



PHOENIX
TECHNOLOGY SERVICES USA INC.

EQT Production - Marcellus

Wetzel County, WV
Wetzel County 513827
Well #513827

Main Wellbore

Survey: Surveys (Curve / Lateral)

Standard Survey Report

16 October, 2012

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WV Department of Environmental Protection

Database:	Local Company Dp	Local Co-ordinate Reference:	US State Plane 1927
Company:	DOT Programs - Minerals	TVD Reference:	MSL @ 078.0usft
Project:	Indian County, Wv	MD Reference:	MSL @ 078.0usft
Site:	Indian County 313801	North Reference:	Local
Well:	WV #11397	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	Standard Surveys		

Project:	Indian County, Wv		
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:	Indian County 313801		
Site Position:		Northing:	387,979.00 usft
From:	Map	Easting:	1,701,101.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39.56
		Longitude:	-80.56
		Grid Convergence:	-0.68 °

Well:	WV #11397					
Well Position	+N/-S	0.0 usft	Northing:	387,979.00 usft	Latitude:	39° 33' 37.393 N
	+E/-W	0.0 usft	Easting:	1,701,101.00 usft	Longitude:	80° 33' 36.604 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	859.0 usft

Wellbore:	Main Wellbore				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010_14	12/22/2011	(°)	(°)	(nT)
			-6.59	67.23	52,712

Design:	Standard Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	184.24	

Survey Program	Date: 10/15/2012			
From	To	Survey (Wellbore)	Tool Name	Description
()	(usft)			
0.00	3,216.0	Gyro (Main Wellbore)	GYD_DP_MS	Gyrodatta gyro-compassing and drop
0.00	11,395.0	Surveys (Curve / Lateral) (Main Wellbore)	MWD	MWD - Standard

Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,216.0	4.91	329.35	3,213.1	2,338.1	50.6	20.5	-52.0	0.00	0.00	0.00	
3,249.0	5.80	331.80	3,246.0	2,371.0	53.3	19.0	-54.6	2.7			
3,280.0	6.80	335.20	3,276.8	2,401.8	56.4	17.5	-57.5	3.44	3.23	10.87	
3,312.0	7.70	337.10	3,308.5	2,433.5	60.0	15.8	-61.1	2.9	2.81	9.94	
3,343.0	8.90	338.10	3,339.2	2,464.2	64.2	14.1	-65.1	3.90	3.87	3.23	
3,386.0	10.70	337.70	3,381.6	2,506.6	71.0	11.4	-71.6	4.19	4.19	-0.93	
3,418.0	11.40	336.90	3,413.0	2,538.0	76.6	9.0	-77.1	2.24	2.19	-2.50	

