



Cimarex Energy Co.

Location: Eddy County, NM
Field: (Crescent) Sec 11, T19S, R30E
Facility: Crescent Hale 12 Federal No. 1H

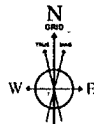
Slot: No. 1H SHL
Well: No. 1H
Wellbore: No. 1H PWB



Well Profile Data

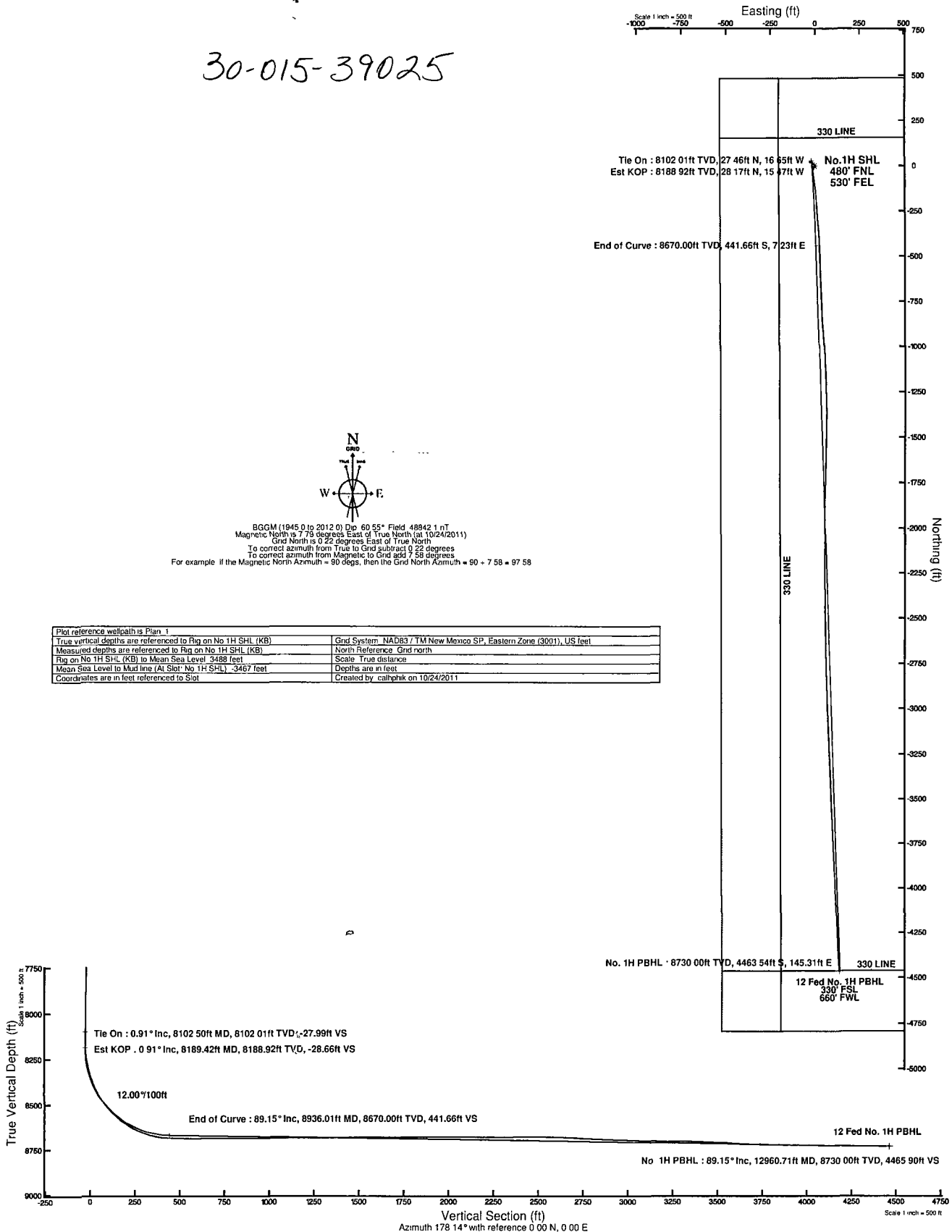
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8102.50	0.910	58.760	8102.01	27.46	-16.65	0.00	-27.99
Est KOP	8189.42	0.910	58.760	8188.92	28.17	-15.47	0.00	-28.66
End of Curve	8936.01	89.146	178.034	8670.00	-441.66	7.23	12.00	441.66
No. 1H PBHL	12960.71	89.146	178.034	8730.00	-4463.54	145.31	0.00	4465.90

