



Cimarex Energy Co.

Location: Eddy County, NM
Field: (Irwin) Sec 13, T19S, R30E
Facility: Irwin 13 Fed No. 1H

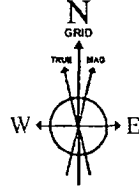
Slot: No. 1H SHL
Well: No. 1H
Wellbore: No. 1H PWB



Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8473.89	1.930	242.785	8471.98	-46.86	-59.30	0.00	-41.20
EST KOP	8524.00	1.900	242.785	8522.06	-47.63	-60.79	0.06	-41.83
END OF CURVE	8848.82	90.500	355.813	8728.57	157.09	-82.15	28.09	163.99
No. 1H PWB	12350.35	90.500	355.813	8698.00	3649.14	-337.77	0.00	3664.74

30-015-37715



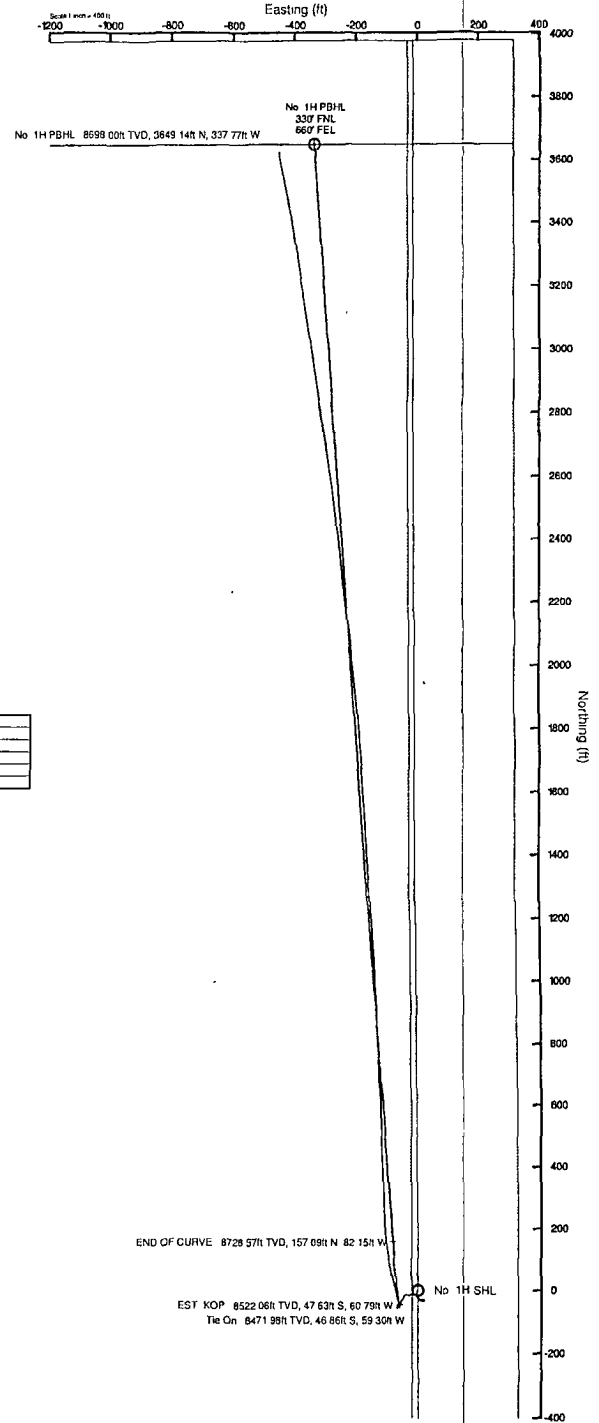
BGGM (1945 0 to 2011 0) Dip: 60.57° Field: 48998.3 nT
Magnetic North is 7.93 degrees East of True North (at 7/7/2010)

Grid North is 0.22 degrees East of True North

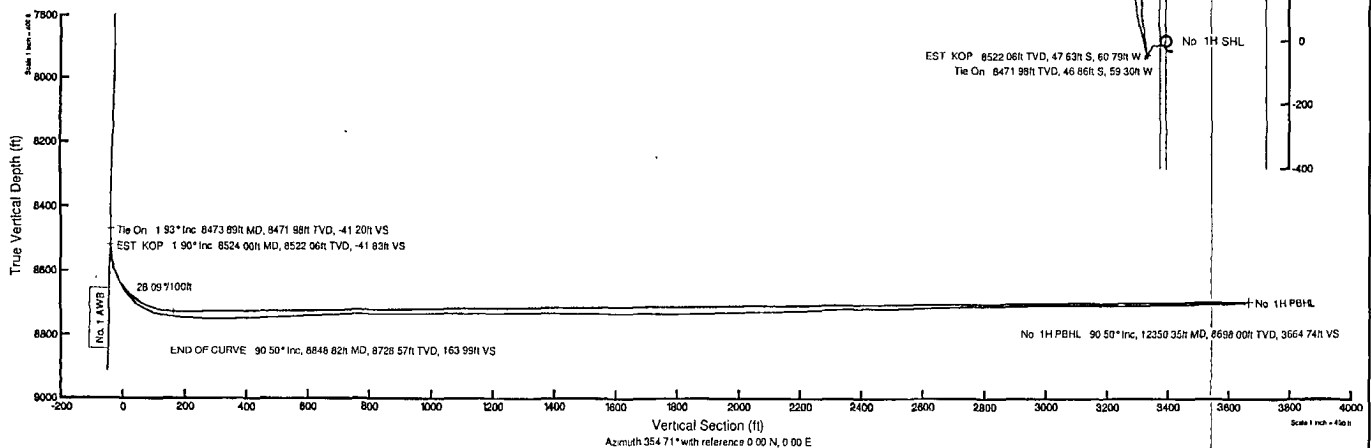
To correct azimuth from True to Grid subtract 0.22 degrees

