

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 513832

API: 47 - 103 - 02990

Submission: Initial Amended

Notes: Correction to Production Cement Top (MD)

RECEIVED
Office of Oil and Gas

DEC 21 2015

WV Department of
Environmental Protection

AX 01/20/16

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02990 County WETZEL District GRANT
Quad BIG RUN Pad Name BIG176 Field/Pool Name _____
Farm name JOHN W. AND FLORENCE E. KILCOYNE Well Number 513832
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,379,097 Easting 537,749
Landing Point of Curve Northing 4,379,130 Easting 537,911
Bottom Hole Northing 4,380,475 Easting 537,314

Elevation (ft) 860 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s) (Intermediate Hole Only)
Water base Mud 12.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phosphates, glutaraldehyde solution, calcium hydroxide.
partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 06/12/2014 Date drilling commenced 06/30/2014 Date drilling ceased 12/16/2014
Date completion activities began 2/14/2015 Date completion activities ceased 2/22/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 135 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1457, 1459, 1390, 1521 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 109, 174, 239, 495, 602 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
Dmit
04/01/2016

API 47- 103 - 02990 Farm name JOHN W. AND FLORENCE E. KILCOYNE Well number 513832

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	28"	26"	80'	NEW	A-500 40LB/FT	NONE	Y
Surface	24"	20"	278'	NEW	J-55 94LB/FT	119	Y
Coal							
Intermediate 1	17.5"	13.375"	823'	NEW	J-55 54.5LB/FT	363'	Y
Intermediate 2	12.375"	9.625"	2,406'	NEW	A-500 40LB/FT	NONE	Y
Intermediate 3							
Production	8.5"	5.5"	12,216'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	98	15.6	1.18	115.64	0	8
Surface	CLASS A	575	15.6	1.14	655.5	0	8
Coal							
Intermediate 1	CLASS A	715	15.6	1.19	850.85	0	8
Intermediate 2	CLASS A / CLASS A	475 / 390	15.6 / 15.6	1.18 / 1.19	1124.6	0	8
Intermediate 3							
Production	CLASS A / CLASS H	740/655	14.2/15.2	1.26/1.97	2222.75	2,649'	72
Tubing							

Drillers TD (ft) 12,220' MD Loggers TD (ft) N/A
 Deepest formation penetrated Middlesex Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 3,933' MD

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING CONDUCTOR- NONE
SURFACE- JOINTS: 1, 6
INTERMEDIATE- JOINTS: 1, 11
INTERMEDIATE 2- RAN AT LEAST EVERY 500' FEET JOINTS: 1,11,23,35,47,54
PRODUCTION- 235 Composite bodied centralizers on every joint from TD up to 3,500'

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

WR-35
Rev. 8/23/13

Page ___ of ___

API 47- 103 - 02990 Farm name JOHN W AND FLORENCE E. KILCOYNE Well number 513832

Drilling Contractor Savanna Drilling
Address 2204 Timberloch Place Suite 230 City Woodlands State TX Zip 77380

Logging Company GyroData
Address 601 Mayer St City Bridgeville State PA Zip 15017

Logging Company _____
Address _____ City _____ State _____ Zip _____

Cementing Company _____
Address _____ City _____ State _____ Zip _____

Mud Type(s) and Additive(s) (Production Hole Only)

SBM 12.5 ppg powdered hydrocarbon resin, calcium carbonate, ground almond hulls, barium sulfate, calcium chloride, lecithin liquid, organophilic clay, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

04/01/2016

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	0	0	138	138
SAND/SHALE	0	0	112	112
WAHINGTON COAL	112	112	114	114
SAND/SHALE	114	114	177	177
WAYNESBURG A COAL	177	177	178	178
SAND/SHALE	178	178	242	242
WAYNESBURG COAL	242	242	244	244
SAND/SHALE	244	244	498	498
SEWICKLY COAL	498	498	500	500
SAND/SHALE	500	500	605	605
PIITSBURGH COAL	605	605	611	611
SAND/SHALE	611	611	1,710	1,710
MAXTON	1,710	1,710	1,842	1,842
SAND/SHALE	1,842	1,842	1,866	1,866
BIG LIME	1,866	1,866	1,958	1,958
SAND/SHALE	1,958	1,958	1,967	1,967
BIG INJUN	1,967	1,967	2,125	2,125
SAND/SHALE	2,125	2,125	2,262	2,262
WEIR	2,262	2,262	2,361	2,361
SAND/SHALE	2,361	2,361	2,412	2,412
GANTZ	2,412	2,412	2,421	2,421
SAND/SHALE	2,421	2,421	2,462	2,462
50F	2,462	2,462	2,508	2,508
SAND/SHALE	2,508	2,508	2,555	2,555
30F	2,555	2,555	2,579	2,579
SAND/SHALE	2,579	2,579	2,680	2,680
GORDON	2,680	2,680	2,730	2,730
SAND/SHALE	2,730	2,730	3,463	3,463
FORTH SAND	2,772	2,772	2,784	2,784
SAND/SHALE	2,784	2,784	2,928	2,928
BAYARD	2,928	2,928	3,111	3,111
SAND/SHALE	3,111	3,111	3,309	3,309
WARREN	3,309	3,309	3,358	3,358
B-5	3,358	3,358	3,463	3,463
SPEECHLEY	3,462	3,462	3,873	3,873
BALLTOWN A	3,873	3,873	4,343	4,340
RILEY	4,343	4,340	4,991	4,985
BENSON	4,991	4,985	5,360	5,324
ALEXANDER	5,360	5,324	5,441	5,387
ELKS	5,441	5,387	6,854	6,554
SONYEA	6,854	6,554	7,165	6,722
MIDDLESEX	7,165	6,722	12,220	6,763

EQT Production- Middlesex

Wetzel County, WV
Wetzel County 513832
Well #513832

Main Wellbore

Design: As Drilled Surveys

Standard Survey Report

16 December, 2014

Phoenix Technologies
Survey Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 513832
Company:	EOT Production- Middlesex	TVD Reference:	KB @ 876.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 876.0usft
Site:	Wetzel County 513832	North Reference:	Grid
Well:	Well #513832	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Project Wetzel 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 Wetzel County 513832			
Site Position:		Northing:	388,076.04 usft
From:	Map	Easting:	1,700,937.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39.56
		Longitude:	-80.56
		Grid Convergence:	-0.68 °

Well Well #513832			
Well Position	+N-S	0.0 usft	Northing: 388,076.04 usft
	+E-W	0.0 usft	Easting: 1,700,937.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	39° 33' 38.332 N
		Longitude:	80° 33' 38.712 W
		Ground Level:	860.0 usft

Wellbore Main Wellbore					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	12/1/2014	-8.71	66.95	52,353

Design As Drilled Surveys					
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0		343.40

Survey Program		Date	12/16/2014		
From (')	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	3,873.0	513832 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
0.00	12,220.0	513832 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3 standard declination	

