



November 7, 2018

CERTIFIED MAIL NO. [REDACTED]

Re: 2012 Oil and Gas Act, Section 3218 Determination
DEP Identifier Number 331396
Positive Determination -- 58 Pa. C.S § 3218
Sugar creek Borough, Venango County

Dear [REDACTED]

The Department has completed its investigation of your water supply [REDACTED]. Based on the sample results and other information obtained, the Department has determined that the Water Supply is affected by oil and gas activities related to historic drilling activities.

CASE INFORMATION		
Date of Complaint	Nature of Complaint (odor, taste, quantity, use, color)	Sample Results Above Statewide Standards or Recommended Levels
December 13, 2017	Hydrogen sulfide odor, brown color, and iron particulate	December 13, 2017, January 3, 2018, and February 5, 2018: barium (up to 26.75 mg/l), chloride (up to 5,454.42 mg/l), iron (up to 16.44 mg/l), manganese (up to 2.225 mg/l), total dissolved solids (up to 9,524 mg/l), methane (up to 15.2 mg/l), and aluminum (1.066 mg/l)

Predrilling water samples were not available for comparison to current samples, as there has been no recent oil and gas well drilling in your area. Historic samples were available though, as multiple complaints in the vicinity of your Water Supply had been investigated by the Department in 2010-2011. Historic results from your original water well were consistent with the current results from your new water well, both showing elevated parameters in the drinking water that are generally found related to oil or gas production fluids. Raw water samples obtained by the Department on December 13, 2017, January 3, 2018 and February 5, 2018 indicated that barium, chloride, iron, manganese, total dissolved solids, methane, and aluminum were all above secondary drinking water standards or action levels.

Due to the present level of gas in your Water Supply, which was not present during the 2010-2011 investigation, the Department once again performed a reconnaissance of the area to search for historic oil and gas wells. During this search, five oil or gas wells that were not equipped to produce (abandoned) were located approximately 3,800 feet to the west, in the northern

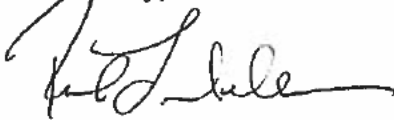
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part of the valley. These wells have been placed on the state's abandoned well plugging fund for future plugging. A downhole camera was utilized to investigate three closer area wells to determine if they were oil wells, water wells, or utilized for another purpose. Only one of the three was determined to be an oil well. It is approximately 1,400 feet to the west of your water well. The other two were determined to be a water well and a casing used for an unknown purpose.

Isotopic samples for dissolved gas characterization were collected on January 3, 2018 from the Water Supply. Interpretation of all the accumulated information regarding the methane and other associated natural gases in the Water Supply indicate that the gas is likely bacterially altered deep thermogenic gas. Samples were subsequently obtained on July 5, 2018 from the newly located abandoned well 37-121-46185, Holden 5, located along Takitezy Road. These isotopic sample results showed a match with your Water Supply isotopic results. Because of this fact, the State Plugging Fund will place this abandoned well, and hopefully others near it, at a higher priority for plugging. The Department will keep you informed on the project timeline.

Isotopic characterization results and sample results are enclosed. Natural gas fact sheets, interpretation sheets, and historic analyses were sent to you in previous mailings, or hand delivered. Please be vigilant of your Water Supply quality, and contact the Department if your water changes in any way. Thank you for your patience in this matter. If you have any questions, please contact Christine Miner, P.G. at 814.332.6867 for assistance.

Sincerely,



Richard Neville
District Manager
Northwest District Oil and Gas Operations

Enclosures: Exhibit A, Analyses Table, Recent Analyses, Isotopic Analyses, Interpretation Fact Sheets

cc: Scott Lux (elec. w/encl.)
Cory Deniker (elec. w/encl.)
Shawn Kiskadden (elec. w/encl.)
Rick Willey (elec. w/encl.)
Michael Braymer (elec. w/encl.)
Kayla Despenes (elec. w/encl.)
Christine Miner (elec. w/encl.)
File: (through Joseph F. Lichtinger, P.G. Manager) Venango County Gas Migration Investigation, DEP Identifier No. 331396