5500-FM-OG0004 Rev. 1/2010

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

Well Record and Completion Report

DEP USE ONLY	
Site ID	Primary Fac ID
Client Id	Subfacility Id

Well Operator	DEP ID#	Well API # (Permit / Reg)	Project Number	Acres
Range Resources - Appalachia, LLC	141142	37125-23734		586

Address	Well Farm Name	Well #	Serial #
380 Southpointe Blvd, Suite 300	Baker Carol	6H	

City	State	Zip Code	County	Municipality
Canonsburg	PA	15317	Washington	Chartiers Township

Phone	Fax	USGS 7.5 min. quadrangle map
724-743-6700	724-743-6790	Washington West

Check all that apply: ☒ Original Well Record ☐ Original Completion Report ☐ Amended Well Record ☐ Amended Completion Report

WELL RECORD

Also complete the Log of Formations on back (page 2)

Well Type ☒ Gas ☐ Oil ☐ Combination Oil & Gas ☐ Injection ☐ Storage ☐ Disposal

Drilling Method ☐ Rotary – Air ☒ Rotary – Mud ☐ Cable Tool

Date Drilling Started	Date Drilling Completed	Surface Elevation	Total Depth – Driller	Total Depth - Logger
6/28/09	12/5/09	1250 ft.	11083 ft.	11080 ft.

Casing and Tubing

Cement returned on surface casing? ☒ Yes ☐ No
Cement returned on coal protective casing? ☒ Yes ☐ No ☐ 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"	106#	Thread	40'	Driven	_	26"	40'	6/28/09
24"	20"	94#	Thread	243'	Class A w/GS, 285 sx	GS	20"	243'	8/1/09
17-1/2"	13-3/8"	54.5#	Thread	383'	Class A, 126 sx	GS	13-3/8"	383'	8/13/09
12-1/4"	9-5/8"	36#	Thread	1843'	Class A wGS, 640 sx	GS	9-5/8"	1843'	8/14/09
8-3/4"	5-1/2"	20#	Thread	11075'	Extendacem, 910 sx	FS	5-1/2"	11075'	12/5/09
					Hal Light, 595 sx, Fraccem 335 sx				

COMPLETION REPORT

Perforation Record

Date	Interval Perforated From	To
7/27/10	10,950'	8,050'

Stimulation Record

Date	Interval Treated	*Fluid* Type	Amount	*Propping Agent* Type	Amount	Average Injection Rate
8/4/10	Marcellus Shale	Water	102,210 bbl	Sand	5,091,909	69.3 bpm

Natural Open Flow	too small to measure	Natural Rock Pressure	too small to measure Hours Days
After Treatment Open Flow	Due to length of the flow-back period, this information is not available 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 but will be provided confidentially to the DEP upon request Hours Days

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

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

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

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LOG OF FORMATIONS

Well API#: 37-125-23734-____

(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'	46'				Drillers Log
Shale	46'	355'				Drillers Log
Coal	355'	365'				Drillers Log
Shale	365'	421'				Drillers Log
Sand & Shale	421'	453'				Drillers Log
Sand	453'	549'				Drillers Log
Red Rock	549'	572'				Drillers Log
Shale	572'	869'				Drillers Log
Sandy Shale	869'	964'				Drillers Log
Shale	964'	1284'				Drillers Log
Sandy Shale	1284'	1380'				Drillers Log
Sand	1380'	1701'				Drillers Log
Sandy Shale	1701'	5712'				Drillers Log
Shale	5712'	6330'				Drillers Log
Limestone	6330'	6370'				Drillers Log
Shale	6370'	6650'				Drillers Log
Limestone	6650'	6660'				Drillers Log
Horizontal						
Shale	5400'	7162'				Drillers Log
Limestone	7162'	7457'				Drillers Log
Shale	7457'					Drillers Log
Drillers Total Depth		11083'				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

Title: Completions Engineer

Date: 8/10/10

DEP USE ONLY

Reviewed by: Date:

Comments:

