

**PATRIOT DRILLING, LLC**


OPERATOR: Cimaerx Energy Co.  
WELL/LEASE: Diamante 21 Fed # 2-H  
COUNTY: Lea Co., New Mexico  
Sec. 21, T19S, R33E

**STATE OF NEW MEXICO  
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
210	1	5,187	1
458	1	5,494	1
687	1	5,798	2
957	1	6,117	1
1,584	1	6,435	1
1,870	1	6,810	1
2,164	1	7,096	1
2,477	1	7,407	1
2,788	1	7,730	1
3,114	1	8,047	1
3,430	1	8,365	1
4,002	1	8,617	1
4,261	1	8,937	1
4,514	2	9,256	1
4,755	1	9,541	1
5,022	1	9,848	1

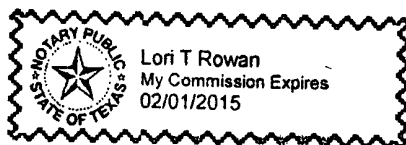
SUR: I-21-19s-33e, 1980/S & 330/E  
BHL: L-21-19s-33e, 1925/S & 4940/E  
API # 30-025-40132

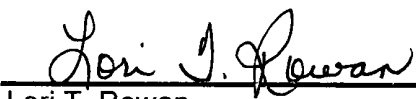
**Patriot Drilling, LLC**

  
M. Leroy Peterson, Executive Vice-  
President

The foregoing instrument was acknowledged before me on this 29th day of August, 2011 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2015



  
Lori T. Rowan  
Notary Public for Ector Co., Texas



**INTEQ**

HOBBS OCD

FEB 01 2012

RECEIVED

**End of Well Report**

**Cimarex Energy Co.**

Lea County, NM

**Diamante 21 Fed No. 2H**

Patriot 4

SUR: I-21-19s-33e, 1980/S & 330/E  
BHL: L-21-19s-33e, 1925/S & 4940/E  
API # 30-025-40132

### ***Well Specifications***

**Well Name:** Diamante 21 Fed No. 2H  
**Start Date:** 8/2/2011  
**Client:** Cimarex Energy Co.  
**Rig Name:** Patriot 4  
**County:** Lea County, NM  
**Field:** (Diamante) Sec 21, T19S, R33E

### **Well Location:**

NAD83 / TM New Mexico State Planes, Eastern Zone (3001)

#### **Grid Coordinates**

Easting: 748404.60'  
Northing: 598645.90'

#### **Geographical Coordinates**

Latitude: 32°38'38.123"N  
Longitude: 103°39'38.202"W

**RT:** 3,636' above M.S.L.

**Date TD Reached:** 8/24/2011

**Final Depth MD:** 14,666'

**Final Depth TVD:** 10,117.9'



# Cimarex Energy Co.

Location: Lea County, NM  
 Field: (Diamond) Sec 21, T19S, R33E  
 Facility: Diamante 21 Federal No.2H

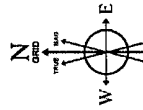
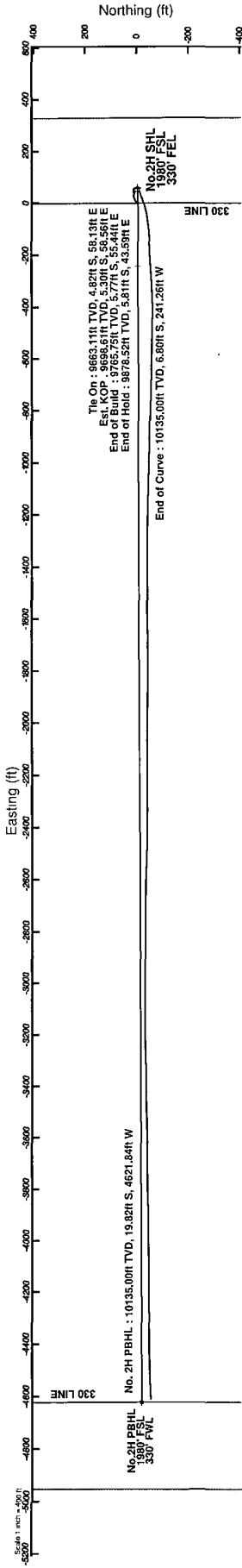
Slot: No.2H SHL  
 Well: No.2H PWB  
 Wellbore: No.2H PWB



