

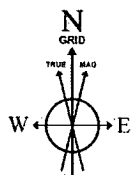


Cimarex Energy Co.
Location: Eddy County, NM
Field: (Magnum) Sec 16, T19S, R29E
Facility: Magnum State 16 No. 3H
Spot: No. 3H SHL
Well: No. 3H
Wellbore: No. 3H AWP



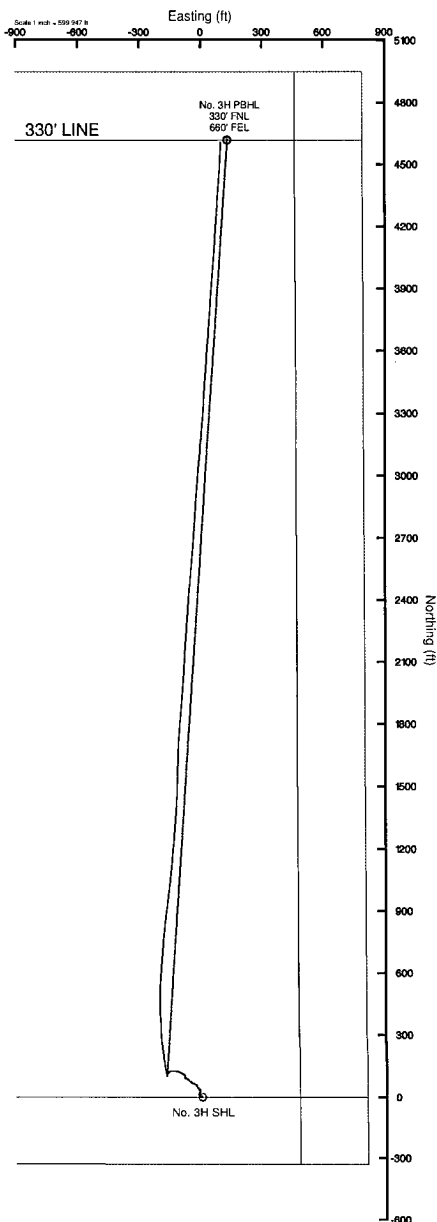
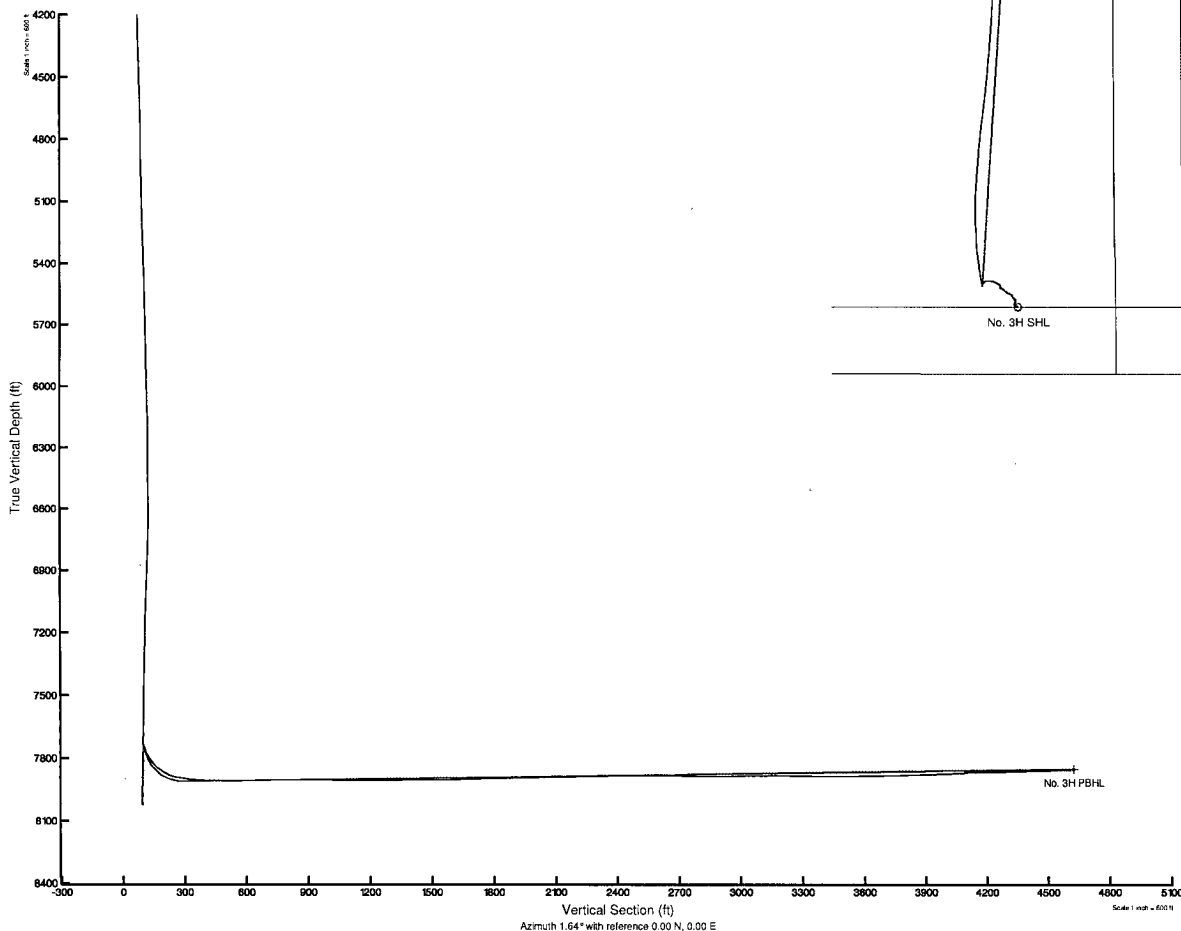
30-015-37632

