



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

DEP USE ONLY	
Site ID	Primary Fac ID
Client	Subfacility Id

Completion Report

Well Information					
If you are submitting this Completion Report attached to the Well Record, you only need to enter the well API # in this section.					
Well Operator Range Resources-Appalachia, LLC	DEP ID# 141142	Well API # (Permit / Reg) 37-125-23676	Project Number	Acres 614	
Address 380 Southpointe Blvd, Suite 300		Well Farm Name Worstell Unit	Well # 1H	Serial #	
City Canonsburg	State PA	Zip Code 15317	County Washington	Municipality Chartiers	
Phone 724-743-6700	Fax 724-743-6490	Email		USGS 7.5 min. quadrangle map Canonsburg	
Check the appropriate submission: <input checked="" type="checkbox"/> Original Completion Report <input type="checkbox"/> Amended Completion Report					

STIMULATION BASE FLUID		
List Water Management Plan Approved Water Source(s) that were used	Water Management Plan ID No.	Volume (Gallons)
1. PA American Water Co/Plum Rd Meter Vault	Source 8	3,326,484
2.		
3.		
4.		
5.		
6.		
Recycled Water Used		
Other Base Fluid(s)/Components Used		
1.		
2.		
Total Base Fluid(s)/Components Used		

PERFORATION RECORD					
Stage No.	Perforation Date	Stage Perforated From	Stage Perforated To	Perf. Orientation (Vertical, Horizontal, Radial)	Formation
1	5/5/11	9,935'MD	9,743'MD	Horizontal	Marcellus Shale
2	5/5/11	9,640'MD	9,451'MD	Horizontal	Marcellus Shale
3	5/6/11	9,351'MD	9,159'MD	Horizontal	Marcellus Shale
4	5/6/11	9,059'MD	8,867'MD	Horizontal	Marcellus Shale
5	5/6/11	8,767'MD	8,575'MD	Horizontal	Marcellus Shale
6	5/9/11	8,475'MD	8,283'MD	Horizontal	Marcellus Shale
7	5/9/11	8,183'MD	7,991'MD	Horizontal	Marcellus Shale
8	5/10/11	7,891'MD	7,699'MD	Horizontal	Marcellus Shale
9	5/10/11	7,599'MD	7,407'MD	Horizontal	Marcellus Shale
10	5/11/11	7,307'MD	7,115'MD	Horizontal	Marcellus Shale
11				Horizontal	Marcellus Shale
12				Horizontal	Marcellus Shale

STIMULATION FLUID ADDITIVES-Continued

Descriptive Additive Type	Chemical Component(s) listed on Material Safety Data Sheet of the Additive	CAS No. of Chemical Component	Chemical Component % By Volume in Additive	Chemical Component % By Volume used in Each Stage					
				Stage No. 7	Stage No. 8	Stage No. 9	Stage No. 10		
FR-200W	N/A	N/A	N/A	0.0277%	0.0000%	0.0284%	0.0293%		
FR-300W	N/A	N/A	N/A	0.0000%	0.0000%	0.0000%	0.0000%		
MX 588-2	N/A	N/A	N/A	0.0070%	0.0072%	0.0072%	0.0074%		
NE100	N/A	N/A	N/A	0.0001%	0.0001%	0.0001%	0.0000%		
FE100L	N/A	N/A	N/A	0.0004%	0.0004%	0.0004%	0.0000%		
37% HCL	HCL	7647-01-0	37%	0.0258%	0.0265%	0.0235%	0.0000%		
CI-100	Methanol	67-56-1	93%	0.0003%	0.0003%	0.0002%	0.0000%		
CI-100	Propargyl Alcohol	107-19-7	4%	0.0000%	0.0000%	0.0000%	0.0000%		
BMC B-8650	Glutaraldehyde	111-30-8	49%	0.0038%	0.0038%	0.0039%	0.0039%		
BMC B-8650	Methanol	67-56-1	1%	0.0001%	0.0001%	0.0001%	0.0001%		
CS-1135	4,4-Dimethyloxazolidine	51200-87-4	77%	0.0143%	0.0151%	0.0150%	0.0155%		
CS-1135	3,4,4-Trimethyloxazolidine	75673-43-7	5%	0.0009%	0.0010%	0.0010%	0.0010%		
CS-1135	2-Amino-2-methyl-1-propanol	124-68-5	1%	0.0002%	0.0002%	0.0002%	0.0002%		
CS-1135	Formaldehyde Amine	56652-26-7	0%	0.0001%	0.0001%	0.0001%	0.0001%		

Please insert additional copies of this page if additional rows/stages are needed.

STIMULATION INFORMATION (WELL)

Open Flow Production: Omcf/d @ 24hrs pos treatment	24 Hr. Open Flow Production: Omcf/d @ 24hrs pos treatment	24 Hr. Shut-in Pressure: N/A @ 24hrs post treatment	Flow Back Date:
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STIMULATION INFORMATION (STAGE)


Complete a separate record for each stimulation stage. (Please insert additional copies of this page for additional stages).

