

# Hydraulic Fracturing Fluid Product Component Information Disclosure

|                                |                            |
|--------------------------------|----------------------------|
| Job Start Date:                | 10/13/2017                 |
| Job End Date:                  | 11/13/2017                 |
| State:                         | Texas                      |
| County:                        | Reagan                     |
| API Number:                    | 42-383-39869-00-00         |
| Operator Name:                 | SEM Operating Company, LLC |
| Well Name and Number:          | Unviversity 9 2902 WB      |
| Latitude:                      | 31.23843100                |
| Longitude:                     | -101.58622000              |
| Datum:                         | NAD83                      |
| Federal Well:                  | YES                        |
| Indian Well:                   | NO                         |
| True Vertical Depth:           | 8,160                      |
| Total Base Water Volume (gal): | 11,543,658                 |
| 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 |
|----------------|------------|------------------|--|--|--|--|----------|
| Water          | Sequitur   | Base Fluid       |  |  |  |  |          |
|                |            |                  | Water  | 7732-18-5                                | 100.00000  | 57.65238   | None     |
| 40/70 Brown    | Hexion     | Proppant         |  |  |  |  |          |
|                |            |                  | Quartz (SiO2)                                | 14808-60-7                               | 100.00000  | 36.21828   | None     |
| 100 Mesh Brown | Hexion     | Proppant         |  |  |  |  |          |
|                |            |                  | Quartz (SiO2)                                | 14808-60-7                               | 100.00000  | 5.81962  | None     |
| DCF-5100       | WST Energy | Surfactant       |  |  |  |  |          |
|                |            |                  | Isopropyl alcohol                            | 67-63-0                                  | 40.00000   | 0.01960  | None     |
|                |            |                  | Alcohol ethoxylate                           | 68439-46-3                               | 15.00000   | 0.00735  | None     |
|                |            |                  | Esterfied phenolic polymer                   | 129828-31-5                              | 15.00000   | 0.00735  | None     |
|                |            |                  | Napthalene                                   | 91-20-3                                  | 5.00000  | 0.00245  | None     |
|                |            |                  | Solvent naphita(petroleum), Heavy arom       | 64742-94-5                               | 5.00000  | 0.00245  | None     |
| DCF-231        | WST Energy | Friction Reducer |  |  |  |  |          |
|                |            |                  | 2-Propenoic Acid, polymer with 2-propenamide | 9003-06-9                                | 25.00000   | 0.01519  | None     |
|                |            |                  | Hydrotreated Light Distallate (Petroleum)    | 64742-47-8                               | 25.00000   | 0.01519  | None     |
| AQUCAR 714     | WST Energy | Biocide          |  |  |  |  |          |

|  |              |                        |  |             |          |         |      |
|--|--------------|------------------------|--|-------------|----------|---------|------|
|  |              |                        | Inert Ingredients                            | 68439-46-3  | 83.50000 | 0.01300 | None |
|  |              |                        | Glutaraldehyde                               | 67-63-0     | 14.00000 | 0.00218 | None |
|  |              |                        | Alkyl dimethyl benzyl ammonium chloride      | 129828-31-5 | 2.50000  | 0.00039 | None |
| 7.5% HCl   | Reagent      | Acid                   |  |             |          |         |      |
|  |              |                        | Hydrochloric Acid                            | 7647-01-0   | 7.50000  | 0.01289 | None |
| Payzone 217SI  | Catalyst     | Scale Inhibitor        |  |             |          |         |      |
|  |              |                        | Phosphonate                                  | Proprietary | 12.00000 | 0.00138 | None |
| ACI-102HT  | WST Energy   | Corrosion Inhibitor    |  |             |          |         |      |
|  |              |                        | Ethylene glycol                              | 107-21-1    | 40.00000 | 0.00040 | None |
|  |              |                        | N,N-Dimethylformamide                        | 68-12-2     | 15.00000 | 0.00015 | None |
|  |              |                        | 1-(Benzyl)quinolinium chloride               | 15619-48-4  | 10.00000 | 0.00010 | None |
|  |              |                        | Cinnamaldehyde                               | 104-55-2    | 5.00000  | 0.00005 | None |
|  |              |                        | Alcohols, C6-12                              | 68603-15-6  | 5.00000  | 0.00005 | None |
|  |              |                        | Triethyl phosphate                           | 78-40-0     | 5.00000  | 0.00005 | None |
|  |              |                        | Nonylphenol ethoxylated                      | 127087-87-0 | 5.00000  | 0.00005 | None |
|  |              |                        | Ethanol, 2-Butoxy-                           | 111-76-2    | 5.00000  | 0.00005 | None |
| BL-4   | WST Energy   | Iron Control           |  |             |          |         |      |
|  |              |                        | Acetic Acid                                  | 64-19-7     | 70.00000 | 0.00006 | None |
| 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. |              |                        |  |             |          |         |      |
| Other Chemical(s)  | Listed Above | See Trade Name(s) List |  |             |          |         |      |
|  |              |                        | 2-Propenoic Acid, polymer with 2-propenamide | 9003-06-9   | 25.00000 | 0.01519 |      |
|  |              |                        | Inert Ingredients                            | 68439-46-3  | 83.50000 | 0.01300 |      |
|  |              |                        | Alcohol ethoxylate                           | 68439-46-3  | 15.00000 | 0.00735 |      |
|  |              |                        | Esterified phenolic polymer                  | 129828-31-5 | 15.00000 | 0.00735 |      |
|  |              |                        | Napthalene                                   | 91-20-3     | 5.00000  | 0.00245 |      |
|  |              |                        | Solvent naphtha(petroleum), Heavy arom       | 64742-94-5  | 5.00000  | 0.00245 |      |
|  |              |                        | Alkyl dimethyl benzyl ammonium chloride      | 129828-31-5 | 2.50000  | 0.00039 |      |
|  |              |                        | N,N-Dimethylformamide                        | 68-12-2     | 15.00000 | 0.00015 |      |
|  |              |                        | 1-(Benzyl)quinolinium chloride               | 15619-48-4  | 10.00000 | 0.00010 |      |
|  |              |                        | Cinnamaldehyde                               | 104-55-2    | 5.00000  | 0.00005 |      |
|  |              |                        | Alcohols, C6-12                              | 68603-15-6  | 5.00000  | 0.00005 |      |
|  |              |                        | Triethyl phosphate                           | 78-40-0     | 5.00000  | 0.00005 |      |
|  |              |                        | Nonylphenol ethoxylated                      | 127087-87-0 | 5.00000  | 0.00005 |      |
|  |              |                        | Ethanol, 2-Butoxy-                           | 111-76-2    | 5.00000  | 0.00005 |      |

\* 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)