To correct azimuth from Magnetic to Grid add 7.71 degrees

For example: If the Magnetic North Azimuth = 90 degrees, then the Grid North Azimuth = 90 + 7.71 = 97.71



Plot reference and North Plan #1 vs. Actual (F304L)	Grid System: NAD83 / T.M. New Mexico State Plane, Eastern Zone (2001) US feet
True vertical depths are referenced to Rig on No. 1H SHL (KOP)	North Reference: G.M. North
Measured depths are referenced to Rig on No. 1H SHL (KOP)	Scale: True distance
Rig on No. 1H SHL (KOP) to Mean Sea Level: 3428 feet	Depths are in feet
Mean Sea Level to Mud line (Facility: Irwin 13 Fed No. 1H) -3408 feet	
Coordinates are in feet referenced to Surface Location	Created by: Victor Hernandez on 7/16/2010





Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 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	0.999928	Report Generated	7/19/2010 at 4:09:30 PM
Convergence at slot	0.22° 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	669156.70	602873.60	32°39'23.973"N	103°55'04.842"W
Facility Reference Pt			669156.70	602873.60	32°39'23.973"N	103°55'04.842"W
Field Reference Pt			669156.70	602873.60	32°39'23.973"N	103°55'04.842"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 1H SHL (KB) to GL	20.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 1H SHL (KB) to Mean Sea Level	3428.00ft
Vertical Reference Pt	Rig on No. 1H SHL (KB)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 1H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	354.71°



Actual Wellpath Report

No. 1H AWP

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Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 MD

WELLPATH DATA (206 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	226.140	0.00	0.00	0.00	0.00	669156.70	602873.60	32°39'23.973"N	103°55'04.842"W	0.00
62.80	1.620	226.140	62.79	-0.55	-0.62	-0.64	669156.06	602872.98	32°39'23.967"N	103°55'04.850"W	2.58
124.80	1.890	215.210	124.76	-1.88	-2.06	-1.86	669154.84	602871.54	32°39'23.953"N	103°55'04.864"W	0.69
187.10	2.260	193.950	187.02	-3.82	-4.09	-2.75	669153.95	602869.51	32°39'23.933"N	103°55'04.875"W	1.36
249.30	2.340	192.360	249.17	-6.19	-6.52	-3.32	669153.38	602867.08	32°39'23.909"N	103°55'04.881"W	0.16
311.60	2.080	188.360	311.43	-8.50	-8.88	-3.75	669152.95	602864.72	32°39'23.886"N	103°55'04.887"W	0.49
376.90	2.100	170.260	376.68	-10.84	-11.23	-3.72	669152.98	602862.37	32°39'23.862"N	103°55'04.886"W	1.01
436.00	2.500	163.610	435.74	-13.19	-13.54	-3.18	669153.52	602860.06	32°39'23.839"N	103°55'04.880"W	0.81
498.20	2.560	164.700	497.88	-15.88	-16.18	-2.43	669154.27	602857.42	32°39'23.813"N	103°55'04.871"W	0.12
560.50	2.200	164.300	560.12	-18.43	-18.67	-1.74	669154.96	602854.93	32°39'23.789"N	103°55'04.863"W	0.58
622.60	2.060	162.530	622.18	-20.69	-20.88	-1.08	669155.62	602852.72	32°39'23.767"N	103°55'04.856"W	0.25
685.80	1.700	162.320	685.34	-22.72	-22.86	-0.45	669156.25	602850.74	32°39'23.747"N	103°55'04.849"W	0.57
749.00	1.630	158.940	748.52	-24.50	-24.59	0.15	669156.85	602849.01	32°39'23.730"N	103°55'04.842"W	0.19
812.30	1.790	160.460	811.79	-26.33	-26.36	0.81	669157.51	602847.24	32°39'23.712"N	103°55'04.834"W	0.26
875.50	1.160	153.850	874.97	-27.88	-27.87	1.42	669158.12	602845.73	32°39'23.697"N	103°55'04.827"W	1.03
938.80	1.260	153.620	938.25	-29.13	-29.07	2.01	669158.71	602844.54	32°39'23.686"N	103°55'04.820"W	0.16
1002.30	1.620	156.170	1001.73	-30.63	-30.51	2.68	669159.38	602843.09	32°39'23.671"N	103°55'04.812"W	0.58
1065.30	0.930	131.070	1064.72	-31.84	-31.66	3.43	669160.13	602841.94	32°39'23.660"N	103°55'04.804"W	1.38
1128.40	0.880	98.850	1127.81	-32.33	-32.07	4.29	669160.99	602841.53	32°39'23.656"N	103°55'04.794"W	0.80
1191.50	1.150	73.420	1190.90	-32.33	-31.97	5.38	669162.08	602841.63	32°39'23.657"N	103°55'04.781"W	0.82
1254.60	1.300	65.480	1253.99	-31.97	-31.49	6.64	669163.34	602842.11	32°39'23.661"N	103°55'04.766"W	0.36
1317.40	1.470	84.730	1316.77	-31.73	-31.12	8.09	669164.79	602842.48	32°39'23.665"N	103°55'04.749"W	0.78
1380.60	1.240	85.560	1379.95	-31.74	-30.99	9.58	669166.28	602842.61	32°39'23.666"N	103°55'04.732"W	0.37
1443.90	1.210	87.550	1443.24	-31.79	-30.91	10.93	669167.63	602842.69	32°39'23.667"N	103°55'04.716"W	0.08
1507.20	1.250	86.890	1506.52	-31.85	-30.85	12.29	669168.98	602842.76	32°39'23.668"N	103°55'04.700"W	0.07
1570.50	1.250	89.670	1569.81	-31.93	-30.80	13.67	669170.36	602842.80	32°39'23.668"N	103°55'04.684"W	0.10
1633.70	1.290	86.910	1632.99	-32.02	-30.76	15.07	669171.76	602842.84	32°39'23.668"N	103°55'04.667"W	0.12
1697.20	1.360	85.460	1696.47	-32.06	-30.66	16.53	669173.23	602842.94	32°39'23.669"N	103°55'04.650"W	0.12
1760.30	1.380	85.580	1759.56	-32.08	-30.55	18.03	669174.73	602843.06	32°39'23.670"N	103°55'04.633"W	0.03
1823.70	1.190	81.180	1822.94	-32.05	-30.39	19.45	669176.14	602843.22	32°39'23.672"N	103°55'04.616"W	0.34



