



Cimarex Energy Co.

Location: Chaves County, NM
Field: (Ticonderoga) Sec 16, T15S, R31E
Facility: Ticonderoga 16 St Com No. 1H

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



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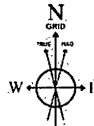
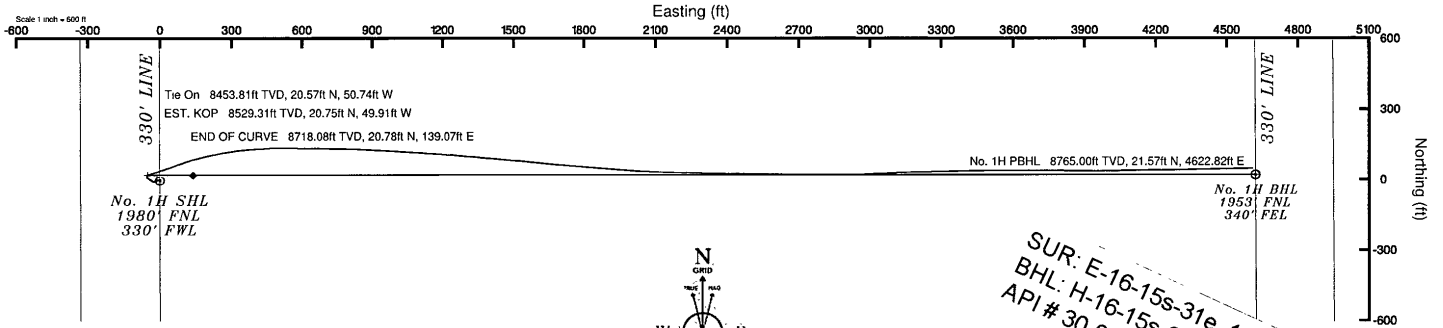
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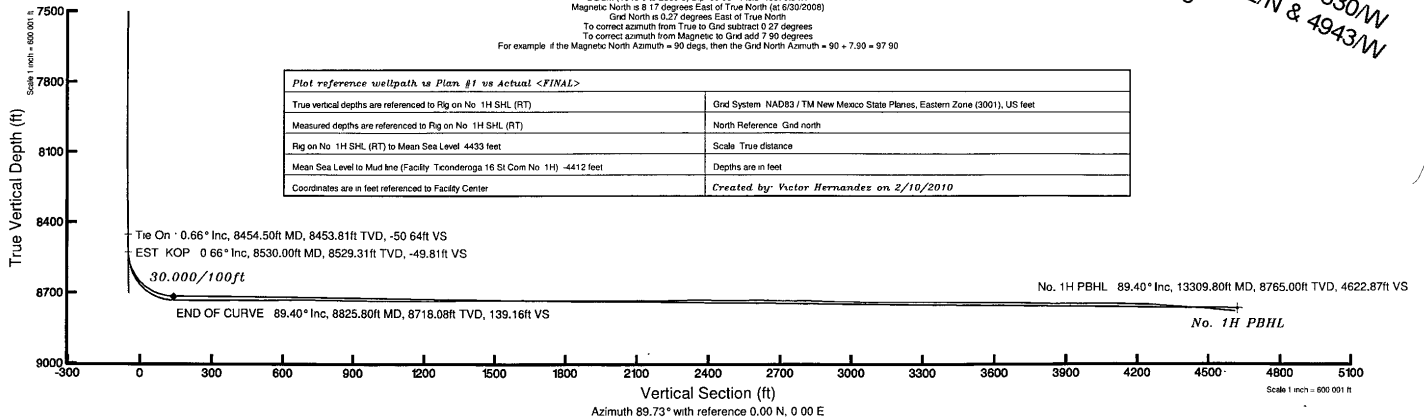
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8454.50	0.660	65.990	8453.81	20.57	-50.74	0.00	-50.64
EST. KOP	8530.00	0.660	89.900	8529.31	20.75	-49.91	0.36	-49.81
END OF CURVE	8825.80	89.400	89.990	8718.08	20.78	139.07	30.00	139.16
No. 1H PBHL	13309.80	89.400	89.990	8765.00	21.57	4622.82	0.00	4622.87



BGGM (1945 0 to 2009 0) Dp 60 96° Field 49379.3 nT
Magnetic North is 8 17 degrees East of True North (at 6/30/2008)
Grid North is 0.27 degrees East of True North
To correct azimuth from True to Grid subtract 0.27 degrees
To correct azimuth from Magnetic to Grid add 7.90 degrees
For example if the Magnetic North Azimuth = 90 degrees, then the Grid North Azimuth = 90 + 7.90 = 97.90

Plot reference wellpath, as Plan #1 vs Actual <FINAL>	
True vertical depths are referenced to Rig on No. 1H SHL (RT)	Grid System NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 1H SHL (RT)	North Reference Grid north
Rig on No. 1H SHL (RT) to Mean Sea Level 4433 feet	Scale True distance
Mean Sea Level to Mud line (Facility Ticonderoga 16 St Com No. 1H) -4412 feet	Depths are in feet
Coordinates are in feet referenced to Facility Center	Created by Victor Hernandez on 2/10/2010





Actual Wellpath Report

No. 1H AWP

Page 1 of 9

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWB
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWB at 8454.50 MD

