

Results of Directional Survey

API number:	30-025-40675		
OGRID:		Operator:	CIMAREX ENERGY CO.
		Property:	TRES EQUIS 5 STATE # 24

surface	ULSTR:	C	05	T	24S	R	33E
				330	FNL	1980	FWL

BH Loc	ULSTR:	MC	05	T	24S	R	33E
10548	MD	10542.7	TVD	321	FNL	1879	FWL

Top Perf/OH	ULSTR:						

Bot Perf/OH	ULSTR:						

	MD	N/S	E/W	VD
TOP PERFS/OH				
BOT PERFS/OH				

NEXT TO LAST	10390	8.11	-97.32	10384.73
LAST READING	10485	8.71	-99.39	10479.71
TD	10548	9.11	-100.76	10542.70

Surface Location	330	FN	1980	FW
Projected BHL	321	FN	1879	FW
Location of				
Top Perfs/OH	330	FN	1980	FW
Bottom Perfs/OH	330	FN	1980	FW

SUMMARY of Subsurface Locations

Surface Location	C-05-24S-33E	330	FN	1980	FW	Vert. Depth
Top Perfs/OH						
Bottom Perfs/OH						
Projected TD	C -05-24S-33E	321	FN	1879	FW	10542.70

MAY 23 2013



Cimarex Energy Co.

Location: Lea County, NM
Field: (Tres Equis) Sec 5, T24S, R33E
Facility: Tres Equis 5 State No. 2

Slot: No. 2 SHL
Well: No. 2
Wellbore: No. 2 PWB

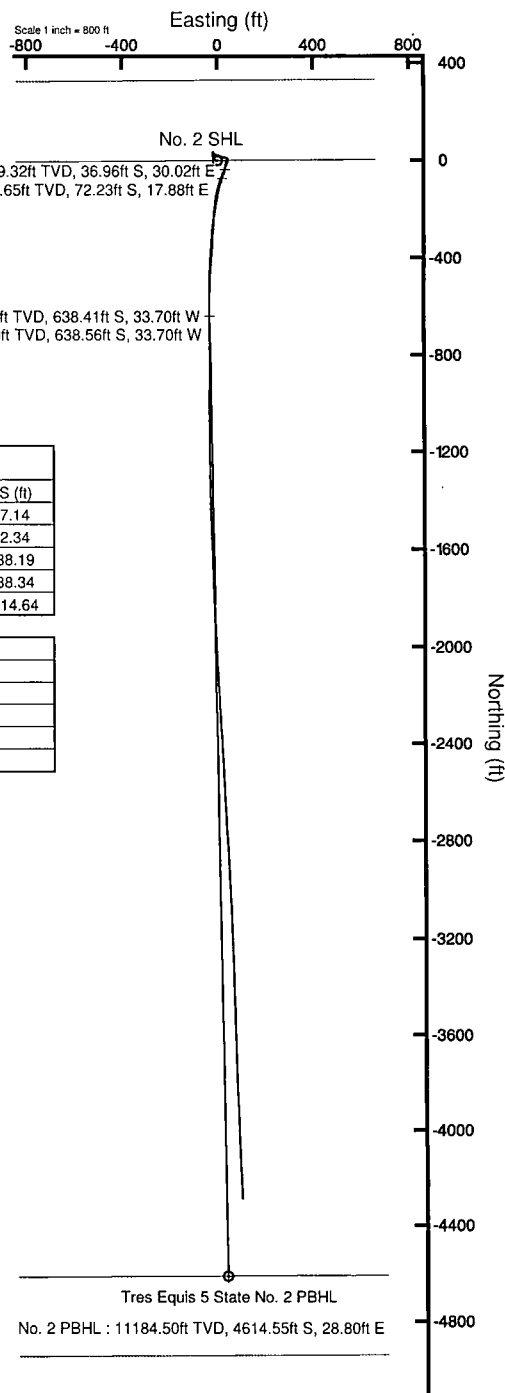
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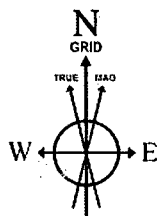
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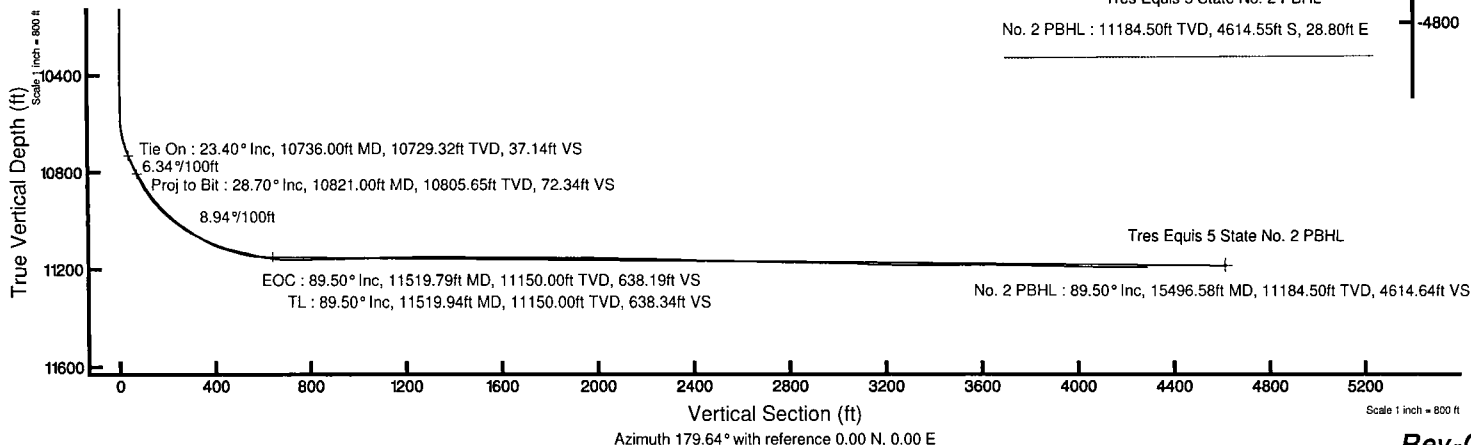


Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	10736.00	23.400	200.200	10729.32	-36.96	30.02	0.00	37.14
Proj to Bit	10821.00	28.700	198.000	10805.65	-72.23	17.88	6.34	72.34
EOC	11519.79	89.500	179.100	11150.00	-638.41	-33.70	8.94	638.19
TL	11519.94	89.503	179.099	11150.00	-638.56	-33.70	2.00	638.34
No. 2 PBHL	15496.58	89.503	179.099	11184.50	-4614.55	28.80	0.00	4614.64

Plot reference wellpath is Rev-C.0	
True vertical depths are referenced to Rig on No. 2 SHL (RT)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 2 SHL (RT)	North Reference: Grid north
Rig on No. 2 SHL (RT) to Mean Sea Level: 3661 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No. 2 SHL): -3661 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gentbry on 09/12/2012



BGGM (1945.0 to 2013.0) Dip: 60.14° Field: 48525.8 nT
Magnetic North is 7.55 degrees East of True North (at 06/26/2012)
Grid North is 0.39 degrees East of True North
To correct azimuth from True to Grid subtract 0.39 degrees
To correct azimuth from Magnetic to Grid add 7.16 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.16 = 97.16



Rev-C.0



Actual Wellpath Report

No.2 AWP

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**BAKER
HUGHES**

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 (AWB)
Facility	Tres Equis 5 State No. 2		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Gentbry
Scale	0.999969	Report Generated	02/06/2013 at 7:55:24 AM
Convergence at slot	0.39° East	Database/Source file	WA Midland/No.2__AWB_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	769132.60	456580.30	32°15'11.036"N	103°35'47.255"W
Facility Reference Pt			769132.60	456580.30	32°15'11.036"N	103°35'47.255"W
Field Reference Pt			769132.60	456580.30	32°15'11.036"N	103°35'47.255"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 2 SHL (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Slot	Rig on No. 2 SHL (RT) to Mean Sea Level	3661.00ft
Vertical Reference Pt	Rig on No. 2 SHL (RT)	Rig on No. 2 SHL (RT) to Mud Line at Slot (No. 2 SHL)	0.00ft
MD Reference Pt	Rig on No. 2 SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.64°



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 (AWB)
Facility	Tres Equis 5 State No. 2		