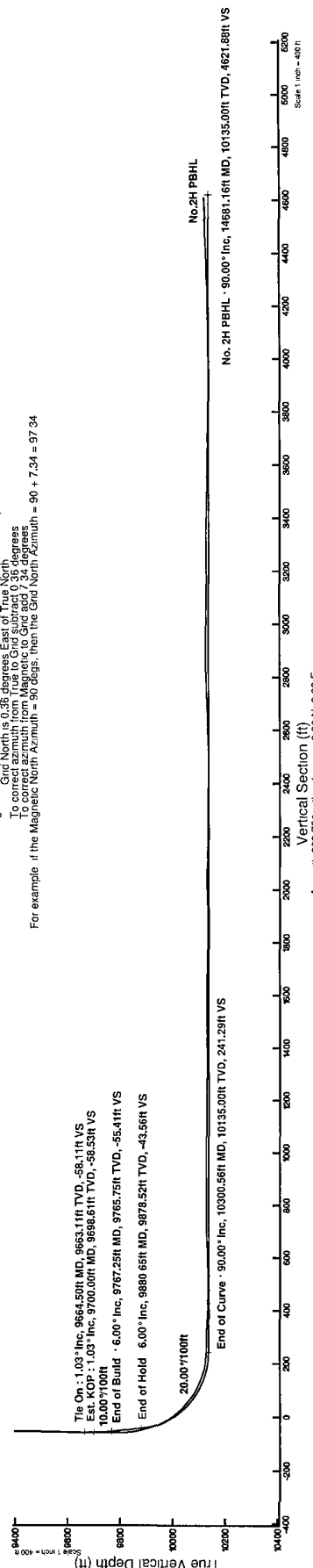
## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (*/100ft)	VS (ft)
Tie On	9664.50	1.030	138.430	9663.11	-4.82	58.13	0.00	-58.11
Est. KOP	9700.00	1.030	138.430	9698.61	-5.30	58.56	0.00	-58.53
End of Build	9767.25	6.000	269.800	9765.75	-5.77	55.44	10.00	-55.41
End of Hold	9880.65	6.000	269.800	9878.52	-5.81	43.59	0.00	-43.56
End of Curve	10300.56	90.000	269.800	10135.00	-6.80	-241.26	20.00	241.29
Target	10302.04	90.000	269.830	10135.00	-6.81	-242.74	20.00	242.77
No. 2H PBHL	14681.16	90.000	269.830	10135.00	-19.82	-4621.84	0.00	4621.88

Plot reference wellpath is Plan 6  
 True vertical depths are referenced to Rig on No.2H SHL (RKB)  
 Measured depths are referenced to Rig on No.2H SHL (RKB)  
 Rig on No.2H SHL (RKB) to Mean Sea Level 3636 feet  
 Mean Sea Level to Mud line (At Slot No.2H SHL) -3619 feet  
 Depths are in feet  
 Coordinates are in feet referenced to Slot  
 Created by callphnk on 8/5/2011  
 Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet  
 North Reference: Grid north  
 Scale: True distance  
 Depths are in feet



BGSN (1945.0 to 2012.0) Dip: 60.57° Field: 48890.0  
 Magnetic declination: 0.356 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.36 degrees  
 For example if the Magnetic North Azimuth = 90 degrees, then the Grid North Azimuth = 90 + 0.36 = 90.36



Vertical Section (ft)  
 Azimuth: 269.75° with reference 0.00° N, 0.00° E



# Actual Wellpath Report

No.2H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.2H SHL
Area	Lea County, NM	Well	No.2H
Field	(Diamante) Sec 21, T19S, R33E	Wellbore	No.2H AWB
Facility	Diamante 21 Federal No.2H		

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	Calphik
Scale	0.999958	Report Generated	8/24/2011 at 8:33:46 AM
Convergence at slot	0.36° East	Database/Source file	WA_Midland/No.2H_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	748404.60	598645.90	32°38'38.123"N	103°39'38.202"W
Facility Reference Pt			748404.60	598645.90	32°38'38.123"N	103°39'38.202"W
Field Reference Pt			748404.60	598645.90	32°38'38.123"N	103°39'38.202"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No.2H SHL (RKB) to Facility Vertical Datum	17.00ft
Horizontal Reference Pt	Slot	Rig on No.2H SHL (RKB) to Mean Sea Level	3636.00ft
Vertical Reference Pt	Rig on No.2H SHL (RKB)	Rig on No.2H SHL (RKB) to Mud Line at Slot (No.2H SHL)	17.00ft
MD Reference Pt	Rig on No.2H SHL (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	269.75°



# Actual Wellpath Report

No.2H AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.2H SHL
Area	Lea County, NM	Well	No.2H
Field	(Diamante) Sec 21, T19S, R33E	Wellbore	No.2H AWB
Facility	Diamante 21 Federal No.2H		

