

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514386

API: 47 - 103 - 02972

Submission: Initial Amended

Notes: Correction to Production Cement Top
(MD)

RECEIVED
Office of Oil and Gas

FEB 02 2016

WV Department of
Environmental Protection

AX WS
03/25/2016

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

API 47-103-02972 County Wetzel District Grant
Quad Pine Grove Pad Name PNG129 Field/Pool Name _____
Farm name COASTAL LUMBER COMPANY Well Number 514386
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 4,378,105 Easting 530,867
Landing Point of Curve Northing 4,378,154 Easting 530,596
Bottom Hole Northing 4,377,281 Easting 531,088

Elevation (ft) 1330 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)
Water base Mud 13.5 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 12/19/2013 Date drilling commenced 1/10/2014 Date drilling ceased 1/29/2014
Date completion activities began 9/21/2014 Date completion activities ceased 9/24/2014
Verbal plugging (Y/N) n/a 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 734' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2016', 2365' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 686', 968', 1038', 1052', 1080' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

03/25/2016

API 47-103 - 02972 Farm name COASTAL LUMBER COMPANY Well number 514386

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	28"	26"	40'	New	82.6#/ft	n/a	Y
Surface	17-1/2"	13-3/8"	934'	New	54.5#/ft	114', 392'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3375'	New	40#/ft	840', 1177'	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	11,251'	New	20#	N/A	N
Tubing							
Packer type and depth set							

Comment Details N/A

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	49	15.6	1.18	57.82	0	8
Surface	Class A	790	15.6	1.19	940	0	8
Coal							
Intermediate 1	Class A	1190	15.6	1.19	1416	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	610/450	14.2/15.2	1.31/1.94	1,672	4,035'	72
Tubing							

Drillers TD (ft) 11265' Loggers TD (ft) N/A

Deepest formation penetrated Geneseo Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 4,700'

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-N/A

Surface-bow spring centralizers set at 894, 392, 114'

Intermediate-bow spring centralizers set at 3330', 2866', 2359', 1853', 1346', 881, 375

Production-composite centralizer ran on every joint from td up to 3250'

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 _____

514386 Final Formations (API#47-10302972)

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
Fresh Water Zone	1	1	734	734
Sand / Shale	1	1	683	683
Coal	683	683	685	685
Sand / Shale	685	685	965	965
Coal	965	965	966	966
Sand / Shale	966	966	1,035.00	1,035.00
Coal	1,035.00	1,035.00	1,042.00	1,042.00
Sand / Shale	1,042.00	1,042.00	1,049.00	1,049.00
Coal	1,049.00	1,049.00	1,051.00	1,051.00
Sand / Shale	1,051.00	1,051.00	1,077.00	1,077.00
Coal	1,077.00	1,077.00	1,083.00	1,083.00
Sand / Shale	1,083.00	1,083.00	2,183.00	2,183.00
Maxton	2,183.00	2,183.00	2,419.00	2,418.90
Big Lime	2,419.00	2,418.90	2,658.00	2,657.90
Weir	2,658.00	2,657.90	2,856.00	2,855.90
Gantz	2,856.00	2,855.90	2,972.00	2,971.90
Fifty foot	2,972.00	2,971.90	3,045.00	3,044.90
Thirty foot	3,045.00	3,044.90	3,092.00	3,091.90
Gordon	3,092.00	3,091.90	3,212.00	3,211.80
Forth Sand	3,212.00	3,211.80	3,347.00	3,346.80
Bayard	3,347.00	3,346.80	3,763.00	3,762.70
Warren	3,763.00	3,762.70	3,889.00	3,888.70
Speechley	3,889.00	3,888.70	4,764.00	4,763.40
Riley	4,764.00	4,763.40	5,481.00	5,369.90
Benson	5,481.00	5,369.90	5,987.00	5,738.20
Alexander	5,987.00	5,738.20	7,547.00	7,037.20
Middlesex	7,547.00	7,037.20	7,613.00	7,076.70
Genesee	7,613.00	7,076.70	7,840.00	7,158.80
Genesee	7,840.00	7,158.80	11,265.00	7,188.20



EQT Production - Geneseo Shale

Wetzel County, WV

Wetzel County 514386

Well #514386

API #47-10302972

Main Wellbore

Design: As Drilled Surveys

Standard Survey Report

28 January, 2014



Where energy meets innovation.



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 514386
Company:	EQT Production - Genesee Shale	TVD Reference:	KB @ 1346.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1346.0usft
Site:	Wetzel County 514386	North Reference:	Grid
Well:	Well #514386	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		

Site	Wetzel County 514386				
Site Position:	From: Map	Northing:	385,197.99 usft	Latitude:	39.55
		Easting:	1,678,300.00 usft	Longitude:	-80.64
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.73 °

Well	Well #514386					
Well Position	+N-S	0.0 usft	Northing:	385,197.99 usft	Latitude:	39° 33' 7.147 N
	+E-W	0.0 usft	Easting:	1,678,300.00 usft	Longitude:	80° 38' 27.265 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,330.0 usft	

Wellbore	Main Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	1/7/2014	-8.61	67.04	52,464

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	166.42	

Survey Program	Date	1/28/2014			
From (')	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	4,650.0	514386 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
0.00	11,265.0	514386 MWD (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)	
0.0	0.00	0.00	0.0	-1,346.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.13	79.84	100.0	-1,246.0	0.0	0.1	0.0	0.13	0.13	0.00	
200.0	0.14	186.49	200.0	-1,146.0	-0.1	0.2	0.1	0.22	0.01	106.65	
300.0	0.23	184.10	300.0	-1,046.0	-0.4	0.2	0.4	0.09	0.09	-2.39	
400.0	0.20	187.16	400.0	-946.0	-0.8	0.1	0.8	0.03	-0.03	3.06	
500.0	0.19	202.30	500.0	-846.0	-1.1	0.1	1.1	0.05	-0.01	15.14	
600.0	0.14	206.80	600.0	-746.0	-1.4	-0.1	1.3	0.05	-0.05	4.50	
700.0	0.12	215.62	700.0	-646.0	-1.6	-0.2	1.5	0.03	-0.02	8.82	



