WR-35
Rev. 8/23/13

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

API 47 - 039 - 06367 County KANAWHA District ELK
Quad BLUE CREEK 7.5' Pad Name N/A Field/Pool Name BLUE CREEK
Farm name J.V.R. SKINNER Well Number 21
Operator (as registered with the OOG) PETRO HOLDINGS INC.
Address P.O. BOX 987 City SPENCER State WV Zip 25276

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,253,939 Easting 463,230
Landing Point of Curve Northing ____ Easting ____
Bottom Hole Northing ____ Easting ____

Elevation (ft) 1018 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 07/28/14 Date drilling commenced 12/01/14 Date drilling ceased 12/04/14
Date completion activities began 12/15/14 Date completion activities ceased 01/19/15
Verbal plugging (Y/N) N/A Date permission granted ____ Granted by ____

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

Freshwater depth(s) ft N/A Open mine(s) (Y/N) depths NO
Salt water depth(s) ft +/- 1750' Void(s) encountered (Y/N) depths NO
Coal depth(s) ft 454' - 460' Cavern(s) encountered (Y/N) depths NO
Is coal being mined in area (Y/N) NO

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Reviewed by:
AL 6/3/15 ✓
W.S. 6/5/15 06/05/2015

WR-35
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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							
Surface	8 7/8"	7"	547'	USED	20	168'	YES
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2205	NEW/USED	10.5/11.6	N/A	YES
Tubing		2 3/8"	2135	USED	4.6		
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							
Surface	A	120	15.6	1.18	142	CTS	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50/50 POZ	230	14.4	1.28	294	+/- 87	N/A
Tubing							

Drillers TD (ft) 2240 Loggers TD (ft) 2220
Deepest formation penetrated WEIR Plug back to (ft) N/A
Plug back procedure

Kick off depth (ft) N/A

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

PRODUCTION - 4 1/2" CASING CENTRALIZERS 2017, 2049, 2081, 2113

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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

06/05/2015

WR-35
Rev. 8/23/13

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	12/15/14	2077'	2100'	22	WEIR
2	12/22/14	2038.5'	2051.5'	24	WEIR

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)
1	12/22/14	22.4	3799	3560	+/- 2500	50,000	640	138 Mscf of N2
2	12/22/14	23.4	3849	4226	2089	29,700	477	99 Mscf of N2

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Please insert additional pages as applicable.

06/05/2015

WR-35
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PRODUCING FORMATION(S)	DEPTHS			
WEIR	2007-2080	TVD	2007-2080	MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface 250 psi Bottom Hole _____ psi DURATION OF TEST 168 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	50 mcfpd	3 bpd	_____ bpd	TRACE bpd	☒ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
SHALE	0	70	0		
SAND	70	90			
RED ROCK	90	110			
SHALE	110	260			
SAND	260	280			
SHALE	280	454			
COAL	454	460			
SHALE	460	740			
SAND	740	760			
SHALE	760	798			
SAND	798	806			
SHALE	806	811			
SAND	811	844			
SHALE	844	906			

Please insert additional pages as applicable.

Drilling Contractor DECKER DRILLING INC.
Address 11565 STATE ROUTE 676 City VINCENT State OH Zip 45784

Logging Company PRECISION ENERGY SERVICES/WEATHERFORD (SEE ADDITIONAL PAGE)
Address 500 WINSCOTT ROAD City FORT WORTH State TX Zip 78126

Cementing Company UNIVERSAL WELL SERVICES
Address PO BOX 2437 City BUCKHANNON State WV Zip 26201

Stimulating Company UNIVERSAL WELL SERVICES
Address PO BOX 2437 City BUCKHANNON State WV Zip 26201

Please insert additional pages as applicable.

Completed by C. I. MCKOWN, II Telephone (304) 565-7318
Signature _____ Title ENGINEER Date 05/27/2015

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

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LITHOLOGY FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
sand	906	909			
shale	909	915			
sand	915	920			
shale	920	971			
sand	971	981			
shale	981	987			
sand	987	1480			
shale	1480	1582			
sand	1582	1600			
shale	1600	1612			
lime	1612	1830			
shale	1830	1834			
sand	1834	1838			
shale	1838	2007			
sand	2007	2080			
shale	2080	2220			

Logging Company APPALACHAIN WELL SURVEYS
Address PO BOX 1058 City CAMBRIDGE State OHIO Zip 43725

