

APPROVED

NAME: *Carl A. Furr*
DATE: *2/10/2016*

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 513140

API: 47 - 017 - 06329

Submission: Initial Amended

Notes:

Add'l inj test [5.01; 15.01]

Correction to Production Cement Top
(MD)

RECEIVED
Office of Oil and Gas

DEC 21 2015

WV Department of
Environmental Protection

WS AX 03/28/16

04/01/2016

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

API 47 - 017 - 06329 County DODDRIDGE District WEST UNION
Quad OXFORD 7.5' Pad Name OXF156 Field/Pool Name _____
Farm name HEASTER, CHARLES P., ET AL Well Number 513140
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 4342156.5 Easting 518345.4
Landing Point of Curve Northing 4342363.1 Easting 518532.0
Bottom Hole Northing 4344567.4 Easting 517441.2

Elevation (ft) 1202 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)
SBM 12.5ppg - powdered hydrocarbon resin, calcium carbonate, ground almond hulls, barium sulfate, calcium chloride, lecithin liquid, organophilic clay, polyaminated fatty acid, calcium hydroxide, polyimide surfactant, modified fatty acid, dimer.trimer fatty acid, ground walnut hulls, refined base oil.

Date permit issued 11/20/2013 Date drilling commenced 5/7/2014 Date drilling ceased 8/20/2014
Date completion activities began 1/1/2015 Date completion activities ceased 1/18/2015
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 169,216,320,386,462,600,1084 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1456 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1272,1312 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

04/01/2016

API 47-017 - 06329 Farm name HEASTER, CHARLES P., ET AL Well number 513140

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	94lb/ft	N/A	Y
Surface	17-1/2"	13-3/8"	1,215'	New	54.5lb/ft	N/A	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	5,255'	New	40lb/ft	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	15,344'	New	20lb/ft	N/A	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	38	15.6	1.18	44.84	0	8
Surface	Class A	975	15.6	1.18	1150	0	8
Coal							
Intermediate 1	Class A /Class A/Class A	380/340/1115	14.2/15.6/15.6	1.28/1.18/1.18	2203	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	300/1065	14.2/15.2	1.26/1.97	2476	4,607'	72
Tubing							

Drillers TD (ft) 15,344' Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,286'

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-Bowstring centralizer on shoe track and every 300' to surface
 Intermediate-Bowstring centralizer on shoe track and every 500' to surface
 Production- Composite bodied centralizers on every joint from Shoe track up to 4,286'

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 _____

API 47- 017 - 06329 Farm name HEASTER, CHARLES P., ET AL Well number 513140

PERFORATION RECORD

Stage No	Perforation date	Perforated from MD ft	Perforated to MD ft	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No	Stimulations 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)
						Please	See	Attached

Please insert additional pages as applicable.

API 47- 017 - 06329 Farm name HEASTER, CHARLES P., ET AL Well number 513140

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus	6,598'	TVD	7,037' MD
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,995 psi Bottom Hole N/A psi DURATION OF TEST 208.5 hrs

OPEN FLOW Gas 9,788 mcfpd Oil 0 bpd NGL 48 bpd Water 559.7 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		

Please insert additional pages as applicable.

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

Logging Company Hoss Co. Services LLC
Address 614 Trotters Lane City Charleston State WV Zip 25312

Cementing Company Nabors Completion & Production Services Co.
Address PO BOX 975682 City Dallas State TX Zip 75397-5682

Stimulating Company FTSI
Address 301 18th Street City Cisco State TX Zip 76437

Please insert additional pages as applicable.

Completed by Brad Maddox Telephone 412-395-7053
Signature *[Signature]* Title Director of Drilling Date 12/9/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

513140 Final Formations API#47-017-06329

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	1,084.00	1,084.00
SAND/SHALE	1	1	1,272.00	1,271.90
COAL	1,272.00	1,271.90	1,277.00	1,276.90
SAND/SHALE	1,277.00	1,276.90	1,312.00	1,311.90
COAL	1,312.00	1,311.90	1,318.00	1,317.90
SAND/SHALE	1,318.00	1,317.90	1,513.00	1,512.90
MAXTON	1,513.00	1,512.90	1,865.00	1,864.90
BIG LIME	1,865.00	1,864.90	1,923.00	1,922.90
KEENER	1,923.00	1,922.90	2,163.00	2,162.90
WEIR	2,163.00	2,162.90	2,358.00	2,357.90
BEREA	2,358.00	2,357.90	2,367.00	2,366.90
GANTZ	2,367.00	2,366.90	2,442.00	2,441.90
50F	2,442.00	2,441.90	2,563.00	2,562.90
30F	2,563.00	2,562.90	2,612.00	2,611.90
GORDON	2,612.00	2,611.90	2,710.00	2,709.90
4TH	2,710.00	2,709.90	2,918.00	2,917.90
BAYARD	2,918.00	2,917.90	3,207.00	3,206.90
WARREN	3,207.00	3,206.90	3,293.00	3,292.90
SPEECHLEY	3,293.00	3,292.90	3,796.00	3,795.90
BALLTOWN A	3,796.00	3,795.90	4,023.00	4,022.80
BALLTOWN B	4,023.00	4,022.80	4,183.00	4,182.80
BRADFORD	4,183.00	4,182.80	4,424.00	4,423.70
RILEY	4,424.00	4,423.70	4,871.00	4,870.30
BENSON	4,871.00	4,870.30	5,122.00	5,120.80
ALEXANDER	5,122.00	5,120.80	6,681.00	6,401.50
MIDDLESEX	6,681.00	6,401.50	6,760.00	6,453.50
GENESEE	6,760.00	6,453.50	6,868.00	6,517.00
GENESEO	6,868.00	6,517.00	6,956.00	6,561.80
TULLY	6,956.00	6,561.80	7,007.00	6,585.30
HAMILTON	7,007.00	6,585.30	7,037.00	6,597.90
MARCELLUS	7,037.00	6,597.90		

PHOENIX
TECHNOLOGY SERVICES



EQT Production - Marcellus

Doddridge County, WV Grid

Doddridge County 513140

Well #513140

513140 ST01

Design: 513140 ST01 As Drilled Surveys

Standard Survey Report

20 August, 2014

EQT

Where energy meets innovation.

04/01/2016

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513140
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1218.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1218.0usft
Site:	Doddridge County 513140	North Reference:	Grid
Well:	Well #513140	Survey Calculation Method:	Minimum Curvature
Wellbore:	513140 ST01		
Design:	513140 ST01 As Drilled Surveys		

Project	Doddridge County, WV Grid		
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	Doddridge County 513140				
Site Position:		Northing:	267,921.10 usft	Latitude:	39.23
From:	Map	Easting:	1,635,243.20 usft	Longitude:	-80.79
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.82 °

Well	Well #513140					
Well Position	+N-S	0.0 usft	Northing:	267,921.10 usft	Latitude:	39° 13' 42.329 N
	+E-W	0.0 usft	Easting:	1,635,243.20 usft	Longitude:	80° 47' 15.457 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,202.0 usft	

Wellbore	513140 ST01				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	8/12/2014	-8.46	66.75	52,244

Design	513140 ST01 As Drilled Surveys				
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Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	10,043.0
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Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.0	0.0	0.0	340.62

Survey Program	Date	8/20/2014			
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From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	5,260.0	513140 Gyrodatta Gyros (Main Wellbore)	GYD_DP_MS	Gyrodatta gyro-compassing and drop
0.00	10,043.0	513140 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3 standard declination
0.00	15,344.0	513140 PHX MWD (513140 ST01)	MWD+IGRF	MWD+IGRF v3 standard declination

Survey										
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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	-1,218.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.03	138.11	100.0	-1,118.0	0.0	0.0	0.0	0.03	0.03	0.00
200.0	0.05	227.16	200.0	-1,018.0	-0.1	0.0	-0.1	0.06	0.02	89.05
300.0	0.03	154.64	300.0	-918.0	-0.1	0.0	-0.1	0.05	-0.02	-72.52
400.0	0.04	180.58	400.0	-818.0	-0.2	0.0	-0.2	0.02	0.01	25.94
500.0	0.04	177.01	500.0	-718.0	-0.3	0.0	-0.2	0.00	0.00	-3.57
600.0	0.28	157.76	600.0	-618.0	-0.5	0.1	-0.5	0.24	0.24	-19.25



