

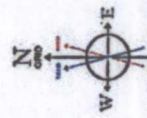
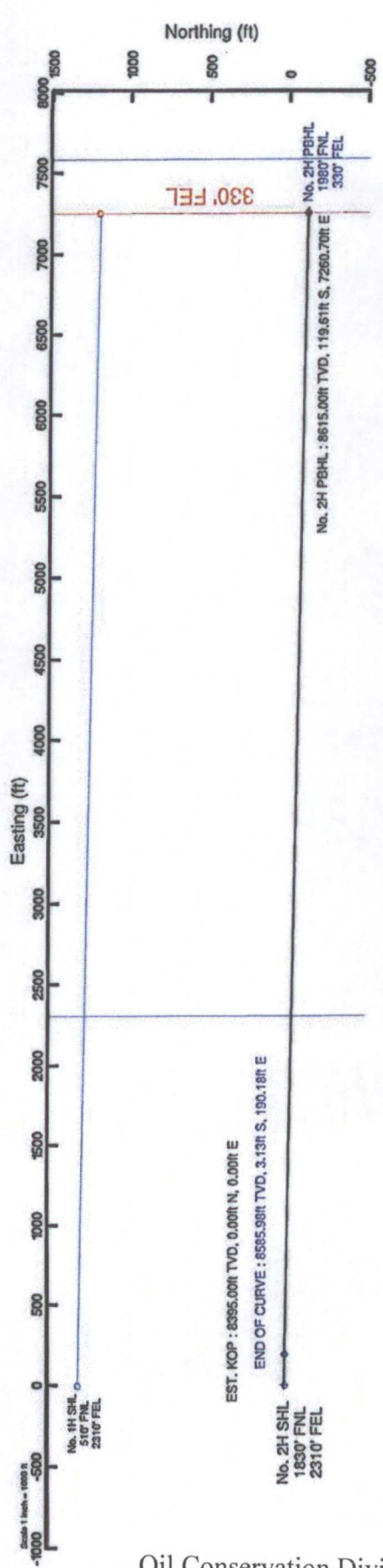


Cimarex Energy Co.

Location: Chaves County, NM
Field: (Independence) Sec 8, T15S, R31E
Facility: Independence 8 Field Com No. 2H
Well: No. 2H
Wellbore: No. 2H PWB

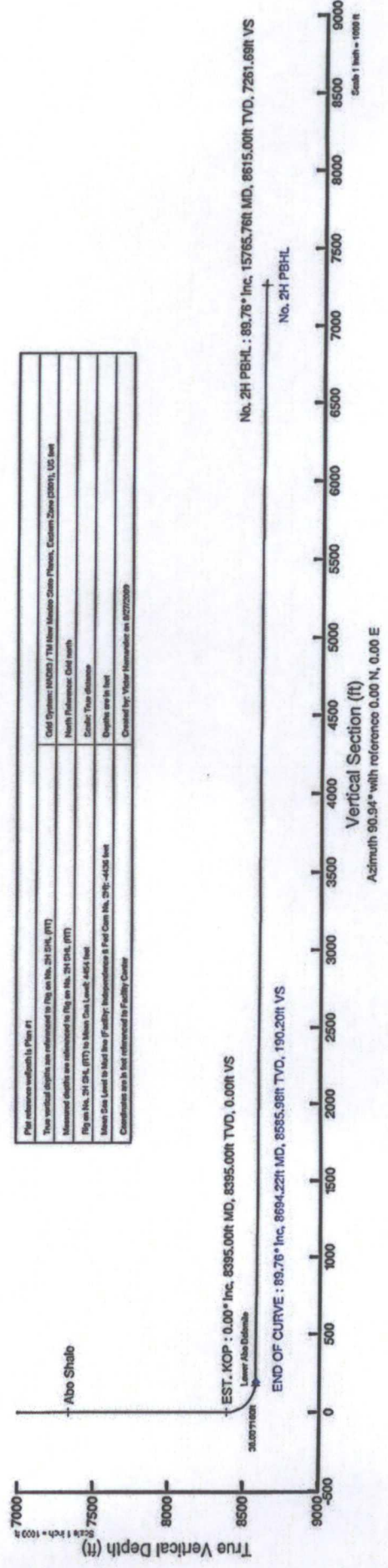
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (*100ft)	VS (ft)
Tie On	0.00	0.000	90.944	0.00	0.00	0.00	0.00	0.00
EST. KOP	8395.00	0.000	90.944	8395.00	0.00	0.00	0.00	0.00
END OF CURVE	8694.22	89.765	90.944	8585.98	-3.13	190.18	30.00	190.20
No. 2H PBHL	15765.76	89.765	90.944	8615.00	-119.61	7260.70	0.00	7261.69



