

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 N
Coal depth(s) ft 768'-769', 784'-785', 830'-837', 1411'-1413', 1415'-1418' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) No but not sealed

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CB 2-22-16
AX 04/08/2016
02/24/16

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 ³ /sks)	Volume (ft ³)	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 DEC 18 2015

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

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

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.

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API: 47-5101705	Well Name: Berger	Well Number: 5H
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PERFORATION RECORD					
Stage No.	Perforation Date	Perforated From TMD Ft.	Perforated To TMD Ft.	Number of Perforations	Formation(s)
1	10/11/15	12670	12508	60	Marcellus
2	10/11/15	12470	12308	50	Marcellus
3	10/12/15	12268	12108	50	Marcellus
4	10/12/15	12068	11908	50	Marcellus
5	10/12/15	11870	11708	50	Marcellus
6	10/13/15	11678	11518	50	Marcellus
7	10/13/15	11465	11311	50	Marcellus
8	10/13/15	11271	11108	50	Marcellus
9	10/13/15	11080	10906	60	Marcellus
10	10/14/15	10880	10712	60	Marcellus
11	10/14/15	10678	10517	60	Marcellus
12	10/14/15	10473	10318	60	Marcellus
13	10/14/15	10280	10112	60	Marcellus
14	10/14/15	10072	9910	50	Marcellus
15	10/15/15	9870	9708	50	Marcellus
16	10/15/15	9662	9508	50	Marcellus
17	10/15/15	9468	9308	50	Marcellus
18	10/15/15	9270	9121	50	Marcellus
19	10/15/15	9069	8913	50	Marcellus
20	10/16/15	8873	8708	50	Marcellus
21	10/16/15	8670	8505	50	Marcellus
22	10/16/15	8470	8308	50	Marcellus
23	10/16/15	8258	8124	50	Marcellus
24	10/17/15	8070	7906	50	Marcellus
25	10/17/15	7875	7709	50	Marcellus
26	10/17/15	7668	7508	50	Marcellus
27	10/17/15	7470	7308	50	Marcellus
28	10/18/15	7261	7118	50	Marcellus
29	10/18/15	7062	6907	50	Marcellus
30	10/18/15	6877	6711	50	Marcellus
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Please insert additional copies of this page if additional rows/stages are needed.

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API: 47-5101705	Well Name: Berger	Well Number: 5H
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STIMULATION INFORMATION / STAGE								
Complete a separate record for each stimulation stage. (Please insert additional lines for additional stages or additional pages as applicable).								
Stg No.	Stimulation 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	10/11/15	88	9011		3870	355679	10955	n/a
2	10/11/15	99	8613	5563	4002	399354	10889	n/a
3	10/12/15	60	8995	6818	4690	8860	5171	n/a
4	10/12/15	98	9038	6518	4306	402348	10968	n/a
5	10/12/15	89	9084	6330	3860	402916	11045	n/a
6	10/13/15	85	8977	5341	3914	370888	10831	n/a
7	10/13/15	97	8731	6573	3398	400397	11223	n/a
8	10/13/15	96	8332	6240	4542	403242	10775	n/a
9	10/13/15	96	8201	6283	4004	407080	10905	n/a
10	10/14/15	98	8206	6207	4662	404337	10716	n/a
11	10/14/15	97	8170	6169	4434	403765	10713	n/a
12	10/14/15	98	7653	5766	4610	400991	10676	n/a
13	10/14/15	96	8252	5741	4390	400200	11689	n/a
14	10/14/15	97	8316	5822	4177	353146	10377	n/a
15	10/15/15	97	7298	5800	4650	400190	10587	n/a
16	10/15/15	96	7710	6145	4522	399763	10639	n/a
17	10/15/15	98	7564	5802	4566	398276	10547	n/a
18	10/15/15	98	7795	5973	4610	328696	9665	n/a
19	10/15/15	98	7914	6098	4522	403210	10558	n/a
20	10/16/15	97	7578	6265	4434	241042	8323	n/a
21	10/16/15	98	7659	5957	4610	403480	10581	n/a
22	10/16/15	99	7178	5914	4694	402673	10558	n/a
23	10/16/15	99	7333	6518	4910	406608	10541	n/a
24	10/17/15	98	7449	6852	4826	400430	10456	n/a
25	10/17/15	67	8954	6249	5900	6407	3937	n/a
26	10/17/15	99	8528	--	4623	401685	10499	n/a
27	10/17/15	63	8953	6106	4307	8819	4439	n/a
28	10/18/15	99	6908	5340	4262	402888	10488	n/a
29	10/18/15	98	7568	6115	4306	401432	10578	n/a
30	10/18/15	95	8341	6083	4566	405730	10465	n/a
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PRODUCING FORMATION(S)	DEPTHS	
	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 _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ 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 ₂ 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	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, lcemt, 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, slty, grty, sbblky-sbfls, non calc, lse calc, lse pyr, wLS gy, lgy, hrd, mott, mic, fcln, 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, ehdrf.
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, sbblky-amor, rgh-slty txt
Utica	10938	11066	11310	11698	SH: dk gry-v dk gry, sft - frm, sbblky-sbply, slty-sli grty txt, mrly, sli calc, carb
Point Pleasant	11066		11698		SH: blk-bnshblk, sl frm-frm, sft ip, sbblky-sbply, tr pp pyr, sl grty 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 12/15/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRAC Environmental Protection

