

Well Operator's Report of Well Work



Well Number: 513138

API: 47 - 017 - 06326

Submission: Initial Amended

Notes: Correction to Production Cement Top

(MD)

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WV Department of Environmental Protection

> AX WS 03/31/16 04/01/2016

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

API 47 - 017 - 06326 Cou	onty DODDRIDGE	District WEST UNI	ON
Quad OXFORD 7.5' Page	Name OXF156	Field/Pool Name	
Farm name HEASTER, CHARLES P., ET		Well Number 5131	38
Operator (as registered with the OOG) EQT	Production Company		
Address 625 Liberty Ave. EQT Plaza, Suite 17		State PA	_{Zip} _15222
Top hole Northing Landing Point of Curve Northing	ach an as-drilled plat, profile 3 4342165.4 4342305.4	Easting 518343.6 Easting 518319.4	
Bottom Hole Northing	4344220.7	Easting <u>517351.7</u>	
Elevation (ft) 1202 GL	Type of Well ■New □ Exi	sting Type of Report	□Interim ■Final
Permit Type Deviated Horizontal	■ Horizontal 6A □ V	ertical Depth Type	□ Deep
Type of Operation □ Convert □ Deepen	■ Drill □ Plug Back	□ Redrilling □ Rework	■ Stimulate
Well Type □ Brine Disposal □ CBM ■ Gas	。 □ Oil □ Secondary Recov	ery □ Solution Mining □ Sto	rage 🗆 Other
Type of Completion ■ Single □ Multiple	Fluids Produced Brine	■Gas ■ NGL □ Oil	□ Other
Drilled with □ Cable ■ Rotary			
Drilling Media Surface hole ■ Air □ Mu	d □Fresh Water Inter	mediate hole ■ Air □ Mud	□ Fresh Water □ Brine
•	Water □ Brine		
Mud Type(s) and Additive(s) SBM 12.8ppg – powdered hydrocarbon resin, calcium		s harium sulfate calcium chloride l	ecithin liquid, organophilic clav
polyaminated fatty acid, calcium hydroxide, polyim			
polyanimated latty dolla, ediciality type of the polyani			
Date permit issued11/20/2013 Date	te drilling commenced5	7/2014 Date drilling c	eased 9/6/2014
Date completion activities began12/1	6/2014 Date compl	etion activities ceased1	2/31/2014
Verbal plugging (Y/N) N Date per	mission grantedN/	A Granted by	N/A
Please note: Operator is required to submit a p	olugging application within 5	days of verbal permission to pl	ug
Freshwater depth(s) ft 169,216,320,386,46	52,600,1084 Open mine(s	(Y/N) depths	N
Salt water depth(s) ft 1456		ountered (Y/N) depths	N
Coal depth(s) ft 1272,1312	Cavern(s) en	countered (Y/N) depths	N
Is coal being mined in area (Y/N)	N		
			Reviewed by:

WR-35 Rev. 8/23/13								Page of _
API 47- 017	_ 06326	Farn	name_	HEASTER, C	HARLES P., I	ET AL W	ell number513	3138
CASING	Hole	Casing		Ne	w or Grade		Basket	Did cement circulate (Y/ N * Provide details below*
STRINGS Conductor	Size 24"	Size 20"	<u>-</u>		sed wt/ft New 9	94ib/ft	Depth(s) N/A	Y Provide details below.
Surface	17-1/2"	13-3/8"	- - 			4.5lb/ft	367'	Y
Coal	17-1/2	13-3/0	- '	,177	vew 5-	4.510/11	307	+ '
Intermediate 1	12-3/8"	9-5/8"		,255'	New 4	#Olb/ft	2,257'/2,362'/3,918'	Y
Intermediate 2	12-3/6	9-3/0		,200	4644	+UID/IL	2,23772,30273,816	
Intermediate 3	 		+				<u> </u>	+
Production	8-1/2"	5-1/2"	1	4 020'	New 2	2016/6	N/A	N
Tubing	6-1/2	5-1/2	- '	4,020'	New 2	20lb/ft	IN/A	N
Packer type and d	lepth set		<u> </u>	<u> </u>			<u> </u>	
Comment Details								
CEMENT	Class/Type		nber noke	Slurry	Yield	Volum		
DATA Conductor	of Cement Class A		acks 8	wt (ppg) 15.6	(ft ³/sks) 1.18	(ft. ¹) 44.84		1D) (hrs) 8
Surface	Class A		95	15.6	1.19	1184		8
Coal	0.0007			10.0	1	1		
Intermediate 1	Class A /Class A/Cla	ass A 400/34	0/1015	14.2/15.6/15.6	1.28/1.18/1.18	2111	0	8
Intermediate 2		100/0	0,1010	1-4.2710.0710.0	1.20/1.10/1.10		- 	
Intermediate 3		-						
Production	Class A/Class	H 250	/930	14.2/15.2	1.26/1.97	2,147	4,68	4' 72
Tubing						 		
Drillers TD (fi Deepest forma Plug back pro	tion penetrated	Marcellus			ggers TD (ft) № g back to (ft) №			
Kick off depth	(ft)_5,303'							
Check all wire	line logs run	□ calipe □ neutre		•	deviated/direct gamma ray		induction temperature	□sonic
Well cored	Yes No	□ Conve	ntional	□ Sidewall	W	ere cutting	gs collected	Yes 🗆 No
DESCRIBE T	HE CENTRALI	ZER PLACE	MENT (JSED FOR EA	CH CASING S	TRING _	Conductor- N/A	
	slizer on shoe track and every ng centralizer on shoe tra		surface					
	te bodied centralizers on			4,279				
WAS WELL (COMPLETED A	s shот но	LE o	Yes No	DETAILS			
WAS WELL (COMPLETED O	PEN HOLE	□ Ye	es 🖪 No	DETAILS _			
WERE TRAC	ERS USED 🗆	Yes ■ No	TY	PE OF TRACE	ER(S) USED			

