State of West Virginia

Department of Environmental Protection - Office of Oil and Gas

Well Operator's Papart of Well West

Well Operator's Report of Well Work

OVECDE	County DODDF	RIDGE	District SOUTH W	EST/COVI	=
Quad OXFORD	Pad Name OXF		Field/Pool Name N	/A	
Farm name FRANKLIN N			Well Number 516		
Operator (as registered with	h the OOG) EQT Production C	Company			
Address 115 Professiona	al Place, PO Box 280 City Brid	dgeport	State WV	Zip _26	330
	O 83/UTM Attach an as-drille hole Northing 4,334,233.0	ed plat, profile view, and East	l deviation survey ing 517,912.4		
Landing Point of	Curve Northing 4,334,227.6		ing 517,885.6		
Bottom	Hole Northing 4,335,326.9	East	ing 517,436.7		
Elevation (ft) 1229	GL Type of Well	■New □ Existing	Type of Report	AInterim 🗆	Final
Permit Type Deviate	ed 🗆 Horizontal 💄 Horizon	ntal 6A 🛮 D Vertical	Depth Type	□ Deep	■ Shallow
Type of Operation Con-	vert □ Deepen ■ Drill □	Plug Back 🗆 Redri	lling Rework	■ Stimulate	
Well Type □ Brine Dispo	sal □ CBM	condary Recovery So	olution Mining Sto	orage 🗆 Oth	er
Type of Completion Sir	ngle Multiple Fluids Produ	iced □ Brine □Gas	□ NGL □ Oil	■ Other w/c	PP
Drilled with Cable	■ Rotary				
Production hole Air Mud Type(s) and Additive	ole ■ Air □ Mud □Fresh Wa ■ Mud □ Fresh Water □ Brin e(S) Water Base Mud 12:3 ppg, aliphatic based r	e non-aqueous drilling fluid, barium s		ophylic clay, quaterr	nary ammonium clay,
Production hole Air Mud Type(s) and Additive	ole ■ Air □ Mud □Fresh Wa ■ Mud □ Fresh Water □ Brin	e non-aqueous drilling fluid, barium s	ulfate, calcium chloride, organ	ophylic clay, quaterr	nary ammonium clay,
Production hole Air Mud Type(s) and Additive gilsonite, blended emulsifier, v Date permit issued08/	ole ■ Air □ Mud □ Fresh Water □ Brin (s) Water Base Mud 12.3 ppg, aliphatic based rewetting agent, blended graphite, hydrate (30/2016 Date drilling communications)	e mon-aqueous drilling fluid, barium sed lime, calcium carbonate, menced 06/25/2017	ground walnut shells, f	ophylic clay, quatern ibrous cellulose ceased 09	nary ammonium clay,
Production hole Air Mud Type(s) and Additive gilsonite, blended emulsifier, v Date permit issued08/	nole ■ Air □ Mud □ Fresh Water □ Brin (s) Water Base Mud 12:3 ppg, aliphatic based resulting agent, blended graphite, hydratic based of the decidence of the d	e non-aqueous drilling fluid, barium s ed lime, calcium carbonate menced06/25/2017 Date completion acti	ground walnut shells, f Date drilling vities ceased	ophylic clay, quaterribrous cellulose ceased 09 1/24/2018	nary ammonium clay,
Production hole Air Mud Type(s) and Additive gilsonite, blended emulsifier, v Date permit issued08/	ole ■ Air □ Mud □ Fresh Water □ Brin (s) Water Base Mud 12.3 ppg, aliphatic based rewetting agent, blended graphite, hydrate (30/2016 Date drilling communications)	e non-aqueous drilling fluid, barium s ed lime, calcium carbonate menced06/25/2017 Date completion acti	ground walnut shells, f	ophylic clay, quatern ibrous cellulose ceased 09	9/04/2017
Production hole Air Mud Type(s) and Additive gilsonite, blended emulsifier, v Date permit issued 08/ Date completion activities Verbal plugging (Y/N)	nole ■ Air □ Mud □ Fresh Water □ Brin (s) Water Base Mud 12:3 ppg, aliphatic based resulting agent, blended graphite, hydratic based of the decidence of the d	e non-aqueous drilling fluid, barrum s ed lime, calcium carbonate, menced06/25/2017Date completion acti dN/A	ground walnut shells, f Date drilling wities ceased Granted by	ophylic clay, quaterribrous cellulose ceased 09 1/24/2018 N/A	nary ammonium clay, 0/04/2017 RECEIVED Offlice of Oil and
Production hole Air Mud Type(s) and Additive gilsonite, blended emulsifier, v Date permit issued	ole ■ Air □ Mud □ Fresh Water □ Bringe(s) Water Base Mud 12.3 ppg, aliphatic based of wetting agent, blended graphite, hydrate began 12/20/2017 N Date permission grante	e non-aqueous drilling fluid, barrum s ed lime, calcium carbonate, menced06/25/2017Date completion acti dN/A	ground walnut shells, f Date drilling vities ceased Granted by erbal permission to p	ophylic clay, quatern fibrous cellulose ceased 09 1/24/2018 N/A	BECEIVED Office of Oil and
Production hole Air Mud Type(s) and Additive gilsonite, blended emulsifier, v Date permit issued	and	e non-aqueous drilling fluid, barrum sed lime, calcium carbonate menced 06/25/2017 Date completion action N/A cation within 5 days of vertical carbon set in the carbon set	ground walnut shells, f Date drilling wities ceased Granted by erbal permission to p	ophylic clay, quaterribrous cellulose ceased 09 1/24/2018 N/A	BECEIVED Office of Oil and
Production hole Air Mud Type(s) and Additive gilsonite, blended emulsifier, v Date permit issued 08/ Date completion activities Verbal plugging (Y/N)	ole Air □ Mud □ Fresh Water □ Brin e(s) Water Base Mud 12.3 ppg, aliphatic based r wetting agent, blended graphite, hydrate began 12/20/2017 N Date permission grante equired to submit a plugging applic	non-aqueous drilling fluid, barrum sed lime, calcium carbonate, menced 06/25/2017 Date completion action N/A cation within 5 days of vote of the completion of the carbon within 5 days of vote of the carbon wi	ground walnut shells, f Date drilling wities ceased Granted by erbal permission to p epths Y/N) depths	ophylic clay, quaternibrous cellulose ceased 09 1/24/2018 N/A	nary ammonium clay,

