

30-015-39158

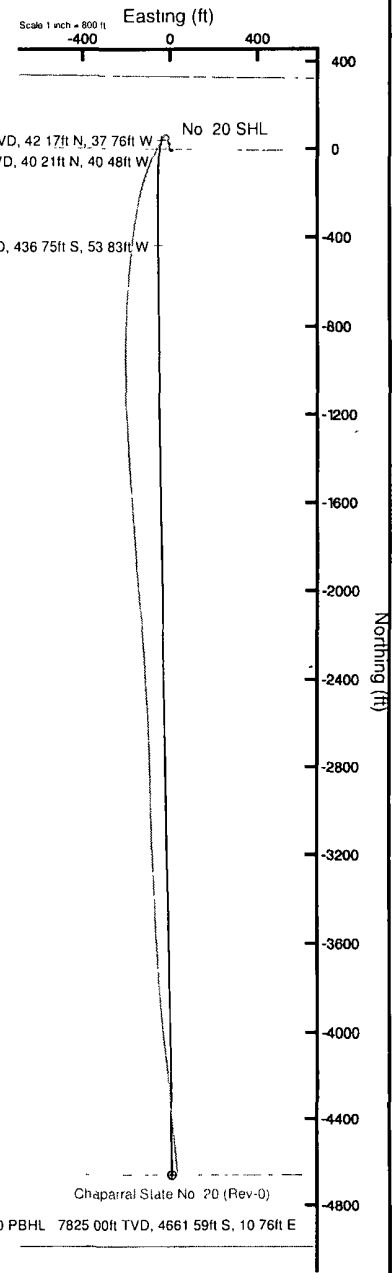


Cimarex Energy Co.

Location Eddy County, NM Slot: No 20 SHL
 Field (Chaparral) Sec 32, T19S, R29E Well: No 20
 Facility Chaparral State No 20 Wellbore: No 20 PWB

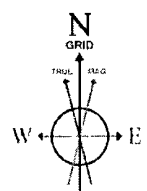


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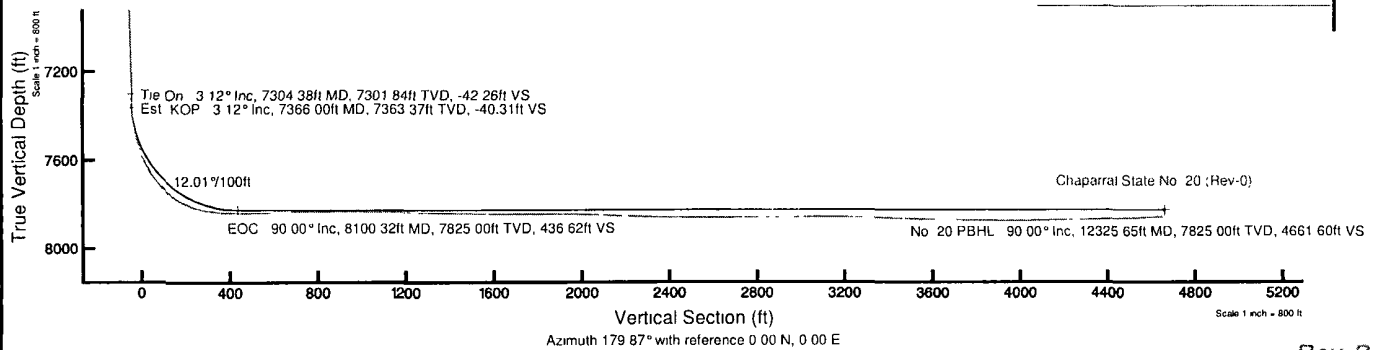


Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	7304 38	3 120	234 250	7301 84	42 17	-37 76	0 00	-42 26
Est KOP	7366 00	3 120	234 250	7363 37	40 21	-40 48	0 00	-40 31
EOC	8100 32	90 000	179 124	7825 00	-436 75	-53 83	12 01	436 62
No 20 PWB	12325 65	90 000	179 124	7825 00	-4661 59	10 76	0 00	4661 60

Plot reference wellpath is Rev-B 0	
True vertical depths are referenced to Rig on No 20 SHL (KB)	Grid System NAD83 / TM Now Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No 20 SHL (KB)	North Reference Grid north
Rig on No 20 SHL (KB) to Mean Sea Level 3328 feet	Scale True distance
Mean Sea Level to Mud line (At Slot No 20 SHL) -3308 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by gentbry on 5/18/2012



BGGM (1945 0 to 2013 0) Dip 60 41° Field 48710 8 nT
 Magnetic North is 7 84 degrees East of True North (at 4/27/2012)
 Grid North is 0 13 degrees East of True North
 To correct azimuth from True to Grid subtract 0 13 degrees
 To correct azimuth from Magnetic to Grid add 7 71 degrees
 For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7 71 = 97 71



Rev-B.0



Actual Wellpath Report

No.20 AWP

Page 1 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 20 SHL
Area	Eddy County, NM	Well	No. 20
Field	(Chaparral) Sec 32,T19S, R29E	Wellbore	No.20 AWB
Facility	Chaparral State No. 20		