Phoenix Technology Services
Survey Report



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Company:	EQT Production - Genesee Shale	TVD Reference:	KB @ 1346 Dufst
Project:	Wetzel County, WV	MD Reference:	KB @ 1346.0usft
Site:	Wetzel County 514386	North Reference:	Gnd
Well:	Well #514386	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
800.0	0.04	300.17	800.0	-546.0	-1.6	-0.3	1.5	0.12	-0.08	84.55
900.0	0.09	20.06	900.0	-446.0	-1.5	-0.3	1.4	0.09	0.05	79.89
1,000.0	0.04	25.50	1,000.0	-346.0	-1.4	-0.2	1.3	0.05	-0.05	5.44
1,100.0	0.09	32.86	1,100.0	-246.0	-1.3	-0.2	1.3	0.05	0.05	7.36
1,200.0	0.10	49.34	1,200.0	-146.0	-1.2	-0.1	1.2	0.03	0.01	16.48
1,300.0	0.14	54.53	1,300.0	-46.0	-1.1	0.1	1.1	0.04	0.04	5.19
1,400.0	0.17	64.06	1,400.0	54.0	-0.9	0.3	1.0	0.04	0.03	9.53
1,500.0	0.25	72.30	1,500.0	154.0	-0.8	0.7	1.0	0.09	0.08	8.24
1,600.0	0.31	84.84	1,600.0	254.0	-0.7	1.2	1.0	0.09	0.06	12.54
1,700.0	0.37	85.85	1,700.0	354.0	-0.7	1.7	1.1	0.06	0.06	1.01
1,800.0	0.61	85.11	1,800.0	454.0	-0.6	2.6	1.2	0.24	0.24	-0.74
1,900.0	0.81	95.35	1,900.0	554.0	-0.6	3.8	1.5	0.24	0.20	10.24
2,000.0	0.77	99.24	2,000.0	654.0	-0.8	5.2	2.0	0.07	-0.04	3.89
2,100.0	0.72	102.35	2,100.0	754.0	-1.0	6.5	2.5	0.06	-0.05	3.11
2,200.0	0.56	108.47	2,200.0	854.0	-1.3	7.6	3.1	0.17	-0.16	6.12
2,300.0	0.55	103.79	2,300.0	954.0	-1.6	8.5	3.6	0.05	-0.01	-4.68
2,400.0	0.58	111.07	2,399.9	1,053.9	-1.9	9.4	4.1	0.08	0.03	7.28
2,500.0	0.60	113.96	2,499.9	1,153.9	-2.3	10.4	4.7	0.04	0.02	2.89
2,600.0	0.64	118.15	2,599.9	1,253.9	-2.8	11.3	5.4	0.06	0.04	4.19
2,700.0	0.68	127.20	2,699.9	1,353.9	-3.4	12.3	6.2	0.11	0.04	9.05
2,800.0	0.78	160.67	2,799.9	1,453.9	-4.4	13.0	7.3	0.43	0.10	33.47
2,900.0	0.89	204.11	2,899.9	1,553.9	-5.7	12.9	8.6	0.63	0.11	43.44
3,000.0	1.07	211.39	2,999.9	1,653.9	-7.3	12.1	9.9	0.22	0.18	7.28
3,100.0	1.45	222.06	3,099.9	1,753.9	-9.0	10.8	11.3	0.45	0.38	10.67
3,200.0	1.72	230.75	3,199.8	1,853.8	-10.9	8.8	12.6	0.36	0.27	8.69
3,300.0	2.00	239.49	3,299.8	1,953.8	-12.7	6.1	13.8	0.40	0.28	8.74
3,400.0	2.10	242.14	3,399.7	2,053.7	-14.5	3.0	14.7	0.14	0.10	2.65
3,500.0	1.40	239.29	3,499.7	2,153.7	-15.9	0.3	15.6	0.71	-0.70	-2.85
3,600.0	0.60	227.42	3,599.7	2,253.7	-16.9	-1.1	16.2	0.82	-0.80	-11.87
3,700.0	0.29	202.05	3,699.7	2,353.7	-17.5	-1.6	16.6	0.36	-0.31	-25.37
3,800.0	0.19	126.74	3,799.7	2,453.7	-17.8	-1.6	17.0	0.30	-0.10	-75.31
3,900.0	0.11	175.71	3,899.7	2,553.7	-18.0	-1.4	17.2	0.14	-0.08	48.97
4,000.0	0.38	283.08	3,999.7	2,653.7	-18.1	-1.7	17.1	0.43	0.27	107.37
4,100.0	0.48	296.08	4,099.6	2,753.6	-17.8	-2.4	16.7	0.14	0.10	13.00
4,200.0	0.41	300.86	4,199.6	2,853.6	-17.4	-3.1	16.2	0.08	-0.07	4.78
4,300.0	0.17	333.25	4,299.6	2,953.6	-17.1	-3.5	15.8	0.28	-0.24	32.39
4,400.0	0.07	84.48	4,399.6	3,053.6	-17.0	-3.5	15.7	0.21	-0.10	111.23
4,500.0	0.40	102.01	4,499.6	3,153.6	-17.0	-3.1	15.8	0.33	0.33	17.53
4,600.0	0.61	86.03	4,599.6	3,253.6	-17.1	-2.2	16.1	0.25	0.21	-15.98
Gyro Tie In MD=4650'										
4,650.0	0.64	71.41	4,649.6	3,303.6	-17.0	-1.7	16.1	0.32	0.06	-29.24
4,683.0	0.70	61.40	4,682.6	3,336.6	-16.8	-1.3	16.0	0.40	0.18	-30.33
4,714.0	1.90	318.40	4,713.6	3,367.6	-16.3	-1.5	15.5	6.99	3.87	-332.26



