

Hydraulic Fracturing Fluid Product Component Information Disclosure

| | |
|--------------------------------|---------------------------|
| Job Start Date: | 8/15/2016 |
| Job End Date: | 9/3/2016 |
| State: | Texas |
| County: | Andrews |
| API Number: | 42-003-47344-00-00 |
| Operator Name: | Pioneer Natural Resources |
| Well Name and Number: | UNIVERSITY 7-43 36H |
| Latitude: | 32.35780100 |
| Longitude: | -102.22805200 |
| Datum: | NAD27 |
| Federal Well: | NO |
| Indian Well: | NO |
| True Vertical Depth: | 9,489 |
| Total Base Water Volume (gal): | 19,153,050 |
| 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 | Pioneer Natural Resources | Carrier/Base Fluid | Water | 7732-18-5 | 100.00000 | 91.84560 | |
| SAND (WHOLE GRAIN) | Pioneer Natural Resources Pumping Services LLC | Proppant | Crystalline Silica Quartz | 14808-60-7 | 99.50000 | 6.66816 | |
| Crystalline Silica in the form of Quartz - various grades | Pioneer Natural Resources Pumping Services LLC | Proppant | Crystalline Silica | 14808-60-7 | 99.90000 | 1.17696 | |
| Hydrochloric Acid, 33-40% | Pioneer Natural Resources Pumping Services LLC | Stimulation | Water | 7732-18-5 | 67.00000 | 0.06124 | |
| | | | Hydrogen chloride | 7647-01-0 | 40.00000 | 0.03656 | |
| POLYfrac PLUS M-4.0 | Pioneer Natural Resources Pumping Services LLC | Gelling Agent | Petroleum distillate | 64742-47-8 | 55.00000 | 0.01361 | |
| | | | Guar Gum | 9000-30-0 | 50.00000 | 0.01238 | |

| | | | | | | | |
|--|--|---------------------|--|-------------|-----------|---------|---|
| | | | Clay - | 1302-78-9 | 5.00000 | 0.00124 | |
| | | | Surfactant - | 154518-36-2 | 1.00000 | 0.00025 | |
| FLOJET DR 6250 | Pioneer Natural Resources Pumping Services LLC | Friction Reducer | | | | | |
| | | | Isoparaffinic Solvent | 64742-47-8 | 26.00000 | 0.01214 | |
| | | | Alcohols, C11-14-iso-, C13-rich, ethoxylated | 78330-21-9 | 3.00000 | 0.00140 | |
| StimOil ENHF | Pioneer Natural Resources Pumping Services LLC | Surfactant | | | | | |
| | | | Citrus terpenes - CESI | 68647-72-3 | 5.00000 | 0.00449 | |
| | | | Isopropyl alcohol | 67-63-0 | 1.50000 | 0.00135 | |
| EC6779A | Nalco Champion | Biocide | | | | | |
| | | | Acetic Acid | 64-19-7 | 55.20000 | 0.00353 | |
| | | | Peroxyacetic Acid | 79-21-0 | 21.00000 | 0.00134 | |
| | | | Hydrogen Peroxide | 7722-84-1 | 4.00000 | 0.00026 | |
| POLYstim SI-110N Scale Inhibitor | Pioneer Natural Resources Pumping Services LLC | Scale Inhibitor | | | | | |
| | | | Proprietary blend | Proprietary | 30.00000 | 0.00382 | PfP Technology, 14227 Fern, Houston, TX 77079. Contact: Mo Hossain, 281-584-0047 |
| VERSENE 100 Chelating Agent Liquid | Pioneer Natural Resources Pumping Services LLC | Scale Inhibitor | | | | | |
| | | | Water | 7732-18-5 | 56.00000 | 0.00060 | |
| | | | tetrasodium ethylenediamine tetraacetate | 64-02-8 | 39.00000 | 0.00042 | |
| | | | Sodium hydroxyacetate | 2836-32-0 | 3.00000 | 0.00003 | |
| | | | Sodium Hydroxide | 1310-73-2 | 1.60000 | 0.00002 | |
| | | | Nitrilotriacetate, trisodium salt (NTA) | 5064-31-3 | 1.00000 | 0.00001 | |
| PROCAP MC-AP | Pioneer Natural Resources Pumping Services LLC | Gel Breaker | | | | | |
| | | | Ammonium persulfate | 7727-54-0 | 76.00000 | 0.00057 | |
| | | | Cured Resin | Proprietary | 24.00000 | 0.00018 | Fritz Industries, 500 Sam Houston Road, Mesquite, TX 75149. Contact: Laurie Meeks, 972-285-5471 |
| Sodium Erythorbate | Pioneer Natural Resources Pumping Services LLC | Iron Control | | | | | |
| | | | Sodium erythorbate | 6381-77-7 | 100.00000 | 0.00037 | |
| X-Corr HT | Pioneer Natural Resources Pumping Services LLC | Corrosion Inhibitor | | | | | |
| | | | 2-Propanol | 67-63-0 | 38.27770 | 0.00022 | |
| | | | Laury Alcohol Ethoxylate | 68551-12-2 | 14.55000 | 0.00008 | |
| | | | Cinnamaldehyde | 104-55-2 | 10.18800 | 0.00006 | |
| 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. | | | | | | | |
| | | Other Chemicals | | | | | |

| | | | | | | | |
|--|--|--|---|-------------|--|---------|--|
| | | | Water - TS | 7732-18-5 | | 0.06289 | |
| | | | Polyamine Polyethers - TS | Proprietary | | 0.02695 | CESI Chemical, 1004 S. Plainsman Road, Marlow, OK 73055. Contact: Jason White, 580-658-6608 |
| | | | Propylene glycol - TS | 57-55-6 | | 0.02695 | |
| | | | Copolymer of acrylamide and sodium acrylate - TS | 25987-30-8 | | 0.01635 | |
| | | | Water - TS | 7732-18-5 | | 0.01635 | |
| | | | Water - TS | 7732-18-5 | | 0.01146 | |
| | | | Nonionic Alkoxylate - TS | Proprietary | | 0.00898 | CESI Chemical, 1004 S. Plainsman Road, Marlow, OK 73055. Contact: Jason White, 580-658-6608 |
| | | | Surfactants - TS | Proprietary | | 0.00449 | CESI Chemical, 1004 S. Plainsman Road, Marlow OK, 73055. Contact: Jason White, 580-658-6608 |
| | | | Surfactant - TS (SNF) | Proprietary | | 0.00280 | SNF Oil and Gas, 1 Chemical Plant Road, Riceboro, GA 31323. Contact: Gary McGuffey, 912-884-3366 |
| | | | Fatty Acids, tall oil reaction products with acetophenone, formaldehyde and thiourea, hydrochlorides - TS | 68188-40-9 | | 0.00015 | |
| | | | Ethox CO-30 - TS | 61791-12-6 | | 0.00004 | |
| | | | Tall oil, ethoxylated - TS | 65071-95-6 | | 0.00002 | |

* 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)