

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/7/2017
Job End Date:	8/7/2017
State:	Texas
County:	Winkler
API Number:	42-495-33843-00-00
Operator Name:	FELIX ENERGY HOLDINGS II, LLC
Well Name and Number:	UL URAD 1609-21 1H
Latitude:	31.73087400
Longitude:	-103.23800400
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	12,182
Total Base Water Volume (gal):	8,258,066
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
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	90.86432	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.34742	

AccessFrac LT material	Halliburton	Diverter					
				Listed Below			
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
Petro-Flo	Bio-Cide International	Biocide					
				Listed Below			
Scalechek(R) SCP-2 Scale Inhibitor	Halliburton	Scale Preventer					
				Listed Below			
FDP-S1176-15	Halliburton	Friction Reducer					
				Listed Below			
FDP-S1226-15	Halliburton	Surfactant					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					

				Listed Below			
OptiKleen-WF (TM)	Halliburton	Concentrate					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica, quartz	14808-60-7	100.00000	8.73285	
			Hydrochloric acid	7647-01-0	60.00000	0.11782	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.03033	
			Polyacrylate	Proprietary	30.00000	0.03033	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Alcohols, C12-13, ethoxylated	66455-14-9	30.00000	0.02085	
			Sodium perborate tetrahydrate	10486-00-7	100.00000	0.01073	
			Sodium chloride	7647-14-5	5.00000	0.00505	
			Castor oil, ethoxylated	61791-12-6	5.00000	0.00505	
			Ammonium chloride	12125-02-9	5.00000	0.00505	
			9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00505	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00505	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00348	
			Glassy calcium magnesium phosphate	65997-17-3	100.00000	0.00257	
			Sodium Chlorite	7758-19-2	8.35000	0.00187	
			Sodium Carbonate	497-19-8	2.00000	0.00045	
			Sodium Hydroxide	1310-73-2	1.00000	0.00022	
			Sodium Chloride	7647-14-5	1.00000	0.00022	
			Poly lactide resin	Proprietary	100.00000	0.00021	
			Ethylene oxide	75-21-8	0.01000	0.00001	

\* 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)