



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

July 18, 2014

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: 2012 Oil and Gas Act, Section 3218 Determination
DEP Identifier 273024
Madison Township, Clarion County

Dear [REDACTED]

On October 4, 2010, the Department forwarded to you the results associated with the sampling of the water supplies located at [REDACTED]. I have enclosed a copy of that letter and its attachments. In review of the files associated with the DEP Identifier under which [REDACTED] water wells were investigated, it is evident that the Department did not send you a final determination letter, as is our protocol. As you may remember, the gas migration into the [REDACTED] water wells was explained to you as being sourced from the historic abandoned gas and or oil wells in the area. These wells have yet to be plugged under Pennsylvania's Abandoned Well Plugging Fund.

The Department has made a determination that the [REDACTED] water supplies have been affected by oil and gas drilling. Should you have any questions or updates to report, please contact Chris Miner at 814.332.6860. Thank you for your patience in this matter.

Sincerely,

S. Craig Lobins
Northwest District Oil and Gas Manager
District Oil and Gas Operations

Enclosures

Cc: Travis Walker (w/encl.)
Chris Miner (w/encl.)
[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NORTHWEST REGIONAL OFFICE

October 4, 2010

[REDACTED]

Re: Water Sample Results/Hazards of Natural Gas in a Water Well
Complaint ID No. CID No. 273024
Madison Township, Clarion County

Dear [REDACTED]

Our investigation of your area conducted on July 26, 2010 and August 26, 2010, indicates there is natural gas in your water supply. This natural gas was found to be in the headspace and dissolved in water of the water well that was drilled approximately during the year 2000. As you explained, natural gas was known to be in your previous water supply on site, a 20 to 30 foot deep water well. The previous well had experienced several explosions which were likely related to natural gas, as you informed us. The analyses and other related information are enclosed for your records.

Methane is the predominant component of natural gas. Drinking water standard limitations have not been established for methane gas and we do not know of any associated health risks. In general, methane levels in water wells are under .5 mg/l. The true level of concern begins above 28 mg/l methane, which is what we call the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional methane. The potential hazard occurs when the water is used for extended periods of time. 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 migration can also cause a threat of asphyxiation, although this is extremely rare.

When the Department is made aware of methane levels greater than 3 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 somewhat. 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.

October 4, 2010

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.

The sample results reveal that your water supply is affected by natural gas contamination. The cause of the gas migration in your area is currently unknown and remains under investigation by DEP. We will continue monitoring events in and around your area. Should you have any questions concerning this matter, please feel free to contact me.

Sincerely,



Christine J. Miner, P.G.
Licensed Professional Geologist
Oil and Gas Management

Enclosures

cc: Brian Shank
Chad Meyer
Don Cornell
Steve Lencer
Christine Miner
File

CJM:ls1



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NORTHWEST REGIONAL OFFICE

October 20, 2011

Re: Water Sample Results for Property

[REDACTED]
Associated to CID No. 276776
Act 223, Section 208 Determination
Hickory Township, Forest County

Dear [REDACTED]

Our investigation of your area has resulted in the sampling of your water supply which took place on April 5, 2011. A result obtained for iron and manganese parameters showed elevations above the predrilling analysis levels. The exact amount of methane gas was 0.00891 mg/l. The level of natural gas in your water well represents a very low amount. The department's analyses are enclosed for your information, as well as an analyses interpretation sheet.

Methane is the predominant component of natural gas. Drinking water standard limitations have not been established for methane gas and we do not know of any associated health risks. In general, methane levels in water wells are under .5 mg/l (500 ug/l). The true level of concern begins above 28 mg/l (28,000 ug/l) methane, which is what we call the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional methane. The potential hazard occurs when the water is used for extended periods of time. 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 migration can also cause a threat of asphyxiation, although this is extremely rare.

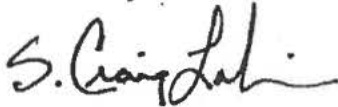
During gas migration investigations, we notify the nearby water supply owners of the hazards associated with methane in their water supply. Please be aware however, that the methane levels can fluctuate somewhat. This means that even with a relatively low level of methane, you should be vigilant of changes 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.

After reviewing your water sample analyses results and further investigation, the department has concluded that your water supply has been affected by activities associated with Catalyst Energy Inc.'s oil and gas operations.

If you have any questions, please contact Christine Miner at 814.332.6860.

Sincerely,



S. Craig Lobins
Regional Manager
Oil and Gas Management

Enclosures

cc: Douglas E. Jones, Catalyst Energy, Inc.
Water Quality Specialist, John Thomas
Oil and Gas Inspector, Scott Motter
Christine Miner, Geologist
File

SCL:CJM:ls1



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHCENTRAL REGIONAL OFFICE

MAN

April 8, 2011

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: Act 223, Section 208 Determination
Complaint No. 273463
Washington Township, Wyoming County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED], in response to an 8/13/2010 complaint that recent gas well drilling activities may have affected your water well.

On 10/27/2010, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results. The sample results showed methane is present at 1.4 mg/l in your water supply. Methane gas was also detected in the headspace of your water well. Combustible gas readings obtained by the Department ranged from 30 percent on 10/26/2010 to nondetect on 12/22/2010. The Department investigation indicates that gas well drilling has impacted your water supply.

Methane is the predominant component of natural gas. Drinking water standard limitations have not been established for methane gas and the Department is not aware of any associated health risks. The true 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. The potential hazard occurs when the water is used for extended periods of time. 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. Due to the presence of free combustible gas detected in your well, it is recommended that the well be properly vented. Natural gas can also cause a threat of asphyxiation, although this is extremely rare.

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.

4/8/2011

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney at 570-346-5543.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

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

cc: Jennifer Means
Marc Cooley
Eric Rooney
William J. Kosmer, P.G.
Complaint File



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

September 5, 2012

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa. C.S § 3218 Determination
Complaint No. 273463
Washington Township, Wyoming County

Dear [REDACTED]

The Department has investigated the degradation of your home water supply well located on [REDACTED] in response to an August 13, 2010, complaint that gas well drilling activities may have affected your water well. The Department collected combustible gas readings and water samples from your well. The combustible gas readings indicated that gas well drilling had impacted your water supply, and on April 8, 2011, the Department issued a letter of positive determination describing this impact.

Subsequent to the issuance of the April 8, 2011, determination letter, additional combustible gas readings and water samples were collected from your water supply as part of an intensive investigation. The combustible gas readings and samples were collected by the Department and a qualified third party and samples were submitted to an independent accredited laboratory for analysis. The analytical reports for those samples were previously submitted to you. The Department's investigation indicates that the previous impact to your water supply appears to have been temporary, and that water quality has returned to background conditions.

Based on water quality sample results to date, the Department does not anticipate requiring any further action in relation to this matter. Should you have any questions, please feel free to contact Eric Rooney at 570-346-5543.

Sincerely,

Jennifer W. Means
Eastern District Oil and Gas Manager
Bureau of District Oil and Gas Operations

cc:
Jennifer Means
William J. Kosmer, P.G.
Marc Cooley
Eric Rooney
Complaint File 273463
[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHCENTRAL REGIONAL OFFICE

11/10/2010

CERTIFIED MAIL NO [REDACTED]

Re: Act 223, Section 208 Determination
Complaint No. 274484
Wilmot Twp., Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply in response to a 9/3/2010 complaint that recent gas well drilling activities may have affected your water well. On 9/7/2010, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results. The sample results showed methane present at 2.16 mg/l in your water supply. Typically, the Department's notification level is 3.0 mg/l. However, elevated concentrations of methane gas were detected in the headspace of your water well. The Department investigation indicates that gas well drilling has impacted your home water supply.

