



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) 37059-24798		Project Number	Acres 454
Address 380 Southpointe Blvd, Suite 300			Well Farm Name Hardie #1		Well # 1H	Serial #
City Canonsburg	State PA	Zip Code 15317	County Greene	Municipality Greene		
Phone 724-743-6700	Fax 724-743-6790	USGS 7.5 min. quadrangle map Garards Fort				
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 8/15/08		Date Drilling Completed 8/19/10		Surface Elevation 1040 ft.	Total Depth - Driller 11075 ft.	Total Depth - Logger 11075 ft.			
Casing and Tubing				Cement returned on surface casing? <input type="checkbox"/> Yes <input checked="" 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
24"	20"	81.3#	Thread	58'	Driven	--	20"	58'	8/15/08
17 1/2"	13-3/8"	54.5#	Thread	456'	Class A, 350 sx	GS	13-3/8"	456'	8/16/08
12-1/4"	9-5/8"	36#	Thread	2087"	Class A, 150 sx, Sur Poz 610 sx	GS	9-5/8"	2087'	8/20/08
8-3/4"	5-1/2"	20#	Thread	11075'	50/50 poz, 1908 sx	FS	5-1/2"	11075'	8/19/10

COMPLETION REPORT

Perforation Record			Stimulation Record							
Date	Interval Perforated From	To	Date	Interval Treated	Fluid Type	Amount	Propping Agent Type	Amount	Average Injection Rate	
10-4-10	10,735' MD	8,103' MD	10-15-10	Marcellus Shale	Slick H2O	94,691bbl	Sand	4,028K lb	62.3 bpm	
Natural Open Flow			Too small to measure		Natural Rock Pressure		Too small		Hours	Days
After Treatment Open Flow			0mcf/d @ 24hrs post treatment		After Treatment Rock Pressure		N/A@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#: 37-059-24798-

(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'	25'				Drillers Log
Sand and Shale	25'	35'				Drillers Log
Shale	35'	150'				Drillers Log
Sand and Shale	150'	310'				Drillers Log
Sand	310'	370'				Drillers Log
Sand and Shale	370'	590'				Drillers Log
Shale	590'	650'				Drillers Log
Sand and Shale	650'	720'				Drillers Log
Shale	720'	900'				Drillers Log
Sand and Shale	900'	1015'				Drillers Log
Shale	1015'	1145'				Drillers Log
Sand and Shale	1145'	1250'				Drillers Log
Sand	1250'	1290'				Drillers Log
Sand and Shale	1290'	1540'				Drillers Log
Shale	1540'	1580'				Drillers Log
Sand and Shale	1580'	3210'				Drillers Log
Shale	3210'	3640'				Drillers Log
Sand	3640'	4130'				Drillers Log
Shale	4130'	4680'				Drillers Log
Sand and Shale	4680'	4810'				Drillers Log
Shale	4810'	5540'				Drillers Log
Sand	5540'	6780'				Drillers Log
Limestone	6780'	8684'				Drillers Log
Horizontal						
Shale	5670'	7610'				Drillers Log
Limestone	7610'	7660'				Drillers Log
Shale	7660'					Drillers Log
Drillers Total Depth		11075'				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.

<p>Well Operator's Signature</p> <p>Title: Completions Engineer: Mike Hurey Date: 11-5-10</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">DEP USE ONLY</td> </tr> <tr> <td>Reviewed by: _____ Date: _____</td> </tr> <tr> <td>Comments: _____</td> </tr> </table>	DEP USE ONLY	Reviewed by: _____ Date: _____	Comments: _____
DEP USE ONLY				
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Comments: _____				