						3				
WR-35 Rev. 8/23/13										Page of
API 47- 017	_ 06743	Farm nai	me F	RANKLIN MA	XWEL	L HEIRS	L.P. We	ell number	516231	
CASING STRINGS	Hole Size	Casing .		Nev	w or sed	Grade wt/ft		Basket Depth(s)	· Did ¢	ement circulate (Y/ N) ovide details below*
Conductor	30"	26"		1	EW		0 85.6#	N/A		Y
Surface	17-1/2"	13-3/8"			EW		54.5#	90'		Y
Coal	17-172	13-3/0		30 14	CVV	3-33) J-1.Off	- 30		'
Intermediate 1	12-3/8"	9-5/8"		356' N	EW	4 500 404	# & P-110 40#	4986'		Υ
Intermediate 2	12-3/0	9-3/6	- 5.	20 14	EVV	A-300 404		4900		
Intermediate 3								 		
Production		7 4 100				5.4	40.00"	2114		
Tubing	8-3/4" & 8-1/2"	5 1/2"	10	880' N	EW	P-1	10 20#	N/A		N
Packer type and de	anth sat									
racker type and di	epui sei									
	Broduction C	omont ich bac	روامر	ulated TOC of	: E660	MD wh	iob io aro	ator than		
		ement job has					icii is gie	alei illali		
DOU I VID ADI	ove the produc	ing formation. I	<u>vo is:</u>	sues during c	emeni	Job				
CEMENT DATA	Class/Type of Cement	Number of Sacks		Slurry		ield ³/sks)	Volum <u>(ft ³</u>)		Cement	WOC (hrs)
Conductor	CLASS A	49		wt (ppg) 15.6		.18	57.82		op (MD) 0	8
Surface	CLASS A	544		15.6		.20	653	- 	0	8
Coal	ODAGG A			13.0	<u> </u>	.20	000			+
Intermediate I	Class A / CLAS	S A 810 / 109	·E	15.6 / 15.6	1 4	3 / 1.18	2248		0	8
Intermediate 2	Class A / CLAS	5 A 610 / 108	- C	15.67 15.0	1.10	07 1.10	2240	' 		-
Intermediate 3								- -		
Production	0111/01	11 144 140		450/450	1.0		4000		ECCO!	-
Tubing	Class H / Class	H 141 / 49	- -	15.2 / 15.6	1.2	5 / 2.06	1202		5660'	8
•					<u></u>					
Orillers TD (ft)						(ft) <u>wa</u>				
	ion penetrated M					o (ft) <u>2667</u>				
•		resh water ahead, 42					it isolation p	lug, 2 bbl behi	nd,	
ump 91 bbl (520 sks)	17.5 ppg Class H 0.95 ft	3/sk Kick off plug, drop w	iper ball	and pump 37 bbl wate	r to clean	pipe.				
Kick off depth	(A) 4683' MD									
•		•••								
Check all wire	line logs run	□ caliper		•		ed/directi		induction		-
		□ neutron		esistivity 🗂	gamm	а гау	=	temperatu	re □so	NIC
Wallaans I =	- Vos - N-	- O	·	_ 0:11		***	/ama••		1 - V-	- No
well cored	Yes B No	□ Conventio	nai	□ Sidewall		W	ere cuttin	gs collected	ı — Yes	
	HE CENTRALI RACK AND EVERY 500' FEE	ZER PLACEME	NT U	ISED FOR EA	CH C	ASING S	TRING _	CONDUCTOR:	NONE	RECEIVED
INTERMEDIATE 1:0	ON SHOE TRACK AND E	VERY 500 FEET TO SU	RFACE							Office of Oil and Ga
PRODUCTION: ON S	SHOE TRACK AND EVE	RY JOINT TO 5014"	-		_				-	APR 2 0 2018
WAS WELL (COMPLETED A	S SHOT HOLE	_	Yes 🖪 No	DI	ETAILS				WV Department of Environmental Protect
WAS WELL (COMPLETED C	PEN HOLE?	o Ye	s B No	DET	AILS _				

