

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

API 47 - 091 - 01321 County Taylor District FLEMINGTON
Quad ROSEMONT 7.5' Pad Name RSM118 Field/Pool Name _____
Farm name JAMES M. TAYLOR ET AL Well Number 515749
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 4,349,723.1 Easting 569,607.6
Landing Point of Curve Northing 4,349,887.6 Easting 570,247.8
Bottom Hole Northing 4,348,507.5 Easting 570,776.3

Elevation (ft) 1465 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 01/30/2015 Date drilling commenced 06/03/2015 Date drilling ceased 8/31/2015
Date completion activities began 11/5/2015 Date completion activities ceased 11/11/2015
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 282,606,827 Open mine(s) (Y/N) depths _____
Salt water depth(s) ft 1357 Void(s) encountered (Y/N) depths _____
Coal depth(s) ft 22,600,646,697,757,797,813,847,889,938,1071 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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APPROVED

NAME: Shirley J. Seymour AX 04/01/2016
DATE: 3-21-16

API 47-091 - 01321 Farm name JAMES M. TAYLOR ET AL Well number 515749

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	40'	NEW	A-500 94LB/FT	NONE	Y
Surface	17.5"	13.375"	945'	NEW	J-55 54.5LB/FT	NONE	Y
Coal							
Intermediate 1	12.375"	9.625"	2505'	NEW	A-500 40LB/FT	1539'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	13,514'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details N/A

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	38	15.6	1.18	44.84	0	8
Surface	CLASS A	836	15.6	1.20	1003.2	0	8
Coal							
Intermediate 1	CLASS A / CLASS H	437 / 473	15.2 / 16.0	1.25 / 1.25	1137.5	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	1,230 / 725	15.2 / 15.6	1.07 / 1.84	2650.1	2,143	24
Tubing							

Drillers TD (ft) 13,514' MD Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 4,765' 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: 1,12,22
 INTERMEDIATE- 6 CENTRALIZERS RAN AT LEAST EVERY 500' FEET
 PRODUCTION- Composite body centralizers installed every joint from TD to 3,149'

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS MAR 02 2016

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- 091 - 01321 Farm name JAMES M. TAYLOR ET AL Well number 515749

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

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Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS		
MARCELLUS	7,470.00	TVD	8,196.00 MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,401 psi Bottom Hole N/A psi DURATION OF TEST 97.00 hrs

OPEN FLOW Gas 9,974 mcfpd Oil N/A bpd NGL 0.0 bpd Water 729.6 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 ALPHA HUNTER DRILLING (RIG 5)
Address P.O. BOX 430 City RENO State OH Zip 45773

Logging Company Phoenix Technology Services
Address 1805 Brittmoore Road City Houston State TX Zip 77043

Cementing Company BAKER HUGHES OILFIELD OPERATIONS, INC.
Address 837 Philippi Pike City CLARKSBURG State WV Zip 26301

Stimulating Company Keane Group
Address 2121 Sage Road City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Jim Helmick Telephone 412-395-5518
Signature [Signature] Title VP Completions Date 2/29/2016

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

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Drilling Contractor Savanna Drilling Rig 803
Address 125 Industry Road City Waynesburg State PA Zip 15370

Logging Company GYRODATA
Address 601 MAYER ST City BRIDGEVILLE State PA Zip 15017

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

Cementing Company C&J Energy Services
Address 2504 Smith Creek Road City Waynesburg State PA Zip 15370

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515749 Final Formations (API #47-9101321)

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1		837	
SAND/SHALE	1		32	
PITTSBURGH COAL	32		38	
SAND/SHALE	38		610	
COAL	610		615	
SAND/SHALE	615		656	
COAL	656		661	
SAND/SHALE	661		707	
UPPER FREEPORT	707		708	
SAND/SHALE	708		767	
LOWER FREEPORT	767		768	
SAND/SHALE	768		807	
UPPER KITTANNING	807		808	
SAND/SHALE	808		823	
MIDDLE KITTANNING	823		828	
SAND/SHALE	828		857	
LOWER KITTANNING	857		858	
SAND/SHALE	858		899	
COAL	899		905	
SAND/SHALE	905		948	
COAL	948		953	
SAND/SHALE	953		1,081.00	
MAXTON	981		1,058.00	
SAND/SHALE	1,058.00		1,360.00	
COAL	1,081.00		1,085.00	
BIG LIME	1,360.00		1,542.00	
SAND/SHALE	1,542.00		1,643.00	
WEIR	1,643.00		1,657.00	
SAND/SHALE	1,657.00		1,871.00	
GANTZ	1,871.00		1,937.00	
SAND/SHALE	1,937.00		1,945.00	
50F	1,945.00		1,995.00	
SAND/SHALE	1,995.00		2,052.00	
30F	2,052.00		2,092.00	
SAND/SHALE	2,092.00		2,130.00	
GORDON	2,130.00		2,180.00	
SAND/SHALE	2,180.00		2,276.00	
4TH SAND	2,276.00		2,371.00	
SAND/SHALE	2,371.00		2,419.00	
BAYARD	2,419.00		2,466.00	
SAND/SHALE	2,466.00		2,811.00	
WARREN	2,811.00		3,157.00	
SPEECHLEY	3,157.00		3,439.00	
BRADFORD	3,439.00		3,608.00	
BALLTOWN B	3,608.00		3,855.00	
RILEY	3,855.00		4,467.00	
BENSON	4,467.00		5,018.00	
ELK	5,018.00	5,008.10	7,082.00	5,008.10
SONYEA	7,082.00	6,622.60	7,589.00	7,027.00
MIDDLESEX	7,589.00	7,027.00	7,715.00	7,589.00
GENESSEE	7,715.00	7,128.60	7,889.00	7,715.00
GENESE0	7,889.00	7,264.00	7,921.00	7,889.00
TULLY	7,921.00	7,287.90	7,994.00	7,921.00
HAMILTON	7,994.00	7,340.90	8,196.00	7,994.00
MARCELLUS	8,196.00	7,470.00		8,196.00

5,008.10
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EQT PRODUCTION

Taylor County, WV

RSM118

Well #515749- Marcellus - Slot 515749

API #47-9101321

Main Wellbore

Design: 515749 As Drilled Surveys

Standard Survey Report

31 August, 2015



Where energy meets innovation.