Methane is the predominant component of natural gas. Drinking water standard limitations have not been established for methane gas and the Department is not aware of any associated health risks. The true 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. The potential hazard occurs when the water is used for extended periods of time. 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 3 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.

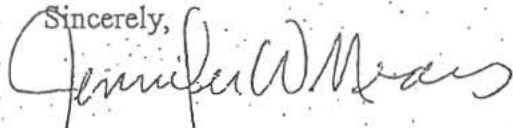
It is the Department's recommendation that all water wells should be equipped with a working vent. This will help alleviate the possibility of concentrating these gases in areas where ignition

11/10/2010

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.

The Department is continuing to work with Chesapeake in order to resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

Enclosures

cc:

Jennifer Means
John Ryder
Caleb Wooleyver
Chesapeake Energy
Complaint File



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

1/14/2013

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 291602
Union Township, Tioga County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 6/17/2012 complaint that gas well drilling activities may have affected your water well. On 6/18/2012, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results.

The sample results showed several compounds elevated above Department standards. Manganese was present at 0.390 mg/L which exceeds the secondary maximum contaminate level (SMCL) of 0.05 mg/L. Primary MCLs are intended to reflect potential dangers to human health, while secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.). Additionally, the sample results showed methane is present at 51.6 mg/L in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.

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.

1/14/2013

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means.
Environmental Program Manager
Oil and Gas Management

Enclosures:

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

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Complaint File 291602



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

8/13/2012

CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 290279
Leroy Township, Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 6/26/2012 complaint that recent gas well drilling activities may have affected your water well. On 5/20/2012, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples were previously submitted to you in a letter dated 6/29/2012:

The sample results showed iron, total dissolved solids, chlorides, and aluminum exceeded secondary maximum contaminate levels (MCLs). Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.). Additionally, the sample results showed methane is present at 62.8 mg/L in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.

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

8/13/2012

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel

Complaint File 290279





pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

9/5/2012

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 286295
Moreland Township, Lycoming County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 1/29/2012 complaint that gas well drilling activities may have affected your water well. On 1/28/2012, 3/8/2012, 5/16/2012, and 7/18/2012, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis, and the analytical reports for the samples were previously submitted to you. **The sample results showed methane was present at 38 - 66 mg/L in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.**

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.

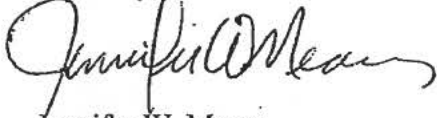
It is the Department's recommendation that all water wells should be equipped with a working vent. This will help alleviate the possibility of concentrating these gases in areas where ignition would pose a threat to life or property. Please note that it is not possible to completely eliminate the hazards of having natural gas in your water supply by simply venting your well.

9/5/2012

[REDACTED]

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Complaint File 286295
[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

8/13/2012

CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 289642
Leroy Township, Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 5/20/2012 complaint that recent gas well drilling activities may have affected your water well. On 5/20/2012, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples were previously submitted to you in a letter dated 6/29/2012.

The sample results showed iron and manganese exceeded secondary maximum contaminate levels (MCLs). Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

Additionally, the sample results showed methane is present at 82.7 mg/L in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.

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

8/13/2012

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Complaint File 289642



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

9/5/2012

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 286490
Moreland Township, Lycoming County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 1/24/2012 complaint that gas well drilling activities may have affected your water well. On 1/24/2012, 5/25/2012, and 7/18/2012, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis, and the analytical reports for the samples were previously submitted to you. The sample results showed methane was present at 69 - 86 mg/L in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.

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.

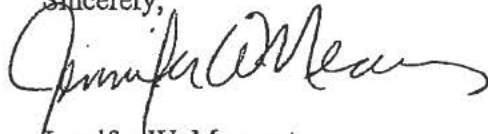
It is the Department's recommendation that all water wells should be equipped with a working vent. This will help alleviate the possibility of concentrating these gases in areas where ignition would pose a threat to life or property. Please note that it is not possible to completely eliminate the hazards of having natural gas in your water supply by simply venting your well.

9/5/2012

[REDACTED]

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Complaint File 286490
[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

9/5/2012

[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 286491
Moreland Township, Lycoming County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 1/24/2012 complaint that gas well drilling activities may have affected your water well. On 1/25/2012, 3/8/2012, 5/16/2012, and 7/18/2012, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis, and the analytical reports for the samples were previously submitted to you. **The sample results showed methane was present at 21 - 101 mg/L in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.**

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.

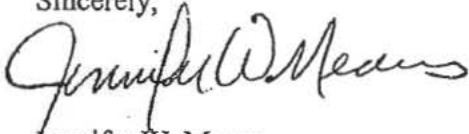
It is the Department's recommendation that all water wells should be equipped with a working vent. This will help alleviate the possibility of concentrating these gases in areas where ignition would pose a threat to life or property. Please note that it is not possible to completely eliminate the hazards of having natural gas in your water supply by simply venting your well.

9/5/2012

[REDACTED]

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Bernard Tironie
Charlie Lockard
Complaint File 286491

[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

1/14/2013

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 291603
Union Township, Tioga County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 6/19/2012 complaint that gas well drilling activities may have affected your water well. On several occasions, samples were collected from your water supply. The samples were submitted to an independent third party laboratory for analysis, and the analytical results are summarized in the attached Table. **The sample results showed methane was present at <0.24 - 137 mg/L in your water supply. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply.**

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.

1/14/2013

[REDACTED]

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

Enclosures:

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

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Complaint File 291603
[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

July 18, 2014

CERTIFIED MAIL NO. [REDACTED]

Re: 2012 Oil and Gas Act, Section 3218 Determination
DEP Identifier 273024
Madison Township, Clarion County

Dear [REDACTED]

On October 4, 2010, the Department forwarded to you the results associated with the sampling of the water supplies located at [REDACTED]. I have enclosed a copy of that letter and its attachments. In review of the files associated with the DEP Identifier under which [REDACTED] water wells were investigated, it is evident that the Department did not send you a final determination letter, as is our protocol. As you may remember, the gas migration into the [REDACTED] water wells was explained to you as being sourced from the historic abandoned gas and or oil wells in the area. These wells have yet to be plugged under Pennsylvania's Abandoned Well Plugging Fund.

The Department has made a determination that the [REDACTED] water supplies have been affected by oil and gas drilling. Should you have any questions or updates to report, please contact Chris Miner at 814.332.6860. Thank you for your patience in this matter.

Sincerely,

S. Craig Lobins
Northwest District Oil and Gas Manager
District Oil and Gas Operations

Enclosures

Cc: Travis Walker (w/encl.)
Chris Miner (w/encl.)
[REDACTED]



Pennsylvania Department of Environmental Protection

P.O. Box 669
Knox, PA 16232-0669
September 10, 2009

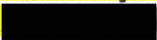

Knox District Office

814-797-1191



Re: Act 223, Section 208 Determination
Complaint No. 265323
Elk Township, Clarion County

Dear 

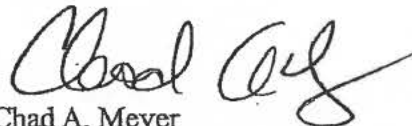
The Department has investigated your August 5, 2009, complaint that the degradation of your water supply was caused by gas well drilling activities at the Exotic Oil and Gas, LLC,  gas well (DEP Permit No. .