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)	
0.0	0.00	0.00	0.0	-876.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
103.0	1.03	25.48	103.0	-773.0	0.8	0.4	0.7	1.00	1.00	0.00	
203.0	1.06	42.24	203.0	-673.0	2.3	1.4	1.8	0.31	0.03	16.76	
303.0	0.97	62.98	303.0	-573.0	3.4	2.8	2.5	0.38	-0.09	20.74	
403.0	0.60	54.51	403.0	-473.0	4.1	4.0	2.8	0.39	-0.37	-8.47	
503.0	0.25	31.02	503.0	-373.0	4.6	4.5	3.1	0.38	-0.35	-23.49	
603.0	0.08	342.25	602.9	-273.1	4.8	4.6	3.3	0.21	-0.17	-48.77	
703.0	0.10	40.20	702.9	-173.1	5.0	4.6	3.4	0.09	0.02	57.95	

Phoenix Technologies

Survey Report

Database: Company: Project: Site: Well: Wellbore: Design:	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:
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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)
803.0	0.09	37.51	802.9	-73.1	5.1	4.7	3.5	0.01	-0.01	-2.69
903.0	0.66	239.45	902.9	26.9	4.9	4.3	3.4	0.74	0.57	-158.06
1,003.0	0.85	221.34	1,002.9	126.9	4.0	3.3	2.9	0.30	0.19	-18.11
1,103.0	0.87	215.93	1,102.9	226.9	2.8	2.4	2.1	0.08	0.02	-5.41
1,203.0	0.83	216.11	1,202.9	326.9	1.6	1.5	1.2	0.04	-0.04	0.18
1,303.0	0.88	217.05	1,302.9	426.9	0.4	0.6	0.3	0.05	0.05	0.94
1,403.0	0.91	206.48	1,402.9	526.9	-0.9	-0.2	-0.8	0.17	0.03	-10.57
1,503.0	0.83	194.17	1,502.9	626.9	-2.3	-0.7	-2.0	0.20	-0.08	-12.31
1,603.0	1.03	182.63	1,602.9	726.9	-3.9	-1.0	-3.5	0.27	0.20	-11.54
1,703.0	1.23	184.52	1,702.8	826.8	-5.9	-1.1	-5.3	0.20	0.20	1.89
1,803.0	1.21	181.68	1,802.8	926.8	-8.0	-1.2	-7.3	0.06	-0.02	-2.84
1,903.0	1.04	183.60	1,902.8	1,026.8	-9.9	-1.3	-9.2	0.17	-0.17	1.92
2,003.0	1.07	185.64	2,002.8	1,126.8	-11.8	-1.4	-10.9	0.05	0.03	2.04
2,103.0	0.92	185.10	2,102.8	1,226.8	-13.5	-1.6	-12.5	0.15	-0.15	-0.54
2,203.0	0.71	194.04	2,202.8	1,326.8	-14.9	-1.8	-13.8	0.24	-0.21	8.94
2,303.0	0.47	237.96	2,302.8	1,426.8	-15.7	-2.3	-14.4	0.49	-0.24	43.92
2,403.0	0.66	285.05	2,402.8	1,526.8	-15.8	-3.2	-14.2	0.48	0.19	47.09
2,503.0	0.67	283.73	2,502.7	1,626.7	-15.5	-4.4	-13.6	0.02	0.01	-1.32
2,603.0	0.59	303.97	2,602.7	1,726.7	-15.1	-5.3	-12.9	0.23	-0.08	20.24
2,703.0	0.59	300.47	2,702.7	1,826.7	-14.5	-6.2	-12.1	0.04	0.00	-3.50
2,803.0	0.55	297.27	2,802.7	1,926.7	-14.1	-7.1	-11.4	0.05	-0.04	-3.20
2,903.0	0.47	305.44	2,902.7	2,026.7	-13.6	-7.9	-10.8	0.11	-0.08	8.17
3,003.0	0.46	305.03	3,002.7	2,126.7	-13.1	-8.5	-10.1	0.01	-0.01	-0.41
3,103.0	0.42	300.74	3,102.7	2,226.7	-12.7	-9.2	-9.6	0.05	0.04	-4.29
3,203.0	0.32	313.60	3,202.7	2,326.7	-12.3	-9.7	-9.0	0.13	-0.10	12.86
3,303.0	0.29	312.91	3,302.7	2,426.7	-12.0	-10.1	-8.6	0.03	-0.03	-0.69
3,403.0	0.27	318.33	3,402.7	2,526.7	-11.6	-10.4	-8.2	0.03	-0.02	5.42
3,503.0	0.28	315.94	3,502.7	2,626.7	-11.3	-10.7	-7.7	0.02	0.01	-2.39
3,603.0	0.24	321.34	3,602.7	2,726.7	-10.9	-11.0	-7.3	0.05	-0.04	5.40
3,703.0	0.26	316.03	3,702.7	2,826.7	-10.6	-11.3	-6.9	0.03	0.02	-5.31
3,803.0	0.22	325.42	3,802.7	2,926.7	-10.3	-11.6	-6.5	0.06	-0.04	9.39
Gyro Tie In=3873' MD										
3,873.0	0.32	311.75	3,872.7	2,996.7	-10.0	-11.8	-6.2	0.17	0.14	-19.53
3,887.0	0.50	321.00	3,886.7	3,010.7	-10.0	-11.9	-6.2	1.37	1.29	66.07
3,919.0	0.20	301.30	3,918.7	3,042.7	-9.8	-12.0	-6.0	1.00	-0.94	-61.56
3,951.0	2.30	247.70	3,950.7	3,074.7	-10.0	-12.7	-6.0	6.84	6.56	-167.50
3,982.0	4.20	248.40	3,981.7	3,105.7	-10.7	-14.3	-6.2	6.13	6.13	2.26
4,014.0	5.50	245.40	4,013.5	3,137.5	-11.8	-16.8	-6.5	4.14	4.06	-9.38
4,046.0	5.80	235.90	4,045.4	3,169.4	-13.3	-19.5	-7.2	3.07	0.94	-29.69
4,077.0	5.60	229.20	4,076.2	3,200.2	-15.2	-21.9	-8.3	2.24	-0.65	-21.61
4,109.0	5.40	225.50	4,108.1	3,232.1	-17.2	-24.2	-9.6	1.27	-0.63	-11.56
4,141.0	6.20	233.50	4,139.9	3,263.9	-19.3	-26.7	-10.9	3.55	2.50	25.00
4,172.0	7.20	241.50	4,170.7	3,294.7	-21.3	-29.7	-11.9	4.41	3.23	25.81

