

Results of Directional Survey

API number:	30-025-39957		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	EAST LUSK 24 FEDERAL COM # 1H

surface	ULSTR:	D	24	T 19S	R 32E
				660 FNL	660 FWL

BH Loc	ULSTR:	M	24	T 19S	R 32E
13627	MD	9813.6	TVD	4605 FNL	852 FWL

Top Perf/OH	ULSTR:	D	24	T 19S	R 32E
10053	MD	9815.5	TVD	1060 FNL	660 FWL

Bot Perf/OH	ULSTR:	M	24	T 19S	R 32E
13590	MD	9811.7	TVD	4568 FNL	852 FWL

	MD	N/S	E/W	VD
	10021	-369.82	-9.19	9814.29
TOP PERFS/OH	10053	-400.41	0.11	9815.51
	10053	-400.41	0.11	9815.51
	13552	-3870.35	191.56	9809.71
BOT PERFS/OH	13590	-3908.30	191.96	9811.70
	13577	-3895.32	191.82	9811.02

NEXT TO LAST	13552	-3870.35	191.56	9809.71
LAST READING	13577	-3895.32	191.82	9811.02
TD	13627	-3945.26	192.34	9813.64

Surface Location	660	FN	660	FW
Projected BHL	4605	FN	852	FW
Location of				
Top Perfs/OH	1060	FN	660	FW
Bottom Perfs/OH	4568	FN	852	FW

SUMMARY of Subsurface Locations

Surface Location	D-24-19S-32E	660	FN	660	FW	Vert. Depth
Top Perfs/OH	D-24-19S-32E	1060	FN	660	FW	9815.51
Bottom Perfs/OH	M-24-19S-32E	4568	FN	852	FW	9811.70
Projected TD	M-24-19S-32E	4605	FN	852	FW	9813.64



Cimarex Energy Co.

Location Lea County NM
Field (East 24) Sec 24 T19S R32E
Facility East Lusk 24 Fed Com No 1H

Slot No 1H SHL
Well No 1H
Wellbore No 1H PWB

BAKER
HUGHES
INTEQ

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (ft/100ft)	VS (ft)
Tie On	9515.00	1.210	221.300	9512.04	52.20	95.98	0.00	47.79
EST KOP	9550.00	1.210	221.300	9547.03	52.75	95.47	0.00	48.32
End of Curve	9954.72	99.000	150.000	279.42	28.46	22.14	5.00	380.42
EOT	10555.46	99.000	160.037	9804.00	853.11	181.09	5.00	850.48
No 1H PWB	13662.00	99.000	180.037	9804.00	3959.66	180.00	0.00	3963.74

Plot reference wellbore is Plan#?

True vertical depths are referenced to Rig on No 1H SHL (KB)

Measured depths are referenced to Rig on No 1H SHL (KB)

Rig on No 1H SHL (KB) to Mean Sea Level 3628 feet

Mean Sea Level to Mud line (Facility East Lusk 24 Fed Com No 1H) 3610 feet

Coordinates are in feet referenced to Slot

Grid System NAD83 / TM New Mexico State Planes Eastern Zone (3001), US feet
North Reference Grid north
Scale True distance
Depths are in feet
Created by gomersl on 2/1/2011

HOBBS OCD

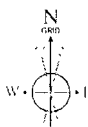
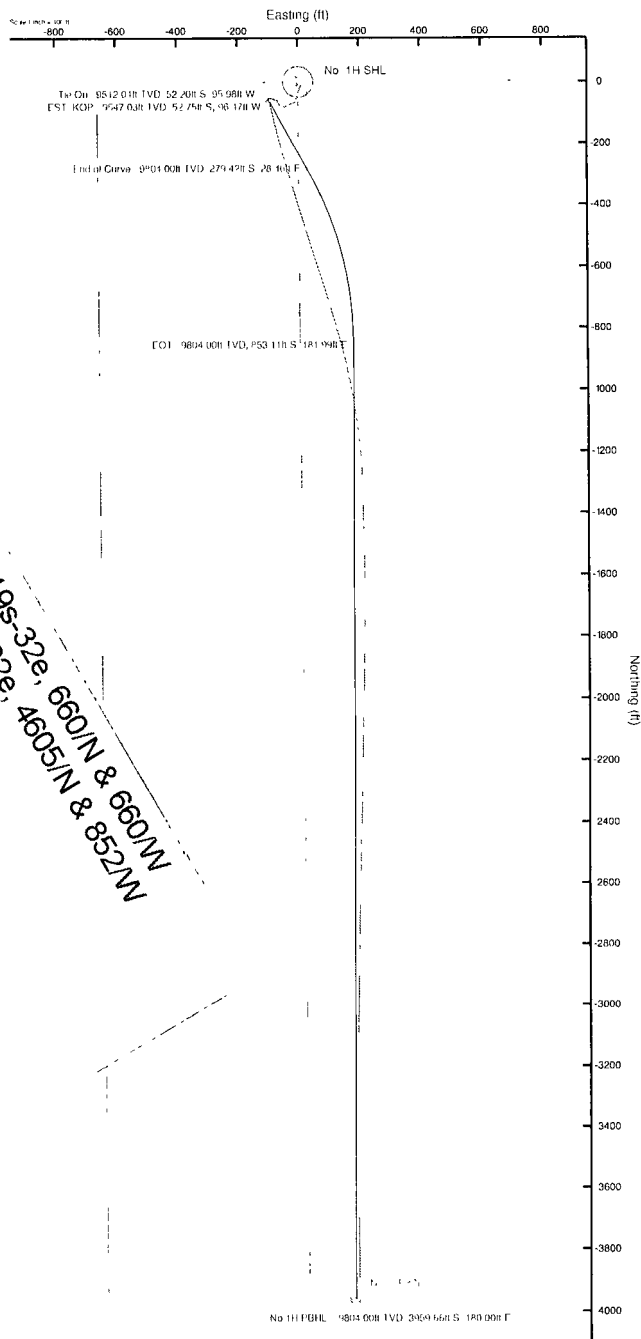
AUG 02 2011