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Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
4,746.0	5.50	309.40	4,745.6	3,399.6	-15.0	-3.1	13.8	11.36	11.25	-28.13
4,778.0	8.00	308.60	4,777.3	3,431.3	-12.6	-6.0	10.8	7.82	7.81	-2.50
4,809.0	9.70	308.40	4,808.0	3,462.0	-9.6	-9.7	7.1	5.48	5.48	-0.65
4,841.0	11.30	309.30	4,839.4	3,493.4	-6.0	-14.3	2.5	5.03	5.00	2.81
4,873.0	13.20	310.40	4,870.7	3,524.7	-1.6	-19.5	-3.0	5.98	5.94	3.44
4,904.0	15.00	310.10	4,900.8	3,554.8	3.3	-25.2	-9.1	5.81	5.81	-0.97
4,936.0	17.50	311.30	4,931.5	3,585.5	9.1	-32.0	-16.4	7.88	7.81	3.75
4,967.0	20.70	310.90	4,960.8	3,614.8	15.8	-39.7	-24.6	10.33	10.32	-1.29
4,999.0	24.20	310.40	4,990.3	3,644.3	23.7	-48.9	-34.5	10.95	10.94	-1.56
5,030.0	27.60	311.00	5,018.2	3,672.2	32.6	-59.2	-45.5	11.00	10.97	1.94
5,062.0	29.90	312.70	5,046.3	3,700.3	42.8	-70.7	-58.2	7.63	7.19	5.31
5,094.0	32.00	314.10	5,073.7	3,727.7	54.1	-82.6	-72.0	6.94	6.56	4.38
5,125.0	34.10	315.40	5,099.7	3,753.7	66.0	-94.6	-86.4	7.15	6.77	4.19
5,157.0	37.40	314.20	5,125.7	3,779.7	79.2	-107.9	-102.3	10.54	10.31	-3.75
5,189.0	41.10	312.60	5,150.4	3,804.4	93.1	-122.6	-119.3	11.99	11.56	-5.00
5,220.0	42.70	311.40	5,173.5	3,827.5	107.0	-138.0	-136.4	5.77	5.16	-3.87
5,284.0	40.90	309.00	5,221.2	3,875.2	134.5	-170.5	-170.8	3.76	-2.81	-3.75
5,347.0	39.40	307.10	5,269.4	3,923.4	159.5	-202.5	-202.6	3.07	-2.38	-3.02
5,410.0	42.40	309.20	5,317.0	3,971.0	185.0	-234.9	-235.0	5.24	4.76	3.33
5,474.0	41.30	308.70	5,364.7	4,018.7	211.9	-268.1	-268.9	1.80	-1.72	-0.78
5,540.0	44.40	311.30	5,413.1	4,067.1	240.7	-302.5	-305.0	5.41	4.70	3.94
5,603.0	42.70	309.30	5,458.7	4,112.7	268.8	-335.6	-340.1	3.47	-2.70	-3.17
5,666.0	43.80	312.20	5,504.6	4,158.6	297.0	-368.3	-375.2	3.60	1.75	4.60
5,730.0	44.80	315.30	5,550.4	4,204.4	327.9	-400.5	-412.8	3.73	1.56	4.84
5,793.0	43.50	312.60	5,595.6	4,249.6	358.4	-432.1	-449.8	3.63	-2.06	-4.29
5,856.0	43.10	315.10	5,641.5	4,295.5	388.3	-463.3	-486.2	2.79	-0.63	3.97
5,920.0	42.60	317.50	5,688.4	4,342.4	419.8	-493.3	-523.8	2.67	-0.78	3.75
5,983.0	41.50	316.30	5,735.2	4,389.2	450.6	-522.2	-560.6	2.16	-1.75	-1.90
6,046.0	40.20	314.20	5,782.8	4,436.8	479.8	-551.2	-595.8	3.00	-2.06	-3.33
6,110.0	40.20	314.90	5,831.7	4,485.7	508.8	-580.6	-630.9	0.71	0.00	1.09
6,173.0	39.80	315.00	5,880.0	4,534.0	537.4	-609.3	-665.4	0.64	-0.63	0.16
6,236.0	39.30	310.40	5,928.6	4,582.6	564.6	-638.7	-698.8	4.72	-0.79	-7.30
6,300.0	38.60	307.10	5,978.3	4,632.3	589.8	-670.1	-730.6	3.42	-1.09	-5.16
6,363.0	38.20	307.50	6,027.7	4,681.7	613.5	-701.2	-761.0	0.75	-0.63	0.63
6,427.0	39.90	310.50	6,077.4	4,731.4	638.9	-732.5	-793.0	3.97	2.66	4.69
6,490.0	38.50	308.70	6,126.2	4,780.2	664.3	-763.2	-824.9	2.86	-2.22	-2.86
6,554.0	39.10	308.60	6,176.1	4,830.1	689.3	-794.5	-856.6	0.94	0.94	-0.16
6,617.0	40.40	309.60	6,224.6	4,878.6	714.7	-825.8	-888.6	2.30	2.06	1.59
6,649.0	40.00	309.80	6,249.0	4,903.0	727.9	-841.7	-905.2	1.31	-1.25	0.63
6,680.0	36.30	308.80	6,273.4	4,927.4	740.1	-856.5	-920.4	12.10	-11.94	-3.23
6,712.0	32.70	304.70	6,299.7	4,953.7	750.9	-871.0	-934.4	13.38	-11.25	-12.81
6,744.0	29.80	300.60	6,327.1	4,981.1	759.9	-884.9	-946.4	11.23	-9.06	-12.81



