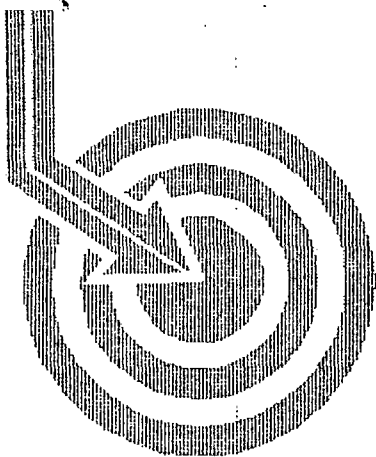




Scientific Drilling

CIMAREX ENERGY

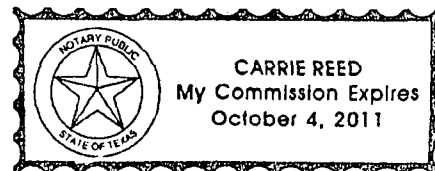
Field: Undesignated Bone Spring
Site: Eddy County, NM
Well: Parkway State Com #4
Wellpath: VH - Job #32K0310193
Survey: 03/18/10

This survey is correct to the best of my knowledge and is supported by actual field data.

Richard
Company Representative

Notarized this date 15th of April, 2010.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International, Inc.

Survey Report

Company: CIMAREX ENERGY	Date: 3/23/2010	Time: 11:36:28	Page: 1
Field: Undesignated Bone Spring	Co-ordinate(NE) Reference:	Site: Eddy County, NM, Grid North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: Parkway State Com #4	Section (VS) Reference:	Well (0.00N,0.00E,355.65Azi)	
Wellpath: VH - Job #32K0310193	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: 03/18/10	Start Date: 3/18/2010
KSRG 0'-7568'	
Company: Scientific Drilling Internatio	Engineer: Madrid w/Gray
Tool: Keeper, Keeper Gyro	Tied-to: From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.0	0.00	359.85	0.0	0.0	0.0	0.0	0.00	0.0	0.00
100.0	1.20	91.50	100.0	-0.1	0.0	1.0	1.20	1.0	91.50
200.0	0.55	90.81	200.0	-0.3	-0.1	2.6	0.65	2.6	91.37
300.0	0.40	101.18	300.0	-0.4	-0.1	3.4	0.17	3.4	92.29
400.0	0.36	110.67	400.0	-0.6	-0.3	4.0	0.07	4.0	94.46
500.0	0.41	112.33	500.0	-0.9	-0.6	4.7	0.05	4.7	96.87
600.0	0.76	98.89	600.0	-1.2	-0.8	5.6	0.37	5.7	98.07
700.0	1.33	82.90	700.0	-1.3	-0.8	7.5	0.63	7.5	95.82
800.0	1.60	73.14	799.9	-1.0	-0.2	9.9	0.37	9.9	91.21
900.0	2.01	71.03	899.9	-0.2	0.8	12.9	0.42	13.0	86.62
1000.0	2.33	69.38	999.8	0.8	2.1	16.5	0.33	16.6	82.91
1100.0	2.37	63.75	1099.7	2.1	3.7	20.3	0.23	20.6	79.70
1200.0	1.90	50.30	1199.6	3.9	5.7	23.4	0.68	24.1	76.40
1300.0	1.28	25.00	1299.6	5.8	7.7	25.1	0.92	26.3	72.91
1400.0	1.27	341.30	1399.6	7.8	9.8	25.2	0.95	27.1	68.81
1500.0	1.72	324.83	1499.5	10.2	12.1	24.0	0.62	26.9	63.34
1600.0	2.03	321.59	1599.5	13.0	14.7	22.1	0.33	26.5	56.36
1700.0	2.06	313.75	1699.4	15.8	17.3	19.7	0.28	26.2	48.64
1800.0	2.10	312.38	1799.4	18.4	19.8	17.0	0.06	26.1	40.68
1900.0	1.90	297.63	1899.3	20.7	21.8	14.2	0.55	26.0	33.07
2000.0	1.45	288.88	1999.3	22.0	23.0	11.5	0.52	25.7	26.64
2100.0	0.99	293.09	2099.2	22.9	23.7	9.5	0.47	25.6	21.89
2200.0	0.96	301.64	2199.2	23.8	24.5	8.0	0.15	25.8	18.13
2300.0	0.98	311.02	2299.2	24.9	25.5	6.7	0.16	26.4	14.65
2400.0	0.90	304.45	2399.2	26.0	26.5	5.4	0.13	27.0	11.46
2500.0	0.93	302.92	2499.2	27.0	27.4	4.0	0.04	27.7	8.39
2600.0	1.05	315.66	2599.2	28.2	28.5	2.7	0.25	28.6	5.45
2700.0	1.00	320.35	2699.2	29.6	29.8	1.5	0.10	29.8	2.92
2800.0	1.00	314.76	2799.1	31.0	31.1	0.3	0.10	31.1	0.64
2900.0	0.75	310.10	2899.1	32.1	32.1	-0.8	0.26	32.1	358.62
3000.0	0.63	298.47	2999.1	32.9	32.8	-1.8	0.18	32.9	356.93
3100.0	0.77	315.37	3099.1	33.7	33.6	-2.7	0.25	33.7	355.38
3200.0	0.84	311.20	3199.1	34.7	34.5	-3.7	0.09	34.7	353.82
3300.0	0.97	322.25	3299.1	35.9	35.7	-4.8	0.22	36.0	352.33
3400.0	0.85	312.48	3399.1	37.2	36.8	-5.9	0.20	37.3	350.94
3500.0	0.94	300.56	3499.1	38.2	37.8	-7.1	0.21	38.4	349.31
3600.0	0.96	288.02	3599.1	39.0	38.4	-8.6	0.21	39.4	347.35
3700.0	1.01	280.50	3699.0	39.5	38.9	-10.3	0.14	40.2	345.16
3800.0	1.42	283.26	3799.0	40.1	39.3	-12.4	0.41	41.2	342.54
3900.0	1.51	291.49	3899.0	41.1	40.1	-14.8	0.23	42.7	339.73
4000.0	1.48	291.56	3998.9	42.2	41.0	-17.2	0.03	44.5	337.23
4100.0	1.62	282.41	4098.9	43.2	41.8	-19.8	0.28	46.3	334.65
4200.0	1.91	268.92	4198.9	43.7	42.1	-22.9	0.50	47.9	331.49
4300.0	1.86	265.92	4298.8	43.8	41.9	-26.1	0.11	49.4	328.06
4400.0	1.78	270.21	4398.8	43.9	41.8	-29.3	0.16	51.1	324.98
4500.0	1.79	273.53	4498.7	44.3	41.9	-32.4	0.10	53.0	322.28
4600.0	1.99	265.34	4598.7	44.5	41.9	-35.7	0.34	55.0	319.54
4700.0	1.70	265.18	4698.6	44.4	41.6	-38.9	0.29	57.0	316.91
4800.0	1.56	262.59	4798.6	44.4	41.3	-41.7	0.16	58.7	314.70



Scientific
Drilling

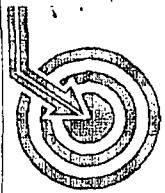
Scientific Drilling International, Inc.

