

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



API 47-085-10211 County RITCHIE District UNION
Quad PULLMAN Pad Name PUL96 Field/Pool Name N/A
Farm name JAMES H. & WILMA J. WILSON Well Number 515887
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 4,340,193.53 Easting 501,208.64
Landing Point of Curve Northing 4,340,177.83 Easting 501,465.38
Bottom Hole Northing 4,338,963.01 Easting 501,820.43

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

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

WV Department of
Environmental Protection

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 06/23/2015 Date drilling commenced 09/24/2015 Date drilling ceased 12/21/2015
Date completion activities began 6/12/2016 Date completion activities ceased 6/22/2016
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 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 - 10211

Farm name JAMES H. & WILMA J. WILSON Well number 515887

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	247'	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2,577'	NEW	A-500	820'	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	11,497'	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 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	1165.84	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H/CLASS H	821 / 576	15.2 / 15.6	1.25 / 2.06	2212.8	2,113'	72
Tubing							

Drillers TD (ft) 11,497' Loggers TD (ft) N/A

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

Plug back procedure N/A

Kick off depth (ft) 4,806'

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 11

INTERMEDIATE: 6 CENTRALIZERS PLACED EVERY 500'

PRODUCTION: 183 Composite body spiral centralizers placed every joint from bottom 1/3,483'.

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 - 10211 Farm name JAMES H. & WILMA J. WILSON Well number 515887

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

Logging Company Phoenix Technology Services
Address 1805 Brittmore Road City Houston State TX Zip 77041

Logging Company _____
Address _____ City _____ State _____ Zip _____

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

515887 Final Formations (API#47-08510211)

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
SAND/SHALE	1	1	1,060.00	1,060.00
MAXTON	1,060.00	1,060.00	1,086.00	1,086.00
SAND/SHALE	1,086.00	1,086.00	1,117.00	1,117.00
BIG LIME	1,117.00	1,117.00	1,242.00	1,242.00
SAND/SHALE	1,242.00	1,242.00	2,319.00	2,318.90
BIG INJUN	2,319.00	2,318.90	2,467.00	2,466.90
SAND/SHALE	2,467.00	2,466.90	2,672.00	2,671.90
GANTZ	2,672.00	2,671.90	2,754.00	2,753.90
50F	2,754.00	2,753.90	2,841.00	2,840.90
GORDON	2,841.00	2,840.90	3,054.00	3,053.90
5TH	3,054.00	3,053.90	3,111.00	3,110.90
BAYARD	3,111.00	3,110.90	3,513.00	3,512.90
WARREN	3,513.00	3,512.90	3,623.00	3,622.90
SPEECHLEY	3,623.00	3,622.90	3,961.00	3,960.90
BALLTOWN A	3,961.00	3,960.90	4,204.00	4,203.90
BALLTOWN B	4,204.00	4,203.90	4,351.00	4,350.90
BRADFORD	4,351.00	4,350.90	4,607.00	4,606.90
RILEY	4,607.00	4,606.90	4,948.00	4,928.10
BENSON	4,948.00	4,928.10	5,227.00	5,142.80
ALEXANDER	5,227.00	5,142.80	5,241.00	5,153.30
ANGOLA	5,241.00	5,153.30	5,999.00	5,733.60
RHINESTREET UPPER	5,999.00	5,733.60	6,097.00	5,819.60
RHINESTREET	6,097.00	5,819.60	6,109.00	5,830.20
SONYEA	6,109.00	5,830.20	6,593.00	6,218.20
MIDDLESEX	6,593.00	6,218.20	6,680.00	6,268.00
GENESSEE	6,680.00	6,268.00	6,788.00	6,316.50
GENESE0	6,788.00	6,316.50	6,869.00	6,342.80
TULLY	6,869.00	6,342.80	6,923.00	6,355.50
HAMILTON	6,923.00	6,355.50	7,012.00	6,368.50
MARCELLUS	7,012.00	6,368.50	11,497.00	6,383.07

