

Hydraulic Fracturing Fluid Product Component Information Disclosure

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|--------------------------------|------------------------------|
| Job Start Date: | 6/7/2014 |
| Job End Date: | 6/8/2014 |
| State: | Colorado |
| County: | Weld |
| API Number: | 05-123-37926-00-00 |
| Operator Name: | PDC Energy |
| Well Name and Number: | HARVESTERS RESOURCES 15R-243 |
| Longitude: | -104.76140000 |
| Latitude: | 40.49471000 |
| Datum: | NAD27 |
| Federal/Tribal Well: | NO |
| True Vertical Depth: | 0 |
| Total Base Water Volume (gal): | 2,999,521 |
| 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 | Base Fluid | | | | | |
| | | | Fresh Water | 7732-18-5 | 100.00000 | 82.81549 | Density = 8.330 |
| SAND - PREMIUM WHITE | Halliburton | Proppant | | | | | |
| | | | Crystalline silica, quartz | 14808-60-7 | 100.00000 | 15.97290 | |
| SSA-2 | Halliburton | Proppant | | | | | |
| | | | Crystalline silica, quartz | 14808-60-7 | 100.00000 | 0.40019 | |
| WG-18 GELLING AGENT | Halliburton | Gelling Agent | | | | | |
| | | | Guar gum derivative | Confidential | 100.00000 | 0.22900 | |
| VICON NF BREAKER | Halliburton | Breaker | | | | | |
| | | | Sodium chloride | 7647-14-5 | 30.00000 | 0.08054 | |
| | | | Chlorous acid, sodium salt | 7758-19-2 | 10.00000 | 0.02685 | |
| BA-20 BUFFERING AGENT | Halliburton | Buffer | | | | | |
| | | | Ammonium acetate | 631-61-8 | 100.00000 | 0.07260 | |
| | | | Acetic acid | 64-19-7 | 30.00000 | 0.02178 | |
| OilPerm FMM-1 | Halliburton | Surfactant | | | | | |
| | | | Ethanol | 64-17-5 | 30.00000 | 0.03354 | |
| | | | Isopropanol | 67-63-0 | 10.00000 | 0.01118 | |

| | | | | | | | |
|--|-------------|---------------------|--|--------------|-----------|---------|---|
| | | | Terpenes and Terpenoids, sweet orange-oil | 68647-72-3 | 10.00000 | 0.01118 | |
| | | | Citrus, extract | 94266-47-4 | 10.00000 | 0.01118 | |
| | | | Heavy aromatic petroleum naphtha | 64742-94-5 | 5.00000 | 0.00559 | |
| | | | Poly (oxy-1,2-ethanediyl),alpha-(4-nonylphenyl)-omega-hydroxy-, branched | 127087-87-0 | 5.00000 | 0.00559 | |
| | | | 1,2,4 Trimethylbenzene | 95-63-6 | 1.00000 | 0.00112 | |
| | | | Naphthalene | 91-20-3 | 1.00000 | 0.00112 | |
| CL-23 CROSSLINKER | Halliburton | Crosslinker | | | | | |
| | | | Zirconium, acetate lactate oxo ammonium complexes | 68909-34-2 | 60.00000 | 0.02534 | |
| | | | Ammonium chloride | 12125-02-9 | 30.00000 | 0.01267 | |
| CAT-3 | Halliburton | Activator | | | | | |
| | | | EDTA/Copper chelate | Confidential | 30.00000 | 0.01515 | |
| | | | Methanol | 67-56-1 | 30.00000 | 0.01515 | |
| Cla-Web | Halliburton | Additive | | | | | |
| | | | Ammonium salt | Confidential | 60.00000 | 0.01343 | Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226 |
| FR-66 | Halliburton | Friction Reducer | | | | | |
| | | | Hydrotreated light petroleum distillate | 64742-47-8 | 30.00000 | 0.00421 | |
| SP BREAKER | Halliburton | Breaker | | | | | |
| | | | Sodium persulfate | 7775-27-1 | 100.00000 | 0.00040 | |
| 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 Ingredient(s) | | | | | |
| | | | Water | 7732-18-5 | | 0.38793 | |
| | | Other Ingredient(s) | | | | | |
| | | | Sodium bicarbonate | 144-55-8 | | 0.01145 | |
| | | Other Ingredient(s) | | | | | |
| | | | Polyacrylamide copolymer | Confidential | | 0.00421 | |
| | | Other Ingredient(s) | | | | | |
| | | | Silica, amorphous - fumed | 7631-86-9 | | 0.00229 | |
| | | Other Ingredient(s) | | | | | |
| | | | Ammonium acetate | 631-61-8 | | 0.00211 | |
| | | Other Ingredient(s) | | | | | |
| | | | Sodium chloride | 7647-14-5 | | 0.00182 | |
| | | Other Ingredient(s) | | | | | |
| | | | Quaternary amine | Confidential | | 0.00112 | |
| | | Other Ingredient(s) | | | | | |
| | | | Ammonium chloride | 12125-02-9 | | 0.00070 | |
| | | Other Ingredient(s) | | | | | |
| | | | Alcohols ethoxylated | Confidential | | 0.00070 | |
| | | Other Ingredient(s) | | | | | |

| | | | | | | | |
|--|--|---------------------|---|--------------|--|---------|--|
| | | | Amide | Confidential | | 0.00070 | |
| | | Other Ingredient(s) | | | | | |
| | | | Quaternary amine | Confidential | | 0.00022 | |
| | | Other Ingredient(s) | | | | | |
| | | | Sorbitan monooleate polyoxyethylene derivative | 9005-65-6 | | 0.00014 | |
| | | Other Ingredient(s) | | | | | |
| | | | Sorbitan, mono-9- octadecenoate, (Z) | 1338-43-8 | | 0.00014 | |
| | | Other Ingredient(s) | | | | | |
| | | | Amine salts | Confidential | | 0.00002 | |
| | | Other Ingredient(s) | | | | | |
| | | | Quaternary amine | Confidential | | 0.00002 | |
| | | Other Ingredient(s) | | | | | |
| | | | Amine salts | Confidential | | 0.00002 | |
| | | Other Ingredient(s) | | | | | |
| | | | Sodium sulfate | 7757-82-6 | | 0.00000 | |

* 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)