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API: 47-5101705	Well Name: Berger	Well Number: 5H
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CEMENTING CONTRACTORS		
Name Schlumberger Technology Corp	Name Baker Hughes	Name
Address 4600 J Barry Court, Suite 200	Address 5373 West Alabama, Suite 300	Address
City - State - Zip Canonsburg, PA 15307	City - State - Zip Houston, TX 77056	City - State - Zip

API: 47-5101705	Well Name: Berger	Well Number: 5H
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DRILLING CONTRACTORS		
Driller	Driller	Driller
Name Rocky Mountain Drilling	Name Highlands Drilling LLC	Name Nabors Drilling USA
Address 185 North Vernal Avenue, Suite 2	Address 900 Virginia Street East	Address 10100 NW 10th Street
City - State - Zip Vernal, UT 84078	City - State - Zip Charleston, WV 25301	City - State - Zip Oklahoma City, OK 73127

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/11/2015
Job End Date:	10/18/2015
State:	West Virginia
County:	Marshall
API Number:	47-051-01705-00-00
Operator Name:	Chevron USA Inc.
Well Name and Number:	Berger 5H
Longitude:	-80.75454717
Latitude:	39.87455638
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,463
Total Base Water Volume (gal):	12,376,284
Total Base Non Water Volume:	



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Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Base Fluid	Chevron	Carrier/Base Fluid					
			Water (Including Mix Water Supplied by Client)	7732-18-5	100.00000	90.61550	
Proppant	Schlumberger	Proppant					
			Crystalline Silica	14808-60-7	100.00000	9.23951	
7.5% Acid	Schlumberger	Perf Cleanup					
			Hydrochloric Acid	7647-01-0	8.00000	0.00935	
J580	Schlumberger	Gelling Agent					
			Carbohydrate Polymer	Proprietary	100.00000	0.00517	
M300	BASF Corporation	Biocide					
			Water	7732-18-5	75.00000	0.00162	
			Glutaral	111-30-8	25.00000	0.00054	
U042	Schlumberger	Iron Chelating Agent					
			Tetrasodium ethylenediaminetetraacetate	64-02-8	60.00000	0.00162	
			Trisodium nitrilotriacetate (impurity)	5064-31-3	10.00000	0.00027	
			Sodium hydroxide	1310-73-2	5.00000	0.00013	
L058	Schlumberger	Iron Stabilizer					
			Sodium erythorbate	6381-77-7	100.00000	0.00042	
B317	Schlumberger	Scale Inhibitor					

			Trisodium ortho phosphate	7601-54-9	5.00000	0.00010
			Ethane-1,2-diol	107-21-1	5.00000	0.00010
A264	Schlumberger	Corrosion Inhibitor				
			Methanol	67-56-1	40.00000	0.00005
			Aliphatic acids	Proprietary	30.00000	0.00004
			Aliphatic alcohols, ethoxylated #1	Proprietary	30.00000	0.00004
			Prop-2-yn-1-ol	107-19-7	10.00000	0.00001
J134	Schlumberger	Gel Breaker				
			Hemicellulase enzyme	9012-54-8	100.00000	0.00014
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.						

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

Chevron Appalachia Berger 5H Survey 0ft to 12755ft MD Survey Geodetic Report

(Def Survey)