Survey Report

Company: CIMAREX ENERGY	Date: 3/23/2010	Time: 11:36:28	Page: 2
Field: Undesignated Bone Spring	Co-ordinate(NE) Reference:	Site: Eddy County, NM, Grid North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: Parkway State Com #4	Section (VS) Reference:	Well (0.00N,0.00E,355.65Azi)	
Wellpath: VH - Job #32K0310193	Survey Calculation Method:	Minimum Curvature	Db: Sybase

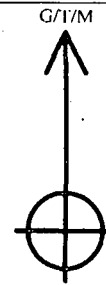
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.0	1.66	264.26	4898.5	44.2	41.0	-44.5	0.11	60.5	312.62
5000.0	1.70	256.11	4998.5	44.0	40.5	-47.4	0.24	62.4	310.49
5100.0	2.16	259.21	5098.4	43.5	39.8	-50.7	0.47	64.4	308.11
5200.0	2.32	259.67	5198.3	43.1	39.1	-54.6	0.16	67.1	305.61
5300.0	1.29	238.75	5298.3	42.4	38.1	-57.5	1.21	69.0	303.54
5400.0	2.02	144.04	5398.3	40.4	36.1	-57.4	2.48	67.8	302.16
5500.0	3.60	127.57	5498.1	36.8	32.8	-53.9	1.76	63.1	301.29
5600.0	3.85	124.96	5597.9	32.5	28.9	-48.7	0.30	56.6	300.72
5700.0	4.30	120.78	5697.7	28.2	25.1	-42.7	0.54	49.5	300.43
5800.0	4.82	114.30	5797.4	24.1	21.4	-35.6	0.73	41.6	301.02
5900.0	3.81	107.06	5897.1	20.9	18.7	-28.6	1.15	34.2	303.19
6000.0	2.54	118.90	5996.9	18.4	16.7	-23.5	1.42	28.8	305.35
6100.0	3.28	144.98	6096.8	14.7	13.3	-19.9	1.50	24.0	303.64
6200.0	3.01	152.81	6196.7	9.9	8.6	-17.1	0.51	19.1	296.68
6300.0	2.79	161.93	6296.5	5.1	3.9	-15.1	0.51	15.7	284.60
6400.0	2.38	193.72	6396.4	0.7	-0.4	-14.9	1.47	14.9	268.51
6500.0	1.16	195.73	6496.4	-2.2	-3.4	-15.7	1.22	16.0	257.82
6600.0	0.36	299.55	6596.4	-3.0	-4.2	-16.2	1.29	16.7	255.47
6700.0	0.30	162.68	6696.4	-3.0	-4.3	-16.4	0.61	16.9	255.33
6800.0	0.71	359.90	6796.4	-2.7	-3.9	-16.3	1.00	16.8	256.48
6900.0	0.77	34.87	6896.4	-1.5	-2.8	-15.9	0.45	16.2	260.20
7000.0	0.51	41.38	6996.4	-0.7	-1.9	-15.3	0.27	15.4	263.03
7100.0	0.29	108.71	7096.4	-0.5	-1.6	-14.7	0.48	14.8	263.75
7200.0	0.32	331.78	7196.4	-0.3	-1.4	-14.6	0.57	14.7	264.34
7300.0	0.77	312.11	7296.3	0.4	-0.8	-15.2	0.48	15.3	267.18
7400.0	0.63	332.78	7396.3	1.4	0.2	-16.0	0.29	16.0	270.67
7500.0	0.43	320.90	7496.3	2.2	1.0	-16.5	0.23	16.5	273.36
7568.0	0.19	155.86	7564.3	2.3	1.1	-16.6	0.91	16.6	273.66

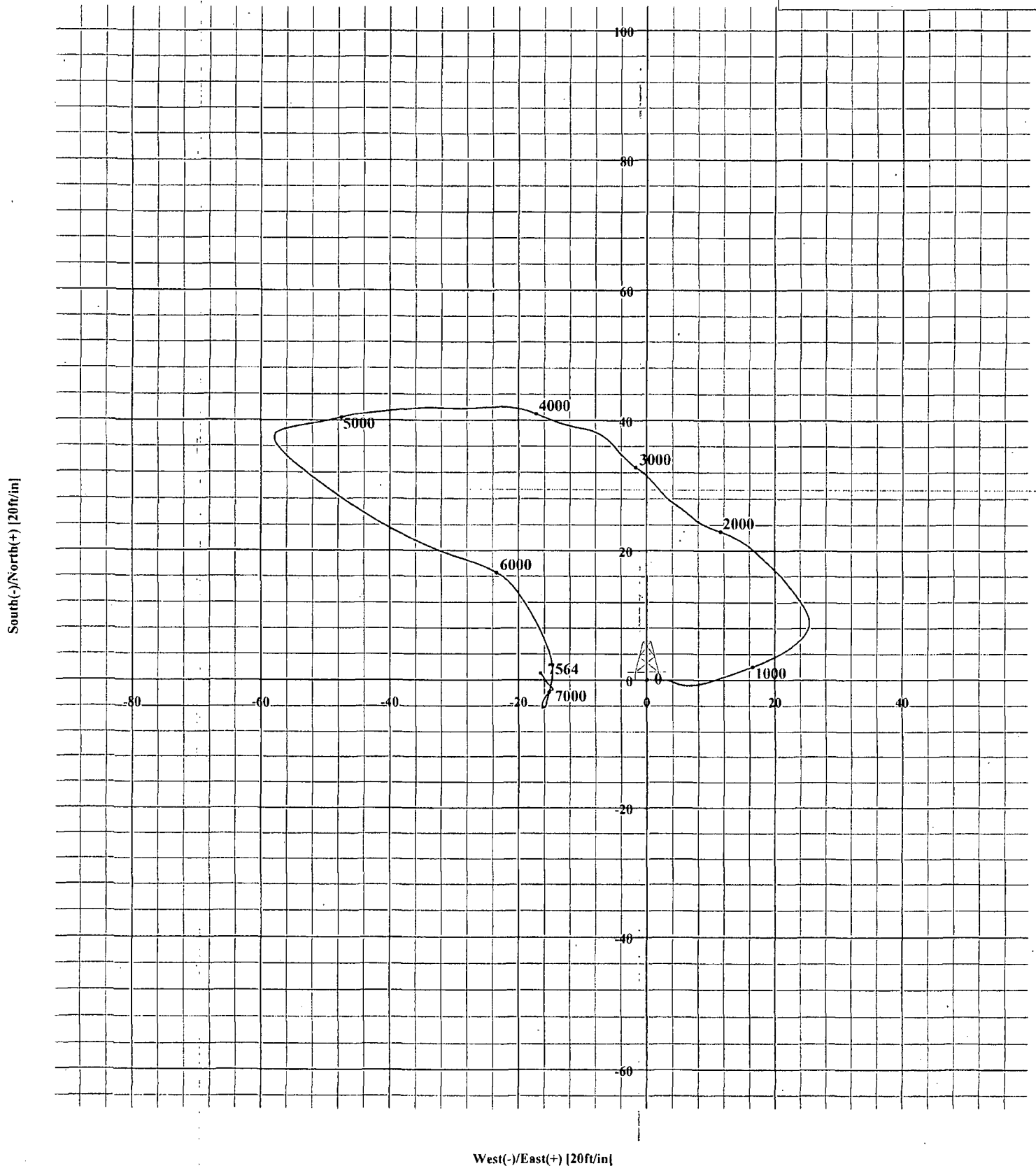


Scientific
Drilling

Field: Undesignated Bone Spring
Site: Eddy County, NM
Well: Parkway State Com #4
Survey: 03/18/10



Azimuths to Grid North
True North: 0.00°
Magnetic North: 0.00°
Magnetic Field
Dip Angle: 0.00°
Date: 3/22/2010
Model: igrf2000



30-015-37504



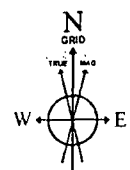
Cimarex Energy Co.

