

REFERENCE SHEET FOR
UNDESIGNATED WELLS

	Fm	Pm	N	Pc
17-21 W	XX	XX	XX	

paragraph

1. Date:	2/25/2011
2. Type of Well:	
Oil:	XX
Gas:	
3. County:	LEA

4. Operator:	CIMAREX ENERGY CO OF COLORADO			API NUMBER:	30 - 025 - 39796	
5. Address of Operator	600 N MARIENFELD, STE 600 MIDLAND TX 79701					
6. Lease name or Unit Agreement Name	>> STATE DR			7. Well Number	# - 9	
8. Well Location	Unit Letter: A/P 660/4611 feet from the N line and 990/637 feet from the E line					
	Section	16	Township	19S	Range	32E
9. Completion Date:	1/31/2010	11. Perts	Top	Bottom	ID	
			9500	13075	13125	
10. Name of Producing Formation(s)		12. Open Hole Casing shoe	Bottom	PBTD		
				13087		
13. C-123 Filed:	Date	15. Name of Pool Requested or temporary Wildcat designation:	LUSK;BONE SPRING, EAST		Pool ID num	41442
Y	N	XX				
16. Remarks:	EXTEND					

TO BE COMPLETED BY DISTRICT GEOLOGIST		
17. Action taken	18. Pool Name	Pool ID num
EXTEND	LUSK;BONE SPRING, EAST	41442
T 19 S, R 32 E SEC 16: NE/4		

19. Advertised for HEARING:	20. Case Number
21. Name of pool for which was advertised.	Pool ID num
LUSK;BONE SPRING, EAST	41442
22. Placed in Pool	23. By order number
	R-
May 2005--UDS-LUS32020-1	

Results of Directional Survey

API number:	30-025-39796		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	STATE DR COM # 9

surface	ULSTR:	A	16	T	19S	R	32E
				660	FNL	990	FEL

BH Loc	ULSTR:	P	16	T	19S	R	32E
13125	MD	9415.2	TVD	4611	FNL	637	FEL

Top Perf/OH	ULSTR:	A	16	T	19S	R	32E
9500	MD	9350.3	TVD	1009	FNL	946	FEL

Bot Perf/OH	ULSTR:	P	16	T	19S	R	32E
13075	MD	9414.4	TVD	4561	FNL	644	FEL

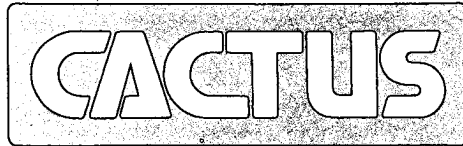
	MD	N/S	E/W	VD
	9472	-323.30	40.14	9339.5
TOP PERFS/OH	9500	-348.91	43.54	9350.28
	9504	-352.57	44.02	9351.82
	12991	-3818.25	333.88	9413.12
BOT PERFS/OH	13075	-3901.36	346.01	9414.44
	13080	-3906.31	346.73	9414.52

NEXT TO LAST	12991	-3818.25	333.88	9413.12
LAST READING	13080	-3906.31	346.73	9414.52
TD	13125	-3950.83	353.23	9415.23

Surface Location	660	FN	990	FE
Projected BHL	4611	FN	637	FE
Location of				
Top Perfs/OH	1009	FN	946	FE
Bottom Perfs/OH	4561	FN	644	FE

SUMMARY of Subsurface Locations

Surface Location	A-16-19S-32E	660	FN	990	FE	Vert. Depth
Top Perfs/OH	A-16-19S-32E	1009	FN	946	FE	9350.28
Bottom Perfs/OH	P-16-19S-32E	4561	FN	644	FE	9414.44
Projected TD	P-16-19S-32E	4611	FN	637	FE	9415.23



CACTUS DRILLING COMPANY, L.L.C.