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Report Date: March 13, 2015 - 08:51 AM
Client: Chevron
Field: WV Marshall County (NAD 83)
Structure / Slot: Chevron Berger Pad / Berger 5H
Well: Berger 5H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Chevron Appalachia Berger 5H Survey 0ft to 12755ft MD
Survey Date: March 03, 2015
Tort / AHD / DDI / ERD Ratio: 201.358 ° / 6786.574 ft / 6.429 / 1.045
Coordinate Reference System: NAD83 West Virginia State Plane, Northern Zone, US Feet
Location Lat / Long: N 39° 52' 28.40304", W 80° 45' 16.36290"
Location Grid N/E Y/X: N 503116.880 ftUS, E 1616409.510 ftUS
CRS Grid Convergence Angle: -0.8001 °
Grid Scale Factor: 0.99995013
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 157.194 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB
TVD Reference Elevation: 1319.560 ft above MSL
Seabed / Ground Elevation: 1287.560 ft above MSL
Magnetic Declination: -8.607 °
Total Gravity Field Strength: 999.3389mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 52452.583 nT
Magnetic Dip Angle: 67.253 °
Declination Date: March 03, 2015
Magnetic Declination Model: BGGM 2014
North Reference: True North
Grid Convergence Used: 0.0000 °
Total Corr Mag North->True North: -8.6073 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	93.00	0.00	-1319.56	0.00	0.00	0.00	N/A	N/A	N/A	503116.88	1616409.51	N 39 52 28.40 W	80 45 16.36
Marker MudLine	32.00	0.14	273.60	32.00	-1287.56	-0.02	0.00	-0.04	0.43	0.43	0.00	503116.88	1616409.47	N 39 52 28.40 W	80 45 16.36
	100.00	0.43	273.60	100.00	-1219.56	-0.17	0.02	-0.37	0.43	0.43	0.00	503116.91	1616409.14	N 39 52 28.40 W	80 45 16.37
	200.00	0.50	275.88	200.00	-1119.56	-0.54	0.09	-1.18	0.07	0.07	2.28	503116.99	1616408.33	N 39 52 28.40 W	80 45 16.38
	300.00	0.54	268.36	299.99	-1019.57	-0.92	0.12	-2.09	0.08	0.04	-7.52	503117.03	1616407.42	N 39 52 28.40 W	80 45 16.39
	400.00	0.60	265.74	399.99	-919.57	-1.26	0.07	-3.08	0.07	0.06	-2.62	503116.99	1616406.43	N 39 52 28.40 W	80 45 16.40
	500.00	0.56	263.22	499.98	-819.58	-1.56	-0.03	-4.09	0.05	-0.04	-2.52	503116.91	1616405.42	N 39 52 28.40 W	80 45 16.42
	600.00	0.21	115.06	599.98	-719.58	-1.56	-0.16	-4.41	0.75	-0.35	-148.16	503116.78	1616405.10	N 39 52 28.40 W	80 45 16.42
Gyro	697.00	0.79	121.38	696.98	-622.58	-0.89	-0.58	-3.68	0.60	0.60	6.52	503116.35	1616405.83	N 39 52 28.40 W	80 45 16.41
	752.00	0.91	94.88	751.97	-567.59	-0.38	-0.82	-2.92	0.74	0.22	-48.18	503116.10	1616406.58	N 39 52 28.39 W	80 45 16.40
	806.00	0.92	93.65	805.96	-513.60	0.02	-0.88	-2.06	0.04	0.02	-2.28	503116.03	1616407.44	N 39 52 28.39 W	80 45 16.39
	900.00	1.01	104.67	899.95	-419.61	0.86	-1.14	-0.50	0.22	0.10	11.72	503115.75	1616408.99	N 39 52 28.39 W	80 45 16.37
	995.00	1.08	100.56	994.93	-324.63	1.86	-1.52	1.19	0.11	0.07	-4.33	503115.35	1616410.68	N 39 52 28.39 W	80 45 16.35
	1090.00	3.01	108.35	1089.87	-229.69	3.99	-2.47	4.44	2.05	2.03	8.20	503114.35	1616413.91	N 39 52 28.38 W	80 45 16.31
	1185.00	5.16	90.21	1184.63	-134.93	7.31	-3.27	11.08	2.61	2.26	-19.09	503113.46	1616420.54	N 39 52 28.37 W	80 45 16.22
	1280.00	5.31	90.07	1279.23	-40.33	10.68	-3.29	19.74	0.16	0.16	-0.15	503113.32	1616429.20	N 39 52 28.37 W	80 45 16.11
	1375.00	5.60	75.60	1373.80	54.24	13.07	-2.14	28.63	1.48	0.31	-15.23	503114.34	1616438.11	N 39 52 28.38 W	80 45 16.00
	1470.00	6.07	70.50	1468.31	148.75	14.04	0.69	37.85	0.74	0.49	-5.37	503117.04	1616447.37	N 39 52 28.41 W	80 45 15.88
	1564.00	6.08	69.41	1561.78	242.22	14.52	4.10	47.20	0.12	0.01	-1.16	503120.32	1616456.76	N 39 52 28.44 W	80 45 15.76
	1659.00	5.94	68.27	1656.26	336.70	14.80	7.69	56.47	0.19	-0.15	-1.20	503123.78	1616466.08	N 39 52 28.48 W	80 45 15.64
	1754.00	5.90	66.29	1750.76	431.20	14.82	11.47	65.51	0.22	-0.04	-2.08	503127.43	1616475.17	N 39 52 28.52 W	80 45 15.52
	1849.00	5.59	63.84	1845.28	525.72	14.47	15.47	74.14	0.42	-0.33	-2.58	503131.32	1616483.85	N 39 52 28.56 W	80 45 15.41
	1944.00	5.57	60.74	1939.83	620.27	13.68	19.77	82.31	0.32	-0.02	-3.26	503135.49	1616492.08	N 39 52 28.60 W	80 45 15.31
Drilling Office 2.7.1043.0	2039.00	4.78	61.18	2034.44	714.88	12.75	24.80	89.80	0.83	0.83	0.46	503139.55	1616499.63	N 39 52 28.64 W	80 45 15.21

