

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

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SEP 01 2016

API 47-15-02898 County CLAY District UNION WV Department of Environmental Protection
Quad ELKHURST 7.5' Pad Name _____ Field/Pool Name _____
Farm name CHESSIE CONNER, ET. AL. Well Number J.S. COCHRAN 7H
Operator (as registered with the OOG) CUNNINGHAM ENERGY, LLC
Address 3230 PENNSYLVANIA AVENUE City CHARLESTON State WV Zip 25302

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


Elevation (ft) 1,215' 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)
SOAP

Date permit issued 8/01/2014 Date drilling commenced 10/10/2014 Date drilling ceased 10/31/2014
Date completion activities began 7/23/2015 Date completion activities ceased 8/6/2015
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 200' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1475' - 1525' Void(s) encountered (Y/N) depths N
Coal depth(s) ft NO COAL LISTED ON TITLE Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: 
12/02/2016
AX RBDMS 12/01/16

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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	14 1/4"	13"	30'	NEW	LS - 43.6LBS	NONE	YES - CEMENTED BY RIG
Surface	12 1/4"	9 5/8"	420'	NEW	LS - 26 LBS	90'	YES
Coal							
Intermediate 1	8 3/4"	7"	2050'	NEW	J-55 - 20 LBS	350'	YES
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	4822'	NEW	N-80 - 11.65 LBS	950'	YES
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 I	10 - CEMENTED BY RIG				GROUND LEVEL	8
Surface	CLASS I	150	15.6	1.20	180	GROUND LEVEL	8
Coal							
Intermediate 1	CLASS I	315	14.8	1.38	434.7	GROUND LEVEL	8
Intermediate 2							
Intermediate 3							
Production	CLASS I	425	14.4	1.29	548.25	GROUND LEVEL	12
Tubing							

Drillers TD (ft) 4834' Loggers TD (ft) 4834' **RECEIVED**
 Deepest formation penetrated SQUAW Plug back to (ft) _____ **Office of Oil and Gas**
 Plug back procedure _____

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Kick off depth (ft) 950'

Check all wireline logs run caliper density deviated/directional induction temperature sonic
 neutron resistivity gamma ray

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Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING 9 5/8" - 1ST JOINT; BASKET WAS 2 JOINTS DOWN HOLE. 7" - 2 JOINTS FROM TOP

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 J.S. COCHRAN 7H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	7/23/15	4815'	4718'	30	INJUN
2	7/23/15	4680'	4603'	30	INJUN
3	7/23/15	4565'	4488'	30	INJUN
4	7/24/15	4450'	4373'	30	INJUN
5	7/24/15	4335'	4258'	30	INJUN
6	7/24/15	4220'	4143'	30	INJUN
7	7/24/15	4105'	4028'	30	INJUN
8	7/24/15	3990'	3913'	30	INJUN
9	7/24/15	3875'	3798'	30	INJUN
10	7/24/15	3760'	3683'	30	INJUN
11	7/24/15	3645'	3568'	30	INJUN
12	7/25/15	3530'	3453'	30	INJUN
13	7/25/15	3415'	3338'	30	INJUN
14	7/25/15	3300'	3223'	30	INJUN
15	7/25/15	3185'	3108'	30	INJUN
16	7/25/15	3070'	2993'	30	INJUN

Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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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	7/23/15	35	2929	3252	1401	30,420	496	0
2	7/23/15	38.5	3306	2151	1568	29,900	445	0
3	7/24/15	41.3	3179	3589	1513	30,240	323	0
4	7/24/15	41.8	2955	3274	1371	31,020	353	0
5	7/24/15	38.3	3447	3900	1607	33,040	420	0
6	7/24/15	40	3081	4150	1611	28,440	304	0
7	7/24/15	38.4	3149	4018	1468	28,120	256	0
8	7/24/15	40.4	2739	5355	1725	30,240	239	0
9	7/24/15	40.5	2610	5040	1378	29,840	240	0
10	7/24/15	40.5	2672	4744	1636	32,020	239	0
11	7/25/15	40.7	2605	4100	1732	29,460	220	0
12	7/25/15	40.8	2711	4919	1550	30,060	230	0
13	7/25/15	40.5	2746	4679	1743	32,080	241	0
14	7/25/15	40.5	2816	3471	1614	31,980	234	0
15	7/25/15	35.6	3103	5062	1697	31,820	291	0
16	7/25/15	39.2	2849	5538	1597	28,560	252	0

Please insert additional pages as applicable.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	7/25/2015	2740'	2663'	30	INJUN

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)
17	7/25/15	40.5	2618	3177	1550	27,660	214	0

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>INJUN</u>	<u>4815' - 2663'</u>	<u>TVD</u>	<u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 150 psi Bottom Hole _____ psi DURATION OF TEST 12 hrs

OPEN FLOW Gas 35 mcfpd Oil 40 bpd NGL 0 bpd Water 5 bpd GAS MEASURED BY 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)
SAND/SHALE	0	302'	0		
SAND	302'	524'			
SAND/SHALE	524'	1030'			
SALT SAND	1030'	1670'			
SAND/SHALE			1,670'	1,812'	
SILT STONE			1,812'	2,014'	
LITTLE LIME			2,014'	2,075'	
PENCIL CAVE			2,075'	2,150'	
BIG LIME			2,150'	2,300'	
SAND			2,300'	2740'	
INJUN			2740'	4836'	

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Drilling Contractor CUNNINGHAM ENERGY, LLC
Address 3230 PENNSYLVANIA AVENUE City CHARLESTON State WV Zip 25302

Logging Company PRECISE WELL ANALYSIS
Address 1426 BARTH ROAD City BELPRE State OH Zip 45714

Cementing Company UNIVERSAL WELL SERVICE
Address 5 HALL ROAD City BUCKHANNON State WV Zip 26201

Stimulating Company U.S. WELL SERVICE
Address 533 INDUSTRIAL PARK DRIVE City JANE LEW State WV Zip 26378

Please insert additional pages as applicable.

Completed by DANIELLE N. BOGGS Telephone 304-344-9291
Signature *Danielle N. Boggs* Title OPERATIONS MGR. Date 8/31/2016

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