

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

API 47 - 085 - 10207 County RITCHIE District UNION
Quad PULLMAN Pad Name PUL96 Field/Pool Name _____
Farm name JAMES H. & WILMA J. WILSON Well Number 515884
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 4,340,189.48 Easting 501,206.52
Landing Point of Curve Northing 4,340,048.41 Easting 501,233.17
Bottom Hole Northing 4,338,521.25 Easting 501,675.36

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 11.5 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 06/22/2015 Date drilling commenced 09/24/2015 Date drilling ceased 12/11/2015
Date completion activities began 6/22/2016 Date completion activities ceased 7/2/2016
Verbal plugging (Y/N) N Date permission granted N/A Granted by WV Department of Environmental Protection

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

Freshwater depth(s) ft 342,368,399,556 Open mine(s) (Y/N) depths N
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 - 10207 Farm name JAMES H. & WILMA J. WILSON Well number 515884

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"	670'	NEW	J-55	331'	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2,575'	NEW	A-500	926'	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	12,473'	NEW	P-110	NA	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	599	15.6	1.20	718.80	0	8
Coal							
Intermediate 1	CLASS A	988	15.6	1.18	1,165.84	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H / CLASS H	800 / 715	15.2 / 15.6	1.25/2.06	2,472.9	1,933'	72
Tubing							

Drillers TD (ft) 12,478' Loggers TD (ft) 6,550'

Deepest formation penetrated MARCELLUS Plug back to (ft) 4,130'

Plug back procedure Drilled pilot hole 1/8,550 ftMD. Pumped 197 sks (41 bbl) 14.2 ppg Halliburton FillCem 1/8,550' 1/5,936'. Pumped 205 sks (43 bbl) 14.2 ppg Halliburton FillCem 1/5,936' 1/5,339'. Pumped 209 sks (44 bbl) 14.2 ppg Halliburton FillCem 1/5,339' 1/4,741'. Pumped 286 sks (52 bbl) 16.8 ppg Halliburton DenseCem with fiberglass stinger 1/4,741' 1/4,130'.

Kick off depth (ft) 4,573'

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 10
INTERMEDIATE: 6 CENTRALIZERS PLACED EVERY 500'
PRODUCTION: Composite body spiral centralizers run every joint from bottom to 3,543'.

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 _____

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WV Department of
Environmental Protection

API 47- 085 - 10207 Farm name JAMES H. & WILMA J. WILSON Well number 515884

Drilling Contractor Savanna Drilling
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 Schlumberger
Address 1080 US-33 City Weston State WV Zip 26452

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

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515884 Final Formations (API #47-08510207)

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
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	3961
BALLTOWN A	3961	3961	4204	4204
BALLTOWN B	4204	4204	4351	4349
BRADFORD	4351	4349	4607	4605
RILEY	4607	4605	4948	4933
BENSON	4948	4933	5224	5152
ALEXANDER	5224	5152	5326	5231
ELKS	5326	5231	6300	6117
SONYEA	6300	6117	6422	6211
MIDDLESEX	6422	6211	6507	6264
GENESEEE	6507	6264	6615	6311
GENESEOO	6615	6311	6717	6342
TULLY	6717	6342	6756	6350
MARCELLUS	6756	6350	12478	6380