30-015-39025



BGGM (1945.0 to 2012.0) Dip 60.55° Field 48842.1 nT
Magnetic North is 7.75 degrees East of True North (at 10/24/2011)
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 7.58 degrees
For example If the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.58 = 97.58

Plot reference wellpath is Plan 1	
True vertical depths are referenced to Rig on No. 1H SHL (KB)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 1H SHL (KB)	North Reference: Grid north
Rig on No. 1H SHL (KB) to Mean Sea Level: 3488 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No. 1H SHL): 3467 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: calphph on 10/24/2011





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	(Crescent) Sec 11 & 12, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 12 Federal No.1H		

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	Calhphik
Scale	0.999927	Report Generated	11/2/2011 at 8:35:42 AM
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[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	664709.80	611627.60	32°40'50.764"N	103°55'56.472"W
Facility Reference Pt			664709.80	611627.60	32°40'50.764"N	103°55'56.472"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 (KB) to GL	21.00ft
Horizontal Reference Pt	Slot	Rig on No.1H SHL (KB) to Mean Sea Level	3488.00ft
Vertical Reference Pt	Rig on No.1H SHL (KB)	Rig on No.1H SHL (KB) to Mud Line at Slot (No.1H SHL)	21.00ft
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	178.14°



Actual Wellpath Report

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Area	Eddy County, NM	Well	No.1H
Field	(Crescent) Sec 11 & 12, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 12 Federal No.1H		