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Database:	Local Company DB	Local Co-ordinate Reference:	North Magnetic Declination: 11.50
Company:	ECI Production - Midwest	TVD Reference:	KD and @ 873.00ft
Project:	Wade County, WV	MD Reference:	KD and @ 873.00ft
Site:	Wade County, WV	North Reference:	Grid
Well:	Well #113012	Survey Calculation Method:	Minimum Curvature
Wellbore:	M&P Wellbore		
Design:	113012 Survey		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,449.0	12.70	332.20	3,443.3	2,568.3	82.5	6.2	-82.7	5.25	4.19	-15.16
3,481.0	12.80	323.90	3,474.5	2,589.5	88.4	2.5	-88.4	5.73	0.31	-25.84
3,512.0	12.80	312.20	3,504.8	2,629.8	93.5	-2.1	-93.1	8.35	0.00	-37.74
3,544.0	13.20	302.80	3,535.9	2,660.9	97.9	-7.8	-97.0	6.86	1.25	-30.00
3,575.0	13.00	297.60	3,566.1	2,691.1	101.4	-13.9	-100.1	3.71	-0.65	-16.13
3,607.0	12.70	295.40	3,597.3	2,722.3	104.6	-20.2	-102.8	1.79	-0.94	-6.88
3,639.0	13.60	294.90	3,628.5	2,753.5	107.7	-26.8	-105.4	2.83	2.81	-1.56
3,670.0	14.90	295.00	3,658.5	2,783.5	110.9	-33.7	-108.1	4.19	4.19	0.32
3,702.0	15.70	293.50	3,689.4	2,814.4	114.3	-41.4	-111.0	2.79	2.50	-4.69
3,733.0	16.40	291.30	3,719.2	2,844.2	117.6	-49.4	-113.6	2.99	2.26	-7.10
3,765.0	16.50	287.40	3,749.9	2,874.9	120.6	-57.9	-116.0	3.46	0.31	-12.19
3,797.0	16.60	284.30	3,780.6	2,905.6	123.1	-66.7	-117.8	2.78	0.31	-9.69
3,828.0	17.50	284.30	3,810.2	2,935.2	125.3	-75.5	-119.4	2.90	2.90	0.00
3,860.0	18.20	284.90	3,840.7	2,965.7	127.8	-85.0	-121.2	2.26	2.19	1.88
3,891.0	18.40	286.80	3,870.1	2,995.1	130.5	-94.3	-123.1	2.03	0.65	6.13
3,923.0	18.70	286.20	3,900.4	3,025.4	133.4	-104.1	-125.3	1.11	0.94	-1.88
3,954.0	20.10	286.30	3,929.7	3,054.7	136.2	-114.0	-127.4	4.52	4.52	0.32
3,986.0	22.10	288.00	3,959.5	3,084.5	139.6	-125.0	-130.0	6.54	6.25	5.31
4,018.0	23.00	287.40	3,989.1	3,114.1	143.4	-136.7	-132.9	2.90	2.81	-1.88
4,049.0	23.70	285.00	4,017.5	3,142.5	146.8	-148.5	-135.4	3.81	2.26	-7.74
4,081.0	24.80	281.60	4,046.7	3,171.7	149.8	-161.3	-137.5	5.55	3.44	-10.63
4,112.0	25.50	277.90	4,074.8	3,199.8	152.0	-174.2	-138.7	5.55	2.26	-11.94
4,144.0	26.30	274.00	4,103.6	3,228.6	153.5	-188.1	-139.1	5.88	2.50	-12.19
4,176.0	27.10	272.30	4,132.1	3,257.1	154.3	-202.5	-138.9	3.46	2.50	-5.31
4,207.0	28.20	269.60	4,159.6	3,284.6	154.5	-216.9	-138.0	5.38	3.55	-8.71
4,239.0	29.10	268.00	4,187.7	3,312.7	154.2	-232.2	-136.6	3.70	2.81	-5.00
4,270.0	30.00	266.10	4,214.7	3,339.7	153.4	-247.5	-134.6	4.19	2.90	-6.13
4,302.0	30.50	264.60	4,242.3	3,367.3	152.1	-263.5	-132.2	2.83	1.58	-4.69
4,333.0	31.20	263.90	4,268.9	3,393.9	150.5	-279.4	-129.4	2.54	2.26	-2.26
4,365.0	32.50	265.80	4,296.1	3,421.1	149.0	-296.2	-126.6	5.13	4.06	5.94
4,397.0	33.30	267.10	4,323.0	3,448.0	147.9	-313.5	-124.3	3.33	2.50	4.06
4,428.0	34.50	268.10	4,348.7	3,473.7	147.2	-330.8	-122.3	4.27	3.87	3.23
4,460.0	35.80	270.00	4,374.9	3,499.9	146.9	-349.2	-120.6	5.31	4.06	5.94
4,492.0	36.70	269.70	4,400.7	3,525.7	146.8	-368.1	-119.2	2.87	2.81	-0.94
4,523.0	36.30	269.00	4,425.8	3,550.8	146.6	-386.6	-117.6	1.88	-1.29	-2.26
4,556.0	35.00	269.40	4,476.8	3,601.8	146.1	-423.3	-114.4	1.88	0.63	0.63
4,649.0	34.70	271.40	4,528.5	3,653.5	146.3	-459.3	-112.0	1.88	0.63	0.63
4,713.0	35.00	272.80	4,581.0	3,706.0	147.7	-495.8	-110.6	1.88	0.63	0.63
4,776.0	35.50	271.90	4,632.5	3,757.5	149.2	-532.2	-109.4	3.37	3.02	-1.43
4,839.0	37.40	270.30	4,683.1	3,808.1	149.9	-569.6	-107.3	2.65	-1.75	-2.54
4,902.0	36.30	268.20	4,733.5	3,858.5	149.4	-607.3	-104.0	2.65	-1.75	-3.33
4,965.0	36.50	267.50	4,784.3	3,909.3	148.0	-644.7	-99.9	2.65	-1.75	-4.12
5,029.0	37.50	268.50	4,835.4	3,960.4	146.7	-683.2	-95.7	2.65	-1.75	-4.91