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	Victor Hernandez
Scale	0.999936	Report Generated	2/10/2010 at 10:48:08 AM
Convergence at slot	0.27° 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	694286.00	734335.70	33°01'03.686"N	103°50'03.641"W
Facility Reference Pt			694286.00	734335.70	33°01'03.686"N	103°50'03.641"W
Field Reference Pt			694286.00	734335.70	33°01'03.686"N	103°50'03.641"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 1H SHL (RT) to Facility Vertical Datum	21.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 1H SHL (RT) to Mean Sea Level	4433.00ft
Vertical Reference Pt	Rig on No. 1H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 1H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	89.73°



Actual Wellpath Report

No. 1H AWP

Page 2 of 9



INTEQ

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Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWB
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWB at 8454.50 MD

WELLPATH DATA (218 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]
0.00	0.000	121.110	0.00	0.00	0.00	0.00	694286.00	734335.70	33°01'03.686"N	103°50'03.641"W	0.00
105.10	0.210	121.110	105.10	0.16	-0.10	0.16	694286.16	734335.60	33°01'03.685"N	103°50'03.639"W	0.20
195.00	0.260	101.830	195.00	0.50	-0.23	0.51	694286.51	734335.47	33°01'03.684"N	103°50'03.635"W	0.10
285.00	0.330	95.550	285.00	0.96	-0.29	0.96	694286.96	734335.41	33°01'03.683"N	103°50'03.629"W	0.09
381.10	0.260	156.570	381.10	1.32	-0.52	1.33	694287.33	734335.18	33°01'03.681"N	103°50'03.625"W	0.32
475.40	0.320	200.230	475.40	1.32	-0.96	1.32	694287.32	734334.74	33°01'03.677"N	103°50'03.625"W	0.24
570.40	0.310	209.400	570.39	1.09	-1.44	1.10	694287.10	734334.26	33°01'03.672"N	103°50'03.628"W	0.05
665.50	0.290	200.740	665.49	0.88	-1.89	0.89	694286.89	734333.81	33°01'03.668"N	103°50'03.630"W	0.05
760.50	0.240	191.030	760.49	0.76	-2.31	0.77	694286.77	734333.39	33°01'03.663"N	103°50'03.632"W	0.07
855.60	0.210	196.260	855.59	0.67	-2.67	0.68	694286.68	734333.03	33°01'03.660"N	103°50'03.633"W	0.04
950.50	0.180	216.670	950.49	0.53	-2.96	0.54	694286.54	734332.75	33°01'03.657"N	103°50'03.634"W	0.08
1045.40	0.280	243.800	1045.39	0.23	-3.18	0.25	694286.25	734332.52	33°01'03.655"N	103°50'03.638"W	0.15
1139.60	0.290	239.220	1139.59	-0.18	-3.40	-0.17	694285.83	734332.30	33°01'03.653"N	103°50'03.643"W	0.03
1234.70	0.440	243.640	1234.69	-0.72	-3.69	-0.70	694285.30	734332.01	33°01'03.650"N	103°50'03.649"W	0.16
1328.90	0.510	246.560	1328.88	-1.43	-4.01	-1.41	694284.59	734331.69	33°01'03.647"N	103°50'03.657"W	0.08
1423.90	0.310	247.480	1423.88	-2.05	-4.28	-2.03	694283.97	734331.42	33°01'03.644"N	103°50'03.665"W	0.21
1519.00	0.200	246.030	1518.98	-2.44	-4.45	-2.42	694283.58	734331.25	33°01'03.642"N	103°50'03.669"W	0.12
1614.00	0.210	251.940	1613.98	-2.76	-4.57	-2.74	694283.26	734331.13	33°01'03.641"N	103°50'03.673"W	0.02
1709.00	0.170	248.040	1708.98	-3.06	-4.67	-3.04	694282.96	734331.03	33°01'03.640"N	103°50'03.676"W	0.04
1804.10	0.060	97.880	1804.08	-3.14	-4.73	-3.12	694282.88	734330.97	33°01'03.640"N	103°50'03.677"W	0.24
1899.30	0.200	90.180	1899.28	-2.92	-4.74	-2.90	694283.10	734330.96	33°01'03.639"N	103°50'03.675"W	0.15
1994.30	0.300	86.990	1994.28	-2.51	-4.73	-2.49	694283.51	734330.97	33°01'03.640"N	103°50'03.670"W	0.11
2089.20	0.410	88.110	2089.18	-1.92	-4.70	-1.90	694284.10	734331.00	33°01'03.640"N	103°50'03.663"W	0.12
2184.30	0.530	87.580	2184.27	-1.14	-4.67	-1.12	694284.88	734331.03	33°01'03.640"N	103°50'03.654"W	0.13
2279.30	0.540	92.210	2279.27	-0.26	-4.67	-0.24	694285.76	734331.03	33°01'03.640"N	103°50'03.644"W	0.05
2374.30	0.490	89.630	2374.26	0.60	-4.69	0.62	694286.62	734331.01	33°01'03.640"N	103°50'03.634"W	0.06
2469.10	0.460	79.190	2469.06	1.38	-4.61	1.40	694287.40	734331.09	33°01'03.641"N	103°50'03.624"W	0.10
2564.10	0.450	73.410	2564.06	2.11	-4.44	2.13	694288.13	734331.26	33°01'03.642"N	103°50'03.616"W	0.05
2659.30	0.400	64.280	2659.26	2.77	-4.18	2.79	694288.79	734331.52	33°01'03.645"N	103°50'03.608"W	0.09
2754.40	0.390	52.780	2754.35	3.33	-3.84	3.34	694289.34	734331.86	33°01'03.648"N	103°50'03.601"W	0.08