WELLPATH DATA (192 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	272.280	0.00	0.00	0.00	0.00	769132.60	456580.30	32°15'11.036"N	103°35'47.255"W	0.00	
100.00	0.470	272.280	100.00	-0.02	0.02	-0.41	769132.19	456580.32	32°15'11.036"N	103°35'47.260"W	0.47	
200.00	0.450	266.710	200.00	-0.02	0.01	-1.21	769131.39	456580.31	32°15'11.036"N	103°35'47.269"W	0.05	
300.00	0.530	260.020	299.99	0.08	-0.09	-2.06	769130.54	456580.21	32°15'11.035"N	103°35'47.279"W	0.10	
400.00	0.300	267.590	399.99	0.17	-0.18	-2.78	769129.82	456580.12	32°15'11.035"N	103°35'47.288"W	0.24	
500.00	0.160	268.750	499.99	0.18	-0.20	-3.18	769129.42	456580.10	32°15'11.034"N	103°35'47.292"W	0.14	
600.00	0.080	183.050	599.99	0.25	-0.27	-3.32	769129.28	456580.03	32°15'11.034"N	103°35'47.294"W	0.17	
700.00	0.130	224.030	699.99	0.40	-0.42	-3.40	769129.20	456579.88	32°15'11.032"N	103°35'47.295"W	0.09	
800.00	0.260	180.560	799.99	0.71	-0.73	-3.48	769129.12	456579.57	32°15'11.029"N	103°35'47.296"W	0.19	
931.00	0.330	211.830	930.99	1.32	-1.35	-3.69	769128.91	456578.95	32°15'11.023"N	103°35'47.298"W	0.13	
1026.00	0.440	250.300	1025.98	1.68	-1.70	-4.17	769128.43	456578.60	32°15'11.020"N	103°35'47.304"W	0.29	
1121.00	0.690	275.680	1120.98	1.74	-1.77	-5.09	769127.51	456578.53	32°15'11.019"N	103°35'47.315"W	0.37	
1216.10	0.600	285.910	1216.07	1.54	-1.58	-6.14	769126.46	456578.72	32°15'11.021"N	103°35'47.327"W	0.15	
1311.10	0.570	284.090	1311.07	1.28	-1.33	-7.07	769125.53	456578.97	32°15'11.024"N	103°35'47.338"W	0.04	
1406.10	0.580	299.280	1406.06	0.93	-0.98	-7.95	769124.65	456579.33	32°15'11.027"N	103°35'47.348"W	0.16	
1501.20	1.090	316.230	1501.15	0.03	-0.09	-9.00	769123.61	456580.21	32°15'11.036"N	103°35'47.360"W	0.59	
1596.20	1.450	325.640	1596.13	-1.62	1.56	-10.30	769122.30	456581.86	32°15'11.052"N	103°35'47.375"W	0.44	
1691.20	1.460	330.310	1691.10	-3.67	3.60	-11.58	769121.02	456583.90	32°15'11.073"N	103°35'47.390"W	0.13	
1786.20	1.430	335.680	1786.07	-5.81	5.73	-12.66	769119.94	456586.03	32°15'11.094"N	103°35'47.402"W	0.15	
1881.30	1.270	335.050	1881.14	-7.86	7.77	-13.60	769119.00	456588.07	32°15'11.114"N	103°35'47.413"W	0.17	
1976.30	1.200	335.770	1976.12	-9.72	9.63	-14.45	769118.15	456589.93	32°15'11.132"N	103°35'47.423"W	0.08	
2071.30	1.150	335.570	2071.10	-11.50	11.41	-15.25	769117.35	456591.71	32°15'11.150"N	103°35'47.432"W	0.05	
2166.40	0.830	337.540	2166.19	-13.01	12.91	-15.91	769116.69	456593.21	32°15'11.165"N	103°35'47.440"W	0.34	
2261.40	0.670	331.180	2261.18	-14.14	14.04	-16.44	769116.16	456594.33	32°15'11.176"N	103°35'47.446"W	0.19	
2356.40	0.710	315.800	2356.17	-15.05	14.94	-17.12	769115.48	456595.24	32°15'11.185"N	103°35'47.454"W	0.20	
2451.40	0.610	329.880	2451.17	-15.91	15.80	-17.78	769114.82	456596.10	32°15'11.194"N	103°35'47.461"W	0.20	
2546.50	0.570	344.050	2546.26	-16.81	16.70	-18.17	769114.43	456597.00	32°15'11.203"N	103°35'47.466"W	0.16	
2641.50	0.550	350.820	2641.26	-17.71	17.60	-18.37	769114.23	456597.90	32°15'11.212"N	103°35'47.468"W	0.07	
2736.50	0.610	350.740	2736.25	-18.66	18.55	-18.52	769114.08	456598.85	32°15'11.221"N	103°35'47.470"W	0.06	
2831.60	0.950	358.030	2831.34	-19.95	19.84	-18.63	769113.97	456600.14	32°15'11.234"N	103°35'47.471"W	0.37	
2926.60	1.000	357.730	2926.33	-21.57	21.45	-18.69	769113.91	456601.75	32°15'11.250"N	103°35'47.471"W	0.05	
3021.60	1.020	6.820	3021.31	-23.24	23.12	-18.62	769113.98	456603.42	32°15'11.266"N	103°35'47.470"W	0.17	
3116.70	0.930	13.200	3116.40	-24.83	24.71	-18.35	769114.25	456605.01	32°15'11.282"N	103°35'47.467"W	0.15	
3211.70	0.850	18.460	3211.39	-26.24	26.13	-17.95	769114.65	456606.43	32°15'11.296"N	103°35'47.462"W	0.12	
3306.70	0.950	10.770	3306.38	-27.68	27.57	-17.58	769115.02	456607.87	32°15'11.310"N	103°35'47.458"W	0.16	
3401.80	0.990	10.190	3401.46	-29.26	29.16	-17.29	769115.31	456609.46	32°15'11.326"N	103°35'47.454"W	0.04	
3496.80	0.900	10.940	3496.45	-30.80	30.70	-17.00	769115.60	456611.00	32°15'11.341"N	103°35'47.451"W	0.10	
3591.80	1.080	19.320	3591.44	-32.38	32.27	-16.56	769116.04	456612.57	32°15'11.357"N	103°35'47.446"W	0.24	
3686.80	0.800	22.690	3686.42	-33.83	33.73	-16.01	769116.59	456614.03	32°15'11.371"N	103°35'47.439"W	0.30	
3781.90	0.490	16.270	3781.52	-34.83	34.73	-15.64	769116.96	456615.03	32°15'11.381"N	103°35'47.435"W	0.33	
3876.90	0.800	227.250	3876.51	-34.77	34.67	-16.01	769116.59	456614.97	32°15'11.380"N	103°35'47.439"W	1.31	
3971.90	1.500	223.540	3971.49	-33.43	33.32	-17.36	769115.24	456613.62	32°15'11.367"N	103°35'47.455"W	0.74	
4067.00	1.310	222.840	4066.57	-31.74	31.62	-18.95	769113.65	456611.92	32°15'11.350"N	103°35'47.474"W	0.20	
4162.00	0.960	222.310	4161.55	-30.36	30.24	-20.23	769112.37	456610.54	32°15'11.337"N	103°35'47.488"W	0.37	
4257.00	0.700	205.040	4256.54	-29.25	29.12	-21.01	769111.59	456609.42	32°15'11.326"N	103°35'47.498"W	0.38	



Actual Wellpath Report

No.2 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 (AWB)
Facility	Tres Equis 5 State No. 2		