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Survey Report

Database:	Well Control In	Local Co-ordinate Reference:	Wellhead Survey
Company:	EQT Production / Minerals	TVD Reference:	Wellhead @ 1075.000ft
Project:	Well Control, WV	MD Reference:	Wellhead @ 1075.000ft
Site:	Well Control M 3022	North Reference:	True
Well:	Well #513521	Survey Calculation Method:	Minimum Curvature
Wellbore:	Well Wellbore		
Design:	33427 Survey		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,092.0	37.00	272.50	4,885.5	4,010.5	147.0	-721.3	-93.2	3.92	-0.79	6.35
5,155.0	37.00	272.70	4,935.8	4,060.8	148.7	-759.2	-92.1	0.19	0.00	0.32
5,218.0	37.40	274.20	4,986.0	4,111.0	151.0	-797.2	-91.6	1.57	0.63	2.38
5,281.0	37.40	274.20	5,036.1	4,161.1	153.8	-835.4	-91.6	0.00	0.00	0.00
5,344.0	37.50	271.90	5,086.1	4,211.1	155.8	-873.6	-90.8	2.23	0.16	-3.65
5,408.0	35.10	269.60	5,137.7	4,262.7	156.4	-911.5	-88.5	4.31	-3.75	-3.59
5,471.0	34.10	269.40	5,189.5	4,314.5	156.0	-947.3	-85.5	1.60	-1.59	-0.32
5,534.0	36.00	271.40	5,241.1	4,366.1	156.3	-983.4	-83.1	3.52	3.02	3.17
5,597.0	37.30	273.60	5,291.6	4,416.6	158.0	-1,021.0	-82.0	2.93	2.06	3.49
5,661.0	37.50	272.80	5,342.5	4,467.5	160.1	-1,059.8	-81.3	0.82	0.31	-1.25
5,724.0	37.90	271.70	5,392.3	4,517.3	161.6	-1,098.3	-79.9	1.24	0.63	-1.75
5,787.0	36.90	269.00	5,442.4	4,567.4	161.9	-1,136.6	-77.3	3.05	-1.59	-4.29
5,850.0	36.50	269.80	5,492.9	4,617.9	161.5	-1,174.2	-74.1	0.99	-0.63	1.27
5,913.0	36.50	269.60	5,543.5	4,668.5	161.3	-1,211.7	-71.2	0.19	0.00	-0.32
5,976.0	36.80	268.70	5,594.1	4,719.1	160.7	-1,249.3	-67.8	0.98	0.48	-1.43
6,039.0	37.00	267.60	5,644.5	4,769.5	159.5	-1,287.1	-63.8	1.10	0.32	-1.75
6,103.0	37.00	268.10	5,695.6	4,820.8	158.1	-1,325.6	-59.5	0.47	0.00	0.78
6,166.0	36.80	268.50	5,746.0	4,871.0	156.9	-1,363.4	-55.6	0.50	-0.32	0.63
6,228.0	37.80	269.10	5,795.3	4,920.3	156.2	-1,401.0	-52.0	1.72	1.61	0.97
6,291.0	38.80	267.20	5,844.7	4,969.7	154.9	-1,440.0	-47.9	2.45	1.59	-3.02
6,354.0	38.00	266.90	5,894.1	5,019.1	152.9	-1,479.1	-43.0	1.30	-1.27	-0.48
6,417.0	36.70	270.10	5,944.2	5,069.2	151.9	-1,517.2	-39.2	3.71	-2.06	5.08
6,480.0	35.80	273.40	5,995.0	5,120.0	153.0	-1,554.5	-37.5	3.41	-1.43	5.24
6,543.0	36.30	272.70	6,045.9	5,170.9	155.0	-1,591.5	-36.7	1.03	0.79	-1.11
6,607.0	38.90	272.20	6,096.6	5,221.6	156.6	-1,630.5	-35.5	4.09	4.06	-0.78
6,670.0	39.10	270.50	6,145.6	5,270.6	157.6	-1,670.1	-33.5	1.73	0.32	-2.70
6,733.0	37.80	269.70	6,194.9	5,319.9	157.6	-1,709.3	-30.7	2.21	-2.06	-1.27
6,796.0	37.30	270.30	6,244.9	5,369.9	157.6	-1,747.7	-27.8	0.98	-0.79	0.95
6,859.0	37.70	269.20	6,294.8	5,419.8	157.5	-1,786.1	-24.8	1.24	0.63	-1.75
6,922.0	36.90	267.80	6,345.0	5,470.0	156.5	-1,824.2	-21.0	1.85	-1.27	-2.22
6,985.0	36.80	265.30	6,395.4	5,520.4	154.2	-1,861.9	-16.0	2.39	-0.16	-3.97
7,048.0	37.30	264.90	6,420.9	5,545.9	152.5	-1,881.1	-12.9	1.73	1.56	-1.25
7,112.0	38.60	261.70	6,445.4	5,570.4	150.3	-1,900.1	-9.3	7.61	4.19	-10.32
7,175.0	39.70	255.40	6,470.2	5,595.2	146.3	-1,919.8	-3.8	12.89	3.44	-18.69
7,239.0	38.50	249.90	6,495.0	5,620.0	140.3	-1,939.1	3.6	11.47	-3.75	-17.19
7,302.0	36.00	243.90	6,519.7	5,644.7	133.0	-1,956.3	12.2	14.22	-8.06	-19.35
7,365.0	32.60	241.80	6,546.1	5,671.1	124.8	-1,972.4	21.6	11.25	-8.99	-6.56
7,428.0	31.80	238.10	6,573.2	5,698.2	116.2	-1,987.1	31.2	6.92	-2.50	-11.56
7,491.0	32.00	232.40	6,600.4	5,725.4	106.6	-2,001.0	41.8	4.44	-1.13	-11.56
7,554.0	33.10	228.70	6,627.4	5,752.4	95.7	-2,014.3	53.7	7.11	3.44	-11.56
7,617.0	33.70	224.80	6,653.3	5,778.3	84.0	-2,026.7	66.3	7.91	3.44	-12.58
7,680.0	35.00	221.60	6,679.7	5,804.7	70.8	-2,039.1	80.3	6.95	4.06	-10.00