Actual Wellpath Report

No. 1H AWP

Page 3 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWB
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWB at 8454.50 MD

WELLPATH DATA (218 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]
2849.50	0.300	42.730	2849.45	3.75	-3.47	3.77	694289.77	734332.23	33°01'03.652"N	103°50'03.596"W	0.11
2944.60	0.210	23.990	2944.55	4.00	-3.12	4.01	694290.01	734332.58	33°01'03.655"N	103°50'03.594"W	0.13
3039.80	0.240	4.620	3039.75	4.08	-2.77	4.10	694290.10	734332.93	33°01'03.659"N	103°50'03.593"W	0.09
3134.90	0.290	346.890	3134.85	4.05	-2.33	4.06	694290.06	734333.37	33°01'03.663"N	103°50'03.593"W	0.10
3230.00	0.300	323.750	3229.95	3.85	-1.90	3.86	694289.86	734333.80	33°01'03.667"N	103°50'03.595"W	0.12
3324.90	0.380	321.720	3324.85	3.51	-1.45	3.52	694289.52	734334.25	33°01'03.672"N	103°50'03.599"W	0.09
3420.10	0.480	320.980	3420.04	3.06	-0.89	3.07	694289.07	734334.81	33°01'03.677"N	103°50'03.605"W	0.11
3515.10	0.530	322.190	3515.04	2.55	-0.24	2.55	694288.55	734335.46	33°01'03.684"N	103°50'03.611"W	0.05
3610.10	0.440	321.290	3610.04	2.05	0.40	2.05	694288.05	734336.10	33°01'03.690"N	103°50'03.616"W	0.10
3705.10	0.410	307.720	3705.03	1.56	-0.89	1.55	694287.55	734336.59	33°01'03.695"N	103°50'03.622"W	0.14
3800.10	0.380	294.630	3800.03	1.00	1.23	1.00	694287.00	734336.93	33°01'03.698"N	103°50'03.629"W	0.10
3894.10	0.480	286.650	3894.03	0.35	1.47	0.34	694286.34	734337.17	33°01'03.701"N	103°50'03.636"W	0.12
3988.90	0.530	275.830	3988.83	-0.47	1.63	-0.48	694285.52	734337.33	33°01'03.702"N	103°50'03.646"W	0.11
4083.80	0.570	269.530	4083.72	-1.38	1.67	-1.39	694284.61	734337.37	33°01'03.703"N	103°50'03.657"W	0.08
4178.60	0.540	267.530	4178.52	-2.30	1.65	-2.30	694283.70	734337.35	33°01'03.703"N	103°50'03.668"W	0.04
4273.70	0.520	262.590	4273.61	-3.17	1.57	-3.18	694282.82	734337.27	33°01'03.702"N	103°50'03.678"W	0.05
4368.80	0.520	266.510	4368.71	-4.03	1.49	-4.04	694281.96	734337.19	33°01'03.701"N	103°50'03.688"W	0.04
4463.90	0.520	257.770	4463.80	-4.88	1.37	-4.89	694281.11	734337.07	33°01'03.700"N	103°50'03.698"W	0.08
4559.00	0.610	257.040	4558.90	-5.80	1.17	-5.81	694280.19	734336.87	33°01'03.698"N	103°50'03.709"W	0.09
4653.10	0.620	246.980	4652.99	-6.76	0.85	-6.76	694279.24	734336.55	33°01'03.695"N	103°50'03.720"W	0.12
4748.20	0.650	243.590	4748.09	-7.72	0.41	-7.72	694278.28	734336.11	33°01'03.691"N	103°50'03.731"W	0.05
4843.20	0.730	243.330	4843.08	-8.74	-0.10	-8.74	694277.26	734335.60	33°01'03.686"N	103°50'03.743"W	0.08
4938.20	0.690	239.770	4938.07	-9.78	-0.66	-9.78	694276.22	734335.04	33°01'03.680"N	103°50'03.755"W	0.06
5033.30	0.750	235.880	5033.17	-10.79	-1.29	-10.79	694275.21	734334.41	33°01'03.674"N	103°50'03.767"W	0.08
5128.30	0.840	239.170	5128.16	-11.91	-2.00	-11.90	694274.10	734333.70	33°01'03.667"N	103°50'03.780"W	0.14
5223.40	0.860	240.540	5223.25	-13.13	-2.71	-13.12	694272.88	734332.99	33°01'03.660"N	103°50'03.795"W	0.03
5318.60	0.880	241.590	5318.44	-14.40	-3.41	-14.39	694271.61	734332.29	33°01'03.653"N	103°50'03.810"W	0.03
5413.60	0.770	242.280	5413.43	-15.61	-4.05	-15.59	694270.41	734331.65	33°01'03.647"N	103°50'03.824"W	0.12
5508.80	0.780	240.060	5508.62	-16.74	-4.67	-16.72	694269.28	734331.03	33°01'03.641"N	103°50'03.837"W	0.03
5603.80	0.810	240.460	5603.61	-17.89	-5.33	-17.87	694268.14	734330.37	33°01'03.634"N	103°50'03.851"W	0.03



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No. 1H AWP

Page 4 of 9



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Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWB
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWB at 8454.50 MD

WELLPATH DATA (218 stations)

