



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



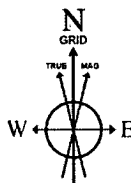
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	174.830	0.00	0.00	0.00	0.00	0.00
Est KOP	9196.00	0.000	174.830	9196.00	0.00	0.00	0.00	0.00
End of Curve	9514.81	89.266	174.830	9400.61	-201.18	18.20	28.00	202.01
No 9H PWB	13290.43	89.266	174.830	9449.00	-3961.14	358.43	0.00	3977.32

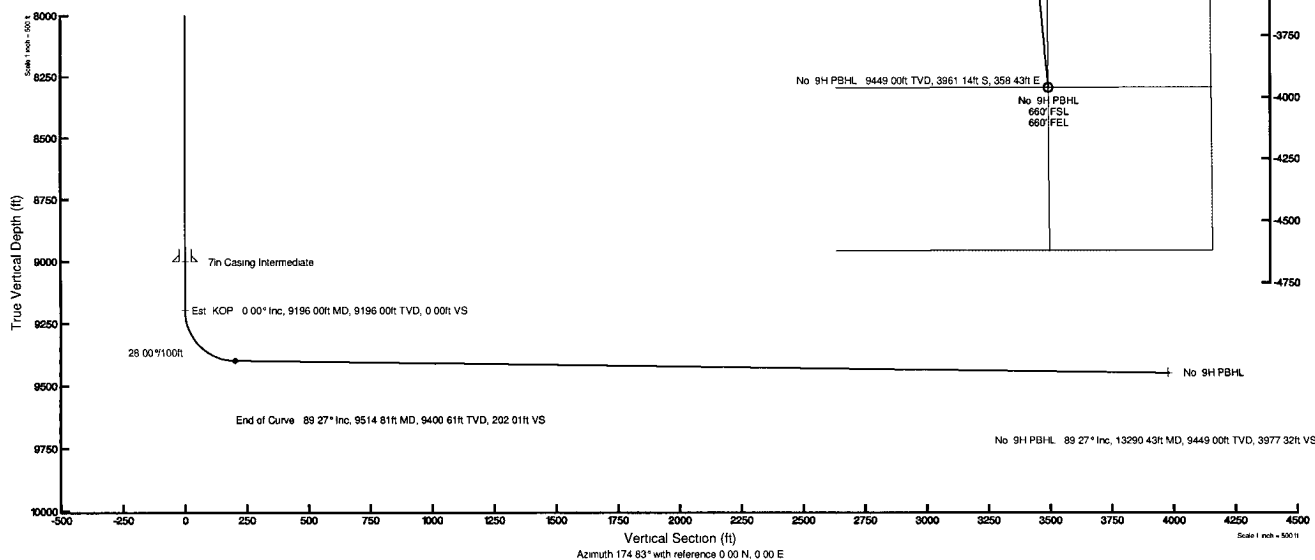
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Plot reference wellpath is Problem 2	
True vertical depths are referenced to Rig on No 9H SHL (GL)	Grid System NAD83 / TM New Mexico State Planes, Eastern Zone (2001) US feet
Measured depths are referenced to Rig on No 9H SHL (GL)	North Reference Grid north
Rig on No 9H SHL (GL) to Mean Sea Level 3630 feet	Scale True distance
Mean Grid Level to Mean Sea Level (State DR No 9H) 3630 feet	Depths are in feet
Coordinates are all feet referenced to SL	Created by Victor Hernandez on 8/9/2010



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





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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 PWB
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	Victor Hernandez
Scale	0.999944	Report Generated	8/9/2010 at 2:28:47 PM
Convergence at slot	0.31° East	Database/Source file	WA_Midland/No. 9H_PWB.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 (GL) to GL	0.00ft
Horizontal Reference Pt	SL	Rig on No. 9H SHL (GL) to Mean Sea Level	3630.00ft
Vertical Reference Pt	Rig on No. 9H SHL (GL)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 9H SHL (GL)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	174.83°

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Area	Lea County, NM	Well	No. 9H
Field	(State DR) Sec 16, T19S, R32E	Wellbore	No. 9H PWB
Facility	State DR No. 9H		

