EQT Production - Marcellus

Doddridge County, WV Grid
Doddridge County 512481
Well #512481

512481 Sidetrack

Survey: Surveys

Standard Survey Report

16 August, 2010

Nevis Energy Services
Survey Report

Database:	[redacted]	Local Co-ordinate Reference:	[redacted]
Company:	[redacted]	TVD Reference:	[redacted]
Project:	[redacted]	MD Reference:	[redacted]
Site:	[redacted]	North Reference:	[redacted]
Well:	[redacted]	Survey Calculation Method:	[redacted]
Wellbore:	[redacted]		
Design:	[redacted]		

Project [redacted]

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site [redacted]

Site Position:		**Northing:**	265,362.00 ft	**Latitude:**	39.22
From:	Map	**Easting:**	1,631,437.00 ft	**Longitude:**	-80.80
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	-0.83 °

Well [redacted]

Well Position	**+N/-S**	0.0 ft	**Northing:**	265,362.00 ft	**Latitude:**	39° 13' 16.495 N
	+E/-W	0.0 ft	**Easting:**	1,631,437.00 ft	**Longitude:**	80° 48' 3.350 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	0.0 ft

Wellbore [redacted]

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/4/2010	-8.28	67.13	52,745

Design [redacted]

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	4,800.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	180.72

Survey Program Date 8/16/2010

From ()	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	4,800.0	Gyro (Well #512481)	WLST	
0.00	9,714.0	Surveys (512481 Sidetrack)	WLST	

Survey [redacted]

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
[redacted]										
4,800.0	1.33	309.60	4,799.5	4,799.5	-12.8	-18.0	13.1	0.00	0.00	0.00
4,851.0	1.40	291.90	4,850.5	4,850.5	-12.2	-19.1	12.5	0.83	0.14	-34.71
4,883.0	1.50	293.60	4,882.5	4,882.5	-11.9	-19.8	12.2	0.34	0.31	5.31
4,913.0	1.40	288.50	4,912.5	4,912.5	-11.6	-20.5	11.9	0.54	-0.33	-17.00
4,945.0	3.60	279.70	4,944.4	4,944.4	-11.3	-21.9	11.6	6.96	6.88	-27.50
4,976.0	8.20	280.60	4,975.3	4,975.3	-10.8	-25.0	11.1	14.84	14.84	2.90
5,007.0	13.80	288.90	5,005.7	5,005.7	-9.2	-30.7	9.6	18.73	18.06	26.77

05/13/2011

Nevis Energy Services
Survey Report

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Project:	[illegible]	MD Reference:	[illegible]
Site:	[illegible]	North Reference:	[illegible]
Well:	[illegible]	Survey Calculation Method:	[illegible]
Wellbore:	[illegible]		
Design:	[illegible]		