WV Department
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04/01/2016



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #515749- Marcellus - Slot 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1488 0usft
Project:	Taylor County, WV	MD Reference:	KB @ 1488 0usft
Site:	RSM118	North Reference:	Grid
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 As Drilled Surveys		

Project Taylor 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 RSM118

Site Position:		Northing:	289,938.90 usft	Latitude:	39.29
From:	Map	Easting:	1,803,864.30 usft	Longitude:	-80.19
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.44 °

Well Well #515749- Marcellus - Slot 515749

Well Position	+N/-S	0.0 usft	Northing:	289,946.00 usft	Latitude:	39° 17' 38.387 N
	+E/-W	0.0 usft	Easting:	1,803,871.20 usft	Longitude:	80° 11' 34.754 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,465.0 usft

Wellbore Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/10/2015	-9.52	66.48	52,273

Design 515749 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	137.08

Survey Program Date 8/31/2015

From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	4,759.0	515749 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	13,514.0	515749 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

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)
Radio Tower (copy) (copy) (copy) (copy) (copy)										
0.0	0.00	0.00	0.0	-1,488.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.59	308.55	110.0	-1,378.0	0.4	-0.4	-0.6	0.54	0.54	0.00
210.0	0.55	314.58	210.0	-1,278.0	1.0	-1.2	-1.5	0.07	0.04	6.03
310.0	0.53	326.07	310.0	-1,178.0	1.7	-1.8	-2.5	0.11	-0.02	11.49
410.0	0.43	330.55	410.0	-1,078.0	2.4	-2.2	-3.3	0.11	-0.10	0.00
510.0	0.30	323.06	510.0	-978.0	3.0	-2.6	-3.9	0.14	-0.13	-7.49
610.0	0.28	326.26	610.0	-878.0	3.4	-2.9	-4.4	0.03	0.00	0.00

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COMPASS 5000.1 Build 74



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well: Well #515749- Marcellus - Slot 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1488 Gusft
Project:	Taylor County, WV	MD Reference:	KB @ 1488 Gusft
Site:	RSM118	North Reference:	Grid
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 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)
710.0	0.22	6.65	710.0	-778.0	3.8	-3.0	-4.8	0.18	-0.06	40.39
810.0	0.18	17.53	810.0	-678.0	4.1	-2.9	-5.0	0.05	-0.04	10.88
910.0	0.28	16.50	910.0	-578.0	4.5	-2.8	-5.2	0.10	0.10	-1.03
1,010.0	0.28	14.92	1,010.0	-478.0	5.0	-2.7	-5.5	0.01	0.00	-1.58
1,110.0	0.46	13.29	1,110.0	-378.0	5.6	-2.5	-5.8	0.18	0.18	-1.63
1,210.0	1.07	356.51	1,210.0	-278.0	6.9	-2.5	-6.8	0.64	0.61	-16.78
1,310.0	1.07	354.88	1,309.9	-178.1	8.8	-2.6	-8.2	0.03	0.00	-1.63
1,410.0	1.06	354.94	1,409.9	-78.1	10.6	-2.8	-9.7	0.01	-0.01	0.06
1,510.0	1.08	359.04	1,509.9	21.9	12.5	-2.9	-11.1	0.08	0.02	4.10
1,610.0	1.20	359.81	1,609.9	121.9	14.5	-2.9	-12.6	0.12	0.12	0.77
1,710.0	1.25	359.17	1,709.9	221.9	16.6	-2.9	-14.2	0.05	0.05	-0.64
1,810.0	1.36	349.33	1,809.8	321.8	18.9	-3.1	-16.0	0.25	0.11	-9.84
1,910.0	1.39	351.25	1,909.8	421.8	21.3	-3.6	-18.0	0.05	0.03	1.92
2,010.0	1.39	351.45	2,009.8	521.8	23.7	-3.9	-20.0	0.00	0.00	0.20
2,110.0	1.50	351.83	2,109.8	621.8	26.1	-4.3	-22.1	0.11	0.11	0.38
2,210.0	1.38	358.36	2,209.7	721.7	28.6	-4.5	-24.0	0.20	-0.12	6.53
2,310.0	1.31	352.52	2,309.7	821.7	31.0	-4.7	-25.9	0.15	-0.07	-5.84
2,410.0	1.21	354.91	2,409.7	921.7	33.2	-4.9	-27.6	0.11	-0.10	2.39
2,510.0	1.17	358.84	2,509.7	1,021.7	35.2	-5.0	-29.2	0.09	-0.04	3.93
2,610.0	0.94	357.10	2,609.6	1,121.6	37.1	-5.1	-30.6	0.23	-0.23	-1.74
2,710.0	0.70	358.53	2,709.6	1,221.6	38.5	-5.2	-31.7	0.24	-0.24	1.43
2,810.0	0.65	4.90	2,809.6	1,321.6	39.7	-5.1	-32.6	0.09	-0.05	6.37
2,910.0	0.56	348.10	2,909.6	1,421.6	40.7	-5.2	-33.4	0.20	-0.09	-16.80
3,010.0	0.57	344.54	3,009.6	1,521.6	41.7	-5.4	-34.2	0.04	0.01	-3.56
3,110.0	0.60	336.02	3,109.6	1,621.6	42.6	-5.8	-35.2	0.09	0.03	-8.52
3,210.0	0.56	335.43	3,209.6	1,721.6	43.6	-6.2	-36.1	0.04	-0.04	-0.59
3,310.0	0.51	331.82	3,309.6	1,821.6	44.4	-6.6	-37.0	0.06	-0.05	-3.61
3,410.0	0.48	335.28	3,409.6	1,921.6	45.2	-7.0	-37.8	0.04	-0.03	3.46
3,510.0	0.48	324.67	3,509.6	2,021.6	45.9	-7.4	-38.6	0.09	0.00	-10.61
3,610.0	0.44	313.17	3,609.6	2,121.6	46.5	-7.9	-39.4	0.10	-0.04	-11.50
3,710.0	0.45	311.25	3,709.6	2,221.6	47.0	-8.5	-40.2	0.02	0.01	-1.92
3,810.0	0.42	303.18	3,809.6	2,321.6	47.5	-9.1	-41.0	0.07	-0.03	-8.07
3,910.0	0.48	315.13	3,909.6	2,421.6	48.0	-9.7	-41.7	0.11	0.06	11.95
4,010.0	0.56	311.55	4,009.6	2,521.6	48.6	-10.4	-42.6	0.09	0.08	-3.58
4,110.0	0.57	317.82	4,109.6	2,621.6	49.3	-11.1	-43.6	0.06	0.01	6.27
4,210.0	0.56	327.53	4,209.6	2,721.6	50.1	-11.7	-44.6	0.10	-0.01	9.71
4,310.0	0.64	329.87	4,309.6	2,821.6	51.0	-12.2	-45.6	0.08	0.08	13.4
4,410.0	0.43	335.22	4,409.5	2,921.5	51.8	-12.6	-46.5	0.22	-0.21	5.35
4,510.0	0.34	327.95	4,509.5	3,021.5	52.4	-12.9	-47.2	0.10	-0.09	-7.27
4,610.0	0.26	339.96	4,609.5	3,121.5	52.9	-13.2	-47.7	0.10	-0.08	13.4
4,710.0	0.19	335.61	4,709.5	3,221.5	53.2	-13.3	-48.0	0.07	-0.07	-4.35
Grid Tie On=4759' MD										
4,759.0	0.23	327.77	4,758.5	3,270.5	53.4	-13.4	-48.2	0.10	-0.08	13.4

