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pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

December 14, 2015

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: 58 Pa. C.S. § 3218 Determination
Complaint No. 315387
Sweden Township, Potter County

Dear [REDACTED]

The Department initiated an investigation of the possible degradation (a reported turbidity increase) of your water supply "Water Supply" located at the address above in Sweden Township, Potter County in response to a 9/25/2015 complaint that recent gas well drilling activities may have affected your water supply well. Based on the sample results and other information obtained to date, the Department has determined that the Water Supply was adversely affected by the drilling, alteration, or operation of an oil or gas well. The information, upon which this determination is based, is summarized below.

You reported that the Water Supply's conditions had changed sometime before 9/15/2015. No pre-drill water quality data was available for the Water Supply. Subsequently, water quality samples were collected from the Water Supply on several occasions 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 sampling results regarding the quality of the Water Supply, as well as information regarding interpreting those results.

On 9/29/2015 and 10/15/2015, Department staff observed that water from the Water Supply appeared cloudy. Water quality samples were collected on both dates for analysis by the Department's laboratory. After review of the data collected by the Department and others, the results reveal that the water quality observed is consistent with the issues reported to the Department and appears to be related to oil and gas drilling activities.

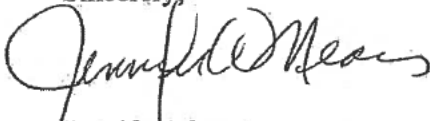
Specifically, analytical data collected over the investigation period reveal turbidity levels as high as 261 NTU during the initial sampling conducted on 9/26/2015 by [REDACTED] representatives, which has since subsided to <1NTU during the 10/15/2015 split sampling conducted by the Department and [REDACTED]. Additionally, concentrations of manganese, iron, aluminum, and lead were detected above their respective Maximum/Secondary Maximum Contaminant Levels (MCL/SMCLs) during the September sampling events, but have since decreased to levels that are in compliance with respective MCL/SMCLs. The entrainment of sediment in the sample is the most likely

cause of the observed increases in metals, which are common elements found in the soils and geology of the area. Isopropanol and Methylene Blue Active Substance (MBAS), an analysis for surfactants, were not detected during any of the sampling events conducted on the Water Supply.

Several Volatile/Semi-volatile Organic Compounds (VOC/SVOCs) were detected during the course of the investigation, including acetone, which is a degradation by-product of isopropanol in the aquifer. Two SVOCs (Dibenzo(a,h)anthracene and Indeno-1,2,3-cd-pyrene) were detected above applicable standards during the 9/29/2015 sampling event. However, both of these compounds were detected in the laboratory's QA/QC blanks and have not been detected in subsequent sampling events, suggesting the presence of these compounds is likely related to laboratory contamination. The most recent analytical data indicate the absence of VOCs/SVOCs with the exception of bis(2-Ethylhexyl)phthalate and bis(2-Ethylhexyl)adipate. Both of these compounds were detected in the laboratory's QA/QC blanks, suggesting the presence of these compounds is likely related to laboratory contamination, and therefore do not appear to be related to the release.

This is an ongoing investigation, and a Department representative will be contacting you in the near future to schedule another round of sampling from the Water Supply. The Department will send you a follow-up letter when the Department determines that conditions in the Water Supply have returned to background conditions. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570.974.2613.

Sincerely,



Jennifer Means
Program Manager
Eastern Oil and Gas District

Enclosures:

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

cc:

William J. Kosmer, P.G.
Ellie Niles
David Engle
Matt Nuss
Sharon Steinbacher
Complaint File # 315387