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pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

8/4/2014

[REDACTED]

CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 293075
Springfield Township, Bradford County

Dear [REDACTED]


The Department has investigated the possible degradation of your water supply well located at the above listed address, in response to a 10/28/2012 complaint that gas well drilling activities may have affected your water well. On 11/13/2012, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis, and the analytical reports for the samples were previously submitted to you. Additional samples were collected from your water supply by various parties between 11/13/2012 and 4/10/2014, and were submitted to the Department's laboratory or to an accredited third party laboratory for analysis. Tables illustrating the results of those samples are included, as well as documents that will assist you with interpreting the sample results. The sample results showed methane was present at between 7.7 and 33.2 mg/l in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.

Methane is the predominant component of natural gas. Federal water standard limitations have not been established for methane gas. The level of concern begins above 28 mg/l methane, which is referred to as the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional methane in solution. This may allow the gas to come out of the water and concentrate in the air space of your home or building. There is a physical danger of fire or explosion due to the migration of natural gas into water wells or through soils into dwellings where it could be ignited by sources that are present in most homes/buildings. Natural gas can also cause a threat of asphyxiation, although this is extremely rare.

When the Department is made aware of methane levels greater than 7 mg/l, we notify the water supply owner of the hazards associated with methane in their water supply. Please be aware however, that the methane levels can fluctuate. This means that even with a relatively low level of methane, you should be vigilant of changes in your water that could indicate an increase in methane concentration.

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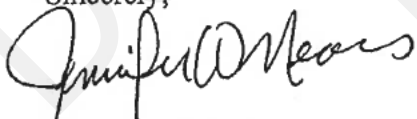
8/4/2014

It is the Department's recommendation that all water wells should be equipped with a working vent. This will help alleviate the possibility of concentrating these gases in areas where ignition would pose a threat to life or property. Please note that it is not possible to completely eliminate the hazards of having natural gas in your water supply by simply venting your well.

Additionally, the sample results showed several compounds elevated above Department standards. Arsenic exceeded its primary maximum contaminant level (MCL) in 1 of the 21 samples analyzed for arsenic, and turbidity, aluminum, iron and manganese exceeded secondary maximum contaminant levels (SMCLs) in several of the samples collected from your water supply. Primary MCLs are intended to reflect potential dangers to human health, while secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.). Arsenic, iron and manganese are commonly found in exceedance of their respective MCL/SMCL in Pennsylvania water wells and may not be related to oil and gas drilling activities. While the sudden occurrence of turbidity and effervescing water can be indicative of gas mobilizing sediment in shallow aquifers, most, if not all, of the detections of arsenic, aluminum, iron, and manganese exceeding the EPA MCL/SMCLs appear to be attributable to excessive water well drawdown, which can cause increased turbidity and subsequently, increased metal concentrations.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

cc:

Jennifer Means
William J. Kosmer, P.G.
Matt Nuss
[REDACTED]