Stage No.: 1	Stimulation Date: 5/5/11	Pump Rate: 56.1
Pressure (psi): 7,149	Shut-in Surface Pressure: 3,827	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 304,259	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 2	Stimulation Date: 5/5/11	Pump Rate: 67.9
Pressure (psi): 6,078	Shut-in Surface Pressure: 4,033	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 312,968	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 3	Stimulation Date: 5/6/11	Pump Rate: 65.3
Pressure (psi): 6,452	Shut-in Surface Pressure: 4,003	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 308,830	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 4	Stimulation Date: 5/6/11	Pump Rate: 69.6
Pressure (psi): 6,219	Shut-in Surface Pressure: 4,039	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 309,582	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 5	Stimulation Date: 5/9/11	Pump Rate: 69.0
Pressure (psi): 6,054	Shut-in Surface Pressure: 4,127	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 308,262	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 6	Stimulation Date: 5/9/11	Pump Rate: 67.5
Pressure (psi): 5,917	Shut-in Surface Pressure: 4,006	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 308,421	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 7	Stimulation Date: 5/10/11	Pump Rate: 69.6
Pressure (psi): 6,185	Shut-in Surface Pressure: 4,048	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 307,886	Propping Agent Size: 100 Mesh 30/50 Mesh

WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)

Name	Name	Name
Frac Tech	Multi-Chem	Universal Well Servi ces
Address 16858 IH20	Address 200 Detroit Street	Address 730 Braddock View Drive
City - State - Zip Ciscok, TX 76437	City - State - Zip Washington, PA	City - State - Zip Mt Braddock, PA 15465
Phone 817-850-1008	Phone 325-486-7489	Phone 724-430-6201

I do hereby certify to the best of my knowledge, information and belief that the information contained on this Completion Report is true and correct. 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
 Title: Completion Engineer: Matthew Ockree Date: 5/11/11	Reviewed by: _____ Date: _____ Comments: _____

STIMULATION INFORMATION (STAGE- Continued)

Complete a separate record for each stimulation stage. (Please insert additional copies of this page for additional stages).

Stage No.: 8	Stimulation Date: 5/10/11	Pump Rate: 69.1
Pressure (psi): 6,139	Shut-in Surface Pressure: 4,044	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 309,824	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 9	Stimulation Date: 5/11/11	Pump Rate: 69.5
Pressure (psi): 6,090	Shut-in Surface Pressure: 4,009	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 307,524	Propping Agent Size: 100 Mesh 30/50 Mesh
Stage No.: 10	Stimulation Date: 5/11/11	Pump Rate: 68.4
Pressure (psi): 5,696	Shut-in Surface Pressure: 3,956	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 307,887	Propping Agent Size: 100 Mesh 30/50 Mesh

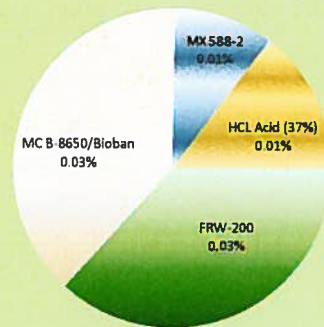
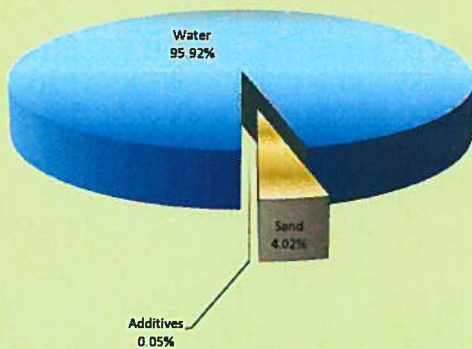


Worstell Unit #1H
Well API: 37-125-23676

Completion Date: November 3, 2010
Township: Chartiers

% 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	3,324,942 gal	95.91%	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	139,462 gal	4.02%	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	0,897 gal	0.03%	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	0,942 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	0,246 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)	0,359 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%	359.44	0.0104%	0.0043%
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	8.25	0.0002%	0.0002%
			Propargyl Alcohol	Protects casing	5.0%	0.35	0.0000%	0.0000%
	NE100	Non-Emulsifier	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	
TOTAL							0.0106%	0.0044%
Friction Reducer (FracTech)	FRW-200	Friction Reducer	No hazardous ingredients	Reduce friction down casing	0.0%	N/A	N/A	N/A
Scale Inhibitor (Multichem)	MX 588-2	Scale Inhibitor	No hazardous ingredients	prevents scale deposits	0.0%	N/A	N/A	N/A
Antibacterial Agent (Multichem)	Bioban	Antibacterial Agent	4,4-Dimethyloxazolidine	eliminates bacteria in water	78.0%	517.56	0.0149%	0.0141%
			3,4,4-Trimethyloxazolidine		5.0%	33.88	0.0010%	0.0009%
			2-Amino-2-methyl-1-propanol		1.0%	7.10	0.0002%	0.0002%
			Formaldehyde Amine		0.5%	3.09	0.0001%	0.0001%
	BMC B-8650	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	50.0%	97.18	0.0028%	0.0039%
			Methanol		0.5%	0.97	0.0000%	0.0000%
TOTAL							0.0190%	0.0192%
SUMMARY							by vol %	by weight %
							0.030%	0.024%