Bottom Hole Location									
M/D (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (svt ft)	Grid North (svt ft)	Latitude	Longitude
7806.00	58.200	353.800	7864.60	196.24	-186.90	621020.62	602115.22	32°39'17.881"N	104°04'27.926"W



BGGM (1945.0 to 2011.0) Dip: 60.54° Field: 49011.3 nT
Magnetic North is 8.06 degrees East of True North (at 2/17/2010)
Grid North is 0.14 degrees East of True North
To correct azimuth from True to Grid subtract 0.14 degrees
To correct azimuth from Magnetic to Grid add 7.92 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.92 = 97.92

Plot reference wellpath is No. 3H AWP <FINAL>	
True vertical depths are referenced to Rig on No. 3H SHL (RT)	Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (2001), US feet
Measured depths are referenced to Rig on No. 3H SHL (RT)	North Reference: Grid north
Rig on No. 3H SHL (RT) to Mean Sea Level: 3371 feet	Scale: True distance
Mean Sea Level to Mud line (Facility: Magnum State 16 No. 3H): -3349 feet	Depths are in feet
Coordinates are in feet referenced to Surface Location	Created by: Victor Hernandez on 5/4/2010





Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 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	0.999916	Report Generated	5/4/2010 at 4:52:32 PM
Convergence at slot	0.14° East	Database/Source file	WA_Midland/No._3H_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	621207.50	601919.00	32°39'16.035"N	104°04'25.746"W
Facility Reference Pt			621207.50	601919.00	32°39'16.035"N	104°04'25.746"W
Field Reference Pt			621207.50	601919.00	32°39'16.035"N	104°04'25.746"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 3H SHL (RT) to GL	22.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 3H SHL (RT) to Mean Sea Level	3371.00ft
Vertical Reference Pt	Rig on No. 3H SHL (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 3H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	1.64°



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

WELLPATH DATA (204 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	292.010	0.00	0.00	0.00	0.00	621207.50	601919.00	32°39'16.035"N	104°04'25.746"W	0.00
61.70	1.110	292.010	61.70	0.21	0.22	-0.55	621206.95	601919.22	32°39'16.037"N	104°04'25.753"W	1.80
124.20	1.430	293.890	124.18	0.71	0.77	-1.83	621205.67	601919.77	32°39'16.043"N	104°04'25.767"W	0.52
186.60	1.710	298.720	186.56	1.43	1.53	-3.36	621204.14	601920.53	32°39'16.050"N	104°04'25.785"W	0.50
249.10	1.740	298.510	249.03	2.29	2.43	-5.01	621202.49	601921.43	32°39'16.059"N	104°04'25.805"W	0.05
311.50	1.760	304.390	311.40	3.23	3.42	-6.63	621200.87	601922.42	32°39'16.069"N	104°04'25.824"W	0.29
374.00	1.720	308.100	373.87	4.31	4.54	-8.16	621199.34	601923.54	32°39'16.080"N	104°04'25.841"W	0.19
436.50	1.840	303.940	436.34	5.40	5.68	-9.73	621197.77	601924.68	32°39'16.091"N	104°04'25.860"W	0.28
498.90	1.830	307.780	498.71	6.53	6.85	-11.35	621196.15	601925.85	32°39'16.103"N	104°04'25.879"W	0.20
561.40	1.790	309.180	561.18	7.71	8.08	-12.90	621194.60	601927.08	32°39'16.115"N	104°04'25.897"W	0.10
623.80	1.850	313.050	623.55	8.97	9.38	-14.39	621193.11	601928.38	32°39'16.128"N	104°04'25.914"W	0.22
687.10	1.860	329.320	686.81	10.51	10.97	-15.66	621191.84	601929.96	32°39'16.144"N	104°04'25.929"W	0.83
750.50	1.950	341.240	750.18	12.39	12.87	-16.53	621190.97	601931.87	32°39'16.163"N	104°04'25.939"W	0.64
813.90	2.070	1.550	813.54	14.55	15.04	-16.85	621190.65	601934.04	32°39'16.184"N	104°04'25.943"W	1.13
877.30	2.090	16.960	876.90	16.81	17.29	-16.48	621191.02	601936.29	32°39'16.206"N	104°04'25.938"W	0.88
940.60	2.160	36.960	940.16	18.90	19.35	-15.42	621192.08	601938.34	32°39'16.227"N	104°04'25.926"W	1.17
1003.90	2.220	34.310	1003.41	20.90	21.31	-14.02	621193.49	601940.31	32°39'16.246"N	104°04'25.909"W	0.19
1067.20	2.210	33.550	1066.66	22.97	23.34	-12.65	621194.85	601942.34	32°39'16.266"N	104°04'25.893"W	0.05
1130.60	1.800	29.360	1130.02	24.89	25.23	-11.49	621196.01	601944.23	32°39'16.285"N	104°04'25.880"W	0.69
1193.70	1.490	22.070	1193.10	26.53	26.85	-10.69	621196.81	601945.85	32°39'16.301"N	104°04'25.870"W	0.59
1256.90	1.270	13.670	1256.28	27.99	28.29	-10.22	621197.28	601947.29	32°39'16.315"N	104°04'25.865"W	0.47
1320.70	1.190	7.470	1320.07	29.34	29.64	-9.97	621197.54	601948.64	32°39'16.329"N	104°04'25.862"W	0.24
1384.20	1.000	354.010	1383.55	30.55	30.84	-9.94	621197.56	601949.84	32°39'16.340"N	104°04'25.861"W	0.50
1447.40	0.990	340.730	1446.74	31.60	31.91	-10.17	621197.33	601950.90	32°39'16.351"N	104°04'25.864"W	0.36
1510.90	0.980	331.220	1510.23	32.58	32.90	-10.62	621196.88	601951.90	32°39'16.361"N	104°04'25.869"W	0.26
1574.10	0.890	326.390	1573.43	33.45	33.78	-11.15	621196.35	601952.78	32°39'16.370"N	104°04'25.876"W	0.19
1637.40	0.950	320.090	1636.72	34.24	34.59	-11.76	621195.74	601953.59	32°39'16.378"N	104°04'25.883"W	0.19
1700.70	0.850	315.030	1700.01	34.96	35.33	-12.43	621195.07	601954.33	32°39'16.385"N	104°04'25.890"W	0.20
1764.20	0.790	301.030	1763.50	35.50	35.89	-13.13	621194.37	601954.89	32°39'16.390"N	104°04'25.899"W	0.33
1827.40	0.730	290.690	1826.70	35.84	36.26	-13.88	621193.62	601955.25	32°39'16.394"N	104°04'25.907"W	0.24



