

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 513347

API: 47 - 017 - 06325

Submission: Initial Amended

Notes: Re-Perforated stages 35 (35.1) and 36 (36.1)

Performed additional injection tests prior to stages 36 and 37

Correction to Production Cement Top (MD)

RECEIVED
Office of Oil and Gas

FEB 02 2016

WV Department of
Environmental Protection

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

API 47 - 017 - 06325 County DODDRIDGE District WEST UNION
Quad WEST UNION 7.5' Pad Name WEU6 Field/Pool Name _____
Farm name BUTLER, FRANKIN & KEY OIL Well Number 513347
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 4349018.3 Easting 521249.9
Landing Point of Curve Northing 4348377.2 Easting 520924.8
Bottom Hole Northing 4346774.4 Easting 521384.2

Elevation (ft) 1260 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

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

Mud Type(s) and Additive(s)
Water base Mud 13.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phosphates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 11/14/2013 Date drilling commenced 4/15/2014 Date drilling ceased 6/19/2014
Date completion activities began 9/14/2014 Date completion activities ceased 9/26/2014
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 1034' Open mine(s) (Y/N) depths N
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N
Coal depth(s) ft 190' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

API 47-017 - 06325 Farm name BUTLER, FRANKIN & KEY OIL Well number 513347

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	NONE	Y
Surface	17-1/2"	13-3/8"	1134'	NEW	J-55	113'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3110'	NEW	A-500	NONE	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	13,375'	NEW	P-110	NONE	N
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	38	15.6	1.18	45	0	8
Surface	Class A	895	15.6	1.19	1065	0	8
Coal							
Intermediate 1	Class A	1080	15.6	1.18	1275	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	720/845	14.2/15.2	1.26/1.97	2572	2,366'	72
Tubing							

Drillers TD (ft) 13,375' Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 4189'

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- Bowspring centralizer on shoe track and every 500' to surface
 Intermediate- Bowspring centralizer on shoe track and every 500' to surface
 Production- Composite bodied centralizers on every joint from TD up to 4,220'

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 - 06325 Farm name BUTLER, FRANKIN & KEY OIL Well number 513347

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6,846</u>	<u>TVD</u>	<u>7,731</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2,209 psi Bottom Hole NA psi DURATION OF TEST 53.5 hrs

OPEN FLOW Gas 11,000 mcfpd Oil 0 bpd NGL 48 bpd Water 768 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	
	<u>0</u>		<u>0</u>		

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 Stingray Pressure Pumping, LLC
Address 66680 Executive Drive City St. Clairsville State OH Zip 43950

Please insert additional pages as applicable.

Completed by Brad Maddox Telephone 412-395-7053
Signature *Brad Maddox* Title Director of Drilling Date 1/20/2016

513347 Final Formations API #47-01706325

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	1,034.00	1,034.00
SAND / SHALE	1	1	191	191
COAL	191	191	194	194
SAND / SHALE	194	194	2,307.00	2,307.00
BEREA	2,307.00	2,307.00	2,575.00	2,574.90
GANTZ	2,575.00	2,574.90	2,665.00	2,664.90
50F	2,665.00	2,664.90	2,763.00	2,762.90
30F	2,763.00	2,762.90	2,830.00	2,829.90
GORDON	2,830.00	2,829.90	2,899.00	2,898.90
4TH	2,899.00	2,898.90	3,051.00	3,050.90
5TH	3,051.00	3,050.90	3,441.00	3,440.90
WARREN	3,441.00	3,440.90	3,507.00	3,506.90
SPEECHLEY	3,507.00	3,506.90	4,371.00	4,368.60
BRADFORD	4,371.00	4,368.60	4,659.00	4,627.10
RILEY	4,659.00	4,627.10	5,116.00	4,980.30
BENSON	5,116.00	4,980.30	5,362.00	5,166.00
ALEXANDER	5,362.00	5,166.00	6,484.00	6,000.10
RHINESTREET	6,484.00	6,000.10	7,120.00	6,480.20
SONYEA	7,120.00	6,480.20	7,312.00	6,622.60
MIDDLESEX	7,310.00	6,621.20	7,402.00	6,683.40
GENESEE	7,402.00	6,683.40	7,523.00	6,755.50
GENESE0	7,523.00	6,755.50	7,591.00	6,792.90
TULLY	7,591.00	6,792.90	7,645.00	6,817.70
HAMILTON	7,645.00	6,817.70	7,731.00	6,846.20
MARCELLUS	7,731.00	6,846.20	13,374.00	6,834.50



EQT Production - Marcellus

Doddridge County, WV Grid

Doddridge County 513347

Well #513347

API #47-01706325

Main Wellbore

Design: As Drilled Surveys

Standard Survey Report

17 June, 2014



Where energy meets innovation.



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513347
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1276 0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1276 0usft
Site:	Doddridge County 513347	North Reference:	Grid
Well:	Well #513347	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	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 513347**

Site Position:		Northing:	290,279.10 usft	Latitude:	39.29
From:	Map	Easting:	1,645,150.20 usft	Longitude:	-80.75
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.80 °

Well: **Well #513347**

Well Position	+N/-S	0.0 usft	Northing:	290,279.10 usft	Latitude:	39° 17' 24.682 N
	+E/-W	0.0 usft	Easting:	1,645,150.20 usft	Longitude:	80° 45' 13.537 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,260.0 usft

Wellbore: **Main Wellbore**

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	5/21/2014	-8.49	66.82	52,299

Design: **As Drilled Surveys**

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	177.63

Survey Program Date: 6/17/2014

From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	4,189.0	513347 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	13,374.0	513347 PHX MWD (Main Wellbore)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-1,276.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.12	140.51	100.0	-1,176.0	-0.1	0.1	0.1	0.12	0.12	0.00
200.0	0.09	201.45	200.0	-1,076.0	-0.2	0.1	0.2	0.11	-0.03	60.94
300.0	0.12	216.14	300.0	-976.0	-0.4	0.0	0.4	0.04	0.03	14.69
400.0	0.15	230.54	400.0	-876.0	-0.6	-0.1	0.6	0.05	0.03	14.40
500.0	0.05	217.89	500.0	-776.0	-0.7	-0.3	0.7	0.10	-0.10	-12.65
600.0	0.04	144.25	600.0	-676.0	-0.7	-0.3	0.7	0.05	-0.01	-73.64
700.0 *	0.07	133.00	700.0	-576.0	-0.8	-0.2	0.8	0.03	0.03	-11.25



