

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



API 47 - 085 - 10209 County RITCHIE District UNION  
Quad PULLMAN Pad Name PUL96 Field/Pool Name N/A  
Farm name JAMES H. & WILMA J. WILSON Well Number 515965  
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 4,340,197.58 Easting 501,210.76  
Landing Point of Curve Northing 4,340,171.51 Easting 501,747.33  
Bottom Hole Northing 4,339,184.14 Easting 502,032.53

Elevation (ft) 1183' 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 11.0 ppg Synthetic Base Mud 11.5 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 06/23/2015 Date drilling commenced 09/24/2015 Date drilling ceased 1/7/2016  
Date completion activities began 3/24/2016 Date completion activities ceased 3/28/2016  
Verbal plugging (Y/N) N Date permission granted N/A Granted Office of Oil and Gas

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

DEC 07 2016

Freshwater depth(s) ft 342,368,399,556 Open mine(s) (Y/N) depths WV Department of Environmental Protection  
Salt water depth(s) ft No salt water shows Void(s) encountered (Y/N) depths N  
Coal depth(s) ft No coal seams Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) N

**APPROVED**

NAME: Michael Doff  
DATE: 12-21-2016

Reviewed by: \_\_\_\_\_

API 47-085 10209

Farm name JAMES H. & WILMA J. WILSON Well number 515965

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	N/A	Y
Surface	17 1/2"	13 3/8"	669'	NEW	J-55	332'	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2570'	NEW	A-500	761', 1812'	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	10,620'	NEW	P-110	NA	N
Tubing							
Packer type and depth set							

Comment Details NA

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	38	15.6	1.18	44.84	0	8
Surface	CLASS A	599	15.6	1.20	718.80	0	8
Coal							
Intermediate 1	CLASS A	988	15.6	1.18	1165.84	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H / CLASS H	853 / 454	15.2 / 15.6	1.25 / 2.06	2,001.49	2,111'	72
Tubing							

Drillers TD (ft) 10,652' Loggers TD (ft) N/A

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

Plug back procedure Wellbore plugged w/ 4,392' w/ 3,750' through fiberglass tubing using Halliburton BHKA tool. 32.6 bbl cement pumped for plug at 12.2 ppg, 2.26 yield.

Kick off depth (ft) 3,821'

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: 2 CENTRALIZERS AT JOINTS 1 AND 12

INTERMEDIATE: 6 CENTRALIZERS PLACED EVERY 500'

PRODUCTION: Composite body spiral centralizers run every joint from bottom to 3,154'. Centralizer also placed at 2,180'.

RECEIVED  
Office of Oil and Gas

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS DEC 07 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- 085 - 10209 Farm name JAMES H. & WILMA J. WILSON Well number 515965

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>			
MARCELLUS	6352	TVD	7078	MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface 1,235 psi Bottom Hole N/A psi DURATION OF TEST 60.50 hrs  
 OPEN FLOW Gas 5,502 mcfpd Oil N/A bpd NGL 70 bpd Water 872 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 <sub>2</sub> 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

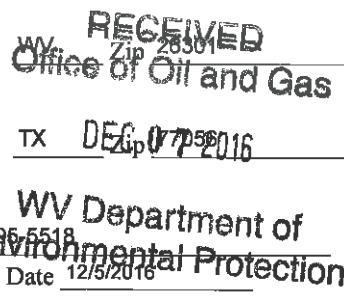
Logging Company Vaughn Energy Services  
 Address P.O. BOX 261021 City Corpus Christi State TX Zip 78246-1021

Cementing Company Baker Hughes  
 Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Stimulating Company Keane  
 Address 2121 Sage Road City Houston State TX Zip 77058

Please insert additional pages as applicable.

Completed by Jim Helmick Telephone (412) 386-5518  
 Signature [Signature] Title VP Completions Date 12/5/2016



API 47- 085 - 10209 Farm name JAMES H. & WILMA J. WILSON Well number 515965

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

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

Logging Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Cementing Company Baker Hughes  
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