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	Harrkol
Scale	0.999915	Report Generated	5/29/2012 at 10:33:01 AM
Convergence at slot	0.13° East	Database/Source file	WA Midland/No.20_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	613435.50	590743.60	32°37'25.630"N	104°05'56.944"W
Facility Reference Pt			613435.50	590743.60	32°37'25.630"N	104°05'56.944"W
Field Reference Pt			613435.50	590743.60	32°37'25.630"N	104°05'56.944"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 20 SHL (KB) to Facility Vertical Datum	20.00ft
Horizontal Reference Pt	Slot	Rig on No. 20 SHL (KB) to Mean Sea Level	3328.00ft
Vertical Reference Pt	Rig on No. 20 SHL (KB)	Rig on No. 20 SHL (KB) to Mud Line at Slot (No. 20 SHL)	20.00ft
MD Reference Pt	Rig on No. 20 SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.87°



Actual Wellpath Report

No.20 AWP

Page 2 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 20 SHL
Area	Eddy County, NM	Well	No. 20
Field	(Chaparral) Sec 32,T19S, R29E	Wellbore	No.20 AWB
Facility	Chaparral State No. 20		

WELLPATH DATA (211 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
0.00	0.000	211.550	0.00	0.00	0.00	0.00	613435.50	590743.60	32°37'25.630"N	104°05'56.944"W	0.00	
55.08	0.110	211.550	55.08	0.04	-0.05	-0.03	613435.47	590743.55	32°37'25.629"N	104°05'56.944"W	0.20	
118.53	0.520	228.120	118.53	0.29	-0.29	-0.27	613435.23	590743.31	32°37'25.627"N	104°05'56.947"W	0.66	
181.98	0.560	228.040	181.98	0.69	-0.69	-0.72	613434.78	590742.91	32°37'25.623"N	104°05'56.953"W	0.06	
245.43	0.890	231.950	245.42	1.20	-1.20	-1.34	613434.16	590742.40	32°37'25.618"N	104°05'56.960"W	0.53	
308.88	1.340	234.110	308.86	1.93	-1.94	-2.33	613433.17	590741.66	32°37'25.610"N	104°05'56.971"W	0.71	
372.33	0.960	224.440	372.30	2.75	-2.75	-3.30	613432.20	590740.85	32°37'25.602"N	104°05'56.983"W	0.67	
435.78	0.540	222.410	435.74	3.34	-3.35	-3.87	613431.63	590740.25	32°37'25.596"N	104°05'56.989"W	0.66	
499.23	0.280	218.760	499.19	3.69	-3.69	-4.17	613431.33	590739.91	32°37'25.593"N	104°05'56.993"W	0.41	
562.68	0.170	94.610	562.64	3.81	-3.82	-4.18	613431.32	590739.78	32°37'25.592"N	104°05'56.993"W	0.63	
626.13	0.250	71.000	626.09	3.78	-3.79	-3.95	613431.55	590739.81	32°37'25.592"N	104°05'56.990"W	0.18	
689.58	1.060	54.350	689.53	3.39	-3.40	-3.34	613432.16	590740.20	32°37'25.596"N	104°05'56.983"W	1.30	
753.03	1.340	59.940	752.97	2.68	-2.68	-2.22	613433.28	590740.92	32°37'25.603"N	104°05'56.970"W	0.48	
816.48	1.830	67.480	816.39	1.92	-1.93	-0.65	613434.85	590741.67	32°37'25.611"N	104°05'56.952"W	0.84	
879.93	1.770	74.480	879.81	1.28	-1.28	-1.23	613436.73	590742.33	32°37'25.617"N	104°05'56.930"W	0.36	
943.38	1.890	80.580	943.23	0.85	-0.84	3.21	613438.71	590742.76	32°37'25.621"N	104°05'56.907"W	0.36	
1006.83	1.480	75.140	1006.65	0.47	-0.46	5.03	613440.53	590743.14	32°37'25.625"N	104°05'56.885"W	0.69	
