



Cimarex Energy Co.

Location: Lea County, NM
Field: (James Federal) Sec 29, TS 23 S, R 32 E
Facility: James Federal No. 22

Slot: No. 22 SHL
Well: No. 22
Wellbore: No. 22 PWB



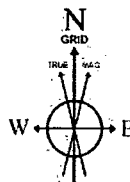
Plot reference wellpath is Rev-B.0	
True vertical depths are referenced to Rig on No. 22 SHL (KB)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (300'), US feet
Measured depths are referenced to Rig on No. 22 SHL (KB)	North Reference: Grid north
Rig on No. 22 SHL (KB) to Mean Sea Level: 3715 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No. 22 SHL): -3690 feet	Depths are in feet
Coordinates are in feet referenced to Slot	
Created by: abraill on 10/2/2014	

Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
James Federal No. 22	740069.300	468996.500	32°16'55.956"N	103°41'24.980"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude
No. 22 SHL	0.00	0.00	740069.300	468996.500	32°16'55.956"N
Rig on No. 22 SHL (KB) to Mud line (At Slot: No. 22 SHL)	25ft				
Mean Sea Level to Mud line (At Slot: No. 22 SHL)	-3690ft				
Rig on No. 22 SHL (KB) to Mean Sea Level	3715ft				

Targets					
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid North (US ft)
No. 22 PBHL	13908.20	9460.00	-4727.53	250.91	740320.20

Tie-On Position					
MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)
9580.00	72.42	108.780	9365.63	-411.90	214.87

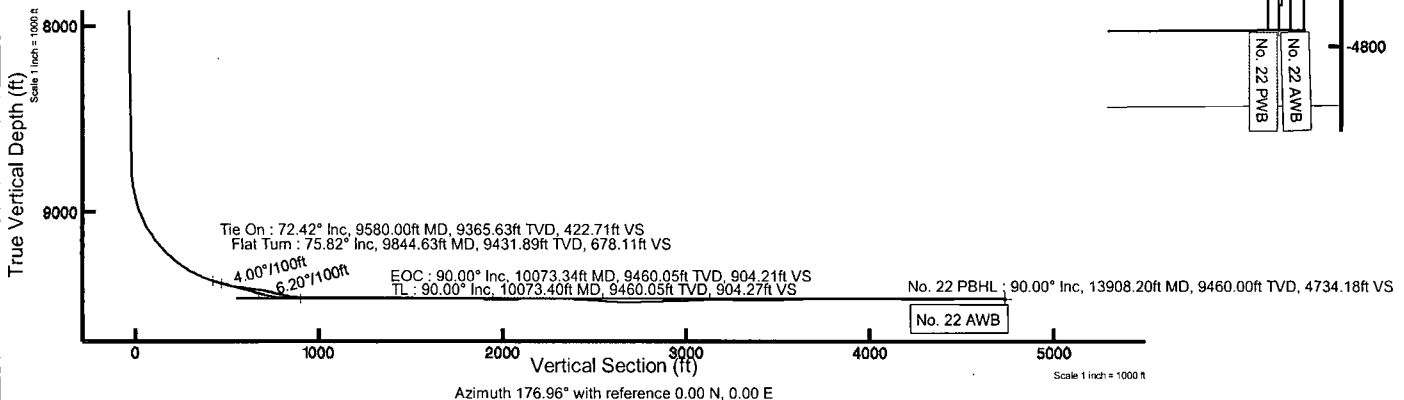
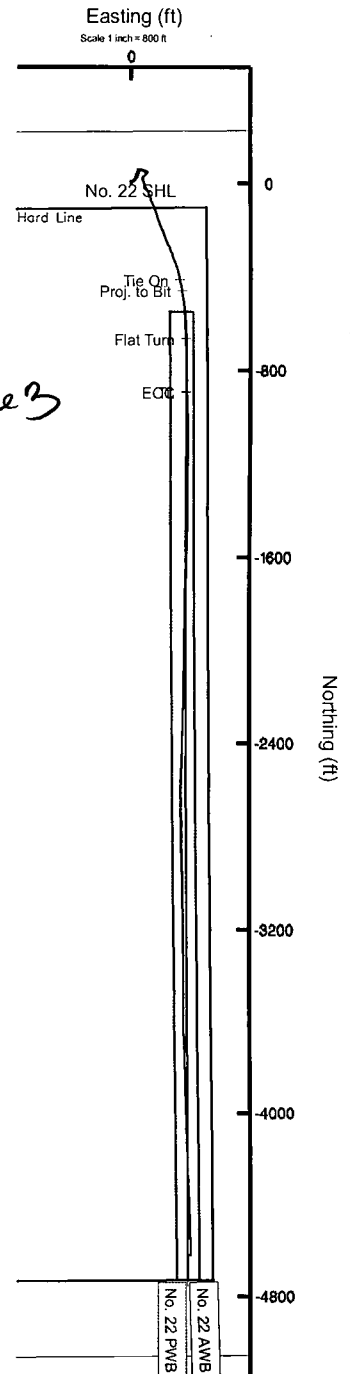
Bottom Hole Location					
MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)
13908.20	90.00	179.856	9460.00	-4727.53	250.91