Phoenix Technology Services
Survey Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513140
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1218.0usft
Project:	Doddridge County, WV Grid	MD Reference:	K @ 1218.0usft
Site:	Doddridge County 513140	North Reference:	Grid
Well:	Well #513140	Survey Calculation Method:	Minimum Curvature
Wellbore:	5-3140 ST01		
Design:	513140 ST01 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)	
700.0	0.50	144.17	700.0	-518.0	-1.1	0.4	-1.2	0.24	0.22	-13.59	
800.0	0.41	151.07	800.0	-418.0	-1.8	0.9	-1.9	0.11	-0.09	6.90	
900.0	0.87	106.37	900.0	-318.0	-2.3	1.8	-2.7	0.65	0.46	-44.70	
1,000.0	0.93	108.32	1,000.0	-218.0	-2.8	3.3	-3.7	0.07	0.06	1.95	
1,100.0	0.88	106.53	1,100.0	-118.0	-3.2	4.8	-4.6	0.06	-0.05	-1.79	
1,200.0	0.93	105.91	1,200.0	-18.0	-3.7	6.3	-5.5	0.05	0.05	-0.62	
1,300.0	1.01	104.33	1,299.9	81.9	-4.1	7.9	-6.5	0.08	0.08	-1.58	
1,400.0	1.05	104.34	1,399.9	181.9	-4.6	9.7	-7.5	0.04	0.04	0.01	
1,500.0	0.93	97.30	1,499.9	281.9	-4.9	11.4	-8.4	0.17	-0.12	-7.04	
1,600.0	0.64	107.94	1,599.9	381.9	-5.2	12.7	-9.1	0.32	-0.29	10.64	
1,700.0	0.53	120.41	1,699.9	481.9	-5.6	13.6	-9.8	0.17	-0.11	12.47	
1,800.0	0.55	126.64	1,799.9	581.9	-6.1	14.4	-10.5	0.06	0.02	6.23	
1,900.0	0.47	139.95	1,899.9	681.9	-6.7	15.1	-11.3	0.14	-0.08	13.31	
2,000.0	0.43	141.27	1,999.9	781.9	-7.3	15.6	-12.0	0.04	-0.04	1.32	
2,100.0	0.42	151.19	2,099.9	881.9	-7.9	16.0	-12.8	0.07	-0.01	9.92	
2,200.0	0.44	163.02	2,199.9	981.9	-8.6	16.3	-13.5	0.09	0.02	11.83	
2,300.0	0.44	162.42	2,299.9	1,081.9	-9.3	16.5	-14.3	0.00	0.00	-0.60	
2,400.0	0.34	164.42	2,399.9	1,181.9	-10.0	16.7	-15.0	0.10	-0.10	2.00	
2,500.0	0.30	172.94	2,499.9	1,281.9	-10.5	16.8	-15.5	0.06	-0.04	8.52	
2,600.0	0.27	183.63	2,599.9	1,381.9	-11.0	16.8	-16.0	0.06	-0.03	10.69	
2,700.0	0.26	187.26	2,699.9	1,481.9	-11.5	16.8	-16.4	0.02	-0.01	3.63	
2,800.0	0.28	200.57	2,799.9	1,581.9	-11.9	16.7	-16.8	0.07	0.02	13.31	
2,900.0	0.25	207.57	2,899.9	1,681.9	-12.4	16.5	-17.1	0.04	-0.03	7.00	
3,000.0	0.26	201.83	2,999.9	1,781.9	-12.8	16.3	-17.4	0.03	0.01	-5.74	
3,100.0	0.26	211.26	3,099.9	1,881.9	-13.2	16.1	-17.8	0.04	0.00	9.43	
3,200.0	0.28	206.08	3,199.9	1,981.9	-13.6	15.9	-18.1	0.03	0.02	-5.18	
3,300.0	0.26	213.55	3,299.9	2,081.9	-14.0	15.6	-18.4	0.04	-0.02	7.47	
3,400.0	0.29	203.15	3,399.9	2,181.9	-14.4	15.4	-18.7	0.06	0.03	-10.40	
3,500.0	0.32	211.35	3,499.9	2,281.9	-14.9	15.1	-19.1	0.05	0.03	8.20	
3,600.0	0.32	215.13	3,599.9	2,381.9	-15.3	14.8	-19.4	0.02	0.00	3.78	
3,700.0	0.28	221.32	3,699.9	2,481.9	-15.8	14.5	-19.7	0.05	-0.04	6.19	
3,800.0	0.38	263.93	3,799.9	2,581.9	-16.0	14.0	-19.7	0.26	0.10	42.61	
3,900.0	0.59	283.25	3,899.8	2,681.8	-15.9	13.2	-19.4	0.26	0.21	19.32	
4,000.0	0.80	284.35	3,999.8	2,781.8	-15.6	12.0	-18.7	0.21	0.21	1.10	
4,100.0	1.05	292.36	4,099.8	2,881.8	-15.1	10.5	-17.7	0.28	0.25	8.01	
4,200.0	1.25	293.89	4,199.8	2,981.8	-14.3	8.7	-16.4	0.20	0.20	1.53	
4,300.0	1.47	297.20	4,299.8	3,081.8	-13.3	6.5	-14.7	0.23	0.22	3.31	
4,400.0	1.81	299.75	4,399.7	3,181.7	-11.9	4.0	-12.5	0.35	0.34	2.55	
4,500.0	1.92	303.67	4,499.7	3,281.7	-10.2	1.2	-10.0	0.17	0.11	3.92	
4,600.0	2.10	309.23	4,599.6	3,381.6	-8.1	-1.6	-7.1	0.27	0.18	5.56	
4,700.0	2.47	313.58	4,699.5	3,481.5	-5.5	-4.6	-3.6	0.41	0.37	4.35	
4,800.0	3.11	318.08	4,799.4	3,581.4	-1.9	-7.9	0.8	0.68	0.64	4.50	
4,900.0	3.40	322.83	4,899.3	3,681.3	2.4	-11.5	6.1	0.40	0.29	4.75	