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,039.0	14.90	289.60	5,036.7	5,036.7	-6.6	-38.2	7.0	3.48	3.44	2.19
5,070.0	13.90	286.90	5,066.7	5,066.7	-4.1	-45.5	4.7	3.88	-3.23	-8.71
5,102.0	11.70	273.90	5,097.9	5,097.9	-2.8	-52.4	3.5	11.29	-6.88	-40.63
5,133.0	11.20	271.50	5,128.3	5,128.3	-2.5	-58.6	3.2	2.23	-1.61	-7.74
5,164.0	10.50	277.10	5,158.8	5,158.8	-2.1	-64.4	2.9	4.08	-2.26	18.06
5,195.0	10.20	288.70	5,189.3	5,189.3	-0.8	-69.8	1.7	6.78	-0.97	37.42
5,226.0	9.80	288.30	5,219.8	5,219.8	0.9	-74.9	0.1	1.31	-1.29	-1.29
5,257.0	9.80	284.30	5,250.3	5,250.3	2.3	-80.0	-1.3	2.20	0.00	-12.90
5,288.0	9.60	280.30	5,280.9	5,280.9	3.5	-85.1	-2.4	2.27	-0.65	-12.90
5,320.0	8.90	274.30	5,312.5	5,312.5	4.1	-90.1	-3.0	3.72	-2.19	-18.75
5,351.0	7.40	270.90	5,343.2	5,343.2	4.3	-94.5	-3.1	5.08	-4.84	-10.97
5,383.0	7.70	274.50	5,374.9	5,374.9	4.5	-98.7	-3.3	1.75	0.94	11.25
5,414.0	10.30	290.80	5,405.5	5,405.5	5.7	-103.4	-4.4	11.67	8.39	52.58
5,446.0	10.50	288.70	5,437.0	5,437.0	7.6	-108.8	-6.3	1.34	0.63	-6.56
5,478.0	10.00	283.20	5,468.5	5,468.5	9.2	-114.3	-7.8	3.43	-1.56	-17.19
5,509.0	12.80	292.50	5,498.9	5,498.9	11.1	-120.1	-9.6	10.78	9.03	30.00
5,540.0	16.50	301.50	5,528.8	5,528.8	14.7	-127.0	-13.1	13.98	11.94	29.03
5,572.0	20.10	303.30	5,559.2	5,559.2	20.1	-135.5	-18.4	11.39	11.25	5.63
5,598.0	22.00	301.90	5,583.5	5,583.5	25.2	-143.4	-23.4	7.56	7.31	-5.38
5,635.0	25.70	299.80	5,617.3	5,617.3	32.8	-156.2	-30.9	10.26	10.00	-5.68
5,667.0	29.00	299.20	5,645.7	5,645.7	40.1	-169.0	-37.9	10.35	10.31	-1.88
5,698.0	32.50	299.90	5,672.4	5,672.4	47.9	-182.8	-45.6	11.35	11.29	2.26
5,729.0	34.70	301.90	5,698.2	5,698.2	56.7	-197.5	-54.2	7.94	7.10	6.45
5,760.0	38.00	304.10	5,723.2	5,723.2	66.7	-212.9	-64.0	11.44	10.65	7.10
5,792.0	41.30	303.50	5,747.8	5,747.8	78.1	-229.9	-75.2	10.38	10.31	-1.88
5,823.0	43.80	301.90	5,770.6	5,770.6	89.4	-247.5	-86.3	8.79	8.06	-5.16
5,854.0	47.00	301.70	5,792.4	5,792.4	101.0	-266.3	-97.7	10.33	10.32	-0.65
5,886.0	49.70	302.60	5,813.7	5,813.7	113.7	-286.5	-110.1	8.70	8.44	2.81
5,917.0	52.20	304.10	5,833.2	5,833.2	127.0	-306.6	-123.1	8.90	8.06	4.84
5,949.0	54.30	304.30	5,852.3	5,852.3	141.4	-327.8	-137.3	6.58	6.56	0.63
5,981.0	56.00	302.40	5,870.6	5,870.6	155.8	-349.8	-151.4	7.21	5.31	-5.94
6,012.0	58.40	301.20	5,887.4	5,887.4	169.5	-371.9	-164.9	8.40	7.74	-3.87
6,044.0	58.60	301.30	5,904.1	5,904.1	183.7	-395.2	-178.7	0.68	0.63	0.31
6,075.0	58.50	300.80	5,920.3	5,920.3	197.3	-417.9	-192.1	1.41	-0.32	-1.61
6,107.0	58.00	298.00	5,937.2	5,937.2	210.7	-441.6	-205.1	7.60	-1.56	-8.75
6,139.0	57.50	294.70	5,954.2	5,954.2	222.7	-465.8	-216.8	8.86	-1.56	-10.31
6,170.0	56.80	290.80	5,971.1	5,971.1	232.8	-489.8	-226.6	10.81	-2.26	-12.58
6,201.0	55.20	289.20	5,988.4	5,988.4	241.6	-514.0	-235.1	6.70	-5.16	-5.16
6,232.0	54.00	287.30	6,006.3	6,006.3	249.5	-538.0	-242.7	6.32	-3.87	-6.13
6,264.0	52.60	284.60	6,025.5	6,025.5	256.5	-562.6	-249.4	8.06	-4.38	-8.44
6,296.0	51.30	282.50	6,045.2	6,045.2	262.4	-587.1	-255.0	6.57	-4.06	-6.56
6,327.0	49.60	281.00	6,064.9	6,064.9	267.3	-610.5	-259.6	6.63	-5.48	-4.84
6,359.0	47.10	278.00	6,086.2	6,086.2	271.3	-634.1	-263.3	10.49	-7.81	-9.38