ROOM (1945.0 to 2010.0) Dns: 02.95° FMS: 4000.0 mT
Magnetic Declination is 0.27 degrees East of True North
The earned azimuth from True to Grid is 0.27 degrees
The earned azimuth from True to Grid is 0.27 degrees
For example if the Magnetic North Azimuth = 90° then the Grid North Azimuth = 90° + 0.27° = 90.27°

Old System: INMDS / TMI Meter Module Data Platform, Eastern Zone (2001), US feet
North Indenture: Old north
East Indenture: Old east
North True distance
East True distance
Distances are in feet
Created by: Victor Hernandez on 8/27/2009



Oil Conservation Division
Case No. 10
Exhibit No. 10



Declination & Convergence Report

Slot: No. 2H SHL

Page 1 of 2



INTEQ

FIELD INFORMATION

Field: (Independence) Sec 8, T15S, R31E	Operator: Cimarex Energy Co.	Area: Chaves County, NM
Field Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	North Reference: Grid North	Scale: True Distance
Field Reference	Horizontal Ref Pt: Field Center	Vertical Ref Pt: Mean Sea Level
	Easting: 691614.60USft Northing: 741074.70USft	Lat: 33°02'10.489"N Long: 103°50'34.646"W

FACILITY INFORMATION

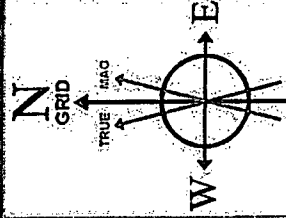
Facility: Independence 8 Fed Com No. 2H	Horizontal Ref Pt: Facility Center	Vertical Ref Pt: Facility Vertical Datum
	Easting: 691621.00USft Northing: 739754.90USft	Lat: 33°01'57.430"N Long: 103°50'34.643"W
Horiz Offset from Field Ref -1319.80ft North 6.40ft East	Facility Vert Ref Pt	Field Vert Ref Pt
	Facility Vertical Datum	to Mean Sea Level
	Horizontal Error Radius: 3.000ft	Distance
		4436.00ft
Facility Location Uncertainty		Facility Vertical Datum to Mud Line: 0.00ft
		Vertical Error Radius: 3.000ft

SLOT INFORMATION

Slot Name	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Elev above Fac [ft]	Elev above Mudline [ft]	Active Decl [°]	Grid Conv [°]	Scale Factor	Horiz Err Radius [ft]	Vert Err Radius [ft]
No. 2H SHL	0.00	0.00	691621.00	739754.90	33°01'57.430"N	103°50'34.643"W	18.00	18.00	8.06E	0.27E	0.999935	2.00	1.00

DECLINATION AND CONVERGENCE INFORMATION

Data Source: BGGM (1945.0 to 2010.0)	Calculation Date: 8/26/2009
Magnetic Flux Dip Angle: 60.95°	Magnetic Field Strength: 49298.9 nT
Declination: 8.06° East	Convergence: 0.27° East
Magnetic North is 8.06 degrees East of True North	
Grid North is 0.27 degrees East of True North	
To correct azimuth from True to Grid subtract 0.27 degrees	
To correct azimuth from Magnetic to Grid add 7.79 degrees	
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.79 = 97.79	





