



Cimarex Energy Co.

Location: Chaves County, NM
Field: (Ticonderoga) Sec 16, T15S, R31E
Facility: Ticonderoga 16 St Com No. 3H

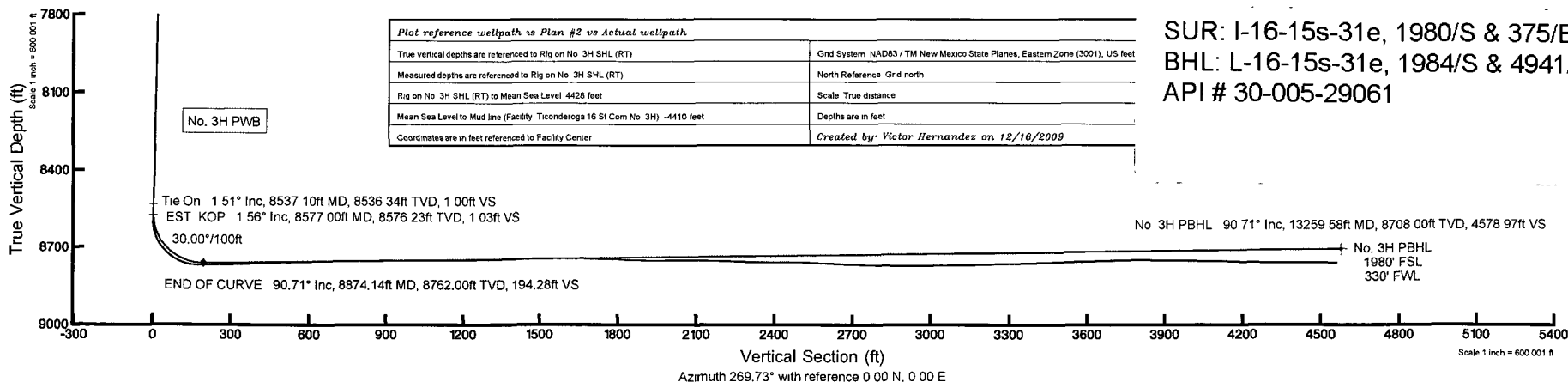
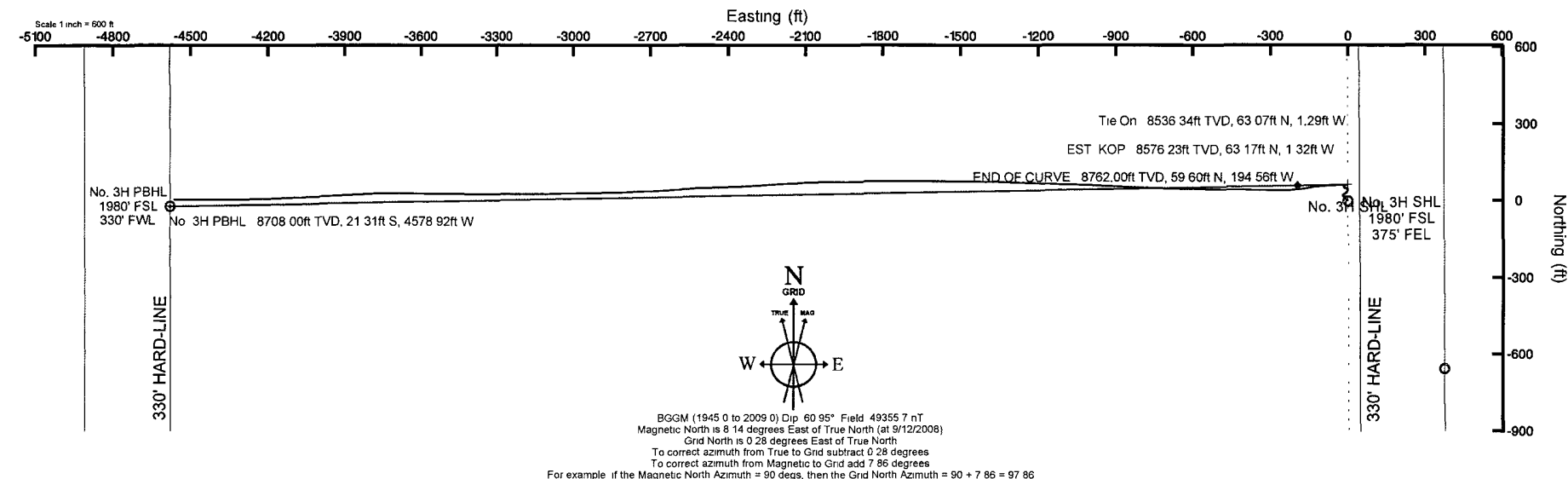
Slot: No. 3H SHL
Well: No. 3H
Wellbore: No. 3H PWB