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7075.00	90.34	146.27	6441.55	5121.99	864.09	-636.48	715.57	1.76	0.72	-1.61	502470.50	1617116.09	N 39 52 22.11	W 80 45 7.19
	7170.00	89.21	146.70	6441.92	5122.36	957.43	-715.68	768.02	1.27	-1.19	0.45	502390.58	1617167.42	N 39 52 21.33	W 80 45 6.51
	7265.00	88.38	147.57	6443.92	5124.36	1050.95	-795.46	819.56	1.27	-0.87	0.92	502310.09	1617217.84	N 39 52 20.54	W 80 45 5.85
	7359.00	87.77	147.07	6447.08	5127.52	1143.50	-874.54	870.29	0.84	-0.65	-0.53	502230.32	1617267.46	N 39 52 19.76	W 80 45 5.20
	7454.00	89.72	146.85	6449.16	5129.60	1236.96	-954.15	922.07	2.07	2.05	-0.23	502150.00	1617318.12	N 39 52 18.97	W 80 45 4.54
	7549.00	90.10	151.52	6449.31	5129.75	1331.01	-1035.72	970.72	4.93	0.40	4.92	502067.76	1617365.63	N 39 52 18.17	W 80 45 3.91
	7644.00	90.62	147.11	6448.71	5129.15	1425.09	-1117.39	1019.19	4.67	0.55	-4.64	501985.42	1617412.94	N 39 52 17.36	W 80 45 3.29
	7739.00	89.90	148.90	6448.28	5128.72	1518.86	-1197.96	1069.52	2.03	-0.76	1.88	501904.17	1617462.14	N 39 52 16.56	W 80 45 2.65
	7833.00	90.58	147.02	6447.89	5128.33	1611.64	-1277.63	1119.39	2.13	0.72	-2.00	501823.81	1617510.89	N 39 52 15.78	W 80 45 2.01
	7928.00	90.55	146.40	6446.95	5127.39	1705.05	-1357.04	1171.53	0.65	-0.03	-0.65	501743.68	1617561.91	N 39 52 14.99	W 80 45 1.34
	8023.00	89.48	145.38	6446.92	5127.36	1798.20	-1435.69	1224.80	1.56	-1.13	-1.07	501664.30	1617614.08	N 39 52 14.21	W 80 45 0.65
	8118.00	89.42	144.28	6447.84	5128.28	1890.99	-1513.35	1279.52	1.16	-0.06	-1.16	501585.89	1617667.70	N 39 52 13.45	W 80 45 59.95
	8213.00	89.21	146.06	6448.97	5129.41	1983.90	-1591.32	1333.77	1.89	-0.22	1.87	501507.17	1617720.86	N 39 52 12.68	W 80 45 59.26
	8308.00	89.45	143.91	6450.08	5130.52	2076.74	-1669.11	1388.27	2.28	0.25	-2.26	501428.63	1617774.27	N 39 52 11.91	W 80 45 58.56
	8402.00	89.00	145.13	6451.35	5131.79	2168.44	-1745.65	1442.83	1.38	-0.48	1.30	501351.34	1617827.75	N 39 52 11.15	W 80 44 57.86
	8497.00	89.90	145.28	6452.27	5132.71	2261.36	-1823.66	1497.03	0.96	0.95	0.16	501272.59	1617880.86	N 39 52 10.38	W 80 44 57.16
	8592.00	89.31	145.11	6452.92	5133.36	2354.28	-1901.66	1551.26	0.65	-0.62	-0.18	501193.84	1617933.98	N 39 52 9.61	W 80 44 56.47
	8687.00	88.69	145.42	6454.58	5135.02	2447.22	-1979.72	1605.38	0.73	-0.65	0.33	501115.04	1617987.00	N 39 52 8.84	W 80 44 55.77
	8782.00	88.14	145.34	6457.21	5137.65	2540.17	-2057.87	1659.33	0.59	-0.58	-0.08	501036.15	1618039.86	N 39 52 8.07	W 80 44 55.08
	8876.00	88.45	143.34	6460.00	5140.44	2631.77	-2134.21	1714.10	2.15	0.33	-2.13	500959.06	1618093.56	N 39 52 7.31	W 80 44 54.38
	8971.00	88.66	143.88	6462.40	5142.84	2724.08	-2210.66	1770.45	0.61	0.22	0.57	500881.83	1618148.82	N 39 52 6.56	W 80 44 53.66
	9066.00	90.03	144.22	6463.49	5143.93	2816.58	-2287.56	1826.21	1.49	1.44	0.36	500804.17	1618203.51	N 39 52 5.80	W 80 44 52.94
	9161.00	90.21	142.52	6463.29	5143.73	2908.83	-2363.79	1882.89	1.80	0.19	-1.79	500727.15	1618259.11	N 39 52 5.04	W 80 44 52.21
	9255.00	89.24	145.96	6463.74	5144.18	3000.42	-2440.06	1937.82	3.80	-1.03	3.66	500650.13	1618312.96	N 39 52 4.29	W 80 44 51.51
	9350.00	89.86	143.23	6464.48	5144.92	3093.12	-2517.48	1992.85	2.95	0.65	-2.87	500571.95	1618366.91	N 39 52 3.52	W 80 44 50.80
