

Hydraulic Fracturing Fluid Product Component Information Disclosure

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|----------------------------|-----------------|
| Last Fracture Date | 11/19/2012 |
| State: | California |
| County: | Kern |
| API Number: | 04-030-43579 |
| Operator Name: | Aera Energy Llc |
| Well Name and Number: | 743LL-29 |
| Longitude: | -119.7362162 |
| Latitude: | 35.4655747 |
| Long/Lat Projection: | NAD83 |
| Production Type: | Oil |
| True Vertical Depth (TVD): | 1,844 |
| Total Water Volume (gal)*: | 23,100 |

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% | 78.40863% | |
| X-Cide 207 | Baker Hughes | Biocide | 2-Methyl-4-Isothiazolin-3-One | 2682-20-4 | 5.00% | 0.00024% | |
| | | | 5-Chloro-2-Methyl-4-Isothiazolin-3-One | 26172-55-4 | 10.00% | 0.00049% | |
| | | | Crystalline Silica: Cristobalite | 14464-46-1 | 1.00% | 0.00005% | |
| | | | Crystalline Silica: Quartz (SiO2) | 14808-60-7 | 1.00% | 0.00005% | |
| | | | Diatomaceous Earth, Calcined | 91053-39-3 | 60.00% | 0.00293% | |
| | | | Magnesium Chloride | 7786-30-3 | 5.00% | 0.00024% | |
| | | | Magnesium Nitrate | 10377-60-3 | 10.00% | 0.00049% | |
| GBW-5 | Baker Hughes | Breaker | Ammonium Phosphate | 7727-54-0 | 100.00% | 0.00407% | SmartCare Product |
| Enzyme G-I | Baker Hughes | Breaker | Hemicellulase Enzyme Concentrate | 9025-56-3 | 3.00% | 0.00244% | SmartCare Product |
| | | | Water | 7732-18-5 | 97.00% | 0.07902% | |
| Clay Master-5C (Tote) | Baker Hughes | Clay Control | Oxyakylated Amine Quat | 138879-94-4 | 60.00% | 0.05527% | |
| XLW-10A | Baker Hughes | Crosslinker | Ethylene Glycol | 107-21-1 | 30.00% | 0.03206% | SmartCare Product |
| | | | Sodium Hydroxide | 1310-73-2 | 10.00% | 0.01069% | |
| | | | Sodium Tetraborate | 1330-43-4 | 30.00% | 0.03206% | |
| GW-3LDF | Baker Hughes | Gelling Agent | 1-Butoxy-2-Propanol | 5131-66-8 | 5.00% | 0.02688% | SmartCare Product |
| | | | Cyrstalline Silica, Quartz (SiO2) | 14808-60-7 | 5.00% | 0.02688% | |

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|---|--------------|----------|---------------------------------|------------|---------|---------------|--|
| | | | Guar Gum | 9000-30-0 | 60.00% | 0.32258% | |
| | | | Isotridecanol, ethoxylated | 9043-30-5 | 5.00% | 0.02688% | |
| | | | Paraffinic Petroleum Distillate | 64742-55-8 | 30.00% | 0.16129% | |
| | | | Petroleum Distillates | 64742-47-8 | 30.00% | 0.16129% | |
| Sand, White, 20/40 | Baker Hughes | Proppant | Crystalline Silica (Quartz) | 14808-60-7 | 100.00% | 20.62365% | |
| 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 | | 0.0004301119% | |
| | | | Water | 7732-18-5 | | 0.0213727162% | |

* 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%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.