Planned Wellpath Report

Plan #1

Page 1 of 5

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Independence) Sec 8, T15S, R31E	Wellbore	No. 2H PWB
Facility	Independence 8 Fed. Com No. 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	Victor Hernandez
Scale	0.999935	Report Generated	8/26/2009 at 3:53:43 PM
Convergence at slot	0.27° East	Database/Source file	WA_Midland/No. 2H_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	691621.00	739754.90	33°01'57.430"N	103°50'34.643"W
Facility Reference Pt			691621.00	739754.90	33°01'57.430"N	103°50'34.643"W
Field Reference Pt			691614.60	741074.70	33°02'10.489"N	103°50'34.646"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 2H SHL (RT) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 2H SHL (RT) to Mean Sea Level	4454.00ft
Vertical Reference Pt	Rig on No. 2H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	90.94°



Planned Wellpath Report

Plan #1

Page 2 of 5



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Independence) Sec 8, T15S, R31E	Wellbore	No. 2H PWB
Facility	Independence 8 Fed Com No. 2H		

WELLPATH DATA (82 stations) † = interpolated/extrapolated station

MD (ft)	Inclination [°]	Azimuth [°]	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (serv ft)	Grid North (serv ft)	DLS [°/100ft]	Comments
0.00	0.000	90.944	0.00	0.00	0.00	0.00	691621.00	739754.90	0.00	Tic On
2312.00†	0.000	90.944	2312.00	0.00	0.00	0.00	691621.00	739754.90	0.00	Yates
3090.00†	0.000	90.944	3090.00	0.00	0.00	0.00	691621.00	739754.90	0.00	Queen
3940.00†	0.000	90.944	3940.00	0.00	0.00	0.00	691621.00	739754.90	0.00	San Andres
7340.00†	0.000	90.944	7340.00	0.00	0.00	0.00	691621.00	739754.90	0.00	Abq Shale
8395.00	0.000	90.944	8395.00	0.00	0.00	0.00	691621.00	739754.90	0.00	EST. KOP
8495.00†	30.000	90.944	8490.49	25.59	-0.42	25.58	691646.58	739754.48	30.00	
8595.00†	60.000	90.944	8560.40	95.49	-1.57	95.48	691716.47	739753.33	30.00	
8675.59†	84.176	90.944	8585.00	171.60	-2.83	171.58	691792.57	739752.07	30.00	Lower Abq Dolomite
8694.22†	89.765	90.944	8585.98	190.20†	-3.13	190.18	691811.16	739751.77	30.00	END OF CURVE
8695.00†	89.765	90.944	8585.99	190.99	-3.15	190.96	691811.95	739751.75	0.00	
8795.00†	89.765	90.944	8586.40	290.99	-4.79	290.95	691911.93	739750.11	0.00	
8895.00†	89.765	90.944	8586.81	390.98	-6.44	390.93	692011.90	739748.46	0.00	
8995.00†	89.765	90.944	8587.22	490.98	-8.09	490.92	692111.88	739746.81	0.00	
9095.00†	89.765	90.944	8587.63	590.98	-9.73	590.90	692211.86	739745.17	0.00	
9195.00†	89.765	90.944	8588.04	690.98	-11.38	690.89	692311.84	739743.52	0.00	
9295.00†	89.765	90.944	8588.45	790.98	-13.03	790.87	692411.82	739741.87	0.00	
9395.00†	89.765	90.944	8588.86	890.98	-14.68	890.86	692511.80	739740.23	0.00	
9495.00†	89.765	90.944	8589.27	990.98	-16.32	990.84	692611.78	739738.58	0.00	
9595.00†	89.765	90.944	8589.68	1090.98	-17.97	1090.83	692711.76	739736.93	0.00	
9695.00†	89.765	90.944	8590.09	1190.98	-19.62	1190.82	692811.74	739735.29	0.00	
9795.00†	89.765	90.944	8590.50	1290.98	-21.26	1290.80	692911.72	739733.64	0.00	
9895.00†	89.765	90.944	8590.91	1390.98	-22.91	1390.79	693011.69	739731.99	0.00	
9995.00†	89.765	90.944	8591.32	1490.97	-24.56	1490.77	693111.67	739730.34	0.00	
10095.00†	89.765	90.944	8591.73	1590.97	-26.20	1590.76	693211.65	739728.70	0.00	
10195.00†	89.765	90.944	8592.14	1690.97	-27.85	1690.74	693311.63	739727.05	0.00	
10295.00†	89.765	90.944	8592.55	1790.97	-29.50	1790.73	693411.61	739725.40	0.00	
10395.00†	89.765	90.944	8592.96	1890.97	-31.15	1890.72	693511.59	739723.76	0.00	
10495.00†	89.765	90.944	8593.37	1990.97	-32.79	1990.70	693611.57	739722.11	0.00	
10595.00†	89.765	90.944	8593.78	2090.97	-34.44	2090.69	693711.55	739720.46	0.00	