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWP
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWP at 8473.89 MD

WELLPATH DATA (206 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]
1887.10	0.740	80.510	1886.33	-31.98	-30.22	20.50	669177.20	602843.38	32°39'23.673"N	103°55'04.604"W	0.71
1950.50	0.400	97.570	1949.73	-32.00	-30.18	21.12	669177.82	602843.42	32°39'23.674"N	103°55'04.597"W	0.59
2013.70	0.320	190.380	2012.93	-32.22	-30.38	21.31	669178.01	602843.22	32°39'23.672"N	103°55'04.594"W	0.83
2076.80	0.580	210.860	2076.03	-32.64	-30.83	21.11	669177.81	602842.77	32°39'23.667"N	103°55'04.597"W	0.48
2140.30	0.650	213.660	2139.52	-33.18	-31.41	20.75	669177.45	602842.20	32°39'23.662"N	103°55'04.601"W	0.12
2203.80	0.680	218.880	2203.02	-33.73	-32.00	20.31	669177.01	602841.60	32°39'23.656"N	103°55'04.606"W	0.11
2267.00	0.720	222.290	2266.21	-34.27	-32.58	19.81	669176.51	602841.02	32°39'23.650"N	103°55'04.612"W	0.09
2330.40	0.890	213.320	2329.61	-34.93	-33.29	19.27	669175.97	602840.31	32°39'23.643"N	103°55'04.618"W	0.33
2393.90	0.870	209.560	2393.10	-35.71	-34.12	18.76	669175.46	602839.48	32°39'23.635"N	103°55'04.624"W	0.10
2457.10	0.500	226.400	2456.29	-36.27	-34.73	18.33	669175.03	602838.87	32°39'23.629"N	103°55'04.630"W	0.66
2520.20	0.360	278.560	2519.39	-36.39	-34.89	17.93	669174.63	602838.71	32°39'23.627"N	103°55'04.634"W	0.63
2583.50	0.480	295.600	2582.69	-36.21	-34.75	17.50	669174.20	602838.86	32°39'23.629"N	103°55'04.639"W	0.27
2647.10	0.530	286.020	2646.29	-35.97	-34.55	16.97	669173.67	602839.05	32°39'23.631"N	103°55'04.645"W	0.15
2710.50	0.490	288.840	2709.69	-35.75	-34.38	16.44	669173.13	602839.22	32°39'23.632"N	103°55'04.652"W	0.07
2773.80	0.470	287.790	2772.98	-35.54	-34.21	15.93	669172.63	602839.39	32°39'23.634"N	103°55'04.658"W	0.03
2837.20	0.420	271.570	2836.38	-35.41	-34.13	15.45	669172.15	602839.47	32°39'23.635"N	103°55'04.663"W	0.21
2900.70	0.260	252.090	2899.88	-35.41	-34.17	15.08	669171.78	602839.44	32°39'23.635"N	103°55'04.667"W	0.31
2963.90	0.170	198.790	2963.08	-35.53	-34.30	14.92	669171.61	602839.30	32°39'23.633"N	103°55'04.669"W	0.33
3027.40	0.180	196.670	3026.58	-35.71	-34.48	14.86	669171.56	602839.12	32°39'23.631"N	103°55'04.670"W	0.02
3090.80	0.290	234.910	3089.98	-35.88	-34.67	14.70	669171.40	602838.93	32°39'23.630"N	103°55'04.672"W	0.29
3154.20	0.310	242.780	3153.38	-36.02	-34.84	14.41	669171.11	602838.76	32°39'23.628"N	103°55'04.675"W	0.07
3217.50	0.380	261.460	3216.68	-36.10	-34.95	14.05	669170.75	602838.65	32°39'23.627"N	103°55'04.680"W	0.21
3280.80	0.560	285.550	3279.98	-36.00	-34.90	13.55	669170.25	602838.70	32°39'23.627"N	103°55'04.685"W	0.42
3343.80	0.930	295.820	3342.97	-35.63	-34.59	12.79	669169.49	602839.01	32°39'23.630"N	103°55'04.694"W	0.62
3407.20	1.400	295.770	3406.36	-34.96	-34.03	11.63	669168.33	602839.57	32°39'23.636"N	103°55'04.708"W	0.74
3470.60	1.380	293.310	3469.74	-34.20	-33.40	10.23	669166.93	602840.21	32°39'23.642"N	103°55'04.724"W	0.10
3534.10	1.290	293.920	3533.22	-33.48	-32.80	8.88	669165.58	602840.80	32°39'23.648"N	103°55'04.740"W	0.14
3597.70	1.720	311.950	3596.80	-32.43	-31.87	7.51	669164.21	602841.73	32°39'23.658"N	103°55'04.756"W	1.00
3661.20	1.910	317.660	3660.27	-30.89	-30.46	6.09	669162.79	602843.15	32°39'23.672"N	103°55'04.772"W	0.41
3724.30	1.710	312.920	3723.34	-29.35	-29.04	4.69	669161.39	602844.57	32°39'23.686"N	103°55'04.789"W	0.40



