

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

API 47-085-10134 County RITCHIE District UNION
Quad OXFORD 7.5' Pad Name OXF163 Field/Pool Name _____
Farm name HAROLD K. PIERCE Well Number 513758
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 4,331,885.9 Easting 513,599.6
Landing Point of Curve Northing 4,331,371.0 Easting 513,057.0
Bottom Hole Northing 4,329,290.5 Easting 513,771.6

Elevation (ft) 1159 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 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 9/22/2014 Date drilling commenced 12/03/2014 Date drilling ceased 7/05/2015
Date completion activities began 9/12/2015 Date completion activities ceased 9/21/2015
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 176',453',517' Open mine(s) (Y/N) depths _____
Salt water depth(s) ft 1156' Void(s) encountered (Y/N) depths _____
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths _____
Is coal being mined in area (Y/N) N

APPROVED

NAME: Michael Hoff
DATE: 6/13/16

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Reviewed by:

AX 11/01/2016

API 47- 085 - 10134 Farm name HAROLD K. PIERCE Well number 513758

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	24"	20"	40'	NEW	A-500 78.7LB/FT	NONE	Y
Surface	17.5"	13.375"	1055'	NEW	J-55 54.5LB/FT	511'	Y
Coal							
Intermediate 1	12.375"	9.625"	3039'	NEW	A-500 40LB/FT	1851'	N
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	15,397'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details We grouted with cement to surface on the intermediate casing string with 79 bbls of cement.

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	38	15.6	1.18	44.84	0	8
Surface	CLASS A	832	15.6	1.18	981.8	0	8
Coal							
Intermediate 1	CLASS A	1407	15.6	1.18	1660.3	0	8
Intermediate 2							
Intermediate 3							
Production	Class A / Class H	815/1040	14.2 / 15.2	1.23 / 1.95	3030.45	2,565'	72
Tubing							

Drillers TD (ft) 15,400' MD Loggers TD (ft) N/A

Deepest formation penetrated Geneseo Plug back to (ft) 2489'

Plug back procedure Tripped in hole open ended to 5225'. Tripped out of hole to 4443' and pumped 45 bbls Class A cement (201 sacks) and then tripped out to 3813' and pumped 45 bbls Class A cement (201 sacks) and then tripped out to 3088' and pumped 38 bbls Class A cement (181 sacks). Top of cement at 3423'.

Kick off depth (ft) 3,690' 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: 1,11, 21 _____

INTERMEDIATE- RAN AT LEAST EVERY 500' FEET _____

PRODUCTION- 280 Composite Centralizers. One on every joint from TD to 3,500 MD _____

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WV Department of
Environmental Protection

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

API 47- 085 - 10134 Farm name HAROLD K. PIERCE Well number 513758

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 C&J Energy Services
Address 1650 Hackers Creek Rd City Jane Lew State WV Zip 26378

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API 47-085-10134

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	520	520
SAND/SHALE	520	520	1,774	1,774
MAXTON	1,774	1,774	1,955	1,955
BIG LIME	1,955	1,955	2,244	2,244
WEIR	2,244	2,244	2,472	2,472
GANTZ	2,472	2,472	2,567	2,567
50F	2,567	2,567	2,653	2,653
30F	2,653	2,653	2,715	2,715
GORDON	2,715	2,715	2,803	2,803
4TH	2,803	2,803	2,959	2,959
BAYARD	2,959	2,959	3,299	3,299
WARREN	3,299	3,299	3,352	3,352
SPEECHLEY	3,352	3,352	3,846	3,845
BALLTOWN A	3,846	3,845	4,430	4,326
RILEY	4,430	4,326	4,767	4,575
BENSON	4,767	4,575	5,100	4,819
ALEXANDER	5,100	4,819	6,984	6,213
SONYEA	6,984	6,213	7,216	6,353
MIDDLESEX	7,216	6,353	7,306	6,393
GENESSEE	7,306	6,393	7,535	6,460
GENESE0	7,535	6,460	15,400	6,474

12/02/2016



EQT Production - Geneseo Shale

Ritchie County, WV
Ritchie County 513758
Well #513758

Main Wellbore

Design: 513758 As Drilled Surveys

Standard Survey Report

09 July, 2015

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EQT
Where energy meets innovation.



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #513758
Company:	EQT Production - Genesee Shale	TVD Reference:	KB@16 @ 1175.0usft
Project:	Ritchie County, WV	MD Reference:	KB@16 @ 1175.0usft
Site:	Ritchie County 513758	North Reference:	Gnd
Well:	Well #513758	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513758 As Drilled Surveys		

Project	Ritchie 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	Ritchie County 513758				
Site Position:		Northing:	234,477.30 usft	Latitude:	39.14
From:	Map	Easting:	1,619,107.10 usft	Longitude:	-80.84
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.86 °

Well	Well #513758					
Well Position	+N/-S	0.0 usft	Northing:	234,477.30 usft	Latitude:	39° 8' 9.463 N
	+E/-W	0.0 usft	Easting:	1,619,107.10 usft	Longitude:	80° 50' 34.138 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,159.0 usft

Wellbore	Main Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/15/2015	-7.72	66.57	52,062

Design	513758 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	177.17	

Survey Program	Date 7/9/2015				
From (')	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	3,503.0	513758 Gyrodata (merged 5/30/15) (Main)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
0.00	15,400.0	513758 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	

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	-1,175.0	0.0	0.0	0.0	0.00	0.00	0.00
103.0	0.43	107.72	103.0	-1,072.0	-0.1	0.4	0.0	0.42	0.42	0.00
128.0	0.43	112.00	128.0	-1,047.0	-0.2	0.5	0.2	0.13	1.00	17.12
153.0	0.39	111.48	153.0	-1,022.0	-0.2	0.7	0.4	0.16	-0.16	-2.08
178.0	0.42	111.44	178.0	-997.0	-0.3	0.9	0.4	0.12	0.12	-0.16
203.0	0.42	115.09	203.0	-972.0	-0.4	1.0	0.4	0.11	0.00	14.60
228.0	0.41	117.17	228.0	-947.0	-0.5	1.2	0.5	0.07	-0.04	8.32
253.0	0.42	116.13	253.0	-922.0	-0.5	1.4	0.6	0.05	0.04	-4.16



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User 8b	Local Co-ordinate Reference:	Well Well #513758
Company:	EQT Production - Detakoo Tillia	TVD Reference:	KB@15 @ 1775 Duff
Project:	Ritchie County, WV	MD Reference:	KB@15 @ 1775 Duff
Site:	Ritchie County 513758	North Reference:	Grid
Well:	Well #5 (3758)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513758 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)
278.0	0.36	123.65	278.0	-897.0	-0.6	1.5	0.7	0.31	-0.24	30.08
303.0	0.29	124.20	303.0	-872.0	-0.7	1.6	0.8	0.28	-0.28	2.20
328.0	0.24	142.00	328.0	-847.0	-0.8	1.7	0.9	0.38	-0.20	71.20
353.0	0.22	154.27	353.0	-822.0	-0.9	1.8	1.0	0.21	-0.08	49.08
378.0	0.24	163.84	378.0	-797.0	-1.0	1.8	1.1	0.17	0.08	38.28
403.0	0.27	165.07	403.0	-772.0	-1.1	1.8	1.2	0.12	0.12	4.92
428.0	0.20	169.31	428.0	-747.0	-1.2	1.9	1.3	0.29	-0.28	16.96
453.0	0.22	174.22	453.0	-722.0	-1.3	1.9	1.4	0.11	0.08	19.64
478.0	0.21	169.13	478.0	-697.0	-1.4	1.9	1.4	0.09	-0.04	-20.36
503.0	0.20	174.93	503.0	-672.0	-1.4	1.9	1.5	0.09	-0.04	23.20
528.0	0.16	176.27	528.0	-647.0	-1.5	1.9	1.6	0.16	-0.16	5.36
553.0	0.16	180.64	553.0	-622.0	-1.6	1.9	1.7	0.05	0.00	17.48
578.0	0.14	190.97	578.0	-597.0	-1.7	1.9	1.7	0.13	-0.08	41.32
603.0	0.14	181.37	603.0	-572.0	-1.7	1.9	1.8	0.09	0.00	-38.40
628.0	0.14	176.26	628.0	-547.0	-1.8	1.9	1.9	0.05	0.00	-20.44
653.0	0.10	158.22	653.0	-522.0	-1.8	1.9	1.9	0.22	-0.16	-72.16
678.0	0.09	84.28	678.0	-497.0	-1.8	1.9	1.9	0.46	-0.04	-295.76
703.0	0.09	54.38	703.0	-472.0	-1.8	2.0	1.9	0.19	0.00	-119.60
728.0	0.14	56.68	728.0	-447.0	-1.8	2.0	1.9	0.20	0.20	9.20
753.0	0.15	48.13	753.0	-422.0	-1.8	2.1	1.9	0.10	0.04	-34.20
778.0	0.15	50.30	778.0	-397.0	-1.7	2.1	1.8	0.02	0.00	8.68
803.0	0.16	58.67	803.0	-372.0	-1.7	2.2	1.8	0.10	0.04	33.48
828.0	0.17	53.27	828.0	-347.0	-1.6	2.2	1.8	0.07	0.04	-21.60
853.0	0.17	57.75	853.0	-322.0	-1.6	2.3	1.7	0.05	0.00	17.92
878.0	0.18	59.53	878.0	-297.0	-1.6	2.3	1.7	0.05	0.04	7.12
903.0	0.20	60.77	903.0	-272.0	-1.5	2.4	1.6	0.08	0.08	4.96
928.0	0.16	70.16	928.0	-247.0	-1.5	2.5	1.6	0.20	-0.16	37.56
953.0	0.17	68.43	953.0	-222.0	-1.5	2.6	1.6	0.04	0.04	-6.92
978.0	0.19	69.88	978.0	-197.0	-1.4	2.6	1.6	0.08	0.08	5.80
1,003.0	0.22	58.57	1,003.0	-172.0	-1.4	2.7	1.5	0.20	0.12	-45.24
1,028.0	0.20	49.10	1,028.0	-147.0	-1.3	2.8	1.5	0.16	-0.08	-37.88
1,053.0	0.29	26.66	1,053.0	-122.0	-1.3	2.8	1.4	0.52	0.36	-89.76
1,078.0	0.30	19.31	1,078.0	-97.0	-1.1	2.9	1.3	0.16	0.04	-29.40
1,103.0	0.34	19.39	1,103.0	-72.0	-1.0	2.9	1.2	0.16	0.16	0.32
1,128.0	0.36	20.48	1,128.0	-47.0	-0.9	3.0	1.0	0.08	0.08	4.36
1,153.0	0.36	14.76	1,153.0	-22.0	-0.7	3.0	0.9	0.14	0.00	-22.88
1,178.0	0.33	16.47	1,178.0	3.0	-0.6	3.1	0.7	0.13	-0.12	6.84
1,203.0	0.34	16.35	1,203.0	28.0	-0.4	3.1	0.6	0.04	0.04	-0.48
1,228.0	0.37	16.03	1,228.0	53.0	-0.3	3.2	0.4	0.12	0.12	-1.28
1,253.0	0.35	15.44	1,253.0	78.0	-0.1	3.2	0.3	0.08	-0.08	-2.36
1,278.0	0.37	12.94	1,278.0	103.0	0.0	3.3	0.1	0.10	0.08	-10.00
1,303.0	0.36	16.47	1,303.0	128.0	0.2	3.3	0.0	0.10	-0.04	14.12



