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: Range Resources - Appalachia, LLC	DEP ID#: 141142	Well API # (Permit / Reg): 37125-24022	Project Number:	Acres: 820
Address: 380 Southpointe Blvd, Suite 300		Well Farm Name: Bednarski	Well #: 4H	Serial #:
City: Canonsburg	State: PA / Zip Code: 15317	County: Washington	Municipality: Hopewell	
Phone: 724-743-6700	Fax: 724-743-6790	USGS 7.5 min. quadrangle map: 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
4/21/10	10/23/10	1158 ft.	11861 ft.	11861 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"	108#	Thread	30'	Driven	--	26"	30'	4/21/10
24"	20"	81.3#	Thread	254'	Class A GB	GS	20"	254'	5/13/10
12-1/4"	9-5/8"	40#	Thread	1806'	Class A GB 840 sx	GS	9-5/8"	1806'	8/17/10
8-3/4"	5-1/2"	20#	Thread	11848'	50/50 poz 1001 sx	GS	5-1/2"	11848'	10/22/10
					35/65 poz 575 sx Class A 810 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
2/3/2011	11,655'MD	8,080'MD	2/12/2011	Marcellus Shale	Slick H20	82,554bbl	Sand	4.099Klb	67.8bpm

Natural Open Flow	Too small to measure	Natural Rock Pressure	Too small	Hours / Days
After Treatment Open Flow	Omcf/d@24 hrs post treatment	After Treatment Rock Pressure	NA@24hr post frac	Hours / Days

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

Name: Patterson UTI	Name: Universal Well Services	Name: Frac Tech
Address: 4501 Lamesa Highway	Address: 730 Braddock View Dr	Address: 16858 IH20
City - State – Zip: Snyder, TX 79549	City - State – Zip: Mt. Braddock, PA 15465	City - State – Zip: Cisco, TX 76437
Phone: -325-574-6300	Phone: 724-430-6201	Phone: 817-850-1008

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LOG OF FORMATIONS

Well API#: 37-125-24022-_____

(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'	56'				Drillers Log
Sand	56'	150'				Drillers Log
Shale	150'	280'			1/2" wtr	Drillers Log
Sand/Shale	280'	522'				Drillers Log
Shale and Redrock	522'	586'				Drillers Log
Shale Sandstone Redrock	586'	683'			1.5" wtr	Drillers Log
Shale and Sandstone	683'	747'				Drillers Log
Sand and Shale	747'	830'				Drillers Log
Sand	830'	870'				Drillers Log
Sand/Shale	870'	920'				Drillers Log
Shale	920'	1020'				Drillers Log
Sand/Shale	1020'	1110'				Drillers Log
Sand	1110'	1164'				Drillers Log
Sand and Shale	1164'	1710'				Drillers Log
Sand	1710'	1980'				Drillers Log
Gray Shale	1980'	2117'				Drillers Log
Sand and Shale	2117'	3410'				Drillers Log
Shale	3410'	3605'				Drillers Log
Sandy Shale	3605'	4170'				Drillers Log
Shale	4170'	4430'				Drillers Log
Sand and Shale	4430'	4510'				Drillers Log
Shale	4510'	4940'				Drillers Log
Sand and Shale	4940'	5100'				Drillers Log
Shale	5100'	6000'				Drillers Log
Horizontal						
Shale	5050'	7470'				Drillers Log
Limestone	7470'	7630'				Drillers Log
Shale	7630'					Drillers Log
Drillers Total Depth		11861'				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: Completion Enginerr: M.Hurey

Date: 3/1/2011

DEP USE ONLY

Reviewed by:

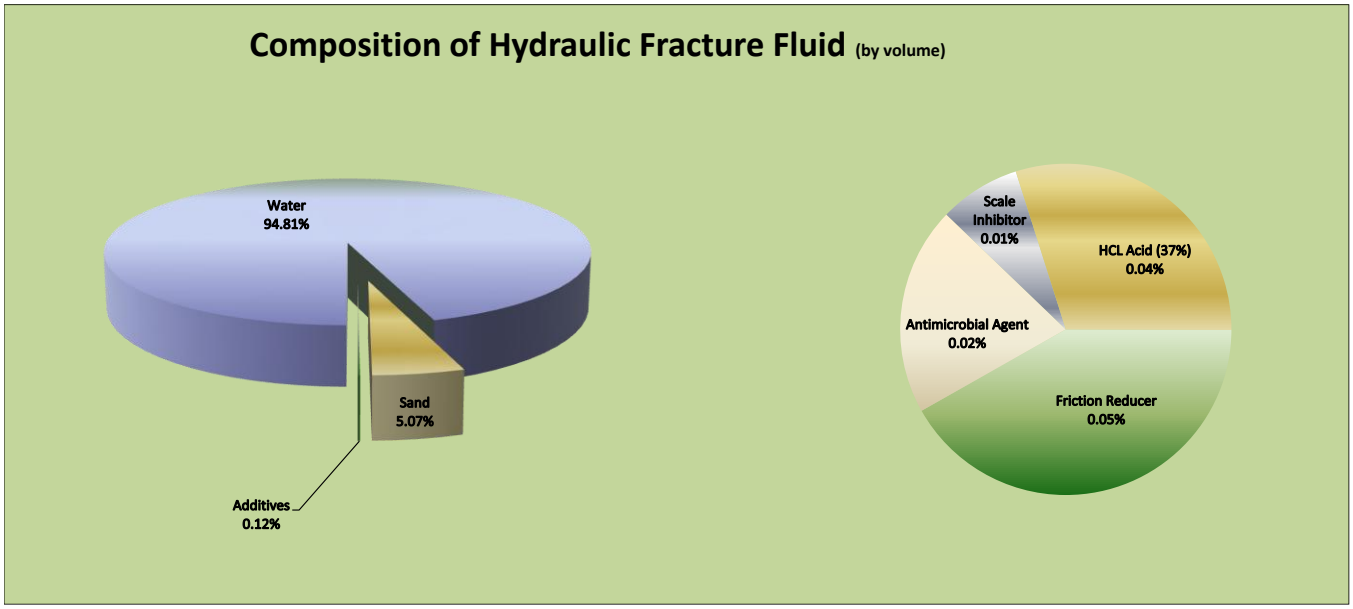
Date:

Comments:

RANGE RESOURCES

Bednarski Unit #4H **Completion Date: February 3rd-12th, 2011**
Well API: 37-125-24022 **Township: Hopewell**

% 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	3,462,843 gal	94.81%	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	185,277 gal	5.07%	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	1,854 gal	0.05%	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	0,904 gal	0.02%	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	0,352 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)	1,329 gal	0.04%	Swimming pool and household cleaner



RANGE RESOURCES

Composition of Components in Marcellus Shale Hydraulic Fracturing Fluid

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%	1329.28	0.0364%	0.0147%
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	15.47	0.0004%	0.0003%
			Propargyl Alcohol	Protects casing	5.0%	0.66	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
						TOTAL	0.0368%	0.0150%
Friction Reducer (FracTech)	FRW-300	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%	496.68	0.0136%	0.0126%
			3,4,4-Trimethyloxazolodine		5.0%	32.51	0.0009%	0.0008%
			2-Amino-2-methyl-1-propanol		1.0%	6.81	0.0002%	0.0002%
			Formaldehyde Amine		0.5%	2.97	0.0001%	0.0001%
	BMC B-8650	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	50.0%	93.26	0.0026%	0.0035%
			Methanol		0.5%	0.93	0.0000%	0.0000%
						TOTAL	0.0173%	0.0172%

	by vol %	by weight %
SUMMARY	0.054%	0.032%