RECEIVED

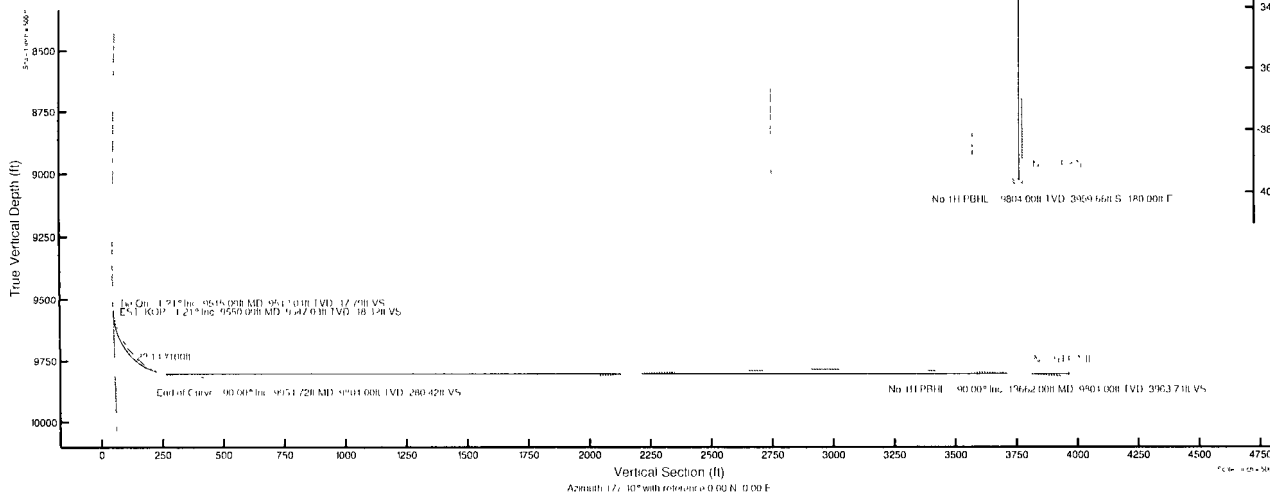
HOBBS OCD

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RECEIVED



BGOM (715.0 to 2011.0) Data (Q1) = 4329.1 ft
Mg = 12.000000 = 12.000000 ft of True vertical depth (81.1 ft/100 ft)
well North is 0.24 ft/100 ft East of True North
To convert (depth) from (true) to (measured) = 100 ft / 100 ft
For example if the Measured North Azimuth = 90.0 deg then the Grid North Azimuth = 90.0 + 7.10 = 97.10





Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(East 24) Sec 24, T19S, R32E	Wellbore	No.1H AWB
Facility	East Lusk 24 Fed Com No. 1H		

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	0.999949	Report Generated	2/22/2011 at 7:28:38 AM
Convergence at slot	0.33° East	Database/Source file	WA_Midland/No.1H_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	728215.60	601192.80	32°39'04.528"N	103°43'34.145"W
Facility Reference Pt			728215.60	601192.80	32°39'04.528"N	103°43'34.145"W
Field Reference Pt			728213.10	601522.90	32°39'07.795"N	103°43'34.152"W

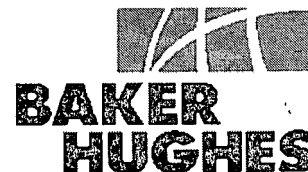
WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 1H SHL (KB) to GL	18.00ft
Horizontal Reference Pt	Slot	Rig on No. 1H SHL (KB) to Mean Sea Level	3628.00ft
Vertical Reference Pt	Rig on No. 1H SHL (KB)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 1H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	177.40°



Actual Wellpath Report

No.1H AWP

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Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(East 24) Sec 24, T19S, R32E	Wellbore	No.1H AWB
Facility	East Lusk 24 Fed Com No. 1H		