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

WELLPATH DATA (204 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]
1890.50	0.700	305.130	1889.79	36.19	36.62	-14.58	621192.93	601955.62	32°39'16.398"N	104°04'25.916"W	0.29
1954.20	0.770	309.070	1953.49	36.66	37.11	-15.23	621192.27	601956.11	32°39'16.403"N	104°04'25.923"W	0.14
2017.40	0.890	306.610	2016.68	37.20	37.67	-15.95	621191.55	601956.67	32°39'16.408"N	104°04'25.932"W	0.20
2080.80	1.050	308.340	2080.07	37.83	38.33	-16.80	621190.70	601957.32	32°39'16.415"N	104°04'25.942"W	0.26
2144.10	1.000	313.830	2143.36	38.55	39.07	-17.65	621189.85	601958.07	32°39'16.422"N	104°04'25.951"W	0.17
2207.60	1.030	318.110	2206.85	39.33	39.88	-18.44	621189.07	601958.87	32°39'16.430"N	104°04'25.961"W	0.13
2271.30	0.950	318.190	2270.54	40.13	40.70	-19.17	621188.33	601959.69	32°39'16.438"N	104°04'25.969"W	0.13
2334.50	1.000	330.350	2333.73	40.98	41.57	-19.79	621187.71	601960.56	32°39'16.447"N	104°04'25.976"W	0.34
2397.80	1.000	331.130	2397.02	41.93	42.53	-20.33	621187.17	601961.53	32°39'16.456"N	104°04'25.983"W	0.02
2461.30	1.090	333.420	2460.51	42.94	43.56	-20.87	621186.63	601962.55	32°39'16.466"N	104°04'25.989"W	0.16
2524.80	1.110	335.690	2524.00	44.03	44.66	-21.39	621186.11	601963.65	32°39'16.477"N	104°04'25.995"W	0.08
2588.30	1.060	333.650	2587.49	45.10	45.74	-21.91	621185.60	601964.74	32°39'16.488"N	104°04'26.001"W	0.10
2651.60	1.150	330.180	2650.78	46.16	46.82	-22.48	621185.02	601965.82	32°39'16.499"N	104°04'26.008"W	0.18
2715.00	1.320	328.910	2714.16	47.31	48.00	-23.18	621184.33	601966.99	32°39'16.510"N	104°04'26.016"W	0.27
2778.40	1.360	330.370	2777.55	48.57	49.28	-23.92	621183.58	601968.27	32°39'16.523"N	104°04'26.025"W	0.08
2841.90	1.280	325.160	2841.03	49.79	50.51	-24.70	621182.80	601969.51	32°39'16.535"N	104°04'26.034"W	0.23
2904.80	1.270	325.430	2903.91	50.91	51.66	-25.50	621182.00	601970.66	32°39'16.547"N	104°04'26.043"W	0.02
2968.30	1.170	326.900	2967.40	52.01	52.79	-26.25	621181.25	601971.78	32°39'16.558"N	104°04'26.052"W	0.17
3031.60	1.110	323.210	3030.69	53.02	53.82	-26.97	621180.53	601972.81	32°39'16.568"N	104°04'26.060"W	0.15
3094.80	1.140	326.370	3093.88	54.02	54.83	-27.69	621179.81	601973.83	32°39'16.578"N	104°04'26.068"W	0.11
3158.00	1.180	328.560	3157.06	55.08	55.91	-28.38	621179.13	601974.91	32°39'16.589"N	104°04'26.076"W	0.09
3221.20	1.470	325.340	3220.25	56.27	57.13	-29.18	621178.33	601976.13	32°39'16.601"N	104°04'26.086"W	0.47
3284.60	1.860	320.280	3283.62	57.70	58.59	-30.30	621177.21	601977.59	32°39'16.616"N	104°04'26.099"W	0.66
3347.90	1.910	307.640	3346.88	59.09	60.03	-31.79	621175.72	601979.02	32°39'16.630"N	104°04'26.116"W	0.66
3411.20	2.050	297.780	3410.15	60.21	61.20	-33.62	621173.88	601980.20	32°39'16.641"N	104°04'26.138"W	0.58
3474.70	2.110	292.690	3473.61	61.13	62.18	-35.71	621171.80	601981.18	32°39'16.651"N	104°04'26.162"W	0.31
3537.90	2.070	293.300	3536.76	61.97	63.08	-37.83	621169.67	601982.08	32°39'16.660"N	104°04'26.187"W	0.07
3601.60	2.110	292.020	3600.42	62.80	63.98	-39.97	621167.53	601982.97	32°39'16.669"N	104°04'26.212"W	0.10
3664.90	2.050	292.180	3663.68	63.61	64.84	-42.10	621165.40	601983.83	32°39'16.678"N	104°04'26.237"W	0.10
3728.40	1.980	292.080	3727.14	64.39	65.68	-44.17	621163.33	601984.68	32°39'16.686"N	104°04'26.261"W	0.11