WELLPATH DATA (160 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	344.620	0.00	0.00	0.00	0.00	664709.80	611627.60	32°40'50.764"N	103°55'56.472"W	0.00	
21.00	0.000	344.620	21.00	0.00	0.00	0.00	664709.80	611627.60	32°40'50.764"N	103°55'56.472"W	0.00	
100.00	1.090	344.620	100.00	-0.73	0.72	-0.20	664709.60	611628.32	32°40'50.771"N	103°55'56.474"W	1.38	
200.00	1.500	346.560	199.97	-2.94	2.91	-0.76	664709.04	611630.51	32°40'50.793"N	103°55'56.480"W	0.41	
300.00	1.200	323.780	299.94	-5.08	5.03	-1.68	664708.12	611632.63	32°40'50.814"N	103°55'56.491"W	0.61	
400.00	1.010	324.820	399.92	-6.69	6.60	-2.81	664706.99	611634.20	32°40'50.830"N	103°55'56.504"W	0.19	
500.00	0.930	287.940	499.91	-7.70	7.57	-4.09	664705.72	611635.17	32°40'50.839"N	103°55'56.519"W	0.62	
600.00	0.970	275.500	599.90	-8.08	7.90	-5.70	664704.10	611635.50	32°40'50.843"N	103°55'56.538"W	0.21	
701.00	1.200	287.540	700.88	-8.54	8.30	-7.56	664702.24	611635.90	32°40'50.847"N	103°55'56.560"W	0.32	
795.90	1.300	267.720	795.76	-8.86	8.56	-9.58	664700.22	611636.16	32°40'50.849"N	103°55'56.583"W	0.47	
890.80	0.600	329.350	890.64	-9.29	8.94	-10.91	664698.89	611636.54	32°40'50.853"N	103°55'56.599"W	1.21	
985.70	0.890	266.530	985.54	-9.71	9.32	-11.90	664697.90	611636.92	32°40'50.857"N	103°55'56.611"W	0.86	
1080.60	0.580	347.800	1080.43	-10.16	9.75	-12.74	664697.06	611637.35	32°40'50.861"N	103°55'56.620"W	1.04	
1175.50	0.380	239.070	1175.33	-10.48	10.06	-13.11	664696.69	611637.66	32°40'50.864"N	103°55'56.625"W	0.83	
1270.40	0.610	319.020	1270.23	-10.72	10.28	-13.71	664696.09	611637.88	32°40'50.866"N	103°55'56.632"W	0.70	
1365.30	1.820	81.570	1365.11	-11.28	10.88	-12.55	664697.25	611638.48	32°40'50.872"N	103°55'56.618"W	2.33	
1460.20	1.600	288.760	1460.00	-11.92	11.53	-12.31	664697.49	611639.12	32°40'50.879"N	103°55'56.615"W	3.50	
1555.10	0.860	37.430	1554.88	-12.94	12.52	-13.14	664696.66	611640.12	32°40'50.889"N	103°55'56.625"W	2.15	
1650.00	0.320	332.290	1649.78	-13.73	13.32	-12.83	664696.97	611640.92	32°40'50.897"N	103°55'56.621"W	0.82	
1744.80	1.230	50.350	1744.57	-14.59	14.20	-12.17	664697.63	611641.80	32°40'50.905"N	103°55'56.613"W	1.27	
1839.70	0.990	49.830	1839.45	-15.72	15.38	-10.76	664699.05	611642.98	32°40'50.917"N	103°55'56.597"W	0.25	
1934.60	0.870	44.610	1934.34	-16.73	16.42	-9.62	664700.18	611644.02	32°40'50.927"N	103°55'56.584"W	0.15	
2029.50	0.640	39.770	2029.23	-17.62	17.34	-8.78	664701.02	611644.94	32°40'50.936"N	103°55'56.574"W	0.25	
2124.40	0.310	9.150	2124.13	-18.27	18.00	-8.40	664701.40	611645.60	32°40'50.943"N	103°55'56.569"W	0.43	
2219.30	0.280	283.580	2219.03	-18.58	18.31	-8.58	664701.22	611645.91	32°40'50.946"N	103°55'56.571"W	0.42	
2314.20	0.460	267.430	2313.93	-18.64	18.35	-9.19	664700.61	611645.95	32°40'50.946"N	103°55'56.578"W	0.22	
2409.10	0.680	268.240	2408.82	-18.63	18.31	-10.13	664699.67	611645.91	32°40'50.946"N	103°55'56.589"W	0.23	
2504.00	0.500	274.460	2503.72	-18.68	18.33	-11.11	664698.69	611645.93	32°40'50.946"N	103°55'56.601"W	0.20	
2598.80	0.220	283.440	2598.51	-18.77	18.40	-11.70	664698.10	611646.00	32°40'50.947"N	103°55'56.608"W	0.30	
2693.70	0.180	287.120	2693.41	-18.87	18.49	-12.02	664697.78	611646.09	32°40'50.948"N	103°55'56.611"W	0.04	
2788.60	0.130	291.370	2788.31	-18.96	18.57	-12.26	664697.54	611646.17	32°40'50.949"N	103°55'56.614"W	0.05	
2883.50	0.080	317.710	2883.21	-19.05	18.66	-12.40	664697.40	611646.26	32°40'50.949"N	103°55'56.616"W	0.07	
2978.40	0.060	14.540	2978.11	-19.15	18.76	-12.44	664697.36	611646.36	32°40'50.950"N	103°55'56.616"W	0.07	
3073.30	0.030	143.090	3073.01	-19.18	18.79	-12.41	664697.39	611646.38	32°40'50.951"N	103°55'56.616"W	0.09	
3168.20	0.070	206.220	3167.91	-19.11	18.71	-12.42	664697.38	611646.31	32°40'50.950"N	103°55'56.616"W	0.07	
3263.10	0.140	238.360	3262.81	-19.00	18.60	-12.54	664697.26	611646.20	32°40'50.949"N	103°55'56.618"W	0.09	
3358.00	0.140	240.100	3357.71	-18.89	18.48	-12.74	664697.06	611646.08	32°40'50.948"N	103°55'56.620"W	0.00	
3452.90	0.190	245.860	3452.61	-18.77	18.36	-12.99	664696.81	611645.96	32°40'50.946"N	103°55'56.623"W	0.06	
3547.80	0.300	231.650	3547.51	-18.57	18.14	-13.33	664696.48	611645.74	32°40'50.944"N	103°55'56.627"W	0.13	
3642.60	0.250	239.300	3642.31	-18.32	17.88	-13.70	664696.10	611645.48	32°40'50.942"N	103°55'56.631"W	0.07	
3737.50	0.290	254.420	3737.21	-18.16	17.71	-14.11	664695.69	611645.31	32°40'50.940"N	103°55'56.636"W	0.09	
3832.40	0.280	286.330	3832.11	-18.18	17.71	-14.56	664695.24	611645.31	32°40'50.940"N	103°55'56.641"W	0.17	
3927.30	0.230	330.960	3927.01	-18.42	17.94	-14.88	664694.92	611645.54	32°40'50.942"N	103°55'56.645"W	0.21	
4022.20	0.500	321.230	4021.90	-18.92	18.43	-15.23	664694.57	611646.03	32°40'50.947"N	103°55'56.649"W	0.29	
4117.10	0.510	322.700	4116.80	-19.60	19.09	-15.74	664694.06	611646.69	32°40'50.954"N	103°55'56.655"W	0.02	



