

Results of Directional Survey

API number:	30-005-29041		
OGRID:		Operator:	CIMAREX ENERGY CO OF COLORADO
		Property:	WASP 2 STATE # 1H

surface	ULSTR:	M	02	T 15S	R 31E
				375 FSL	330 FWL

BH Loc	ULSTR:	P	02	T 15S	R 31E
13232	MD	8851.2	TVD	444 FSL	4961 FWL

Top Perf/OH	ULSTR:	M	02	T 15S	R 31E
8361	MD	8359.5	TVD	400 FSL	397 FWL

Bot Perf/OH	ULSTR:	P	02	T 15S	R 31E
13232	MD	8851.2	TVD	444 FSL	4961 FWL

	MD	N/S	E/W	VD
	8292.7	24.54	65.00	8291.2
TOP PERFS/OH	8361	24.78	66.53	8359.48
	8388.3	24.87	67.14	8386.77
	13156	67.49	4555.12	8848.44
BOT PERFS/OH	13232	69.21	4631.06	8851.22
	13206	68.62	4605.08	8850.27

NEXT TO LAST	13156	67.49	4555.12	8848.44
LAST READING	13206	68.62	4605.08	8850.27
TD	13232	69.21	4631.06	8851.22

Surface Location	375 FS	330 FW
Projected BHL	444 FS	4961 FW
Location of		
Top Perfs/OH	400 FS	397 FW
Bottom Perfs/OH	444 FS	4961 FW

SUMMARY of Subsurface Locations

Surface Location	M-02-15S-31E	375 FS	330 FW	Vert. Depth
Top Perfs/OH	M-02-15S-31E	400 FS	397 FW	8359.48
Bottom Perfs/OH	P-02-15S-31E	444 FS	4961 FW	8851.22
Projected TD	P-02-15S-31E	444 FS	4961 FW	8851.22

Cimarex Energy Co.

Location: Chaves County, NM
Field: (WASP) Sec 2, T15S, R31E
Facility: WASP 2 St No. 1H

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

Plot reference wellpath is Plan #1 vs Actual <FINAL>

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

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

Rig on No. 1H SHL (RT) to Mean Sea Level 4431 feet

Mean Sea Level to Mud line (Facility: WASP 2 St No. 1H) -4403 feet

Coordinates are in feet referenced to Facility Center

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

North Reference: Grid north

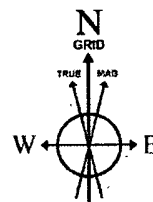
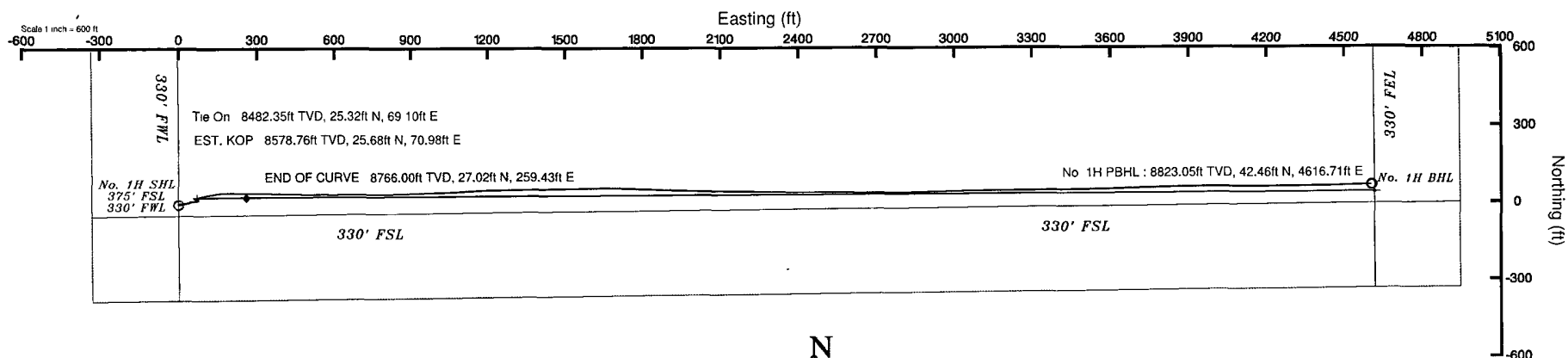
Scale: True distance

Depths are in feet

Created by: Victor Hernandez on 3/22/2010

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%/100ft)	VS (ft)
Tie On	8483.90	1.140	79.190	8482.35	25.32	69.10	0.00	69.33
EST. KOP	8580.33	1.140	79.190	8578.76	25.68	70.98	0.00	71.21
END OF CURVE	8874.09	89.250	89.797	8766.00	27.02	259.43	30.00	259.66
No. 1H PBHL	13231.78	89.250	89.797	8823.05	42.46	4616.71	0.00	4616.90