INTEQ

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8537.10	1.510	78.450	8536.34	63.07	-1.29	0.00	1.00
EST. KOP	8577.00	1.563	268.900	8576.23	63.17	-1.32	7.67	1.03
END OF CURVE	8874.14	90.705	268.943	8762.00	59.60	-194.56	30.00	194.28
No. 3H PBHL	13259.58	90.705	268.943	8708.00	-21.31	-4578.92	0.00	4578.97



SUR: I-16-15s-31e, 1980/S & 375/E
BHL: L-16-15s-31e, 1984/S & 4941/E
API # 30-005-29061



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Chaves County, NM	Well	No. 3H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 3H AWB
Facility	Ticonderoga 16 St Com No. 3H	Sidetrack from	No. 3 AWB at 8537.10 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	Gomeoscr
Scale	0.999938	Report Generated	12/18/2009 at 9:22:03 AM
Convergence at slot	0.28° East	Database/Source file	WA_Midland/No. 3H_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	698870.60	733035.60	33°00'50.604"N	103°49'09.872"W
Facility Reference Pt			698870.60	733035.60	33°00'50.604"N	103°49'09.872"W
Field Reference Pt			694286.00	734335.70	33°01'03.686"N	103°50'03.641"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 3H SHL (RT) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 3H SHL (RT) to Mean Sea Level	4428.00ft
Vertical Reference Pt	Rig on No. 3H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 3H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	269.73°



Actual Wellpath Report

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Facility	Ticonderoga 16 St Com No. 3H	Sidetrack from	No. 3 AWB at 8537.10 MD

