



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

**Well Record and Completion Report**

<b>DEP USE ONLY</b>	
Site ID	Primary Fac ID
Client Id	Subfacility Id

Well Operator Range Resources - Appalachia, LLC	DEP ID# 141142	Well API # (Permit / Reg) <b>37125-23876</b>	Project Number	Acres 1181
Address 380 Southpointe Blvd, Suite 300		Well Farm Name Goettel	Well # 12H	Serial #
City Canonsburg	State PA	Zip Code 15317	County Washington	Municipality Independence Twp
Phone 724-743-6700	Fax 724-743-6790	USGS 7.5 min. quadrangle map West Middletown		

**Check all that apply:**    Original Well Record    Original Completion Report    Amended Well Record    Amended Completion Report

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

<b>Well Type</b>	<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						
<b>Drilling Method</b>	<input type="checkbox"/> Rotary – Air <input checked="" type="checkbox"/> Rotary – Mud <input type="checkbox"/> Cable Tool						
Date Drilling Started 12/16/09	Date Drilling Completed 6/8/10	Surface Elevation 1318 ft.	Total Depth – Driller 10890 ft.	Total Depth - Logger 10890 ft.			
<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 type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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"	108#	Thread	40'	Driven	--   26"   40'	12/16/09
24"	20"	81.3#	Thread	283'	Gas Block, 315 sx	GS   20"   283'	1/28/10
12-1/4"	9-5/8"	40#	Thread	1935'	Gas Block, 1010 sx	GS   9-5/8"   1935'	2/2/10
8-3/4"	5-1/2"	20#	Thread	10870'	50/50 12% poz, 807 sx	FS   5-1/2"   10870'	6/8/10
					50/50 13% poz, 645 sx		
					Acid sol 550 sx		

**COMPLETION REPORT**

Perforation Record			Stimulation Record						
Date	Interval Perforated From	To	Date	Interval Treated	Fluid Type	Amount	Propping Agent Type	Amount	Average Injection Rate
8/9/10	7,755' MD	10,655' MD	8/24/10	Marcellus Shale	Slick H2O	94,011 bbl	Sand	5,076k lb	60.0 bpm
Natural Open Flow   too small to measure			Natural Rock Pressure   too small		Hours		Days		
After Treatment Open Flow   Not enough time to measure			After Treatment Rock Pressure   Undeterminable		Hours		Days		

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

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

**LOG OF FORMATIONS**Well API#: **37-125-23876-**\_\_\_\_\_*(If you will need more space than this page, please photocopy the blank form before filling it in.)*

Formation Name or Type	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Fill	0'	50'				Drillers Log
Sand	50'	100'				Drillers Log
Gray Shale	100'	130'				Drillers Log
Sandstone	130'	145'				Drillers Log
Gray Shale	145'	160'				Drillers Log
Sandy Shale	160'	180'				Drillers Log
Gray Shale	180'	311'				Drillers Log
Shale	311'	350'				Drillers Log
Sandy Shale	350'	360'				Drillers Log
Redrock	360'	405'				Drillers Log
Sand	405'	415'				Drillers Log
Shale	415'	420'				Drillers Log
Sandy Shale	420'	440'				Drillers Log
Gray Shale	440'	840'				Drillers Log
Redrock	840'	850'				Drillers Log
Gray Shale	850'	1010'				Drillers Log
Sandy Shale	1010'	1380'				Drillers Log
Shale	1380'	1410'				Drillers Log
Gray Shale	1410'	1530'				Drillers Log
Sandstone	1530'	1650'				Drillers Log
Gray shale & Redrock	1650'	1860'				Drillers Log
Shale	1860"	2200'				Drillers Log
Sand	2200'	2255'				Drillers Log
Shale	2255'	2850'				Drillers Log
Gray Shale	2850'	6000'				Drillers Log
Horizontal						
Shale	5000'	7106'				Drillers Log
Limestone	7106'	7290'				Drillers Log
Shale	7290'					Drillers Log
Drillers Total Depth		10890'				Drillers Log

*I do hereby certify to the best of my knowledge, information and belief that the well identified on this Well Record and Completion Report has been properly cased and cemented in accordance with the requirements of 25 Pa. Code Chapter 78 and any conditions contained in the permit for this well. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

**Well Operator's Signature****DEP USE ONLY**

Reviewed by:

Date:

Title:

Date:

Michael Hurey-Completions Engineer 9/9/10

Comments:



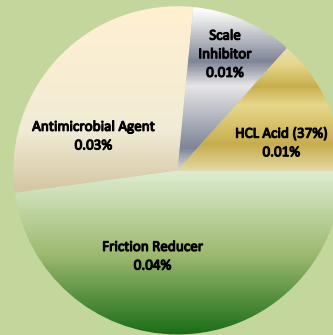
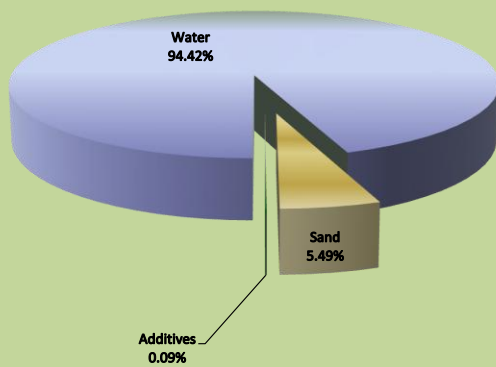
RANGE RESOURCES

Goettel Unit #12H  
Well API: 37-125-23876

Completion Date: August 9 - 24, 2010  
Township: Independence

% 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	3,948,441 gal	94.42%	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	229,445 gal	5.49%	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	1,830 gal	0.04%	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	1,099 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	386 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)	514 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%	514.33	0.0123%	0.0049%
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	15.89	0.0004%	0.0003%
			Propargyl Alcohol	Protects casing	5.0%	0.68	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>0.0127%</b>	<b>0.0052%</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>	MC MS S-2510T	Scale Inhibitor	Sodium hydroxide	prevents scale deposits in pipe and perforations	5.0%	14.13	0.0003%	0.0005%
			Ethylene Glycol		60.0%	229.55	0.0055%	0.0057%
<b>TOTAL</b>							<b>0.0058%</b>	<b>0.0062%</b>

<b>Antibacterial Agent (Multichem)</b>	Bioban	Antibacterial Agent	4,4-Dimethyloxazolidine	eliminates bacteria in water	78.0%	603.82	0.0144%	0.0133%
			3,4,4-Trimethyloxazolidine		5.0%	39.53	0.0009%	0.0009%
			2-Amino-2-methyl-1-propanol		1.0%	8.28	0.0002%	0.0002%
			Formaldehyde Amine		0.5%	3.60	0.0001%	0.0001%
	BMC B-8642	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	60.0%	136.05	0.0033%	0.0045%
			n-alkyl dimethyl benzyl ammonium chloride		10.0%	22.68	0.0005%	0.0007%
			Ethanol		1.0%	2.27	0.0001%	0.0001%
<b>TOTAL</b>							<b>0.0157%</b>	<b>0.0144%</b>

<b>SUMMARY</b>	by vol %	by weight %
	<b>0.034%</b>	<b>0.026%</b>