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): 37125-23971	Project Number	Acres: 960
Address: 380 Southpointe Blvd, Suite 300			Well Farm Name: Chappel Unit	Well #: 2H	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
3/12/2010	9/5/2010	1140 ft.	10959 ft.	10959 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	37'	Driven	---	26"	37'	3/12/10
17-1/2"	13-3/8"	48#	Thread	290'	Uniblock, 700 sx	GS	13-3/8"	290'	6/5/10
12-1/4"	9-5/8"	36#	Thread	1812'	Uniblock, 580 sx	GS	9-5/8"	1812'	6/10/10
8 3/4"	5 1/2"	20#	Thread	10952'	Hal light lead, 180 sx	FS	5 1/2"	10952'	9/5/10
					Hal Light,1685 sx, Fraccem 285 sx				

COMPLETION REPORT

Perforation Record

Date	Interval Perforated From	To
1/4/2011	10,789'MD	7,217'MD

Stimulation Record

Date	Interval Treated	*Fluid* Type	Amount	*Propping Agent* Type	Amount	Average Injection Rate
1/18/2011	Marcellus Shale	Slick H20	94,838 bbl	Sand	4,042 Klb	66.4 bpm

Natural Open Flow	Too small to measure	Natural Rock Pressure	Too sml to measure	Hours / Days
After Treatment Open Flow	omcf/d@24 hrs post treatment	After Treatment Rock Pressure	na@24 hrs post treatment	Days / Hours

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

Name	Address	City - State – Zip
Patterson UTI	4501 Lamesa Highway	Snyder, TX 79549
Universal Well Services	730 Braddock View Dr	Mt. Braddock, PA 15465
Frac Tech	16858 IH20	Cisco, TX 76437

Phone	Phone	Phone
325-574-6300-	724-430-6201	817-850-1008

LOG OF FORMATIONS

Well API#: 37-125-23971-____

(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'	40'				Geophysical Log
Sand	40'	70'				Geophysical Log
Sand and Shale	70'	300'				Geophysical Log
Shale	300'	330'				Geophysical Log
Shale and Sand	330'	520'				Geophysical Log
Shale	520'	760'				Geophysical Log
Sand and Shale	760'	940'				Geophysical Log
Shale	940'	1320'				Geophysical Log
Sand and Shale	1320'	1730'				Geophysical Log
Shale	1730'	6540'				Geophysical Log
Limestone	6540'	6553'				Geophysical Log
Horizontal						
Shale	5300'	6730'				Geophysical Log
Limestone	6730'	6830'				Geophysical Log
Shale	6830'					Geophysical Log
Drillers Total Depth	'	10959				Geophysical 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 Engineer: R Archibeque Date: 2/11/2011

DEP USE ONLY

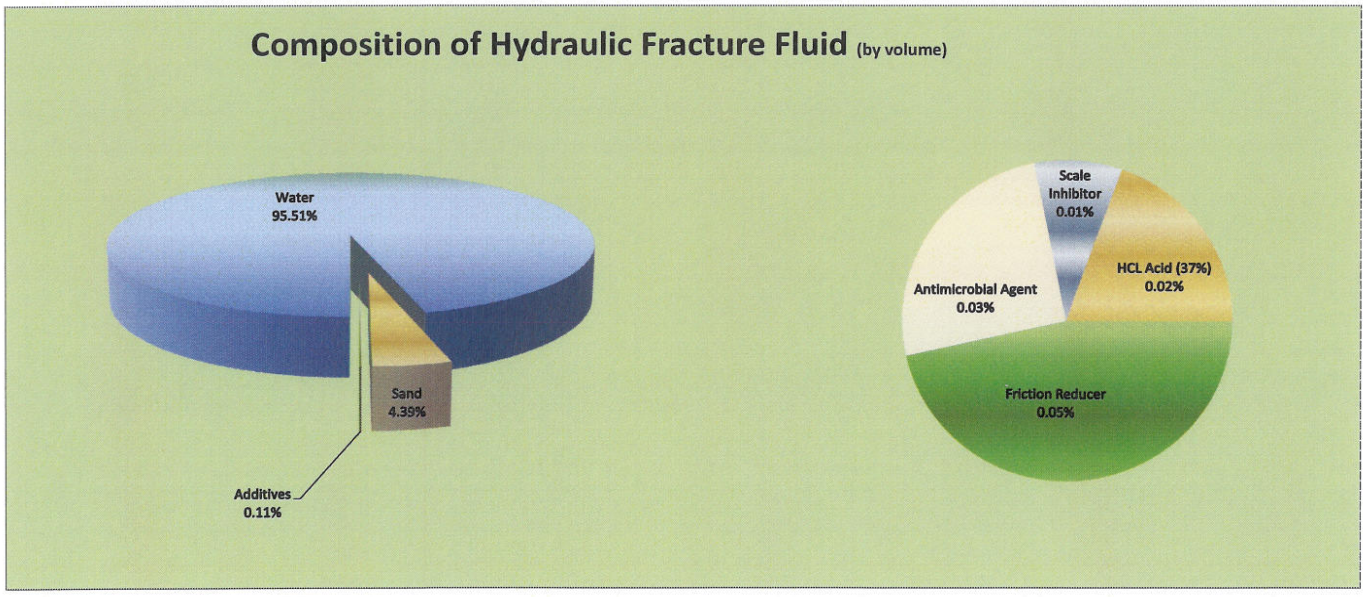
Reviewed by: Date:

Comments:

RANGE RESOURCES

Chappel Unit #2H **Completion Date: January 18, 2011**
Well API: 37-125-23971 **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	3,978,685 gal	95.51%	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	182,679 gal	4.39%	Drinking water filtration, play sand
FRW-200 & FRW-300	Friction Reducer	Reduces friction between fluid and pipe	Diluted at one-half gallon per 1,000 gallons of water	2,100 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	1,146 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	392 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)	886 gal	0.02%	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	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%	886.18	0.0213%	0.0087%
	CI-100	Corrosion Inhibitor	Methanol	Protects casing	95.0%	10.32	0.0002%	0.0002%
			Propargyl Alcohol	Protects casing	5.0%	0.44	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	0.0215%	0.0089%
Friction Reducer (FracTech)	RW-200 & FRW-30	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%	629.65	0.0151%	0.0141%
			3,4,4-Trimethyloxazolodine		5.0%	41.22	0.0010%	0.0009%
			2-Amino-2-methyl-1-propanol		1.0%	8.64	0.0002%	0.0002%
			Formaldehyde Amine		0.5%	3.76	0.0001%	0.0001%
	BMC B-8650	Antibacterial Agent	Glutaraldehyde	eliminates bacteria in water	50.0%	118.23	0.0028%	0.0040%
			Methanol		0.5%	1.18	0.0000%	0.0000%
						TOTAL	0.0193%	0.0193%

	by vol %	by weight %
SUMMARY	0.041%	0.028%