WELLPATH DATA (179 stations)								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00	0.000	7.410	0.00	0.00	0.00	0.00	0.00	
100.00	0.170	7.410	100.00	-0.02	0.15	0.02	0.17	
200.00	0.420	296.060	200.00	0.29	0.46	-0.29	0.40	
300.00	0.710	287.350	299.99	1.21	0.80	-1.21	0.30	
400.00	1.130	299.020	399.98	2.66	1.46	-2.67	0.46	
500.00	1.330	314.610	499.96	4.34	2.76	-4.35	0.39	
600.00	1.550	311.050	599.93	6.18	4.46	-6.20	0.24	
700.00	1.310	321.740	699.90	7.90	6.25	-7.93	0.36	
747.20	1.320	320.280	747.08	8.58	7.09	-8.61	0.07	
842.20	1.280	322.380	842.06	9.92	8.77	-9.96	0.07	
937.30	1.320	324.640	937.13	11.19	10.51	-11.24	0.07	
1032.40	1.270	322.390	1032.21	12.46	12.23	-12.52	0.07	
1126.50	1.190	324.230	1126.29	13.66	13.85	-13.72	0.09	
1221.50	1.090	327.310	1221.27	14.72	15.41	-14.79	0.12	
1316.70	0.650	319.970	1316.46	15.55	16.59	-15.62	0.48	
1411.80	0.620	313.680	1411.55	16.26	17.36	-16.34	0.08	
1506.80	0.500	302.680	1506.55	16.98	17.94	-17.06	0.17	
1602.00	0.540	298.240	1601.74	17.72	18.37	-17.81	0.06	
1696.90	0.610	307.560	1696.64	18.51	18.89	-18.60	0.12	
1791.90	0.620	318.900	1791.63	19.25	19.59	-19.34	0.13	
1887.10	0.540	337.940	1886.83	19.75	20.39	-19.85	0.22	
1982.20	0.540	28.700	1981.92	19.70	21.20	-19.80	0.49	
2077.20	0.870	43.640	2076.92	18.99	22.11	-19.09	0.39	
2172.30	1.010	48.900	2172.00	17.85	23.19	-17.96	0.17	
2267.40	1.260	51.150	2267.09	16.40	24.39	-16.51	0.27	
2362.40	1.270	55.230	2362.06	14.72	25.65	-14.84	0.10	
2457.50	1.240	56.150	2457.14	12.99	26.82	-13.11	0.04	
2552.60	1.100	53.980	2552.22	11.39	27.93	-11.52	0.15	
2647.80	0.990	55.760	2647.40	9.97	28.93	-10.10	0.12	
2742.90	0.950	55.820	2742.49	8.63	29.84	-8.77	0.04	
2838.00	1.010	53.570	2837.58	7.30	30.78	-7.45	0.07	
2933.20	0.890	50.860	2932.76	6.05	31.75	-6.20	0.13	
3028.30	0.890	48.910	3027.85	4.91	32.70	-5.07	0.03	
3123.40	0.860	53.810	3122.94	3.78	33.60	-3.93	0.08	
3218.60	0.660	41.490	3218.13	2.83	34.44	-2.99	0.27	
3313.60	0.620	26.060	3313.13	2.24	35.31	-2.41	0.19	
3408.60	0.630	0.330	3408.12	2.01	36.29	-2.18	0.29	
3503.60	0.460	4.950	3503.12	1.97	37.19	-2.14	0.18	
3598.70	0.380	353.750	3598.21	1.97	37.89	-2.14	0.12	
3693.60	0.380	7.830	3693.11	1.96	38.51	-2.13	0.10	
3788.60	0.370	15.260	3788.11	1.83	39.12	-2.01	0.05	
3883.80	0.470	15.930	3883.31	1.64	39.79	-1.82	0.11	
3978.70	0.330	20.220	3978.21	1.43	40.42	-1.62	0.15	
4073.50	0.300	20.040	4073.00	1.25	40.91	-1.44	0.03	
4167.40	0.300	15.760	4166.90	1.10	41.38	-1.29	0.02	



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Chaves County, NM	Well	No. 3H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 3H AWB
Facility	Ticonderoga 16 St Com No. 3H	Sidetrack from	No. 3 AWB at 8537.10 MD