Phoenix Technologies

Survey Report

Database: EDM 5000.1 Single User Db Company: EQT Production- Middlesex Project: Wetzel County, WV Site: Wetzel County 513832 Well: Well #513832 Wellbore: Main Wellbore Design: As Drilled Surveys	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Site: Wetzel County 513832 KB @ 876.0usft KB @ 876.0usft Grid Minimum Curvature
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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)
4,204.0	8.00	239.60	4,202.4	3,326.4	-23.3	-33.4	-12.8	2.62	2.50	-5.94
4,235.0	8.90	235.20	4,233.1	3,357.1	-25.8	-37.2	-14.1	3.57	2.90	-14.19
4,267.0	10.30	229.20	4,264.6	3,388.6	-29.1	-41.4	-16.0	5.37	4.38	-18.75
4,298.0	10.20	225.80	4,295.1	3,419.1	-32.8	-45.5	-18.4	1.98	-0.32	-10.97
4,330.0	9.40	223.60	4,326.7	3,450.7	-36.7	-49.3	-21.1	2.76	-2.50	-6.88
4,361.0	8.40	221.30	4,357.3	3,481.3	-40.2	-52.6	-23.5	3.42	-3.23	-7.42
4,393.0	7.70	222.90	4,389.0	3,513.0	-43.5	-55.6	-25.8	2.30	-2.19	5.00
4,425.0	8.10	228.00	4,420.7	3,544.7	-46.6	-58.7	-27.9	2.52	1.25	15.94
4,456.0	9.00	235.90	4,451.3	3,575.3	-49.4	-62.3	-29.6	4.77	2.90	25.48
4,487.0	8.70	235.20	4,482.0	3,606.0	-52.1	-66.3	-31.0	1.03	-0.97	-2.26
4,519.0	8.40	231.40	4,513.6	3,637.6	-55.0	-70.1	-32.7	2.00	-0.94	-11.88
4,550.0	7.60	228.70	4,544.3	3,668.3	-57.7	-73.4	-34.4	2.85	-2.58	-8.71
4,582.0	6.40	221.50	4,576.1	3,700.1	-60.5	-76.2	-36.2	4.64	-3.75	-22.50
4,614.0	5.70	213.80	4,607.9	3,731.9	-63.1	-78.2	-38.1	3.34	-2.19	-24.06
4,645.0	4.70	212.50	4,638.8	3,762.8	-65.5	-79.8	-40.0	3.25	-3.23	-4.19
4,677.0	3.80	213.30	4,670.7	3,794.7	-67.5	-81.1	-41.5	2.82	-2.81	2.50
4,708.0	3.00	212.00	4,701.6	3,825.6	-69.0	-82.0	-42.7	2.59	-2.58	-4.19
4,740.0	1.40	190.00	4,733.6	3,857.6	-70.1	-82.6	-43.6	5.57	-5.00	-68.75
4,771.0	1.20	164.00	4,764.6	3,888.6	-70.8	-82.5	-44.3	1.99	-0.65	-83.87
4,803.0	1.10	173.60	4,796.6	3,920.6	-71.4	-82.4	-44.9	0.68	-0.31	30.00
4,834.0	1.00	150.10	4,827.6	3,951.6	-72.0	-82.2	-45.5	1.42	-0.32	-75.81
4,866.0	1.10	146.70	4,859.6	3,983.6	-72.5	-81.9	-46.0	0.37	0.31	-10.63
4,897.0	1.10	141.50	4,890.6	4,014.6	-72.9	-81.6	-46.6	0.32	0.00	-16.77
4,929.0	0.80	160.40	4,922.6	4,046.6	-73.4	-81.3	-47.1	1.34	-0.94	59.06
4,961.0	2.50	135.20	4,954.6	4,078.6	-74.1	-80.8	-47.9	5.65	5.31	-78.75
4,992.0	6.00	125.90	4,985.5	4,109.5	-75.5	-79.0	-49.8	11.47	11.29	-30.00
5,023.0	9.80	124.90	5,016.2	4,140.2	-78.0	-75.5	-53.2	12.27	12.26	-3.23
5,055.0	12.40	126.50	5,047.6	4,171.6	-81.6	-70.5	-58.0	8.18	8.13	5.00
5,086.0	14.50	127.60	5,077.7	4,201.7	-85.9	-64.7	-63.9	6.82	6.77	3.55
5,118.0	16.80	128.60	5,108.5	4,232.5	-91.3	-58.0	-70.9	7.24	7.19	3.13
5,150.0	18.90	128.30	5,139.0	4,263.0	-97.4	-50.3	-78.9	6.57	6.56	-0.94
5,181.0	20.90	129.50	5,168.1	4,292.1	-104.0	-42.1	-87.6	6.58	6.45	3.87
5,213.0	23.00	131.00	5,197.8	4,321.8	-111.7	-32.9	-97.7	6.79	6.56	4.69
5,244.0	25.50	133.00	5,226.1	4,350.1	-120.2	-23.5	-108.5	8.49	8.06	6.45
5,276.0	28.70	133.10	5,254.6	4,378.6	-130.2	-12.8	-121.1	10.00	10.00	0.31
5,307.0	32.30	131.00	5,281.3	4,405.3	-140.7	-1.1	-134.5	12.11	11.61	-6.77
5,339.0	36.40	130.30	5,307.7	4,431.7	-152.5	12.6	-149.7	12.67	12.81	-2.19
5,370.0	39.60	130.30	5,332.1	4,456.1	-164.8	27.1	-165.7	10.32	10.32	0.00
5,434.0	39.30	128.60	5,381.5	4,505.5	-190.7	58.5	-199.4	1.75	-0.47	-2.66
5,497.0	39.80	128.70	5,430.1	4,554.1	-215.7	89.8	-232.4	0.80	0.79	0.16
5,559.0	40.70	130.50	5,477.4	4,601.4	-241.2	120.7	-265.7	2.37	1.45	2.90
5,622.0	41.30	130.00	5,525.0	4,649.0	-268.0	152.2	-300.3	1.09	0.95	-0.79