515887- 47-085-10211-0000 Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	3/4/2016	11,472.00	11,497.00	10	MARCELLUS
1	6/12/2016	11,369.00	11,461.00	28	MARCELLUS
2	6/13/2016	11,219.00	11,341.00	35	MARCELLUS
3	6/13/2016	11,069.00	11,191.00	35	MARCELLUS
3.1	6/13/2016	11,084.00	11,146.00	24	MARCELLUS
4	6/14/2016	10,919.00	11,041.00	40	MARCELLUS
5	6/14/2016	10,769.00	10,891.00	35	MARCELLUS
5.1	6/15/2016	10,784.00	10,844.00	24	MARCELLUS
6	6/15/2016	10,619.00	10,741.00	40	MARCELLUS
7	6/16/2016	10,469.00	10,591.00	40	MARCELLUS
8	6/16/2016	10,319.00	10,441.00	40	MARCELLUS
9	6/16/2016	10,169.00	10,291.00	35	MARCELLUS
10	6/17/2016	10,019.00	10,141.00	35	MARCELLUS
11	6/17/2016	9,869.00	9,991.00	35	MARCELLUS
12	6/17/2016	9,719.00	9,841.00	35	MARCELLUS
13	6/18/2016	9,569.00	9,691.00	35	MARCELLUS
14	6/18/2016	9,419.00	9,541.00	35	MARCELLUS
15	6/18/2016	9,269.00	9,389.00	35	MARCELLUS
16	6/18/2016	9,119.00	9,239.00	35	MARCELLUS
17	6/19/2016	8,969.00	9,091.00	35	MARCELLUS
18	6/19/2016	8,819.00	8,941.00	35	MARCELLUS
19	6/19/2016	8,669.00	8,791.00	35	MARCELLUS
20	6/19/2016	8,519.00	8,641.00	35	MARCELLUS
21	6/20/2016	8,369.00	8,491.00	35	MARCELLUS
22	6/20/2016	8,219.00	8,341.00	35	MARCELLUS
23	6/20/2016	8,069.00	8,191.00	35	MARCELLUS
24	6/20/2016	7,919.00	8,041.00	35	MARCELLUS
25	6/21/2016	7,769.00	7,891.00	35	MARCELLUS
26	6/21/2016	7,619.00	7,741.00	35	MARCELLUS
27	6/21/2016	7,469.00	7,591.00	35	MARCELLUS
28	6/21/2016	7,319.00	7,441.00	35	MARCELLUS
29	6/21/2016	7,169.00	7,289.00	35	MARCELLUS
30	6/22/2016	7,019.00	7,141.00	35	MARCELLUS