WELLPATH DATA (191 stations) † = interpolated/extrapolated station

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	37.100	0.00	0.00	0.00	0.00	728215.60	601192.80	32°39'04.528"N	103°43'34.145"W	0.00	
18.00	0.000	37.100	18.00	0.00	0.00	0.00	728215.60	601192.80	32°39'04.528"N	103°43'34.145"W	0.00	
100.00	0.320	37.100	100.00	-0.18	0.18	0.14	728215.74	601192.98	32°39'04.530"N	103°43'34.143"W	0.39	
200.00	0.120	33.260	200.00	-0.48	0.49	0.36	728215.96	601193.29	32°39'04.533"N	103°43'34.141"W	0.20	
300.00	0.160	320.700	300.00	-0.67	0.69	0.33	728215.93	601193.49	32°39'04.535"N	103°43'34.141"W	0.17	
400.00	0.490	239.120	400.00	-0.58	0.58	-0.12	728215.48	601193.38	32°39'04.534"N	103°43'34.146"W	0.49	
500.00	0.460	239.050	499.99	-0.19	0.15	-0.83	728214.77	601192.95	32°39'04.530"N	103°43'34.155"W	0.03	
600.00	0.320	233.730	599.99	0.16	-0.22	-1.40	728214.20	601192.58	32°39'04.526"N	103°43'34.161"W	0.14	
700.00	0.070	265.750	699.99	0.31	-0.39	-1.69	728213.91	601192.41	32°39'04.524"N	103°43'34.165"W	0.26	
800.00	0.070	204.420	799.99	0.37	-0.45	-1.78	728213.82	601192.35	32°39'04.524"N	103°43'34.166"W	0.07	
900.00	0.140	215.290	899.99	0.52	-0.61	-1.87	728213.73	601192.19	32°39'04.522"N	103°43'34.167"W	0.07	
1000.00	0.290	225.860	999.99	0.78	-0.88	-2.12	728213.48	601191.92	32°39'04.520"N	103°43'34.170"W	0.15	
1100.00	0.370	210.990	1099.99	1.22	-1.33	-2.47	728213.13	601191.47	32°39'04.515"N	103°43'34.174"W	0.12	
1200.00	0.560	203.450	1199.98	1.93	-2.06	-2.83	728212.77	601190.74	32°39'04.508"N	103°43'34.178"W	0.20	
1300.00	0.610	191.400	1299.98	2.88	-3.03	-3.13	728212.47	601189.77	32°39'04.498"N	103°43'34.182"W	0.13	
1400.00	0.630	193.860	1399.97	3.93	-4.09	-3.37	728212.23	601188.71	32°39'04.488"N	103°43'34.184"W	0.03	
1500.00	0.560	200.520	1499.97	4.90	-5.08	-3.67	728211.93	601187.72	32°39'04.478"N	103°43'34.188"W	0.10	
1600.00	0.580	205.460	1599.96	5.80	-5.99	-4.06	728211.54	601186.81	32°39'04.469"N	103°43'34.193"W	0.05	
1700.00	0.650	195.580	1699.96	6.79	-6.99	-4.43	728211.17	601185.81	32°39'04.459"N	103°43'34.197"W	0.13	
1800.00	0.620	189.990	1799.95	7.85	-8.07	-4.68	728210.92	601184.73	32°39'04.449"N	103°43'34.200"W	0.07	
1900.00	0.720	188.550	1899.94	9.00	-9.23	-4.86	728210.74	601183.57	32°39'04.437"N	103°43'34.202"W	0.10	
2000.00	0.680	195.590	1999.94	10.18	-10.42	-5.12	728210.48	601182.38	32°39'04.425"N	103°43'34.205"W	0.09	
2100.00	0.350	141.080	2099.93	10.99	-11.23	-5.08	728210.52	601181.57	32°39'04.417"N	103°43'34.205"W	0.56	
2200.00	0.690	71.600	2199.93	11.07	-11.28	-4.32	728211.28	601181.52	32°39'04.417"N	103°43'34.196"W	0.66	
2300.00	0.990	66.890	2299.92	10.60	-10.75	-2.96	728212.65	601182.05	32°39'04.422"N	103°43'34.180"W	0.31	
2400.00	1.340	65.830	2399.90	9.87	-9.93	-1.09	728214.51	601182.87	32°39'04.430"N	103°43'34.158"W	0.35	
2500.00	1.910	60.100	2499.86	8.68	-8.62	1.42	728217.02	601184.18	32°39'04.443"N	103°43'34.129"W	0.59	
2600.00	2.380	54.330	2599.79	6.78	-6.58	4.55	728220.15	601186.22	32°39'04.463"N	103°43'34.092"W	0.52	
2700.00	2.380	54.620	2699.70	4.52	-4.17	7.93	728223.53	601188.63	32°39'04.486"N	103°43'34.052"W	0.01	
2800.00	1.960	62.160	2799.63	2.67	-2.47	11.13	728226.73	601190.63	32°39'04.506"N	103°43'34.015"W	0.51	



Actual Wellpath Report

No.1H AWP

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Operator **Cimarex Energy Co.**