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User.Db	Local Co-ordinate Reference:	Well: Well #513758
Company:	EQT Production - Genesis Shale	TVD Reference:	KB @ 16 @ 1175.0usft
Project:	Ritchie County, WV	MD Reference:	KB @ 15 @ 1175.0usft
Site:	Ritchie County 513788	North Reference:	Grid
Well:	Well #513758	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513788 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)
1,328.0	0.40	13.40	1,328.0	153.0	0.3	3.3	-0.2	0.18	0.16	-12.28
1,353.0	0.42	10.45	1,353.0	178.0	0.5	3.4	-0.3	0.12	0.08	-11.80
1,378.0	0.42	10.51	1,378.0	203.0	0.7	3.4	-0.5	0.00	0.00	0.24
1,403.0	0.43	13.68	1,403.0	228.0	0.9	3.4	-0.7	0.10	0.04	12.68
1,428.0	0.46	18.65	1,428.0	253.0	1.1	3.5	-0.9	0.20	0.12	19.88
1,453.0	0.47	20.59	1,453.0	278.0	1.3	3.6	-1.1	0.07	0.04	7.76
1,478.0	0.46	23.83	1,478.0	303.0	1.4	3.6	-1.3	0.11	-0.04	12.96
1,503.0	0.46	29.19	1,503.0	328.0	1.6	3.7	-1.4	0.17	0.00	21.44
1,528.0	0.49	42.82	1,528.0	353.0	1.8	3.9	-1.6	0.47	0.12	54.52
1,553.0	0.52	45.47	1,553.0	378.0	1.9	4.0	-1.7	0.15	0.12	10.60
1,578.0	0.56	52.87	1,578.0	403.0	2.1	4.2	-1.9	0.32	0.16	29.60
1,603.0	0.62	57.14	1,603.0	428.0	2.2	4.4	-2.0	0.30	0.24	17.08
1,628.0	0.67	63.12	1,628.0	453.0	2.4	4.6	-2.2	0.34	0.20	23.92
1,653.0	0.72	70.03	1,653.0	478.0	2.5	4.9	-2.3	0.39	0.20	27.64
1,678.0	0.85	84.43	1,678.0	503.0	2.6	5.2	-2.3	0.94	0.52	57.60
1,703.0	0.93	91.51	1,703.0	528.0	2.6	5.6	-2.3	0.54	0.32	28.32
1,728.0	0.97	89.33	1,728.0	553.0	2.6	6.1	-2.3	0.22	0.16	-8.72
1,753.0	0.99	92.67	1,753.0	578.0	2.6	6.5	-2.3	0.24	0.08	13.36
1,778.0	1.01	94.22	1,778.0	603.0	2.6	6.9	-2.2	0.13	0.08	6.20
1,803.0	1.04	95.07	1,803.0	628.0	2.5	7.4	-2.1	0.13	0.12	3.40
1,828.0	1.05	96.03	1,827.9	652.9	2.5	7.8	-2.1	0.08	0.04	3.84
1,853.0	1.06	94.58	1,852.9	677.9	2.4	8.3	-2.0	0.11	0.04	-5.80
1,878.0	1.06	93.67	1,877.9	702.9	2.4	8.7	-2.0	0.07	0.00	-3.64
1,903.0	1.10	96.03	1,902.9	727.9	2.4	9.2	-1.9	0.24	0.16	9.44
1,928.0	1.08	96.65	1,927.9	752.9	2.3	9.7	-1.8	0.09	-0.08	2.48
1,953.0	1.08	95.49	1,952.9	777.9	2.3	10.1	-1.7	0.09	0.00	-4.64
1,978.0	1.09	97.23	1,977.9	802.9	2.2	10.6	-1.7	0.14	0.04	6.96
2,003.0	1.01	99.82	2,002.9	827.9	2.1	11.1	-1.6	0.37	-0.32	10.36
2,028.0	1.10	97.67	2,027.9	852.9	2.1	11.5	-1.5	0.39	0.36	-8.60
2,053.0	1.00	101.74	2,052.9	877.9	2.0	12.0	-1.4	0.50	-0.40	16.28
2,078.0	0.95	105.73	2,077.9	902.9	1.9	12.4	-1.3	0.34	-0.20	15.96
2,103.0	1.01	105.58	2,102.9	927.9	1.8	12.8	-1.1	0.24	0.24	-0.60
2,128.0	0.93	107.46	2,127.9	952.9	1.7	13.2	-1.0	0.34	0.32	7.52
2,153.0	1.00	103.69	2,152.9	977.9	1.5	13.6	-0.9	0.38	0.28	-15.08
2,178.0	1.00	105.99	2,177.9	1,002.9	1.4	14.0	-0.8	0.16	0.00	9.20
2,203.0	0.96	105.86	2,202.9	1,027.9	1.3	14.4	-0.6	0.08	-0.16	-0.52
2,228.0	1.03	109.11	2,227.9	1,052.9	1.2	14.9	-0.4	0.36	0.28	13.00
2,253.0	1.01	107.04	2,252.9	1,077.9	1.0	15.3	-0.3	0.17	0.00	0.28
2,278.0	1.01	108.44	2,277.9	1,102.9	0.9	15.7	-0.1	0.17	0.00	5.60
2,303.0	1.02	107.79	2,302.9	1,127.9	0.8	16.1	0.0	0.06	0.04	-2.60
2,328.0	1.00	110.68	2,327.9	1,152.9	0.6	16.5	0.2	0.22	-0.08	11.56
2,353.0	0.97	110.14	2,352.9	1,177.9	0.5	16.9	0.4	0.13	-0.12	-2.16
2,378.0	0.96	113.71	2,377.9	1,202.9	0.3	17.3	0.5	0.24	-0.04	14.28

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Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User DE	Local Co-ordinate Reference:	Well: Well #513755
Company:	EQT Production - Genesee State	TVD Reference:	KB@18 @ 1175 0usf
Project:	Richie County, WV	MD Reference:	KB@18 @ 1175 0usf
Site:	Richie County 511750	North Reference:	Grid
Well:	Well #513755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513755 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)
2,403.0	0.95	113.83	2,402.9	1,227.9	0.1	17.7	0.7	0.04	-0.04	0.48
2,428.0	0.93	113.14	2,427.9	1,252.9	0.0	18.1	0.9	0.09	-0.08	-2.76
2,453.0	0.86	117.81	2,452.9	1,277.9	-0.2	18.4	1.1	0.40	-0.28	18.68
2,478.0	0.90	117.69	2,477.8	1,302.8	-0.4	18.8	1.3	0.16	0.16	-0.48
2,503.0	0.88	114.59	2,502.8	1,327.8	-0.5	19.1	1.5	0.21	-0.08	-12.40
2,528.0	0.87	116.27	2,527.8	1,352.8	-0.7	19.5	1.7	0.11	-0.04	6.72
2,553.0	0.84	119.38	2,552.8	1,377.8	-0.9	19.8	1.8	0.22	-0.12	12.44
2,578.0	0.86	118.42	2,577.8	1,402.8	-1.0	20.1	2.0	0.10	0.08	-3.84
2,603.0	0.81	121.00	2,602.8	1,427.8	-1.2	20.4	2.2	0.25	-0.20	10.32
2,628.0	0.85	122.00	2,627.8	1,452.8	-1.4	20.8	2.4	0.17	0.16	4.00
2,653.0	0.84	121.37	2,652.8	1,477.8	-1.6	21.1	2.7	0.05	-0.04	-2.52
2,678.0	0.87	122.72	2,677.8	1,502.8	-1.8	21.4	2.9	0.14	0.12	5.40
2,703.0	0.86	125.53	2,702.8	1,527.8	-2.0	21.7	3.1	0.17	-0.04	11.24
2,728.0	0.87	124.22	2,727.8	1,552.8	-2.2	22.0	3.3	0.09	0.04	-5.24
2,753.0	0.86	123.36	2,752.8	1,577.8	-2.4	22.3	3.5	0.07	-0.04	-3.44
2,778.0	0.84	127.34	2,777.8	1,602.8	-2.7	22.6	3.8	0.25	-0.08	15.92
2,803.0	0.86	125.12	2,802.8	1,627.8	-2.9	22.9	4.0	0.15	0.08	-8.88
2,828.0	0.83	128.88	2,827.8	1,652.8	-3.1	23.2	4.2	0.25	-0.12	15.04
2,853.0	0.90	126.88	2,852.8	1,677.8	-3.3	23.5	4.5	0.30	0.28	-8.00
2,878.0	0.80	133.61	2,877.8	1,702.8	-3.6	23.8	4.7	0.56	-0.40	26.92
2,903.0	0.80	132.55	2,902.8	1,727.8	-3.8	24.0	5.0	0.06	0.00	-4.24
2,928.0	0.76	134.11	2,927.8	1,752.8	-4.0	24.3	5.2	0.18	-0.16	6.24
2,953.0	0.54	128.72	2,952.8	1,777.8	-4.2	24.5	5.4	0.91	-0.88	-21.56
2,978.0	0.51	126.34	2,977.8	1,802.8	-4.4	24.7	5.6	0.15	-0.12	-9.52
3,003.0	0.45	111.08	3,002.8	1,827.8	-4.5	24.9	5.7	0.56	-0.24	-61.04
3,028.0	0.35	39.96	3,027.8	1,852.8	-4.5	25.0	5.7	1.89	-0.40	-284.48
3,053.0	0.62	345.94	3,052.8	1,877.8	-4.3	25.0	5.5	2.01	1.08	-216.08
3,078.0	0.30	252.23	3,077.8	1,902.8	-4.2	24.9	5.4	2.82	-1.28	-374.84
3,103.0	0.77	182.12	3,102.8	1,927.8	-4.3	24.9	5.6	2.90	1.88	-280.44
3,128.0	0.44	158.24	3,127.8	1,952.8	-4.6	24.9	5.8	1.63	-1.32	-95.52
3,153.0	0.44	155.65	3,152.8	1,977.8	-4.8	25.0	6.0	0.08	0.00	-10.36
3,178.0	0.37	152.34	3,177.8	2,002.8	-4.9	25.0	6.2	0.30	-0.28	-13.24
3,203.0	0.32	143.05	3,202.8	2,027.8	-5.1	25.1	6.3	0.30	-0.20	-37.16
3,228.0	0.34	140.77	3,227.8	2,052.8	-5.2	25.2	6.4	0.10	0.08	-9.12
3,253.0	0.34	128.31	3,252.8	2,077.8	-5.3	25.3	6.5	0.30	0.00	-49.84
3,278.0	0.35	132.57	3,277.8	2,102.8	-5.4	25.4	6.6	0.11	0.04	17.04
3,303.0	0.33	136.21	3,302.8	2,127.8	-5.5	25.5	6.7	0.12	-0.08	14.56
3,328.0	0.32	132.88	3,327.8	2,152.8	-5.6	25.6	6.8	0.09	-0.04	-13.32
3,353.0	0.32	130.76	3,352.8	2,177.8	-5.7	25.7	6.9	0.05	0.00	-8.40
3,378.0	0.29	131.87	3,377.8	2,202.8	-5.8	25.8	7.0	0.12	-0.12	4.44
3,403.0	0.32	134.19	3,402.8	2,227.8	-5.8	25.9	7.1	0.25	0.21	9.28
3,428.0	0.26	137.79	3,427.8	2,252.8	-5.9	26.0	7.2	0.25	0.21	14.40