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

WELLPATH DATA (204 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]
3791.80	1.870	295.970	3790.50	65.20	66.55	-46.12	621161.39	601985.54	32°39'16.695"N	104°04'26.284"W	0.27
3855.10	1.720	298.920	3853.77	66.06	67.46	-47.88	621159.63	601986.45	32°39'16.704"N	104°04'26.304"W	0.28
3918.60	1.870	297.610	3917.24	66.95	68.40	-49.63	621157.88	601987.39	32°39'16.713"N	104°04'26.325"W	0.24
3982.20	1.860	297.170	3980.81	67.85	69.35	-51.47	621156.04	601988.34	32°39'16.722"N	104°04'26.346"W	0.03
4045.30	1.910	298.370	4043.87	68.76	70.32	-53.30	621154.20	601989.31	32°39'16.732"N	104°04'26.368"W	0.10
4108.70	1.950	308.360	4107.24	69.88	71.49	-55.08	621152.43	601990.48	32°39'16.744"N	104°04'26.388"W	0.53
4171.60	2.180	312.050	4170.10	71.30	72.95	-56.80	621150.70	601991.95	32°39'16.758"N	104°04'26.408"W	0.42
4235.10	2.370	309.150	4233.55	72.88	74.59	-58.72	621148.79	601993.59	32°39'16.774"N	104°04'26.431"W	0.35
4298.40	2.260	310.080	4296.80	74.45	76.22	-60.69	621146.82	601995.22	32°39'16.791"N	104°04'26.454"W	0.18
4361.80	2.180	313.910	4360.15	76.04	77.86	-62.51	621144.99	601996.86	32°39'16.807"N	104°04'26.475"W	0.27
4424.80	2.270	314.290	4423.10	77.69	79.57	-64.27	621143.23	601998.56	32°39'16.824"N	104°04'26.496"W	0.14
4488.10	2.390	313.140	4486.35	79.42	81.34	-66.13	621141.37	602000.34	32°39'16.841"N	104°04'26.517"W	0.20
4551.10	2.420	308.840	4549.29	81.09	83.08	-68.13	621139.38	602002.07	32°39'16.859"N	104°04'26.541"W	0.29
4613.10	2.460	303.550	4611.24	82.58	84.63	-70.25	621137.25	602003.63	32°39'16.874"N	104°04'26.565"W	0.37
4676.60	2.390	297.860	4674.68	83.89	86.00	-72.56	621134.95	602005.00	32°39'16.888"N	104°04'26.592"W	0.39
4740.00	2.150	289.340	4738.03	84.84	87.02	-74.85	621132.65	602006.01	32°39'16.898"N	104°04'26.619"W	0.65
4803.30	2.140	287.960	4801.29	85.53	87.77	-77.10	621130.41	602006.77	32°39'16.905"N	104°04'26.645"W	0.08
4866.50	1.900	291.000	4864.45	86.21	88.51	-79.20	621128.31	602007.51	32°39'16.913"N	104°04'26.670"W	0.42
4929.60	1.700	299.510	4927.52	86.99	89.35	-80.99	621126.52	602008.34	32°39'16.921"N	104°04'26.691"W	0.53
4993.10	1.580	314.460	4990.99	88.03	90.43	-82.43	621125.07	602009.42	32°39'16.932"N	104°04'26.708"W	0.70
5056.60	1.700	323.690	5054.46	89.36	91.80	-83.62	621123.89	602010.79	32°39'16.945"N	104°04'26.721"W	0.46
5119.70	1.780	337.310	5117.54	91.00	93.46	-84.55	621122.96	602012.45	32°39'16.962"N	104°04'26.732"W	0.67
5183.20	1.930	344.660	5181.00	92.92	95.40	-85.21	621122.30	602014.39	32°39'16.981"N	104°04'26.740"W	0.44
5246.70	2.080	8.730	5244.46	95.08	97.57	-85.32	621122.19	602016.56	32°39'17.002"N	104°04'26.741"W	1.34
5310.00	1.910	4.130	5307.73	97.28	99.76	-85.07	621122.44	602018.75	32°39'17.024"N	104°04'26.738"W	0.37
5373.40	1.940	1.420	5371.09	99.41	101.88	-84.97	621122.54	602020.87	32°39'17.045"N	104°04'26.737"W	0.15
5436.70	1.760	335.260	5434.36	101.35	103.84	-85.35	621122.16	602022.83	32°39'17.064"N	104°04'26.741"W	1.35
5499.90	2.020	312.790	5497.52	102.95	105.47	-86.57	621120.94	602024.47	32°39'17.081"N	104°04'26.756"W	1.23
5563.30	2.220	304.880	5560.88	104.36	106.94	-88.40	621119.11	602025.93	32°39'17.095"N	104°04'26.777"W	0.56
5626.60	2.680	301.480	5624.12	105.77	108.41	-90.66	621116.84	602027.40	32°39'17.110"N	104°04'26.803"W	0.76