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515884- 47-085-10207-0000 Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	3/4/2016	12,447.00	12,473.00	10	MARCELLUS
1	6/22/2016	12,326.00	12,418.00	32	MARCELLUS
2	6/23/2016	12,174.00	12,298.00	40	MARCELLUS
3	6/23/2016	12,026.00	12,148.00	40	MARCELLUS
4	6/24/2016	11,876.00	11,998.00	40	MARCELLUS
5	6/24/2016	11,726.00	11,862.00	40	MARCELLUS
6	6/24/2016	11,576.00	11,698.00	40	MARCELLUS
7	6/24/2016	11,426.00	11,548.00	40	MARCELLUS
8	6/25/2016	11,276.00	11,396.00	40	MARCELLUS
9	6/25/2016	11,126.00	11,248.00	40	MARCELLUS
10	6/25/2016	10,979.00	11,098.00	40	MARCELLUS
11	6/25/2016	10,826.00	10,948.00	40	MARCELLUS
12	6/26/2016	10,676.00	10,796.00	40	MARCELLUS
13	6/26/2016	10,526.00	10,648.00	40	MARCELLUS
14	6/26/2016	10,376.00	10,498.00	40	MARCELLUS
15	6/27/2016	10,225.00	10,348.00	40	MARCELLUS
16	6/27/2016	10,076.00	10,198.00	40	MARCELLUS
17	6/27/2016	9,926.00	10,048.00	40	MARCELLUS
18	6/27/2016	9,776.00	9,898.00	40	MARCELLUS
19	6/27/2016	9,626.00	9,744.00	40	MARCELLUS
20	6/28/2016	9,476.00	9,598.00	40	MARCELLUS
21	6/28/2016	9,326.00	9,448.00	40	MARCELLUS
22	6/28/2016	9,176.00	9,296.00	40	MARCELLUS
23	6/28/2016	9,026.00	9,148.00	40	MARCELLUS
24	6/29/2016	8,876.00	8,996.00	40	MARCELLUS
25	6/29/2016	8,726.00	8,848.00	40	MARCELLUS
26	6/29/2016	8,576.00	8,696.00	40	MARCELLUS
27	6/29/2016	8,426.00	8,546.00	40	MARCELLUS
28	6/29/2016	8,276.00	8,396.00	40	MARCELLUS
29	6/30/2016	8,126.00	8,248.00	40	MARCELLUS
30	6/30/2016	7,976.00	8,098.00	40	MARCELLUS
31	6/30/2016	7,826.00	7,948.00	40	MARCELLUS
32	6/30/2016	7,676.00	7,796.00	40	MARCELLUS
33	7/1/2016	7,526.00	7,648.00	40	MARCELLUS
34	7/1/2016	7,376.00	7,498.00	40	MARCELLUS
35	7/1/2016	7,226.00	7,348.00	40	MARCELLUS
35.1	7/2/2016	7,260.00	7,200.00	24	MARCELLUS
36	7/2/2016	7,050.00	7,172.00	40	MARCELLUS
37	7/2/2016	6,900.00	7,020.00	40	MARCELLUS
38	7/2/2016	6,750.00	6,870.00	40	MARCELLUS

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515884- 47-085-10207-0000- 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	6/22/2016	20.00	6,980.00	9,008.00	4,285.00	0	671	0
1	6/23/2016	98.00	8,490.00	9,199.00	2,910.00	256,720	5896	0
2	6/23/2016	99.00	8,379.00	8,984.00	3,600.00	250,200	5137	0