REPORT OF PROOF OF APPARENT DEVIATION
NEW MEXICO

RECEIVED

FEB 10 2011
HOBBSDUD

OPERATOR CIMAREX CO OF COLORADO
600 NORTH MARIENFELD ST., STE 600
MIDLAND, TX 79701

FIELD NAME 30-025-39796

COUNTY/PARISH LEA

WELL NAME & NO. DR STATE COM 9H

LEGAL SEC 16-19S-32E

MEASURED DEPTH (FT)	COURSE LENGTH (HUNDREDS OF FT)	ANGLE OF INCLINATION (DEGREES)	DISPLACEMENT PER HUNDRED FT (SINE OF ANGLE X 100)	COURSE DISPLACEMENT (FEET)	ACCUMULATIVE DISPLACEMENT (FEET)	REMARKS
65	0.65	1/2	0.8727	0.57	0.57	
215	1.50	1	1.7452	2.62	3.19	
474	2.59	1/2	0.8727	2.26	5.45	
574	1.00	1/2	0.8727	0.87	6.32	
740	1.66	1/2	0.8727	1.45	7.77	
1106	3.66	1	1.7452	6.39	14.15	
1266	1.60	1	1.7452	2.79	16.95	
1765	4.99	1/2	0.8727	4.35	21.30	
2038	2.73	1/2	0.8727	2.38	23.68	
2336	2.98	2 1/2	4.3619	13.00	36.68	
2526	1.90	2	3.4899	6.63	43.31	
2726	2.00	1/2	0.8727	1.75	45.06	
3106	3.80	1/2	0.8727	3.32	48.37	
3286	1.80	1/2	0.8727	1.57	49.95	
3476	1.90	1/2	0.8727	1.66	51.60	
3585	1.09	1	1.7452	1.90	53.51	
3767	1.82	2	3.4899	6.35	59.86	
4017	2.50	2	3.4899	8.72	68.58	
4350	3.33	1/2	0.8727	2.91	71.49	
4665	3.15	1/2	0.8727	2.75	74.24	
4953	2.88	1/2	0.8727	2.51	76.75	
5238	2.85	1/2	0.8727	2.49	79.24	
5515	2.77	1/2	0.8727	2.42	81.65	
6189	6.74	1/2	0.8727	5.88	87.54	
6474	2.85	1/2	0.8727	2.49	90.02	
6755	2.81	1/2	0.8727	2.45	92.48	
7040	2.85	1/2	0.8727	2.49	94.96	
7330	2.90	1/2	0.8727	2.53	97.49	
7616	2.86	1/2	0.8727	2.50	99.99	
7916	3.00	1/2	0.8727	2.62	102.61	
8186	2.70	1/2	0.8727	2.36	104.96	
8471	2.85	1/2	0.8727	2.49	107.45	
8747	2.76	1/2	0.8727	2.41	109.86	

LESLIE N. KIDD
NOTARY PUBLIC - STATE OF OKLAHOMA
MY COMMISSION EXPIRES: MARCH 07, 2011
MY COMMISSION # 07002370

Leslie N. Kidd
3-7-2011

SUR: A-16-19s-32e, 660/N & 990/E
BHL: P-16-19s-32e, 4611/N & 637/E
API # 30-025-39796

P.O. Box 270848 • Oklahoma City, Okla. 73127
(405) 577-5347 • Fax (405) 577-9306



Actual Wellpath Report

No. 9H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 9H SHL
Area	Lea County, NM	Well	No. 9H
Field	(State DR) Sec 16, T19S, R32E	Wellbore	No. 9H AWB
Facility	State DR No. 9H		

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	Gomeoscr
Scale	0.999944	Report Generated	11/29/2010 at 8:29:24 AM
Convergence at slot	0.31° East	Database/Source file	WA Midland/No. 9H_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	715958.80	606436.60	32°39'57.086"N	103°45'57.175"W
Facility Reference Pt			715958.80	606436.60	32°39'57.086"N	103°45'57.175"W
Field Reference Pt			712327.80	606759.10	32°40'00.467"N	103°46'39.631"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 9H SHL (RKB) to GL	19.00ft
Horizontal Reference Pt	Slot	Rig on No. 9H SHL (RKB) to Mean Sea Level	3649.00ft
Vertical Reference Pt	Rig on No. 9H SHL (RKB)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 9H SHL (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	174.83°

SUR: A-16-19s-32e, 660/N & 990/E
BHL: P-16-19s-32e, 4611/N & 637/E
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Facility	State DR No. 9H		

