



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

| DEP USE ONLY |                     |
|--------------|---------------------|
| Site Id      | Primary Facility Id |
| Client Id    | Sub-facility Id     |

## WELL RECORD AND COMPLETION REPORT

|   |                            |  |  |                               |                     |
|---|----------------------------|--|--|-------------------------------|---------------------|
| Well Operator<br><b>Range Resources – Appalachia, LLC</b>   |                            | DEP ID#<br><b>141142</b>                     | Well API # (Permit / Reg)<br><b>37-125-23958</b> | Project Number                | Acres<br><b>441</b> |
| Address<br><b>380 Southpointe Blvd. Suite 300</b>   |                            |  | Well Farm Name<br><b>Sierzega Unit</b>           | Well #<br><b>11H</b>          | Serial #            |
| City<br><b>Canonsburg</b>   | State<br><b>PA</b>         | Zip Code<br><b>15317</b>                     | County<br><b>Washington</b>                      | Municipality<br><b>Amwell</b> |                     |
| Phone<br><b>724-743-6700</b>  | Fax<br><b>724-743-6790</b> | USGS 7.5 min. quadrangle map<br><b>Amity</b> |  |                               |                     |
| Check all that apply: <input checked="" type="checkbox"/> Original Well Record <input checked="" type="checkbox"/> Original Completion Report <input type="checkbox"/> Amended Well Record <input type="checkbox"/> Amended Completion Report |                            |  |  |                               |                     |

### WELL RECORD Also complete Log of Formations on back (page 2)

| Well Type                                 | <input checked="" type="checkbox"/> Gas <input type="checkbox"/> Oil <input type="checkbox"/> Combination Oil & Gas <input type="checkbox"/> Injection <input type="checkbox"/> Storage <input type="checkbox"/> Disposal |                                      |   |   |                                      |                                       |         |        |          |
|---|---|--------------------------------------|---|---|--------------------------------------|---------------------------------------|---------|--------|----------|
| Drilling Method                           | <input type="checkbox"/> Rotary – Air <input checked="" type="checkbox"/> Rotary – Mud <input type="checkbox"/> Cable Tool  |                                      |   |   |                                      |                                       |         |        |          |
| Date Drilling Started<br><b>3/18/2010</b> | Date Drilling Completed<br><b>5/6/2010</b>  | Surface Elevation<br><b>1147 ft.</b> | Total Depth - Driller<br><b>11245 ft</b>  | Total Depth - Logger<br><b>11245 ft</b> |                                      |                                       |         |        |          |
| <b>Casing and Tubing</b>                  |   |                                      | Cement returned on surface casing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Cement returned on coal protective casing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |   |                                      |                                       |         |        |          |
| Hole Size                                 | Pipe Size   | Wt.                                  | Thread / Weld   | Amount in Well (ft)                     | Material Behind Pipe Type and Amount | Packer / Hardware / Centralizers Type | Size    | Depth  | Date Run |
| 30"                                       | 26"   | 106#                                 | Thread  | 36'                                     | Driven                               | ----                                  | 26"     | 36'    | 3/18/100 |
| 24"                                       | 20"   | 81.3#                                | Thread  | 337'                                    | Class A Gas Block, 375 sx            | GS                                    | 20"     | 337'   | 3/19/10  |
| 17-1/2"                                   | 13-3/8"   | 54.5#                                | Thread  | 1130'                                   | Class A Gas Block, 825 sx            | GS                                    | 13-3/8" | 1130'  | 3/22/10  |
| 12-1/4"                                   | 9-5/8"  | 40#                                  | Thread  | 3017'                                   | Class A Gas Block, xk                | GS                                    | 9-5/8"  | 3017'  | 3/30/10  |
| 8-3/4"                                    | 5-1/2"  | 20#                                  | Thread  | 11230'                                  | Halliburton lite, 1485 sx            | FS                                    | 5-1/2"  | 11230' | 5/6/10   |
| Fraccem 410 sx                            |   |                                      |   |   |                                      |                                       |         |        |          |

### COMPLETION REPORT

| Perforation Record  |                             |           | Stimulation Record  |                  |                   |             |                            |           |                   |
|---|-----------------------------|-----------|---|------------------|-------------------|-------------|----------------------------|-----------|-------------------|
| Date  | Interval Perforated From To |           | Date  | Interval Treated | Fluid Type Amount |             | Propping Agent Type Amount |           | Average Injection |
| 12/22/2011  | 11,113'MD                   | 7,716' MD | 1/5/2011  | Marcellus Shale  | Slick H2O         | 106,695 bbl | Sand                       | 5,968 Klb | 65.1 bpm          |
|   |                             |           |   |                  |                   |             |                            |           |                   |
|   |                             |           |   |                  |                   |             |                            |           |                   |
|   |                             |           |   |                  |                   |             |                            |           |                   |
|   |                             |           |   |                  |                   |             |                            |           |                   |
| Natural Open Flow <b>Too small to measure</b>                 |                             |           | Natural Rock Pressure <b>Too small to measure</b>             |                  |                   |             |                            |           |                   |
| After Treatment Open Flow <b>Omcf/d@24 hrs post treatment</b> |                             |           | After Treatment Rock Pressure <b>na@24 hrs post treatment</b> |                  |                   |             |                            |           |                   |

