



January 6, 2021



CERTIFIED MAIL NO. [REDACTED]

Re: Water Supply Request for Investigation ID: 349730
58 Pa.C.S. § 3218 Determination
Mehoopany Township, Wyoming 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 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 May 13, 2020, the Department received information from Chesapeake Appalachia, LLC, (“Chesapeake”) identifying the detection of combustible gas in your Water Supply well vault and a capped jar sample collected during the evaluation of your shared Water Supply. The sampling was being conducted during a gas migration investigation involving nearby water supplies. Chesapeake initiated an investigation and collected samples from the Water Supply. On May 20, 2020, the Department also collected a water sample from your Water Supply and submitted it to the Department’s laboratory in Harrisburg for analysis. The sample results were previously provided to you, but are summarized for your convenience in the enclosed table, along with the sample results provided by Chesapeake. The attached results table shows an increase in the concentrations of methane, ethane, propane, iron, manganese, and turbidity compared to pre-drill conditions. Those increases coincide with the drilling of 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
Iron	mg/L	0.3	0.599-17.4
Manganese	mg/L	0.05	0.0636
Methane	mg/L	7 (Action Level)	15.6-30.7
Turbidity	NTU	1	2.15-115

Iron was detected in your pre-drill water sample at 1.57 milligrams per liter ("mg/L") on July 10, 2013. Over the course of the investigation iron was detected at concentrations ranging from 0.599 mg/L to 17.4 mg/L. While the iron concentration in all but one of the samples collected exceeded the secondary maximum contaminant level ("MCL") of 0.3 mg/L for iron, many of the samples exceeded both the pre-drill concentration and the secondary MCL. Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

Manganese was not detected in your pre-drill water sample above the detection limit of 0.001 mg/L. The analytical results from your Water Supply indicate an elevated manganese concentration of 0.0636 mg/L which exceeds the secondary MCL of 0.05 mg/L.

Turbidity was detected in your pre-drill water sample at 21 nephelometric turbidity units ("NTU"). Turbidity ranged between 2 NTU and 115 NTU during the investigation period. While turbidity was found above the primary MCL in all but one sample collected, many of the samples exceeded both the pre-drill concentration and the primary MCL of 1 NTU for turbidity. Primary MCLs are intended to reflect potential dangers to human health, although it should be noted that the primary turbidity MCL is only applicable to regulated surface water sources or groundwater sources under the direct influence of surface water.

Methane was not detected in your pre-drill water sample above the detection limit of 0.005 mg/L. The laboratory analytical results from your Water Supply indicated elevated dissolved methane concentrations ranging from 15.6 mg/L to 30.7 mg/L. Elevated levels of methane were also detected in the vault that houses your Water Supply well.

Samples of the methane from the Water Supply were collected and sent to a specialized laboratory for isotopic and compositional analysis. These analyses allowed for a more detailed characterization of the gas present in the Water Supply. The isotope and compositional analyses indicate that the stray gas in your Water Supply appears to be associated with oil and gas activities.

Ethane and propane were not detected in your pre-drill water sample above their detection limits of 0.005 mg/L. The laboratory analytical results from your Water Supply indicated dissolved ethane concentrations ranging from 0.094 mg/L to 1.72 mg/L and dissolved propane concentrations ranging from 0.0106 mg/L to 0.0394 mg/L.

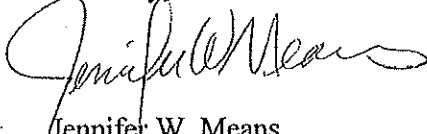
Methane is the predominant component of natural gas. Federal water standard limitations have not been established for methane gas. The level of concern begins above 28 mg/L methane, which is referred to as the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional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



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 # 349730