Location: Eddy County, NM
Field: (Parkway) Sec 15, T19S, R28E
Facility: Parkway State Cor No. 4H

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

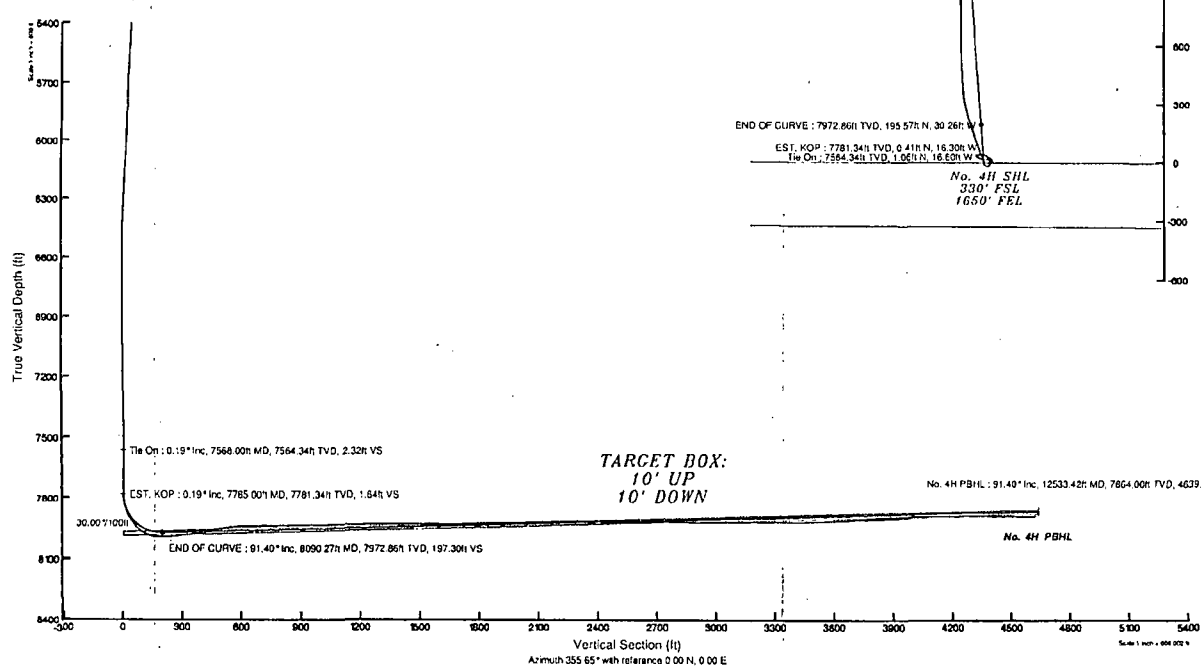
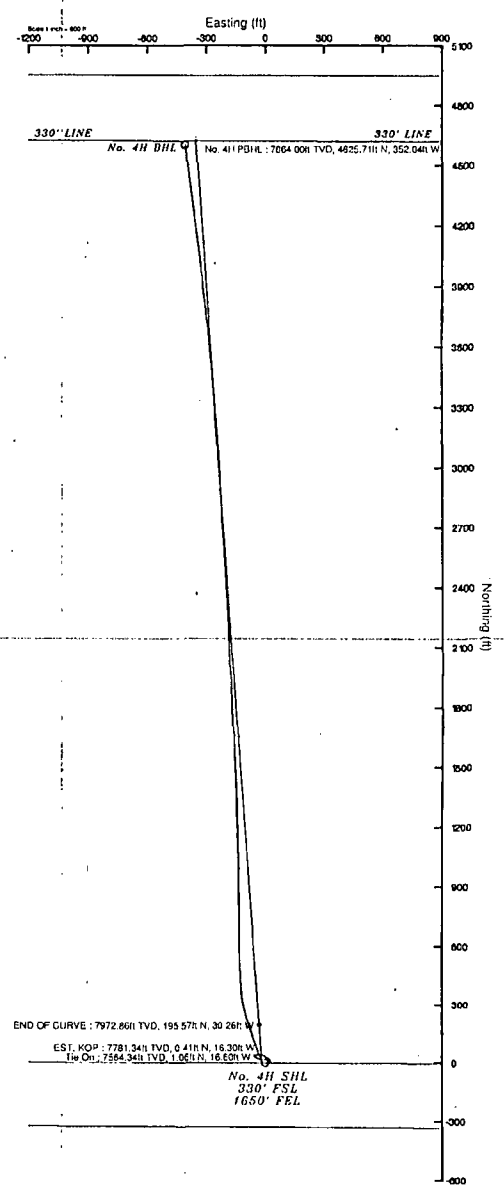


Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	7568.00	0.190	155.860	7564.34	1.06	-18.60	2.32
EST. KOP	7785.00	0.190	155.860	7781.34	0.41	-16.30	1.64
END OF CURVE	8090.27	91.404	355.848	7972.86	195.57	-30.26	197.30
No. 4H PBHL	12533.42	91.404	355.848	7864.00	4625.71	-352.04	4639.09



BGGM (1945.0 to 2011.0) Dip: 60.55° Fio: 49023.5 nT
Magnetic North is 8.07 degrees East of True North (at 7/6/2010)
Grid North is 0.15 degrees East of True North
To correct azimuth from True to Grid subtract 0.15 degrees
To correct azimuth from Magnetic to Grid add 7.92 degrees
For example: if the Magnetic North Azimuth = 90 dogs, then the Grid North Azimuth = 90 + 7.92 = 97.92

For reference with this Plan: see Appendix A	
True vertical depths are referenced to Tie on No. 4H SHL (ft)	Grid System: NAD83 / 1st New Mexico State Plane, Eastern Zone (30N), US feet
Measured depths are referenced to Tie on No. 4H SHL (ft)	North Arrow: as Grid North
Tie on No. 4H SHL (ft) to Mean Sea Level: 3231 feet	Scale: True depths
Mean Sea Level: 3231 feet	Depths are in feet
Coordinates are in feet referenced to Surface Location	Created by: VESDA Hernandez on 3/25/2010



TARGET BOX:
10' UP
10' DOWN



Actual Wellpath Report

No. 4H AWP

Page 1 of 7



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Parkway) Sec 15, T19S, R29E	Wellbore	No. 4H AWB
Facility	Parkway State Com No. 4H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999917	Report Generated	3/30/2010 at 10:34:16 AM
Convergence at slot	0.15° East	Database/Source file	WA_Midland/No._4H_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	625640.80	601900.10	32°39'15.738"N	104°03'33.890"W
Facility Reference Pt			625640.80	601900.10	32°39'15.738"N	104°03'33.890"W
Field Reference Pt			623994.14	604893.77	32°39'45.403"N	104°03'53.063"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 4H SHL (RT) to GL	20.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 4H SHL (RT) to Mean Sea Level	3331.00ft
Vertical Reference Pt	Rig on No. 4H SHL (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 4H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	355.65°



