

HOBBS OCD

JUN 15 2011

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PATRIOT DRILLING, LLC

OPERATOR: Cimarex Energy CO.
WELL/LEASE: Valley Forge 20 State # 2
COUNTY: Chaves Co., New Mexico
Sec. 20, T15S, R31E

SUR: L-20-15s-31e, 1780/S & 480/W
BHL: 1-20-15s-31e, 1994/S & 4949/W
API # 30-005-29100

**STATE OF NEW MEXICO
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
218	1/2	4,082	1
636	1	4,274	3/4
1,071	2	4,461	1/4
1,166	2	4,559	1
1,325	1 1/2	4,845	1
1,634	3/4	5,384	1
2,148	1 3/4	5,701	1
2,370	2	5,987	1
2,593	2 1/2	6,305	1/2
2,751	2 3/4	6,589	1/2
2,910	2 1/4	6,843	1
3,100	1 1/2	7,260	1
3,480	2	7,446	1
3,575	3	7,731	2
3,670	2 1/4	7,922	2
3,765	1 3/4	8,207	2
3,893	2	8,524	1
3,987	1 3/4	8,967	2

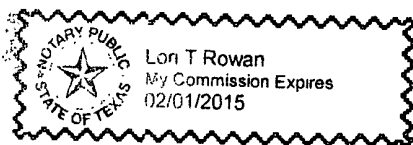
Patriot Drilling, LLC

M. Leroy Peterson, Executive Vice-President

The foregoing instrument was acknowledged before me on this 14th day of March, 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



JUL 07 2011



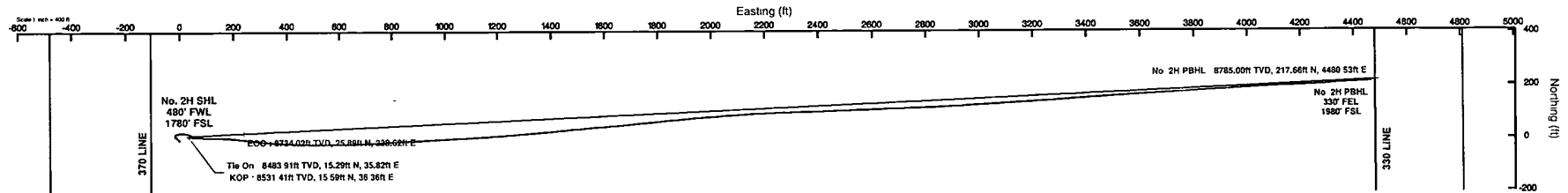
Cimarex Energy Co.

Location: Chaves County, NM
 Field: (Valley) Sec 20, T15S, R31E
 Facility: Valley Forge 20 State Com #2H

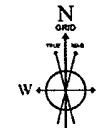
Slot: No. 2H SHL
 Well: No. 2H
 Wellbore: No. 2H PWB



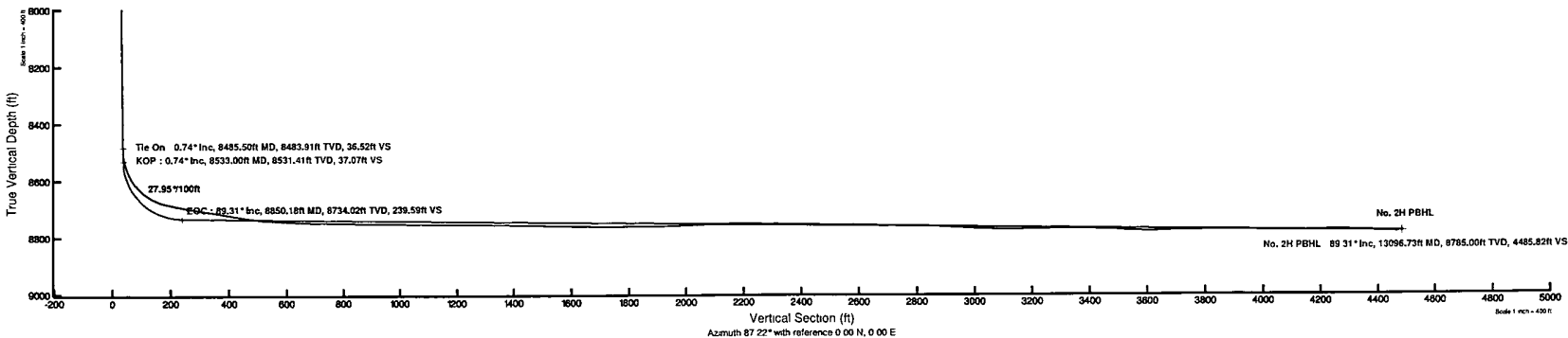
Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%/100ft)	VS (ft)
Tie On	8485.50	0.740	60.800	8483.91	15.29	35.82	0.00	36.52
KOP	8533.00	0.740	60.800	8531.41	15.59	36.36	0.00	37.07
EOC	8850.18	89.312	87.411	8734.02	25.89	238.62	27.95	239.59
No. 2H PBHL	13096.73	89.312	87.411	8785.00	217.66	4480.53	0.00	4485.82