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Phoenix Technology Services

Survey Report



Database:	EDM 5000.1 Single User Etc	Local Co-ordinate Reference:	Well Well #513755
Company:	EQT Production - Genesis Shale	TVD Reference:	KB@15 @ 1175.0usft
Project:	Ritchie County WV	MD Reference:	KB@15 @ 1175.0usft
Site:	Ritchie County 513755	North Reference:	Grid
Well:	Well #513755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513755 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)
3,453.0	0.26	141.13	3,452.8	2,277.8	-6.0	26.1	7.3	0.06	0.00	13.36
3,478.0	0.25	127.51	3,477.8	2,302.8	-6.1	26.2	7.4	0.25	-0.04	-54.48
Gyro Tie Ctr=2501 MD										
3,503.0	0.27	137.42	3,502.8	2,327.8	-6.2	26.3	7.5	0.20	0.08	39.64
3,631.0	0.10	174.80	3,630.8	2,455.8	-6.5	26.5	7.8	0.16	-0.13	29.20
3,680.0	0.40	246.50	3,679.8	2,504.8	-6.6	26.3	7.9	0.78	0.61	146.33
3,711.0	2.00	255.10	3,710.8	2,535.8	-6.8	25.7	8.1	5.18	5.16	27.74
3,742.0	4.20	260.20	3,741.7	2,566.7	-7.1	24.1	8.3	7.15	7.10	16.45
3,774.0	6.50	263.90	3,773.6	2,598.6	-7.5	21.1	8.6	7.26	7.19	11.56
3,805.0	8.80	264.00	3,804.3	2,629.3	-8.0	17.0	8.8	7.42	7.42	0.32
3,837.0	11.50	261.80	3,835.8	2,660.8	-8.7	11.4	9.2	8.52	8.44	-6.88
3,868.0	14.40	259.20	3,866.0	2,691.0	-9.8	4.6	10.1	9.54	9.35	-8.39
3,900.0	17.10	257.20	3,896.8	2,721.8	-11.6	-3.9	11.4	8.61	8.44	-6.25
3,931.0	19.50	255.50	3,926.2	2,751.2	-13.9	-13.4	13.3	7.93	7.74	-5.48
3,963.0	22.00	254.70	3,956.2	2,781.2	-16.9	-24.3	15.6	7.86	7.81	-2.50
3,994.0	24.60	253.60	3,984.6	2,809.6	-20.2	-36.1	18.4	8.50	8.39	-3.55
4,026.0	27.30	253.20	4,013.4	2,838.4	-24.2	-49.6	21.7	8.46	8.44	-1.25
4,057.0	29.80	254.00	4,040.6	2,865.6	-28.4	-63.8	25.2	8.16	8.06	2.58
4,089.0	32.80	255.40	4,068.0	2,893.0	-32.8	-79.8	28.8	9.65	9.38	4.38
4,120.0	35.40	256.00	4,093.6	2,918.6	-37.1	-96.6	32.2	8.46	8.39	1.94
4,152.0	37.90	256.50	4,119.3	2,944.3	-41.6	-115.2	35.8	7.87	7.81	1.56
4,183.0	40.20	256.10	4,143.4	2,968.4	-46.2	-134.2	39.5	7.46	7.42	-1.29
4,246.0	44.20	255.50	4,190.0	3,015.0	-56.6	-175.2	47.9	6.38	6.35	-0.95
4,308.0	43.00	254.60	4,234.9	3,059.9	-67.6	-216.5	56.8	2.18	-1.94	-1.45
4,371.0	41.10	253.00	4,281.7	3,106.7	-79.4	-257.0	66.6	3.46	-3.02	-2.54
4,434.0	40.90	252.90	4,329.3	3,154.3	-91.5	-296.5	76.7	0.33	-0.32	-0.16
4,498.0	41.50	256.30	4,377.4	3,202.4	-102.7	-337.2	85.9	3.62	0.94	5.31
4,561.0	41.80	257.30	4,424.5	3,249.5	-112.3	-377.9	93.4	1.16	0.48	1.59
4,624.0	43.80	257.30	4,470.7	3,295.7	-121.7	-419.7	100.8	3.17	3.17	0.00
4,687.0	43.50	257.10	4,516.3	3,341.3	-131.3	-462.1	108.3	0.52	-0.48	-0.32
4,750.0	43.30	256.20	4,562.1	3,387.1	-141.3	-504.2	116.2	1.03	-0.32	-1.43
4,813.0	43.20	256.50	4,608.0	3,433.0	-151.5	-546.1	124.3	0.36	-0.16	0.48
4,876.0	43.30	255.20	4,653.9	3,478.9	-162.0	-588.0	132.8	1.42	0.16	-2.06
4,939.0	42.50	254.90	4,700.0	3,525.0	-173.1	-629.4	141.8	1.31	-1.27	-0.48
5,001.0	41.80	254.50	4,746.0	3,571.0	-184.1	-669.6	150.7	1.21	-1.13	-0.65
5,064.0	43.20	255.40	4,792.4	3,617.4	-195.1	-710.7	159.7	2.42	2.22	1.43
5,127.0	42.50	255.60	4,838.6	3,663.6	-205.8	-752.1	168.4	1.15	-1.11	0.32
5,190.0	42.60	255.10	4,885.0	3,710.0	-216.6	-793.4	177.1	0.56	0.16	0.79
5,253.0	41.50	255.40	4,931.8	3,756.8	-227.4	-834.2	185.8	1.77	1.75	0.48
5,317.0	41.10	255.10	4,979.9	3,804.9	-238.1	-875.0	194.6	0.70	0.63	-0.47
5,379.0	42.50	257.00	5,026.1	3,851.1	-248.1	-915.1	202.5	3.04	2.26	1.68
5,442.0	42.30	257.20	5,072.6	3,897.6	-257.6	-956.5	209.9	0.88	-0.32	0.32
5,505.0	42.80	255.90	5,119.0	3,944.0	-267.5	-998.0	217.8	1.19	0.19	-2.06