## WELLPATH DATA (195 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	299.390	0.00	0.00	0.00	0.00	748404.60	598645.90	32°38'38.123"N	103°39'38.202"W	0.00	
17.00	0.000	299.390	17.00	0.00	0.00	0.00	748404.60	598645.90	32°38'38.123"N	103°39'38.202"W	0.00	
100.00	0.040	299.390	100.00	0.03	0.01	-0.03	748404.57	598645.91	32°38'38.124"N	103°39'38.203"W	0.05	
200.00	0.110	295.090	200.00	0.14	0.07	-0.14	748404.46	598645.97	32°38'38.124"N	103°39'38.204"W	0.07	
300.00	0.170	314.640	300.00	0.33	0.22	-0.34	748404.26	598646.12	32°38'38.126"N	103°39'38.206"W	0.08	
400.00	0.150	292.940	400.00	0.56	0.37	-0.56	748404.04	598646.27	32°38'38.127"N	103°39'38.209"W	0.06	
500.00	0.300	301.800	500.00	0.90	0.56	-0.90	748403.70	598646.46	32°38'38.129"N	103°39'38.213"W	0.15	
600.00	0.170	299.860	600.00	1.25	0.77	-1.26	748403.34	598646.67	32°38'38.131"N	103°39'38.217"W	0.13	
700.00	0.070	109.680	700.00	1.32	0.83	-1.33	748403.27	598646.73	32°38'38.132"N	103°39'38.218"W	0.24	
732.80	0.070	121.230	732.80	1.29	0.81	-1.29	748403.31	598646.71	32°38'38.131"N	103°39'38.217"W	0.04	
828.90	0.070	90.520	828.90	1.18	0.78	-1.18	748403.42	598646.68	32°38'38.131"N	103°39'38.216"W	0.04	
924.90	0.060	104.560	924.90	1.07	0.77	-1.07	748403.53	598646.67	32°38'38.131"N	103°39'38.215"W	0.02	
1021.00	0.140	262.600	1021.00	1.14	0.74	-1.14	748403.46	598646.64	32°38'38.131"N	103°39'38.216"W	0.20	
1117.00	0.330	259.320	1117.00	1.53	0.67	-1.53	748403.07	598646.57	32°38'38.130"N	103°39'38.220"W	0.20	
1213.00	0.320	241.610	1212.99	2.04	0.49	-2.04	748402.56	598646.39	32°38'38.128"N	103°39'38.226"W	0.10	
1309.10	0.340	210.280	1309.09	2.42	0.12	-2.42	748402.18	598646.02	32°38'38.125"N	103°39'38.231"W	0.19	
1405.10	0.360	199.250	1405.09	2.66	-0.41	-2.66	748401.94	598645.49	32°38'38.119"N	103°39'38.234"W	0.07	
1501.20	0.390	193.730	1501.19	2.84	-1.02	-2.84	748401.76	598644.89	32°38'38.114"N	103°39'38.236"W	0.05	
1597.20	0.360	196.620	1597.19	3.01	-1.62	-3.00	748401.60	598644.28	32°38'38.108"N	103°39'38.238"W	0.04	
1693.20	0.310	193.120	1693.19	3.16	-2.16	-3.15	748401.45	598643.74	32°38'38.102"N	103°39'38.239"W	0.06	
1789.30	0.240	190.210	1789.28	3.25	-2.61	-3.24	748401.36	598643.29	32°38'38.098"N	103°39'38.241"W	0.07	
1885.30	0.190	168.070	1885.28	3.26	-2.97	-3.24	748401.36	598642.93	32°38'38.094"N	103°39'38.241"W	0.10	
1981.30	0.070	116.890	1981.28	3.17	-3.15	-3.16	748401.44	598642.75	32°38'38.092"N	103°39'38.240"W	0.16	
2077.40	0.200	60.890	2077.38	2.97	-3.10	-2.96	748401.64	598642.80	32°38'38.093"N	103°39'38.237"W	0.18	
2173.40	0.480	57.420	2173.38	2.49	-2.80	-2.47	748402.13	598643.10	32°38'38.096"N	103°39'38.232"W	0.29	
2269.50	0.970	51.780	2269.47	1.51	-2.08	-1.50	748403.10	598643.82	32°38'38.103"N	103°39'38.220"W	0.51	
2365.50	1.700	57.350	2365.45	-0.34	-0.81	0.34	748404.94	598645.09	32°38'38.115"N	103°39'38.198"W	0.77	
2461.60	2.020	58.450	2461.50	-2.99	0.85	2.98	748407.58	598646.75	32°38'38.132"N	103°39'38.167"W	0.34	
2557.60	2.120	63.740	2557.43	-6.03	2.52	6.02	748410.62	598648.42	32°38'38.148"N	103°39'38.132"W	0.22	
2653.60	2.100	62.280	2653.37	-9.19	4.12	9.17	748413.77	598650.02	32°38'38.164"N	103°39'38.095"W	0.06	
2749.70	2.150	63.240	2749.40	-12.36	5.75	12.34	748416.94	598651.65	32°38'38.180"N	103°39'38.058"W	0.06	
2845.70	2.520	63.710	2845.32	-15.87	7.50	15.84	748420.44	598653.40	32°38'38.197"N	103°39'38.017"W	0.39	
2941.80	2.620	62.910	2941.33	-19.73	9.44	19.69	748424.29	598655.34	32°38'38.216"N	103°39'37.971"W	0.11	
3037.80	2.060	73.580	3037.25	-23.34	10.92	23.29	748427.89	598656.82	32°38'38.230"N	103°39'37.929"W	0.74	
3133.80	1.460	81.200	3133.20	-26.21	11.60	26.16	748430.76	598657.50	32°38'38.237"N	103°39'37.896"W	0.67	
3229.90	1.180	96.890	3229.28	-28.40	11.67	28.35	748432.95	598657.57	32°38'38.237"N	103°39'37.870"W	0.47	
3325.90	1.190	105.250	3325.25	-30.34	11.29	30.29	748434.89	598657.18	32°38'38.233"N	103°39'37.847"W	0.18	
3421.90	1.090	111.350	3421.24	-32.15	10.69	32.11	748436.70	598656.59	32°38'38.227"N	103°39'37.826"W	0.16	
3518.00	1.010	113.850	3517.32	-33.77	10.02	33.73	748438.33	598655.92	32°38'38.220"N	103°39'37.807"W	0.10	
3614.00	0.920	121.930	3613.31	-35.20	9.27	35.16	748439.76	598655.17	32°38'38.213"N	103°39'37.791"W	0.17	
3710.10	0.760	133.150	3709.40	-36.32	8.42	36.28	748440.88	598654.32	32°38'38.204"N	103°39'37.778"W	0.24	
3806.10	0.760	117.030	3805.39	-37.34	7.70	37.31	748441.91	598653.60	32°38'38.197"N	103°39'37.766"W	0.22	
3902.20	0.550	112.370	3901.48	-38.34	7.23	38.31	748442.90	598653.13	32°38'38.193"N	103°39'37.754"W	0.23	
3998.20	0.580	104.540	3997.48	-39.23	6.93	39.20	748443.80	598652.83	32°38'38.190"N	103°39'37.743"W	0.09	
4094.20	0.730	107.970	4093.47	-40.28	6.62	40.25	748444.85	598652.52	32°38'38.186"N	103°39'37.731"W	0.16	



