



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

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

## Well Record and Completion Report

Well Operator Range Resources - Appalachia, LLC		DEP ID# 141142	Well API # (Permit / Reg) <b>37125-23949</b>		Project Number	Acres 503
Address 380 Southpointe Blvd, Suite 300			Well Farm Name Troyer Space Management		Well # 4H	Serial #
City Canonsburg	State PA	Zip Code 15317	County Washington	Municipality Cecil		
Phone 724-743-6700	Fax 724-743-6790	USGS 7.5 min. quadrangle map Canonsburg				
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 the 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 checked="" type="checkbox"/> Rotary - Air	<input checked="" type="checkbox"/> Rotary - Mud	<input type="checkbox"/> Cable Tool				
Date Drilling Started 1/14/2010	Date Drilling Completed 6/16/2010	Surface Elevation 1102 ft.	Total Depth - Driller 11505 ft.	Total Depth - Logger 11505 ft.			
Casing and Tubing		Cement returned on surface casing? <input type="checkbox"/> Yes <input type="checkbox"/> No Cement returned on coal protective casing? <input type="checkbox"/> Yes <input checked="" 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"	108#	Thread	40'	Driven	- 26" 40'	1/14/10
24"	20"	81.3#	Thread	255'	Class A GB 288 sx	GS 20" 255'	5/9/10
17-1/2"	13-3/8"	48#	Thread	379'	Class A GB 370 sx	GS 13-3/8" 379'	5/12/10
12-1/4"	9-5/8"	36#	Thread	1806'	Class A GB 610 sx	GS 9-5/8" 1806'	5/15/10
8-3/4"	5-1/2"	20#	Thread	11497'	Extendacem 895 sx,	FS 5-1/2" 11497'	6/16/10
Hal Light 645 sx sx, Fracem 350							

### COMPLETION REPORT

Perforation Record			Stimulation Record						
Date	Interval Perforated From	To	Date	Interval Treated	Fluid Type	Amount	Propping Agent Type	Amount	Average Injection Rate
1/21/2011	11,358'MD	8,254'MD	2/6/2011	Marcellus Shale	Slick H2O	94,898bbl	Sand	5,477k lb	65.3bpm
Natural Open Flow Too small to measure			Natural Rock Pressure Too small to measure		Hours	Days			
After Treatment Open Flow Omcf/d@24 hrs post treatment			After Treatment Rock Pressure NA@24hr post frac		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
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#: **37-125-23949-**

*(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'	40'				Drillers Log
Sandy Shale	40'	300'				Drillers Log
Sand	300'	400'				Drillers Log
Red Rock/Sandy Shale	400'	600'				Drillers Log
Sandy Shale	600'	1300'			1/2" H2O	Drillers Log
Sand	1300'	1400'				Drillers Log
Sand White	1400'	1500'				Drillers Log
Sandy Shale	1500'	1830'				Drillers Log
Shale	1830'	2805'				Drillers Log
Sandy Shale	2805'	5396'				Drillers Log
Shale	5396'	6240'				Drillers Log
Limestone	6240'	6460'				Drillers Log
Shale	6460'	6482'				Drillers Log
Limestone	6482'	6530'				Drillers Log
Shale	6530'	6640'				Drillers Log
Limestone	6640'	6690'				Drillers Log
Horizontal Shale	5570'	7340'				Drillers Log
Limestone	7340'	7460'				Drillers Log
Shale	7460'					Drillers Log
Drillers Total Depth		11500'				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**

 3/4/2011

Title: Date:  
Completion Engineer: R Archibeque 3/4/2011

**DEP USE ONLY**

Reviewed by: Date:

Comments:

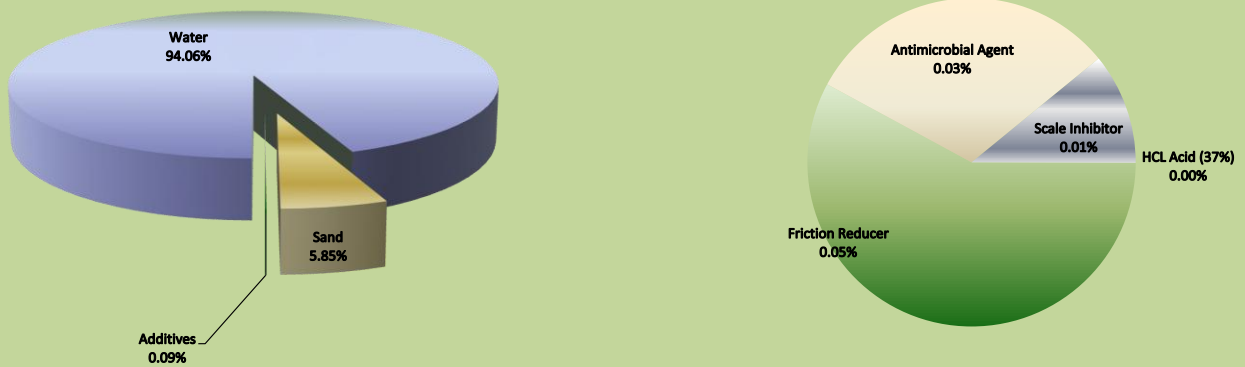


**Troyer Space Management Unit 4H**  
**Well API: 37-125-23949**

**Completion Date: February 6, 2011**  
**Township: Cecil**

% 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	3,982,063 gal	94.06%	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	247,605 gal	5.85%	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	2,124 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	1,146 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	402 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 gal	0.00%	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%	0.00	0.0000%	0.0000%	
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	0.00	0.0000%	0.0000%	
			Propargyl Alcohol	Protects casing	5.0%	0.00	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>0.0000%</b>	<b>0.0000%</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
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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%	629.65	0.0149%	0.0136%	
			3,4,4-Trimethyloxazolodine		5.0%	41.22	0.0010%	0.0009%	
			2-Amino-2-methyl-1-propanol		1.0%	8.64	0.0002%	0.0002%	
			Formaldehyde Amine		0.5%	3.76	0.0001%	0.0001%	
	BMC B-8650	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	50.0%	118.23	0.0028%	0.0038%	
			Methanol		0.5%	1.18	0.0000%	0.0000%	
<b>TOTAL</b>								<b>0.0190%</b>	<b>0.0186%</b>

<b>SUMMARY</b>	by vol %	by weight %
	<b>0.019%</b>	<b>0.019%</b>