Actual Wellpath Report

No. 1H AWP

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Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 MD

WELLPATH DATA (206 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]
3787.80	1.250	300.380	3786.81	-28.24	-28.04	3.40	669160.10	602845.56	32°39'23.696"N	103°55'04.804"W	0.88
3851.00	0.970	305.150	3850.00	-27.49	-27.38	2.37	669159.07	602846.22	32°39'23.702"N	103°55'04.816"W	0.47
3914.00	0.760	321.230	3913.00	-26.79	-26.75	1.67	669158.37	602846.85	32°39'23.709"N	103°55'04.824"W	0.51
3977.30	0.760	336.400	3976.29	-26.04	-26.04	1.24	669157.94	602847.56	32°39'23.716"N	103°55'04.829"W	0.32
4040.70	0.920	334.810	4039.68	-25.17	-25.19	0.86	669157.56	602848.41	32°39'23.724"N	103°55'04.833"W	0.26
4104.10	1.110	326.810	4103.07	-24.14	-24.22	0.30	669157.00	602849.38	32°39'23.734"N	103°55'04.840"W	0.37
4167.50	1.140	325.760	4166.46	-23.05	-23.18	-0.39	669156.31	602850.42	32°39'23.744"N	103°55'04.848"W	0.06
4230.60	1.000	327.690	4229.55	-22.01	-22.20	-1.04	669155.66	602851.40	32°39'23.754"N	103°55'04.855"W	0.23
4293.90	0.890	317.430	4292.84	-21.13	-21.37	-1.66	669155.04	602852.23	32°39'23.762"N	103°55'04.863"W	0.32
4357.00	0.840	309.030	4355.93	-20.41	-20.72	-2.35	669154.35	602852.88	32°39'23.768"N	103°55'04.871"W	0.22
4420.20	0.810	307.540	4419.13	-19.79	-20.15	-3.07	669153.63	602853.45	32°39'23.774"N	103°55'04.879"W	0.06
4483.50	0.750	312.860	4482.42	-19.17	-19.60	-3.73	669152.97	602854.00	32°39'23.779"N	103°55'04.887"W	0.15
4546.70	0.810	314.910	4545.62	-18.52	-19.00	-4.35	669152.35	602854.60	32°39'23.785"N	103°55'04.894"W	0.10
4610.10	1.200	301.770	4609.01	-17.78	-18.34	-5.23	669151.47	602855.26	32°39'23.792"N	103°55'04.904"W	0.71
4673.70	1.280	299.170	4672.59	-16.97	-17.64	-6.41	669150.29	602855.96	32°39'23.799"N	103°55'04.918"W	0.15
4737.00	1.240	295.830	4735.88	-16.22	-17.00	-7.65	669149.05	602856.60	32°39'23.805"N	103°55'04.933"W	0.13
4800.30	1.180	293.110	4799.16	-15.56	-16.44	-8.86	669147.84	602857.16	32°39'23.811"N	103°55'04.947"W	0.13
4863.60	1.220	292.580	4862.45	-14.93	-15.93	-10.09	669146.61	602857.67	32°39'23.816"N	103°55'04.961"W	0.07
4927.10	1.210	290.380	4925.93	-14.33	-15.44	-11.34	669145.36	602858.17	32°39'23.821"N	103°55'04.976"W	0.08
4990.50	1.240	289.150	4989.32	-13.75	-14.98	-12.61	669144.09	602858.62	32°39'23.826"N	103°55'04.991"W	0.06
5053.80	1.290	281.230	5052.60	-13.27	-14.61	-13.96	669142.74	602858.99	32°39'23.829"N	103°55'05.006"W	0.29
5117.10	1.330	276.570	5115.89	-12.91	-14.39	-15.39	669141.31	602859.21	32°39'23.831"N	103°55'05.023"W	0.18
5180.00	1.290	277.510	5178.77	-12.61	-14.22	-16.82	669139.88	602859.39	32°39'23.833"N	103°55'05.040"W	0.07
5243.10	1.160	275.360	5241.86	-12.33	-14.06	-18.16	669138.54	602859.54	32°39'23.835"N	103°55'05.055"W	0.22
5307.00	1.070	275.600	5305.74	-12.10	-13.94	-19.39	669137.31	602859.66	32°39'23.836"N	103°55'05.070"W	0.14
5370.20	0.930	274.760	5368.94	-11.90	-13.84	-20.49	669136.21	602859.76	32°39'23.837"N	103°55'05.083"W	0.22
5433.50	0.860	261.780	5432.23	-11.83	-13.87	-21.47	669135.23	602859.73	32°39'23.837"N	103°55'05.094"W	0.34
5496.70	0.830	257.590	5495.42	-11.91	-14.04	-22.39	669134.31	602859.57	32°39'23.835"N	103°55'05.105"W	0.11
5560.00	0.830	256.400	5558.71	-12.04	-14.24	-23.28	669133.42	602859.36	32°39'23.833"N	103°55'05.115"W	0.03
5623.10	0.680	252.100	5621.81	-12.18	-14.46	-24.09	669132.62	602859.14	32°39'23.831"N	103°55'05.125"W	0.25