Phoenix Technologies

Survey Report

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 513832
Company:	EQT Production- Middlesox	TVD Reference:	KB @ 576.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 576.0usft
Site:	Wetzel County 513832	North Reference:	Grid
Well:	Well #513832	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
5,686.0	41.90	129.00	5,572.8	4,696.8	-295.0	185.0	-335.5	1.40	0.94	-1.56
5,749.0	41.50	128.30	5,619.9	4,743.9	-321.2	217.8	-370.0	0.97	-0.63	-1.11
5,812.0	41.50	128.40	5,667.0	4,791.0	-347.1	250.5	-404.2	0.11	0.00	0.16
5,875.0	39.60	127.90	5,714.9	4,838.9	-372.4	282.7	-437.6	3.06	-3.02	-0.79
5,939.0	39.50	132.00	5,764.3	4,888.3	-398.5	313.9	-471.6	4.08	-0.16	6.41
6,002.0	39.50	131.50	5,812.9	4,936.9	-425.2	343.8	-505.7	0.50	0.00	-0.79
6,065.0	40.20	132.20	5,861.3	4,985.3	-452.1	373.9	-540.1	1.32	1.11	1.11
6,097.0	39.30	130.90	5,885.9	5,009.9	-465.7	389.2	-557.5	3.83	-2.81	-4.06
6,128.0	36.60	127.90	5,910.3	5,034.3	-477.8	403.9	-573.3	10.55	-8.71	-9.68
6,160.0	33.40	123.20	5,936.5	5,060.5	-488.5	418.8	-587.8	13.07	-10.00	-14.69
6,191.0	30.90	118.30	5,962.8	5,086.8	-496.9	433.0	-599.9	11.65	-8.06	-15.81
6,222.0	28.50	113.60	5,989.7	5,113.7	-503.7	446.8	-610.3	10.78	-7.74	-15.16
6,254.0	25.60	108.20	6,018.2	5,142.2	-508.9	460.3	-619.2	11.87	-9.06	-16.88
6,286.0	23.80	101.70	6,047.3	5,171.3	-512.4	473.2	-626.2	10.18	-5.63	-20.31
6,317.0	23.10	98.50	6,075.7	5,199.7	-514.5	485.4	-631.8	4.69	-2.26	-10.32
6,349.0	22.10	96.50	6,105.3	5,229.3	-516.1	497.6	-636.8	3.94	-3.13	-6.25
6,380.0	20.70	95.70	6,134.1	5,258.1	-517.4	508.8	-641.1	4.61	-4.52	-2.58
6,411.0	19.90	87.20	6,163.2	5,287.2	-517.6	519.5	-644.5	9.85	-2.58	-27.42
6,443.0	20.50	78.50	6,193.2	5,317.2	-516.3	530.5	-646.3	9.56	1.88	-27.19
6,474.0	21.60	72.60	6,222.2	5,346.2	-513.5	541.2	-646.7	7.70	3.55	-19.03
6,506.0	22.30	64.80	6,251.9	5,375.9	-509.1	552.3	-645.7	9.36	2.19	-24.38
6,537.0	23.30	56.30	6,280.4	5,404.4	-503.2	562.8	-643.0	11.09	3.23	-27.42
6,569.0	24.40	45.70	6,309.7	5,433.7	-495.1	572.8	-638.1	13.81	3.44	-33.13
6,600.0	24.80	38.10	6,337.9	5,461.9	-485.5	581.4	-631.3	10.28	1.29	-24.52
6,632.0	25.90	31.10	6,366.8	5,490.8	-474.2	589.1	-622.8	9.97	3.44	-21.88
6,663.0	27.30	24.80	6,394.6	5,518.6	-462.0	595.6	-612.9	10.15	4.52	-20.32
6,695.0	29.00	19.00	6,422.8	5,546.8	-448.0	601.2	-601.0	10.06	5.31	-18.13
6,727.0	30.60	13.90	6,450.6	5,574.6	-432.7	605.7	-587.7	9.36	5.00	-15.94
6,758.0	32.50	13.00	6,477.0	5,601.0	-416.9	609.5	-573.7	6.31	6.13	-2.90
6,790.0	35.10	13.20	6,503.6	5,627.6	-399.6	613.5	-558.2	8.13	8.13	0.63
6,821.0	37.70	10.10	6,528.5	5,652.5	-381.6	617.2	-542.0	10.27	8.39	-10.00
6,853.0	39.80	5.70	6,553.5	5,677.5	-361.8	619.9	-523.8	10.82	6.56	-13.75
6,885.0	43.00	2.50	6,577.5	5,701.5	-340.7	621.4	-504.0	11.99	10.00	-10.00
6,916.0	45.90	1.10	6,599.6	5,723.6	-319.0	622.1	-483.4	9.87	9.35	-4.52
6,948.0	49.80	358.80	6,621.1	5,745.1	-295.3	622.1	-460.7	13.30	12.19	-7.19
6,979.0	52.60	356.40	6,640.5	5,764.5	-271.1	621.0	-437.2	10.86	9.03	-7.74
7,011.0	56.40	354.00	6,659.1	5,783.1	-245.2	618.8	-411.7	13.35	11.88	-7.50
7,043.0	61.10	353.00	6,675.7	5,799.7	-218.0	615.7	-384.8	14.93	14.69	-3.13
7,074.0	64.80	352.10	6,689.8	5,813.8	-190.6	612.2	-357.6	12.21	11.94	-2.90
7,106.0	68.30	349.90	6,702.5	5,826.5	-161.6	607.6	-328.5	12.62	10.94	-6.88
7,137.0	71.40	348.30	6,713.2	5,837.2	-133.1	602.1	-299.5	11.11	10.00	-5.16
7,169.0	72.20	348.30	6,723.2	5,847.2	-103.3	595.9	-269.2	2.50	2.50	0.00

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Phoenix Technologies
Survey Report

Database: EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site: Wetzel County 513832
Company: EQT Production- Middlesex	TVD Reference:	KB @ 876.0usft
Project: Wetzel County, WV	MD Reference:	KB @ 876.0usft
Site: Wetzel County 513832	North Reference:	Grid
Well: Well #513832	Survey Calculation Method:	Minimum Curvature
Wellbore: Main Wellbore		
Design: As Drilled Surveys		