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513140
Company:	EQT Production - Marcellus	TVD Reference:	KB 1218.0usft
Project:	Doddridge County WV Grid	MD Reference:	KB 1218.0usft
Site:	Doddridge County 513140	North Reference:	Grid
Well:	Well #513140	Survey Calculation Method:	Minimum Curvature
Wellbore:	513140 ST01		
Design:	513140 ST01 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)
5,000.0	3.66	326.29	4,999.1	3,781.1	7.5	-15.1	12.0	0.34	0.26	3.46
5,100.0	4.19	327.19	5,098.8	3,880.8	13.2	-18.8	18.7	0.53	0.53	0.90
5,200.0	4.01	329.44	5,198.6	3,980.6	19.3	-22.6	25.7	0.24	-0.18	2.25
5,260.0	3.89	331.23	5,258.4	4,040.4	22.9	-24.7	29.7	0.29	-0.20	2.98
5,286.0	4.10	332.10	5,284.4	4,066.4	24.4	-25.5	31.5	0.84	0.81	3.35
5,317.0	3.60	349.70	5,315.3	4,097.3	26.4	-26.2	33.6	4.12	-1.61	56.77
5,349.0	3.40	33.10	5,347.3	4,129.3	28.2	-25.9	35.2	8.10	-0.63	135.63
5,381.0	5.70	68.80	5,379.2	4,161.2	29.5	-23.9	35.8	11.08	7.19	111.56
5,412.0	8.00	81.60	5,409.9	4,191.9	30.4	-20.3	35.4	8.86	7.42	41.29
5,444.0	10.00	86.10	5,441.5	4,223.5	30.9	-15.3	34.3	6.62	6.25	14.06
5,475.0	11.60	87.90	5,472.0	4,254.0	31.2	-9.5	32.6	5.27	5.16	5.81
5,507.0	14.20	89.90	5,503.2	4,285.2	31.3	-2.4	30.4	8.24	8.13	6.25
5,538.0	16.80	91.90	5,533.0	4,315.0	31.2	5.9	27.5	8.56	8.39	6.45
5,570.0	19.40	93.20	5,563.5	4,345.5	30.8	15.8	23.8	8.22	8.13	4.06
5,601.0	22.30	94.00	5,592.4	4,374.4	30.1	26.8	19.4	9.40	9.35	2.58
5,633.0	25.40	94.10	5,621.7	4,403.7	29.1	39.7	14.3	9.69	9.69	0.31
5,665.0	28.50	95.30	5,650.2	4,432.2	27.9	54.2	8.4	9.83	9.69	3.75
5,696.0	31.30	96.50	5,677.1	4,459.1	26.3	69.6	1.8	9.24	9.03	3.87
5,728.0	34.10	96.20	5,704.0	4,486.0	24.4	86.7	-5.7	8.76	8.75	-0.94
5,759.0	36.30	95.80	5,729.3	4,511.3	22.6	104.5	-13.4	7.14	7.10	-1.29
5,791.0	38.20	97.00	5,754.8	4,536.8	20.4	123.8	-21.8	6.36	5.94	3.75
5,822.0	40.00	98.90	5,778.9	4,560.9	17.7	143.1	-30.8	6.97	5.81	6.13
5,854.0	43.20	99.80	5,802.8	4,584.8	14.2	164.1	-41.0	10.17	10.00	2.81
5,885.0	46.00	99.90	5,824.9	4,606.9	10.5	185.5	-51.7	9.04	9.03	0.32
5,917.0	47.60	97.20	5,846.8	4,628.8	7.1	208.6	-62.6	7.93	5.00	-8.44
5,948.0	48.30	94.30	5,867.5	4,649.5	4.8	231.5	-72.3	7.30	2.26	-9.35
5,980.0	48.00	93.40	5,888.9	4,670.9	3.2	255.3	-81.7	2.30	-0.94	-2.81
6,012.0	47.60	93.20	5,910.4	4,692.4	1.8	278.9	-90.9	1.33	-1.25	-0.63
6,043.0	46.40	92.70	5,931.5	4,713.5	0.6	301.6	-99.5	4.05	-3.87	-1.61
6,074.0	44.00	91.40	5,953.4	4,735.4	-0.2	323.6	-107.5	8.29	-7.74	-4.19
6,106.0	43.10	91.40	5,976.6	4,758.6	-0.7	345.6	-115.4	2.81	-2.81	0.00
6,137.0	42.50	91.00	5,999.3	4,781.3	-1.1	366.7	-122.8	2.12	-1.94	-1.29
6,169.0	42.20	88.20	6,023.0	4,805.0	-1.0	388.2	-129.8	5.97	-0.94	-8.75
6,200.0	42.10	86.10	6,045.9	4,827.9	0.0	409.0	-135.7	4.56	-0.32	-6.77
6,232.0	42.20	83.50	6,069.7	4,851.7	2.0	430.4	-141.0	5.46	0.31	-8.13
6,263.0	41.10	80.10	6,092.8	4,874.8	4.9	450.8	-145.0	8.11	-3.55	-10.97
6,295.0	40.80	78.00	6,117.0	4,899.0	8.9	471.3	-148.0	4.40	-0.94	-6.56
6,326.0	40.80	73.40	6,140.5	4,922.5	13.9	491.0	-149.8	9.69	0.00	-14.84
6,358.0	41.20	68.20	6,164.6	4,946.6	20.8	510.8	-149.9	10.73	1.25	-16.25
6,390.0	42.30	62.00	6,188.5	4,970.5	29.8	530.1	-147.8	13.35	3.44	-19.38
6,421.0	42.90	56.50	6,211.3	4,993.3	40.5	548.1	-143.7	12.16	1.94	-17.74
6,453.0	41.90	50.30	6,235.0	5,017.0	53.3	565.4	-137.3	13.43	-3.13	-19.38



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513140
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1218.0usft
Project:	Doddridge County, WV Old	MD Reference:	KB @ 1216.0usft
Site:	Doddridge County 513140	North Reference:	Grid
Well:	Well #513140	Survey Calculation Method:	Minimum Curvature
Wellbore:	513140 ST01		
Design:	513140 ST01 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)	
6,484.0	41.70	45.90	6,258.1	5,040.1	67.1	580.8	-129.4	9.48	-0.65	-14.19	
6,516.0	41.90	40.50	6,282.0	5,064.0	82.7	595.4	-119.6	11.26	0.63	-16.88	
6,548.0	42.30	35.80	6,305.7	5,087.7	99.5	608.6	-108.1	9.92	1.25	-14.69	
6,579.0	42.80	30.90	6,328.5	5,110.5	117.0	620.1	-95.4	10.87	1.94	-15.81	
6,611.0	43.80	26.00	6,351.8	5,133.8	136.4	630.6	-80.7	10.88	2.81	-15.31	
6,643.0	44.70	22.80	6,374.7	5,156.7	156.7	639.8	-64.5	7.52	2.81	-10.00	
6,674.0	45.50	18.10	6,396.6	5,178.6	177.2	647.5	-47.7	11.04	2.58	-15.16	
6,705.0	48.00	14.70	6,417.9	5,199.9	198.9	653.8	-29.4	11.35	8.06	-10.97	
6,737.0	50.00	12.80	6,438.9	5,220.9	222.4	659.5	-9.1	7.69	6.25	-5.94	
6,768.0	51.30	10.10	6,458.5	5,240.5	245.9	664.3	11.4	7.93	4.19	-8.71	
6,799.0	52.90	6.70	6,477.6	5,259.6	270.0	667.9	33.1	10.08	5.16	-10.97	
6,831.0	54.90	3.30	6,496.4	5,278.4	295.8	670.1	56.6	10.62	6.25	-10.63	
6,862.0	57.00	2.20	6,513.8	5,295.8	321.5	671.3	80.4	7.38	6.77	-3.55	
6,894.0	58.50	359.50	6,530.9	5,312.9	348.5	671.7	105.8	8.54	4.69	-8.44	
6,925.0	60.10	356.00	6,546.7	5,328.7	375.1	670.7	131.3	10.99	5.16	-11.29	
6,957.0	61.50	354.30	6,562.3	5,344.3	403.0	668.3	158.3	6.38	4.38	-5.31	
6,988.0	62.80	353.10	6,576.8	5,358.8	430.2	665.3	185.0	5.41	4.19	-3.87	
7,019.0	64.90	352.50	6,590.4	5,372.4	457.8	661.8	212.2	6.99	6.77	-1.94	
7,051.0	66.70	351.50	6,603.6	5,385.6	486.7	657.8	240.8	6.31	5.63	-3.13	
7,085.0	68.50	350.50	6,616.5	5,398.5	517.8	652.8	271.7	5.95	5.29	-2.94	
7,117.0	72.50	350.30	6,627.2	5,409.2	547.5	647.8	301.5	12.51	12.50	-0.63	
7,148.0	77.10	349.40	6,635.3	5,417.3	576.9	642.5	331.0	15.10	14.84	-2.90	
7,179.0	80.00	348.60	6,641.5	5,423.5	606.8	636.7	361.0	9.69	9.35	-2.58	
7,211.0	83.90	347.70	6,646.0	5,428.0	637.8	630.2	392.4	12.50	12.19	-2.81	
7,242.0	88.30	347.30	6,648.1	5,430.1	667.9	623.5	423.1	14.25	14.19	-1.29	
7,273.0	93.00	346.60	6,647.7	5,429.7	698.1	616.5	453.9	15.33	15.16	-2.26	
7,304.0	95.70	343.70	6,645.4	5,427.4	728.0	608.6	484.8	12.76	8.71	-9.35	
7,335.0	95.20	339.80	6,642.3	5,424.3	758.3	598.6	516.6	12.23	-1.56	-12.19	
7,398.0	92.30	337.00	6,638.3	5,420.3	815.8	575.9	578.4	6.49	-4.68	-4.52	
7,461.0	90.30	335.70	6,636.8	5,418.8	873.5	550.6	641.2	3.79	-3.17	-2.06	
7,524.0	89.80	334.50	6,636.8	5,418.8	930.6	524.1	703.9	2.06	-0.79	-1.90	
7,587.0	90.10	334.00	6,636.8	5,418.8	987.3	496.7	766.5	0.93	0.48	-0.79	
7,650.0	90.80	333.90	6,636.3	5,418.3	1,043.9	469.0	829.1	1.12	1.11	-0.16	
7,713.0	91.00	333.90	6,635.4	5,417.4	1,100.5	441.3	891.7	0.32	0.32	0.00	
7,776.0	87.80	332.20	6,636.0	5,418.0	1,156.7	412.8	954.1	5.75	-5.08	-2.70	
7,839.0	87.30	332.20	6,638.7	5,420.7	1,212.3	383.4	1,016.4	0.79	-0.79	0.00	
7,902.0	87.60	331.40	6,641.5	5,423.5	1,267.8	353.7	1,078.6	1.36	0.48	-1.27	
7,965.0	88.40	332.30	6,643.7	5,425.7	1,323.3	324.0	1,140.8	1.91	1.27	1.43	
8,028.0	88.40	333.40	6,645.5	5,427.5	1,379.3	295.3	1,203.2	1.75	0.00	1.75	
8,091.0	88.40	333.40	6,647.2	5,429.2	1,435.7	267.1	1,265.7	0.00	0.00	0.00	
8,154.0	92.10	333.50	6,647.0	5,429.0	1,492.0	238.9	1,328.1	5.88	5.87	0.16	
8,217.0	92.50	334.00	6,644.4	5,426.4	1,548.5	211.1	1,390.6	1.02	0.63	0.79	
8,280.0	91.40	333.10	6,642.3	5,424.3	1,604.8	183.0	1,453.1	2.26	-1.75	-1.43	