1070.28	1.000	56.170	1070.09	-0.04	0.06	6.29	613441.79	590743.66	32°37'25.630"N	104°05'56.871"W	0.99	
1133.73	0.670	70.850	1133.53	-0.47	0.49	7.10	613442.60	590744.09	32°37'25.634"N	104°05'56.861"W	0.62	
1197.18	0.850	82.920	1196.98	-0.65	0.67	7.91	613443.41	590744.27	32°37'25.636"N	104°05'56.852"W	0.38	
1260.63	0.980	119.110	1260.42	-0.44	0.46	8.86	613444.35	590744.06	32°37'25.634"N	104°05'56.841"W	0.92	
1324.08	1.190	148.610	1323.86	0.39	-0.36	9.67	613445.17	590743.24	32°37'25.626"N	104°05'56.831"W	0.93	
1387.53	1.310	142.220	1387.29	1.52	-1.50	10.46	613445.96	590742.10	32°37'25.614"N	104°05'56.822"W	0.29	
1450.98	1.530	165.360	1450.72	2.92	-2.89	11.12	613446.62	590740.71	32°37'25.601"N	104°05'56.814"W	0.96	
1514.43	1.720	185.710	1514.15	4.69	-4.66	11.24	613446.74	590738.94	32°37'25.583"N	104°05'56.813"W	0.95	
1577.88	1.610	205.790	1577.57	6.43	-6.41	10.76	613446.25	590737.19	32°37'25.566"N	104°05'56.819"W	0.93	
1641.33	1.540	228.750	1641.00	7.80	-7.77	9.73	613445.23	590735.83	32°37'25.552"N	104°05'56.831"W	0.99	
1704.78	1.190	250.500	1704.43	8.58	-8.56	8.46	613443.96	590735.04	32°37'25.545"N	104°05'56.845"W	0.98	
1768.23	1.000	264.300	1767.87	8.85	-8.83	7.29	613442.79	590734.77	32°37'25.542"N	104°05'56.859"W	0.51	
1831.68	0.630	234.750	1831.31	9.10	-9.09	6.46	613441.96	590734.51	32°37'25.540"N	104°05'56.869"W	0.86	
1895.13	0.610	284.560	1894.76	9.22	-9.20	5.84	613441.34	590734.40	32°37'25.538"N	104°05'56.876"W	0.82	
1958.58	0.460	310.160	1958.21	8.97	-8.96	5.32	613440.82	590734.65	32°37'25.541"N	104°05'56.882"W	0.44	
2022.03	0.470	315.800	2021.66	8.62	-8.60	4.95	613440.45	590735.00	32°37'25.544"N	104°05'56.886"W	0.07	
2085.48	0.210	317.800	2085.10	8.34	-8.33	4.69	613440.19	590735.27	32°37'25.547"N	104°05'56.889"W	0.41	
2148.93	0.250	314.870	2148.55	8.16	-8.15	4.51	613440.01	590735.45	32°37'25.549"N	104°05'56.892"W	0.07	
2212.38	0.410	5.410	2212.00	7.83	-7.82	4.43	613439.93	590735.78	32°37'25.552"N	104°05'56.892"W	0.50	
2275.83	0.540	69.870	2275.45	7.51	-7.50	4.74	613440.24	590736.11	32°37'25.555"N	104°05'56.889"W	0.82	
2339.28	0.570	13.620	2338.90	7.10	-7.09	5.09	613440.59	590736.51	32°37'25.559"N	104°05'56.885"W	0.83	
2402.73	0.440	302.140	2402.35	6.66	-6.65	4.96	613440.46	590736.95	32°37'25.564"N	104°05'56.886"W	0.94	
2466.18	0.190	260.450	2465.80	6.55	-6.54	4.65	613440.15	590737.06	32°37'25.565"N	104°05'56.890"W	0.51	
2529.63	0.390	177.060	2529.25	6.78	-6.77	4.56	613440.06	590736.83	32°37'25.562"N	104°05'56.891"W	0.65	
2593.08	0.260	311.810	2592.70	6.90	-6.89	4.46	613439.96	590736.71	32°37'25.561"N	104°05'56.892"W	0.95	
2656.53	0.310	323.120	2656.14	6.67	-6.66	4.25	613439.75	590736.94	32°37'25.564"N	104°05'56.895"W	0.12	
2719.98	0.300	17.380	2719.59	6.37	-6.36	4.20	613439.70	590737.24	32°37'25.567"N	104°05'56.895"W	0.44	
2783.43	0.180	298.890	2783.04	6.16	-6.15	4.16	613439.66	590737.45	32°37'25.569"N	104°05'56.896"W	0.50	