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	(Crescent) Sec 11 & 12, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 12 Federal No.1H		

WELLPATH DATA (160 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
4212.00	0.440	311.020	4211.70	-20.19	19.67	-16.27	664693.53	611647.27	32°40'50.960"N	103°55'56.661"W	0.13	
4306.90	0.320	297.270	4306.60	-20.56	20.03	-16.78	664693.02	611647.63	32°40'50.963"N	103°55'56.667"W	0.16	
4401.80	0.300	272.100	4401.49	-20.71	20.16	-17.27	664692.53	611647.76	32°40'50.964"N	103°55'56.673"W	0.14	
4496.60	0.380	257.320	4496.29	-20.67	20.10	-17.82	664691.98	611647.70	32°40'50.964"N	103°55'56.679"W	0.12	
4591.50	0.430	224.270	4591.19	-20.36	19.78	-18.38	664691.42	611647.37	32°40'50.961"N	103°55'56.686"W	0.25	
4686.40	0.620	197.920	4686.09	-19.63	19.03	-18.79	664691.02	611646.63	32°40'50.953"N	103°55'56.691"W	0.32	
4781.30	0.570	198.810	4780.98	-18.71	18.10	-19.10	664690.71	611645.69	32°40'50.944"N	103°55'56.694"W	0.05	
4876.20	0.510	200.840	4875.88	-17.88	17.25	-19.40	664690.40	611644.85	32°40'50.936"N	103°55'56.698"W	0.07	
4971.10	0.400	199.060	4970.77	-17.18	16.55	-19.66	664690.14	611644.15	32°40'50.929"N	103°55'56.701"W	0.12	
5066.00	0.250	201.690	5065.67	-16.68	16.04	-19.84	664689.96	611643.64	32°40'50.924"N	103°55'56.703"W	0.16	
5160.90	0.200	218.940	5160.57	-16.36	15.72	-20.02	664689.78	611643.32	32°40'50.921"N	103°55'56.705"W	0.09	
5255.80	0.160	224.410	5255.47	-16.15	15.50	-20.22	664689.58	611643.10	32°40'50.918"N	103°55'56.708"W	0.05	
5350.70	0.140	216.650	5350.37	-15.96	15.31	-20.38	664689.42	611642.91	32°40'50.917"N	103°55'56.709"W	0.03	
5445.60	0.090	203.550	5445.27	-15.81	15.15	-20.48	664689.32	611642.75	32°40'50.915"N	103°55'56.711"W	0.06	
5540.40	0.040	186.350	5540.07	-15.71	15.05	-20.51	664689.29	611642.65	32°40'50.914"N	103°55'56.711"W	0.06	
5635.30	0.090	77.810	5634.97	-15.69	15.03	-20.44	664689.36	611642.63	32°40'50.914"N	103°55'56.710"W	0.12	
5730.20	0.220	51.730	5729.87	-15.81	15.16	-20.23	664689.57	611642.76	32°40'50.915"N	103°55'56.708"W	0.15	
5825.10	0.330	14.700	5824.77	-16.18	15.54	-20.02	664689.79	611643.13	32°40'50.919"N	103°55'56.705"W	0.21	
5920.00	0.350	16.960	5919.67	-16.71	16.08	-19.86	664689.94	611643.68	32°40'50.924"N	103°55'56.703"W	0.03	
6014.90	0.340	6.540	6014.57	-17.27	16.63	-19.75	664690.06	611644.23	32°40'50.930"N	103°55'56.702"W	0.07	
6109.80	0.310	351.640	6109.46	-17.80	17.17	-19.75	664690.05	611644.77	32°40'50.935"N	103°55'56.702"W	0.09	