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Database:	5008 Company Ltd	Local Co-ordinate Reference:	WGS 84
Company:	DOT Production, Marcellus	TVD Reference:	WGS 84
Project:	Wetzel County, WV	MD Reference:	WGS 84
Site:	Wetzel County, WV	North Reference:	WGS 84
Well:	WV00011002	Survey Calculation Method:	Minimum Curvature
Wellbore Design:	WV00011002		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,366.0	35.80	218.30	6,705.8	5,830.8	56.6	-2,051.0	95.4	6.48	2.50	-10.31
7,398.0	38.00	214.80	6,731.4	5,856.4	41.1	-2,062.4	111.6	9.51	6.88	-10.94
7,429.0	40.30	213.10	6,755.4	5,880.4	24.9	-2,073.3	128.6	8.19	7.42	-5.48
7,453.0	41.90	210.80	6,773.5	5,898.5	11.5	-2,081.7	142.6	9.17	6.67	-9.58
7,485.0	44.10	206.10	6,796.9	5,921.9	-7.7	-2,092.0	162.5	12.15	6.88	-14.69
7,517.0	46.30	201.20	6,819.4	5,944.4	-28.5	-2,101.1	183.9	12.85	6.88	-15.31
7,549.0	48.60	196.40	6,841.1	5,966.1	-50.8	-2,108.7	206.7	13.18	7.19	-15.00
7,580.0	51.00	191.90	6,861.1	5,986.1	-73.7	-2,114.5	230.0	13.52	7.74	-14.52
7,612.0	52.30	188.20	6,881.0	6,006.0	-98.4	-2,118.8	255.0	9.94	4.06	-11.56
7,644.0	55.00	184.80	6,899.9	6,024.9	-124.0	-2,121.7	280.7	12.02	8.44	-10.63
7,675.0	55.80	183.10	6,917.5	6,042.5	-149.5	-2,123.5	306.2	5.20	2.58	-5.48
7,707.0	57.80	180.10	6,935.1	6,060.1	-176.2	-2,124.2	333.0	10.03	6.25	-9.38
7,738.0	60.50	176.80	6,951.0	6,076.0	-202.8	-2,123.5	359.4	12.62	8.71	-10.65
7,770.0	63.70	173.70	6,965.9	6,090.9	-231.0	-2,121.2	387.4	13.16	10.00	-9.69
7,800.0	66.80	171.00	6,978.5	6,103.5	-258.0	-2,117.5	414.0	13.17	10.33	-9.00
7,832.0	69.90	168.10	6,990.3	6,115.3	-287.2	-2,112.1	442.8	12.84	9.69	-9.06
7,863.0	72.60	165.30	7,000.3	6,125.3	-315.8	-2,105.4	470.7	12.21	8.71	-9.03
7,895.0	75.10	163.60	7,009.2	6,134.2	-345.4	-2,097.1	499.7	9.33	7.81	-5.31
7,926.0	77.10	161.40	7,016.6	6,141.6	-374.1	-2,088.1	527.6	9.44	6.45	-7.10