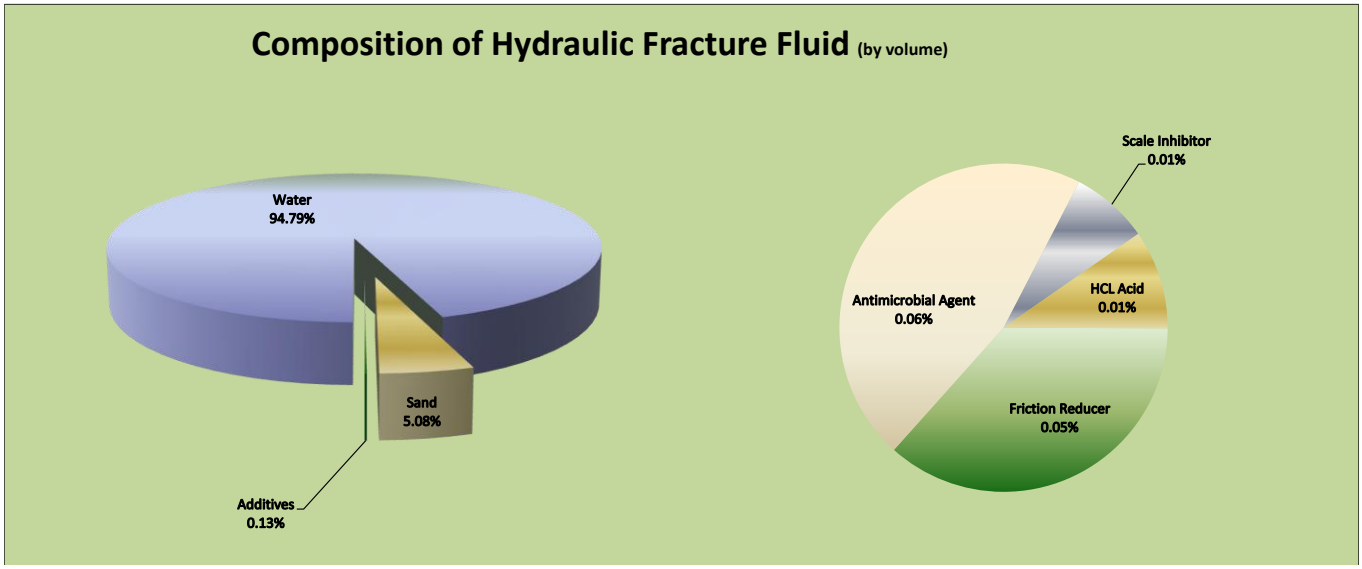
RANGE RESOURCES

Baker Unit #6H

Completion Date: 7/27 - 8/4/10

Township: CHARTIERS

% 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	4,292,822 gal	94.79%	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	230,154 gal	5.08%	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	2,042 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	2,567 gal	0.06%	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	430 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)	544 gal	0.01%	Swimming pool and household cleaner



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	Hazardous Component Weight % of Chemical	Component loading gal/1000 gal	Gal Hazardous Component / stage	Maximum Concentration of Hazardous Component of Total Stage Fluid		
								% Vol	% Weight	ppm (weight)
3.8% HCl Mixture (FracTech)	37% HCL	concentrated HCl Acid	HCL	Cleans perforation	37.0%	91.0	67.34	0.0163%	0.0193%	193
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	2.0	3.80	0.0009%	0.0008%	8
			Propargyl Alcohol	Protects casing	5.0%	2.0	0.20	0.00005%	0.00004%	0
	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	**0.0172%**	**0.0201%**	**201**
*Total acid mixture volume is 2,000 gallons per frac stage										
Friction Reducer (FracTech)	FRW-300	Friction Reducer	No hazardous ingredients	Reduce friction down casing	0.0%	0.5	-	N/A	N/A	N/A
Scale Inhibitor (Multichem)	MC MS S-2510T	Scale Inhibitor	Sodium hydroxide	prevents scale deposits in pipe and perforations	5.0%	0.1	2.03	0.0005%	0.0005%	5
			Ethylene Glycol		60.0%	0.1	24.36	0.0059%	0.0066%	66
							TOTAL	**0.0064%**	**0.0071%**	**71**
Antibacterial Agent (Multichem)	BMC B-8642	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	60.0%	0.5	121.80	0.0294%	0.0324%	324
			n-alkyl dimethyl benzyl ammonium chloride		10.0%	0.5	20.30	0.0049%	0.0054%	54
			Ethanol		1.0%	0.5	2.03	0.0005%	0.0005%	5
							TOTAL	**0.0348%**	**0.0384%**	**384**

	by vol %	by weight %	by ppm
SUMMARY	**0.058%**	**0.066%**	**656**