**Well Service Companies -- Provide the name, address, and phone number of all well service companies involved.**

|   |   |  |
|---|---|--|
| Name<br><b>Patterson UTI</b>                  | Name<br><b>Universal Well Services</b>              | Name<br><b>Frac Tech</b>                     |
| Address<br><b>4501 Lamesa Highway</b>         | Address<br><b>730 Braddock View Dr</b>              | Address<br><b>16858 IH20</b>                 |
| City - State - Zip<br><b>Snyder, TX 79549</b> | City - State - Zip<br><b>Mt. Braddock, PA 15465</b> | City - State - Zip<br><b>Cisco, TX 76437</b> |
| Phone<br><b>325-574-6300</b>                  | Phone<br><b>724-430-6201</b>                        | Phone<br><b>817-850-1008</b>                 |

**LOG OF FORMATIONS**

Well API#: 37-125-23958

| Formation Name or Type | Top<br>(feet) | Bottom<br>(feet) | Gas at<br>(feet) | Oil at<br>(feet) | Water at<br>(fresh / brine; ft.) | Source of Data  |
|------------------------|---------------|------------------|------------------|------------------|----------------------------------|-----------------|
| Fill                   | 0'            | 50'              |                  |                  |                                  | Geophysical Log |
| Sand                   | 50'           | 190'             |                  |                  |                                  | Geophysical Log |
| Shale                  | 190'          | 250'             |                  |                  |                                  | Geophysical Log |
| Sand and Shale         | 250'          | 630'             |                  |                  |                                  | Geophysical Log |
| Shale                  | 630'          | 720'             |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 720'          | 1020'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 1020'         | 1100'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 1100'         | 1140'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 1140'         | 1320'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 1320'         | 1490'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 1490'         | 1680'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 1680'         | 1770'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 1770'         | 1910'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 1910'         | 2410'            |                  |                  |                                  | Geophysical Log |
| Sand                   | 2410'         | 2510'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 2510'         | 2870'            |                  |                  |                                  | Geophysical Log |
| Sand                   | 2870'         | 2890'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 2890'         | 3020'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 3020'         | 3120'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 3120'         | 3180'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 3180'         | 3730'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 3730'         | 5260'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 5260'         | 6090'            |                  |                  |                                  | Geophysical Log |
| Sandy Shale            | 6090'         | 6110'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 6110'         | 7080'            |                  |                  |                                  | Geophysical Log |
| Limestone              | 7080'         | 7140'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 7140'         | 7390'            |                  |                  |                                  | Geophysical Log |
| Limestone              | 7390'         | 7450'            |                  |                  |                                  | Geophysical Log |
| Horizontal             |               |                  |                  |                  |                                  | Geophysical Log |
| Shale                  | 6250'         | 7550'            |                  |                  |                                  | Geophysical Log |
| Limestone              | 7550'         | 7670'            |                  |                  |                                  | Geophysical Log |
| Shale                  | 7670'         |                  |                  |                  |                                  | Geophysical Log |
| Drillers Total Depth   |               | 11245'           |                  |                  |                                  | Geophysical Log |

Please delete empty rows if necessary to make all of page 2 fit on one page.

**Well Operator's Signature:**

  
 Title: Completion Engineer: M. Hufey

Date: 1/31/2011

**DEP USE ONLY**

Reviewed by:

Date:

Comments:



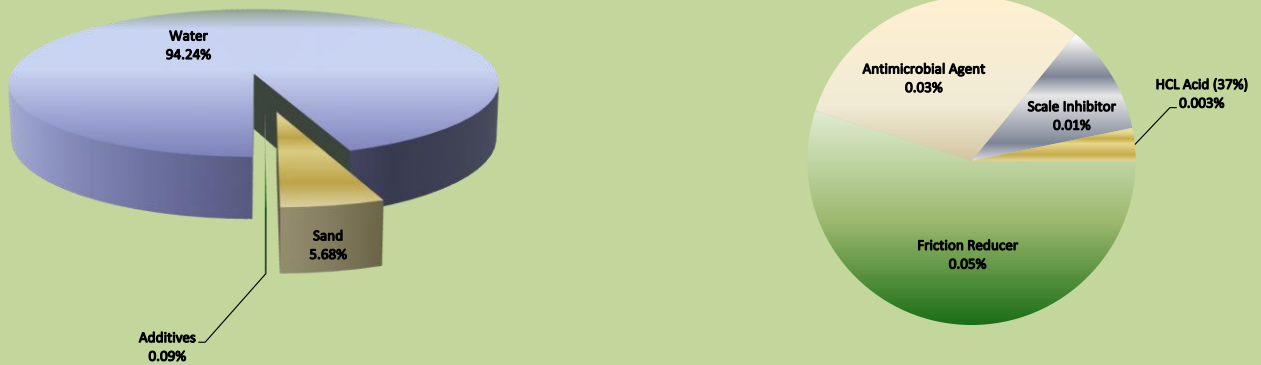
RANGE RESOURCES

Sierzega Unit #11H  
Well API: 37-125-23958

Completion Date: 12/22/10 - 1/5/11  
Township: Amwell

| % Composition of Hydraulic Fracture Fluid (by volume) |                     |   |  |               |           |  |
|---|---------------------|---|--|---------------|-----------|--|
| Product Name  | Additive            | Purpose   | Use and Dillution  | Volume        | Overall % | Common Uses  |
| Water   | Carrier Fluid       | Creates fracture network in shale and carry proppant to the formation | Primary constituent  | 4,477,100 gal | 94.24%    | 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 6% of the fluid | 269,746 gal   | 5.68%     | Drinking water filtration, play sand   |
| FRW-200 & FRW-300                                     | Friction Reducer    | Reduces friction between fluid and pipe                               | Diluted at one-half gallon per 1,000 gallons of water            | 2,249 gal     | 0.05%     | Water treatment; soil conditioner; some children's toys                            |
| MC B-8642/Bioban                                      | Antimicrobial Agent | Eliminates bacteria in the water that produce corrosive byproducts    | Diluted at one-half gallon per 1,000 gallons of water            | 1,270 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           | 444 gal       | 0.01%     | Water treatment, household cleaners, de-icing agent                                |
| HCL Acid  | Perf Clean-Up       | Dissolves cement and minerals to help initiate fractures              | 139 gallons per stage (non-diluted chemicals)                    | 134 gal       | 0.003%    | 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%                               | 133.84                         | 0.0028%  | 0.0011%        |                |
|                             | CI-100                 | Corrosion Inhibitor      | Methanol                           | Protects casing    | 95.0%                               | 4.13                           | 0.0001%  | 0.0001%        |                |
|                             |                        |                          | Propargyl Alcohol                  | Protects casing    | 5.0%                                | 0.18                           | 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>0.0029%</b> | <b>0.0012%</b> |

|                                    |                 |                  |                          |                             |      |     |     |     |
|------------------------------------|-----------------|------------------|--------------------------|-----------------------------|------|-----|-----|-----|
| <b>Friction Reducer (FracTech)</b> | RW-200 & FRW-30 | Friction Reducer | No hazardous ingredients | Reduce friction down casing | 0.0% | N/A | N/A | N/A |
|------------------------------------|-----------------|------------------|--------------------------|-----------------------------|------|-----|-----|-----|

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

|  |            |                     |   |                              |       |        |         |                |                |
|--|------------|---------------------|---|------------------------------|-------|--------|---------|----------------|----------------|
| <b>Antibacterial Agent (Multichem)</b> | Bioban     | Antibacterial Agent | 4,4-Dimethyloxazolidine                   | eliminates bacteria in water | 78.0% | 697.78 | 0.0147% | 0.0135%        |                |
|  |            |                     | 3,4,4-Trimethyloxazolodine                |                              | 5.0%  | 45.68  | 0.0010% | 0.0009%        |                |
|  |            |                     | 2-Amino-2-methyl-1-propanol               |                              | 1.0%  | 9.57   | 0.0002% | 0.0002%        |                |
|  |            |                     | Formaldehyde Amine                        |                              | 0.5%  | 4.17   | 0.0001% | 0.0001%        |                |
|  | BMC B-8642 | Antibacterial Agent | Glutaraldehyde                            | eliminates bacteria in water | 60.0% | 157.22 | 0.0033% | 0.0045%        |                |
|  |            |                     | n-alkyl dimethyl benzyl ammonium chloride |                              | 10.0% | 26.20  | 0.0006% | 0.0008%        |                |
|  |            |                     | Ethanol                                   |                              | 1.0%  | 2.62   | 0.0001% | 0.0001%        |                |
| <b>TOTAL</b>                           |            |                     |   |                              |       |        |         | <b>0.0159%</b> | <b>0.0146%</b> |

|                |               |               |
|----------------|---------------|---------------|
| <b>SUMMARY</b> | by vol %      | by weight %   |
|                | <b>0.019%</b> | <b>0.016%</b> |