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

WELLPATH DATA (204 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]
5689.90	2.760	302.700	5687.35	107.29	110.01	-93.21	621114.30	602029.00	32°39'17.126"N	104°04'26.833"W	0.16
5753.10	2.820	298.470	5750.48	108.78	111.57	-95.86	621111.65	602030.56	32°39'17.141"N	104°04'26.864"W	0.34
5816.30	3.230	295.070	5813.59	110.19	113.06	-98.84	621108.67	602032.05	32°39'17.156"N	104°04'26.899"W	0.71
5878.50	3.710	298.070	5875.67	111.78	114.75	-102.20	621105.31	602033.74	32°39'17.173"N	104°04'26.938"W	0.82
5941.70	4.220	295.210	5938.72	113.62	116.71	-106.11	621101.40	602035.70	32°39'17.192"N	104°04'26.984"W	0.87
6004.80	4.520	292.420	6001.64	115.43	118.64	-110.51	621097.00	602037.63	32°39'17.212"N	104°04'27.035"W	0.58
6098.30	5.020	287.680	6094.82	117.87	121.29	-117.81	621089.70	602040.28	32°39'17.238"N	104°04'27.121"W	0.68
6131.60	4.810	282.060	6127.99	118.52	122.03	-120.56	621086.95	602041.01	32°39'17.245"N	104°04'27.153"W	1.58
6194.80	4.720	278.880	6190.98	119.33	122.98	-125.72	621081.79	602041.97	32°39'17.255"N	104°04'27.213"W	0.44
6258.30	4.380	275.570	6254.28	119.82	123.62	-130.72	621076.79	602042.61	32°39'17.261"N	104°04'27.271"W	0.68
6321.70	3.740	267.300	6317.52	119.83	123.76	-135.19	621072.32	602042.75	32°39'17.263"N	104°04'27.324"W	1.37
6385.10	3.300	267.200	6380.80	119.53	123.57	-139.08	621068.43	602042.56	32°39'17.261"N	104°04'27.369"W	0.69
6448.40	3.170	270.440	6444.00	119.36	123.49	-142.65	621064.86	602042.48	32°39'17.260"N	104°04'27.411"W	0.35
6511.90	3.280	274.690	6507.40	119.42	123.66	-146.22	621061.30	602042.65	32°39'17.262"N	104°04'27.453"W	0.41
6575.40	3.130	272.510	6570.80	119.54	123.88	-149.76	621057.75	602042.87	32°39'17.264"N	104°04'27.494"W	0.30
6638.50	3.010	265.040	6633.81	119.37	123.81	-153.13	621054.38	602042.80	32°39'17.264"N	104°04'27.534"W	0.66
6702.00	2.810	255.090	6697.22	118.74	123.27	-156.30	621051.22	602042.26	32°39'17.258"N	104°04'27.571"W	0.85
6765.10	2.770	243.250	6760.25	117.57	122.18	-159.15	621048.36	602041.17	32°39'17.248"N	104°04'27.604"W	0.91
6828.50	3.050	231.770	6823.57	115.76	120.45	-161.85	621045.67	602039.44	32°39'17.231"N	104°04'27.636"W	1.02
6891.50	2.680	225.830	6886.49	113.63	118.39	-164.22	621043.30	602037.38	32°39'17.210"N	104°04'27.663"W	0.75
6955.00	2.270	214.040	6949.93	111.51	116.31	-165.99	621041.53	602035.30	32°39'17.190"N	104°04'27.684"W	1.03
7018.20	2.250	215.740	7013.08	109.42	114.27	-167.41	621040.10	602033.26	32°39'17.170"N	104°04'27.701"W	0.11
7081.80	2.560	221.390	7076.63	107.30	112.19	-169.08	621038.43	602031.18	32°39'17.149"N	104°04'27.721"W	0.61
7144.80	2.420	221.350	7139.57	105.19	110.13	-170.89	621036.63	602029.12	32°39'17.129"N	104°04'27.742"W	0.22
7208.20	2.030	226.940	7202.92	103.37	108.36	-172.59	621034.92	602027.35	32°39'17.111"N	104°04'27.762"W	0.70
7271.50	1.830	209.120	7266.18	101.69	106.71	-173.91	621033.61	602025.70	32°39'17.095"N	104°04'27.777"W	0.99
7334.70	1.580	191.900	7329.36	99.93	104.98	-174.58	621032.94	602023.97	32°39'17.078"N	104°04'27.785"W	0.90
7397.80	1.010	179.290	7392.44	98.52	103.57	-174.75	621032.77	602022.56	32°39'17.064"N	104°04'27.787"W	1.00
7461.30	0.840	176.930	7455.93	97.50	102.55	-174.72	621032.80	602021.54	32°39'17.054"N	104°04'27.787"W	0.27
7524.70	0.780	148.950	7519.33	96.67	101.71	-174.47	621033.05	602020.71	32°39'17.046"N	104°04'27.784"W	0.62