6204.70	0.380	352.790	6204.36	-18.37	17.73	-19.83	664689.97	611645.33	32°40'50.940"N	103°55'56.703"W	0.07	
6299.60	0.480	335.120	6299.26	-19.05	18.41	-20.03	664689.77	611646.01	32°40'50.947"N	103°55'56.705"W	0.17	
6394.40	0.490	314.940	6394.06	-19.71	19.05	-20.49	664689.31	611646.65	32°40'50.954"N	103°55'56.711"W	0.18	
6489.30	0.530	297.780	6488.95	-20.22	19.54	-21.16	664688.64	611647.14	32°40'50.958"N	103°55'56.718"W	0.17	
6584.20	0.690	290.620	6583.85	-20.66	19.95	-22.09	664687.71	611647.55	32°40'50.963"N	103°55'56.729"W	0.19	
6679.10	0.440	297.950	6678.74	-21.06	20.32	-22.94	664686.86	611647.92	32°40'50.966"N	103°55'56.739"W	0.27	
6774.00	0.480	267.810	6773.64	-21.24	20.48	-23.66	664686.14	611648.08	32°40'50.968"N	103°55'56.748"W	0.26	
6868.90	0.740	265.920	6868.53	-21.21	20.42	-24.67	664685.13	611648.02	32°40'50.967"N	103°55'56.759"W	0.27	
6963.80	0.530	260.520	6963.43	-21.13	20.30	-25.72	664684.09	611647.90	32°40'50.966"N	103°55'56.772"W	0.23	
7058.70	0.380	286.700	7058.33	-21.17	20.32	-26.45	664683.35	611647.92	32°40'50.966"N	103°55'56.780"W	0.27	
7153.60	0.440	335.490	7153.22	-21.61	20.74	-26.90	664682.90	611648.34	32°40'50.971"N	103°55'56.786"W	0.36	
7248.50	0.730	13.090	7248.12	-22.53	21.66	-26.92	664682.89	611649.26	32°40'50.980"N	103°55'56.786"W	0.49	
7343.40	0.470	18.390	7343.01	-23.48	22.62	-26.66	664683.15	611650.22	32°40'50.989"N	103°55'56.783"W	0.28	
7438.20	0.360	140.700	7437.81	-23.61	22.76	-26.35	664683.46	611650.36	32°40'50.990"N	103°55'56.779"W	0.77	
7533.10	0.480	88.730	7532.71	-23.36	22.54	-25.76	664684.04	611650.14	32°40'50.988"N	103°55'56.772"W	0.40	
7628.00	1.050	69.040	7627.60	-23.64	22.86	-24.55	664685.25	611650.46	32°40'50.991"N	103°55'56.758"W	0.65	
7722.90	1.360	61.020	7722.48	-24.44	23.71	-22.75	664687.05	611651.31	32°40'51.000"N	103°55'56.737"W	0.37	
7817.80	1.270	56.840	7817.36	-25.50	24.84	-20.89	664688.91	611652.43	32°40'51.011"N	103°55'56.715"W	0.14	
7912.70	0.950	59.370	7912.24	-26.43	25.81	-19.33	664690.47	611653.41	32°40'51.020"N	103°55'56.697"W	0.34	
8007.60	0.970	57.840	8007.12	-27.21	26.64	-17.97	664691.83	611654.24	32°40'51.029"N	103°55'56.681"W	0.03	
8102.50	0.910	58.760	8102.01	-27.99	27.46	-16.65	664693.15	611655.06	32°40'51.037"N	103°55'56.665"W	0.07	
8135.00	0.800	49.400	8134.51	-28.25	27.74	-16.26	664693.55	611655.34	32°40'51.039"N	103°55'56.661"W	0.55	
8167.00	0.900	101.900	8166.50	-28.33	27.83	-15.84	664693.96	611655.43	32°40'51.040"N	103°55'56.656"W	2.37	
8199.00	3.700	160.400	8198.48	-27.29	26.81	-15.25	664694.55	611654.41	32°40'51.030"N	103°55'56.649"W	10.37	