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Phoenix Technology Services

Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #515749- Marcellus - Slot: 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1488.0usft
Project:	Taylor County, WV	MD Reference:	KB @ 1488.0usft
Site:	RSM118	North Reference:	Gnd
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 As Drilled Surveys		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,771.0	1.20	36.50	4,770.5	3,282.5	53.5	-13.4	-48.3	9.47	8.08	572.75
4,802.0	5.10	42.70	4,801.5	3,313.5	54.8	-12.2	-48.4	12.61	12.58	20.00
4,833.0	9.10	45.70	4,832.2	3,344.2	57.5	-9.5	-48.6	12.95	12.90	9.68
4,865.0	11.80	50.40	4,863.7	3,375.7	61.4	-5.2	-48.5	8.84	8.44	14.69
4,896.0	14.80	56.00	4,893.9	3,405.9	65.6	0.5	-47.7	10.52	9.68	18.06
4,927.0	17.40	61.30	4,923.7	3,435.7	70.0	7.9	-45.9	9.63	8.39	17.10
4,959.0	20.60	63.50	4,953.9	3,465.9	74.8	17.1	-43.1	10.25	10.00	6.88
4,990.0	23.40	65.80	4,982.7	3,494.7	79.8	27.6	-39.6	9.45	9.03	7.42
5,022.0	26.30	63.30	5,011.7	3,523.7	85.6	39.7	-35.6	9.64	9.06	-7.81
5,053.0	28.20	62.20	5,039.2	3,551.2	92.1	52.4	-31.8	6.34	6.13	-3.55
5,084.0	29.90	62.90	5,066.3	3,578.3	99.0	65.7	-27.8	5.59	5.48	2.26
5,116.0	31.90	62.60	5,093.8	3,605.8	106.6	80.3	-23.3	6.27	6.25	-0.94
5,147.0	34.20	61.80	5,119.8	3,631.8	114.4	95.3	-18.9	7.55	7.42	-2.58
5,179.0	37.70	60.70	5,145.7	3,657.7	123.5	111.7	-14.3	11.12	10.94	-3.44
5,210.0	39.00	59.60	5,170.0	3,682.0	133.1	128.4	-10.0	4.74	4.19	-3.55
5,273.0	37.60	57.10	5,219.4	3,731.4	153.5	161.7	-2.3	3.31	-2.22	-3.97
5,367.0	37.80	55.50	5,293.8	3,805.8	185.4	209.5	6.9	1.06	0.21	-1.70
5,461.0	36.90	60.90	5,368.6	3,880.6	215.5	257.9	17.8	3.61	-0.96	5.74
5,556.0	36.90	60.70	5,444.5	3,956.5	243.3	307.7	31.4	0.13	0.00	-0.21
5,650.0	42.70	57.50	5,516.7	4,028.7	274.3	359.2	43.8	6.54	6.17	-3.40
5,744.0	39.30	60.80	5,587.7	4,099.7	305.9	412.1	56.6	4.29	-3.62	3.51
5,838.0	37.60	61.20	5,661.3	4,173.3	334.3	463.2	70.7	1.83	-1.81	0.43
5,933.0	37.60	62.60	5,736.6	4,248.6	361.6	514.4	85.5	0.90	0.00	1.47
6,027.0	42.20	61.80	5,808.6	4,320.6	389.7	567.7	101.2	4.92	4.89	-0.85
6,122.0	41.50	58.60	5,879.4	4,391.4	421.2	622.7	115.6	2.36	-0.74	-3.37
6,216.0	40.40	57.00	5,950.4	4,462.4	454.0	674.8	127.1	1.62	-1.17	-1.70
6,310.0	40.90	57.30	6,021.7	4,533.7	487.2	726.2	137.8	0.57	0.53	0.32
6,405.0	42.30	57.50	6,092.8	4,604.8	521.2	779.4	149.1	1.48	1.47	0.21
6,499.0	37.90	58.90	6,164.7	4,676.7	553.1	830.8	160.7	4.78	-4.68	1.49
6,593.0	36.10	59.70	6,239.7	4,751.7	582.0	879.4	172.7	1.98	-1.91	0.85
6,688.0	35.50	66.90	6,316.8	4,828.8	607.0	929.0	188.2	4.48	-0.63	7.58
6,719.0	34.20	69.20	6,342.3	4,854.3	613.6	945.4	194.5	5.96	-4.19	7.42
6,783.0	34.90	66.10	6,395.0	4,907.0	627.4	979.0	207.2	2.96	1.09	-4.84
6,814.0	37.40	63.80	6,420.0	4,932.0	635.1	995.5	212.8	9.17	8.06	-7.42
6,846.0	39.60	62.70	6,445.0	4,957.0	644.1	1,013.3	218.4	7.20	6.88	-3.44
6,877.0	41.20	59.50	6,468.7	4,980.7	653.8	1,030.9	223.2	8.45	5.16	10.32
6,909.0	42.10	55.10	6,492.6	5,004.6	665.3	1,048.8	227.0	9.56	2.61	13.75
6,972.0	42.20	52.90	6,539.3	5,051.3	690.2	1,083.0	232.1	2.35	0.16	-3.49
7,066.0	39.60	55.10	6,610.3	5,122.3	726.4	1,132.7	239.5	3.16	-2.77	3.34
7,160.0	38.10	52.90	6,683.5	5,195.5	761.0	1,180.5	246.6	2.97	-1.60	-2.34
7,254.0	37.40	57.30	6,757.9	5,269.9	793.9	1,227.6	254.6	2.96	-0.74	4.68
7,349.0	38.10	57.50	6,833.0	5,345.0	825.2	1,276.6	265.0	0.75	0.74	0.21