Actual Wellpath Report

No. 4H AWP

Page 2 of 7



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Parkway) Sec 15, T19S, R29E	Wellbore	No. 4H AWB
Facility	Parkway State Com No. 4H		

WELLPATH DATA (164 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	91.500	0.00	0.00	0.00	0.00	625640.80	601900.10	32°39'15.738"N	104°03'33.890"W	0.00
100.00	1.200	91.500	99.99	-0.11	-0.03	1.05	625641.85	601900.07	32°39'15.738"N	104°03'33.878"W	1.20
200.00	0.550	90.810	199.98	-0.26	-0.06	2.57	625643.37	601900.04	32°39'15.737"N	104°03'33.860"W	0.65
300.00	0.400	101.180	299.98	-0.39	-0.14	3.40	625644.20	601899.96	32°39'15.736"N	104°03'33.850"W	0.17
400.00	0.360	110.670	399.97	-0.62	-0.31	4.03	625644.83	601899.79	32°39'15.735"N	104°03'33.843"W	0.07
500.00	0.410	112.330	499.97	-0.91	-0.56	4.66	625645.46	601899.54	32°39'15.732"N	104°03'33.836"W	0.05
600.00	0.760	98.890	599.97	-1.23	-0.80	5.64	625646.44	601899.30	32°39'15.730"N	104°03'33.824"W	0.37
700.00	1.330	82.900	699.95	-1.32	-0.76	7.45	625648.25	601899.34	32°39'15.730"N	104°03'33.803"W	0.63
800.00	1.600	73.140	799.92	-0.96	-0.21	9.94	625650.74	601899.89	32°39'15.735"N	104°03'33.774"W	0.37
900.00	2.010	71.030	899.87	-0.22	-0.76	12.93	625653.73	601900.86	32°39'15.745"N	104°03'33.739"W	-0.42
1000.00	2.330	69.380	999.80	0.79	2.05	16.49	625657.29	601902.15	32°39'15.758"N	104°03'33.697"W	0.33
1100.00	2.370	63.750	1099.71	2.13	3.68	20.25	625661.05	601903.78	32°39'15.774"N	104°03'33.653"W	0.23
1200.00	1.900	50.300	1199.64	3.86	5.65	23.38	625664.18	601905.75	32°39'15.793"N	104°03'33.616"W	0.68
1300.00	1.280	25.000	1299.61	5.80	7.73	25.13	625665.93	601907.82	32°39'15.814"N	104°03'33.596"W	0.92
1400.00	1.270	341.300	1399.58	7.84	9.79	25.24	625666.04	601909.89	32°39'15.834"N	104°03'33.595"W	0.95
1500.00	1.720	324.830	1499.55	10.21	12.06	24.02	625664.82	601912.16	32°39'15.857"N	104°03'33.609"W	0.62
1600.00	2.030	321.590	1599.50	12.96	14.68	22.06	625662.86	601914.78	32°39'15.882"N	104°03'33.632"W	0.33
1700.00	2.060	313.750	1699.43	15.77	17.31	19.66	625660.46	601917.41	32°39'15.909"N	104°03'33.660"W	0.28
1800.00	2.100	312.380	1799.37	18.44	19.79	17.01	625657.81	601919.89	32°39'15.933"N	104°03'33.691"W	0.06
1900.00	1.900	297.630	1899.31	20.65	21.79	14.19	625654.99	601921.89	32°39'15.953"N	104°03'33.723"W	-0.55
2000.00	1.450	288.880	1999.26	22.03	22.97	11.52	625652.32	601923.07	32°39'15.965"N	104°03'33.755"W	0.52
2100.00	0.990	293.090	2099.24	22.93	23.72	9.53	625650.33	601923.82	32°39'15.972"N	104°03'33.778"W	0.47
2200.00	0.960	301.640	2199.23	23.82	24.50	8.02	625648.82	601924.59	32°39'15.980"N	104°03'33.796"W	0.15
2300.00	0.980	311.020	2299.21	24.92	25.50	6.66	625647.46	601925.59	32°39'15.990"N	104°03'33.811"W	0.16
2400.00	0.900	304.450	2399.20	26.02	26.50	5.37	625646.17	601926.60	32°39'16.000"N	104°03'33.826"W	-0.13
2500.00	0.930	302.920	2499.19	27.00	27.39	4.04	625644.84	601927.48	32°39'16.009"N	104°03'33.842"W	0.04
2600.00	1.050	315.660	2599.17	28.19	28.48	2.72	625643.52	601928.58	32°39'16.020"N	104°03'33.857"W	0.25
2700.00	1.000	320.350	2699.15	29.61	29.81	1.52	625642.32	601929.91	32°39'16.033"N	104°03'33.871"W	0.10
2800.00	1.000	314.760	2799.14	30.98	31.10	0.35	625641.15	601931.19	32°39'16.045"N	104°03'33.885"W	0.10
2900.00	0.9750	310.100	2899.13	32.10	32.13	-0.77	625640.03	601932.23	32°39'16.056"N	104°03'33.898"W	0.26



Actual Wellpath Report

No. 4H AWP

Page 3 of 7



INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Parkway) Sec 15, T19S, R29E	Wellbore	No. 4H AWB
Facility	Parkway State Com No. 4H		

