

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/29/2014
Job End Date:	12/30/2014
State:	Texas
County:	Andrews
API Number:	42-003-46897-00-00
Operator Name:	Forge Energy, LLC
Well Name and Number:	UL 14 Conway 3421H
Longitude:	-102.70881550
Latitude:	32.41411990
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	9,227
Total Base Water Volume (gal):	1,498,896
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	Operator	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	87.93595	None
RAW - White/Brown Sand	Santrol	Proppant					
			Silica	14808-60-7	100.00000	7.99265	None
CRS - Garnett	Preferred Sands	Proppant					
			Silica	14808-60-7	100.00000	1.89774	None
HA04-10-15% HCL	Reagent Chemical	Acidizing					
			Water	7732-18-5	85.00000	1.41224	None
			Hydrogen Chloride	7647-01-0	15.00000	0.24922	None
LGW01-Liquid Gellant	Economy Polymers	Liquid Gellant					
			Polysaccharide Blend	Proprietary	60.00000	0.07011	None
			Petroleum Distillates	Proprietary	60.00000	0.07011	None
NE602-N/E Surfactant	Environmental Energy Service	N/E Surfactant					
			Trade Secret	Proprietary	100.00000	0.09151	None
EC200-Crosslinker	ASK Chemical	Crosslinker					
			Proprietary Component	Proprietary	25.00000	0.01425	None
			Potassium Hydroxide	1310-58-3	25.00000	0.01425	None
			Ethylene Glycol	107-21-1	25.00000	0.01425	None

			Proprietary Component	Proprietary	15.00000	0.00855	None
			Proprietary Component	Proprietary	10.00000	0.00570	None
FR300-Anionic Friction Reducer	Economy Polymers	Anionic Friction Reducer					
			Trade Secret	Proprietary	100.00000	0.05009	None
BC1058-Liquid Biocide	Buckman Lab.	Liquid Biocide					
			Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione	533-74-4	24.00000	0.02286	None
			Sodium Hydroxide	1310-73-2	11.00000	0.01048	None
SI300-Scale Inhibitor	Colossal Chemical	Scale Inhibitor					
			Methanol	67-56-1	30.00000	0.02667	None
			Sodium Chloride	7647-14-5	7.00000	0.00622	None
ACI266-Payzone 266	Catalyst	Corrosion Inhibitor					
			Polyoxyalkylenes	Proprietary	20.00000	0.00175	None
			2-Hydroxy-1,2,3 Propanetricarboxylic Acid	77-92-9	20.00000	0.00175	None
			Acetic Acid	64-19-7	20.00000	0.00175	None
			DDBSA	68584-22-5	20.00000	0.00175	None
			Propargyl Alcohol	107-19-7	20.00000	0.00175	None
			Methanol	67-56-1	20.00000	0.00175	None
BR1-AP Breaker	Economy Polymers	AP Breaker					
			Ammonium Persulfate	7727-54-0	98.00000	0.00227	None
LEB1-Liquid Enzyme Breaker	Economy Polymers	Liquid Enzyme Breaker					
			Trade Secret	Proprietary	100.00000	0.00155	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.							

* 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)