

30-005-64299

NM OIL CONSERVATION  
ARTESIA DISTRICT

MAR 04 2019

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## Hydraulic Fracturing Fluid Product Component Information Disclosure

|                              |                                         |
|------------------------------|-----------------------------------------|
| Job Start Date:              | 12/27/2018                              |
| Job End Date:                | 12/28/2018                              |
| State:                       | New Mexico                              |
| County:                      | Chaves                                  |
| API Number:                  | 30-005-64299-00-00                      |
| Operator Name:               | Hadaway Consulting and Engineering, LLC |
| Well Name and Number:        | Pinehurst #5H                           |
| Latitude:                    | 33.35770000                             |
| Longitude:                   | -104.14220000                           |
| Datum:                       | NAD27                                   |
| Federal Well:                | NO                                      |
| Indian Well:                 | NO                                      |
| True Vertical Depth:         | 1,250,954                               |
| 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 |
|---------------------|-----------------------|-----------------|--------------------------------------------|------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|----------|
| Fresh Water         | Operator              | Carrier Fluid   | Water                                      | 7732-18-5                                | 100.00000                                                  | 89.45026                                                   | None     |
| Proppant (Sand)     | Basic Energy Services | Propping Agent  | Crystalline Silica, quartz                 | 14808-80-7                               | 100.00000                                                  | 6.81074                                                    | None     |
| 15% HCl             | Basic Energy Services | Acid            | Water                                      | 7732-18-5                                | 85.00000                                                   | 2.82510                                                    | None     |
| 15% HCl             | Basic Energy Services | Acid            | Hydrochloric Acid                          | 7647-01-0                                | 15.00000                                                   | 0.46325                                                    | None     |
| LGW-1               | ACE Completions       | Gel             | Distillates, Petroleum, Hydrotreated Light | 8742-47-8                                | 55.00000                                                   | 0.23817                                                    | None     |
| LGW-1               | ACE Completions       | Gel             | Guar Gum                                   | 9000-30-0                                | 45.00000                                                   | 0.19486                                                    | None     |
| Ammonium Persulfate | Chemplex              | Breaker         | Ammonium Persulfate                        | 7727-54-0                                | 98.00000                                                   | 0.07548                                                    | None     |
| SI-329              | Colossal Chemical     | Scale Inhibitor | Amino Tris(methylene phosphonic acid)      | 8419-19-8                                | 52.00000                                                   | 0.05271                                                    | None     |
| BXL-4               | ACE Completions       | Crosslinker     |                                            |                                          |                                                            |                                                            |          |

|               |                   |                        |                                             |             |           |         |      |
|---------------|-------------------|------------------------|---------------------------------------------|-------------|-----------|---------|------|
| BXL-4         | ACE Completions   | Crosslinker            | Sodium Metaborate                           | Proprietary | 40.00000  | 0.05094 | None |
|               |                   |                        | Water                                       | 7732-18-5   | 30.00000  | 0.03820 | None |
| BXL-4         | ACE Completions   | Crosslinker            | Glycerol                                    | 56-81-5     | 30.00000  | 0.03820 | None |
| SI-329        | Colossal Chemical | Scale Inhibitor        | Polycarboxylic acid, sodium salt            | 52601-60-9  | 28.00000  | 0.02836 | None |
| S-100         | Colossal Chemical | Surfactant             | Water                                       | 7732-18-5   | 100.00000 | 0.01819 | None |
| Buffer 11     | Chemplex          | Buffer                 | Potassium Carbonate                         | 584-08-7    | 40.00000  | 0.01290 | None |
| Tolcide PS20A | ChemPlex          | Biocide                | Tetakis (Hydroxymethyl) Phosphonium Sulfate | 55568-30-8  | 22.00000  | 0.00775 | None |
| ACI-100       | ACE Completions   | Acid Inhibitor         | Monoethylene glycol                         | 107-21-1    | 65.00000  | 0.00808 | None |
| Buffer 11     | Chemplex          | Buffer                 | Potassium Hydroxide                         | 1310-58-3   | 15.00000  | 0.00484 | None |
| Total-4       | ACE Completions   | Total Acidizing System | Dipropylene glycol monomethyl ether         | 34590-94-8  | 25.00000  | 0.00472 | None |
| Total-4       | ACE Completions   | Total Acidizing System | Acetic Acid                                 | 64-19-7     | 25.00000  | 0.00472 | None |
| LGW-1         | ACE Completions   | Gel                    | Surfactants                                 | Proprietary | 1.00000   | 0.00433 | None |
| LGW-1         | ACE Completions   | Gel                    | Organophilic Clay                           | Proprietary | 1.00000   | 0.00433 | None |
| Total-4       | ACE Completions   | Total Acidizing System | Monoethylene glycol                         | 107-21-1    | 22.00000  | 0.00415 | None |
| S-100         | Colossal Chemical | Surfactant             | Nonylphenol Ethoxide                        | Proprietary | 25.00000  | 0.00405 | None |
| Total-4       | ACE Completions   | Total Acidizing System | Citric Acid                                 | 77-92-9     | 12.00000  | 0.00227 | None |
| ACI-100       | ACE Completions   | Acid Inhibitor         | Dipropylene glycol monomethyl ether         | 34590-94-8  | 20.00000  | 0.00187 | None |
| S-100         | Colossal Chemical | Surfactant             | Methanol                                    | 67-56-1     | 10.00000  | 0.00182 | None |
| Total-4       | ACE Completions   | Total Acidizing System | 3-Phenylpropenal                            | 104-55-2    | 4.00000   | 0.00076 | None |
| Total-4       | ACE Completions   | Total Acidizing System | Copolymer                                   | 9003-11-6   | 4.00000   | 0.00076 | None |
| Total-4       | ACE Completions   | Total Acidizing System | Pyridine, alkyl deriva                      | 88391-11-7  | 4.00000   | 0.00076 | None |
| Total-4       | ACE Completions   | Total Acidizing System |                                             |             |           |         |      |

|         |                 |                        |                                                   |            |         |         |      |
|---------|-----------------|------------------------|---------------------------------------------------|------------|---------|---------|------|
|         |                 |                        | Amine Sulfonate                                   | 26838-07-7 | 4.00000 | 0.00076 | None |
| Total-4 | ACE Completions | Total Acidizing System |                                                   |            |         |         |      |
|         |                 |                        | Alkyl (C12-C14-secondary)<br>alcohol, ethoxylated | 84133-50-6 | 3.00000 | 0.00057 | None |
| ACI-100 | ACE Completions | Acid Inhibitor         |                                                   |            |         |         |      |
|         |                 |                        | 3-Phenylpropenal                                  | 104-55-2   | 6.00000 | 0.00056 | None |
| ACI-100 | ACE Completions | Acid Inhibitor         |                                                   |            |         |         |      |
|         |                 |                        | Pyridine, alkyl deriva                            | 88391-11-7 | 6.00000 | 0.00056 | None |
| ACI-100 | ACE Completions | Acid Inhibitor         |                                                   |            |         |         |      |
|         |                 |                        | Alkyl (C12-C14-secondary)<br>alcohol, ethoxylated | 84133-50-6 | 5.00000 | 0.00047 | 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

\* 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)