3	6/23/2016	98.00	8,234.00	8,441.00	3,306.00	246,980	5143	0
4	6/24/2016	101.00	8,389.00	8,569.00	3,690.00	254,720	5844	0
5	6/24/2016	96.00	8,003.00	9,122.00	3,409.00	256,920	4916	0
6	6/24/2016	99.00	8,083.00	8,297.00	3,945.00	251,920	4849	0
7	6/25/2016	100.00	8,327.00	8,622.00	3,431.00	251,500	4844	0
8	6/25/2016	100.00	8,221.00	8,736.00	3,342.00	251,720	4798	0
9	6/25/2016	100.00	8,098.00	8,352.00	3,261.00	251,960	4575	0
10	6/26/2016	100.00	8,138.00	8,762.00	3,495.00	247,860	4713	0
11	6/26/2016	100.00	7,998.00	8,173.00	3,567.00	252,180	4782	0
12	6/26/2016	101.00	7,870.00	8,270.00	3,410.00	250,020	4544	0
13	6/26/2016	100.00	8,020.00	8,544.00	3,319.00	252,860	4622	0
14	6/26/2016	99.00	8,157.00	8,600.00	3,859.00	249,000	4588	0
15	6/27/2016	97.00	8,327.00	8,906.00	3,433.00	255,540	4728	0
16	6/27/2016	99.00	8,115.00	8,454.00	3,865.00	247,280	4588	0
17	6/27/2016	91.00	8,384.00	9,342.00	3,378.00	247,940	5856	0
18	6/27/2016	98.00	8,198.00	8,665.00	3,482.00	250,960	4587	0
19	6/28/2016	98.00	8,248.00	8,839.00	3,261.00	250,580	4408	0
20	6/28/2016	100.00	7,953.00	8,472.00	3,213.00	253,580	4462	0
21	6/28/2016	100.00	7,971.00	8,655.00	3,306.00	252,440	4564	0
22	6/28/2016	100.00	7,763.00	8,035.00	3,269.00	253,520	4602	0
23	6/28/2016	100.00	7,578.00	8,049.00	3,407.00	254,680	4624	0
24	6/29/2016	100.00	7,571.00	8,171.00	3,488.00	252,780	4422	0
25	6/29/2016	99.00	7,847.00	8,494.00	3,533.00	245,720	4407	0
26	6/29/2016	100.00	7,685.00	8,223.00	3,764.00	256,620	4312	0
27	6/29/2016	100.00	7,767.00	8,775.00	3,943.00	246,580	4332	0
28	6/29/2016	100.00	7,441.00	8,595.00	3,631.00	256,300	4506	0
29	6/30/2016	101.00	7,323.00	7,794.00	3,809.00	254,420	4327	0
30	6/30/2016	101.00	7,111.00	7,614.00	3,294.00	251,580	4248	0
31	6/30/2016	101.00	7,048.00	7,667.00	3,812.00	251,980	5093	0
32	7/1/2016	100.00	6,917.00	8,181.00	2,888.00	251,466	4187	0
33	7/1/2016	100.00	7,022.00	7,977.00	3,156.00	249,660	4177	0
34	7/1/2016	100.00	6,640.00	7,188.00	2,966.00	249,600	4093	0
35.1	7/2/2016	84.00	8,440.00	9,061.00	4,832.00	21,380	9010	0
36	7/2/2016	99.00	6,606.00	7,370.00	3,233.00	374,872	6587	0
37	7/2/2016	58.00	8,597.00	9,060.00	4,666.00	3,400	2985	0
38	7/2/2016	99.00	6,495.00	6,989.00	2,938.00	375,000	6871	0

