

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/13/2018
Job End Date:	8/26/2018
State:	Texas
County:	Winkler
API Number:	42-495-33809-00-00
Operator Name:	Energen Resources Corporation
Well Name and Number:	UL 20 Stripes 38-47 605H
Latitude:	31.64652300
Longitude:	-103.26488200
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,683
Total Base Water Volume (gal):	22,711,878
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	ENERGEN	CARRIER/BASE FLUID					
			WATER	7732-18-5	100.00000	90.18762	None
40/70 WHITE	U.S. SILICA	PROPPING AGENT					
			CRYSTALLINE SILICA	14808-60-7	99.90000	6.67502	None
			ALUMINUM OXIDE	1344-28-1	1.00000	0.06682	None
100 MESH WHITE	U.S. SILICA	PROPPING AGENT					
			CRYSTALLINE SILICA	14808-60-7	99.90000	2.39722	None
			ALUMINUM OXIDE	1344-28-1	1.00000	0.02400	None
15% HCL	REAGENT	ACID					
			WATER	7732-18-5	90.00000	0.47649	None
			HYDROGEN CHLORIDE	7647-01-0	36.90000	0.19536	None
HIFLOW 5	DOWNHOLE CHEMICAL SOLUTIONS	FRICTION REDUCER					
			WATER	7732-18-5	72.00000	0.04177	None
			PETROLEUM DISTILLATE HYDROTREATED LIGHT	64742-47-8	28.00000	0.01624	None
MCB 12:3	NASHVILLE CHEMICAL	MICROBIOCID					

			OTHER COMPONENTS BELOW REPORTABLE LEVELS	Proprietary	83.30000	0.03656	None
			GLUTARALDEHYDE	111-30-8	12.40000	0.00544	None
			DIDECYL DIMETHYL AMMONIUM CHLORIDE	7173-51-5	2.00000	0.00088	None
			ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE	68424-85-1	1.30000	0.00057	None
			ETHANOL	64-17-5	1.00000	0.00044	None
SCALEBLOK 10	DOWNHOLE CHEMICAL SOLUTIONS	SCALE INHIBITOR					
			WATER	7732-18-5	75.00000	0.01867	None
			ANIONIC POLYMER	Proprietary	25.00000	0.00622	None
ENVIROSURF 6	DOWNHOLE CHEMICAL SOLUTIONS	SCALE INHIBITOR					
			WATER	7732-18-5	98.80000	0.02390	None
			LIMONENE	5989-27-5	1.30000	0.00030	None
SCALESORB 3	BAKER HUGHES	SCALE INHIBITOR					
			AMINO ALKYL PHOSPHONIC ACID	Proprietary	30.00000	0.00852	None
			CRYSTALLINE SILICA	14808-60-7	1.00000	0.00028	None
HIGHFLOW 18	DOWNHOLE CHEMICAL SOLUTIONS	FRICTION REDUCER					
			PETROLEUM DISTILLATE HYDROTREATED LIGHT	64742-47-8	30.00000	0.00557	None
			POLY(OXY-1,2-ETHANEDIYL), A-TRIDECYL-W-HYDROXY-, BRANCHED	69011-36-5	5.00000	0.00093	None
ACL-100	ACE COMPLETIONS	ACID INHIBITOR					
			MONOETHYLENE GLYCOL	107-21-1	80.00000	0.00118	None
			DIPROPYLENE GLYCOL MONOMETHYL ETHER	34590-94-8	30.00000	0.00044	None
			PYRIDINE, ALKYL DERIVS	68391-11-7	10.00000	0.00015	None
			3-FENYLPROPENAL	104-55-2	10.00000	0.00015	None
			ALKYL (C12-C14- SECONDARY) ALCOHOL, ETHOXYLATED	84133-50-6	5.00000	0.00007	None
FE-55	ACE COMPLETIONS	IRON CONTROL					
			ACETIC ACID	64-19-7	60.00000	0.00101	None
			CITRIC ACID	77-92-9	30.00000	0.00050	None
NE-227	ACE COMPLETIONS	NON-EMULSIFER					
			WATER	7732-18-5	90.00000	0.00045	None
			AMINE SULFONATE	26836-07-7	8.00000	0.00004	None
			PROPRIETARY	9003-11-6	8.00000	0.00004	None
			ALCOHOL	68609-68-7	5.00000	0.00003	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	0.47649	
			ALUMINUM OXIDE	1344-28-1	1.00000	0.06682	
			WATER	7732-18-5	72.00000	0.04177	
			OTHER COMPONENTS BELOW REPORTABEL LEVELS	Proprietary	83.30000	0.03656	
			ALUMINUM OXIDE	1344-28-1	1.00000	0.02400	
			WATER	7732-18-5	98.80000	0.02390	
			ANIONIC POLYMER	Proprietary	25.00000	0.00622	
			MONOETHYLENE GLYCOL	107-21-1	80.00000	0.00118	
			POLY(OXY-1,2-ETHANEDIYL), A-TRIDECYL-W-HYDROXY-, BRANCHED	69011-36-5	5.00000	0.00093	
			DIDECYL DIMETHYL AMMONIUM CHLORIDE	7173-51-5	2.00000	0.00088	
			ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE	68424-85-1	1.30000	0.00057	
			CITRIC ACID	77-92-9	30.00000	0.00050	
			WATER	7732-18-5	90.00000	0.00045	
			DIPROPYLENE GLYCOL MONOMETHYL ETHER	34590-94-8	30.00000	0.00044	
			ETHANOL	64-17-5	1.00000	0.00044	
			CRYSTALLINE SILICA	14808-60-7	1.00000	0.00028	
			3-FENYLPROPENAL	104-55-2	10.00000	0.00015	
			ALKYL (C12-C14- SECONDARY) ALCOHOL, ETHOXYLATED	84133-50-6	5.00000	0.00007	
			PROPRIETARY	9003-11-6	8.00000	0.00004	
			ALCOHOL	68609-68-7	5.00000	0.00003	

\* 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)