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August 9, 2016

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: Water Supply Request for Investigation # 315646
58 Pa. C.S. § 3218 Determination
Chapman Township, Clinton County

Dear [REDACTED]

This letter is regarding your water supply at the above address ("Water Supply"). The Pennsylvania Department of Environmental Protection's (DEP) investigation indicates that historic or legacy oil and gas activities polluted the Water Supply. The information upon which this is based is summarized below.

CASE INFORMATION

Date of Complaint	Nature of Complaint (odor, taste, quantity, use, color)	Sample Results Above Statewide Standards or Recommended Levels
10/6/2015	Effervescence, Cloudy, Bubbles	Methane - (Unofficial DEP Action Level = 7 mg/L) Iron Manganese Aluminum Turbidity - (MCL only applicable to unfiltered drinking water sources.)

The DEP collected samples from your water supply on 10/8/2015 and 12/22/2015, with an additional sample for methane, ethane, and propane collected on 4/25/2016. The DEP sample results indicated that several parameters were elevated above Maximum Contaminant Levels (MCL) or DEP action levels. The analytical results are summarized in Table 1. Iron was detected above its Secondary MCL of 0.3 mg/L at concentrations of 0.43 mg/L and 0.31 mg/L. Manganese was detected above its Secondary MCL of 0.05 mg/L at concentrations of 0.071 mg/L and 0.071 mg/L. Turbidity was detected at 8.71 NTU and 2.61 NTU which exceeds the MCL of 1 NTU. Please note that the MCLs turbidity is only applicable to unfiltered surface water sources. Aluminum was detected at 0.22 mg/L in the sample (pre-treatment) collected on 10/8/2015 which exceeds the MCL of 0.2 mg/L. All other parameters tested during the monitoring period were consistent across all sampling events and, met their respective MCLs for compounds for which an MCL exists. Primary MCLs are intended to reflect potential dangers to human health, while Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

Analytical data collected over the investigation period revealed concentrations of methane ranging from 16 mg/L to 29 mg/L, in samples collected prior to water entering your water treatment system, which exceeded the DEP unofficial action level of 7 mg/L. 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 DEP'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.

As a reminder, the DEP sent you letters on 11/3/2015, 12/8/2015, 12/22/2015, and 5/12/2016 with recommendations for the venting of your water supply. The DEP still strongly encourages you to take these actions with regard to your water supply. The Department Fact Sheet on methane in water supplies is included again for your reference.

The DEP has not yet determined the exact well or wells that may be the source of stray gas. As a result, this is an ongoing investigation. The DEP is continuing to evaluate and collect additional information regarding the legacy oil and gas wells in the vicinity of the Water Supply. The DEP will send you a follow-up letter when the potential source(s) of stray gas is identified. Although no combustible gas has been detected in the atmosphere within your residence, installation of a combustible gas alarm may also provide an additional safety precaution. The DEP previously sent results of samples collected from the Water Supply to you. If you have any questions about any of the above, please contact Caleb Woolever at 570.327.0546.

Sincerely,


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