WELLPATH DATA (154 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	319.360	0.00	0.00	0.00	0.00	715958.80	606436.60	32°39'57.086"N	103°45'57.175"W	0.00	
29.40	0.390	319.360	29.40	-0.08	0.08	-0.07	715958.73	606436.68	32°39'57.086"N	103°45'57.175"W	1.33	
120.20	0.340	326.360	120.20	-0.57	0.53	-0.42	715958.38	606437.13	32°39'57.091"N	103°45'57.180"W	0.07	
208.40	0.220	357.250	208.40	-0.97	0.92	-0.57	715958.23	606437.52	32°39'57.095"N	103°45'57.181"W	0.21	
298.10	0.240	283.880	298.10	-1.20	1.14	-0.76	715958.04	606437.74	32°39'57.097"N	103°45'57.184"W	0.31	
389.70	0.180	170.260	389.70	-1.12	1.04	-0.92	715957.88	606437.64	32°39'57.096"N	103°45'57.185"W	0.39	
479.60	0.030	120.860	479.60	-0.97	0.89	-0.88	715957.92	606437.49	32°39'57.095"N	103°45'57.185"W	0.18	
570.70	0.170	190.720	570.70	-0.82	0.75	-0.88	715957.92	606437.35	32°39'57.093"N	103°45'57.185"W	0.18	
661.50	0.180	172.380	661.50	-0.55	0.47	-0.89	715957.91	606437.07	32°39'57.090"N	103°45'57.185"W	0.06	
756.50	0.570	170.530	756.49	0.07	-0.14	-0.79	715958.01	606436.46	32°39'57.084"N	103°45'57.184"W	0.41	
851.50	0.810	190.460	851.49	1.19	-1.27	-0.83	715957.97	606435.33	32°39'57.073"N	103°45'57.185"W	0.35	
946.60	0.930	203.560	946.58	2.51	-2.64	-1.27	715957.53	606433.96	32°39'57.060"N	103°45'57.190"W	0.24	
1041.70	0.990	210.820	1041.66	3.85	-4.05	-1.99	715956.81	606432.55	32°39'57.046"N	103°45'57.198"W	0.14	
1136.70	1.020	207.940	1136.65	5.22	-5.50	-2.81	715955.99	606431.10	32°39'57.031"N	103°45'57.208"W	0.06	
1231.80	0.990	181.330	1231.73	6.75	-7.07	-3.23	715955.57	606429.53	32°39'57.016"N	103°45'57.213"W	0.49	
1326.80	0.970	183.250	1326.72	8.36	-8.69	-3.29	715955.51	606427.91	32°39'57.000"N	103°45'57.214"W	0.04	
1421.80	0.930	185.080	1421.71	9.92	-10.26	-3.41	715955.39	606426.34	32°39'56.984"N	103°45'57.215"W	0.05	
1516.90	0.890	183.450	1516.79	11.40	-11.77	-3.52	715955.28	606424.83	32°39'56.969"N	103°45'57.217"W	0.05	
1612.00	0.690	179.110	1611.89	12.71	-13.08	-3.55	715955.25	606423.52	32°39'56.956"N	103°45'57.217"W	0.22	
1707.00	0.440	170.070	1706.88	13.64	-14.01	-3.48	715955.32	606422.59	32°39'56.947"N	103°45'57.216"W	0.28	
1802.10	0.330	170.100	1801.98	14.28	-14.64	-3.37	715955.43	606421.96	32°39'56.941"N	103°45'57.215"W	0.12	
1897.10	0.230	161.360	1896.98	14.74	-15.09	-3.26	715955.54	606421.51	32°39'56.937"N	103°45'57.214"W	0.11	
1992.20	0.210	90.660	1992.08	14.94	-15.27	-3.03	715955.77	606421.33	32°39'56.935"N	103°45'57.211"W	0.27	
2087.20	0.840	56.020	2087.07	14.62	-14.89	-2.28	715956.52	606421.71	32°39'56.939"N	103°45'57.202"W	0.71	
2182.30	1.390	49.810	2182.15	13.62	-13.75	-0.82	715957.98	606422.85	32°39'56.950"N	103°45'57.185"W	0.59	
2277.30	1.980	50.750	2277.11	12.04	-11.97	1.33	715960.13	606424.63	32°39'56.967"N	103°45'57.160"W	0.62	
2372.30	2.250	49.290	2372.05	10.04	-9.72	4.02	715962.82	606426.88	32°39'56.989"N	103°45'57.128"W	0.29	
2467.40	2.370	49.010	2467.07	7.80	-7.21	6.92	715965.72	606429.39	32°39'57.014"N	103°45'57.094"W	0.13	
2562.40	2.270	52.000	2561.99	5.63	-4.76	9.88	715968.68	606431.84	32°39'57.038"N	103°45'57.059"W	0.17	
2657.50	1.110	75.550	2657.05	4.46	-3.37	12.26	715971.06	606433.23	32°39'57.052"N	103°45'57.032"W	1.40	
2752.60	0.770	124.670	2752.14	4.72	-3.51	13.68	715972.48	606433.09	32°39'57.050"N	103°45'57.015"W	0.88	
2847.60	1.220	168.560	2847.13	6.14	-4.86	14.40	715973.20	606431.74	32°39'57.037"N	103°45'57.007"W	0.90	
2942.70	1.320	176.590	2942.20	8.24	-6.95	14.67	715973.47	606429.65	32°39'57.016"N	103°45'57.004"W	0.21	
3037.70	1.470	186.320	3037.17	10.53	-9.25	14.60	715973.40	606427.35	32°39'56.993"N	103°45'57.005"W	0.29	
3132.80	1.500	196.650	3132.24	12.88	-11.65	14.11	715972.91	606424.95	32°39'56.970"N	103°45'57.010"W	0.28	
3227.80	2.240	193.170	3227.19	15.79	-14.65	13.33	715972.13	606421.95	32°39'56.940"N	103°45'57.020"W	0.79	
3322.80	3.800	189.370	3322.06	20.60	-19.57	12.39	715971.19	606417.03	32°39'56.891"N	103°45'57.031"W	1.65	
3417.90	4.850	172.650	3416.89	27.67	-26.66	12.39	715971.19	606409.94	32°39'56.821"N	103°45'57.031"W	1.71	
3512.90	5.070	176.770	3511.53	35.88	-34.84	13.14	715971.94	606401.76	32°39'56.740"N	103°45'57.023"W	0.44	
3608.00	4.470	183.380	3606.30	43.75	-42.73	13.16	715971.96	606393.87	32°39'56.662"N	103°45'57.023"W	0.85	
3703.10	3.780	186.530	3701.16	50.48	-49.55	12.59	715971.39	606387.06	32°39'56.595"N	103°45'57.031"W	0.76	
3798.10	3.270	185.050	3795.98	56.21	-55.36	11.99	715970.79	606381.25	32°39'56.537"N	103°45'57.038"W	0.55	
3893.20	2.640	180.840	3890.95	61.06	-60.25	11.72	715970.52	606376.35	32°39'56.489"N	103°45'57.041"W	0.70	
3988.20	2.160	178.900	3985.87	65.02	-64.23	11.72	715970.52	606372.38	32°39'56.450"N	103°45'57.042"W	0.51	
4083.30	1.750	168.780	4080.91	68.25	-67.44	12.04	715970.84	606369.16	32°39'56.418"N	103°45'57.038"W	0.56	



