



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) 37-125-23908-00	Project Number	Acres 402.0694	
Address 380 Southpointe Blvd, Suite 300		Well Farm Name Engel	Well # #3H	Serial #	
City Canonsburg	State PA	Zip Code 15317	County Washington	Municipality Cecil	
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.		
2.		
3.		
4.		
5.		
6.		
<b>Recycled Water Used</b>		<b>3,034,248</b>
<b>Other Base Fluid(s) Components Used</b>		
1.		
2.		
<b>Total Base Fluid(s)/Components Used</b>		<b>3,034,248</b>

PERFORATION RECORD					
Stage No.	Perforation Date	Stage Perforated From	Stage Perforated To	Perf. Orientation (Vertical, Horizontal, Radial)	Formation
1	7/28/11	10780' MD	10588' MD	Horizontal	Marcellus Shale
2	8/24/11	10492' MD	10300' MD	Horizontal	Marcellus Shale
3	8/25/11	10204' MD	10012' MD	Horizontal	Marcellus Shale
4	8/25/11	9916' MD	9724' MD	Horizontal	Marcellus Shale
5	8/26/11	9682' MD	9436' MD	Horizontal	Marcellus Shale
6	8/26/11	9340' MD	9148' MD	Horizontal	Marcellus Shale
7	8/29/11	9052' MD	8860' MD	Horizontal	Marcellus Shale
8	8/29/11	8764' MD	8572' MD	Horizontal	Marcellus Shale
9	8/30/11	8476' MD	8284' MD	Horizontal	Marcellus Shale
10	8/30/11	8188' MD	7996' MD	Horizontal	Marcellus Shale
11				Horizontal	Marcellus Shale
12				Horizontal	Marcellus Shale





<b>STIMULATION INFORMATION (WELL)</b>			
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:
<b>STIMULATION INFORMATION (STAGE)</b>			
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: 8/24/11	Pump Rate: 68.6	
Pressure (psi): 7009	Shut-in Surface Pressure: 3675	5 Minute Shut-in Surface Pressure: N/A	
Propping Agent Type: Sand	Propping Agent Amount: 306,935	Propping Agent Size: 100 Mesh 30/50 Mesh	
<b>Stage No.:</b> 2	Stimulation Date: 8/24/11	Pump Rate: 70.2	
Pressure (psi): 7361	Shut-in Surface Pressure: 3827	5 Minute Shut-in Surface Pressure: N/A	
Propping Agent Type: Sand	Propping Agent Amount: 300,238	Propping Agent Size: 100 Mesh 30/50 Mesh	
<b>Stage No.:</b> 3	Stimulation Date: 8/25/11	Pump Rate: 69.2	
Pressure (psi): 7311	Shut-in Surface Pressure: 3863	5 Minute Shut-in Surface Pressure: N/A	
Propping Agent Type: Sand	Propping Agent Amount: 302,590	Propping Agent Size: 100 Mesh 30/50 Mesh	
<b>Stage No.:</b> 4	Stimulation Date: 8/26/11	Pump Rate: 69.2	
Pressure (psi): 7125	Shut-in Surface Pressure: 3868	5 Minute Shut-in Surface Pressure: N/A	
Propping Agent Type: Sand	Propping Agent Amount: 302,953	Propping Agent Size: 100 Mesh 30/50 Mesh	
<b>Stage No.:</b> 5	Stimulation Date: 8/27/11	Pump Rate: 68.2	
Pressure (psi): 6839	Shut-in Surface Pressure: 3880	5 Minute Shut-in Surface Pressure: N/A	
Propping Agent Type: Sand	Propping Agent Amount: 300,945	Propping Agent Size: 100 Mesh 30/50 Mesh	
<b>Stage No.:</b> 6	Stimulation Date: 8/29/11	Pump Rate: 68.2	
Pressure (psi): 7568	Shut-in Surface Pressure: 3751	5 Minute Shut-in Surface Pressure: N/A	
Propping Agent Type: Sand	Propping Agent Amount: 302,403	Propping Agent Size: 100 Mesh 30/50 Mesh	
<b>Stage No.:</b> 7	Stimulation Date: 8/29/11	Pump Rate: 68.5	
Pressure (psi): 6944	Shut-in Surface Pressure: 3681	5 Minute Shut-in Surface Pressure: N/A	
Propping Agent Type: Sand	Propping Agent Amount: 301,553	Propping Agent Size: 100 Mesh 30/50 Mesh	
<b>WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)</b>			
<b>Name</b> Frac Tech	<b>Name</b> Multi-Chem	<b>Name</b> CDK Perforating	
Address 16858 IH20	Address 200 Detroit Street	Address 427 Half Moon Way	
City - State - Zip Ciscok, TX 76437	City - State - Zip Washington, PA	City - State - Zip Runaway Bay, TX 76426	
Phone 817-850-1008	Phone 325-486-7489	Phone 940-577-4300	
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>	
 Title: Completion Engineer: Rodney Archibeque Date: 9/19/2011		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).

