

Well Operator's Report of Well Work



Well Number:	513065	
API:	47 - 017	- 06756
Submission:	✓ Initial	Amended
Notes:		

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

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API 47_ 017 _ 06756	County Doddridge	District South West	
Quad Oxford	Pad Name OXF155	Field/Pool Name N/A	_ : :
Farm name Haessly Land & Timber LL	.c	Well Number 51306	
Operator (as registered with the OOG) EC			
Address 625 Liberty Ave. EQT Plaza, Suite		State PA	
11001000	city	State	
As Drilled location NAD 83/UTM		file view, and deviation survey	
	hing 4,340,487.65	Easting 516,422.14	
_	hing 4,339,936.53	Easting 515,609.18	
Bottom Hole North	hing <u>4,340,556.00</u>	Easting 515,276.54	
Elevation (ft) 1199' GL	Type of Well New	Existing Type of Report	Interim &Final
Permit Type Deviated Horizon	ontal 📕 Horizontal 6A 🛭	Vertical Depth Type	□ Deep ■ Shallow
Type of Operation Convert Deepe	en ■ Drill 🗆 Plug Back	□ Redrilling □ Rework	Stimulate
Well Type □ Brine Disposal □ CBM ■	Gas Oil Secondary Rec	covery - Solution Mining - Store	age 🗆 Other
Tona of Completion B Single D A 15	milia i a a	- 0 - 10 0 0 0	<u> </u>
Type of Completion ■ Single □ Multiple	Fluids Produced Bri	ne 🛮 Gas 🔻 NGL 🗔 Oil 🗈	Other
Drilled with □ Cable ■ Rotary			
Drilling Media Surface hole ■ Air □	Mud □Fresh Water In	ntermediate hole	□ Fresh Water □ Brine
Production hole ☐ Air ■ Mud ☐ Fre	sh Water 🗆 Brine		
Mud Type(s) and Additive(s)			
Water base Mud 11.5 ppg, Synthetic Base Mud 11.5 ppg, barium sudfate, sod	ium chloride, xanthan gum, polyenionic collulose, mod	ified starch, sodium hydroxide, phosphonates and alkyl phophat	es, glutaraldehyde solution, eskilum hydraxide,
partially hydrolyzed polyacrylamide/polyacrylate, potassium chlori	de, sodium carbonate, ground walnut shells, a	lochol and modified fatty acid, ferrochrome lignosulton	ate, calcium carbonate, fibrous cellulose
			<u> </u>
Date permit issued02/09/2016	Date drilling commenced	03/9/2017 Date drilling ce	ased07/082017
Date completion activities began	8/4/2017 Date con		/29/2017
		N/A Granted by	
- Date	permission granted	Granica by	
Please note: Operator is required to submit	t a plugging application within	1 5 days of verbal permission to plu	g
Freshwater depth(s) ft 59,183,204	1,262,419 Open min	e(s) (Y/N) depths	N
Salt water depth(s) ft 1462	·	ncountered (Y/N) depths	N
Coal depth(s) ft 132,252,292	500	encountered (Y/N) depths	N
Is coal being mined in area (Y/N)		encountered (1714) deptils	
is coal being mined in area (1/14)			Reviewed by:

