

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/17/2017
Job End Date:	5/18/2017
State:	Texas
County:	Ward
API Number:	42-475-37204-00-00
Operator Name:	FELIX ENERGY HOLDINGS II, LLC
Well Name and Number:	UL Yankee Boy 18-17 1H
Latitude:	31.56468260
Longitude:	-103.17492550
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,231
Total Base Water Volume (gal):	16,127,258
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	90.23328	Density = 8.350
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.36708	

SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					
				Listed Below			
AccessFrac material	Halliburton	Viscosifier					
				Listed Below			
PROP- PREMIUM- 30/60, 50 LB SACK	Halliburton	Proppant					
				Listed Below			
SAND- PREMIUM BROWN-40/70, BULK	Halliburton	Proppant					
				Listed Below			
FDP-S1231-16	Halliburton	Surfactant					
				Listed Below			
FDP-S1176-15	Halliburton	Friction Reducer					
				Listed Below			
SSA-1	Halliburton	Additive					
				Listed Below			
Scalechek(R) SCP-2 Scale Inhibitor	Halliburton	Scale Preventer					

				Listed Below			
FDP-S1226-15	Halliburton	Surfactant					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
FDP-S1267-15	Halliburton	Additive					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
Cla-Web(TM) II	Halliburton	Clay Stabilizer					
				Listed Below			
OptiKleen-WF (TM)	Halliburton	Concentrate					
				Listed Below			
Petro-Flo	Bio-Cide International	Biocide					
				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	9.27906	
			Hydrochloric acid	7647-01-0	60.00000	0.17031	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.04750	

			Polyacrylate	Proprietary	30.00000	0.02910	
			Ethoxylated alcohols	Proprietary	30.00000	0.01873	
			Fatty nitrogen derived amides	Proprietary	30.00000	0.01840	
			Isopropanol	67-63-0	30.00000	0.01840	
			Ethoxylated fatty acids	Proprietary	30.00000	0.01840	
			Sodium perborate tetrahydrate	10486-00-7	100.00000	0.01102	
			Chlorine compound	Proprietary	30.00000	0.00720	
			Ammonium compound	Proprietary	30.00000	0.00720	
			Butyl alcohol	71-36-3	10.00000	0.00613	
			Sodium chloride	7647-14-5	5.00000	0.00509	
			9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00485	
			Sobitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00485	
			Castor oil, ethoxylated	61791-12-6	5.00000	0.00485	
			Ammonium chloride	12125-02-9	5.00000	0.00485	
			Glassy calcium magnesium phosphate	65997-17-3	100.00000	0.00342	
			Cristalline silica, quartz	14808-60-7	100.00000	0.00338	
			Sintered bauxite	1318-16-7	100.00000	0.00166	
			Methanol	67-56-1	60.00000	0.00066	
			Quaternary amine	Proprietary	1.00000	0.00048	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00033	
			Fatty acids, tall oil	Proprietary	30.00000	0.00033	
			Poly lactide resin	Proprietary	100.00000	0.00027	
			Amine salts	Proprietary	1.00000	0.00026	
			STOT RE 1 (H372) Glutaraldehyde	111-30-8	1.00000	0.00023	
			Alcohols, C12-13, ethoxylated	66455-14-9	30.00000	0.00019	

			Aluminum silicate	1302-76-7	10.00000	0.00017	
			Olefins	Proprietary	5.00000	0.00013	
			Propargyl alcohol	107-19-7	10.00000	0.00011	
			Crystalline silica, cristobalite	14464-46-1	5.00000	0.00008	
			Aluminum oxide	1344-28-1	5.00000	0.00008	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00003	
			Amine	Proprietary	0.10000	0.00002	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Titanium dioxide	13463-67-7	1.00000	0.00002	
			Iron oxide	1309-37-1	1.00000	0.00002	
			Sodium Chlorite	7758-19-2	8.35000	0.00000	
			Sodium Carbonate	497-19-8	2.00000	0.00000	
			Sodium Chloride	7647-14-5	1.00000	0.00000	
			Sodium Hydroxide	1310-73-2	1.00000	0.00000	

* 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)