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 MD

WELLPATH DATA (206 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]
5686.80	0.610	236.860	5685.50	-12.42	-14.77	-24.73	669131.97	602858.83	32°39'23.828"N	103°55'05.132"W	0.29
5749.80	0.650	233.810	5748.50	-12.76	-15.16	-25.30	669131.40	602858.44	32°39'23.824"N	103°55'05.139"W	0.08
5813.10	0.610	236.000	5811.80	-13.11	-15.56	-25.87	669130.83	602858.04	32°39'23.820"N	103°55'05.146"W	0.07
5876.50	0.570	246.920	5875.19	-13.37	-15.87	-26.44	669130.26	602857.73	32°39'23.817"N	103°55'05.152"W	0.19
5940.00	0.660	261.560	5938.69	-13.49	-16.05	-27.09	669129.61	602857.55	32°39'23.816"N	103°55'05.160"W	0.28
6003.20	0.660	271.590	6001.89	-13.46	-16.09	-27.81	669128.89	602857.51	32°39'23.815"N	103°55'05.168"W	0.18
6066.60	0.720	271.830	6065.28	-13.37	-16.07	-28.58	669128.13	602857.53	32°39'23.815"N	103°55'05.177"W	0.09
6129.90	0.780	272.310	6128.58	-13.26	-16.04	-29.40	669127.30	602857.56	32°39'23.816"N	103°55'05.187"W	0.10
6193.50	0.780	272.630	6192.17	-13.15	-16.00	-30.27	669126.43	602857.60	32°39'23.816"N	103°55'05.197"W	0.01
6256.90	0.800	272.000	6255.56	-13.03	-15.97	-31.14	669125.56	602857.63	32°39'23.816"N	103°55'05.207"W	0.03
6320.40	0.800	271.370	6319.06	-12.92	-15.94	-32.03	669124.67	602857.66	32°39'23.817"N	103°55'05.218"W	0.01
6383.60	0.760	274.720	6382.25	-12.80	-15.90	-32.89	669123.81	602857.70	32°39'23.817"N	103°55'05.228"W	0.10
6446.90	0.800	280.280	6445.55	-12.61	-15.78	-33.74	669122.96	602857.82	32°39'23.818"N	103°55'05.238"W	0.14
6510.20	0.820	288.400	6508.84	-12.31	-15.56	-34.61	669122.10	602858.04	32°39'23.821"N	103°55'05.248"W	0.18
6573.50	0.760	296.520	6572.13	-11.90	-15.23	-35.41	669121.29	602858.37	32°39'23.824"N	103°55'05.257"W	0.20
6636.90	0.780	294.280	6635.53	-11.47	-14.87	-36.18	669120.52	602858.73	32°39'23.828"N	103°55'05.266"W	0.06
6700.10	0.870	284.500	6698.72	-11.09	-14.57	-37.04	669119.67	602859.03	32°39'23.831"N	103°55'05.276"W	0.26
6763.30	0.850	278.500	6761.91	-10.82	-14.38	-37.97	669118.74	602859.22	32°39'23.832"N	103°55'05.287"W	0.15
6826.80	0.730	268.720	6825.41	-10.68	-14.32	-38.84	669117.87	602859.28	32°39'23.833"N	103°55'05.297"W	0.28
6890.00	0.770	250.700	6888.60	-10.75	-14.47	-39.64	669117.06	602859.13	32°39'23.832"N	103°55'05.307"W	0.38
6953.40	0.930	237.600	6952.00	-11.09	-14.89	-40.48	669116.23	602858.72	32°39'23.828"N	103°55'05.316"W	0.40
7016.80	1.160	233.470	7015.39	-11.66	-15.54	-41.43	669115.28	602858.06	32°39'23.821"N	103°55'05.328"W	0.38
7079.60	1.320	231.950	7078.17	-12.38	-16.37	-42.51	669114.20	602857.23	32°39'23.813"N	103°55'05.340"W	0.26
7142.90	1.290	230.170	7141.45	-13.18	-17.27	-43.63	669113.08	602856.33	32°39'23.804"N	103°55'05.353"W	0.08
7206.50	1.210	223.190	7205.04	-14.03	-18.22	-44.64	669112.07	602855.38	32°39'23.795"N	103°55'05.365"W	0.27
7269.90	1.130	215.760	7268.43	-14.94	-19.22	-45.46	669111.24	602854.38	32°39'23.785"N	103°55'05.375"W	0.27
7333.20	1.150	210.750	7331.71	-15.93	-20.27	-46.15	669110.55	602853.33	32°39'23.775"N	103°55'05.383"W	0.16
7396.70	1.240	202.860	7395.20	-17.05	-21.45	-46.74	669109.96	602852.15	32°39'23.763"N	103°55'05.390"W	0.30
7459.90	1.320	197.430	7458.38	-18.32	-22.77	-47.23	669109.48	602850.83	32°39'23.750"N	103°55'05.396"W	0.23
7523.20	1.270	193.550	7521.67	-19.66	-24.15	-47.61	669109.09	602849.45	32°39'23.736"N	103°55'05.400"W	0.16