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED ___

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Page	of

API 47	₇₋ 017 ₋	06743	Farm name	FRANKLIN MAXWELL HEIRS L.P.	Well number_	516231
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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

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
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		-						
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								APR 2 0 2018
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Please insert additional pages as applicable.

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API 47- 017	_ 06743		_ Farm	name_FRA	NKLIN	MAXWE	LL HE	EIRS L.P.	Well n	umber	516231	
PRODUCING Marcellus	FORMATI	ON(S)	_	<u>DEPTHS</u> 6,633'		_TVD	6,8	48'	MD			
			- 			- -						
Please insert ad	lditional pa	ges as ap	plicable.									
GAS TEST	□ Build up	Dr 🗆 Dr	awdown	□ Open I	Flow		OIL	TEST of	flow c	Pump		
SHUT-IN PRE	SSURE	Surface		psi	Botto	m Hole_	_	psi	DURAT	TION C	F TEST	hrs
OPEN FLOW	Gas	mcfpd	Oil		NGL	bpd	Wa	iter bpd			RED BY	□ Pilot
LITHOLOGY/ FORMATION	TOP DEPTH IN NAME T	IFT D	BOTTOM EPTH IN FI TVD	MD	N FT	BOTTO DEPTH IN MD					RECORD QUA ER, BRINE, <u>O</u> II	NTITYAND _, GAS, H₂S, ETC)
	0			0								
			•									
	 		<u> </u>					-				
												
	ļ. <u></u>			-								
	<u> </u>			İ		_						
-				_								
Please insert ac	lditional pa	iges as a	pplicable.	•								
Drilling Contra			ng								4507	
Address 125 In	dustry Road				City	Waynesb	ug		State	PA	Zip _15370	
Logging Comp		ata Inc.								D.	4864	,
Address 601 M	ayer St.				City	Bridgevill	e		State	PA	Zip <u>1501</u>	RECEIVED Office of Oil and Gas
Cementing Co							-					APR 2 0 2018
Address					City				State			
Stimulating Co	mpany <u>F</u>	TS Intern	ational									WV Department of Environmental Protection
Address 1432 F		1000 00 0	nnlieskis		City	Eighty Fo	ur		State	PA	Zip _1533	<u>, </u>
		_	ppiicable.									
Completed by	Michael	éhl	[[]			5.0. • • •	_	Telephone				
Signature	wy	quel	4/_	Ti	itle <u>D</u>	ir Completio	ons			Date _	04/19/2	018
Submittal of H	vdraulic Fr	acturing	Chemica	Disclosur	e Info	rmation	A	ttach copy o	fFRACI	FOCUS	Registry	0=10010010