Phoenix Technology Services
Survey Report



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Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1276.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1276.0usft
Site:	Doddridge County 513347	North Reference:	Gnd
Well:	Well #513347	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
800.0	0.15	165.26	800.0	-476.0	-1.0	-0.1	1.0	0.10	0.08	32.26
900.0	0.32	160.49	900.0	-376.0	-1.4	0.0	1.4	0.17	0.17	-4.77
1,000.0	0.32	148.98	1,000.0	-276.0	-1.9	0.2	1.9	0.06	0.00	-11.51
1,100.0	0.33	140.51	1,100.0	-176.0	-2.3	0.6	2.4	0.05	0.01	-8.47
1,200.0	0.32	139.88	1,200.0	-76.0	-2.8	0.9	2.8	0.01	-0.01	-0.63
1,300.0	0.32	139.54	1,300.0	24.0	-3.2	1.3	3.2	0.00	0.00	-0.34
1,400.0	0.34	146.63	1,400.0	124.0	-3.7	1.6	3.7	0.05	0.02	7.09
1,500.0	0.40	135.62	1,500.0	224.0	-4.2	2.0	4.2	0.09	0.06	-11.01
1,600.0	0.40	139.64	1,600.0	324.0	-4.7	2.5	4.8	0.03	0.00	4.02
1,700.0	0.49	141.17	1,700.0	424.0	-5.3	3.0	5.4	0.09	0.09	1.53
1,800.0	0.60	126.76	1,800.0	524.0	-5.9	3.7	6.1	0.17	0.11	-14.41
1,900.0	0.63	127.06	1,900.0	624.0	-6.6	4.5	6.7	0.03	0.03	0.30
2,000.0	0.66	126.11	2,000.0	724.0	-7.2	5.4	7.4	0.03	0.03	-0.95
2,100.0	0.58	121.93	2,100.0	824.0	-7.8	6.3	8.1	0.09	-0.08	-4.18
2,200.0	0.48	123.19	2,200.0	924.0	-8.3	7.1	8.6	0.10	-0.10	1.26
2,300.0	0.45	137.45	2,300.0	1,024.0	-8.9	7.7	9.2	0.12	-0.03	14.26
2,400.0	0.39	150.90	2,399.9	1,123.9	-9.4	8.2	9.8	0.12	-0.06	13.45
2,500.0	0.39	156.52	2,499.9	1,223.9	-10.1	8.5	10.4	0.05	0.00	7.62
2,600.0	0.40	163.47	2,599.9	1,323.9	-10.7	8.7	11.1	0.04	0.01	4.95
2,700.0	0.39	167.54	2,699.9	1,423.9	-11.4	8.8	11.7	0.03	-0.01	4.07
2,800.0	0.42	167.35	2,799.9	1,523.9	-12.1	9.0	12.4	0.03	0.03	-0.19
2,900.0	0.43	164.39	2,899.9	1,623.9	-12.8	9.2	13.1	0.02	0.01	-2.96
3,000.0	0.44	166.59	2,999.9	1,723.9	-13.5	9.4	13.9	0.03	0.01	4.20
3,100.0	0.45	162.77	3,099.9	1,823.9	-14.3	9.6	14.7	0.05	0.01	-5.82
3,200.0	0.55	167.59	3,199.9	1,923.9	-15.1	9.8	15.5	0.11	0.10	4.82
3,300.0	0.96	169.08	3,299.9	2,023.9	-16.4	10.0	16.8	0.41	0.41	1.49
3,400.0	0.91	165.15	3,399.9	2,123.9	-18.0	10.4	18.4	0.08	-0.05	-3.93
3,500.0	0.84	169.84	3,499.9	2,223.9	-19.5	10.7	19.9	0.10	-0.07	4.69
3,600.0	0.79	174.61	3,599.9	2,323.9	-20.9	10.9	21.3	0.08	-0.05	4.77
3,700.0	0.83	176.32	3,699.9	2,423.9	-22.3	11.0	22.7	0.05	0.04	1.71
3,800.0	0.79	176.87	3,799.9	2,523.9	-23.7	11.1	24.2	0.04	-0.04	0.55
3,900.0	0.82	173.47	3,899.9	2,623.9	-25.1	11.2	25.6	0.06	0.03	-3.40
4,000.0	0.99	197.04	3,999.8	2,723.8	-26.6	11.1	27.1	0.41	0.17	23.57
4,100.0	0.61	185.60	4,099.8	2,823.8	-28.0	10.8	28.4	0.41	-0.38	-11.44
Gyro Tie In=4189' MD										
4,189.0	0.57	169.00	4,188.8	2,912.8	-28.9	10.8	29.3	0.20	-0.04	-18.65
KOP=4198' MD										
4,198.0	0.90	186.40	4,197.8	2,921.8	-29.0	10.8	29.4	4.39	3.67	193.33
4,229.0	4.60	207.60	4,228.8	2,952.8	-30.4	10.2	30.8	12.18	11.94	68.39
4,261.0	8.20	212.30	4,260.6	2,984.6	-33.4	8.4	33.8	11.36	11.25	14.69
4,292.0	9.90	215.70	4,291.2	3,015.2	-37.5	5.6	37.7	5.75	5.48	10.97
4,324.0	11.10	218.40	4,322.7	3,046.7	-42.1	2.1	42.2	4.05	3.75	8.44
4,355.0	12.40	220.30	4,353.0	3,077.0	-47.0	-1.9	46.9	4.37	4.19	6.13



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Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1276.0usft
Site:	Doddridge County 513347	North Reference:	Grid
Well:	Well #513347	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,387.0	14.90	218.40	4,384.1	3,108.1	-52.8	-6.7	52.5	7.94	7.81	-5.94	
4,418.0	17.90	215.70	4,413.8	3,137.8	-59.8	-11.9	59.3	9.98	9.68	-8.71	
4,450.0	21.00	214.00	4,444.0	3,168.0	-68.6	-18.0	67.8	9.85	9.69	-5.31	
4,482.0	22.50	213.40	4,473.7	3,197.7	-78.4	-24.6	77.4	4.74	4.69	-1.88	
4,513.0	24.40	212.50	4,502.2	3,226.2	-88.8	-31.3	87.4	6.24	6.13	-2.90	
4,545.0	26.50	212.30	4,531.1	3,255.1	-100.4	-38.6	98.7	6.57	6.56	-0.63	
4,576.0	29.70	214.00	4,558.4	3,282.4	-112.6	-46.6	110.6	10.64	10.32	5.48	
4,608.0	33.00	215.60	4,585.7	3,309.7	-126.3	-56.1	123.9	10.63	10.31	5.00	
4,639.0	36.60	215.10	4,611.2	3,335.2	-140.7	-66.4	137.8	11.65	11.61	-1.61	
4,703.0	41.20	212.70	4,661.0	3,385.0	-174.1	-88.7	170.3	7.56	7.19	-3.75	
4,766.0	40.40	214.60	4,708.7	3,432.7	-208.4	-111.5	203.6	2.34	-1.27	3.02	
4,829.0	39.00	215.60	4,757.1	3,481.1	-241.3	-134.7	235.5	2.44	-2.22	1.59	
4,893.0	39.00	215.20	4,806.9	3,530.9	-274.1	-158.0	267.3	0.39	0.00	-0.63	
4,956.0	37.90	216.70	4,856.2	3,580.2	-305.8	-181.0	298.1	2.29	-1.75	2.38	
5,019.0	37.90	216.20	4,905.9	3,629.9	-337.0	-204.0	328.2	0.49	0.00	-0.79	
5,082.0	41.20	216.30	4,954.5	3,678.5	-369.3	-227.7	359.5	5.24	5.24	0.16	
5,145.0	39.60	215.20	5,002.5	3,726.5	-402.4	-251.6	391.7	2.78	-2.54	-1.75	
5,208.0	40.10	214.50	5,050.8	3,774.8	-435.6	-274.6	423.8	1.07	0.79	-1.11	
5,271.0	41.80	216.30	5,098.4	3,822.4	-469.2	-298.6	456.4	3.28	2.70	2.86	
5,334.0	42.30	215.60	5,145.2	3,869.2	-503.4	-323.3	489.5	1.09	0.79	-1.11	
5,398.0	41.20	217.10	5,193.0	3,917.0	-537.7	-348.6	522.8	2.32	-1.72	2.34	
5,461.0	41.40	214.80	5,240.3	3,964.3	-571.3	-373.0	555.4	2.43	0.32	-3.65	
5,524.0	42.80	215.10	5,287.0	4,011.0	-606.0	-397.2	589.0	2.25	2.22	0.48	
5,587.0	41.00	213.10	5,333.9	4,057.9	-640.8	-420.8	622.8	3.56	-2.86	-3.17	
5,650.0	42.10	213.00	5,381.1	4,105.1	-675.8	-443.6	656.9	1.75	1.75	-0.16	
5,713.0	46.30	214.00	5,426.2	4,150.2	-712.4	-467.8	692.4	6.76	6.67	1.59	
5,777.0	45.50	217.10	5,470.8	4,194.8	-749.8	-494.5	728.7	3.70	-1.25	4.84	
5,840.0	44.40	218.10	5,515.4	4,239.4	-785.1	-521.7	762.8	2.08	-1.75	1.59	
5,903.0	42.30	216.10	5,561.2	4,285.2	-819.6	-547.8	796.2	3.98	-3.33	-3.17	
5,967.0	42.00	217.70	5,608.6	4,332.6	-853.9	-573.6	829.4	1.74	-0.47	2.50	
6,030.0	41.90	220.00	5,655.5	4,379.5	-888.7	-600.0	861.1	2.45	-0.16	3.65	
6,093.0	39.30	218.20	5,703.3	4,427.3	-918.5	-625.8	891.8	4.53	-4.13	-2.86	
6,157.0	40.00	215.80	5,752.6	4,476.6	-951.1	-650.4	923.3	2.63	1.09	-3.75	
6,220.0	40.30	213.80	5,800.7	4,524.7	-984.5	-673.6	955.7	2.10	0.48	-3.17	
6,283.0	40.20	213.00	5,848.8	4,572.8	-1,018.4	-696.0	988.7	0.84	-0.16	-1.27	
6,347.0	41.00	213.90	5,897.4	4,621.4	-1,053.2	-719.0	1,022.5	1.55	1.25	1.41	
6,410.0	40.70	215.40	5,945.1	4,669.1	-1,087.1	-742.4	1,055.4	1.63	-0.48	2.38	
6,473.0	42.90	220.20	5,992.1	4,716.1	-1,120.2	-768.1	1,087.4	6.16	3.49	7.62	
6,536.0	41.20	219.00	6,038.8	4,762.8	-1,152.7	-795.0	1,118.8	2.98	-2.70	-1.90	
6,599.0	39.00	216.80	6,087.0	4,811.0	-1,184.7	-820.0	1,149.7	4.15	-3.49	-3.49	
6,663.0	40.20	217.40	6,136.3	4,860.3	-1,217.3	-844.6	1,181.2	1.97	1.88	0.94	
6,726.0	40.70	216.30	6,184.3	4,908.3	-1,250.0	-869.1	1,212.9	1.38	0.79	-1.75	