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Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #515749- Marcellus - Slot 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1488.0usft
Project:	Taylor County, WV	MD Reference:	KB @ 1488.0usft
Site:	RSM 115	North Reference:	Grid
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 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)
7,443.0	35.30	54.70	6,908.4	5,420.4	856.5	1,323.2	273.9	3.47	-2.98	-2.98
7,537.0	36.00	58.70	6,984.7	5,496.7	866.6	1,369.0	283.1	2.59	0.74	4.26
7,569.0	35.50	58.70	7,010.7	5,522.7	896.3	1,385.0	286.8	1.56	-1.56	0.00
7,600.0	34.90	64.50	7,036.1	5,548.1	904.8	1,400.7	291.3	10.95	-1.94	18.71
7,632.0	35.20	72.80	7,062.3	5,574.3	911.5	1,417.8	298.0	14.92	0.94	25.94
7,663.0	36.90	79.60	7,087.3	5,599.3	915.8	1,435.5	306.9	14.02	5.48	21.94
7,694.0	37.40	81.10	7,112.1	5,624.1	918.9	1,453.9	317.2	3.34	1.61	4.84
7,726.0	38.00	83.30	7,137.4	5,649.4	921.6	1,473.3	328.5	4.60	1.88	6.88
7,757.0	38.20	86.50	7,161.8	5,673.8	923.3	1,492.4	340.2	6.40	0.65	10.32
7,789.0	38.60	89.60	7,186.8	5,698.8	924.0	1,512.2	353.2	6.15	1.25	9.69
7,820.0	39.10	93.00	7,211.0	5,723.0	923.5	1,531.7	366.8	7.07	1.61	10.97
7,852.0	39.50	97.30	7,235.8	5,747.8	921.7	1,551.8	381.8	8.60	1.25	13.44
7,883.0	40.70	99.40	7,259.5	5,771.5	918.8	1,571.6	397.4	5.83	3.87	6.77
7,915.0	42.10	100.20	7,283.5	5,795.5	915.2	1,592.4	414.3	4.68	4.38	2.50
7,946.0	43.70	101.30	7,306.2	5,818.2	911.2	1,613.2	431.3	5.70	5.16	3.55
7,977.0	43.50	105.40	7,328.6	5,840.6	906.3	1,634.0	449.0	9.14	-0.65	13.23
8,009.0	44.70	109.90	7,351.6	5,863.6	899.5	1,655.2	468.4	10.48	3.75	14.06
8,040.0	46.70	114.20	7,373.3	5,885.3	891.2	1,675.7	488.5	11.84	6.45	13.87
8,072.0	48.80	118.10	7,394.8	5,906.8	880.8	1,697.0	510.6	11.15	6.56	12.19
8,103.0	50.90	120.20	7,414.8	5,926.8	869.2	1,717.7	533.2	8.53	6.77	6.77
8,135.0	53.10	122.30	7,434.5	5,946.5	856.1	1,739.2	557.4	8.60	6.88	6.56
8,166.0	54.40	123.50	7,452.8	5,964.8	842.6	1,760.2	581.7	5.23	4.19	3.87
8,197.0	55.50	125.20	7,470.6	5,982.6	828.2	1,781.1	606.4	5.72	3.55	5.48
8,229.0	56.40	128.00	7,488.5	6,000.5	812.4	1,802.4	632.5	7.78	2.81	8.75
8,260.0	58.40	130.90	7,505.2	6,017.2	795.8	1,822.6	658.4	10.18	6.45	9.35
515747 Plat LP (copy) (copy)										
8,284.9	60.34	133.56	7,517.9	6,029.9	781.4	1,838.4	679.7	12.04	7.78	10.68
8,292.0	60.90	134.30	7,521.4	6,033.4	777.1	1,842.9	685.9	12.04	7.92	10.42
8,323.0	63.80	137.80	7,535.8	6,047.8	757.4	1,861.9	713.4	13.69	9.35	11.29
8,354.0	66.60	139.70	7,548.8	6,060.8	736.2	1,880.5	741.5	10.61	9.03	6.13
8,386.0	68.50	142.00	7,561.0	6,073.0	713.3	1,899.1	771.0	8.91	5.94	7.19
8,417.0	71.90	145.20	7,571.5	6,083.5	689.8	1,916.4	800.0	14.65	10.97	10.32
8,449.0	74.30	148.20	7,580.8	6,092.8	664.2	1,933.2	830.1	11.69	7.50	9.38
8,480.0	77.40	152.30	7,588.4	6,100.4	638.1	1,948.2	859.4	16.26	10.00	13.23
8,511.0	81.20	153.30	7,594.2	6,106.2	611.0	1,962.1	888.7	12.66	12.26	3.23
8,543.0	85.50	155.00	7,597.9	6,109.9	582.4	1,975.9	919.1	14.44	13.44	5.31
8,574.0	88.70	155.50	7,599.4	6,111.4	554.3	1,988.9	948.5	10.45	10.32	1.61
515749 LP QA (copy)										
8,667.9	89.59	156.29	7,600.8	6,112.8	468.6	2,027.2	1,037.3	2.27	0.95	0.84
515749 Plat LP (copy)										
8,668.1	89.59	156.29	7,600.8	6,112.8	468.4	2,027.3	1,037.6	2.27	0.95	0.84
LP=8668' MD/7601' TVD										
8,669.0	89.60	156.30	7,600.9	6,112.9	467.6	2,027.7	1,038.4	1.27	0.95	0.84

