



May 28, 2021

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: 58 Pa. C.S. § 3218 Determination  
Water Supply Request for Investigation No. 337112  
Brady Township, Clearfield County

Subject Addresses:

[REDACTED]

Dear [REDACTED]

The Department has completed its investigation of your water supply located at the above subject address ("Water Supply").

On March 12, 2019, the Department determined that your Water Supply had been impacted by oil and gas operations. Based on the review of sample results and supplementary information obtained to date, the Department has determined that the source of the impact appears to have been mitigated and the water supply has been replaced with a connection to public water. Nevertheless, please note that at various times during the course of the investigation, water quality samples did not meet (*i.e.*, were/were worse than) health and/or aesthetic statewide standards for constituents such as turbidity, bacteria, arsenic, iron, manganese, aluminum, and zinc. The current levels of detected constituents appear to be related to historical mining activities and unrelated to the stray gas incident. A table illustrating the results of water quality samples collected during the investigation is included, as well as documents that will assist you with interpreting the sample results.

The Department's investigation into your complaint is set forth below.

#### Summary of Investigation

On September 22, 2018, the Department was notified that methane gas may be present in your Water Supply. During inspections conducted by the Department and others during the course of the investigation, methane gas was observed in the water and headspace of your Water Supply. Samples from the Water Supply were collected as shown in the attached table, and submitted to a Pennsylvania-accredited laboratory or the Department's laboratory in Harrisburg for analysis. A replacement water supply in the form of the connection to public water was installed for your property.

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Initial results of samples from the Water Supply showed that it contained methane above the Department's action level of 7 mg/L. However, results of additional samples collected after the plugging of the suspect gas well revealed that those levels have decreased to levels which are generally below the Department's action level for methane and/or are in compliance with the Consent Order and Agreement signed by Diversified Gas & Oil PLC (Diversified) and the Department. The enclosed table details those results.

Based on the Department's investigation, the Department has determined that the source of the stray gas to the Water Supply has been mitigated and that the impact to the Water Supply was temporary. As a result, the Department considers the incident resolved. Given the historical contamination in the area from previous mining activities, the replacement of the Water Supply with a connection to public water, and the conclusion of investigative activities, the Water Supply should be properly plugged and abandoned by a water well driller licensed in the Commonwealth. Diversified has agreed to conduct plugging and abandonment procedures for the Water Supply.

Please contact William J. Kosmer, P.G. [REDACTED] should you have any questions concerning this matter.

Sincerely,



Jennifer W. Means  
Environmental Program Manager  
Eastern Oil and Gas District

Enclosures:

Laboratory Analytical Table 1  
"How to Interpret A Water Analysis Report"

cc:

William J. Kosmer, P.G.  
Stephanie Wharton  
Sean VanFleet  
Complaint File



3/12/2019

**CERTIFIED MAIL NO.** [REDACTED]

[REDACTED]

Re: 58 Pa. C.S. § 3218 Determination  
Water Supply Request for Investigation No. 337112

[REDACTED]

Brady Township, Clearfield 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 9/22/2018, that 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.

Please note that without any treatment, the most recent water quality sampling indicates that your water quality does not meet (*i.e.*, is worse than) the following health and/or aesthetic statewide standards (Note that Primary Maximum Contaminant Levels (MCLs) are intended to reflect potential dangers to human health, while secondary Maximum Contaminant Levels (SMCLs) reflect the aesthetics of the water (*i.e.* taste, smell, etc.):

Parameters	Unit	Statewide Standards or Recommended Levels	Your Most Recent Sample Results that were Detected Above Statewide Standards/Levels
Arsenic	mg/L	0.01	<b>0.066</b>
Total Coliforms	MPN/100mL	0	<b>4,300</b>
Zinc	mg/L	5	<b>12.1</b>
Aluminum	mg/L	0.2	<b>5.54</b>
Manganese	mg/L	0.05	<b>13.5</b>
Iron	mg/L	0.3	<b>38.2</b>
Turbidity	mg/L	1	<b>17.2</b>

The Department’s investigation into your complaint is set forth below.

### Summary of Investigation

On September 22, 2018, the Department was notified that methane gas may be present in your Water Supply. Subsequently, water quality samples were collected from the Water Supply by the Department and private consultants, and were submitted to the Department's laboratory or to an accredited third party laboratory for analysis. The analytical reports for the samples collected by the Department were previously submitted to you. Please see the attached documents, which include analytical tables regarding the quality of the Water Supply, as well as information regarding interpreting those results.

The results of samples collected from the Water Supply indicated methane was present in your Water Supply at concentrations above the Department's action level and expected background conditions. Specifically, analytical data collected over the investigation period reveal concentrations of methane ranging from 22.2 mg/L to 30.4 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 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.

Over the course of the investigation, arsenic exceeded its Primary Maximum Contaminant Level (MCL) of 0.01 mg/L at a concentration of 0.066 mg/L. Iron was detected at 38.2 mg/L, in exceedance of its Secondary Maximum Contaminant Level (SMCL) of 0.3 mg/L. Manganese was detected above its SMCL of 0.05 mg/L at a concentration of 13.5 mg/L. Aluminum was detected at a concentration of 5.54 mg/L in exceedance of its SMCL of 0.2 mg/L. Zinc was detected in exceedance of its SMCL of 5 mg/L at a concentration of 12.1 mg/L. Total coliforms were detected at 4,300 MPN/100mL. Turbidity was detected at 17.2 NTU during the course of the investigation.

As detailed above, several tested constituents (turbidity, iron, manganese, aluminum, arsenic, zinc, and total coliforms) were detected above their respective health and/or aesthetic statewide standards during the investigation. Turbidity is caused by the presence of suspended matter such as sediment, nonliving organic particulates, plankton, or other microscopic organisms. In the case of your Water Supply, it appears the turbidity detected is also partially responsible for the detected concentrations of iron, manganese, aluminum, arsenic, zinc and total coliforms.

Iron, manganese, aluminum, arsenic, zinc are common metals associated with groundwater in the region. The most likely source of these metals are from the bedrock from which the Water Supply derives its water and geochemical reactions and/or the mobilization of sediment within the Water Supply.

Given the analytical data available for analysis, 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 as it relates to the methane present in your Water Supply.

The Department is continuing to work to permanently resolve this issue. Should you have any questions regarding the investigation, please contact William J. Kosmer, P.G. at 570.974.2613.

Sincerely,



Jennifer W. Means  
Environmental Program Manager  
Eastern Oil and Gas District

Enclosures:  
Laboratory Analytical Tables  
"How to Interpret A Water Analysis Report"

cc:  
William J. Kosmer, P.G.  
Stephanie Wharton  
Sharon Steinbacher  
Complaint File # 337112