



January 31, 2019

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: 58 Pa. C.S. § 3218 Determination
Water Supply Request for Investigation No. 329783
Wolf Township, Lycoming County

Dear [REDACTED]

The Department of Environmental Protection (Department) has been investigating the possible degradation of your water supply located at the above referenced address ("Water Supply"), in response to a complaint received on 9/20/2017, that recent oil and gas activities may have affected your Water Supply. The Department's investigation, prompted by information you provided, has determined that your Water Supply was adversely affected by oil and gas activities, including but not limited to the drilling, alteration, or operation of an oil or gas well.

Please note that without any treatment, the most recent water quality sampling indicates that your water quality does not meet (*i.e.*, is worse than) the following health and/or aesthetic statewide standards (Note that Primary Maximum Contaminant Levels (MCLs) are intended to reflect potential dangers to human health, while secondary Maximum Contaminant Levels (SMCLs) reflect the aesthetics of the water (*i.e.* taste, smell, etc.):

Parameters	Unit	Statewide Standards or Recommended Levels	Your Highest Sample Results that were Detected Above Statewide Standards/Levels
Turbidity	NTU	1	7.8

The information upon which this determination is based is summarized below.

Summary of Investigation

On September 20, 2017, the Department was notified that methane gas may be present in your Water Supply and you reported that you noticed a change in the Water Supply's condition approximately 8 months prior. During inspections conducted by the Department and others, methane gas was observed in the Water Supply. After initially being denied access to sample in September, samples were collected from the Water Supply by the Department on October 19, 2017 and on several occasions by private consultants, and were submitted to the Department's laboratory or to an accredited third party laboratory for analysis. The analytical reports for the

samples collected by the Department were previously submitted to you. Please see the attached documents, which include analytical tables regarding the quality of the Water Supply, as well as information regarding interpreting those results.

The results of samples collected from the Water Supply indicated methane was present in your Water Supply at concentrations above Department action level and expected background conditions. Specifically, analytical data collected over the investigation period reveal concentrations of methane ranging from 13 mg/L to 30 mg/L.

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 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.

As detailed above, turbidity was detected above its respective health and/or aesthetic statewide standard during the investigation. Turbidity is caused by the presence of suspended matter such as sediment, nonliving organic particulates, plankton, or other microscopic organisms.

The most recent sampling data collected from a location after the previously installed water treatment system indicates that while reduced, turbidity remains above its MCL. Routine maintenance may be able to resolve the turbidity detections. It is recommended that the previously installed treatment system continues to be used and maintained as concentrations of the parameters listed in the provided tables can fluctuate over time.

Given the reported timeframe of the onset of the incident, its spatial relationship to other water supply complaints and surface expressions of gas in the area, the ongoing well integrity issues previously identified with the nearby gas well, and the analytical data available for analysis, the Department has determined that your Water Supply was adversely affected by oil and gas activities, including but not limited to the drilling, alteration, or operation of an oil or gas well.

The Department is continuing to work to permanently resolve this issue. Should you have any questions regarding the investigation, please contact William J. Kosmer, P.G. at 570.974.2613.

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer W. Means". The signature is written in a cursive style with a large initial "J".

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
Sharon Steinbacher
Complaint File # 329783