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

WELLPATH DATA (204 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]
7588.00	0.750	161.700	7582.62	95.92	100.95	-174.12	621033.40	602019.94	32°39'17.038"N	104°04'27.780"W	0.27
7651.50	0.870	148.590	7646.11	95.13	100.15	-173.74	621033.78	602019.14	32°39'17.030"N	104°04'27.775"W	0.35
7715.00	1.010	128.980	7709.60	94.38	99.38	-173.05	621034.47	602018.37	32°39'17.023"N	104°04'27.767"W	0.55
7748.00	14.600	353.500	7742.26	98.35	103.36	-173.30	621034.22	602022.35	32°39'17.062"N	104°04'27.770"W	46.47
7780.00	24.500	352.100	7772.38	108.91	113.96	-174.67	621032.85	602032.95	32°39'17.167"N	104°04'27.786"W	30.97
7811.00	33.700	349.800	7799.44	123.70	128.82	-177.08	621030.44	602047.81	32°39'17.314"N	104°04'27.814"W	29.89
7843.00	42.500	350.400	7824.60	143.03	148.26	-180.46	621027.06	602067.25	32°39'17.506"N	104°04'27.853"W	27.52
7874.00	50.400	352.400	7845.94	165.12	170.46	-183.79	621023.72	602089.44	32°39'17.726"N	104°04'27.891"W	25.91
7906.00	58.200	353.800	7864.60	190.80	196.24	-186.90	621020.62	602115.22	32°39'17.981"N	104°04'27.926"W	24.63
7935.00	66.600	351.700	7878.03	216.16	221.70	-190.15	621017.36	602140.69	32°39'18.233"N	104°04'27.964"W	29.67
7967.00	75.400	353.200	7888.43	246.00	251.67	-194.11	621013.40	602170.65	32°39'18.530"N	104°04'28.009"W	27.85
7999.00	80.500	355.200	7895.11	277.02	282.79	-197.27	621010.25	602201.77	32°39'18.838"N	104°04'28.045"W	17.07
8030.00	82.500	357.800	7899.70	307.56	313.39	-199.14	621008.38	602232.36	32°39'19.141"N	104°04'28.066"W	10.51
8062.00	84.500	358.200	7903.32	339.28	345.16	-200.25	621007.27	602264.13	32°39'19.455"N	104°04'28.078"W	6.37
8093.00	85.900	358.300	7905.91	370.12	376.04	-201.19	621006.32	602295.01	32°39'19.761"N	104°04'28.089"W	4.53
8125.00	87.300	358.500	7907.81	402.01	407.97	-202.08	621005.43	602326.94	32°39'20.077"N	104°04'28.098"W	4.42
8157.00	89.200	359.900	7908.79	433.97	439.95	-202.53	621004.99	602358.91	32°39'20.393"N	104°04'28.102"W	7.37
8189.00	89.400	0.200	7909.18	465.95	471.95	-202.50	621005.01	602390.91	32°39'20.710"N	104°04'28.101"W	1.13
8220.00	89.100	0.100	7909.58	496.94	502.94	-202.42	621005.10	602421.90	32°39'21.016"N	104°04'28.099"W	1.02
8283.00	91.100	4.100	7909.47	559.92	565.89	-200.11	621007.40	602484.84	32°39'21.639"N	104°04'28.071"W	7.10
8347.00	91.200	4.000	7908.19	623.85	629.71	-195.59	621011.92	602548.66	32°39'22.270"N	104°04'28.016"W	0.22
8410.00	91.400	4.300	7906.76	686.77	692.53	-191.04	621016.48	602611.47	32°39'22.892"N	104°04'27.961"W	0.57
8474.00	90.800	6.000	7905.53	750.64	756.26	-185.29	621022.22	602675.19	32°39'23.522"N	104°04'27.892"W	2.82
8537.00	90.300	6.400	7904.93	813.44	818.89	-178.49	621029.03	602737.82	32°39'24.142"N	104°04'27.810"W	1.02
8600.00	89.900	6.400	7904.82	876.22	881.49	-171.47	621036.05	602800.42	32°39'24.761"N	104°04'27.726"W	0.63
8664.00	89.500	7.300	7905.15	939.95	945.04	-163.83	621043.68	602863.96	32°39'25.390"N	104°04'27.635"W	1.54
8727.00	89.000	6.900	7905.98	1002.66	1007.55	-156.05	621051.47	602926.46	32°39'26.008"N	104°04'27.543"W	1.02
8791.00	89.800	5.300	7906.65	1066.46	1071.18	-149.25	621058.27	602990.09	32°39'26.637"N	104°04'27.461"W	2.79
8854.00	90.000	5.400	7906.76	1129.33	1133.90	-143.37	621064.14	603052.81	32°39'27.258"N	104°04'27.391"W	0.35
8918.00	89.600	5.300	7906.98	1193.20	1197.63	-137.41	621070.11	603116.52	32°39'27.888"N	104°04'27.319"W	0.64