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API 47- 017 - 06743 Farm name_	FRANKLIN MAXWELL HEIRS L	.P. Well number_	516231
Drilling Contractor Decker Drilling	<u> </u>		45704
Address 11565 State Route 676	City Vincent	State OH	Zip_45784
Logging Company			
Address	City	State	_ Zip
Logging Company Scientific Drilling Internation	tional, Inc.	DA	15022
Address 124 Vista Drive	City Charleroi	State PA	_Zip
Cementing Company BJ Services, LLC			15017
Address 4000 Town Center Blvd, Suite 210	City Cannonshurg	State PA	Zip 15317

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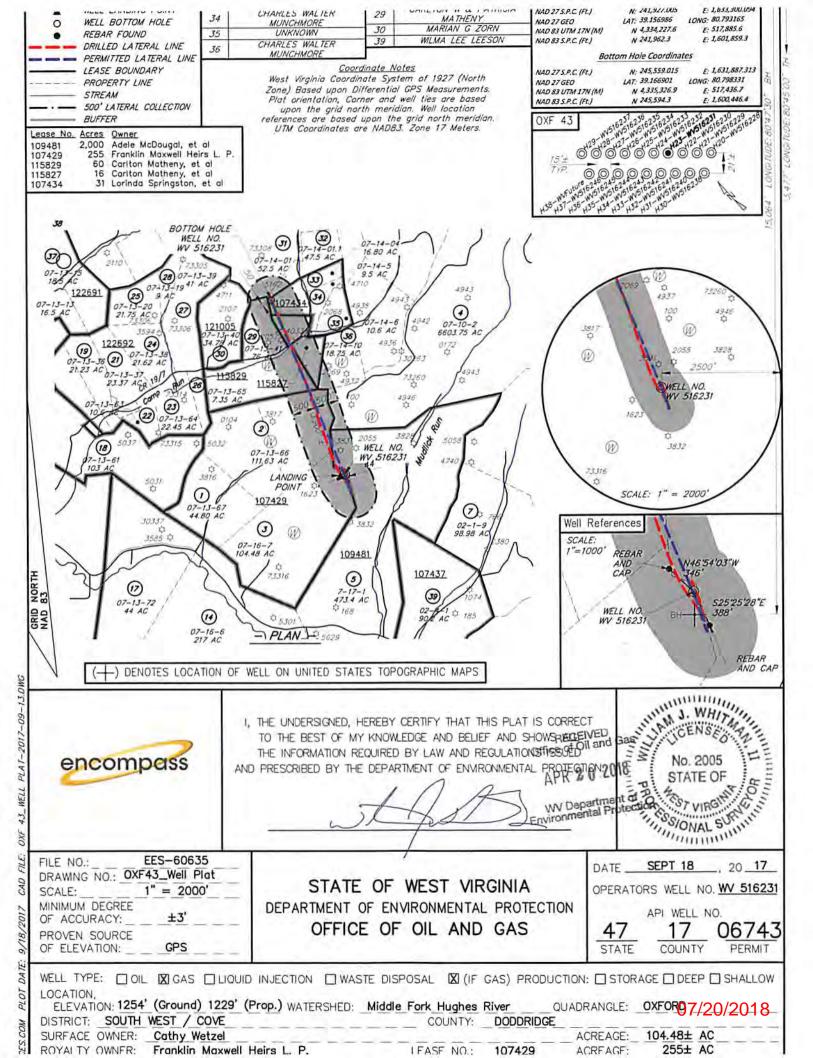
WV Department of Environmental Protection

