



October 29, 2018

**CERTIFIED MAIL NO.** [REDACTED]

[REDACTED]

Re: 58 Pa. C.S. § 3218 Determination  
Water Supply Request for Investigation No. 291603

[REDACTED]

Union Township, Tioga County

Dear [REDACTED]

The Department has completed its investigation of your water supply located at the above address ("Water Supply"). Based on the sample results reviewed and supplementary information obtained to date, the Department has determined that the Water Supply was temporarily affected by oil and gas activities but has returned to background conditions. The Department's investigation into your complaint is set forth below.

Parameters	Unit	Pre-Drill	Initial Response	Current Level
Methane	mg/L	3.07	136	0.24

**Summary of Investigation**

On June 19, 2012, the Department was notified by a nearby oil and gas operator of elevated methane levels in the Water Supply. During inspections conducted by the Department and others during the course of the investigation, methane gas was observed in the water and the headspace of the Water Supply. Samples from the Water Supply were collected on numerous occasions throughout the course of the investigation. Those samples were submitted to a Pennsylvania-accredited laboratory or the Department's laboratory in Harrisburg for analysis, and the results of those samples were previously provided to you.

Initial results of samples from the Water Supply showed that the Water Supply had levels of methane above expected background conditions. However, additional sampling results revealed that those levels have returned to levels which are below the Department's unofficial action level for methane and that these concentrations are at or near expected background conditions.

Based on the Department's investigation, the Department has determined that the impacts to the Water Supply were temporary and that the quality of the Water Supply is now at or near

background conditions. As a result, the Department does not plan to require further action regarding the Water Supply.

Please contact William J. Kosmer, P.G. at 570-974-2613 should you have any questions concerning this matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jennifer W. Means".

Jennifer W. Means  
Environmental Program Manager  
Eastern Oil and Gas District

Enclosures:

Laboratory Analytical Tables  
"How to Interpret A Water Analysis Report"

cc:

William J. Kosmer, P.G.  
Stephanie Wharton  
Matt Nuss  
Sharon Steinbacher  
Complaint File # 291603



# pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DISTRICT OIL AND GAS OPERATIONS

1/14/2013

[REDACTED]  
[REDACTED]  
[REDACTED]  
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination  
Complaint No. 291602  
Union Township, Tioga County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 6/17/2012 complaint that gas well drilling activities may have affected your water well. On 6/18/2012, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results.

The sample results showed several compounds elevated above Department standards. Manganese was present at 0.390 mg/L which exceeds the secondary maximum contaminate level (SMCL) of 0.05 mg/L. 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.). Additionally, the sample results showed methane is present at 51.6 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.

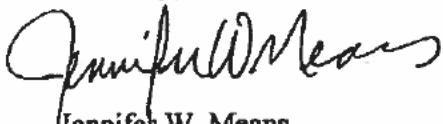
When the Department is made aware of methane levels greater than 7 mg/l, we notify the water supply owner of the hazards associated with methane in their water supply. Please be aware however, that the methane levels can fluctuate. This means that even with a relatively low level of methane, you should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

1/14/2013

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.

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

Enclosures:

Laboratory Analytical Results  
Table 1 "Laboratory Analytical Results"  
"How to Interpret A Water Analysis Report"

cc:

Jennifer Means  
William J. Kosmer, P.G.  
Jeremy Daniel  
Complaint File 291602