# Actual Wellpath Report

No.2H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.2H SHL
Area	Lea County, NM	Well	No.2H
Field	(Diamante) Sec 21, T19S, R33E	Wellbore	No.2H AWB
Facility	Diamante 21 Federal No.2H		

WELLPATH DATA (195 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
4190.30	0.600	112.410	4189.56	-41.33	6.24	41.30	748445.90	598652.14	32°38'38.183"N	103°39'37.719"W	0.15	
4286.30	0.370	71.660	4285.56	-42.09	6.15	42.06	748446.66	598652.05	32°38'38.182"N	103°39'37.710"W	0.42	
4382.40	0.410	123.810	4381.66	-42.67	6.06	42.64	748447.24	598651.96	32°38'38.181"N	103°39'37.703"W	0.36	
4478.40	0.340	91.400	4477.66	-43.24	5.86	43.21	748447.81	598651.76	32°38'38.179"N	103°39'37.697"W	0.23	
4574.40	0.440	94.580	4573.65	-43.89	5.82	43.86	748448.46	598651.72	32°38'38.178"N	103°39'37.689"W	0.11	
4670.50	0.500	84.130	4669.75	-44.67	5.83	44.65	748449.25	598651.73	32°38'38.178"N	103°39'37.680"W	0.11	
4766.50	0.480	62.320	4765.75	-45.45	6.06	45.42	748450.02	598651.96	32°38'38.181"N	103°39'37.671"W	0.19	
4862.60	0.500	40.980	4861.84	-46.08	6.57	46.05	748450.65	598652.47	32°38'38.185"N	103°39'37.663"W	0.19	
4958.60	0.500	29.390	4957.84	-46.56	7.25	46.53	748451.13	598653.15	32°38'38.192"N	103°39'37.658"W	0.11	
5054.60	0.680	44.230	5053.84	-47.17	8.02	47.14	748451.73	598653.92	32°38'38.200"N	103°39'37.651"W	0.24	
5150.70	0.630	27.920	5149.93	-47.82	8.90	47.78	748452.38	598654.80	32°38'38.208"N	103°39'37.643"W	0.20	
5246.70	0.740	24.000	5245.92	-48.32	9.93	48.28	748452.88	598655.83	32°38'38.219"N	103°39'37.637"W	0.12	
5342.80	0.540	29.160	5342.02	-48.80	10.89	48.75	748453.35	598656.79	32°38'38.228"N	103°39'37.631"W	0.22	
5438.80	0.390	21.370	5438.01	-49.14	11.59	49.09	748453.69	598657.49	32°38'38.235"N	103°39'37.627"W	0.17	
5534.80	0.260	14.450	5534.01	-49.32	12.11	49.27	748453.86	598658.01	32°38'38.240"N	103°39'37.625"W	0.14	
5630.90	0.290	16.330	5630.11	-49.44	12.55	49.39	748453.99	598658.45	32°38'38.244"N	103°39'37.624"W	0.03	
5726.90	0.210	29.380	5726.11	-49.60	12.94	49.54	748454.14	598658.84	32°38'38.248"N	103°39'37.622"W	0.10	
5822.90	0.250	82.630	5822.11	-49.89	13.12	49.84	748454.43	598659.02	32°38'38.250"N	103°39'37.619"W	0.22	
5919.00	0.460	132.150	5918.21	-50.39	12.89	50.33	748454.93	598658.79	32°38'38.248"N	103°39'37.613"W	0.37	
6015.00	1.270	146.390	6014.20	-51.26	11.74	51.21	748455.80	598657.64	32°38'38.236"N	103°39'37.603"W	0.87	
6111.10	1.630	153.140	6110.26	-52.45	9.64	52.41	748457.01	598655.53	32°38'38.215"N	103°39'37.589"W	0.41	
6207.10	1.430	159.670	6206.23	-53.48	7.29	53.45	748458.04	598653.19	32°38'38.192"N	103°39'37.577"W	0.28	
6303.10	1.170	162.870	6302.21	-54.17	5.23	54.15	748458.75	598651.13	32°38'38.172"N	103°39'37.569"W	0.28	
6399.20	0.950	165.470	6398.29	-54.65	3.53	54.64	748459.24	598649.42	32°38'38.155"N	103°39'37.563"W	0.23	
6495.20	0.790	142.780	6494.28	-55.25	2.23	55.24	748459.84	598648.13	32°38'38.142"N	103°39'37.556"W	0.39	
6591.30	0.410	82.130	6590.37	-55.99	1.75	55.98	748460.58	598647.65	32°38'38.137"N	103°39'37.548"W	0.72	
6687.30	0.340	346.730	6686.37	-56.26	2.07	56.26	748460.85	598647.97	32°38'38.140"N	103°39'37.544"W	0.58	
6783.40	0.990	309.100	6782.47	-55.56	2.87	55.55	748460.14	598648.77	32°38'38.148"N	103°39'37.553"W	0.78	
6879.40	1.380	306.620	6878.45	-53.99	4.09	53.97	748458.57	598649.99	32°38'38.160"N	103°39'37.571"W	0.41	
6975.40	1.320	303.500	6974.42	-52.15	5.39	52.12	748456.72	598651.28	32°38'38.173"N	103°39'37.592"W	0.10	
7071.50	1.190	301.910	7070.50	-50.38	6.52	50.35	748454.95	598652.42	32°38'38.185"N	103°39'37.613"W	0.14	
7167.50	1.090	296.470	7166.48	-48.72	7.46	48.69	748453.29	598653.36	32°38'38.194"N	103°39'37.632"W	0.15	
7263.60	1.040	292.330	7262.56	-47.10	8.20	47.07	748451.66	598654.10	32°38'38.202"N	103°39'37.651"W	0.10	
7359.60	0.790	292.470	7358.55	-45.69	8.78	45.65	748450.25	598654.68	32°38'38.207"N	103°39'37.668"W	0.26	
7455.60	0.650	291.860	7454.54	-44.57	9.24	44.53	748449.13	598655.14	32°38'38.212"N	103°39'37.681"W	0.15	
7551.70	0.540	301.880	7550.63	-43.68	9.68	43.64	748448.24	598655.58	32°38'38.216"N	103°39'37.691"W	0.16	
7647.70	0.490	297.310	7646.63	-42.93	10.11	42.89	748447.49	598656.00	32°38'38.221"N	103°39'37.700"W	0.07	
7743.80	0.440	299.660	7742.73	-42.25	10.48	42.21	748446.80	598656.38	32°38'38.224"N	103°39'37.708"W	0.06	
7839.80	0.480	303.830	7838.72	-41.60	10.88	41.55	748446.15	598656.78	32°38'38.228"N	103°39'37.716"W	0.05	
7935.80	0.360	301.820	7934.72	-41.01	11.27	40.96	748445.56	598657.17	32°38'38.232"N	103°39'37.723"W	0.13	
8031.90	0.370	325.900	8030.82	-40.58	11.68	40.53	748445.13	598657.58	32°38'38.236"N	103°39'37.728"W	0.16	
8127.90	0.330	351.140	8126.82	-40.37	12.21	40.31	748444.91	598658.11	32°38'38.242"N	103°39'37.730"W	0.16	
8224.00	0.320	353.270	8222.92	-40.29	12.75	40.24	748444.84	598658.65	32°38'38.247"N	103°39'37.731"W	0.02	
8320.00	0.090	189.700	8318.92	-40.25	12.94	40.20	748444.79	598658.84	32°38'38.249"N	103°39'37.731"W	0.42	
8416.00	0.760	177.640	8414.91	-40.26	12.23	40.21	748444.81	598658.13	32°38'38.242"N	103°39'37.731"W	0.70	