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)	
7,181.8	72.74	347.72	6,727.0	5,851.0	-91.3	593.4	-257.0	6.02	4.18	-4.53	
7,200.0	73.50	346.90	6,732.3	5,856.3	-74.4	589.5	-239.7	6.02	4.20	-4.50	
7,232.0	76.00	343.80	6,740.7	5,864.7	-44.5	581.7	-208.8	12.18	7.81	-9.69	
7,263.0	78.90	341.70	6,747.5	5,871.5	-15.6	572.7	-178.6	11.46	9.35	-6.77	
7,295.0	79.70	341.40	6,753.4	5,877.4	14.2	562.8	-147.2	2.66	2.50	-0.94	
7,327.0	82.90	340.90	6,758.3	5,882.3	44.1	552.6	-115.6	10.12	10.00	-1.56	
7,358.0	85.50	339.80	6,761.4	5,885.4	73.2	542.2	-84.8	9.10	8.39	-3.55	
513832 Plan CP											
7,385.6	88.52	338.51	6,762.8	5,886.8	98.9	532.4	-57.3	11.90	10.94	-4.69	
LP= 7390' MD@6763' TVD											
7,390.0	89.00	338.30	6,762.9	5,886.9	103.0	530.8	-52.9	11.90	10.94	-4.68	
7,453.0	90.30	340.50	6,763.3	5,887.3	162.0	508.6	9.9	4.06	2.06	3.49	
Deepest Point of Well= 7516' MD@6763' TVD											
7,516.0	90.90	341.10	6,762.6	5,886.6	221.5	487.9	72.9	1.35	0.95	0.95	
7,579.0	90.20	338.30	6,762.0	5,886.0	280.6	466.0	135.7	4.58	-1.11	-4.44	
7,642.0	90.00	338.60	6,761.9	5,885.9	339.2	442.9	198.5	0.57	-0.32	0.48	
7,705.0	90.70	340.50	6,761.5	5,885.5	398.2	420.9	261.4	3.21	1.11	3.02	
Plan @ 8748.0 (Well #513832 Main Wellbore 513832 P											
7,766.8	90.89	338.47	6,760.7	5,884.7	456.0	399.2	323.0	3.30	0.31	-3.28	
7,769.0	90.90	338.40	6,760.7	5,884.7	458.1	398.4	325.2	3.30	0.31	-3.28	
7,832.0	89.80	337.60	6,760.3	5,884.3	516.5	374.8	387.9	2.16	-1.75	-1.27	
7,895.0	89.50	337.60	6,760.7	5,884.7	574.8	350.8	450.6	0.48	-0.48	0.00	
7,958.0	88.90	337.40	6,761.5	5,885.5	633.0	326.7	513.2	1.00	-0.95	-0.32	
8,021.0	89.50	336.80	6,762.4	5,886.4	691.0	302.2	575.9	1.35	0.95	-0.95	
8,085.0	90.40	335.70	6,762.5	5,886.5	749.6	276.4	639.4	2.22	1.41	-1.72	
8,148.0	90.60	334.30	6,761.9	5,885.9	806.7	249.8	701.7	2.24	0.32	-2.22	
8,211.0	90.20	333.60	6,761.5	5,885.5	863.3	222.1	763.8	1.28	-0.63	-1.11	
8,274.0	91.10	332.80	6,760.8	5,884.8	919.5	193.7	825.8	1.91	1.43	-1.27	
8,337.0	91.50	333.30	6,759.3	5,883.3	975.6	165.2	887.8	1.02	0.63	0.79	
8,400.0	91.80	333.40	6,757.5	5,881.5	1,031.9	136.9	949.8	0.50	0.48	0.16	
8,463.0	91.20	333.50	6,755.9	5,879.9	1,088.2	108.8	1,011.8	0.97	-0.95	0.16	
8,527.0	91.20	333.30	6,754.5	5,878.5	1,145.5	80.1	1,074.8	0.31	0.00	-0.31	
8,590.0	90.80	333.80	6,753.4	5,877.4	1,201.9	52.1	1,136.9	1.02	-0.63	0.79	
8,653.0	90.70	334.80	6,752.6	5,876.6	1,258.6	24.8	1,199.1	1.60	-0.16	1.59	
8,716.0	90.70	337.50	6,751.8	5,875.8	1,316.2	-0.7	1,261.6	4.29	0.00	4.29	
8,779.0	90.60	337.10	6,751.1	5,875.1	1,374.3	-25.0	1,324.2	0.65	-0.16	-0.63	
8,843.0	90.70	337.40	6,750.4	5,874.4	1,433.4	-49.8	1,387.8	0.49	0.16	0.47	
8,906.0	90.10	335.50	6,750.0	5,874.0	1,491.1	-74.9	1,450.4	3.16	-0.95	-3.02	
8,969.0	89.80	335.50	6,750.0	5,874.0	1,548.4	-101.1	1,512.8	0.48	-0.48	0.00	
9,032.0	89.80	336.50	6,750.2	5,874.2	1,606.4	-125.7	1,575.4	4.76	0.00	4.76	
9,095.0	89.60	338.80	6,750.6	5,874.6	1,665.1	-148.6	1,638.2	0.57	-0.32	0.48	
9,158.0	89.40	338.70	6,751.1	5,875.1	1,723.8	-171.4	1,701.0	0.35	-0.32	-0.16	
9,221.0	88.80	338.60	6,752.1	5,876.1	1,782.5	-194.4	1,763.7	0.97	-0.95	-0.16	

Phoenix Technologies

Survey Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 513832
Company:	EQT Production- Middlesex	TVD Reference:	KB @ 876.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 876.0usft
Site:	Wetzel County 513832	North Reference:	Grid