BGGM (1945.0 to 2016.0) Dip: 60.14° Field: 48282.9 nT
Magnetic North is 7.42 degrees East of True North (at 8/11/2014)
Grid North is 0.34 degrees East of True North
To correct azimuth from True to Grid subtract 0.34 degrees
To correct azimuth from Magnetic to Grid add 7.08 degrees

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 22 SHL
Area	Lea County, NM	Well	No. 22
Field	(James Federal) Sec 29, TS 23 S, R 32 E	Wellbore	No. 22 AWB
Facility	James Federal No. 22		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 4.0.0
North Reference	Grid	User	Abraall
Scale	0.999954	Report Generated	10/3/2014 at 3:33:50 PM
Convergence at slot	0.34° East	Database/Source file	WA_Midland/No. 22_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	740069.30	466996.50	32°16'55.956"N	103°41'24.960"W
Facility Reference Pt			740069.30	466996.50	32°16'55.956"N	103°41'24.960"W
Field Reference Pt			165000.00	0.00	30°59'39.893"N	105°32'03.866"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 22 SHL (KB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Rig on No. 22 SHL (KB) to Mean Sea Level	3715.00ft
Vertical Reference Pt	Rig on No. 22 SHL (KB)	Rig on No. 22 SHL (KB) to Mud Line at Slot (No. 22 SHL)	25.00ft
MD Reference Pt	Rig on No. 22 SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	176.96°



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Area	Lea County, NM	Well	No. 22
Field	(James Federal) Sec 29, TS 23 S, R 32 E	Wellbore	No. 22 AWB
Facility	James Federal No. 22		