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WELLPATH DATA (154 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
4178.30	1.490	174.010	4175.87	70.93	-70.09	12.45	715971.25	606366.51	32°39'56.391"N	103°45'57.033"W	0.31	
4273.40	1.230	166.890	4270.95	73.18	-72.32	12.81	715971.61	606364.29	32°39'56.369"N	103°45'57.029"W	0.33	
4368.40	1.430	159.180	4365.92	75.33	-74.42	13.47	715972.26	606362.19	32°39'56.349"N	103°45'57.022"W	0.28	
4463.40	1.100	157.720	4460.90	77.34	-76.37	14.23	715973.03	606360.23	32°39'56.329"N	103°45'57.013"W	0.35	
4558.50	1.120	166.280	4555.98	79.13	-78.12	14.80	715973.60	606358.49	32°39'56.312"N	103°45'57.007"W	0.18	
4653.60	0.950	161.780	4651.06	80.82	-79.77	15.27	715974.07	606356.83	32°39'56.296"N	103°45'57.001"W	0.20	
4748.60	1.150	165.380	4746.05	82.53	-81.44	15.75	715974.55	606355.16	32°39'56.279"N	103°45'56.996"W	0.22	
4843.60	0.890	185.730	4841.03	84.19	-83.10	15.92	715974.72	606353.51	32°39'56.263"N	103°45'56.994"W	0.47	
4938.70	0.480	193.980	4936.13	85.30	-84.22	15.75	715974.55	606352.39	32°39'56.252"N	103°45'56.996"W	0.44	
5033.80	0.030	290.560	5031.23	85.66	-84.60	15.63	715974.43	606352.01	32°39'56.248"N	103°45'56.997"W	0.51	
5128.80	0.280	321.730	5126.22	85.46	-84.41	15.46	715974.26	606352.20	32°39'56.250"N	103°45'56.999"W	0.27	
5223.90	0.140	306.440	5221.32	85.18	-84.15	15.23	715974.03	606352.45	32°39'56.252"N	103°45'57.002"W	0.16	
5318.90	0.360	294.150	5316.32	84.96	-83.96	14.86	715973.66	606352.64	32°39'56.254"N	103°45'57.006"W	0.24	
5413.90	0.590	297.130	5411.32	84.55	-83.62	14.15	715972.95	606352.99	32°39'56.258"N	103°45'57.014"W	0.24	
5509.00	0.860	305.790	5506.41	83.82	-82.98	13.14	715971.94	606353.63	32°39'56.264"N	103°45'57.026"W	0.31	
5604.10	0.700	297.360	5601.50	83.04	-82.29	12.04	715970.84	606354.31	32°39'56.271"N	103°45'57.039"W	0.21	
5699.10	0.740	290.380	5696.50	82.47	-81.81	10.95	715969.75	606354.79	32°39'56.276"N	103°45'57.052"W	0.10	
5794.10	0.890	290.860	5791.49	81.88	-81.34	9.69	715968.49	606355.27	32°39'56.280"N	103°45'57.066"W	0.16	
5889.20	0.870	288.690	5886.58	81.26	-80.84	8.31	715967.11	606355.76	32°39'56.285"N	103°45'57.083"W	0.04	
5984.30	0.800	292.590	5981.67	80.66	-80.36	7.02	715965.82	606356.25	32°39'56.290"N	103°45'57.098"W	0.09	
6079.30	0.730	292.440	6076.66	80.07	-79.87	5.85	715964.65	606356.73	32°39'56.295"N	103°45'57.111"W	0.07	
6174.40	0.660	293.940	6171.75	79.52	-79.42	4.78	715963.58	606357.19	32°39'56.300"N	103°45'57.124"W	0.08	