WELLPATH DATA (44 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	174.830	0.00	0.00	0.00	0.00	715958.80	606436.60	32°39'57.086"N	103°45'57.175"W	0.00	Tie On
9196.00	0.000	174.830	9196.00	0.00	0.00	0.00	715958.80	606436.60	32°39'57.086"N	103°45'57.175"W	0.00	Est. KOP
9296.00‡	28.000	174.830	9292.07	23.95	-23.85	2.16	715960.96	606412.75	32°39'56.850"N	103°45'57.151"W	28.00	
9396.00‡	56.000	174.830	9365.64	90.20	-89.83	8.13	715966.93	606346.77	32°39'56.196"N	103°45'57.085"W	28.00	
9496.00‡	84.000	174.830	9399.51	183.24	-182.49	16.51	715975.31	606254.12	32°39'55.279"N	103°45'56.993"W	28.00	
9514.81	89.266	174.830	9400.61	202.01	-201.18	18.20	715977.00	606235.43	32°39'55.094"N	103°45'56.974"W	28.00	End of Curve
9596.00‡	89.266	174.830	9401.65	283.19	-282.04	25.52	715984.32	606154.58	32°39'54.294"N	103°45'56.894"W	0.00	
9696.00‡	89.266	174.830	9402.93	383.18	-381.63	34.53	715993.33	606055.00	32°39'53.308"N	103°45'56.795"W	0.00	
9796.00‡	89.266	174.830	9404.21	483.18	-481.21	43.54	716002.34	605955.42	32°39'52.322"N	103°45'56.695"W	0.00	
9896.00‡	89.266	174.830	9405.50	583.17	-580.80	52.55	716011.35	605855.84	32°39'51.336"N	103°45'56.596"W	0.00	
9996.00‡	89.266	174.830	9406.78	683.16	-680.38	61.57	716020.36	605756.26	32°39'50.351"N	103°45'56.497"W	0.00	
10096.00‡	89.266	174.830	9408.06	783.15	-779.96	70.58	716029.37	605656.68	32°39'49.365"N	103°45'56.398"W	0.00	
10196.00‡	89.266	174.830	9409.34	883.14	-879.55	79.59	716038.38	605557.10	32°39'48.379"N	103°45'56.299"W	0.00	
10296.00‡	89.266	174.830	9410.62	983.14	-979.13	88.60	716047.39	605457.52	32°39'47.393"N	103°45'56.200"W	0.00	
10396.00‡	89.266	174.830	9411.90	1083.13	-1078.72	97.61	716056.40	605357.94	32°39'46.407"N	103°45'56.100"W	0.00	
10496.00‡	89.266	174.830	9413.19	1183.12	-1178.30	106.62	716065.41	605258.36	32°39'45.422"N	103°45'56.001"W	0.00	
10596.00‡	89.266	174.830	9414.47	1283.11	-1277.89	115.63	716074.43	605158.78	32°39'44.436"N	103°45'55.902"W	0.00	
10696.00‡	89.266	174.830	9415.75	1383.10	-1377.47	124.64	716083.44	605059.21	32°39'43.450"N	103°45'55.803"W	0.00	
10796.00‡	89.266	174.830	9417.03	1483.09	-1477.06	133.65	716092.45	604959.63	32°39'42.464"N	103°45'55.704"W	0.00	
10896.00‡	89.266	174.830	9418.31	1583.09	-1576.64	142.67	716101.46	604860.05	32°39'41.478"N	103°45'55.605"W	0.00	
10996.00‡	89.266	174.830	9419.59	1683.08	-1676.23	151.68	716110.47	604760.47	32°39'40.493"N	103°45'55.505"W	0.00	
11096.00‡	89.266	174.830	9420.88	1783.07	-1775.81	160.69	716119.48	604660.89	32°39'39.507"N	103°45'55.406"W	0.00	
11196.00‡	89.266	174.830	9422.16	1883.06	-1875.40	169.70	716128.49	604561.31	32°39'38.521"N	103°45'55.307"W	0.00	
11296.00‡	89.266	174.830	9423.44	1983.05	-1974.98	178.71	716137.50	604461.73	32°39'37.535"N	103°45'55.208"W	0.00	
11396.00‡	89.266	174.830	9424.72	2083.04	-2074.57	187.72	716146.51	604362.15	32°39'36.549"N	103°45'55.109"W	0.00	
11496.00‡	89.266	174.830	9426.00	2183.04	-2174.15	196.73	716155.52	604262.57	32°39'35.564"N	103°45'55.010"W	0.00	
11596.00‡	89.266	174.830	9427.28	2283.03	-2273.74	205.74	716164.53	604162.99	32°39'34.578"N	103°45'54.910"W	0.00	
11696.00‡	89.266	174.830	9428.57	2383.02	-2373.32	214.75	716173.54	604063.41	32°39'33.592"N	103°45'54.811"W	0.00	
11796.00‡	89.266	174.830	9429.85	2483.01	-2472.91	223.77	716182.55	603963.83	32°39'32.606"N	103°45'54.712"W	0.00	
11896.00‡	89.266	174.830	9431.13	2583.00	-2572.49	232.78	716191.56	603864.26	32°39'31.620"N	103°45'54.613"W	0.00	