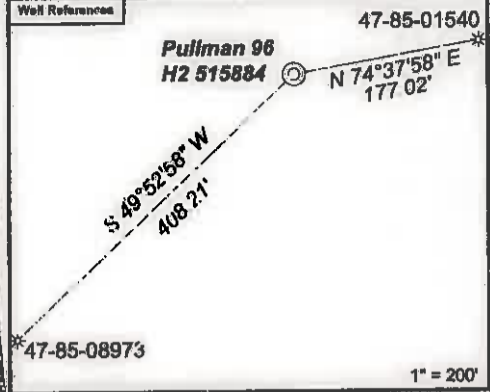
7891'

WV 515884
EQT Production Company
Laurie Ann Haddox, et al
360 Acres

LATITUDE 39 - 15 - 00

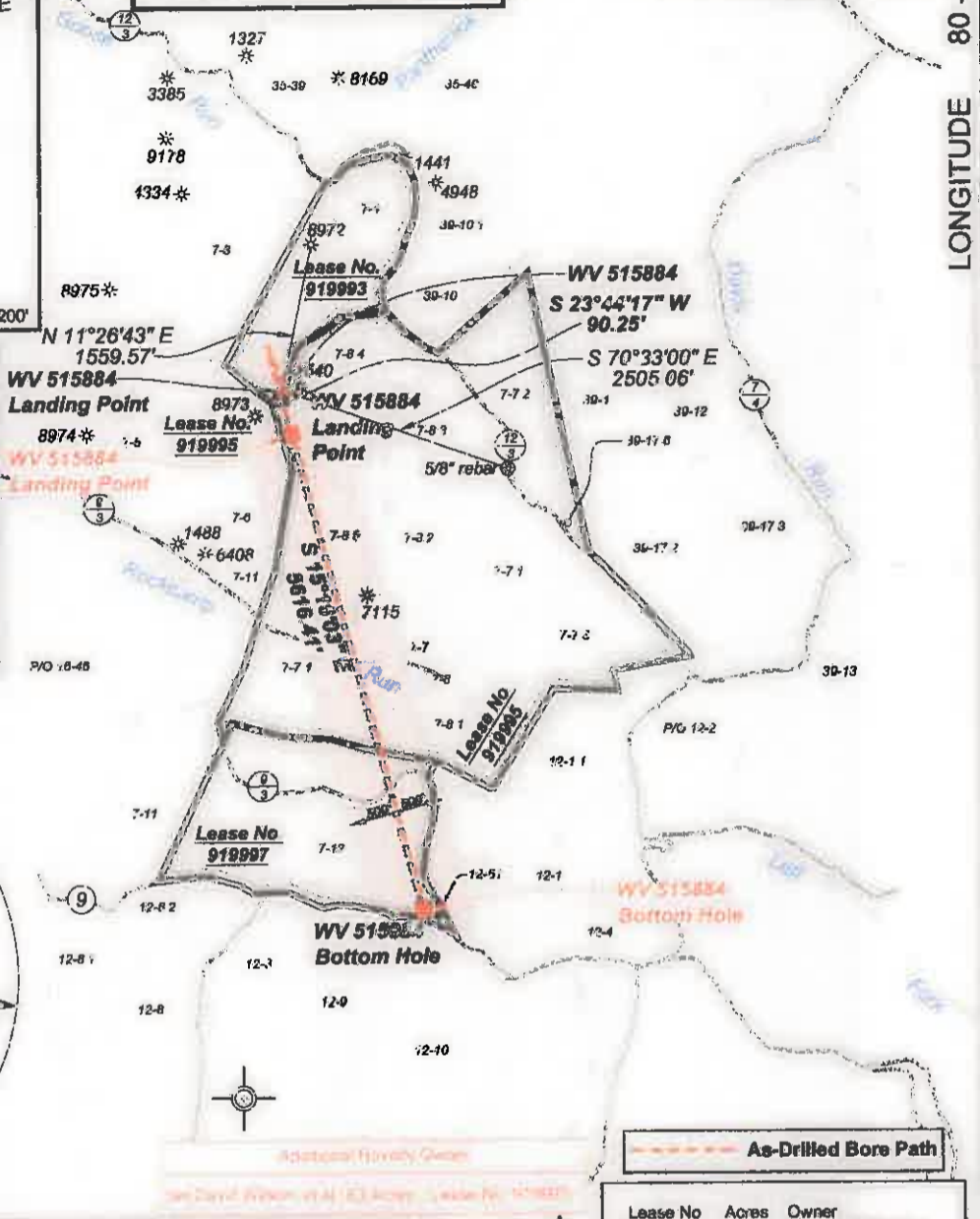
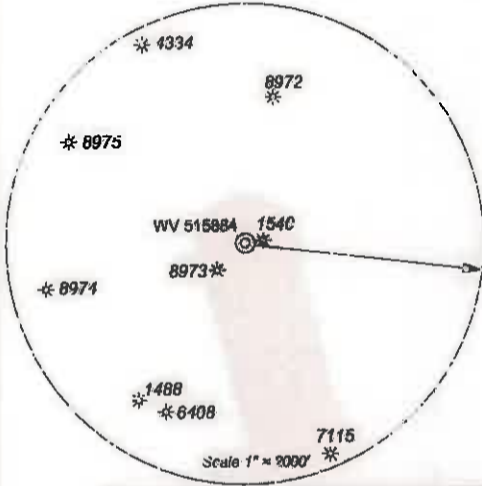
Pullman 96
⊙ H10, 515977
⊙ H7, 515965
⊙ H5, 515997
⊙ H2, 515884

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



As-Drilled Well Information
WV 515884 coordinates are
NAD 27 N 262,406.23 E 1,578,892.82
NAD 83 UTM N 4,340,189.48 E 501,206.52
WV 515884 Landing Point coordinates are
NAD 27 N 261,941.82 E 1,578,972.52
NAD 83 UTM N 4,340,048.11 E 501,233.17
WV 515884 Bottom Hole coordinates are
NAD 27 N 258,908.03 E 1,580,339.92
NAD 83 UTM N 4,338,321.25 E 501,675.36
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

14256'

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

Lease No	Acres	Owner
919997	98	Arnold K Richards



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.

James A. Bell
P.S. 2089SU



FILE NO. 243-14
DRAWING NO. 243-14 Pullman 96 H2.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 May 11 20 16
OPERATOR'S WELL NO. 515884
API WELL NO. 47 85 10207
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 6,399'

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