

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/7/2018
Job End Date:	8/20/2018
State:	Texas
County:	Winkler
API Number:	42-495-33792-00-00
Operator Name:	Energen Resources Corporation
Well Name and Number:	UL 20 Stripes 38-47 601H
Latitude:	31.67005100
Longitude:	-103.28658800
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	21,566
Total Base Water Volume (gal):	22,184,736
Total Base Non Water Volume:	0



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	Operator	Carrier/Base Fluid	Water	7732-18-5	100.00000	90.24557	None
Sand (Proppant)	TSS	Proppant	Silica Substrate	14808-60-7	100.00000	9.10771	None
15% HCL	Cooper Natural Resources	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.06475	None
HiFlow 5	DCS	Friction Reducer	Acrylamide P/W Acrylic Adid Ammonium Salt	Proprietary	40.00000	0.02627	None
			Petroleum Distillate	64742-47-8	20.00000	0.01314	None
			Dewaxed Heavy Paraffinic	Proprietary	10.00000	0.00657	None
			Hydrotreated Heavy Paraffinic	Proprietary	10.00000	0.00657	None
			Ammonium Chloride	Proprietary	2.00000	0.00131	None
SI D-100	ACE Completions	Scale Inhibitor	Water	7732-18-5	90.00000	0.02342	None
			Diethylenetriamine penta methyl phosphoric acid	15827-60-8	20.00000	0.00521	None
			Ammonium chloride	12125-02-9	5.00000	0.00130	None

HVFR	ACE Completions	Friction Reducer					
			Petroleum Distillate	6742-47-8	40.00000	0.02187	None
			Poly (oxy-1, 2-ethanediyl), a-tridecyl-w-hydroxy-, branched	69011-36-5	3.00000	0.00164	None
MBC 12.3	Nashville Chemical	Biocide					
			Glutaraldehyde	111-30-8	12.40000	0.00550	None
			Didecyl dimethyl benzyl ammonium chloride (C 12-16)	7173-51-5	2.00000	0.00089	None
			Alkyl dimethyl benzyl ammonium chloride (C 12-16)	68424-85-1	1.30000	0.00058	None
			Ethanol	64-17-5	1.00000	0.00044	None
Scalesorb 3	Baker Hughes	Scale Inhibitor					
			Diatomaceous earth, calcined	91053-39-3	80.00000	0.00274	None
			Amino alkyl phosphonic acid	6419-19-8	30.00000	0.00103	None
			Phosphonic Acid	13598-36-2	1.00000	0.00003	None
			Crystalline silica: Quartz (SiO2)	14808-60-7	1.00000	0.00003	None
SURF 118	ACE Completions	Surfactant					
			Ethoxylated alcohol blend	Proprietary	15.00000	0.00304	None
EnviroSurf 6	DCS	Surfactant					
			Alpha-Sulfo-w-(dodecyloxy)-poly (oxyethane-1,2-diyl), sodium salt	9004-82-4	8.00000	0.00005	None
			Alcohols, C12-C16, ethoxylated	68551-12-2	6.00000	0.00003	None
			Quaternary Ammonium Salt	107-64-2	3.00000	0.00002	None
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.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	90.00000	0.02342	
			Petroleum Distillate	64742-47-8	20.00000	0.01314	
			Hydrotreated Heavy Paraffinic	Proprietary	10.00000	0.00657	
			Dewaxed Heavy Paraffinic	Proprietary	10.00000	0.00657	
			Poly (oxy-1, 2-ethanediyl), a-tridecyl-w-hydroxy-, branched	69011-36-5	3.00000	0.00164	
			Ammonium Chloride	Proprietary	2.00000	0.00131	
			Ammonium chloride	12125-02-9	5.00000	0.00130	
			Amino alkyl phosphonic acid	6419-19-8	30.00000	0.00103	
			Didecyl dimethyl benzyl ammonium chloride (C 12-16)	7173-51-5	2.00000	0.00089	
			Alkyl dimethyl benzyl ammonium chloride (C 12-16)	68424-85-1	1.30000	0.00058	
			Ethanol	64-17-5	1.00000	0.00044	
			Crystalline silica: Quartz (SiO2)	14808-60-7	1.00000	0.00003	
			Phosphonic Acid	13598-36-2	1.00000	0.00003	
			Alcohols, C12-C16, ethoxylated	68551-12-2	6.00000	0.00003	
			Quaternary Ammonium Salt	107-64-2	3.00000	0.00002	

* 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)