<b>Stage No.:</b> 8	Stimulation Date: 8/30/11	Pump Rate: 69.6
Pressure (psi): 7066	Shut-in Surface Pressure: 3792	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 302,750	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 9	Stimulation Date: 8/30/11	Pump Rate: 67.6
Pressure (psi): 7294	Shut-in Surface Pressure: 3786	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 301,609	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 10	Stimulation Date: 8/31/11	Pump Rate: 70.7
Pressure (psi): 6965	Shut-in Surface Pressure: 3798	5 Minute Shut-in Surface Pressure: N/A
Propping Agent Type: Sand	Propping Agent Amount: 301,148	Propping Agent Size: 100 Mesh 30/50 Mesh
<b>Stage No.:</b> 11	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> 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



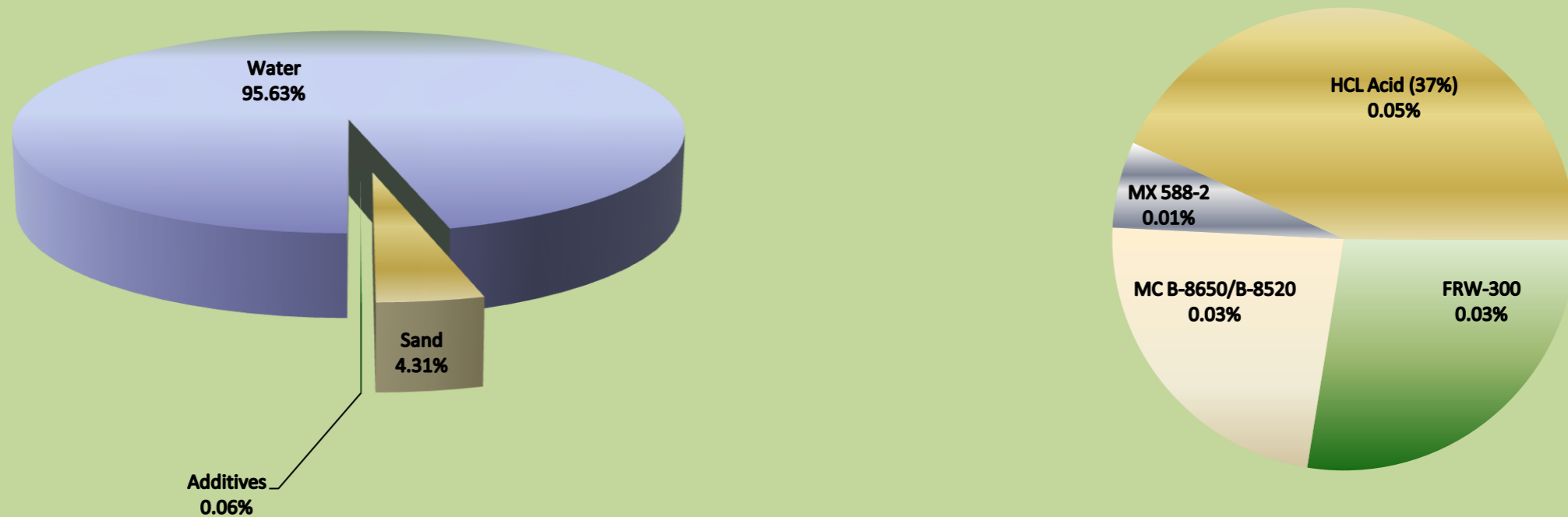
RANGE RESOURCES

Engel Unit #3H  
Well API: 3712523908

Completion Date: 0831/2011  
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	3,031,396 gal	95.58%	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	136,645 gal	4.31%	Drinking water filtration, play sand
FRW-300	Friction Reducer	Reduces friction between fluid and pipe	Diluted at one-half gallon per 1,000 gallons of water	1,014 gal	0.03%	Water treatment; soil conditioner; some children's toys
MC B-8650/B-8520	Antimicrobial Agent	Eliminates bacteria in the water that produce corrosive byproducts	Diluted at one-half gallon per 1,000 gallons of water	0,858 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	0,223 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)	1,595 gal	0.05%	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	Hazardous Component CAS No.	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	7647-01-0	Cleans perforation	37.0%	1595.13	0.0503%	0.0206%
	CI-100	Corrosion Inhibitor	Methanol	67-56-1	Protects casing	95.0%	18.57	0.0006%	0.0004%
			Propargyl Alcohol	107-19-7	Protects casing	5.0%	0.80	0.0000%	0.0000%
	NE100	Non- Emulsifer	No hazardous ingredients	N/A	Prevents emulsions	0.0%	N/A	N/A	N/A
FE100L	Iron Chelator	No hazardous ingredients	N/A	Prevents precipitation	0.0%	N/A	N/A	N/A	
							<b>TOTAL</b>	<b>0.0509%</b>	<b>0.0210%</b>

<b>Friction Reducer (FracTech)</b>	FRW-300	Friction Reducer	No hazardous ingredients	N/A	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	N/A	prevents scale deposits	0.0%	N/A	N/A	N/A
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<b>Antibacterial Agent (Multichem)</b>	MC B-8520	Antibacterial Agent	4,4-Dimethyloxazolidine	51200-87-4	eliminates bacteria in water	78.0%	471.41	0.0149%	0.0139%
			3,4,4-Trimethyloxazolidine	75673-43-7		5.0%	30.86	0.0010%	0.0009%
			2-Amino-2-methyl-1-propanol	124-68-5		1.0%	6.47	0.0002%	0.0002%
			Formaldehyde Amine	56652-26-7		0.5%	2.81	0.0001%	0.0001%
	MC B-8650	Antibacterial Agent	Glutaraldehyde	111-30-8	eliminates bacteria in water	50.0%	88.51	0.0028%	0.0039%
			Methanol	67-56-1		0.5%	0.89	0.0000%	0.0000%
							<b>TOTAL</b>	<b>0.0189%</b>	<b>0.0190%</b>

<b>SUMMARY</b>	by vol %	by weight %
	<b>0.070%</b>	<b>0.040%</b>