BGGM (1945.0 to 2011.0) Dip: 60.95° Field: 49267.3 nT
Magnetic North is 7.96 degrees East of True North (at 3/2/2010)

Grid North is 0.29 degrees East of True North

To correct azimuth from True to Grid subtract 0.29 degrees

To correct azimuth from Magnetic to Grid add 7.67 degrees

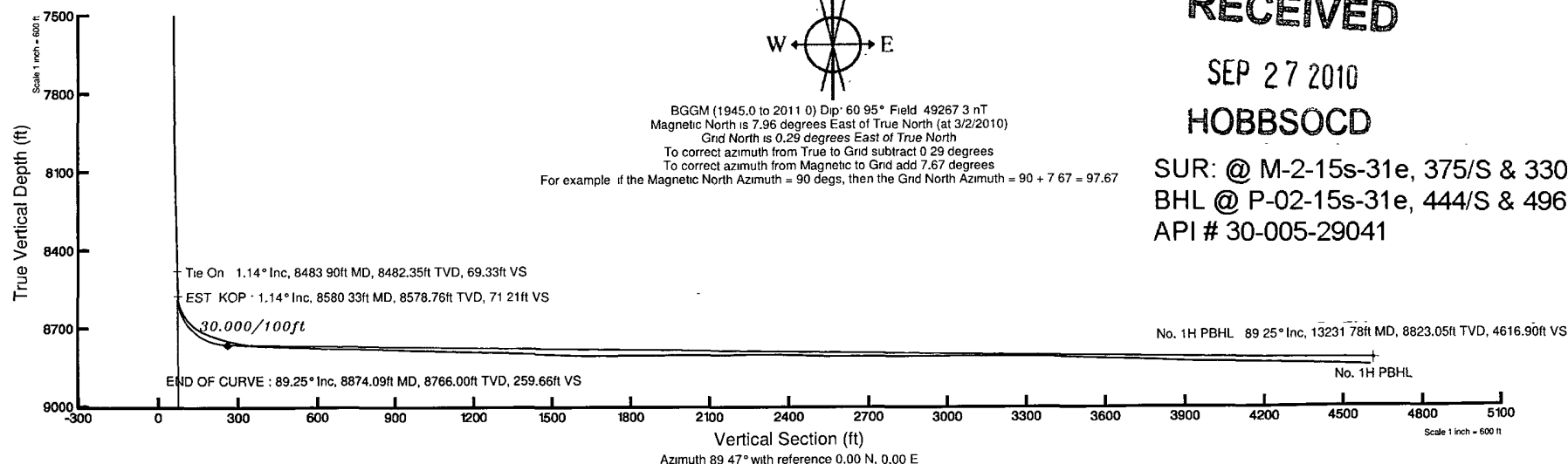
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.67 = 97.67

RECEIVED

SEP 27 2010

HOBBSOC

SUR: @ M-2-15s-31e, 375/S & 330/W
BHL @ P-02-15s-31e, 444/S & 4961/W
API # 30-005-29041





Actual Wellpath Report

No. 1H AWP

Page 1 of 7

RECEIVED

SEP 27 2010
HOBBSOC



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(WASP) Sec 2, T15S, R31E	Wellbore	No. 1H AWB
Facility	WASP 2 St No. 1H	Sidetrack from	No. 1 AWB at 8483.90 MD

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	0.99994	Report Generated	3/22/2010 at 3:21:16 PM
Convergence at slot	0.29° 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	704819.20	742043.80	33°02'19.441"N	103°47'59.475"W
Facility Reference Pt			704819.20	742043.80	33°02'19.441"N	103°47'59.475"W
Field Reference Pt			704819.20	742043.80	33°02'19.441"N	103°47'59.475"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 1H SHL (RT) to Facility Vertical Datum	28.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 1H SHL (RT) to Mean Sea Level	4431.00ft
Vertical Reference Pt	Rig on No. 1H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 1H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	89.47°



Actual Wellpath Report

No. 1H AWP

Page 2 of 7



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(WASP) Sec 2, T15S, R31E	Wellbore	No. 1H AWB
Facility	WASP 2 St No. 1H	Sidetrack from	No. 1 AWB at 8483.90 MD

