



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

May 11, 2021

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: Request for Investigation 347453
Stray Gas Migrating into Water Supply – Positive Determination
Center Township, Indiana County

Dear [REDACTED]

This letter is regarding your water supply listed in Exhibit A (“Water Supply”). The Pennsylvania Department of Environmental Protection’s (Department) investigation indicates that oil and gas activities impacted your Water Supply. This information is summarized below.

It was reported to the Department that you were experiencing taste and odor issues with your water and that a gas well located on your property was bubbling gas outside the surface casing. Free gas was detected in the headspace of your Water Supply and water samples confirmed dissolved gas in the produced water. The Department inspected the Fred A. Bowman 6498 gas well, API 37-063-21642, (Bowman gas well) located on your property and confirmed that gas was bubbling outside the surface casing. The Department requested for the operator to vent the Bowman gas well. After the gas well was vented, methane levels in the headspace of the Water Supply decreased.

Gas samples collected from your Water Supply and from the Bowman gas well were submitted to Isotech Laboratories for isotopic and compositional analysis. Sample results indicated that the free gas in the Water Supply and the gas samples from the Bowman gas well were similar, indicating that the Bowman gas well may be the source of gas migrating to the Water Supply. Based on information collected during the investigation, Diversified elected to plug the Bowman gas well, after which free gas levels in the Water Supply dropped to zero and dissolved gas levels have been significantly reduced.

Based on the isotopic and compositional analysis of the gas samples, water sample results, monitoring results from the headspace of the Water Supply, and the plugging of the Bowman gas well, the Department determines that the Water Supply was impacted by oil and gas activities.

CASE INFORMATION:

Date of Complaint	Nature of Complaint (odor, taste, quantity, use, color)	Sample Results Above Statewide Standards or Recommended Levels
January 13, 2020	Taste and odor issues with water	Free and dissolved natural gas in water supply
		Manganese Coliform Bacteria

WATER SAMPLE RESULTS:

Parameter/Description	Standards or recommended levels	DEP Water Sample 1/14/2020	DEP Water Sample 9/30/2020
Alkalinity (mg/l)		9.6	28.6
Aluminum (ug/l)	200	<300	<15.0
Arsenic (ug/l)	10	<3.00	<3.00
Barium (mg/l)	2	0.066	0.072
Bromide (mg/l)		<0.2	<0.2
Calcium (mg/l)		5.988	36.930
Hardness (mg/l)		37	126
Iron (mg/l)	0.3	<0.100	0.139
Lithium (ug/l)		<25.0	<25.0
Magnesium (mg/l)		5.34	8.23
Manganese (mg/l)	0.05	0.516	0.459
pH field	6.5-8.5	6.5	6.2
Potassium (mg/l)		2.14	2.13
Selenium (ug/l)	50	<7.00	<7.00
Sodium (mg/l)	250	1.10	1.50
Conductivity (umhos/cm)		102.70	150.80
Strontium (mg/l)		0.035	0.064
Chloride (mg/l)	250	7.52	6.94
TDS (mg/l)	500	70	94
Sulfate (mg/l)	250	13.21	24.82
TSS (mg/l)		<5	<5
Turbidity (ntu)		1.66	<1
Zinc (ug/l)	5	32.00	<30.0
Total Coliform MPN	0	73.8/100 ml	Not tested
Ethane (mg/l)		1.641	0.022
Methane (mg/l)	7 DEP action level	21.200	0.564
Propane (mg/l)		0.190	Not detected

During the Department's investigation, water samples were collected from your Water Supply. The water sample results indicate that your raw water quality exceeds statewide standards for coliform bacteria and manganese. Manganese occurs naturally in many water supplies in Western Pennsylvania due to the types of rocks the groundwater encounters as it flows to wells. You reported to the Department that the bacteria are a preexisting problem and that your water is

being treated for bacteria. If you have any questions about any of the above, please contact Aaron O'Hara at 814-332-6199.

Sincerely,

Richard L. Neville

Richard L. Neville
Northwest District Oil and Gas Manager
District Oil and Gas Operations

c: Joe Lichtinger (email)
Steve Lencer (email)
Jason Branan (email)
Chad Meyer (email)
Ruth Taylor (email)
Michael Braymer (email)
Kayla Despenes (email)
File through Aaron O'Hara