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 MD

WELLPATH DATA (206 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]
7586.50	1.230	192.090	7584.95	-20.97	-25.50	-47.92	669108.79	602848.10	32°39'23.723"N	103°55'05.404"W	0.08
7650.10	1.250	198.990	7648.54	-22.26	-26.82	-48.28	669108.42	602846.78	32°39'23.710"N	103°55'05.408"W	0.24
7713.60	1.350	209.350	7712.02	-23.50	-28.13	-48.88	669107.83	602845.47	32°39'23.697"N	103°55'05.415"W	0.40
7777.00	1.480	215.870	7775.40	-24.74	-29.44	-49.72	669106.98	602844.16	32°39'23.684"N	103°55'05.425"W	0.33
7840.40	1.480	221.090	7838.78	-25.92	-30.72	-50.74	669105.96	602842.88	32°39'23.671"N	103°55'05.437"W	0.21
7903.80	1.450	226.830	7902.16	-26.97	-31.89	-51.86	669104.84	602841.71	32°39'23.660"N	103°55'05.450"W	0.24
7967.20	1.350	231.460	7965.54	-27.88	-32.90	-53.03	669103.67	602840.70	32°39'23.650"N	103°55'05.464"W	0.24
8030.60	1.460	229.750	8028.92	-28.75	-33.89	-54.23	669102.47	602839.71	32°39'23.640"N	103°55'05.478"W	0.19
8093.80	1.940	208.300	8092.09	-30.10	-35.35	-55.35	669101.35	602838.25	32°39'23.626"N	103°55'05.491"W	1.25
8156.90	2.210	192.260	8155.15	-32.15	-37.48	-56.12	669100.58	602836.12	32°39'23.605"N	103°55'05.500"W	1.01
8220.30	1.960	190.850	8218.51	-34.36	-39.74	-56.58	669100.12	602833.86	32°39'23.582"N	103°55'05.506"W	0.40
8283.80	1.680	191.250	8281.98	-36.29	-41.72	-56.97	669099.74	602831.88	32°39'23.563"N	103°55'05.511"W	0.44
8347.20	1.750	192.470	8345.35	-38.11	-43.58	-57.36	669099.34	602830.03	32°39'23.544"N	103°55'05.515"W	0.12
8410.50	1.820	202.790	8408.62	-39.91	-45.45	-57.96	669098.75	602828.15	32°39'23.526"N	103°55'05.522"W	0.52
8473.89	1.930	242.785	8471.98	-41.20	-46.86	-59.30	669097.41	602826.74	32°39'23.512"N	103°55'05.538"W	2.03
8477.00	1.800	235.700	8475.09	-41.24	-46.92	-59.38	669097.32	602826.69	32°39'23.511"N	103°55'05.539"W	8.50
8509.00	2.300	286.100	8507.07	-41.25	-47.02	-60.42	669096.29	602826.58	32°39'23.510"N	103°55'05.551"W	5.63
8540.00	6.500	336.800	8537.98	-39.36	-45.23	-61.71	669095.00	602828.37	32°39'23.528"N	103°55'05.566"W	17.25
8572.00	13.700	343.700	8569.46	-33.90	-39.93	-63.48	669093.22	602833.68	32°39'23.581"N	103°55'05.587"W	22.78
8604.00	19.900	344.900	8600.08	-24.81	-31.02	-65.97	669090.74	602842.58	32°39'23.669"N	103°55'05.615"W	19.40
8636.00	26.800	347.000	8629.45	-12.28	-18.72	-69.01	669087.69	602854.88	32°39'23.791"N	103°55'05.650"W	21.72
8667.00	32.200	349.400	8656.42	2.88	-3.78	-72.11	669084.60	602869.82	32°39'23.939"N	103°55'05.686"W	17.83
8699.00	42.000	346.800	8681.91	22.02	15.07	-76.13	669080.57	602888.67	32°39'24.125"N	103°55'05.732"W	31.01
8731.00	51.500	345.900	8703.81	45.05	37.69	-81.64	669075.07	602911.29	32°39'24.349"N	103°55'05.795"W	29.76
8762.00	60.800	349.600	8721.06	70.58	62.83	-87.05	669069.66	602936.42	32°39'24.598"N	103°55'05.858"W	31.59
8794.00	71.700	349.600	8733.93	99.71	91.59	-92.33	669064.38	602965.18	32°39'24.883"N	103°55'05.918"W	34.06
8825.00	82.500	349.600	8740.84	129.76	121.27	-97.78	669058.93	602994.86	32°39'25.177"N	103°55'05.980"W	34.84
8856.00	84.300	351.800	8744.41	160.48	151.65	-102.75	669053.96	603025.24	32°39'25.478"N	103°55'06.037"W	9.13
8888.00	85.100	353.700	8747.36	192.32	183.26	-106.77	669049.94	603056.85	32°39'25.791"N	103°55'06.083"W	6.42
8920.00	87.000	355.500	8749.57	224.24	215.04	-109.78	669046.93	603088.62	32°39'26.105"N	103°55'06.116"W	8.17



