



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) 37125-23935		Project Number	Acres 607
Address 380 Southpointe Blvd, Suite 300			Well Farm Name Godwin Unit		Well # 6H	Serial #
City Canonsburg		State PA	Zip Code 15317	County Washington	Municipality Canton Township	
Phone 724-743-6700		Fax 724-743-6790		USGS 7.5 min. quadrangle map Washington West		
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 type="checkbox"/> Rotary - Air <input checked="" type="checkbox"/> Rotary - Mud <input type="checkbox"/> Cable Tool							
Date Drilling Started 11/12/09	Date Drilling Completed 5/23/10	Surface Elevation 1260 ft.	Total Depth - Driller 10224 ft.						
Casing and Tubing		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'	11/12/09
24"	20"	81.3#	Thread	244'	Gas Block, 300 sx	GS	20"	244'	12/9/09
12-1/4"	9-5/8"	40#	Thread	1792'	Gas Block, 800 sx	GS	9-5/8"	1792'	12/13/09
8-3/4"	5-1/2"	20#	Thread	9845'	Extendacem,905 sx	FS	5-1/2"	9845'	5/22/10
					Hal Lite, 290 sx, Fraccem,208 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	
6/19/10	9,495'	6,795'	6/19/10	Marcellus shale	Water	99,615 bbl	Sand	5,056,145	67.6	
Natural Open Flow			Too small to measure			Natural Rock Pressure			Too small to measure	
After Treatment Open Flow			Due to length of the flow-back period, this information is not available at this time but will be provided confidentially to the DEP upon request			After Treatment Rock Pressure			Due to length of the flow-back period, this information is not available at this time but will be provided confidentially to the DEP upon request	

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

Name Patterson UTI	Name Universal Well Services	Name Halliburton Services
Address 4501 Lamesa Highway	Address 730 Braddock View Dr	Address P.O. Box 203143

City - State - Zip Snyder, TX 79549	City - State - Zip Mt. Braddock, PA 15465	City - State - Zip Houston, TX 77216
Phone 325-574-6300	Phone 724-430-6201	Phone 281-871-4663

SAMPLE

LOG OF FORMATIONS

Well API#: 37-125-23935-

(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'	43'				Drillers Log
Sand	43'	50'				Drillers Log
Sandy Shale	50'	100'				Drillers Log
Sand	100'	175'				Drillers Log
Shale	175'	200'				Drillers Log
Sand	200'	350'				Drillers Log
Redrock	350'	460'			damp	Drillers Log
Grayshale	460'	550'				Drillers Log
Redrock	550'	640'				Drillers Log
Sandy Shale	640'	837'				Drillers Log
Sand	837'	891'				Drillers Log
Shale	891'	1001'				Drillers Log
Sandy Shale	1001'	1045'				Drillers Log
Sand	1045'	1080'				Drillers Log
Sandy Shale	1080'	1160'				Drillers Log
Sand	1160'	1230'				Drillers Log
Shale	1230'	1370'				Drillers Log
Sandy Shale	1370'	1971'				Drillers Log
Shale	1971'	2032'				Drillers Log
Sandy Shale	2032'	2280'				Drillers Log
Shale	2280'	2460'				Drillers Log
Sandy Shale	2460'	2770'				Drillers Log
Shale	2770'	2950'				Drillers Log
Sandy Shale	2950'	3560'				Drillers Log
Shale	3630'	4493'				Drillers Log
Sandy Shale	4493'	4900'				Drillers Log
Shale	5150'	6103'				Drillers Log
Horizontal						Drillers Log
Shale	5800'	6340'				Drillers Log
Limestone	6340'	6520'				Drillers Log
Shale	6520'					Drillers Log
Drillers Total Depth		10224'				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.

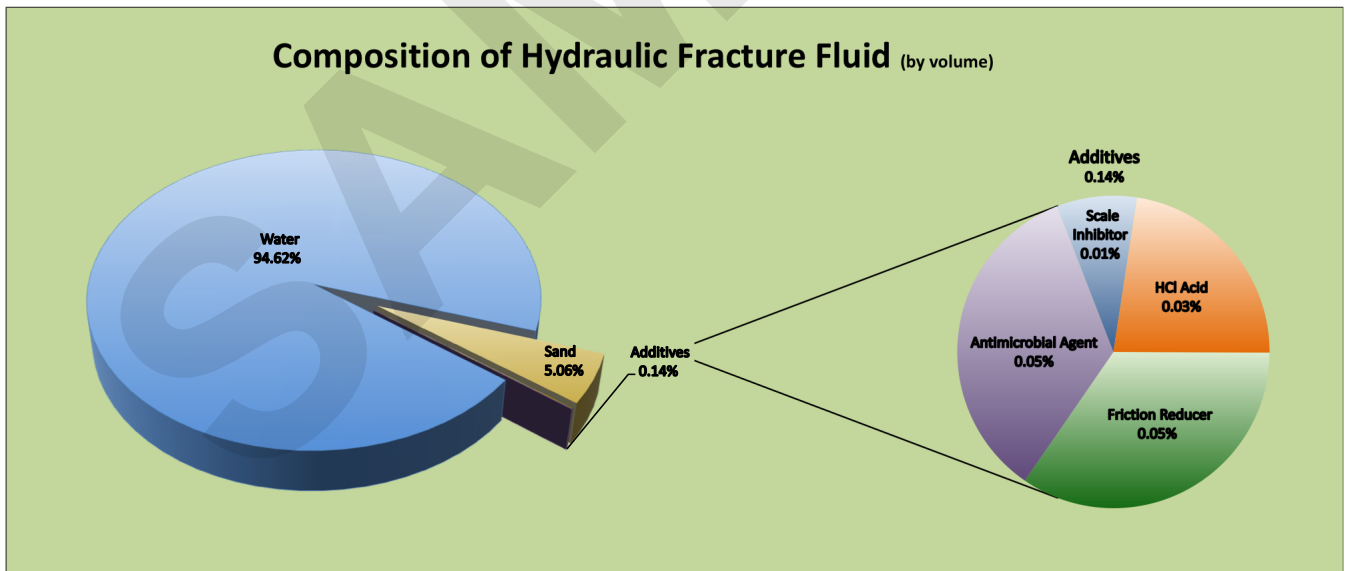
Well Operator's Signature		DEP USE ONLY	
<i>Sample Signature</i>		Reviewed by:	Date:
Title:	Date:	Comments:	
Sr. Development Engineer	7/7/10		



