



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OIL AND GAS MANAGEMENT PROGRAM

| DEP USE ONLY |                |
|--------------|----------------|
| Site ID      | Primary Fac ID |
| Client       | Subfacility Id |

## Completion Report

### Well Information

If you are submitting this Completion Report attached to the Well Record, you only need to enter the well API # in this section.

|  |                     |  |  |                                |
|--|---------------------|--|--|--------------------------------|
| Well Operator<br>Range Resources-Appalachia, LLC | DEP ID#<br>141142   | Well API # (Permit / Reg)<br>37-125-23890-00 | Project Number                         | Acres<br>842                   |
| Address<br>380 Southpointe Blvd, Suite 300       |                     | Well Farm Name<br>Drugmand                   | Well #<br>4H                           | Serial #                       |
| City<br>Canonsburg                               | State<br>PA         | Zip Code<br>15317                            | County<br>Washington                   | Municipality<br>Mount Pleasant |
| Phone<br>724-743-6700                            | Fax<br>724-743-6490 | Email  | USGS 7.5 min. quadrangle map<br>Midway |                                |

Check the appropriate submission:  Original Completion Report  Amended Completion Report

### STIMULATION BASE FLUID

| List Water Management Plan Approved Water Source(s) that were used | Water Management Plan ID No. | Volume (Gallons) |
|--|------------------------------|------------------|
| 1. PA American Water Co Pgh/McMurray Ft Cherry Rd                  | Source 13                    | 783,048          |
| 2.   |                              |                  |
| 3.   |                              |                  |
| 4.   |                              |                  |
| 5.   |                              |                  |
| 6.   |                              |                  |
| <b>Recycled Water Used</b>   |                              | <b>1,706,250</b> |
| <b>Other Base Fluid(s)/Components Used</b>                         |                              |                  |
| 1.   |                              |                  |
| 2.   |                              |                  |
| <b>Total Base Fluid(s)/Components Used</b>                         |                              | <b>2,489,298</b> |

### PERFORATION RECORD

| Stage No. | Perforation Date | Stage Perforated From | Stage Perforated To | Perf. Orientation (Vertical, Horizontal, Radial) | Formation       |
|-----------|------------------|-----------------------|---------------------|--|-----------------|
| 1         | 3-16-2011        | 10,395'MD             | 10,095'MD           | Horizontal                                       | Marcellus Shale |
| 2         | 3-17-2011        | 9,995'MD              | 9,695'MD            | Horizontal                                       | Marcellus Shale |
| 3         | 3-18-2011        | 9,595'MD              | 9,295'MD            | Horizontal                                       | Marcellus Shale |
| 4         | 3-18-2011        | 9,195'MD              | 8,895'MD            | Horizontal                                       | Marcellus Shale |
| 5         | 3-18-2011        | 8,795'MD              | 8,495'MD            | Horizontal                                       | Marcellus Shale |
| 6         | 3-21-2011        | 8,395'MD              | 8,095'MD            | Horizontal                                       | Marcellus Shale |
| 7         | 3-22-2011        | 7,995'MD              | 7,695'MD            | Horizontal                                       | Marcellus Shale |
| 8         | 3-23-2011        | 7,595'MD              | 7,295'MD            | Horizontal                                       | Marcellus Shale |
| 9         |                  |                       |                     |  |                 |
| 10        |                  |                       |                     |  |                 |
| 11        |                  |                       |                     |  |                 |
| 12        |                  |                       |                     |  |                 |





**STIMULATION INFORMATION (WELL)**

|  |   |  |                 |
|--|---|--|-----------------|
| Open Flow Production:<br>Omc/d @ 24hrs pos treatment | 24 Hr. Open Flow Production:<br>Omc/d @ 24hrs pos treatment | 24 Hr. Shut-in Pressure:<br>N/A @ 24hrs post treatment | Flow Back Date: |
|--|---|--|-----------------|

**STIMULATION INFORMATION (STAGE)**


Complete a separate record for each stimulation stage. (Please insert additional copies of this page for additional stages).

|                              |                                    |   |
|------------------------------|------------------------------------|---|
| <b>Stage No.:</b><br>1       | Stimulation Date:<br>3-16-2011     | Pump Rate:<br>65.3                          |
| Pressure (psi):<br>7,658     | Shut-in Surface Pressure:<br>3,636 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>402,510  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>2       | Stimulation Date:<br>3-18-2011     | Pump Rate:<br>70.3                          |
| Pressure (psi):<br>7,129     | Shut-in Surface Pressure:<br>4,023 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>407,079  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>3       | Stimulation Date:<br>3-18-2011     | Pump Rate:<br>70.1                          |
| Pressure (psi):<br>6,685     | Shut-in Surface Pressure:<br>3,705 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>404,685  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>4       | Stimulation Date:<br>3-18-2011     | Pump Rate:<br>69.6                          |
| Pressure (psi):<br>6,486     | Shut-in Surface Pressure:<br>3,852 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>403,147  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>5       | Stimulation Date:<br>3-21-2011     | Pump Rate:<br>69.4                          |
| Pressure (psi):<br>6,439     | Shut-in Surface Pressure:<br>3,792 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>403,594  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>6       | Stimulation Date:<br>3-22-2011     | Pump Rate:<br>70.1                          |
| Pressure (psi):<br>7,105     | Shut-in Surface Pressure:<br>3,834 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>405,311  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>7       | Stimulation Date:<br>3-23-2011     | Pump Rate:<br>70.3                          |
| Pressure (psi):<br>6,572     | Shut-in Surface Pressure:<br>3,988 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>403,963  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |

**WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)**

|   |   |  |
|---|---|--|
| <b>Name</b><br>Frac Tech                    | <b>Name</b><br>Multi-Chem                   | <b>Name</b><br>Universal Well Servi ces            |
| <b>Address</b><br>16858 IH20                | <b>Address</b><br>200 Detroit Street        | <b>Address</b><br>730 Braddock View Drive          |
| <b>City - State- Zip</b><br>Cisco, TX 76437 | <b>City - State - Zip</b><br>Washington, PA | <b>City - State - Zip</b><br>Mt Braddock, PA 15465 |
| <b>Phone</b><br>817-850-1008                | <b>Phone</b><br>325-486-7489                | <b>Phone</b><br>724-430-6201                       |

I do hereby certify to the best of my knowledge, information and belief that the information contained on this Completion Report is true and correct. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

|   |                                |
|---|--------------------------------|
| <b>Well Operator's Signature</b>  | <b>DEP USE ONLY</b>            |
|  | Reviewed by: _____ Date: _____ |
| Title:<br>Completion Engineer: R. Archibeque  | Comments: _____                |
| Date:<br>4-15-2011  |                                |

**STIMULATION INFORMATION (STAGE- Continued)**

Complete a separate record for each stimulation stage. (Please insert additional copies of this page for additional stages).

|                              |                                    |   |
|------------------------------|------------------------------------|---|
| <b>Stage No.:</b><br>8       | Stimulation Date:<br>3-23-2011     | Pump Rate:<br>69.9                          |
| Pressure (psi):<br>6,401     | Shut-in Surface Pressure:<br>4,035 | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:<br>388,292  | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>9       | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>10      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):<br>6         | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>11      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>12      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>13      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>14      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>15      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>16      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |
| <b>Stage No.:</b><br>17      | Stimulation Date:                  | Pump Rate:                                  |
| Pressure (psi):              | Shut-in Surface Pressure:          | 5 Minute Shut-in Surface Pressure:<br>N/A   |
| Propping Agent Type:<br>Sand | Propping Agent Amount:             | Propping Agent Size:<br>100 Mesh 30/50 Mesh |



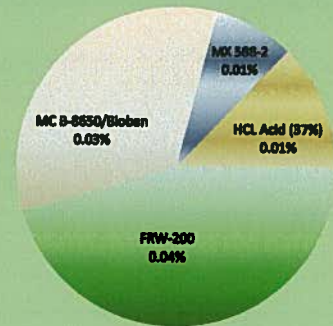
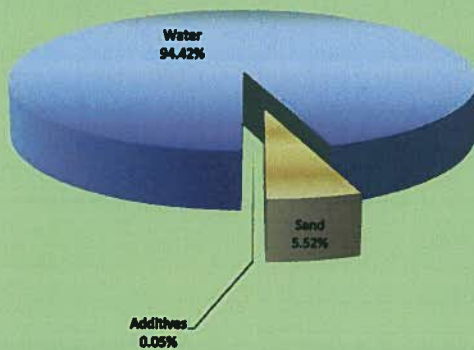
RANGE RESOURCES

Drugmand Unit #4H  
Well API: 37-125-23890

Completion Date: March 23rd, 2011  
Township: Somerset

| % Composition of Hydraulic Fracture Fluid (by volume) |                     |   |  |               |           |  |
|---|---------------------|---|--|---------------|-----------|--|
| Product Name  | Additive            | Purpose   | Use and Dilution   | Volume        | Overall % | Common Uses  |
| Water   | Carrier Fluid       | Creates fracture network in shale and carry proppant to the formation | Primary constituent  | 2,487,875 gal | 94.15%    | Water is the most abundant molecule on the Earth's surface                         |
| Sand  | Sand                | Allows fractures to remain open so gas can escape                     | Second most common constituent, making up almost 8% of the fluid | 145,480 gal   | 5.51%     | Drinking water filtration, play sand   |
| FRW-200   | Friction Reducer    | Reduces friction between fluid and pipe                               | Diluted at one-half gallon per 1,000 gallons of water            | 0,947 gal     | 0.04%     | Water treatment; soil conditioner; some children's toys                            |
| MC B-8650/Bioban                                      | Antimicrobial Agent | Eliminates bacteria in the water that produce corrosive byproducts    | Diluted at one-half gallon per 1,000 gallons of water            | 0,699 gal     | 0.03%     | Water treatment, disinfectant; sterilize medical and dental equipment and surfaces |
| MX 588-2  | Scale Inhibitor     | Prevents scaling in pipe  | Diluted at one-tenth gallon per 1,000 gallons of water           | 0,168 gal     | 0.01%     | Water treatment, household cleaners, de-icing agent                                |
| HCL Acid (37%)  | Perf Clean-Up       | Dissolves cement and minerals to help initiate fractures              | 177 gallons per stage if required (non-diluted chemicals)        | 0,268 gal     | 0.01%     | Swimming pool and household cleaner  |