Plot reference wellpath is Plan #2	
True vertical depths are referenced to Rig on No. 2H SHL (GL)	Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 2H SHL (GL)	North Reference: Grid north
Rig on No. 2H SHL (GL) to Mean Sea Level: 4454 feet	Scale: True distance
Mean Sea Level to Mud line (Facility: Valley Forge 20 State Com #2H): -4433 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: calphik on 2/18/2011



BGGM (1945 to 2012) Dip: 60.88° Field: 49112.3 m
 Magnetic North is 7.87 degrees East of True North (at 2/18/11)
 Grid North is 0.26 degrees East of True North
 To correct azimuth from True to Grid subtract 0.26 degree
 To correct azimuth from Magnetic to Grid add 7.61 degree
 For example if the Magnetic North Azimuth = 90 degs then the Grid North Azn



SUR: L-20-15s-31e, 1780/S & 480/W
 BHL: L-20-15s-31e, 1994/S & 4949/W
 API # 30-005-29100



Actual Wellpath Report

No. 2H AWB

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Valley) Sec 20, T15S, R31E	Wellbore	No. 2H AWB
Facility	Valley Forge 20 State Com #2H		

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	Calhphik
Scale	0.999934	Report Generated	3/3/2011 at 7:26:34 AM
Convergence at slot	0.26° East	Database/Source file	WA Midland/No. 2H_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	689174.40	727513.50	32°59'56.420"N	103°51'04.041"W
Facility Reference Pt			689174.40	727513.50	32°59'56.420"N	103°51'04.041"W
Field Reference Pt			693616.10	726126.50	32°59'42.492"N	103°50'11.963"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 2H SHL (GL) to GL	21.00ft
Horizontal Reference Pt	Slot	Rig on No. 2H SHL (GL) to Mean Sea Level	4454.00ft
Vertical Reference Pt	Rig on No. 2H SHL (GL)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (GL)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	87.27°



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REFERENCE WELLPATH IDENTIFICATION			
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Area	Chaves County, NM	Well	No. 2H
Field	(Valley) Sec 20, T15S, R31E	Wellbore	No. 2H AWB
Facility	Valley Forge 20 State Com #2H		