WELLPATH DATA (192 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4352.10	1.270	122.370	4351.63	-28.16	28.03	-20.36	769112.24	456608.33	32°15'11.315"N	103°35'47.490"W	1.44	
4447.10	2.410	109.660	4446.58	-26.91	26.80	-17.59	769115.01	456607.10	32°15'11.303"N	103°35'47.458"W	1.27	
4542.10	2.330	116.470	4541.50	-25.35	25.26	-13.98	769118.62	456605.56	32°15'11.287"N	103°35'47.416"W	0.31	
4637.10	2.690	111.880	4636.40	-23.64	23.57	-10.19	769122.41	456603.87	32°15'11.270"N	103°35'47.372"W	0.43	
4732.20	2.920	106.740	4731.39	-22.08	22.04	-5.80	769126.80	456602.34	32°15'11.255"N	103°35'47.321"W	0.36	
4827.20	3.280	106.150	4826.25	-20.60	20.59	-0.87	769131.73	456600.89	32°15'11.240"N	103°35'47.264"W	0.38	
4922.20	3.170	113.100	4921.10	-18.78	18.80	4.16	769136.76	456599.10	32°15'11.222"N	103°35'47.205"W	0.43	
5017.30	2.350	112.180	5016.09	-16.98	17.04	8.38	769140.98	456597.34	32°15'11.204"N	103°35'47.156"W	0.86	
5112.30	1.810	111.690	5111.03	-15.67	15.75	11.58	769144.18	456596.05	32°15'11.191"N	103°35'47.119"W	0.57	
5207.30	1.440	106.770	5205.99	-14.76	14.85	14.12	769146.72	456595.15	32°15'11.182"N	103°35'47.090"W	0.42	
5302.40	1.380	105.910	5301.06	-14.09	14.19	16.36	769148.96	456594.49	32°15'11.175"N	103°35'47.064"W	0.07	
5397.40	1.270	104.470	5396.03	-13.50	13.61	18.48	769151.08	456593.91	32°15'11.170"N	103°35'47.039"W	0.12	
5492.40	1.200	100.940	5491.01	-13.03	13.16	20.48	769153.08	456593.46	32°15'11.165"N	103°35'47.016"W	0.11	
5587.40	1.110	99.360	5585.99	-12.68	12.82	22.36	769154.96	456593.12	32°15'11.162"N	103°35'46.994"W	0.10	
5682.50	0.980	96.570	5681.08	-12.43	12.58	24.08	769156.68	456592.88	32°15'11.159"N	103°35'46.974"W	0.15	
5777.50	0.940	96.520	5776.06	-12.24	12.40	25.66	769158.26	456592.70	32°15'11.157"N	103°35'46.956"W	0.04	
5872.50	0.870	100.070	5871.05	-12.01	12.18	27.15	769159.74	456592.48	32°15'11.155"N	103°35'46.938"W	0.09	
5967.60	0.900	106.480	5966.14	-11.67	11.85	28.57	769161.17	456592.14	32°15'11.151"N	103°35'46.922"W	0.11	
6062.60	0.720	97.960	6061.13	-11.36	11.55	29.88	769162.48	456591.85	32°15'11.148"N	103°35'46.907"W	0.23	
6157.60	0.610	117.360	6156.12	-11.04	11.24	30.92	769163.52	456591.54	32°15'11.145"N	103°35'46.894"W	0.26	
6252.60	0.600	114.850	6251.12	-10.60	10.79	31.82	769164.42	456591.09	32°15'11.141"N	103°35'46.884"W	0.03	
6347.70	0.520	65.910	6346.22	-10.56	10.76	32.67	769165.26	456591.06	32°15'11.140"N	103°35'46.874"W	0.49	
6442.70	0.560	93.540	6441.21	-10.70	10.91	33.52	769166.12	456591.21	32°15'11.142"N	103°35'46.864"W	0.27	
6537.70	0.560	110.280	6536.21	-10.50	10.72	34.42	769167.02	456591.02	32°15'11.140"N	103°35'46.854"W	0.17	
6632.80	0.330	108.400	6631.30	-10.25	10.47	35.12	769167.72	456590.77	32°15'11.137"N	103°35'46.846"W	0.24	
6727.80	0.210	110.020	6726.30	-10.10	10.33	35.54	769168.14	456590.63	32°15'11.136"N	103°35'46.841"W	0.13	
6822.80	0.170	106.390	6821.30	-10.00	10.23	35.84	769168.44	456590.53	32°15'11.135"N	103°35'46.837"W	0.04	
6917.90	0.070	38.190	6916.40	-10.01	10.23	36.01	769168.61	456590.53	32°15'11.135"N	103°35'46.835"W	0.17	
7012.90	0.060	294.430	7011.40	-10.07	10.30	36.00	769168.60	456590.60	32°15'11.136"N	103°35'46.835"W	0.11	
7107.90	0.140	205.660	7106.40	-9.99	10.21	35.91	769168.50	456590.51	32°15'11.135"N	103°35'46.836"W	0.16	
7202.90	0.140	152.800	7201.40	-9.78	10.01	35.91	769168.51	456590.31	32°15'11.133"N	103°35'46.836"W	0.13	
7298.00	0.180	135.500	7296.50	-9.57	9.80	36.07	769168.66	456590.10	32°15'11.131"N	103°35'46.835"W	0.07	
7393.00	0.110	162.650	7391.50	-9.38	9.60	36.20	769168.80	456589.90	32°15'11.129"N	103°35'46.833"W	0.10	
7488.00	0.220	144.150	7486.50	-9.14	9.37	36.33	769168.93	456589.67	32°15'11.126"N	103°35'46.832"W	0.13	
7583.10	0.400	132.290	7581.60	-8.77	9.00	36.68	769169.28	456589.30	32°15'11.123"N	103°35'46.828"W	0.20	
7678.10	0.520	112.360	7676.60	-8.38	8.61	37.33	769169.93	456588.91	32°15'11.119"N	103°35'46.820"W	0.21	
7773.10	0.660	119.330	7771.59	-7.94	8.18	38.20	769170.80	456588.48	32°15'11.114"N	103°35'46.810"W	0.17	
7868.20	0.760	125.130	7866.68	-7.30	7.55	39.20	769171.80	456587.85	32°15'11.108"N	103°35'46.798"W	0.13	
7963.20	0.830	121.550	7961.67	-6.57	6.82	40.30	769172.90	456587.12	32°15'11.101"N	103°35'46.786"W	0.09	
8058.20	0.860	120.530	8056.66	-5.84	6.10	41.50	769174.10	456586.40	32°15'11.094"N	103°35'46.772"W	0.04	
8153.30	0.770	134.450	8151.75	-5.03	5.29	42.57	769175.17	456585.59	32°15'11.086"N	103°35'46.759"W	0.23	
8248.30	0.740	165.640	8246.75	-3.98	4.25	43.18	769175.78	456584.55	32°15'11.075"N	103°35'46.752"W	0.43	
8343.30	1.130	178.200	8341.73	-2.45	2.72	43.36	769175.96	456583.02	32°15'11.060"N	103°35'46.750"W	0.46	
8438.30	1.280	188.490	8436.71	-0.46	0.73	43.23	769175.83	456581.03	32°15'11.040"N	103°35'46.752"W	0.28	
8533.40	1.120	193.010	8531.79	-1.49	1.22	42.87	769175.46	456579.08	32°15'11.021"N	103°35'46.756"W	0.20	



Actual Wellpath Report

No.2 AWP

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BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 (AWB)
Facility	Tres Equis 5 State No. 2		

WELLPATH DATA (192 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8628.40	0.680	193.090	8626.78	2.94	-2.68	42.53	769175.13	456577.62	32°15'11.007"N	103°35'46.760"W	0.46	
8723.40	0.680	193.650	8721.77	4.04	-3.77	42.27	769174.87	456576.53	32°15'10.996"N	103°35'46.763"W	0.01	
8818.50	0.620	195.350	8816.87	5.08	-4.82	42.00	769174.60	456575.48	32°15'10.986"N	103°35'46.767"W	0.07	
8913.50	0.340	180.810	8911.86	5.86	-5.59	41.86	769174.46	456574.71	32°15'10.978"N	103°35'46.768"W	0.32	
9008.50	0.220	155.880	9006.86	6.30	-6.04	41.93	769174.53	456574.26	32°15'10.974"N	103°35'46.768"W	0.18	46
9103.50	0.140	140.420	9101.86	6.56	-6.30	42.08	769174.68	456574.00	32°15'10.971"N	103°35'46.766"W	0.10	
9198.60	0.060	232.690	9196.96	6.68	-6.42	42.11	769174.71	456573.88	32°15'10.970"N	103°35'46.766"W	0.16	
9293.60	0.100	270.950	9291.96	6.71	-6.45	41.99	769174.59	456573.85	32°15'10.970"N	103°35'46.767"W	0.07	
9388.60	0.360	308.800	9386.96	6.52	-6.26	41.67	769174.27	456574.04	32°15'10.971"N	103°35'46.771"W	0.30	
9483.70	1.040	267.800	9482.05	6.36	-6.11	40.58	769173.18	456574.19	32°15'10.973"N	103°35'46.783"W	0.85	
9578.70	1.460	261.250	9577.03	6.56	-6.32	38.52	769171.12	456573.98	32°15'10.971"N	103°35'46.807"W	0.47	
9673.70	0.990	273.450	9672.01	6.68	-6.46	36.51	769169.11	456573.84	32°15'10.970"N	103°35'46.831"W	0.56	
9768.80	0.260	0.640	9767.10	6.41	-6.19	35.69	769168.29	456574.11	32°15'10.972"N	103°35'46.840"W	1.06	
9863.80	0.280	340.240	9862.10	5.98	-5.76	35.61	769168.21	456574.54	32°15'10.977"N	103°35'46.841"W	0.10	
9958.80	0.550	79.500	9957.10	5.68	-5.46	35.98	769168.58	456574.84	32°15'10.980"N	103°35'46.837"W	0.69	32
10053.90	0.650	72.220	10052.20	5.44	-5.21	36.95	769169.54	456575.09	32°15'10.982"N	103°35'46.826"W	0.13	
10148.90	0.850	49.260	10147.19	4.82	-4.58	37.99	769170.59	456575.72	32°15'10.988"N	103°35'46.813"W	0.38	
10243.90	0.500	70.410	10242.18	4.23	-3.99	38.92	769171.52	456576.31	32°15'10.994"N	103°35'46.803"W	0.45	
10338.90	0.680	97.410	10337.18	4.17	-3.92	39.87	769172.46	456576.38	32°15'10.995"N	103°35'46.791"W	0.34	
10434.00	0.450	89.820	10432.27	4.25	-3.99	40.80	769173.40	456576.31	32°15'10.994"N	103°35'46.781"W	0.25	
10529.00	0.160	149.390	10527.27	4.36	-4.10	41.24	769173.84	456576.20	32°15'10.993"N	103°35'46.776"W	0.41	
10578.00	0.700	187.400	10576.27	4.72	-4.46	41.24	769173.83	456575.84	32°15'10.989"N	103°35'46.776"W	1.19	
10610.00	5.000	195.000	10608.22	6.26	-6.00	40.85	769173.45	456574.30	32°15'10.974"N	103°35'46.780"W	13.46	
10641.00	10.600	197.100	10638.92	10.28	-10.03	39.66	769172.26	456570.27	32°15'10.934"N	103°35'46.794"W	18.08	
10673.00	15.900	200.700	10670.06	17.18	-16.95	37.24	769169.84	456563.35	32°15'10.866"N	103°35'46.823"W	16.75	
10705.00	19.900	199.300	10700.51	26.41	-26.20	33.89	769166.49	456554.10	32°15'10.775"N	103°35'46.863"W	12.57	
10736.00	23.400	200.200	10729.32	37.14	-36.96	30.02	769162.62	456543.34	32°15'10.668"N	103°35'46.909"W	11.34	
10768.00	25.500	203.300	10758.45	49.40	-49.25	25.10	769157.70	456531.05	32°15'10.547"N	103°35'46.967"W	7.69	
10800.00	26.200	206.000	10787.24	62.04	-61.92	19.28	769151.88	456518.38	32°15'10.422"N	103°35'47.036"W	4.28	
10831.00	26.400	202.000	10815.04	74.55	-74.47	13.70	769146.30	456505.84	32°15'10.298"N	103°35'47.102"W	5.75	
10863.00	29.100	198.700	10843.36	88.49	-88.44	8.54	769141.14	456491.87	32°15'10.161"N	103°35'47.163"W	9.71	
10895.00	32.300	194.500	10870.87	104.11	-104.09	3.90	769136.50	456476.21	32°15'10.006"N	103°35'47.218"W	12.03	
10926.00	35.500	192.600	10896.60	120.89	-120.90	-0.14	769132.46	456459.41	32°15'09.840"N	103°35'47.267"W	10.87	
10958.00	39.300	191.000	10922.02	139.89	-139.92	-4.10	769128.50	456440.38	32°15'09.652"N	103°35'47.314"W	12.26	
10989.00	42.900	188.800	10945.37	159.94	-159.99	-7.59	769125.01	456420.31	32°15'09.454"N	103°35'47.357"W	12.51	
11021.00	46.500	185.400	10968.12	182.25	-182.32	-10.35	769122.25	456397.99	32°15'09.233"N	103°35'47.390"W	13.50	
11052.00	49.700	184.000	10988.82	205.23	-205.31	-12.23	769120.37	456374.99	32°15'09.005"N	103°35'47.414"W	10.86	
11084.00	53.200	183.200	11008.76	230.20	-230.29	-13.80	769118.80	456350.02	32°15'08.758"N	103°35'47.434"W	11.11	
11116.00	56.600	183.300	11027.16	256.32	-256.42	-15.28	769117.32	456323.89	32°15'08.500"N	103°35'47.454"W	10.63	
11147.00	59.400	184.100	11043.58	282.54	-282.65	-16.98	769115.62	456297.66	32°15'08.241"N	103°35'47.476"W	9.29	
11179.00	61.600	183.800	11059.34	310.31	-310.44	-18.90	769113.70	456269.87	32°15'07.966"N	103°35'47.500"W	6.92	
11211.00	64.500	183.700	11073.84	338.76	-338.90	-20.76	769111.84	456241.41	32°15'07.684"N	103°35'47.524"W	9.07	
11243.00	66.900	184.100	11087.01	367.84	-367.99	-22.75	769109.85	456212.32	32°15'07.396"N	103°35'47.550"W	7.59	
11274.00	69.300	184.400	11098.57	396.51	-396.67	-24.88	769107.72	456183.64	32°15'07.113"N	103°35'47.577"W	7.79	
11306.00	71.700	184.600	11109.25	426.56	-426.74	-27.25	769105.35	456153.57	32°15'06.815"N	103°35'47.607"W	7.52	