	Well # 516231 Final Formations API# 47-017-06743-00-00								
Formation Name	Drill Top MD (ftKB)	Drill Top (TVD) (ftKB)	Drill Btm MD (ftKB)	Drill Btm (TVD) (ftKB)					
SAND / SHALE	1	1	321	321					
WAYNESBURG A	321	321	322	322					
SAND / SHALE	322	322	1088	1088					
MAXTON	1088	1088	1128	1128					
SAND / SHALE	1128	1128	1964	1964					
BIG LIME	1964	1964	2032	2032					
SAND / SHALE	2032	2032	2076	2076					
BIG INJUN	2076	2076	2108	2108					
SAND / SHALE	2108	2108	2250	2250					
WEIR	2250	2250	2376	2376					
SAND / SHALE	2376	2376	2450	2450					
GANTZ	2450	2450	2532	2532					
FIFTY FOOT	2532	2532	2589	2589					
SAND / SHALE	2589	2589	2630	2630					
THIRTY FOOT	2630	2630	2666	2666					
SAND / SHALE	2666	2666	2672	2672					
GORDON	2672	2672	2721	2721					
SAND / SHALE	2721	2721	2772	2772					
FORTH SAND	2772	2772	2839	2839					
SAND / SHALE	2839	2839	2953	2952					
BAYARD	2952	2951	3023	3022					
SAND / SHALE	3023	3022	3286	3284					
WARREN	3286	3284	3352	3350					
SPEECHLEY	3352	3350	3857	3855					
BALLTOWN A	3857	3855	4215	4213					
SAND / SHALE	4215	4213	4455	4453					
RILEY	4455	4453	4831	4829					
BENSON	4831	4829	4925	4923					
ALEXANDER	5133	5130	5226	5221					
ELKS	5226	5221	6373	6282					
SONYEA	6373	6282	6530	6427					
MIDDLESEX	6530	6427	6605	6489					
GENESEE	6605	6489	6693	6553					
GENESEO	6693	6553	6772	6600					
TULLY	6772	6600	6810	6618					
HAMILTON	6810	6618	6848	6633					
MARCELLUS	6848	6633	10896	6705					

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516231 47-017-06743-0000 - Perforations											
Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	W 22	S 0 2 9 Permitted Permitte						
Initiation Sleeve	12/15/2017	10,853	10,880	10 10	Marcellus						
1	12/21/2017	10,693	10,815	32 5	Marcellus						
2	12/21/2017	10,493	10,655	40	Marcellus						
3	12/21/2017	10,293	10,455	40	Marcellus						
4	12/21/2017	10,093	10,255	40	Marcellus						
5	12/21/2017	9,893	10,055	40	Marcellus						
6	12/22/2017	9,693	9,855	40	Marcellus						
7	12/22/2017	9,493	9,655	40	Marcellus						
8	12/22/2017	9,293	9,455	40	Marcellus						
9	12/23/2017	9,093	9,255	40	Marcellus						
10	12/23/2017	8,893	9,055	40	Marcellus						
11	12/24/2017	8,693	8,855	40	Marcellus						
12	12/24/2017	8,533	8,655	40	Marcellus						
13	12/25/2017	8,293	8,455	40	Marcellus						
14	1/22/2018	8,093	8,255	40	Marcellus						
15	1/23/2018	7,893	8,055	40	Marcellus						
16	1/23/2018	7,693	7,855	40	Marcellus						
17	1/23/2018	7,493	7,655	40	Marcellus						
18	1/24/2018	7,293	7,455	40	Marcellus						
19	1/24/2018	7,093	7,255	40	Marcellus						
20	1/24/2018	6,893	7,055	40	Marcellus						