WELLPATH DATA (173 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]	Comments
0.00	0.000	342.870	0.00	0.00	0.00	0.00	689174.40	727513.50	32°59'56.420"N	103°51'04.041"W	0.00	
100.00	0.330	342.870	100.00	-0.07	0.28	-0.08	689174.32	727513.78	32°59'56.423"N	103°51'04.042"W	0.33	
200.00	0.330	324.200	200.00	-0.30	0.78	-0.34	689174.06	727514.28	32°59'56.428"N	103°51'04.045"W	0.11	
300.00	0.560	312.000	299.99	-0.80	1.34	-0.87	689173.53	727514.84	32°59'56.434"N	103°51'04.051"W	0.25	
400.00	0.800	314.510	399.99	-1.63	2.16	-1.73	689172.67	727515.66	32°59'56.442"N	103°51'04.061"W	0.24	
500.00	0.950	316.910	499.98	-2.64	3.26	-2.79	689171.61	727516.76	32°59'56.453"N	103°51'04.074"W	0.15	
600.00	1.020	318.070	599.96	-3.74	4.52	-3.96	689170.44	727518.02	32°59'56.465"N	103°51'04.087"W	0.07	
700.00	1.120	313.810	699.94	-4.97	5.86	-5.26	689169.14	727519.36	32°59'56.478"N	103°51'04.102"W	0.13	
800.00	1.260	315.070	799.92	-6.38	7.32	-6.74	689167.66	727520.82	32°59'56.493"N	103°51'04.120"W	0.14	
900.00	1.440	306.030	899.89	-8.10	8.83	-8.53	689165.87	727522.33	32°59'56.508"N	103°51'04.141"W	0.28	
1000.00	1.460	312.380	999.86	-9.98	10.43	-10.49	689163.91	727523.93	32°59'56.524"N	103°51'04.164"W	0.16	
1100.00	1.530	307.180	1099.83	-11.90	12.10	-12.49	689161.91	727525.60	32°59'56.540"N	103°51'04.187"W	0.15	
1200.00	1.290	310.280	1199.80	-13.75	13.63	-14.41	689159.99	727527.13	32°59'56.556"N	103°51'04.210"W	0.25	
1300.00	1.190	308.410	1299.77	-15.35	15.01	-16.09	689158.31	727528.50	32°59'56.569"N	103°51'04.229"W	0.11	
1400.00	0.840	332.460	1399.76	-16.44	16.30	-17.24	689157.16	727529.80	32°59'56.582"N	103°51'04.243"W	0.54	
1500.00	0.740	347.900	1499.75	-16.86	17.58	-17.71	689156.69	727531.08	32°59'56.595"N	103°51'04.248"W	0.23	
1600.00	0.760	355.710	1599.74	-16.98	18.87	-17.90	689156.50	727532.37	32°59'56.608"N	103°51'04.250"W	0.10	
1700.00	0.720	12.740	1699.73	-16.83	20.15	-17.81	689156.59	727533.65	32°59'56.620"N	103°51'04.249"W	0.22	
1800.00	0.960	43.130	1799.72	-16.06	21.37	-17.10	689157.30	727534.87	32°59'56.632"N	103°51'04.241"W	0.50	
1900.00	0.920	52.540	1899.71	-14.80	22.47	-15.89	689158.51	727535.97	32°59'56.643"N	103°51'04.226"W	0.16	
2000.00	1.150	57.100	1999.69	-13.27	23.51	-14.41	689159.99	727537.00	32°59'56.653"N	103°51'04.209"W	0.24	
2100.00	1.610	70.870	2099.66	-11.06	24.51	-12.24	689162.16	727538.01	32°59'56.663"N	103°51'04.183"W	0.56	
2200.00	1.600	73.200	2199.62	-8.36	25.38	-9.58	689164.83	727538.87	32°59'56.672"N	103°51'04.152"W	0.07	
2300.00	1.720	73.900	2299.58	-5.54	26.19	-6.80	689167.60	727539.69	32°59'56.680"N	103°51'04.119"W	0.12	
2400.00	1.830	75.550	2399.53	-2.52	27.01	-3.81	689170.59	727540.51	32°59'56.688"N	103°51'04.084"W	0.12	
2491.30	2.230	86.450	2490.78	0.68	27.48	-0.62	689173.78	727540.98	32°59'56.692"N	103°51'04.047"W	0.61	
2586.60	2.280	86.100	2586.00	4.43	27.73	3.12	689177.52	727541.23	32°59'56.694"N	103°51'04.003"W	0.05	
2681.80	2.340	89.280	2681.13	8.27	27.88	6.95	689181.35	727541.38	32°59'56.696"N	103°51'04.958"W	0.15	
2776.80	2.150	92.660	2776.05	11.98	27.82	10.67	689185.07	727541.32	32°59'56.695"N	103°51'03.914"W	0.24	
2871.90	1.960	95.150	2871.09	15.37	27.59	14.07	689188.47	727541.09	32°59'56.693"N	103°51'03.874"W	0.22	
2966.80	1.710	93.460	2965.94	18.38	27.36	17.10	689191.50	727540.86	32°59'56.690"N	103°51'03.839"W	0.27	
3061.80	1.530	97.160	3060.91	21.04	27.12	19.77	689194.17	727540.62	32°59'56.688"N	103°51'03.807"W	0.22	
3156.90	1.400	97.740	3155.97	23.44	26.80	22.18	689196.58	727540.30	32°59'56.684"N	103°51'03.779"W	0.14	
3251.40	1.200	98.940	3250.45	25.54	26.49	24.31	689198.70	727539.99	32°59'56.681"N	103°51'03.754"W	0.21	
3346.70	1.470	103.740	3345.72	27.69	26.05	26.48	689200.88	727539.55	32°59'56.677"N	103°51'03.729"W	0.31	
3441.70	2.150	105.550	3440.68	30.55	25.28	29.38	689203.78	727538.78	32°59'56.669"N	103°51'03.695"W	0.72	
3537.00	2.820	108.280	3535.89	34.44	24.07	33.33	689207.73	727537.57	32°59'56.657"N	103°51'03.648"W	0.71	
3632.00	2.370	111.920	3630.79	38.40	22.60	37.37	689211.77	727536.10	32°59'56.642"N	103°51'03.601"W	0.50	
3727.30	1.790	111.560	3726.03	41.55	21.32	40.58	689214.98	727534.82	32°59'56.629"N	103°51'03.563"W	0.61	
3822.70	1.570	115.380	3821.38	44.06	20.21	43.15	689217.55	727533.71	32°59'56.618"N	103°51'03.533"W	0.26	
3917.60	1.450	116.110	3916.25	46.26	19.13	45.40	689219.80	727532.62	32°59'56.607"N	103°51'03.507"W	0.13	
4012.60	1.270	119.790	4011.22	48.20	18.07	47.39	689221.79	727531.57	32°59'56.597"N	103°51'03.484"W	0.21	
4107.90	1.020	120.780	4106.51	49.80	17.11	49.04	689223.44	727530.61	32°59'56.587"N	103°51'03.464"W	0.26	
4203.00	0.830	122.460	4201.59	51.07	16.31	50.35	689224.74	727529.81	32°59'56.579"N	103°51'03.449"W	0.20	
4298.30	0.600	122.960	4296.89	52.04	15.67	51.35	689225.75	727529.17	32°59'56.573"N	103°51'03.437"W	0.24	