Actual Wellpath Report

No.20 AWP

Page 3 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 20 SHL
Area	Eddy County, NM	Well	No. 20
Field	(Chaparral) Sec 32,T19S, R29E	Wellbore	No.20 AWB
Facility	Chaparral State No. 20		

WELLPATH DATA (211 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
2846.88	0.110	39.600	2846.49	6.07	-6.06	4.11	613439.61	590737.54	32°37'25.570"N	104°05'56.896"W	0.36	
2910.33	0.070	135.190	2909.94	6.05	-6.04	4.18	613439.68	590737.56	32°37'25.570"N	104°05'56.895"W	0.21	
2973.78	0.120	100.870	2973.39	6.09	-6.08	4.27	613439.77	590737.52	32°37'25.569"N	104°05'56.894"W	0.12	
3037.23	0.150	273.690	3036.84	6.10	-6.09	4.25	613439.75	590737.51	32°37'25.569"N	104°05'56.895"W	0.42	
3100.68	0.060	342.640	3100.29	6.06	-6.05	4.16	613439.66	590737.55	32°37'25.570"N	104°05'56.896"W	0.22	
3164.13	0.200	282.660	3163.74	6.00	-5.99	4.04	613439.54	590737.61	32°37'25.570"N	104°05'56.897"W	0.28	
3227.58	0.150	347.520	3227.19	5.90	-5.89	3.92	613439.42	590737.71	32°37'25.571"N	104°05'56.898"W	0.30	
3291.03	0.190	281.850	3290.64	5.79	-5.79	3.79	613439.29	590737.81	32°37'25.572"N	104°05'56.900"W	0.30	
3354.48	0.230	28.050	3354.09	5.66	-5.65	3.75	613439.25	590737.95	32°37'25.574"N	104°05'56.900"W	0.53	
3417.93	0.310	332.780	3417.54	5.40	-5.39	3.73	613439.23	590738.21	32°37'25.576"N	104°05'56.901"W	0.41	
3481.38	0.350	297.270	3480.99	5.15	-5.15	3.48	613438.98	590738.45	32°37'25.579"N	104°05'56.904"W	0.32	
3544.83	0.630	331.320	3544.44	4.76	-4.75	3.14	613438.64	590738.85	32°37'25.582"N	104°05'56.907"W	0.62	
3608.28	0.800	355.060	3607.88	4.01	-4.00	2.94	613438.44	590739.60	32°37'25.590"N	104°05'56.910"W	0.53	
3671.73	0.910	349.130	3671.33	3.07	-3.07	2.80	613438.30	590740.53	32°37'25.599"N	104°05'56.911"W	0.22	
3735.18	0.900	337.260	3734.77	2.12	-2.11	2.52	613438.02	590741.49	32°37'25.609"N	104°05'56.915"W	0.30	
3798.63	1.020	339.300	3798.21	1.13	-1.13	2.12	613437.62	590742.48	32°37'25.618"N	104°05'56.919"W	0.20	
3862.08	1.040	342.900	3861.65	0.05	-0.05	1.76	613437.25	590743.55	32°37'25.629"N	104°05'56.924"W	0.11	
3925.53	1.280	325.610	3925.09	-1.09	1.09	1.19	613436.69	590744.69	32°37'25.640"N	104°05'56.930"W	0.66	
3988.98	1.330	323.520	3988.52	-2.26	2.27	0.35	613435.85	590745.87	32°37'25.652"N	104°05'56.940"W	0.11	
4052.43	1.550	343.070	4051.95	-3.68	3.68	-0.34	613435.16	590747.28	32°37'25.666"N	104°05'56.948"W	0.84	
4115.88	1.570	324.360	4115.38	-5.21	5.21	-1.10	613434.40	590748.81	32°37'25.681"N	104°05'56.957"W	0.80	
4179.33	1.750	342.880	4178.80	-6.84	6.84	-1.89	613433.61	590750.44	32°37'25.697"N	104°05'56.966"W	0.89	
4242.78	1.800	331.270	4242.22	-8.64	8.64	-2.65	613432.85	590752.24	32°37'25.715"N	104°05'56.975"W	0.57	
4306.23	2.110	339.200	4305.63	-10.61	10.60	-3.55	613431.95	590754.20	32°37'25.735"N	104°05'56.985"W	0.65	
4369.68	1.900	355.290	4369.05	-12.75	12.74	-4.05	613431.45	590756.34	32°37'25.756"N	104°05'56.991"W	0.94	
4433.13	1.940	13.480	4432.46	-14.85	14.84	-3.88	613431.62	590758.44	32°37'25.776"N	104°05'56.989"W	0.96	
4496.58	1.750	31.390	4495.88	-16.72	16.71	-3.13	613432.37	590760.31	32°37'25.795"N	104°05'56.980"W	0.95	
4560.03	1.730	48.880	4559.30	-18.17	18.17	-1.90	613433.60	590761.76	32°37'25.809"N	104°05'56.966"W	0.83	
4623.48	1.670	29.530	4622.72	-19.60	19.60	-0.73	613434.77	590763.20	32°37'25.824"N	104°05'56.952"W	0.91	
4686.93	1.550	9.260	4686.15	-21.25	21.25	-0.13	613435.37	590764.85	32°37'25.840"N	104°05'56.945"W	0.91	
4750.38	1.370	346.750	4749.58	-22.84	22.84	-0.17	613435.33	590766.43	32°37'25.856"N	104°05'56.945"W	0.94	
4813.83	1.400	321.070	4813.01	-24.18	24.18	-0.83	613434.67	590767.78	32°37'25.869"N	104°05'56.953"W	0.97	
4877.28	1.350	295.430	4876.44	-25.11	25.10	-1.99	613433.51	590768.70	32°37'25.878"N	104°05'56.967"W	0.96	
4940.73	1.530	271.600	4939.87	-25.45	25.45	-3.51	613431.99	590769.04	32°37'25.881"N	104°05'56.984"W	0.98	
5004.18	1.580	292.760	5003.30	-25.82	25.81	-5.17	613430.34	590769.41	32°37'25.885"N	104°05'57.004"W	0.90	
5067.63	1.930	308.010	5066.72	-26.82	26.80	-6.81	613428.69	590770.40	32°37'25.895"N	104°05'57.023"W	0.92	
5131.08	2.180	322.600	5130.13	-28.44	28.42	-8.39	613427.11	590772.02	32°37'25.911"N	104°05'57.041"W	0.91	
5194.53	2.380	336.830	5193.53	-30.61	30.59	-9.64	613425.86	590774.19	32°37'25.932"N	104°05'57.056"W	0.94	
5257.98	2.450	351.240	5256.92	-33.17	33.14	-10.36	613425.14	590776.74	32°37'25.958"N	104°05'57.064"W	0.96	
5321.43	2.510	5.420	5320.31	-35.89	35.87	-10.44	613425.06	590779.46	32°37'25.985"N	104°05'57.065"W	0.97	
5384.88	2.530	11.200	5383.70	-38.65	38.62	-10.04	613425.46	590782.22	32°37'26.012"N	104°05'57.060"W	0.40	
5448.33	2.280	18.010	5447.10	-41.22	41.20	-9.37	613426.13	590784.79	32°37'26.037"N	104°05'57.053"W	0.60	
5511.78	2.300	16.550	5510.50	-43.64	43.62	-8.62	613426.88	590787.21	32°37'26.061"N	104°05'57.044"W	0.10	
5575.23	2.270	4.410	5573.90	-46.11	46.09	-8.16	613427.34	590789.69	32°37'26.086"N	104°05'57.038"W	0.76	
5638.68	2.870	8.530	5637.28	-48.93	48.91	-7.83	613427.67	590792.51	32°37'26.114"N	104°05'57.034"W	0.99	



Actual Wellpath Report

No.20 AWP

Page 4 of 7



**BAKER
HUGHES**

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 20 SHL
Area	Eddy County, NM	Well	No. 20
Field	(Chaparral) Sec 32,T19S, R29E	Wellbore	No.20 AWB
Facility	Chaparral State No. 20		