WELLPATH DATA (159 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]
0.00	0.000	66.130	0.00	0.00	0.00	0.00	704819.20	742043.80	33°02'19.441"N	103°47'59.475"W	0.00
93.10	0.650	66.130	93.10	0.48	0.21	0.48	704819.68	742044.01	33°02'19.443"N	103°47'59.469"W	0.70
186.00	0.570	47.890	185.99	1.31	0.74	1.31	704820.51	742044.54	33°02'19.449"N	103°47'59.459"W	0.22
278.60	0.540	48.040	278.59	1.99	1.34	1.97	704821.17	742045.14	33°02'19.455"N	103°47'59.451"W	0.03
371.60	0.620	66.510	371.58	2.78	1.83	2.76	704821.96	742045.63	33°02'19.459"N	103°47'59.442"W	0.22
463.90	0.530	85.030	463.88	3.66	2.07	3.64	704822.84	742045.87	33°02'19.462"N	103°47'59.432"W	0.22
555.80	0.530	80.760	555.78	4.51	2.17	4.49	704823.69	742045.97	33°02'19.463"N	103°47'59.422"W	0.04
648.00	0.480	89.580	647.97	5.31	2.24	5.29	704824.49	742046.04	33°02'19.463"N	103°47'59.412"W	0.10
740.30	0.380	108.410	740.27	5.99	2.15	5.97	704825.17	742045.95	33°02'19.462"N	103°47'59.404"W	0.19
834.20	0.430	79.960	834.17	6.63	2.11	6.61	704825.81	742045.91	33°02'19.462"N	103°47'59.397"W	0.22
929.80	0.290	62.630	929.77	7.20	2.29	7.18	704826.38	742046.09	33°02'19.464"N	103°47'59.390"W	0.18
1024.00	0.310	59.820	1023.96	7.64	2.52	7.61	704826.81	742046.32	33°02'19.466"N	103°47'59.385"W	0.03
1118.90	0.360	56.180	1118.86	8.11	2.82	8.08	704827.28	742046.62	33°02'19.469"N	103°47'59.379"W	0.06
1213.80	0.390	98.540	1213.76	8.68	2.94	8.65	704827.85	742046.74	33°02'19.470"N	103°47'59.373"W	0.29
1308.80	0.640	150.720	1308.76	9.25	2.43	9.23	704828.43	742046.23	33°02'19.465"N	103°47'59.366"W	0.53
1403.20	0.760	140.800	1403.15	9.90	1.48	9.88	704829.08	742045.28	33°02'19.456"N	103°47'59.358"W	0.18
1498.10	0.580	230.510	1498.05	9.92	0.69	9.91	704829.11	742044.49	33°02'19.448"N	103°47'59.358"W	1.00
1593.90	0.700	250.430	1593.84	8.99	0.18	8.98	704828.18	742043.98	33°02'19.443"N	103°47'59.369"W	0.26
1688.50	1.050	260.440	1688.43	7.58	-0.15	7.59	704826.79	742043.65	33°02'19.439"N	103°47'59.386"W	0.40
1784.20	1.240	265.410	1784.11	5.69	-0.38	5.69	704824.89	742043.42	33°02'19.437"N	103°47'59.408"W	0.22
1880.00	0.950	264.240	1879.89	3.86	-0.54	3.87	704823.07	742043.26	33°02'19.436"N	103°47'59.429"W	0.30
1975.60	0.440	73.120	1975.49	3.42	-0.52	3.43	704822.63	742043.28	33°02'19.436"N	103°47'59.434"W	1.45
2071.40	1.260	79.110	2071.28	4.81	-0.21	4.81	704824.01	742043.59	33°02'19.439"N	103°47'59.418"W	0.86
2167.30	1.680	82.090	2167.15	7.24	0.18	7.24	704826.44	742043.98	33°02'19.443"N	103°47'59.390"W	0.45
2261.40	2.000	72.890	2261.20	10.19	0.85	10.18	704829.38	742044.65	33°02'19.449"N	103°47'59.355"W	0.46
2355.00	2.080	76.580	2354.74	13.41	1.73	13.39	704832.59	742045.53	33°02'19.458"N	103°47'59.317"W	0.16
2449.00	2.030	87.260	2448.68	16.73	2.20	16.71	704835.91	742046.00	33°02'19.462"N	103°47'59.278"W	0.41
2542.90	2.210	74.250	2542.51	20.14	2.77	20.12	704839.32	742046.57	33°02'19.468"N	103°47'59.238"W	0.55
2636.60	2.190	80.820	2636.14	23.66	3.55	23.62	704842.82	742047.35	33°02'19.475"N	103°47'59.197"W	0.27
2730.40	2.320	78.810	2729.87	27.29	4.21	27.26	704846.45	742048.00	33°02'19.482"N	103°47'59.154"W	0.16