Nevis Energy Services

Survey Report

Database:	[redacted]	Local Co-ordinate Reference:	[redacted]
Company:	[redacted]	TVD Reference:	[redacted]
Project:	[redacted]	MD Reference:	[redacted]
Site:	[redacted]	North Reference:	[redacted]
Well:	[redacted]	Survey Calculation Method:	[redacted]
Wellbore:	[redacted]		
Design:	[redacted]		

Survey [redacted]

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,390.0	46.00	273.20	6,107.5	6,107.5	273.5	-656.5	-265.2	11.79	-3.55	-15.48
6,422.0	46.90	271.50	6,129.6	6,129.6	274.4	-679.7	-265.9	4.77	2.81	-5.31
6,453.0	45.30	268.30	6,151.1	6,151.1	274.4	-702.0	-265.6	9.05	-5.16	-10.32
6,484.0	43.70	264.80	6,173.2	6,173.2	273.1	-723.7	-264.0	9.45	-5.16	-11.29
6,516.0	45.20	262.10	6,196.0	6,196.0	270.5	-745.9	-261.1	7.54	4.69	-8.44
6,548.0	47.00	260.60	6,218.2	6,218.2	267.1	-768.7	-257.4	6.56	5.63	-4.69
6,580.0	46.90	257.60	6,240.1	6,240.1	262.6	-791.7	-252.7	6.86	-0.31	-9.38
6,612.0	48.50	253.90	6,261.6	6,261.6	256.8	-814.6	-246.6	9.90	5.00	-11.56
6,644.0	50.60	249.10	6,282.4	6,282.4	249.1	-837.7	-238.5	13.16	6.56	-15.00
6,676.0	52.60	244.70	6,302.3	6,302.3	239.2	-860.7	-228.4	12.45	6.25	-13.75
6,708.0	52.20	239.80	6,321.8	6,321.8	227.4	-883.2	-216.3	12.19	-1.25	-15.31
6,739.0	51.70	235.10	6,340.9	6,340.9	214.3	-903.7	-202.9	12.05	-1.61	-15.16
6,770.0	50.10	230.90	6,360.5	6,360.5	199.8	-922.9	-188.2	11.71	-5.16	-13.55
6,802.0	49.20	228.20	6,381.2	6,381.2	184.0	-941.5	-172.2	7.02	-2.81	-8.44
6,833.0	48.10	222.80	6,401.7	6,401.7	167.7	-958.1	-155.7	13.55	-3.55	-17.42
6,864.0	47.30	218.40	6,422.5	6,422.5	150.3	-973.0	-138.1	10.81	-2.58	-14.19
6,896.0	48.50	213.10	6,444.0	6,444.0	131.1	-986.9	-118.7	12.85	3.75	-16.56
6,927.0	50.30	209.80	6,464.2	6,464.2	111.0	-999.1	-98.4	9.95	5.81	-10.65
