

Hydraulic Fracturing Fluid Product Component Information Disclosure

| | |
|----------------------------|-----------------|
| Last Fracture Date | 02/01/2013 |
| State: | California |
| County: | Kern |
| API Number: | 04-030-48930 |
| Operator Name: | Aera Energy Llc |
| Well Name and Number: | 558N1-18 |
| Longitude: | -119.7506092 |
| Latitude: | 35.4851859 |
| Long/Lat Projection: | NAD83 |
| Production Type: | Oil |
| True Vertical Depth (TVD): | 2,151 |
| Total Water Volume (gal)*: | 86,226 |

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 | Water | 7732-18-5 | 100.00% | 73.80689% | |
| X-Cide 207 | Baker Hughes | Biocide | 2-Methyl-4-Isothiazolin-3-One | 2682-20-4 | 5.00% | 0.00006% | |
| | | | 5-Chloro-2-Methyl-4-Isothiazolin-3-One | 26172-55-4 | 10.00% | 0.00012% | |
| | | | Crystalline Silica: Cristobalite | 14464-46-1 | 1.00% | 0.00001% | |
| | | | Crystalline Silica: Quartz (SiO2) | 14808-60-7 | 1.00% | 0.00001% | |
| | | | Diatomaceous Earth, Calcined | 91053-39-3 | 60.00% | 0.00074% | |
| | | | Magnesium Chloride | 7786-30-3 | 5.00% | 0.00006% | |
| | | | Magnesium Nitrate | 10377-60-3 | 10.00% | 0.00012% | |
| GBW-5 | Baker Hughes | Breaker | Ammonium Phosphate | 7727-54-0 | 100.00% | 0.00616% | SmartCare Product |
| Enzyme G-I | Baker Hughes | Breaker | Hemicellulase Enzyme Concentrate | 9025-56-3 | 3.00% | 0.00154% | SmartCare Product |
| | | | Water | 7732-18-5 | 97.00% | 0.04982% | |
| Clay Master-5C (Tote) | Baker Hughes | Clay Control | Oxyakylated Amine Quat | 138879-94-4 | 60.00% | 0.05211% | |
| XLW-10A | Baker Hughes | Crosslinker | Ethylene Glycol | 107-21-1 | 30.00% | 0.02975% | SmartCare Product |
| | | | Sodium Hydroxide | 1310-73-2 | 10.00% | 0.00992% | |
| | | | Sodium Tetraborate | 1330-43-4 | 30.00% | 0.02975% | |
| GW-3LDF | Baker Hughes | Gelling Agent | 1-Butoxy-2-Propanol | 5131-66-8 | 5.00% | 0.01449% | SmartCare Product |
| | | | Cyrstalline Silica, Quartz (SiO2) | 14808-60-7 | 5.00% | 0.01449% | |

| | | | | | | | |
|---|--------------|-----------------|--|--------------|---------|----------------|-------------------|
| | | | Guar Gum | 9000-30-0 | 60.00% | 0.17390% | |
| | | | Isotridecanol, ethoxylated | 9043-30-5 | 5.00% | 0.01449% | |
| | | | Paraffinic Petroleum Distillate | 64742-55-8 | 30.00% | 0.08695% | |
| | | | Petroleum Distillates | 64742-47-8 | 30.00% | 0.08695% | |
| ScaleSorb 3, (25# pail) | Baker Hughes | Scale Inhibitor | Amino Alkyl Phosphonic Acid | Trade Secret | 30.00% | 0.00231% | SmartCare Product |
| | | | Crystalline Silica: Quartz (SiO ₂) | 14808-60-7 | 1.00% | 0.00008% | |
| | | | Diatomaceous Earth, Calcined | 91053-39-3 | 100.00% | 0.00770% | |
| | | | Phosphonic Acid | 13598-36-2 | 1.00% | 0.00008% | |
| 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. | | | | | | | |
| | | | 2-Butoxy-1-Propanol | 15821-83-7 | | 0.0002318628% | |
| | | | Crystalline Quartz (silica) | 14808-60-7 | | 25.5914330353% | |
| | | | Water | 7732-18-5 | | 0.0198341819% | |
| * 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% | | | | | | | |
| Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS) | | | | | | | |