WELLPATH DATA (211 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
5702.13	2.240	6.650	5700.67	-51.73	51.72	-7.45	613428.05	590795.31	32°37'26.141"N	104°05'57.030"W	1.00	
5765.58	2.340	351.380	5764.07	-54.25	54.23	-7.50	613428.00	590797.83	32°37'26.166"N	104°05'57.030"W	0.97	
5829.03	2.530	337.970	5827.46	-56.83	56.81	-8.22	613427.28	590800.40	32°37'26.192"N	104°05'57.039"W	0.94	
5892.48	2.580	325.250	5890.85	-59.30	59.28	-9.56	613425.94	590802.88	32°37'26.216"N	104°05'57.054"W	0.90	
5955.93	2.380	312.150	5954.24	-61.36	61.34	-11.35	613424.15	590804.93	32°37'26.237"N	104°05'57.075"W	0.94	
6019.38	2.830	302.950	6017.63	-63.11	63.07	-13.64	613421.86	590806.67	32°37'26.254"N	104°05'57.102"W	0.97	
6082.83	2.320	302.100	6081.01	-64.65	64.61	-16.04	613419.46	590808.20	32°37'26.269"N	104°05'57.130"W	0.81	
6146.28	2.020	288.310	6144.42	-65.68	65.64	-18.19	613417.31	590809.24	32°37'26.279"N	104°05'57.155"W	0.95	
6209.73	2.510	279.130	6207.82	-66.26	66.21	-20.63	613414.87	590809.81	32°37'26.285"N	104°05'57.184"W	0.96	
6273.18	2.120	268.430	6271.22	-66.46	66.40	-23.17	613412.33	590810.00	32°37'26.287"N	104°05'57.213"W	0.91	
6336.63	2.280	253.440	6334.62	-66.07	66.01	-25.56	613409.95	590809.60	32°37'26.283"N	104°05'57.241"W	0.94	
6400.08	2.140	238.290	6398.02	-65.09	65.03	-27.77	613407.73	590808.62	32°37'26.274"N	104°05'57.267"W	0.94	
6463.53	2.030	221.440	6461.43	-63.63	63.56	-29.52	613405.98	590807.16	32°37'26.259"N	104°05'57.288"W	0.98	
6526.98	1.800	204.970	6524.85	-61.89	61.82	-30.69	613404.81	590805.41	32°37'26.242"N	104°05'57.301"W	0.94	
6590.43	1.740	185.270	6588.27	-60.03	59.95	-31.20	613404.30	590803.55	32°37'26.223"N	104°05'57.307"W	0.96	
6653.88	1.430	166.710	6651.69	-58.30	58.22	-31.10	613404.40	590801.82	32°37'26.206"N	104°05'57.306"W	0.94	
6717.33	1.480	143.550	6715.12	-56.86	56.79	-30.44	613405.07	590800.39	32°37'26.192"N	104°05'57.298"W	0.92	
6780.78	1.570	146.330	6778.55	-55.48	55.41	-29.47	613406.04	590799.01	32°37'26.178"N	104°05'57.287"W	0.18	
6844.23	1.640	168.190	6841.98	-53.87	53.80	-28.80	613406.70	590797.40	32°37'26.163"N	104°05'57.279"W	0.97	
6907.68	1.580	180.210	6905.40	-52.10	52.04	-28.62	613406.89	590795.63	32°37'26.145"N	104°05'57.277"W	0.54	
6971.13	1.450	202.840	6968.83	-50.49	50.42	-28.93	613406.57	590794.02	32°37'26.129"N	104°05'57.281"W	0.96	
7034.58	1.380	223.910	7032.26	-49.20	49.13	-29.77	613405.73	590792.73	32°37'26.116"N	104°05'57.291"W	0.82	
7098.03	1.670	234.510	7095.69	-48.12	48.04	-31.06	613404.45	590791.64	32°37'26.106"N	104°05'57.306"W	0.64	
7161.48	2.260	229.760	7159.10	-46.78	46.70	-32.76	613402.74	590790.30	32°37'26.092"N	104°05'57.326"W	0.96	
7224.93	2.900	231.130	7222.49	-44.96	44.88	-34.97	613400.53	590788.48	32°37'26.074"N	104°05'57.352"W	1.01	
7288.38	2.700	219.300	7285.86	-42.81	42.72	-37.16	613398.34	590786.32	32°37'26.053"N	104°05'57.378"W	0.96	
7304.38	3.120	234.250	7301.84	-42.26	42.17	-37.76	613397.75	590785.77	32°37'26.048"N	104°05'57.384"W	5.40	
7332.00	2.700	215.500	7329.42	-41.29	41.21	-38.74	613396.76	590784.80	32°37'26.038"N	104°05'57.396"W	3.74	
7364.00	2.600	214.800	7361.39	-40.09	40.00	-39.60	613395.91	590783.59	32°37'26.026"N	104°05'57.406"W	0.33	
7394.00	4.300	209.900	7391.34	-38.56	38.46	-40.55	613394.96	590782.06	32°37'26.011"N	104°05'57.417"W	5.75	
7427.00	7.500	206.900	7424.16	-35.57	35.47	-42.14	613393.37	590779.07	32°37'25.981"N	104°05'57.436"W	9.74	
7458.00	10.600	207.500	7454.77	-31.24	31.13	-44.37	613391.13	590774.73	32°37'25.939"N	104°05'57.462"W	10.00	
7491.00	14.000	208.400	7487.00	-25.04	24.93	-47.67	613387.83	590768.53	32°37'25.877"N	104°05'57.501"W	10.32	
7521.00	17.200	208.400	7515.90	-17.95	17.83	-51.51	613384.00	590761.43	32°37'25.807"N	104°05'57.546"W	10.67	
7555.00	20.700	206.100	7548.05	-8.14	8.01	-56.54	613378.96	590751.61	32°37'25.710"N	104°05'57.605"W	10.52	
7587.00	23.900	204.600	7577.65	2.82	-2.96	-61.73	613373.77	590740.64	32°37'25.602"N	104°05'57.666"W	10.16	
7619.00	27.900	205.500	7606.43	15.46	-15.62	-67.66	613367.85	590727.98	32°37'25.476"N	104°05'57.736"W	12.56	
7649.00	30.900	205.100	7632.56	28.76	-28.94	-73.95	613361.56	590714.67	32°37'25.345"N	104°05'57.809"W	10.02	
7682.00	34.700	203.700	7660.30	45.03	-45.22	-81.32	613354.19	590698.39	32°37'25.184"N	104°05'57.896"W	11.74	
7711.00	38.200	202.200	7683.62	60.88	-61.08	-88.03	613347.48	590682.52	32°37'25.027"N	104°05'57.975"W	12.45	
7745.00	43.000	201.600	7709.43	81.38	-81.61	-96.27	613339.24	590662.00	32°37'24.824"N	104°05'58.072"W	14.16	
7775.00	47.000	200.500	7730.64	101.16	-101.40	-103.88	613331.63	590642.21	32°37'24.629"N	104°05'58.161"W	13.58	
7809.00	51.900	198.700	7752.74	125.48	-125.74	-112.53	613322.98	590617.88	32°37'24.388"N	104°05'58.263"W	14.96	
7839.00	56.400	197.000	7770.30	148.60	-148.88	-119.97	613315.54	590594.74	32°37'24.159"N	104°05'58.351"W	15.69	
7872.00	61.600	195.100	7787.30	175.76	-176.05	-127.78	613307.73	590567.56	32°37'23.890"N	104°05'58.443"W	16.51	