Slot

No. 1H SHL

Area **Lea County, NM**

Well

No. 1H

Field **(East 24) Sec 24, T19S, R32E**

Wellbore

No.1H AWB

Facility **East Lusk 24 Fed Com No. 1H**

WELLPATH DATA (191 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
2900.00	0.830	83.220	2899.60	1.89	-1.28	13.37	728228.96	601191.52	32°39'04.515"N	103°43'33.989"W	1.22	
3000.00	0.810	187.170	2999.59	2.53	-1.90	14.00	728229.60	601190.90	32°39'04.509"N	103°43'33.981"W	1.29	
3100.00	2.150	212.550	3099.56	4.76	-4.18	12.90	728228.50	601188.62	32°39'04.486"N	103°43'33.994"W	1.46	
3200.00	2.510	205.450	3199.48	8.23	-7.74	10.95	728226.55	601185.06	32°39'04.451"N	103°43'34.017"W	0.46	
3279.30	2.640	196.580	3278.70	11.49	-11.06	9.68	728225.28	601181.74	32°39'04.418"N	103°43'34.032"W	0.53	
3342.90	2.690	197.890	3342.23	14.27	-13.88	8.80	728224.40	601178.92	32°39'04.390"N	103°43'34.043"W	0.12	
3406.50	2.620	199.410	3405.76	17.01	-16.67	7.86	728223.46	601176.13	32°39'04.363"N	103°43'34.054"W	0.16	
3470.20	2.560	201.740	3469.39	19.66	-19.37	6.85	728222.45	601173.43	32°39'04.336"N	103°43'34.066"W	0.19	
3533.80	2.530	201.760	3532.93	22.23	-21.99	5.81	728221.41	601170.81	32°39'04.310"N	103°43'34.078"W	0.05	
3597.40	2.500	200.860	3596.47	24.78	-24.59	4.79	728220.39	601168.21	32°39'04.285"N	103°43'34.090"W	0.08	
3661.10	2.460	199.600	3660.11	27.32	-27.18	3.84	728219.44	601165.63	32°39'04.259"N	103°43'34.102"W	0.11	
3724.70	2.410	199.640	3723.65	29.82	-29.72	2.93	728218.53	601163.08	32°39'04.234"N	103°43'34.113"W	0.08	
3788.30	2.190	202.860	3787.20	32.16	-32.10	2.01	728217.61	601160.70	32°39'04.210"N	103°43'34.123"W	0.40	
3851.90	1.880	210.640	3850.76	34.13	-34.12	1.01	728216.61	601158.68	32°39'04.191"N	103°43'34.135"W	0.65	
3915.60	1.740	200.370	3914.43	35.89	-35.92	0.14	728215.74	601156.88	32°39'04.173"N	103°43'34.146"W	0.55	
3979.20	1.800	195.440	3978.00	37.73	-37.79	-0.47	728215.13	601155.01	32°39'04.154"N	103°43'34.153"W	0.26	
4042.80	1.820	192.500	4041.57	39.66	-39.74	-0.95	728214.65	601153.06	32°39'04.135"N	103°43'34.159"W	0.15	
4106.50	1.980	192.820	4105.23	41.69	-41.80	-1.41	728214.19	601151.00	32°39'04.115"N	103°43'34.164"W	0.25	
4170.10	2.020	196.450	4168.79	43.81	-43.95	-1.97	728213.63	601148.86	32°39'04.093"N	103°43'34.171"W	0.21	
4233.70	1.830	197.110	4232.36	45.83	-45.99	-2.59	728213.01	601146.84	32°39'04.073"N	103°43'34.178"W	0.30	
4297.40	1.610	195.410	4296.03	47.64	-47.83	-3.13	728212.47	601144.97	32°39'04.055"N	103°43'34.185"W	0.35	
4361.00	1.510	194.410	4359.61	49.29	-49.50	-3.57	728212.03	601143.30	32°39'04.039"N	103°43'34.190"W	0.16	
4424.60	1.400	204.700	4423.19	50.78	-51.02	-4.11	728211.49	601141.78	32°39'04.024"N	103°43'34.196"W	0.44	
4488.30	1.600	194.470	4486.86	52.32	-52.59	-4.65	728210.95	601140.22	32°39'04.008"N	103°43'34.203"W	0.52	
4551.90	2.140	215.280	4550.43	54.30	-54.59	-5.19	728210.41	601138.21	32°39'03.988"N	103°43'34.209"W	0.85	
4615.50	2.160	209.150	4613.99	56.45	-56.78	-6.09	728209.51	601136.02	32°39'03.967"N	103°43'34.220"W	0.82	
4679.10	2.110	210.690	4677.54	58.45	-58.84	-7.27	728208.33	601133.97	32°39'03.946"N	103°43'34.234"W	0.12	
4742.80	2.090	211.110	4741.20	60.39	-60.84	-8.47	728207.14	601131.96	32°39'03.927"N	103°43'34.248"W	0.04	
4806.40	1.970	211.790	4804.76	62.26	-62.76	-9.64	728205.96	601130.04	32°39'03.908"N	103°43'34.262"W	0.19	
4870.00	1.530	215.390	4868.33	63.83	-64.38	-10.71	728204.89	601128.42	32°39'03.892"N	103°43'34.274"W	0.71	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION				Slot	No. 1H SHL
Operator	Cimarex Energy Co.			Well	No. 1H
Area	Lea County, NM			Wellbore	No.1H AWB
Field	(East 24) Sec 24, T19S, R32E				
Facility	East Lusk 24 Fed Com No. 1H				