Planned Wellpath Report

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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 PWB
Facility	State DR No. 9H		

WELLPATH DATA (44 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
11996.00†	89.266	174.830	9432.41	2683.00	-2672.08	241.79	716200.57	603764.68	32°39'30.635"N	103°45'54.514"W	0.00	
12096.00†	89.266	174.830	9433.69	2782.99	-2771.66	250.80	716209.58	603665.10	32°39'29.649"N	103°45'54.415"W	0.00	
12196.00†	89.266	174.830	9434.97	2882.98	-2871.25	259.81	716218.59	603565.52	32°39'28.663"N	103°45'54.315"W	0.00	
12296.00†	89.266	174.830	9436.26	2982.97	-2970.83	268.82	716227.61	603465.94	32°39'27.677"N	103°45'54.216"W	0.00	
12396.00†	89.266	174.830	9437.54	3082.96	-3070.42	277.83	716236.62	603366.36	32°39'26.691"N	103°45'54.117"W	0.00	
12496.00†	89.266	174.830	9438.82	3182.95	-3170.00	286.84	716245.63	603266.78	32°39'25.705"N	103°45'54.018"W	0.00	
12596.00†	89.266	174.830	9440.10	3282.95	-3269.59	295.85	716254.64	603167.20	32°39'24.720"N	103°45'53.919"W	0.00	
12696.00†	89.266	174.830	9441.38	3382.94	-3369.17	304.87	716263.65	603067.62	32°39'23.734"N	103°45'53.820"W	0.00	
12796.00†	89.266	174.830	9442.66	3482.93	-3468.76	313.88	716272.66	602968.04	32°39'22.748"N	103°45'53.720"W	0.00	
12896.00†	89.266	174.830	9443.94	3582.92	-3568.34	322.89	716281.67	602868.46	32°39'21.762"N	103°45'53.621"W	0.00	
12996.00†	89.266	174.830	9445.23	3682.91	-3667.93	331.90	716290.68	602768.88	32°39'20.776"N	103°45'53.522"W	0.00	
13096.00†	89.266	174.830	9446.51	3782.91	-3767.51	340.91	716299.69	602669.31	32°39'19.791"N	103°45'53.423"W	0.00	
13196.00†	89.266	174.830	9447.79	3882.90	-3867.10	349.92	716308.70	602569.73	32°39'18.805"N	103°45'53.324"W	0.00	
13290.43	89.266	174.830	9449.00†	3977.32	-3961.14	358.43	716317.21	602475.69	32°39'17.874"N	103°45'53.230"W	0.00	No. 9H PBHL

HOLE & CASING SECTIONS Ref Wellbore: No. 9H PWB Ref Wellpath: Prelim_2									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing Surface	0.00	4800.00	4800.00	0.00	4800.00	0.00	0.00	0.00	0.00
7in Casing Intermediate	0.00	9000.00	9000.00	0.00	9000.00	0.00	0.00	0.00	0.00



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Area	Lea County, NM	Well	No. 9H
Field	(State DR) Sec 16, T19S, R32E	Wellbore	No. 9H PWB
Facility	State DR No. 9H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 9H PBHL	13290.43	9449.00	-3961.14	358.43	716317.21	602475.69	32°39'17.874"N	103°45'53.230"W	point

SURVEY PROGRAM Ref Wellbore: No. 9H PWB Ref Wellpath: Prelim_2				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	13290.43	NaviTrak (Standard)		No. 9H PWB