On August 14, 2009, I sampled your water supply, which was analyzed by our laboratory in Harrisburg. I have enclosed copies of the analysis reports for your samples. Also enclosed is a fact sheet explaining maximum contaminant levels and interpretations of sample results.

As a result of our investigation and review of the sample analyses, the Department has determined that the drilling, alteration, or operation of oil or gas wells affected your water supply. Exotic Oil and Gas, LLC will be in contact with you to set up arrangements for treatment of the water supply to your trailer, as they previously had with your primary residence.

If you have any questions, please contact me at the above listed number.

Sincerely,



Chad A. Meyer
Water Quality Specialist
Oil and Gas Management

Enclosures

cc: Tony Arone (Exotic Oil and Gas, LLC), w/Enc.
Tony Oprendeck, w/Enc.
Don Cornell, w/Enc.
Chad Meyer, w/Enc.
NWRO File, w/Enc.

RECEIVED

SEP 18 2009

ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

CAM:rjw



Pennsylvania Department of Environmental Protection

P.O. Box 669
Knox, PA 16232-0669
November 3, 2009

Knox District Office

814-797-1191

Re: Act 223, Section 208 Determination
Complaint No. 265323
Elk Township, Clarion County

Dear [REDACTED]

The Department has investigated your August 5, 2009, complaint that the degradation of your water supply was caused by gas well drilling activities at the Exotic Oil and Gas, LLC, [REDACTED] gas well (DEP Permit No. [REDACTED]).

On October 13, 2009, I sampled your water supply, which was analyzed by our laboratory in Harrisburg. I have enclosed copies of the analysis reports for your samples. Also enclosed is a fact sheet explaining maximum contaminant levels and interpretations of sample results.

As a result of our investigation and review of the sample analyses, the Department has determined that although the drilling, alteration, or operation of oil or gas wells affected your water supply, Exotic Oil and Gas, LLC has installed treatment on the water supply at both your primary residence and your trailer. Sample results indicate that these treatment systems have returned your water supplies to below drinking water standards.

If you have any questions, please contact me at the above listed number.

Sincerely,

Chad A. Meyer
Water Quality Specialist
Oil and Gas Management

Enclosures

cc: Tony Arone, w/Enc.
NWRO File, w/Enc.
Tony Oprendeck, w/Enc.
Don Cornell, w/Enc.
Chad Meyer, w/Enc.

CAM:dlb

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NOV 05 2009

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In The Matter Of:

William McIntire Coal
Oil and Gas
P.O. Box 171
Shelocta, PA 15774

: Oil and Gas Act
: Water Supply Replacement
: 
: East Wheatfield Township
: Indiana County

ORDER

Now, this 2ND day of September, 2008, the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department"), has found and determined the following:

A. The Department is the agency with the duty and authority to administer and enforce the Oil and Gas Act, Act of December 19, 1984, P.L. 1140, as amended, 58 P.S. §§ 601.101-601.605 ("Oil and Gas Act"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, as amended, 71 P.S. § 510-17 ("Administrative Code"); and the rules and regulation ("rules and regulations") promulgated thereunder.

William McIntire Coal Oil and Gas

B. William McIntire Coal Oil and Gas ("McIntire") is engaged in the exploration and production of oil and gas resources in Pennsylvania. McIntire's mailing address is P.O. Box 171, Shelocta, PA 15774.

The [REDACTED] Water Supply Spring

C. A single spring ("Spring") provides the water supply for all domestic purposes at five homes ("Water Supply"). The current owners and addresses of the five homes are as follows:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

The Gas Well

D. On May 20, 2008, the Department issued well Permit No. 37-063-36063-00 to McIntire authorizing McIntire to drill the [REDACTED] gas well in East Wheatfield Township, Indiana County, Pennsylvania [REDACTED].

E. On or about July 13, 2008, McIntire commenced drilling operations at the [REDACTED] site. Drilling of the [REDACTED] was completed on July 17, 2008.

F. On or about July 30, 2008, McIntire commenced operations for completion and stimulation of the [REDACTED] so that the well would be able to produce gas.

Water Supply Pollution Investigation

G. On or about August 1, 2008, two of the homeowners served by the Water Supply notified the Department that the water from the Spring serving their homes had developed a salty taste and oily consistency. Another reported that after washing his car a white residue remained on the car. The homeowners requested that the Department conduct an investigation.

H. On August 1, 2007, the Department initiated an investigation of the alleged pollution of the Water Supply.

I. The [REDACTED] is located topographically upgradient and roughly 658 feet measured horizontally from the Spring.

J. Prior to commencing drilling operations at the [REDACTED] McIntire conducted a pre-drilling survey of the Water Supply on May 20, 2008, ("Pre-Drilling Survey").

K. The analytical sampling results from the Pre-Drilling Survey show all parameters, except for pH and alkalinity, to be within established drinking water standards set forth in 25 Pa. Code § 109.202 and the state recommended limits for unregulated contaminants.

L. Analyses of samples of the Water Supply taken by the Department on August 1, 2008, show that chloride, barium, calcium, hardness, manganese, sodium, and total dissolved solids were present in the Water Supply at levels exceeding the concentrations present in the Pre-Drilling Survey. The concentrations of chloride, barium, manganese, and total dissolved solids exceed the Maximum Contaminant Levels ("MCL") set forth in 25 Pa. Code § 109.202; and calcium, hardness, and sodium exceed the state recommended levels for unregulated contaminants. The following chart summarizes the results of the Pre-Drilling Survey and the Department's August 1, 2008 sampling analyses.

Parameter	MCL's *Recommended Levels	Pre-Drilling Results	DEP Results	Units In milligrams per liter (mg/l)
Alkalinity	*30 to 500	0.0	0.0	mg/l
Chloride	250	6.8	1809.6	mg/l
Sulfate	250	9.0	not tested	mg/l
Barium	2.0	0.027	3.396	mg/l

Parameter	MCL's *Recommended Levels	Pre-Drilling Results	DEP Results	Units In milligrams per liter (mg/l)
Calcium	*75	3.330	272	mg/l
Hardness	*30 to 150	17	1039	mg/l
Iron	.3	0.014	<.02	mg/l
Manganese	.05	0.016	10.5	mg/l
Sodium	*20	3.342	603	mg/l
pH	6.5 to 8.5	4.62	4.6	SU
Total Dissolved Solids	500	25	4150	mg/l

M. The Water Supply is polluted. The Water Supply cannot be used for the purposes for which it was used prior to the drilling of the Well.

N. Well operators who affect a private or public water supply by pollution or diminution are required to restore or replace the affected water supply with an alternate water supply adequate in quantity and quality for the purposes served by the supply: 58 P.S.

§ 601.208(a) and 25 Pa. Code § 78.51(a).

O. On or about August 4, 2008, McIntire provided a temporary water supply by means of water buffalos at four homes including the [REDACTED] residences. McIntire did not provide a temporary water supply for the [REDACTED] residence located at [REDACTED] because it is not currently occupied.

P. Section 208(c) of the Oil and Gas Act, 58 P.S. § 601.208(c), provides that as a matter of law, a well operator is presumed to be responsible for the pollution of a water supply that is within 1,000 feet of an oil and gas well, where the pollution occurred within six months after completion of drilling or alteration activities of such well, unless the presumption is rebutted by one of the five defenses as set forth in 58 P.S. § 601.208(d).

Q. The Department advised McIntire of the pollution of the Water Supply. McIntire provided no information as to the cause of the pollution of the Water Supply, or any evidence that would establish any of the five defenses to the presumption of responsibility for the pollution of the Water Supply.