	9445.00	90.07	143.48	6464.54	5144.98	3185.36	-2593.70	2049.55	0.34	0.22	0.26	500494.95	1618422.53	N 39 52 2.77	W 80 44 50.08
	9540.00	89.76	143.40	6464.68	5145.12	3277.64	-2670.01	2106.14	0.34	-0.33	-0.08	500417.86	1618478.05	N 39 52 2.02	W 80 44 49.35
	9635.00	90.58	144.79	6464.40	5144.84	3370.16	-2746.95	2161.85	1.70	0.86	1.46	500340.15	1618532.68	N 39 52 1.26	W 80 44 48.64
	9730.00	90.79	145.04	6463.27	5143.71	3462.98	-2824.69	2216.45	0.34	0.22	0.26	500261.67	1618586.18	N 39 52 0.49	W 80 44 47.94
	9825.00	89.48	144.74	6463.04	5143.48	3555.80	-2902.40	2271.08	1.41	-1.38	-0.32	500183.20	1618639.73	N 39 51 59.72	W 80 44 47.24
	9920.00	89.48	144.70	6463.90	5144.34	3648.55	-2979.95	2325.95	0.04	0.00	-0.04	500104.90	1618693.50	N 39 51 58.95	W 80 44 46.53
	10014.00	88.42	144.59	6465.63	5146.07	3740.29	-3056.60	2380.33	1.13	-1.13	-0.12	500027.50	1618746.81	N 39 51 58.19	W 80 44 45.84
	10109.00	88.49	145.36	6468.19	5148.63	3833.10	-3134.37	2434.84	0.81	0.07	0.81	499948.98	1618800.22	N 39 51 57.43	W 80 44 45.14
	10204.00	88.45	144.10	6470.72	5151.16	3925.83	-3211.90	2489.67	1.33	-0.04	-1.33	499870.70	1618853.96	N 39 51 56.66	W 80 44 44.43
	10299.00	89.62	144.51	6472.32	5152.76	4018.42	-3289.04	2545.09	1.30	1.23	0.43	499792.79	1618908.30	N 39 51 55.90	W 80 44 43.72
	10394.00	89.31	143.00	6473.21	5153.65	4110.81	-3365.65	2601.26	1.62	-0.33	-1.59	499715.41	1618963.38	N 39 51 55.14	W 80 44 43.00
	10489.00	89.83	143.63	6473.92	5154.36	4203.03	-3441.83	2658.01	0.86	0.55	0.66	499638.45	1619019.06	N 39 51 54.39	W 80 44 42.28
	10584.00	89.55	146.79	6474.44	5154.88	4295.95	-3519.84	2712.21	3.34	-0.29	3.33	499559.70	1619072.16	N 39 51 53.62	W 80 44 41.58
	10678.00	89.42	144.76	6475.28	5155.72	4388.08	-3597.55	2765.07	2.16	-0.14	-2.16	499481.25	1619123.93	N 39 51 52.85	W 80 44 40.90
	10773.00	89.97	143.32	6475.79	5156.23	4480.58	-3674.45	2820.85	1.62	0.58	-1.52	499403.59	1619178.64	N 39 51 52.09	W 80 44 40.19
	10868.00	89.07	144.85	6476.59	5157.03	4573.10	-3751.38	2876.58	1.87	-0.95	1.61	499325.89	1619233.27	N 39 51 51.33	W 80 44 39.47
	10963.00	89.14	143.72	6478.07	5158.51	4665.69	-3828.50	2932.02	1.19	0.07	-1.19	499248.01	1619287.64	N 39 51 50.57	W 80 44 38.76
	11057.00	89.28	144.12	6479.37	5159.81	4757.17	-3904.47	2987.38	0.45	0.15	0.43	499171.28	1619341.92	N 39 51 49.82	W 80 44 38.05
	11152.00	89.38	144.59	6480.48	5160.92	4849.79	-3981.66	3042.74	0.51	0.11	0.49	499093.33	1619396.19	N 39 51 49.05	W 80 44 37.34
	11247.00	89.42	144.62	6481.47	5161.91	4942.50	-4059.10	3097.76	0.05	0.04	0.03	499015.13	1619450.13	N 39 51 48.29	W 80 44 36.64
	11342.00	89.21	144.97	6482.61	5163.05	5035.27	-4136.72	3152.52	0.43	-0.22	0.37	498936.76	1619503.80	N 39 51 47.52	W 80 44 35.93
	11437.00	89.72	143.23	6483.49	5163.93	5127.80	-4213.66	3208.22	1.91	0.54	-1.83	498859.05	1619558.42	N 39 51 46.76	W 80 44 35.22
	11532.00	89.55	144.04	6484.10	5164.54	5220.15	-4290.16	3264.55	0.87	-0.18	0.85	498781.78	1619613.67	N 39 51 46.00	W 80 44 34.50
Drilling Office 2.7.1043.0	11627.00	89.21	142.61	6485.13	5165.57	5312.37	-4368.35	3321.26	1.58	-0.36	-1.51	498704.81	1619669.33	N 39 51 45.23	W 80 44 33.77

