

Amended

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

API 47-051-01705 County Marshall District Clay  
Quad Powhatan, OH-WV 7.5 Pad Name Berger Field/Pool Name \_\_\_\_\_  
Farm name Berger Well Number 5H  
Operator (as registered with the OOG) Chevron Appalachia, LLC  
Address 800 Mountain View Drive City Smithfield State PA Zip 15478

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4413863.18 Easting 520990.08  
Landing Point of Curve Northing 4413718.29 Easting 521177.09  
Bottom Hole Northing 4412260.23 Easting 522211.39

Elevation (ft) 1292' 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)  
Surface sections were drilled on air. The Intermediate and Production sections were drilled on SBM Fluid loss control, emulsifier, and shale stabilizer additives.

Date permit issued 2/26/2014 Date drilling commenced 6/24/2014 Date drilling ceased 3/13/2015  
Date completion activities began 6/24/2014 Date completion activities ceased 12/13/2015  
Verbal plugging (Y/N) N 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 169' Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft \_\_\_\_\_ Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft 768'-769', 784'-785', 830'-837', 1411'-1413', 1415'-1418' Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) No but not sealed

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MAY 23 2016

**APPROVED**

NAME: Jacqueline Thurston  
DATE: 6/1/2016

Reviewed by: \_\_\_\_\_  
WV Department of Environmental Protection

AX 07/15/2016

API 47- 051 - 01705 Farm name Berger Well number 5H

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	36	30	40	New	X-42; 117.76#		Y
Surface	17 1/2	13 3/8	318	New	J-55; 54.50#		Y
Coal	12 1/4	9 5/8	2665	New	J-55; 40#		Y
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	8 1/2	5 1/2	12748	New	P-110; 20#		Y
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Bulk	60					
Surface	Bulk	411	15.6	1.21	497	Surface	8
Coal		906	15.6	1.23	1115	Surface	8
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	Easy BLOK	Lead-853; Tail-1229	Lead-15.2; Tail-15.4	Lead-1.32; Tail-1.23	Lead-1126; Tail-1512	Surface	8
Tubing							

Drillers TD (ft) 12755 Loggers TD (ft) 12755  
 Deepest formation penetrated Marcellus Plug back to (ft) n/a  
 Plug back procedure n/a

Kick off depth (ft) 5667

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 Bow spring centralizer every two joints on the water and intermediate string. Production string has two centralizer every joint in the lateral and curve, then one every two joints from KOP to surface.

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS See attached stimulation/perforation report

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED chemical tracer

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PRODUCING FORMATION(S)	DEPTHS		
Marcellus (S2B)	6439	TVD	7178 MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1542 psi Bottom Hole 4100 psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 1217 mcfpd Oil 331 bpd NGL n/a bpd Water 350 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 <sub>2</sub> S, ETC)
	0		0		
Dunkard Group Sand	160	169	160	169	Fresh Water 169'MD 1" stream
Pittsburgh Coal	830	831	830	837	Coal
Salt sand	1538	1568	1540	1570	Gas Show @ 1550' 6101 Units
Big Lime	1848	1928	1850	1930	Limestone: crm-wh, hd, crpxln
Burgoon (Big Injun)	1927	2117	1930	2120	SS: offwh, wh, cons, clr, trans, lcemt, fg-mg
Berea Sand	2507	2530	2510	2533	SS: wh, clr, trans, lgy-gy, cns, lcmt, mg-fg, sbang-ang, arg, msph, non calc, tr flor, exl fast cut, fnt odr, lse pyr
Marcellus Shale	6404	6440	6405	6440	SH: drkgy, v drkgy, frm, stly, grty, sbbiky-sbfiss, non calc, lse calct, lse pyr, w/LS: gy, lgy, hrd, mott, mic, fxl, v arg
Oriskany	6657	6761	6658	6762	SS: gry-brn, trnsl, med-fn gr, sbang-ang, calc mtx, tr ls, tr sh
Salina	7262	8209	7263	8210	Dol: med gry-brnsh gry, mdstn-pkstn. SALT: trns-clr, xln, ehdl.
Lockport	8209	8582	8210	8582	DOL: d gry-blk, med gry ip, wkstn-pkstn, vf xln-microxln, mass-micsuc
Queenston	9109	9944	9110	9945	SH: rdsh gry, frm-sli hd, sbbiky-amor, rgh-sly txt
Utica	10938	11066	11310	11698	SH: dk gry-v dk gry, sft - frm, sbbiky-sbply, sly-sli grtty txt, mrlly, sli calc, carb
Point Pleasant	11066		11698		SH: blk-bnshblk, sl frm-frm, sft ip, sbbiky-sbply, tr pp pry, sl grtty txt, dull - occ sl gsy lstr, sl calc, v carb

Please insert additional pages as applicable.

Drilling Contractor SEE ATTACHED  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Logging Company Stratagraph NE Inc  
Address 116 Ellsworth Avenue City Marietta State OH Zip 45750

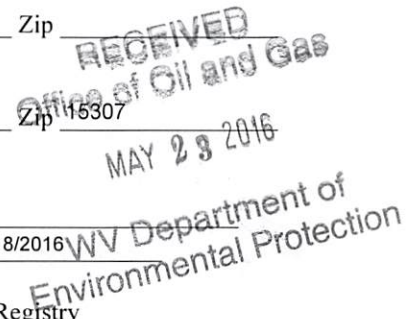
Cementing Company SEE ATTACHED  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Stimulating Company Schlumberger Technology Corp  
Address 4600 J Barry Court, Suite 200 City Canonsburg State PA Zip 15307

Please insert additional pages as applicable.

Completed by Jackie M. Scholar Telephone 724-564-3721  
Signature [Signature] Title Regulatory Compliance Team Lead Date 5/18/2016

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





**Jackie M. Scholar**  
Regulatory Reporting Coordinator

May 18, 2016

**CERTIFIED MAIL: 7015 0640 0001 0567 4659**

WV DEP  
Office of Oil and Gas  
601 – 57<sup>th</sup> Street  
Charleston, WV 25304

RE: Amended Well Operator's Report of Well Work WR-35  
**Berger 5H**

Dear Sir/Madam,

Enclosed here within please find one (1) Amended Well Operator's Report of Well Work WR-35 for the **Berger 5H, (API 47-5101705)**. The following items have been amended:

- **Production information**

If you have any questions, please contact me at (724) 564-3721. Thank you.

Sincerely,  
Chevron Appalachia, LLC

Jackie M. Scholar

Enclosures

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Office of Oil and Gas  
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WV Department of  
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07/15/2016