R. Section 78.51(d) of the Department's rules and regulations, 25 Pa. Code § 78.51(d), requires that the operator shall affirmatively demonstrate to the Department's satisfaction that the quality of the restored or replaced water supply to be used for human consumption is at least equal to the quality of the supply before it was affected by the operator. However, if the quality of the water supply before it was affected by the operator cannot be affirmatively established, the operator shall demonstrate that the concentration of substances in the restored or replaced water supply does not exceed the primary and secondary maximum contaminant levels ("MCLs") established under 25 Pa. Code § 109.202 (relating to state MCLs and treatment technique requirements).

S. The pollution of the Water Supply constitutes a public nuisance and unlawful conduct pursuant to Sections 502 and 509(2) of the Oil and Gas Act, 58 P.S. §§ 601.502 and 601.509(2).

NOW, THEREFORE, pursuant to Sections 208 and 503 of the Oil and Gas Act, 58 P.S. §§ 601.208 and 601.503; and Section 1917-A of the Administrative Code, 71 P.S. § 510-17, the Department hereby orders that:

1. McIntire shall continue to maintain the temporary water supply by method of water buffalos that currently provides water to the [REDACTED] residences adequate in quality and quantity for the purposes served by the Water Supply until McIntire provides a permanent water supply as required in Paragraph 3 hereof.

2. In the event that the [REDACTED] residence located at [REDACTED] Pennsylvania [REDACTED] becomes occupied before a permanent water supply is provided to each of the affected residences, McIntire shall also provide a temporary water supply to the [REDACTED] residence adequate in quantity and quality for the purposes served by the Water Supply.

3. a. Within thirty (30) days of receipt of this Order, McIntire shall provide the Department with a written plan and schedule which describes in detail the methods and/or techniques proposed to provide each of the affected residences (i.e. the [REDACTED] [REDACTED] with a permanent water supply that is adequate in quantity or quality for the purposes served by the Water Supply and when it will do so ("Plan and Schedule"). The proposed Plan and Schedule shall include, at a minimum:

i. A proposed schedule for completing the permanent replacement or restoration of the Water Supply. However, the proposed replacement or restoration of the Water Supply shall be constructed, installed and operating no later than thirty (30) days after the Department's approval or approval with modifications of the Plan and Schedule;

ii. A method of demonstrating to the satisfaction of the Department that the quantity and quality of the permanently restored or replaced water supply meet the requirements of 25 Pa. Code §§ 78.51(a), (d), (e), (f), and (g);

iii. A description of how McIntire will compensate the owners identified in Paragraph C hereof who are served by the Water Supply on a

permanent basis for any increased operation and maintenance costs associated with the restored or replaced water supply which exceeds those associated with the Water Supply. A copy of any signed agreements between McIntire and the homeowners identified in Paragraph C hereof in this regard should be submitted with the proposed Plan and Schedule.

b. McIntire shall commence implementation of the Plan and Schedule as approved by the Department upon the Department's approval or approval with modifications.

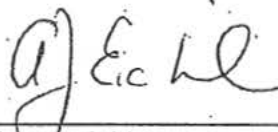
c. McIntire shall respond to any Department requests for additional information concerning the Plan and Schedule or comments concerning the Plan and Schedule within ten (10) days of such request for comments.

4. In complying with this Order, McIntire shall not affect by pollution or diminution any other water supply.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717-787-3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.



Alan J. Eichler
Regional Manager
Oil and Gas Management



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

8

October 7, 2013

CERTIFIED MAIL NO. [REDACTED]

Re: Section 3218 of the Oil and Gas Act, **Water Supply Temporarily Affected**
Case No. 256642
Residential Water Supply
Waterford Township, Erie County

Dear [REDACTED]

The Department has completed its investigation of the residential water supply identified at the above address ("Water Supply"). Several samples from the Water Supply were collected during this lengthy investigation and are summarized in the attached table identified as Appendix A. These water samples were performed by the state of Pennsylvania-accredited laboratories for analysis.

Based on review of the Water Supply results taken from July 2008 to September 2013, and other available information, the Department determined that nearby gas well operations affected the Water Supply with Methane/Ethane. However, based upon the results of the later samples that were taken, along with the combustible gas meter readings that were periodically taken over the water well (see Appendix B), the Department has determined that the Water Supply was only temporarily affected. The Water Supply continues to show the presence of natural gas (methane) contamination at lower levels. We believe the continued presence of natural gas (methane) is the result of other sources that are affecting your Water Supply. This was determined through isotopic analysis of the natural gas (methane) in your Water Supply. The isotopic analysis does not indicate that the gas is of thermogenic origin or from a deep production gas source. The other sources that could be attributed to this are shallow naturally occurring gas producing sands, microbial gas, or glacial drift gas deposits.

It is the Department's recommendation that your water well 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.

October 2, 2013

Copies of all of the sample results are enclosed. Please refer to the following documents to assist you with interpreting the sample results:

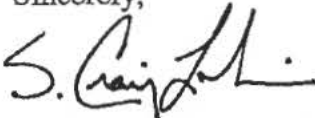
<http://extension.psu.edu/water/converted-publications/how-to-interpret-a-water-analysis-report>

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

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

Because there are no more indications of deep natural gas (methane) contamination in the Water Supply, the Department does not anticipate requiring any further action regarding this Water Supply. In the meantime, please contact Ben Zimmer or Scott Lux at 814-332-6860 if you have any questions about the Water Supply.

Sincerely,



S. Craig Lobins
Northwest District Oil and Gas Manager
District Oil and Gas Operations

Enclosures: Reports of Laboratory Analyses of Water Supply Samples

cc: S. Lux
B. Zimmer
J. Scott
File

SCL:JSL:isl



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

July 25, 2014

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: Complaint ID 302442, [REDACTED]
58 Pa C.S. § 3218 Determination
Donegal Township, Westmoreland County

Dear [REDACTED]

The Department of Environmental Protection (Department) has investigated your complaint that gas well drilling activities may have affected your home water supply located at [REDACTED]. Specifically, you noted that odor of your water supply had changed affecting the domestic use of your water supply.

A qualified third-party collected samples from your water supply party on 4/12/11, 10/04/12, 3/14/13, 1/24/14, 2/07/14. The Department collected samples on 2/06/14 and 6/25/14 and submitted them to accredited laboratories for analysis. The Department sent you a letter on April 1, 2014 with preliminary conclusions.

The Department followed up on its April 1st letter on April 15 & 23, 2014 to confirm receipt of the April 1, 2014 letter and enclosures, and to address any questions you may have had about the correspondence. The Department also offered to resample your home water supply, but our offers were declined. The Department was later notified on June 10, 2014 of your willingness to have the Department resample your home water supply. On June 16 & 19, 2014 the Department contacted a party acting on your behalf to schedule a convenient date for follow up sampling of your home water supply. The Department received return correspondence on June 18, 2014 and June 23, 2014 at which time a water supply sampling event was scheduled. The sampling occurred on the morning of June 25, 2014.

The Department compared an April 12, 2011 "pre-drill" survey test of your water supply with the March 2013, January, February, and June 2014 samples results. The comparison showed that chlorides, barium, calcium, hardness, iron, magnesium, manganese, strontium, and total dissolved solids were present in your water supply in concentrations above those reported in the "pre-drill" survey. Through further investigation and sample collection, the Department has determined that nearby oil and gas related operations are responsible for these impacts to your water supply. Based on these impacts, and in consideration of your complaint that the quality of the water from your water supply changed during the time of those impacts, the Department has

determined that the impacts caused by nearby oil and gas operations affected the quality of your water supply resulting in pollution of your water supply.