6,959.0	52.20	205.90	6,484.2	6,484.2	88.9	-1,010.8	-76.2	11.21	5.94	-12.19
6,991.0	53.00	202.00	6,503.7	6,503.7	65.7	-1,021.1	-52.9	10.00	2.50	-12.19
7,023.0	55.20	198.90	6,522.4	6,522.4	41.4	-1,030.1	-28.5	10.43	6.88	-9.69
7,055.0	57.30	196.00	6,540.2	6,540.2	16.0	-1,038.1	-3.0	9.99	6.56	-9.06
7,087.0	59.00	191.30	6,557.1	6,557.1	-10.4	-1,044.5	23.5	13.56	5.31	-14.69
7,118.0	60.00	187.40	6,572.8	6,572.8	-36.7	-1,048.8	49.9	11.31	3.23	-12.58
7,150.0	60.10	184.30	6,588.8	6,588.8	-64.3	-1,051.7	77.5	8.40	0.31	-9.69
7,181.0	60.90	180.10	6,604.1	6,604.1	-91.2	-1,052.7	104.5	12.07	2.58	-13.55
7,213.0	62.30	176.90	6,619.3	6,619.3	-119.4	-1,052.0	132.6	9.82	4.38	-10.00
7,244.0	64.20	174.40	6,633.3	6,633.3	-147.0	-1,049.9	160.2	9.46	6.13	-8.06
7,276.0	64.50	172.00	6,647.1	6,647.1	-175.6	-1,046.4	188.7	6.83	0.94	-7.50
7,307.0	65.90	169.20	6,660.1	6,660.1	-203.4	-1,041.8	216.4	9.36	4.52	-9.03
7,339.0	67.40	166.50	6,672.8	6,672.8	-232.1	-1,035.7	245.1	9.05	4.69	-8.44
7,371.0	68.20	163.20	6,684.9	6,684.9	-260.7	-1,027.9	273.6	9.87	2.50	-10.31
7,403.0	69.80	161.80	6,696.4	6,696.4	-289.2	-1,018.9	301.9	6.46	5.00	-4.38
7,434.0	71.70	163.40	6,706.6	6,706.6	-317.1	-1,010.2	329.8	7.83	6.13	5.16
7,466.0	73.40	164.20	6,716.2	6,716.2	-346.4	-1,001.7	359.0	5.82	5.31	2.50
7,498.0	76.30	163.20	6,724.5	6,724.5	-376.1	-993.0	388.5	9.55	9.06	-3.13
7,530.0	79.40	161.60	6,731.3	6,731.3	-405.9	-983.5	418.2	10.85	9.69	-5.00
7,562.0	83.00	161.10	6,736.2	6,736.2	-435.8	-973.4	448.0	11.36	11.25	-1.56
7,593.0	88.60	161.60	6,738.4	6,738.4	-465.1	-963.5	477.2	18.14	18.06	1.61
7,632.0	95.80	162.50	6,736.9	6,736.9	-502.2	-951.5	514.1	18.60	18.46	2.31
7,663.0	96.80	162.60	6,733.5	6,733.5	-531.5	-942.3	543.3	3.24	3.23	0.32
7,695.0	96.60	161.40	6,729.8	6,729.8	-561.8	-932.5	573.4	3.78	-0.63	-3.75

