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pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

6/18/2012

[REDACTED]

CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 286642
West Burlington Township, Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED], in response to a 3/3/2011 complaint that gas well drilling activities may have affected your water well. On 3/9/2011 and 10/19/2011 a consultant for Chief collected samples from your water supply. The analytical reports for the samples are summarized in the attached table.

The sample results showed methane was present at concentrations ranging from 7 - 34 mg/l in your water supply. Methane gas was also detected in the headspace of your water well. 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.

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

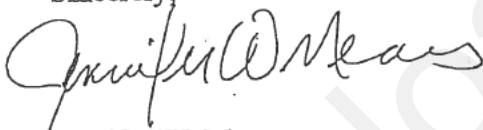
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would pose a threat to life or property. Please note that it is not possible to completely eliminate the hazards of having natural gas in your water supply by simply venting your well.

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

[REDACTED]

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Complaint File 286642

[REDACTED]