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 MD

WELLPATH DATA (206 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]
8952.00	89.000	358.400	8750.68	256.19	246.97	-111.48	669045.23	603120.55	32°39'26.421"N	103°55'06.135"W	11.00
8993.00	89.000	358.800	8751.40	297.09	287.95	-112.48	669044.23	603161.53	32°39'26.827"N	103°55'06.145"W	0.98
9047.00	91.500	358.400	8751.16	350.96	341.93	-113.80	669042.91	603215.51	32°39'27.361"N	103°55'06.158"W	4.69
9110.00	92.200	357.900	8749.13	413.82	404.87	-115.83	669040.88	603278.43	32°39'27.984"N	103°55'06.179"W	1.37
9173.00	92.100	358.100	8746.77	476.67	467.78	-118.03	669038.68	603341.35	32°39'28.606"N	103°55'06.201"W	-0.35
9237.00	92.000	357.800	8744.48	540.53	531.70	-120.32	669036.39	603405.26	32°39'29.239"N	103°55'06.225"W	0.49
9300.00	91.900	358.500	8742.33	603.38	594.63	-122.35	669034.36	603468.19	32°39'29.862"N	103°55'06.246"W	1.12
9363.00	91.900	357.000	8740.25	666.25	657.55	-124.82	669031.89	603531.10	32°39'30.484"N	103°55'06.272"W	2.38
9427.00	92.300	358.800	8737.90	730.11	721.46	-127.16	669029.55	603595.00	32°39'31.117"N	103°55'06.297"W	2.88
9490.00	90.000	357.600	8736.64	792.97	784.41	-129.14	669027.57	603657.95	32°39'31.740"N	103°55'06.317"W	4.12
9554.00	89.800	357.000	8736.75	856.91	848.34	-132.16	669024.55	603721.87	32°39'32.372"N	103°55'06.349"W	0.99
9617.00	90.100	357.300	8736.80	919.85	911.26	-135.29	669021.42	603784.79	32°39'32.995"N	103°55'06.383"W	0.67
9681.00	90.200	356.800	8736.63	983.79	975.17	-138.58	669018.13	603848.70	32°39'33.627"N	103°55'06.419"W	0.80
9744.00	90.300	357.600	8736.36	1046.73	1038.10	-141.66	669015.05	603911.62	32°39'34.250"N	103°55'06.452"W	1.28
9807.00	90.400	356.700	8735.97	1109.68	1101.02	-144.79	669011.92	603974.54	32°39'34.873"N	103°55'06.486"W	1.44
9871.00	90.300	356.000	8735.58	1173.65	1164.89	-148.87	669007.84	604038.40	32°39'35.505"N	103°55'06.530"W	1.10
9934.00	90.500	356.500	8735.14	1236.62	1227.75	-152.99	669003.72	604101.26	32°39'36.127"N	103°55'06.576"W	0.85
9998.00	91.200	356.600	8734.19	1300.58	1291.63	-156.84	668999.87	604165.13	32°39'36.759"N	103°55'06.618"W	1.10
10061.00	89.300	356.300	8733.92	1363.55	1354.50	-160.74	668995.97	604228.00	32°39'37.381"N	103°55'06.660"W	3.05
10125.00	89.200	356.300	8734.76	1427.52	1418.36	-164.87	668991.84	604291.86	32°39'38.013"N	103°55'06.706"W	0.16
10188.00	89.500	356.700	8735.47	1490.49	1481.24	-168.71	668988.00	604354.73	32°39'38.636"N	103°55'06.748"W	0.79
10251.00	89.700	356.400	8735.91	1553.45	1544.12	-172.51	668984.21	604417.61	32°39'39.258"N	103°55'06.789"W	0.57
10315.00	89.600	356.000	8736.30	1617.43	1607.98	-176.75	668979.97	604481.46	32°39'39.890"N	103°55'06.836"W	0.64
10378.00	89.900	355.300	8736.58	1680.42	1670.80	-181.53	668975.19	604544.28	32°39'40.512"N	103°55'06.889"W	1.21
10442.00	90.500	356.000	8736.35	1744.41	1734.61	-186.38	668970.33	604608.09	32°39'41.143"N	103°55'06.943"W	1.44
10505.00	90.600	355.200	8735.75	1807.40	1797.43	-191.21	668965.50	604670.89	32°39'41.765"N	103°55'06.997"W	1.28
10568.00	91.200	354.800	8734.76	1870.39	1860.18	-196.70	668960.01	604733.64	32°39'42.386"N	103°55'07.058"W	1.14
10632.00	90.800	354.000	8733.64	1934.38	1923.86	-202.95	668953.77	604797.32	32°39'43.017"N	103°55'07.128"W	1.40
10695.00	91.300	353.700	8732.49	1997.36	1986.49	-209.70	668947.02	604859.94	32°39'43.636"N	103°55'07.204"W	0.93
10758.00	91.200	353.600	8731.11	2060.33	2049.09	-216.66	668940.05	604922.53	32°39'44.256"N	103°55'07.283"W	0.22