# Actual Wellpath Report

No.2H AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.2H SHL
Area	Lea County, NM	Well	No.2H
Field	(Diamante) Sec 21, T19S, R33E	Wellbore	No.2H AWB
Facility	Diamante 21 Federal No.2H		

## WELLPATH DATA (195 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
8512.10	0.320	199.950	8511.01	-40.19	11.34	40.14	748444.74	598657.24	32°38'38.233"N	103°39'37.732"W	0.50	
8608.10	0.110	92.270	8607.01	-40.19	11.09	40.15	748444.74	598656.99	32°38'38.231"N	103°39'37.732"W	0.38	
8704.10	1.180	115.080	8703.00	-41.18	10.67	41.13	748445.73	598656.57	32°38'38.226"N	103°39'37.721"W	1.12	
8800.20	2.130	134.410	8799.06	-43.34	9.00	43.30	748447.90	598654.90	32°38'38.210"N	103°39'37.695"W	1.13	
8896.20	1.790	137.020	8895.00	-45.63	6.65	45.60	748450.20	598652.55	32°38'38.186"N	103°39'37.669"W	0.37	
8992.30	1.350	132.150	8991.07	-47.48	4.79	47.46	748452.06	598650.69	32°38'38.168"N	103°39'37.647"W	0.48	
9088.30	1.310	132.760	9087.04	-49.12	3.29	49.11	748453.71	598649.19	32°38'38.153"N	103°39'37.628"W	0.04	
9184.40	1.260	138.540	9183.12	-50.62	1.75	50.61	748455.21	598647.65	32°38'38.138"N	103°39'37.610"W	0.14	
9280.40	1.140	140.080	9279.10	-51.93	0.23	51.93	748456.52	598646.13	32°38'38.122"N	103°39'37.595"W	0.13	
9376.40	1.130	129.820	9375.08	-53.26	-1.11	53.27	748457.86	598644.79	32°38'38.109"N	103°39'37.580"W	0.21	
9472.50	1.310	121.240	9471.16	-54.92	-2.29	54.93	748459.53	598643.61	32°38'38.097"N	103°39'37.560"W	0.27	
9568.50	1.280	128.040	9567.13	-56.70	-3.52	56.72	748461.31	598642.38	32°38'38.085"N	103°39'37.539"W	0.16	
9664.50	1.030	138.430	9663.11	-58.11	-4.82	58.13	748462.73	598641.08	32°38'38.072"N	103°39'37.523"W	0.34	
9721.00	1.000	150.500	9719.60	-58.69	-5.63	58.71	748463.31	598640.27	32°38'38.064"N	103°39'37.516"W	0.38	
9785.00	0.700	159.000	9783.60	-59.10	-6.48	59.13	748463.72	598639.42	32°38'38.056"N	103°39'37.511"W	0.51	
9879.00	11.900	254.000	9876.92	-49.94	-9.70	49.98	748454.58	598636.20	32°38'38.024"N	103°39'37.619"W	12.75	
9911.00	17.600	248.800	9907.86	-42.24	-12.36	42.29	748446.89	598633.54	32°38'37.998"N	103°39'37.709"W	18.27	
9943.00	23.600	248.600	9937.80	-31.74	-16.45	31.81	748436.41	598629.45	32°38'37.959"N	103°39'37.832"W	18.75	
9975.00	30.600	249.900	9966.27	-18.09	-21.60	18.18	748422.78	598624.30	32°38'37.909"N	103°39'37.991"W	21.95	
10006.00	36.300	250.800	9992.12	-1.98	-27.33	2.09	748406.69	598618.57	32°38'37.853"N	103°39'38.180"W	18.46	
10038.00	41.500	253.100	10017.02	17.15	-33.53	-17.01	748387.59	598612.37	32°38'37.793"N	103°39'38.404"W	16.86	
10070.00	46.900	259.300	10039.96	38.83	-38.79	-38.66	748365.94	598607.11	32°38'37.742"N	103°39'38.657"W	21.60	
10102.00	51.200	262.500	10060.93	62.70	-42.59	-62.52	748342.08	598603.31	32°38'37.706"N	103°39'38.937"W	15.41	