WELLPATH DATA (191 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
4933.70	1.290	214.440	4932.01	65.07	-65.67	-11.61	728203.99	601127.14	32°39'03.879"N	103°43'34.285"W	0.38	
4997.30	1.190	225.600	4995.59	66.08	-66.72	-12.48	728203.12	601126.08	32°39'03.869"N	103°43'34.295"W	0.41	
5060.90	1.190	235.480	5059.18	66.87	-67.56	-13.50	728202.10	601125.25	32°39'03.860"N	103°43'34.307"W	0.32	
5124.60	1.250	242.070	5122.87	67.52	-68.26	-14.66	728200.94	601124.55	32°39'03.854"N	103°43'34.321"W	0.24	
5188.20	1.160	241.420	5186.45	68.10	-68.89	-15.84	728199.76	601123.91	32°39'03.847"N	103°43'34.335"W	0.14	
5251.80	1.050	247.240	5250.04	68.58	-69.42	-16.94	728198.66	601123.38	32°39'03.842"N	103°43'34.348"W	0.25	
5315.40	1.030	251.560	5313.63	68.94	-69.83	-18.02	728197.58	601122.97	32°39'03.838"N	103°43'34.360"W	0.13	
5379.10	1.020	252.360	5377.32	69.24	-70.18	-19.10	728196.50	601122.62	32°39'03.835"N	103°43'34.373"W	0.03	
5442.70	1.080	253.060	5440.91	69.54	-70.53	-20.21	728195.39	601122.27	32°39'03.831"N	103°43'34.386"W	0.10	
5506.30	1.010	255.490	5504.50	69.80	-70.84	-21.33	728194.27	601121.96	32°39'03.828"N	103°43'34.399"W	0.13	
5570.00	1.070	254.910	5568.19	70.05	-71.14	-22.45	728193.15	601121.66	32°39'03.826"N	103°43'34.412"W	0.10	
5633.60	1.040	251.760	5631.78	70.33	-71.47	-23.57	728192.03	601121.33	32°39'03.822"N	103°43'34.425"W	0.10	
5697.20	1.100	249.220	5695.37	70.68	-71.87	-24.69	728190.91	601120.93	32°39'03.818"N	103°43'34.438"W	0.12	
5760.90	1.080	251.810	5759.05	71.03	-72.28	-25.83	728189.77	601120.53	32°39'03.814"N	103°43'34.452"W	0.08	
5824.50	0.990	254.420	5822.64	71.31	-72.61	-26.93	728188.67	601120.19	32°39'03.811"N	103°43'34.465"W	0.16	
5888.10	0.940	257.380	5886.24	71.53	-72.87	-27.97	728187.63	601119.93	32°39'03.809"N	103°43'34.477"W	0.11	
5951.70	0.960	255.280	5949.83	71.73	-73.12	-28.99	728186.61	601119.68	32°39'03.806"N	103°43'34.489"W	0.06	
6015.40	1.150	251.720	6013.52	72.01	-73.46	-30.12	728185.49	601119.35	32°39'03.803"N	103°43'34.502"W	0.32	
6079.00	1.220	246.880	6077.10	72.42	-73.92	-31.34	728184.26	601118.88	32°39'03.798"N	103°43'34.516"W	0.19	
6142.60	1.290	241.590	6140.69	72.97	-74.53	-32.60	728183.01	601118.27	32°39'03.793"N	103°43'34.531"W	0.21	
6206.30	1.360	237.520	6204.37	73.66	-75.28	-33.86	728181.74	601117.53	32°39'03.785"N	103°43'34.546"W	0.18	
6269.90	1.400	241.900	6267.95	74.37	-76.05	-35.19	728180.41	601116.76	32°39'03.778"N	103°43'34.561"W	0.18	
6333.50	1.370	242.230	6331.53	75.03	-76.77	-36.54	728179.06	601116.03	32°39'03.771"N	103°43'34.577"W	0.05	
6397.10	1.310	242.540	6395.12	75.66	-77.46	-37.86	728177.74	601115.35	32°39'03.764"N	103°43'34.593"W	0.10	
6460.80	1.320	243.200	6458.80	76.27	-78.13	-39.16	728176.44	601114.68	32°39'03.757"N	103°43'34.608"W	0.03	
6524.40	1.250	242.680	6522.38	76.86	-78.77	-40.43	728175.17	601114.03	32°39'03.751"N	103°43'34.623"W	0.11	
6588.00	1.170	246.540	6585.97	77.38	-79.35	-41.65	728173.96	601113.45	32°39'03.745"N	103°43'34.637"W	0.18	
6651.70	1.100	248.500	6649.66	77.81	-79.83	-42.81	728172.79	601112.97	32°39'03.741"N	103°43'34.651"W	0.13	
6715.30	0.970	246.380	6713.25	78.20	-80.27	-43.87	728171.73	601112.53	32°39'03.736"N	103°43'34.663"W	0.21	
6778.90	0.870	246.980	6776.84	78.56	-80.68	-44.81	728170.79	601112.13	32°39'03.732"N	103°43'34.674"W	0.16	



Actual Wellpath Report

No.1H AWP

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REFERENCE AND IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(East 24) Sec 24, T19S, R32E	Wellbore	No.1H AWB
Facility	East Lusk 24 Fed Com No. 1H		

WELLPATH DATA (191 stations)

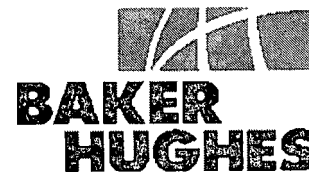
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
6842.60	0.830	246.910	6840.53	78.89	-81.05	-45.68	728169.92	601111.76	32°39'03.729"N	103°43'34.684"W	0.06	
6906.20	0.780	239.480	6904.12	79.25	-81.45	-46.48	728169.13	601111.36	32°39'03.725"N	103°43'34.694"W	0.18	
6969.80	0.850	236.250	6967.72	79.70	-81.93	-47.24	728168.36	601110.87	32°39'03.720"N	103°43'34.703"W	0.13	
7033.40	0.810	247.620	7031.31	80.10	-82.36	-48.05	728167.55	601110.44	32°39'03.716"N	103°43'34.712"W	0.27	
7097.10	0.910	247.280	7095.00	80.42	-82.73	-48.93	728166.67	601110.07	32°39'03.712"N	103°43'34.723"W	0.16	
7160.70	0.910	246.600	7158.60	80.78	-83.13	-49.86	728165.74	601109.68	32°39'03.708"N	103°43'34.734"W	0.02	
7224.30	0.850	254.250	7222.19	81.06	-83.45	-50.78	728164.82	601109.35	32°39'03.705"N	103°43'34.744"W	0.21	
7288.00	0.930	262.720	7285.88	81.21	-83.65	-51.75	728163.86	601109.16	32°39'03.703"N	103°43'34.756"W	0.24	
7351.60	0.970	269.330	7349.47	81.24	-83.72	-52.80	728162.81	601109.08	32°39'03.703"N	103°43'34.768"W	0.18	
7415.20	1.010	276.580	7413.06	81.13	-83.66	-53.89	728161.71	601109.14	32°39'03.703"N	103°43'34.781"W	0.21	
7478.90	1.070	288.670	7476.75	80.82	-83.41	-55.01	728160.59	601109.40	32°39'03.706"N	103°43'34.794"W	0.36	
7542.50	1.090	294.890	7540.34	80.33	-82.96	-56.12	728159.48	601109.84	32°39'03.710"N	103°43'34.807"W	0.19	
7606.10	1.330	314.780	7603.93	79.51	-82.19	-57.20	728158.41	601110.62	32°39'03.718"N	103°43'34.819"W	0.75	
7669.80	1.620	331.430	7667.61	78.15	-80.88	-58.15	728157.45	601111.93	32°39'03.731"N	103°43'34.830"W	0.81	
7733.40	1.890	335.980	7731.18	76.37	-79.13	-59.01	728156.59	601113.68	32°39'03.749"N	103°43'34.840"W	0.48	
7797.00	2.040	339.200	7794.74	74.32	-77.11	-59.84	728155.76	601115.69	32°39'03.769"N	103°43'34.850"W	0.29	
7860.60	2.080	339.890	7858.30	72.14	-74.97	-60.64	728154.97	601117.83	32°39'03.790"N	103°43'34.859"W	0.07	
7924.30	1.950	337.400	7921.96	70.02	-72.88	-61.45	728154.15	601119.92	32°39'03.810"N	103°43'34.868"W	0.25	
7987.90	1.780	335.200	7985.52	68.09	-70.99	-62.28	728153.32	601121.81	32°39'03.829"N	103°43'34.878"W	0.29	
8051.50	1.730	335.840	8049.09	66.28	-69.22	-63.09	728152.51	601123.59	32°39'03.847"N	103°43'34.887"W	0.08	
8115.20	1.740	332.860	8112.77	64.51	-67.48	-63.92	728151.68	601125.33	32°39'03.864"N	103°43'34.897"W	0.14	
8178.80	1.660	328.550	8176.34	62.82	-65.83	-64.84	728150.76	601126.97	32°39'03.880"N	103°43'34.908"W	0.24	
8242.40	1.810	321.970	8239.91	61.20	-64.26	-65.94	728149.66	601128.55	32°39'03.896"N	103°43'34.920"W	0.39	
8306.00	2.010	320.750	8303.47	59.48	-62.60	-67.27	728148.34	601130.20	32°39'03.913"N	103°43'34.936"W	0.32	
8369.70	2.110	319.100	8367.13	57.67	-60.85	-68.74	728146.86	601131.95	32°39'03.930"N	103°43'34.953"W	0.18	
8433.30	1.710	308.980	8430.70	56.12	-59.37	-70.25	728145.36	601133.43	32°39'03.945"N	103°43'34.970"W	0.82	
8496.90	1.620	292.960	8494.27	55.10	-58.42	-71.81	728143.79	601134.38	32°39'03.954"N	103°43'34.989"W	0.74	
8560.60	1.640	292.020	8557.94	54.33	-57.73	-73.49	728142.12	601135.08	32°39'03.961"N	103°43'35.008"W	0.05	
8624.20	1.440	294.660	8621.52	53.59	-57.05	-75.06	728140.55	601135.75	32°39'03.968"N	103°43'35.026"W	0.33	
8687.80	1.550	293.790	8685.10	52.84	-56.37	-76.57	728139.03	601136.43	32°39'03.975"N	103°43'35.044"W	0.18	