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Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User DB	Local Co-ordinate Reference:	Well: Well #5 1375B
Company:	EQT Production - Genesee State	TVD Reference:	KB@16 @ 1175 usft
Project:	Ritchie County WV	MD Reference:	KB@15 @ 1175 usft
Site:	Ritchie County 51375B	North Reference:	Grid
Well:	Well #5 1375B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	51375B As Entered 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)
5,568.0	43.10	255.40	5,165.2	3,990.2	-278.1	-1,039.5	226.4	0.72	0.48	-0.79
5,632.0	41.40	254.80	5,212.5	4,037.5	-289.2	-1,081.1	235.3	2.73	-2.66	-0.94
5,695.0	41.50	256.00	5,259.7	4,084.7	-299.7	-1,121.5	243.8	1.27	0.16	1.90
5,758.0	42.80	257.20	5,306.5	4,131.5	-309.5	-1,162.6	251.6	2.43	2.06	1.90
5,821.0	41.50	257.00	5,353.2	4,178.2	-318.9	-1,203.8	259.0	2.07	-2.06	-0.32
5,884.0	38.90	255.90	5,401.3	4,226.3	-328.4	-1,243.3	266.5	4.28	-4.13	-1.75
5,946.0	38.60	255.70	5,449.6	4,274.6	-337.9	-1,281.0	274.2	0.52	-0.48	-0.32
6,009.0	40.20	256.20	5,498.3	4,323.3	-347.6	-1,319.8	282.0	2.59	2.54	0.79
6,072.0	42.10	257.40	5,545.7	4,370.7	-357.1	-1,360.1	289.4	3.27	3.02	1.90
6,136.0	44.40	257.40	5,592.4	4,417.4	-366.7	-1,402.9	296.8	3.59	3.59	0.00
6,198.0	45.00	257.90	5,636.4	4,461.4	-376.0	-1,445.5	304.0	1.12	0.97	0.81
6,262.0	44.00	258.60	5,682.1	4,507.1	-385.1	-1,489.4	311.0	1.74	-1.56	1.09
6,325.0	43.20	255.30	5,727.7	4,552.7	-394.9	-1,531.7	318.7	3.83	-1.27	-5.24
6,388.0	41.90	253.60	5,774.1	4,599.1	-406.3	-1,572.8	328.1	2.75	-2.06	-2.70
6,451.0	42.30	254.70	5,820.9	4,645.9	-417.9	-1,613.4	337.6	1.33	0.63	1.75
6,514.0	43.80	255.80	5,866.9	4,691.9	-428.8	-1,655.0	346.4	2.66	2.38	1.75
6,577.0	43.30	255.70	5,912.6	4,737.6	-439.5	-1,697.1	355.0	0.80	-0.79	-0.16
6,640.0	41.80	253.60	5,959.0	4,784.0	-450.8	-1,738.2	364.3	3.28	-2.38	-3.33
6,672.0	40.90	250.70	5,983.0	4,808.0	-457.2	-1,758.3	369.7	6.61	-2.81	-9.06
6,703.0	40.70	247.00	6,006.5	4,831.5	-464.5	-1,777.2	376.1	7.82	-0.65	-11.94
6,735.0	41.10	242.40	6,030.7	4,855.7	-473.5	-1,796.1	384.1	9.49	1.25	-14.38
6,766.0	41.70	238.50	6,053.9	4,878.9	-483.6	-1,813.9	393.3	8.54	1.94	-12.58
6,798.0	42.50	234.00	6,077.7	4,902.7	-495.5	-1,831.7	404.3	9.75	2.50	-14.06
6,829.0	42.90	229.80	6,100.5	4,925.5	-508.5	-1,848.3	416.5	9.28	1.29	-13.55
6,861.0	43.00	225.60	6,123.9	4,948.9	-523.2	-1,864.4	430.3	8.95	0.31	-13.13
6,892.0	43.40	221.90	6,146.5	4,971.5	-538.5	-1,879.1	444.9	8.27	1.29	-11.94
6,924.0	43.50	218.10	6,169.7	4,994.7	-555.3	-1,893.2	461.0	8.17	0.31	-11.88
6,955.0	44.00	214.60	6,192.1	5,017.1	-572.6	-1,905.9	477.6	7.97	1.61	-11.29
6,987.0	44.90	211.00	6,215.0	5,040.0	-591.4	-1,918.0	495.9	8.36	2.81	-11.25
7,018.0	46.80	207.90	6,236.6	5,061.6	-610.8	-1,929.0	514.7	9.44	6.13	-10.00
7,049.0	49.10	206.30	6,257.3	5,082.3	-631.3	-1,939.4	534.6	8.35	7.42	-5.16
7,081.0	51.10	205.60	6,277.8	5,102.8	-653.4	-1,950.2	556.1	6.47	6.25	-2.19
7,112.0	53.50	204.10	6,296.8	5,121.8	-675.6	-1,960.5	577.8	8.64	7.74	-4.84
7,143.0	56.40	202.00	6,314.6	5,139.6	-699.0	-1,970.4	600.7	10.87	9.35	-6.77
7,175.0	58.70	200.00	6,331.8	5,156.8	-724.2	-1,980.1	625.4	8.91	7.19	-6.25
7,207.0	60.20	197.20	6,348.0	5,173.0	-750.3	-1,988.9	651.0	8.87	4.69	-8.75
7,238.0	61.90	194.10	6,363.0	5,188.0	-776.4	-1,996.2	676.7	10.33	5.48	-10.00
7,269.0	63.50	191.00	6,377.3	5,202.3	-803.3	-2,002.1	703.3	10.28	5.16	-10.00
7,301.0	65.00	188.30	6,391.2	5,216.2	-831.7	-2,007.0	731.4	8.93	1.69	-8.44
7,332.0	66.80	186.00	6,403.8	5,228.8	-859.8	-2,010.5	759.3	9.25	5.81	-7.42
7,364.0	69.10	183.60	6,415.8	5,240.8	-889.3	-2,013.0	788.7	10.00	7.19	-5.00
7,395.0	72.00	181.30	6,426.2	5,251.2	-918.5	-2,014.2	817.8	11.68	8.85	-7.42
7,426.0	74.20	178.50	6,435.2	5,260.2	-948.2	-2,014.2	847.4	11.16	7.10	-9.03

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Phoenix Technology Services

Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well: Well #513758
Company:	EQT Production - Genesee Shale	TVD Reference:	KB@ 18 @ 1175 Dash
Project:	Ritchee County, WV	MD Reference:	KB@ 18 @ 1175 Dash
Site:	Ritchee County 513768	North Reference:	Grid
Well:	Well #513758	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513758 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)	
7,457.0	75.70	176.00	6,443.2	5,268.2	-978.1	-2,012.7	877.4	9.17	4.84	-8.06	
7,489.0	77.30	173.40	6,450.7	5,275.7	-1,009.1	-2,009.8	908.4	9.35	5.00	-8.13	
7,520.0	78.90	170.60	6,457.1	5,282.1	-1,039.1	-2,005.6	938.6	10.23	5.16	-9.03	
7,551.0	81.00	168.40	6,462.5	5,287.5	-1,069.1	-2,000.0	968.9	9.73	6.77	-7.10	
7,583.0	83.20	167.20	6,466.9	5,291.9	-1,100.1	-1,993.4	1,000.2	7.81	6.88	-3.75	
7,614.0	85.40	165.30	6,470.0	5,295.0	-1,130.1	-1,986.0	1,030.5	9.36	7.10	-6.13	
513758 LP 1038 VS											
7,622.5	85.85	164.74	6,470.6	5,295.6	-1,138.3	-1,983.8	1,038.8	8.43	5.31	-6.57	
7,646.0	87.10	163.20	6,472.1	5,297.1	-1,160.8	-1,977.4	1,061.6	8.43	5.31	-6.56	
LP=7708' MD/8473' TVD											
7,709.0	90.70	161.50	6,473.3	5,298.3	-1,220.8	-1,958.3	1,122.5	6.32	5.71	-2.70	
7,772.0	90.30	159.60	6,472.7	5,297.7	-1,280.2	-1,937.3	1,182.8	3.08	-0.63	-3.02	
7,835.0	90.00	159.20	6,472.6	5,297.6	-1,339.2	-1,915.1	1,242.8	0.79	-0.48	-0.63	
7,898.0	90.90	160.30	6,472.1	5,297.1	-1,398.3	-1,893.3	1,302.9	2.26	1.43	1.75	
7,960.0	91.20	161.00	6,470.9	5,295.9	-1,456.8	-1,872.8	1,362.4	1.23	0.48	1.13	
8,023.0	91.60	162.50	6,469.4	5,294.4	-1,516.6	-1,853.0	1,423.1	2.46	0.63	2.38	
8,087.0	91.40	161.60	6,467.7	5,292.7	-1,577.4	-1,833.3	1,484.8	1.44	-0.31	-1.41	
8,150.0	92.00	161.80	6,465.9	5,290.9	-1,637.2	-1,813.6	1,545.5	1.00	0.95	0.32	
513758 Plat LP											
8,173.0	91.78	161.73	6,465.1	5,290.1	-1,659.0	-1,806.4	1,567.6	1.00	-0.95	-0.32	
8,213.0	91.40	161.60	6,464.0	5,289.0	-1,697.0	-1,793.8	1,606.2	1.00	-0.95	-0.32	
8,276.0	88.20	161.80	6,464.2	5,289.2	-1,756.8	-1,774.0	1,666.9	5.09	-5.08	0.32	
8,339.0	88.70	161.50	6,465.9	5,290.9	-1,816.6	-1,754.2	1,727.6	0.93	0.79	-0.48	
8,402.0	89.00	162.20	6,467.2	5,292.2	-1,876.4	-1,734.6	1,788.4	1.21	0.48	1.11	
8,465.0	89.10	161.20	6,468.2	5,293.2	-1,936.2	-1,714.8	1,849.1	1.60	0.16	-1.59	
8,528.0	89.00	160.70	6,469.3	5,294.3	-1,995.8	-1,694.2	1,909.6	0.81	-0.16	-0.79	
8,591.0	89.40	160.70	6,470.1	5,295.1	-2,055.2	-1,673.4	1,970.0	0.63	0.63	0.00	
8,654.0	88.40	161.40	6,471.4	5,296.4	-2,114.8	-1,652.9	2,030.5	1.94	-1.59	1.11	
8,717.0	89.10	162.00	6,472.7	5,297.7	-2,174.6	-1,633.2	2,091.2	1.46	1.11	0.95	
8,780.0	89.30	162.20	6,473.6	5,298.6	-2,234.6	-1,613.8	2,152.0	0.45	0.32	0.32	
8,843.0	89.40	161.70	6,474.3	5,299.3	-2,294.4	-1,594.3	2,212.8	0.81	0.16	-0.79	
8,906.0	89.30	160.90	6,475.0	5,300.0	-2,354.1	-1,574.1	2,273.4	1.28	-0.16	-1.27	
8,970.0	90.50	161.50	6,475.1	5,300.1	-2,414.7	-1,553.5	2,334.9	2.10	1.88	0.94	
9,032.0	91.30	163.60	6,474.2	5,299.2	-2,473.8	-1,534.9	2,394.9	3.62	1.29	3.39	
9,095.0	91.20	162.90	6,472.8	5,297.8	-2,534.2	-1,516.7	2,456.0	1.12	-0.16	-1.11	
9,158.0	91.60	163.00	6,471.3	5,296.3	-2,594.4	-1,498.3	2,517.1	0.65	0.63	0.16	
9,221.0	91.40	161.60	6,469.6	5,294.6	-2,654.4	-1,479.1	2,578.0	2.24	-0.32	-2.22	
9,284.0	91.80	162.60	6,467.9	5,292.9	-2,714.3	-1,459.8	2,638.8	1.71	0.63	1.59	
9,347.0	91.40	163.60	6,466.1	5,291.1	-2,774.5	-1,441.4	2,699.9	1.71	-0.63	1.59	
9,410.0	90.60	162.50	6,465.0	5,290.0	-2,834.8	-1,423.1	2,760.9	2.16	-1.27	-1.75	
9,472.0	90.80	161.80	6,464.2	5,289.2	-2,893.8	-1,404.1	2,820.8	1.17	0.32	-1.13	
9,535.0	91.30	161.50	6,463.1	5,288.1	-2,953.6	-1,384.3	2,881.5	0.93	0.79	-0.48	
9,598.0	91.60	160.90	6,461.5	5,286.5	-3,013.2	-1,364.0	2,942.1	1.06	0.48	-0.95	