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API 47- 017 - 06326	Farm name HEASTER, CHARLES P., ET AL Well number 513138	

PERFORATION RECORD

Stage No	Perforation date	Perforated from MD ft.	Perforated to MD fl.	Number of Perforations	Formation(s)
				T	Please See Attached
				 	
				-	
		,			
	L	<u> </u>	<u> </u>		

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)
140.	Date	1,44,44,44,44,44,44,44,44,44,44,44,44,44				Please	See	Attached
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Please insert additional pages as applicable.

WR-35 Rev. 8/23/13									Pa	ge of
	_ 06326	Farm	name HEASTER	R, CHARLE	S P., ET AL	Well	number	51313	8	_
PRODUCING Marcellus	FORMATION(<u>DEPTHS</u> 6,599.3	TVD	6,753	MD				
		······································								
Please insert ac	lditional pages a	s applicable.								
GAS TEST	□ Build up □	Drawdown	■ Open Flow		OIL TEST	Flow 1	⊐ Pump			
SHUT-IN PRE	SSURE Surf	Pace 2027	psi Botto	m Hole <u>N</u>	A psi	DURA	TION C	OF TES	ST <u>98</u>	_ hrs
OPEN FLOW	Gas 5211 mcf	Oil fpd <u>0</u>	NGL bpd 68	_ bpd	Water 987 bpd		MEASU mated			ilot
LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN MD	FT DESCRIBE I				D QUANTIT	
	0		0				-			
<u> </u>										
						-			_	
						_				
								_		
						•				
Please insert ad	ditional pages a	s applicable.								
Drilling Contra Address 2204 Ti	ctor Savanna D	rilling uite 230	City	Woodlands	s	State	тх	7in	77380	
						_ 5.4.0		<i>L</i> p		
Logging Compa Address 614 Tro	otters Lane	STAICES EFC	City	Charleston	1	_ State	w	Zip	25312	···
Cementing Con Address PO BO		completion & Pr	coduction Service	Dallas		State	TX	Zip	75397-568	2
Stimulating Con				0:-		_	TV	_ •		
Address 301 E 1 Please insert ad		s applicable	City	Cisco		_ State	TX	Zip	76437	
Completed by	_	///			_ Telephone	412-395	-7053			
Signature	20194	why	Title Di	rector of Drii	ling		Date 12	2/9/2015	5	
Submittal of Hy	draulic Fracturi	ng Chemical I	Disclosure Infor	mation	Attach copy of	FRACE	ocus	Regist	ry	

Drilling Contractor: Savanna Drilling
Address: 125 Industry Road City: Waynesburg State: PA Zip: 15370

Cementing Company Nabors Well Services
Address 2504 Smith Creek Road City Waynesburg State PA Zis370

