



September 13, 2017

CERTIFIED MAIL NO. [REDACTED]

Re: Water Supply Request for Investigation 281057
58 Pa.C.S. § 3218 Determination
Putnam Township, Tioga County

Dear [REDACTED]

The Pennsylvania Department of Environmental Protection has completed its investigation of your water supply located at the above referenced address (“the Water Supply”), in response to a complaint received on June 28, 2011 alleging that recent gas well activities may have impacted the Water Supply. Based on sample results and other information collected during the investigation, the Department has determined the Water Supply was impacted by oil and gas activities. Please note that your water quality exceeds the Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (SMCL) for the analytes listed in Table 1. The exceedances in Table 1 were detected in samples collected prior to the installation of the treatment system on the Water Supply. Primary MCLs are intended to reflect potential dangers to human health, while SMCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

Summary of Investigation

On June 28, 2011, the Department received a complaint from a resident at the above referenced address regarding effervescence and foul smelling water in the Water Supply. The Department initiated an investigation on June 29, 2011. Water quality samples were collected from the Water Supply on several occasions throughout the investigation. The samples were submitted to the Department’s laboratory or to an accredited third party on behalf of oil and gas operators in the area. Table 2 summarizes analytical results the Department has available from the Water Supply. Analytical reports for the samples collected by the Department were previously submitted to you. Please see the attached documents, which include information about interpreting water quality results.

The results indicated arsenic, iron, manganese, turbidity, and total coliform bacteria exceeded the MCL or SMCL for each respective compound in one or more water quality samples shown in Table 1. Based on historical data and data collected during the Department’s investigation, the current exceedances of arsenic, iron, manganese, turbidity, and total coliform bacteria were determined to be related to background conditions unrelated to oil and gas activity.

Dissolved methane exceeded the Department's unofficial action level of 7 mg/L in samples collected during the investigation except the most recent sample collected on 7/28/2015. The water quality data indicates that the dissolved methane concentration in the Water Supply has fluctuated. Samples of dissolved methane were sent to a specialized laboratory for isotope analysis. The isotope analysis confirmed that the methane gas present in the Water Supply was related to oil and gas activity.

Department staff has monitored the headspace of the Water Supply during the investigation. Concentrations of combustible gas in the headspace of the Water Supply exceeding the lower explosive limit (LEL) were detected and monitored. Monitoring data shows that combustible gas exceeding 10% of the LEL has not been detected in the Water Supply headspace since April 2015. The headspace of the Water Supply was vented in order to mitigate potential hazards associated with fugitive gas. Although combustible gas has not been detected in the headspace of the Water Supply for several years, it is recommended that you continue to maintain and operate the vent on the Water Supply as a safety precaution.

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 DEP 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 understanding that you came to an agreement with an oil and gas operator in order to install a treatment system on the Water Supply. Maintaining the treatment system and vent that are installed on the Water Supply 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 and treating your well.

The DEP considers this complaint to be closed at this time and does not anticipate further action. If you have any questions about any of the above, please contact Caleb Woolever, a Geologic Specialist on my staff at 570.327.0546.

CID 281057

September 13, 2017

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer W. Means". The signature is fluid and cursive, with a long horizontal stroke at the end.

Jennifer W. Means
Eastern District Oil and Gas Manager
District Oil and Gas Operations

Enclosures:

How to Interpret a Water Analysis Report
Table 1: Table of Water Quality Exceedances
Table 2: Table of Water Quality Results

Cc:

Sharon Steinbacher
Jennifer W. Means
Stephanie Wharton
Matthew Nuss
Andrea Mullen, P.G.