10134.00	57.300	264.400	10079.62	88.50	-45.53	-88.31	748316.30	598600.37	32°38'37.678"N	103°39'39.238"W	19.66	
10166.00	64.200	265.600	10095.25	116.31	-47.96	-116.10	748288.50	598597.95	32°38'37.656"N	103°39'39.564"W	21.81	
10197.00	69.400	266.500	10107.46	144.73	-49.91	-144.52	748260.09	598595.99	32°38'37.639"N	103°39'39.896"W	16.98	
10229.00	75.200	267.500	10117.18	175.17	-51.50	-174.95	748229.66	598594.40	32°38'37.625"N	103°39'40.252"W	18.37	
10260.00	82.700	266.800	10123.12	205.54	-53.02	-205.31	748199.29	598592.88	32°38'37.612"N	103°39'40.607"W	24.29	
10292.00	88.200	266.700	10125.66	237.38	-54.83	-237.15	748167.46	598591.08	32°38'37.596"N	103°39'40.980"W	17.19	
10324.00	88.400	266.400	10126.61	269.32	-56.75	-269.08	748135.53	598589.15	32°38'37.579"N	103°39'41.353"W	1.13	
10355.00	88.400	266.400	10127.47	300.25	-58.70	-300.01	748104.61	598587.21	32°38'37.561"N	103°39'41.715"W	0.00	
10387.00	88.600	267.500	10128.31	332.20	-60.40	-331.95	748072.67	598585.50	32°38'37.547"N	103°39'42.089"W	3.49	
10419.00	89.000	268.300	10128.98	364.18	-61.57	-363.92	748040.70	598584.33	32°38'37.537"N	103°39'42.463"W	2.79	
10451.00	88.900	269.200	10129.57	396.17	-62.27	-395.91	748008.71	598583.63	32°38'37.532"N	103°39'42.837"W	2.83	
10482.00	89.200	270.500	10130.08	427.16	-62.35	-426.90	747977.72	598583.55	32°38'37.533"N	103°39'43.199"W	4.30	
10514.00	89.400	271.600	10130.47	459.15	-61.76	-458.89	747945.73	598584.14	32°38'37.541"N	103°39'43.574"W	3.49	
10546.00	89.500	271.700	10130.78	491.13	-60.84	-490.88	747913.74	598585.06	32°38'37.552"N	103°39'43.947"W	0.44	
10578.00	90.400	271.300	10130.81	523.12	-60.00	-522.87	747881.76	598585.90	32°38'37.562"N	103°39'44.322"W	3.08	
10610.00	90.800	271.200	10130.47	555.11	-59.31	-554.86	747849.77	598586.60	32°38'37.571"N	103°39'44.696"W	1.29	
10642.00	91.500	271.100	10129.83	587.09	-58.66	-586.84	747817.78	598587.24	32°38'37.580"N	103°39'45.070"W	2.21	
10673.00	91.700	271.200	10128.96	618.07	-58.04	-617.83	747786.80	598587.86	32°38'37.588"N	103°39'45.432"W	0.72	
10705.00	92.000	271.200	10127.93	650.04	-57.37	-649.80	747754.83	598588.53	32°38'37.596"N	103°39'45.806"W	0.94	
10769.00	90.800	271.000	10126.37	714.00	-56.14	-713.77	747690.86	598589.76	32°38'37.613"N	103°39'46.554"W	1.90	
10831.00	89.300	271.800	10126.31	775.98	-54.63	-775.75	747628.88	598591.27	32°38'37.631"N	103°39'47.278"W	2.74	
10895.00	89.900	271.900	10126.76	839.93	-52.56	-839.71	747564.92	598593.34	32°38'37.656"N	103°39'48.026"W	0.95	





# Actual Wellpath Report

No.2H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.2H SHL
Area	Lea County, NM	Well	No.2H
Field	(Diamante) Sec 21, T19S, R33E	Wellbore	No.2H AWB
Facility	Diamante 21 Federal No.2H		