WR-35 Rev. 8/23/13										Page of
API 47- 017	_ 06756	Fari	n name_	laessly L	and & Tir	nber LL	CWel	II number_51	13065	
CASING STRINGS	Hole Size	Casing Size	г	Depth	New or Used	Grade wt/ft		Basket Depth(s)		nent circulate (Y/ N) de details_below*
Conductor	30"	26"		40'	NEW	r——	-500	N/A	T	Υ
Surface	17 1/2"	13 3/8"		569'	NEW		J-55	357'	_	Y
Coal	 	10 0.0	 	-		 				<u> </u>
Intermediate I	12 3/8"	9 5/8"	3	469'	NEW	_	-500	None	_	Y
Intermediate 2	12 5/0	3 3/0	+	100	INCIT		-500			
Intermediate 3	 	 						· -		
Production	0.0444.0.0.4504	E 4 600	1	100E)	NIC1A/	 _	440	N/A		
Tubing	8 3/4" & 8 1/2"	5 1/2"	1	1665'	NEW	-	-110	N/A	+	IN .
Packer type and d	anth set									
racker type and d	lepin set									
Comment Details	N/A									
CEMENT DATA	Class/Type of Cement		mber Sacks	Slurry wt (ppg		rield (³/sks)	Volume (<u>ft ¹)</u>		nent (MD)	WOC (hrs)
Conductor	CLASS A	4	8.9	15.6		1.18	57.7		0	8
Surface	CLASS A		36	15.6		1.20	763.2	+	0	8
Coal										
Intermediate I	CLASS A / CLAS	SS A 175	/ 1050	15.6 / 15	5.6 1.1	8 / 1.2	1466.5	; [0	8
Intermediate 2										
Intermediate 3										
Production	CLASS H / CLAS	SS H 774	/ 377	15.2 / 15	6.6 1.2	5 / 1.18	1781.4	5 49	900	72
Tubing				İ						
Drillers TD (fi Deepest forma Plug back pro	ation penetrated				Loggers T Plug back					
Kick off depth	ı (ft <u>) ⁴⁹⁶⁰</u>									
Check all wire	eline logs run	□ calip □ neutr		lensity esistivity	deviat gamm	ed/directi a ray		induction temperature	⊡soni	c
Well cored	Yes No	□ Conve	entional	□ Sidew	all	W	ere cutting	s collected	■ Yes c	no No
DESCRIBE T	HE CENTRALI	ZER PLACI	EMENT U	JSED FOR	R EACH CA	ASING S	TRING _	·		
	VALIZERS AT JOINTS 1									
	CENTRALIZERS PLACE Spiral body composite ce		one laint from	hollow to 5400 a	MD					
-	COMPLETED A			Yes 🗂 1		ETAILS				
WAS WELL	COMPLETED (PEN HOLE	? 🗆 Ye	es 🖪 No	DET	AILS _			- F Office	RECEIVED Of Oil and Ges
WERE TRAC	ERS USED 🗆	Yes A No	TY	PE OF TR	ACER(S)	JSED _				2 2 2017

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Page	of

API 47- 017 06756 Farm name Haessly Land & Timber LLC Well number	35
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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached
	_				
	. <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)
								Please See
								Attached
_					_			
					_			
			<u>-</u>					
								
·								
Dlasca	insert additio	nal nages as ar	unliaghla			•	Office of Oil	and Gas

Please insert additional pages as applicable.

NOV 2 2 2017

Title Completions Director

Completed by James Abbott

Signature

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

Telephone (412)) 553-5996

Date 11/21/2017

Page ___ of ___ **WR-35** Rev. 8/23/13 API 47- 017 -Farm name_Haessly Land & Timber LLC Well number_513065 06756 Drilling Contractor Savanna Drilling (Rig 655) Zip 15370 State PA Address 125 Industry Road City Wavnesburg Logging Company Baker Hughes Address 4000 Town Center Blvd Zip_15317 State PA Canonsburg City