Actual Wellpath Report

No. 1H AWP

Page 3 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(WASP) Sec 2, T15S, R31E	Wellbore	No. 1H AWB
Facility	WASP 2 St No. 1H	Sidetrack from	No. 1 AWB at 8483.90 MD

WELLPATH DATA (159 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]
2824.10	2.420	76.160	2823.49	31.08	5.05	31.04	704850.23	742048.85	33°02'19.490"N	103°47'59.110"W	0.16
2917.50	2.380	75.560	2916.81	34.88	6.00	34.83	704854.03	742049.80	33°02'19.499"N	103°47'59.065"W	0.05
3011.30	2.200	73.030	3010.54	38.50	7.01	38.44	704857.63	742050.81	33°02'19.509"N	103°47'59.023"W	0.22
3105.50	2.310	68.730	3104.66	42.01	8.23	41.94	704861.13	742052.03	33°02'19.521"N	103°47'58.982"W	0.21
3199.60	2.320	71.760	3198.69	45.60	9.51	45.51	704864.71	742053.31	33°02'19.533"N	103°47'58.939"W	0.13
3293.90	2.060	72.820	3292.92	49.04	10.61	48.94	704868.14	742054.41	33°02'19.544"N	103°47'58.899"W	0.28
3389.10	1.910	73.520	3388.06	52.20	11.57	52.10	704871.30	742055.37	33°02'19.553"N	103°47'58.862"W	0.16
3482.50	1.670	74.940	3481.41	55.02	12.36	54.91	704874.10	742056.16	33°02'19.561"N	103°47'58.829"W	0.26
3576.90	1.610	74.280	3575.77	57.63	13.08	57.51	704876.71	742056.88	33°02'19.568"N	103°47'58.798"W	0.07
3672.70	1.530	75.060	3671.54	60.17	13.77	60.04	704879.24	742057.57	33°02'19.575"N	103°47'58.768"W	0.09
3766.30	1.280	76.230	3765.11	62.39	14.34	62.27	704881.46	742058.14	33°02'19.580"N	103°47'58.742"W	0.27
3860.30	1.090	79.750	3859.09	64.30	14.75	64.16	704883.36	742058.55	33°02'19.584"N	103°47'58.720"W	0.22
3954.00	0.950	73.670	3952.78	65.92	15.13	65.79	704884.98	742058.93	33°02'19.588"N	103°47'58.701"W	0.19
4047.70	0.800	72.910	4046.46	67.30	15.54	67.16	704886.35	742059.34	33°02'19.592"N	103°47'58.685"W	0.16
4141.70	0.670	77.450	4140.46	68.46	15.85	68.32	704887.52	742059.65	33°02'19.595"N	103°47'58.671"W	0.15
4235.50	0.640	76.500	4234.25	69.51	16.09	69.37	704888.56	742059.89	33°02'19.597"N	103°47'58.659"W	0.03
4329.30	0.570	79.440	4328.05	70.48	16.30	70.33	704889.53	742060.10	33°02'19.599"N	103°47'58.647"W	0.08
4423.10	0.480	88.590	4421.84	71.33	16.40	71.19	704890.38	742060.20	33°02'19.600"N	103°47'58.637"W	0.13
4516.90	0.350	69.240	4515.64	72.00	16.51	71.85	704891.04	742060.31	33°02'19.601"N	103°47'58.630"W	0.20
4610.20	0.360	101.160	4608.94	72.55	16.55	72.40	704891.60	742060.35	33°02'19.602"N	103°47'58.623"W	0.21
4704.10	0.440	123.570	4702.84	73.14	16.30	72.99	704892.19	742060.10	33°02'19.599"N	103°47'58.616"W	0.19
4798.00	0.330	124.440	4796.73	73.66	15.94	73.51	704892.71	742059.74	33°02'19.595"N	103°47'58.610"W	0.12
4892.20	0.320	129.180	4890.93	74.08	15.62	73.94	704893.14	742059.42	33°02'19.592"N	103°47'58.605"W	0.03
4985.50	0.230	138.730	4984.23	74.40	15.32	74.27	704893.46	742059.12	33°02'19.589"N	103°47'58.601"W	0.11
5078.90	0.280	70.030	5077.63	74.74	15.26	74.61	704893.80	742059.06	33°02'19.589"N	103°47'58.597"W	0.31
5172.90	0.380	60.230	5171.63	75.23	15.49	75.09	704894.29	742059.29	33°02'19.591"N	103°47'58.592"W	0.12
5266.70	0.370	56.950	5265.43	75.76	15.81	75.62	704894.81	742059.61	33°02'19.594"N	103°47'58.585"W	0.03
5360.70	0.290	66.910	5359.42	76.23	16.07	76.09	704895.28	742059.87	33°02'19.597"N	103°47'58.580"W	0.10
5454.40	0.070	74.800	5453.12	76.51	16.18	76.36	704895.56	742059.97	33°02'19.598"N	103°47'58.577"W	0.24
5548.40	0.060	10.490	5547.12	76.57	16.24	76.43	704895.62	742060.04	33°02'19.598"N	103°47'58.576"W	0.07