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	(Crescent) Sec 11 & 12, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 12 Federal No.1H		

WELLPATH DATA (160 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
8230.00	7.100	168.800	8229.34	-24.45	23.99	-14.54	664695.26	611651.58	32°40'51.002"N	103°55'56.641"W	11.23	
8262.00	10.600	167.500	8260.95	-19.60	19.17	-13.52	664696.28	611646.77	32°40'50.954"N	103°55'56.629"W	10.95	
8294.00	12.900	169.600	8292.28	-13.18	12.78	-12.24	664697.56	611640.38	32°40'50.891"N	103°55'56.614"W	7.31	
8325.00	16.100	168.100	8322.29	-5.52	5.17	-10.72	664699.08	611632.77	32°40'50.816"N	103°55'56.597"W	10.39	
8357.00	19.500	170.800	8352.75	4.15	-4.44	-8.96	664700.85	611623.16	32°40'50.721"N	103°55'56.577"W	10.93	
8389.00	21.900	171.900	8382.68	15.38	-15.63	-7.26	664702.54	611611.97	32°40'50.610"N	103°55'56.557"W	7.60	
8420.00	25.500	173.000	8411.06	27.78	-27.98	-5.63	664704.17	611599.62	32°40'50.488"N	103°55'56.539"W	11.70	
8452.00	29.100	173.500	8439.50	42.40	-42.55	-3.91	664705.89	611585.05	32°40'50.343"N	103°55'56.519"W	11.27	
8484.00	32.500	173.900	8466.98	58.73	-58.83	-2.12	664707.68	611568.77	32°40'50.182"N	103°55'56.499"W	10.64	
8515.00	36.600	173.500	8492.51	76.26	-76.31	-0.18	664709.62	611551.30	32°40'50.009"N	103°55'56.477"W	13.25	
8547.00	40.700	172.800	8517.49	96.16	-96.14	2.20	664712.00	611531.46	32°40'49.813"N	103°55'56.450"W	12.88	
8579.00	44.600	172.500	8541.02	117.74	-117.64	4.98	664714.78	611509.97	32°40'49.600"N	103°55'56.419"W	12.20	
8610.00	48.000	174.900	8562.44	140.08	-139.91	7.43	664717.22	611487.70	32°40'49.380"N	103°55'56.391"W	12.31	
8642.00	51.100	175.800	8583.20	164.40	-164.18	9.39	664719.19	611463.43	32°40'49.139"N	103°55'56.369"W	9.92	
8673.00	55.300	176.800	8601.76	189.20	-188.95	10.99	664720.79	611438.67	32°40'48.894"N	103°55'56.351"W	13.79	
8705.00	59.300	176.600	8619.05	216.12	-215.82	12.54	664722.34	611411.79	32°40'48.628"N	103°55'56.335"W	12.51	
8737.00	63.500	176.700	8634.36	244.20	-243.87	14.18	664723.98	611383.75	32°40'48.351"N	103°55'56.317"W	13.13	
8769.00	67.200	175.900	8647.71	273.26	-272.88	16.06	664725.86	611354.74	32°40'48.064"N	103°55'56.296"W	11.78	
8800.00	71.100	175.200	8658.74	302.20	-301.76	18.31	664728.11	611325.86	32°40'47.778"N	103°55'56.271"W	12.76	
8832.00	75.000	175.300	8668.07	332.76	-332.26	20.85	664730.64	611295.37	32°40'47.476"N	103°55'56.243"W	12.19	
8864.00	79.100	175.200	8675.24	363.90	-363.33	23.43	664733.23	611264.30	32°40'47.168"N	103°55'56.214"W	12.82	
8895.00	83.400	175.700	8679.95	394.50	-393.87	25.86	664735.65	611233.76	32°40'46.866"N	103°55'56.187"W	13.96	