Actual Wellpath Report

No. 2H AWB

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Valley) Sec 20, T15S, R31E	Wellbore	No. 2H AWB
Facility	Valley Forge 20 State Com #2H		

WELLPATH DATA (173 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]	Comments
4393.30	0.460	129.040	4391.88	52.72	15.16	52.06	689226.46	727528.66	32°59'56.568"N	103°51'03.429"W	0.16	
4488.80	0.330	118.410	4487.38	53.25	14.79	52.60	689227.00	727528.29	32°59'56.564"N	103°51'03.423"W	0.16	
4583.90	0.250	159.420	4582.48	53.54	14.46	52.92	689227.31	727527.96	32°59'56.561"N	103°51'03.419"W	0.23	
4679.10	0.380	208.610	4677.68	53.44	13.99	52.84	689227.23	727527.49	32°59'56.556"N	103°51'03.420"W	0.30	
4774.20	0.370	211.120	4772.77	53.11	13.45	52.53	689226.92	727526.95	32°59'56.551"N	103°51'03.424"W	0.02	
4869.40	0.380	196.210	4867.97	52.83	12.88	52.28	689226.68	727526.38	32°59'56.545"N	103°51'03.427"W	0.10	
4964.50	0.280	229.320	4963.07	52.55	12.43	52.02	689226.41	727525.93	32°59'56.541"N	103°51'03.430"W	0.22	
5059.70	0.040	260.740	5058.27	52.33	12.27	51.81	689226.20	727525.77	32°59'56.539"N	103°51'03.432"W	0.26	
5154.80	0.070	218.540	5153.37	52.26	12.22	51.74	689226.13	727525.72	32°59'56.539"N	103°51'03.433"W	0.05	
5250.10	0.100	309.240	5248.67	52.16	12.23	51.64	689226.03	727525.73	32°59'56.539"N	103°51'03.434"W	0.13	
5345.30	0.190	323.170	5343.87	52.01	12.41	51.48	689225.88	727525.91	32°59'56.541"N	103°51'03.436"W	0.10	
5440.50	0.190	308.930	5439.07	51.80	12.63	51.26	689225.66	727526.13	32°59'56.543"N	103°51'03.439"W	0.05	
5535.70	0.250	281.630	5534.27	51.49	12.77	50.94	689225.33	727526.27	32°59'56.544"N	103°51'03.442"W	0.13	
5726.30	0.380	256.890	5724.87	50.46	12.72	49.91	689224.31	727526.21	32°59'56.544"N	103°51'03.454"W	0.10	
5821.60	0.560	274.620	5820.16	49.69	12.68	49.14	689223.54	727526.18	32°59'56.543"N	103°51'03.463"W	0.24	
5916.90	0.680	287.230	5915.46	48.69	12.89	48.14	689222.53	727526.39	32°59'56.545"N	103°51'03.475"W	0.19	
6012.00	0.890	291.990	6010.55	47.49	13.33	46.91	689221.31	727526.83	32°59'56.550"N	103°51'03.490"W	0.23	
6107.40	0.780	293.550	6105.94	46.24	13.87	45.63	689220.03	727527.37	32°59'56.555"N	103°51'03.505"W	0.12	
6202.70	0.690	292.840	6201.23	45.14	14.35	44.51	689218.90	727527.85	32°59'56.560"N	103°51'03.518"W	0.09	
6297.90	0.690	277.910	6296.42	44.06	14.65	43.41	689217.81	727528.15	32°59'56.563"N	103°51'03.531"W	0.19	
6393.00	0.660	266.230	6391.52	42.95	14.69	42.30	689216.69	727528.19	32°59'56.564"N	103°51'03.544"W	0.15	
