



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 <b>Range Resources – Appalachia, LLC</b>		DEP ID# <b>141142</b>	Well API # (Permit / Reg) <b>37-081-20150</b>	Project Number	Acres <b>870</b>
Address <b>380 Southpointe Blvd. Suite 300</b>			Well Farm Name <b>Gentner Unit</b>	Well # <b>5H</b>	Serial #
City <b>Canonsburg</b>	State <b>PA</b>	Zip Code <b>15317</b>	County <b>Lycoming</b>	Municipality <b>Cummings</b>	
Phone <b>724-743-6700</b>	Fax <b>724-743-6790</b>	USGS 7.5 min. quadrangle map <b>Waterville</b>			
Check all that apply: <input checked="" type="checkbox"/> Original Well Record <input 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 <b>3/27/10</b>	Date Drilling Completed <b>10/1/10</b>	Surface Elevation <b>1760 ft.</b>	Total Depth – Driller <b>11661ft</b>	Total Depth - Logger <b>11661 ft</b>					
<b>Casing and Tubing</b>			Cement returned on surface casing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 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	50'	Driven	----	26	50'	3/27/10
17-1/2"	13-3/8"	54.50#	Thread	713'	Gas Block, 515 sx	GS	13-3/8"	713'	4/22/10
12-1/4"	9-5/8"	36#	Thread	1809'	Gas Block, 625 sx	GS	9-5/8"	1809'	4/24/10
8-3/4"	5-1/2"	20#	Thread	11636'	Varicem, 2450 sx	FS	5-1/2"	11636'	10/1/10
					Fraccem, 310 sx				

### COMPLETION REPORT

Perforation Record			Stimulation Record						
Date	Interval Perforated From	To	Date	Interval Treated	Fluid Type	Amount	Propping Agent Type	Amount	Average Injection
11-1-10	11,310 MD	9,401 MD	11-17-10	Marcellus Shale	Slick H2O	73,251 bbl	Sand	3,918 Klb	65.1 BPM
Natural Open Flow Too small to measure			Natural Rock Pressure Too small to measure						
After Treatment Open Flow Omcfd @ 24hrs pos treatment			After Treatment Rock Pressure N/A @ 24hrs post treatment						
			Hours      Days						

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

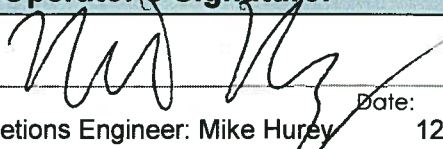
Name <b>Patterson UTI</b>	Name <b>Universal Well Services</b>	Name <b>Frac Tech</b>
Address <b>4501 Lamesa Highway</b>	Address <b>730 Braddock View Dr</b>	Address <b>16858 IH20</b>
City - State - Zip <b>Snyder, TX 79549</b>	City - State - Zip <b>Mt. Braddock, PA 15465</b>	City - State - Zip <b>Cisco,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

## LOG OF FORMATIONS

Well API#: 37-081-20150

Formation Name or Type	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Fill	0'	35'				Geophysical Log
Shale	35'	100'				Geophysical Log
Sandy Shale	100'	280'				Geophysical Log
Shale	280'	400'				Geophysical Log
Sandy Shale	400'	805'				Geophysical Log
Sand	805'	840'				Geophysical Log
Sandy shale	840'	940'				Geophysical Log
Sand	940'	1050'				Geophysical Log
Sandy Shale	1050'	2450'				Geophysical Log
Shale	2450'	2630'				Geophysical Log
Sandy Shale	2630'	2735'				Geophysical Log
Shale	2735'	3055'				Geophysical Log
Sandy Shale	3055'	3120'				Geophysical Log
Shale	3120'	4340'				Geophysical Log
Sandy Shale	4340'	4670'				Geophysical Log
Shale	4670'	4760'				Geophysical Log
Sandy Shale	4760'	5450'				Geophysical Log
Shale	5450'	7410'				Geophysical Log
Limestone	7410'	7460'				Geophysical Log
Shale	7460'	7570'				Geophysical Log
Limestone	7570'	7680'				Geophysical Log
Horizontal						
Shale	7680'	8930'				Geophysical Log
Limestone	8930'	8950'				Geophysical Log
Shale	8950'					Geophysical Log
Drillers Total Depth		11661'				Geophysical Log

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

<p><b>Well Operator's Signature:</b></p> <div style="text-align: center; font-size: 2em; font-family: cursive;">  </div> <p>Title: Completions Engineer: Mike Hurey      Date: 12-6-10</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>DEP USE ONLY</b></td> </tr> <tr> <td>Reviewed by: _____ Date: _____</td> </tr> <tr> <td>Comments: _____</td> </tr> </table>	<b>DEP USE ONLY</b>	Reviewed by: _____ Date: _____	Comments: _____
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Reviewed by: _____ Date: _____				
Comments: _____				



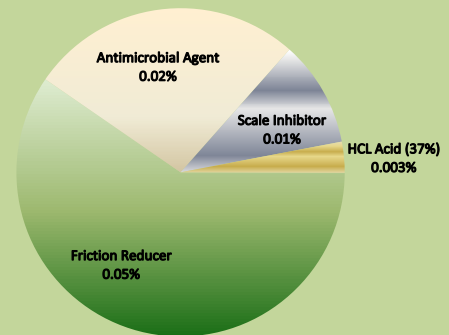
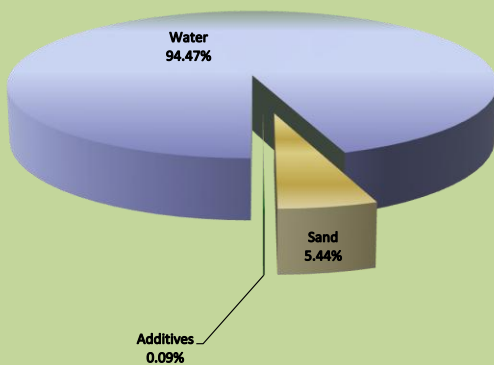
RANGE RESOURCES

Gentner Unit #5H  
Well API: 37-081-20150

Completion Date: November 1 - 17, 2010  
Township: Cummings

% 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	3,073,625 gal	94.47%	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	177,097 gal	5.44%	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	1,732 gal	0.05%	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	784 gal	0.02%	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	304 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)	89 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%	88.62	0.0027%	0.0011%
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	6.19	0.0002%	0.0001%
			Propargyl Alcohol	Protects casing	5.0%	0.27	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>	FRW-200	Friction Reducer	No hazardous ingredients	Reduce friction down casing	0.0%	N/A	N/A	N/A
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<b>Scale Inhibitor (Multichem)</b>	MX 588-2	Scale Inhibitor	No hazardous ingredients	prevents scale deposits	0.0%	N/A	N/A	N/A
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<b>Antibacterial Agent (Multichem)</b>	Bioban	Antibacterial Agent	4,4-Dimethyloxazolidine	eliminates bacteria in water	78.0%	430.75	0.0132%	0.0122%
			3,4,4-Trimethyloxazolodine		5.0%	28.20	0.0009%	0.0008%
			2-Amino-2-methyl-1-propanol		1.0%	5.91	0.0002%	0.0002%
			Formaldehyde Amine		0.5%	2.57	0.0001%	0.0001%
	BMC B-8650	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	50.0%	80.88	0.0025%	0.0034%
		Methanol	0.5%		0.81	0.0000%	0.0000%	
<b>TOTAL</b>							<b>0.0169%</b>	<b>0.0167%</b>

<b>SUMMARY</b>	by vol %	by weight %
	<b>0.020%</b>	<b>0.018%</b>