WELLPATH DATA (179 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
4262.30	0.330	21.950	4261.80	0.93	41.87	-1.12	0.05	
4357.20	0.280	22.590	4356.70	0.73	42.34	-0.93	0.05	
4451.40	0.300	15.810	4450.90	0.58	42.79	-0.77	0.04	
4546.40	0.260	10.410	4545.90	0.47	43.24	-0.67	0.05	
4641.50	0.400	16.860	4641.00	0.33	43.77	-0.53	0.15	
4736.40	0.350	4.400	4735.89	0.21	44.38	-0.41	0.10	
4831.50	0.300	333.170	4830.99	0.30	44.89	-0.50	0.19	
4926.70	0.230	340.840	4926.19	0.47	45.29	-0.68	0.08	
5021.50	0.280	346.250	5020.99	0.58	45.70	-0.80	0.06	
5116.50	0.360	308.830	5115.99	0.87	46.11	-1.08	0.23	
5211.50	0.380	305.600	5210.99	1.36	46.48	-1.57	0.03	
5305.40	0.400	310.840	5304.89	1.86	46.88	-2.07	0.04	
5400.30	0.410	310.700	5399.78	2.36	47.31	-2.58	0.01	
5495.40	0.440	297.010	5494.88	2.94	47.70	-3.17	0.11	
5590.40	0.390	281.210	5589.88	3.58	47.93	-3.81	0.13	
5685.30	0.520	285.980	5684.77	4.31	48.11	-4.54	0.14	
5780.20	0.450	290.790	5779.67	5.08	48.36	-5.30	0.09	
5875.20	0.460	294.260	5874.67	5.77	48.65	-6.00	0.03	
5970.00	0.450	288.350	5969.47	6.47	48.92	-6.70	0.05	
6065.10	0.450	290.090	6064.56	7.17	49.17	-7.40	0.01	
6159.90	0.580	288.700	6159.36	7.98	49.45	-8.21	0.14	
6254.70	0.610	291.330	6254.15	8.90	49.79	-9.13	0.04	
6349.80	0.590	289.940	6349.25	9.83	50.14	-10.06	0.03	
6444.70	0.540	292.290	6444.14	10.70	50.48	-10.94	0.06	
6539.70	0.590	296.830	6539.14	11.55	50.87	-11.79	0.07	
6634.90	0.560	299.100	6634.33	12.39	51.32	-12.63	0.04	
6729.80	0.530	304.440	6729.23	13.16	51.79	-13.40	0.06	
6825.00	0.490	308.110	6824.43	13.84	52.29	-14.08	0.05	
6920.10	0.560	312.910	6919.52	14.50	52.86	-14.74	0.09	
7015.00	0.490	318.300	7014.42	15.10	53.48	-15.35	0.09	
7110.10	0.540	325.620	7109.51	15.62	54.15	-15.88	0.09	
7205.00	0.590	334.220	7204.41	16.08	54.96	-16.34	0.10	
7299.60	0.560	333.590	7299.01	16.50	55.81	-16.76	0.03	
7394.60	0.510	348.670	7394.00	16.78	56.64	-17.05	0.16	
7489.60	0.440	15.580	7489.00	16.77	57.41	-17.03	0.24	
7584.60	0.540	35.000	7583.99	16.41	58.12	-16.68	0.20	
7679.70	0.580	48.850	7679.09	15.78	58.81	-16.06	0.15	
7774.30	0.720	59.490	7773.68	14.91	59.43	-15.19	0.19	
7869.80	0.740	64.380	7869.18	13.83	60.00	-14.11	0.07	
7965.30	0.850	68.110	7964.67	12.62	60.53	-12.90	0.13	
8060.80	0.990	73.560	8060.15	11.17	61.03	-11.45	0.17	
8156.30	1.010	75.110	8155.64	9.56	61.47	-9.85	0.04	
8251.60	1.170	77.700	8250.92	7.80	61.90	-8.08	0.18	
8346.90	1.350	81.790	8346.20	5.73	62.27	-6.02	0.21	
8441.90	1.460	80.580	8441.17	3.43	62.62	-3.72	0.12	



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

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Area	Chaves County, NM	Well	No. 3H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 3H AWB
Facility	Ticonderoga 16 St Com No. 3H	Sidetrack from	No. 3 AWB at 8537.10 MD