RECEIVED  
Office of Oil and Gas

DEC 07 2016

WV Department of  
Environmental Protection

**515965 Final Formations API #47-08510209**

<b>Formation Name</b>	<b>Final Top MD (ftGL) (ft)</b>	<b>Final Top TVD (ft)</b>	<b>Final Btm MD (ftGL) (ft)</b>	<b>Final Btm TVD (ft)</b>
SAND/SHALE	1	1	1060	1060
MAXTON	1060	1060	1086	1086
SAND/SHALE	1086	1086	1117	1117
BIG LIME	1117	1117	1242	1242
SAND/SHALE	1242	1242	2319	2319
BIG INJUN	2319	2319	2467	2467
SAND/SHALE	2467	2467	2672	2672
GANTZ	2672	2672	2754	2754
50F	2754	2754	2841	2841
GORDON	2841	2841	3054	3054
5TH	3054	3054	3111	3111
BAYARD	3111	3111	3513	3513
WARREN	3513	3513	3623	3623
SPEECHLEY	3623	3623	3961	3957
BALLTOWN A	3961	3957	4204	4190
BALLTOWN B	4204	4190	4351	4322
BRADFORD	4351	4322	4607	4531
RILEY	4607	4531	4948	4809
BENSON	4948	4809	5227	5033
ALEXANDER	5227	5033	5241	5044
ANGOLA	5241	5044	5999	5646
RHINESTREET UPPER	5999	5646	6097	5724
RHINESTREET	6097	5724	6602	6117
SONYEA	6602	6117	6752	6214
MIDDLESEX	6752	6214	6843	6264
GENESSEE	6843	6264	6956	6314
GENESE0	6956	6314	7049	6344
TULLY	7049	6344	7078	6352
MARCELLUS	7078	6352	10652	6382

**515965- 47-085-10209-0000 Perforations**

<b>Stage Number</b>	<b>Perforation Date</b>	<b>Top Perf Depth (ftKB)</b>	<b>Bottom Perf Depth (ftKB)</b>	<b>Number of Shots</b>	<b>Formation</b>
<b>Initiation Sleeve</b>					
1	3/4/2016	10,595.00	10,620.00	10	MARCELLUS
2	3/25/2016	10,519.00	10,611.00	32	MARCELLUS
3	3/25/2016	10,369.00	10,491.00	40	MARCELLUS
4	3/25/2016	10,219.00	10,337.00	40	MARCELLUS
5	3/25/2016	10,069.00	10,191.00	40	MARCELLUS
6	3/25/2016	9,919.00	10,041.00	40	MARCELLUS
7	3/25/2016	9,769.00	9,887.00	40	MARCELLUS
8	3/26/2016	9,619.00	9,741.00	40	MARCELLUS
9	3/26/2016	9,469.00	9,591.00	40	MARCELLUS
10	3/26/2016	9,322.00	9,441.00	40	MARCELLUS
11	3/26/2016	9,169.00	9,291.00	40	MARCELLUS
12	3/26/2016	9,019.00	9,141.00	40	MARCELLUS
13	3/26/2016	8,869.00	8,991.00	40	MARCELLUS
14	3/26/2016	8,719.00	8,841.00	40	MARCELLUS
15	3/27/2016	8,569.00	8,691.00	40	MARCELLUS
16	3/27/2016	8,419.00	8,541.00	40	MARCELLUS
17	3/27/2016	8,269.00	8,391.00	40	MARCELLUS
18	3/27/2016	8,119.00	8,241.00	40	MARCELLUS
19	3/27/2016	7,969.00	8,091.00	40	MARCELLUS
20	3/27/2016	7,819.00	7,941.00	40	MARCELLUS
21	3/27/2016	7,671.00	7,791.00	40	MARCELLUS
22	3/27/2016	7,519.00	7,641.00	40	MARCELLUS
23	3/28/2016	7,369.00	7,491.00	40	MARCELLUS
24	3/28/2016	7,219.00	7,341.00	40	MARCELLUS