WELLPATH DATA (178 stations) † = interpolated/extrapolated station													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fid Vert Ref [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	15.090	0.00	-3715.00	0.00	0.00	0.00	740069.30	466996.50	32°16'55.956"N	103°41'24.960"W	0.00	
25.00	0.000	15.090	25.00	-3690.00	0.00	0.00	0.00	740069.30	466996.50	32°16'55.956"N	103°41'24.960"W	0.00	
117.00	0.400	15.090	117.00	-3598.00	-0.31	0.31	0.08	740069.38	466996.81	32°16'55.959"N	103°41'24.959"W	0.43	
206.00	0.400	6.390	206.00	-3509.00	-0.91	0.92	0.20	740069.50	466997.42	32°16'55.965"N	103°41'24.958"W	0.07	
302.00	0.480	7.880	301.99	-3413.01	-1.63	1.65	0.29	740069.59	466998.15	32°16'55.973"N	103°41'24.957"W	0.08	
395.00	0.480	26.780	394.99	-3320.01	-2.35	2.38	0.52	740069.82	466998.88	32°16'55.980"N	103°41'24.954"W	0.17	
485.00	0.620	7.180	484.99	-3230.01	-3.16	3.20	0.75	740070.05	466999.70	32°16'55.988"N	103°41'24.951"W	0.26	
575.00	0.400	46.950	574.98	-3140.02	-3.84	3.90	1.04	740070.34	467000.40	32°16'55.995"N	103°41'24.948"W	0.45	
665.00	0.310	39.960	664.98	-3050.02	-4.22	4.30	1.43	740070.73	467000.80	32°16'55.999"N	103°41'24.943"W	0.11	
756.00	0.310	49.370	755.98	-2959.02	-4.55	4.65	1.77	740071.07	467001.15	32°16'56.002"N	103°41'24.939"W	0.06	
846.00	0.480	33.680	845.98	-2869.02	-5.00	5.12	2.17	740071.47	467001.62	32°16'56.007"N	103°41'24.934"W	0.22	
936.00	0.480	26.690	935.98	-2779.02	-5.63	5.77	2.54	740071.84	467002.27	32°16'56.013"N	103°41'24.930"W	0.07	
1030.00	0.620	36.270	1029.97	-2685.03	-6.37	6.54	3.02	740072.32	467003.04	32°16'56.021"N	103°41'24.924"W	0.18	
1124.00	0.620	53.760	1123.97	-2591.03	-7.04	7.25	3.73	740073.03	467003.75	32°16'56.028"N	103°41'24.916"W	0.20	
1219.00	0.700	37.980	1218.96	-2496.04	-7.76	8.01	4.51	740073.80	467004.51	32°16'56.035"N	103°41'24.907"W	0.21	
1409.00	0.620	73.270	1408.95	-2306.05	-8.88	9.22	6.20	740075.50	467005.72	32°16'56.047"N	103°41'24.887"W	0.21	
1504.00	0.700	60.790	1503.94	-2211.06	-9.25	9.65	7.20	740076.50	467006.15	32°16'56.051"N	103°41'24.875"W	0.17	
1599.00	0.880	49.450	1598.93	-2116.07	-9.95	10.41	8.26	740077.56	467006.91	32°16'56.059"N	103°41'24.863"W	0.25	
1694.00	1.010	46.550	1693.92	-2021.08	-10.94	11.46	9.43	740078.73	467007.96	32°16'56.069"N	103°41'24.849"W	0.15	
1789.00	0.880	61.270	1788.91	-1926.09	-11.80	12.38	10.67	740079.97	467008.88	32°16'56.078"N	103°41'24.835"W	0.29	
1884.00	0.790	54.070	1883.90	-1831.10	-12.47	13.12	11.84	740081.14	467009.62	32°16'56.085"N	103°41'24.821"W	0.15	
1979.00	1.100	52.570	1978.88	-1736.12	-13.34	14.06	13.10	740082.40	467010.56	32°16'56.095"N	103°41'24.807"W	0.33	
2074.00	1.190	48.350	2073.86	-1641.14	-14.47	15.27	14.56	740083.86	467011.77	32°16'56.107"N	103°41'24.789"W	0.13	
2169.00	1.190	39.650	2168.84	-1546.16	-15.81	16.68	15.93	740085.22	467013.18	32°16'56.120"N	103°41'24.773"W	0.19	
2264.00	1.320	43.170	2263.82	-1451.18	-17.30	18.24	17.30	740086.60	467014.74	32°16'56.136"N	103°41'24.757"W	0.16	
2359.00	1.100	33.460	2358.80	-1356.20	-18.79	19.80	18.55	740087.85	467016.30	32°16'56.151"N	103°41'24.743"W	0.32	
2454.00	1.100	40.050	2453.78	-1261.22	-20.19	21.26	19.64	740088.94	467017.76	32°16'56.166"N	103°41'24.730"W	0.13	
2549.00	1.490	33.280	2548.76	-1166.24	-21.85	22.99	20.91	740090.21	467019.49	32°16'56.183"N	103°41'24.715"W	0.44	
2645.00	1.320	35.170	2644.73	-1070.27	-23.72	24.94	22.23	740091.53	467021.43	32°16'56.202"N	103°41'24.699"W	0.18	
2740.00	1.580	30.160	2739.70	-975.30	-25.68	26.96	23.52	740092.82	467023.46	32°16'56.222"N	103°41'24.684"W	0.30	
2835.00	1.490	22.380	2834.66	-880.34	-27.89	29.24	24.65	740093.95	467025.74	32°16'56.244"N	103°41'24.671"W	0.24	
2930.00	1.710	28.580	2929.63	-785.37	-30.21	31.62	25.80	740095.09	467028.12	32°16'56.268"N	103°41'24.657"W	0.29	
3026.00	1.890	19.570	3025.58	-689.42	-32.89	34.37	27.01	740096.31	467030.87	32°16'56.295"N	103°41'24.643"W	0.35	
3121.00	2.110	22.690	3120.52	-594.48	-35.91	37.46	28.21	740097.51	467033.96	32°16'56.325"N	103°41'24.629"W	0.26	
3216.00	2.200	19.260	3215.46	-499.54	-39.18	40.80	29.49	740098.79	467037.30	32°16'56.358"N	103°41'24.614"W	0.17	
3311.00	2.200	18.780	3310.39	-404.61	-42.56	44.24	30.68	740099.97	467040.74	32°16'56.392"N	103°41'24.600"W	0.02	
3406.00	1.320	27.080	3405.34	-309.66	-45.20	46.95	31.76	740101.06	467043.44	32°16'56.419"N	103°41'24.587"W	0.96	
3501.00	1.100	22.080	3500.32	-214.68	-46.97	48.76	32.60	740101.90	467045.26	32°16'56.437"N	103°41'24.577"W	0.26	
3596.00	1.010	13.550	3595.30	-119.70	-48.60	50.42	33.14	740102.44	467046.92	32°16'56.453"N	103°41'24.571"W	0.19	
3691.00	1.010	12.580	3690.29	-24.71	-50.21	52.06	33.52	740102.82	467048.55	32°16'56.469"N	103°41'24.566"W	0.02	
3786.00	1.010	8.760	3785.27	70.27	-51.83	53.70	33.83	740103.13	467050.20	32°16'56.486"N	103°41'24.562"W	0.07	
3881.00	1.010	7.490	3880.26	165.26	-53.47	55.36	34.07	740103.36	467051.85	32°16'56.502"N	103°41'24.559"W	0.02	
3975.00	1.190	7.270	3974.24	259.24	-55.25	57.15	34.30	740103.60	467053.64	32°16'56.520"N	103°41'24.557"W	0.19	
4070.00	1.190	8.580	4069.22	354.22	-57.19	59.10	34.57	740103.87	467055.60	32°16'56.539"N	103°41'24.553"W	0.03	
4166.00	0.620	29.850	4165.21	-450.21	-58.60	60.54	34.98	740104.27	467057.03	32°16'56.553"N	103°41'24.548"W	0.68	



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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 22 SHL
Area	Lea County, NM	Well	No. 22
Field	(James Federal) Sec 29, TS 23 S, R 32 E	Wellbore	No. 22 AWP
Facility	James Federal No. 22		