Well Completion Date:
Township:

Typical Marcellus Well

% 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, consisting of about 4 million gallons per well	4,080,000 gal	94.62%	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 10% of the fluid, or about 3 million pounds	226,000 gal	5.24%	Drinking water filtration, play sand
FRW-200 or 300	Friction Reducer	Reduces friction between fluid and pipe	Diluted at one-half gallon per 1,000 gallons of water	2,040 gal	0.05%	Water treatment; soil conditioner; some children's toys
MC B-8642	Antimicrobial Agent	Eliminates bacteria in the water that produce corrosive byproducts	Diluted at one-half gallon per 1,000 gallons of water	2,040 gal	0.05%	Water treatment, disinfectant; sterilize medical and dental equipment and surfaces
MC S-2510T	Scale Inhibitor	Prevents scaling in pipe	Diluted at one-tenth gallon per 1,000 gallons of water	490 gal	0.01%	Water treatment, household cleaners, de-icing agent
HCL Acid	Perf Clean-Up	Dissolves cement and minerals and initiate fractures	139 gallons per stage (non-diluted chemicals)	1,338 gal	0.03%	Swimming pool and household cleaner





Composition of Components in Marcellus Shale Hydraulic Fracturing Fluid

Common Name & Supplier	Supplier Chemical Name	Common Description	Hazardous Component listed on MSDS	Purpose	Hazardous Component Weight % of Chemical	Component loading gal/1000 gal	Gal Hazardous Component / stage	Concentration Hazardous Component of Total Stage Fluid		
								by % Vol	by % Weight	ppm
7.5% HCl Mixture (FracTech)	37% HCL	concentrated HCl Acid	HCL	Cleans perforation	37.0%	183.0	135.42	0.0040%	0.0393%	393
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	80.0%	2.0	3.20	0.0001%	0.0007%	7
			Propargyl Alcohol	Protects casing	5.0%	2.0	0.20	0.00001%	0.00004%	0.4
	NE100	Non- Emulsifer	No hazardous ingredients	Prevents emulsions	0.0%	1.0	-	N/A	N/A	N/A
FE100L	Iron Chelator	No hazardous ingredients	Prevents precipitation	0.0%	3.0	-	N/A	N/A	N/A	
TOTAL								0.0041%	0.0401%	401

*Total acid mixture volume is 2,000 gallons per frac stage

Friction Reducer (FracTech)	FRW-200	Friction Reducer	No hazardous ingredients	Reduce friction down casing	0.0%	0.5	-	N/A	N/A	N/A
	FRW-300	Friction Reducer	No hazardous ingredients	Reduce friction down casing	0.0%	1.5	-	N/A	N/A	N/A

**Typically use FRW-200 but will sometimes require FRW-300

Scale Inhibitor (Multichem)	MC MS S-2510T	Scale Inhibitor	NaOH	prevents scale deposits in pipe and perforations	5.0%	0.1	2.03	0.0005%	0.0006%	6
			Ethylene Glycol		40.0%	0.1	16.24	0.0040%	0.0045%	45
TOTAL								0.0045%	0.0050%	50

Antibacterial Agent (Multichem)	BMC B-8642	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	42.5%	0.5	86.28	0.0213%	0.0233%	233
			n-alkyl dimethyl benzyl ammonium chloride		7.5%	0.5	15.23	0.0038%	0.0041%	41
			Ethanol		1.0%	0.5	2.03	0.0005%	0.0005%	5
			Methanol		0.4%	0.5	0.85	0.0002%	0.0002%	2
TOTAL								0.0257%	0.0282%	282

Notes:

The table above represents the frac fluid additives, amounts and concentrations in a typical single frac stage
 A typical Range Resources frac may contain 8-16 stages (depends on lateral wellbore length) so amount of chemicals can vary but % composition remains constant
 Information disclosed from MSDS data sheets