Actual Wellpath Report

No.2 AWP

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BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 (AWB)
Facility	Tres Equis 5 State No. 2		

WELLPATH DATA (192 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11332.00	74.300	183.800	11116.85	451.35	-451.54	-29.07	769103.53	456128.78	32°15'06.570"N	103°35'47.630"W	10.42	
11363.00	76.800	183.100	11124.59	481.30	-481.50	-30.87	769101.73	456098.82	32°15'06.274"N	103°35'47.653"W	8.36	
11395.00	77.600	182.500	11131.68	512.46	-512.67	-32.40	769100.20	456067.65	32°15'05.966"N	103°35'47.674"W	3.10	
11427.00	77.100	181.600	11138.68	543.65	-543.87	-33.51	769099.09	456036.45	32°15'05.657"N	103°35'47.689"W	3.16	
11457.00	77.100	181.000	11145.38	572.88	-573.11	-34.18	769098.42	456007.21	32°15'05.368"N	103°35'47.699"W	1.95	
11489.00	78.700	180.200	11152.09	604.16	-604.39	-34.50	769098.10	455975.93	32°15'05.058"N	103°35'47.705"W	5.57	
11521.00	82.000	178.900	11157.45	635.71	-635.93	-34.25	769098.35	455944.39	32°15'04.746"N	103°35'47.705"W	11.06	
11553.00	85.600	178.900	11160.91	667.51	-667.73	-33.64	769098.96	455912.59	32°15'04.431"N	103°35'47.700"W	11.25	
11584.00	89.400	179.900	11162.26	698.48	-698.70	-33.32	769099.28	455881.63	32°15'04.125"N	103°35'47.699"W	12.67	
11616.00	90.700	179.600	11162.23	730.47	-730.70	-33.18	769099.42	455849.63	32°15'03.808"N	103°35'47.700"W	4.17	
11648.00	90.800	179.900	11161.81	762.47	-762.69	-33.04	769099.56	455817.63	32°15'03.492"N	103°35'47.701"W	0.99	
11679.00	90.400	179.900	11161.49	793.47	-793.69	-32.99	769099.61	455786.64	32°15'03.185"N	103°35'47.703"W	1.29	
11774.00	91.300	180.200	11160.08	888.46	-888.68	-33.07	769099.53	455691.65	32°15'02.245"N	103°35'47.711"W	1.00	
11869.00	92.100	180.500	11157.26	983.41	-983.64	-33.65	769098.95	455596.70	32°15'01.306"N	103°35'47.726"W	0.90	
11965.00	92.400	180.200	11153.49	1079.32	-1079.56	-34.24	769098.37	455500.78	32°15'00.356"N	103°35'47.740"W	0.44	
11996.00	91.300	180.100	11152.49	1110.31	-1110.54	-34.32	769098.28	455469.79	32°15'00.050"N	103°35'47.744"W	3.56	
12028.00	90.700	179.900	11151.93	1142.30	-1142.54	-34.32	769098.28	455437.80	32°14'59.733"N	103°35'47.746"W	1.98	
12060.00	90.600	179.200	11151.57	1174.30	-1174.53	-34.07	769098.54	455405.81	32°14'59.417"N	103°35'47.746"W	2.21	
12091.00	91.100	179.500	11151.11	1205.29	-1205.53	-33.71	769098.89	455374.81	32°14'59.110"N	103°35'47.744"W	1.88	
12165.00	90.200	179.200	11150.27	1279.29	-1279.52	-32.87	769099.73	455300.82	32°14'58.378"N	103°35'47.740"W	1.28	
12218.00	90.400	178.800	11149.99	1332.28	-1332.51	-31.95	769100.65	455247.84	32°14'57.853"N	103°35'47.734"W	0.84	
12282.00	89.500	178.500	11150.05	1396.27	-1396.49	-30.44	769102.16	455183.86	32°14'57.220"N	103°35'47.721"W	1.48	
12345.00	89.000	178.500	11150.87	1459.26	-1459.46	-28.79	769103.81	455120.89	32°14'56.597"N	103°35'47.707"W	0.79	
12408.00	89.100	178.100	11151.92	1522.23	-1522.43	-26.92	769105.68	455057.92	32°14'55.974"N	103°35'47.691"W	0.65	
12471.00	89.400	177.900	11152.74	1585.20	-1585.38	-24.73	769107.88	454994.97	32°14'55.351"N	103°35'47.670"W	0.57	
12535.00	89.900	178.000	11153.13	1649.17	-1649.34	-22.44	769110.16	454931.01	32°14'54.718"N	103°35'47.648"W	0.80	
12598.00	90.400	178.000	11152.97	1712.14	-1712.30	-20.24	769112.36	454868.06	32°14'54.095"N	103°35'47.628"W	0.79	
12661.00	89.600	177.800	11152.97	1775.11	-1775.26	-17.93	769114.67	454805.10	32°14'53.471"N	103°35'47.606"W	1.31	
12725.00	89.400	177.400	11153.53	1839.07	-1839.20	-15.25	769117.35	454741.16	32°14'52.839"N	103°35'47.580"W	0.70	
12788.00	89.400	176.900	11154.19	1902.01	-1902.12	-12.12	769120.48	454678.24	32°14'52.216"N	103°35'47.548"W	0.79	
12851.00	89.900	177.100	11154.57	1964.94	-1965.03	-8.82	769123.78	454615.33	32°14'51.593"N	103°35'47.515"W	0.85	
12915.00	89.200	176.800	11155.08	2028.86	-2028.94	-5.41	769127.19	454551.43	32°14'50.960"N	103°35'47.481"W	1.19	
12978.00	89.100	176.900	11156.01	2091.78	-2091.84	-1.95	769130.65	454488.53	32°14'50.338"N	103°35'47.445"W	0.22	
13041.00	89.300	177.100	11156.89	2154.71	-2154.74	1.34	769133.94	454425.63	32°14'49.715"N	103°35'47.412"W	0.45	
13104.00	88.700	177.300	11157.99	2217.64	-2217.66	4.42	769137.02	454362.72	32°14'49.092"N	103°35'47.381"W	1.00	
13199.00	88.400	177.100	11160.39	2312.53	-2312.51	9.06	769141.66	454267.86	32°14'48.154"N	103°35'47.335"W	0.38	
13294.00	87.500	176.500	11163.79	2407.35	-2407.30	14.36	769146.96	454173.08	32°14'47.215"N	103°35'47.281"W	1.14	
13389.00	89.000	177.100	11166.69	2502.18	-2502.11	19.66	769152.26	454078.28	32°14'46.277"N	103°35'47.226"W	1.70	
13484.00	89.100	177.100	11168.27	2597.08	-2596.97	24.47	769157.06	453983.41	32°14'45.338"N	103°35'47.178"W	0.11	
13579.00	88.800	176.700	11170.01	2691.95	-2691.82	29.60	769162.20	453888.57	32°14'44.399"N	103°35'47.126"W	0.53	
13675.00	88.200	176.500	11172.52	2787.78	-2787.62	35.29	769167.89	453792.78	32°14'43.451"N	103°35'47.067"W	0.66	
13770.00	89.300	177.100	11174.59	2882.64	-2882.44	40.60	769173.19	453697.95	32°14'42.512"N	103°35'47.013"W	1.32	
13865.00	88.800	177.300	11176.17	2977.54	-2977.32	45.24	769177.83	453603.08	32°14'41.573"N	103°35'46.967"W	0.57	
13960.00	88.400	177.400	11178.49	3072.44	-3072.19	49.63	769182.22	453508.22	32°14'40.634"N	103°35'46.923"W	0.43	
14055.00	88.200	178.500	11181.31	3167.35	-3167.08	53.02	769185.62	453413.32	32°14'39.695"N	103°35'46.891"W	1.18	