WELLPATH DATA (178 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4261.00	0.880	58.770	4260.20	545.20	-59.37	61.36	35.86	740105.15	467057.86	32°16'56.561"N	103°41'24.538"W	0.48	
4356.00	0.880	78.370	4355.19	640.19	-59.83	61.89	37.19	740106.49	467058.38	32°16'56.567"N	103°41'24.523"W	0.32	
4451.00	0.880	97.750	4450.18	735.18	-59.80	61.94	38.63	740107.93	467058.43	32°16'56.567"N	103°41'24.506"W	0.31	
4546.00	1.410	113.350	4545.16	830.16	-59.14	61.37	40.43	740109.73	467057.87	32°16'56.561"N	103°41'24.485"W	0.64	
4640.00	1.410	117.660	4639.13	924.13	-58.04	60.38	42.51	740111.81	467056.88	32°16'56.551"N	103°41'24.461"W	0.11	
4796.00	1.410	116.070	4795.08	1080.08	-56.13	58.64	45.94	740115.24	467055.14	32°16'56.534"N	103°41'24.421"W	0.03	
4821.00	1.490	110.670	4820.08	1105.08	-55.85	58.39	46.52	740115.82	467054.89	32°16'56.531"N	103°41'24.414"W	0.63	
4916.00	1.320	92.870	4915.05	1200.05	-55.24	57.90	48.77	740118.06	467054.40	32°16'56.526"N	103°41'24.388"W	0.49	
5011.00	1.410	105.790	5010.02	1295.02	-54.75	57.53	50.98	740120.28	467054.03	32°16'56.523"N	103°41'24.362"W	0.34	
5106.00	1.320	97.350	5104.99	1389.99	-54.17	57.07	53.19	740122.49	467053.57	32°16'56.518"N	103°41'24.336"W	0.23	
5201.00	1.410	101.570	5199.97	1484.97	-53.68	56.70	55.42	740124.72	467053.20	32°16'56.514"N	103°41'24.311"W	0.14	
5295.00	1.100	121.170	5293.94	1578.94	-52.88	56.00	57.33	740126.63	467052.50	32°16'56.507"N	103°41'24.288"W	0.56	
5389.00	0.880	101.970	5387.93	1672.93	-52.19	55.38	58.81	740128.10	467051.88	32°16'56.501"N	103°41'24.271"W	0.42	
5484.00	1.010	116.470	5482.92	1767.92	-51.59	54.86	60.27	740129.57	467051.36	32°16'56.496"N	103°41'24.254"W	0.29	
5578.00	1.100	112.470	5576.90	1861.90	-50.79	54.14	61.85	740131.14	467050.64	32°16'56.488"N	103°41'24.236"W	0.12	
5673.00	0.790	116.560	5671.89	1956.89	-50.07	53.50	63.27	740132.57	467050.00	32°16'56.482"N	103°41'24.219"W	0.33	
5766.00	0.790	129.260	5764.88	2049.88	-49.33	52.81	64.34	740133.64	467049.31	32°16'56.475"N	103°41'24.207"W	0.19	
5860.00	0.400	127.680	5858.88	2143.88	-48.68	52.20	65.11	740134.40	467048.70	32°16'56.469"N	103°41'24.198"W	0.42	
5955.00	0.480	109.570	5953.87	2238.87	-48.31	51.86	65.74	740135.04	467048.36	32°16'56.466"N	103°41'24.191"W	0.17	
6050.00	0.620	148.460	6048.87	2333.87	-47.70	51.29	66.39	740135.68	467047.79	32°16'56.460"N	103°41'24.183"W	0.41	
6145.00	0.400	121.260	6143.86	2428.86	-47.06	50.68	66.94	740136.24	467047.18	32°16'56.454"N	103°41'24.177"W	0.34	
6238.00	0.620	129.080	6236.86	2521.86	-46.54	50.27	67.61	740136.90	467046.69	32°16'56.449"N	103°41'24.169"W	0.25	
6333.00	0.400	154.090	6331.86	2616.86	-45.89	49.57	68.15	740137.45	467046.07	32°16'56.443"N	103°41'24.163"W	0.32	
6428.00	0.700	123.680	6426.85	2711.85	-45.24	48.95	68.78	740138.08	467045.45	32°16'56.437"N	103°41'24.156"W	0.43	
6520.00	0.480	149.650	6518.85	2803.85	-44.56	48.31	69.44	740138.74	467044.81	32°16'56.430"N	103°41'24.148"W	0.37	
6615.00	0.700	165.950	6613.84	2898.84	-43.64	47.40	69.78	740139.08	467043.90	32°16'56.421"N	103°41'24.144"W	0.29	
6709.00	0.400	187.660	6707.84	2992.84	-42.75	46.52	69.88	740139.18	467043.02	32°16'56.413"N	103°41'24.143"W	0.38	
6803.00	0.480	183.090	6801.84	3086.84	-42.04	45.80	69.81	740139.11	467042.30	32°16'56.405"N	103°41'24.144"W	0.09	
6896.00	0.400	181.550	6894.83	3179.83	-41.33	45.09	69.78	740139.08	467041.59	32°16'56.398"N	103°41'24.144"W	0.09	
6991.00	0.220	166.170	6989.83	3274.83	-40.82	44.58	69.82	740139.12	467041.08	32°16'56.393"N	103°41'24.144"W	0.21	
7086.00	0.090	221.760	7084.83	3369.83	-40.59	44.35	69.81	740139.11	467040.85	32°16'56.391"N	103°41'24.144"W	0.19	
7180.00	0.480	218.470	7178.83	3463.83	-40.24	43.98	69.52	740138.82	467040.48	32°16'56.387"N	103°41'24.147"W	0.42	
7274.00	1.410	220.970	7272.82	3557.82	-39.11	42.80	68.52	740137.81	467039.30	32°16'56.376"N	103°41'24.159"W	0.99	
7368.00	0.790	233.580	7366.80	3651.80	-37.92	41.54	67.24	740136.53	467038.04	32°16'56.363"N	103°41'24.174"W	0.70	
7462.00	0.620	196.890	7460.79	3745.79	-37.09	40.67	66.57	740135.86	467037.17	32°16'56.355"N	103°41'24.182"W	0.50	
7557.00	1.320	222.380	7555.78	3840.78	-35.84	39.37	65.68	740134.98	467035.87	32°16'56.342"N	103°41'24.192"W	0.85	
7651.00	1.010	226.380	7649.76	3934.76	-34.54	38.00	64.35	740133.65	467034.50	32°16'56.329"N	103°41'24.208"W	0.34	
7746.00	1.100	243.160	7744.74	4029.74	-33.63	37.01	62.93	740132.23	467033.51	32°16'56.319"N	103°41'24.224"W	0.34	
7839.00	1.320	232.090	7837.72	4122.72	-32.65	35.95	61.29	740130.59	467032.45	32°16'56.308"N	103°41'24.244"W	0.34	
7933.00	1.320	237.360	7931.70	4216.70	-31.50	34.70	59.52	740128.82	467031.20	32°16'56.296"N	103°41'24.264"W	0.13	
8028.00	1.320	227.780	8026.67	4311.67	-30.27	33.38	57.79	740127.09	467029.88	32°16'56.283"N	103°41'24.285"W	0.23	
8123.00	1.100	231.780	8121.65	4406.65	-29.05	32.08	56.26	740125.56	467028.58	32°16'56.270"N	103°41'24.302"W	0.25	
8217.00	1.100	232.490	8215.63	4500.63	-28.02	30.97	54.84	740124.14	467027.47	32°16'56.260"N	103°41'24.319"W	0.01	
8311.00	1.010	210.690	8309.62	4594.62	-26.82	29.71	53.70	740123.00	467026.21	32°16'56.247"N	103°41'24.332"W	0.43	
8406.00	1.010	216.490	8404.60	4689.60	-25.48	28.31	52.78	740122.07	467024.81	32°16'56.233"N	103°41'24.343"W	0.11	