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513140
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1216.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1216.0usft
Site:	Doddridge County 513140	North Reference:	Grid
Well:	Well #513140	Survey Calculation Method:	Minimum Curvature
Wellbore:	513140 ST01		
Design:	513140 ST01 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)	Buird Rate (°/100usft)	Turn Rate (°/100usft)
8,344.0	91.10	332.40	6,640.9	5,422.9	1,661.7	153.7	1,516.5	1.19	-0.47	-1.09
8,407.0	90.20	332.60	6,640.2	5,422.2	1,717.6	124.6	1,578.9	1.46	-1.43	0.32
8,469.0	90.10	332.00	6,640.0	5,422.0	1,772.5	95.8	1,640.2	0.98	-0.16	-0.97
8,533.0	90.10	332.10	6,639.9	5,421.9	1,829.0	65.8	1,703.5	0.16	0.00	0.16
8,596.0	90.30	333.20	6,639.7	5,421.7	1,885.0	36.9	1,765.9	1.77	0.32	1.75
8,659.0	89.40	334.00	6,639.8	5,421.8	1,941.4	8.9	1,828.4	1.91	-1.43	1.27
8,722.0	87.80	333.80	6,641.4	5,423.4	1,998.0	-18.8	1,891.0	2.56	-2.54	-0.32
8,785.0	88.00	333.90	6,643.7	5,425.7	2,054.5	-46.6	1,953.5	0.35	0.32	0.16
8,848.0	88.40	334.00	6,645.7	5,427.7	2,111.0	-74.2	2,016.0	0.65	0.63	0.16
8,911.0	87.70	334.10	6,647.8	5,429.8	2,167.7	-101.8	2,078.6	1.12	-1.11	0.16
8,974.0	87.60	334.60	6,650.4	5,432.4	2,224.4	-129.0	2,141.2	0.81	-0.16	0.79
9,037.0	87.30	333.80	6,653.2	5,435.2	2,281.1	-156.4	2,203.7	1.36	-0.48	-1.27
9,100.0	87.50	333.40	6,656.1	5,438.1	2,337.4	-184.4	2,266.2	0.71	0.32	-0.63
9,163.0	88.20	334.50	6,658.4	5,440.4	2,394.0	-212.1	2,328.7	2.07	1.11	1.75
9,226.0	89.50	335.90	6,659.7	5,441.7	2,451.2	-238.5	2,391.4	3.03	2.06	2.22
9,288.0	89.10	336.80	6,660.4	5,442.4	2,508.0	-263.4	2,453.2	1.59	-0.65	1.45
9,351.0	87.70	337.20	6,662.2	5,444.2	2,565.9	-288.0	2,516.1	2.31	-2.22	0.63
9,414.0	87.50	337.20	6,664.8	5,446.8	2,624.0	-312.4	2,578.9	0.32	-0.32	0.00
9,477.0	87.20	336.30	6,667.7	5,449.7	2,681.8	-337.2	2,641.7	1.50	-0.48	-1.43
9,540.0	87.30	336.30	6,670.8	5,452.8	2,739.4	-362.5	2,704.4	0.16	0.16	0.00
9,603.0	87.50	336.50	6,673.6	5,455.6	2,797.1	-387.7	2,767.2	0.45	0.32	0.32
9,666.0	87.30	334.90	6,676.5	5,458.5	2,854.4	-413.6	2,829.9	2.56	-0.32	-2.54
9,729.0	87.10	333.80	6,679.6	5,461.6	2,911.2	-440.8	2,892.4	1.77	-0.32	-1.75
9,792.0	86.80	333.60	6,682.9	5,464.9	2,967.6	-468.7	2,954.9	0.57	-0.48	-0.32
9,855.0	86.20	333.10	6,686.8	5,468.8	3,023.8	-496.9	3,017.3	1.24	-0.95	-0.79
9,918.0	86.80	332.30	6,690.6	5,472.6	3,079.6	-525.7	3,079.6	1.59	0.95	-1.27
9,980.0	87.70	331.40	6,693.6	5,475.6	3,134.2	-555.0	3,140.8	2.05	1.45	-1.45
10,043.0	88.40	330.70	6,695.7	5,477.7	3,189.3	-585.4	3,202.9	1.57	1.11	-1.11
10,106.0	86.10	332.90	6,698.8	5,480.8	3,244.8	-615.2	3,265.0	5.05	-3.65	3.49
10,169.0	81.80	336.10	6,705.4	5,487.4	3,301.3	-642.1	3,327.3	8.49	-6.83	5.08
10,232.0	83.30	333.60	6,713.6	5,495.6	3,357.8	-668.7	3,389.4	4.60	2.38	-3.97
10,295.0	83.80	328.00	6,720.6	5,502.6	3,412.5	-699.2	3,451.1	8.87	0.79	-8.89
10,357.0	85.40	323.70	6,726.5	5,508.5	3,463.5	-733.9	3,510.8	7.37	2.58	-6.94
10,420.0	92.00	320.50	6,727.9	5,509.9	3,513.2	-772.5	3,570.5	11.64	10.48	-5.08
10,483.0	99.90	323.10	6,721.4	5,503.4	3,562.4	-811.2	3,629.7	13.19	12.54	4.13
10,545.0	99.90	326.90	6,710.7	5,492.7	3,612.4	-846.3	3,688.5	6.04	0.00	6.13
10,609.0	95.40	328.20	6,702.2	5,484.2	3,665.9	-880.3	3,750.3	7.31	-7.03	2.03
10,672.0	90.30	329.40	6,699.1	5,481.1	3,719.7	-912.9	3,811.9	8.32	-8.10	1.90
10,735.0	85.70	329.20	6,701.3	5,483.3	3,773.8	-945.0	3,873.6	7.31	-7.30	-0.32
10,798.0	83.20	330.10	6,707.4	5,489.4	3,828.0	-976.7	3,935.1	4.22	-3.97	1.43
10,861.0	83.00	330.40	6,714.9	5,496.9	3,882.3	-1,007.7	3,996.7	0.57	-0.32	0.48