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Formation Name	Drill Top MD (ftKB)	Drill Top (TVD) (ftKB)	Drill Btm MD (ftKB)	Drill Btm (TVD) (ftKB)
SAND/SHALE	1	1	137	137
WASHINGTON COAL	135	135	137	137
SAND/SHALE	134	134	252	252
WAYNESBURG-A COAL	255	255	257	257
SAND / SHALE	257	257	295	295
UNIONTOWN COAL	295	295	297	297
SAND/SHALE	297	297	535	535
SEWICKLEY COAL	535	535	538	538
SAND / SHALE	538	538	1,573.00	1,573.00
MAXTON	1,573.00	1,573.00		1,662.00
SAND / SHALE	1,662.00	1,662.00		1,918.00
BIG LIME	1,918.00	1,918.00	2,051.00	2,051.00
SAND / SHALE	2,051.00	2,051.00		2,208.00
WEIR	2,208.00	2,208.00	2,323.00	2,322.90
SAND / SHALE	2,323.00	2,322.90		2,418.90
GANTZ	2,419.00	2,418.90	2,503.00	2,502.90
FIFTY FOOT	2,503.00	2,502.90	2,566.00	2,565.90
SAND/SHALE	2,566.00	2,565.90	2,611.00	2,610.90
THIRTY FOOT	2,611.00	2,610.90	2,651.00	2,650.90
GORDON	2,651.00	2,650.90	2,695.00	2,694.90
SAND/SHALE	2,695.00	2,694.90	2,757.00	2,756.90
FOURTH SAND	2,757.00	2,756.90	2,792.00	2,791.90
SAND/SHALE	2,792.00	2,791.90	2,933.00	2,932.90
BAYARD	2,933.00	2,932.90	3,158.00	3,157.90
SAND/SHALE	3,158.00	3,157.90	3,256.00	3,255.90
WARREN	3,256.00	3,255.90	3,311.00	3,310.90
SAND/SHALE	3,311.00	3,310.90	3,327.00	3,326.90
SPEECHLEY	3,327.00	3,326.90	3,419.00	3,418.90
SAND / SHALE	3,419.00	3,418.90	3,845.00	3,844.90
BALLTOWN A	3,845.00	3,844.90	4,003.00	4,002.90
SAND / SHALE	4,003.00	4,002.90	4,459.00	4,458.90
RILEY	4,459.00	4,458.90	4,515.00	4,514.90
SAND / SHALE	4,515.00	4,514.90	4,892.00	4,891.80
BENSON	4,892.00	4,891.80	5,007.00	5,006.10
SAND/SHALE	5,007.00	5,006.10	5,149.00	5,143.00
ALEXANDER	5,149.00	5,143.00	5,238.00	5,225.90
ELK	5,238.00	5,225.90	7,836.00	6,284.30
SONYEA	7,836.00	6,284.30	8,196.00	6,412.10
MIDDLESEX	8,196.00	6,412.10	8,321.00	6,456.20
GENESEE	8,321.00	6,456.20	8,760.00	6,593.70
GENESEO	8,760.00	6,593.70	8,915.00	6,633.80
TULLY	8,915.00	6,633.80	8,994.00	6,652.20
HAMILTON	8,994.00	6,652.20	9,035.00	6,660.30
MARCELLUS	9,035.00	6,660.30	11,676.00	6,610.00

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Office of Oil and Gas NOV 2 2 2017 WV Department of Environmental Protection

513065 47-017-06756-0000 - Additional Stimulating Company Information

Stimulating Company <u>Universal Well Services</u>

Address <u>730 Braddock View Drive</u> City <u>Lemont Furnace</u> State <u>PA</u> Zip <u>15456</u>

NOV 2 2 2017 WV Department of

		513065 47-01	7-06756-0000 - Perforation	S	
Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	7/21/2017	11,641	11,665	10	MARCELLUS
1	8/5/2017	11,482	11,600	32	MARCELLUS
2	8/5/2017	11,282	11,440	40	MARCELLUS
3	8/6/2017	11,080	11,242	40	MARCELLUS
4	8/6/2017	10,880	11,042	40	MARCELLUS
5	8/6/2017	10,680	10,842	40	MARCELLUS
6	8/6/2017	10,480	10,642	40	MARCELLUS
7	8/6/2017	10,280	10,442	40	MARCELLUS
8	8/7/2017	10,080	10,242	40	MARCELLUS
9	8/7/2017	10,000	9,962	24	MARCELLUS
10	8/8/2017	9,680	9,822	40	MARCELLUS
11	8/29/2017	9,480	9,642	40	MARCELLUS
12	8/29/2017	9,280	9,446	40	MARCELLUS
13	8/29/2017	9,080	9,242	40	MARCELLUS