RECEIVED
 Office of Oil and Gas
 WV Department of Environmental Protection

...Chevron Berger Pad/Berger 5H Original Borg/Berger Chevron Appalachia Berger 5H Survey Off to 12755ft MD

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	11721.00	89.38	143.36	6486.28	5166.72	5403.49	-4441.40	3377.87	0.82	0.18	0.80	498628.98	1619724.86	N 39 51 44.51 W	80 44 33.05
	11816.00	89.59	143.53	6487.14	5167.58	5495.76	-4517.71	3434.45	0.28	0.22	0.18	498551.89	1619780.36	N 39 51 43.75 W	80 44 32.32
	11911.00	89.55	142.77	6487.85	5168.29	5587.92	-4593.72	3491.42	0.80	-0.04	-0.80	498475.09	1619836.27	N 39 51 43.00 W	80 44 31.59
	12006.00	89.52	143.45	6488.62	5169.06	5680.06	-4669.70	3548.45	0.72	-0.03	0.72	498398.33	1619892.22	N 39 51 42.25 W	80 44 30.86
	12101.00	89.52	144.23	6489.42	5169.86	5772.48	-4746.40	3604.50	0.82	0.00	0.82	498320.86	1619947.19	N 39 51 41.49 W	80 44 30.14
	12196.00	89.42	142.83	6490.30	5170.74	5864.79	-4822.79	3660.96	1.48	-0.11	-1.47	498243.69	1620002.58	N 39 51 40.74 W	80 44 29.42
	12290.00	89.38	143.29	6491.28	5171.72	5955.94	-4897.92	3717.45	0.49	-0.04	0.49	498167.79	1620058.01	N 39 51 40.00 W	80 44 28.69
	12385.00	89.52	143.36	6492.19	5172.63	6048.16	-4974.11	3774.19	0.16	0.15	0.07	498090.82	1620113.68	N 39 51 39.24 W	80 44 27.96
	12480.00	89.38	144.49	6493.10	5173.54	6140.62	-5050.88	3830.13	1.20	-0.15	1.19	498013.27	1620168.54	N 39 51 38.48 W	80 44 27.25
	12575.00	89.62	143.56	6493.93	5174.37	6233.12	-5127.76	3885.93	1.01	0.25	-0.98	497935.62	1620223.26	N 39 51 37.72 W	80 44 26.53
	12670.00	89.59	143.07	6494.59	5175.03	6325.34	-5203.94	3942.68	0.52	-0.03	-0.52	497858.66	1620278.94	N 39 51 37.00 W	80 44 25.80
	12712.00	89.07	143.37	6495.08	5175.52	6366.10	-5237.58	3967.83	1.43	-1.24	0.71	497824.68	1620303.61	N 39 51 36.64 W	80 44 25.48
Projection To TD	12755.00	89.07	143.37	6495.78	5176.22	6407.85	-5272.08	3993.48	0.00	0.00	0.00	497789.82	1620328.78	N 39 51 36.30 W	80 44 25.15

