8899.00	80.800	180.100	8628.50	490.42	-489.97	-26.15	663608.06	611273.87	32°40'47.305"N	103°56'09.378"W	4.54	
8963.00	84.800	179.200	8636.52	553.87	-553.45	-25.76	663608.45	611210.39	32°40'46.677"N	103°56'09.376"W	6.40	
9026.00	88.900	178.400	8639.98	616.71	-616.33	-24.44	663609.76	611147.52	32°40'46.055"N	103°56'09.364"W	6.63	
9090.00	89.100	178.800	8641.10	680.63	-680.30	-22.88	663611.33	611083.55	32°40'45.422"N	103°56'09.348"W	0.70	
9154.00	89.200	178.500	8642.05	744.56	-744.27	-21.37	663612.83	611019.58	32°40'44.789"N	103°56'09.333"W	0.49	
9218.00	89.000	178.000	8643.05	808.46	-808.23	-19.41	663614.79	610955.63	32°40'44.156"N	103°56'09.313"W	0.84	
9281.00	88.400	177.700	8644.48	871.34	-871.17	-17.05	663617.15	610892.69	32°40'43.533"N	103°56'09.288"W	1.06	
9345.00	88.100	177.600	8646.44	935.18	-935.09	-14.43	663619.77	610828.78	32°40'42.900"N	103°56'09.260"W	0.49	
9409.00	87.900	179.100	8648.67	999.06	-999.02	-12.59	663621.61	610764.85	32°40'42.268"N	103°56'09.242"W	2.36	
9472.00	87.800	179.100	8651.03	1061.97	-1061.97	-11.60	663622.60	610701.91	32°40'41.645"N	103°56'09.233"W	0.16	
9536.00	87.700	179.500	8653.55	1125.89	-1125.92	-10.82	663623.38	610637.97	32°40'41.012"N	103°56'09.227"W	0.64	
9600.00	87.100	180.300	8656.45	1189.80	-1189.85	-10.70	663623.50	610574.04	32°40'40.380"N	103°56'09.228"W	1.56	
9663.00	86.600	180.600	8659.91	1252.70	-1252.75	-11.20	663623.00	610511.14	32°40'39.757"N	103°56'09.237"W	0.93	
9727.00	87.100	180.900	8663.43	1316.60	-1316.65	-12.03	663622.17	610447.25	32°40'39.125"N	103°56'09.249"W	0.91	
9791.00	87.300	181.000	8666.55	1380.53	-1380.56	-13.09	663621.11	610383.34	32°40'38.493"N	103°56'09.264"W	0.35	
9855.00	88.200	180.800	8669.07	1444.48	-1444.51	-14.10	663620.10	610319.40	32°40'37.860"N	103°56'09.279"W	1.44	
9918.00	88.200	181.300	8671.05	1507.44	-1507.46	-15.25	663618.95	610256.45	32°40'37.237"N	103°56'09.295"W	0.79	
9981.00	89.100	181.000	8672.53	1570.43	-1570.43	-16.52	663617.68	610193.49	32°40'36.614"N	103°56'09.313"W	1.51	
10045.00	89.300	180.700	8673.42	1634.42	-1634.42	-17.47	663616.74	610129.50	32°40'35.981"N	103°56'09.327"W	0.56	
10109.00	89.100	181.000	8674.32	1698.41	-1698.41	-18.42	663615.79	610065.52	32°40'35.348"N	103°56'09.340"W	0.56	
10172.00	88.700	180.800	8675.53	1761.40	-1761.39	-19.40	663614.80	610002.55	32°40'34.725"N	103°56'09.355"W	0.71	
10236.00	89.400	181.200	8676.59	1825.39	-1825.37	-20.52	663613.68	609938.57	32°40'34.092"N	103°56'09.371"W	1.26	
10299.00	89.000	181.300	8677.47	1888.38	-1888.35	-21.90	663612.31	609875.60	32°40'33.469"N	103°56'09.390"W	0.65	
10363.00	88.000	181.900	8679.14	1952.36	-1952.30	-23.68	663610.52	609811.65	32°40'32.836"N	103°56'09.413"W	1.82	
10427.00	88.200	181.100	8681.26	2016.32	-2016.24	-25.36	663608.85	609747.71	32°40'32.204"N	103°56'09.436"W	1.29	
10491.00	89.600	182.700	8682.49	2080.30	-2080.19	-27.48	663606.72	609683.77	32°40'31.571"N	103°56'09.463"W	3.32	
10554.00	91.100	183.200	8682.11	2143.27	-2143.10	-30.72	663603.48	609620.86	32°40'30.949"N	103°56'09.504"W	2.51	
10618.00	89.900	182.000	8681.55	2207.25	-2207.03	-33.62	663600.58	609556.93	32°40'30.316"N	103°56'09.541"W	2.65	
10682.00	88.500	180.800	8682.44	2271.24	-2271.00	-35.19	663599.02	609492.97	32°40'29.683"N	103°56'09.562"W	2.88	
10746.00	90.300	182.800	8683.11	2335.22	-2334.96	-37.20	663597.01	609429.01	32°40'29.050"N	103°56'09.588"W	4.20	