6487.10	0.540	270.900	6485.61	41.96	14.66	41.31	689215.71	727528.16	32°59'56.563"N	103°51'03.555"W	0.14	
6582.20	0.490	264.080	6580.71	41.11	14.63	40.46	689214.86	727528.13	32°59'56.563"N	103°51'03.565"W	0.08	
6677.40	0.560	261.700	6675.90	40.24	14.52	39.59	689213.99	727528.02	32°59'56.562"N	103°51'03.575"W	0.08	
6772.80	0.830	262.310	6771.30	39.09	14.36	38.45	689212.85	727527.86	32°59'56.561"N	103°51'03.589"W	0.28	
6867.90	1.020	258.830	6866.38	37.56	14.10	36.94	689211.33	727527.60	32°59'56.558"N	103°51'03.607"W	0.21	
6962.90	0.970	257.380	6961.37	35.94	13.76	35.32	689209.72	727527.26	32°59'56.555"N	103°51'03.626"W	0.06	
7058.10	0.810	263.550	7056.56	34.47	13.51	33.87	689208.26	727527.01	32°59'56.552"N	103°51'03.643"W	0.20	
7153.20	0.640	274.050	7151.65	33.27	13.47	32.67	689207.07	727526.97	32°59'56.552"N	103°51'03.657"W	0.23	
7248.50	0.450	273.100	7246.95	32.37	13.53	31.76	689206.16	727527.03	32°59'56.553"N	103°51'03.667"W	0.20	
7343.70	0.250	285.740	7342.15	31.80	13.61	31.19	689205.59	727527.11	32°59'56.553"N	103°51'03.674"W	0.22	
7438.70	0.080	31.030	7437.14	31.64	13.72	31.03	689205.42	727527.22	32°59'56.555"N	103°51'03.676"W	0.30	
7534.00	0.190	18.340	7532.44	31.74	13.93	31.11	689205.51	727527.43	32°59'56.557"N	103°51'03.675"W	0.12	
7629.30	0.180	34.530	7627.74	31.88	14.20	31.24	689205.64	727527.70	32°59'56.559"N	103°51'03.673"W	0.06	
7724.40	0.060	347.910	7722.84	31.97	14.37	31.32	689205.72	727527.87	32°59'56.561"N	103°51'03.673"W	0.15	
7819.70	0.070	260.120	7818.14	31.90	14.41	31.25	689205.65	727527.91	32°59'56.561"N	103°51'03.673"W	0.09	
7914.70	0.060	145.670	7913.14	31.87	14.36	31.22	689205.62	727527.86	32°59'56.561"N	103°51'03.674"W	0.12	
8009.90	0.100	106.660	8008.34	31.97	14.30	31.33	689205.73	727527.80	32°59'56.560"N	103°51'03.672"W	0.07	
8104.80	0.190	92.150	8103.24	32.21	14.27	31.57	689205.96	727527.77	32°59'56.560"N	103°51'03.670"W	0.10	
8199.90	0.480	91.670	8198.34	32.76	14.25	32.12	689206.52	727527.75	32°59'56.560"N	103°51'03.663"W	0.30	
8295.10	0.800	80.320	8293.54	33.82	14.35	33.18	689207.57	727527.85	32°59'56.561"N	103°51'03.651"W	0.36	
8390.30	0.930	70.130	8388.72	35.22	14.72	34.56	689208.95	727528.22	32°59'56.564"N	103°51'03.635"W	0.21	
8485.50	0.740	60.800	8483.91	36.51	15.29	35.82	689210.22	727528.79	32°59'56.570"N	103°51'03.620"W	0.24	
8509.00	4.200	84.000	8507.39	37.50	15.45	36.81	689211.21	727528.95	32°59'56.571"N	103°51'03.608"W	15.03	
8540.00	13.900	99.300	8537.97	42.29	14.97	41.62	689216.02	727528.47	32°59'56.566"N	103°51'03.552"W	31.97	