WELLPATH DATA (164 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]
3000.00	0.630	298.470	2999.12	32.86	32.82	-1.76	625639.04	601932.91	32°39'16.063"N	104°03'33.910"W	0.18
3100.00	0.770	315.370	3099.11	33.67	33.56	-2.71	625638.09	601933.65	32°39'16.070"N	104°03'33.921"W	0.25
3200.00	0.840	311.200	3199.10	34.70	34.52	-3.74	625637.06	601934.61	32°39'16.079"N	104°03'33.933"W	0.09
3300.00	0.970	322.250	3299.09	35.93	35.67	-4.81	625635.99	601935.77	32°39'16.091"N	104°03'33.945"W	0.22
3400.00	0.850	312.480	3399.08	37.18	36.84	-5.87	625634.93	601936.94	32°39'16.102"N	104°03'33.958"W	0.20
3500.00	0.940	300.560	3499.07	38.19	37.76	-7.12	625633.68	601937.85	32°39'16.112"N	104°03'33.972"W	0.21
3600.00	0.960	288.020	3599.05	38.98	38.43	-8.63	625632.17	601938.53	32°39'16.118"N	104°03'33.990"W	0.21
3700.00	1.010	280.500	3699.04	39.52	38.85	-10.29	625630.51	601938.95	32°39'16.123"N	104°03'34.009"W	0.14
3800.00	1.420	283.260	3799.01	40.12	39.30	-12.36	625628.44	601939.40	32°39'16.127"N	104°03'34.034"W	0.41
3900.00	1.510	291.490	3898.98	41.07	40.07	-14.80	625626.01	601940.16	32°39'16.135"N	104°03'34.062"W	0.23
4000.00	1.480	291.560	3998.95	42.21	41.02	-17.22	625623.58	601941.12	32°39'16.144"N	104°03'34.090"W	0.03
4100.00	1.620	282.410	4098.91	43.18	41.80	-19.80	625621.00	601941.90	32°39'16.152"N	104°03'34.120"W	0.28
4200.00	1.910	268.920	4198.86	43.69	42.07	-22.85	625617.95	601942.17	32°39'16.155"N	104°03'34.156"W	0.50
4300.00	1.860	265.920	4298.81	43.79	41.93	-26.14	625614.67	601942.02	32°39'16.153"N	104°03'34.195"W	0.11
4400.00	1.780	270.210	4398.76	43.92	41.82	-29.31	625611.49	601941.91	32°39'16.152"N	104°03'34.232"W	0.16
4500.00	1.790	273.530	4498.71	44.26	41.92	-32.42	625608.38	601942.02	32°39'16.153"N	104°03'34.268"W	0.10
4600.00	1.990	265.340	4598.66	44.46	41.87	-35.71	625605.09	601941.97	32°39'16.153"N	104°03'34.306"W	0.34
4700.00	1.700	265.180	4698.61	44.44	41.61	-38.92	625601.89	601941.70	32°39'16.150"N	104°03'34.344"W	0.29
4800.00	1.560	262.590	4798.56	44.36	41.31	-41.75	625599.06	601941.40	32°39'16.148"N	104°03'34.377"W	0.16
4900.00	1.660	264.260	4898.53	44.25	40.99	-44.54	625596.27	601941.08	32°39'16.144"N	104°03'34.410"W	0.11
5000.00	1.700	256.110	4998.48	43.97	40.49	-47.42	625593.39	601940.58	32°39'16.140"N	104°03'34.443"W	0.24
5100.00	2.160	259.210	5098.43	43.51	39.78	-50.71	625590.10	601939.87	32°39'16.133"N	104°03'34.482"W	0.47
5200.00	2.320	259.670	5198.35	43.09	39.06	-54.55	625586.25	601939.16	32°39'16.126"N	104°03'34.527"W	0.16
5300.00	1.290	238.750	5298.30	42.37	38.12	-57.50	625583.30	601938.21	32°39'16.116"N	104°03'34.562"W	1.21
5400.00	2.020	144.040	5398.27	40.36	36.10	-57.43	625583.37	601936.20	32°39'16.097"N	104°03'34.561"W	12.48
5500.00	3.600	127.570	5498.15	36.76	32.76	-53.91	625586.90	601932.86	32°39'16.063"N	104°03'34.520"W	1.76
5600.00	3.850	124.960	5597.94	32.54	28.93	-48.67	625592.14	601929.02	32°39'16.025"N	104°03'34.458"W	0.30
5700.00	4.300	120.780	5697.68	28.25	25.08	-42.70	625598.11	601925.18	32°39'15.987"N	104°03'34.389"W	0.54
5800.00	4.820	114.300	5797.37	24.08	21.44	-35.65	625605.16	601921.53	32°39'15.951"N	104°03'34.306"W	0.73
5900.00	3.810	107.060	5897.08	20.85	18.73	-28.64	625612.16	601918.83	32°39'15.924"N	104°03'34.224"W	1.15



Actual Wellpath Report

No. 4H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Parkway) Sec 15, T19S, R29E	Wellbore	No. 4H AWB
Facility	Parkway State Com No. 4H		

WELLPATH DATA (164 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]
6000.00	2.540	118.900	5996.93	18.42	16.69	-23.52	625617.28	601916.78	32°39'15.904"N	104°03'34.165"W	1.42
6100.00	3.280	144.980	6096.80	14.75	13.27	-19.94	625620.86	601913.37	32°39'15.870"N	104°03'34.123"W	1.50
6200.00	3.010	152.810	6196.65	9.87	8.59	-17.10	625623.70	601908.69	32°39'15.823"N	104°03'34.090"W	0.51
6300.00	2.790	161.930	6296.53	5.08	3.95	-15.15	625625.65	601904.04	32°39'15.777"N	104°03'34.067"W	0.51
6400.00	2.380	193.720	6396.43	-0.74	-0.39	-14.88	625625.92	601899.71	32°39'15.734"N	104°03'34.064"W	1.47
6500.00	1.160	195.730	6496.38	-2.18	-3.38	-15.65	625625.15	601896.72	32°39'15.705"N	104°03'34.073"W	1.22
6600.00	0.360	299.550	6596.37	-2.96	-4.20	-16.20	625624.60	601895.90	32°39'15.697"N	104°03'34.080"W	1.29
6700.00	0.300	162.680	6696.37	-3.04	-4.29	-16.39	625624.41	601895.81	32°39'15.696"N	104°03'34.082"W	0.61
6800.00	0.710	359.900	6796.37	-2.67	-3.92	-16.32	625624.48	601896.18	32°39'15.699"N	104°03'34.081"W	1.00
6900.00	0.770	34.870	6896.36	-1.53	-2.75	-15.93	625624.87	601897.35	32°39'15.711"N	104°03'34.077"W	0.45
7000.00	0.510	41.380	6996.36	-0.70	-1.87	-15.26	625625.55	601898.23	32°39'15.720"N	104°03'34.069"W	0.27
7100.00	0.290	108.710	7096.35	-0.49	-1.61	-14.72	625626.08	601898.49	32°39'15.722"N	104°03'34.062"W	0.48
7200.00	0.320	331.780	7196.35	-0.34	-1.45	-14.61	625626.19	601898.65	32°39'15.724"N	104°03'34.061"W	0.57
7300.00	0.770	312.110	7296.35	0.41	-0.75	-15.25	625625.56	601899.35	32°39'15.731"N	104°03'34.068"W	0.48
7400.00	0.630	332.780	7396.34	1.40	0.19	-15.99	625624.81	601900.29	32°39'15.740"N	104°03'34.077"W	0.29
7500.00	0.430	320.900	7496.34	2.22	0.97	-16.48	625624.32	601901.07	32°39'15.748"N	104°03'34.083"W	0.23
7568.00	0.190	155.860	7564.34	2.32	1.06	-16.60	625624.20	601901.16	32°39'15.749"N	104°03'34.084"W	0.91
7748.00	1.500	147.500	7744.31	-0.04	-1.20	-15.21	625625.59	601898.90	32°39'15.726"N	104°03'34.068"W	0.73
7779.00	1.300	345.600	7775.31	-0.05	-1.20	-15.08	625625.72	601898.90	32°39'15.726"N	104°03'34.066"W	8.92
7811.00	8.500	338.700	7807.17	12.57	1.36	-16.03	625624.77	601901.46	32°39'15.752"N	104°03'34.078"W	22.53
7843.00	15.000	341.800	7838.49	8.86	7.50	-18.18	625622.62	601907.60	32°39'15.813"N	104°03'34.103"W	20.40
7875.00	22.500	339.500	7868.77	18.78	17.19	-21.63	625619.17	601917.29	32°39'15.908"N	104°03'34.143"W	23.55
7906.00	29.700	340.800	7896.59	31.92	30.01	-26.24	625614.57	601930.11	32°39'16.035"N	104°03'34.196"W	23.30
7938.00	39.600	340.200	7922.88	49.45	47.14	-32.31	625608.49	601947.23	32°39'16.205"N	104°03'34.267"W	30.96
7969.00	47.300	340.700	7945.37	70.01	67.21	-39.44	625601.37	601967.31	32°39'16.404"N	104°03'34.349"W	24.86
8001.00	56.400	339.700	7965.11	94.24	90.86	-47.96	625592.84	601990.95	32°39'16.638"N	104°03'34.448"W	28.54
8033.00	66.000	339.500	7980.51	121.16	117.11	-57.73	625583.08	602017.20	32°39'16.898"N	104°03'34.562"W	30.00
8064.00	77.000	340.800	7990.33	149.44	144.73	-67.69	625573.12	602044.81	32°39'17.172"N	104°03'34.677"W	35.71
8096.00	88.100	340.800	7994.48	180.07	174.64	-78.10	625562.70	602074.73	32°39'17.468"N	104°03'34.798"W	34.69
8124.00	92.200	342.600	7994.40	207.23	201.22	-86.89	625553.91	602101.30	32°39'17.731"N	104°03'34.900"W	15.99