Well:	Well #513832	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
9,284.0	89.40	338.60	6,753.1	5,877.1	1,841.1	-217.3	1,826.5	0.95	0.95	0.00
9,348.0	89.80	338.90	6,753.5	5,877.5	1,900.8	-240.5	1,890.3	0.78	0.63	0.47
9,411.0	90.80	338.70	6,753.2	5,877.2	1,959.5	-263.3	1,953.1	1.62	1.59	-0.32
9,474.0	92.00	339.00	6,751.7	5,875.7	2,018.3	-286.1	2,015.9	1.96	1.90	0.48
9,538.0	91.50	338.30	6,749.7	5,873.7	2,077.8	-309.3	2,079.6	1.34	-0.78	-1.09
9,601.0	91.40	338.90	6,748.1	5,872.1	2,136.5	-332.3	2,142.4	0.97	-0.16	0.95
9,664.0	91.20	337.50	6,746.7	5,870.7	2,194.9	-355.7	2,205.1	2.24	-0.32	-2.22
9,727.0	91.00	338.00	6,745.5	5,869.5	2,253.2	-379.6	2,267.8	0.85	-0.32	0.79
9,790.0	90.20	336.50	6,744.8	5,868.8	2,311.3	-403.9	2,330.4	2.70	-1.27	-2.38
9,853.0	89.50	335.60	6,745.0	5,869.0	2,368.9	-429.5	2,392.9	1.81	-1.11	-1.43
9,916.0	89.40	336.20	6,745.6	5,869.6	2,426.4	-455.2	2,455.3	0.97	-0.16	0.95
9,979.0	88.60	335.50	6,746.7	5,870.7	2,483.9	-481.0	2,517.8	1.69	-1.27	-1.11
10,043.0	89.10	335.80	6,748.0	5,872.0	2,542.2	-507.4	2,581.2	0.91	0.78	0.47
10,106.0	90.30	336.10	6,748.3	5,872.3	2,599.7	-533.0	2,643.7	1.96	1.90	0.48
10,169.0	90.70	336.10	6,747.8	5,871.8	2,657.3	-558.6	2,706.1	0.63	0.63	0.00
10,233.0	91.80	336.90	6,746.4	5,870.4	2,716.0	-584.1	2,769.7	2.13	1.72	1.25
10,296.0	91.00	336.70	6,744.8	5,868.8	2,773.9	-608.9	2,832.2	1.31	-1.27	-0.32
10,359.0	91.50	335.40	6,743.4	5,867.4	2,831.4	-634.5	2,894.7	2.21	0.79	-2.06
10,422.0	92.40	336.10	6,741.3	5,865.3	2,888.8	-660.3	2,957.1	1.81	1.43	1.11
10,485.0	91.70	334.90	6,739.1	5,863.1	2,946.1	-686.4	3,019.5	2.20	-1.11	-1.90
10,549.0	90.90	333.70	6,737.6	5,861.6	3,003.8	-714.2	3,082.6	2.25	-1.25	-1.88
10,612.0	91.00	335.00	6,736.6	5,860.6	3,060.6	-741.4	3,144.8	2.07	0.16	2.06
10,675.0	90.50	336.20	6,735.7	5,859.7	3,117.9	-767.5	3,207.2	2.06	-0.79	1.90
10,738.0	89.80	334.90	6,735.6	5,859.6	3,175.3	-793.5	3,269.7	2.34	-1.11	-2.06
10,801.0	89.90	336.10	6,735.7	5,859.7	3,232.6	-819.7	3,332.1	1.91	0.16	1.90
10,864.0	89.30	338.00	6,736.2	5,860.2	3,290.6	-844.2	3,394.7	3.16	-0.95	3.02
10,927.0	89.10	337.70	6,737.0	5,861.0	3,349.0	-868.0	3,457.4	0.57	-0.32	-0.48
10,990.0	88.50	337.70	6,738.4	5,862.4	3,407.2	-891.9	3,520.0	0.95	-0.95	0.00
11,054.0	88.70	337.20	6,739.9	5,863.9	3,466.3	-916.4	3,583.7	0.84	0.31	-0.78
11,117.0	90.80	337.30	6,740.2	5,864.2	3,524.4	-940.8	3,646.3	3.34	3.33	0.16
11,180.0	90.60	337.10	6,739.4	5,863.4	3,582.5	-965.2	3,708.9	0.45	-0.32	-0.32
11,243.0	91.30	337.90	6,738.4	5,862.4	3,640.7	-989.3	3,771.6	1.69	1.11	1.27
11,306.0	91.50	339.00	6,736.9	5,860.9	3,699.3	-1,012.4	3,834.3	1.77	0.32	1.75
11,370.0	90.60	338.20	6,735.7	5,859.7	3,758.8	-1,035.8	3,898.1	1.88	-1.41	-1.25
11,433.0	89.50	335.90	6,735.6	5,859.6	3,816.9	-1,060.3	3,960.7	4.05	-1.75	-3.65
11,496.0	89.40	336.70	6,736.2	5,860.2	3,874.5	-1,085.7	4,023.2	1.28	-0.16	1.27
11,559.0	90.00	338.30	6,735.6	5,860.6	3,932.7	-1,109.8	4,085.9	2.71	0.95	2.54
11,622.0	89.80	339.20	6,736.7	5,860.7	3,991.5	-1,132.6	4,148.7	1.46	-0.32	1.43
11,685.0	89.40	339.10	6,737.1	5,861.1	4,050.3	-1,155.0	4,211.5	0.65	-0.63	-0.16
11,749.0	88.70	338.90	6,738.2	5,862.2	4,110.1	-1,178.0	4,275.3	1.14	-1.09	-0.31
11,812.0	89.60	338.30	6,739.1	5,863.1	4,168.7	-1,200.9	4,338.1	1.72	1.43	-0.95
11,874.0	93.00	338.90	6,737.7	5,861.7	4,226.4	-1,223.6	4,399.8	5.57	5.48	0.97