Actual Wellpath Report

No. 1H AWP

Page 4 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(WASP) Sec 2, T15S, R31E	Wellbore	No. 1H AWB
Facility	WASP 2 St No. 1H	Sidetrack from	No. 1 AWB at 8483.90 MD

WELLPATH DATA (159 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]
5642.20	0.160	320.250	5640.92	76.50	16.39	76.35	704895.55	742060.19	33°02'19.600"N	103°47'58.577"W	0.14
5736.10	0.260	301.400	5734.82	76.24	16.60	76.09	704895.28	742060.40	33°02'19.602"N	103°47'58.580"W	0.13
5829.70	0.330	278.800	5828.42	75.79	16.75	75.64	704894.83	742060.55	33°02'19.603"N	103°47'58.585"W	0.14
5923.50	0.390	282.700	5922.22	75.21	16.86	75.06	704894.26	742060.66	33°02'19.604"N	103°47'58.592"W	0.07
6017.40	0.660	298.180	6016.12	74.43	17.19	74.27	704893.47	742060.99	33°02'19.608"N	103°47'58.601"W	0.32
6111.40	0.870	312.530	6110.11	73.43	17.93	73.27	704892.46	742061.73	33°02'19.615"N	103°47'58.613"W	0.30
6205.20	0.890	304.350	6203.90	72.31	18.82	72.14	704891.34	742062.62	33°02'19.624"N	103°47'58.626"W	0.14
6299.10	0.960	301.310	6297.78	71.05	19.64	70.87	704890.06	742063.44	33°02'19.632"N	103°47'58.641"W	0.09
6393.10	0.930	296.770	6391.77	69.70	20.39	69.51	704888.71	742064.19	33°02'19.640"N	103°47'58.657"W	0.09
6487.40	0.890	294.630	6486.06	68.36	21.04	68.16	704887.36	742064.84	33°02'19.646"N	103°47'58.673"W	0.06
6581.40	0.930	300.080	6580.05	67.04	21.73	66.84	704886.04	742065.53	33°02'19.653"N	103°47'58.688"W	0.10
6675.30	0.920	301.390	6673.94	65.74	22.50	65.54	704884.73	742066.30	33°02'19.661"N	103°47'58.703"W	0.02
6770.10	0.890	298.390	6768.72	64.45	23.25	64.24	704883.44	742067.05	33°02'19.668"N	103°47'58.719"W	0.06
6866.00	0.970	297.690	6864.61	63.08	23.98	62.87	704882.06	742067.78	33°02'19.676"N	103°47'58.735"W	0.08
6961.50	0.870	290.840	6960.10	61.70	24.62	61.47	704880.67	742068.41	33°02'19.682"N	103°47'58.751"W	0.16
7056.20	0.740	282.250	7054.79	60.43	25.00	60.20	704879.40	742068.80	33°02'19.686"N	103°47'58.766"W	0.19
7151.10	0.690	273.780	7149.68	59.26	25.17	59.04	704878.23	742068.97	33°02'19.687"N	103°47'58.780"W	0.12
7247.20	0.720	297.900	7245.78	58.16	25.49	57.92	704877.12	742069.29	33°02'19.691"N	103°47'58.793"W	0.31
7342.80	0.610	277.950	7341.37	57.12	25.84	56.89	704876.09	742069.64	33°02'19.694"N	103°47'58.805"W	0.27
7438.30	0.240	261.540	7436.87	56.42	25.88	56.19	704875.38	742069.68	33°02'19.695"N	103°47'58.813"W	0.40
7533.70	0.080	99.100	7532.27	56.29	25.84	56.06	704875.25	742069.64	33°02'19.694"N	103°47'58.815"W	0.33
7627.60	0.220	108.940	7626.17	56.53	25.77	56.29	704875.49	742069.57	33°02'19.694"N	103°47'58.812"W	0.15
7722.70	0.450	104.660	7721.26	57.06	25.62	56.83	704876.02	742069.42	33°02'19.692"N	103°47'58.806"W	0.24
7816.70	0.530	104.790	7815.26	57.83	25.41	57.60	704876.80	742069.21	33°02'19.690"N	103°47'58.796"W	0.09
7912.50	0.720	104.620	7911.06	58.84	25.15	58.61	704877.81	742068.95	33°02'19.687"N	103°47'58.785"W	0.20
8008.20	0.910	101.260	8006.75	60.17	24.85	59.94	704879.14	742068.65	33°02'19.684"N	103°47'58.769"W	0.20
8102.60	0.910	98.640	8101.13	61.64	24.59	61.42	704880.61	742068.39	33°02'19.682"N	103°47'58.752"W	0.04
8197.90	1.040	90.080	8196.42	63.25	24.48	63.03	704882.23	742068.27	33°02'19.680"N	103°47'58.733"W	0.20
8292.70	1.340	86.740	8291.20	65.22	24.54	65.00	704884.19	742068.34	33°02'19.681"N	103°47'58.710"W	0.32
8388.30	1.270	75.290	8386.77	67.36	24.87	67.14	704886.33	742068.67	33°02'19.684"N	103°47'58.684"W	0.28