Actual Wellpath Report

No.20 AWP

Page 5 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 20 SHL
Area	Eddy County, NM	Well	No. 20
Field	(Chaparral) Sec 32,T19S, R29E	Wellbore	No.20 AWB
Facility	Chaparral State No. 20		

WELLPATH DATA (211 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
7902.00	66.000	193.100	7800.54	201.84	-202.15	-134.33	613301.19	590541.46	32°37'23.632"N	104°05'58.520"W	15.84	
7936.00	70.500	191.600	7813.13	232.67	-233.00	-141.07	613294.44	590510.62	32°37'23.327"N	104°05'58.600"W	13.85	
7966.00	74.900	190.800	7822.05	260.75	-261.09	-146.63	613288.88	590482.54	32°37'23.049"N	104°05'58.665"W	14.89	
7999.00	79.800	189.800	7829.28	292.40	-292.76	-152.38	613283.13	590450.87	32°37'22.736"N	104°05'58.733"W	15.14	
8028.00	82.600	189.600	7833.71	320.64	-321.00	-157.21	613278.30	590422.63	32°37'22.457"N	104°05'58.790"W	9.68	
8063.00	85.900	188.800	7837.22	355.00	-355.37	-162.78	613272.74	590388.26	32°37'22.117"N	104°05'58.856"W	9.70	
8091.00	87.900	187.600	7838.74	382.66	-383.05	-166.77	613268.75	590360.59	32°37'21.843"N	104°05'58.904"W	8.33	
8127.00	89.700	186.000	7839.49	418.39	-418.78	-171.03	613264.49	590324.86	32°37'21.490"N	104°05'58.955"W	6.69	
8156.00	89.700	186.300	7839.64	447.21	-447.61	-174.13	613261.38	590296.02	32°37'21.204"N	104°05'58.992"W	1.03	
8219.00	90.800	185.300	7839.37	509.87	-510.29	-180.50	613255.02	590233.36	32°37'20.584"N	104°05'59.068"W	2.36	
8286.00	91.200	184.900	7838.20	576.58	-577.01	-186.45	613249.06	590166.64	32°37'19.924"N	104°05'59.139"W	0.84	
8346.00	91.800	184.100	7836.63	636.36	-636.81	-191.16	613244.36	590106.85	32°37'19.333"N	104°05'59.196"W	1.67	
8409.00	91.100	182.900	7835.03	699.22	-699.67	-195.01	613240.51	590043.99	32°37'18.711"N	104°05'59.242"W	2.20	
8473.00	90.100	181.600	7834.36	763.16	-763.61	-197.52	613238.00	589980.05	32°37'18.078"N	104°05'59.273"W	2.56	
8536.00	90.000	182.000	7834.31	826.12	-826.58	-199.50	613236.02	589917.09	32°37'17.455"N	104°05'59.298"W	0.65	
8600.00	90.700	180.300	7833.92	890.10	-890.56	-200.78	613234.74	589853.11	32°37'16.822"N	104°05'59.315"W	2.87	
8664.00	89.600	179.200	7833.75	954.10	-954.56	-200.50	613235.02	589789.12	32°37'16.189"N	104°05'59.313"W	2.43	
8727.00	89.500	178.200	7834.24	1017.08	-1017.54	-199.07	613236.45	589726.15	32°37'15.566"N	104°05'59.298"W	1.60	
8791.00	90.000	178.900	7834.52	1081.06	-1081.52	-197.45	613238.06	589662.17	32°37'14.933"N	104°05'59.281"W	1.34	
8854.00	89.300	177.200	7834.91	1144.03	-1144.48	-195.31	613240.21	589599.22	32°37'14.310"N	104°05'59.257"W	2.92	
8918.00	88.600	176.500	7836.08	1207.93	-1208.37	-191.79	613243.72	589535.33	32°37'13.678"N	104°05'59.218"W	1.55	
8982.00	88.800	176.500	7837.53	1271.80	-1272.24	-187.89	613247.63	589471.47	32°37'13.046"N	104°05'59.174"W	0.31	