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513347
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1276.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1276.0usft
Site:	Doddridge County 513347	North Reference:	Grid
Well:	Well #513347	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,789.0	41.40	216.10	6,231.8	4,955.8	-1,283.4	-893.5	1,245.2	1.13	1.11	-0.32
6,852.0	41.50	216.00	6,279.0	5,003.0	-1,317.1	-918.1	1,277.9	0.19	0.16	-0.16
6,915.0	41.40	211.70	6,326.2	5,050.2	-1,351.7	-941.3	1,311.5	4.52	-0.16	-6.83
6,979.0	41.80	211.90	6,374.1	5,098.1	-1,387.8	-963.7	1,346.7	0.66	0.63	0.31
7,042.0	40.70	212.20	6,421.5	5,145.5	-1,423.0	-985.7	1,381.0	1.77	-1.75	0.48
7,106.0	41.40	211.60	6,469.7	5,193.7	-1,458.7	-1,007.9	1,415.7	1.26	1.09	-0.94
7,169.0	41.90	210.70	6,516.8	5,240.8	-1,494.5	-1,029.6	1,450.6	1.24	0.79	-1.43
7,201.0	40.80	210.20	6,540.8	5,264.8	-1,512.8	-1,040.3	1,468.3	3.59	-3.44	-1.56
7,232.0	41.20	209.70	6,564.2	5,288.2	-1,530.4	-1,050.5	1,485.5	1.67	1.29	-1.61
7,264.0	42.20	206.90	6,588.1	5,312.1	-1,549.1	-1,060.5	1,503.8	6.61	3.13	-8.75
7,295.0	44.80	203.60	6,610.6	5,334.6	-1,568.4	-1,069.6	1,522.7	11.14	8.39	-10.65
7,327.0	45.90	200.40	6,633.1	5,357.1	-1,589.5	-1,078.1	1,543.5	7.90	3.44	-10.00
7,359.0	47.50	197.60	6,655.0	5,379.0	-1,611.5	-1,085.7	1,565.2	8.10	5.00	-8.75
7,390.0	49.40	198.20	6,675.6	5,399.6	-1,633.6	-1,092.8	1,586.9	6.30	6.13	1.94
7,422.0	50.90	194.20	6,696.1	5,420.1	-1,657.2	-1,099.7	1,610.2	10.68	4.69	-12.50
7,454.0	53.40	190.90	6,715.7	5,439.7	-1,681.9	-1,105.2	1,634.6	11.28	7.81	-10.31
7,485.0	55.30	190.70	6,733.8	5,457.8	-1,706.6	-1,109.9	1,659.1	6.15	6.13	-0.65
7,517.0	55.00	190.70	6,752.1	5,476.1	-1,732.4	-1,114.8	1,684.7	0.94	-0.94	0.00
7,548.0	55.60	188.80	6,769.7	5,493.7	-1,757.5	-1,119.1	1,709.6	5.40	1.94	-6.13
7,580.0	58.20	187.80	6,787.2	5,511.2	-1,784.0	-1,122.9	1,736.0	8.54	8.13	-3.13
7,611.0	61.80	185.90	6,802.7	5,526.7	-1,810.7	-1,126.1	1,762.5	12.77	11.61	-6.13
513347 Plat LP3										
7,630.3	64.08	184.37	6,811.5	5,535.5	-1,827.8	-1,127.7	1,779.5	13.79	11.85	-7.91
7,643.0	65.60	183.40	6,816.9	5,540.9	-1,839.3	-1,128.5	1,790.9	13.79	11.92	-7.66
7,675.0	69.00	180.80	6,829.2	5,553.2	-1,868.8	-1,129.5	1,820.4	13.00	10.63	-8.13
7,706.0	72.70	180.00	6,839.4	5,563.4	-1,898.1	-1,129.7	1,849.6	12.18	11.94	-2.58
7,738.0	76.90	177.40	6,847.8	5,571.8	-1,928.9	-1,129.0	1,880.5	15.29	13.13	-8.13
7,770.0	79.80	174.70	6,854.3	5,578.3	-1,960.2	-1,126.9	1,911.8	12.26	9.06	-8.44
7,801.0	81.50	171.20	6,859.3	5,583.3	-1,990.5	-1,123.1	1,942.3	12.42	5.48	-11.29
7,833.0	83.70	168.30	6,863.4	5,587.4	-2,021.7	-1,117.5	1,973.7	11.31	6.88	-9.06
7,865.0	86.40	166.40	6,866.2	5,590.2	-2,052.9	-1,110.5	2,005.1	10.30	8.44	-5.94
513347 LP 2040 VS										
7,899.0	89.47	165.14	6,867.4	5,591.4	-2,085.8	-1,102.1	2,038.3	9.76	9.03	-3.71
7,927.0	92.00	164.10	6,867.1	5,591.1	-2,112.8	-1,094.7	2,065.6	9.76	9.03	-3.71
7,990.0	90.70	164.00	6,865.6	5,589.6	-2,173.3	-1,077.4	2,126.8	2.07	-2.06	-0.16
8,054.0	89.90	164.40	6,865.2	5,589.2	-2,234.9	-1,060.0	2,189.1	1.40	-1.25	0.63
8,117.0	88.80	165.00	6,865.9	5,589.9	-2,295.7	-1,043.3	2,250.5	1.99	-1.75	0.95
8,180.0	88.20	164.80	6,867.6	5,591.6	-2,356.5	-1,026.9	2,311.9	1.00	-0.95	-0.32
8,244.0	88.20	164.40	6,869.8	5,593.6	-2,418.1	-1,009.9	2,374.2	0.62	0.00	-0.63
8,307.0	89.10	164.80	6,871.1	5,595.1	-2,478.9	-993.2	2,435.6	1.56	1.43	0.63
8,370.0	90.40	164.50	6,871.4	5,595.4	-2,539.6	-976.5	2,497.0	2.12	2.06	-0.48
8,434.0	90.20	164.80	6,871.0	5,595.0	-2,601.3	-959.6	2,559.3	0.56	-0.31	0.47
8,497.0	90.30	164.00	6,870.8	5,594.8	-2,662.0	-942.7	2,620.7	1.28	0.16	-1.27



