

Hydraulic Fracturing Fluid Product Component Information Disclosure

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|----------------------------|-----------------|
| Last Fracture Date | 04/19/2013 |
| State: | California |
| County: | Kern |
| API Number: | 04-030-49554 |
| Operator Name: | Aera Energy Llc |
| Well Name and Number: | 971E-33 |
| Longitude: | -119.7117315 |
| Latitude: | 35.4551187 |
| Long/Lat Projection: | NAD83 |
| Production Type: | Oil |
| True Vertical Depth (TVD): | 2,051 |
| Total Water Volume (gal)*: | 122,892 |

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% | 73.97012% | |
| X-Cide 207 | Baker Hughes | Biocide | 2-Methyl-4-Isothiazolin-3-One | 2682-20-4 | 5.00% | 0.00004% | |
| | | | 5-Chloro-2-Methyl-4-Isothiazolin-3-One | 26172-55-4 | 10.00% | 0.00009% | |
| | | | 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% | 0.00052% | |
| | | | Magnesium Chloride | 7786-30-3 | 5.00% | 0.00004% | |
| | | | Magnesium Nitrate | 10377-60-3 | 10.00% | 0.00009% | |
| GBW-5 | Baker Hughes | Breaker | Ammonium Phosphate | 7727-54-0 | 100.00% | 0.00722% | SmartCare Product |
| Enzyme G-I | Baker Hughes | Breaker | Hemicellulase Enzyme Concentrate | 9025-56-3 | 3.00% | 0.00181% | SmartCare Product |
| | | | Water | 7732-18-5 | 97.00% | 0.05839% | |
| Clay Master-5C (Tote) | Baker Hughes | Clay Control | Oxyakylated Amine Quat | 138879-94-4 | 60.00% | 0.05710% | |
| XLW-10A | Baker Hughes | Crosslinker | Ethylene Glycol | 107-21-1 | 30.00% | 0.03502% | SmartCare Product |
| | | | Sodium Hydroxide | 1310-73-2 | 10.00% | 0.01167% | |
| | | | Sodium Tetraborate | 1330-43-4 | 30.00% | 0.03502% | |
| GW-3LDF | Baker Hughes | Gelling Agent | 1-Butoxy-2-Propanol | 5131-66-8 | 5.00% | 0.01565% | SmartCare Product |
| | | | Cyrstalline Silica, Quartz (SiO2) | 14808-60-7 | 5.00% | 0.01565% | |

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|---|--------------|-----------------|--|--------------|---------|----------------|-------------------|
| | | | Guar Gum | 9000-30-0 | 60.00% | 0.18778% | |
| | | | Isotridecanol, ethoxylated | 9043-30-5 | 5.00% | 0.01565% | |
| | | | Paraffinic Petroleum Distillate | 64742-55-8 | 30.00% | 0.09389% | |
| | | | Petroleum Distillates | 64742-47-8 | 30.00% | 0.09389% | |
| ScaleSorb 3, (25# pail) | Baker Hughes | Scale Inhibitor | Amino Alkyl Phosphonic Acid | Trade Secret | 30.00% | 0.00433% | SmartCare Product |
| | | | Crystalline Silica: Quartz (SiO ₂) | 14808-60-7 | 1.00% | 0.00014% | |
| | | | Diatomaceous Earth, Calcined | 91053-39-3 | 100.00% | 0.01444% | |
| | | | Phosphonic Acid | 13598-36-2 | 1.00% | 0.00014% | |
| 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 | | 0.0002503695% | |
| | | | Crystalline Quartz (silica) | 14808-60-7 | | 25.3577055315% | |
| | | | Water | 7732-18-5 | | 0.0233464726% | |

* 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)