



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

## Completion Report

DEP USE ONLY	
Site ID	Primary Fac ID
Client	Subfacility Id

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 - 12523888-0-0		Project Number	Acres 987
Address 380 Southpointe Blvd, Suite 300			Well Farm Name Drugmand Unit		Well # 1H	Serial #
City Canonsburg	State PA	Zip Code 15317	County Washington		Municipality Mt. Pleasant	
Phone 724-743-6700	Fax 724-743-6490	Email		USGS 7.5 min. quadrangle map Midway		
Check the appropriate submission: <input 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 Pgh/McMurray Ft Cherry Rd			Source 13		1,360,086	
2.						
3.						
4.						
5.						
6.						
Recycled Water Used					1,736,280	
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	3-2-2011	10,962'MD	10,764'MD	Horizontal	Marcellus Shale	
2	3-7-2011	10,665'MD	10,467'MD	Horizontal	Marcellus Shale	
3	3-7-2011	10,368'MD	10,170'MD	Horizontal	Marcellus Shale	
4	3-8-2011	10,071'MD	9,873'MD	Horizontal	Marcellus Shale	
5	3-8-2011	9,774'MD	9,576'MD	Horizontal	Marcellus Shale	
6a	3-8-2011	9,477'MD	9,279'MD	Horizontal	Marcellus Shale	
6b	3-9-2011	9,245'MD	9,216'MD	Horizontal	Marcellus Shale	
7	3-10-2011	9,124'MD	8,934'MD	Horizontal	Marcellus Shale	
8	3-10-2011	8,839'MD	8,649'MD	Horizontal	Marcellus Shale	
9	3-10-2011	8,554'MD	8,364'MD	Horizontal	Marcellus Shale	
10	3-11-2011	8,269'MD	8,079'MD	Horizontal	Marcellus Shale	
11	3-11-2011	7,984'MD	7,794'MD	Horizontal	Marcellus Shale	

**STIMULATION FLUID ADDITIVES**

Note: Trade secret or confidential proprietary information should be clearly identified as such and should be submitted on a separate sheet attached to this report.

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. 1	Stage No. 2	Stage No. 3	Stage No. 4	Stage No. 5	Stage No. 6
FR-200W	N/A	N/A	N/A	0.0372%	0.0410%	0.0317%	0.0271%	0.0380%	0.1693%
FR-300W	N/A	N/A	N/A	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
MX 588-2	N/A	N/A	N/A	0.0097%	0.0069%	0.0075%	0.0070%	0.0068%	0.0285%
NE100	N/A	N/A	N/A	0.0003%	0.0000%	0.0003%	0.0003%	0.0000%	0.0019%
FE100L	N/A	N/A	N/A	0.0009%	0.0000%	0.0010%	0.0010%	0.0000%	0.0057%
37% HCL	HCL	7647-01-0	37%	0.0554%	0.0000%	0.0579%	0.0566%	0.0000%	0.3372%
Cl-100	Methanol	67-56-1	93%	0.0006%	0.0000%	0.0006%	0.0006%	0.0000%	0.0035%
Cl-100	Propargyl Alcohol	107-19-7	4%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0002%
BMC B-8650	Glutaraldehyde	111-30-8	49%	0.0038%	0.0035%	0.0037%	0.0037%	0.0036%	0.0143%
BMC B-8650	Methanol	67-56-1	1%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0002%
CS-1135	4,4-Dimethyloxazolidine	51200-87-4	77%	0.0154%	0.0143%	0.0150%	0.0152%	0.0146%	0.0584%
CS-1135	3,4,4-Trimethyloxazolidine	75673-43-7	5%	0.0010%	0.0009%	0.0010%	0.0010%	0.0010%	0.0038%
CS-1135	2-Amino-2-methyl-1-propanol	124-68-5	1%	0.0002%	0.0002%	0.0002%	0.0002%	0.0002%	0.0008%
CS-1135	Formaldehyde Amine	56652-26-7	0%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0003%