Planned Wellpath Report

Plan #1
Page 3 of 5



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Independence) Sec 8, T15S, R31E	Wellbore	No. 2H PWB
Facility	Independence 8 Fed Com No. 2H		

WELLPATH DATA (82 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect. [ft]	North [ft]	East [ft]	Grid East [serv ft]	Grid North [serv ft]	DLS [°/100ft]	Comments
10695.00†	89.765	90.944	8594.19	2190.97	-36.09	2190.67	693811.53	739718.82	0.00	
10795.00†	89.765	90.944	8594.60	2290.97	-37.73	2290.66	693911.50	739717.17	0.00	
10895.00†	89.765	90.944	8595.01	2390.97	-39.38	2390.64	694011.48	739715.52	0.00	
10995.00†	89.765	90.944	8595.42	2490.97	-41.03	2490.63	694111.46	739713.87	0.00	
11095.00†	89.765	90.944	8595.84	2590.97	-42.67	2590.61	694211.44	739712.23	0.00	
11195.00†	89.765	90.944	8596.25	2690.96	-44.32	2690.60	694311.42	739710.58	0.00	
11295.00†	89.765	90.944	8596.66	2790.96	-45.97	2790.59	694411.40	739708.93	0.00	
11395.00†	89.765	90.944	8597.07	2890.96	-47.62	2890.57	694511.38	739707.29	0.00	
11495.00†	89.765	90.944	8597.48	2990.96	-49.26	2990.56	694611.36	739705.64	0.00	
11595.00†	89.765	90.944	8597.89	3090.96	-50.91	3090.54	694711.34	739703.99	0.00	
11695.00†	89.765	90.944	8598.30	3190.96	-52.56	3190.53	694811.31	739702.35	0.00	
11795.00†	89.765	90.944	8598.71	3290.96	-54.20	3290.51	694911.29	739700.70	0.00	
11895.00†	89.765	90.944	8599.12	3390.96	-55.85	3390.50	695011.27	739699.05	0.00	
11995.00†	89.765	90.944	8599.53	3490.96	-57.50	3490.48	695111.25	739697.41	0.00	
12095.00†	89.765	90.944	8599.94	3590.96	-59.15	3590.47	695211.23	739695.76	0.00	
12195.00†	89.765	90.944	8600.35	3690.96	-60.79	3690.46	695311.21	739694.11	0.00	
12295.00†	89.765	90.944	8600.76	3790.96	-62.44	3790.44	695411.19	739692.46	0.00	
12395.00†	89.765	90.944	8601.17	3890.95	-64.09	3890.43	695511.17	739690.82	0.00	
12495.00†	89.765	90.944	8601.58	3990.95	-65.73	3990.41	695611.15	739689.17	0.00	
12595.00†	89.765	90.944	8601.99	4090.95	-67.38	4090.40	695711.12	739687.52	0.00	
12695.00†	89.765	90.944	8602.40	4190.95	-69.03	4190.38	695811.10	739685.88	0.00	
12795.00†	89.765	90.944	8602.81	4290.95	-70.67	4290.37	695911.08	739684.23	0.00	
12895.00†	89.765	90.944	8603.22	4390.95	-72.32	4390.35	696011.06	739682.58	0.00	
12995.00†	89.765	90.944	8603.63	4490.95	-73.97	4490.34	696111.04	739680.94	0.00	
13095.00†	89.765	90.944	8604.04	4590.95	-75.62	4590.33	696211.02	739679.29	0.00	
13195.00†	89.765	90.944	8604.45	4690.95	-77.26	4690.31	696311.00	739677.64	0.00	
13295.00†	89.765	90.944	8604.86	4790.95	-78.91	4790.30	696410.98	739676.00	0.00	
13395.00†	89.765	90.944	8605.27	4890.95	-80.56	4890.28	696510.96	739674.35	0.00	
13495.00†	89.765	90.944	8605.68	4990.95	-82.20	4990.27	696610.93	739672.70	0.00	
13595.00†	89.765	90.944	8606.09	5090.94	-83.85	5090.25	696710.91	739671.05	0.00	