Actual Wellpath Report

No.2 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No. 2
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 (AWB)
Facility	Tres Equis 5 State No. 2		

WELLPATH DATA (192 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
14150.00	89.300	177.800	11183.38	3262.29	-3262.01	56.09	769188.69	453318.40	32°14'38.755"N	103°35'46.863"W	1.37	
14245.00	90.400	178.500	11183.63	3357.26	-3356.96	59.16	769191.75	453223.46	32°14'37.815"N	103°35'46.835"W	1.37	
14339.00	90.100	178.300	11183.22	3451.24	-3450.92	61.78	769194.38	453129.50	32°14'36.886"N	103°35'46.812"W	0.38	
14434.00	89.800	179.100	11183.30	3546.22	-3545.89	63.94	769196.53	453034.53	32°14'35.946"N	103°35'46.794"W	0.90	
14530.00	89.500	178.500	11183.89	3642.21	-3641.87	65.95	769198.54	452938.55	32°14'34.996"N	103°35'46.779"W	0.70	
14624.00	89.500	178.100	11184.71	3736.18	-3735.82	68.73	769201.33	452844.60	32°14'34.066"N	103°35'46.754"W	0.43	
14719.00	89.200	177.800	11185.79	3831.13	-3830.76	72.13	769204.73	452749.67	32°14'33.126"N	103°35'46.722"W	0.45	
14815.00	88.800	178.100	11187.46	3927.08	-3926.68	75.57	769208.16	452653.75	32°14'32.177"N	103°35'46.689"W	0.52	
14910.00	88.400	177.900	11189.78	4022.01	-4021.59	78.88	769211.48	452558.84	32°14'31.238"N	103°35'46.658"W	0.47	
15005.00	89.500	177.600	11191.52	4116.94	-4116.50	82.61	769215.21	452463.93	32°14'30.298"N	103°35'46.622"W	1.20	
15100.00	90.300	177.200	11191.69	4211.87	-4211.41	86.92	769219.52	452369.04	32°14'29.359"N	103°35'46.580"W	0.94	
15178.00	90.300	177.200	11191.28	4289.79	-4289.31	90.73	769223.33	452291.13	32°14'28.588"N	103°35'46.542"W	0.00	Proj to Bit

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Tres Equis 5 State No. 2 PBHL (Rev-0)		11184.50	-4614.55	28.80	769161.40	451965.90	32°14'25.374"N	103°35'47.289"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.2 (AWB) Ref Wellpath: No.2 AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	10529.00	Generic gyro - northseeking (Standard)	Gyros 100'-10529'	No.2 (AWB)
10529.00	15100.00	NaviTrak (Standard)	BHI MWD NaviTrak <10578-XXXX>	No.2 (AWB)
15100.00	15178.00	Blind Drilling (std)	Projection to bit	No.2 (AWB)



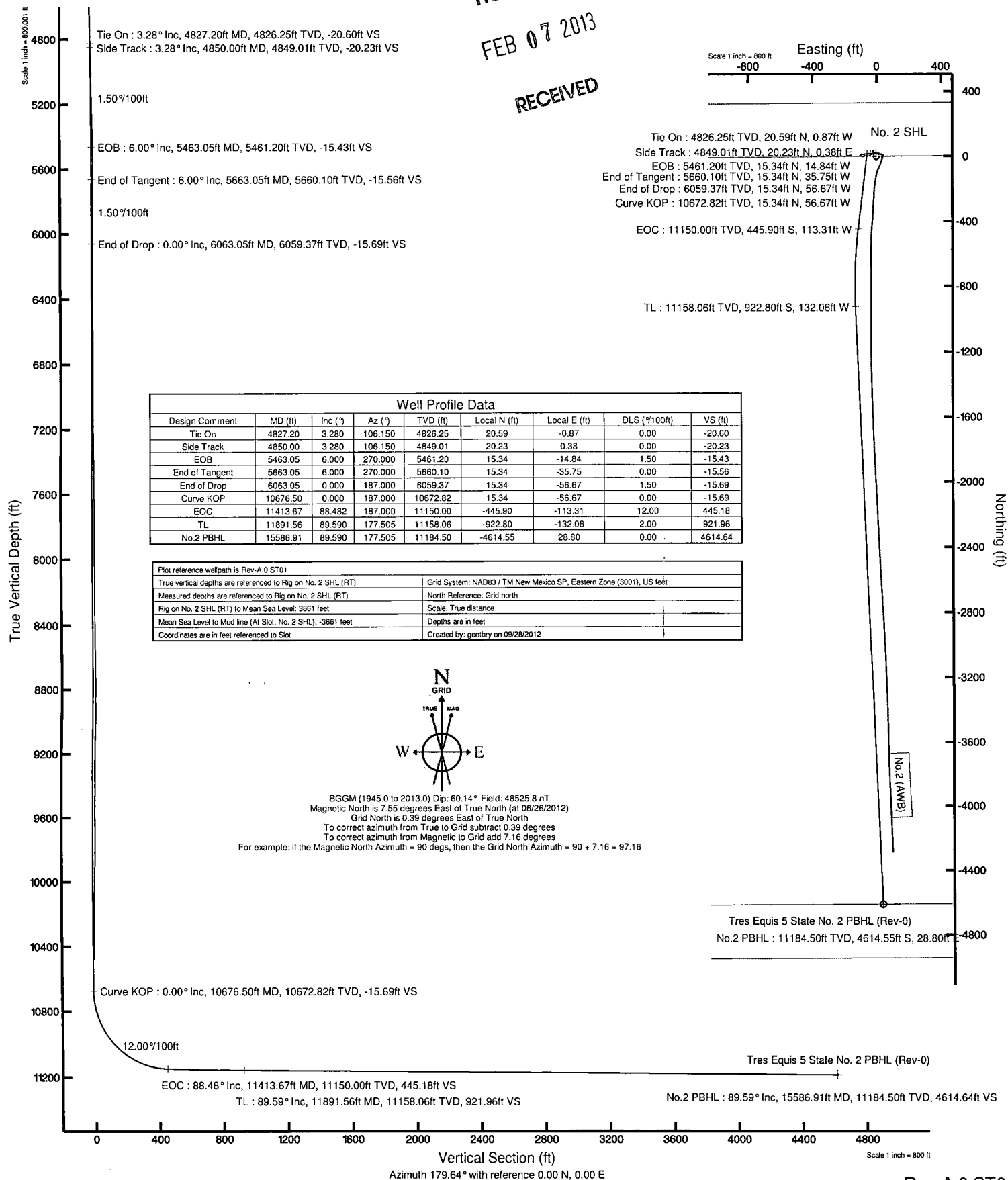
Location: Lea County, NM
Field: (Tres Equis) Sec 5, T24S, R33E
Facility: Tres Equis 5 State No. 2

Slot: No. 2 SHL
Well: No.2 ST01
Wellbore: No.2 ST01 PWB



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Rev-A.0 ST01



Actual Wellpath Report

No.2 ST01 AWP

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**BAKER
HUGHES**

30-025-40675

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No.2 ST01
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 ST01 AWB
Facility	Tres Equis 5 State No. 2	Sidetrack from	No.2 (AWB) at 4827.20 MD

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Gentbry
Scale	0.999969	Report Generated	02/06/2013 at 7:58:43 AM
Convergence at slot	0.39° East	Database/Source file	WA Midland/No.2_ST01_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	769132.60	456580.30	32°15'11.036"N	103°35'47.255"W
Facility Reference Pt			769132.60	456580.30	32°15'11.036"N	103°35'47.255"W
Field Reference Pt			769132.60	456580.30	32°15'11.036"N	103°35'47.255"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 2 SHL (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Slot	Rig on No. 2 SHL (RT) to Mean Sea Level	3661.00ft
Vertical Reference Pt	Rig on No. 2 SHL (RT)	Rig on No. 2 SHL (RT) to Mud Line at Slot (No. 2 SHL)	0.00ft
MD Reference Pt	Rig on No. 2 SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.64°



Actual Wellpath Report

No.2 ST01 AWP

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**BAKER
HUGHES**

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No.2 ST01
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 ST01 AWB
Facility	Tres Equis 5 State No. 2	Sidetrack from	No.2 (AWB) at 4827.20 MD