8927.00	87.300	176.300	8682.54	426.37	-425.68	28.08	664737.88	611201.95	32°40'46.551"N	103°55'56.162"W	12.33	
8959.00	87.900	177.800	8683.88	458.33	-457.61	29.73	664739.52	611170.03	32°40'46.235"N	103°55'56.144"W	5.04	
8990.00	87.800	178.200	8685.05	489.31	-488.57	30.81	664740.60	611139.07	32°40'45.929"N	103°55'56.133"W	1.33	
9022.00	88.800	178.100	8686.00	521.29	-520.53	31.84	664741.64	611107.11	32°40'45.613"N	103°55'56.122"W	3.14	
9054.00	90.100	178.100	8686.30	553.29	-552.51	32.90	664742.70	611075.13	32°40'45.296"N	103°55'56.111"W	4.06	
9085.00	90.500	178.000	8686.14	584.29	-583.50	33.96	664743.75	611044.15	32°40'44.990"N	103°55'56.100"W	1.33	
9149.00	90.800	177.600	8685.42	648.29	-647.44	36.41	664746.21	610980.20	32°40'44.357"N	103°55'56.074"W	0.78	
9244.00	90.000	177.900	8684.75	743.28	-742.37	40.14	664749.94	610885.29	32°40'43.418"N	103°55'56.035"W	0.90	
9339.00	90.100	176.700	8684.67	838.27	-837.26	44.62	664754.41	610790.40	32°40'42.478"N	103°55'55.987"W	1.27	
9434.00	90.300	175.700	8684.34	933.21	-932.05	50.91	664760.71	610695.62	32°40'41.540"N	103°55'55.917"W	1.07	
9529.00	90.000	177.600	8684.09	1028.18	-1026.88	56.46	664766.26	610600.79	32°40'40.602"N	103°55'55.857"W	2.02	
9624.00	90.400	176.900	8683.76	1123.16	-1121.77	61.02	664770.82	610505.91	32°40'39.663"N	103°55'55.807"W	0.85	
9719.00	90.300	178.500	8683.18	1218.16	-1216.69	64.83	664774.63	610411.00	32°40'38.723"N	103°55'55.767"W	1.69	
9814.00	89.800	178.200	8683.09	1313.16	-1311.65	67.57	664777.36	610316.05	32°40'37.784"N	103°55'55.739"W	0.61	
9909.00	90.700	181.100	8682.68	1408.11	-1406.64	68.15	664777.94	610221.07	32°40'36.844"N	103°55'55.737"W	3.20	
10004.00	90.800	180.700	8681.44	1502.99	-1501.62	66.66	664776.45	610126.10	32°40'35.904"N	103°55'55.758"W	0.43	
10099.00	89.400	181.100	8681.27	1597.88	-1596.60	65.16	664774.96	610031.12	32°40'34.964"N	103°55'55.780"W	1.53	
10194.00	89.800	181.300	8681.93	1692.74	-1691.58	63.18	664772.97	609936.15	32°40'34.025"N	103°55'55.807"W	0.47	
10288.00	90.000	181.000	8682.10	1786.61	-1785.56	61.29	664771.08	609842.17	32°40'33.095"N	103°55'55.834"W	0.38	
10383.00	90.100	180.000	8682.01	1881.53	-1880.56	60.46	664770.26	609747.19	32°40'32.155"N	103°55'55.848"W	1.06	
10478.00	90.900	180.700	8681.19	1976.45	-1975.55	59.88	664769.68	609652.20	32°40'31.215"N	103°55'55.859"W	1.12	
10573.00	89.300	180.300	8681.02	2071.37	-2070.54	59.05	664768.85	609557.21	32°40'30.275"N	103°55'55.872"W	1.74	
10668.00	89.700	180.400	8681.85	2166.29	-2165.54	58.47	664768.27	609462.23	32°40'29.336"N	103°55'55.883"W	0.43	