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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #515749- Marcellus - Slot 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1488 Gush
Project:	Taylor County - WV	MD Reference:	KB @ 1488 Gush
Site:	RSM 11B	North Reference:	Grid
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 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)	
515749 LP 1041' VS											
8,669.5	89.60	156.30	7,600.9	6,112.9	467.2	2,027.9	1,038.9	0.74	0.00	-0.74	
8,763.0	89.60	155.60	7,601.5	6,113.5	381.8	2,066.0	1,127.3	0.74	0.00	-0.74	
8,857.0	89.40	159.40	7,602.3	6,114.3	294.9	2,101.9	1,215.4	4.05	-0.21	4.04	
8,951.0	89.60	159.50	7,603.2	6,115.2	206.9	2,134.9	1,302.3	0.24	0.21	0.11	
9,046.0	88.10	158.10	7,605.1	6,117.1	118.4	2,169.3	1,390.6	2.16	-1.58	-1.47	
9,140.0	88.70	157.90	7,607.7	6,119.7	31.3	2,204.5	1,478.3	0.67	0.64	-0.21	
9,234.0	87.50	159.20	7,610.8	6,122.8	-56.2	2,238.8	1,565.8	1.88	-1.28	1.38	
9,328.0	88.00	159.70	7,614.5	6,126.5	-144.1	2,271.8	1,652.6	0.75	0.53	0.53	
9,423.0	88.30	158.90	7,617.6	6,129.6	-232.9	2,305.4	1,740.5	0.90	0.32	-0.84	
9,517.0	89.50	160.10	7,619.4	6,131.4	-321.0	2,338.3	1,827.4	1.81	1.28	1.28	
9,611.0	89.70	159.80	7,620.0	6,132.0	-409.3	2,370.5	1,914.0	0.38	0.21	-0.32	
9,706.0	90.40	159.50	7,619.9	6,131.9	-498.3	2,403.5	2,001.7	0.80	0.74	-0.32	
9,800.0	90.30	159.60	7,619.4	6,131.4	-586.4	2,436.4	2,088.6	0.15	-0.11	0.11	
9,894.0	87.60	159.20	7,621.1	6,133.1	-674.4	2,469.5	2,175.5	2.90	-2.87	-0.43	
9,989.0	87.80	158.40	7,624.9	6,136.9	-762.9	2,503.8	2,263.7	0.87	0.21	-0.84	
10,083.0	87.60	158.40	7,628.7	6,140.7	-850.2	2,538.4	2,351.2	0.21	-0.21	0.00	
10,177.0	87.90	157.60	7,632.4	6,144.4	-937.3	2,573.5	2,438.9	0.91	0.32	-0.85	
10,271.0	88.20	157.00	7,635.6	6,147.6	-1,024.0	2,609.8	2,527.1	0.71	0.32	-0.64	
10,366.0	87.60	156.90	7,639.0	6,151.0	-1,111.3	2,647.0	2,616.4	0.64	-0.63	-0.11	
10,460.0	88.70	158.10	7,642.1	6,154.1	-1,198.1	2,682.9	2,704.4	1.73	1.17	1.28	
10,554.0	87.70	156.60	7,645.0	6,157.0	-1,284.8	2,719.1	2,792.5	1.92	-1.06	-1.60	
10,649.0	89.20	157.60	7,647.6	6,159.6	-1,372.3	2,756.0	2,881.8	1.90	1.58	1.05	
10,743.0	90.20	160.30	7,648.1	6,160.1	-1,460.0	2,789.8	2,969.0	3.06	1.06	2.87	
10,837.0	87.20	156.80	7,650.2	6,162.2	-1,547.5	2,824.2	3,056.4	4.90	-3.19	-3.72	
10,931.0	90.90	157.80	7,651.8	6,163.8	-1,634.2	2,860.4	3,144.6	4.08	3.94	1.06	
11,025.0	90.90	158.40	7,650.3	6,162.3	-1,721.4	2,895.5	3,232.3	0.64	0.00	0.64	
11,120.0	89.40	160.30	7,650.1	6,162.1	-1,810.2	2,929.0	3,320.2	2.55	-1.58	2.00	
11,214.0	87.30	161.50	7,652.8	6,164.8	-1,899.0	2,959.7	3,406.2	2.57	-2.23	1.28	
11,308.0	87.20	162.10	7,657.3	6,169.3	-1,988.2	2,989.0	3,491.5	0.65	-0.11	0.64	
11,402.0	88.20	161.20	7,661.0	6,173.0	-2,077.4	3,018.6	3,576.9	1.43	1.06	-0.96	
11,497.0	89.40	160.70	7,663.0	6,175.0	-2,167.1	3,049.6	3,663.7	1.37	1.26	-0.53	
11,591.0	89.10	160.50	7,664.3	6,176.3	-2,255.8	3,080.8	3,749.9	0.38	-0.32	-0.21	
11,685.0	89.70	160.10	7,665.2	6,177.2	-2,344.3	3,112.5	3,836.3	0.77	0.64	-0.43	
11,780.0	89.70	161.20	7,665.7	6,177.7	-2,433.9	3,144.0	3,923.4	1.16	0.00	1.16	
11,874.0	86.90	162.00	7,668.5	6,180.5	-2,523.1	3,173.7	4,008.9	3.10	-2.98	0.85	
11,969.0	86.90	160.10	7,673.7	6,185.7	-2,612.8	3,204.5	4,095.5	2.00	0.00	-2.00	
12,063.0	86.70	160.40	7,678.9	6,190.9	-2,701.1	3,236.2	4,181.8	0.38	-0.21	0.52	
12,157.0	87.20	158.20	7,683.9	6,195.9	-2,788.9	3,269.4	4,268.7	2.40	0.53	0.42	
12,252.0	90.40	158.60	7,685.9	6,197.9	-2,877.2	3,304.3	4,357.2	0.99	3.37	0.42	
12,346.0	90.90	158.40	7,684.8	6,196.8	-2,964.7	3,338.8	4,444.7	0.57	0.53	-0.21	
12,441.0	89.30	158.60	7,684.7	6,196.7	-3,053.1	3,373.6	4,533.1	1.70	-1.68	0.21	
12,535.0	87.80	156.40	7,687.1	6,199.1	-3,139.9	3,409.5	4,621.2	2.83	-1.60	-2.34	