7,958.0	80.30	160.40	7,022.9	6,147.9	-403.7	-2,077.8	556.4	10.46	10.00	-3.13
7,990.0	81.80	159.90	7,027.9	6,152.9	-433.5	-2,067.1	585.3	4.94	4.69	-1.56
8,021.0	85.20	157.40	7,031.4	6,156.4	-462.2	-2,055.9	613.0	13.58	10.97	-8.06
8,053.0	89.60	156.80	7,032.8	6,157.8	-491.6	-2,043.4	641.5	13.88	13.75	-1.88
8,084.0	93.80	157.30	7,031.9	6,156.9	-520.1	-2,031.3	669.0	13.64	13.55	1.61
8,147.0	94.40	156.80	7,027.4	6,152.4	-578.0	-2,006.8	724.9	1.24	0.95	-0.79
8,210.0	93.40	157.60	7,023.1	6,148.1	-635.9	-1,982.5	780.9	2.03	-1.59	1.27
8,273.0	91.90	157.90	7,020.2	6,145.2	-694.2	-1,958.7	837.2	2.43	-2.38	0.48
8,336.0	90.20	157.90	7,019.0	6,144.0	-752.5	-1,935.0	893.7	2.70	-2.70	0.00
8,400.0	90.10	158.20	7,018.9	6,143.9	-811.9	-1,911.0	951.1	0.49	-0.16	0.47
8,463.0	89.80	158.40	7,018.9	6,143.9	-870.4	-1,887.7	1,007.8	0.57	-0.48	0.32
8,526.0	89.10	157.40	7,019.5	6,144.5	-928.8	-1,864.0	1,064.2	1.94	-1.11	-1.59
8,589.0	88.70	157.30	7,020.7	6,145.7	-986.9	-1,839.8	1,120.4	0.65	-0.63	-0.16
8,651.0	88.30	157.20	7,022.4	6,147.4	-1,044.1	-1,815.8	1,175.6	0.67	-0.65	-0.16
8,714.0	89.10	156.40	7,023.8	6,148.8	-1,102.0	-1,791.0	1,231.5	1.80	1.27	-1.27
8,777.0	89.00	156.60	7,024.8	6,149.8	-1,159.7	-1,765.9	1,287.3	0.35	-0.16	0.32
8,841.0	88.80	156.30	7,026.1	6,151.1	-1,218.4	-1,740.3	1,343.9	0.56	0.81	0.47
8,904.0	89.90	157.20	7,026.8	6,151.8	-1,276.3	-1,715.4	1,399.7	0.26	1.75	1.43
8,967.0	90.10	157.10	7,026.8	6,151.8	-1,334.3	-1,691.0	1,455.8	0.35	0.82	0.47
9,030.0	89.10	155.90	7,027.2	6,152.2	-1,392.1	-1,665.9	1,511.6	2.41	0.59	1.90
9,093.0	88.90	155.20	7,028.3	6,153.3	-1,449.4	-1,639.8	1,566.8	1.16	-0.32	1.16
9,156.0	89.20	155.60	7,029.4	6,154.4	-1,506.7	-1,613.6	1,622.0	0.79	0.48	0.63
9,219.0	89.90	158.10	7,029.9	6,154.9	-1,564.6	-1,588.8	1,677.9	1.67	0.97	1.37
9,282.0	89.80	160.10	7,030.1	6,155.1	-1,623.5	-1,566.3	1,735.5	1.21	-0.46	0.47