Logging Company City State Zip State Zip

513138 Final Formations API #47-017-06326

	313130 i iilai		017 00320	
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1	1	1,084.00	1,084.00
SAND/SHALE	1	1	1,272.00	1,272.00
COAL	1,272.00	1,272.00	1,277.00	1,277.00
SAND/SHALE	1,277.00	1,277.00	1,312.00	1,312.00
COAL	1,312.00	1,312.00	1,318.00	1,318.00
SAND/SHALE	1,318.00	1,318.00	1,513.00	1,513.00
MAXTON	1,513.00	1,513.00	1,865.00	1,865.00
BIG LIME	1,865.00	1,865.00	1,923.00	1,923.00
KEENER	1,923.00	1,923.00	2,163.00	2,163.00
WEIR	2,163.00	2,163.00	2,358.00	2,358.00
BEREA	2,358.00	2,358.00	2,367.00	2,367.00
GANTZ	2,367.00	2,367.00	2,442.00	2,442.00
50F	2,442.00	2,442.00	2,563.00	2,563.00
30F	2,563.00	2,563.00	2,612.00	2,612.00
GORDON	2,612.00	2,612.00	2,710.00	2,710.00
4TH	2,710.00	2,710.00	2,918.00	2,918.00
BAYARD	2,918.00	2,918.00	3,207.00	3,207.00
WARREN	3,207.00	3,207.00	3,293.00	3,293.00
SPEECHLEY	3,293.00	3,293.00	3,796.00	3,796.00
BALLTOWN A	3,796.00	3,796.00	4,023.00	4,023.00
BALLTOWN B	4,023.00	4,023.00	4,183.00	4,182.90
BRADFORD	4,183.00	4,182.90	4,424.00	4,423.90
RILEY	4,424.00	4,423.90	4,871.00	4,870.80
BENSON	4,871.00	4,870.80	5,122.00	5,121.80
ALEXANDER	5,122.00	5,121.80	6,428.00	6,395.30
MIDDLESEX	6,428.00	6,395.30	6,490.00	6,446.70
GENESEE	6,490.00	6,446.70	6,582.00	6,514.30
GENESEO	6,582.00	6,514.30	6,656.00	6,558.50
TULLY	6,656.00	6,558.50	6,708.00	6,582.90
HAMILTON	6,708.00	6,582.90	6,753.00	6,599.30
MARCELLUS	6,753.00	6,599.30		

513138	47-017-06.	326-00-00	- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	12/15/2014	13,994.00	13,997.00	10	MARCELLUS
1	12/15/2014	13,894.00	13,946.00	28	MARCELLUS
2	12/16/2014	13,744.00	13,846.00	40	MARCELLUS
3	12/17/2014	13,594.00	13,696.00	40	MARCELLUS
4	12/17/2014	13,444.00	13,546.00	40	MARCELLUS
5	12/17/2014	13,294.00	13,396.00	40	MARCELLUS
6	12/17/2014	13,146.00	13,246.00	40	MARCELLUS
7	12/18/2014	12,994.00	13,096.00	40	MARCELLUS
8	12/18/2014	12,844.00	12,946.00	40	MARCELLUS
	12/19/2014	12,694.00	12,798.00	40	MARCELLUS
9	12/19/2014	12,544.00	12,646.00	40	MARCELLUS
10	12/19/2014	12,394.00	12,496.00	40	MARCELLUS
11	12/19/2014	12,244.00	12,346.00	40	MARCELLUS
12		12,095.00	12,196.00	40	MARCELLUS
13	12/19/2014	11,944.00	12,046.00	40	MARCELLUS
14 15	12/20/2014	11,794.00	11,896.00	40	MARCELLUS
		11,644.00	11,746.00	40	MARCELLUS
16	12/20/2014	11,494.00	11,596.00	40	MARCELLUS
17		11,344.00	11,446.00	40	MARCELLUS
18	12/21/2014	11,194.00	11,296.00	40	MARCELLUS
19	12/21/2014	11,044.00	11,146.00	40	MARCELLUS
20	12/22/2014	10,894.00	10,996.00	40	MARCELLUS
21	12/22/2014	10,744.00	10,846.00	40	MARCELLUS
22	12/22/2014	10,594.00	10,696.00	40	MARCELLUS
23	12/23/2014	10,444.00	10,546.00	40	MARCELLUS
24	12/23/2014	10,294.00	10,396.00	40	MARCELLUS
25	12/23/2014		10,246.00	40	MARCELLUS
26	12/23/2014	10,144.00 9,994.00	10,096.00	40	MARCELLUS
27	12/23/2014		9,946.00	40	MARCELLUS
28	12/24/2014	9,844.00	9,796.00	40	MARCELLUS
29	12/27/2014	9,696.00	9,646.00	40	MARCELLUS
30	12/28/2014	9,544.00	9,496.00	40	
31	12/28/2014	9,394.00		40	MARCELLUS MARCELLUS
32	12/28/2014	9,244.00	9,346.00	40	
33	12/28/2014	9,092.00	9,196.00		MARCELLUS
34	12/28/2014	8,944.00	9,046.00	40	MARCELLUS
35	12/29/2014	8,794.00	8,896.00	40	MARCELLUS
36	12/29/2014	8,644.00	8,746.00		MARCELLUS
37	12/29/2014	8,494.00	8,596.00	40	MARCELLUS
38	12/29/2014	8,344.00	8,444.00	40	MARCELLUS