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513347
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1276 0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1276 0usft
Site:	Doddridge County 513347	North Reference:	Gnd
Well:	Well #513347	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,560.0	90.00	164.20	6,870.6	5,594.6	-2,722.6	-925.4	2,681.9	0.57	-0.48	0.32	
8,623.0	90.90	165.90	6,870.1	5,594.1	-2,783.5	-909.1	2,743.4	3.05	1.43	2.70	
8,687.0	92.00	167.50	6,868.5	5,592.5	-2,845.7	-894.4	2,806.2	3.03	1.72	2.50	
8,750.0	90.90	166.90	6,866.9	5,590.9	-2,907.1	-880.5	2,868.2	1.99	-1.75	-0.95	
8,814.0	90.10	165.70	6,866.3	5,590.3	-2,969.3	-865.3	2,930.9	2.25	-1.25	-1.88	
8,877.0	90.00	165.40	6,866.3	5,590.3	-3,030.3	-849.6	2,992.5	0.50	-0.16	-0.48	
8,940.0	89.30	163.30	6,866.7	5,590.7	-3,091.0	-832.6	3,053.8	3.51	-1.11	-3.33	
9,004.0	90.30	164.30	6,866.9	5,590.9	-3,152.4	-814.8	3,116.0	2.21	1.56	1.56	
9,067.0	91.40	165.20	6,865.9	5,589.9	-3,213.2	-798.2	3,177.4	2.26	1.75	1.43	
9,130.0	91.30	164.80	6,864.5	5,588.5	-3,274.0	-781.9	3,238.8	0.65	-0.16	-0.63	
9,193.0	91.40	164.10	6,863.0	5,587.0	-3,334.7	-765.0	3,300.2	1.12	0.16	-1.11	
9,256.0	91.30	163.90	6,861.5	5,585.5	-3,395.3	-747.6	3,361.4	0.35	-0.16	-0.32	
9,320.0	91.00	164.20	6,860.2	5,584.2	-3,456.8	-730.1	3,423.6	0.66	-0.47	0.47	
9,383.0	90.30	166.60	6,859.5	5,583.5	-3,517.7	-714.2	3,485.1	3.97	-1.11	3.81	
9,446.0	90.20	166.40	6,859.2	5,583.2	-3,579.0	-699.5	3,546.9	0.35	-0.16	-0.32	
9,510.0	90.30	167.40	6,858.9	5,582.9	-3,641.3	-685.0	3,609.8	1.57	0.16	1.56	
9,573.0	90.70	167.80	6,858.4	5,582.4	-3,702.9	-671.4	3,671.9	0.90	0.63	0.63	
9,636.0	90.50	168.30	6,857.7	5,581.7	-3,764.3	-657.3	3,733.8	2.40	-0.32	-2.38	
9,700.0	90.10	165.90	6,857.4	5,581.4	-3,826.4	-641.9	3,796.5	0.88	-0.63	-0.63	
9,763.0	90.60	168.10	6,857.0	5,581.0	-3,887.5	-626.7	3,858.2	0.85	0.79	0.32	
9,826.0	89.70	166.10	6,856.8	5,580.8	-3,948.7	-611.6	3,919.9	1.43	-1.43	0.00	
9,889.0	88.60	165.30	6,857.8	5,581.8	-4,009.7	-596.0	3,981.6	2.16	-1.75	-1.27	
9,952.0	90.40	166.30	6,858.3	5,582.3	-4,070.8	-580.6	4,043.2	3.27	2.86	1.59	
10,016.0	92.60	167.20	6,856.7	5,580.7	-4,133.0	-565.9	4,106.0	3.71	3.44	1.41	
10,079.0	92.80	166.90	6,853.7	5,577.7	-4,194.4	-551.8	4,167.9	0.57	0.32	-0.48	
10,142.0	92.90	166.90	6,850.6	5,574.6	-4,255.7	-537.5	4,229.7	0.16	0.16	0.00	
10,205.0	92.30	165.10	6,847.7	5,571.7	-4,316.7	-522.3	4,291.4	3.01	-0.95	-2.86	
10,268.0	90.70	164.10	6,846.0	5,570.0	-4,377.4	-505.6	4,352.7	2.99	-2.54	-1.59	
10,332.0	89.30	161.10	6,846.0	5,570.0	-4,438.5	-486.4	4,414.5	5.17	-2.19	-4.69	
10,395.0	89.10	161.40	6,846.9	5,570.9	-4,498.1	-466.2	4,475.0	0.57	-0.32	0.48	
10,458.0	89.30	162.80	6,847.8	5,571.8	-4,558.1	-446.8	4,535.7	2.24	0.32	2.22	
10,521.0	89.10	162.40	6,848.7	5,572.7	-4,618.2	-428.0	4,596.5	0.71	-0.32	-0.63	
10,585.0	89.30	162.90	6,849.6	5,573.6	-4,679.3	-408.9	4,658.3	0.84	0.31	0.78	
10,648.0	89.10	162.90	6,850.5	5,574.5	-4,739.5	-390.4	4,719.2	0.32	-0.32	0.00	
10,711.0	89.30	163.90	6,851.3	5,575.3	-4,799.9	-372.4	4,780.3	1.62	0.32	1.59	
10,774.0	89.80	165.60	6,851.8	5,575.8	-4,860.6	-355.8	4,841.7	2.81	0.79	2.70	
10,838.0	92.10	167.30	6,850.8	5,574.8	-4,922.8	-340.8	4,904.5	4.47	3.59	2.66	
10,901.0	92.30	167.10	6,848.4	5,572.4	-4,984.2	-326.9	4,966.4	0.45	0.32	-0.32	
10,964.0	92.30	166.90	6,845.8	5,569.8	-5,045.6	-312.7	5,028.3	0.32	0.00	-0.32	
11,027.0	91.30	166.40	6,843.8	5,567.8	-5,106.8	-298.2	5,090.1	1.77	-1.59	-0.79	
11,090.0	90.80	166.00	6,842.7	5,566.7	-5,168.0	-283.2	5,151.8	1.02	-0.79	-0.63	
11,153.0	90.60	165.00	6,841.9	5,565.9	-5,229.0	-267.4	5,213.4	1.62	-0.32	-1.59	
11,217.0	91.60	165.20	6,840.7	5,564.7	-5,290.8	-250.9	5,275.9	1.59	1.56	0.31	