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5698.80	0.810	244.830	5698.60	-19.08	-5.94	-19.06	694266.94	734329.76	33°01'03.628"N	103°50'03.865"W	0.07
5793.90	0.850	252.850	5793.69	-20.37	-6.44	-20.34	694265.66	734329.26	33°01'03.624"N	103°50'03.880"W	0.13
5889.00	0.930	261.110	5888.78	-21.81	-6.76	-21.78	694264.23	734328.94	33°01'03.620"N	103°50'03.897"W	0.16
5984.00	0.980	274.030	5983.76	-23.38	-6.83	-23.35	694262.65	734328.87	33°01'03.620"N	103°50'03.915"W	0.23
6079.20	1.100	283.380	6078.95	-25.08	-6.56	-25.05	694260.95	734329.14	33°01'03.623"N	103°50'03.935"W	0.22
6174.10	1.130	289.770	6173.83	-26.84	-6.03	-26.82	694259.19	734329.67	33°01'03.628"N	103°50'03.956"W	0.13
6269.20	1.080	294.290	6268.91	-28.54	-5.34	-28.52	694257.49	734330.36	33°01'03.635"N	103°50'03.976"W	0.11
6364.20	1.080	301.460	6363.90	-30.12	-4.51	-30.10	694255.91	734331.19	33°01'03.643"N	103°50'03.994"W	0.14
6458.30	1.120	303.600	6457.98	-31.63	-3.54	-31.62	694254.38	734332.16	33°01'03.653"N	103°50'04.012"W	0.06
6553.20	1.080	302.590	6552.86	-33.16	-2.54	-33.14	694252.86	734333.16	33°01'03.663"N	103°50'04.030"W	0.05
6648.10	1.160	299.190	6647.74	-34.74	-1.59	-34.74	694251.27	734334.11	33°01'03.672"N	103°50'04.049"W	0.11
6740.10	1.270	302.830	6739.72	-36.41	-0.59	-36.41	694249.60	734335.11	33°01'03.682"N	103°50'04.068"W	0.15
6834.90	1.380	305.490	6834.50	-38.21	0.65	-38.22	694247.78	734336.35	33°01'03.694"N	103°50'04.089"W	0.13
6929.80	1.510	306.530	6929.37	-40.14	2.05	-40.15	694245.85	734337.75	33°01'03.708"N	103°50'04.112"W	0.14
7024.70	1.500	304.530	7024.23	-42.16	3.50	-42.18	694243.82	734339.20	33°01'03.723"N	103°50'04.136"W	0.06
7119.50	1.520	306.870	7119.00	-44.19	4.96	-44.21	694241.79	734340.66	33°01'03.737"N	103°50'04.159"W	0.07
7214.90	1.580	308.050	7214.37	-46.23	6.53	-46.26	694239.75	734342.23	33°01'03.753"N	103°50'04.183"W	0.07
7310.40	1.520	309.060	7309.83	-48.24	8.14	-48.28	694237.73	734343.84	33°01'03.769"N	103°50'04.207"W	0.07
7405.50	1.350	312.370	7404.90	-50.04	9.69	-50.08	694235.92	734345.39	33°01'03.784"N	103°50'04.228"W	0.20
7500.80	1.050	319.630	7500.18	-51.43	11.11	-51.48	694234.52	734346.81	33°01'03.799"N	103°50'04.244"W	0.35
7596.10	0.810	329.360	7595.47	-52.33	12.36	-52.39	694233.62	734348.06	33°01'03.811"N	103°50'04.255"W	0.30
7691.40	0.800	335.400	7690.76	-52.94	13.54	-53.01	694233.00	734349.24	33°01'03.823"N	103°50'04.262"W	0.09
7786.60	0.790	342.690	7785.95	-53.41	14.77	-53.48	694232.52	734350.47	33°01'03.835"N	103°50'04.268"W	0.11
7881.90	0.690	353.990	7881.24	-53.66	15.97	-53.74	694232.27	734351.67	33°01'03.847"N	103°50'04.271"W	0.19
7977.00	0.600	361.690	7976.34	-53.67	17.03	-53.75	694232.26	734352.73	33°01'03.857"N	103°50'04.271"W	0.17
8072.60	0.560	374.460	8071.93	-53.50	17.99	-53.59	694232.42	734353.69	33°01'03.867"N	103°50'04.269"W	0.09
8168.00	0.540	380.250	8167.33	-53.16	18.83	-53.25	694232.75	734354.53	33°01'03.875"N	103°50'04.265"W	0.17
8263.50	0.620	393.300	8262.82	-52.52	19.53	-52.61	694233.39	734355.23	33°01'03.882"N	103°50'04.257"W	0.26
8359.00	0.650	401.960	8358.32	-51.63	20.09	-51.72	694234.28	734355.79	33°01'03.887"N	103°50'04.247"W	0.11
8454.50	0.660	405.990	8453.81	-50.64	20.57	-50.74	694235.26	734356.27	33°01'03.892"N	103°50'04.235"W	0.05



Actual Wellpath Report

No. 1H AWP

Page 5 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWP
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWP at 8454.50 MD