Actual Wellpath Report

No. 2H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Valley) Sec 20, T15S, R31E	Wellbore	No. 2H AWB
Facility	Valley Forge 20 State Com #2H		

WELLPATH DATA (173 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]	Comments
8572.00	22.800	97.800	8568.31	52.16	13.50	51.58	689225.98	727527.00	32°59'56.551"N	103°51'03.435"W	27.85	
8604.00	31.600	93.500	8596.75	66.62	12.15	66.12	689240.52	727525.64	32°59'56.537"N	103°51'03.264"W	28.16	
8635.00	41.400	92.300	8621.64	84.95	11.24	84.52	689258.91	727524.73	32°59'56.528"N	103°51'03.048"W	31.70	
8667.00	50.900	90.300	8643.78	107.95	10.74	107.56	689281.95	727524.24	32°59'56.522"N	103°51'02.778"W	30.02	
8699.00	59.900	92.500	8661.94	134.19	10.07	133.86	689308.25	727523.57	32°59'56.514"N	103°51'02.469"W	28.69	
8730.00	70.200	94.200	8675.00	162.10	8.42	161.88	689336.27	727521.92	32°59'56.496"N	103°51'02.140"W	33.59	
8762.00	77.200	94.400	8683.97	192.56	6.11	192.49	689366.87	727519.61	32°59'56.472"N	103°51'01.781"W	21.88	
8793.00	78.500	95.300	8690.50	222.60	3.55	222.68	689397.07	727517.05	32°59'56.445"N	103°51'01.426"W	5.06	
8825.00	79.600	96.100	8696.58	253.68	0.43	253.94	689428.33	727513.93	32°59'56.413"N	103°51'01.059"W	4.22	
8857.00	80.800	96.900	8702.02	284.80	-3.14	285.27	689459.65	727510.36	32°59'56.376"N	103°51'00.692"W	4.49	
8888.00	80.600	96.500	8707.03	314.98	-6.71	315.66	689490.04	727506.79	32°59'56.339"N	103°51'00.335"W	1.43	
8920.00	79.800	94.900	8712.48	346.17	-9.84	347.03	689521.41	727503.66	32°59'56.307"N	103°50'59.967"W	5.52	
8940.00	80.800	94.000	8715.85	365.73	-11.37	366.69	689541.06	727502.13	32°59'56.291"N	103°50'59.736"W	6.68	
8951.00	79.100	93.800	8717.77	376.49	-12.11	377.49	689551.87	727501.39	32°59'56.283"N	103°50'59.610"W	15.56	
8983.00	79.000	93.400	8723.85	407.72	-14.08	408.85	689583.22	727499.42	32°59'56.262"N	103°50'59.241"W	1.27	
9014.00	81.000	92.000	8729.23	438.10	-15.52	439.34	689613.71	727497.99	32°59'56.247"N	103°50'58.884"W	7.84	
9046.00	82.900	91.400	8733.71	469.69	-16.46	471.01	689645.38	727497.05	32°59'56.236"N	103°50'58.512"W	6.22	
9078.00	83.100	90.100	8737.61	501.40	-16.87	502.77	689677.13	727496.63	32°59'56.230"N	103°50'58.139"W	4.08	
9109.00	85.600	89.700	8740.66	532.21	-16.82	533.62	689707.98	727496.68	32°59'56.230"N	103°50'57.777"W	8.17	
9141.00	87.100	89.500	8742.70	564.12	-16.59	565.55	689739.91	727496.91	32°59'56.230"N	103°50'57.402"W	4.73	
9173.00	87.200	89.500	8744.29	596.05	-16.32	597.51	689771.87	727497.19	32°59'56.232"N	103°50'57.026"W	0.31	