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Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #515749- Marcellus - Slot 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1488.0usft
Project:	Taylor County, WV	MD Reference:	KB @ 1488.0usft
Site:	RSM118	North Reference:	Grid
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 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)
12,629.0	86.90	155.60	7,691.4	6,203.4	-3,225.6	3,447.7	4,710.0	1.28	-0.96	-0.85
12,722.0	87.90	157.20	7,695.6	6,207.6	-3,310.8	3,484.9	4,797.7	2.03	1.08	1.72
12,816.0	88.80	158.80	7,698.3	6,210.3	-3,397.9	3,520.1	4,885.4	1.95	0.96	1.70
12,910.0	88.60	158.90	7,700.5	6,212.5	-3,485.5	3,554.0	4,972.7	0.24	-0.21	0.11
13,005.0	88.00	157.60	7,703.3	6,215.3	-3,573.7	3,589.2	5,061.2	1.51	-0.63	-1.37
13,099.0	88.40	158.00	7,706.2	6,218.2	-3,660.7	3,624.7	5,149.1	0.60	0.43	0.43
13,194.0	88.00	158.40	7,709.2	6,221.2	-3,748.9	3,660.0	5,237.7	0.60	-0.42	0.42
13,288.0	88.50	158.40	7,712.1	6,224.1	-3,836.2	3,694.6	5,325.2	0.53	0.53	0.00
13,383.0	88.30	158.70	7,714.7	6,226.7	-3,924.6	3,729.3	5,413.6	0.38	-0.21	0.32
Final Survey=13452' MD/7716' TVD										
13,452.0	88.10	159.50	7,716.9	6,228.9	-3,989.1	3,753.9	5,477.5	1.19	-0.29	1.16
515749 Plat TD2 (copy) - 515749 Plat TD (copy)										
13,513.4	88.10	159.50	7,718.9	6,230.9	-4,046.6	3,775.4	5,534.3	0.00	0.00	0.00
PROJ to Bit/Deepest Point=13514' MD/7719' TVD										
13,514.0	88.10	159.50	7,719.0	6,231.0	-4,047.1	3,775.6	5,534.8	0.00	0.00	0.00

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (974.6)	+E/-W (1,938.9)	Northing (usft)	Easting (usft)	Latitude	Longitude
515747 Plat LP (copy) (c	0.00	0.00	7,615.0	974.6	1,938.9	290,920.60	1,805,810.10	39° 17' 48.167 N	80° 11' 10.187 W
- actual wellpath misses target center by 238.4usft at 8284.9usft MD (7517.9 TVD, 781.4 N, 1838.4 E)									
- Rectangle (sides W1,000.0 H1,000.0 D0.0)									
515749 Plat LP (copy)	0.00	360.00	7,615.0	504.8	2,110.0	290,450.80	1,805,981.20	39° 17' 43.537 N	80° 11' 7.965 W
- actual wellpath misses target center by 91.4usft at 8668.1usft MD (7600.8 TVD, 468.4 N, 2027.3 E)									
- Point									