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 MD

WELLPATH DATA (206 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]
10821.00	91.300	352.600	8729.74	2123.29	2111.61	-224.23	668932.49	604985.06	32°39'44.875"N	103°55'07.368"W	1.59
10885.00	91.700	353.400	8728.06	2187.24	2175.12	-232.03	668924.69	605048.55	32°39'45.504"N	103°55'07.457"W	1.40
10948.00	91.900	353.500	8726.09	2250.20	2237.67	-239.21	668917.51	605111.11	32°39'46.123"N	103°55'07.538"W	0.35
11012.00	92.200	353.900	8723.80	2314.14	2301.25	-246.23	668910.49	605174.68	32°39'46.752"N	103°55'07.617"W	0.78
11075.00	90.800	353.800	8722.15	2377.11	2363.86	-252.97	668903.75	605237.28	32°39'47.372"N	103°55'07.693"W	2.23
11138.00	90.800	352.100	8721.27	2440.08	2426.38	-260.70	668896.01	605299.80	32°39'47.991"N	103°55'07.781"W	2.70
11202.00	90.900	353.200	8720.32	2504.03	2489.84	-268.89	668887.83	605363.26	32°39'48.619"N	103°55'07.874"W	1.73
11265.00	91.200	352.400	8719.16	2566.98	2552.33	-276.79	668879.93	605425.74	32°39'49.238"N	103°55'07.963"W	1.36
11329.00	91.200	351.400	8717.82	2630.89	2615.68	-285.80	668870.92	605489.09	32°39'49.865"N	103°55'08.066"W	1.56
11392.00	92.000	351.300	8716.06	2693.76	2677.94	-295.27	668861.45	605551.34	32°39'50.481"N	103°55'08.174"W	1.28
11455.00	91.500	351.300	8714.14	2756.61	2740.19	-304.80	668851.93	605613.58	32°39'51.097"N	103°55'08.282"W	0.79
11518.00	91.800	350.200	8712.33	2819.44	2802.34	-314.92	668841.80	605675.73	32°39'51.713"N	103°55'08.398"W	1.81
11581.00	90.300	351.400	8711.17	2882.28	2864.52	-324.99	668831.73	605737.90	32°39'52.328"N	103°55'08.513"W	3.05
11644.00	90.800	351.300	8710.57	2945.16	2926.80	-334.46	668822.26	605800.18	32°39'52.945"N	103°55'08.621"W	0.81
11708.00	91.100	351.200	8709.51	3009.04	2990.04	-344.20	668812.53	605863.42	32°39'53.571"N	103°55'08.732"W	0.49
11771.00	89.400	351.800	8709.23	3071.94	3052.35	-353.51	668803.22	605925.72	32°39'54.188"N	103°55'08.838"W	2.86
11835.00	89.900	351.000	8709.62	3135.83	3115.63	-363.08	668793.65	605988.99	32°39'54.814"N	103°55'08.947"W	1.47
11897.00	90.400	351.500	8709.46	3197.71	3176.90	-372.51	668784.22	606050.27	32°39'55.421"N	103°55'09.054"W	1.14
11961.00	90.300	350.300	8709.07	3261.57	3240.10	-382.63	668774.09	606113.46	32°39'56.047"N	103°55'09.170"W	1.88
12024.00	90.400	351.100	8708.68	3324.41	3302.27	-392.81	668763.91	606175.62	32°39'56.662"N	103°55'09.286"W	1.28
12087.00	90.700	350.400	8708.08	3387.26	3364.44	-402.94	668753.79	606237.79	32°39'57.278"N	103°55'09.402"W	1.21
12151.00	91.100	349.500	8707.07	3451.03	3427.45	-414.11	668742.62	606300.80	32°39'57.902"N	103°55'09.529"W	1.54
12214.00	91.400	348.700	8705.70	3513.71	3489.30	-426.02	668730.71	606362.64	32°39'58.514"N	103°55'09.666"W	1.36
12278.00	91.200	347.900	8704.25	3577.30	3551.95	-438.99	668717.74	606425.29	32°39'59.135"N	103°55'09.815"W	1.29
12314.00	91.500	347.900	8703.40	3613.03	3587.14	-446.54	668710.20	606460.48	32°39'59.483"N	103°55'09.902"W	0.83
12355.00	91.500	347.900	8702.33	3653.73	3627.22	-455.13	668701.61	606500.55	32°39'59.880"N	103°55'10.000"W	0.00



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION				
Operator	Cimarex Energy Co.	Slot	No. 1H SHL	
Area	Eddy County, NM	Well	No. 1H	
Field	(Irwin) Sec 13, T19S, R30E	Wellbore	No. 1H AWB	
Facility	Irwin 13 Fed No. 1H	Sidetrack from	No. 1 AWB at 8473.89 MD	

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL		8698.00	3649.14	-337.77	668818.96	606522.47	32°40'00.092"N	103°55'08.626"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	8473.89	Gyrodatta relative depth - Drop gyro or Multi-shot		GYRO <62 - 8917>		No. 1 AWB
8473.89	12314.00	NaviTrak (Standard)		MWD <8509 - 12314>		No. 1H AWB
12314.00	12355.00	Blind Drilling (std)		Projection to bit		No. 1H AWB