Actual Wellpath Report

No. 1H AWP

Page 5 of 7



**BAKER
HUGHES**

INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(WASP) Sec 2, T15S, R31E	Wellbore	No. 1H AWB
Facility	WASP 2 St No. 1H	Sidetrack from	No. 1 AWB at 8483.90 MD

WELLPATH DATA (159 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]
8483.90	1.140	79.190	8482.35	69.33	25.32	69.10	704888.29	742069.12	33°02'19.688"N	103°47'58.661"W	0.16
8536.00	1.100	88.100	8534.44	70.34	25.43	70.11	704889.30	742069.23	33°02'19.689"N	103°47'58.650"W	0.34
8568.00	2.100	88.300	8566.43	71.23	25.46	71.00	704890.19	742069.26	33°02'19.690"N	103°47'58.639"W	3.13
8599.00	11.200	70.500	8597.19	74.65	26.48	74.41	704893.61	742070.28	33°02'19.700"N	103°47'58.599"W	29.75
8631.00	22.400	75.500	8627.78	83.54	29.05	83.27	704902.47	742072.85	33°02'19.725"N	103°47'58.495"W	35.26
8663.00	32.600	77.700	8656.13	97.93	32.43	97.64	704916.83	742076.22	33°02'19.757"N	103°47'58.326"W	32.03
8695.00	43.700	79.100	8681.25	117.30	36.37	116.97	704936.17	742080.16	33°02'19.795"N	103°47'58.098"W	34.79
8727.00	54.400	80.500	8702.19	141.10	40.62	140.73	704959.92	742084.41	33°02'19.836"N	103°47'57.819"W	33.60
8757.00	63.100	86.800	8717.75	166.57	43.38	166.18	704985.37	742087.18	33°02'19.862"N	103°47'57.520"W	34.09
8789.00	69.600	90.500	8730.59	195.86	44.05	195.47	705014.65	742087.85	33°02'19.867"N	103°47'57.176"W	22.90
8821.00	71.900	90.000	8741.14	226.07	43.92	225.67	705044.86	742087.72	33°02'19.865"N	103°47'56.821"W	7.34
8853.00	74.600	90.300	8750.36	256.71	43.84	256.31	705075.50	742087.63	33°02'19.862"N	103°47'56.461"W	8.49
8885.00	77.400	91.200	8758.10	287.74	43.43	287.36	705106.54	742087.23	33°02'19.857"N	103°47'56.097"W	9.17
8916.00	81.000	91.200	8763.91	318.18	42.79	317.80	705136.98	742086.59	33°02'19.849"N	103°47'55.739"W	11.61
8948.00	84.700	91.200	8767.89	349.91	42.13	349.53	705168.71	742085.92	33°02'19.841"N	103°47'55.366"W	11.56
8980.00	87.800	91.600	8769.98	381.82	41.35	381.45	705200.63	742085.14	33°02'19.831"N	103°47'54.991"W	9.77
9012.00	88.000	91.700	8771.16	413.77	40.43	413.42	705232.59	742084.22	33°02'19.821"N	103°47'54.616"W	0.70
9043.00	88.100	91.500	8772.21	444.73	39.56	444.39	705263.56	742083.36	33°02'19.810"N	103°47'54.252"W	0.72
9075.00	88.000	91.600	8773.30	476.69	38.70	476.36	705295.53	742082.49	33°02'19.800"N	103°47'53.877"W	0.44
9106.00	88.100	91.300	8774.35	507.66	37.91	507.33	705326.50	742081.71	33°02'19.791"N	103°47'53.513"W	1.02
9138.00	87.900	90.900	8775.47	539.62	37.30	539.30	705358.47	742081.10	33°02'19.783"N	103°47'53.137"W	1.40
9170.00	87.800	90.300	8776.67	571.60	36.96	571.28	705390.44	742080.76	33°02'19.778"N	103°47'52.762"W	1.90
9232.00	87.800	89.500	8779.05	633.55	37.07	633.23	705452.39	742080.87	33°02'19.776"N	103°47'52.034"W	1.29
9297.00	89.400	90.100	8780.64	698.52	37.30	698.21	705517.37	742081.10	33°02'19.775"N	103°47'51.271"W	2.63
9360.00	88.800	89.500	8781.63	761.52	37.52	761.20	705580.35	742081.32	33°02'19.774"N	103°47'50.531"W	1.35
9423.00	88.600	88.300	8783.06	824.49	38.73	824.17	705643.32	742082.52	33°02'19.783"N	103°47'49.791"W	1.93
9487.00	87.900	88.200	8785.01	888.45	40.68	888.11	705707.26	742084.48	33°02'19.799"N	103°47'49.040"W	1.10
9551.00	87.900	88.100	8787.36	952.39	42.75	952.04	705771.18	742086.54	33°02'19.816"N	103°47'48.289"W	0.16
9614.00	89.000	88.600	8789.06	1015.35	44.56	1014.99	705834.12	742088.36	33°02'19.831"N	103°47'47.549"W	1.92
9677.00	88.600	87.200	8790.38	1078.31	46.87	1077.93	705897.06	742090.66	33°02'19.851"N	103°47'46.810"W	2.31