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 514386
Company:	EQT Production - Genesee Shale	TVD Reference:	KB @ 1346 Dusst
Project:	Wetzel County, WV	MD Reference:	KB @ 1346 Dusst
Site:	Wetzel County 514386	North Reference:	Grd
Well:	Well #514386	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)
6,775.0	28.90	298.90	6,354.4	5,008.4	767.2	-897.7	-956.5	9.71	-9.35	-5.48
6,807.0	24.00	293.40	6,383.3	5,037.3	773.3	-910.0	-965.3	11.68	-9.06	-17.19
6,839.0	23.40	286.30	6,412.6	5,066.6	777.7	-922.1	-972.4	9.11	-1.88	-22.19
6,870.0	23.70	280.80	6,441.0	5,095.0	780.6	-934.1	-978.0	7.15	0.97	-17.74
6,902.0	21.60	272.80	6,470.5	5,124.5	782.1	-946.3	-982.3	11.64	-6.56	-25.00
6,934.0	19.10	263.30	6,500.6	5,154.6	781.7	-957.4	-984.6	12.92	-7.81	-29.69
6,965.0	18.20	254.70	6,529.9	5,183.9	779.9	-967.1	-985.1	9.32	-2.90	-27.74
6,997.0	18.60	246.60	6,560.3	5,214.3	776.5	-976.6	-984.1	8.08	1.25	-25.31
7,029.0	18.70	239.90	6,590.6	5,244.6	771.9	-985.8	-981.7	6.70	0.31	-20.94
7,060.0	18.00	237.30	6,620.1	5,274.1	766.8	-994.1	-978.8	3.47	-2.26	-8.39
7,092.0	18.30	231.70	6,650.5	5,304.5	761.0	-1,002.2	-975.0	5.53	0.94	-17.50
7,124.0	19.50	224.60	6,680.7	5,334.7	754.1	-1,009.9	-970.1	8.10	3.75	-22.19
7,156.0	19.60	216.90	6,710.9	5,364.9	746.0	-1,016.9	-963.9	8.05	0.31	-24.05
7,187.0	20.50	208.20	6,740.0	5,394.0	737.1	-1,022.5	-956.5	10.04	2.90	-28.06
7,219.0	22.80	200.50	6,769.8	5,423.8	726.3	-1,027.4	-947.2	11.41	7.19	-24.06
7,251.0	24.70	197.30	6,799.1	5,453.1	714.1	-1,031.5	-936.3	7.17	5.94	-10.00
7,282.0	26.50	195.00	6,827.0	5,481.0	701.3	-1,035.2	-924.7	6.63	5.81	-7.42
7,314.0	28.70	191.90	6,855.4	5,509.4	686.9	-1,038.7	-911.5	8.21	6.88	-9.69
7,346.0	30.80	185.20	6,883.2	5,537.2	671.2	-1,041.0	-896.8	12.28	6.56	-20.94
7,377.0	33.80	181.10	6,909.4	5,563.4	654.6	-1,041.9	-880.9	11.98	9.68	-13.23
7,409.0	36.00	175.80	6,935.6	5,589.6	636.4	-1,041.4	-863.0	11.70	8.88	-16.56
7,441.0	38.10	171.70	6,961.2	5,615.2	617.2	-1,039.3	-843.9	10.13	6.56	-12.81
7,472.0	41.70	168.80	6,984.9	5,638.9	597.6	-1,035.9	-824.1	13.07	11.61	-9.35
7,504.0	45.40	166.80	7,008.1	5,662.1	576.1	-1,031.2	-802.0	12.34	11.56	-6.25
7,536.0	48.40	165.70	7,030.0	5,684.0	553.4	-1,025.6	-778.7	9.70	9.38	-3.44
7,567.0	51.70	166.40	7,049.9	5,703.9	530.3	-1,019.9	-754.9	10.78	10.65	2.26
7,599.0	55.40	163.90	7,068.9	5,722.9	505.5	-1,013.3	-729.2	13.16	11.56	-7.81
7,631.0	58.40	162.40	7,086.4	5,740.4	479.8	-1,005.5	-702.4	10.16	9.38	-4.69
7,662.0	61.80	161.80	7,101.8	5,755.8	454.2	-997.3	-675.6	11.10	10.97	-1.94
7,694.0	65.40	161.60	7,116.1	5,770.1	427.0	-988.3	-647.1	11.26	11.25	-0.63
7,726.0	69.00	160.80	7,128.5	5,782.5	399.1	-978.8	-617.7	11.48	11.25	-2.50
7,758.0	72.50	159.30	7,139.0	5,793.0	370.7	-968.5	-587.7	11.80	10.94	-4.69
7,789.0	75.40	158.60	7,147.6	5,801.6	342.9	-957.8	-558.2	9.60	9.35	-2.26
7,821.0	77.80	158.10	7,155.0	5,809.0	314.0	-946.3	-527.3	7.65	7.50	-1.56
7,852.0	79.60	157.70	7,161.1	5,815.1	285.8	-934.8	-497.3	5.94	5.81	-1.29
7,884.0	80.70	157.80	7,166.5	5,820.5	256.6	-922.9	-466.1	3.45	3.44	0.31
7,915.0	82.40	157.20	7,171.1	5,825.1	228.3	-911.2	-435.8	5.81	5.48	-1.94
7,947.0	85.40	155.60	7,174.5	5,828.5	199.2	-898.4	-404.5	10.61	9.38	-5.00
514386 Plat LP										
7,970.1	86.65	155.20	7,176.1	5,830.1	178.2	-888.8	-381.8	5.67	5.40	-1.75
514386 LP p3										
7,972.7	86.78	155.15	7,176.2	5,830.2	175.9	-887.8	-379.4	5.67	5.40	-1.75
8,010.0	88.80	154.50	7,177.7	5,831.7	142.1	-871.9	-342.8	5.67	5.40	-1.74