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User DB	Local Co-ordinate Reference:	Well: Well #513758
Company:	EQT Production - Genesee Shale	TVD Reference:	KR@16 @ 1175.0JEF
Project:	Ritchie County WV	MD Reference:	KR@15 @ 1175.0JEF
Site:	Ritchie County 513758	North Reference:	Grid
Well:	Well #513758	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513758 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)
9,660.0	90.10	161.10	6,460.6	5,285.6	-3,071.8	-1,343.8	3,001.6	2.44	-2.42	0.32
9,723.0	89.00	160.90	6,461.1	5,286.1	-3,131.4	-1,323.3	3,062.1	1.77	-1.75	-0.32
9,786.0	89.90	161.80	6,461.7	5,286.7	-3,191.1	-1,303.1	3,122.7	2.02	1.43	1.43
9,849.0	90.40	161.50	6,461.5	5,286.5	-3,250.9	-1,283.3	3,183.4	0.93	0.79	-0.48
9,912.0	90.40	160.90	6,461.1	5,286.1	-3,310.5	-1,263.0	3,244.0	0.95	0.00	-0.95
9,975.0	90.80	163.50	6,460.4	5,285.4	-3,370.5	-1,243.7	3,304.9	4.18	0.63	4.13
10,038.0	90.90	163.40	6,459.5	5,284.5	-3,430.9	-1,225.8	3,366.0	0.22	0.16	-0.16
10,101.0	91.00	163.10	6,458.4	5,283.4	-3,491.2	-1,207.6	3,427.2	0.50	0.16	-0.48
10,163.0	90.80	162.40	6,457.5	5,282.5	-3,550.4	-1,189.2	3,487.2	1.17	-0.32	-1.13
10,226.0	89.20	162.60	6,457.5	5,282.5	-3,610.5	-1,170.3	3,548.2	2.56	-2.54	0.32
10,289.0	88.90	161.70	6,458.5	5,283.5	-3,670.4	-1,151.0	3,609.0	1.51	-0.48	-1.43
10,352.0	88.80	161.40	6,459.8	5,284.8	-3,730.2	-1,131.1	3,669.7	0.50	-0.16	-0.48
10,415.0	88.80	160.70	6,461.1	5,286.1	-3,789.8	-1,110.6	3,730.2	1.11	0.00	-1.11
10,477.0	89.00	161.20	6,462.3	5,287.3	-3,848.3	-1,090.4	3,789.7	0.87	0.32	0.81
10,540.0	88.00	162.70	6,463.9	5,288.9	-3,908.2	-1,070.9	3,850.5	2.86	-1.59	2.38
10,603.0	87.90	162.20	6,466.2	5,291.2	-3,968.3	-1,051.9	3,911.4	0.81	-0.16	-0.79
10,666.0	87.90	161.80	6,468.5	5,293.5	-4,028.1	-1,032.4	3,972.1	0.63	0.00	-0.63
10,729.0	88.10	161.70	6,470.7	5,295.7	-4,087.9	-1,012.7	4,032.8	0.35	0.32	-0.16
10,793.0	88.30	162.50	6,472.7	5,297.7	-4,148.8	-993.0	4,094.6	1.29	0.31	1.25
10,855.0	88.70	162.40	6,474.3	5,299.3	-4,207.9	-974.4	4,154.6	0.67	0.65	-0.16
Deepest Point=10918' MD=6474' TVD										
10,918.0	91.30	162.60	6,474.3	5,299.3	-4,268.0	-955.4	4,215.5	4.14	4.13	0.32
10,981.0	91.60	161.70	6,472.7	5,297.7	-4,327.9	-936.1	4,276.3	1.51	0.48	-1.43
11,045.0	91.60	161.10	6,470.9	5,295.9	-4,388.5	-915.7	4,337.9	0.94	0.00	-0.94
11,108.0	91.30	160.30	6,469.3	5,294.3	-4,448.0	-894.9	4,398.3	1.36	-0.48	-1.27
11,171.0	91.20	160.20	6,468.0	5,293.0	-4,507.3	-873.6	4,458.5	0.22	-0.16	-0.16
11,234.0	91.50	161.50	6,466.5	5,291.5	-4,566.8	-852.9	4,519.0	2.12	0.48	2.06
11,297.0	92.00	162.20	6,464.6	5,289.6	-4,626.6	-833.3	4,579.7	1.37	0.79	1.11
11,360.0	92.70	164.10	6,462.0	5,287.0	-4,686.8	-815.1	4,640.8	3.21	1.11	3.02
11,423.0	92.10	163.10	6,459.3	5,284.3	-4,747.2	-797.3	4,702.0	1.85	-0.95	-1.59
11,486.0	92.00	162.30	6,457.1	5,282.1	-4,807.3	-778.6	4,762.9	1.28	-0.16	-1.27
11,549.0	91.90	161.80	6,454.9	5,279.9	-4,867.2	-759.2	4,823.7	0.81	-0.16	-0.79
11,612.0	91.30	160.60	6,453.2	5,278.2	-4,926.8	-738.9	4,884.3	2.13	-0.95	-1.90
11,674.0	91.50	160.90	6,451.7	5,276.7	-4,985.4	-718.5	4,943.7	0.58	0.32	0.48
11,737.0	91.20	163.00	6,450.2	5,275.2	-5,045.2	-698.9	5,004.5	3.37	-0.48	3.33
11,800.0	90.60	161.60	6,449.2	5,274.2	-5,105.3	-679.8	5,065.4	2.42	-0.95	-2.22
11,863.0	90.20	160.30	6,448.7	5,273.7	-5,164.8	-659.2	5,125.9	2.16	-0.63	-2.06
11,926.0	90.30	163.20	6,448.5	5,273.5	-5,224.6	-639.5	5,186.6	4.61	0.16	4.60
11,989.0	90.40	163.30	6,448.1	5,273.1	-5,284.9	-621.3	5,247.8	0.22	0.16	0.16
12,052.0	90.20	165.20	6,447.8	5,272.8	-5,345.6	-604.2	5,309.2	3.03	-0.32	3.02
12,115.0	89.80	164.40	6,447.8	5,272.8	-5,406.4	-587.7	5,370.7	1.42	-0.63	-1.27
12,178.0	89.50	163.50	6,448.1	5,273.1	-5,466.9	-570.3	5,432.0	1.51	-0.48	-1.43



