

Cimarex Energy Co.

Location: Chaves County, NM
Field: (Hancock) Sec 19, T15S, R31E
Facility: Hancock 19 St Com No. 4H

Slot: No. 4H SHL
Well: No. 4H
Wellbore: No. 4H PWB

Plot reference wellpath is Problem_1

True vertical depths are referenced to Rig on No. 4H SHL (RT)

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

Measured depths are referenced to Rig on No. 4H SHL (RT)

North Reference: Grid north

Rig on No. 4H SHL (RT) to Mean Sea Level: 4434 feet

Scale: True distance

Mean Sea Level to Mud line (Facility Hancock 19 St Com No. 4H): -4434 feet

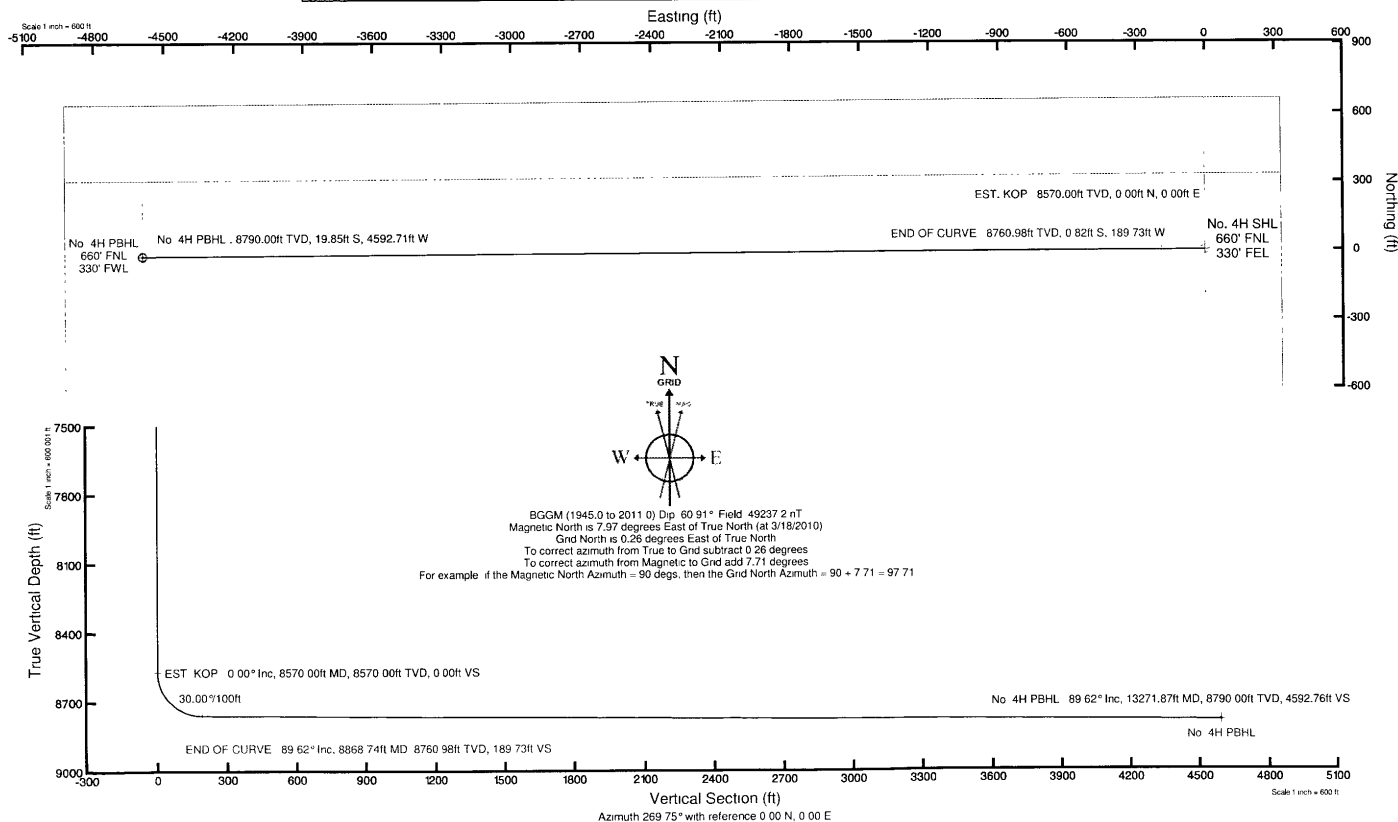
Depths are in feet

Coordinates are in feet referenced to Surface Location

Created by: Victor Hernandez on 3/18/2010



Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	0.00	0.000	269.752	0.00	0.00	0.00	0.00
EST. KOP	8570.00	0.000	269.752	8570.00	0.00	0.00	0.00
END OF CURVE	8868.74	89.622	269.752	8760.98	-0.82	-189.73	189.73
No. 4H PBHL	13271.87	89.622	269.752	8790.00	-19.85	-4592.71	4592.76



30-005-29122



Planned Wellpath Report

Prelim_1
Page 1 of 4



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Chaves County, NM	Well	No. 4H
Field	(Hancock) Sec 19, T15S, R31E	Wellbore	No. 4H PWB
Facility	Hancock 19 St Com No. 4H		

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	0.999934	Report Generated	3/19/2010 at 11:05:12 AM
Convergence at slot	0.26° East	Database/Source file	WA_Midland/No. 4H_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	688351.80	730353.10	33°00'24.554"N	103°51'13.548"W
Facility Reference Pt			688351.80	730353.10	33°00'24.554"N	103°51'13.548"W
Field Reference Pt			683769.40	727691.90	32°59'58.426"N	103°52'07.498"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 4H SHL (RT) to GL	0.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 4H SHL (RT) to Mean Sea Level	4434.00ft
Vertical Reference Pt	Rig on No. 4H SHL (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 4H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	269.75°



Planned Wellpath Report

Prelim_1
Page 2 of 4



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
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Area	Chaves County, NM	Well	No. 4H
Field	(Hancock) Sec 19, T15S, R31E	Wellbore	No. 4H PWB
Facility	Hancock 19 St Com No. 4H		

