



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

March 17, 2023



CERTIFIED MAIL NO. [REDACTED]

Re: Water Supply Request for Investigation ID: 361209
58 Pa.C.S. § 3218 Determination
Sullivan Township, Tioga 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 December 22, 2021 that oil and gas activities may have resulted in the presence of gas in the Water Supply. The Department’s investigation, prompted by information you provided, has determined that the 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

The Department received a complaint from you on December 22, 2021 that small gas bubbles began to appear in the Water Supply approximately one month prior to contacting the Department. On December 28, 2021, Department staff conducted a site visit and collected samples from the Water Supply. The samples were submitted to the Department’s laboratory in Harrisburg for analysis. Those samples and a summary of the sample results were provided to you in a letter dated January 31, 2022. Additional samples were collected from the Water Supply by the Department on January 12, 2022, April 20, 2022, August 30, 2022, and September 6, 2022. A summary table of water quality exceedances from the Department sample results collected from the Water Supply is provided below. A summary table of pre-drill and post-drill water quality results is also provided with this letter.

Parameters	Unit	Statewide Standards or Recommended Levels	Your Highest Sample Results in Department Samples that were Detected Above Statewide Standards/Levels
Manganese	mg/L	0.05	0.319
Iron	mg/L	0.3	1.08
Methane	mg/L	7	51.6

The Department’s site visits and samples confirmed the presence of stray gas causing the bubbles in the Water Supply. Dissolved methane increased from non-detect (less than 0.232 mg/L) in pre-drill sample results to 51.6 mg/L in post-drill sample results. Additionally, samples of the stray gas from the Water Supply were sent to a specialized laboratory for isotope analysis. The isotopic analysis allowed for more detailed characterization of the stray gas in the Water Supply. The isotope analyses showed stray gas

from the Water Supply was likely of similar origin to natural gas sampled from potential gas well sources in the area.

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.

The Department understands that your Water Supply has a vent currently installed. 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 regarding the investigation, please contact Caleb Woolever at 570.327.0546.

Sincerely,



Jennifer W. Means
Program Manager
Eastern Oil and Gas District

Enclosures:
Sample Results Table

cc:
Stephanie Wharton
Caleb Woolever
Matt Nuss
Korey Starkey
Complaint File # 361209