Actual Wellpath Report

No. 22 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 22 SHL
Area	Lea County, NM	Well	No. 22
Field	(James Federal) Sec 29, TS 23 S, R 32 E	Wellbore	No. 22 AWB
Facility	James Federal No. 22		

WELLPATH DATA (178 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fid Vert Ref [ft]	Vert Seet [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8500.00	1.320	198.080	8498.58	4783.58	-23.83	26.62	51.95	740121.24	467023.12	32°16'56.217"N	103°41'24.353"W	0.51	
8595.00	0.880	186.310	8593.57	4878.57	-22.09	24.85	51.53	740120.82	467021.35	32°16'56.199"N	103°41'24.358"W	0.52	
8689.00	1.100	170.390	8687.55	4972.55	-20.48	23.25	51.60	740120.90	467019.75	32°16'56.183"N	103°41'24.357"W	0.37	
8715.00	0.790	160.460	8713.55	4998.55	-20.06	22.83	51.70	740121.00	467019.33	32°16'56.179"N	103°41'24.356"W	1.34	
8734.00	0.980	166.590	8732.55	5017.55	-19.77	22.55	51.78	740121.08	467019.05	32°16'56.176"N	103°41'24.355"W	1.12	
8766.00	0.810	159.410	8764.54	5049.54	-19.29	22.07	51.92	740121.22	467018.57	32°16'56.172"N	103°41'24.354"W	0.64	
8797.00	2.730	169.770	8795.53	5080.53	-18.35	21.14	52.13	740121.43	467017.64	32°16'56.162"N	103°41'24.351"W	6.25	
8829.00	6.380	170.240	8827.42	5112.42	-15.83	18.64	52.57	740121.87	467015.14	32°16'56.138"N	103°41'24.346"W	11.41	
8860.00	9.070	164.140	8858.14	5143.14	-11.73	14.59	53.53	740122.83	467011.09	32°16'56.098"N	103°41'24.336"W	9.06	
8891.00	12.080	160.910	8888.61	5173.61	-6.23	9.17	55.26	740124.56	467005.67	32°16'56.044"N	103°41'24.316"W	9.89	
8923.00	14.940	156.990	8919.72	5204.72	0.87	2.21	57.97	740127.26	466998.71	32°16'55.975"N	103°41'24.285"W	9.38	
8954.00	17.700	156.300	8949.47	5234.47	9.03	-5.79	61.42	740130.72	466990.71	32°16'55.895"N	103°41'24.245"W	8.93	
8985.00	20.670	155.070	8978.74	5263.74	18.52	-15.06	65.62	740134.92	466981.44	32°16'55.803"N	103°41'24.197"W	9.67	
9017.00	23.230	155.760	9008.42	5293.42	29.65	-25.94	70.60	740139.89	466970.56	32°16'55.695"N	103°41'24.140"W	8.04	
9048.00	26.130	156.230	9036.59	5321.59	41.73	-37.77	75.86	740145.16	466958.74	32°16'55.578"N	103°41'24.079"W	9.38	
9079.00	28.860	156.940	9064.08	5349.08	55.15	-50.90	81.54	740150.84	466945.60	32°16'55.448"N	103°41'24.014"W	8.87	
9110.00	31.830	157.950	9090.83	5375.83	69.91	-65.36	87.54	740156.84	466931.14	32°16'55.304"N	103°41'23.945"W	9.72	
9142.00	36.070	158.670	9117.37	5402.37	86.84	-81.97	94.14	740163.44	466914.54	32°16'55.140"N	103°41'23.869"W	13.31	
9173.00	38.880	159.740	9141.97	5426.97	104.80	-99.60	100.83	740170.13	466896.91	32°16'54.965"N	103°41'23.793"W	9.30	
9205.00	41.630	160.920	9166.39	5451.39	124.58	-119.03	107.91	740177.20	466877.48	32°16'54.772"N	103°41'23.711"W	8.65	
9236.00	44.030	160.200	9189.12	5474.12	144.76	-138.85	115.05	740184.34	466857.65	32°16'54.576"N	103°41'23.630"W	7.74	
