

# Hydraulic Fracturing Fluid Product Component Information Disclosure

|                                |                        |
|--------------------------------|------------------------|
| Job Start Date:                | 3/4/2014               |
| Job End Date:                  | 3/9/2014               |
| State:                         | Texas                  |
| County:                        | Reagan                 |
| API Number:                    | 42-383-38605-00-00     |
| Operator Name:                 | Enduring Resources LLC |
| Well Name and Number:          | University 48 #1501H   |
| Longitude:                     | -101.38669049          |
| Latitude:                      | 31.11506316            |
| Datum:                         | NAD27                  |
| Federal/Tribal Well:           | NO                     |
| True Vertical Depth:           | 7,059                  |
| Total Base Water Volume (gal): | 8,331,058              |
| 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 |
|--|--------------|--|---|--|--|--|----------|
| 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. |              |  |   |  |  |  |          |
| A286, B080, B244, B315R, B347, B451, F112, H075, J218, J507, J580, L058, S012-4070, S100, S333-3050  | Schlumberger | Acid Corrosion Inhibitor A286, Activator, Bactericide (Green-Cide 25G), Friction Reducer, Demulsifier, Surfactant, Acid, Breaker, Gelling Agent, Iro |   |  |  |  |          |
|  |              |  | Water (Including Mix Water Supplied by Client)*                       | NA                                       |  | 89.12119   |          |
|  |              |  | Crystalline silica  | 14808-60-7                               | 98.19196   | 10.68211   |          |
|  |              |  | Hydrochloric acid   | 7647-01-0                                | 0.45955  | 0.04999  |          |
|  |              |  | Propan-2-ol   | 67-63-0                                  | 0.25700  | 0.02796  |          |
|  |              |  | Distillates (petroleum), hydrotreated light                           | 64742-47-8                               | 0.22275  | 0.02423  |          |
|  |              |  | Phenolic resin  | 9003-35-4                                | 0.20253  | 0.02203  |          |
|  |              |  | Acrylamide-chloride salt of trimethylammonio-ethyl acrylate copolymer | 69418-26-4                               | 0.12117  | 0.01318  |          |
|  |              |  | 1, 2, 3 - Propanetriol  | 56-81-5                                  | 0.06822  | 0.00742  |          |
|  |              |  | Acrylamide/ammonium acrylate copolymer                                | 26100-47-0                               | 0.05834  | 0.00635  |          |
|  |              |  | Hexamethylenetetramine  | 100-97-0                                 | 0.05781  | 0.00629  |          |