WELLPATH DATA (111 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	272.280	0.00	0.00	0.00	0.00	769132.60	456580.30	32°15'11.036"N	103°35'47.255"W	0.00	
100.00	0.470	272.280	100.00	-0.02	0.02	-0.41	769132.19	456580.32	32°15'11.036"N	103°35'47.260"W	0.47	
200.00	0.450	266.710	200.00	-0.02	0.01	-1.21	769131.39	456580.31	32°15'11.036"N	103°35'47.269"W	0.05	
300.00	0.530	260.020	299.99	0.08	-0.09	-2.06	769130.54	456580.21	32°15'11.035"N	103°35'47.279"W	0.10	
400.00	0.300	267.590	399.99	0.17	-0.18	-2.78	769129.82	456580.12	32°15'11.035"N	103°35'47.288"W	0.24	
500.00	0.160	268.750	499.99	0.18	-0.20	-3.18	769129.42	456580.10	32°15'11.034"N	103°35'47.292"W	0.14	
600.00	0.080	183.050	599.99	0.25	-0.27	-3.32	769129.28	456580.03	32°15'11.034"N	103°35'47.294"W	0.17	
700.00	0.130	224.030	699.99	0.40	-0.42	-3.40	769129.20	456579.88	32°15'11.032"N	103°35'47.295"W	0.09	
800.00	0.260	180.560	799.99	0.71	-0.73	-3.48	769129.12	456579.57	32°15'11.029"N	103°35'47.296"W	0.19	
931.00	0.330	211.830	930.99	1.32	-1.35	-3.69	769128.91	456578.95	32°15'11.023"N	103°35'47.298"W	0.13	
1026.00	0.440	250.300	1025.98	1.68	-1.70	-4.17	769128.43	456578.60	32°15'11.020"N	103°35'47.304"W	0.29	
1121.00	0.690	275.680	1120.98	1.74	-1.77	-5.09	769127.51	456578.53	32°15'11.019"N	103°35'47.315"W	0.37	
1216.10	0.600	285.910	1216.07	1.54	-1.58	-6.14	769126.46	456578.72	32°15'11.021"N	103°35'47.327"W	0.15	
1311.10	0.570	284.090	1311.07	1.28	-1.33	-7.07	769125.53	456578.97	32°15'11.024"N	103°35'47.338"W	0.04	
1406.10	0.580	299.280	1406.06	0.93	-0.98	-7.95	769124.65	456579.33	32°15'11.027"N	103°35'47.348"W	0.16	
1501.20	1.090	316.230	1501.15	0.03	-0.09	-9.00	769123.61	456580.21	32°15'11.036"N	103°35'47.360"W	0.59	
1596.20	1.450	325.640	1596.13	-1.62	1.56	-10.30	769122.30	456581.86	32°15'11.052"N	103°35'47.375"W	0.44	
1691.20	1.460	330.310	1691.10	-3.67	3.60	-11.58	769121.02	456583.90	32°15'11.073"N	103°35'47.390"W	0.13	
1786.20	1.430	335.680	1786.07	-5.81	5.73	-12.66	769119.94	456586.03	32°15'11.094"N	103°35'47.402"W	0.15	
1881.30	1.270	335.050	1881.14	-7.86	7.77	-13.60	769119.00	456588.07	32°15'11.114"N	103°35'47.413"W	0.17	
1976.30	1.200	335.770	1976.12	-9.72	9.63	-14.45	769118.15	456589.93	32°15'11.132"N	103°35'47.423"W	0.08	
2071.30	1.150	335.570	2071.10	-11.50	11.41	-15.25	769117.35	456591.71	32°15'11.150"N	103°35'47.432"W	0.05	
2166.40	0.830	337.540	2166.19	-13.01	12.91	-15.91	769116.69	456593.21	32°15'11.165"N	103°35'47.440"W	0.34	
2261.40	0.670	331.180	2261.18	-14.14	14.04	-16.44	769116.16	456594.33	32°15'11.176"N	103°35'47.446"W	0.19	
2356.40	0.710	315.800	2356.17	-15.05	14.94	-17.12	769115.48	456595.24	32°15'11.185"N	103°35'47.454"W	0.20	
2451.40	0.610	329.880	2451.17	-15.91	15.80	-17.78	769114.82	456596.10	32°15'11.194"N	103°35'47.461"W	0.20	
2546.50	0.570	344.050	2546.26	-16.81	16.70	-18.17	769114.43	456597.00	32°15'11.203"N	103°35'47.466"W	0.16	
2641.50	0.550	350.820	2641.26	-17.71	17.60	-18.37	769114.23	456597.90	32°15'11.212"N	103°35'47.468"W	0.07	
2736.50	0.610	350.740	2736.25	-18.66	18.55	-18.52	769114.08	456598.85	32°15'11.221"N	103°35'47.470"W	0.06	
2831.60	0.950	358.030	2831.34	-19.95	19.84	-18.63	769113.97	456600.14	32°15'11.234"N	103°35'47.471"W	0.37	
2926.60	1.000	357.730	2926.33	-21.57	21.45	-18.69	769113.91	456601.75	32°15'11.250"N	103°35'47.471"W	0.05	
3021.60	1.020	6.820	3021.31	-23.24	23.12	-18.62	769113.98	456603.42	32°15'11.266"N	103°35'47.470"W	0.17	
3116.70	0.930	13.200	3116.40	-24.83	24.71	-18.35	769114.25	456605.01	32°15'11.282"N	103°35'47.467"W	0.15	
3211.70	0.850	18.460	3211.39	-26.24	26.13	-17.95	769114.65	456606.43	32°15'11.296"N	103°35'47.462"W	0.12	
3306.70	0.950	10.770	3306.38	-27.68	27.57	-17.58	769115.02	456607.87	32°15'11.310"N	103°35'47.458"W	0.16	
3401.80	0.990	10.190	3401.46	-29.26	29.16	-17.29	769115.31	456609.46	32°15'11.326"N	103°35'47.454"W	0.04	
3496.80	0.900	10.940	3496.45	-30.80	30.70	-17.00	769115.60	456611.00	32°15'11.341"N	103°35'47.451"W	0.10	
3591.80	1.080	19.320	3591.44	-32.38	32.27	-16.56	769116.04	456612.57	32°15'11.357"N	103°35'47.446"W	0.24	
3686.80	0.800	22.690	3686.42	-33.83	33.73	-16.01	769116.59	456614.03	32°15'11.371"N	103°35'47.439"W	0.30	
3781.90	0.490	16.270	3781.52	-34.83	34.73	-15.64	769116.96	456615.03	32°15'11.381"N	103°35'47.435"W	0.33	
3876.90	0.800	227.250	3876.51	-34.77	34.67	-16.01	769116.59	456614.97	32°15'11.380"N	103°35'47.439"W	1.31	
3971.90	1.500	223.540	3971.49	-33.43	33.32	-17.36	769115.24	456613.62	32°15'11.367"N	103°35'47.455"W	0.74	
4067.00	1.310	222.840	4066.57	-31.74	31.62	-18.95	769113.65	456611.92	32°15'11.350"N	103°35'47.474"W	0.20	
4162.00	0.960	222.310	4161.55	-30.36	30.24	-20.23	769112.37	456610.54	32°15'11.337"N	103°35'47.488"W	0.37	
4257.00	0.700	205.040	4256.54	-29.25	29.12	-21.01	769111.59	456609.42	32°15'11.326"N	103°35'47.498"W	0.38	



Actual Wellpath Report

No.2 ST01 AWP

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**BAKER
HUGHES**

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No.2 ST01
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 ST01 AWP
Facility	Tres Equis 5 State No. 2	Sidetrack from	No.2 (AWB) at 4827.20 MD