9267.00	46.780	159.720	9210.89	5495.89	165.86	-159.59	122.61	740191.91	466836.92	32°16'54.370"N	103°41'23.543"W	8.94	
9299.00	49.450	159.240	9232.25	5517.25	188.58	-181.90	130.96	740200.26	466814.61	32°16'54.149"N	103°41'23.447"W	8.42	
9330.00	52.080	158.780	9251.85	5536.85	211.42	-204.31	139.57	740208.86	466792.20	32°16'53.926"N	103°41'23.349"W	8.56	
9361.00	54.880	157.770	9270.30	5555.30	235.02	-227.45	148.79	740218.08	466769.06	32°16'53.697"N	103°41'23.243"W	9.40	
9393.00	57.440	157.100	9288.12	5573.12	260.07	-251.99	158.99	740228.28	466744.52	32°16'53.453"N	103°41'23.126"W	8.19	
9422.00	60.250	157.050	9303.12	5588.12	283.40	-274.85	168.66	740237.95	466721.66	32°16'53.227"N	103°41'23.015"W	9.69	
9454.00	63.040	158.410	9318.32	5603.32	309.99	-300.91	179.32	740248.61	466695.61	32°16'52.968"N	103°41'22.892"W	9.49	
9485.00	65.700	160.530	9331.73	5616.73	336.64	-327.08	189.12	740258.41	466669.44	32°16'52.709"N	103°41'22.780"W	10.57	
9517.00	67.960	161.880	9344.32	5629.32	364.95	-354.93	198.59	740267.88	466641.59	32°16'52.433"N	103°41'22.672"W	8.06	
9548.00	70.230	163.720	9355.38	5640.38	393.03	-382.59	207.15	740276.44	466613.93	32°16'52.158"N	103°41'22.574"W	9.18	
9580.00	72.420	166.760	9365.63	5650.63	422.71	-411.90	214.87	740284.16	466584.62	32°16'51.868"N	103°41'22.486"W	11.31	
9674.00	79.910	173.380	9388.11	5673.11	513.21	-501.70	230.50	740299.79	466494.82	32°16'50.978"N	103°41'22.310"W	10.50	
9706.00	80.580	175.000	9393.53	5678.53	544.71	-533.07	233.69	740302.98	466463.45	32°16'50.668"N	103°41'22.275"W	5.41	
9737.00	81.360	177.530	9398.40	5683.40	575.32	-563.62	235.69	740304.98	466432.90	32°16'50.365"N	103°41'22.254"W	8.44	
9769.00	80.960	177.830	9403.32	5688.32	606.94	-595.22	236.97	740306.26	466401.31	32°16'50.053"N	103°41'22.241"W	1.56	
9801.00	80.590	177.820	9408.45	5693.45	638.52	-626.78	238.17	740307.46	466369.75	32°16'49.740"N	103°41'22.230"W	1.16	
9832.00	80.180	178.210	9413.63	5698.63	669.08	-657.33	239.23	740308.51	466339.21	32°16'49.438"N	103°41'22.220"W	1.81	
9864.00	79.870	178.030	9419.17	5704.17	700.59	-688.82	240.26	740309.55	466307.71	32°16'49.126"N	103°41'22.210"W	1.12	
9896.00	80.030	177.990	9424.75	5709.75	732.09	-720.31	241.35	740310.64	466276.22	32°16'48.815"N	103°41'22.199"W	0.51	
9928.00	79.540	179.010	9430.43	5715.43	763.58	-751.80	242.18	740311.47	466244.74	32°16'48.503"N	103°41'22.192"W	3.49	
9960.00	78.660	179.070	9436.48	5721.48	794.98	-783.21	242.71	740311.99	466213.32	32°16'48.192"N	103°41'22.188"W	2.76	
9992.00	80.630	179.190	9442.23	5727.23	826.43	-814.69	243.18	740312.47	466181.85	32°16'47.881"N	103°41'22.184"W	6.17	
10024.00	83.010	178.550	9446.78	5731.78	858.09	-846.35	243.81	740313.10	466150.19	32°16'47.567"N	103°41'22.179"W	7.70	
10056.00	85.780	178.350	9449.91	5734.91	889.92	-878.19	244.67	740313.96	466118.36	32°16'47.252"N	103°41'22.172"W	8.68	