RECEIVED
 Office of Oil and Gas
 WV Department of Environmental Protection

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	32.000	Act Stns	12.250	9.625	SLB_NSG+MSHOT-Depth Only	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft to 12755ft MD
	1	32.000	697.000	Act Stns	12.250	9.625	SLB_NSG+MSHOT	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	697.000	900.000	Act Stns	12.250	9.625	SLB_MWD-STD	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	900.000	995.000	Act Stns	12.250	9.625	SLB_INC_ONLY<10	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	995.000	2715.000	Act Stns	12.250	9.625	SLB_MWD-STD	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	2715.000	12712.000	Act Stns	8.500	5.500	SLB_MWD-STD	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft
	1	12712.000	12755.000	Act Stns	8.500	5.500	SLB_BLIND+TREND	Original Borehole / Chevron Appalachia Berger 5H Survey 0ft



Jackie M. Scholar
Regulatory Reporting

Chevron Appalachia, LLC
Appalachian/Michigan Business Unit
800 Mountain View Drive
Smithfield, PA 15478
Tel 724 564 3721
Fax 724 564 3894
jscholar@chevron.com

December 14, 2015

CERTIFIED MAIL: 7015 0640 0001 0567 4116

WV DEP
Office of Oil and Gas
601 – 57th Street
Charleston, WV 25304

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

Dear Sir/Madam,

Enclosed here within please find one (1) Well Operator's Report of Well Work WR-35 one (1) copy of the Plat on Mylar, one (1) copy of the FracFocus report, and one (1) copy of the Directional Survey for **Berger 5H, (API 47-5101705)**.

Please send all correspondence to our Fayette County office listed at the top right-hand corner. If you have any questions, please contact me at (724) 564-3721. Thank you.

Sincerely,
Chevron Appalachia, LLC

A handwritten signature in blue ink, appearing to read "Jackie M. Scholar".

Jackie M. Scholar
Regulatory Reporting
jscholar@chevron.com

Enclosures

RECEIVED
Office of Oil and Gas
DEC 18 2015
WV Department of
Environmental Protection

04/08/2016

Well is located on topo map 154' feet south of Latitude: 39° 52' 30"

AS DRILLED PLAT

NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

LINE	BEARING	DISTANCE
R1	S 19°21'40" W	234.21
R2	S 52°46'29" W	231.31
R3	N 27°48'04" W	194.26
R4	S 77°52'06" W	1289.84
R5	S 67°06'05" W	1225.84
R6	S 37°15'39" E	881.10



PERMITTED APPROX. LANDING POINT

UTM 17-NAD83
N:4413818.70
E:521087.76
NAD83, WV NORTH
N:502985.56
E:1616727.62

AS DRILLED APPROX. LANDING POINT

UTM 17-NAD83
N:4413718.29
E:521177.09
NAD83, WV NORTH
N:502631.16
E:1617014.69

PERMITTED SURFACE HOLE LOCATION (SHL)