**515965- 47-085-10209-0000 - 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 (bbbls)	Amount of Nitrogen/Other (units)
Initiation Sleeve	3/24/2016	13.25	6,657.00	8,406.00	5,170.00	0	1004	0
1	3/25/2016	70.60	7,778.00	8,520.00	3,316.00	245,840	11585	0
2	3/25/2016	84.00	7,125.00	7,838.00	4,101.00	251,280	6040	0
3	3/25/2016	84.50	7,743.00	8,369.00	3,597.00	250,940	6017	0
4	3/25/2016	99.32	7,309.00	7,785.00	2,843.00	251,740	5434	0
5	3/25/2016	99.65	7,536.00	7,826.00	3,211.00	251,620	5390	0
6	3/26/2016	100.08	7,644.00	7,923.00	3,836.00	251,100	5215	0
7	3/26/2016	96.02	7,704.00	8,147.00	2,782.00	249,840	4809	0
8	3/26/2016	98.20	7,334.00	7,572.00	3,422.00	251,240	4759	0
9	3/26/2016	96.60	7,270.00	7,683.00	3,070.00	249,740	4771	0
10	3/26/2016	97.40	7,529.00	7,921.00	4,282.00	250,140	4859	0
11	3/26/2016	98.50	7,418.00	7,581.00	2,964.00	250,260	4623	0
12	3/26/2016	93.70	7,544.00	8,147.00	3,003.00	250,840	4847	0
13	3/26/2016	93.10	7,648.00	8,190.00	3,256.00	215,720	4747	0
14	3/27/2016	89.98	7,310.00	7,865.00	2,789.00	250,740	4925	0
15	3/27/2016	93.05	7,542.00	8,084.00	2,863.00	254,540	4913	0
16	3/27/2016	83.20	7,724.00	8,557.00	2,995.00	250,400	6444	0
17	3/27/2016	91.90	7,596.00	8,333.00	2,830.00	250,920	5184	0
18	3/27/2016	80.50	7,512.00	8,829.00	2,740.00	250,580	6125	0
19	3/27/2016	86.30	7,667.00	8,779.00	2,804.00	250,460	6433	0
20	3/27/2016	101.88	6,728.00	7,239.00	2,777.00	250,380	4663	0
21	3/27/2016	100.02	6,890.00	7,635.00	2,937.00	250,540	4582	0
22	3/28/2016	98.83	7,276.00	7,812.00	2,749.00	250,220	4587	0
23	3/28/2016	100.59	6,674.00	7,033.00	3,055.00	251,500	4476	0



**WV 515965**  
**EQT Production Company**  
**Laurie Ann Haddox, et al**  
**360 Acres**

LATITUDE 39 - 15 - 00

**Pullman 96**  
 H10, 515977  
 H7 515965  
 H5 515887  
 H2 515884

Proposed Gas Well  
 Located Corner, as noted  
 Surface Tract Lines  
 Reference Line  
 Lease Boundary  
 Creek or Drain  
 WV County Route  
 WV State Route

