

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



API 47 - 073 - 02523 County Pleasants District Washington
Quad Raven Rock 7 1/2 minute Pad Name NA Field/Pool Name NA
Farm name BW Well Number 4
Operator (as registered with the OOG) Appalachian Oil Purchasers, LLC
Address 157 Lower Eureka Lane City St. Marys State WV Zip 26170

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4358508.86 Easting 478743.08
Landing Point of Curve Northing NA Easting NA
Bottom Hole Northing NA Easting NA

Elevation (ft) 640 feet 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)

Date permit issued 8/13/10 Date drilling commenced 11/17/10 Date drilling ceased 2/3/11
Date completion activities began 2/9/11 Date completion activities ceased 4/2/11
Verbal plugging (Y/N) NA Date permission granted NA Granted by NA

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

Freshwater depth(s) ft 150 feet Open mine(s) (Y/N) depths No
Salt water depth(s) ft 450 feet Void(s) encountered (Y/N) depths No
Coal depth(s) ft 370 feet Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

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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"	115'	New	94	NA	Yes
Surface	17.5"	13-3/8"	506'	New	54.5	NA	Yes
Coal	12-3/8"	9-5/8"	1800'	New	40	NA	Yes
Intermediate 1	8-3/4"	7"	5176'	New	23	NA	No
Intermediate 2							
Intermediate 3							
Production	6-1/4"	4-1/2"	7457'	New	11.6	NA	No
Tubing							
Packer type and depth set		Baker Model D packer set at 6885'					

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	20"			1.18		Surface	
Surface	13-3/8"			1.18		Surface	
Coal	9-5/8"			1.26		Surface	
Intermediate 1	7"			1.41		3020' by CBL	
Intermediate 2							
Intermediate 3							
Production	4-1/2"			1.18		3830'	
Tubing							

Drillers TD (ft) 7,503 feet

Loggers TD (ft) 7,498 feet

Deepest formation penetrated Queenston Shale

Plug back to (ft) _____

Plug back procedure NA

Kick off depth (ft) NA

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 4.5" casing string had centralizers placed every 3 joints

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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Well number 4

[illegible]

STIMULATION INFORMATION PER STAGE

[illegible]

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)

DEPTHS

Saltwater injection - NA TVD MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ☐ Open Flow OIL TEST ☐ Flow ☐ Pump

SHUT-IN PRESSURE Surface psi Bottom Hole psi DURATION OF TEST hrs

OPEN FLOW Gas Oil NGL Water GAS MEASURED BY
mcfpd bpd bpd bpd ☐ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
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See Attachment 1	0		0		

Please insert additional pages as applicable.

Drilling Contractor Waco Oil and Gas
Address PO Box 397 City Glenville State WV Zip 26351

Logging Company Weatherford
Address 100 Leetsdale Dr., Suite A City Leetsdale State PA Zip 15056

Cementing Company BJ Service Company
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Stimulating Company N/A
Address City State Zip

Please insert additional pages as applicable.

Completed by Ashleigh Strahler Telephone (740) 371-5328
Signature Title Operations Engineer Date 8/21/16

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

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Attachment 1

<u>Lithology/Formation</u>	<u>Depth</u>
Big Injun	1150'-1190'
Berea	1580'-1620'
Ohio Shale	1650'-1720'
Onandoga	5140'-5380'
Oriskany	5380'-5510'
Helderberg	5510'-5860'
Salina	5860'-6320'
Lockport	6419'-6753'
Rochester	6753'-7000'
Dayton	7000'-7012'
Brassfield	7084'-7121'
Clinton	7140'-7259'
Medina	7297'-7328'
Queenstone	7328'-7503'

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