WELLPATH DATA (111 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4352.10	1.270	122.370	4351.63	-28.16	28.03	-20.36	769112.24	456608.33	32°15'11.315"N	103°35'47.490"W	1.44	
4447.10	2.410	109.660	4446.58	-26.91	26.80	-17.59	769115.01	456607.10	32°15'11.303"N	103°35'47.458"W	1.27	
4542.10	2.330	116.470	4541.50	-25.35	25.26	-13.98	769118.62	456605.56	32°15'11.287"N	103°35'47.416"W	0.31	
4637.10	2.690	111.880	4636.40	-23.64	23.57	-10.19	769122.41	456603.87	32°15'11.270"N	103°35'47.372"W	0.43	
4732.20	2.920	106.740	4731.39	-22.08	22.04	-5.80	769126.80	456602.34	32°15'11.255"N	103°35'47.321"W	0.36	
4753.00	2.960	110.570	4752.16	-21.73	21.70	-4.79	769127.81	456602.00	32°15'11.251"N	103°35'47.309"W	0.96	
4927.00	2.400	272.200	4926.09	-20.29	20.26	-4.22	769128.38	456600.56	32°15'11.237"N	103°35'47.303"W	3.04	
4991.00	3.300	242.700	4990.02	-19.51	19.47	-7.20	769125.40	456599.77	32°15'11.229"N	103°35'47.338"W	2.64	
5086.00	4.200	241.300	5084.81	-16.62	16.54	-12.68	769119.92	456596.84	32°15'11.201"N	103°35'47.402"W	0.95	
5181.00	4.100	246.300	5179.56	-13.63	13.51	-18.84	769113.76	456593.81	32°15'11.171"N	103°35'47.474"W	0.40	
5276.00	5.600	252.400	5274.22	-10.91	10.74	-26.37	769106.23	456591.04	32°15'11.144"N	103°35'47.562"W	1.67	
5368.00	5.900	256.000	5365.76	-8.46	8.24	-35.23	769097.37	456588.54	32°15'11.120"N	103°35'47.665"W	0.51	
5463.00	5.900	257.400	5460.26	-6.27	5.99	-44.74	769087.87	456586.29	32°15'11.099"N	103°35'47.776"W	0.15	
5557.00	5.900	273.800	5553.77	-5.60	5.26	-54.27	769078.33	456585.56	32°15'11.092"N	103°35'47.887"W	1.79	
5652.00	6.100	275.200	5648.24	-6.44	6.04	-64.17	769068.43	456586.34	32°15'11.100"N	103°35'48.002"W	0.26	
5747.00	4.500	278.900	5742.84	-7.53	7.08	-72.88	769059.72	456587.38	32°15'11.111"N	103°35'48.103"W	1.72	
5842.00	3.400	281.800	5837.61	-8.72	8.23	-79.32	769053.28	456588.53	32°15'11.123"N	103°35'48.178"W	1.18	
5937.00	2.900	291.600	5932.47	-10.22	9.69	-84.31	769048.29	456589.99	32°15'11.138"N	103°35'48.236"W	0.77	
6032.00	2.700	279.500	6027.35	-11.50	10.94	-88.75	769043.85	456591.24	32°15'11.150"N	103°35'48.288"W	0.66	
6127.00	1.700	269.000	6122.28	-11.86	11.29	-92.37	769040.23	456591.59	32°15'11.154"N	103°35'48.330"W	1.13	
6221.00	0.600	242.500	6216.26	-11.62	11.04	-94.20	769038.40	456591.34	32°15'11.152"N	103°35'48.351"W	1.27	
6316.00	0.400	234.600	6311.26	-11.21	10.61	-94.91	769037.69	456590.91	32°15'11.148"N	103°35'48.360"W	0.22	
6411.00	0.400	209.600	6406.26	-10.73	10.13	-95.35	769037.26	456590.43	32°15'11.143"N	103°35'48.365"W	0.18	
6506.00	0.200	243.500	6501.26	-10.37	9.77	-95.66	769036.95	456590.07	32°15'11.139"N	103°35'48.368"W	0.27	
6600.00	0.100	210.900	6595.25	-10.23	9.63	-95.85	769036.76	456589.93	32°15'11.138"N	103°35'48.371"W	0.14	
6695.00	0.300	176.600	6690.25	-9.91	9.31	-95.87	769036.73	456589.61	32°15'11.135"N	103°35'48.371"W	0.24	
6790.00	0.100	260.700	6785.25	-9.65	9.05	-95.94	769036.66	456589.35	32°15'11.132"N	103°35'48.372"W	0.32	
6885.00	0.200	315.500	6880.25	-9.75	9.15	-96.14	769036.46	456589.45	32°15'11.133"N	103°35'48.374"W	0.17	
6979.00	0.300	192.400	6974.25	-9.63	9.03	-96.31	769036.30	456589.33	32°15'11.132"N	103°35'48.376"W	0.47	
7074.00	0.700	170.500	7069.25	-8.81	8.21	-96.27	769036.34	456588.51	32°15'11.124"N	103°35'48.376"W	0.46	
7169.00	0.300	203.000	7164.25	-8.01	7.41	-96.27	769036.34	456587.71	32°15'11.116"N	103°35'48.376"W	0.50	
7264.00	0.500	177.900	7259.24	-7.37	6.77	-96.35	769036.25	456587.07	32°15'11.110"N	103°35'48.377"W	0.28	
7358.00	0.500	166.600	7353.24	-6.56	5.96	-96.24	769036.36	456586.26	32°15'11.102"N	103°35'48.376"W	0.10	
7453.00	0.700	182.700	7448.23	-5.58	4.98	-96.17	769036.43	456585.28	32°15'11.092"N	103°35'48.375"W	0.27	
7548.00	0.600	178.000	7543.23	-4.50	3.90	-96.18	769036.42	456584.20	32°15'11.081"N	103°35'48.375"W	0.12	
7642.00	0.600	173.900	7637.22	-3.52	2.92	-96.11	769036.49	456583.22	32°15'11.072"N	103°35'48.374"W	0.05	
7737.00	0.300	59.000	7732.22	-3.15	2.55	-95.84	769036.76	456582.85	32°15'11.068"N	103°35'48.371"W	0.82	
7832.00	0.400	157.800	7827.22	-2.97	2.37	-95.51	769037.10	456582.67	32°15'11.066"N	103°35'48.367"W	0.56	
7927.00	1.100	57.300	7922.21	-3.15	2.56	-94.61	769037.99	456582.86	32°15'11.068"N	103°35'48.357"W	1.30	
8021.00	0.600	97.300	8016.20	-3.57	2.98	-93.37	769039.24	456583.28	32°15'11.072"N	103°35'48.342"W	0.80	
8116.00	0.700	98.500	8111.20	-3.41	2.84	-92.30	769040.30	456583.14	32°15'11.070"N	103°35'48.330"W	0.11	
8211.00	0.500	97.900	8206.19	-3.26	2.69	-91.31	769041.29	456582.99	32°15'11.069"N	103°35'48.318"W	0.21	
8306.00	0.400	115.600	8301.19	-3.06	2.49	-90.60	769042.00	456582.79	32°15'11.067"N	103°35'48.310"W	0.18	
8400.00	0.800	95.400	8395.18	-2.85	2.29	-89.65	769042.95	456582.59	32°15'11.065"N	103°35'48.299"W	0.48	
8495.00	0.600	122.400	8490.18	-2.51	1.96	-88.57	769044.03	456582.26	32°15'11.062"N	103°35'48.287"W	0.40	



Actual Wellpath Report

No.2 ST01 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2 SHL
Area	Lea County, NM	Well	No.2 ST01
Field	(Tres Equis) Sec 5, T24S, R33E	Wellbore	No.2 ST01 AWB
Facility	Tres Equis 5 State No. 2	Sidetrack from	No.2 (AWB) at 4827.20 MD

WELLPATH DATA (111 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8589.00	0.300	181.200	8584.18	-2.00	1.45	-88.16	769044.44	456581.75	32°15'11.057"N	103°35'48.282"W	0.55	
8684.00	0.600	159.600	8679.17	-1.28	0.74	-88.00	769044.61	456581.04	32°15'11.049"N	103°35'48.280"W	0.36	
8779.00	0.800	127.900	8774.17	-0.41	-0.14	-87.30	769045.30	456580.16	32°15'11.041"N	103°35'48.272"W	0.45	
8874.00	0.800	116.300	8869.16	0.30	-0.84	-86.18	769046.42	456579.46	32°15'11.034"N	103°35'48.259"W	0.17	
8969.00	0.900	91.500	8964.15	0.62	-1.15	-84.84	769047.76	456579.15	32°15'11.031"N	103°35'48.243"W	0.40	
9063.00	0.800	79.000	9058.14	0.53	-1.05	-83.46	769049.14	456579.25	32°15'11.031"N	103°35'48.227"W	0.22	
9158.00	1.100	79.400	9153.12	0.24	-0.75	-81.91	769050.69	456579.55	32°15'11.034"N	103°35'48.209"W	0.32	
9253.00	0.600	95.300	9248.11	0.13	-0.63	-80.52	769052.08	456579.67	32°15'11.035"N	103°35'48.193"W	0.58	
9348.00	0.600	78.100	9343.11	0.08	-0.57	-79.54	769053.06	456579.73	32°15'11.036"N	103°35'48.182"W	0.19	
9442.00	1.200	48.900	9437.10	-0.66	0.17	-78.31	769054.29	456580.47	32°15'11.043"N	103°35'48.167"W	0.78	
9537.00	0.400	81.300	9532.09	-1.36	0.88	-77.24	769055.37	456581.18	32°15'11.050"N	103°35'48.155"W	0.94	
9631.00	0.200	217.700	9626.08	-1.28	0.80	-77.01	769055.59	456581.10	32°15'11.049"N	103°35'48.152"W	0.60	
9726.00	1.100	289.100	9721.08	-1.45	0.97	-77.98	769054.63	456581.27	32°15'11.051"N	103°35'48.163"W	1.11	
9821.00	1.400	297.800	9816.06	-2.30	1.80	-79.86	769052.74	456582.10	32°15'11.059"N	103°35'48.185"W	0.37	
9916.00	2.200	294.500	9911.01	-3.62	3.10	-82.55	769050.05	456583.40	32°15'11.072"N	103°35'48.216"W	0.85	
10010.00	2.700	290.800	10004.92	-5.18	4.64	-86.26	769046.34	456584.94	32°15'11.088"N	103°35'48.259"W	0.56	
10105.00	2.100	288.800	10099.84	-6.55	5.99	-90.00	769042.60	456586.29	32°15'11.102"N	103°35'48.303"W	0.64	
10200.00	1.600	287.200	10194.79	-7.53	6.95	-92.92	769039.69	456587.25	32°15'11.111"N	103°35'48.337"W	0.53	
10295.00	1.300	283.300	10289.76	-8.18	7.59	-95.23	769037.37	456587.89	32°15'11.118"N	103°35'48.364"W	0.33	
10390.00	1.300	284.600	10384.73	-8.71	8.11	-97.32	769035.28	456588.40	32°15'11.123"N	103°35'48.388"W	0.03	
10485.00	1.300	287.800	10479.71	-9.33	8.71	-99.39	769033.21	456589.01	32°15'11.129"N	103°35'48.412"W	0.08	

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Tres Equis 5 State No. 2 PBHL (Rev-0)		11184.50	-4614.55	28.80	769161.40	451965.90	32°14'25.374"N	103°35'47.289"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.2 ST01 AWB					Ref Wellpath: No.2 ST01 AWP		
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment		Wellbore
0.00	4732.20	Generic gyro - northseeking (Standard)			Gyros 100'-10529'		No.2 (AWB)
4732.20	10485.00	NaviTrak (Standard)			BHI MWD NaviTrak <4753-XXXX>		No.2 ST01 AWB



A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

HOBBS OCD

September 10, 2012

FEB 07 2013

RECEIVED

Cimarex Energy Company
600 N. Marienfeld St., Ste. 600
Midland, TX 79701

Attn: Carolyn Larson

30-025-40675

Re: Tres Equis 5 State No. 002H

Please find enclosed a copy of the survey from 0.00' to 4779.41' ran on the above referenced well.

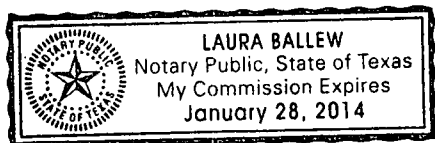
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 12th day of September A.D., 2012, by Keith Havelka.