Actual Wellpath Report

No. 4H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Parkway) Sec 15, T19S, R29E	Wellbore	No. 4H AWP
Facility	Parkway State Com No. 4H		

WELLPATH DATA (164 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]
8156.00	94.700	344.300	7992.48	238.45	231.84	-95.99	625544.82	602131.92	32°39'18.034"N	104°03'35.006"W	9.44
8219.00	98.300	348.500	7985.34	300.21	292.65	-110.71	625530.10	602192.72	32°39'18.636"N	104°03'35.176"W	8.75
8282.00	100.800	354.700	7974.88	362.14	354.07	-119.80	625521.01	602254.14	32°39'19.244"N	104°03'35.281"W	10.48
8346.00	100.700	355.400	7962.94	425.01	416.71	-125.22	625515.59	602316.78	32°39'19.864"N	104°03'35.342"W	1.09
8409.00	99.200	356.500	7952.06	487.06	478.61	-129.60	625511.21	602378.67	32°39'20.477"N	104°03'35.391"W	2.94
8440.00	96.900	357.500	7947.72	517.75	509.26	-131.21	625509.60	602409.31	32°39'20.780"N	104°03'35.409"W	8.08
8472.00	94.700	358.800	7944.48	549.55	541.07	-132.23	625508.58	602441.13	32°39'21.095"N	104°03'35.420"W	7.97
8504.00	91.100	359.500	7942.87	581.44	573.03	-132.71	625508.10	602473.08	32°39'21.411"N	104°03'35.425"W	11.46
8535.00	91.200	0.000	7942.24	612.36	604.02	-132.84	625507.97	602504.07	32°39'21.718"N	104°03'35.426"W	1.64
8567.00	91.100	359.000	7941.60	644.28	636.01	-133.12	625507.69	602536.06	32°39'22.034"N	104°03'35.428"W	3.14
8599.00	91.100	359.400	7940.99	676.21	668.00	-133.57	625507.24	602568.04	32°39'22.351"N	104°03'35.432"W	1.25
8662.00	91.400	359.500	7939.61	739.06	730.98	-134.17	625506.64	602631.02	32°39'22.974"N	104°03'35.437"W	0.50
8725.00	91.000	358.800	7938.29	801.93	793.96	-135.11	625505.70	602693.99	32°39'23.597"N	104°03'35.446"W	1.28
8789.00	91.200	359.200	7937.06	865.80	857.94	-136.23	625504.59	602757.97	32°39'24.230"N	104°03'35.458"W	0.70
8851.00	91.100	359.200	7935.82	927.67	919.92	-137.09	625503.72	602819.94	32°39'24.843"N	104°03'35.466"W	0.16
8915.00	91.300	0.300	7934.48	991.49	983.91	-137.37	625503.44	602883.92	32°39'25.477"N	104°03'35.467"W	1.75
8978.00	91.100	358.700	7933.16	1054.34	1046.89	-137.92	625502.89	602946.90	32°39'26.100"N	104°03'35.472"W	2.56
9041.00	90.900	358.800	7932.06	1117.23	1109.86	-139.29	625501.52	603009.87	32°39'26.723"N	104°03'35.486"W	0.35
9105.00	90.800	358.600	7931.11	1181.14	1173.84	-140.75	625500.07	603073.84	32°39'27.356"N	104°03'35.501"W	0.35
9168.00	90.600	358.100	7930.34	1244.06	1236.81	-142.56	625498.25	603136.80	32°39'27.979"N	104°03'35.520"W	0.85
9232.00	90.300	359.800	7929.84	1307.95	1300.79	-143.73	625497.08	603200.78	32°39'28.612"N	104°03'35.532"W	2.70
9295.00	90.400	357.800	7929.45	1370.85	1363.78	-145.05	625495.76	603263.76	32°39'29.235"N	104°03'35.546"W	3.18
9358.00	90.300	357.400	7929.07	1433.81	1426.72	-147.69	625493.12	603326.70	32°39'29.858"N	104°03'35.574"W	0.65
9421.00	90.300	357.700	7928.74	1496.78	1489.66	-150.38	625490.43	603389.63	32°39'30.481"N	104°03'35.604"W	0.48
9485.00	90.300	357.600	7928.40	1560.74	1553.61	-153.01	625487.81	603453.57	32°39'31.114"N	104°03'35.633"W	0.16
9548.00	90.100	357.100	7928.18	1623.71	1616.54	-155.92	625484.89	603516.50	32°39'31.737"N	104°03'35.665"W	0.85
9611.00	89.800	356.900	7928.24	1686.69	1679.45	-159.22	625481.60	603579.41	32°39'32.359"N	104°03'35.702"W	0.57
9674.00	90.500	356.900	7928.07	1749.67	1742.36	-162.62	625478.19	603642.31	32°39'32.982"N	104°03'35.740"W	1.11
9738.00	90.800	358.000	7927.35	1813.64	1806.29	-165.47	625475.34	603706.24	32°39'33.614"N	104°03'35.771"W	1.78
9801.00	90.900	357.600	7926.41	1876.59	1869.24	-167.89	625472.93	603769.18	32°39'34.237"N	104°03'35.797"W	0.65



Actual Wellpath Report

No. 4H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Parkway) Sec 15, T19S, R29E	Wellbore	No. 4H AWB
Facility	Parkway State Com No. 4H		