WELLPATH DATA (179 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8537.10	1.510	78.450	8536.34	1.00	63.07	-1.29	0.08	
8575.00	1.700	91.400	8574.22	-0.05	63.16	-0.24	1.08	
8607.00	2.900	272.200	8606.21	0.28	63.18	-0.58	14.37	
8638.00	13.600	264.100	8636.85	4.71	62.83	-5.00	34.63	
8670.00	24.000	266.200	8667.10	14.98	62.01	-15.26	32.56	
8702.00	34.500	268.400	8694.98	30.58	61.33	-30.86	32.98	
8733.00	44.900	269.100	8718.80	50.35	60.91	-50.63	33.58	
8765.00	54.700	265.300	8739.44	74.72	59.66	-75.00	31.93	
8796.00	65.500	264.900	8754.87	101.47	57.36	-101.74	34.86	
8828.00	76.000	262.800	8765.40	131.48	54.11	-131.73	33.39	
8860.00	87.000	260.300	8770.13	162.75	49.46	-162.98	35.23	
8893.00	92.300	262.600	8770.33	195.39	44.55	-195.60	17.51	
8924.00	91.700	266.200	8769.24	226.23	41.53	-226.43	11.77	
8955.00	90.500	270.300	8768.65	257.21	40.59	-257.40	13.78	
8986.00	90.100	270.800	8768.49	288.21	40.88	-288.40	2.07	
9018.00	91.400	270.800	8768.07	320.20	41.33	-320.39	4.06	
9051.00	92.500	271.100	8766.95	353.17	41.88	-353.37	3.45	
9082.00	92.800	272.000	8765.51	384.12	42.71	-384.32	3.06	
9113.00	91.900	270.500	8764.24	415.08	43.39	-415.29	5.64	
9145.00	91.900	270.700	8763.18	447.06	43.72	-447.27	0.62	
9177.00	91.700	270.700	8762.17	479.04	44.12	-479.25	0.62	
9208.00	91.300	270.600	8761.36	510.03	44.47	-510.24	1.33	
9240.00	91.000	271.500	8760.72	542.01	45.05	-542.23	2.96	
9271.00	92.700	271.500	8759.72	572.98	45.86	-573.20	5.48	
9303.00	92.400	270.500	8758.30	604.94	46.42	-605.16	3.26	
9334.00	90.900	271.100	8757.40	635.92	46.86	-636.14	5.21	
9398.00	90.800	271.500	8756.45	699.89	48.31	-700.12	0.64	
9461.00	91.800	272.400	8755.02	762.82	50.45	-763.07	2.14	
9524.00	90.300	272.200	8753.87	825.75	52.98	-826.00	2.40	
9588.00	90.400	272.600	8753.48	889.68	55.66	-889.95	0.64	
9651.00	90.300	273.000	8753.09	952.59	58.74	-952.87	0.65	
9714.00	90.100	272.400	8752.87	1015.50	61.70	-1015.80	1.00	
9777.00	89.800	270.600	8752.93	1078.47	63.35	-1078.77	2.90	
9840.00	90.900	273.100	8752.54	1141.42	65.39	-1141.73	4.34	
9904.00	90.300	272.900	8751.87	1205.31	68.73	-1205.64	0.99	
9967.00	90.800	271.600	8751.27	1268.25	71.21	-1268.59	2.21	
10030.00	91.300	271.800	8750.12	1331.20	73.08	-1331.55	0.85	
10094.00	91.800	270.200	8748.38	1395.16	74.19	-1395.52	2.62	
10157.00	91.400	270.600	8746.63	1458.13	74.63	-1458.49	0.90	
10220.00	90.600	270.400	8745.53	1521.11	75.18	-1521.48	1.31	
10284.00	90.800	271.100	8744.74	1585.10	76.02	-1585.47	1.14	
10347.00	89.000	270.500	8744.85	1648.08	76.90	-1648.46	3.01	
10410.00	87.700	270.200	8746.67	1711.05	77.28	-1711.43	2.12	
10474.00	88.800	270.100	8748.62	1775.02	77.45	-1775.40	1.73	
10537.00	87.700	268.000	8750.55	1837.98	76.41	-1838.36	3.76	