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Well:	[illegible]	Survey Calculation Method:	[illegible]
Wellbore:	[illegible]		
Design:	[illegible]		

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,727.0	96.30	160.50	6,726.2	6,726.2	-591.8	-922.1	603.4	2.95	-0.94	-2.81
7,758.0	95.10	160.40	6,723.1	6,723.1	-620.9	-911.8	632.3	3.88	-3.87	-0.32
7,789.0	94.00	159.80	6,720.7	6,720.7	-650.0	-901.3	661.2	4.04	-3.55	-1.94
7,853.0	91.40	158.60	6,717.7	6,717.7	-709.7	-878.6	720.7	4.47	-4.06	-1.88
7,916.0	90.80	157.70	6,716.4	6,716.4	-768.2	-855.1	778.9	1.72	-0.95	-1.43
7,980.0	91.50	157.60	6,715.2	6,715.2	-827.4	-830.8	837.7	1.10	1.09	-0.16
8,043.0	92.00	156.80	6,713.2	6,713.2	-885.4	-806.4	895.5	1.50	0.79	-1.27
8,105.0	92.40	156.50	6,710.9	6,710.9	-942.3	-781.8	952.0	0.81	0.65	-0.48
8,168.0	92.90	156.30	6,707.9	6,707.9	-999.9	-756.6	1,009.4	0.85	0.79	-0.32
8,231.0	92.50	153.70	6,705.0	6,705.0	-1,057.0	-730.0	1,066.1	4.17	-0.63	-4.13
8,295.0	92.90	153.20	6,702.0	6,702.0	-1,114.2	-701.5	1,122.9	1.00	0.63	-0.78
8,357.0	93.40	153.20	6,698.6	6,698.6	-1,169.4	-673.5	1,177.8	0.81	0.81	0.00
8,420.0	93.90	152.80	6,694.5	6,694.5	-1,225.4	-645.0	1,233.4	1.02	0.79	-0.63
8,483.0	92.70	153.30	6,690.9	6,690.9	-1,281.5	-616.5	1,289.2	2.06	-1.90	0.79
8,546.0	93.10	154.00	6,687.7	6,687.7	-1,337.9	-588.6	1,345.2	1.28	0.63	1.11
8,609.0	91.00	153.20	6,685.5	6,685.5	-1,394.3	-560.6	1,401.2	3.57	-3.33	-1.27
8,673.0	90.80	152.30	6,684.5	6,684.5	-1,451.2	-531.3	1,457.7	1.44	-0.31	-1.41
8,736.0	91.00	152.50	6,683.5	6,683.5	-1,507.0	-502.1	1,513.2	0.45	0.32	0.32
8,798.0	92.30	153.90	6,681.7	6,681.7	-1,562.3	-474.2	1,568.1	3.08	2.10	2.26
8,862.0	93.10	154.20	6,678.7	6,678.7	-1,619.8	-446.2	1,625.3	1.33	1.25	0.47
8,925.0	93.00	153.90	6,675.3	6,675.3	-1,676.4	-418.7	1,681.5	0.50	-0.16	-0.48
8,988.0	92.90	153.70	6,672.1	6,672.1	-1,732.8	-390.9	1,737.6	0.35	-0.16	-0.32
9,051.0	91.90	153.30	6,669.4	6,669.4	-1,789.1	-362.8	1,793.6	1.71	-1.59	-0.63
9,113.0	92.20	152.80	6,667.2	6,667.2	-1,844.4	-334.7	1,848.4	0.94	0.48	-0.81
9,177.0	91.70	153.20	6,665.1	6,665.1	-1,901.4	-305.7	1,905.1	1.00	-0.78	0.63
9,239.0	90.20	152.30	6,664.0	6,664.0	-1,956.5	-277.3	1,959.8	2.82	-2.42	-1.45
9,301.0	90.10	151.90	6,663.9	6,663.9	-2,011.3	-248.3	2,014.2	0.67	-0.16	-0.65
9,364.0	90.00	151.80	6,663.8	6,663.8	-2,066.8	-218.6	2,069.4	0.22	-0.16	-0.16
9,427.0	90.30	151.60	6,663.6	6,663.6	-2,122.3	-188.7	2,124.5	0.57	0.48	-0.32
9,491.0	91.30	152.50	6,662.8	6,662.8	-2,178.8	-158.7	2,180.6	2.10	1.56	1.41
9,554.0	92.20	153.50	6,660.8	6,660.8	-2,234.9	-130.1	2,236.4	2.13	1.43	1.59
9,618.0	92.30	152.80	6,658.3	6,658.3	-2,292.0	-101.2	2,293.1	1.10	0.16	-1.09
9,650.0	91.90	152.10	6,657.1	6,657.1	-2,320.3	-86.4	2,321.2	2.52	-1.25	-2.19
[illegible]										
9,714.0	91.90	152.10	6,655.0	6,655.0	-2,376.9	-56.5	2,377.4	0.00	0.00	0.00

Survey Annotations

Measured Depth ()	Vertical Depth ()	Local Coordinates +N/-S ()	Local Coordinates +E/-W ()	Comment
4,800.0	4,799.5	-12.8	-18.0	Tie-In @ 4800ft
9,714.0	6,655.0	-2,376.9	-56.5	Ext. to TD = 9714ft

05/13/2011

Nevis Energy Services

Survey Report

Database:	[illegible]	Local Co-ordinate Reference:	[illegible]
Company:	[illegible]	TVD Reference:	[illegible]
Project:	[illegible]	MD Reference:	[illegible]
Site:	[illegible]	North Reference:	[illegible]
Well:	[illegible]	Survey Calculation Method:	[illegible]
Wellbore:	[illegible]		
Design:	[illegible]		

Checked By: ______________ Approved By: ______________ Date: ______________