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TREATMENT SUMMARY

C.I. McKown Skinner #21	Stage #1	Date: 12/22/2014

DESCRIPTION OF JOB: Energized Crosslink

Pressures (psi)		Treatment Stats			Perforations (ft)	
Well Open	0				Mid (TVD)	1102
Breakdown	3560	Avg Pressure	3799	psi		
ISIP		Max Pressure	4081	psi	Top Depth (MD)	2077
					Middle (MD)	
Pumping Volumes (SCF)/(BBL)		Avg Rate	4502.8	SCF/min	Bottom Depth (MD)	2100
Load & Breakdown	1 bbl	Max Rate	4508.0	SCF/min		
Total Nitrogen	138352	Avg Rate	22.4	BPM	Number of Perfs	24
Total Clean	640	Max Rate	23.2	BPM		
Total Slurry	706					

Time	Rate (SCF/min)	Nitrogen Cum. Volume (SCF)	Slurry Rate (BPM)	Slurry Cum Vol. (BBL)	Pressure (psi)	Description of Stage or Event
7:15						Arrived on Location
11:20						Safety Meeting
11:48					4730	Test Lines
11:50						Change Release Valve
11:57					4597	Test Lines
12:01					0	Open Well
12:05			3	1	3560	Break Formation
12:06	4508.0		19.6	5	4100	Establish Rate
12:11	4487.0	23171	21.9	101	4081	Start Sand @ 1.00# 20/40
12:15	4508.0	41128	21.6	188	3966	Start Sand @ 2.00# 20/40
12:24	4508.0	81420	22.9	371	3705	Start Sand @ 3.00# 20/40
12:35	4487.0	131524	23.2	628	3445	Start Sand @ 4.00# 20/40
12:37		138352		684	2185	Pump Acid 500 Gal 15% HCL
12:41			19.1	684	2350	Displace Acid
12:42				706	2285	Shut Down

Material Totals

Proppant	20/40	500	sks

Additives			
	Nitrogen	138352	SCF
	19XL Gel	700	lbs
	15% HCL Acid	500	gal
	Unilink 8.5	50	gal
	Super Surf	55	gal
	Iron	10	gal
	Clay Chek	13	gal
	NE-90G	14	gal
	LEB 10X	4	qts
	Unihib	0.5	lbs

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TREATMENT SUMMARY

C.I. McKown Skinner #21	Stage #2	Date: 12/22/2014

DESCRIPTION OF JOB: Energized Crosslink

Pressures (psi)		Treatment Stats			Perforations (ft)	
Well Open	1206				Mid (TVD)	1102
Breakdown	4226	Avg Pressure	3849	psi		
ISIP	2089	Max Pressure	4268	psi	Top Depth (MD)	2040
					Middle (MD)	
Pumping Volumes (SCF)/(BBL)		Avg Rate	4293.0	SCF/min	Bottom Depth (MD)	2053
Load & Breakdown	6 bbl	Max Rate	4384.0	SCF/min		
Total Nitrogen	99346	Avg Rate	23.36	BPM	Number of Perfs	24
Total Clean	477	Max Rate	28.8	BP		
Total Slurry	526					

Time	Rate (SCF/min)	Nitrogen Cum. Volume (SCF)	Slurry Rate (BPM)	Slurry Cum Vol. (BBL)	Pressure (psi)	Description of Stage or Event
14:07					4760	Test Lines
14:09					1206	Open Well
14:15	4384.0		5.8	6	4226	Break Formation
14:18	4384.0	14657	11.2	20	4268	Establish Rate
14:22	4363.0	3685[illegible]	20.9	113	4078	Start Sand @ 0.50# 20/40
14:25	4343.0	4717[illegible]	20.9	163	3940	Start Sand @ 1.00# 20/40
14:27	4363.0	5866[illegible]	20.9	218	3635	Start Sand @ 2.00# 20/40
14:32	4012.0	7376[illegible]	28.8	309	3589	Start Sand @ 3.00# 20/40
14:38		9934[illegible]	25.3	495	4002	Cut Sand/N2 Out
14:39				526	3690	Shut Down
					1597	Shut In 5 Min

Material Totals

Proppant	20/40	297	sks

Additives			
	Nitrogen	99346	SCF
	19XL Gel	440	lbs
	15% HCL Acid	0	gal
	Unilink 8.5	35	gal
	Super Surf	41	gal
	Iron	14	gal
	Clay Chek	9	gal
	NE-90G	10	gal
	LEB 10X	4	qts
	Unihib	0	lbs

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