6269.40	0.530	291.630	6266.74	79.06	-79.03	3.88	715962.68	606357.57	32°39'56.304"N	103°45'57.134"W	0.14	
6364.40	0.420	281.780	6361.74	78.76	-78.80	3.13	715961.93	606357.81	32°39'56.306"N	103°45'57.143"W	0.14	
6459.50	0.380	262.190	6456.84	78.67	-78.77	2.47	715961.27	606357.83	32°39'56.306"N	103°45'57.151"W	0.15	
6554.60	0.360	261.520	6551.94	78.71	-78.86	1.87	715960.67	606357.75	32°39'56.305"N	103°45'57.158"W	0.02	
6649.60	0.330	275.190	6646.94	78.67	-78.88	1.30	715960.10	606357.73	32°39'56.305"N	103°45'57.164"W	0.09	
6744.60	0.270	287.800	6741.93	78.54	-78.78	0.81	715959.61	606357.82	32°39'56.306"N	103°45'57.170"W	0.09	
6839.70	0.260	303.470	6837.03	78.31	-78.60	0.42	715959.22	606358.01	32°39'56.308"N	103°45'57.175"W	0.08	
6934.80	0.260	319.020	6932.13	78.00	-78.31	0.10	715958.90	606358.29	32°39'56.311"N	103°45'57.178"W	0.07	
7029.80	0.330	335.550	7027.13	77.57	-77.90	-0.16	715958.64	606358.70	32°39'56.315"N	103°45'57.181"W	0.12	
7124.90	0.380	343.180	7122.23	77.00	-77.35	-0.36	715958.44	606359.25	32°39'56.320"N	103°45'57.184"W	0.07	
7219.90	0.400	42.240	7217.23	76.47	-76.80	-0.23	715958.57	606359.80	32°39'56.326"N	103°45'57.182"W	0.41	
7314.90	0.530	75.080	7312.22	76.17	-76.45	0.42	715959.22	606360.16	32°39'56.329"N	103°45'57.175"W	0.31	
7410.00	0.800	50.310	7407.32	75.72	-75.91	1.35	715960.15	606360.70	32°39'56.335"N	103°45'57.164"W	0.41	
7505.10	0.900	30.590	7502.41	74.74	-74.84	2.24	715961.04	606361.76	32°39'56.345"N	103°45'57.153"W	0.32	
7600.10	1.070	5.510	7597.39	73.26	-73.32	2.71	715961.51	606363.29	32°39'56.360"N	103°45'57.148"W	0.48	
7695.10	1.290	359.480	7692.37	71.33	-71.36	2.78	715961.58	606365.24	32°39'56.379"N	103°45'57.147"W	0.27	
7790.20	0.830	8.590	7787.46	69.59	-69.61	2.88	715961.68	606366.99	32°39'56.397"N	103°45'57.145"W	0.51	
7885.30	1.080	9.020	7882.54	68.05	-68.05	3.12	715961.92	606368.56	32°39'56.412"N	103°45'57.142"W	0.26	
7980.30	0.870	5.050	7977.53	66.47	-66.44	3.33	715962.12	606370.16	32°39'56.428"N	103°45'57.140"W	0.23	
8075.40	0.930	277.370	8072.62	65.60	-65.63	2.62	715961.42	606370.98	32°39'56.436"N	103°45'57.148"W	1.31	
8170.40	0.940	277.150	8167.61	65.26	-65.43	1.09	715959.89	606371.17	32°39'56.438"N	103°45'57.166"W	0.01	
8265.50	0.460	279.420	8262.70	65.00	-65.27	-0.07	715958.73	606371.33	32°39'56.440"N	103°45'57.180"W	0.51	
8360.50	0.070	324.430	8357.70	64.85	-65.16	-0.48	715958.32	606371.44	32°39'56.441"N	103°45'57.184"W	0.44	