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

WELLPATH DATA (204 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]
8981.00	90.400	5.100	7906.98	1256.07	1260.37	-131.70	621075.81	603179.26	32°39'28.509"N	104°04'27.250"W	1.31
9044.00	90.400	4.000	7906.54	1318.99	1323.16	-126.70	621080.81	603242.05	32°39'29.130"N	104°04'27.190"W	1.75
9108.00	90.000	4.100	7906.32	1382.93	1387.00	-122.18	621085.33	603305.89	32°39'29.762"N	104°04'27.136"W	0.64
9171.00	89.900	2.200	7906.37	1445.91	1449.91	-118.72	621088.79	603368.78	32°39'30.384"N	104°04'27.093"W	3.02
9235.00	91.000	2.200	7905.87	1509.90	1513.86	-116.26	621091.25	603432.73	32°39'31.017"N	104°04'27.063"W	1.72
9298.00	91.200	2.100	7904.66	1572.89	1576.80	-113.90	621093.61	603495.66	32°39'31.639"N	104°04'27.033"W	0.35
9361.00	91.200	1.600	7903.34	1635.87	1639.75	-111.86	621095.65	603558.61	32°39'32.262"N	104°04'27.008"W	0.79
9425.00	91.900	3.300	7901.61	1699.84	1703.67	-109.13	621098.38	603622.52	32°39'32.894"N	104°04'26.974"W	2.87
9488.00	92.600	4.000	7899.14	1762.75	1766.49	-105.12	621102.39	603685.34	32°39'33.516"N	104°04'26.925"W	1.57
9551.00	91.300	4.500	7896.99	1825.65	1829.28	-100.46	621107.05	603748.12	32°39'34.137"N	104°04'26.869"W	2.21
9615.00	91.200	4.700	7895.60	1889.55	1893.06	-95.32	621112.18	603811.90	32°39'34.768"N	104°04'26.807"W	0.35
9678.00	90.900	4.400	7894.44	1952.46	1955.85	-90.33	621117.18	603874.68	32°39'35.389"N	104°04'26.747"W	0.67
9741.00	91.100	3.800	7893.34	2015.39	2018.68	-85.82	621121.68	603937.51	32°39'36.011"N	104°04'26.692"W	1.00
9805.00	91.100	3.300	7892.11	2079.34	2082.54	-81.86	621125.65	604001.37	32°39'36.643"N	104°04'26.644"W	0.78
9868.00	91.300	4.100	7890.79	2142.29	2145.40	-77.80	621129.71	604064.21	32°39'37.264"N	104°04'26.595"W	1.31
9931.00	91.400	3.700	7889.31	2205.22	2208.23	-73.51	621133.99	604127.05	32°39'37.886"N	104°04'26.543"W	0.65
9994.00	91.300	4.200	7887.82	2268.15	2271.07	-69.17	621138.33	604189.87	32°39'38.508"N	104°04'26.490"W	0.81
10058.00	91.100	4.200	7886.48	2332.07	2334.88	-64.49	621143.02	604253.68	32°39'39.139"N	104°04'26.434"W	0.31
10121.00	90.100	4.400	7885.82	2395.00	2397.70	-59.77	621147.74	604316.49	32°39'39.760"N	104°04'26.377"W	1.62
10185.00	90.500	4.600	7885.49	2458.92	2461.50	-54.74	621152.76	604380.29	32°39'40.392"N	104°04'26.316"W	0.70
10248.00	90.500	4.600	7884.94	2521.84	2524.30	-49.69	621157.81	604443.08	32°39'41.013"N	104°04'26.255"W	0.00
10311.00	89.500	5.100	7884.94	2584.74	2587.07	-44.37	621163.14	604505.85	32°39'41.634"N	104°04'26.191"W	1.77
10375.00	89.400	4.600	7885.55	2648.63	2650.84	-38.95	621168.55	604569.61	32°39'42.264"N	104°04'26.126"W	0.80
10438.00	89.300	4.600	7886.27	2711.54	2713.63	-33.90	621173.60	604632.40	32°39'42.886"N	104°04'26.065"W	0.16
10502.00	89.100	3.600	7887.16	2775.48	2777.46	-29.33	621178.18	604696.22	32°39'43.517"N	104°04'26.010"W	1.59
10565.00	90.000	3.600	7887.66	2838.44	2840.33	-25.37	621182.13	604759.09	32°39'44.139"N	104°04'25.962"W	1.43
10628.00	90.000	3.600	7887.66	2901.40	2903.21	-21.42	621186.09	604821.96	32°39'44.761"N	104°04'25.914"W	0.00
10692.00	91.100	5.500	7887.04	2965.31	2967.00	-16.34	621191.16	604885.75	32°39'45.392"N	104°04'25.852"W	3.43
10755.00	90.800	5.200	7886.00	3028.17	3029.72	-10.47	621197.04	604948.46	32°39'46.013"N	104°04'25.782"W	0.67
10818.00	91.200	5.400	7884.90	3091.03	3092.44	-4.65	621202.85	605011.17	32°39'46.633"N	104°04'25.712"W	0.71