Actual Wellpath Report

No. 1H AWP

Page 6 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 11, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 11 No. 1H		

WELLPATH DATA (216 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10809.00	88.900	180.700	8683.55	2398.22	-2397.93	-39.12	663595.08	609366.05	32°40'28.428"N	103°56'09.613"W	4.01	
10873.00	90.200	181.900	8684.06	2462.21	-2461.91	-40.57	663593.63	609302.08	32°40'27.795"N	103°56'09.633"W	2.76	
10936.00	90.100	181.800	8683.89	2525.21	-2524.87	-42.61	663591.60	609239.12	32°40'27.172"N	103°56'09.660"W	0.22	
11000.00	89.100	181.200	8684.34	2589.20	-2588.85	-44.28	663589.92	609175.15	32°40'26.539"N	103°56'09.682"W	1.82	
11064.00	89.600	180.500	8685.06	2653.20	-2652.84	-45.23	663588.97	609111.16	32°40'25.906"N	103°56'09.696"W	1.34	
11128.00	90.600	180.600	8684.95	2717.19	-2716.83	-45.85	663588.36	609047.17	32°40'25.272"N	103°56'09.706"W	1.57	
11191.00	89.800	179.700	8684.73	2780.18	-2779.83	-46.01	663588.19	608984.18	32°40'24.649"N	103°56'09.711"W	1.91	
11255.00	90.200	179.700	8684.73	2844.16	-2843.83	-45.68	663588.53	608920.18	32°40'24.016"N	103°56'09.710"W	0.62	
11318.00	90.000	180.300	8684.62	2907.14	-2906.83	-45.68	663588.53	608857.19	32°40'23.393"N	103°56'09.712"W	1.00	
11382.00	90.200	181.700	8684.51	2971.14	-2970.82	-46.79	663587.41	608793.21	32°40'22.759"N	103°56'09.728"W	2.21	
11446.00	90.100	182.100	8684.34	3035.13	-3034.78	-48.91	663585.29	608729.25	32°40'22.127"N	103°56'09.756"W	0.64	
11509.00	89.600	181.200	8684.51	3098.13	-3097.76	-50.73	663583.48	608666.28	32°40'21.504"N	103°56'09.780"W	1.63	
11573.00	89.700	179.900	8684.90	3162.12	-3161.75	-51.34	663582.86	608602.29	32°40'20.870"N	103°56'09.790"W	2.04	
11637.00	88.000	178.300	8686.18	3226.06	-3225.73	-50.34	663583.87	608538.32	32°40'20.237"N	103°56'09.781"W	3.65	
11700.00	89.400	178.000	8687.61	3288.95	-3288.67	-48.30	663585.90	608475.37	32°40'19.614"N	103°56'09.760"W	2.27	
11764.00	90.500	178.900	8687.67	3352.88	-3352.65	-46.57	663587.63	608411.40	32°40'18.981"N	103°56'09.742"W	2.22	
11827.00	90.700	179.700	8687.01	3415.84	-3415.64	-45.80	663588.40	608348.42	32°40'18.358"N	103°56'09.736"W	1.31	
11891.00	91.300	181.200	8685.89	3479.82	-3479.63	-46.31	663587.90	608284.44	32°40'17.725"N	103°56'09.745"W	2.52	
11955.00	91.200	183.100	8684.50	3543.79	-3543.56	-48.71	663585.50	608220.50	32°40'17.093"N	103°56'09.776"W	2.97	