Planned Wellpath Report

Plan #1

Page 4 of 5



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Independence) Sec 8, T15S, R31E	Wellbore	No. 2H PWB
Facility	Independence 8 Fed Com No. 2H		

WELLPATH DATA (82 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [serv ft]	Grid North [serv ft]	DLS [°/100ft]	Comments
13695.00†	89.765	90.944	8606.50	5190.94	-85.50	5190.24	696810.89	739669.41	0.00	
13795.00†	89.765	90.944	8606.91	5290.94	-87.15	5290.23	696910.87	739667.76	0.00	
13895.00†	89.765	90.944	8607.32	5390.94	-88.79	5390.21	697010.85	739666.11	0.00	
13995.00†	89.765	90.944	8607.73	5490.94	-90.44	5490.20	697110.83	739664.47	0.00	
14095.00†	89.765	90.944	8608.14	5590.94	-92.09	5590.18	697210.81	739662.82	0.00	
14195.00†	89.765	90.944	8608.55	5690.94	-93.73	5690.17	697310.79	739661.17	0.00	
14295.00†	89.765	90.944	8608.97	5790.94	-95.38	5790.15	697410.77	739659.53	0.00	
14395.00†	89.765	90.944	8609.38	5890.94	-97.03	5890.14	697510.74	739657.88	0.00	
14495.00†	89.765	90.944	8609.79	5990.94	-98.67	5990.12	697610.72	739656.23	0.00	
14595.00†	89.765	90.944	8610.20	6090.94	-100.32	6090.11	697710.70	739654.58	0.00	
14695.00†	89.765	90.944	8610.61	6190.94	-101.97	6190.10	697810.68	739652.94	0.00	
14795.00†	89.765	90.944	8611.02	6290.93	-103.62	6290.08	697910.66	739651.29	0.00	
14895.00†	89.765	90.944	8611.43	6390.93	-105.26	6390.07	698010.64	739649.64	0.00	
14995.00†	89.765	90.944	8611.84	6490.93	-106.91	6490.05	698110.62	739648.00	0.00	
15095.00†	89.765	90.944	8612.25	6590.93	-108.56	6590.04	698210.60	739646.35	0.00	
15195.00†	89.765	90.944	8612.66	6690.93	-110.20	6690.02	698310.58	739644.70	0.00	
15295.00†	89.765	90.944	8613.07	6790.93	-111.85	6790.01	698410.55	739643.06	0.00	
15395.00†	89.765	90.944	8613.48	6890.93	-113.50	6889.99	698510.53	739641.41	0.00	
15495.00†	89.765	90.944	8613.89	6990.93	-115.15	6889.98	698610.51	739639.76	0.00	
15595.00†	89.765	90.944	8614.30	7090.93	-116.79	7089.97	698710.49	739638.12	0.00	
15695.00†	89.765	90.944	8614.71	7190.93	-118.44	7189.95	698810.47	739636.47	0.00	
15765.76	89.765	90.944	8615.00†	7261.69	-119.61	7260.70	698881.22	739635.30	0.00	No. 2H PBHL



Planned Wellpath Report

Plan #1
Page 5 of 5



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Independence) Sec 8, T15S, R31E	Wellbore	No. 2H PWB
Facility	Independence 8 Fed Com No. 2H		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 2H PBHL	15765.76	8615.00	-119.61	7260.70	698881.22	739635.30	33°01'55.904"N	103°49'09.368"W	point

SURVEY PROGRAM Ref Wellbore: No. 2H PWB Ref Wellpath: Plan #1

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
18.00	8694.00	NaviTrak (Standard)	No. 2H PWB
8694.00	15765.76	AutoTrak G3 (Standard)	No. 2H PWB