WELLPATH DATA (195 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
10958.00	90.800	271.400	10126.37	902.90	-50.75	-902.69	747501.95	598595.15	32°38'37.678"N	103°39'48.763"W	1.63	
11022.00	90.000	271.100	10125.93	966.87	-49.35	-966.67	747437.97	598596.55	32°38'37.696"N	103°39'49.511"W	1.33	
11085.00	89.700	271.500	10126.09	1029.85	-47.92	-1029.65	747374.99	598597.98	32°38'37.714"N	103°39'50.247"W	0.79	
11148.00	89.700	271.600	10126.42	1092.82	-46.22	-1092.63	747312.02	598599.68	32°38'37.734"N	103°39'50.984"W	0.16	
11212.00	89.800	271.500	10126.70	1156.78	-44.49	-1156.60	747248.05	598601.41	32°38'37.755"N	103°39'51.732"W	0.22	
11275.00	89.200	270.900	10127.25	1219.76	-43.17	-1219.59	747185.07	598602.73	32°38'37.772"N	103°39'52.468"W	1.35	
11338.00	88.900	270.600	10128.30	1282.74	-42.34	-1282.57	747122.08	598603.56	32°38'37.785"N	103°39'53.205"W	0.67	
11402.00	89.900	270.300	10128.97	1346.73	-41.84	-1346.57	747058.09	598604.06	32°38'37.794"N	103°39'53.953"W	1.63	
11465.00	89.700	270.100	10129.19	1409.73	-41.62	-1409.57	746995.10	598604.28	32°38'37.800"N	103°39'54.690"W	0.45	
11529.00	90.000	269.600	10129.35	1473.73	-41.79	-1473.56	746931.10	598604.11	32°38'37.802"N	103°39'55.438"W	0.91	
11592.00	90.500	269.600	10129.08	1536.73	-42.23	-1536.56	746868.10	598603.67	32°38'37.801"N	103°39'56.175"W	0.79	
11656.00	89.700	269.200	10128.97	1600.73	-42.90	-1600.56	746804.11	598603.00	32°38'37.799"N	103°39'56.923"W	1.40	
11718.00	89.500	269.200	10129.40	1662.72	-43.77	-1662.55	746742.12	598602.14	32°38'37.794"N	103°39'57.648"W	0.32	
11782.00	89.100	269.600	10130.18	1726.72	-44.44	-1726.54	746678.13	598601.47	32°38'37.791"N	103°39'58.397"W	0.88	
11845.00	89.500	270.100	10130.95	1789.71	-44.60	-1789.54	746615.14	598601.30	32°38'37.794"N	103°39'59.133"W	1.02	
11909.00	89.900	270.900	10131.29	1853.70	-44.04	-1853.53	746551.15	598601.86	32°38'37.803"N	103°39'59.882"W	1.40	
11972.00	91.000	270.900	10130.79	1916.69	-43.05	-1916.52	746488.16	598602.85	32°38'37.817"N	103°40'00.618"W	1.75	
12036.00	90.800	271.000	10129.79	1980.67	-41.99	-1980.51	746424.18	598603.91	32°38'37.831"N	103°40'01.367"W	0.35	
12100.00	89.900	270.800	10129.39	2044.65	-40.99	-2044.50	746360.19	598604.92	32°38'37.845"N	103°40'02.115"W	1.44	
12163.00	88.300	270.500	10130.38	2107.64	-40.27	-2107.48	746297.21	598605.63	32°38'37.856"N	103°40'02.851"W	2.58	
12226.00	88.600	269.600	10132.09	2170.61	-40.22	-2170.46	746234.24	598605.69	32°38'37.861"N	103°40'03.588"W	1.51	
12290.00	89.900	269.500	10132.93	2234.60	-40.72	-2234.45	746170.25	598605.18	32°38'37.860"N	103°40'04.336"W	2.04	
12353.00	89.800	269.600	10133.09	2297.60	-41.21	-2297.45	746107.25	598604.69	32°38'37.859"N	103°40'05.073"W	0.22	
12416.00	89.500	270.400	10133.48	2360.60	-41.21	-2360.45	746044.26	598604.69	32°38'37.863"N	103°40'05.810"W	1.36	
12480.00	89.700	271.000	10133.92	2424.59	-40.43	-2424.44	745980.27	598605.47	32°38'37.874"N	103°40'06.558"W	0.99	
12543.00	90.100	271.000	10134.03	2487.57	-39.33	-2487.43	745917.28	598606.57	32°38'37.889"N	103°40'07.295"W	0.63	
12607.00	91.100	272.300	10133.36	2551.53	-37.49	-2551.40	745853.32	598608.41	32°38'37.911"N	103°40'08.043"W	2.56	
12670.00	91.800	271.800	10131.77	2614.46	-35.24	-2614.34	745790.38	598610.66	32°38'37.938"N	103°40'08.778"W	1.37	
12733.00	91.900	270.900	10129.73	2677.40	-33.75	-2677.28	745727.43	598612.15	32°38'37.956"N	103°40'09.514"W	1.44	
12797.00	91.300	269.900	10127.95	2741.37	-33.31	-2741.26	745663.46	598612.59	32°38'37.964"N	103°40'10.263"W	1.82	
12861.00	91.900	269.800	10126.16	2805.35	-33.47	-2805.23	745599.49	598612.43	32°38'37.967"N	103°40'11.011"W	0.95	
12924.00	90.900	269.800	10124.62	2868.33	-33.69	-2868.21	745536.51	598612.21	32°38'37.969"N	103°40'11.747"W	1.59	
12987.00	89.000	270.300	10124.68	2931.33	-33.64	-2931.21	745473.52	598612.26	32°38'37.973"N	103°40'12.484"W	3.12	
13050.00	89.300	270.700	10125.61	2994.31	-33.09	-2994.20	745410.53	598612.81	32°38'37.982"N	103°40'13.221"W	0.79	
13114.00	89.500	270.400	10126.28	3058.30	-32.48	-3058.19	745346.54	598613.43	32°38'37.992"N	103°40'13.969"W	0.56	
13177.00	90.100	270.000	10126.50	3121.30	-32.26	-3121.19	745283.55	598613.65	32°38'37.998"N	103°40'14.706"W	1.14	
13240.00	90.300	269.200	10126.28	3184.30	-32.70	-3184.19	745220.55	598613.21	32°38'37.998"N	103°40'15.442"W	1.31	
13303.00	90.900	268.700	10125.62	3247.29	-33.85	-3247.17	745157.57	598612.05	32°38'37.990"N	103°40'16.179"W	1.24	
13367.00	90.000	268.500	10125.12	3311.27	-35.41	-3311.15	745093.59	598610.49	32°38'37.979"N	103°40'16.927"W	1.44	
13430.00	88.600	269.500	10125.89	3374.26	-36.51	-3374.14	745030.61	598609.39	32°38'37.972"N	103°40'17.664"W	2.73	
13493.00	89.000	269.800	10127.21	3437.25	-36.90	-3437.12	744967.63	598609.00	32°38'37.972"N	103°40'18.401"W	0.79	
13557.00	89.200	268.900	10128.21	3501.24	-37.62	-3501.11	744903.65	598608.28	32°38'37.969"N	103°40'19.149"W	1.44	
13620.00	89.500	268.500	10128.93	3564.22	-39.05	-3564.09	744840.67	598606.85	32°38'37.958"N	103°40'19.886"W	0.79	
13683.00	89.000	269.400	10129.75	3627.21	-40.21	-3627.07	744777.69	598605.69	32°38'37.951"N	103°40'20.622"W	1.63	
13747.00	88.800	269.500	10130.98	3691.20	-40.82	-3691.06	744713.71	598605.08	32°38'37.949"N	103°40'21.371"W	0.35	