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 514386
Company:	EQT Production - Genesee Shale	TVD Reference:	KB @ 1346.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1346.0usft
Site:	Wetzel County 514386	North Reference:	Gnd
Well:	Well #514386	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)	
8,074.0	88.90	154.70	7,179.0	5,833.0	84.3	-844.4	-280.2	0.35	0.16	0.31	
8,137.0	89.50	153.00	7,179.8	5,833.8	27.8	-816.7	-218.7	2.86	0.95	-2.70	
8,201.0	89.70	150.60	7,180.3	5,834.3	-28.6	-786.4	-156.8	3.76	0.31	-3.75	
8,264.0	89.70	150.10	7,180.6	5,834.6	-83.4	-755.3	-96.3	0.79	0.00	-0.79	
8,327.0	89.70	149.60	7,181.0	5,835.0	-137.8	-723.6	-35.9	0.79	0.00	-0.79	
8,391.0	89.70	149.60	7,181.3	5,835.3	-193.0	-691.2	25.4	0.00	0.00	0.00	
8,454.0	89.60	152.20	7,181.7	5,835.7	-248.1	-660.6	86.1	4.13	-0.16	4.13	
8,517.0	89.80	152.60	7,182.0	5,836.0	-303.9	-631.4	147.2	0.71	0.32	0.63	
8,580.0	90.50	152.80	7,181.8	5,835.8	-359.9	-602.5	208.4	1.16	1.11	0.32	
8,644.0	90.70	152.00	7,181.2	5,835.2	-416.6	-572.9	270.5	1.29	0.31	-1.25	
8,707.0	90.40	151.30	7,180.6	5,834.6	-472.0	-543.0	331.4	1.21	-0.48	-1.11	
8,770.0	89.80	149.40	7,180.5	5,834.5	-526.8	-511.8	391.9	3.16	-0.95	-3.02	
8,834.0	90.50	150.40	7,180.3	5,834.3	-582.2	-479.7	453.3	1.91	1.09	1.56	
8,897.0	90.70	151.30	7,179.6	5,833.6	-637.2	-449.0	514.0	1.46	0.32	1.43	
8,960.0	90.70	150.90	7,178.9	5,832.9	-692.3	-418.6	574.7	0.63	0.00	-0.63	
9,024.0	90.80	150.30	7,178.0	5,832.0	-748.1	-387.2	636.3	0.95	0.16	-0.94	
9,087.0	91.10	150.30	7,177.0	5,831.0	-802.8	-356.0	696.8	0.48	0.48	0.00	
9,150.0	90.50	151.10	7,176.1	5,830.1	-857.7	-325.1	757.5	1.59	-0.95	1.27	
9,214.0	90.30	150.90	7,175.6	5,829.6	-913.7	-294.1	819.1	0.44	-0.31	-0.31	
9,277.0	89.10	151.10	7,176.0	5,830.0	-968.8	-263.6	879.9	1.93	-1.90	0.32	
9,340.0	88.30	151.60	7,177.4	5,831.4	-1,024.1	-233.4	940.7	1.50	-1.27	0.79	
9,403.0	88.40	152.00	7,179.2	5,833.2	-1,079.6	-203.6	1,001.6	0.65	0.16	0.63	
9,467.0	88.60	151.80	7,180.9	5,834.9	-1,136.0	-173.5	1,063.6	0.44	0.31	-0.31	
9,530.0	89.30	152.90	7,182.0	5,836.0	-1,191.8	-144.2	1,124.7	2.07	1.11	1.75	
9,593.0	90.30	154.30	7,182.3	5,836.3	-1,248.2	-116.2	1,186.1	2.73	1.59	2.22	
9,657.0	90.50	153.60	7,181.8	5,835.8	-1,305.7	-88.1	1,248.6	1.14	0.31	-1.09	
9,720.0	89.50	154.30	7,181.8	5,835.8	-1,362.3	-60.5	1,310.1	1.94	-1.59	1.11	
9,783.0	89.00	154.80	7,182.6	5,836.6	-1,419.2	-33.4	1,371.7	1.12	-0.79	0.79	
9,847.0	89.10	154.10	7,183.7	5,837.7	-1,476.9	-5.8	1,434.3	1.10	0.16	-1.09	
9,910.0	89.10	154.30	7,184.7	5,838.7	-1,533.7	21.6	1,495.9	0.32	0.00	0.32	
9,973.0	89.40	154.10	7,185.5	5,839.5	-1,590.4	49.0	1,557.5	0.57	0.48	-0.32	
10,037.0	89.80	152.80	7,186.0	5,840.0	-1,647.6	77.7	1,619.8	2.13	0.63	-2.03	
10,100.0	88.80	152.90	7,186.7	5,840.7	-1,703.7	108.4	1,681.1	1.60	-1.59	0.16	
10,163.0	87.60	152.40	7,188.7	5,842.7	-1,759.6	135.3	1,742.2	2.06	-1.90	-0.79	
10,226.0	88.20	153.30	7,191.0	5,845.0	-1,815.6	164.1	1,803.4	1.72	0.95	1.43	
10,289.0	88.70	151.00	7,192.7	5,846.7	-1,871.3	193.5	1,864.4	3.73	0.79	-3.65	
10,353.0	88.60	146.60	7,194.2	5,848.2	-1,926.0	226.6	1,925.4	6.87	-0.16	-6.88	
10,416.0	90.40	146.50	7,194.8	5,848.8	-1,978.6	261.3	1,984.6	2.86	2.86	-0.16	
10,479.0	90.70	145.80	7,194.2	5,848.2	-2,030.9	296.4	2,043.7	1.21	0.48	-1.11	
10,543.0	90.90	146.70	7,193.3	5,847.3	-2,084.1	332.0	2,103.8	1.44	0.31	1.41	
10,606.0	90.50	145.70	7,192.5	5,846.5	-2,136.5	367.0	2,162.9	1.71	-0.63	-1.59	
10,669.0	91.50	147.70	7,191.4	5,845.4	-2,189.1	401.6	2,222.2	3.55	1.59	3.17	



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 514386
Company:	EQT Production - Genesee Shale	TVD Reference:	KB @ 1346.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1346.0usft
Site:	Wetzel County 514386	North Reference:	Gnd
Well:	Well #514386	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
10,732.0	92.00	150.20	7,189.5	5,843.5	-2,243.0	434.1	2,282.3	4.05	0.79	3.97
10,795.0	91.60	150.90	7,187.5	5,841.5	-2,297.9	465.0	2,342.8	1.28	-0.63	1.11
10,859.0	90.90	152.60	7,186.1	5,840.1	-2,354.2	495.3	2,404.7	2.87	-1.09	2.66
10,922.0	91.20	152.80	7,185.0	5,839.0	-2,410.2	524.2	2,465.9	0.57	0.48	0.32
10,985.0	89.90	152.90	7,184.4	5,838.4	-2,466.3	553.0	2,527.2	2.07	-2.06	0.16
11,049.0	88.80	152.20	7,185.1	5,839.1	-2,523.1	582.5	2,589.3	2.04	-1.72	-1.09
11,112.0	88.90	152.60	7,186.4	5,840.4	-2,578.9	611.6	2,650.4	0.65	0.16	0.63
11,175.0	89.30	153.20	7,187.3	5,841.3	-2,634.9	640.3	2,711.6	1.14	0.63	0.95
Last Survey MD=11212'										
11,212.0	89.50	153.10	7,187.7	5,841.7	-2,668.0	657.0	2,747.6	0.60	0.54	-0.27
Projection to TD MD=11265' - 514386 Plat TD										
11,265.0	89.50	153.10	7,188.2	5,842.2	-2,715.2	681.0	2,799.2	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,650.0	4,649.6	-17.0	-1.7	Gyro Tie In MD=4650'
11,212.0	7,187.7	-2,668.0	657.0	Last Survey MD=11212'
11,265.0	7,188.2	-2,715.2	681.0	Projection to TD MD=11265'