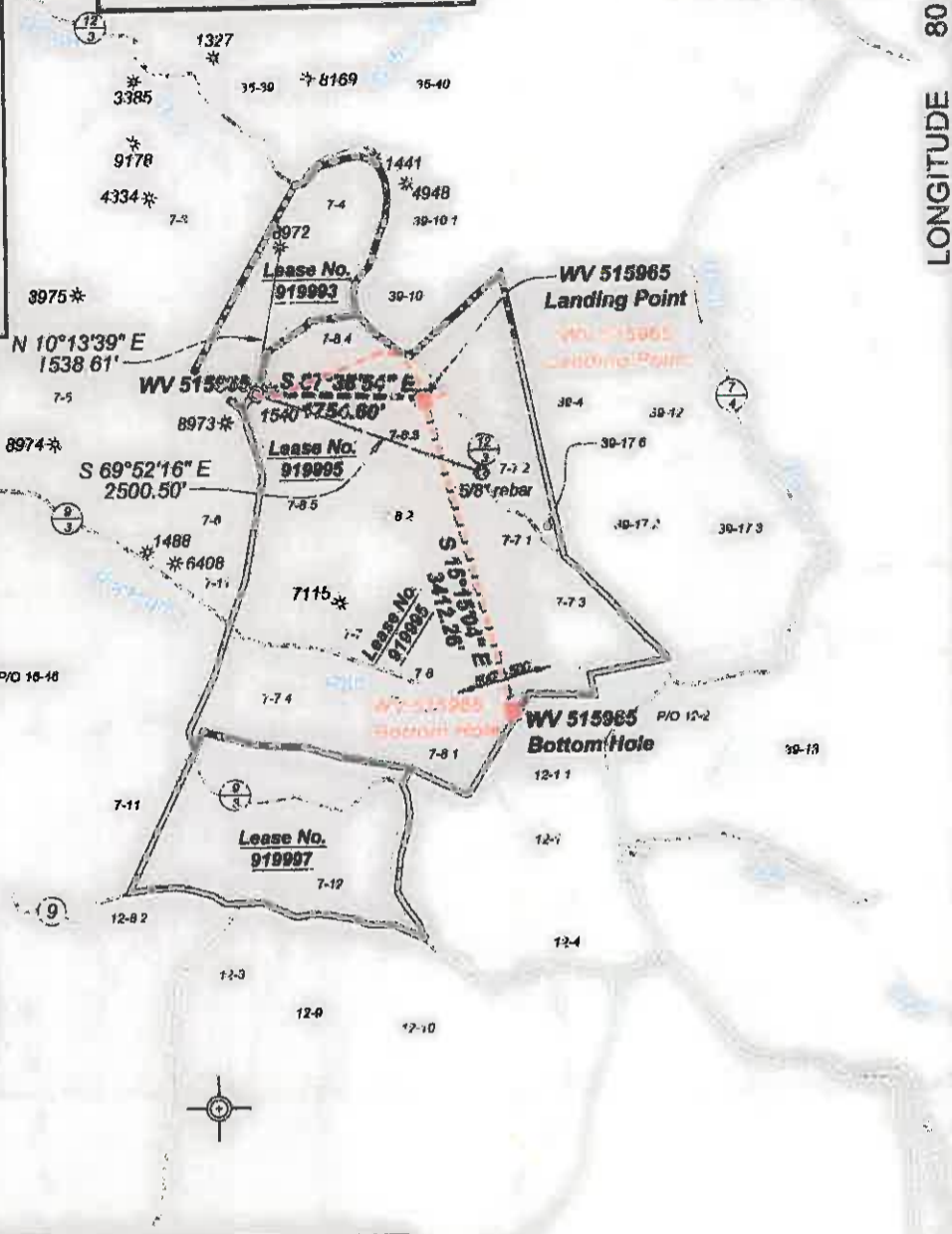
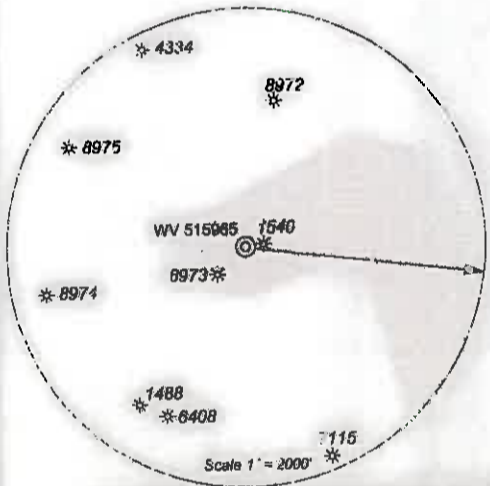
**Well Reference**  
 Pullman 96 47-85-01540  
 H7 515965  
 N 82°30'45" E  
 157.71'  
 S 48°26'51" W  
 436.28'  
 47-85-08973  
 1" = 200'

**As-Drilled Well Information**  
 WV 515965 coordinates are  
 NAD 27 N 262,432.66 E 1,578,907.15  
 NAD 83 UTM N 4,340,197.58 E 501,210.76  
 WV 515965 Landing Point coordinates are  
 NAD 27 N 262,317.59 E 1,580,686.54  
 NAD 83 UTM N 4,340,171.51 E 501,747.33  
 WV 515965 Bottom Hole coordinates are  
 NAD 27 N 269,061.78 E 1,581,649.35  
 NAD 83 UTM N 4,339,184.14 E 502,032.53  
 West Virginia Coordinate system of 1927 (North Zone)  
 Geographic coordinates are NAD27  
 UTM coordinates are NAD83, Zone 17, Meters  
 Plat orientation, corner and well ties are based upon  
 the grid north meridian  
 Well location references are based upon the grid north  
 meridian.

GRID NORTH

LONGITUDE 80 - 57 - 30

14229'



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



*I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Environmental Protection.*

*Sharon A. Hall*  
 P.S. 2089SU



FILE NO 243-14  
 DRAWING NO 243-14 Pullman 96 H7 dwg  
 SCALE 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY 1:2500  
 PROVEN SOURCE OF ELEVATION NGS CORS Station

**STATE OF WEST VIRGINIA**  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**OIL AND GAS DIVISION**

DATE April 20 20 16  
 OPERATOR'S WELL NO 515965  
 API WELL NO  
 47 - 85 - 10209  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Original 1194' Proposed 1182' WATERSHED Goose Run of Rockcamp Run QUADRANGLE: Pullman  
 DISTRICT: Union COUNTY: Ritchie  
 SURFACE OWNER: James H. & Wilma J. Wilson ACREAGE: 40.089  
 ROYALTY OWNER: Laurie Ann Haddox, et al LEASE NO: 919995 ACREAGE: 360  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: TVD 6,398

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