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

**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	Stage No. 11	Stage No. 12						
FR-200W	N/A	N/A	N/A	0.0527%	0.0346%	0.0345%	0.0335%	0.0366%							
FR-300W	N/A	N/A	N/A	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%							
MX 588-2	N/A	N/A	N/A	0.0072%	0.0069%	0.0073%	0.0072%	0.0069%							
NE100	N/A	N/A	N/A	0.0003%	0.0003%	0.0003%	0.0003%	0.0003%							
FE100L	N/A	N/A	N/A	0.0010%	0.0008%	0.0010%	0.0010%	0.0009%							
37% HCL	HCL	7647-01-0	37%	0.0606%	0.0491%	0.0589%	0.0582%	0.0559%							
Cl-100	Methanol	67-56-1	93%	0.0006%	0.0005%	0.0006%	0.0006%	0.0006%							
Cl-100	Propargyl Alcohol	107-19-7	4%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%							
BMC B-8650	Glutaraldehyde	111-30-8	49%	0.0037%	0.0036%	0.0037%	0.0037%	0.0038%							
BMC B-8650	Methanol	67-56-1	1%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%							
CS-1135	4,4-Dimethyloxazolidine	51200-87-4	77%	0.0151%	0.0149%	0.0152%	0.0152%	0.0155%							
CS-1135	3,4,4-Trimethyloxazolidine	75673-43-7	5%	0.0010%	0.0010%	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%	0.0002%							
CS-1135	Formaldehyde Amine	56652-26-7	0%	0.0001%	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: Omcfd @ 24hrs pos treatment	24 Hr. Open Flow Production: Omcfd @ 24hrs pos treatment	24 Hr. Shut-in Pressure: N/A @ 24hrs post treatment	Flow Back Date:

**STIMULATION INFORMATION (STAGE)**

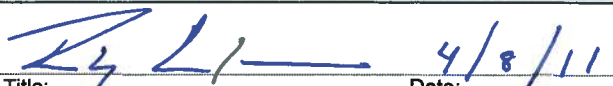
Complete a separate record for each stimulation stage. (Please insert additional copies of this page for additional stages).

<b>Stage No.:</b> 1	Stimulation Date: 3-2-2011	Pump Rate: 65.3
Pressure (psi): 7,973	Shut-in Surface Pressure: 3,438	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 301,536	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 2	Stimulation Date: 3-7-2011	Pump Rate: 65.0
Pressure (psi): 7,127	Shut-in Surface Pressure: 3,661	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 301,168	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 3	Stimulation Date: 3-7-2011	Pump Rate: 69.0
Pressure (psi): 7,410	Shut-in Surface Pressure: 3,841	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 302,924	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 4	Stimulation Date: 3-8-2011	Pump Rate: 65.1
Pressure (psi): 7,242	Shut-in Surface Pressure: 3,729	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 301,374	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 5	Stimulation Date: 3-8-2011	Pump Rate: 64.1
Pressure (psi): 7,593	Shut-in Surface Pressure: 3,519	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 305,188	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 6 A&B	Stimulation Date: 3-8-2011	Pump Rate: 67.2
Pressure (psi): 7,172	Shut-in Surface Pressure: 3,799	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 303,555	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 7	Stimulation Date: 3-10-2011	Pump Rate: 70.5
Pressure (psi): 6,529	Shut-in Surface Pressure: 3,673	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 304,168	Propping Agent Size: 100 Mesh 30/50 Mesh

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

<b>Name</b> Frac Tech	<b>Name</b> Multi-Chem	<b>Name</b> Universal Well Servi ces
<b>Address</b> 16858 IH20	<b>Address</b> 200 Detroit Street	<b>Address</b> 730 Braddock View Drive
<b>City - State- Zip</b> Cisco, TX 76437	<b>City - State - Zip</b> Washington, PA 15301	<b>City - State - Zip</b> Mt Braddock, PA 15465
<b>Phone</b> 817-850-1008	<b>Phone</b> 325-486-7489	<b>Phone</b> 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.*

<b>Well Operator's Signature</b>	<b>DEP USE ONLY</b>
	Reviewed by: _____ Date: _____
Title: Completion Engineer: _____ Date: 4/8/11	Comments: _____