515887- 47-085-10211-0000- 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 (bbis)	Amount of Nitrogen/other (units)
Initiation Sleeve	6/12/2016	15.00	5,995.00	7,378.00	5,612.00		740	0
1	6/12/2016	79.00	8,476.00	9,176.00	6,073.00	155,580	15958	0
2	6/13/2016	87.00	7,834.00	8,245.00	3,927.00	250,540	6842	0
3	6/13/2016	47.00	8,621.00	9,200.00	5,791.00	4,734	4626	0
3.1	6/14/2016	70.00	8,869.00	9,290.00	5,180.00	4,137	3623	0
4	6/14/2016	98.70	7,765.00	8,806.00	2,913.00	375,476	7991	0
5	6/14/2016	76.00	8,197.00	9,143.00	4,718.00	22,024	4794	0
5.1	6/15/2016	89.00	9,114.00	9,405.00	5,030.00	3,890	2065	0
6	6/15/2016	42.00	8,719.00	9,445.00	6,645.00	6,880	5132	0
6.1	6/16/2016	86.00	8,203.00	8,710.00	3,684.00	396,477	11790	0
7	6/16/2016	91.00	7,485.00	8,433.00	3,158.00	254,130	6251	0
8	6/16/2016	92.00	7,374.00	8,081.00	2,949.00	254,260	6208	0
9	6/17/2016	98.00	7,712.00	8,422.00	2,803.00	254,633	6028	0
10	6/17/2016	96.00	7,746.00	8,121.00	2,697.00	256,640	5582	0
11	6/17/2016	95.00	8,025.00	9,101.00	3,073.00	261,720	6873	0
12	6/18/2016	95.00	8,025.00	9,103.00	2,917.00	253,540	6332	0
13	6/18/2016	96.30	7,310.00	7,780.00	2,822.00	253,680	4906	0
14	6/18/2016	95.00	7,503.00	7,885.00	2,693.00	253,300	4727	0
15	6/18/2016	97.00	7,446.00	7,954.00	2,663.00	249,560	4739	0
16	6/19/2016	96.00	7,579.00	7,889.00	2,758.00	254,960	4860	0
17	6/19/2016	98.00	7,723.00	8,271.00	2,831.00	254,500	4861	0
18	6/19/2016	97.00	7,546.00	9,035.00	2,583.00	259,660	4855	0
19	6/19/2016	97.00	7,283.00	7,972.00	2,582.00	254,160	4843	0
20	6/20/2016	93.00	7,705.00	9,297.00	2,440.00	260,800	6005	0
21	6/20/2016	96.00	7,315.00	8,269.00	2,517.00	254,620	4800	0
22	6/20/2016	98.00	7,166.00	7,513.00	2,662.00	254,620	4616	0
23	6/20/2016	99.00	7,236.00	7,500.00	2,610.00	253,141	4669	0
24	6/20/2016	97.00	7,882.00	8,655.00	2,797.00	251,540	4644	0
25	6/21/2016	99.00	7,287.00	8,529.00	3,212.00	250,040	4510	0
26	6/21/2016	97.00	7,764.00	9,397.00	4,163.00	203,860	4197	0
27	6/21/2016	99.00	7,044.00	7,455.00	2,924.00	259,900	4508	0
28	6/21/2016	97.00	7,364.00	8,140.00	3,372.00	254,100	4681	0
29	6/22/2016	98.00	7,351.00	8,440.00	4,488.00	244,260	4565	0
30	6/22/2016	98.00	6,957.00	7,377.00	4,312.00	244,080	4614	0

7884'

LATITUDE 39 - 15 - 00

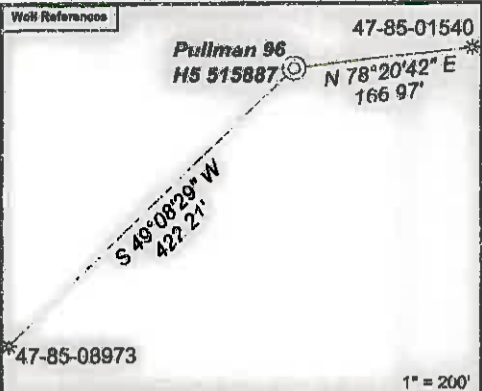
LONGITUDE 80 - 57 - 30

14242'