Actual Wellpath Report

No.1H AWP

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Operator **Cimarex Energy Co.**

Slot **No. 1H SHL**

Area **Lea County, NM**

Well **No. 1H**

Field **(East 24) Sec 24, T19S, R32E**

Wellbore **No.1H AWB**

Facility **East Lusk 24 Fed Com No. 1H**

WELLPATH DATA (191 stations)

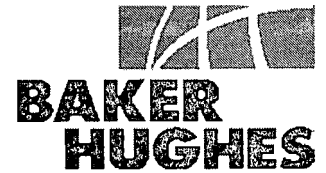
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8751.50	1.560	293.420	8748.78	52.07	-55.68	-78.15	728137.45	601137.12	32°39'03.982"N	103°43'35.063"W	0.02	
8815.10	1.510	292.380	8812.35	51.34	-55.02	-79.72	728135.88	601137.79	32°39'03.988"N	103°43'35.081"W	0.09	
8878.70	1.500	287.060	8875.93	50.71	-54.45	-81.29	728134.31	601138.35	32°39'03.994"N	103°43'35.099"W	0.22	
8942.40	1.460	284.150	8939.61	50.19	-54.01	-82.88	728132.73	601138.79	32°39'03.998"N	103°43'35.118"W	0.13	
9006.00	1.430	283.210	9003.19	49.74	-53.63	-84.44	728131.17	601139.17	32°39'04.002"N	103°43'35.136"W	0.06	
9069.60	1.530	284.700	9066.77	49.27	-53.23	-86.03	728129.57	601139.57	32°39'04.006"N	103°43'35.155"W	0.17	
9133.20	1.700	289.450	9130.34	48.67	-52.71	-87.74	728127.86	601140.10	32°39'04.012"N	103°43'35.175"W	0.34	
9196.90	1.450	293.600	9194.02	47.96	-52.07	-89.37	728126.23	601140.73	32°39'04.018"N	103°43'35.194"W	0.43	
9260.50	1.350	289.300	9257.60	47.32	-51.50	-90.81	728124.79	601141.30	32°39'04.024"N	103°43'35.210"W	0.23	
9324.10	1.140	275.910	9321.19	46.95	-51.19	-92.15	728123.45	601141.62	32°39'04.027"N	103°43'35.226"W	0.56	
9387.80	1.210	266.830	9384.87	46.86	-51.16	-93.45	728122.15	601141.65	32°39'04.027"N	103°43'35.241"W	0.31	
9451.40	1.350	250.550	9448.46	47.08	-51.44	-94.83	728120.77	601141.36	32°39'04.025"N	103°43'35.257"W	0.61	
9515.00	1.210	221.300	9512.04	47.79	-52.20	-95.98	728119.63	601140.60	32°39'04.017"N	103°43'35.271"W	1.04	
9544.00	4.200	180.700	9541.01	49.07	-53.49	-96.19	728119.41	601139.31	32°39'04.004"N	103°43'35.273"W	11.64	
9575.00	10.800	168.400	9571.73	53.07	-57.47	-95.62	728119.98	601135.33	32°39'03.965"N	103°43'35.267"W	21.79	
9607.00	16.900	165.400	9602.78	60.59	-64.92	-93.85	728121.76	601127.88	32°39'03.891"N	103°43'35.247"W	19.19	
9639.00	22.700	165.600	9632.88	71.19	-75.41	-91.14	728124.47	601117.39	32°39'03.787"N	103°43'35.216"W	18.13	
9671.00	28.300	166.200	9661.75	84.69	-88.77	-87.79	728127.82	601104.04	32°39'03.655"N	103°43'35.178"W	17.52	
9702.00	34.100	165.500	9688.25	100.42	-104.33	-83.86	728131.75	601088.47	32°39'03.501"N	103°43'35.133"W	18.75	
9734.00	39.700	166.700	9713.83	119.25	-122.98	-79.26	728136.35	601069.83	32°39'03.316"N	103°43'35.080"W	17.64	
9766.00	45.200	166.900	9737.44	140.47	-144.00	-74.33	728141.28	601048.81	32°39'03.108"N	103°43'35.024"W	17.19	
9798.00	52.100	165.300	9758.57	164.01	-167.30	-68.54	728147.06	601025.51	32°39'02.877"N	103°43'34.958"W	21.89	
9830.00	59.200	164.600	9776.61	189.79	-192.79	-61.68	728153.92	601000.02	32°39'02.624"N	103°43'34.879"W	22.26	
9862.00	66.700	164.200	9791.15	217.54	-220.22	-54.02	728161.58	600972.59	32°39'02.352"N	103°43'34.791"W	23.46	
9893.00	74.100	163.400	9801.54	245.90	-248.24	-45.87	728169.73	600944.57	32°39'02.075"N	103°43'34.698"W	23.99	
9910.00	77.800	163.000	9805.67	261.89	-264.03	-41.11	728174.49	600928.79	32°39'01.918"N	103°43'34.643"W	21.88	
9957.00	87.400	163.100	9811.72	306.99	-308.56	-27.54	728188.07	600884.26	32°39'01.477"N	103°43'34.488"W	20.43	
9989.00	87.800	163.500	9813.06	338.00	-339.18	-18.35	728197.25	600853.64	32°39'01.173"N	103°43'34.382"W	1.77	
10021.00	87.800	163.200	9814.29	369.02	-369.82	-9.19	728206.41	600823.00	32°39'00.870"N	103°43'34.277"W	0.94	
10053.00	87.800	163.000	9815.51	400.01	-400.41	-0.11	728215.71	600792.41	32°39'00.566"N	103°43'34.170"W	0.62	