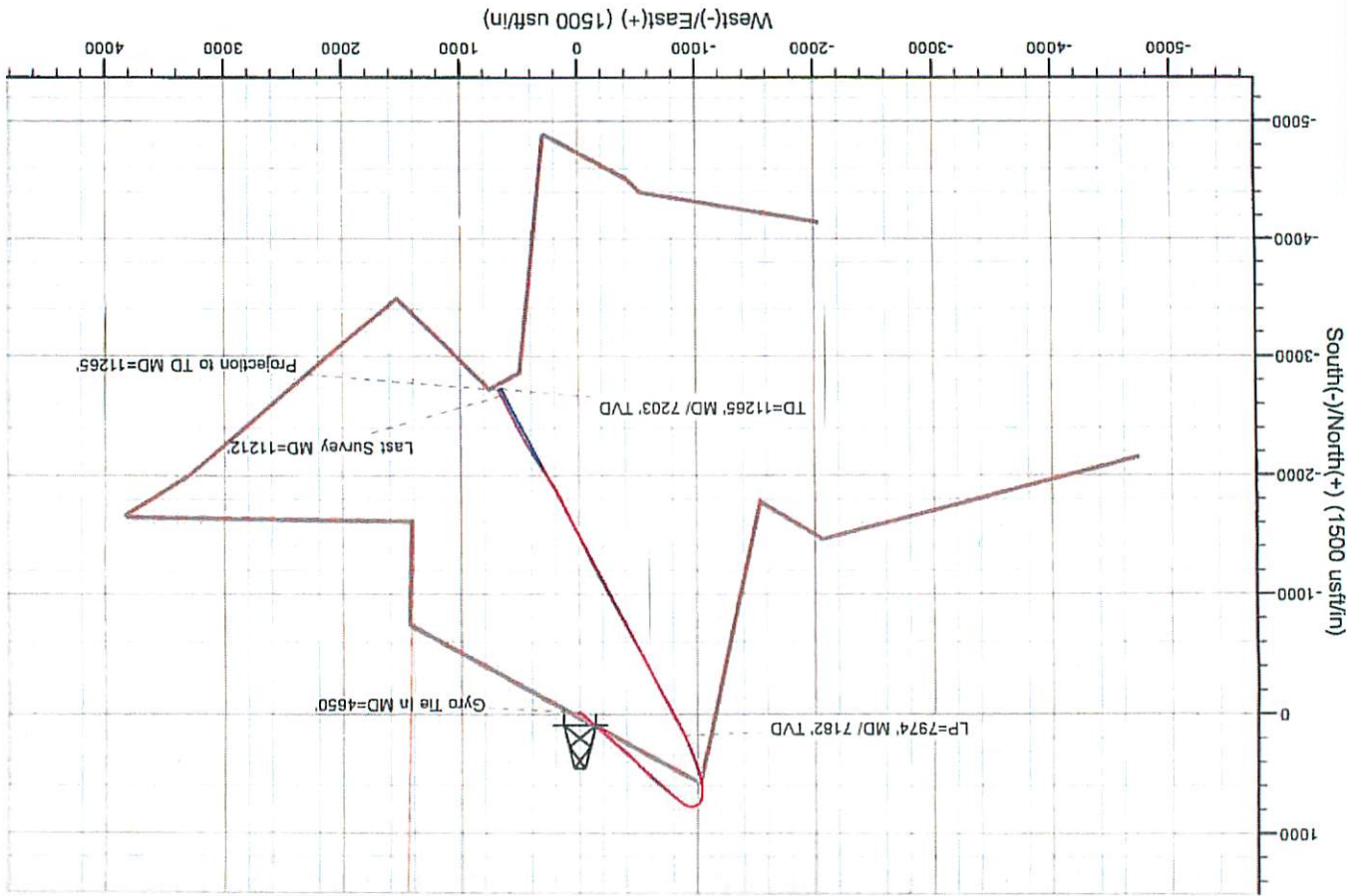
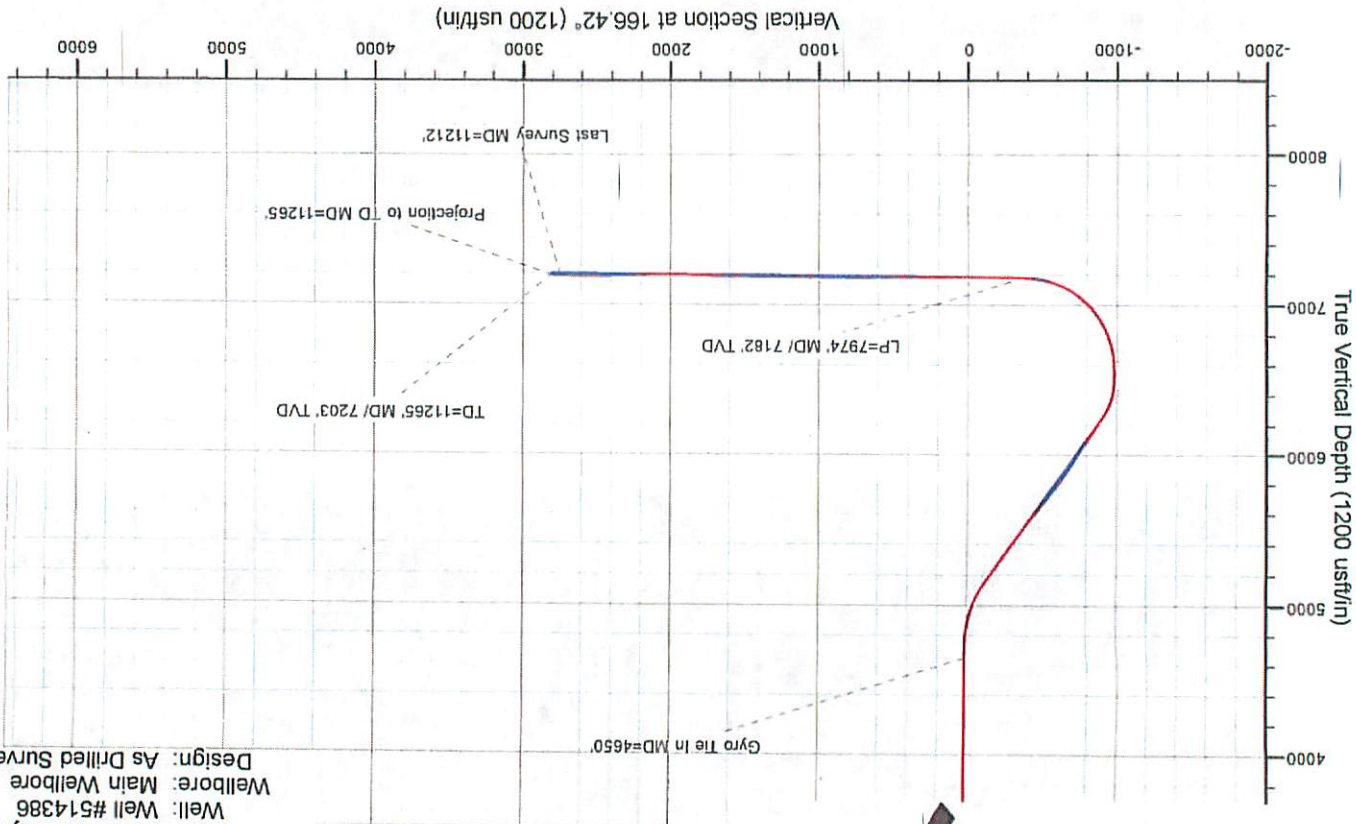
Checked By: _____ Approved By: _____ Date: _____

