



January 6, 2021



CERTIFIED MAIL NO. [REDACTED]

Re: Water Supply Request for Investigation ID: 349670
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 12, 2020, the Department received information from Chesapeake Appalachia, LLC (“Chesapeake”) regarding discolored and cloudy water associated with your shared Water Supply. 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 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. Note that some of these samples were taken from different locations in your shared Water Supply.

| Parameters | Unit | Statewide Standards or Recommended Levels | Your Sample Results that Are Above Statewide Standards/Levels |
|------------|------|---|---|
| Iron | mg/L | 0.3 | 0.333-0.409 |
| Manganese | mg/L | 0.05 | 0.0694-0.106 |
| Methane | mg/L | 7 (Action Level) | 23.4-75.3 |
| Turbidity | NTU | 1 | 1.55-6.28 |

Iron was not detected in your pre-drill water sample above the detection limit of 0.1 milligrams per liter ("mg/L") on July 29, 2013. Iron was detected at 0.409 mg/L on May 20, 2020 and 0.333 mg/L in the Department collected water sample. These values exceed the secondary maximum contaminant level ("MCL") of 0.3 mg/L for iron. Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

As noted in the enclosed tables, manganese was detected at concentrations ranging from 0.0694 mg/L in your pre-drill water sample to 0.106 mg/L. These values exceed the secondary MCL of 0.05 mg/L for manganese.

Turbidity was not detected in your pre-drill water sample above the detection limit of 1 nephelometric turbidity units ("NTU"). Over the course of the investigation, turbidity ranged from less than 1 NTU to 6.28 NTU. Some of these values exceed 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 23.4 mg/L collected on September 10, 2020 to 75.3 mg/L collected on November 5, 2020.

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 1.37 mg/L to 4.64 mg/L, and dissolved propane concentrations ranging from 0.0771 mg/L to 0.251 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 # 349670