To our knowledge, you are currently being provided with temporary water by an oil and gas operator. Should that temporary water become insufficient for your needs, or should the operator notify you that it will remove the temporary water, please contact me.

Enclosed are copies of the analytical test results and a fact sheet to assist you in interpreting the results. If you have any questions about this determination, or if you would like to discuss further, please contact Jeffrey Dewey, Environmental Protection Compliance Specialist, at 412.442.4012 or via email at jdewey@pa.gov. The Department will keep you apprised of future developments, which may include actions to permanently restore your private water supply.

Sincerely,



Eric A. Gustafson
Program Manager
District Oil and Gas Operations

Enclosures:

cc: Karen Milcic
April Weiland
Jeffrey Dewey
Complaint File #302442

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF:

WPX Energy Appalachia, LLC : 2012 Oil and Gas Act
6000 Town Center Boulevard : **Affected Water Supply**
Suite 300 : Donegal Township,
Canonsburg, PA 15317-5838 : Westmoreland County

ORDER

NOW, this 19th day of AUGUST, 2014, the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department") has made and determined the following FINDINGS and enters the following ORDER:

A. **The Department is the agency with the duty** and authority to implement, administer, and enforce the Oil and Gas Act, Act of February 14, 2012, P.L. 87, No. 13, 58 Pa. C.S. §§ 3201-3274 ("2012 Oil and Gas Act"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 ("Administrative Code"); and the rules and regulations promulgated thereunder.

WPX Energy Appalachia, LLC

B. WPX Energy Appalachia, LLC ("WPX") is a Delaware limited liability company engaged in various oil and gas well activities in Pennsylvania. WPX's business address is 6000 Town Center Boulevard, Suite 300, Canonsburg, PA 15317-5838.

C. WPX is the "well operator" as that term is defined in Section 3203 of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3203, of the Gas Well, as defined herein.

Water Supply

D. Two individuals (the "Complainants") reside at [REDACTED]

[REDACTED] Donegal Township, Westmoreland County. A private water well ("Water Well") serves as

the water supply at the Complainants' residence for all domestic purposes ("Water Supply"). The Complainants described the Water Well as seventy-three (73) feet deep. The Water Well is a "water supply" as that term is defined by section 78.1 of the rules and regulations, 25 Pa Code § 78.1. The Water Well is 430 feet from the Impoundment and 1100 feet from the Gas Well.

E. WPX conducted a pre-drilling survey of the Water Supply on April, 12, 2011 ("Pre-Drilling Survey"). The results from that sampling are included in the table of Paragraph L, herein.

The Gas Well Site

F. On June 6, 2011, the Department issued Well Permit No. [REDACTED] to WPX authorizing WPX to drill and operate the [REDACTED] gas well ("Gas Well") in Donegal Township, Westmoreland County. The Gas Well is an unconventional well as that term is defined in Section 3203 of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3203. The Gas Well is located on a well pad [REDACTED] that includes a temporary drilling and flowback fluids pit ("Impoundment").

G. WPX commenced drilling the Gas Well on October 19, 2011, and completed drilling on November 11, 2011. WPX completed stimulation of the Gas Well on May 29, 2012.

H. On September 12, 2012, the Department sampled the fluids in the Impoundment. The results from that sampling are included in the table of Paragraph L, herein.

I. On or before September 19, 2012, flowback fluid leaked from the Impoundment into the ground ("Release").

J. On March 14, 2013, WPX sampled the Water Supply in relation to the Release. The results from that sampling are included in the table of Paragraph L, herein.

Water Supply Pollution Investigation

K. On January 14, 2014, the Complainants notified the Department that the quality of the Water Supply changed and that the Water Supply was no longer adequate for domestic uses, specifically noting a change in odor.

L. Following the January, 2014 complaint, the Department initiated an investigation. The Department and WPX each collected samples of the Water Supply for laboratory analyses to test for gas-well-related contaminants (“Post-Release Samples”). Results from that sampling, as well as the other results described in Paragraphs E, H and J above, are set forth in this table:

Contaminant or Parameter	Unit	DEP Impoundment Fluid Sample Result 9/12/2012	WPX Pre-Drill Survey 4/12/11	WPX Sample Result 3/14/13	WPX Sample Result 01/24/14	DEP Sample Result 2/06/2014	DEP Sample Result 6/25/2014
Chloride	mg/L	8574	90.30	82	172	165.9	148.4
Barium	mg/L	169	0.34	0.345	0.510	0.468	0.45
Calcium	mg/L	1110	54.03	50.70	82.60	77.400	71.2
Hardness	mg/L	3185	190	176	283	271	248
Iron	mg/L	0.311	0.372	0.367	0.502	0.460	0.2
Magnesium	mg/L	99.60	13.35	12.10	18.800	18.80	16.9
Manganese	mg/L	0.608	0.196	0.179	0.259	0.250	0.21
Strontium	mg/L	272	NA	0.442	0.792	0.750	0.69
TDS	mg/L	16,198	303	289	440	462	496

M. The levels of the following gas-well-related contaminants and parameters in the Post-Release Samples that followed the January 2014 complaint were above the levels in the Pre-Drill Survey: chloride, barium, calcium, hardness, iron, magnesium, manganese, strontium, and TDS.

These impacts correlate to changes in the Water Supply adversely affecting domestic usage identified by Complainants.

N. The Water Supply was and continues to be polluted from WPX’s gas well drilling, alteration, or operation activities at the [redacted] Site, including but not limited to the Release.

Responsibility for Pollution

O. WPX is responsible for the pollution of the Water Supply under Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3218(a), as the result of drilling, alteration or operation of an oil and gas well.

P. On July 25, 2014, the Department sent a letter to the Complainants stating that WPX is responsible for the pollution of the Water Supply.

Q. Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. §3218(a), and 25 Pa. Code § 78.51(d), set forth the criteria for adequate reliability, cost, maintenance, control, quality, and quantity of the restored or replaced water supply.

R. As of the date of this Order, WPX has not restored or replaced the Water Supply with an alternative source of water that is adequate for the purposes served by the Water Supply in violation of Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa.C.S. § 3218(a), and 25 Pa. Code §78.51(a).

S. The pollution of the Water Supply from the drilling of the Gas Well and WPX's failure to restore or replace the affected Water Supply with an alternate source of water adequate for the purposes served by the Water Supply constitute a public nuisance and unlawful conduct pursuant to Sections 3252 and 3259(2) of the 2012 Oil and Gas Act, 58 Pa. C.S. §§ 3252 and 3259(2).