			513138 - 47-0	017-06326-00-00	- Stimulat	ed Stages		
Stage Number	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 (uni
Initiation Sleeve	12/16/2014	20.1	6,564.00	7,390.00	4,249	0	578	0
1	12/17/2014	90.3	8,391.00	9,060.00	4,851	206,338.00	6114	0
2	12/17/2014	95.2	8,306.00	8,998.00	4,812	251,329.00	7230	0
3	12/17/2014	90.5	8,370.00	8,598.00	4,278	249,881.00	6460	0
4	12/17/2014	89.4	8,400.00	8,793.00	4,333	251,625.00	6382	0
5	12/18/2014	90.7	8,344.00	8,940.00	4,940	241,940.00	7795	0
6	12/18/2014	91.8	8,370.00	8,905.00	5,198	250,879.00	6317	0
7	12/18/2014	92.3	8,569.00	8,922.00	5,246	252;340.00	6182	0
8	12/19/2014	93	8,603.00	8,603.00	5,016	253,208.00	6461	0
9	12/19/2014	91.5	8,467.00	8,924.00	4,799	251,100.00	6486	0
10	12/19/2014	91	8,497.00	9,002.00	4,893	250,742.00	6325	0
11	12/19/2014	94.1		9,362.00	4,691	249,788.00	6641	0
12			8,357.00		4,855	250,343.00	6322	0
	12/20/2014	93.9	8,338.00	8,828.00				
13	12/20/2014	95.3	8,402.00	8,790.00	4,372	252,186.00	6533	0
14	12/20/2014	97.5	8,438.00	8,858.00	5,350	251,645.00	6308	0
15	12/20/2014	94.9	8,387.00	9,093.00	5,219	250,228.00	6314	0
16	12/21/2014	94.1	8,436.00	9,106.00	5,370	252,590.00	6220	0
17	12/21/2014	94.9	8,517.00	9,244.00	5,146	249,460.00	6404	0
18	12/21/2014	94.9	8,517.00	9,153.00	5,297	225,481.00	6180	0
19	12/22/2014	95.2	8,281.00	9,415.00	5,490	252,338.00	6481	0
20	12/22/2014	98.1	8,386.00	9,254.00	4,934	251,184.00	6469	0
21	12/22/2014	90.5	8,058.00	8,870.00	5,281	250,964.00	6502	0
22	12/23/2014	94	8,424.00	8,914.00	4,500	252,444.00	6472	0
23	12/23/2014	94.2	8,307.00	8,556.00	5,055	249,641.00	6242	0
24	12/23/2014	95.1	8,423.00	9,049.00	5,657	250,617.00	6238	0
25	12/23/2014	96.7	8,252.00	8,498.00	5,162	252,770.00	6276	0
26	12/23/2014	98.6	8,290.00	8,634.00	5,067	253,936.00	6286	0
27	12/24/2014	95.6	8,265.00	9,066.00	5,318	252,812.00	6165	0
28	12/27/2014	98.8	8,598.00	9,470.00	5,554	227,548.00	6027	0
29	12/28/2014	95.3	8,398.00	8,674.00	4,005	250,482.00	6176	0
30	12/28/2014	99.3	8,340.00	8,779.00	5,692	226,624.00	5907	0
31	12/28/2014	99.9	8,076.00	8,291.00	5,163	251,092.00	6144	0
32	12/28/2014	100.2	8,121.00	8,678.00	5,509	250,566.00	5120	0
33	12/28/2014	101.1	7,930.00	8,169.00	4,261	249,746.00	6345	0
34	12/28/2014	101.6	7,619.00	7,793.00	4,521	251,238.00	6210	0
35	12/29/2014	101.5	7,989.00	8,108.00	4,955	251,889.00	6216	0
36	12/29/2014	99.3	7,872.00	8,187.00	5,348	251,256.00	6870	0
37	12/29/2014	100.2	8,100.00	8,365.00	5,169	250,050.00	6150	0
38	12/29/2014	100.6	7,986.00	8,156,00	5,224	251,164.00	6228	0
39	12/30/2014	100.7	7,901.00	8,052.00	5,543	250,839.00	6126	0
40	12/30/2014	100.2	7,657.00	7,836.00	4,721	251,078.00	6146	0
41	12/30/2014	100.1	7,826.00	8,470.00	5,205	250,208.00	6104	0
42	12/30/2014	99.1	7,705.00	8,773.00	4,932	250,449.00	6034	0
43	12/30/2014	99.6	7,938.00	8,131.00	5,023	250,102.00	6038	0
44	12/30/2014	101.2	7,797.00	8,005.00	5,026	250,973.00	6210	0
45	12/31/2014	100.7	7,663.00	7,865.00	5,219	250,7700.00	5976	0
46	12/31/2014	100.7	7,454.00	7,711.00	5,219	250,575.00	5976	0
47	12/31/2014	100.4	7,454.00	7,711.00	5,095	251,057.00	6031	
48	12/31/2014	100.4	7,512.00	7,676.00	5,266	251,037.00	6104	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

