

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/9/2017
Job End Date:	6/26/2017
State:	Texas
County:	Reagan
API Number:	42-383-38226-00-00
Operator Name:	FDL Operating, LLC
Well Name and Number:	University 10 2704H
Latitude:	31.23509700
Longitude:	-101.52587400
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	79
Total Base Water Volume (gal):	15,182,529
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	Schlumberger	N/A					
			Water (Including Mix Water Supplied by Client)*	7732-18-5		89.19444	
F114	Schlumberger	Surfactant					
				Listed Below			

S100	Schlumberger	Fluid Loss Additive					
				Listed Below			
B534	Schlumberger	Temporary Clay Stabilizer					
				Listed Below			
S012-4070	Schlumberger	Propping Agent					
				Listed Below			
H036	Schlumberger	Acid					
				Listed Below			
A286	Schlumberger	Acid Corrosion Inhibitor					
				Listed Below			
S012-3050	Schlumberger	Propping Agent					
				Listed Below			
J627	Schlumberger	Friction Reducer					
				Listed Below			
U042	Schlumberger	Chelating Agent					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Quartz, Crystalline silica	14808-60-7	98.59645	10.65390	
			Hydrochloric acid	7647-01-0	0.49595	0.05359	

			Distillates, petroleum, hydrotreated light	64742-47-8	0.25180	0.02721	
			2-hydroxy-N,N,N-trimethylethanaminium chloride	67-48-1	0.20640	0.02230	
			Acrylamide/ammonium acrylate copolymer	26100-47-0	0.19185	0.02073	
			Ammonium chloride	12125-02-9	0.11989	0.01296	
			Magnesium chloride	7786-30-3	0.03483	0.00376	
			Ethoxylated oleic acid	9004-96-0	0.02398	0.00259	
			Sorbitan monooleate	1338-43-8	0.02398	0.00259	
			Sodium chloride	7647-14-5	0.02322	0.00251	
			Sorbitol Tetraoleate	61723-83-9	0.00719	0.00078	
			Sodium sulfocyanate	540-72-7	0.00624	0.00067	
			2-Propenoic acid, ammonium salt	10604-69-0	0.00588	0.00063	
			Alcohols, C10-C16, ethoxylated	68002-97-1	0.00480	0.00052	
			Calcium chloride	10043-52-4	0.00464	0.00050	
			Alcohols, C12-C16, ethoxylated	68551-12-2	0.00427	0.00046	
			Alcohols, C12-C14, ethoxylated	68439-50-9	0.00360	0.00039	
			C14 alpha olefin ethoxylate	84133-50-6	0.00360	0.00039	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00209	0.00023	
			Propan-2-ol	67-63-0	0.00207	0.00022	
			2-Propenamid (impurity)	79-06-1	0.00108	0.00012	
			Fatty acid, tall-oil reaction products with acetophenone	68188-40-9	0.00081	0.00009	
			Isodecanol w/6-7 Moles Ethylene Oxide	26183-52-8	0.00045	0.00005	
			Cinnamaldehyde	104-55-2	0.00030	0.00003	
			Polyethylene glycol monohexyl ether	31726-34-8	0.00030	0.00003	

			Sodium Glycolate (impurity)	2836-32-0	0.00017	0.00002	
			Amines, tallow alkyl, ethoxylated	61791-26-2	0.00009	0.00001	
			Trisodium Ethylenediaminetetraacetate (impurity)	150-38-9	0.00006	0.00001	
			Sodium hydroxide	1310-73-2	0.00006	0.00001	
			Disodium Ethylene Diamine Tetra Acetate (impurity)	139-33-3	0.00006	0.00001	
			Trisodium nitrilotriacetate (impurity)	5064-31-3	0.00003		
			Dodecyl poly (oxyethylene) ether	9002-92-0	0.00004		
			Glycols, polyethylene, monotetradecyl ether	27306-79-2	0.00003		
			Amines, dicoco alkylmethyl	61788-62-3			
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00002		

\* 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

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)