9/02/5/30

PHOENIX
TECHNOLOGY SERVICES

EQT Production - Genesee Shale

Project: Wetzel County, WV
Site: Wetzel County 514386
Well: Well #514386
Wellbore: Main Wellbore
Design: As Drilled Surveys



514386 - 47-103-02972-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	9/21/2014	11,224.00	11,226.00	10	GENESEO
1	9/21/2014	11,043.00	11,178.00	32	GENESEO
2	9/21/2014	10,819.00	10,999.00	40	GENESEO
3	9/21/2014	10,594.00	10,774.00	40	GENESEO
4	9/21/2014	10,369.00	10,549.00	40	GENESEO
5	9/22/2014	10,144.00	10,324.00	40	GENESEO
6	9/22/2014	9,919.00	10,099.00	40	GENESEO
7	9/22/2014	9,694.00	9,874.00	40	GENESEO
8	9/22/2014	9,469.00	9,649.00	40	GENESEO
9	9/22/2014	9,244.00	9,424.00	40	GENESEO
10	9/23/2014	9,019.00	9,199.00	40	GENESEO
11	9/23/2014	8,794.00	8,974.00	40	GENESEO
12	9/24/2014	8,569.00	8,749.00	40	GENESEO
13	9/24/2014	8,344.00	8,524.00	40	GENESEO
14	9/24/2014	8,119.00	8,299.00	40	GENESEO
15	9/24/2014	7,894.00	8,074.00	40	GENESEO

514386 - 47-103-02972-0000 - Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	9/21/2014	11.10	7,195.00	NA	4,426	0	579	0
1	9/21/2014	98.70	7,567.00	8,189.00	3,709	299,208	8,119	0
2	9/21/2014	100.20	7,670.00	8,517.00	3,850	299,455	7,739	0
3	9/21/2014	99.10	7,803.00	8,593.00	4,111	299,081	7,649	0
4	9/22/2014	100.80	7,880.00	8,740.00	4,107	299,633	7,809	0
5	9/22/2014	99.90	7,880.00	8,789.00	4,038	300,714	8,100	0
6	9/22/2014	98.60	8,122.00	8,810.00	3,965	300,067	7,439	0
7	9/22/2014	99.80	7,797.00	8,877.00	4,019	299,826	7,232	0
8	9/23/2014	101.50	7,732.00	8,574.00	3,994	299,408	7,378	0
9	9/23/2014	99.60	7,550.00	8,691.00	4,002	298,863	7,297	0
10	9/23/2014	101.50	7,634.00	8,633.00	4,012	300,076	7,691	0
11	9/24/2014	101.20	7,287.00	8,769.00	4,034	299,442	7,978	0
12	9/24/2014	99.50	7,140.00	8,873.00	3,930	299,889	7,667	0
13	9/24/2014	98.00	7,384.00	8,902.00	4,071	298,662	9,197	0
14	9/24/2014	100.00	7,558.00	8,622.00	4,154	298,903	7,508	0
15	9/24/2014	101.00	7,673.00	8,624.00	4,295	300,287	7,747	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/21/2014
Job End Date:	9/24/2014
State:	West Virginia
County:	Wetzel
API Number:	47-103-02972-00-00
Operator Name:	EQT Production
Well Name and Number:	PNG129 - 514386
Longitude:	-80.64072500
Latitude:	39.55206900
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,195
Total Base Water Volume (gal):	5,037,984
Total Base Non Water Volume:	218,999



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	FTSI	Carrier	Water	7732-18-5	100.00000	90.04548	
Sand	FTSI	Proppant	Crystalline Silica	14808-60-7	100.00000	9.64154	
Hydrochloric Acid 15%	FTSI	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.02798	
FRW-600	FTSI	Friction Reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02190	
			Ammonium acetate	631-61-8	6.00000	0.00438	
B-10	FTSI	Buffer Agent	Potassium carbonate	584-08-7	48.00000	0.00595	
			Potassium hydroxide	1310-58-3	20.00000	0.00248	
HVG-1	FTSI	Gel	Petroleum Distillate	64742-47-8	55.00000	0.00240	
			Guar Gum	9000-30-0	50.00000	0.00218	
			Clay	14808-60-7	2.00000	0.00009	
			Surfactant	68439-51-0	2.00000	0.00009	
ICI-3240	FTSI	Biocide					