Phoenix Technology Services
Survey Report



Database:	ECM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513140
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1218.0usft
Project:	Doddridge County, WV Crd	MD Reference:	KB @ 1218.0usft
Site:	Doddridge County 513140	North Reference:	Grid
Well:	Well 513140	Survey Calculation Method:	Minimum Curvature
Wellbore:	513140 ST01		
Design:	513140 ST01 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)	
10,924.0	83.40	334.50	6,722.4	5,504.4	3,937.7	-1,036.7	4,058.6	6.49	0.63	6.51	
10,987.0	82.80	334.50	6,730.0	5,512.0	3,994.2	-1,063.6	4,120.8	0.95	-0.95	0.00	
11,050.0	84.10	333.80	6,737.1	5,519.1	4,050.5	-1,090.9	4,182.9	2.34	2.06	-1.11	
11,112.0	88.10	335.40	6,741.4	5,523.4	4,106.3	-1,117.4	4,244.4	6.95	6.45	2.58	
11,175.0	90.90	335.90	6,741.9	5,523.9	4,163.7	-1,143.4	4,307.2	4.51	4.44	0.79	
11,238.0	91.40	336.20	6,740.6	5,522.6	4,221.3	-1,168.9	4,370.0	0.93	0.79	0.48	
11,301.0	91.90	336.50	6,738.8	5,520.8	4,279.0	-1,194.2	4,432.8	0.93	0.79	0.48	
11,364.0	90.00	337.00	6,737.8	5,519.8	4,336.9	-1,219.1	4,495.6	3.12	-3.02	0.79	
11,427.0	89.20	336.10	6,738.2	5,520.2	4,394.6	-1,244.1	4,558.5	1.91	-1.27	-1.43	
11,490.0	88.60	336.10	6,739.4	5,521.4	4,452.2	-1,269.6	4,621.3	0.95	-0.95	0.00	
11,552.0	88.00	335.70	6,741.3	5,523.3	4,508.8	-1,295.0	4,683.0	1.16	-0.97	-0.65	
11,615.0	88.00	336.50	6,743.5	5,525.5	4,566.4	-1,320.5	4,745.8	1.27	0.00	1.27	
11,678.0	88.70	335.90	6,745.3	5,527.3	4,624.0	-1,345.9	4,808.6	1.46	1.11	-0.95	
11,709.0	90.60	334.70	6,745.5	5,527.5	4,652.1	-1,358.8	4,839.4	7.25	6.13	-3.87	
11,741.0	90.00	333.20	6,745.3	5,527.3	4,680.9	-1,372.9	4,871.2	5.05	-1.88	-4.69	
11,804.0	92.10	332.10	6,744.2	5,526.2	4,736.8	-1,401.8	4,933.6	3.76	3.33	-1.75	
11,867.0	91.70	332.30	6,742.1	5,524.1	4,792.5	-1,431.2	4,995.9	0.71	-0.63	0.32	
11,930.0	90.10	329.60	6,741.1	5,523.1	4,847.6	-1,461.8	5,058.0	4.98	-2.54	-4.29	
11,994.0	91.50	330.10	6,740.2	5,522.2	4,902.9	-1,493.9	5,120.8	2.32	2.19	0.78	
12,056.0	91.90	329.40	6,738.3	5,520.3	4,956.5	-1,525.1	5,181.7	1.30	0.65	-1.13	
12,119.0	89.90	326.70	6,737.4	5,519.4	5,009.9	-1,558.5	5,243.2	5.33	-3.17	-4.29	
12,182.0	90.70	326.70	6,737.0	5,519.0	5,062.6	-1,593.0	5,304.3	1.27	1.27	0.00	
12,245.0	91.40	327.20	6,735.9	5,517.9	5,115.4	-1,627.4	5,365.5	1.37	1.11	0.79	
12,308.0	91.20	326.00	6,734.4	5,516.4	5,167.9	-1,662.1	5,426.6	1.93	-0.32	-1.90	
12,371.0	92.70	330.40	6,732.3	5,514.3	5,221.4	-1,695.2	5,488.1	7.37	2.38	6.98	
12,434.0	92.70	330.50	6,729.3	5,511.3	5,276.2	-1,726.3	5,550.1	0.16	0.00	0.16	
12,497.0	94.40	333.20	6,725.4	5,507.4	5,331.6	-1,755.9	5,612.2	5.06	2.70	4.29	
12,560.0	93.90	337.20	6,720.9	5,502.9	5,388.6	-1,782.3	5,674.7	6.38	-0.79	6.35	
12,623.0	91.70	339.30	6,717.8	5,499.8	5,447.1	-1,805.6	5,737.6	4.82	-3.49	3.33	
12,686.0	91.30	338.20	6,716.1	5,498.1	5,505.8	-1,828.4	5,800.5	1.86	-0.63	-1.75	
12,749.0	91.30	338.10	6,714.7	5,496.7	5,564.2	-1,851.9	5,863.5	0.16	0.00	-0.16	
12,812.0	92.00	339.40	6,712.9	5,494.9	5,622.9	-1,874.7	5,926.4	2.34	1.11	2.06	
12,875.0	92.00	340.30	6,710.7	5,492.7	5,682.0	-1,896.4	5,989.4	1.43	0.00	1.43	
12,939.0	90.70	338.70	6,709.2	5,491.2	5,742.0	-1,918.8	6,053.3	3.22	-2.03	-2.50	
13,002.0	90.20	337.80	6,708.7	5,490.7	5,800.5	-1,942.1	6,116.3	1.63	-0.79	-1.43	
13,065.0	90.60	338.60	6,708.3	5,490.3	5,859.0	-1,965.5	6,179.2	1.42	0.63	1.27	
13,128.0	90.90	340.70	6,707.4	5,489.4	5,918.0	-1,987.4	6,242.2	3.37	0.48	3.33	
13,191.0	90.70	341.20	6,706.6	5,488.6	5,977.6	-2,008.0	6,305.2	0.85	-0.32	0.79	
13,253.0	90.50	341.90	6,705.9	5,487.9	6,036.4	-2,027.6	6,367.2	1.17	-0.32	1.13	
13,316.0	89.90	341.10	6,705.7	5,487.7	6,096.1	-2,047.6	6,430.2	1.59	-0.95	-1.27	
13,379.0	90.70	340.60	6,705.4	5,487.4	6,155.6	-2,068.3	6,493.2	1.50	1.27	-0.79	
13,442.0	92.50	341.00	6,703.6	5,485.6	6,215.1	-2,089.0	6,556.1	2.93	2.86	0.63	
13,505.0	92.40	340.50	6,700.9	5,482.9	6,274.5	-2,109.7	6,619.1	0.81	-0.16	-0.79	