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	(Crescent) Sec 11 & 12, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 12 Federal No.1H		

WELLPATH DATA (160 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
10763.00	90.000	179.700	8682.10	2261.24	-2260.53	58.39	664768.18	609367.24	32°40'28.396"N	103°55'55.889"W	0.80	
10857.00	90.600	179.300	8681.61	2355.21	-2354.53	59.21	664769.00	609273.25	32°40'27.466"N	103°55'55.883"W	0.77	
10952.00	91.100	179.100	8680.20	2450.18	-2449.51	60.53	664770.33	609178.28	32°40'26.526"N	103°55'55.872"W	0.57	
11047.00	89.200	178.800	8679.95	2545.17	-2544.49	62.27	664772.07	609083.30	32°40'25.586"N	103°55'55.856"W	2.02	
11142.00	86.800	178.900	8683.26	2640.10	-2639.40	64.18	664773.98	608988.39	32°40'24.647"N	103°55'55.838"W	2.53	
11237.00	87.300	178.700	8688.15	2734.96	-2734.26	66.17	664775.96	608893.55	32°40'23.708"N	103°55'55.819"W	0.57	
11332.00	87.600	178.000	8692.38	2829.87	-2829.12	68.90	664778.69	608798.69	32°40'22.769"N	103°55'55.791"W	0.80	
11426.00	88.100	178.200	8695.90	2923.80	-2923.01	72.01	664781.81	608704.82	32°40'21.840"N	103°55'55.758"W	0.57	
11521.00	88.200	177.600	8698.97	3018.75	-3017.89	75.49	664785.29	608609.94	32°40'20.901"N	103°55'55.722"W	0.64	
11616.00	88.700	177.500	8701.54	3113.71	-3112.77	79.55	664789.35	608515.07	32°40'19.962"N	103°55'55.679"W	0.54	
11711.00	89.100	177.200	8703.36	3208.68	-3207.65	83.94	664793.74	608420.19	32°40'19.023"N	103°55'55.631"W	0.53	
11805.00	89.700	177.000	8704.35	3302.66	-3301.52	88.70	664798.49	608326.32	32°40'18.094"N	103°55'55.580"W	0.67	
11900.00	88.800	177.900	8705.59	3397.65	-3396.42	92.93	664802.72	608231.44	32°40'17.155"N	103°55'55.535"W	1.34	
11995.00	87.200	178.000	8708.91	3492.58	-3491.30	96.32	664806.12	608136.57	32°40'16.217"N	103°55'55.499"W	1.69	
12090.00	87.300	177.400	8713.47	3587.47	-3586.11	100.13	664809.92	608041.76	32°40'15.278"N	103°55'55.459"W	0.64	
12185.00	87.400	177.100	8717.86	3682.36	-3680.90	104.68	664814.48	607946.98	32°40'14.340"N	103°55'55.410"W	0.33	
12280.00	89.000	177.300	8720.84	3777.30	-3775.74	109.32	664819.11	607852.15	32°40'13.402"N	103°55'55.360"W	1.70	
12375.00	89.800	177.000	8721.84	3872.28	-3870.61	114.05	664823.84	607757.28	32°40'12.463"N	103°55'55.309"W	0.90	
12470.00	90.200	177.000	8721.84	3967.26	-3965.48	119.02	664828.81	607662.42	32°40'11.524"N	103°55'55.255"W	0.42	
12564.00	88.200	177.900	8723.15	4061.23	-4059.38	123.20	664832.99	607568.53	32°40'10.595"N	103°55'55.210"W	2.33	
12659.00	88.600	177.400	8725.80	4156.19	-4154.26	127.09	664836.88	607473.66	32°40'09.656"N	103°55'55.169"W	0.67	
12754.00	89.500	177.800	8727.38	4251.18	-4249.16	131.07	664840.86	607378.76	32°40'08.717"N	103°55'55.126"W	1.04	
12849.00	89.700	176.700	8728.04	4346.16	-4344.05	135.63	664845.42	607283.88	32°40'07.778"N	103°55'55.077"W	1.18	
12912.00	90.000	176.200	8728.21	4409.13	-4406.93	139.53	664849.32	607221.01	32°40'07.155"N	103°55'55.034"W	0.93	
12962.00	90.000	176.200	8728.21	4459.10	-4456.82	142.84	664852.63	607171.12	32°40'06.662"N	103°55'54.998"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	(Crescent) Sec 11 & 12, T19S, R30E	Wellbore	No. 1H AWB
Facility	Crescent Hale 12 Federal No.1H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
12 Fed No. 1H PBHL		8751.00	-4463.54	145.31	664855.10	607164.40	32°40'06.595"N	103°55'54.969"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	
21.00	8102.50	Generic gyro - northseeking (Standard)			Gyro < 100 - 8102.5 >			No. 1H AWB	
8102.50	12962.00	NaviTrak (Standard)			MWD NaviTrak <8135-XXXX>			No. 1H AWB	