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513347
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1276.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1276.0usft
Site:	Doddridge County 513347	North Reference:	Grid
Well:	Well #513347	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,280.0	90.60	165.40	6,839.5	5,563.5	-5,351.8	-235.0	5,337.4	1.62	-1.59	0.32	
11,343.0	90.90	165.20	6,838.7	5,562.7	-5,412.7	-219.0	5,399.0	0.57	0.48	-0.32	
11,406.0	88.80	164.50	6,838.8	5,562.8	-5,473.5	-202.5	5,460.4	3.51	-3.33	-1.11	
11,469.0	88.90	164.50	6,840.1	5,564.1	-5,534.2	-185.7	5,521.7	0.16	0.16	0.00	
11,533.0	88.20	163.50	6,841.7	5,565.7	-5,595.7	-168.0	5,583.9	1.91	-1.09	-1.56	
11,596.0	88.00	162.50	6,843.8	5,567.8	-5,655.9	-149.6	5,644.8	1.62	-0.32	-1.59	
11,659.0	88.80	163.50	6,845.6	5,569.6	-5,716.1	-131.2	5,705.8	2.03	1.27	1.59	
11,723.0	90.00	165.10	6,846.2	5,570.2	-5,777.7	-113.9	5,768.0	3.12	1.88	2.50	
11,786.0	90.10	165.00	6,846.2	5,570.2	-5,838.6	-97.6	5,829.5	0.22	0.16	-0.16	
11,849.0	89.70	164.00	6,846.3	5,570.3	-5,899.3	-80.8	5,890.9	1.71	-0.63	-1.59	
11,913.0	89.70	164.30	6,846.6	5,570.6	-5,960.9	-63.3	5,953.1	0.47	0.00	0.47	
11,976.0	90.30	165.60	6,846.6	5,570.6	-6,021.7	-47.0	6,014.6	2.27	0.95	2.06	
12,039.0	90.60	165.00	6,846.1	5,570.1	-6,082.6	-31.0	6,076.1	1.06	0.48	-0.95	
12,102.0	90.70	165.10	6,845.4	5,569.4	-6,143.5	-14.7	6,137.6	0.22	0.16	0.16	
12,166.0	90.60	164.70	6,844.7	5,568.7	-6,205.3	1.9	6,200.0	0.64	-0.16	-0.63	
12,229.0	90.30	163.60	6,844.2	5,568.2	-6,265.9	19.1	6,261.3	1.81	-0.48	-1.75	
12,292.0	90.40	163.30	6,843.8	5,567.8	-6,326.3	37.1	6,322.4	0.50	0.16	-0.48	
12,355.0	90.10	162.60	6,843.5	5,567.5	-6,386.5	55.6	6,383.3	1.21	-0.48	-1.11	
12,418.0	90.50	163.40	6,843.2	5,567.2	-6,446.8	74.0	6,444.3	1.42	0.63	1.27	
12,482.0	90.90	164.60	6,842.4	5,566.4	-6,508.3	91.6	6,506.5	1.98	0.63	1.88	
12,545.0	91.10	164.60	6,841.3	5,565.3	-6,569.0	108.3	6,567.9	0.32	0.32	0.00	
12,609.0	90.70	165.50	6,840.3	5,564.3	-6,630.8	124.9	6,630.3	1.54	-0.63	1.41	
12,672.0	89.80	166.90	6,840.0	5,564.0	-6,692.0	139.9	6,692.1	2.64	-1.43	2.22	
12,735.0	90.00	166.40	6,840.1	5,564.1	-6,753.3	154.4	6,753.9	0.85	0.32	-0.79	
12,798.0	89.60	166.10	6,840.4	5,564.4	-6,814.5	169.4	6,815.7	0.79	-0.63	-0.48	
12,862.0	89.60	166.20	6,840.8	5,564.8	-6,876.6	184.7	6,878.4	0.16	0.00	0.16	
12,925.0	90.70	165.90	6,840.6	5,564.6	-6,937.8	199.9	6,940.1	1.81	1.75	-0.48	
12,988.0	90.90	165.80	6,839.8	5,563.8	-6,998.9	215.3	7,001.8	0.35	0.32	-0.16	
13,052.0	91.00	165.80	6,838.7	5,562.7	-7,060.9	231.0	7,064.4	0.16	0.16	0.00	
13,115.0	91.10	165.60	6,837.5	5,561.5	-7,121.9	246.6	7,126.0	0.35	0.16	-0.32	
13,178.0	90.60	164.10	6,836.6	5,560.6	-7,182.7	263.0	7,187.5	2.51	-0.79	-2.38	
13,241.0	90.80	164.30	6,835.8	5,559.8	-7,243.4	280.2	7,248.7	0.45	0.32	0.32	
13,305.0	90.60	163.00	6,835.1	5,559.1	-7,304.8	298.2	7,310.8	2.05	-0.31	-2.03	
Last Survey=13317' MD/6835' TVD											
13,317.0	90.50	163.40	6,834.9	5,558.9	-7,316.2	301.7	7,322.5	3.44	-0.83	3.33	
513347 TD4											
13,371.3	90.50	163.40	6,834.5	5,558.5	-7,368.3	317.2	7,375.1	0.00	0.00	0.00	
Projection to TD=13374' MD/ 6834' TVD											
13,374.0	90.50	163.40	6,834.4	5,558.4	-7,370.9	317.9	7,377.7	0.00	0.00	0.00	



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 513347
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1276.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1276.0usft
Site:	Doddridge County 513347	North Reference:	Gnd
Well:	Well #513347	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Design Annotations