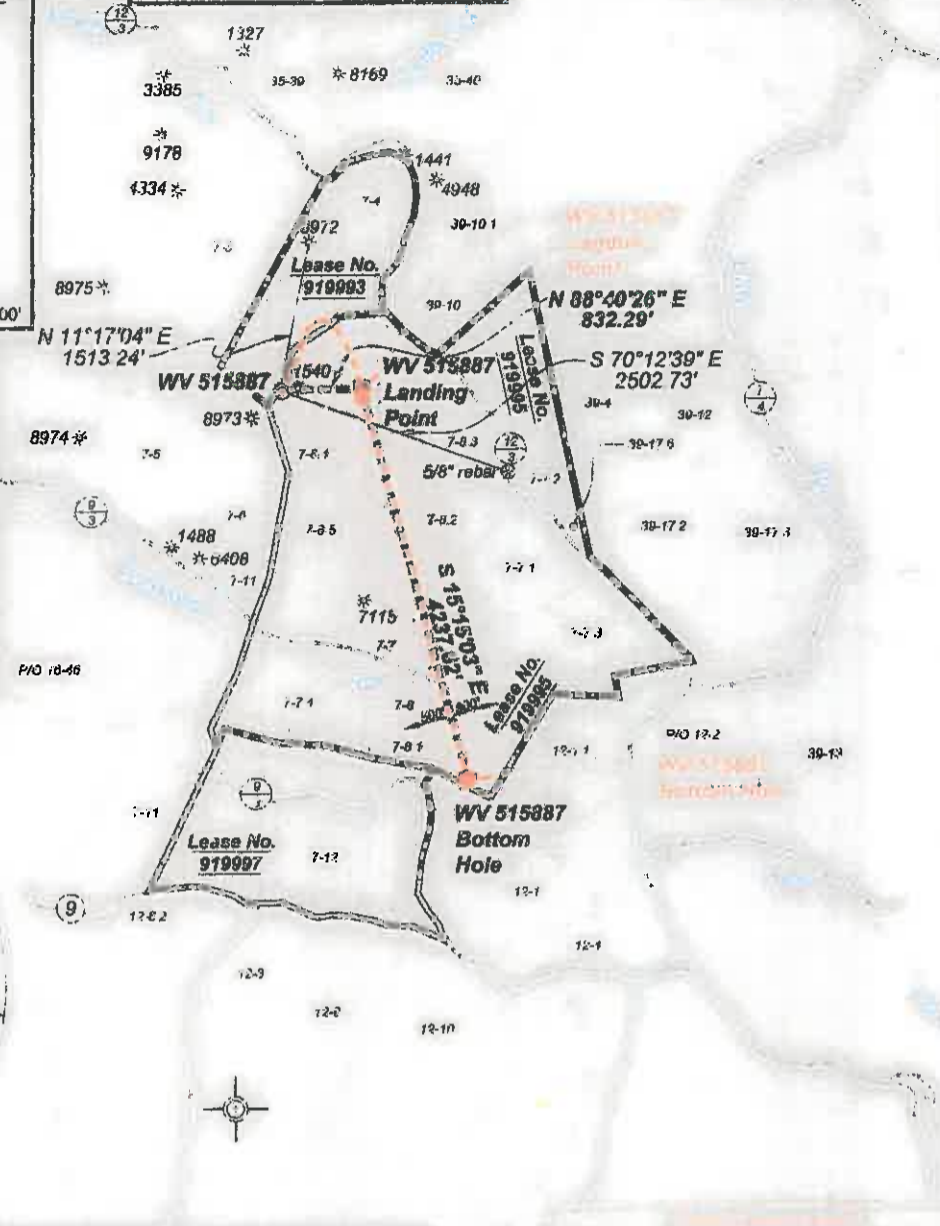
WV 515887
EQT Production Company
Laurie Ann Haddox, et al
360 Acres

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

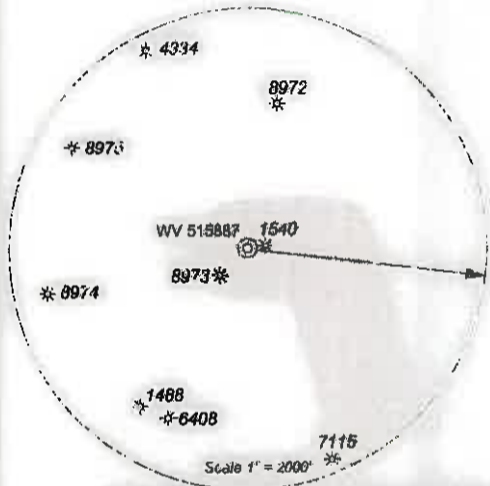
- Pullman 96**
- H10, 515977
 - H7, 515965
 - H5, 515887
 - H2, 515884



As-Drilled Well Information
 WV 515887 coordinates are
 NAD 27 N 262,419.41 E 1,578,899.99
 NAD 83 UTM N 4,340,193.53 E 501,208.64
 WV 515887 Landing Point coordinates are
 NAD 27 N 262,363.76 E 1,579,741.63
 NAD 83 UTM N 4,340,177.83 E 501,165.38
 WV 515887 Bottom Hole coordinates are
 NAD 27 N 258,347.76 E 1,580,840.20
 NAD 83 UTM N 4,338,963.01 E 501,820.43
 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



() 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.

Laurie Ann Haddox
 P.S. 2089SU



FILE NO. 243-14
 DRAWING NO. 243-14 Pullman 96 H5.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 13 20 16
 OPERATOR'S WELL NO. 515887
 API WELL NO
 47 - 85 - 10211
 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 Rookcamp 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