9046.00	88.700	177.500	7838.93	1335.70	-1336.13	-184.54	613250.98	589407.58	32°37'12.413"N	104°05'59.136"W	1.57	
9109.00	88.800	176.200	7840.30	1398.60	-1399.02	-181.08	613254.44	589344.70	32°37'11.791"N	104°05'59.097"W	2.07	
9172.00	88.800	176.100	7841.62	1461.45	-1461.87	-176.85	613258.67	589281.86	32°37'11.169"N	104°05'59.049"W	0.16	
9236.00	89.100	175.900	7842.79	1525.30	-1525.70	-172.38	613263.13	589218.03	32°37'10.537"N	104°05'58.999"W	0.56	
9299.00	89.300	175.600	7843.67	1588.13	-1588.52	-167.72	613267.80	589155.22	32°37'09.916"N	104°05'58.946"W	0.57	
9362.00	89.500	175.700	7844.33	1650.95	-1651.33	-162.94	613272.58	589092.41	32°37'09.294"N	104°05'58.892"W	0.35	
9426.00	89.900	176.200	7844.67	1714.80	-1715.17	-158.42	613277.10	589028.58	32°37'08.662"N	104°05'58.840"W	1.00	
9490.00	90.300	176.800	7844.56	1778.69	-1779.05	-154.51	613281.00	588964.70	32°37'08.030"N	104°05'58.796"W	1.13	
9553.00	90.700	176.800	7844.01	1841.60	-1841.95	-150.99	613284.52	588901.81	32°37'07.408"N	104°05'58.757"W	0.63	
9616.00	89.500	176.100	7843.90	1904.49	-1904.83	-147.09	613288.42	588838.94	32°37'06.785"N	104°05'58.713"W	2.21	
9680.00	89.000	175.100	7844.74	1968.30	-1968.64	-142.18	613293.33	588775.14	32°37'06.154"N	104°05'58.657"W	1.75	
9743.00	88.300	174.600	7846.22	2031.04	-2031.36	-136.53	613298.98	588712.41	32°37'05.533"N	104°05'58.593"W	1.37	
9807.00	87.100	173.900	7848.79	2094.68	-2094.99	-130.12	613305.39	588648.79	32°37'04.904"N	104°05'58.519"W	2.17	
9871.00	87.400	174.500	7851.86	2158.30	-2158.59	-123.66	613311.85	588585.20	32°37'04.274"N	104°05'58.445"W	1.05	
9934.00	87.400	175.000	7854.72	2220.98	-2221.26	-117.91	613317.61	588522.54	32°37'03.654"N	104°05'58.380"W	0.79	
9998.00	88.000	175.800	7857.29	2284.73	-2285.00	-112.78	613322.73	588458.80	32°37'03.023"N	104°05'58.321"W	1.56	
10062.00	88.400	177.500	7859.30	2348.60	-2348.86	-109.04	613326.47	588394.95	32°37'02.391"N	104°05'58.279"W	2.73	
10124.00	89.700	177.400	7860.32	2410.53	-2410.78	-106.28	613329.23	588333.02	32°37'01.778"N	104°05'58.249"W	2.10	
10188.00	89.000	175.600	7861.05	2474.42	-2474.66	-102.37	613333.13	588269.16	32°37'01.146"N	104°05'58.205"W	3.02	
10252.00	89.500	177.300	7861.89	2538.29	-2538.53	-98.41	613337.10	588205.29	32°37'00.514"N	104°05'58.160"W	2.77	
10315.00	90.600	177.500	7861.83	2601.23	-2601.46	-95.55	613339.95	588142.36	32°36'59.891"N	104°05'58.128"W	1.77	
10379.00	90.600	177.600	7861.16	2665.18	-2665.40	-92.82	613342.69	588078.43	32°36'59.259"N	104°05'58.098"W	0.16	
10442.00	90.300	178.600	7860.67	2728.15	-2728.36	-90.73	613344.78	588015.48	32°36'58.636"N	104°05'58.075"W	1.66	



Actual Wellpath Report

No.20 AWP
Page 6 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 20 SHL
Area	Eddy County, NM	Well	No. 20
Field	(Chaparral) Sec 32,T19S, R29E	Wellbore	No.20 AWB
Facility	Chaparral State No. 20		