WELLPATH DATA (51 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	269.752	0.00	0.00	0.00	0.00	688351.80	730353.10	33°00'24.554"N	103°51'13.548"W	0.00	Tie On
8570.00	0.000	269.752	8570.00	0.00	0.00	0.00	688351.80	730353.10	33°00'24.554"N	103°51'13.548"W	0.00	EST. KOP
8670.00†	30.000	269.752	8665.49	25.59	-0.11	-25.59	688326.21	730352.99	33°00'24.554"N	103°51'13.849"W	30.00	
8770.00†	60.000	269.752	8735.40	95.49	-0.41	-95.49	688256.31	730352.69	33°00'24.554"N	103°51'14.669"W	30.00	
8868.74	89.622	269.752	8760.98	189.73	-0.82	-189.73	688162.09	730352.28	33°00'24.554"N	103°51'15.776"W	30.00	END OF CURVE
8870.00†	89.622	269.752	8760.99	190.99	-0.83	-190.98	688160.83	730352.27	33°00'24.554"N	103°51'15.791"W	0.00	
8970.00†	89.622	269.752	8761.65	290.98	-1.26	-290.98	688060.84	730351.84	33°00'24.554"N	103°51'16.965"W	0.00	
9070.00†	89.622	269.752	8762.31	390.98	-1.69	-390.98	687960.85	730351.41	33°00'24.555"N	103°51'18.139"W	0.00	
9170.00†	89.622	269.752	8762.97	490.98	-2.12	-490.97	687860.86	730350.98	33°00'24.555"N	103°51'19.313"W	0.00	
9270.00†	89.622	269.752	8763.63	590.98	-2.55	-590.97	687760.87	730350.55	33°00'24.555"N	103°51'20.488"W	0.00	
9370.00†	89.622	269.752	8764.29	690.98	-2.99	-690.97	687660.88	730350.11	33°00'24.555"N	103°51'21.662"W	0.00	
9470.00†	89.622	269.752	8764.94	790.97	-3.42	-790.97	687560.89	730349.68	33°00'24.556"N	103°51'22.836"W	0.00	
9570.00†	89.622	269.752	8765.60	890.97	-3.85	-890.96	687460.90	730349.25	33°00'24.556"N	103°51'24.010"W	0.00	
9670.00†	89.622	269.752	8766.26	990.97	-4.28	-990.96	687360.91	730348.82	33°00'24.556"N	103°51'25.184"W	0.00	
9770.00†	89.622	269.752	8766.92	1090.97	-4.72	-1090.96	687260.92	730348.38	33°00'24.556"N	103°51'26.359"W	0.00	
9870.00†	89.622	269.752	8767.58	1190.96	-5.15	-1190.95	687160.93	730347.95	33°00'24.556"N	103°51'27.533"W	0.00	
9970.00†	89.622	269.752	8768.24	1290.96	-5.58	-1290.95	687060.94	730347.52	33°00'24.557"N	103°51'28.707"W	0.00	
10070.00†	89.622	269.752	8768.90	1390.96	-6.01	-1390.95	686960.95	730347.09	33°00'24.557"N	103°51'29.881"W	0.00	
10170.00†	89.622	269.752	8769.56	1490.96	-6.44	-1490.94	686860.96	730346.66	33°00'24.557"N	103°51'31.055"W	0.00	
10270.00†	89.622	269.752	8770.22	1590.96	-6.88	-1590.94	686760.97	730346.22	33°00'24.557"N	103°51'32.230"W	0.00	
10370.00†	89.622	269.752	8770.88	1690.95	-7.31	-1690.94	686660.98	730345.79	33°00'24.557"N	103°51'33.404"W	0.00	
10470.00†	89.622	269.752	8771.53	1790.95	-7.74	-1790.93	686560.99	730345.36	33°00'24.557"N	103°51'34.578"W	0.00	
10570.00†	89.622	269.752	8772.19	1890.95	-8.17	-1890.93	686461.00	730344.93	33°00'24.558"N	103°51'35.752"W	0.00	
10670.00†	89.622	269.752	8772.85	1990.95	-8.61	-1990.93	686361.01	730344.50	33°00'24.558"N	103°51'36.927"W	0.00	
10770.00†	89.622	269.752	8773.51	2090.94	-9.04	-2090.93	686261.02	730344.06	33°00'24.558"N	103°51'38.101"W	0.00	
10870.00†	89.622	269.752	8774.17	2190.94	-9.47	-2190.92	686161.03	730343.63	33°00'24.558"N	103°51'39.275"W	0.00	
10970.00†	89.622	269.752	8774.83	2290.94	-9.90	-2290.92	686061.04	730343.20	33°00'24.558"N	103°51'40.449"W	0.00	
11070.00†	89.622	269.752	8775.49	2390.94	-10.33	-2390.92	685961.05	730342.77	33°00'24.558"N	103°51'41.623"W	0.00	
11170.00†	89.622	269.752	8776.15	2490.94	-10.77	-2490.91	685861.06	730342.33	33°00'24.559"N	103°51'42.798"W	0.00	
11270.00†	89.622	269.752	8776.81	2590.93	-11.20	-2590.91	685761.07	730341.90	33°00'24.559"N	103°51'43.972"W	0.00	



Planned Wellpath Report

Prelim_1
Page 3 of 4



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Chaves County, NM	Well	No. 4H
Field	(Hancock) Sec 19, T15S, R31E	Wellbore	No. 4H PWB
Facility	Hancock 19 St Com No. 4H		