9204.00	88.000	89.200	8745.59	627.01	-15.96	628.48	689802.84	727497.54	32°59'56.234"N	103°50'56.663"W	2.76	
9236.00	88.400	87.700	8746.59	658.98	-15.10	660.45	689834.81	727498.40	32°59'56.241"N	103°50'56.287"W	4.85	
9268.00	88.500	87.300	8747.46	690.97	-13.70	692.41	689866.76	727499.80	32°59'56.253"N	103°50'55.912"W	1.29	
9300.00	88.400	87.500	8748.33	722.96	-12.25	724.36	689898.71	727501.25	32°59'56.266"N	103°50'55.537"W	0.70	
9363.00	89.200	87.100	8749.64	785.94	-9.29	787.28	689961.63	727504.22	32°59'56.293"N	103°50'54.798"W	1.42	
9427.00	88.600	87.100	8750.87	849.93	-6.05	851.18	690025.53	727507.45	32°59'56.322"N	103°50'54.047"W	0.94	
9490.00	88.300	87.100	8752.58	912.91	-2.86	914.08	690088.42	727510.64	32°59'56.350"N	103°50'53.309"W	0.48	
9553.00	89.900	87.000	8753.57	975.90	0.38	976.99	690151.32	727513.88	32°59'56.379"N	103°50'52.570"W	2.54	
9617.00	89.200	86.800	8754.07	1039.89	-3.84	1040.89	690215.22	727517.34	32°59'56.411"N	103°50'51.820"W	1.14	
9711.00	89.900	86.800	8754.81	1133.89	9.09	1134.74	690309.06	727522.59	32°59'56.458"N	103°50'50.717"W	0.74	
9775.00	89.100	86.200	8755.37	1197.88	13.00	1198.62	690372.94	727526.49	32°59'56.494"N	103°50'49.967"W	1.56	
9838.00	89.900	85.800	8755.92	1260.86	17.39	1261.46	690435.78	727530.89	32°59'56.535"N	103°50'49.229"W	1.42	
9902.00	88.600	85.000	8756.75	1324.82	22.52	1325.25	690499.56	727536.02	32°59'56.583"N	103°50'48.480"W	2.38	
9965.00	89.600	85.200	8757.74	1387.77	-27.90	1388.01	690562.32	727541.40	32°59'56.633"N	103°50'47.743"W	1.62	
10028.00	89.400	84.800	8758.29	1450.71	33.39	1450.77	690625.07	727546.89	32°59'56.684"N	103°50'47.005"W	0.71	
10092.00	86.600	84.300	8760.53	1514.60	39.47	1514.43	690688.73	727552.96	32°59'56.742"N	103°50'46.258"W	4.44	
10155.00	89.200	85.600	8762.83	1577.49	45.01	1577.14	690751.43	727558.50	32°59'56.794"N	103°50'45.521"W	4.61	
10218.00	89.400	85.100	8763.60	1640.45	50.11	1639.93	690814.22	727563.61	32°59'56.841"N	103°50'44.784"W	0.85	
10282.00	88.600	84.500	8764.72	1704.38	-55.91	1703.65	690877.94	727569.41	32°59'56.896"N	103°50'44.035"W	1.56	
10345.00	90.500	84.700	8765.22	1767.31	61.84	1766.37	690940.65	727575.34	32°59'56.951"N	103°50'43.298"W	3.03	
10408.00	90.200	84.200	8764.83	1830.23	67.93	1829.07	691003.35	727581.43	32°59'57.009"N	103°50'42.562"W	0.93	
10472.00	90.300	84.700	8764.55	1894.15	74.12	1892.77	691067.04	727587.62	32°59'57.067"N	103°50'41.814"W	0.80	
10535.00	92.600	85.800	8762.96	1957.09	79.34	1955.53	691129.80	727592.83	32°59'57.116"N	103°50'41.076"W	4.05	
10598.00	91.800	85.600	8760.54	2020.02	84.06	2018.31	691192.57	727597.55	32°59'57.160"N	103°50'40.339"W	1.31	