Phoenix Technology Services
Survey Report



Database:	EDM 5000 T Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513140
Company:	EQT Production - Marcelus	TVD Reference:	KB @ 1218.0usft
Project:	Doddridge County WV Grid	MD Reference:	KB @ 1218.0usft
Site:	Doddridge County 513140	North Reference:	Grid
Well:	Well #513140	Survey Calculation Method:	Minimum Curvature
Wellbore:	513140 ST01		
Design:	513140 ST01 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)
13,568.0	92.30	340.70	6,698.3	5,460.3	6,333.9	-2,130.6	6,682.0	0.35	-0.16	0.32
13,631.0	92.00	341.00	6,696.0	5,478.0	6,393.4	-2,151.3	6,745.0	0.67	-0.48	0.48
13,694.0	91.70	340.20	6,693.9	5,475.9	6,452.8	2,172	6,807.9	1.36	-0.48	-1.27
13,757.0	91.50	340.40	6,692.2	5,474.2	6,512.1	2,193.4	6,870.9	0.45	-0.32	0.32
13,820.0	91.60	340.80	6,690.5	5,472.5	6,571.5	2,214.4	6,933.9	0.65	0.16	0.63
13,883.0	91.10	341.00	6,689.0	5,471.0	6,631.0	-2,235.0	6,996.9	0.85	-0.79	0.32
13,946.0	90.60	340.50	6,688.0	5,470.0	6,690.4	-2,255.7	7,059.9	1.12	-0.79	-0.79
14,010.0	90.70	339.20	6,687.3	5,469.3	6,750.5	-2,277.8	7,123.9	2.04	0.16	-2.03
14,073.0	90.60	338.40	6,686.6	5,468.6	6,809.2	-2,300.6	7,186.8	1.28	-0.16	-1.27
14,136.0	89.80	337.30	6,686.4	5,468.4	6,867.6	-2,324.3	7,249.7	2.16	-1.27	-1.75
14,199.0	89.30	335.90	6,686.9	5,468.9	6,925.4	-2,349.3	7,312.6	2.36	-0.79	-2.22
14,262.0	89.70	336.50	6,687.4	5,469.4	6,983.1	-2,374.7	7,375.4	1.14	0.63	0.95
14,325.0	90.00	337.90	6,687.6	5,469.6	7,041.1	-2,399.2	7,438.3	2.27	0.48	2.22
14,389.0	89.60	337.00	6,687.8	5,469.8	7,100.2	-2,423.7	7,502.2	1.54	-0.63	-1.41
14,452.0	91.30	336.50	6,687.3	5,469.3	7,158.1	-2,448.6	7,565.0	2.81	2.70	-0.79
14,515.0	90.80	337.10	6,686.2	5,468.2	7,216.0	-2,473.4	7,627.9	1.24	-0.79	0.95
14,578.0	90.20	336.90	6,685.6	5,467.6	7,274.0	-2,498.0	7,690.8	1.00	-0.95	-0.32
14,641.0	89.10	335.70	6,686.0	5,468.0	7,331.7	-2,523.3	7,753.6	2.58	-1.75	-1.90
14,704.0	88.60	334.90	6,687.3	5,469.3	7,388.9	-2,549.6	7,816.3	1.50	-0.79	-1.27
14,768.0	88.10	335.10	6,689.1	5,471.1	7,446.9	-2,576.7	7,880.0	0.84	-0.78	0.31
14,831.0	87.60	333.70	6,691.5	5,473.5	7,503.7	-2,603.9	7,942.5	2.36	-0.79	-2.22
14,894.0	91.10	334.30	6,692.2	5,474.2	7,560.3	-2,631.5	8,005.1	5.64	5.56	0.95
14,957.0	90.80	334.40	6,691.1	5,473.1	7,617.1	-2,658.8	8,067.7	0.50	-0.48	0.16
15,020.0	90.20	333.00	6,690.6	5,472.6	7,673.5	-2,686.7	8,130.3	2.42	-0.95	-2.22
15,082.0	90.00	332.60	6,690.5	5,472.5	7,728.7	-2,715.0	8,191.7	0.72	-0.32	-0.65
15,145.0	89.60	332.70	6,690.7	5,472.7	7,784.6	-2,744.0	8,254.1	0.65	-0.63	0.16
15,207.0	89.60	333.00	6,691.1	5,473.1	7,839.8	-2,772.2	8,315.5	0.48	0.00	0.48
15,270.0	88.90	332.60	6,692.0	5,474.0	7,895.8	-2,801.0	8,377.9	1.28	-1.11	-0.63
15,344.0	88.90	332.60	6,693.4	5,475.4	7,961.5	-2,835.1	8,451.2	0.00	0.00	0.00

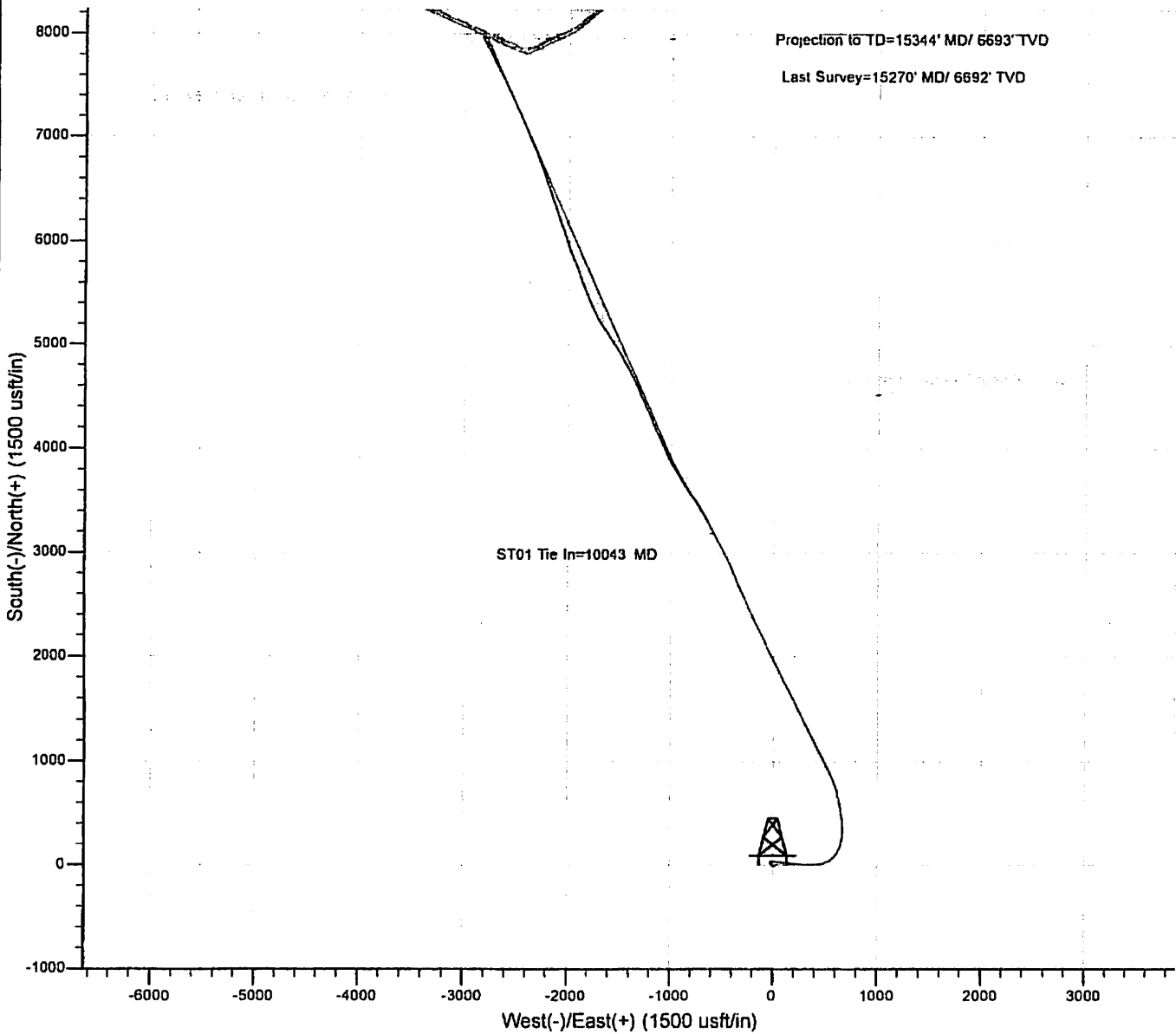
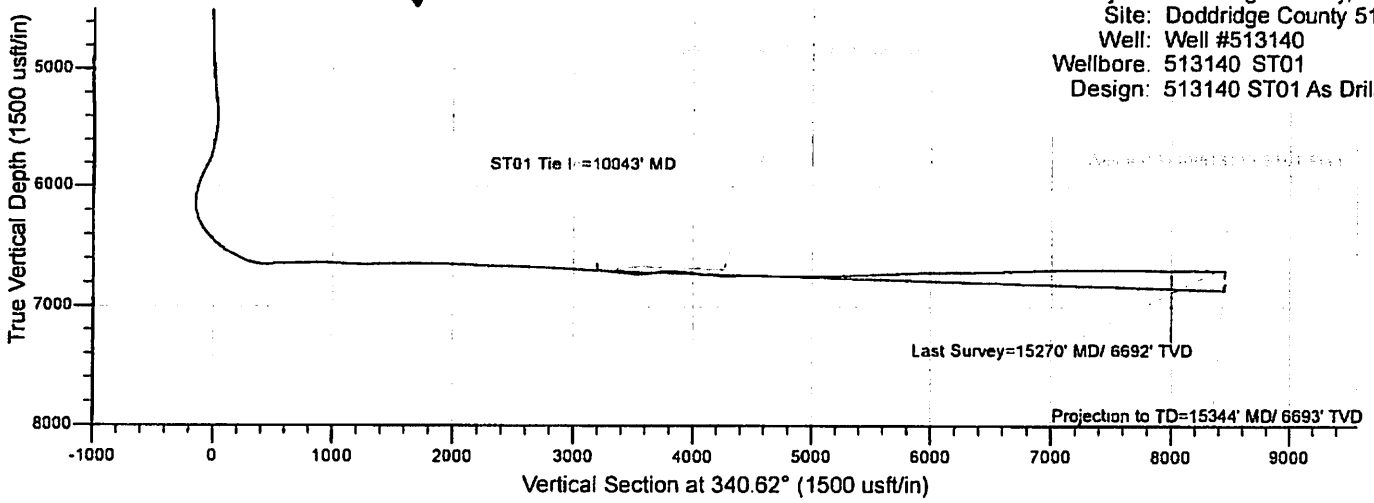
Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
10,043.0	6,695.7	3,189.3	-585.4	ST01 Tie In=10043' MD	
15,270.0	6,692.0	7,895.8	-2,801.0	Last Survey=15270' MD/ 6692' TVD	
15,344.0	6,693.4	7,961.5	-2,835.1	Projection to TD=15344' MD/ 6693' TVD	

