



July 24, 2018

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: Water Supply Request for Investigation ID: 330216
58 Pa.C.S. § 3218 Determination
Windham Township, Wyoming 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 October 6, 2017 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 October 6, 2017, you complained that your water turned turbid during the night of October 5, 2017. You described the water as being cloudy/turbid and effervescent. The Department and Chesapeake Appalachia, LLC (Chesapeake) conducted sampling from your Water Supply which indicated an increase of dissolved gases in your Water Supply. The Department's samples were collected as shown in the enclosed table, and submitted to the Department's laboratory in Harrisburg for analysis. The attached sample results show an increase in the concentrations of methane, ethane, propane, iron, manganese and turbidity, when compared to pre-drill samples collected before oil and gas activity.

The post-complaint laboratory analytical results from your water supply indicated exceedances of the Secondary Maximum Contaminant Level (SMCL) for manganese ranging from 0.073 mg/l collected on January 31, 2018 to 0.329 mg/l collected on October 25, 2017. Manganese was not detected above the detection limit of 0.015 mg/l in the pre-drill samples collected by Chesapeake.

The post-complaint laboratory analytical results from your water supply indicated exceedances of the SMCL for iron ranging from 0.346 mg/l collected on October 6, 2017 to 0.527 mg/l collected on December 1, 2017. Iron was not detected above the detection limit of 0.05 mg/l in the pre-drill samples collected by Chesapeake.

The post-complaint laboratory analytical results from your water supply indicated exceedances of the Primary Maximum Contaminant Level (PMCL) for turbidity ranging from 1.94 Nephelometric Turbidity Units (NTU) collected on January 31, 2018 to 6.57 NTU collected on October 25, 2017. Turbidity was not detected above the detection limit of 1 NTU in the pre-drill samples collected by Chesapeake. It should be noted that the PMCL for turbidity is only applicable to surface water or groundwater under the direct influence of surface water.

The post-complaint laboratory analytical results from your water supply indicated dissolved methane concentrations ranging from 30.8 mg/l collected on January 31, 2018 to 63.8 mg/l collected on October 6, 2017. Methane was not detected above the detection limit of 0.026 mg/l in the pre-drill samples collected by Chesapeake.

The post-complaint laboratory analytical results from your water supply indicated dissolved ethane concentrations of ranging from 1.40 mg/l collected on January 31, 2018 to 2.98 mg/l collected on December 1, 2017. Ethane was not detected above the detection limit of 0.026 mg/l in the pre-drill samples collected by Chesapeake.

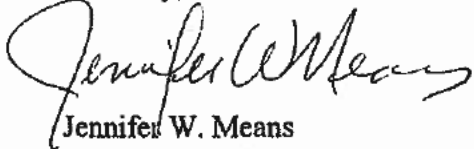
The post-complaint laboratory analytical results from your water supply indicated dissolved propane concentrations of ranging from 0.079 mg/l collected on October 25, 2017 to 0.159 mg/l collected on December 1, 2017. Propane was not detected above the detection limit of 0.034 mg/l in the pre-drill samples collected by Chesapeake.

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 is continuing to work to permanently resolve this issue. Should you have any questions feel free to contact Eric Rooney, P.G. at 570-346-5543.

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer W. Means". The signature is written in a cursive style with a large initial "J".

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 # 330216