ORDER

NOW, THEREFORE, pursuant to Sections 3218(b) and 3253 of the 2012 Oil and Gas Act, 58 Pa. C.S. §§ 3218(b) and 3253, 25 Pa. Code § 78.51(c), and Section 1917-A of the Administrative Code, 71 P.S. § 510-17, the Department hereby ORDERS that:

1. Restore or Replace the Water Supply.

a. Temporary Drinking Water Supply. WPX shall continue to provide temporary water until the Department notifies WPX, in writing, that the requirements of this Order have been satisfied. If the Complainants refuse temporary water, WPX shall immediately provide written documentation of that refusal to the Department.

b. Restoration/Replacement Plan. Within thirty (30) days of the date of this Order, WPX shall submit to the Department, in writing, a plan to permanently restore or replace the Water Supply ("Restoration/Replacement Plan") that, at a minimum, shall identify the:

- i. proposed corrective actions (*e.g.* treatment, drill new water supply well, hook into public water supply, and/or other corrective actions) to permanently restore or replace the Water Supply in compliance with Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3218(a), and 25 Pa. Code § 78.51(d);
- ii. proposed schedule to implement the corrective actions so that the Water Supply is restored or replaced within forty-five (45) days of receipt of the Department's written approval of the Restoration/Replacement Plan or of the modified Restoration/Replacement Plan;
- iii. the independent laboratory, certified by the Department, that WPX will use to analyze samples from the restored or replaced Water Supply;
- iv. proposed or executed agreements/contracts between WPX and the Complainants to provide for all plumbing, conveyance, pumping, or auxiliary facilities necessary for the use of the permanently restored or replaced Water Supply;

- v. proposed or executed contracts/agreements between WPX and the Complainants documenting how WPX will compensate on a permanent basis for any increased operating and maintenance costs for the replaced or restored Water Supply; and
- vi. plan for confirmatory samples of the restored and/or replaced Water Supply after WPX asserts that it has permanently restored or replaced the Water Supply, or after WPX asserts that the Water Supply is no longer affected. Such samples will be used to determine whether the Water Supply meets the standards set forth in Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3218(a), and 25 Pa. Code § 78.51(d). The confirmatory sampling plan should provide for: split samples with the Department; that sampling would only take place Monday through Friday during Department working hours; and should specify that WPX will notify the Department at least three (3) working days before any scheduled sampling of the Water Supply.

2. Submission of Documents.

a. With regard to any document that WPX submits to the Department pursuant to Paragraph 1.b., above, WPX shall submit to the Department, in writing, additional information and/or correct deficiencies within ten (10) days of receipt of the Department's written request for additional information and/or notice of deficiencies.

b. Upon receipt of a complete document in compliance with the requirements Paragraph 1.a., above, or a revised document that addresses the Department's request(s) under Paragraph 2.a., above, the Department will approve or modify and approve the document in writing.

c. Upon receipt by WPX of the Department's written approval under this Order of a document or modified document, the approved document shall be incorporated herein and enforceable hereunder.

3. Implementation of Approved Plan(s).

a. WPX shall implement the Department-approved Restoration/Replacement Plan in accordance with the approved schedule therein.

b. In all cases, WPX shall complete the approved corrective actions to permanently restore or replace the Water Supply within forty-five (45) days of receipt of the Department's written approval of the Restoration/Replacement Plan.

4. In complying with this Order, WPX shall not cause pollution of any waters of the Commonwealth and shall not affect by pollution or diminution any other water supply.

5. All correspondence with the Department concerning this Order shall be addressed as follows:

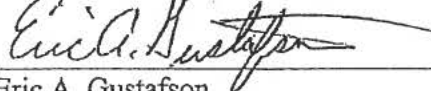
Jeffrey Dewey; Compliance Specialist
Oil and Gas Operations
Pennsylvania Department of Environmental Protection
400 Waterfront Drive
Pittsburgh, PA 15222-4745

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. §7514, and the Administrative Agency Law, 2 Pa.C.S.A. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, Pennsylvania 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717-787-3483. This Paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD. IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU

SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD
A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE
SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.

FOR THE COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT OF ENVIRONMENTAL PROTECTION:



Eric A. Gustafson
District Manager
District Oil and Gas Operations



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DISTRICT OIL & GAS OPERATIONS

March 2, 2012

[REDACTED]

CERTIFIED MAIL NO. [REDACTED]

Re: Act 223, Section 208 Determination
Complaint ID 286302
Nicholson Township, Wyoming County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a report that recent gas well drilling activities may have affected your water well.

On 12/9/2011, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The sample results showed methane was present at 21.100 milligrams per liter (mg/l) in your water supply. In addition, ethane was detected at 0.931 mg/L and propane was detected at 0.183 mg/l. The Department's investigation indicates that gas well drilling has impacted your water supply.

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

March 2, 2012

[REDACTED]

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney at 570-346-5543.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

Enclosures:

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

cc:

Jennifer Means
Marc B. Cooley
William J. Kosmer, P.G.
Eric Rooney
Matthew Shope
Complaint File
[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DISTRICT OIL & GAS OPERATIONS

March 2, 2012

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: Act 223, Section 208 Determination
Complaint ID 286302
Nicholson Township, Wyoming County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a report that recent gas well drilling activities may have affected your water well.

On 12/9/2011, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The sample results showed methane was present at 42.100 milligrams per liter (mg/l) in your water supply. In addition, ethane was detected at 2.040 mg/L and propane was detected at 0.0876 mg/l. The Department's investigation indicates that gas well drilling has impacted your water supply.

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

March 2, 2012

██████████
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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney at 570-346-5543.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

Enclosures:

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

cc:

Jennifer Means
Marc B. Cooley
William J. Kosmer, P.G.
Eric Rooney
Matthew Shope
Complaint File
██████████



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHCENTRAL REGIONAL OFFICE

September 21, 2011

CERTIFIED MAIL NO. [REDACTED]

Re: Act 223, Section 208 Determination
Dimock Township, Susquehanna County
Complaint ID#: 289029

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at your property located [REDACTED]. On 11/18/2010, 2/7/2011, 3/2/2011, 4/19/2011 and 6/29/2011 the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results.

The sample results show iron in your water ranging from 0.309 milligrams per liter (mg/L) to 0.530 mg/L. These concentrations exceed the secondary maximum contaminant level (SMCL) of 0.3 mg/L for iron. The sample results show total dissolved solids (TDS) ranging from 508 mg/L to 642 mg/L, which exceeds the SMCL of 500 mg/L. In addition, sample results show chloride in your water at 266 mg/L, which exceeds the SMCL of 250 mg/L. SMCLs are guidelines regulating compounds that may cause aesthetic effects (taste, odor, color) in drinking water. The sample results showed methane is present ranging from 53.600 mg/L to 83.700 mg/L. Additionally, the sample results show propane is present ranging from 0.0617 mg/L to 3.630 mg/L.

Because drilling activities occurred at a gas well within one thousand feet of your water supply, and the pollution occurred and was reported within six months after completion of those activities, under section 208(c) of the Oil and Gas Act 58 P.S. §601.208(c), the gas well operator is presumed to be responsible for the degradation of your water supply.

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

9/21/2011

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney at 570-346-5543.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

Enclosures:

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

cc:

Jennifer Means
Marc B. Cooley
William J. Kosmer, P.G.
Briana Betress
Eric Rooney
Complaint File



Pennsylvania Department of Environmental Protection

321 North State Street
North Warren, PA 16365
March 5, 2010

Warren District Office

814-723-3273
Fax: 814-723-0964

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: CID NO. 264898

[REDACTED]
Act 223 Section 208 Determination
Bradford Township, McKean County

Dear [REDACTED]

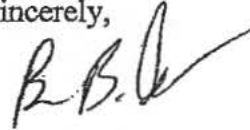
The Department has investigated, in response to your May 28, 2009 and subsequent complaints, the possible contamination of your water supply by nearby oil and gas activities.

After reviewing the results of your spring water analysis, combined with visual evidence of a milky appearance to your camp's spring water observed by Department staff on July 27, 2009 and December 3, 2009, the Department has concluded that your water supply was influenced by recent oil and gas well development conducted by U.S. Energy Development Corporation upslope of your spring. The lab analyses of the samples collected by the Department on July 27, 2009 and December 3, 2009 indicated levels of aluminum and iron that were in excess of EPA's drinking water standards. Elevated levels of these parameters are indicative of an infiltration of drill cuttings and/or cement into the shallow ground water that supplies your spring. After the December 3, 2009 occurrence of contamination, U.S. Energy Development Corporation either reclaimed or lined all drilling pits located upslope from your spring, and those measures appear to have abated any additional contamination. Additional monitoring by the Department, after significant rainfalls, has not revealed any additional turbidity issues. Sampling conducted on January 26, 2010, (one day after a significant rainfall and snowmelt event) revealed that the quality of your drinking water met the standards established by EPA and there were no turbidity issues observed. During the course of the Department's samplings, there was no detection of Total Petroleum Hydrocarbons in your spring's water. At this time, all of the oil and gas locations which have been completed upslope of your property have been restored.

