



February 12, 2020



CERTIFIED MAIL NO. [REDACTED]

Re: Water Supply Request for Investigation ID: 329389
58 Pa.C.S. § 3218 Determination
Harford Township, Susquehanna 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 August 31, 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. The information upon which this determination is based is summarized below.

Summary of Investigation

On August 31, 2017, you stated that the results of recent samples collected from your Water Supply were not consistent with prior sample results, and that the water had developed a metallic taste. The Department collected a number of samples from your Water Supply over a period of approximately two and one half years. Samples were collected and submitted to the Department’s laboratory in Harrisburg for analysis. Those results were previously sent to you but are summarized for your convenience in the enclosed table. The sample results indicated an increase of dissolved gases in your Water Supply. The attached results table shows an increase in the concentrations of methane, ethane, and periodically, manganese. The Department believes that those increases coincide with work done on nearby gas wells.

The attached sample results table shows that the following analytes exceeded Department standards during one or more of the sampling events.

Parameters	Unit	Statewide Standards or Recommended Levels	Your Sample Results that Are Above Statewide Standards/Levels
Manganese	mg/L	0.05	0.051-0.069
Methane	mg/L	7 (Action Level)	9.2 – 12.4

Manganese was detected at 0.069 milligrams per liter mg/L on December 12, 2017, 0.051 mg/L on June 27, 2018, and 0.053 mg/L on July 10, 2019. These values exceed the secondary Maximum Contaminant Levels (MCL) of 0.05 mg/L for manganese. Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

The Department's laboratory analytical results from your Water Supply indicated elevated dissolved methane concentrations ranging from 9.2 mg/L collected on June 27, 2018 to 12.4 mg/L collected on July 10, 2019. Water samples were also collected to analyze the carbon isotope ratios of this dissolved methane gas, in an effort to identify the source. The isotopic data collected from your Water Supply compared to combustible gas samples collected from nearby gas wells and impacted water supplies were found to have a similar composition.

The Department's laboratory analytical results from your Water Supply indicated dissolved ethane concentrations ranging from 0.0244 mg/L on December 12, 2017 to 0.332 mg/L collected on July 10, 2019.

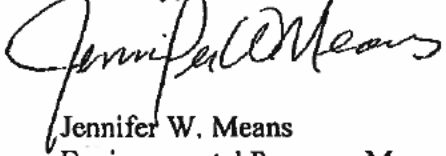
Methane is the predominant component of natural gas. Federal water standard limitations have not been established for methane gas. The level of concern begins above 28 mg/L methane, which is referred to as the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional 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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions about the Department's determination regarding the Water Supply, feel free to contact Eric Rooney, P.G. at 570-346-5543 or erooney@pa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Jennifer W. Means". The signature is written in black ink and is positioned above the typed name.

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

Enclosures:

Laboratory Analytical Results Table

cc:

Michael O'Donnell (email)
Briana Cunningham (email)
Eric Rooney, P.G. (email)
Complaint File # 329389