**STIMULATION INFORMATION (STAGE- Continued)**

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

<b>Stage No.:</b> 8	Stimulation Date: 3-10-2011	Pump Rate: 66.5
Pressure (psi): 6,950	Shut-in Surface Pressure: 3,824	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 301,130	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 9	Stimulation Date: 3-11-2011	Pump Rate: 68.1
Pressure (psi): 7,064	Shut-in Surface Pressure: 3,747	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 301,506	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 10	Stimulation Date: 3-11-2011	Pump Rate: 68.7
Pressure (psi): 6,828	Shut-in Surface Pressure: 3,884	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 305,349	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 11	Stimulation Date: 3-12-2011	Pump Rate: 66.4
Pressure (psi): 7,073	Shut-in Surface Pressure: 3,659	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 304,114	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 12	Stimulation Date:	Pump Rate:
Pressure (psi):	Shut-in Surface Pressure:	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount:	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 13	Stimulation Date:	Pump Rate:
Pressure (psi):	Shut-in Surface Pressure:	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount:	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 14	Stimulation Date:	Pump Rate:
Pressure (psi):	Shut-in Surface Pressure:	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount:	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 15	Stimulation Date:	Pump Rate:
Pressure (psi):	Shut-in Surface Pressure:	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount:	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 16	Stimulation Date:	Pump Rate:
Pressure (psi):	Shut-in Surface Pressure:	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount:	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 17	Stimulation Date:	Pump Rate:
Pressure (psi):	Shut-in Surface Pressure:	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount:	Propping Agent Size: 100 Mesh 30/50 Mesh

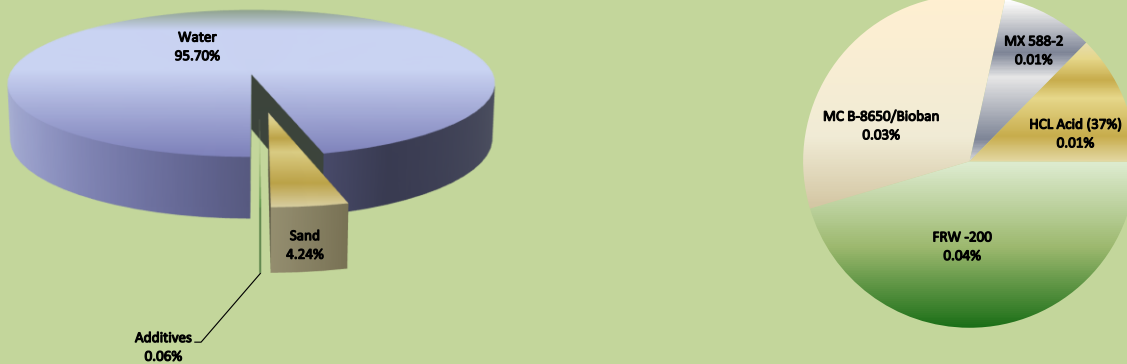


**Drugmand Unit #1H**  
**Well API: 37-125-23888**

**Completion Date: March 12th, 2011**  
**Township: Somerset**

% 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	3,094,420 gal	95.67%	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	137,033 gal	4.24%	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	1,322 gal	0.04%	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	0,962 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	0,260 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)	0,369 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%	369.44	0.0114%	0.0047%	
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	85.0%	18.51	0.0006%	0.0004%	
			Propargyl Alcohol	Protects casing	5.0%	0.03	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>0.0120%</b>	<b>0.0051%</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>	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>	CS-1135	Antibacterial Agent	4,4-Dimethyloxazolidine	eliminates bacteria in water	78.0%	530.72	0.0164%	0.0154%	
			3,4,4-Trimethyloxazolodine		5.0%	34.74	0.0011%	0.0010%	
			2-Amino-2-methyl-1-propanol		1.0%	7.28	0.0002%	0.0002%	
			Formaldehyde Amine		0.5%	3.17	0.0001%	0.0001%	
	BMC B-8650	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	50.0%	98.20	0.0030%	0.0043%	
			Methanol		0.5%	0.98	0.0000%	0.0000%	
<b>TOTAL</b>								<b>0.0209%</b>	<b>0.0210%</b>

<b>SUMMARY</b>	<b>by vol %</b>	<b>by weight %</b>
	<b>0.033%</b>	<b>0.026%</b>