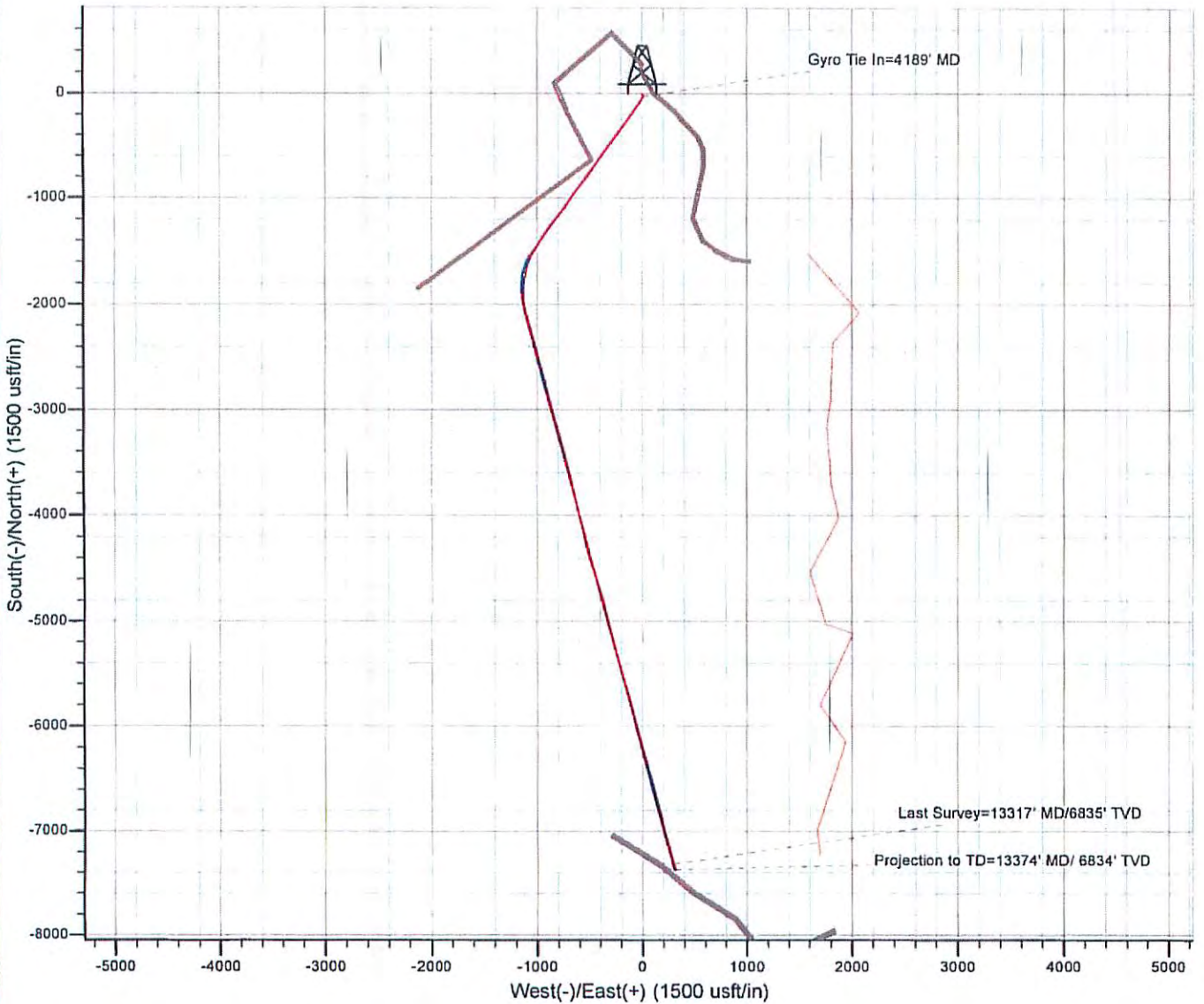
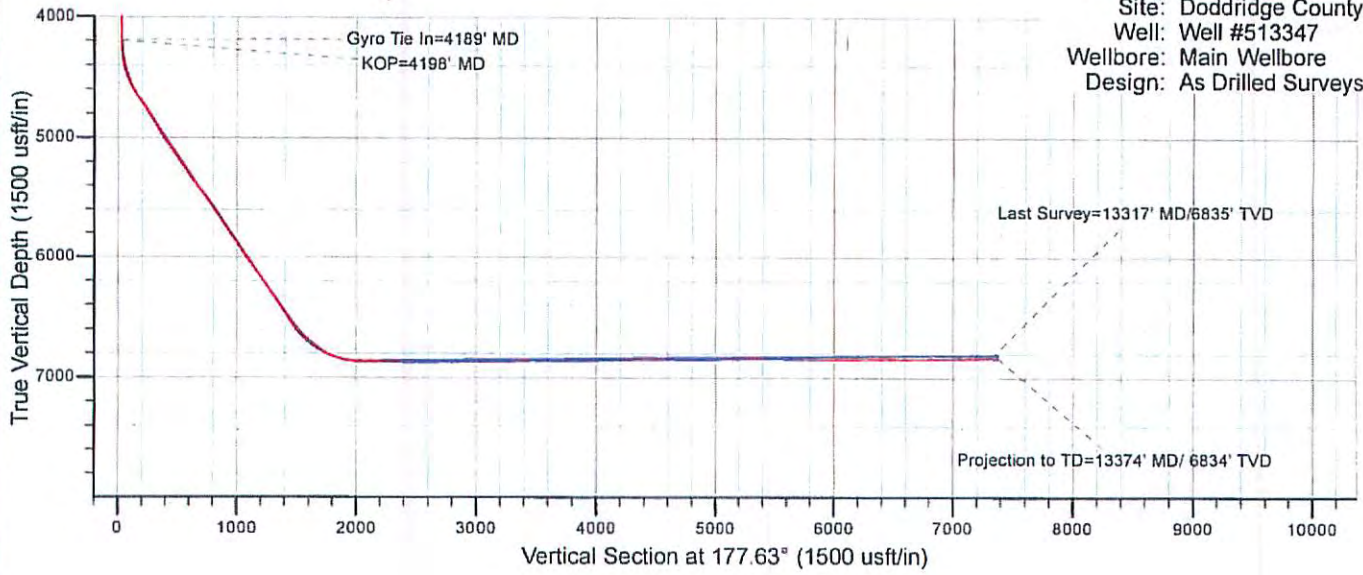
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,189.0	4,188.8	-28.9	10.8	Gyro Tie In=4189' MD
4,198.0	4,197.8	-29.0	10.8	KOP=4198' MD
13,317.0	6,834.9	-7,316.2	301.7	Last Survey=13317' MD/6835' TVD
13,374.0	6,834.4	-7,370.9	317.9	Projection to TD=13374' MD/ 6834' TVD

Checked By: _____ Approved By: _____ Date: _____



EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 513347
Well: Well #513347
Wellbore: Main Wellbore
Design: As Drilled Surveys



513347 - 47-017-06325-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	9/14/2014	13,330.00	13,332.00	10	MARCELLUS
1	9/15/2014	13,299.00	13,209.00	32	MARCELLUS
2	9/15/2014	13,057.00	13,179.00	40	MARCELLUS
3	9/15/2014	12,909.00	13,031.00	40	MARCELLUS
4	9/15/2014	12,759.00	12,881.00	40	MARCELLUS
5	9/16/2014	12,609.00	12,731.00	40	MARCELLUS
6	9/16/2014	12,459.00	12,579.00	40	MARCELLUS
7	9/16/2014	12,431.00	12,309.00	40	MARCELLUS
8	9/16/2014	12,159.00	12,279.00	40	MARCELLUS
9	9/17/2014	12,009.00	12,131.00	40	MARCELLUS
10	9/17/2014	11,859.00	11,981.00	40	MARCELLUS
11	9/17/2014	11,707.00	11,831.00	40	MARCELLUS
12	9/17/2014	11,559.00	11,681.00	40	MARCELLUS
13	9/18/2014	11,409.00	11,531.00	40	MARCELLUS
14	9/18/2014	11,259.00	11,381.00	40	MARCELLUS
15	9/18/2014	11,109.00	11,231.00	40	MARCELLUS
16	9/18/2014	10,959.00	11,081.00	40	MARCELLUS
17	9/19/2014	10,809.00	10,931.00	40	MARCELLUS
18	9/19/2014	10,659.00	10,781.00	40	MARCELLUS
19	9/19/2014	10,509.00	10,631.00	40	MARCELLUS
20	9/19/2014	10,359.00	10,481.00	40	MARCELLUS
21	9/19/2014	10,209.00	10,331.00	40	MARCELLUS
22	9/20/2014	10,062.00	10,181.00	40	MARCELLUS
23	9/20/2014	9,909.00	10,031.00	40	MARCELLUS
24	9/20/2014	9,759.00	9,881.00	40	MARCELLUS
25	9/20/2014	9,609.00	9,729.00	40	MARCELLUS
26	9/20/2014	9,459.00	9,581.00	40	MARCELLUS
27	9/20/2014	9,309.00	9,431.00	40	MARCELLUS
28	9/21/2014	9,159.00	9,281.00	40	MARCELLUS
29	9/21/2014	9,009.00	9,131.00	40	MARCELLUS
30	9/21/2014	8,859.00	8,981.00	40	MARCELLUS
31	9/21/2014	8,709.00	8,831.00	40	MARCELLUS
32	9/21/2014	8,559.00	8,681.00	40	MARCELLUS
33	9/22/2014	8,409.00	8,531.00	40	MARCELLUS
34	9/22/2014	8,259.00	8,381.00	40	MARCELLUS
35	9/23/2014	8,109.00	8,231.00	40	MARCELLUS
35.1 (Re-Perf)	9/23/2014	8,100.00	8,130.00	32	MARCELLUS
36	9/24/2014	7,959.00	8,070.00	40	MARCELLUS
36.1 (Re-Perf)	9/24/2014	7,975.00	8,060.00	32	MARCELLUS
37	9/25/2014	7,929.00	7,811.00	40	MARCELLUS
38	9/25/2014	7,775.00	7,661.00	40	MARCELLUS

