pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

January 6, 2021

[redacted]

CERTIFIED MAIL NO. [redacted]

Re: Water Supply Request for Investigation ID: 349769
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 14, 2020, the Department received information from Chesapeake Appalachia, LLC, ("Chesapeake") identifying the detection of combustible gas in a capped jar sample collected during the evaluation of your Water Supply. The sampling was being conducted during a gas migration investigation involving nearby water supplies. Chesapeake collected water samples from your Water Supply. The results are summarized for your convenience in the enclosed table. The attached results table shows elevated concentrations of iron and turbidity. Dissolved methane and ethane were also detected in the Water Supply, in addition to the combustible gas detected during field screening.

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	**0.356, 1.67, & 7.11**
Turbidity	NTU	1	**1.45, 13.3, & 84**

The iron concentrations noted above exceed the secondary maximum contaminant level ("MCL") of 0.3 mg/L. Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

The turbidity levels noted above exceed the primary MCL of 1 nephelometric turbidity units ("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.

The laboratory analytical results from your Water Supply indicated dissolved methane concentrations ranging from 0.890 mg/L collected on July 23, 2020 to 1.72 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.

The laboratory analytical results from your Water Supply indicated dissolved ethane concentrations ranging from 0.0191 mg/L collected on July 23, 2020 to 0.0454 mg/L collected on November 5, 2020.

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 # 349769