Actual Wellpath Report

No.1H AWP

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REFERENCE INFORMATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(East 24) Sec 24, T19S, R32E	Wellbore	No.1H AWB
Facility	East Lusk 24 Fed Com No. 1H		

WELLPATH DATA (191 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
10085.00	88.000	162.500	9816.69	430.94	-430.95	9.59	728225.19	600761.87	32°39'00.264"N	103°43'34.061"W	1.68	
10148.00	89.000	162.000	9818.34	491.73	-490.93	28.79	728244.39	600701.89	32°38'59.669"N	103°43'33.841"W	1.77	
10180.00	89.100	162.200	9818.87	522.60	-521.38	38.63	728254.22	600671.45	32°38'59.367"N	103°43'33.728"W	0.70	
10244.00	89.800	161.800	9819.48	584.30	-582.24	58.40	728274.00	600610.59	32°38'58.764"N	103°43'33.501"W	1.26	
10307.00	89.600	161.400	9819.81	644.91	-642.02	78.29	728293.88	600550.81	32°38'58.171"N	103°43'33.272"W	0.71	
10371.00	89.800	162.600	9820.15	706.62	-702.89	98.06	728313.66	600489.95	32°38'57.568"N	103°43'33.045"W	1.90	
10435.00	90.400	163.700	9820.03	768.65	-764.14	116.62	728332.21	600428.70	32°38'56.961"N	103°43'32.832"W	1.96	
10499.00	90.100	164.800	9819.75	830.97	-825.73	133.99	728349.58	600367.11	32°38'56.350"N	103°43'32.633"W	1.78	
10562.00	90.200	165.700	9819.59	892.56	-886.66	150.03	728365.62	600306.19	32°38'55.747"N	103°43'32.450"W	1.44	
10626.00	89.300	168.800	9819.87	955.55	-949.07	164.15	728379.74	600243.78	32°38'55.128"N	103°43'32.289"W	5.04	
10690.00	89.300	169.300	9820.65	1018.86	-1011.90	176.31	728391.90	600180.95	32°38'54.506"N	103°43'32.151"W	0.78	
10753.00	89.500	170.700	9821.31	1081.33	-1073.94	187.24	728402.83	600118.92	32°38'53.892"N	103°43'32.027"W	2.24	
10817.00	89.800	172.900	9821.70	1145.02	-1137.28	196.37	728411.96	600055.58	32°38'53.264"N	103°43'31.924"W	3.47	
10880.00	89.500	175.100	9822.09	1207.91	-1199.93	202.96	728418.55	599992.94	32°38'52.644"N	103°43'31.851"W	3.52	
10944.00	89.200	176.900	9822.81	1271.88	-1263.77	207.42	728423.01	599929.10	32°38'52.012"N	103°43'31.804"W	2.85	
11008.00	89.900	178.500	9823.32	1335.88	-1327.71	209.99	728425.58	599865.16	32°38'51.379"N	103°43'31.778"W	2.73	
11071.00	90.500	178.900	9823.10	1398.86	-1390.69	211.42	728427.01	599802.18	32°38'50.756"N	103°43'31.765"W	1.14	
11135.00	91.200	178.300	9822.15	1462.84	-1454.67	212.98	728428.57	599738.21	32°38'50.123"N	103°43'31.751"W	1.44	
11199.00	91.000	179.400	9820.92	1526.80	-1518.64	214.27	728429.85	599674.24	32°38'49.490"N	103°43'31.741"W	1.75	
11263.00	90.900	180.000	9819.86	1590.74	-1582.63	214.60	728430.19	599610.25	32°38'48.857"N	103°43'31.741"W	0.95	
11326.00	91.100	179.800	9818.76	1653.67	-1645.62	214.71	728430.30	599547.27	32°38'48.234"N	103°43'31.744"W	0.45	
11390.00	91.200	179.900	9817.47	1717.60	-1709.61	214.88	728430.47	599483.28	32°38'47.601"N	103°43'31.746"W	0.22	
11515.00	90.400	181.100	9815.73	1842.40	-1834.59	213.79	728429.38	599358.31	32°38'46.364"N	103°43'31.767"W	1.15	
11643.00	91.500	181.200	9813.60	1970.11	-1962.54	211.22	728426.81	599230.36	32°38'45.098"N	103°43'31.806"W	0.86	
11770.00	93.200	181.100	9808.40	2096.73	-2089.40	208.67	728424.26	599103.51	32°38'43.843"N	103°43'31.844"W	1.34	
11897.00	92.900	180.900	9801.64	2223.29	-2216.21	206.46	728422.05	598976.71	32°38'42.589"N	103°43'31.879"W	0.28	
12025.00	91.700	181.700	9796.50	2350.89	-2344.07	203.56	728419.15	598848.86	32°38'41.324"N	103°43'31.921"W	1.13	
12152.00	90.300	181.200	9794.29	2477.55	-2471.00	200.34	728415.93	598721.93	32°38'40.068"N	103°43'31.967"W	1.17	
12279.00	91.400	181.500	9792.40	2604.23	-2597.95	197.35	728412.94	598594.99	32°38'38.812"N	103°43'32.011"W	0.90	
12407.00	90.700	180.700	9790.06	2731.94	-2725.90	194.90	728410.48	598467.04	32°38'37.546"N	103°43'32.048"W	0.83	