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WELLPATH DATA (179 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [%/100ft]	Comments
10600.00	87.700	267.900	8753.07	1900.90	74.16	-1901.26	0.16	
10664.00	90.000	269.900	8754.36	1964.87	72.93	-1965.23	4.76	
10727.00	91.900	269.800	8753.31	2027.86	72.76	-2028.22	3.02	
10790.00	88.600	266.900	8753.04	2090.83	70.95	-2091.18	6.97	
10853.00	88.400	266.200	8754.69	2153.71	67.16	-2154.04	1.16	
10916.00	88.300	266.300	8756.50	2216.56	63.04	-2216.88	0.22	
10980.00	88.000	265.800	8758.57	2280.40	58.64	-2280.70	0.91	
11043.00	89.700	267.800	8759.83	2343.30	55.12	-2343.58	4.17	
11106.00	89.500	267.300	8760.27	2406.25	52.43	-2406.52	0.85	
11169.00	90.200	268.900	8760.44	2469.22	50.34	-2469.48	2.77	
11233.00	87.300	266.500	8761.83	2533.15	47.77	-2533.40	5.88	
11296.00	87.500	266.300	8764.69	2595.98	43.82	-2596.22	0.45	
11359.00	87.300	266.600	8767.55	2658.81	39.92	-2659.03	0.57	
11422.00	87.900	268.200	8770.19	2721.70	37.07	-2721.91	2.71	
11485.00	88.300	266.900	8772.28	2784.62	34.38	-2784.81	2.16	
11549.00	89.600	268.400	8773.45	2848.57	31.75	-2848.75	3.10	
11612.00	90.200	268.700	8773.56	2911.55	30.16	-2911.72	1.06	
11675.00	89.800	269.000	8773.56	2974.55	28.89	-2974.71	0.79	
11738.00	91.100	268.700	8773.07	3037.53	27.63	-3037.70	2.12	
11801.00	91.000	268.900	8771.91	3100.52	26.31	-3100.67	0.35	
11865.00	91.800	270.600	8770.35	3164.49	26.03	-3164.65	2.93	
11928.00	92.100	269.700	8768.20	3227.45	26.20	-3227.61	1.51	
11990.00	91.600	269.900	8766.20	3289.42	25.98	-3289.58	0.87	
12054.00	90.700	269.800	8764.92	3353.41	25.81	-3353.56	1.41	
12116.00	93.100	270.900	8762.86	3415.37	26.19	-3415.52	4.26	
12180.00	91.600	270.400	8760.24	3479.30	26.92	-3479.46	2.47	
12243.00	90.700	270.200	8758.97	3542.28	27.25	-3542.45	1.46	
12306.00	92.000	271.000	8757.49	3605.26	27.90	-3605.43	2.42	
12369.00	92.400	270.900	8755.07	3668.20	28.95	-3668.37	0.65	
12432.00	91.200	269.300	8753.09	3731.16	29.06	-3731.34	3.17	
12495.00	90.200	267.300	8752.32	3794.13	27.19	-3794.30	3.55	
12559.00	89.400	266.900	8752.55	3858.06	23.95	-3858.22	1.40	
12622.00	89.000	267.100	8753.42	3920.99	20.65	-3921.13	0.71	
12685.00	89.500	266.900	8754.25	3983.91	17.36	-3984.03	0.85	
12749.00	89.400	267.500	8754.86	4047.84	14.23	-4047.95	0.95	
12812.00	89.000	267.300	8755.74	4110.79	11.37	-4110.88	0.71	
12876.00	88.500	267.600	8757.14	4174.72	8.53	-4174.80	0.91	
12939.00	88.600	268.300	8758.73	4237.67	6.27	-4237.74	1.12	
13002.00	88.100	268.700	8760.55	4300.63	4.63	-4300.69	1.02	
13065.00	90.900	269.700	8761.10	4363.61	3.75	-4363.68	4.72	
13129.00	90.700	270.100	8760.20	4427.61	3.63	-4427.67	0.70	
13192.00	89.300	270.200	8760.20	4490.60	3.80	-4490.67	2.23	
13218.00	88.800	270.700	8760.64	4516.60	4.00	-4516.67	2.72	
13267.00	88.800	270.700	8761.66	4565.58	4.60	-4565.65	0.00	Proj to Bit



Actual Wellpath Report

No. 3H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Chaves County, NM	Well	No. 3H
Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 3H AWB
Facility	Ticonderoga 16 St Com No. 3H	Sidetrack from	No. 3 AWB at 8537.10 MD

HOLE & CASING SECTIONS Ref Wellbore: No. 3H AWB Ref Wellpath: No. 3H AWP									
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]
7in Casing	8251.60	8251.60	0.00	8250.92	8250.92	61.90	-8.08	61.90	-8.08

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 3H PBHL		8708.00	-21.31	-4578.92	694291.97	733014.29	33°00'50.611"N	103°50'03.644"W	point

WELLPATH COMPOSITION Ref Wellbore: No. 3H AWB Ref Wellpath: No. 3H AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	8537.10	Generic gyro - continuous (Standard)	GYRO - <100 - 8986.3>	No. 3 AWB
8537.10	13267.00	NaviTrak (Standard)	MWD	No. 3H AWB



Actual Wellpath Report

No. 3H AWP

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REFERENCE WELLPATH IDENTIFICATION			
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Field	(Ticonderoga) Sec 16, T15S, R31E	Wellbore	No. 3H AWB
Facility	Ticonderoga 16 St Com No. 3H	Sidetrack from	No. 3 AWB at 8537.10 MD

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
13267.00	88.800	270.700	8761.66	Proj. to Bit