WELLPATH DATA (164 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]
9864.00	90.700	357.000	7925.53	1939.55	1932.16	-170.86	625469.96	603832.10	32°39'34.860"N	104°03'35.830"W	1.00
9927.00	90.900	354.700	7924.65	2002.54	1994.98	-175.41	625465.40	603894.92	32°39'35.482"N	104°03'35.882"W	3.66
9991.00	90.900	358.100	7923.65	2066.52	2058.84	-179.43	625461.38	603958.77	32°39'36.113"N	104°03'35.927"W	5.31
10054.00	90.800	357.600	7922.71	2129.47	2121.79	-181.80	625459.02	604021.71	32°39'36.736"N	104°03'35.952"W	0.81
10117.00	90.500	357.400	7922.00	2192.43	2184.73	-184.54	625456.27	604084.64	32°39'37.359"N	104°03'35.983"W	0.57
10181.00	90.400	357.300	7921.50	2256.40	2248.65	-187.50	625453.31	604148.56	32°39'37.992"N	104°03'36.015"W	0.22
10244.00	90.700	356.900	7920.89	2319.38	2311.57	-190.69	625450.13	604211.47	32°39'38.614"N	104°03'36.051"W	0.79
10307.00	90.300	356.600	7920.34	2382.36	2374.47	-194.26	625446.56	604274.37	32°39'39.237"N	104°03'36.091"W	0.79
10371.00	90.300	356.700	7920.01	2446.35	2438.36	-198.00	625442.82	604338.25	32°39'39.869"N	104°03'36.132"W	0.16
10434.00	90.300	356.500	7919.68	2509.34	2501.24	-201.74	625439.08	604401.93	32°39'40.491"N	104°03'36.174"W	0.32
10498.00	90.000	356.500	7919.51	2573.33	2565.13	-205.64	625435.17	604465.01	32°39'41.124"N	104°03'36.218"W	0.47
10561.00	89.700	356.000	7919.67	2636.33	2627.99	-209.76	625431.05	604527.87	32°39'41.746"N	104°03'36.264"W	0.93
10624.00	89.400	356.000	7920.17	2699.33	2690.83	-214.16	625426.66	604590.71	32°39'42.368"N	104°03'36.314"W	0.48
10688.00	90.300	356.400	7920.34	2763.32	2754.69	-218.40	625422.42	604654.56	32°39'42.999"N	104°03'36.362"W	1.54
10751.00	90.300	356.500	7920.01	2826.32	2817.57	-222.30	625418.52	604717.43	32°39'43.622"N	104°03'36.405"W	0.16
10814.00	90.000	356.400	7919.84	2889.31	2880.45	-226.20	625414.62	604780.31	32°39'44.244"N	104°03'36.449"W	0.50
10877.00	89.900	356.300	7919.90	2952.30	2943.32	-230.21	625410.61	604843.17	32°39'44.866"N	104°03'36.494"W	0.22
10941.00	90.000	357.200	7919.95	3016.29	3007.22	-233.84	625406.98	604907.06	32°39'45.498"N	104°03'36.535"W	1.41
11004.00	90.400	357.000	7919.73	3079.27	3070.14	-237.03	625403.79	604969.98	32°39'46.121"N	104°03'36.570"W	0.71
11067.00	90.700	356.500	7919.13	3142.26	3133.03	-240.60	625400.22	605032.87	32°39'46.744"N	104°03'36.610"W	0.93
11131.00	91.100	355.900	7918.12	3206.25	3196.88	-244.84	625395.98	605096.71	32°39'47.375"N	104°03'36.658"W	1.13
11194.00	90.300	355.400	7917.35	3269.24	3259.70	-249.62	625391.20	605159.52	32°39'47.997"N	104°03'36.712"W	1.50
11256.00	89.900	356.000	7917.25	3331.24	3321.52	-254.27	625386.55	605221.34	32°39'48.609"N	104°03'36.764"W	1.16
11319.00	89.800	354.300	7917.41	3394.23	3384.29	-259.59	625381.23	605284.11	32°39'49.230"N	104°03'36.824"W	2.70
11382.00	91.400	354.100	7916.75	3457.21	3446.97	-265.96	625374.86	605346.77	32°39'49.850"N	104°03'36.897"W	2.56
11445.00	92.100	354.500	7914.83	3520.16	3509.62	-272.21	625368.61	605409.43	32°39'50.470"N	104°03'36.968"W	1.28
11509.00	93.200	353.700	7911.87	3584.07	3573.22	-278.79	625362.04	605473.01	32°39'51.100"N	104°03'37.043"W	2.12
11572.00	93.200	353.300	7908.35	3646.93	3635.71	-285.91	625354.92	605535.50	32°39'51.718"N	104°03'37.125"W	0.63
11634.00	91.900	353.900	7905.59	3708.82	3697.26	-292.81	625348.01	605597.05	32°39'52.328"N	104°03'37.204"W	2.31
11699.00	92.700	353.000	7902.98	3773.72	3761.79	-300.22	625340.61	605661.57	32°39'52.966"N	104°03'37.288"W	1.85



Actual Wellpath Report

No. 4H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Parkway) Sec 15, T19S, R29E	Wellbore	No. 4H AWB
Facility	Parkway State Com No. 4H		

WELLPATH DATA (164 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]
11762.00	92.700	352.900	7900.02	3836.58	3824.24	-307.94	625332.88	605724.02	32°39'53.584"N	104°03'37.377"W	0.16
11825.00	92.800	353.400	7896.99	3899.45	3886.72	-315.45	625325.38	605786.49	32°39'54.203"N	104°03'37.463"W	0.81
11889.00	93.000	353.500	7893.76	3963.32	3950.22	-322.74	625318.09	605849.98	32°39'54.831"N	104°03'37.546"W	0.35
11952.00	91.200	352.800	7891.45	4026.22	4012.72	-330.25	625310.58	605912.48	32°39'55.450"N	104°03'37.632"W	3.07
12015.00	90.700	352.500	7890.40	4089.12	4075.20	-338.31	625302.52	605974.95	32°39'56.068"N	104°03'37.724"W	0.93
12079.00	90.500	352.400	7889.73	4153.02	4138.64	-346.71	625294.12	606038.39	32°39'56.696"N	104°03'37.821"W	0.35
12142.00	90.200	352.300	7889.35	4215.91	4201.08	-355.10	625285.73	606100.82	32°39'57.314"N	104°03'37.917"W	0.50
12205.00	90.200	352.300	7889.13	4278.80	4263.51	-363.54	625277.29	606163.25	32°39'57.932"N	104°03'38.014"W	0.00
12269.00	90.100	352.100	7888.96	4342.69	4326.92	-372.23	625268.60	606226.65	32°39'58.560"N	104°03'38.114"W	0.35
12332.00	89.800	352.200	7889.01	4405.57	4389.33	-380.83	625260.00	606289.05	32°39'59.177"N	104°03'38.212"W	0.50
12395.00	89.700	352.600	7889.29	4468.47	4451.77	-389.16	625251.67	606351.50	32°39'59.795"N	104°03'38.308"W	0.65
12458.00	90.200	353.300	7889.34	4531.40	4514.30	-396.90	625243.94	606414.01	32°40'00.414"N	104°03'38.397"W	1.37
12502.00	89.800	353.500	7889.34	4575.36	4558.00	-401.95	625238.88	606457.72	32°40'00.847"N	104°03'38.454"W	1.02
12552.00	89.800	353.500	7889.52	4625.33	4607.68	-407.61	625233.22	606507.39	32°40'01.339"N	104°03'38.519"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. 4H PBHL		7864.00	4625.71	-352.04	625288.79	606525.42	32°40'01.516"N	104°03'37.869"W	point	

WELLPATH COMPOSITION					Ref Wellbore: No. 4H AWB	Ref Wellpath: No. 4H AWP
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment	Wellbore
0.00	7568.00	Generic gyro - continuous (Standard)			GYRO <100 - 7568>	No. 4H AWB
7568.00	12502.00	NaviTrak (Standard)			MWD <7748 - 12502>	No. 4H AWB
12502.00	12552.00	Blind Drilling (std)			Projection to bit	No. 4H AWB

TOP OF GUNDEON 7500

10 STAGE DOWN HOLE WELL PROFILE

WELL NAME	PARKWAY STATE COM #4H	DATE	3/30/10
SUPERVISOR	GARY HUTCHINGS	TOOL HAND	VICTOR SAUCEDO
PHONE #	303-285-5925	PHONE #	432-425-7995
RIG #	Key #881 432 208-3080	FIELD TICKET #	5446