513347 - 47-017-06325-0000 - 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	9/14/2014	11.50	7,066.00	8,963.00	4,841	0	1,824	0
1	9/15/2014	90.80	7,916.00	8,392.00	4,161	200,260	6,167	0
2	9/15/2014	91.20	8,131.00	8,582.00	4,931	200,680	5,873	0
3	9/15/2014	87.00	8,321.00	8,900.00	4,796	200,450	5,291	0
4	9/16/2014	91.00	8,281.00	8,650.00	4,888	200,490	4,918	0
5	9/16/2014	89.30	7,769.00	8,442.00	4,761	200,240	5,660	0
6	9/16/2014	83.90	8,247.00	9,063.00	4,856	200,400	7,786	0
7	9/16/2014	84.20	7,762.00	8,287.00	4,457	200,780	5,403	0
8	9/16/2014	100.00	7,895.00	8,684.00	4,612	200,420	4,939	0
9	9/17/2014	89.00	7,883.00	8,401.00	4,664	200,540	6,771	0
10	9/17/2014	96.00	8,159.00	8,564.00	4,903	200,410	5,193	0
11	9/17/2014	95.00	8,443.00	8,885.00	5,045	200,400	5,184	0
12	9/17/2014	98.70	7,993.00	8,402.00	4,633	200,380	5,246	0
13	9/18/2014	91.40	7,976.00	8,724.00	4,988	200,860	4,895	0
14	9/18/2014	95.30	8,132.00	8,500.00	5,259	200,810	5,027	0
15	9/18/2014	97.40	8,149.00	8,186.00	4,695	200,580	5,738	0
16	9/19/2014	98.00	7,984.00	8,865.00	5,117	200,460	4,995	0
17	9/19/2014	93.00	7,838.00	8,892.00	4,698	200,950	5,489	0
18	9/19/2014	95.10	8,082.00	8,512.00	5,016	200,680	5,089	0
19	9/19/2014	96.90	8,063.00	8,477.00	4,719	201,300	5,024	0
20	9/19/2014	91.40	7,788.00	9,187.00	4,776	202,300	5,948	0
21	9/20/2014	97.80	8,034.00	8,517.00	4,775	201,880	4,970	0
22	9/20/2014	95.80	8,246.00	8,888.00	5,240	202,380	4,694	0
23	9/20/2014	92.20	8,123.00	8,515.00	4,771	200,400	5,008	0
24	9/20/2014	93.90	8,066.00	8,835.00	4,901	201,320	4,900	0
25	9/20/2014	80.30	8,107.00	8,775.00	4,328	201,200	4,824	0
26	9/20/2014	95.80	8,049.00	8,769.00	4,370	199,400	5,185	0
27	9/21/2014	79.80	8,081.00	9,087.00	5,005	199,380	5,007	0
28	9/21/2014	96.30	7,936.00	8,293.00	4,883	202,580	5,011	0
29	9/21/2014	97.40	7,945.00	8,320.00	4,973	200,860	4,937	0
30	9/21/2014	96.70	7,751.00	8,132.00	4,810	200,840	5,048	0
31	9/21/2014	96.60	8,020.00	8,688.00	4,063	202,300	5,000	0
32	9/21/2014	99.60	7,747.00	8,028.00	4,602	202,180	4,783	0
33	9/22/2014	99.40	7,741.00	8,050.00	4,451	202,520	4,829	0
34	9/22/2014	95.70	7,950.00	8,873.00	5,255	199,160	4,788	0
35	9/23/2014	36.00	8,085.00	9,515.00	4,880	3,257	2,106	0
35.1 (Re-Perf)	9/23/2014	90.00	8,329.00	10,747.00	4,212	180,420	4,851	0
Injection Test	9/24/2014	25.00	6,182.00	6,439.00	5,274	0	2,811	0
36	9/24/2014	65.30	8,920.00	9,507.00	4,867	7,000	1,449	0
36.1 (Re-Perf)	9/25/2014	96.00	7,689.00	9,866.00	5,901	187,994	4,452	0
Injection Test	9/25/2014	11.50	5,029.00	6,781.00	5,743	0	3,118	0
37	9/25/2014	100.70	7,024.00	7,632.00	4,669	204,820	5,004	0
38	9/25/2014	99.70	7,784.00	8,436.00	3,713	170,920	6,038	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/14/2014
Job End Date:	9/26/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06325-00-00
Operator Name:	EQT Production
Well Name and Number:	WEU6 - 513347
Longitude:	-80.75376000
Latitude:	39.29019000
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,871
Total Base Water Volume (gal):	9,092,647
Total Base Non Water Volume:	390,928



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	Stingray	Carrier	Water	7732-18-5	100.00000	90.40864	
Sand	Stingray	Proppant	Crystalline Silica	14808-60-7	100.00000	9.04083	
FRA-405	Stingray	Friction Reducer	Petroleum Distillates	64742-47-8	40.00000	0.03823	
			Sodium Chloride	7647-14-5	10.00000	0.00956	
			Alcohols, C12-16, Ethoxylated	68551-12-2	7.00000	0.00669	
			Ammonium Chloride	12125-02-9	7.00000	0.00669	
MX-5	Halliburton	Biocide	Sodium Nitrate	7631-99-4	60.00000	0.05745	
Hydrochloric Acid 15%	Stingray	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.04396	
Polyfrac PTL Plus M-4.0	Stingray	Gel	Petroleum Distillates	64742-47-8	55.00000	0.01656	
			Guar Gum	9000-30-0	50.00000	0.01505	
			Clay	Proprietary	5.00000	0.00151	
Scale Clear 112	Stingray	Scale Inhibitor	Non Hazardous	NA	100.00000	0.02490	

