pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

February 21, 2018

CERTIFIED MAIL NO. [redacted]

[redacted]

Re: Water Supply Request for Investigation ID: 303492
58 Pa.C.S. § 3218 Determination
Dimock Township, Susquehanna County

Dear [redacted]

The Department of Environmental Protection (Department) has investigated the possible degradation of your water supply located at the above referenced address ("Water Supply"), in response to a complaint received on March 13, 2014, that recent oil and gas activities may have affected your Water Supply. Based on sample results and other information obtained to date, the Department 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 March 13, 2014, you complained of a metallic taste and an odor in your water. The Department conducted numerous rounds of sampling from your Water Supply which indicated an increase of dissolved gases in your Water Supply. 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 attached results table shows an increase in the concentrations of methane, ethane, iron, manganese and turbidity.

The Department's laboratory analytical results from your Water Supply indicated exceedances of the Secondary Maximum Contaminant Level (SMCL) for manganese ranging from 0.053 milligrams per liter (mg/l) collected on May 10, 2010 to 0.61 mg/l collected on May 10, 2017.

The Department's laboratory analytical results from your Water Supply indicated exceedances of the SMCL for iron ranging from 0.39 mg/l collected on April 20, 2015 to 0.42 mg/l collected on June 7, 2017.

The Department's laboratory analytical results from your Water Supply indicated exceedances of the Primary Maximum Contaminant Level (PMCL) for turbidity ranging from 1.05 Nephelometric Turbidity Unit (NTU) on August 1, 2017 to 3.32 NTU on June 7, 2017.

The Department's laboratory analytical results from your Water Supply indicated dissolved methane concentrations ranging from 7.1 mg/l collected on June 7, 2017 to 21.6 mg/l collected on August 1, 2017.

The Department's laboratory analytical results from your Water Supply indicated dissolved ethane concentrations ranging from 0.03 mg/l on June 7, 2017 to 0.54 mg/l collected on August 1, 2017.

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 water quality analysis, isotope and compositional analyses, and documented changes in methane concentration indicate that the stray gas in the Water Supply is most likely associated with oil and gas drilling activity.

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 permantly 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
How to Interpret a Water Analysis Report
Methane Gas and Your Water Well