WELLPATH DATA (218 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]
8492.00	0.600	55.000	8491.31	-50.28	20.77	-50.38	694235.62	734356.47	33°01'03.894"N	103°50'04.231"W	0.36
8524.00	1.200	50.700	8523.30	-49.89	21.08	-49.98	694236.02	734356.78	33°01'03.897"N	103°50'04.226"W	1.89
8539.00	3.500	65.700	8538.29	-49.35	21.37	-49.45	694236.56	734357.06	33°01'03.900"N	103°50'04.220"W	15.74
8556.00	6.500	68.500	8555.22	-47.97	21.93	-48.08	694237.93	734357.63	33°01'03.906"N	103°50'04.204"W	17.70
8571.00	10.900	69.000	8570.05	-45.86	22.75	-45.96	694240.04	734358.45	33°01'03.914"N	103°50'04.179"W	29.34
8587.00	15.500	70.900	8585.62	-42.42	23.99	-42.53	694243.48	734359.69	33°01'03.926"N	103°50'04.139"W	28.87
8602.00	20.000	72.000	8599.90	-38.07	25.44	-38.19	694247.81	734361.14	33°01'03.940"N	103°50'04.088"W	30.08
8619.00	23.900	71.900	8615.67	-32.02	27.41	-32.15	694253.85	734363.11	33°01'03.959"N	103°50'04.017"W	22.94
8651.00	33.000	72.000	8643.77	-17.52	32.13	-17.67	694268.33	734367.83	33°01'04.005"N	103°50'03.846"W	28.44
8682.00	42.300	71.300	8668.29	0.46	38.10	0.28	694286.28	734373.79	33°01'04.063"N	103°50'03.635"W	30.03
8714.00	51.600	70.500	8690.11	22.56	45.75	22.35	694308.34	734381.45	33°01'04.138"N	103°50'03.376"W	29.12
8746.00	60.600	69.800	8707.94	47.55	54.77	47.30	694333.30	734390.46	33°01'04.226"N	103°50'03.082"W	28.18
8777.00	69.500	70.200	8721.00	73.99	64.37	73.69	694359.68	734400.06	33°01'04.320"N	103°50'02.772"W	28.73
8809.00	79.000	71.000	8729.68	103.05	74.58	102.70	694388.70	734410.28	33°01'04.419"N	103°50'02.430"W	29.78
8829.00	83.600	70.800	8732.71	121.76	81.05	121.38	694407.37	734416.74	33°01'04.482"N	103°50'02.211"W	23.02
8841.00	87.700	73.600	8733.62	133.16	84.70	132.77	694418.76	734420.40	33°01'04.518"N	103°50'02.077"W	41.33
8873.00	89.800	76.300	8734.31	164.09	93.01	163.66	694449.65	734428.70	33°01'04.599"N	103°50'01.713"W	10.69
8905.00	89.100	76.700	8734.62	195.24	100.48	194.77	694480.76	734436.17	33°01'04.671"N	103°50'01.348"W	2.52
8937.00	89.900	78.200	8734.90	226.51	107.43	226.01	694511.99	734443.13	33°01'04.739"N	103°50'00.980"W	5.31
8968.00	89.500	78.800	8735.06	256.91	113.61	256.38	694542.37	734449.31	33°01'04.798"N	103°50'00.623"W	2.33
9000.00	90.100	81.300	8735.17	288.45	119.14	287.90	694573.88	734454.83	33°01'04.851"N	103°50'00.253"W	8.03
9031.00	90.100	83.000	8735.12	319.18	123.38	318.61	694604.59	734459.07	33°01'04.892"N	103°49'59.892"W	5.48
9063.00	90.800	84.000	8734.87	350.99	127.00	350.40	694636.38	734462.69	33°01'04.926"N	103°49'59.518"W	3.81
9094.00	90.200	86.200	8734.60	381.89	129.65	381.28	694667.26	734465.34	33°01'04.951"N	103°49'59.156"W	7.36
9126.00	89.600	86.000	8734.65	413.82	131.82	413.21	694699.18	734467.51	33°01'04.971"N	103°49'58.781"W	1.98
9158.00	89.000	86.100	8735.05	445.75	134.03	445.13	694731.10	734469.72	33°01'04.991"N	103°49'58.406"W	1.90
9190.00	89.400	88.400	8735.49	477.72	135.56	477.09	694763.06	734471.25	33°01'05.005"N	103°49'58.030"W	7.29
9221.00	89.900	89.600	8735.68	508.71	136.10	508.08	694794.05	734471.79	33°01'05.009"N	103°49'57.666"W	4.19
9253.00	91.200	90.800	8735.37	540.71	135.99	540.08	694826.05	734471.68	33°01'05.006"N	103°49'57.290"W	5.53
9284.00	91.200	91.200	8734.73	571.70	135.45	571.07	694857.03	734471.14	33°01'05.000"N	103°49'56.927"W	1.29



Actual Wellpath Report

No. 1H AWP

Page 6 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWB
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWB at 8454.50 MD