			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione	533-74-4	24.00000	0.00240
			Sodium Hydroxide	1310-73-2	4.00000	0.00040
CS-500-SI	FTSI	Scale Inhibitor				
			Ethylene Glycol	107-21-1	10.00000	0.00245
ClO2	Neptune	Biocide				
			Chlorine Dioxide	10049-04-4	100.00000	0.00074
CI-150	FTSI	Corrosion Inhibitor				
			Ethylene Glycol	107-21-1	30.00000	0.00010
			Organic amine resin salt	Proprietary	30.00000	0.00010
			Isopropanol	67-63-0	30.00000	0.00010
			Quaternary ammonium compound	Proprietary	10.00000	0.00003
			Dimethylformamide	68-12-2	10.00000	0.00003
			Aromatic aldehyde	Proprietary	10.00000	0.00003
FE-100L	FTSI	Iron Control				
			Citric Acid	77-92-9	55.00000	0.00039
NE-100	FTSI	Non-Emulsifier				
			2-Propanol	67-63-0	10.00000	0.00003
			2-Butoxyethanol	111-76-2	10.00000	0.00003
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00001
APB-1	FTSI	Gel Breaker				
			Ammonium Persulfate	7727-54-0	95.00000	0.00006

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.

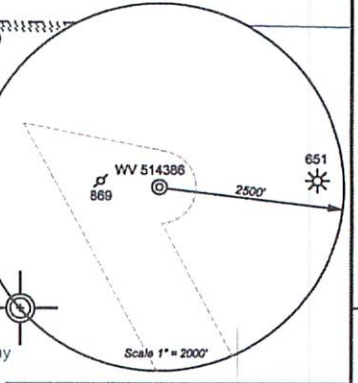
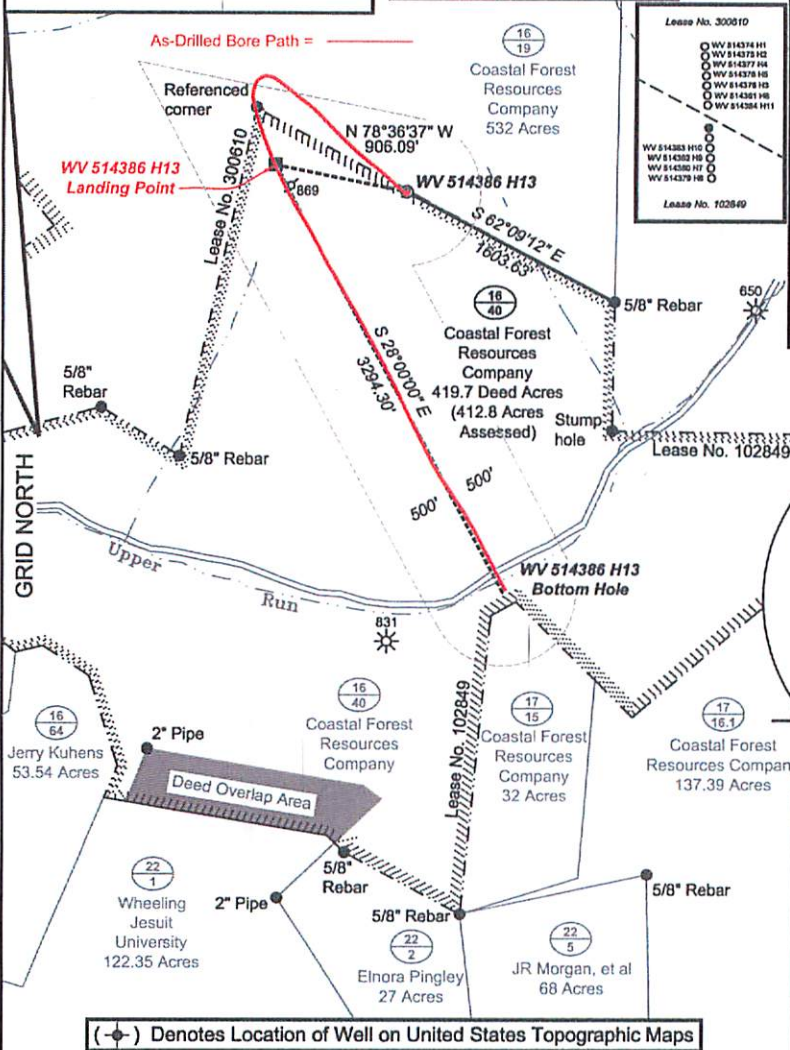
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

WV 514386
EQT Production Company
47-103-02972

- ⊙ Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- ⋯ Lease Boundary

LATITUDE 39 - 35 - 00
 LONGITUDE 80 - 37 - 30

As-Drilled Well Information
 WV 514386 coordinates are:
 Nad 83, North Zone, feet
 N: 385,235 E: 1,646,861
 Nad 83 UTM, Zone 17 meters
 UTM N: 4,378,105 E: 530,867
 WV 514386 Landing Point coordinates are:
 Nad 83, North Zone, feet
 N: 385,410 E: 1,645,972
 Nad 83 UTM, Zone 17 meters
 UTM N: 4,378,154 E: 530,596
 WV 514386 Bottom Hole coordinates are:
 Nad 83, North Zone, feet
 N: 382,519 E: 1,647,541
 Nad 83 UTM, Zone 17 meters
 UTM N: 4,377,281 E: 531,088



(⊙) Denotes Location of Well on United States Topographic Maps



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. Singleton
 P.S. 2092



FILE NO: 204-34-G-12
 DRAWING NO: 204-12 PNG 129 H13 As Drilled
 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: June 23 20 14
 OPERATOR'S WELL NO. WV 514386
 API WELL NO
 47 - 103 - 02972
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: 1328' WATERSHED Upper Run of South Fork of Fishing Creek QUADRANGLE: Pine Grove
 DISTRICT: Grant COUNTY: Wetzel
 SURFACE OWNER: Coastal Forest Resources Company F.K.A. Coastal Lumber Company ACREAGE: 412.8
 ROYALTY OWNER: Shlben Estates LEASE NO: 102849 ACREAGE: 419.7
 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: Genessee ESTIMATED DEPTH: TWD 7,800' MD 12,800'

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

03/25/2016