Actual Wellpath Report

No. 9H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 9H SHL
Area	Lea County, NM	Well	No. 9H
Field	(State DR) Sec 16, T19S, R32E	Wellbore	No. 9H AWB
Facility	State DR No. 9H		

WELLPATH DATA (154 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
8455.50	0.320	118.780	8452.70	64.95	-65.24	-0.28	715958.52	606371.36	32°39'56.440"N	103°45'57.182"W	0.40	
8550.60	0.670	107.180	8547.80	65.31	-65.53	0.49	715959.29	606371.07	32°39'56.437"N	103°45'57.173"W	0.38	
8645.60	0.820	111.850	8642.79	65.83	-65.95	1.65	715960.45	606370.65	32°39'56.433"N	103°45'57.160"W	0.17	
8740.70	0.940	108.610	8737.88	66.45	-66.45	3.02	715961.82	606370.15	32°39'56.428"N	103°45'57.144"W	0.14	
8835.80	1.560	113.360	8832.95	67.39	-67.21	4.95	715963.75	606369.39	32°39'56.420"N	103°45'57.121"W	0.66	
8930.80	1.760	111.740	8927.91	68.67	-68.27	7.49	715966.29	606368.34	32°39'56.410"N	103°45'57.091"W	0.22	
9025.90	1.680	114.610	9022.97	70.02	-69.39	10.11	715968.91	606367.21	32°39'56.399"N	103°45'57.061"W	0.12	
9060.00	1.800	122.800	9057.06	70.60	-69.89	11.02	715969.82	606366.72	32°39'56.394"N	103°45'57.050"W	0.81	
9092.00	5.200	159.700	9088.99	72.31	-71.52	11.94	715970.74	606365.08	32°39'56.377"N	103°45'57.039"W	12.23	
9123.00	13.200	172.700	9119.57	77.21	-76.36	12.88	715971.68	606360.25	32°39'56.330"N	103°45'57.029"W	26.50	
9155.00	20.600	175.400	9150.17	86.50	-85.61	13.80	715972.60	606351.00	32°39'56.238"N	103°45'57.019"W	23.25	
9187.00	27.200	178.400	9179.41	99.44	-98.54	14.46	715973.26	606338.06	32°39'56.110"N	103°45'57.012"W	20.97	
9218.00	34.300	179.300	9206.04	115.24	-114.38	14.76	715973.56	606322.23	32°39'55.953"N	103°45'57.009"W	22.95	
9250.00	41.400	176.600	9231.29	134.84	-133.98	15.50	715974.30	606302.62	32°39'55.759"N	103°45'57.002"W	22.78	
9282.00	48.200	172.500	9253.99	157.36	-156.40	17.69	715976.49	606280.21	32°39'55.537"N	103°45'56.978"W	23.08	
9313.00	54.700	171.400	9273.30	181.56	-180.39	21.09	715979.89	606256.22	32°39'55.300"N	103°45'56.939"W	21.15	
9345.00	62.300	172.600	9290.01	208.79	-207.39	24.87	715983.67	606229.22	32°39'55.032"N	103°45'56.897"W	23.96	
9377.00	67.400	172.300	9303.60	237.72	-236.10	28.68	715987.48	606200.52	32°39'54.748"N	103°45'56.854"W	15.96	
9409.00	68.200	172.800	9315.69	267.33	-265.48	32.52	715991.32	606171.14	32°39'54.457"N	103°45'56.811"W	2.89	
9440.00	68.100	172.800	9327.23	296.08	-294.02	36.13	715994.93	606142.60	32°39'54.175"N	103°45'56.771"W	0.32	
9472.00	66.800	171.600	9339.50	325.60	-323.30	40.14	715998.93	606113.32	32°39'53.885"N	103°45'56.725"W	5.34	
9504.00	67.900	173.300	9351.82	355.11	-352.57	44.02	716002.81	606084.05	32°39'53.595"N	103°45'56.682"W	5.99	