|  |  |  |   |            |         |         |  |
|--|--|--|---|------------|---------|---------|--|
|  |  |  | Glutaraldehyde  | 111-30-8   | 0.05014 | 0.00545 |  |
|  |  |  | Ethanaminium,n,n,n-trimethyl-methyl-oxo, chloride, polymer with propenamide | 35429-19-7 | 0.04357 | 0.00474 |  |
|  |  |  | Alcohol, C7-9-iso, C8, ethoxylated  | 78330-19-5 | 0.04041 | 0.00440 |  |
|  |  |  | Ammonium chloride   | 12125-02-9 | 0.03990 | 0.00434 |  |
|  |  |  | Polyethylenimin, polymer with ethylene oxide and propylene oxide            | 52501-07-2 | 0.03428 | 0.00373 |  |
|  |  |  | Crosslinked PO/EO-block polymer   | 68123-18-2 | 0.02740 | 0.00298 |  |
|  |  |  | Sorbitan monooleate   | 1338-43-8  | 0.01415 | 0.00154 |  |
|  |  |  | Sodium chloride   | 7647-14-5  | 0.01372 | 0.00149 |  |
|  |  |  | Methyl oxirane polymer with oxirane   | 9003-11-6  | 0.01355 | 0.00147 |  |
|  |  |  | Alcohol, C11-14, ethoxylated  | 78330-21-9 | 0.01257 | 0.00137 |  |
|  |  |  | Ethane-1,2-diol   | 107-21-1   | 0.00803 | 0.00087 |  |
|  |  |  | Diammonium peroxidisulphate   | 7727-54-0  | 0.00778 | 0.00085 |  |
|  |  |  | Ethoxylated oleic acid  | 9004-96-0  | 0.00729 | 0.00079 |  |
|  |  |  | Alcohols, C10-C16, ethoxylated  | 68002-97-1 | 0.00722 | 0.00079 |  |
|  |  |  | Alkyl (c10-c14) alcohols, ethoxylated                                       | 66455-15-0 | 0.00685 | 0.00075 |  |
|  |  |  | Sodium erythorbate  | 6381-77-7  | 0.00692 | 0.00075 |  |
|  |  |  | Hexanedioic acid  | 124-04-9   | 0.00444 | 0.00048 |  |
|  |  |  | Alcohols, C12-C16, ethoxylated  | 68551-12-2 | 0.00374 | 0.00041 |  |
|  |  |  | Ammonium sulfate  | 7783-20-2  | 0.00343 | 0.00037 |  |
|  |  |  | C14 alpha olefin ethoxylate   | 84133-50-6 | 0.00339 | 0.00037 |  |
|  |  |  | Fatty acid, tall-oil reaction products with acetophenone                    | 68188-40-9 | 0.00317 | 0.00035 |  |
|  |  |  | Sorbitol Tetraoleate  | 61723-83-9 | 0.00219 | 0.00024 |  |
|  |  |  | Sodium sulfocyanate   | 540-72-7   | 0.00190 | 0.00021 |  |
|  |  |  | 2-Propenoic acid, ammonium salt   | 10604-69-0 | 0.00179 | 0.00019 |  |
|  |  |  | Isodecanol w/6-7 Moles Ethylene Oxide                                       | 26183-52-8 | 0.00178 | 0.00019 |  |
|  |  |  | Polyethylene glycol monohexyl ether   | 31726-34-8 | 0.00138 | 0.00015 |  |
|  |  |  | Cinnamaldehyde  | 104-55-2   | 0.00116 | 0.00013 |  |
|  |  |  | Alcohols, C12-C14, ethoxylated  | 68439-50-9 | 0.00109 | 0.00012 |  |
|  |  |  | Ethanol   | 64-17-5    | 0.00041 | 0.00004 |  |
|  |  |  | Amines, tallow alkyl, ethoxylated   | 61791-26-2 | 0.00034 | 0.00004 |  |
|  |  |  | 2-propenamid  | 79-06-1    | 0.00033 | 0.00004 |  |
|  |  |  | Guar gum  | 9000-30-0  | 0.00030 | 0.00003 |  |
|  |  |  | Dodecyl poly(oxyethylene) ether   | 9002-92-0  | 0.00014 | 0.00002 |  |
|  |  |  | Oleic acid  | 112-80-1   | 0.00007 | 0.00001 |  |
|  |  |  | Dicoco dimethyl quaternary ammonium chloride                                | 61789-77-3 | 0.00006 | 0.00001 |  |
|  |  |  | Tetrasodium ethylenediaminetetraacetate                                     | 64-02-8    | 0.00009 | 0.00001 |  |
|  |  |  | Potassium oleate  | 143-18-0   | 0.00009 | 0.00001 |  |

|  |  |  |   |            |         |         |  |
|--|--|--|---|------------|---------|---------|--|
|  |  |  | Glycols, polyethylene, monotetradecyl ether | 27306-79-2 | 0.00010 | 0.00001 |  |
|  |  |  | Acetic acid                                 | 64-19-7    |         |         |  |
|  |  |  | Oxirane                                     | 75-21-8    |         |         |  |
|  |  |  | 1,4-Dioxane                                 | 123-91-1   |         |         |  |
|  |  |  | Non-crystalline silica                      | 7631-86-9  |         |         |  |
|  |  |  | Propylene oxide                             | 75-56-9    |         |         |  |
|  |  |  | Acetic acid, potassium salt                 | 127-08-2   | 0.00001 |         |  |

\* 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)