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Ed	Local Co-ordinate Reference:	Well Well #513758
Company:	EQT Production - Genesis (Lille)	TVD Reference:	KB@10 @ 1175.0usf
Project:	Richie County, WV	MD Reference:	KB@10 @ 1175.0usf
Site:	Richie County 513758	North Reference:	Geo
Well:	Well #513758	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513758 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)
12,241.0	89.60	162.60	6,448.6	5,273.6	-5,527.2	-551.9	5,493.1	1.44	0.16	-1.43
12,304.0	90.20	163.60	6,448.7	5,273.7	-5,587.5	-533.6	5,554.2	1.85	0.95	1.59
12,367.0	90.80	164.10	6,448.2	5,273.2	-5,648.0	-516.1	5,615.5	1.24	0.95	0.79
12,430.0	90.10	162.80	6,447.7	5,272.7	-5,708.4	-498.2	5,676.7	2.34	-1.11	-2.06
12,493.0	88.70	162.20	6,448.4	5,273.4	-5,768.4	-479.2	5,737.7	2.42	-2.22	-0.95
12,556.0	88.40	161.30	6,450.0	5,275.0	-5,828.2	-459.5	5,798.4	1.51	-0.48	-1.43
12,619.0	89.10	160.80	6,451.3	5,276.3	-5,887.8	-439.0	5,858.9	1.37	1.11	-0.79
12,682.0	90.30	162.70	6,451.7	5,276.7	-5,947.6	-419.3	5,919.6	3.57	1.90	3.02
12,745.0	90.20	164.80	6,451.4	5,276.4	-6,008.1	-401.7	5,980.9	3.34	-0.16	3.33
12,808.0	90.10	164.80	6,451.2	5,276.2	-6,068.9	-385.2	6,042.4	0.16	-0.16	0.00
12,871.0	89.90	164.50	6,451.2	5,276.2	-6,129.7	-368.5	6,103.9	0.57	-0.32	-0.48
12,934.0	89.80	164.50	6,451.4	5,276.4	-6,190.4	-351.7	6,165.4	0.16	-0.16	0.00
12,997.0	90.30	165.40	6,451.3	5,276.3	-6,251.2	-335.3	6,227.0	1.63	0.79	1.43
13,060.0	90.50	164.50	6,450.9	5,275.9	-6,312.1	-318.9	6,288.6	1.46	0.32	-1.43
13,123.0	90.10	162.80	6,450.6	5,275.6	-6,372.5	-301.2	6,349.8	2.77	-0.63	-2.70
13,186.0	90.20	162.30	6,450.4	5,275.4	-6,432.6	-282.3	6,410.8	0.81	0.16	-0.79
13,249.0	90.10	160.70	6,450.2	5,275.2	-6,492.3	-262.3	6,471.4	2.54	-0.16	-2.54
13,311.0	90.20	161.90	6,450.1	5,275.1	-6,551.1	-242.4	6,531.1	1.94	0.16	1.94
13,374.0	90.70	161.00	6,449.6	5,274.6	-6,610.8	-222.4	6,591.7	1.63	0.79	-1.43
13,438.0	90.20	158.60	6,449.1	5,274.1	-6,670.9	-200.3	6,652.8	3.83	-0.78	-3.75
13,501.0	89.80	160.00	6,449.1	5,274.1	-6,729.8	-178.0	6,712.7	2.31	-0.63	2.22
13,563.0	90.00	160.60	6,449.2	5,274.2	-6,788.2	-157.1	6,772.1	1.02	0.32	0.97
13,626.0	89.80	160.80	6,449.3	5,274.3	-6,847.6	-136.3	6,832.5	0.45	-0.32	0.32
13,689.0	89.80	161.10	6,449.5	5,274.5	-6,907.2	-115.8	6,893.0	0.48	0.00	0.48
13,752.0	90.00	160.50	6,449.6	5,274.6	-6,966.7	-95.0	6,953.4	1.00	0.32	-0.95
13,815.0	89.80	160.30	6,449.7	5,274.7	-7,026.0	-73.9	7,013.8	0.45	-0.32	-0.32
13,878.0	90.20	160.00	6,449.7	5,274.7	-7,085.3	-52.5	7,074.0	0.79	0.63	-0.48
13,941.0	90.20	160.00	6,449.5	5,274.5	-7,144.5	-31.0	7,134.2	0.00	0.00	0.00
14,004.0	89.80	161.00	6,449.5	5,274.5	-7,203.8	-9.9	7,194.5	1.71	-0.63	1.59
14,067.0	90.20	161.70	6,449.5	5,274.5	-7,263.5	10.2	7,255.2	1.28	0.63	1.11
14,130.0	90.00	162.90	6,449.4	5,274.4	-7,323.6	29.4	7,316.0	1.93	-0.32	1.90
14,193.0	89.40	160.70	6,449.7	5,274.7	-7,383.4	49.0	7,376.8	3.62	-0.95	-3.49
14,256.0	89.10	159.00	6,450.6	5,275.6	-7,442.5	70.7	7,436.9	2.74	-0.48	-2.70
14,319.0	88.70	159.30	6,451.8	5,276.8	-7,501.4	93.2	7,496.8	0.79	-0.63	0.48
14,382.0	88.80	159.80	6,453.1	5,278.1	-7,560.4	115.2	7,556.9	0.87	0.16	0.25
14,445.0	89.30	159.60	6,454.2	5,279.2	-7,619.5	137.0	7,616.9	0.85	0.79	-0.32
14,508.0	89.60	159.30	6,454.8	5,279.8	-7,678.5	159.1	7,677.0	0.67	0.48	-0.48
14,571.0	90.20	160.40	6,454.9	5,279.9	-7,737.6	180.8	7,737.7	1.99	0.95	1.75
14,634.0	89.50	162.50	6,455.1	5,280.1	-7,797.3	200.9	7,797.7	3.51	-1.11	3.33
14,697.0	89.20	161.40	6,455.8	5,280.8	-7,857.2	220.4	7,858.5	1.81	-0.48	1.75
14,760.0	89.90	162.10	6,456.3	5,281.3	-7,917.1	240.1	7,919.3	1.57	-0.16	1.75
14,823.0	89.80	162.00	6,456.4	5,281.4	-7,977.0	259.5	7,980.1	0.22	-0.16	-0.16
14,886.0	89.70	161.80	6,456.7	5,281.7	-8,036.9	279.1	8,040.9	0.35	-0.16	-0.32

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MAR-22 2016
WV Department of Environmental Protection



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #513758
Company:	EQT Production - Genesee Shale	TVD Reference:	KB@16 @ 1175.0usft
Project:	Ritchie County WV	MD Reference:	KB@16 @ 1175.0usft
Site:	Ritchie County 513758	North Reference:	Gnd
Well:	Well #513758	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513758 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)
14,948.0	89.90	161.90	6,456.9	5,281.9	-8,095.8	298.4	8,100.7	0.36	0.32	0.16
15,011.0	90.20	161.60	6,456.9	5,281.9	-8,155.6	318.2	8,161.4	0.67	0.48	-0.48
15,074.0	90.20	161.50	6,456.7	5,281.7	-8,215.4	338.1	8,222.1	0.16	0.00	-0.16
15,136.0	89.60	159.30	6,456.8	5,281.8	-8,273.8	358.9	8,281.4	3.68	-0.97	-3.55
15,199.0	89.80	158.60	6,457.1	5,282.1	-8,332.6	381.5	8,341.3	1.16	0.32	-1.11
15,262.0	90.10	158.50	6,457.1	5,282.1	-8,391.2	404.6	8,401.0	0.50	0.48	-0.16
15,324.0	89.60	157.60	6,457.3	5,282.3	-8,448.7	427.7	8,459.5	1.66	-0.81	-1.45
Final Survey=15343' MD/6458' TVD										
15,343.0	89.40	156.80	6,457.5	5,282.5	-8,466.2	435.1	8,477.4	4.34	-1.05	-4.21
513758 Plat TD3										
15,393.5	89.40	156.80	6,458.0	5,283.0	-8,512.7	455.0	8,524.8	0.00	0.00	0.00
PROJ to Bit=15400' MD/6458' TVD										
15,400.0	89.40	156.80	6,458.1	5,283.1	-8,518.6	457.5	8,530.8	0.00	0.00	0.00

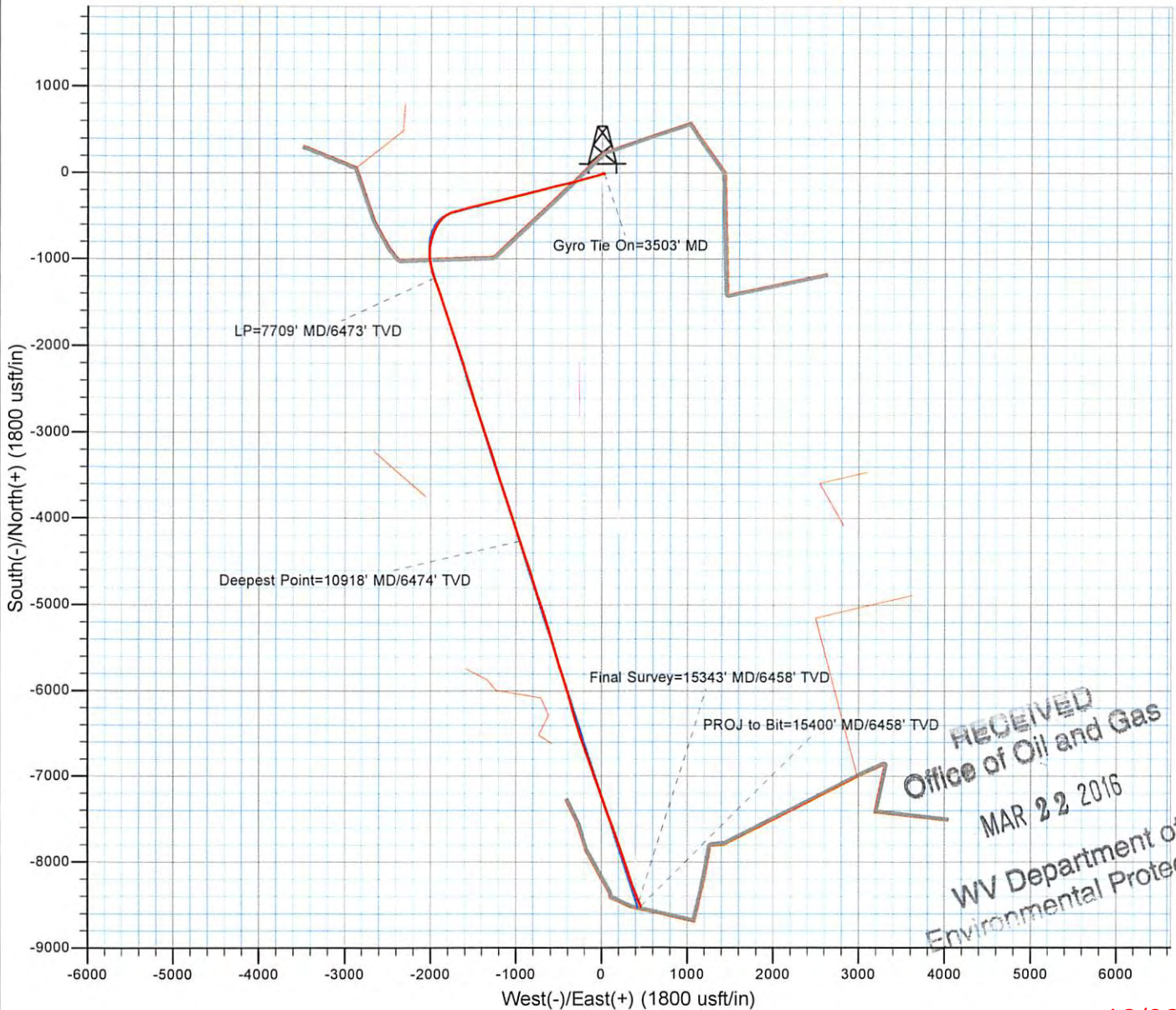
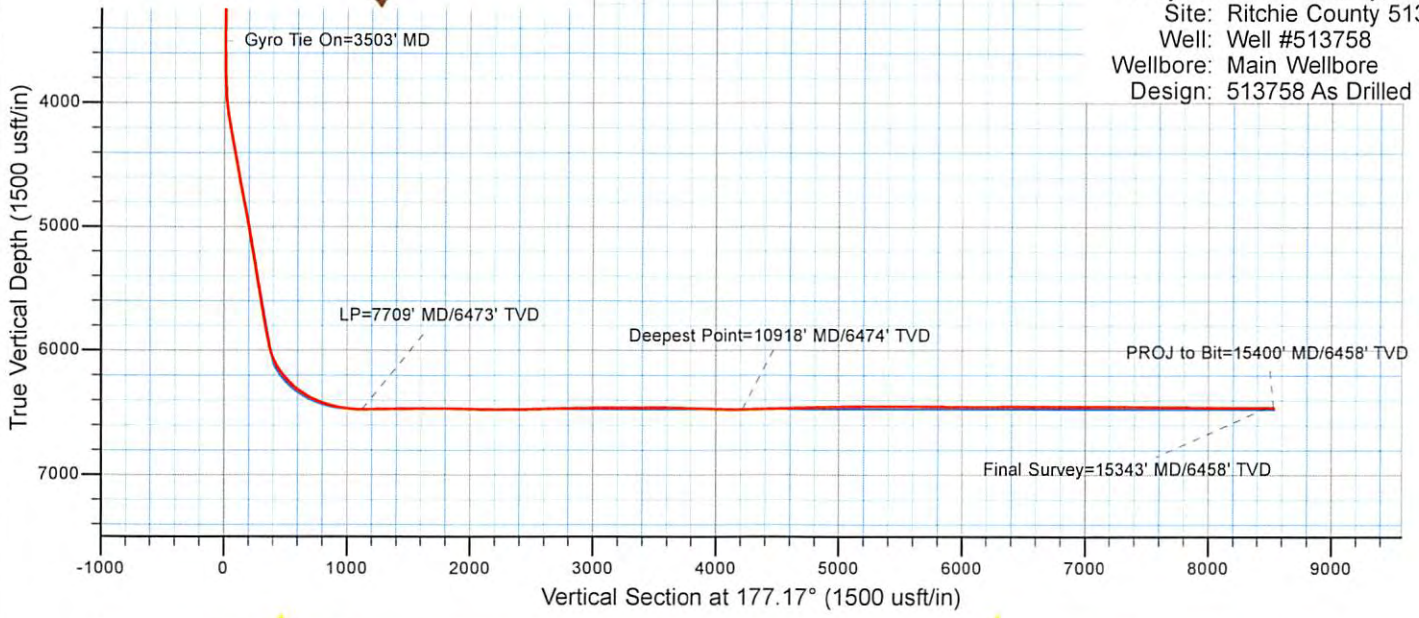
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,503.0	3,502.8	-6.2	26.3	Gyro Tie On=3503' MD
7,709.0	6,473.3	-1,220.8	-1,958.3	LP=7709' MD/6473' TVD
10,918.0	6,474.3	-4,268.0	-955.4	Deepest Point=10918' MD/6474' TVD
15,343.0	6,457.5	-8,466.2	435.1	Final Survey=15343' MD/6458' TVD
15,400.0	6,458.1	-8,518.6	457.5	PROJ to Bit=15400' MD/6458' TVD