Actual Wellpath Report

No.1H AWP

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REFERENCE DATA										WELL INFORMATION									
Operator		Cimarex Energy Co.								Slot		No. 1H SHL							
Area		Lea County, NM								Well		No. 1H							
Field		(East 24) Sec 24, T19S, R32E								Wellbore		No.1H AWB							
Facility		East Lusk 24 Fed Com No. 1H																	

WELLPATH DATA (191 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
12534.00	91.900	180.800	9787.18	2858.69	-2852.86	193.23	728408.82	598340.09	32°38'36.290"N	103°43'32.076"W	0.95	
12661.00	89.500	181.100	9785.62	2985.43	-2979.82	191.13	728406.72	598213.14	32°38'35.034"N	103°43'32.109"W	1.90	
12789.00	89.500	180.400	9786.74	3113.20	-3107.81	189.45	728405.04	598085.16	32°38'33.768"N	103°43'32.137"W	0.55	
12916.00	90.000	180.200	9787.30	3240.04	-3234.80	188.79	728404.38	597958.17	32°38'32.511"N	103°43'32.153"W	0.42	
13043.00	87.800	179.900	9789.75	3366.87	-3361.77	188.68	728404.27	597831.21	32°38'31.255"N	103°43'32.163"W	1.75	
13170.00	88.500	179.700	9793.83	3493.69	-3488.70	189.12	728404.71	597704.28	32°38'29.999"N	103°43'32.166"W	0.57	
13298.00	87.900	179.700	9797.85	3621.52	-3616.64	189.79	728405.38	597576.35	32°38'28.733"N	103°43'32.167"W	0.47	
13425.00	87.200	179.600	9803.28	3748.31	-3743.52	190.56	728406.15	597449.48	32°38'27.478"N	103°43'32.167"W	0.56	
13552.00	87.000	179.500	9809.71	3875.06	-3870.35	191.56	728407.15	597322.65	32°38'26.223"N	103°43'32.163"W	0.18	
13577.00	87.000	179.300	9811.02	3900.01	-3895.32	191.82	728407.41	597297.69	32°38'25.976"N	103°43'32.162"W	0.80	
13627.00	87.000	179.300	9813.63	3949.91	-3945.24	192.43	728408.02	597247.77	32°38'25.482"N	103°43'32.158"W	0.00	Proj to Bit

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL		9804.00	-3959.66	180.00	728395.59	597233.35	32°38'25.340"N	103°43'32.305"W	point

WELLPATH COMPOSITION Ref Wellbore: No.1H AWB Ref Wellpath: No.1H AWP

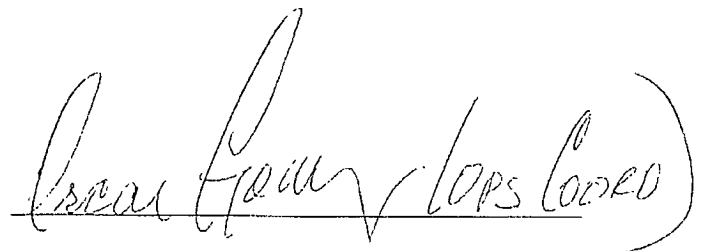
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	9515.00	Generic gyro - northseeking (Standard)	Gyro	No.1H AWB
9515.00	13627.00	NaviTrak (Standard)	MWD	No.1H AWB

2105 MARKET STREET
MIDLAND, TX 79703
24 HR (432) 694-9517

STATE OF NEW MEXICO

COUNTY OF Lea

I, Pacer White, Directional Driller certify that I am employed by Baker Hughes INTEQ; did conduct or supervise on the day(s) of Jan 31, 2011 through Feb 22, 2011 the taking of MWD surveys from a depth of 9,520 to a depth of 13,627 that the data is true, correct, complete and within the limitations of the tool as set forth by Baker Hughes INTEQ; that I am authorized and qualified to make this report; that this survey was conducted at the request of Cimarex Energy Co. for the East Lusk 24 Federal Com No. 1H in Lea County, NM; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by INTEQ.



Field Service Engineer: Pacer White