Actual Wellpath Report

No. 22 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 22 SHL
Area	Lea County, NM	Well	No. 22
Field	(James Federal) Sec 29, TS 23 S, R 32 E	Wellbore	No. 22 AWB
Facility	James Federal No. 22		

WELLPATH DATA (178 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fid Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10088.00	87.900	177.720	9451.67	5736.67	921.86	-910.12	245.77	740315.05	466086.43	32°16'46.936"N	103°41'22.161"W	6.91	
10120.00	89.820	177.720	9452.31	5737.31	953.85	-942.08	247.04	740316.33	466054.46	32°16'46.620"N	103°41'22.148"W	6.00	
10152.00	89.850	177.520	9452.40	5737.40	985.85	-974.06	248.37	740317.65	466022.49	32°16'46.303"N	103°41'22.135"W	0.63	
10216.00	90.340	179.440	9452.30	5737.30	1049.82	-1038.03	250.06	740319.35	465958.52	32°16'45.670"N	103°41'22.120"W	3.10	
10311.00	90.990	179.610	9451.19	5736.19	1144.72	-1133.02	250.85	740320.14	465863.53	32°16'44.730"N	103°41'22.117"W	0.71	
10407.00	88.950	180.290	9451.24	5736.24	1240.59	-1229.01	250.94	740320.22	465767.54	32°16'43.781"N	103°41'22.123"W	2.24	
10502.00	89.040	180.370	9452.91	5737.91	1335.41	-1324.00	250.39	740319.68	465672.57	32°16'42.841"N	103°41'22.136"W	0.13	
10597.00	88.670	180.640	9454.81	5739.81	1430.21	-1418.97	249.55	740318.84	465577.59	32°16'41.901"N	103°41'22.153"W	0.48	
10693.00	89.350	181.320	9456.47	5741.47	1525.96	-1514.95	247.91	740317.20	465481.63	32°16'40.951"N	103°41'22.178"W	1.00	
10788.00	89.100	181.990	9457.75	5742.75	1620.63	-1609.90	245.17	740314.45	465386.68	32°16'40.012"N	103°41'22.217"W	0.75	
10884.00	89.230	182.510	9459.15	5744.15	1716.21	-1705.81	241.40	740310.69	465290.77	32°16'39.063"N	103°41'22.268"W	0.56	
10979.00	88.490	180.340	9461.04	5746.04	1810.90	-1800.76	239.04	740308.32	465195.83	32°16'38.124"N	103°41'22.302"W	2.41	
11075.00	88.920	180.930	9463.21	5748.21	1906.67	-1896.73	237.97	740307.26	465099.86	32°16'37.174"N	103°41'22.321"W	0.76	
11171.00	90.190	180.500	9463.96	5748.96	2002.46	-1992.71	236.77	740306.06	465003.88	32°16'36.225"N	103°41'22.341"W	1.40	
11267.00	91.230	181.220	9462.77	5747.77	2098.23	-2088.69	235.33	740304.62	464907.91	32°16'35.275"N	103°41'22.365"W	1.32	
11363.00	89.720	180.760	9461.97	5746.97	2193.99	-2184.67	233.67	740302.96	464811.93	32°16'34.325"N	103°41'22.391"W	1.64	
11459.00	90.740	181.400	9461.59	5746.59	2289.74	-2280.65	231.87	740301.15	464715.96	32°16'33.376"N	103°41'22.419"W	1.25	
11555.00	87.630	181.470	9462.95	5747.95	2385.42	-2376.60	229.46	740298.75	464620.01	32°16'32.427"N	103°41'22.453"W	3.24	
11651.00	86.980	182.580	9467.46	5752.46	2480.94	-2472.43	226.07	740295.36	464524.18	32°16'31.478"N	103°41'22.500"W	1.34	
11746.00	85.800	180.490	9473.45	5758.45	2575.44	-2567.20	223.53	740292.82	464429.42	32°16'30.541"N	103°41'22.536"W	2.52	
11841.00	90.060	179.170	9476.88	5761.88	2670.24	-2662.12	223.82	740293.11	464334.51	32°16'29.602"N	103°41'22.539"W	4.69	
11937.00	91.020	179.530	9475.97	5760.97	2766.15	-2758.11	224.91	740294.19	464238.53	32°16'28.652"N	103°41'22.533"W	1.07	