Phoenix Technologies

Survey Report

Database: EDM 5000.1 Single User D6 Company: EQT Production- Middlesex Project: Wetzel County, WV Site: Wetzel County 513832 Well: Well #513632 Wellbore: Main Wellbore Design: As Drilled Surveys	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Site Wetzel County 513832 KB @ 876.0usft KB @ 876.0usft Gnd Minimum Curvature
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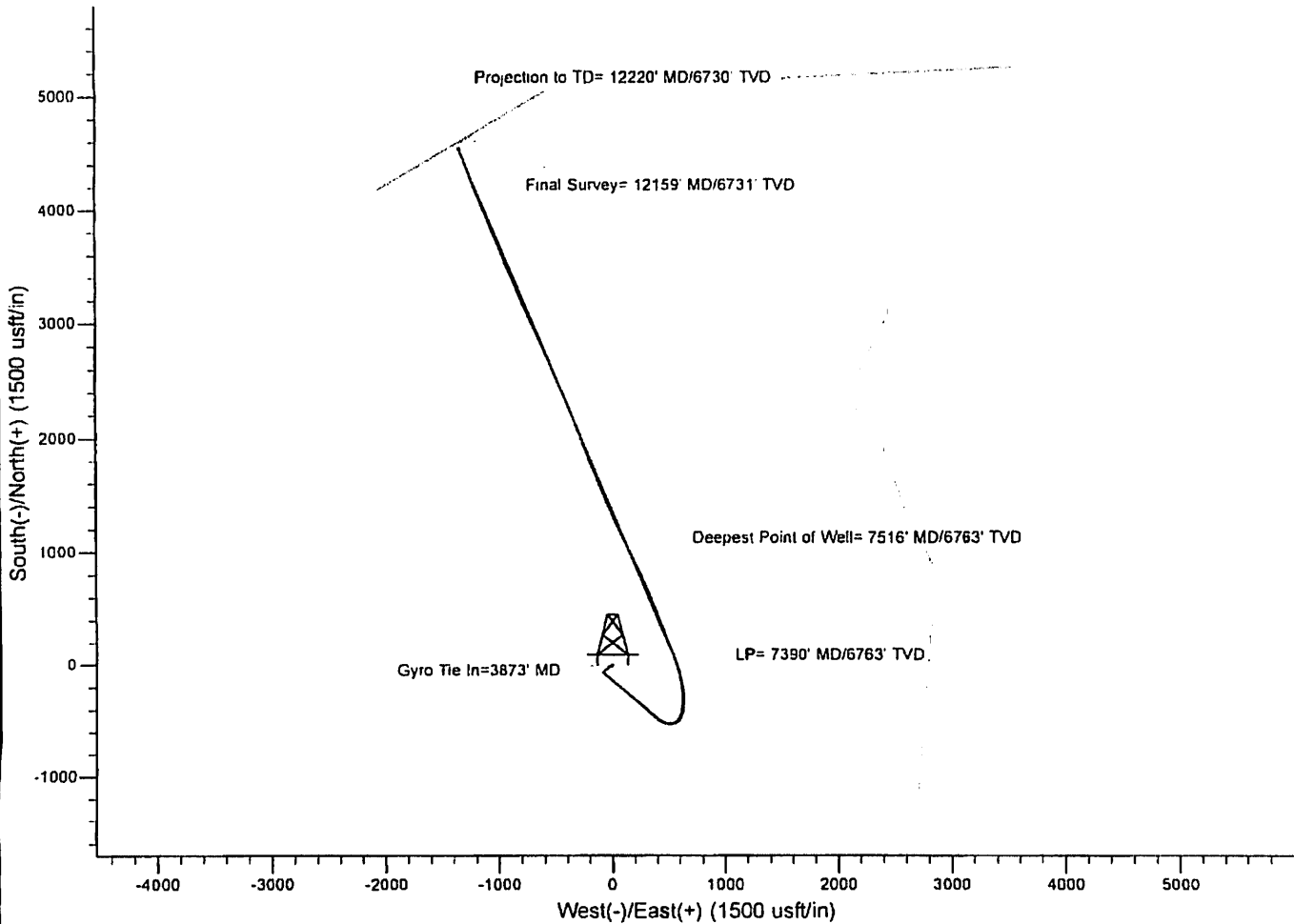
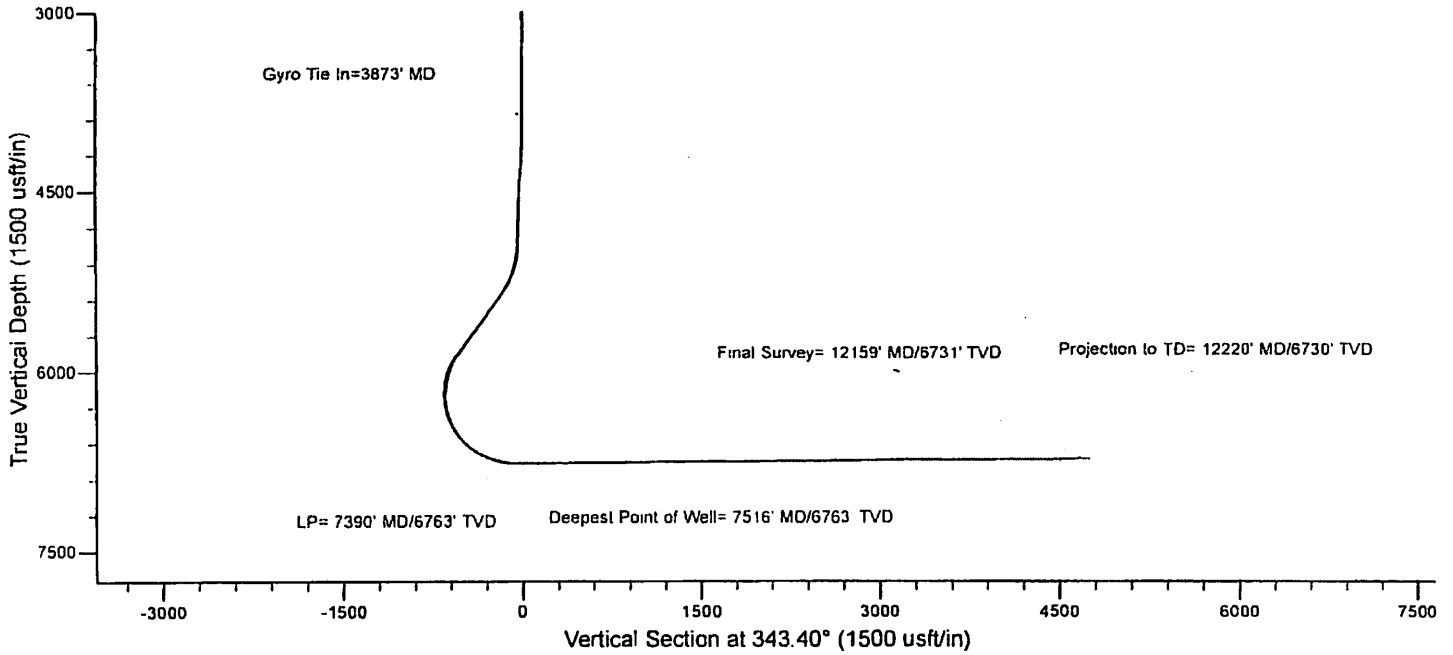
Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,938.0	92.00	338.10	6,734.9	5,858.9	4,265.9	-1,247.0	4,463.5	2.00	-1.56	-1.25	
12,001.0	91.60	338.20	6,732.9	5,856.9	4,344.4	-1,270.4	4,526.2	0.65	-0.63	0.16	
12,064.0	90.90	338.30	6,731.6	5,855.6	4,402.9	-1,293.8	4,589.0	1.12	-1.11	0.16	
12,127.0	90.50	338.10	6,730.8	5,854.8	4,461.3	-1,317.2	4,651.7	0.71	-0.63	-0.32	
Final Survey= 12159' MD/6731' TVD											
12,159.0	90.20	337.90	6,730.6	5,854.6	4,491.0	-1,329.1	4,683.6	1.13	-0.94	-0.63	
Projection to TD= 12220' MD/6730' TVD - 513832 Plat TD											
12,220.0	90.20	337.90	6,730.4	5,854.4	4,547.5	-1,352.1	4,744.3	0.00	0.00	0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
3,873.0	3,872.7	-10.0	-11.8	Gyro Tie In=3873' MD	
7,390.0	6,762.9	103.0	530.8	LP= 7390' MD/6763' TVD	
7,516.0	6,762.6	221.5	487.9	Deepest Point of Well= 7516' MD/6763' TVD	
12,159.0	6,730.6	4,491.0	-1,329.1	Final Survey= 12159' MD/6731' TVD	
12,220.0	6,730.4	4,547.5	-1,352.1	Projection to TD= 12220' MD/6730' TVD	

Checked By: _____ Approved By: _____ Date: _____

EQT Production- Middlesex

Project: Wetzel County, WV
Site: Wetzel County 513832
Well: Well #513832
Wellbore: Main Wellbore
Design: As Drilled Surveys



513832 - 47-103-02990-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	1/26/2015	12,216.00	12,220.73	10	MIDDLESEX
1	2/14/2015	12,021.00	12,135.00	32	MIDDLESEX
2	2/14/2015	11,797.00	11,965.00	40	MIDDLESEX
3	2/16/2015	11,573.00	11,741.00	40	MIDDLESEX
4	2/16/2015	11,349.00	11,517.00	40	MIDDLESEX
5	2/16/2015	11,125.00	11,293.00	40	MIDDLESEX
6	2/16/2015	10,901.00	11,069.00	40	MIDDLESEX
7	2/17/2015	10,677.00	10,845.00	40	MIDDLESEX
8	2/17/2015	10,455.00	10,624.00	40	MIDDLESEX
9	2/18/2015	10,234.00	10,399.00	40	MIDDLESEX
10	2/18/2015	10,010.00	10,175.00	40	MIDDLESEX
11	2/18/2015	9,781.00	9,951.00	40	MIDDLESEX
12	2/18/2015	9,557.00	9,727.00	40	MIDDLESEX
13	2/18/2015	9,333.00	9,503.00	40	MIDDLESEX
14	2/19/2015	9,109.00	9,277.00	40	MIDDLESEX
15	2/19/2015	8,885.00	9,055.00	40	MIDDLESEX
16	2/19/2015	8,661.00	8,831.00	40	MIDDLESEX
17	2/20/2015	8,437.00	8,602.00	40	MIDDLESEX
18	2/20/2015	8,216.00	8,383.00	40	MIDDLESEX
19	2/21/2015	7,989.00	8,159.00	40	MIDDLESEX
20	2/21/2015	7,765.00	7,935.00	40	MIDDLESEX
21	2/21/2015	7,541.00	7,711.00	40	MIDDLESEX
22	2/21/2015	7,317.00	7,487.00	40	MIDDLESEX

