

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/23/2015
Job End Date:	6/4/2015
State:	Texas
County:	Crockett
API Number:	42-105-42183-00-00
Operator Name:	Approach Resources
Well Name and Number:	University 42 2111 HC
Longitude:	-101.15510000
Latitude:	30.91140000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,430
Total Base Water Volume (gal):	11,444,958
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	Approach	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.86840	None
100 Mesh White	Python	Proppant	Silica Substrate	NA	100.00000	7.41218	None
40/70 White	Python	Proppant	Silica Substrate	NA	100.00000	4.62745	None
Hydrochloric Acid (15%)	Python	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.91366	None
Clay Control	Python	KCL Substitute	Potassium Chloride	7447-40-7	49.50000	0.09641	None
Greenhib 677	Python	Fracturing Scale Inhibitor	Salt of Phophono-Methylated Diamine	67-56-1	25.00000	0.02646	None
Plexslick 957	Python	Anionic Polymer in Emulsion Form	Petroleum Hydro Light Distillate	Proprietary	20.00000	0.02642	None
Plexgel Breaker XPA	Python	Breaker for Slickwater Fracs	Hydrogen Peroxide	7722-84-1	7.00000	0.02372	None

Plexbreak 150	Python	Fracturing Non Emulsifier					
			Salt of Phophono-Methylated Diamine	67-56-1	45.00000	0.00233	None
Plexhib 256	Python	Corrosion Inhibitor for HCL Acid					
			Methyl Alcohol	67-56-1	40.00000	0.00221	None
The Reducer	Python	Iron Control for HCL Acid					
			Methyl Alcohol	67-56-1	40.00000	0.00076	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)