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Survey Report

Database:	Local Company File	Local Co-ordinate Reference:	Old World County 11122
Company:	EOI Petroleum - Memphis	TVD Reference:	Altitude of 11122 Well
Project:	Woods County, TX	MD Reference:	KB 11122 11122 Well
Site:	Woods County 11122	North Reference:	Grid
Well:	W11122	Survey Calculation Method:	Minimum Curvature
Wellbore:	W11122		
Design:	11122 Survey		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,345.0	89.00	159.40	7,030.9	6,155.9	-1,682.6	-1,544.5	1,792.3	1.46	-0.95	-1.11
9,408.0	87.70	157.20	7,032.7	6,157.7	-1,741.1	-1,521.2	1,848.9	4.05	-2.06	-3.49
9,472.0	89.60	157.40	7,034.2	6,159.2	-1,800.1	-1,496.6	1,905.9	2.99	2.97	0.31
9,535.0	89.50	155.20	7,034.7	6,159.7	-1,857.8	-1,471.2	1,961.6	3.50	-0.16	-3.49
9,598.0	89.50	155.00	7,035.3	6,160.3	-1,914.9	-1,444.7	2,016.6	0.32	0.00	-0.32
9,661.0	89.30	154.90	7,035.9	6,160.9	-1,972.0	-1,418.0	2,071.6	0.35	-0.32	-0.16
9,724.0	89.50	156.00	7,036.6	6,161.6	-2,029.3	-1,391.9	2,126.8	1.77	0.32	1.75
9,788.0	90.10	157.90	7,036.8	6,161.8	-2,088.2	-1,366.8	2,183.6	3.11	0.94	2.97
9,851.0	90.30	158.00	7,036.6	6,161.6	-2,146.6	-1,343.2	2,240.1	0.35	0.32	0.16
9,914.0	90.30	158.00	7,036.3	6,161.3	-2,205.0	-1,319.6	2,296.6	0.00	0.00	0.00
9,977.0	90.20	157.90	7,036.0	6,161.0	-2,263.4	-1,295.9	2,353.1	0.22	-0.16	-0.16
10,040.0	90.20	158.30	7,035.8	6,160.8	-2,321.9	-1,272.4	2,409.7	0.63	0.00	0.63
10,103.0	89.20	156.20	7,036.1	6,161.1	-2,379.9	-1,248.0	2,465.8	3.69	-1.59	-3.33
10,167.0	87.80	153.80	7,037.8	6,162.8	-2,437.9	-1,221.0	2,521.6	4.34	-2.19	-3.75
10,230.0	89.60	155.70	7,039.2	6,164.2	-2,494.9	-1,194.1	2,576.4	4.15	2.86	3.02
10,293.0	90.70	156.60	7,039.0	6,164.0	-2,552.5	-1,168.7	2,632.0	2.26	1.75	1.43
10,357.0	90.60	156.80	7,038.3	6,163.3	-2,611.3	-1,143.4	2,688.7	0.35	-0.16	0.31
10,420.0	90.40	156.60	7,037.8	6,162.8	-2,669.1	-1,118.4	2,744.6	0.45	-0.32	-0.32
10,483.0	91.30	157.50	7,036.8	6,161.8	-2,727.1	-1,093.9	2,800.6	2.02	1.43	1.43
10,546.0	91.30	157.10	7,035.4	6,160.4	-2,785.3	-1,069.6	2,856.8	0.63	0.00	-0.63