9535.00	71.100	173.500	9362.68	384.13	-381.42	47.35	716006.15	606055.21	32°39'53.309"N	103°45'56.645"W	10.34	
9567.00	74.800	175.200	9372.06	414.72	-411.85	50.36	716009.16	606024.77	32°39'53.008"N	103°45'56.611"W	12.63	
9600.00	78.700	175.700	9379.62	446.83	-443.87	52.91	716011.70	605992.76	32°39'52.691"N	103°45'56.584"W	11.91	
9631.00	83.200	175.700	9384.50	477.43	-474.39	55.20	716014.00	605962.24	32°39'52.389"N	103°45'56.559"W	14.52	
9662.00	88.500	175.600	9386.74	508.34	-505.21	57.54	716016.34	605931.42	32°39'52.084"N	103°45'56.533"W	17.10	
9757.00	90.200	175.700	9387.82	603.32	-599.92	64.75	716023.55	605836.71	32°39'51.146"N	103°45'56.455"W	1.79	
9853.00	90.900	174.500	9386.90	699.31	-695.57	72.95	716031.74	605741.07	32°39'50.200"N	103°45'56.365"W	1.45	
9947.00	90.900	174.100	9385.42	793.29	-789.09	82.28	716041.08	605647.56	32°39'49.274"N	103°45'56.262"W	0.43	
10042.00	91.200	173.400	9383.68	888.26	-883.51	92.62	716051.42	605553.14	32°39'48.339"N	103°45'56.147"W	0.80	
10138.00	91.400	172.800	9381.50	984.19	-978.79	104.15	716062.95	605457.87	32°39'47.396"N	103°45'56.018"W	0.66	
10233.00	91.300	172.200	9379.26	1079.09	-1072.95	116.55	716075.34	605363.71	32°39'46.463"N	103°45'55.879"W	0.64	
10326.00	90.500	171.800	9377.80	1171.96	-1165.03	129.49	716088.28	605271.64	32°39'45.552"N	103°45'55.733"W	0.96	
10419.00	91.000	171.700	9376.59	1264.82	-1257.06	142.84	716101.63	605179.61	32°39'44.640"N	103°45'55.583"W	0.55	
10516.00	91.000	171.400	9374.89	1361.64	-1352.99	157.09	716115.88	605083.69	32°39'43.690"N	103°45'55.422"W	0.31	
10612.00	90.800	171.600	9373.38	1457.47	-1447.93	171.28	716130.07	604988.76	32°39'42.750"N	103°45'55.262"W	0.29	
10707.00	89.700	173.900	9372.97	1552.40	-1542.16	183.26	716142.05	604894.53	32°39'41.817"N	103°45'55.128"W	2.68	
10803.00	90.100	174.200	9373.14	1648.39	-1637.64	193.21	716152.00	604799.05	32°39'40.872"N	103°45'55.017"W	0.52	
10898.00	89.200	175.300	9373.72	1743.39	-1732.24	201.91	716160.69	604704.46	32°39'39.936"N	103°45'54.921"W	1.50	
10993.00	88.900	176.000	9375.29	1838.36	-1826.95	209.11	716167.90	604609.75	32°39'38.998"N	103°45'54.843"W	0.80	
11087.00	89.500	175.500	9376.61	1932.34	-1920.68	216.08	716174.86	604516.03	32°39'38.070"N	103°45'54.767"W	0.83	
11184.00	89.400	175.800	9377.54	2029.33	-2017.40	223.43	716182.22	604419.32	32°39'37.113"N	103°45'54.687"W	0.33	
11279.00	90.100	175.900	9377.95	2124.31	-2112.15	230.31	716189.10	604324.57	32°39'36.175"N	103°45'54.613"W	0.74	
11372.00	90.100	176.200	9377.79	2217.29	-2204.93	236.71	716195.50	604231.80	32°39'35.257"N	103°45'54.544"W	0.32	



