



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

November 13, 2013

CERTIFIED MAIL NO. [REDACTED]

Re: 2012 Oil and Gas Act, Section 3218 Determination
Associated to DEP Identifier 290406
Pulaski Township, Lawrence County

Dear [REDACTED]

The Department appreciates your patience and cooperation throughout the gas migration investigation which occurred in your area. We have investigated the possible contamination of your water supply located at the above listed address. On November 8, 2012, and October 1, 2013, samples were collected from your water well supply. Analytical reports for the samples are attached to this letter. As you have been aware, the sample results initially indicated there was natural gas found in the shallow subsurface in your area. This gas migration has since been mitigated, and the level of methane in your water supply is below any level of concern; however, it is wise to keep in mind the hazards of methane. The Department recommends that water wells be vented in order to allow any gas build-up to be released.

Results also showed the iron, manganese, and total dissolved solids levels are elevated above drinking water standards and predrilling levels in your water supply. During Christine Miner's site visit, you indicated there has been an odor of rotten eggs (hydrogen sulfide gas) in the water.

The Department also obtained an isotopic sample of the headspace gas from a nearby water well. The test performed on that gas allowed us to get a better idea of the source of the gas. These results showed the gas to plot within the Immature Microbial Gas range. This is indicative of glacial gas that is naturally occurring in your area. The gas was likely disturbed by the drilling that took place in your vicinity.

At this time, the Department's investigation indicates that oil and gas well drilling has affected your water supply. A representative from Hilcorp Energy Company will be contacting you in order to restore your water supply. Please continue to be patient and we will keep you informed. Should you have any questions, please contact Christine Miner at our office 814.332.6860.

November 13, 2013

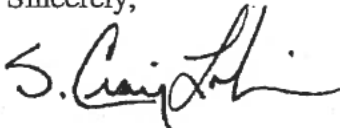
Please refer to the following documents to assist you with interpreting the sample results:

<http://extension.psu.edu/water/converted-publications/how-to-interpret-a-water-analysis-report>

http://www.dep.state.pa.us/dep/deputate/watermgt/WSM/WSM_DWM/PA-MCLs_05.pdf

<http://water.epa.gov/drink/contaminants/secondarystandards.cfm>

Sincerely,



S. Craig Lobins

Northwest District Oil and Gas Manager
District Oil and Gas Operations

Enclosures

cc: Stephanie McMurray, Hilcorp Energy Company (w/encl.)
Scott Lux (w/encl.)
David Adams (w/encl.)
Doug Welsh (w/encl.)
Christine Miner (w/encl.)

CJM:lsj