WELLPATH DATA (211 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
10506.00	90.300	178.600	7860.33	2792.13	-2792.34	-89.17	613346.34	587951.50	32°36'58.003"N	104°05'58.058"W	0.00	
10570.00	90.300	178.800	7860.00	2856.11	-2856.32	-87.71	613347.79	587887.52	32°36'57.370"N	104°05'58.043"W	0.31	
10633.00	90.700	178.800	7859.45	2919.10	-2919.31	-86.39	613349.11	587824.55	32°36'56.746"N	104°05'58.029"W	0.63	
10697.00	90.600	178.800	7858.72	2983.09	-2983.29	-85.05	613350.45	587760.57	32°36'56.113"N	104°05'58.015"W	0.16	
10760.00	90.600	178.300	7858.06	3046.07	-3046.27	-83.46	613352.05	587697.60	32°36'55.490"N	104°05'57.998"W	0.79	
10824.00	90.700	178.800	7857.34	3110.04	-3110.24	-81.84	613353.67	587633.63	32°36'54.857"N	104°05'57.981"W	0.80	
10887.00	89.200	177.800	7857.39	3173.02	-3173.21	-79.97	613355.53	587570.66	32°36'54.234"N	104°05'57.961"W	2.86	
10951.00	88.700	177.200	7858.56	3236.95	-3237.14	-77.18	613358.33	587506.74	32°36'53.601"N	104°05'57.930"W	1.22	
11014.00	88.700	177.500	7859.99	3299.88	-3300.06	-74.27	613361.24	587443.83	32°36'52.979"N	104°05'57.897"W	0.48	
11078.00	88.800	177.600	7861.84	3363.80	-3363.97	-71.53	613363.97	587379.92	32°36'52.346"N	104°05'57.867"W	1.10	
11141.00	88.200	178.200	7863.92	3426.72	-3426.89	-69.23	613366.28	587317.01	32°36'51.724"N	104°05'57.842"W	1.00	
11203.00	87.700	177.600	7866.14	3488.65	-3488.81	-66.96	613368.55	587255.09	32°36'51.111"N	104°05'57.817"W	1.26	
11267.00	88.200	176.900	7868.43	3552.54	-3552.70	-63.89	613371.62	587191.21	32°36'50.479"N	104°05'57.783"W	1.34	
11331.00	88.200	176.500	7870.44	3616.41	-3616.56	-60.21	613375.30	587127.36	32°36'49.847"N	104°05'57.741"W	0.62	
11394.00	88.800	176.500	7872.09	3679.28	-3679.42	-56.36	613379.14	587064.50	32°36'49.225"N	104°05'57.698"W	0.95	
11458.00	89.400	176.500	7873.10	3743.16	-3743.29	-52.45	613383.05	587000.63	32°36'48.593"N	104°05'57.654"W	0.94	
11521.00	89.700	175.800	7873.59	3806.03	-3806.15	-48.22	613387.28	586937.78	32°36'47.971"N	104°05'57.606"W	1.21	
11585.00	89.500	175.500	7874.04	3869.85	-3869.96	-43.37	613392.13	586873.98	32°36'47.339"N	104°05'57.551"W	0.56	
11648.00	89.800	174.900	7874.42	3932.64	-3932.74	-38.10	613397.40	586811.20	32°36'46.718"N	104°05'57.491"W	1.06	
11712.00	90.100	174.300	7874.48	3996.37	-3996.45	-32.08	613403.43	586747.49	32°36'46.087"N	104°05'57.422"W	1.05	
11775.00	90.500	173.800	7874.15	4059.04	-4059.11	-25.55	613409.96	586684.84	32°36'45.467"N	104°05'57.347"W	1.02	
11839.00	91.500	172.800	7873.03	4122.61	-4122.66	-18.08	613417.42	586621.29	32°36'44.838"N	104°05'57.262"W	2.21	
11902.00	90.600	175.100	7871.88	4185.26	-4185.30	-11.44	613424.06	586558.67	32°36'44.218"N	104°05'57.186"W	3.92	
11966.00	91.400	174.300	7870.76	4248.99	-4249.01	-5.53	613429.97	586494.96	32°36'43.588"N	104°05'57.118"W	1.77	
12029.00	91.600	174.200	7869.11	4311.67	-4311.68	0.78	613436.28	586432.30	32°36'42.968"N	104°05'57.046"W	0.35	
12093.00	91.500	173.500	7867.38	4375.29	-4375.28	7.63	613443.13	586368.70	32°36'42.338"N	104°05'56.968"W	1.10	
12156.00	91.900	173.700	7865.51	4437.89	-4437.86	14.65	613450.15	586306.12	32°36'41.719"N	104°05'56.887"W	0.71	
12220.00	91.500	174.200	7863.61	4501.52	-4501.48	21.39	613456.89	586242.51	32°36'41.089"N	104°05'56.810"W	1.00	
12283.00	92.400	174.500	7861.47	4564.19	-4564.14	27.59	613463.09	586179.86	32°36'40.469"N	104°05'56.739"W	1.51	
12316.00	92.700	173.900	7860.00	4596.99	-4596.93	30.92	613466.42	586147.07	32°36'40.145"N	104°05'56.701"W	2.03	
12371.00	92.700	173.900	7857.41	4651.63	-4651.56	36.76	613472.26	586092.44	32°36'39.604"N	104°05'56.634"W	0.00	Projection to bit



Actual Wellpath Report

No.20 AWP

Page 7 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 20 SHL
Area	Eddy County, NM	Well	No. 20
Field	(Chaparral) Sec 32,T19S, R29E	Wellbore	No.20 AWB
Facility	Chaparral State No. 20		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Chaparral State No. 20 (Rev-0)		7825.00	-4661.59	10.76	613446.26	586082.42	32°36'39.505"N	104°05'56.938"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.20 AWB Ref Wellpath: No.20 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	7304.38	Generic gyro - northseeking (Standard)	VES Gyro <55.08-7304.38>	No.20 AWB
7304.38	12316.00	NavTrak (Standard)	BHI / Navitrak MWD 8-3/4" - <7332-12316> (PTB-12371)	No.20 AWB
12316.00	12371.00	Blind Drilling (std)	Projection to bit	No.20 AWB