March 5, 2010

Enclosed are the complete water sample analysis results and a fact sheet to help you interpret the report. If you have any questions, or if any future issues arise, please contact me at 814-723-3273.

Sincerely,



Brian B. Ayers
Water Quality Specialist
Oil & Gas Management

Enclosures

cc: NWRO
WDO

BBA:rm



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DISTRICT OIL AND GAS OPERATIONS

March 24, 2014

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

Re: Section 3218 of the 2012 Oil and Gas Act
Water Supply Affected/Not Presumptive Liability
Case No. 297871

[REDACTED]
Porter Township, Clarion County

Dear [REDACTED]

The Department of Environmental Protection (DEP) has completed its investigation of the Water Supply identified above. Samples were bailed from the Water Supply by Brian Shank and Chad Meyer on June 28, 2013. Analytical results showed 18.9 mg/l methane, 4.41 mg/l ethane, and 1.38 mg/l propane in the water well located to the north of your house. Results obtained from a shallow, dug water supply on the same day were non-detect for gases. Another type of sample was also taken to characterize the gas that is in your Water Supply. That sample showed that the gas was likely thermogenic in origin, meaning that it was coming from a deeper source, rather than a biogenetic, microbial source. A final sample was bailed from your water supply on March 5, 2014. This sample indicated that gases in the water were diminishing (8.46 mg/l methane, 0.8 mg/l ethane, and non-detect propane).

DEP has determined that the effect on the Water Supply was caused by Snyder Bros., Inc. [REDACTED] Gas levels in the headspace of the Water Supply returned to very low, background levels after the named gas well was repaired. Also, the gas stopped bubbling in the well bore.

Copies of the analytical results for the Water Supply samples referenced in this letter are enclosed. Following are links to information that can assist you with interpreting these results:

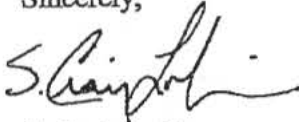
<http://extension.psu.edu/water/converted-publications/how-to-interpret-a-water-analysis-report>
http://www.dep.state.pa.us/dep/deputate/watermgmt/WSM/WSM_DWM/PA-MCLs_05.pdf
<http://water.epa.gov/drink/contaminants/secondarystandards.cfm>
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-94847/8000-FS-DEP4309.pdf>

Northwest District Oil and Gas Operations | 230 Chestnut Street | Meadville, PA 16335-3481 | 814.332.6860
Fax: 814.332.6120 | www.depweb.state.pa.us

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This letter concludes DEP's investigation, and we do not anticipate requiring any further action regarding your Water Supply. Inspector Travis Walker will be monitoring your water supply periodically over the next few months. Prior to these events, he will contact you by phone in order to alert you. Thank you for your patience in this matter. Please contact Christine Miner at 814.332.6860 if you have any questions.

Sincerely,



S. Craig Lobins
Northwest District Oil and Gas Manager
District Oil and Gas Operations

Enclosures: Laboratory Analysis: DEP and Isotech Laboratories

cc: Snyder Bros. Inc. (w/encl.)
Travis Walker (w/encl.)
Doug Welsh (w/encl.)
Brian Shank (w/encl.)
Ruth Taylor (w/encl.)
Chad Meyer (w/encl.)
Anthony Opredek (w/o encl.)
Christine Miner (w/encl.)
File: Clarion County Gas Migration-Identifier 297871

CJM:lsl



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

December 8, 2010

[Redacted]

Re: CID NO. 272948
[Redacted]
Act 223 Section 208 Determination
Bradford Township, McKean County

Dear [Redacted]

The Department has investigated, in response to your July 14, 2010 complaint, the possible contamination of your water supply by nearby oil and gas activities.

After reviewing the results of your well water analysis, the Department has concluded that your well was contaminated with natural gas due to nearby oil and gas activity conducted by US Energy on their [Redacted] lease. Measures taken by US Energy in regards to the production practices on the [Redacted] lease, as well as the installation of a water filtration system at your residence, have ceased the contamination of your water well. Sampling conducted by the Department on November 15, 2010 revealed that the treated water in your home meets drinking water standards and has only a trace amount of methane (natural gas) remaining.

Enclosed are the complete water sample analysis results. If you have any questions, or if any future issues arise, please contact Brian Ayers at 814.723.3273.

Sincerely,

S. Craig Lobins
Regional Manager
Oil and Gas Management

RECEIVED
DEC 10 2010
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

Enclosures

cc: NWRO
WDO

SCL:br



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

8/28/2013

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 295774
Washington Township, Wyoming County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a report of an increase in dissolved methane in your water supply. On 3/18/2013, 5/7/2013, 5/21/2013 and 6/19/2013 the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results.

The sample results showed methane was present at 0.964 milligrams per Liter (mg/L) on 3/18/2013, 1.4 mg/L on 5/7/2013, 13.4 mg/L on 5/21/2013 and 6.2 mg/L on 6/19/2013 in your water supply. Ethane was also present at 0.308 mg/L on 5/21/2013 and 0.165 mg/L on 6/19/2013. Carrizo Marcellus, LLC also collected several water samples during the same timeframe that exhibited similar elevated methane and ethane results, the highest being 23 mg/L collected on 5/23/2013.

Because drilling activities occurred at a gas well within two thousand five hundred feet of the your water supply, and the pollution occurred and was reported within one year after completion of the well, under Section 3218 of the Oil and Gas Act (58 Pa C.S. §3218), the gas well operator is presumed to be responsible for the degradation of your water supply.

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.

8/28/2013

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney, P.G. at 570-346-5543.

Sincerely,



Jennifer Means
Environmental Program Manager
Oil and Gas Management

Enclosures:

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

cc:

Jennifer Means
Marc Cooley
Eric Rooney, P.G.
Sharon Steinbacher
Complaint File # 295774



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHCENTRAL REGIONAL OFFICE

8/28/2013

CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint ID 286551
Wysox Township, Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a report that recent gas well drilling activities may have affected your water well.

On 2/8/2012, 3/14/2012 and 1/16/2013, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The sample results showed manganese in your water at 0.06 milligrams per liter (mg/l) on 2/8/2012, 1.99 mg/l on 3/14/2012 and 1.67 mg/l on 1/16/2013. In addition, the sample results showed iron in your water at 14.90 mg/l on 3/14/2012 and 3.82 mg/l on 1/16/2013. These concentrations exceed the secondary maximum contaminant level (SMCL) of 0.05 mg/l for manganese and 0.3 mg/l for iron. The sample results show aluminum was detected at 2.043 mg/l on 3/14/2012 exceeding the SMCL of 0.2 mg/l. SMCLs are guidelines regulating compounds that may cause aesthetic effects (taste, odor, color) in drinking water.