WELLPATH DATA (218 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]
9316.00	90.900	90.800	8734.14	603.68	134.89	603.06	694889.02	734470.58	33°01'04.992"N	103°49'56.551"W	1.56
9348.00	90.700	90.600	8733.69	635.67	134.50	635.05	694921.01	734470.19	33°01'04.987"N	103°49'56.175"W	0.88
9379.00	90.500	90.100	8733.37	666.67	134.31	666.05	694952.01	734470.00	33°01'04.984"N	103°49'55.811"W	1.74
9411.00	89.700	91.800	8733.31	698.66	133.78	698.05	694984.00	734469.47	33°01'04.977"N	103°49'55.435"W	5.87
9442.00	89.400	91.800	8733.55	729.64	132.81	729.03	695014.98	734468.50	33°01'04.966"N	103°49'55.072"W	0.97
9474.00	89.300	91.500	8733.92	761.62	131.89	761.01	695046.96	734467.58	33°01'04.955"N	103°49'54.696"W	0.99
9506.00	88.800	91.300	8734.45	793.60	131.10	793.00	695078.95	734466.80	33°01'04.946"N	103°49'54.320"W	1.68
9537.00	88.500	91.400	8735.18	824.58	130.37	823.98	695109.93	734466.07	33°01'04.937"N	103°49'53.957"W	1.02
9569.00	89.700	93.000	8735.68	856.55	129.15	855.95	695141.90	734464.84	33°01'04.924"N	103°49'53.581"W	6.25
9600.00	89.700	93.300	8735.84	887.49	127.44	886.91	695172.85	734463.13	33°01'04.905"N	103°49'53.218"W	0.97
9632.00	89.600	92.800	8736.04	919.44	125.74	918.86	695204.80	734461.43	33°01'04.887"N	103°49'52.843"W	1.59
9663.00	89.100	92.700	8736.39	950.39	124.25	949.82	695235.76	734459.94	33°01'04.871"N	103°49'52.479"W	1.64
9695.00	89.000	92.800	8736.92	982.34	122.72	981.78	695267.72	734458.41	33°01'04.854"N	103°49'52.104"W	0.44
9726.00	90.500	93.700	8737.06	1013.28	120.96	1012.73	695298.66	734456.65	33°01'04.835"N	103°49'51.741"W	5.64
9790.00	90.300	93.300	8736.61	1077.14	117.05	1076.61	695362.54	734452.74	33°01'04.794"N	103°49'50.991"W	0.70
9852.00	90.100	94.400	8736.39	1138.98	112.89	1138.47	695424.39	734448.58	33°01'04.750"N	103°49'50.264"W	1.80
9916.00	89.000	93.700	8736.90	1202.80	108.37	1202.30	695488.22	734444.06	33°01'04.702"N	103°49'49.515"W	2.04
9979.00	91.400	94.900	8736.68	1265.59	103.65	1265.12	695551.04	734439.34	33°01'04.652"N	103°49'48.778"W	4.26
10042.00	91.900	95.100	8734.86	1328.30	98.16	1327.85	695613.77	734433.85	33°01'04.595"N	103°49'48.041"W	0.85
10105.00	90.300	94.900	8733.65	1391.02	92.67	1390.60	695676.51	734428.36	33°01'04.538"N	103°49'47.305"W	2.56
10169.00	90.500	95.400	8733.21	1454.73	86.92	1454.34	695740.24	734422.62	33°01'04.478"N	103°49'46.556"W	0.84
10232.00	90.000	95.600	8732.93	1517.41	80.89	1517.05	695802.95	734416.58	33°01'04.415"N	103°49'45.820"W	0.85
10294.00	89.400	95.500	8733.26	1579.09	74.89	1578.76	695864.65	734410.58	33°01'04.353"N	103°49'45.096"W	0.98
10357.00	89.000	95.400	8734.14	1641.77	68.91	1641.47	695927.36	734404.60	33°01'04.291"N	103°49'44.360"W	0.65
10421.00	90.300	94.800	8734.53	1705.49	63.22	1705.21	695991.10	734398.91	33°01'04.231"N	103°49'43.612"W	2.24
10484.00	90.500	95.000	8734.09	1768.23	57.84	1767.98	696053.86	734393.53	33°01'04.175"N	103°49'42.875"W	0.45
10548.00	89.500	94.900	8734.09	1831.96	52.31	1831.74	696117.62	734388.01	33°01'04.117"N	103°49'42.126"W	1.57
10611.00	90.700	94.100	8733.98	1894.74	47.37	1894.54	696180.42	734383.07	33°01'04.065"N	103°49'41.389"W	2.29
10674.00	90.400	94.500	8733.37	1957.54	42.65	1957.36	696243.23	734378.35	33°01'04.016"N	103°49'40.651"W	0.79
10738.00	90.300	94.100	8732.98	2021.34	37.85	2021.18	696307.05	734373.55	33°01'03.965"N	103°49'39.902"W	0.64



Actual Wellpath Report

No. 1H AWP

Page 7 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWP
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWP at 8454.50 MD