UTM 17-NAD83
N:4413863.18
E:520990.08
NAD83, WV NORTH
N:503116.88
E:1616409.51

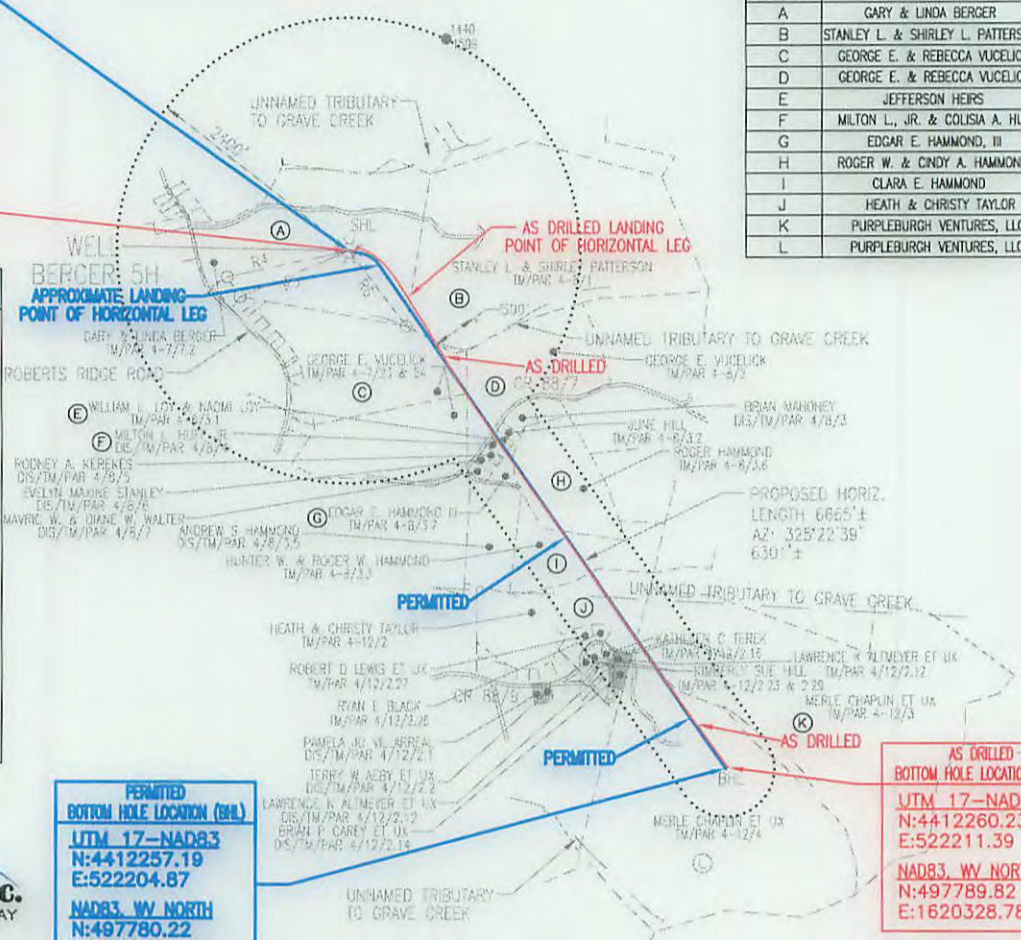
AS DRILLED SURFACE HOLE LOCATION (SHL)

UTM 17-NAD83
N:4413863.18
E:520990.08
NAD83, WV NORTH
N:503116.88
E:1616409.51

LEGEND

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- (A) - LEASE LETTER
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE
- AS DRILLED
- EXISTING WELLS**
- EXISTING WELLS
- PLUGGED WELLS

PARCEL	LESSOR
A	GARY & LINDA BERGER
B	STANLEY L. & SHIRLEY L. PATTERSON
C	GEORGE E. & REBECCA VUCELICK
D	GEORGE E. & REBECCA VUCELICK
E	JEFFERSON HEIRS
F	MILTON L, JR. & COLISA A. HUFF
G	EDGAR E. HAMMOND, III
H	ROGER W. & CINDY A. HAMMOND
I	CLARA E. HAMMOND
J	HEATH & CHRISTY TAYLOR
K	PURPLEBURGH VENTURES, LLC
L	PURPLEBURGH VENTURES, LLC



PERMITTED BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83
N:4412257.19
E:522204.87
NAD83, WV NORTH
N:497780.22
E:1620307.88

AS DRILLED BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83
N:4412260.23
E:522211.39
NAD83, WV NORTH
N:497789.82
E:1620328.78

Blue Mountain Inc.
10125 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

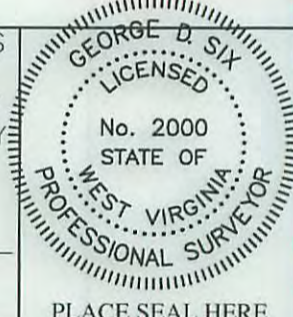
FILE #: BERGER 5H-AS DRILLED
DRAWING #: BERGER 5H-AS DRILLED
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/2500
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *George D. Six*

R.P.E.:

L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304



DATE: SEPTEMBER 28, 2015
OPERATOR'S WELL #: BERGER 5H-AS DRILLED
API WELL #: 47 51 01705
STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: MIDDLE GRAVE CREEK - GRAVE CREEK ELEVATION: 1287.56'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN, OH-WV 7.5'

SURFACE OWNER: GARY & LINDA BERGER ACREAGE: 51.753±

OIL & GAS ROYALTY OWNER: GARY & LINDA BERGER ACREAGE: 580.659±

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,538'± TMD: 13,287'±

WELL OPERATOR: CHEVRON APPALACHIA, LLC DESIGNATED AGENT: KENNETH E. TAWNEY
Address: 800 MOUNTAIN VIEW DRIVE Address: 500 LEE STREET, EAST SUITE 1600
City: SMITHFIELD State: PA Zip Code: 15478 City: CHARLESTON State: WV Zip Code: 25301-3202

04/08/2016

Well is located on topo map 1268' feet west of Longitude: 80° 45' 00"