Checked By: _____ Approved By: _____ Date: _____



EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 513140
Well: Well #513140
Wellbore: 513140 ST01
Design: 513140 ST01 As Drilled Surveys



513140 - 47-017-06329-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	12/26/2014	15,317.00	15,320.00	10	MARCELLUS
1	1/1/2015	15,197.00	15,289.00	32	MARCELLUS
2	1/1/2015	15,045.00	15,169.00	40	MARCELLUS
3	1/2/2015	14,897.00	15,019.00	40	MARCELLUS
4	1/2/2015	14,747.00	14,869.00	40	MARCELLUS
5	1/2/2015	14,597.00	14,719.00	40	MARCELLUS
6	1/3/2015	14,447.00	14,568.00	40	MARCELLUS
7	1/3/2015	14,297.00	14,419.00	40	MARCELLUS
8	1/4/2015	14,147.00	14,269.00	40	MARCELLUS
9	1/4/2015	13,997.00	14,119.00	40	MARCELLUS
10	1/4/2015	13,847.00	13,969.00	40	MARCELLUS
11	1/5/2015	13,697.00	13,817.00	40	MARCELLUS
12	1/5/2015	13,547.00	13,669.00	40	MARCELLUS
13	1/5/2015	13,397.00	13,519.00	40	MARCELLUS
14	1/5/2015	13,247.00	13,369.00	40	MARCELLUS
15	1/6/2015	13,097.00	13,219.00	40	MARCELLUS
16	1/6/2015	12,947.00	13,069.00	40	MARCELLUS
17	1/6/2015	12,797.00	12,919.00	40	MARCELLUS
18	1/7/2015	12,647.00	12,769.00	40	MARCELLUS
19	1/7/2015	12,497.00	12,619.00	40	MARCELLUS
20	1/8/2015	12,347.00	12,469.00	40	MARCELLUS
21	1/9/2015	12,197.00	12,319.00	40	MARCELLUS
22	1/9/2015	12,047.00	12,169.00	40	MARCELLUS
23	1/10/2015	11,897.00	12,019.00	40	MARCELLUS
24	1/10/2015	11,747.00	11,869.00	40	MARCELLUS
25	1/10/2015	11,597.00	11,719.00	40	MARCELLUS
26	1/10/2015	11,447.00	11,566.00	40	MARCELLUS
27	1/11/2015	11,289.00	11,395.00	40	MARCELLUS
28	1/11/2015	11,147.00	11,267.00	40	MARCELLUS
29	1/11/2015	10,997.00	11,119.00	40	MARCELLUS
30	1/12/2015	10,847.00	10,967.00	40	MARCELLUS
31	1/12/2015	10,699.00	10,819.00	40	MARCELLUS
32	1/12/2015	10,547.00	10,669.00	40	MARCELLUS
33	1/12/2015	10,397.00	10,519.00	40	MARCELLUS
34	1/12/2015	10,247.00	10,369.00	40	MARCELLUS
35	1/13/2015	10,097.00	10,219.00	40	MARCELLUS
36	1/13/2015	9,947.00	10,067.00	40	MARCELLUS
37	1/13/2015	9,797.00	9,919.00	40	MARCELLUS
38	1/13/2015	9,647.00	9,765.00	40	MARCELLUS
39	1/14/2015	9,497.00	9,619.00	40	MARCELLUS
40	1/14/2015	9,350.00	9,469.00	40	MARCELLUS
41	1/14/2015	9,197.00	9,319.00	40	MARCELLUS
42	1/15/2015	9,047.00	9,167.00	40	MARCELLUS
43	1/15/2015	8,897.00	9,017.00	40	MARCELLUS
44	1/15/2015	8,747.00	8,869.00	40	MARCELLUS
45	1/15/2015	8,596.00	8,717.00	40	MARCELLUS
46	1/15/2015	8,447.00	8,569.00	40	MARCELLUS
47	1/16/2015	8,297.00	8,419.00	40	MARCELLUS
48	1/16/2015	8,147.00	8,269.00	40	MARCELLUS
49	1/16/2015	7,997.00	8,119.00	40	MARCELLUS
50	1/17/2015	7,847.00	7,967.00	40	MARCELLUS
51	1/17/2015	7,697.00	7,817.00	40	MARCELLUS
52	1/17/2015	7,547.00	7,667.00	40	MARCELLUS
53	1/17/2015	7,397.00	7,519.00	40	MARCELLUS
54	1/18/2015	7,247.00	7,368.00	40	MARCELLUS