Checked By: _____ Approved By: _____ Date: _____

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EQT Production - Geneseo Shale

Project: Ritchie County, WV
Site: Ritchie County 513758
Well: Well #513758
Wellbore: Main Wellbore
Design: 513758 As Drilled Surveys



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513758-47-085-10134-0000 - 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	9/12/2015	15.8	7,488	8,732	4,009	0	676	0
1	9/12/2015	96.4	8,237	8,593	3,016	250,268.00	7,176	0
2	9/12/2015	91.9	8,260	8,731	3,075	250,925.00	7,655	0
3	9/12/2015	98.7	8,398	8,878	3,176	251,160.00	6,903	0
4	9/13/2015	99.2	8,510	8,941	3,394	250,460.00	6,519	0
5	9/13/2015	99.4	8,288	8,841	3,453	251,220.00	6,680	0
6	9/13/2015	100.7	8,087	8,711	3,456	249,018.00	6,637	0
7	9/13/2015	92.6	8,108	9,081	3,241	250,774.00	7,185	0
8	9/13/2015	100.1	7,935	8,658	3,332	253,085.00	6,592	0
9	9/13/2015	100.1	8,166	8,812	3,351	252,380.00	6,408	0
10	9/14/2015	101	7,663	8,564	3,288	249,740.00	6,406	0
11	9/14/2015	101	7,867	8,523	3,315	249,103.00	6,258	0
12	9/14/2015	100.6	7,773	8,394	3,228	250,358.00	6,142	0
13	9/14/2015	99.9	7,850	8,424	3,438	250,487.00	6,325	0
14	9/14/2015	100.9	7,717	8,697	3,562	250,840.00	6,486	0
15	9/14/2015	101.7	7,577	8,401	3,619	251,091.00	6,344	0
16	9/15/2015	101.2	7,543	8,393	3,943	251,180.00	6,422	0
17	9/15/2015	100.8	7,864	8,828	3,588	252,180.00	5,958	0
18	9/15/2015	99.6	7,987	8,691	3,394	251,680.00	6,770	0
19	9/15/2015	100.3	7,845	8,249	3,459	250,934.00	5,893	0
20	9/15/2015	101.4	7,428	8,268	3,698	252,216.00	6,632	0
21	9/15/2015	101	7,688	8,558	3,681	250,770.00	6,367	0
22	9/16/2015	99.1	7,827	8,677	3,404	250,107.00	6,606	0
23	9/16/2015	100.2	7,775	8,720	3,773	251,780.00	6,043	0
24	9/16/2015	101.1	7,655	8,931	4,017	250,803.00	6,294	0
25	9/17/2015	100.2	7,784	8,624	3,866	251,570.00	6,133	0
26	9/17/2015	99.7	7,652	8,377	3,725	259,382.00	6,138	0
27	9/17/2015	101.7	7,640	8,467	3,658	259,471.00	5,981	0
28	9/17/2015	101.1	7,505	8,161	3,328	251,053.00	6,528	0
29	9/17/2015	101.2	7,173	7,773	3,821	252,860.00	6,266	0
30	9/17/2015	101	7,328	8,355	3,621	253,314.00	6,322	0
31	9/18/2015	100.9	7,036	7,609	3,749	251,400.00	6,343	0
32	9/18/2015	101	6,986	8,053	3,557	248,360.00	5,792	0
33	9/18/2015	101.2	7,271	8,242	3,307	248,697.00	5,723	0
34	9/18/2015	101.1	6,932	7,816	3,330	251,147.00	5,665	0
35	9/18/2015	101.1	7,081	7,506	3,287	251,268.00	5,581	0
36	9/18/2015	101	6,866	7,591	3,891	249,949.00	6,230	0
37	9/18/2015	100.9	7,094	8,326	3,561	250,979.00	6,315	0
38	9/19/2015	100.9	6,536	7,629	3,346	252,540.00	6,350	0
39	9/19/2015	102.3	6,750	7,609	3,381	250,650.00	6,170	0
40	9/19/2015	101.9	6,791	7,630	3,365	250,808.00	6,365	0
41	9/19/2015	101.7	6,822	8,605	3,392	250,222.00	6,252	0
42	9/20/2015	101.2	6,859	7,824	3,116	250,700.00	5,803	0
43	9/20/2015	101	6,791	7,922	3,180	250,429.00	6,033	0
44	9/20/2015	100.7	7,134	8,452	3,263	250,455.00	5,677	0
45	9/20/2015	101.1	6,555	7,123	3,135	250,351.00	5,825	0
46	9/20/2015	101.8	6,534	7,833	3,188	251,905.00	6,250	0
47	9/20/2015	101.2	6,547	7,222	3,129	250,250.00	6,277	0
48	9/21/2015	102.1	6,722	8,590	3,253	252,360.00	6,368	0
49	9/21/2015	102.2	6,230	7,424	3,172	252,670.00	6,316	0
50	9/21/2015	102.2	6,381	7,688	3,137	249,620.00	6,305	0
51	9/21/2015	101.8	6,344	7,397	2,987	251,180.00	6,224	0
52	9/21/2015	101.5	7,051	8,251	3,032	251,480.00	5,705	0

Environmental Protection
 MW Department of

Office of the
 State Auditor
 MAR 9 2016

513758-47-085-10134-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	7/23/2015	15,395	15,397	10	GENESEO
1	9/12/2015	15,250	15,342	32	GENESEO
2	9/12/2015	15,100	15,222	40	GENESEO
3	9/12/2015	14,950	15,072	40	GENESEO
4	9/12/2015	14,800	14,920	40	GENESEO
5	9/13/2015	14,650	14,770	40	GENESEO
6	9/13/2015	14,500	14,620	40	GENESEO
7	9/13/2015	14,350	14,472	40	GENESEO
8	9/13/2015	14,200	14,318	40	GENESEO
9	9/13/2015	14,050	14,170	40	GENESEO
10	9/14/2015	13,900	14,020	40	GENESEO
11	9/14/2015	13,750	13,870	40	GENESEO
12	9/14/2015	13,600	13,720	40	GENESEO
13	9/14/2015	13,450	13,570	40	GENESEO
14	9/14/2015	13,300	13,422	40	GENESEO
15	9/14/2015	13,150	13,270	40	GENESEO
16	9/14/2015	13,000	13,120	40	GENESEO
17	9/15/2015	12,850	12,966	40	GENESEO
18	9/15/2015	12,700	12,822	40	GENESEO
19	9/15/2015	12,550	12,672	40	GENESEO
20	9/15/2015	12,400	12,520	40	GENESEO
21	9/15/2015	12,252	12,370	40	GENESEO
22	9/16/2015	12,100	12,222	40	GENESEO
23	9/16/2015	11,950	12,070	40	GENESEO
24	9/16/2015	11,800	11,922	40	GENESEO
25	9/17/2015	11,650	11,772	40	GENESEO
26	9/17/2015	11,500	11,622	40	GENESEO
27	9/17/2015	11,350	11,468	40	GENESEO
28	9/17/2015	11,200	11,322	40	GENESEO
29	9/17/2015	11,050	11,170	40	GENESEO
30	9/17/2015	10,900	11,022	40	GENESEO
31	9/17/2015	10,750	10,872	40	GENESEO
32	9/18/2015	10,600	10,722	40	GENESEO
33	9/18/2015	10,450	10,566	40	GENESEO
34	9/18/2015	10,300	10,422	40	GENESEO
35	9/18/2015	10,150	10,272	40	GENESEO
36	9/18/2015	10,000	10,118	40	GENESEO
37	9/18/2015	9,850	9,972	40	GENESEO
38	9/18/2015	9,700	9,822	40	GENESEO
39	9/19/2015	9,554	9,672	40	GENESEO
40	9/19/2015	9,400	9,522	40	GENESEO
41	9/20/2015	9,250	9,372	40	GENESEO
42	9/20/2015	9,100	9,222	40	GENESEO
43	9/20/2015	8,950	9,068	40	GENESEO
44	9/20/2015	8,800	8,922	40	GENESEO
45	9/20/2015	8,652	8,772	40	GENESEO
46	9/20/2015	8,500	8,622	40	GENESEO
47	9/20/2015	8,350	8,472	40	GENESEO
48	9/20/2015	8,200	8,316	40	GENESEO
49	9/21/2015	8,050	8,172	40	GENESEO
50	9/21/2015	7,900	8,022	40	GENESEO
51	9/21/2015	7,750	7,872	40	GENESEO
52	9/21/2015	7,598	7,722	40	GENESEO