4014710044	The State of the Control of the Cont
12/15/2014	Job Start Date:
12/31/2014	Job End Date
	State
Doddridge	County
47-017-06326-00-00	API Numberi
EQT Production	Operator Name:
	Well Name and Number:
-80.78764800	Longitude:
39,22850500	Latitude
NAD83	Datum
II. NO	Federal/Tribal Wells
6,732	True Vertical Depth.
	Total Base Water Volume (gal):
	Total Base Non Water Volume:







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
Water	FTS International	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	89.93139Nor	е
Sand (Proppant)	FTS International	Proppant					
			Crystalline Silica	14808-60-7	100.00000	9.71092Nor	е
lydrochloric Acid	FTS International	Acidizing			4		
(15%)			Hydrochloric Acid	7647-01-0	15.00000	0.03217Nor	е
FRW-600	FTS International	Friction reducer					
			Hydrotreated light distillate	64742-47-8	30.00000	0.02115Nor	е
			Ammonium acetate	631-61-8	6.00000	0.00423Nor	е
B-10	FTS International	High pH buffer					
			Potassium carbonate	584-08-7	48.00000	0.01144Nor	e
	701		Potassium hydroxide	1310-58-3	20.00000	0.00477Nor	е
HVG-1	FTS International	Gelling agent					
			Petroleum distillate	64742-47-8	55.00000	0.00384Nor	е
			Guar gum	9000-30-0	50.00000	A CONTRACTOR OF THE PARTY OF TH	e
			Surfactant	68439-51-0	2.00000		е
			Clay	14808-60-7	2.00000	0.00014Nor	e
Ci-3240	FTS International	Biocide					
			Dazomet	533-74-4	24,00000	0.00239Nor	18

			Sodium hydroxide	1310-73-2	4.00000	0.00040None
CS-500-SI	FTS International	Scale Inhibitor				
			Ethylene glycol	107-21-1	10.00000	0.00248 None
CI=150	FTS International	Acid Corrosion Inhibitor				
		RI HIDIOI	sopropanol	67-63-0	30.00000	0.00013None
		STATE OF STATE	Organic amine resin salt	Proprietary	30.00000	0.00013None
			Ethylene glycol	107-21-1	30.00000	0.00013None
			Quaternary ammonium compound	Proprietary	10.00000	0.00004None
			Aromatic aldehyde	Proprietary	10.00000	0.00004None
			Dimethylformamide	68-12-2	10.00000	0.00004None
APB-1	FTS International	Breaker				
			Ammonium persulfate	7727-54-0	95.00000	0.00011None
NE-100	FTS International	Non-emulsifier				
			2-Butoxyethanol	111-76-2	10.00000	0.00003None
			2-Propanol	67-63-0	10.00000	0.00003None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002None
FE-100L	FTS International	fron control	1255			
			Citric acld	77-92-9	55.00000	0.00005 None
Chlorine Dioxide Solution - SVP-Pure	Neptune	Disinfectant and/or exidizer				0.0000001
			Chlorine dioxide	10049-04-4	0.30000	0.00002 None

^{*} 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)