Laura Ballew
Notary Public, State of Texas



Company: Cimarex Energy Company
Lease/Well: Tres Equis 5 State / No. 002H
Location: S5 T24s R33e
Rig Name: NorAm 23
State/County: New Mexico / Lea
Latitude: 32.25
GRID North is 0.39 Degrees East of True North
VS-Azi: 0.00 Degrees



30-025-40675

HOBBS OCD

FEB 07 2013

RECEIVED

RKB : 28.4'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: ...is 5 state #2h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 9/10/2012 / 13:03

Vaughn Energy Services

Gardendale, Texas

432-025-40675

Surveyor: Dustin Wedel

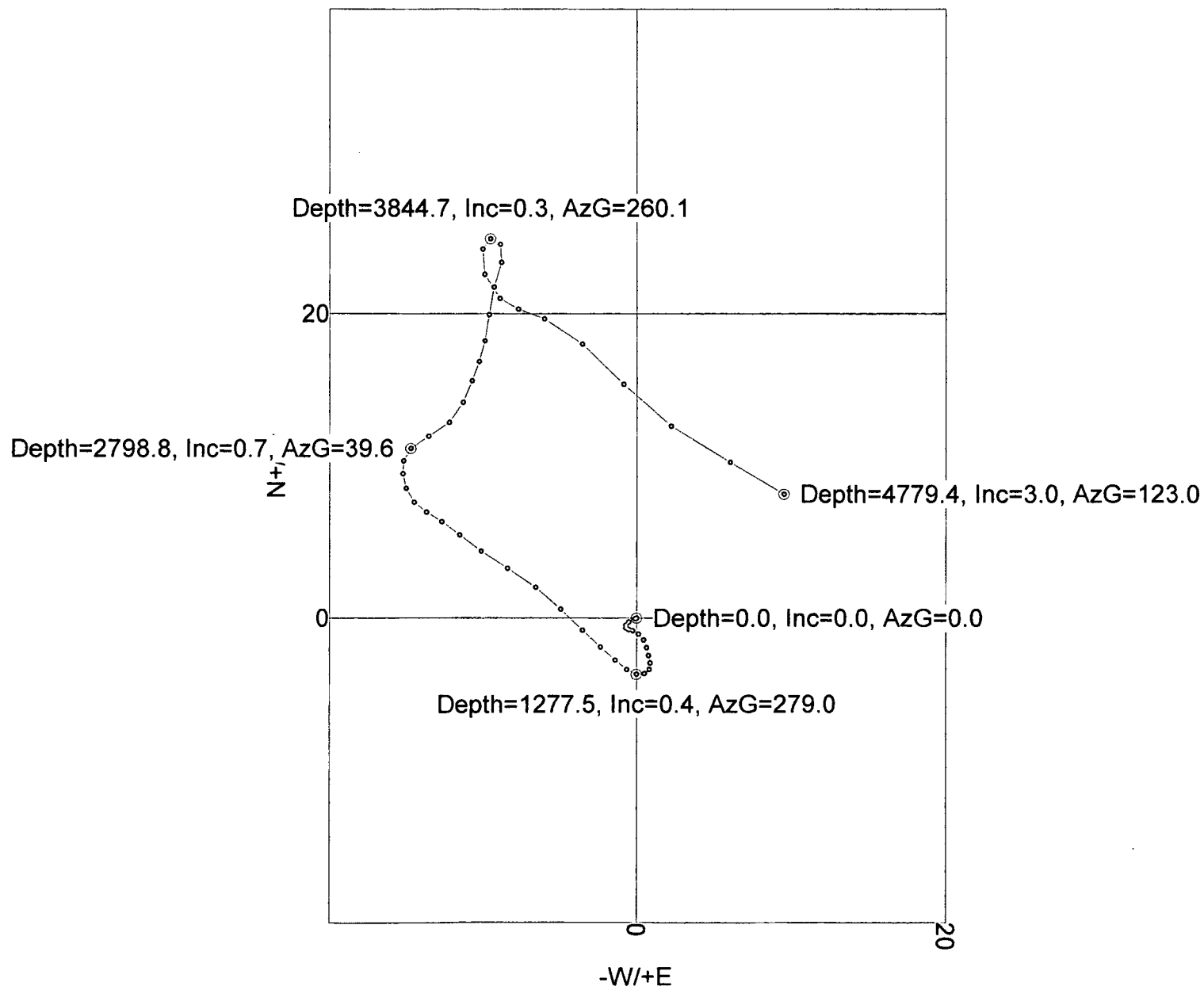
Tres Equis 5 State No. 002H / API 30-025-40675

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
41.49	0.32	251.59	41.49	-0.04	-0.11	-0.04	0.12	251.59	0.77
136.57	0.23	229.31	136.57	-0.24	-0.51	-0.24	0.56	244.30	0.15
231.65	0.13	207.04	231.65	-0.46	-0.70	-0.46	0.84	236.44	0.12
326.73	0.13	150.37	326.73	-0.66	-0.69	-0.66	0.95	226.57	0.13
421.81	0.13	93.70	421.81	-0.76	-0.53	-0.76	0.92	214.79	0.13
516.89	0.22	111.81	516.89	-0.83	-0.25	-0.83	0.87	196.64	0.10
611.97	0.30	129.91	611.97	-1.06	0.11	-1.06	1.06	174.12	0.12
707.05	0.32	148.90	707.05	-1.45	0.44	-1.45	1.51	163.19	0.11
802.13	0.34	167.89	802.12	-1.95	0.63	-1.95	2.05	162.00	0.12
897.21	0.31	167.51	897.20	-2.48	0.75	-2.48	2.59	163.20	0.03
992.29	0.28	167.13	992.28	-2.96	0.86	-2.96	3.08	163.86	0.03
1087.37	0.27	208.01	1087.36	-3.39	0.80	-3.39	3.49	166.68	0.21
1182.45	0.26	248.88	1182.44	-3.67	0.49	-3.67	3.70	172.34	0.20
1277.53	0.38	279.02	1277.52	-3.70	-0.02	-3.70	3.70	180.27	0.21
1372.61	0.49	309.16	1372.59	-3.39	-0.64	-3.39	3.45	190.71	0.26
1467.69	0.68	310.98	1467.67	-2.77	-1.38	-2.77	3.09	206.58	0.20
1562.77	0.87	312.80	1562.74	-1.91	-2.34	-1.91	3.02	230.83	0.20
1657.85	1.09	313.60	1657.81	-0.79	-3.52	-0.79	3.61	257.31	0.23

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1752.93	1.31	314.40	1752.87	0.59	-4.95	0.59	4.99	276.78	0.23
1848.01	1.32	307.99	1847.92	2.02	-6.59	2.02	6.89	287.05	0.16
1943.09	1.33	301.58	1942.98	3.27	-8.39	3.27	9.01	291.31	0.16
2038.17	1.15	305.20	2038.03	4.40	-10.12	4.40	11.03	293.52	0.21
2133.25	0.97	308.82	2133.10	5.46	-11.53	5.46	12.76	295.35	0.20
2228.33	0.80	303.92	2228.17	6.34	-12.71	6.34	14.20	296.51	0.20
2323.41	0.62	299.03	2323.24	6.96	-13.71	6.96	15.38	296.91	0.19
2418.49	0.64	319.82	2418.31	7.62	-14.51	7.62	16.39	297.70	0.24
2513.57	0.65	340.61	2513.39	8.53	-15.03	8.53	17.28	299.58	0.25
2608.65	0.55	356.56	2608.46	9.50	-15.24	9.50	17.95	301.94	0.20
2703.73	0.45	12.51	2703.54	10.32	-15.18	10.32	18.36	304.21	0.18
2798.81	0.73	39.57	2798.61	11.15	-14.72	11.15	18.47	307.16	0.40
2893.89	1.00	66.63	2893.68	11.95	-13.57	11.95	18.08	311.35	0.51
2988.97	0.99	45.33	2988.75	12.85	-12.23	12.85	17.74	316.42	0.39
3084.05	0.98	24.03	3083.81	14.17	-11.31	14.17	18.13	321.39	0.38
3179.13	0.87	21.43	3178.88	15.58	-10.72	15.58	18.91	325.47	0.12
3274.21	0.76	18.83	3273.95	16.84	-10.25	16.84	19.72	328.67	0.12
3369.29	0.96	12.68	3369.02	18.21	-9.88	18.21	20.72	331.52	0.23
3464.37	1.15	6.54	3464.09	19.94	-9.60	19.94	22.13	334.30	0.24
3559.45	1.07	13.25	3559.15	21.75	-9.28	21.75	23.65	336.88	0.17
3654.53	0.98	19.96	3654.21	23.37	-8.80	23.37	24.97	339.36	0.16
3749.61	0.66	320.05	3749.28	24.55	-8.88	24.55	26.11	340.12	0.91
3844.69	0.34	260.14	3844.36	24.92	-9.50	24.92	26.67	339.12	0.60
3939.77	0.82	200.25	3939.44	24.24	-10.02	24.24	26.22	337.55	0.75
4034.85	1.30	160.36	4034.50	22.58	-9.89	22.58	24.65	336.35	0.90
4129.93	1.01	132.28	4129.56	21.01	-8.91	21.01	22.82	337.02	0.66
4225.01	0.72	104.21	4224.63	20.30	-7.71	20.30	21.71	339.21	0.53
4320.09	1.45	114.33	4319.70	19.65	-6.03	19.65	20.56	342.95	0.79
4415.17	2.18	129.45	4414.73	18.01	-3.53	18.01	18.35	348.90	0.91
4510.25	2.39	139.55	4509.73	15.35	-0.85	15.35	15.37	356.83	0.48
4605.33	2.60	124.64	4604.72	12.62	2.21	12.62	12.81	9.92	0.71
4700.41	2.84	119.20	4699.70	10.24	6.04	10.24	11.89	30.52	0.38
4779.41	3.05	122.99	4778.59	8.14	9.51	8.14	12.52	49.43	0.36



Vaughn Energy Services
Gardendale, Texas
432-025-40675
Surveyor: Dustin Wedel
Tres Equis 5 State No. 002H / API 30-025-40675



VES Survey Date: 09/01/2012