Actual Wellpath Report

No. 1H AWP

Page 6 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(WASP) Sec 2, T15S, R31E	Wellbore	No. 1H AWB
Facility	WASP 2 St No. 1H	Sidetrack from	No. 1 AWB at 8483.90 MD

WELLPATH DATA (159 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]
9741.00	88.200	86.600	8792.17	1142.22	50.33	1141.81	705960.94	742094.12	33°02'19.882"N	103°47'46.059"W	1.13
9804.00	88.600	88.300	8793.93	1205.16	53.13	1204.72	706023.85	742096.92	33°02'19.906"N	103°47'45.320"W	2.77
9867.00	88.500	89.600	8795.52	1268.13	54.28	1267.69	706086.81	742098.08	33°02'19.915"N	103°47'44.580"W	2.07
9931.00	87.900	88.800	8797.53	1332.10	55.18	1331.65	706150.77	742098.97	33°02'19.920"N	103°47'43.829"W	1.56
10026.00	87.600	89.000	8801.26	1427.02	57.00	1426.56	706245.67	742100.79	33°02'19.933"N	103°47'42.714"W	0.38
10121.00	87.200	89.200	8805.57	1521.92	58.49	1521.45	706340.55	742102.28	33°02'19.943"N	103°47'41.599"W	0.47
10216.00	89.000	89.100	8808.72	1616.86	59.90	1616.38	706435.48	742103.69	33°02'19.952"N	103°47'40.484"W	1.90
10311.00	89.900	91.700	8809.63	1711.84	59.23	1711.37	706530.46	742103.03	33°02'19.941"N	103°47'39.369"W	2.90
10406.00	90.400	92.500	8809.38	1806.74	55.75	1806.30	706625.39	742099.55	33°02'19.902"N	103°47'38.254"W	0.99
10500.00	90.300	92.000	8808.81	1900.63	52.06	1900.23	706719.31	742095.86	33°02'19.860"N	103°47'37.151"W	0.54
10595.00	90.300	91.500	8808.31	1995.55	49.16	1995.18	706814.26	742092.96	33°02'19.827"N	103°47'36.035"W	0.53
10690.00	90.500	89.900	8807.65	2090.52	48.00	2090.17	706909.24	742091.80	33°02'19.811"N	103°47'34.920"W	1.70
10785.00	90.600	91.400	8806.74	2185.49	46.92	2185.16	707004.22	742090.72	33°02'19.795"N	103°47'33.804"W	1.58
10879.00	90.500	91.600	8805.83	2279.43	44.46	2279.12	707098.18	742088.26	33°02'19.766"N	103°47'32.700"W	0.24
10976.00	88.600	90.500	8806.60	2376.39	42.68	2376.09	707195.15	742086.48	33°02'19.744"N	103°47'31.561"W	2.26
11069.00	87.500	90.100	8809.76	2469.32	42.20	2469.04	707288.08	742086.00	33°02'19.734"N	103°47'30.470"W	1.26
11164.00	89.600	90.100	8812.17	2564.28	42.03	2564.00	707383.04	742085.83	33°02'19.727"N	103°47'29.354"W	2.21
11259.00	90.200	90.200	8812.33	2659.27	41.78	2659.00	707478.03	742085.58	33°02'19.720"N	103°47'28.238"W	0.64
11354.00	89.800	90.100	8812.33	2754.26	41.53	2754.00	707573.03	742085.33	33°02'19.713"N	103°47'27.122"W	0.43
11449.00	90.900	89.200	8811.75	2849.26	42.11	2848.99	707668.02	742085.91	33°02'19.714"N	103°47'26.006"W	1.50
11544.00	90.200	87.800	8810.84	2944.24	44.60	2943.95	707762.97	742088.40	33°02'19.733"N	103°47'24.891"W	1.65
11639.00	90.100	89.200	8810.59	3039.22	47.09	3038.92	707857.93	742090.89	33°02'19.753"N	103°47'23.775"W	1.48
11734.00	89.800	89.500	8810.67	3134.22	48.17	3133.91	707952.92	742091.96	33°02'19.759"N	103°47'22.659"W	0.45
11829.00	89.700	89.500	8811.09	3229.22	49.00	3228.91	708047.91	742092.79	33°02'19.762"N	103°47'21.543"W	0.11
11924.00	89.500	89.200	8811.75	3324.22	50.07	3323.90	708142.89	742093.87	33°02'19.768"N	103°47'20.428"W	0.38
12019.00	88.200	89.200	8813.66	3419.20	51.40	3418.87	708237.86	742095.20	33°02'19.776"N	103°47'19.312"W	1.37
12114.00	88.200	89.000	8816.64	3514.15	52.89	3513.81	708332.79	742096.69	33°02'19.786"N	103°47'18.197"W	0.21
12208.00	88.100	88.600	8819.68	3608.09	54.86	3607.74	708426.71	742098.65	33°02'19.801"N	103°47'17.093"W	0.44
12303.00	88.100	88.200	8822.83	3703.02	57.51	3702.65	708521.62	742101.31	33°02'19.822"N	103°47'15.978"W	0.42
12398.00	87.800	88.600	8826.22	3797.94	60.16	3797.55	708616.52	742103.96	33°02'19.844"N	103°47'14.863"W	0.53