513140 - 47-017-06329-0000 - 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	1/1/2015	14.7	8,211.00	9,258.00	6,159.00	0.00	1883	0
1	1/1/2015	81.1	8,481.00	8,843.00	3,866.00	250,752.00	6820	0
2	1/1/2015	81.8	8,482.00	8,747.00	4,773.00	250,839.00	6324	0
3	1/2/2015	84.9	8,655.00	8,892.00	4,382.00	250,907.00	6280	0
4	1/2/2015	83.1	8,551.00	8,756.00	4,224.00	253,125.00	6225	0
5	1/2/2015	83.5	8,603.00	8,749.00	4,436.00	235,854.00	6776	0
5.01	1/3/2015	6.9	6,004.00	8,691.00	5,009.00	0.00	2124	0
6	1/3/2015	85.7	8,375.00	8,561.00	4,273.00	252,298.00	6201	0
7	1/3/2015	80.8	8,671.00	9,041.00	5,709.00	249,628.00	9694	0
8	1/4/2015	84.3	8,398.00	8,783.00	4,452.00	225,102.00	6267	0
9	1/4/2015	82.9	8,515.00	9,044.00	4,828.00	231,856.00	5925	0
10	1/4/2015	81.7	8,599.00	9,117.00	5,311.00	190,251.00	5581	0
11	1/5/2015	81.7	8,565.00	9,137.00	4,393.00	185,978.00	5891	0
12	1/5/2015	86.5	8,386.00	8,883.00	4,965.00	228,720.00	6201	0
13	1/5/2015	84.9	8,343.00	8,668.00	5,153.00	234,309.00	6001	0
14	1/6/2015	86.5	8,425.00	9,279.00	4,647.00	250,890.00	5974	0
15	1/6/2015	83.3	8,580.00	9,394.00	5,767.00	220,920.00	6083	0
15.01	1/6/2015	9.1	5,102.00	7,153.00	5,302.00	0.00	1632	0
16	1/7/2015	92.5	8,209.00	8,522.00	4,902.00	252,987.00	6655	0
17	1/7/2015	96.6	8,592.00	8,949.00	4,944.00	249,801.00	6411	0
18	1/7/2015	92.1	8,575.00	9,035.00	5,167.00	252,528.00	6095	0
19	1/8/2015	96.5	8,730.00	8,868.00	5,143.00	250,872.00	6326	0
20	1/9/2015	92.5	8,332.00	8,683.00	5,157.00	250,126.00	7060	0
21	1/9/2015	94.2	8,503.00	8,910.00	5,401.00	250,998.00	5723	0
22	1/9/2015	96.2	8,503.00	8,656.00	5,274.00	249,477.00	5609	0
23	1/10/2015	90.6	8,366.00	8,613.00	5,197.00	250,718.00	6069	0
24	1/10/2015	92	8,539.00	9,035.00	5,211.00	249,801.00	6059	0
25	1/10/2015	93.1	8,452.00	8,843.00	5,385.00	249,463.00	5524	0
26	1/11/2015	91.5	8,436.00	8,954.00	4,193.00	241,209.00	5592	0
27	1/11/2015	87.6	8,331.00	9,341.00	5,526.00	244,346.00	6710	0
28	1/11/2015	84.8	8,050.00	8,916.00	5,276.00	250,166.00	6082	0
29	1/11/2015	91.7	8,344.00	8,667.00	5,426.00	250,003.00	5698	0
30	1/12/2015	93.4	8,208.00	8,531.00	4,764.00	250,581.00	5633	0
31	1/12/2015	91.9	7,914.00	8,410.00	4,987.00	250,869.00	6028	0
32	1/12/2015	93.6	7,785.00	8,463.00	4,636.00	251,245.00	6078	0
33	1/12/2015	100.6	8,150.00	8,574.00	4,607.00	250,150.00	5741	0
34	1/13/2015	99.9	8,267.00	8,561.00	5,119.00	250,463.00	5535	0
35	1/13/2015	101.1	7,869.00	8,229.00	4,801.00	248,901.00	5867	0
36	1/13/2015	95.6	7,754.00	8,024.00	4,925.00	248,806.00	5962	0
37	1/13/2015	95.6	8,076.00	8,300.00	4,676.00	251,749.00	6011	0
38	1/13/2015	99.5	8,177.00	8,756.00	5,464.00	250,652.00	5475	0
39	1/14/2015	100.1	7,729.00	8,188.00	4,366.00	251,704.00	6215	0
40	1/14/2015	93.7	8,269.00	9,138.00	4,305.00	250,456.00	6411	0
41	1/15/2015	99.4	7,928.00	8,103.00	4,643.00	250,770.00	5442	0
42	1/15/2015	98.4	8,090.00	8,722.00	4,855.00	248,021.00	5270	0
43	1/15/2015	100.2	8,027.00	8,234.00	4,492.00	249,692.00	5753	0
44	1/15/2015	100.4	8,106.00	8,749.00	5,047.00	249,217.00	6095	0
45	1/15/2015	100.5	8,020.00	8,635.00	4,495.00	248,741.00	5390	0
46	1/15/2015	100.3	7,889.00	8,521.00	4,574.00	250,709.00	5302	0
47	1/16/2015	99.5	7,759.00	7,890.00	4,662.00	250,700.00	5476	0
48	1/16/2015	100.3	7,826.00	8,124.00	4,987.00	250,481.00	5783	0
49	1/17/2015	90.5	9,026.00	9,376.00	5,241.00	250,711.00	6888	0
50	1/17/2015	96	8,013.00	8,050.00	5,257.00	251,219.00	5767	0
51	1/17/2015	92.3	8,776.00	9,037.00	5,281.00	249,670.00	5695	0
52	1/17/2015	99.2	8,055.00	8,684.00	5,342.00	249,704.00	5395	0
53	1/17/2015	100.2	7,971.00	8,364.00	5,356.00	250,407.00	5280	0
54	1/18/2015	100.8	7,426.00	7,980.00	4,901.00	251,781.00	5320	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/1/2015
Job End Date:	1/18/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06329-00-00
Operator Name:	EQT Production
Well Name and Number:	513140
Longitude:	-80.78762700
Latitude:	39.22842400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,598
Total Base Water Volume (gal):	14,669,298
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	FTS International	Carrier/Base Fluid	Water	7732-18-5	100.00000	89.91274	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	9.74030	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.02951	None
FRW-600	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02171	None
			Ammonium acetate	631-61-8	6.00000	0.00434	None
B-10	FTS International	High pH buffer	Potassium carbonate	584-08-7	48.00000	0.01263	None
			Potassium hydroxide	1310-58-3	20.00000	0.00526	None
HVG-1	FTS International	Gelling agent	Petroleum distillate	64742-47-8	55.00000	0.00435	None
			Guar gum	9000-30-0	50.00000	0.00395	None
			Surfactant	68439-51-0	2.00000	0.00016	None
			Clay	14808-60-7	2.00000	0.00016	None
ICI-3240	FTS International	Biocide	Dazomet	533-74-4	24.00000	0.00243	None

			Sodium hydroxide	1310-73-2	4.00000	0.00041	None
CS-500-SI	FTS International	Scale inhibitor					
			Ethylene glycol	107-21-1	10.00000	0.00246	None
FRW-900	FTS International	Friction reducer					
			Hydrotreated light distillate	64742-47-8	30.00000	0.00096	None
			Alkyl Alcohol	Proprietary	10.00000	0.00032	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00016	None
CI-150	FTS International	Acid Corrosion Inhibitor					
			isopropanol	67-63-0	30.00000	0.00011	None
			Organic amine resin salt	Proprietary	30.00000	0.00011	None
			Ethylene glycol	107-21-1	30.00000	0.00011	None
			Aromatic aldehyde	Proprietary	10.00000	0.00004	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00004	None
			Dimethylformamide	68-12-2	10.00000	0.00004	None
APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95.00000	0.00011	None
NE-100	FTS International	Non-emulsifier					
			2-Propanol	67-63-0	10.00000	0.00003	None
			2-Butoxyethanol	111-76-2	10.00000	0.00003	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00005	None
Chlorine Dioxide Solution - SVP-Pure	Neptune	Disinfectant and/or oxidizer					
			Chlorine dioxide	10049-04-4	0.30000	0.00001	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)

EQT PRODUCTION COMPANY LEWIS MAXWELL LEASE 2654 ACRES± WELL NO. WV 513140



LANDING POINT WELL NO. WV 513140 STATE PLANE COORDINATES (NORTH ZONE) NAD 27	BOTTOM HOLE WELL NO. WV 513140 STATE PLANE COORDINATES (NORTH ZONE) NAD 27
N. 288,715.5 E. 1,635,785.5	N. 275,883.5 E. 1,632,438.3
LAT=(N) 39.230827 LONG=(W) 80.785753	LAT=(N) 39.250200 LONG=(W) 80.787634
UTM (NAD83)(METERS) N. 4,342,401.3 E. 518,506.6	UTM (NAD83)(METERS) N. 4,344,571.0 E. 517,450.4

WELL NO. WV 513140 STATE PLANE COORDINATES (NORTH ZONE) NAD 27
N. 287,921.1 E. 1,635,243.2
LAT=(N) 39.228424 LONG=(W) 80.787627
UTM (NAD83)(METERS) N. 4,342,156.5 E. 518,345.4

NOTES ON SURVEY

- TIES TO WELLS, CORNERS AND REFERENCES ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD'27.
- LEASE BOUNDARY SHOWN HEREON TAKEN FROM DB 28 PG 177.
- SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF DODDRIDGE COUNTY IN JULY, 2013.
- WELL LAT./LONG. (NAD 27) ESTABLISHED BY DGPS(SURVEY GRADE TIE TO CORS NETWORK).
- PLAT DATED 07/15/13 REVISED 08/01/13 TO SHOW 500' SPACING FROM PROPOSED LATERAL, ETC.
- AS DRILLED INFORMATION PROVIDED BY EQT.

AS DRILLED INFORMATION

BOTTOM HOLE WELL NO. WV 513140 STATE PLANE COORDINATES (NORTH ZONE) NAD 27	WELL NO. WV 513140 STATE PLANE COORDINATES (NORTH ZONE) NAD 27
N. 275,882.3 E. 1,632,406.2	N. 287,921.1 E. 1,635,243.2
LAT=(N) 39.250189 LONG=(W) 80.788039	LAT=(N) 39.228424 LONG=(W) 80.787627
UTM (NAD83)(METERS) N. 4,344,587.4 E. 517,441.2	UTM (NAD83)(METERS) N. 4,342,156.5 E. 518,345.4



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.
677 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
DATE AUGUST 1, 20 13
REVISED DATE AUGUST 27, 20 14
OPERATORS WELL NO. WV 513140
API WELL NO. 47
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 6980ASDRILLED513140
PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIE TO CORS NETWORK)
SCALE 1" = 1000'

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 ___ X

LOCATION: ELEVATION 1,244'(GROUND) 1,202'(PROPOSED) WATERSHED LEFT FORK ARNOLDS CREEK
DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER CHARLES P. HEASTER ET AL ACREAGE 901.72 ±
ROYALTY OWNER LEWIS MAXWELL HRS ACREAGE 2654 ±
PROPOSED WORK: LEASE NO. 090816
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 MARCELLUS ESTIMATED DEPTH

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

COUNTY NAME PERMIT

04/01/2016