			310231 47-0	17-06743-0000 - _	Juliudie	u stuges		
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)
1.01	12/20/2017	5	5,208	6,306	3,660	0	1,009	g 0
1	12/21/2017	97	8,875	9,260	4,304	450,043	7,908 🖁	- 10
2	12/21/2017	100	8,656	9,178	4,734	450,897	7,643	0 10
3	12/21/2017	100	8,704	9,095	4,786	450,513	7,635	2 (1 ; 0
4	12/21/2017	100	8,445	8,868	4,831	450,210	7,719 80	67 0
5	12/22/2017	101	8,562	8,981	4,991	450,797	7,726 🖺 8	œ C 0
6	12/22/2017	100	8,558	9,182	4,987	450,062	7,584 €	A \$ 0
7	12/22/2017	99	8,652	9,170	4,873	450,430	7,606	<u>ы</u> 0
8	12/22/2017	100	8,274	8,675	5,149	451,039	7,417	0
9	12/23/2017	101	8,272	8,690	5,104	451,606	8,335	0
10	12/24/2017	100	8,043	8,336	5,147	449,264	7,227	0
11	12/24/2017	100	8,315	8,757	4,136	451,049	7,604	0
12	12/24/2017	101	8,314	8,976	4,935	451,259	7,425	0
13	1/22/2018	100	8,150	8,526	5,087	449,569	7,295	0
14	1/23/2018	100	8,289	9,260	5,072	449,747	7,376	0
15	1/23/2018	100	8,416	9,025	5,075	450,692	7,627	0
16	1/23/2018	100	8,032	8,457	4,804	450,807	7,160	0
17	1/24/2018	100	7,780	8,008	4,466	450,776	7,251	0
18	1/24/2018	100	7,851	8,323	5,093	450,367	7,234	0
19	1/24/2018	101	7,705	8,292	4,763	449,989	7,233	0
20	1/24/2018	100	7,464	7,779	4,900	450,341	7,164	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/20/2017
Job End Date:	1/24/2018
State: -	West Virginia
County:	Doddridge
API Number:	47-017-06743-00-00
Operator Name:	EQT Production
Well Name and Number:	516231
Latitude:	39.15703000
Longitude:	-80.79286000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,633
Total Base Water Volume (gal):	6,349,476
Total Base Non Water Volume:	0

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APR 2 0 2018
WV Department of







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	85.19974	None
MX-8-2544	Multi-Chem	Bacteria Treatment					
				Listed Below			

Other Chemical (s)	Listed Above	See Trade Name (s) List					5
	*			Listed Below		RECEIVED	APR 2 0 2018 WV Department of Environmental Protection
FRW-1450	FTS International	Mixture				RECEN ce of Oil	V Depart
				Listed Below		Ö	Envisor
CI-150	FTS International	Acid Corrosion Inhibitor					
				Listed Below			
Hydrochloric Acid (15%)	FTS International	Acidizing					
				Listed Below			
Sand (Proppant)	FTS International	Proppant					
				Listed Below			
MX-5-3886	Multi-Chem	Bacteria Treatment					
				Listed Below			
CS-500-SI	FTS International	Scale Inhibitor					
				Listed Below			
Items above are Tra	ide Names with the e	xception of Base Wa	nter . Items below are the inc	dividual ingredients.			
			Silica Substrate	14808-60-7	100.00000	14.48681	None
			Calcium Nitrate.4H2O	13477-34-4	100.00000	0.03764	
			Calcium Nitrate.4H2O	13477-34-4	100.00000	0.03764	None
			Hydrochloric Acid	7647-01-0	15.00000	0.02731	None
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.02013	

Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.02013	□ □
Alcohols. C-11-14-iso, C13-rich, ethoxylated	78330-21-9	5.00000	0.00335	None 30 September 19 19 19 19 19 19 19 19 19 19 19 19 19
Alcohols. C-11-14-iso, C13-rich, ethoxylated	78330-21-9	5.00000	0.00335	R S
Ethylene Glycol	107-21-1	10.00000	0.00240	A P Envir
Ethylene Glycol	107-21-1	10.00000	0.00240	
Sodium Chloride	7647-14-5	100.00000	0.00235	None
Sodium Chloride	7647-14-5	100.00000	0.00235	
Sodium Nitrate	7631-99-4	5.00000	0.00012	None
Sodium Nitrate	7631-99-4	5.00000	0.00012	
Organic Amine Resin Salt	Proprietary	30.00000	0.00009	None
Ethylene Glycol	107-21-1	30.00000	0.00009	None
Isopropanol	67-63-0	30.00000	0.00009	None
Ethylene Glycol	107-21-1	30.00000	0.00009	
Dimethylformamide	68-12-2	10.00000	0.00003	None
Quaternary Ammonium Compound	Proprietary	10.00000	0.00003	None
Aromatic Aldehyde	Proprietary	10.00000	0.00003	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