10,610.0	90.90	156.70	7,034.2	6,159.2	-2,844.1	-1,044.5	2,913.6	0.88	-0.63	-0.63
10,672.0	90.40	156.90	7,033.5	6,158.5	-2,901.1	-1,020.0	2,968.6	0.67	-0.81	0.32
10,734.0	89.90	154.80	7,033.3	6,158.3	-2,957.7	-994.7	3,023.2	3.48	-0.81	-3.39
10,798.0	89.00	152.50	7,033.9	6,158.9	-3,015.0	-966.3	3,078.3	3.86	-1.41	-3.59
10,861.0	88.40	152.70	7,035.4	6,160.4	-3,070.9	-937.3	3,131.9	1.00	-0.95	0.32
10,924.0	88.00	153.60	7,037.3	6,162.3	-3,127.1	-908.9	3,185.8	1.56	-0.63	1.43
10,987.0	87.70	153.60	7,039.7	6,164.7	-3,183.5	-880.9	3,240.0	0.48	-0.48	0.00
11,050.0	87.70	153.70	7,042.2	6,167.2	-3,239.9	-852.9	3,294.1	0.16	0.00	0.16
11,113.0	87.60	154.20	7,044.8	6,169.8	-3,296.5	-825.3	3,348.5	0.81	-0.16	0.79
11,176.0	87.70	155.10	7,047.4	6,172.4	-3,353.3	-798.3	3,403.2	1.44	0.16	1.43
11,239.0	87.40	155.20	7,050.1	6,175.1	-3,410.5	-771.9	3,458.2	0.50	-0.48	0.16
11,303.0	86.90	154.90	7,053.3	6,178.3	-3,468.4	-744.9	3,514.0	0.91	-0.78	-0.47
11,341.0	86.90	155.00	7,055.3	6,180.3	-3,502.8	-728.9	3,547.1	0.26	0.00	0.26
11,395.0	86.90	155.00	7,058.2	6,183.2	-3,551.7	-706.1	3,584.2	0.00	0.00	0.00

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Survey Report

Database:	11395 - 11395 (2)	Local Co-ordinate Reference:	11395 - 11395 (2)
Company:	Oil Production - Memphis	TVD Reference:	11395 - 11395 (2)
Project:	Water - County, WV	MD Reference:	11395 - 11395 (2)
Site:	Water - County - 11395	North Reference:	11395 - 11395 (2)
Well:	Well #5 11395	Survey Calculation Method:	Michigan Calculus
Wellbore:	Main Wellbore		
Design:	11395 - 11395		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(-3.4)	(-0.8)	(usft)	(usft)		
Interp @ 800.0 (Well #5	0.00	360.00	800.0	-3.4	-0.8	387,975.56	1,701,100.23	39° 33' 37.358 N	80° 33' 36.613 W
- survey misses target center by 2413.8usft at 3216.0usft MD (3213.1 TVD, 50.6 N, 20.5 E)									
- Point									

Survey Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
()	()	+N/-S	+E/-W		
()	()	()	()		
3,216.0	3,213.1	50.6	20.5	Tie-In @ 3216' MD	
11,395.0	7,058.2	-3,551.7	-706.1	Ext. to TD @ 11395' MD	

Checked By: _____ Approved By: _____ Date: _____