

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/20/2019
Job End Date:	7/16/2019
State:	Texas
County:	Andrews
API Number:	42-003-47556-00-00
Operator Name:	Zarvona Energy
Well Name and Number:	ULS 5-9 #6
Latitude:	32.49418355
Longitude:	-102.36616940
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	12,191
Total Base Water Volume (gal):	14,036,820
Total Base Non Water Volume:	



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
100 Mesh	QES	Proppant					
				Listed Below			
CIA-1	QES	Corrosion Inhibitor <350°F					
				Listed Below			

IC-1L	QES	Iron Control (Acetic/Citric Blend)					
				Listed Below			
WSG-1	QES	Synthetic FR & Linear Gel					
				Listed Below			
S-1	QES	Surfactant (Nonionic)					
				Listed Below			
40/70	QES	Proppant					
				Listed Below			
15% Acid	QES	Uninhibited HCL Acid (22° Baume)					
				Listed Below			
B-1	QES	Oxidizer Breaker (AP)					
				Listed Below			
KCL-1Sub	QES	KCl Substitute					
				Listed Below			
FR-2	QES	Friction Reducer (Anionic)					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Water	7732-18-5	85.00000	92.79110	

			Crystalline silica quartz	14808-60-7	100.00000	4.42725	
			Crystalline silica quartz	14808-60-7	100.00000	1.67468	
			Hydrochloric acid	7647-01-0	15.00000	0.12365	
			Hydrotreated light distillate	64742-47-8	30.00000	0.03328	
			Methanol	67-56-1	30.00000	0.02858	
			Ethoxylated Alcohol	68131-39-5	15.00000	0.01429	
			Ammonium chloride	12125-02-9	5.00000	0.00555	
			Ethoxylated sorbitan monooleate	9005-65-6	5.00000	0.00555	
			Citric acid	77-92-9	50.00000	0.00447	
			Acetic acid	64-19-7	50.00000	0.00447	
			Methanol	67-56-1	80.00000	0.00242	
			Hydrotreated light petroleum	64742-47-8	19.00000	0.00238	
			Ammonium persulfate	7727-54-0	100.00000	0.00131	
			Propargyl alcohol	107-19-7	10.00000	0.00030	

* 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)