Actual Wellpath Report

No. 9H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 9H SHL
Area	Lea County, NM	Well	No. 9H
Field	(State DR) Sec 16, T19S, R32E	Wellbore	No. 9H AWB
Facility	State DR No. 9H		

WELLPATH DATA (154 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
11469.00	91.900	178.000	9376.10	2314.19	-2301.78	241.62	716200.41	604134.95	32°39'34.298"N	103°45'54.492"W	2.62	
11564.00	90.500	178.200	9374.11	2409.01	-2396.70	244.77	716203.56	604040.03	32°39'33.359"N	103°45'54.462"W	1.49	
11659.00	90.600	178.300	9373.19	2503.84	-2491.66	247.67	716206.46	603945.09	32°39'32.419"N	103°45'54.434"W	0.15	
11755.00	87.300	179.600	9374.95	2599.56	-2587.61	249.43	716208.22	603849.14	32°39'31.470"N	103°45'54.419"W	3.69	
11850.00	87.800	180.000	9379.01	2694.11	-2682.52	249.76	716208.55	603754.24	32°39'30.531"N	103°45'54.421"W	0.67	
11945.00	89.300	180.100	9381.42	2788.69	-2777.49	249.68	716208.46	603659.27	32°39'29.591"N	103°45'54.428"W	1.58	
12040.00	87.700	178.900	9383.91	2883.33	-2872.45	250.51	716209.29	603564.32	32°39'28.652"N	103°45'54.424"W	2.10	
12135.00	87.900	178.300	9387.55	2978.06	-2967.35	252.83	716211.61	603469.42	32°39'27.712"N	103°45'54.403"W	0.67	
12231.00	87.800	177.400	9391.15	3073.86	-3063.21	256.43	716215.21	603373.57	32°39'26.764"N	103°45'54.367"W	0.94	
12326.00	87.700	177.500	9394.88	3168.68	-3158.04	260.65	716219.43	603278.74	32°39'25.825"N	103°45'54.324"W	0.15	
12421.00	87.700	177.800	9398.70	3263.49	-3252.89	264.54	716223.33	603183.90	32°39'24.887"N	103°45'54.284"W	0.32	
12516.00	88.100	172.500	9402.18	3358.39	-3347.45	272.57	716231.35	603089.34	32°39'23.951"N	103°45'54.196"W	5.59	
12611.00	87.500	173.700	9405.83	3453.28	-3441.69	283.97	716242.75	602995.11	32°39'23.017"N	103°45'54.069"W	1.41	
12706.00	89.100	173.900	9408.64	3548.22	-3536.09	294.23	716253.01	602900.72	32°39'22.083"N	103°45'53.954"W	1.70	
12801.00	89.900	171.600	9409.47	3643.14	-3630.32	306.21	716265.00	602806.49	32°39'21.150"N	103°45'53.820"W	2.56	
12896.00	88.600	171.500	9410.72	3737.98	-3724.28	320.17	716278.95	602712.54	32°39'20.220"N	103°45'53.663"W	1.37	
12991.00	88.500	171.900	9413.12	3832.81	-3818.25	333.88	716292.66	602618.57	32°39'19.289"N	103°45'53.508"W	0.43	
13080.00	89.700	171.500	9414.52	3921.66	-3906.31	346.73	716305.51	602530.52	32°39'18.417"N	103°45'53.364"W	1.42	
13125.00	89.700	171.500	9414.75	3966.58	-3950.81	353.38	716312.16	602486.02	32°39'17.976"N	103°45'53.289"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. 9H PBHL		9385.00	-3961.14	358.43	716317.21	602475.69	32°39'17.874"N	103°45'53.230"W	point

WELLPATH COMPOSITION Ref Wellbore: No. 9H AWB Ref Wellpath: No. 9H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	9025.90	Generic gyro - northseeking (Standard)	Gyro	No. 9H AWB
9025.90	13125.00	NaviTrak (Standard)	MWD	No. 9H AWB



Cimarex Energy Co.

Location: Lea County, NM
Field: (State DR) Sec 16, T19S, R32E
Facility: State DR No. 9H

Slot: No. 9H SHL
Well: No. 9H
Wellbore: No. 9H PWB



Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	9025.90	1.680	114.610	9022.97	-69.39	10.11	0.00	70.02
Est. KOP	9080.00	1.680	114.610	9077.05	-70.05	11.56	0.00	70.81
End of Curve	9566.47	90.000	175.000	9385.00	-380.72	46.62	18.33	383.37
EoD	9567.61	90.000	175.023	9385.00	-381.86	46.72	2.00	384.51
No. 9H PBHL	13160.44	90.000	175.023	9385.00	-3961.14	358.43	0.00	3977.32

Plot reference wellpath is Plan #1

True vertical depths are referenced to Rig on No. 9H SHL (RKB)

Measured depths are referenced to Rig on No. 9H SHL (RKB)

Rig on No. 9H SHL (RKB) to Mean Sea Level: 3649 feet

Mean Sea Level to Mud line (Facility: State DR No. 9H): -3630 feet

Coordinates are in feet referenced to SL

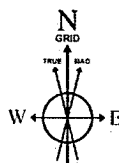
Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet

North Reference: Grid north

Scale: True distance

Depths are in feet

Created by: gomeoscr on 11/14/2010



BGGM (1945.0 to 2011.0) Dip: 60.60° Field: 49013.3 nT
Magnetic North is 7.85 degrees East of True North (at 8/9/2010)
Grid North is 0.31 degrees East of True North
To correct azimuth from True to Grid subtract 0.31 degrees
To correct azimuth from Magnetic to Grid add 7.54 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.54 = 97.54