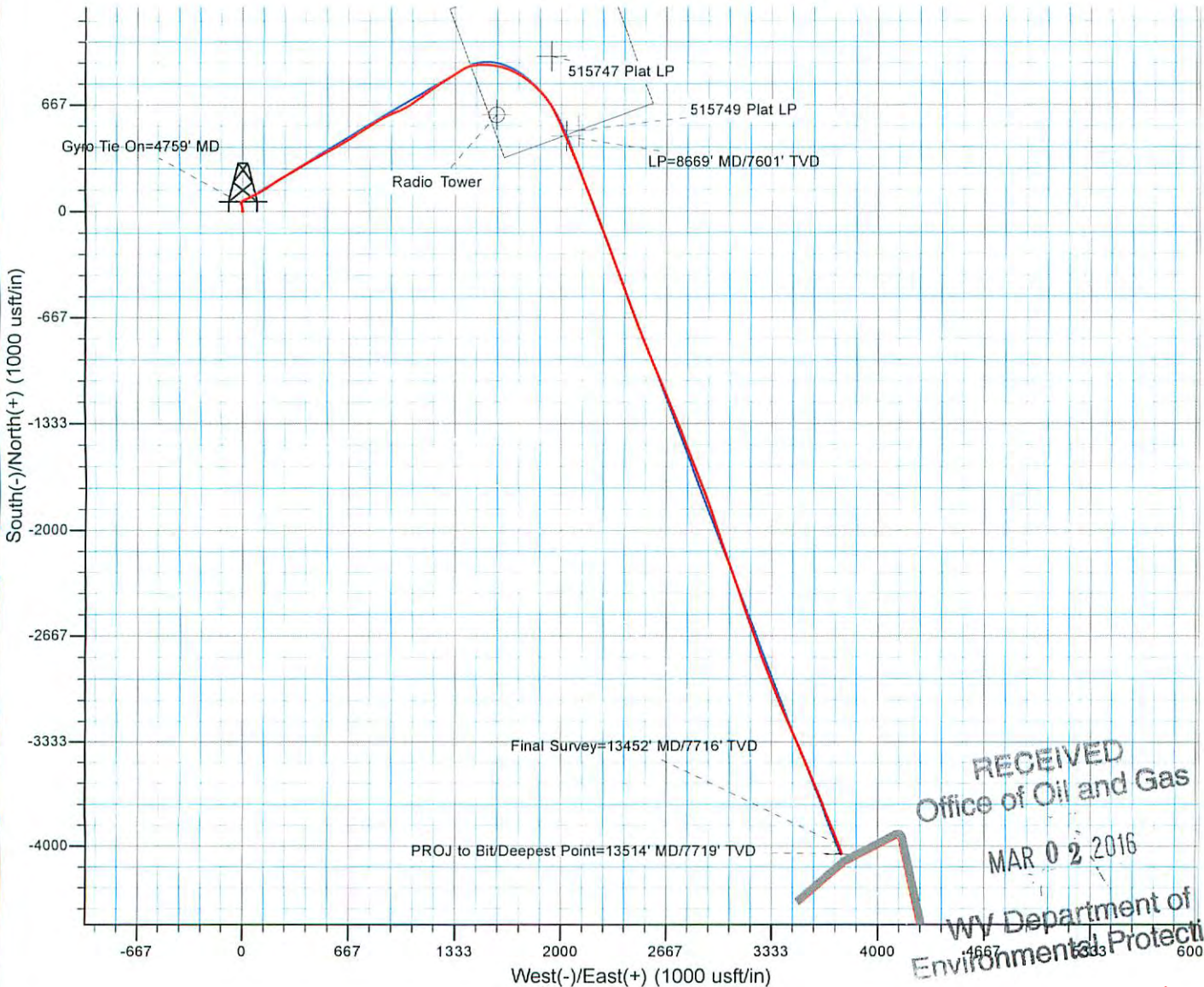
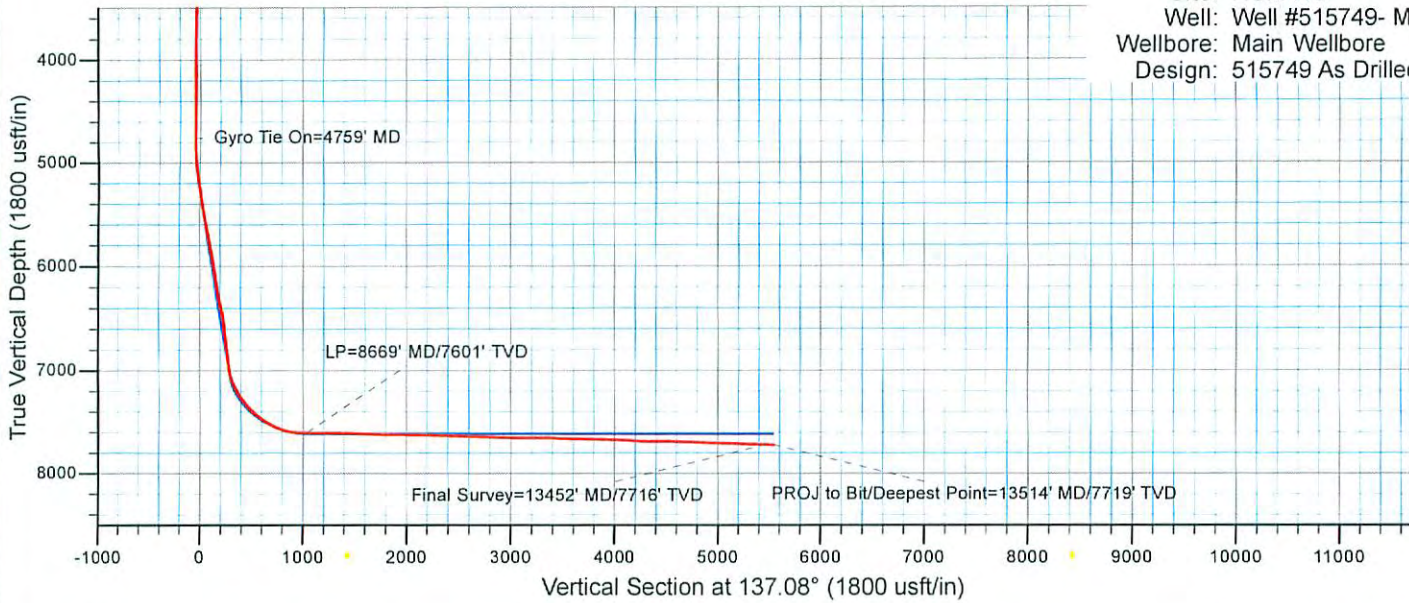
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
4,759.0	4,758.5	53.4	-13.4	Gyro Tie On=4759' MD
8,669.0	7,600.9	467.6	2,027.7	LP=8669' MD/7601' TVD
13,452.0	7,716.9	-3,989.1	3,753.9	Final Survey=13452' MD/7716' TVD
13,514.0	7,719.0	-4,047.1	3,775.6	PROJ to Bit/Deepest Point=13514' MD/7719' TVD

Checked By: _____ Approved By: _____

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Project: Taylor County, WV
 Site: RSM118
 Well: Well #515749- Marcellus
 Wellbore: Main Wellbore
 Design: 515749 As Drilled Surveys



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04/01/2016

515749 - 47-091-01321-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	10/23/2015	13,512.65	13,514.00	10	MARCELLUS
1	11/5/2015	13,369.00	13,461.00	32	MARCELLUS
2	11/5/2015	13,219.00	13,341.00	40	MARCELLUS
3	11/5/2015	13,069.00	13,191.00	40	MARCELLUS
4	11/5/2015	12,923.00	13,041.00	40	MARCELLUS
5	11/6/2015	12,769.00	12,891.00	40	MARCELLUS
6	11/6/2015	12,619.00	12,741.00	40	MARCELLUS
7	11/6/2015	12,469.00	12,591.00	40	MARCELLUS
8	11/6/2015	12,319.00	12,437.00	40	MARCELLUS
9	11/6/2015	12,169.00	12,291.00	40	MARCELLUS
10	11/7/2015	12,019.00	12,141.00	40	MARCELLUS
11	11/7/2015	11,869.00	11,991.00	40	MARCELLUS
12	11/7/2015	11,719.00	11,841.00	40	MARCELLUS
13	11/7/2015	11,569.00	11,691.00	40	MARCELLUS
14	11/7/2015	11,419.00	11,541.00	40	MARCELLUS
15	11/7/2015	11,269.00	11,391.00	40	MARCELLUS
16	11/8/2015	11,119.00	11,241.00	40	MARCELLUS
17	11/8/2015	10,969.00	11,091.00	40	MARCELLUS
18	11/8/2015	10,819.00	10,941.00	40	MARCELLUS
19	11/8/2015	10,669.00	10,791.00	40	MARCELLUS
20	11/8/2015	10,519.00	10,641.00	40	MARCELLUS
21	11/8/2015	10,369.00	10,491.00	40	MARCELLUS
22	11/9/2015	10,219.00	10,341.00	40	MARCELLUS
23	11/9/2015	10,069.00	10,191.00	40	MARCELLUS
24	11/9/2015	9,919.00	10,041.00	40	MARCELLUS
25	11/9/2015	9,769.00	9,891.00	40	MARCELLUS
26	11/9/2015	9,619.00	9,741.00	40	MARCELLUS
27	11/9/2015	9,469.00	9,589.00	40	MARCELLUS
28	11/10/2015	9,319.00	9,441.00	40	MARCELLUS
29	11/10/2015	9,169.00	9,291.00	40	MARCELLUS
30	11/10/2015	9,019.00	9,141.00	40	MARCELLUS
31	11/10/2015	8,869.00	8,991.00	40	MARCELLUS
32	11/10/2015	8,719.00	8,839.00	40	MARCELLUS
33	11/10/2015	8,569.00	8,691.00	40	MARCELLUS
34	11/10/2015	8,419.00	8,541.00	40	MARCELLUS