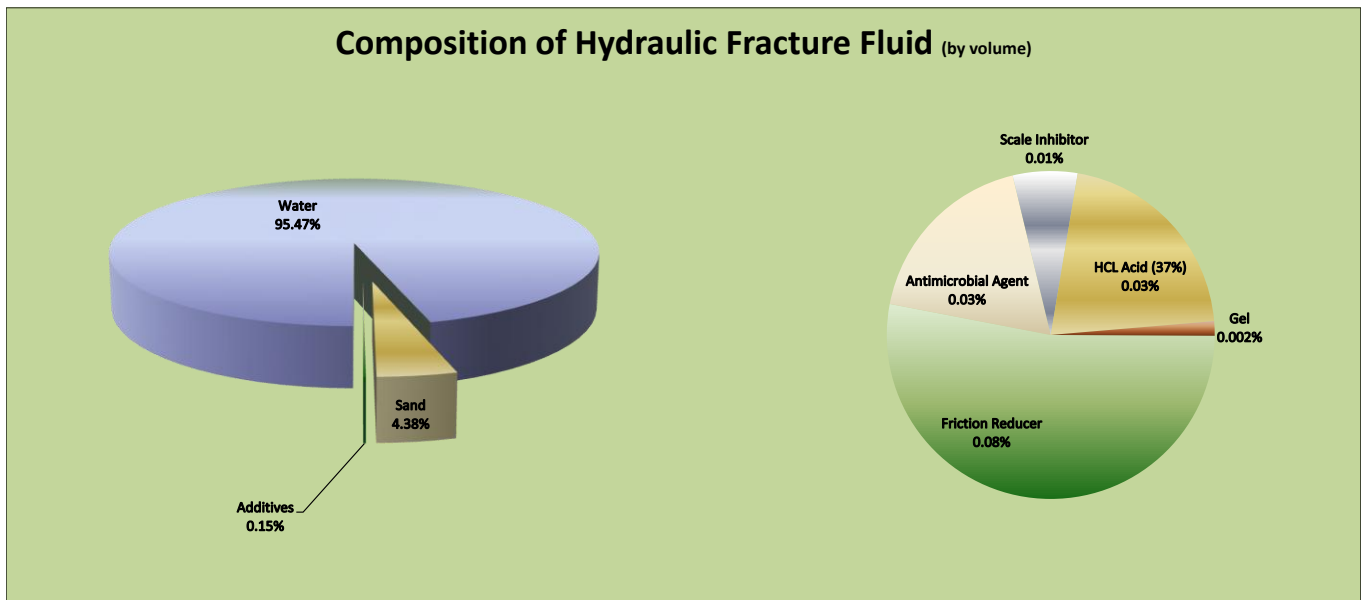


RANGE RESOURCES

Hardie Unit #1H
Well API: 37-059-24798

Completion Date: 9/27 - 10/15/10
Township: Greene

% 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	3,970,726 gal	95.47%	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	182,098 gal	4.38%	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	3,373 gal	0.08%	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	1,161 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	406 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)	1338 gal	0.03%	Swimming pool and household cleaner
HVG-01	Viscosity	Dissolves cement and minerals to help initiate fractures	Diluted at five gallon per 1,000 gallons of water if needed	91 gal	0.002%	Used in food and cosmetic industry





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%	1338.4	0.0322%	0.0132%
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	41.3	0.0010%	0.0007%
			Propargyl Alcohol	Protects casing	5.0%	1.8	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
TOTAL							0.0332%	0.0139%

Friction Reducer (FracTech)	FRW-200	Friction Reducer	No hazardous ingredients	Reduce friction down casing	0.0%	N/A	N/A	N/A
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Gelling Agent (FracTech)	HVG-01	Gelling Agent	Petroleum Distillates	Creates viscosity to carrier fluid	50.0%	47.8	0.0011%	0.0011%
TOTAL							0.0011%	0.0011%

Scale Inhibitor (Multichem)	MX 588-2	Scale Inhibitor	No hazardous ingredients	prevents scale deposits	0.0%	N/A	N/A	N/A
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Antibacterial Agent (Multichem)	Bioban	Antibacterial Agent	4,4-Dimethyloxazolidine	eliminates bacteria in water	78.0%	637.9	0.0153%	0.0144%
			3,4,4-Trimethyloxazolidine		5.0%	41.8	0.0010%	0.0009%
			2-Amino-2-methyl-1-propanol		1.0%	8.8	0.0002%	0.0002%
			Formaldehyde Amine		0.5%	3.8	0.0001%	0.0001%
	BMC B-8642	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	60.0%	143.7	0.0035%	0.0048%
			n-alkyl dimethyl benzyl ammonium chloride		10.0%	24.0	0.0006%	0.0008%
Ethanol			1.0%		2.4	0.0001%	0.0001%	
TOTAL							0.0166%	0.0156%

SUMMARY	by vol %	by weight %
	0.051%	0.031%