ELEVATIONS

GL ELEV	KB ELEV	RIG KBD	TVD
X	X	0	9321.00
CASING / OPEN HOLE LAYOUT	OD (IN)	LANDED DEPTH	WEIGHT (LB/FT)
7	7	7700.00	26
WINDOW DESCRIPTION	6 1/8		0
OPEN HOLE DESCRIPTION	6 1/8	12552.00	9,055.00
		JUNCTION @	9655.00

DESCRIPTION

*****PUMP OUT PLUG BLEW OUT @ 3250 PSI*****

Liner Placement Schematic

DOWNHOLE DESCRIPTION FROM BOTTOM UP

BOTTOM @	DESCRIPTION	LENGTH	ID	OD
12260.00	Peak Pump-Out Circ Sub Floated w/ 3-1/2" euc box 1	0.83	2.990	4.550
12259.17	Swedge w/ 3-1/2" euc pin x 4-1/2" LTC collar	1.01	2.990	5.030
12258.16	2 Jts 4-1/2" LTC 11.6# P-110 Casing J# 1-2	91.84	4.000	4.500
12166.52	4-1/2" LTC pin x 4-1/2" LTC collar 11.6# P-110 pup jl.	2.10	4.000	4.500
12164.42	Peak Rot Centralizer 4-1/2" LTC pin x collar	0.58	3.995	5.940
12163.84	Peak Hydro Pak Anchor 4-1/2" LTC box x pin 2	4.30	3.992	5.890
12159.54	4-1/2" LTC collar x 4-1/2" LTC pin 11.6# P-110 pup jl.	6.09	4.000	4.500
12153.45	3 Jts 4-1/2" LTC 11.6# P-110 Casing J# 3-5	137.15	4.000	4.500
12016.30	4-1/2" LTC pin x 4-1/2" LTC collar 11.6# P-110 pup jl.	2.10	4.000	4.500
12014.20	Peak Rot Centralizer 4-1/2" LTC pin x collar	0.60	3.995	5.940
12013.60	Peak Iso-Pak II 4-1/2" LTC pin x pin 3	6.67	3.996	5.690
12006.93	4-1/2" LTC collar x 4-1/2" LTC collar 11.6# P-110 pup jl.	6.10	4.000	4.500
12000.83	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 6-10	230.01	4.000	4.500
11770.82	Strata-Port III Ball Activated Frac Sleeve 2.5313" id 4	3.57	2.531	5.875
11767.25	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 11-15	226.10	4.000	4.500
11541.16	4-1/2" LTC pin x 4-1/2" LTC collar 11.6# P-110 pup jl.	2.10	4.000	4.500
11539.05	Peak Rot Centralizer 4-1/2" LTC pin x collar	0.60	3.995	5.940
11538.45	Peak Iso-Pak II 4-1/2" LTC pin x pin 5	6.67	3.996	5.690
11531.78	4-1/2" LTC collar x 4-1/2" LTC collar 11.6# P-110 pup jl.	6.10	4.000	4.500
11525.68	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 16-20	227.82	4.000	4.500
11297.86	Strata-Port III Ball Activated Frac Sleeve 2.656" id 6	3.57	2.656	5.875
11294.29	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 21-25	226.97	4.000	4.500
11067.32	4-1/2" LTC pin x 4-1/2" LTC collar 11.6# P-110 pup jl.	2.10	4.000	4.500
11065.22	Peak Rot Centralizer 4-1/2" LTC pin x collar	0.60	3.995	5.940
11064.62	Peak Iso-Pak II 4-1/2" LTC pin x pin 7	6.67	3.996	5.690
11057.95	4-1/2" LTC collar x 4-1/2" LTC collar 11.6# P-110 pup jl.	6.10	4.000	4.500
11051.85	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 26-30	229.00	4.000	4.500
10822.85	Strata-Port III Ball Activated Frac Sleeve 2.781" id 8	3.57	2.781	5.875
10819.28	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 31-35	226.55	4.000	4.500
10592.73	4-1/2" LTC pin x 4-1/2" LTC collar 11.6# P-110 pup jl.	2.10	4.000	4.500
10590.63	Peak Rot Centralizer 4-1/2" LTC pin x collar	0.60	3.995	5.940
10590.03	Peak Iso-Pak II 4-1/2" LTC pin x pin 9	6.67	3.996	5.690
10583.36	4-1/2" LTC collar x 4-1/2" LTC collar 11.6# P-110 pup jl.	6.10	4.000	4.500
10577.26	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 36-40	226.98	4.000	4.500
10360.28	Strata-Port III Ball Activated Frac Sleeve 3.0313" id 10	3.57	3.031	5.875
10346.71	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 41-45	231.34	4.000	4.500
10115.37	4-1/2" LTC pin x 4-1/2" LTC collar 11.6# P-110 pup jl.	2.10	4.000	4.500
10113.27	Peak Rot Centralizer 4-1/2" LTC pin x collar	0.60	3.995	5.940
10112.67	Peak Iso-Pak II 4-1/2" LTC pin x pin 11	6.67	3.996	5.690
10106.00	4-1/2" LTC collar x 4-1/2" LTC collar 11.6# P-110 pup jl.	6.10	4.000	4.500
10099.90	5 Jts 4-1/2" LTC 11.6# P-110 Casing J# 46-50	230.00	4.000	4.500
9871.06	Strata-Port III Ball Activated Frac Sleeve	3.156	5.875	
9867.49	5 Jts 4-1/2" LTC 11.6# P-110 Casing	4.000	4.500	
9635.70	4-1/2" LTC pin x 4-1/2" LTC collar	4.000	4.500	
9633.60	Peak Rot Centralizer 4-1/2" LTC pin x collar	1.995	5.940	
9633.00	Peak Iso-Pak II 4-1/2" LTC pin x pin	1.996	5.690	
9626.33	4-1/2" LTC collar	4.000	4.500	
9620.23	5 Jts 4-1/2" LTC	4.000	4.500	
9398.71	Strata-Port	5.875		
9395.14	5 Jts	1.500		
9165.89		4.500		
9163.59		?		
9162.90				
91*				

Strata Port #9 w/ 3.656" ID
@ 8208' Shear press: 2051
psig Use 3.75" ball

ISO PAK II Open Hole
Packer #9 @ 8352'

Strata Port #8 w/ 3.563" ID
@ 8541' Shear press: 2051
psig Use 3.625" ball

ISO PAK II Open Hole
Packer #8 @ 8692'

Strata Port #7 w/ 3.40" ID
@ 8927' Shear press: 2051
psig Use 3.50" ball

ISO PAK II Open Hole
Packer #7 @ 9162'

Strata Port #6 w/ 3.281" ID
@ 9398' Shear press: 2051
psig Use 3.375" ball

ISO PAK II Open Hole
Packer #6 @ 9633'

Strata Port #5 w/ 3.156" ID
@ 9871' Shear press: 2051
psig Use 3.25" ball

ISO PAK II Open Hole
Packer #5 @ 10112'

Strata Port #4 w/ 3.031" ID
@ 10350' Shear press: 2051
psig Use 3.125" ball

ISO PAK II Open Hole
Packer #4 @ 9217'

Strata Port #3 w/ 2.781" ID
@ 10590' Shear press: 2051
psig Use 2.875" ball

ISO PAK II Open Hole
Packer #3