	Α	В	C	D	E	F	G	Н	1
1			en e see state de la company	513065 47- 0	17-06756-0000 -	Stimulate	d Stages		
2	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 (units)
_3	1	8/5/2017	17	6,319.00	6,994.00	3,996.00	0	840.00	0
4	1	8/5/2017	92	7,707.00	8,776.00	2,739.00	450,600.00	8,044.00	0
5	2	8/5/2017	94	7,629.00	9,291.00	3,911.00	450,500.00	9,881.00	0
6	3	8/6/2017	94	7,560.00	7,916.00	2,829.00	448,500.00	8,456.00	0
7	4	8/6/2017	94	7,612.00	8,053.00	2,718.00	449,100.00	7,584.00	0
8	5	8/6/2017	96	7,918.00	8,937.00	2,774.00	449,000.00	7,577.00	0
9	6	8/6/2017	94	7,758.00	8,663.00	2,741.00	450,700.00	7,555.00	0
10	7	8/7/2017	96	7,311.00	7,833.00	2,783.00	449,600.00	7,554.00	0
11	8	8/7/2017	96	7,361.50	7,612.60	2,654.00	447,400.00	7,546.00	0
12	9	8/7/2017	96	7,671.00	8,867.00	2,806.00	450,400.00	7,354.00	0
13	10	8/8/2017	18	7,226.90	9,269.70	4,857.00	7,000.00	3,128.00	0
14	10	8/8/2017	2	6,818.00	9,344.00	5,133.00	0	994.00	0
15	10	8/29/2017	89	9,158.00	9,859.00	3,524.00	447,400.00	8,366.00	0
16	11	8/29/2017	95	8,442.00	8,876.00	3,456.00	381,600.00	7,539.00	0
17	12	8/29/2017	91	8,569.00	9,039.00	3,411.00	451,600.00	9,707.00	0
18	13	8/29/2017	95	8,714.00	9,329.00	3,855.00	453,400.00	8,767.00	0

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Frac Focus Chemical Disclosure Registry

513065

39.21345000

Latitude: Longitude:

-80.80995000

NAD83 9 9 6,660

Datum:

Federal Well Indian Well True Vertical Depth:

Total Base Non Water Volume:

Total Base Water Volume (gal)

Hydraulic Fracturing Fluid Product Component Information Disclosure

Doddridge

47-017-06756-00-00

EQT Production

Operator Name:

Well Name and Number

API Number

West Virginia

State:

County:

8/29/2017

8/4/2017

Job Start Date:

Job End Date:









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4,657,464

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	nsws	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	86.72588 None	None
Other Chemical Listed Above (s)	Listed Above	See Trade Name (s) List					
5/2				Listed Below			

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Sand (Proppant)	USWS	Proppant		
			Listed Below	
Scale Hib-E	uws	Scale Inhibitor		
			Listed Below	
AP ONE	USWS	Breaker		
			Listed Below	
MC MX 5-3886	Multi-Chem Group	Specialty Brine		
			Listed Below	
AI-303	USWS	Acid Corrosion Inhibitor		
			Listed Below	
NWA-200s	USWS	FR Activator		
			Listed Below	
SI-1200s	USWS	Scale Inhibitor		
			Listed Below	
WFRC-2100	USWS	Cationic Friction Reducer		Office of Oil and Gas NOV 2 2 2017
			Listed Below	WV Department of Environmental Protection
LGC-15	USWS	Water Gelling Agent		