12032.00	92.160	179.330	9473.34	5758.34	2861.02	-2853.06	225.85	740295.14	464143.57	32°16'27.712"N	103°41'22.529"W	1.22	
12128.00	90.800	178.770	9470.86	5755.86	2956.92	-2949.02	227.44	740296.73	464047.63	32°16'26.763"N	103°41'22.517"W	1.53	
12224.00	92.870	179.330	9467.78	5752.78	3052.81	-3044.95	229.03	740298.32	463951.70	32°16'25.813"N	103°41'22.505"W	2.23	
12320.00	89.660	178.860	9465.66	5750.66	3148.70	-3140.90	230.55	740299.84	463855.75	32°16'24.864"N	103°41'22.494"W	3.38	
12415.00	89.630	179.490	9466.25	5751.25	3243.63	-3235.89	231.92	740301.20	463760.77	32°16'23.924"N	103°41'22.485"W	0.66	
12511.00	89.600	179.450	9466.90	5751.90	3339.54	-3331.88	232.80	740302.09	463664.78	32°16'22.974"N	103°41'22.481"W	0.05	
12608.00	90.060	179.350	9467.19	5752.19	3436.45	-3428.87	233.82	740303.11	463567.79	32°16'22.014"N	103°41'22.476"W	0.49	
12703.00	91.260	179.770	9466.09	5751.09	3531.34	-3523.86	234.55	740303.84	463472.80	32°16'21.074"N	103°41'22.474"W	1.34	
12799.00	92.120	179.930	9463.26	5748.26	3627.18	-3619.82	234.80	740304.09	463376.85	32°16'20.125"N	103°41'22.478"W	0.91	
12893.00	90.960	178.730	9460.73	5745.73	3721.06	-3713.78	235.90	740305.19	463282.90	32°16'19.195"N	103°41'22.472"W	1.78	
12988.00	89.350	178.610	9460.48	5745.48	3816.01	-3808.75	238.10	740307.39	463187.93	32°16'18.255"N	103°41'22.453"W	1.70	
13084.00	89.320	178.670	9461.59	5746.59	3911.97	-3904.71	240.38	740309.67	463091.97	32°16'17.305"N	103°41'22.433"W	0.07	
13180.00	89.780	178.000	9462.35	5747.35	4007.94	-4000.67	243.17	740312.46	462996.02	32°16'16.356"N	103°41'22.407"W	0.85	
13275.00	89.850	178.130	9462.65	5747.65	4102.92	-4095.62	246.38	740315.67	462901.08	32°16'15.416"N	103°41'22.377"W	0.16	
13371.00	89.510	178.550	9463.19	5748.19	4198.89	-4191.57	249.16	740318.45	462805.13	32°16'14.466"N	103°41'22.351"W	0.56	
13465.00	89.750	178.460	9463.80	5748.80	4292.85	-4285.54	251.61	740320.90	462711.17	32°16'13.537"N	103°41'22.329"W	0.27	
13561.00	90.430	177.990	9463.64	5748.64	4388.83	-4381.49	254.59	740323.87	462615.22	32°16'12.587"N	103°41'22.301"W	0.86	
13657.00	91.110	178.380	9462.35	5747.35	4484.80	-4477.43	257.63	740326.91	462519.28	32°16'11.637"N	103°41'22.272"W	0.82	
13753.00	92.030	178.380	9459.72	5744.72	4580.73	-4573.36	260.34	740329.63	462423.36	32°16'10.688"N	103°41'22.247"W	0.96	
13804.00	92.060	178.500	9457.90	5742.90	4631.68	-4624.31	261.73	740331.01	462372.41	32°16'10.184"N	103°41'22.235"W	0.24	
13853.00	92.060	178.500	9456.14	5741.14	4680.63	-4673.26	263.01	740332.30	462323.46	32°16'09.699"N	103°41'22.223"W	0.00	Projection To B

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No. 22 PBHL		9460.00	-4727.53	250.91	740320.20	462269.20	32°16'09.163"N	103°41'22.368"W	rectangle

WELLPATH COMPOSITION - Ref Wellbore: No. 22 AWB Ref Wellpath: No. 22 AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	8715.00	ISCWSA MWD, Rev. 2 (Standard)	Xtreme MWD <117-8715>	No. 22 AWB
8715.00	9580.00	NaviTrak (Standard)	BHI MWD NaviTrak <8734 - 9580>	No. 22 AWB
9580.00	13804.00	NaviTrak (Standard)	BHI NaviGamma <9674-13804>	No. 22 AWB
13804.00	13853.00	Blind Drilling (std)	Projection to bit	No. 22 AWB