## Hydraulic Fracturing Fluid Product Component Information Disclosure

| Last Fracture Date         | 04/04/2013      |
|----------------------------|-----------------|
| State:                     | California      |
| County:                    | Kern            |
| API Number:                | 04-030-49667    |
| Operator Name:             | Aera Energy Llc |
| Well Name and Number:      | 578J1-12        |
| Longitude:                 | -119.7653508    |
| Latitude:                  | 35.5001741      |
| Long/Lat Projection:       | NAD83           |
| Production Type:           | Oil             |
| True Vertical Depth (TVD): | 2,231           |
| Total Water Volume (gal)*: | 48,762          |

## Hydraulic Fracturing Fluid Composition:

| Trade Name               | Supplier        | Purpose       | Ingredients                            | Chemical Abstract<br>Service Number<br>(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%  | 71.48122%  |                   |
| X-Cide 207               | Baker<br>Hughes | Biocide       | 2-Methyl-4-Isothiazolin-3-One          | 2682-20-4                                      | 5.00%  | 0.00005%   |                   |
|                          |                 |               | 5-Chloro-2-Methyl-4-Isothiazolin-3-One | 26172-55-4                                     | 10.00%   | 0.00011%   |                   |
|                          |                 |               | 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%   | 0.00063%   |                   |
|                          |                 |               | Magnesium Chloride                     | 7786-30-3                                      | 5.00%  | 0.00005%   |                   |
|                          |                 |               | Magnesium Nitrate                      | 10377-60-3                                     | 10.00%   | 0.00011%   |                   |
| GBW-5                    | Baker<br>Hughes | Breaker       | Ammonium Phosphate                     | 7727-54-0                                      | 100.00%  | 0.00527%   | SmartCare Product |
| Enzyme G-I               | Baker<br>Hughes | Breaker       | Hemicellulase Enzyme Concentrate       | 9025-56-3                                      | 3.00%  | 0.00136%   | SmartCare Product |
|                          |                 |               | Water                                  | 7732-18-5                                      | 97.00%   | 0.04408%   |                   |
| Clay Master-5C<br>(Tote) | Baker<br>Hughes | Clay Control  | Oxyakylated Amine Quat                 | 138879-94-4                                    | 60.00%   | 0.05292%   |                   |
| XLW-10A                  | Baker<br>Hughes | Crosslinker   | Ethylene Glycol                        | 107-21-1                                       | 30.00%   | 0.02492%   | SmartCare Product |
|                          |                 |               | Sodium Hydroxide                       | 1310-73-2                                      | 10.00%   | 0.00831%   |                   |
|                          |                 |               | Sodium Tetraborate                     | 1330-43-4                                      | 30.00%   | 0.02492%   |                   |
| GW-3LDF                  | Baker<br>Hughes | Gelling Agent | 1-Butoxy-2-Propanol                    | 5131-66-8                                      | 5.00%  | 0.01195%   | SmartCare Product |
|                          |                 |               | Cyrstalline Silica, Quartz (SiO2)      | 14808-60-7                                     | 5.00%  | 0.01195%   |                   |

|  |                 |                 | Guar Gum                          | 9000-30-0    | 60.00%  | 0.14335%       |                   |  |
|--|-----------------|-----------------|-----------------------------------|--------------|---------|----------------|-------------------|--|
|  |                 |                 | Isotridecanol, ethoxylated        | 9043-30-5    | 5.00%   | 0.01195%       |                   |  |
|  |                 |                 | Paraffinic Petroleum Distillate   | 64742-55-8   | 30.00%  | 0.07168%       |                   |  |
|  |                 |                 | Petroleum Distillates             | 64742-47-8   | 30.00%  | 0.07168%       |                   |  |
| ScaleSorb 3, (25# pail)  | Baker<br>Hughes | Scale Inhibitor | Amino Alkyl Phosphonic Acid       | Trade Secret | 30.00%  | 0.00527%       | SmartCare Product |  |
|  |                 |                 | Crystalline Silica: Quartz (SiO2) | 14808-60-7   | 1.00%   | 0.00018%       |                   |  |
|  |                 |                 | Diatomaceous Earth, Calcined      | 91053-39-3   | 100.00% | 0.01758%       |                   |  |
|  |                 |                 | Phosphonic Acid                   | 13598-36-2   | 1.00%   | 0.00018%       |                   |  |
| 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   |         | 0.0001911390%  |                   |  |
|  |                 |                 | Crystalline Quartz (silica)       | 14808-60-7   |         | 27.9934590602% |                   |  |
|  |                 |                 | Water                             | 7732-18-5    |         | 0.0166146331%  |                   |  |

<sup>\*</sup> Total Water Volume sources may include fresh water, produced water, and/or recycled water

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

<sup>\*\*</sup> Information is based on the maximum potential for concentration and thus the total may be over 100%