# Actual Wellpath Report

No.2H AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.2H SHL
Area	Lea County, NM	Well	No.2H
Field	(Diamante) Sec 21, T19S, R33E	Wellbore	No.2H AWB
Facility	Diamante 21 Federal No.2H		

## WELLPATH DATA (195 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
13811.00	89.100	269.200	10132.15	3755.18	-41.55	-3755.04	744649.72	598604.35	32°38'37.945"N	103°40'22.119"W	0.66	
13874.00	89.300	268.700	10133.03	3818.17	-42.70	-3818.02	744586.74	598603.20	32°38'37.938"N	103°40'22.855"W	0.85	
13937.00	89.500	269.800	10133.69	3881.16	-43.53	-3881.01	744523.76	598602.38	32°38'37.934"N	103°40'23.592"W	1.77	
14001.00	90.100	269.500	10133.92	3945.16	-43.92	-3945.01	744459.76	598601.98	32°38'37.934"N	103°40'24.341"W	1.05	
14065.00	90.600	269.100	10133.53	4009.16	-44.70	-4009.01	744395.77	598601.20	32°38'37.930"N	103°40'25.089"W	1.00	
14129.00	90.500	269.400	10132.91	4073.15	-45.54	-4073.00	744331.78	598600.37	32°38'37.926"N	103°40'25.837"W	0.49	
14192.00	90.500	270.200	10132.36	4136.15	-45.76	-4135.99	744268.79	598600.15	32°38'37.927"N	103°40'26.574"W	1.27	
14255.00	90.800	269.600	10131.65	4199.15	-45.87	-4198.99	744205.79	598600.04	32°38'37.930"N	103°40'27.311"W	1.06	
14318.00	91.100	269.200	10130.60	4262.14	-46.53	-4261.98	744142.81	598599.38	32°38'37.927"N	103°40'28.048"W	0.79	
14381.00	91.500	269.500	10129.17	4325.12	-47.24	-4324.96	744079.83	598598.66	32°38'37.924"N	103°40'28.784"W	0.79	
14445.00	91.900	269.300	10127.27	4389.09	-47.91	-4388.92	744015.87	598597.99	32°38'37.921"N	103°40'29.532"W	0.70	
14509.00	92.200	268.500	10124.98	4453.04	-49.14	-4452.87	743951.92	598596.76	32°38'37.913"N	103°40'30.280"W	1.33	
14572.00	92.500	268.200	10122.40	4515.97	-50.95	-4515.79	743889.01	598594.95	32°38'37.899"N	103°40'31.016"W	0.67	
14611.00	92.800	267.700	10120.60	4554.91	-52.34	-4554.73	743850.07	598593.56	32°38'37.888"N	103°40'31.472"W	1.49	
14666.00	92.800	267.700	10117.91	4609.81	-54.55	-4609.62	743795.19	598591.35	32°38'37.869"N	103°40'32.114"W	0.00	Project to Bit

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No.2H PBHL		10135.00	-19.82	-4621.84	743782.96	598626.08	32°38'38.214"N	103°40'32.254"W	point

## WELLPATH COMPOSITION - Ref Wellbore: No.2H AWB Ref Wellpath: No.2H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	9664.50	Generic gyro - northseeking (Standard)	Gyro	No.2H AWB
9664.50	14666.00	NaviTrak (Standard)	MWD	No.2H AWB