Actual Wellpath Report

No. 2H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Valley) Sec 20, T15S, R31E	Wellbore	No. 2H AWB
Facility	Valley Forge 20 State Com #2H		

WELLPATH DATA (173 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]	Comments
10661.00	92.300	85.500	8758.29	2082.95	88.94	2081.08	691255.33	727602.44	32°59'57.205"N	103°50'39.602"W	0.81	
10725.00	92.200	87.100	8755.77	2146.89	93.07	2144.89	691319.15	727606.57	32°59'57.243"N	103°50'38.852"W	2.50	
10788.00	89.000	87.500	8755.11	2209.88	96.04	2207.81	691382.06	727609.53	32°59'57.269"N	103°50'38.113"W	5.12	
10851.00	89.500	88.000	8755.94	2272.87	98.51	2270.75	691445.00	727612.01	32°59'57.291"N	103°50'37.374"W	1.12	
10914.00	89.100	88.600	8756.71	2335.85	100.38	2333.72	691507.96	727613.87	32°59'57.307"N	103°50'36.635"W	1.14	
10977.00	89.500	88.000	8757.48	2398.84	102.25	2396.69	691570.93	727615.74	32°59'57.322"N	103°50'35.895"W	1.14	
11040.00	88.100	87.700	8758.80	2461.82	104.61	2459.63	691633.86	727618.11	32°59'57.343"N	103°50'35.156"W	2.27	
11104.00	90.400	88.300	8759.63	2525.81	106.85	2523.58	691697.81	727620.34	32°59'57.362"N	103°50'34.405"W	3.71	
11167.00	89.300	88.000	8759.80	2588.80	108.88	2586.55	691760.77	727622.37	32°59'57.379"N	103°50'33.666"W	1.81	
11230.00	87.200	87.400	8761.72	2651.76	111.41	2649.46	691823.68	727624.90	32°59'57.401"N	103°50'32.927"W	3.47	
11293.00	89.900	88.200	8763.32	2714.73	113.82	2712.39	691886.61	727627.32	32°59'57.422"N	103°50'32.188"W	4.47	
11356.00	90.000	88.300	8763.37	2777.72	115.75	2775.36	691949.57	727629.24	32°59'57.438"N	103°50'31.449"W	0.22	
11420.00	86.500	87.000	8765.33	2841.68	118.37	2839.26	692013.47	727631.86	32°59'57.461"N	103°50'30.698"W	5.83	
11483.00	87.600	87.000	8768.57	2904.60	121.66	2902.09	692076.30	727635.15	32°59'57.491"N	103°50'29.960"W	1.75	
11546.00	86.800	86.600	8771.65	2967.52	125.17	2964.92	692139.12	727638.67	32°59'57.523"N	103°50'29.222"W	1.42	
11609.00	88.200	86.800	8774.39	3030.45	128.80	3027.75	692201.95	727642.29	32°59'57.556"N	103°50'28.484"W	2.24	
11673.00	88.100	86.300	8776.46	3094.41	132.65	3091.60	692265.79	727646.14	32°59'57.591"N	103°50'27.735"W	0.80	
11736.00	91.700	86.900	8776.57	3157.40	136.38	3154.48	692328.67	727649.87	32°59'57.625"N	103°50'26.996"W	5.79	
11799.00	90.300	86.200	8775.47	3220.38	140.17	3217.36	692391.54	727653.66	32°59'57.660"N	103°50'26.258"W	2.48	
11863.00	90.600	86.100	8774.97	3284.37	144.47	3281.21	692455.39	727657.96	32°59'57.699"N	103°50'25.508"W	0.49	
11926.00	91.700	86.400	8773.70	3347.34	148.59	3344.06	692518.24	727662.08	32°59'57.737"N	103°50'24.770"W	1.81	
11989.00	86.500	86.100	8774.69	3410.31	152.71	3406.90	692581.07	727666.20	32°59'57.775"N	103°50'24.032"W	8.27	
12053.00	87.800	86.100	8777.88	3474.21	157.06	3470.67	692644.83	727670.54	32°59'57.815"N	103°50'23.283"W	2.03	
12116.00	88.000	85.800	8780.18	3537.15	161.50	3533.47	692707.63	727674.99	32°59'57.856"N	103°50'22.545"W	0.57	
12179.00	89.700	86.500	8781.45	3600.12	165.73	3596.31	692770.47	727679.22	32°59'57.895"N	103°50'21.807"W	2.92	
12242.00	91.200	86.900	8780.95	3663.12	169.36	3659.20	692833.36	727682.85	32°59'57.928"N	103°50'21.068"W	2.46	
12305.00	90.900	86.300	8779.80	3726.10	173.09	3722.08	692896.23	727686.58	32°59'57.962"N	103°50'20.330"W	1.06	
12368.00	90.300	86.500	8779.14	3789.09	177.05	3784.95	692959.10	727690.54	32°59'57.998"N	103°50'19.591"W	1.00	
12431.00	90.400	86.700	8778.75	3852.09	180.78	3847.84	693021.98	727694.27	32°59'58.032"N	103°50'18.853"W	0.35	
12494.00	90.300	87.000	8778.37	3915.08	184.25	3910.75	693084.88	727697.73	32°59'58.063"N	103°50'18.114"W	0.50	
12557.00	88.100	86.300	8779.25	3978.07	187.93	3973.63	693147.76	727701.41	32°59'58.097"N	103°50'17.375"W	3.66	
12620.00	87.800	86.600	8781.50	4041.02	191.83	4036.47	693210.59	727705.31	32°59'58.132"N	103°50'16.637"W	0.67	
12683.00	90.700	87.800	8782.33	4104.01	194.90	4099.38	693273.50	727708.39	32°59'58.160"N	103°50'15.899"W	4.98	
12746.00	92.200	88.300	8780.73	4166.98	197.05	4162.32	693336.44	727710.53	32°59'58.178"N	103°50'15.159"W	2.51	
12811.00	90.000	87.200	8778.91	4261.95	200.77	4257.22	693431.33	727714.26	32°59'58.211"N	103°50'14.045"W	2.59	
12935.00	86.700	85.900	8781.62	4355.89	206.43	4351.00	693525.10	727719.91	32°59'58.262"N	103°50'12.944"W	3.77	
13001.00	87.100	87.200	8785.19	4421.79	210.39	4416.78	693590.88	727723.88	32°59'58.298"N	103°50'12.171"W	2.06	
13053.00	87.100	87.200	8787.82	4473.72	212.93	4468.65	693642.75	727726.41	32°59'58.321"N	103°50'11.562"W	0.00	Proj to Bit



Actual Wellpath Report

No. 2H AWB

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Valley) Sec 20, T15S, R31E	Wellbore	No. 2H AWB
Facility	Valley Forge 20 State Com #2H		

WELLPATH COMPOSITION Ref Wellbore: No. 2H AWB Ref Wellpath: No. 2H AWB				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	8485.50	Generic gyro - northseeking (Standard)	Gyro	No. 2H AWB
8485.50	13053.00	NaviTrak (Standard)	MWD	No. 2H AWB



Actual Wellpath Report

No. 2H AWB

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Valley) Sec 20, T15S, R31E	Wellbore	No. 2H AWB
Facility	Valley Forge 20 State Com #2H		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
13053.00	87.100	87.200	8787.82	Proj to Bit