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/14/2015
Job End Date:	2/22/2015
State:	West Virginia
County:	Wetzel
API Number:	47-103-02990-00500
Operator Name:	EQT Production
Well Name and Number:	513832
Longitude:	-80.56056600
Latitude:	39.56073000
Datum:	NAD83
Federal Tribal Well:	NO
True Vertical Depth:	6,763
Total Base Water Volume (gal):	5,567,100
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Keane Group	Carrier/Base Fluid	Water	7732-18-5	100.00000	90.83750	None
Sand (Proppant)	Keane Group	Proppant	Silica Substrate	14808-60-7	100.00000	8.70031	None
MC MX 5-2402	Multi-Chem	Sodium Nitrate Brine	Sodium Nitrate	7631-99-4	60.00000	0.05538	None
Hydrochloric Acid (15%)	Keane Group	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.04158	None
SL 1072	Keane Group	Friction Reducer	Petroleum distillates, hydrotreated light	64742-47-8	25.00000	0.01664	None
EC8330A	Keane Group	Scale Inhibitor	Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00120	None
AI 600	Keane Group	Corrosion Inhibitor	Ethylene Glycol	107-21-1	40.00000	0.00028	None
			N, N-Dimethylformamide	68-12-2	20.00000	0.00014	None
			Tar bases, quinoline derivs. benzyl chloride-quatemized	72480-70-7	15.00000	0.00010	None
			2-Butoxyethanol	111-76-2	15.00000	0.00010	None
			Cinnamialdehyde	104-55-2	15.00000	0.00010	None

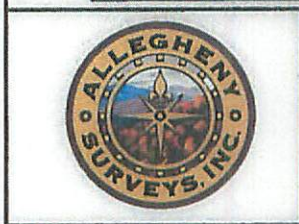
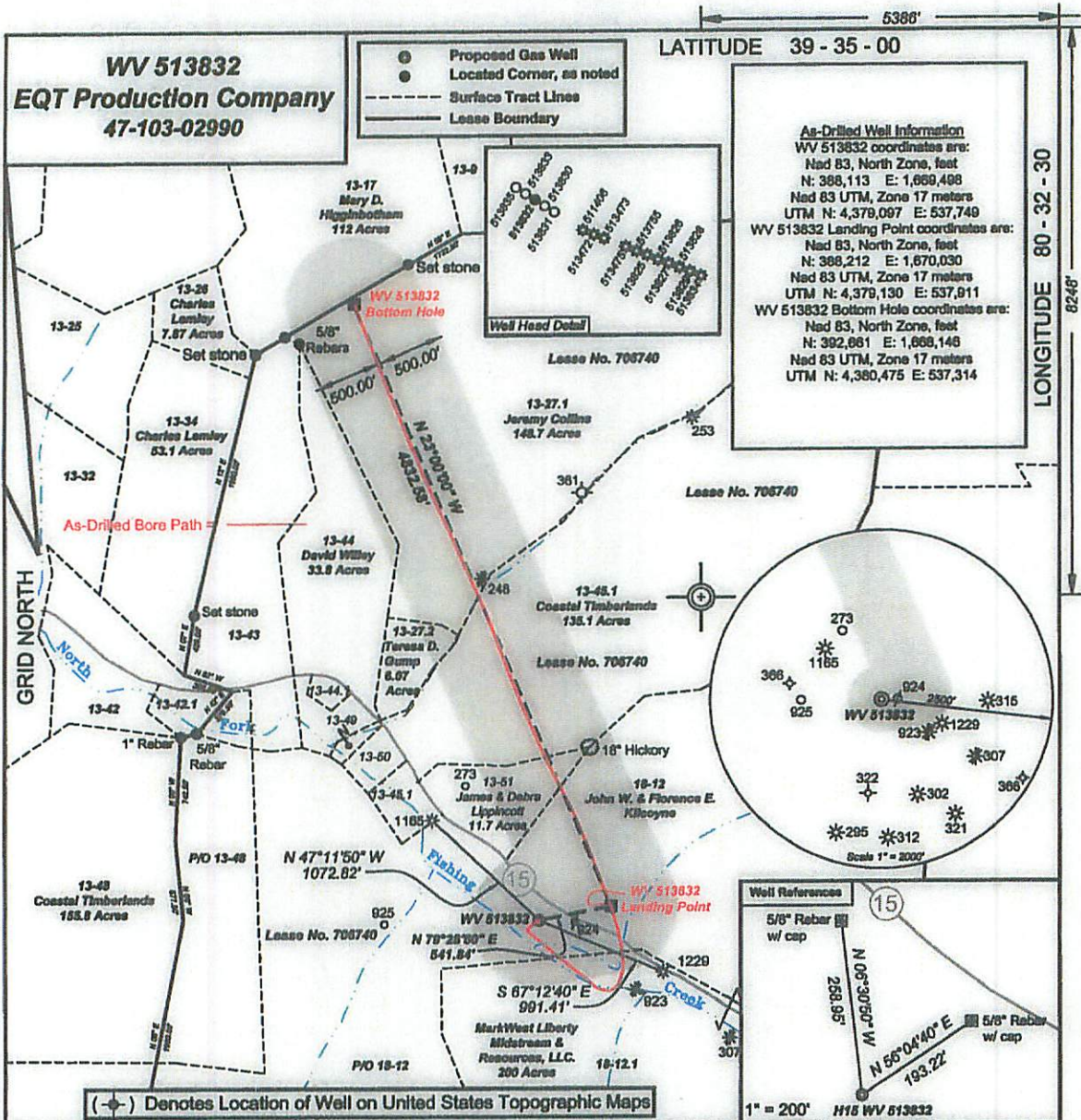
			1-Decanol	112-30-1	5.00000	0.00003	None
			Poly (oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega- hydroxy-, branched	127087-87-0	5.00000	0.00003	None
			Isopropyl alcohol	67-63-0	2.50000	0.00002	None
			Triethyl Phosphate	78-40-0	2.50000	0.00002	None
			1-Octanol	111-87-5	2.50000	0.00002	None
LEB-10X	Keane Group	Gel Breaker					
			Ethylene Glycol	107-21-1	30.00000	0.00040	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient Information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Environmental Protection.

Ben R. Singlet
P.S. 2092



FILE NO: 145-34-G-10
DRAWING NO: 145-10 Bq 176 H15
SCALE: 1" = 1000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: December 18 20 14
OPERATOR'S WELL NO. 513832
API WELL NO
47 - 103 - 02990
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-built 880' WATERSHED North Fork of Fishing Creek QUADRANGLE: Big Run

DISTRICT: Grant COUNTY: Wetzel

SURFACE OWNER: John W. and Florence E. Killovne ACREAGE: 377.06
ROYALTY OWNER: EQT Production Company, Inc. LEASE NO: 706740 ACREAGE: 1003.75

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Middlesex ESTIMATED DEPTH: 100-110'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray
ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280
Bridgeport, WV 26330 Bridgeport, WV 26330

04/01/2016