



**Jackie M. Scholar**  
Regulatory Reporting Coordinator



May 10, 2016

**CERTIFIED MAIL: 7015 0640 0001 0567 4451**

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 4H**

Dear Sir/Madam,

Enclosed here within please find one (1) Amended Well Operator's Report of Well Work WR-35 for the **Berger 4H, (API 47-051-01704)**. 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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10/28/2016

AMENDED

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

API 47-051-01704 County Marshall District Clay  
Quad Powhatan, OH-WV Pad Name Berger Field/Pool Name \_\_\_\_\_  
Farm name Berger Well Number 4H  
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 4413871.14 Easting 520985.62  
Landing Point of Curve Northing 4414162.43 Easting 520910.16  
Bottom Hole Northing 4415716.70 Easting 519818.70

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)  
Non aqueous fluid containing weighting agent, fluid loss additive, emulsifier, viscosity and Rheological control agent, oil-wetting agent, fluid rheology conditioner

Date permit issued 2/26/2014 Date drilling commenced 6/18/2014 Date drilling ceased 1/24/2015  
Date completion activities began 8/4/2015 Date completion activities ceased 12/22/2015  
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 No  
Coal depth(s) ft 788'-789', 784'-785', 830'-837', 1411'-1413', 1415'-1418' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No but not sealed

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API 47-051 - 01704 Farm name Berger Well number 4H

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; 118.76		
Surface	17 1/2	13 3/8	303	New	J-55; 54.50		
Coal							
Intermediate 1							
Intermediate 2	12 1/4	9 5/8	2677	New	N-80; 40		
Intermediate 3							
Production	8 1/2	5 1/2	13170	New	P-110; 20		
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	382	15.60	1.21	462	SURFACE	8
Coal							
Intermediate 1	A	1031	15.60	1.24	1278	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	A	2518	15.2	1.31	3298	SURFACE	8
Tubing							

Drillers TD (ft) 13,216 Loggers TD (ft) 13216  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5538'

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  
 Surface String: 1 Bow spring centralizer halfway through the shoe track around a stop collar, 1 Bow spring centralizer per joint over connection to base of conductor. One rigid centralizer within top 40" inside conductor.  
 Intermediate String: 1 Bow spring centralizer halfway through the shoe track around a stop collar, and 1 bow spring centralizer over every other connection. Production casing 1 Solid Torque Slider Centralizer between 400' and 1000' and bow spring centralizer every other joint to surface after that.

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WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS MAY 13 2016

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS RECEIVED

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WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED MAY 13 2016

API 47- 051 01704 Farm name Berger Well number 4H

**PERFORATION RECORD**

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
		SEE	ATTACHED		

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)
		SEE	ATTACHED					

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Please insert additional pages as applicable.

API 47-051-01704 Farm name Berger Well number 4H

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

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1220 psi Bottom Hole 3900 psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 261 mcfpd Oil 93 bpd NGL n/a bpd Water 72 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Dunkard Group Sand	160	169	169	169	Fresh Water 169'MD 1" stream
Pittsburgh Coal	830	837	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
Weir Sand	2277	2297	2280	2300	SLTST: ltgy-mgy, occ mgy, hrd, vf-fg, tcm, bio, arg, sl calc
Berea Sand	2507	2530	2510	2533	SS: wh, clr, trans, ltgy-gy, ons, lcemt, mg-fg, sbang-arg, arg, mshp, non calc, tr flor, ext fast cut, fnt odr, lse pyr
Burket Shale	6287	6304	6447	6482	SH: drkgy, v. drkgy, frm, slty, grty, sbbiky-sbfiss, modcalc, embd calc, lse calc
Tully Limestone	6304	6340	6482	6566	LS: ltgy, gy, mgy, frm-hrd, dns, cln, mic-fxn, v. arg
Hamilton Shale	6340	6378	6566	6736	SH: drkgy, v. drkgy, frm, slty, grty, sbbiky-sbfiss, carb, modv. calc, lse calc, w/LS
Marcellus Shale	6378		6736		SH: drkgy, v. drkgy, frm, slty, grty, sbbiky-sbfiss, non calc, lse calc, lse pyr, w/LS: gy, ltgy, hrd, , mot, mic, fxn, v. arg

Please insert additional pages as applicable.

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

Logging Company ALS Group USA Corp  
Address 3352 128th Avenue City Holland State MI Zip 49424

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. Schjar Telephone 724-564-3721  
Signature [Signature] Title Regulatory Compliance Date 10/23/2016

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

[Signature] 10/23/2016