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/12/2015
Job End Date:	9/21/2015
State:	West Virginia
County:	Ritchie
API Number:	47-085-10134-00-00
Operator Name:	EQT Production
Well Name and Number:	513758
Longitude:	-80.84281600
Latitude:	39.13596200
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,460
Total Base Water Volume (gal):	13,789,188
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	89.45292	None
Sand (Proppant)	Keane Group	Proppant	Silica Substrate	14808-60-7	100.00000	10.15842	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.05720	None
Hydrochloric Acid (15%)	Keane Group	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03010	None
FFR760	Keane Group	Friction Reducer	Hydrotreated Light Distillate	64742-47-8	30.00000	0.01965	None
			Alkyl Alcohol	Proprietary	10.00000	0.00655	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00328	None
EC6330A	Keane Group	Scale Inhibitor	Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00133	None
			Ethylene Glycol	107-21-1	5.00000	0.00133	None
AI 600	Keane Group	Corrosion Inhibitor	Ethylene Glycol	107-21-1	40.00000	0.00020	None
			Dimethylformamide	68-12-2	20.00000	0.00010	None

			Pyridine, alkyl derives, quaternized with benzyl chloride	68909-18-2	15.00000	0.00007	None
			Cinnamialdehyde	104-55-2	15.00000	0.00007	None
			1-Decanol	112-30-1	5.00000	0.00002	None
			Nonyl Phenol Ethoxylate, Branched	127087-87-0	5.00000	0.00002	None
			1-Octanol	111-87-5	5.00000	0.00002	None
			2-Butoxyethanol	111-76-2	5.00000	0.00002	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
			Methanol	67-56-1	2.50000	0.00001	None
			Alkyl Pyridine	68391-11-7	1.00000	0.00000	None
Breaker- LEB 10 X	Keane Group	Gel Breaker					
			Ethylene Glycol	107-21-1	30.00000	0.00002	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)

ROYALTY OWNERS		
CRAIG H. WILLIAMS	243.83 AC.±	LEASE NO. 987447
J.P. SMITH ET UX	130 AC.±	LEASE NO. 107857
DONALD SHEETS ET AL	82.10 AC.±	LEASE NO. 988339

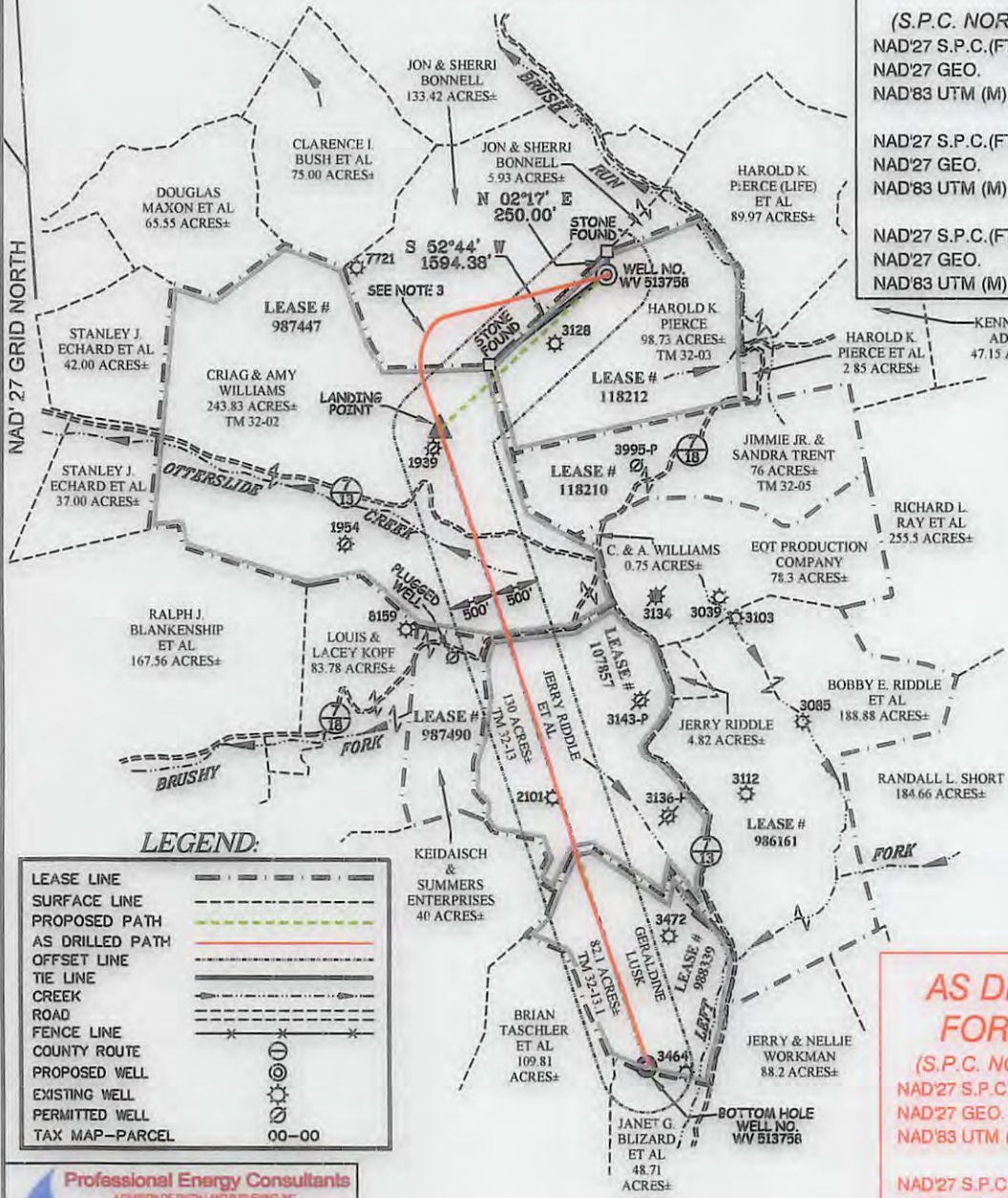
NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.
3. NONPRODUCTIVE SUBSURFACE RIGHT OF WAY.

**EQT PRODUCTION COMPANY
J.E. PIERCE ET AL LEASE
108 (98.73±) ACRES±
WELL NO. WV 513758
(OXF163 H3)**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 234,477.3	E. 1,619,107.1
NAD'27 GEO.	LAT-(N) 39.135962	LONG-(W) 80.842816
NAD'83 UTM (M)	N. 4,331,885.9	E. 513,599.6
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 232,817.3	E. 1,617,298.2
NAD'27 GEO.	LAT-(N) 39.131331	LONG-(W) 80.849105
NAD'83 UTM (M)	N. 4,331,371.0	E. 513,057.0
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 225,950.7	E. 1,619,529.3
NAD'27 GEO.	LAT-(N) 39.112571	LONG-(W) 80.840879
NAD'83 UTM (M)	N. 4,329,290.5	E. 513,771.6



**AS DRILLED COORDINATES
FOR WELL NO. WV 513758**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 234,477.3	E. 1,619,107.1
NAD'27 GEO.	LAT-(N) 39.135962	LONG-(W) 80.842816
NAD'83 UTM (M)	N. 4,331,885.9	E. 513,599.6
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 225,950.7	E. 1,619,529.3
NAD'27 GEO.	LAT-(N) 39.112594	LONG-(W) 80.840755
NAD'83 UTM (M)	N. 4,329,293.1	E. 513,782.4

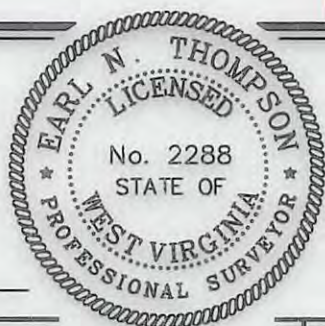
Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.

**SURVEYORS
ENGINEERS
ENVIRONMENTAL
PROJECT MGMT.**

(304) 482-9634 WWW.SLSURVEYS.COM

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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 2288 *Earl N. Thompson*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE MAY 27, 20 14
REVISED 08/22/14, 10/27/14, 10/31/14, 12/02/14, 12/05/14, 04/14/15 & 12/03/15
OPERATORS WELL NO. WV 513758
API WELL NO. 47 - 085 - 10134H
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7698AD513758
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

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

LOCATION: ELEVATION 1,175(GROUND)1,153.5(PROPOSED) WATERSHED BRUSH RUN OF MIDDLE FORK
DISTRICT UNION COUNTY RITCHIE QUADRANGLE OXFORD 7.5'

SURFACE OWNER HAROLD K. PIERCE ACREAGE 98.73±
ROYALTY OWNER J.E. PIERCE ET AL ACREAGE 108± (98.73±)

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION GENESEO
ESTIMATED DEPTH TVD 6434'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

12/02/2016