Actual Wellpath Report

No. 1H AWP

Page 7 of 7



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(WASP) Sec 2, T15S, R31E	Wellbore	No. 1H AWB
Facility	WASP 2 St No. 1H	Sidetrack from	No. 1 AWB at 8483.90 MD

WELLPATH DATA (159 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]
12492.00	87.200	89.200	8830.32	3891.85	61.96	3891.44	708710.40	742105.76	33°02'19.857"N	103°47'13.760"W	0.90
12587.00	89.400	89.600	8833.14	3986.80	62.96	3986.39	708805.34	742106.75	33°02'19.862"N	103°47'12.645"W	2.35
12682.00	89.000	90.500	8834.47	4081.79	62.87	4081.38	708900.33	742106.67	33°02'19.856"N	103°47'11.529"W	1.04
12777.00	88.600	90.000	8836.46	4176.76	62.46	4176.36	708995.30	742106.26	33°02'19.847"N	103°47'10.413"W	0.67
12872.00	88.300	89.400	8839.03	4271.72	62.96	4271.32	709090.26	742106.75	33°02'19.847"N	103°47'09.298"W	0.71
12967.00	88.300	89.500	8841.85	4366.68	63.87	4366.28	709185.20	742107.66	33°02'19.851"N	103°47'08.182"W	0.11
13062.00	87.900	88.700	8845.00	4461.62	65.36	4461.21	709280.13	742109.16	33°02'19.861"N	103°47'07.067"W	0.94
13156.00	87.900	88.700	8848.44	4555.55	67.49	4555.12	709374.04	742111.29	33°02'19.877"N	103°47'05.964"W	0.00
13206.00	87.900	88.700	8850.27	4605.51	68.62	4605.08	709423.99	742112.42	33°02'19.886"N	103°47'05.377"W	0.00

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL		8823.05	42.46	4616.71	709435.62	742086.26	33°02'19.626"N	103°47'05.242"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
0.00	8483.90	Gyrodata relative depth - Drop gyro or Multi-shot			GYRO <93.1 - 9026.8>	No. 1 AWB
8483.90	13156.00	NaviTrak (Standard)			MWD	No. 1H AWB
13156.00	13206.00	Blind Drilling (std)			Projection to bit	No. 1H AWB