				Listed Below					
LT Flush System	USWS	Base / Flush Oil							
				Listed Below					
Hydrochloric Acid (15%)	usws	Acid							
				Listed Below					
MC MX 8-2544	Multi-Chem Group	Live Culture - Nitrate Reducing Bacteria							
				Listed Below					
SFR-451	Clariant	Friction Reducer							
				Listed Below					
Items above are Tra	ade Names with th	e exception of Base Wa	ater . Items below are the inc	dividual ingredients.					
			Silica Substrate	14808-60-7	100.00000	12.91253	None		
			Calcium Nitrate.4H2O	13477-34-4	100.00000	0.10661	None		
			Hydrochloric Acid	7647-01-0	15.00000	0.02542	None		
			Proprietary Activating Agent	Proprietary	100.00000	0.01395	None		
			Proprietary Activating Agent	Proprietary	100.00000	0.01395		Env	
			Hydrotreated light	64742-47-8	100.00000	0.01193	None	NV D	
			distillate (petroleum)					0.0	
			distillate (petroleum) Hydrotreated light distillate (petroleum)	64742-47-8	100.00000	0.01193		epartme iental Pro	
			Hydrotreated light	64742-47-8 7647-14-5	100.00000	0.01193		epartment of nental Protec	
			Hydrotreated light distillate (petroleum)		100,000			WV Department of Environmental Protection	
			Hydrotreated light distillate (petroleum) Sodium Chloride Petroleum Distillates ,	7647-14-5	100.00000	0.00941	None	epartment of nental Protection	

	Ammonium Acetate	631-61-8	10.00000	0.00214	None		
	Hydrotreated light distillate (petroleum)	64742-47-8	30.00000	0.00157			
	Cationic copolymer of acrylamide	69418-26-4	30.00000	0.00157			
	Cationic copolymer of acrylamide	69418-26-4	30.00000	0.00157	None		
_	Hydrotreated light distillate (petroleum)	64742-47-8	30.00000	0.00157	Nоле		
	Copolymer of Maleic and Acrylic Acid	52255-49-9	20.00000	0.00143			
	Copolymer of Maleic and Acrylic Acid	52255-49-9	20.00000	0.00143	Nоле		
	Alcohols, C12-14, Ethoxylated	68439-50-9	5.00000	0.00107			
	Alcohols, C10-16, Ethoxylated	68002-97-1	5.00000	0.00107	None		
	Alcohols, C12-16, Ethoxylated	68551-12-2	5.00000	0.00107			
	Alcohols, C10-16, Ethoxylated	68002-97-1	5.00000	0.00107			
 	Alcohols, C12-16, Ethoxylated	68551-12-2	5.00000	0.00107	None	_	
	Alcohols, C12-14, Ethoxylated	68439-50-9	5.00000	0.00107	None		
	Alkyl phosphonic acid	Proprietary	5.00000	0.00081			
	Alkyl phosphonic acid	Proprietary	5.00000	0.00081	None -	,	
	Sodium nitrate	7631-99-4	5.00000	0.00047	None		
	DETA Phosphonate	15827-60-8	5.00000	0.00036			
	Phosphino Carboxylic Acid Polymer	71050-62-9	5.00000	0.00036	None	dronn	WV Departm
	Phosphino Carboxylic Acid Polymer	71050-62-9	5.00000	0.00036		en menule	partme
	Hexamethylene Triamine Penta	34690-00-1	5.00000	0.00036			Protection
	DETA Phosphonate	15827-60-8	5.00000	0.00036	None		3
	Hexamethylene Triamine Penta	34690-00-1	5.00000	0.00036	None		
	Proprietary Ingredient	Proprietary	5.00000	0.00026			

office of Oil and Gas

Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00026	None
Proprietary Ingredient	Proprietary	5.00000	0.00026	None
Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00026	
Ammonia	7664-41-7	0.50000	0.00008	None
Ammonia	7664-41-7	0.50000	0.00008	
Other Components Below Reportable Levels	Proprietary	60.00000	0.00006	
Other Components Below Reportable Levels	Proprietary	60.00000	0.00006	None
Petroleum Distillates	64742-47-8	60.00000	0.00006	None
Ammonium Persulfate	7727-54-0	100.00000	0.00004	None
Ethylene glycol	107-21-1	40.00000	0.00003	None
Formic acid	64-18-6	20.00000	0.00002	None
Cinnamaldehyde	104-55-2	20.00000	0.00002	None
Butyl cellosolve	111-76-2	20.00000	0.00002	None
Polyether	Proprietary	10.00000	0.00001	None
Acetophenone, thiourea, formaldehyde polymer	68527-49-1	5.00000	0.00000	None

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)

^{*} Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

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

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