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 Department of Energy
 2000 Pennsylvania Avenue, N.W.
 Washington, D.C. 20540

515749 - 47-091-01321-0000 - 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	10/30/2015	9.80	7,897.00	9,424.00	5,899.00	0	558	0
1	11/5/2015	97.70	8,794.00	8,972.00	5,086.00	253,860	6455	0
2	11/5/2015	97.40	8,900.00	9,090.00	5,330.00	248,260	6383	0
3	11/5/2015	98.90	8,871.00	9,076.00	6,079.00	253,840	6778	0
4	11/5/2015	97.70	8,913.00	9,187.00	6,059.00	250,660	6688	0
5	11/6/2015	92.40	8,871.00	9,081.00	6,297.00	248,520	6464	0
6	11/6/2015	92.70	8,943.00	9,074.00	6,092.00	249,520	6244	0
7	11/6/2015	91.50	8,935.00	9,037.00	5,619.00	250,320	6268	0
8	11/6/2015	93.00	8,989.00	9,321.00	5,880.00	251,120	6209	0
9	11/6/2015	88.40	8,995.00	9,209.00	5,804.00	251,180	6372	0
10	11/7/2015	92.60	8,982.00	9,220.00	6,070.00	251,440	6436	0
11	11/7/2015	97.40	8,990.00	9,108.00	5,219.00	251,580	6191	0
12	11/7/2015	94.30	8,946.00	9,091.00	5,487.00	253,080	6140	0
13	11/7/2015	95.60	8,958.00	9,101.00	5,514.00	250,000	6258	0
14	11/7/2015	91.30	8,975.00	9,110.00	5,155.00	250,060	6016	0
15	11/7/2015	94.50	8,927.00	9,063.00	5,804.00	252,800	6110	0
16	11/8/2015	95.00	8,921.00	9,025.00	5,861.00	249,720	6160	0
17	11/8/2015	99.00	8,980.00	9,149.00	5,743.00	249,960	6240	0
18	11/8/2015	90.30	8,945.00	9,022.00	6,078.00	250,270	6,083	0
19	11/8/2015	96.80	8,988.00	9,085.00	6,106.00	250,430	6,187	0
20	11/8/2015	96.30	8,980.00	9,055.00	6,316.00	252,360	6,025	0
21	11/8/2015	96.60	9,019.00	9,220.00	6,266.00	249,740	6,208	0
22	11/9/2015	95.30	8,965.00	9,116.00	5,911.00	251,930	6,169	0
23	11/9/2015	100.10	8,909.00	8,990.00	5,662.00	250,980	6,023	0
24	11/9/2015	98.40	8,938.00	9,058.00	6,137.00	254,020	6085	0
25	11/9/2015	100.20	8,949.00	9,064.00	5,896.00	250,060	6021	0
26	11/9/2015	97.90	8,812.00	9,066.00	6,362.00	251,240	6044	0
27	11/9/2015	101.40	8,515.00	9,046.00	6,285.00	248,960	6357	0
28	11/9/2015	100.60	8,863.00	9,069.00	5,852.00	251,360	5961	0
29	11/10/2015	100.50	8,924.00	9,057.00	5,899.00	248,820	6029	0
30	11/10/2015	101.70	8,871.00	9,100.00	5,883.00	249,900	5930	0
31	11/10/2015	101.80	8,901.00	9,046.00	5,625.00	251,700	5901	0
32	11/10/2015	100.30	8,755.00	9,175.00	5,807.00	250,380	5857	0
33	11/10/2015	100.40	8,592.00	8,917.00	6,047.00	249,480	5633	0
34	11/11/2015	85.10	8,903.00	9,287.00	5,025.00	249,020	7376	0

MN Department of
 Natural Resources
 Division of Oil and
 Geology
 6500 University Ave
 St. Paul, MN 55155
 651-201-7000
 www.dnr.state.mn.us

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/5/2015
Job End Date:	11/11/2015
State:	West Virginia
County:	Taylor
API Number:	47-091-01321-00-00
Operator Name:	EQT Production
Well Name and Number:	515749
Longitude:	-80.19298700
Latitude:	39.29399600
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,470
Total Base Water Volume (gal):	8,898,078
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	89.45850	None
Sand (Proppant)	Keane Group	Proppant	Silica Substrate	14808-60-7	100.00000	10.27244	None
Hydrochloric Acid (15%)	Keane Group	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03088	None
FFR760	Keane Group	Friction Reducer	Hydrotreated Light Distillate	64742-47-8	30.00000	0.01881	None
			Alkyl Alcohol	Proprietary	10.00000	0.00627	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00313	None
AL600	Keane Group	Corrosion Inhibitor	Ethylene Glycol	107-21-1	40.00000	0.00021	None
			N, N-Dimethylformamide	68-12-2	20.00000	0.00010	None
			2-Butoxyethanol	111-76-2	15.00000	0.00008	None
			Cinnamialdehyde	104-55-2	15.00000	0.00008	None
			Tar bases, quinoline derivs, benzyl chloride-quatemized	72480-70-7	15.00000	0.00008	None
			1-Decanol	112-30-1	5.00000	0.00003	None

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		Poly (oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega- hydroxy-, branched	127087-87-0	5.00000	0.00003	None
		Isopropyl alcohol	67-63-0	2.50000	0.00001	None
		Triethyl Phosphate	78-40-0	2.50000	0.00001	None
		1-Octanol	111-87-5	2.50000	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)

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