12018.00	91.000	183.300	8683.29	3606.74	-3606.45	-52.22	663581.98	608157.62	32°40'16.470"N	103°56'09.820"W	0.45	
12082.00	91.000	183.300	8682.17	3670.69	-3670.34	-55.91	663578.30	608093.74	32°40'15.838"N	103°56'09.865"W	0.00	
12146.00	90.600	183.200	8681.28	3734.65	-3734.23	-59.53	663574.67	608029.85	32°40'15.206"N	103°56'09.911"W	0.64	
12209.00	90.700	182.800	8680.56	3797.61	-3797.14	-62.83	663571.37	607966.95	32°40'14.584"N	103°56'09.952"W	0.65	
12273.00	90.600	182.800	8679.84	3861.58	-3861.06	-65.96	663568.25	607903.03	32°40'13.952"N	103°56'09.991"W	0.16	
12337.00	90.300	182.200	8679.33	3925.57	-3924.99	-68.75	663565.46	607839.10	32°40'13.319"N	103°56'10.027"W	1.05	
12400.00	90.200	183.100	8679.06	3988.55	-3987.93	-71.66	663562.54	607776.18	32°40'12.697"N	103°56'10.064"W	1.44	
12464.00	89.500	182.500	8679.23	4052.52	-4051.85	-74.79	663559.42	607712.26	32°40'12.064"N	103°56'10.103"W	1.44	
12528.00	90.100	185.100	8679.45	4116.45	-4115.70	-79.03	663555.18	607648.41	32°40'11.433"N	103°56'10.155"W	4.17	
12591.00	90.700	188.900	8679.01	4179.12	-4178.22	-86.71	663547.50	607585.90	32°40'10.814"N	103°56'10.248"W	6.11	
12655.00	90.500	189.500	8678.34	4242.50	-4241.39	-96.94	663537.27	607522.73	32°40'10.190"N	103°56'10.370"W	0.99	
12719.00	90.700	188.500	8677.67	4305.90	-4304.60	-106.95	663527.26	607459.53	32°40'09.565"N	103°56'10.490"W	1.59	
12782.00	90.700	188.400	8676.90	4368.40	-4366.91	-116.20	663518.00	607397.22	32°40'08.949"N	103°56'10.601"W	0.16	
12846.00	90.500	188.100	8676.23	4431.92	-4430.25	-125.39	663508.82	607333.89	32°40'08.322"N	103°56'10.712"W	0.56	
12909.00	90.400	188.100	8675.73	4494.46	-4492.61	-134.26	663499.95	607271.53	32°40'07.705"N	103°56'10.818"W	0.16	
12973.00	90.000	187.800	8675.51	4558.02	-4556.00	-143.12	663491.09	607208.15	32°40'07.079"N	103°56'10.924"W	0.78	
13018.00	90.000	187.800	8675.51	4602.73	-4600.58	-149.22	663484.99	607163.57	32°40'06.638"N	103°56'10.998"W	0.00	Projection to Bit



Actual Wellpath Report

No. 1H AWP

Page 7 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 11, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 11 No. 1H		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL		8662.00	-4603.95	-98.81	663535.40	607160.20	32°40'06.603"N	103°56'10.408"W	point

WELLPATH COMPOSITION

Ref Wellbore: No. 1H AWB Ref Wellpath: No. 1H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	8229.10	Generic gyro - northseeking (Standard)	Gyro	No. 1H AWB
8229.10	13018.00	NaviTrak (Standard)	MWD	No. 1H AWB