WELLPATH DATA (218 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]
10801.00	89.500	92.600	8733.09	2084.21	34.17	2084.07	696369.93	734369.87	33°01'03.926"N	103°49'39.164"W	2.70
10864.00	89.100	91.600	8733.86	2147.15	31.86	2147.02	696432.88	734367.56	33°01'03.900"N	103°49'38.425"W	1.71
10928.00	90.700	91.800	8733.97	2211.11	29.96	2210.99	696496.85	734365.66	33°01'03.878"N	103°49'37.674"W	2.52
10991.00	91.400	91.300	8732.82	2274.07	28.26	2273.96	696559.81	734363.96	33°01'03.858"N	103°49'36.934"W	1.37
11055.00	92.400	91.400	8730.70	2338.00	26.75	2337.91	696623.75	734362.45	33°01'03.840"N	103°49'36.183"W	1.57
11118.00	87.100	90.200	8730.97	2400.97	25.87	2400.87	696686.72	734361.57	33°01'03.829"N	103°49'35.444"W	8.63
11182.00	89.100	91.100	8733.09	2464.92	25.15	2464.83	696750.67	734360.84	33°01'03.818"N	103°49'34.693"W	3.43
11245.00	91.400	90.400	8732.82	2527.91	24.32	2527.82	696813.65	734360.02	33°01'03.807"N	103°49'33.953"W	3.82
11308.00	91.100	90.900	8731.44	2590.88	23.61	2590.80	696876.63	734359.30	33°01'03.797"N	103°49'33.214"W	0.93
11340.00	88.800	90.800	8731.47	2622.88	23.13	2622.80	696908.62	734358.83	33°01'03.791"N	103°49'32.838"W	7.19
11372.00	87.100	90.500	8732.62	2654.85	22.77	2654.77	696940.60	734358.47	33°01'03.786"N	103°49'32.462"W	5.39
11403.00	89.000	90.800	8733.67	2685.83	22.42	2685.75	696971.57	734358.12	33°01'03.781"N	103°49'32.099"W	6.20
11435.00	90.100	90.900	8733.92	2717.82	21.94	2717.75	697003.57	734357.64	33°01'03.775"N	103°49'31.723"W	3.45
11467.00	90.400	91.200	8733.78	2749.81	21.36	2749.74	697035.56	734357.05	33°01'03.767"N	103°49'31.347"W	1.33
11498.00	91.500	90.800	8733.27	2780.80	20.81	2780.73	697066.55	734356.51	33°01'03.760"N	103°49'30.983"W	3.78
11529.00	89.800	90.000	8732.92	2811.79	20.60	2811.73	697097.54	734356.30	33°01'03.757"N	103°49'30.619"W	6.06
11561.00	87.400	89.300	8733.70	2843.78	20.79	2843.71	697129.53	734356.49	33°01'03.757"N	103°49'30.244"W	7.81
11592.00	86.800	88.800	8735.27	2874.74	21.31	2874.67	697160.48	734357.01	33°01'03.761"N	103°49'29.880"W	2.52
11624.00	87.500	89.300	8736.86	2906.70	21.84	2906.63	697192.43	734357.54	33°01'03.765"N	103°49'29.505"W	2.69
11656.00	89.400	89.300	8737.72	2938.68	22.23	2938.61	697224.42	734357.93	33°01'03.767"N	103°49'29.129"W	5.94
11688.00	90.000	88.200	8737.89	2970.68	22.93	2970.60	697256.40	734358.62	33°01'03.772"N	103°49'28.753"W	3.92
11719.00	88.400	87.300	8738.32	3001.65	24.14	3001.57	697287.37	734359.84	33°01'03.783"N	103°49'28.390"W	5.92
11751.00	87.300	87.700	8739.52	3033.61	25.54	3033.52	697319.32	734361.24	33°01'03.795"N	103°49'28.014"W	3.66
11783.00	88.800	87.400	8740.61	3065.56	26.90	3065.47	697351.27	734362.60	33°01'03.807"N	103°49'27.639"W	4.78
11814.00	90.700	87.400	8740.75	3096.54	28.31	3096.44	697382.23	734364.01	33°01'03.820"N	103°49'27.275"W	6.13
11846.00	90.400	87.200	8740.44	3128.50	29.82	3128.40	697414.19	734365.52	33°01'03.833"N	103°49'26.900"W	1.13
11877.00	90.000	87.200	8740.33	3159.47	31.33	3159.36	697445.15	734367.03	33°01'03.846"N	103°49'26.536"W	1.29
11909.00	89.500	87.900	8740.47	3191.45	32.70	3191.33	697477.12	734368.40	33°01'03.858"N	103°49'26.161"W	2.69
11941.00	90.400	89.400	8740.50	3223.44	33.45	3223.32	697509.11	734369.15	33°01'03.864"N	103°49'25.785"W	5.47
11972.00	90.400	88.700	8740.28	3254.44	33.97	3254.32	697540.10	734369.67	33°01'03.868"N	103°49'25.421"W	2.26



Actual Wellpath Report

No. 1H AWP

Page 8 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWB
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWB at 8454.50 MD