Composition of Hydraulic Fracture Fluid (by volume)





## Composition of Components in Marcellus Shale Hydraulic Fracturing Fluid

**RANGE RESOURCES**

| Common Name & Supplier      | Supplier Chemical Name | Common Description       | Hazardous Component listed on MSDS | Purpose            | MSDS Component Weight % of Chemical | Gallons MSDS Component in Well | Maximum Concentration of MSDS Component of Total Stage Fluid |                |
|-----------------------------|------------------------|--------------------------|------------------------------------|--------------------|-------------------------------------|--------------------------------|--|----------------|
|                             |                        |                          |                                    |                    |                                     |                                | % Vol  | % Weight       |
| 7.5% HCl Mixture (FracTech) | 37% HCL                | concentrated HCl Acid    | HCL                                | Cleans perforation | 37.0%                               | 268.42                         | 0.0102%  | 0.0041%        |
|                             | CI-100                 | Corrosion Inhibitor      | Methanol                           | Protects casing    | 85.0%                               | 12.95                          | 0.0005%  | 0.0004%        |
|                             |                        |                          | Propargyl Alcohol                  | Protects casing    | 5.0%                                | 0.02                           | 0.0000%  | 0.0000%        |
|                             | NE100                  | Non- Emulsifer           | No hazardous ingredients           | Prevents emulsions | 0.0%                                | N/A                            | N/A  | N/A            |
| FE100L                      | Iron Chelator          | No hazardous ingredients | Prevents precipitation             | 0.0%               | N/A                                 | N/A                            | N/A  | N/A            |
| <b>TOTAL</b>                |                        |                          |                                    |                    |                                     |                                | <b>0.0106%</b>   | <b>0.0044%</b> |

|                             |         |                  |                          |                             |      |     |     |     |
|-----------------------------|---------|------------------|--------------------------|-----------------------------|------|-----|-----|-----|
| Friction Reducer (FracTech) | FRW-200 | Friction Reducer | No hazardous ingredients | Reduce friction down casing | 0.0% | N/A | N/A | N/A |
|-----------------------------|---------|------------------|--------------------------|-----------------------------|------|-----|-----|-----|

|                             |          |                 |                          |                         |      |     |     |     |
|-----------------------------|----------|-----------------|--------------------------|-------------------------|------|-----|-----|-----|
| Scale Inhibitor (MultiChem) | MX 588-2 | Scale Inhibitor | No hazardous ingredients | prevents scale deposits | 0.0% | N/A | N/A | N/A |
|-----------------------------|----------|-----------------|--------------------------|-------------------------|------|-----|-----|-----|

|                                 |            |                     |                             |                              |       |        |                |                |
|---------------------------------|------------|---------------------|-----------------------------|------------------------------|-------|--------|----------------|----------------|
| Antibacterial Agent (MultiChem) | CS-1135    | Antibacterial Agent | 4,4-Dimethyloxazolidine     | eliminates bacteria in water | 78.0% | 385.61 | 0.0146%        | 0.0134%        |
|                                 |            |                     | 3,4,4-Trimethyloxazolidine  |                              | 5.0%  | 25.24  | 0.0010%        | 0.0009%        |
|                                 |            |                     | 2-Amino-2-methyl-1-propanol |                              | 1.0%  | 5.29   | 0.0002%        | 0.0002%        |
|                                 |            |                     | Formaldehyde Amlne          |                              | 0.5%  | 2.30   | 0.0001%        | 0.0001%        |
|                                 | BMC B-8650 | Antibacterial Agent | Glutaraldehyde              | eliminates bacteria in water | 50.0% | 71.36  | 0.0027%        | 0.0037%        |
|                                 |            |                     | Methanol                    |                              | 0.5%  | 0.71   | 0.0000%        | 0.0000%        |
| <b>TOTAL</b>                    |            |                     |                             |                              |       |        | <b>0.0186%</b> | <b>0.0183%</b> |

|                |               |               |
|----------------|---------------|---------------|
| <b>SUMMARY</b> | by vol %      | by weight %   |
|                | <b>0.168%</b> | <b>0.150%</b> |