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

WELLPATH DATA (204 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]
10882.00	90.700	5.300	7883.84	3154.89	3156.15	1.32	621208.82	605074.88	32°39'47.263"N	104°04'25.640"W	0.80
10945.00	89.200	5.000	7883.89	3217.77	3218.89	6.97	621214.47	605137.62	32°39'47.884"N	104°04'25.573"W	2.43
11008.00	88.600	3.600	7885.10	3280.69	3281.70	11.70	621219.20	605200.42	32°39'48.505"N	104°04'25.515"W	2.42
11071.00	89.100	3.100	7886.37	3343.65	3344.58	15.38	621222.88	605263.30	32°39'49.127"N	104°04'25.471"W	1.12
11135.00	89.700	3.500	7887.04	3407.62	3408.47	19.06	621226.56	605327.18	32°39'49.759"N	104°04'25.426"W	1.13
11198.00	90.200	3.900	7887.09	3470.58	3471.34	23.13	621230.62	605390.04	32°39'50.381"N	104°04'25.376"W	1.02
11261.00	90.600	4.000	7886.65	3533.52	3534.19	27.47	621234.96	605452.89	32°39'51.003"N	104°04'25.324"W	0.65
11324.00	91.000	4.100	7885.77	3596.46	3597.03	31.92	621239.41	605515.72	32°39'51.625"N	104°04'25.270"W	0.65
11387.00	91.000	4.600	7884.67	3659.38	3659.83	36.69	621244.19	605578.52	32°39'52.246"N	104°04'25.212"W	0.79
11450.00	91.200	4.100	7883.46	3722.30	3722.64	41.47	621248.97	605641.32	32°39'52.867"N	104°04'25.155"W	0.85
11514.00	91.500	3.800	7881.96	3786.23	3786.47	45.88	621253.37	605705.15	32°39'53.499"N	104°04'25.101"W	0.66
11577.00	91.900	3.600	7880.09	3849.16	3849.31	49.94	621257.44	605767.98	32°39'54.121"N	104°04'25.052"W	0.71
11641.00	92.500	4.200	7877.63	3913.06	3913.12	54.29	621261.79	605831.78	32°39'54.752"N	104°04'24.999"W	1.33
11704.00	92.300	4.600	7874.99	3975.94	3975.87	59.12	621266.62	605894.53	32°39'55.373"N	104°04'24.941"W	0.71
11768.00	92.700	4.200	7872.20	4039.80	4039.63	64.03	621271.52	605958.28	32°39'56.003"N	104°04'24.882"W	0.88
11831.00	92.900	4.500	7869.12	4102.66	4102.37	68.80	621276.29	606021.02	32°39'56.624"N	104°04'24.824"W	0.57
11895.00	90.700	3.700	7867.11	4166.56	4166.17	73.37	621280.87	606084.81	32°39'57.255"N	104°04'24.769"W	3.66
11958.00	90.900	3.900	7866.23	4229.51	4229.02	77.55	621285.04	606147.66	32°39'57.877"N	104°04'24.718"W	0.45
12021.00	91.400	3.600	7864.97	4292.45	4291.88	81.67	621289.16	606210.51	32°39'58.499"N	104°04'24.668"W	0.93
12085.00	91.800	3.800	7863.18	4356.39	4355.72	85.79	621293.29	606274.35	32°39'59.130"N	104°04'24.618"W	0.70
12148.00	91.700	4.100	7861.26	4419.31	4418.54	90.13	621297.62	606337.16	32°39'59.752"N	104°04'24.565"W	0.50
12211.00	91.300	3.200	7859.61	4482.25	4481.39	94.14	621301.63	606400.01	32°40'00.374"N	104°04'24.517"W	1.56
12275.00	91.200	3.200	7858.21	4546.21	4545.27	97.71	621305.21	606463.88	32°40'01.006"N	104°04'24.473"W	0.16
12340.00	91.200	3.200	7856.85	4611.17	4610.16	101.34	621308.83	606528.76	32°40'01.647"N	104°04'24.429"W	0.00



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Eddy County, NM	Well	No. 3H
Field	(Magnum) Sec 16, T19S, R29E	Wellbore	No. 3H AWB
Facility	Magnum State 16 No. 3H	Sidetrack from	No. 3 AWB at 7715.00 MD

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 3H PBHL		7852.33	4619.21	132.42	621339.91	606537.81	32°40'01.736"N	104°04'24.065"W	point

WELLPATH COMPOSITION					Ref Wellbore: No. 3H AWB		Ref Wellpath: No. 3H AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment		Wellbore	
0.00	7715.00	Generic gyro - northseeking (Standard)			GYRO <61.7 - 8032>		No. 3 AWB	
7715.00	12275.00	NaviTrak (Standard)			MWD <7748 - 12275>		No. 3H AWB	
12275.00	12340.00	Blind Drilling (std)			Projection to bit		No. 3H AWB	