WELLPATH DATA (218 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]
12004.00	90.400	88.200	8740.06	3286.43	34.83	3286.30	697572.09	734370.53	33°01'03.875"N	103°49'25.045"W	1.56
12036.00	90.200	88.700	8739.89	3318.42	35.70	3318.29	697604.07	734371.40	33°01'03.882"N	103°49'24.670"W	1.68
12067.00	89.700	88.700	8739.92	3349.42	36.40	3349.28	697635.06	734372.10	33°01'03.887"N	103°49'24.306"W	1.61
12099.00	89.400	88.500	8740.17	3381.41	37.18	3381.27	697667.05	734372.88	33°01'03.894"N	103°49'23.930"W	1.13
12131.00	89.200	88.600	8740.56	3413.40	37.99	3413.26	697699.04	734373.69	33°01'03.900"N	103°49'23.554"W	0.70
12162.00	90.300	89.500	8740.70	3444.40	38.51	3444.26	697730.03	734374.21	33°01'03.904"N	103°49'23.190"W	4.58
12194.00	89.500	88.900	8740.75	3476.40	38.95	3476.25	697762.02	734374.65	33°01'03.907"N	103°49'22.814"W	3.12
12226.00	88.300	89.000	8741.37	3508.39	39.54	3508.24	697794.01	734375.24	33°01'03.911"N	103°49'22.439"W	3.76
12258.00	88.800	90.000	8742.18	3540.38	39.82	3540.23	697825.99	734375.52	33°01'03.912"N	103°49'22.063"W	3.49
12289.00	89.700	90.100	8742.58	3571.37	39.79	3571.23	697856.99	734375.49	33°01'03.910"N	103°49'21.699"W	2.92
12321.00	89.800	90.400	8742.72	3603.37	39.65	3603.22	697888.99	734375.35	33°01'03.907"N	103°49'21.323"W	0.99
12353.00	90.100	90.300	8742.75	3635.37	39.46	3635.22	697920.98	734375.16	33°01'03.904"N	103°49'20.947"W	0.99
12384.00	89.900	90.400	8742.75	3666.37	39.27	3666.22	697951.98	734374.97	33°01'03.901"N	103°49'20.583"W	0.72
12416.00	88.400	89.800	8743.23	3698.36	39.21	3698.22	697983.97	734374.91	33°01'03.898"N	103°49'20.208"W	5.05
12448.00	88.200	90.100	8744.18	3730.35	39.24	3730.20	698015.96	734374.94	33°01'03.897"N	103°49'19.832"W	1.13
12479.00	89.100	90.100	8744.91	3761.34	39.19	3761.20	698046.95	734374.88	33°01'03.895"N	103°49'19.468"W	2.90
12511.00	88.700	90.200	8745.52	3793.33	39.10	3793.19	698078.94	734374.80	33°01'03.893"N	103°49'19.092"W	1.29
12543.00	88.300	90.300	8746.36	3825.32	38.96	3825.18	698110.93	734374.66	33°01'03.890"N	103°49'18.717"W	1.29
12575.00	89.300	90.200	8747.03	3857.31	38.82	3857.17	698142.92	734374.52	33°01'03.887"N	103°49'18.341"W	3.14
12606.00	90.600	90.900	8747.05	3888.31	38.53	3888.17	698173.91	734374.22	33°01'03.883"N	103°49'17.977"W	4.76
12638.00	90.800	90.500	8746.66	3920.30	38.14	3920.16	698205.90	734373.83	33°01'03.877"N	103°49'17.601"W	1.40
12670.00	89.200	90.200	8746.66	3952.30	37.94	3952.16	698237.90	734373.64	33°01'03.874"N	103°49'17.225"W	5.09
12701.00	90.500	89.300	8746.74	3983.29	38.08	3983.16	698268.90	734373.77	33°01'03.874"N	103°49'16.861"W	5.10
12733.00	90.900	89.200	8746.35	4015.29	38.49	4015.16	698300.89	734374.19	33°01'03.876"N	103°49'16.486"W	1.29
12764.00	90.700	89.400	8745.92	4046.29	38.87	4046.15	698331.88	734374.57	33°01'03.878"N	103°49'16.122"W	0.91
12796.00	89.400	89.200	8745.89	4078.29	39.26	4078.15	698363.88	734374.96	33°01'03.881"N	103°49'15.746"W	4.11
12828.00	88.100	88.500	8746.59	4110.27	39.91	4110.13	698395.86	734375.60	33°01'03.886"N	103°49'15.370"W	4.61
12859.00	88.200	88.900	8747.59	4141.25	40.61	4141.11	698426.83	734376.31	33°01'03.891"N	103°49'15.006"W	1.33
12891.00	88.700	89.500	8748.46	4173.24	41.06	4173.09	698458.82	734376.75	33°01'03.894"N	103°49'14.631"W	2.44
12923.00	89.900	89.700	8748.85	4205.24	41.28	4205.09	698490.81	734376.98	33°01'03.895"N	103°49'14.255"W	3.80



Actual Wellpath Report

No. 1H AWP

Page 9 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 1H AWB
Facility	Ticonderoga 16 St Com No. 1H	Sidetrack from	No. 1 AWB at 8454.50 MD

WELLPATH DATA (218 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]
12954.00	88.200	89.300	8749.36	4236.23	41.55	4236.08	698521.80	734377.25	33°01'03.896"N	103°49'13.891"W	5.63
12986.00	86.700	89.400	8750.79	4268.20	41.91	4268.05	698553.77	734377.61	33°01'03.898"N	103°49'13.516"W	4.70
13049.00	86.000	88.600	8754.80	4331.06	43.01	4330.91	698616.62	734378.71	33°01'03.906"N	103°49'12.777"W	1.69
13113.00	86.100	89.000	8759.21	4394.90	44.35	4394.74	698680.45	734380.04	33°01'03.916"N	103°49'12.028"W	0.64
13176.00	85.000	88.800	8764.09	4457.70	45.55	4457.54	698743.25	734381.25	33°01'03.925"N	103°49'11.290"W	1.77
13239.00	84.900	88.900	8769.64	4520.45	46.81	4520.28	698805.98	734382.51	33°01'03.934"N	103°49'10.553"W	0.22
13287.00	84.900	89.200	8773.91	4568.26	47.60	4568.09	698853.78	734383.30	33°01'03.940"N	103°49'09.992"W	0.62
13332.00	84.900	89.200	8777.91	4613.08	48.23	4612.90	698898.60	734383.93	33°01'03.944"N	103°49'09.465"W	0.00

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL		8765.00	21.57	4622.82	698908.51	734357.27	33°01'03.679"N	103°49'09.350"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
0.00	8454.50	Gyrodata standard - Drop gyro or Multi-shot	Gyro - <105.1 - 8706>	No. 1 AWB
8454.50	13287.00	NaviTrak (Standard)	MWD - <8492 - 13287>	No. 1H AWB
13287.00	13332.00	Blind Drilling (std)	Projection to bit	No. 1H AWB