WELLPATH DATA (51 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
11370.00†	89.622	269.752	8777.47	2690.93	-11.63	-2690.91	685561.08	730341.47	33°00'24.559"N	103°51'45.146"W	0.00	
11470.00†	89.622	269.752	8778.13	2790.93	-12.06	-2790.90	685561.09	730341.04	33°00'24.559"N	103°51'46.320"W	0.00	
11570.00†	89.622	269.752	8778.78	2890.93	-12.50	-2890.90	685461.10	730340.61	33°00'24.559"N	103°51'47.494"W	0.00	
11670.00†	89.622	269.752	8779.44	2990.93	-12.93	-2990.90	685361.11	730340.17	33°00'24.559"N	103°51'48.669"W	0.00	
11770.00†	89.622	269.752	8780.10	3090.92	-13.36	-3090.89	685261.12	730339.74	33°00'24.560"N	103°51'49.843"W	0.00	
11870.00†	89.622	269.752	8780.76	3190.92	-13.79	-3190.89	685161.13	730339.31	33°00'24.560"N	103°51'51.017"W	0.00	
11970.00†	89.622	269.752	8781.42	3290.92	-14.22	-3290.89	685061.14	730338.88	33°00'24.560"N	103°51'52.191"W	0.00	
12070.00†	89.622	269.752	8782.08	3390.92	-14.66	-3390.88	684961.15	730338.44	33°00'24.560"N	103°51'53.366"W	0.00	
12170.00†	89.622	269.752	8782.74	3490.91	-15.09	-3490.88	684861.16	730338.01	33°00'24.560"N	103°51'54.540"W	0.00	
12270.00†	89.622	269.752	8783.40	3590.91	-15.52	-3590.88	684761.17	730337.58	33°00'24.560"N	103°51'55.714"W	0.00	
12370.00†	89.622	269.752	8784.06	3690.91	-15.95	-3690.88	684661.18	730337.15	33°00'24.560"N	103°51'56.888"W	0.00	
12470.00†	89.622	269.752	8784.72	3790.91	-16.39	-3790.87	684561.19	730336.72	33°00'24.560"N	103°51'58.062"W	0.00	
12570.00†	89.622	269.752	8785.37	3890.91	-16.82	-3890.87	684461.20	730336.28	33°00'24.561"N	103°51'59.237"W	0.00	
12670.00†	89.622	269.752	8786.03	3990.90	-17.25	-3990.87	684361.21	730335.85	33°00'24.561"N	103°52'00.411"W	0.00	
12770.00†	89.622	269.752	8786.69	4090.90	-17.68	-4090.86	684261.22	730335.42	33°00'24.561"N	103°52'01.585"W	0.00	
12870.00†	89.622	269.752	8787.35	4190.90	-18.11	-4190.86	684161.23	730334.99	33°00'24.561"N	103°52'02.759"W	0.00	
12970.00†	89.622	269.752	8788.01	4290.90	-18.55	-4290.86	684061.24	730334.55	33°00'24.561"N	103°52'03.934"W	0.00	
13070.00†	89.622	269.752	8788.67	4390.89	-18.98	-4390.85	683961.25	730334.12	33°00'24.561"N	103°52'05.108"W	0.00	
13170.00†	89.622	269.752	8789.33	4490.89	-19.41	-4490.85	683861.26	730333.69	33°00'24.561"N	103°52'06.282"W	0.00	
13270.00†	89.622	269.752	8789.99	4590.89	-19.84	-4590.85	683761.27	730333.26	33°00'24.561"N	103°52'07.456"W	0.00	
13271.87	89.622	269.752	8790.00†	4592.76	-19.85	-4592.71	683759.40	730333.25	33°00'24.561"N	103°52'07.478"W	0.00	No 4H PBHL



Planned Wellpath Report

Prelim_1
Page 4 of 4



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Chaves County, NM	Well	No. 4H
Field	(Hancock) Sec 19, T15S, R31E	Wellbore	No. 4H PWB
Facility	Hancock 19 St Com No. 4H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 4H PBHL	13271.87	8790.00	-19.85	4592.71	683759.40	730333.25	33°00'24.561"N	103°52'07.478"W	point

SURVEY PROGRAM Ref Wellbore: No. 4H PWB Ref Wellpath: Prelim_1				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	13271.87	NaviTrak (Standard)		No. 4H PWB