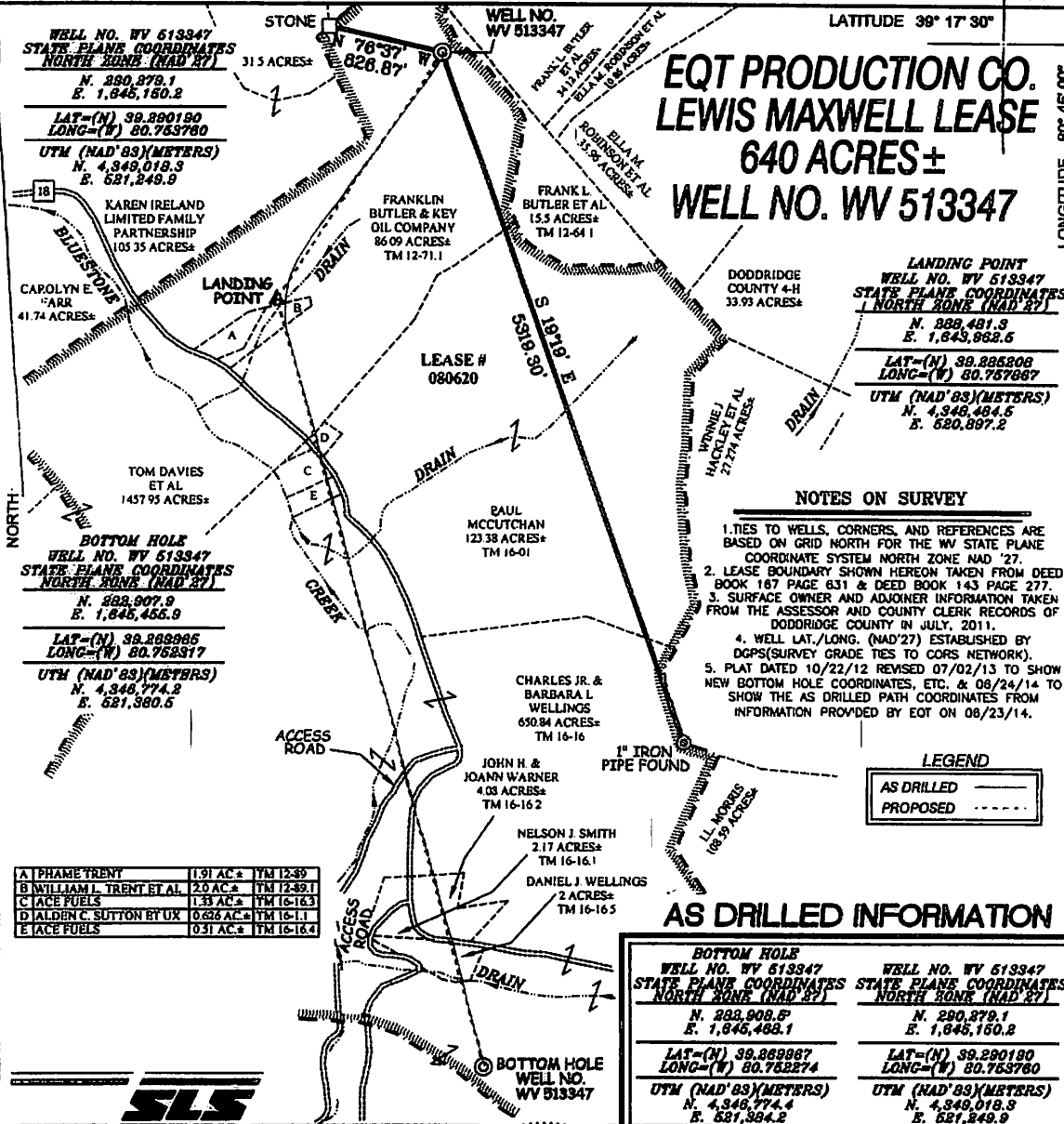
MX-8	Halliburton	Biocide				
			Bacteria Culture	N/A	100.00000	0.00958
Breaker 3L	Stingray	Gel Breaker				
			Sodium Chloride	7647-14-5	40.00000	0.00021
			Potassium Chloride	7447-40-7	10.00000	0.00005
			Sodium Chlorite	7758-19-2	5.00000	0.00003
TCA-6038	Stingray	Corrosion Inhibitor				
			Methanol	67-56-1	20.00000	0.00020
TCA-6038	Stingray	Corrosion Inhibitor				
			Methanol	67-56-1	20.00000	0.00020
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 CO.
LEWIS MAXWELL LEASE
640 ACRES±
WELL NO. WV 513347**

WELL NO. WV 513347
STATE PLANE COORDINATES
NORTH ZONE (NAD 87)
N. 880,879.1
E. 1,845,150.2
LAT-(N) 39.290190
LONG-(W) 80.753780
UTM (NAD 83)(METERS)
N. 4,349,018.3
E. 521,249.9

KAREN IRELAND
LIMITED FAMILY
PARTNERSHIP
105.35 ACRES±

CAROLYN E
"ARR"
41.74 ACRES±

TOM DAVIES
ET AL
1457.95 ACRES±

BOTTOM HOLE
WELL NO. WV 513347
STATE PLANE COORDINATES
NORTH ZONE (NAD 87)
N. 882,907.9
E. 1,845,463.9
LAT-(N) 39.289867
LONG-(W) 80.752917
UTM (NAD 83)(METERS)
N. 4,346,774.2
E. 521,360.5

A PHAME TRENT	1.91 AC±	TM 12-89
B WILLIAM L. TRENT ET AL	2.0 AC±	TM 12-89.1
C ACE FUELS	1.33 AC±	TM 16-16.3
D ALDEN C. SUTTON ET UX	16.626 AC±	TM 16-1.1
E ACE FUELS	0.31 AC±	TM 16-16.4

WELL NO. WV 513347

FRANK L. BUTLER ET AL
15.5 ACRES±
TM 12-64.1

LEASE #
080620

PAUL MCCUTCCHAN
123.38 ACRES±
TM 16-01

CHARLES JR. &
BARBARA L
WELLINGS
650.84 ACRES±
TM 16-16

JOHN H. &
JOANN WARNER
4.03 ACRES±
TM 16-16.2

NELSON J. SMITH
2.17 ACRES±
TM 16-16.1

DANIEL J. WELLINGS
2 ACRES±
TM 16-16.5

BOTTOM HOLE
WELL NO. WV 513347

LATITUDE 39° 17' 30"

LONGITUDE 80° 45' 00"

LANDING POINT
WELL NO. WV 513347
STATE PLANE COORDINATES
NORTH ZONE (NAD 87)
N. 888,481.3
E. 1,843,862.5
LAT-(N) 39.285208
LONG-(W) 80.757897
UTM (NAD 83)(METERS)
N. 4,348,484.5
E. 520,897.2

NOTES ON SURVEY

1. TIES TO WELLS, CORNERS, AND REFERENCES ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 167 PAGE 631 & DEED BOOK 143 PAGE 277.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF DODDRIDGE COUNTY IN JULY, 2011.
4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SURVEY GRADE TIES TO CORS NETWORK).
5. PLAT DATED 10/22/12 REVISED 07/02/13 TO SHOW NEW BOTTOM HOLE COORDINATES, ETC. & 08/24/14 TO SHOW THE AS DRILLED PATH COORDINATES FROM INFORMATION PROVIDED BY EOT ON 08/23/14.

LEGEND

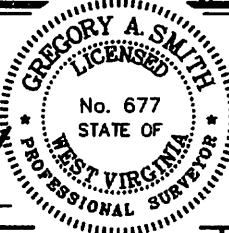
AS DRILLED	—————
PROPOSED	-----

AS DRILLED INFORMATION

BOTTOM HOLE WELL NO. WV 513347 STATE PLANE COORDINATES NORTH ZONE (NAD 87) N. 882,908.9 E. 1,845,463.1 LAT-(N) 39.289867 LONG-(W) 80.752274 UTM (NAD 83)(METERS) N. 4,346,774.4 E. 521,364.2	WELL NO. WV 513347 STATE PLANE COORDINATES NORTH ZONE (NAD 87) N. 290,879.1 E. 1,845,150.2 LAT-(N) 39.290190 LONG-(W) 80.753780 UTM (NAD 83)(METERS) N. 4,349,018.3 E. 521,249.9
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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 JULY 2 20 13

REVISED DATE JUNE 24 20 14

OPERATORS WELL NO. WV 513347

API WELL NO. 47

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7831ASDRILLED513347

PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIES 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

LOCATION: ELEVATION 1,268 (GROUND) 1,281 (PROPOSED) WATERSHED BLUESTONE CREEK & MIDDLE ISLAND CREEK

DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE WEST UNION 7.5'

SURFACE OWNER FRANKLIN BUTLER & KEY OIL COMPANY ACREAGE 86.09±

ROYALTY OWNER LEWIS MAXWELL HEIRS ACREAGE 640±

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 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