The sample results showed methane was present in your water supply at 32.5 mg/l on 2/8/2012, 26.9 mg/l on 3/14/2012 and 24.8 mg/l on 1/16/2013. In addition, ethane was detected in your water supply at 0.392 mg/l on 2/8/2012, 0.292 mg/l on 3/14/2012 and 0.540 mg/l on 1/16/2013. The predrilling sample results collected on 11/12/2010 indicated that methane and ethane were not detected in your water supply above 0.026 mg/l. At this time, the Department's investigation indicates that your water supply has been impacted as a result of drilling, alteration or operation of an oil or gas well.

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

8/28/2013

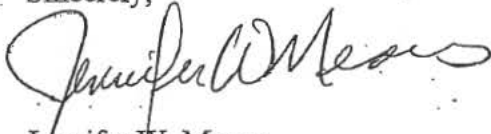
[REDACTED]
dwellings where it could be ignited by sources that are present in most homes/buildings. Natural gas can also cause a threat of asphyxiation, although this is extremely rare.

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney, P.G. at 570-346-5543.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

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

cc:
Jennifer Means
Marc Cooley
Eric Rooney, P.G.
Sharon Steinbacher
Complaint File
[REDACTED]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL & GAS OPERATIONS

September 11, 2012

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa. C.S § 3218 Determination
Complaint ID 290453
Lenox Township, Susquehanna County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a report that recent gas well drilling activities may have affected your water well.

On 7/5/2012, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The sample results showed methane was present at 20.10 mg/l in your water supply. In addition, ethane was detected at 0.489 mg/l in your water supply. The Department's investigation indicates that gas well drilling has impacted your water supply.

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.

September 11, 2012

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney at 570.346.5543.

Sincerely,



Jennifer W. Means
Eastern District Oil and Gas Manager
Bureau of District Oil and Gas Operations

Enclosures:

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

cc:

Jennifer Means
Marc Cooley
William J. Kosmer, P.G.
Eric Rooney
Ryan Klemish
Complaint File ID 290453
[Redacted]



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

October 22, 2013

CERTIFIED MAIL # [REDACTED]

Re: 58 Pa.C.S. § 3218 Determination
Complaint No. 294619
Dimock Township, Susquehanna County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 2/2/2013 complaint that recent gas well drilling activities may have affected your water supply well. On 2/4/2013, 2/6/2013 and 7/24/2013 the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results.

The sample results showed several compounds elevated above Department standards. Iron was present at 3.03 milligrams per liter (mg/L) on 2/4/2013 and at 2.44 mg/L on 2/6/2013 which exceeded the secondary maximum contaminant level (SMCL) of 0.3 mg/L. Manganese was present at 0.08 mg/L on 2/6/2013 which exceeded the SMCL of 0.05 mg/L. Primary MCLs are intended to reflect potential dangers to human health, while SMCLs reflect the aesthetics of the water (i.e. taste, smell, etc.). Additionally, the sample results showed methane was present at 16.8 mg/L on 2/4/2013, 27.0 mg/L on 2/6/2013 and 36.3 mg/L on 7/24/2013 in your water supply. Ethane was also present at 0.0975 mg/L on 2/4/2013, 0.167 mg/L on 2/6/2013 and 0.272 mg/L on 7/24/2013.

In the case of an unconventional well, because the water supply is within two thousand five hundred (2,500) feet of the unconventional vertical well bore, and the pollution occurred within twelve (12) months of the later of completion, drilling, stimulation or alteration of the unconventional well, under Section 3218 of the Oil and Gas Act (58 Pa C.S. §3218), the gas well operator is presumed to be responsible for the degradation of your water supply.

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.

10/22/2013

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney, P.G., at 570-346-5543.

Sincerely,



Jennifer Means
Environmental Program Manager
Oil and Gas Management

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

cc:
Jennifer Means
Marc B. Cooley
Mike O'Donnell
Eric Rooney, P.G.
Complaint File # 294619
Cabot Oil and Gas Corporation



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

July 13, 2011

Re: Complaint ID No. 277438
Act 223 Section 208 Determination
Bradford Township, McKean County

Dear [REDACTED]

As you may be aware, the Department is conducting an investigation into the February 28, 2011, explosion of the [REDACTED] residence located at [REDACTED]. The investigation revealed natural gas entering the [REDACTED] residence via a floor drain located in the basement. Additionally, three (3) wells, [REDACTED] owned by you, were found to be abandoned and located within 800 feet of the [REDACTED] residence. One (1) of these wells, [REDACTED] is located within 275 feet of the [REDACTED] residence and was found to have combustible gas in the soil around the well head ranging from 3.5% to 60%. Therefore, the abandoned wells were selected to be plugged based on the proximity to the [REDACTED] residence and presence of combustible gas in the soil around the [REDACTED]. Subsequent plugging of the three (3) abandoned wells resulted in no further detection of natural gas in the floor drain.

Based on its investigation, the Department has determined oil and gas activities of [REDACTED] has allowed natural gas to enter the [REDACTED] residence via the floor drain.

Sincerely,

S. Craig Lobins
Regional Manager
Oil and Gas Management

cc: Water Quality Specialist, Brian Ayers
Oil and Gas Inspector, Timothy Curry
Compliance Specialist, Jennifer Kosco
Joe Lichtinger
File

SCL:ls:mw



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL & GAS MANAGEMENT

COPY

June 17, 2013

[REDACTED]
[REDACTED]
[REDACTED]

Re: [REDACTED]
58 Pa.C.S § 3218 Determination
Cross Creek Twp., Washington County
Complaint ID #: 294666

Dear [REDACTED]

The Department of Environmental Protection ("DEP") has investigated the alleged pollution of your water supply well located at [REDACTED] in response to a 1/30/2013 complaint that recent gas well drilling **and/or fracking activities** may have polluted your water supply well. Samples from your water supply were collected by DEP on 2/6/13 and by a qualified third party on 2/6/2013 and submitted to accredited laboratories for analysis.

DEP compared an 8/21/12 pre-drill survey test of your water supply with the February 2013 tests. The comparison shows that in February 2013, iron and manganese were present in your water supply in concentrations that exceed the concentrations present in the pre-drill survey and exceed the drinking water standards for these parameters.

Because unconventional well drilling activities occurred at a gas well within 2,500 feet of your water supply and the pollution of your water supply occurred within twelve months of those activities, under Section 3218(c) of the Oil and Gas Act (58 P.S. §3218(c)), the gas well operator is presumed to be responsible for the pollution of your water supply.

DEP has reviewed a Damage Release Agreement that you signed with a gas well operator. It was determined that this agreement satisfies the requirements of Section 3218(a) of the Oil and Gas Act. No further action is contemplated by DEP.

June 17, 2013

Enclosed are copies of the analytical test results of the samples taken and a fact sheet to assist you in interpreting the results. If you have any questions about this determination, or if you would like to discuss this matter, please contact me at 412-442-4006.

Sincerely,



Alan Eichler
Environmental Program Manager
District Oil and Gas Operations

/lmr

Enclosures

cc: Complaint File
Frank Calderon
Vince Yantko
Bryon Miller



Pennsylvania Department of Environmental Protection

230 Chestnut Street
Meadville, PA 16335-3481
August 13, 2009

Northwest Regional Office

814-332-6860
Fax: 814-332-6121



Re: Act 223, Section 208 Determination
CID No. 260565
Cranberry Township, Venango County

Dear 

The Department's investigation into the possible contamination of your water supply is now complete. Throughout the course of our investigation, the water samples have shown a degradation in your water supply. The Department feels that the oil and gas activity in your area had a negative cumulative affected on your old water supply. The activity, which is mainly composed of drilling, fracing, and servicing shallow oil and gas wells, has been completed by Ardent Resources, Inc. There has been an extensive amount of correspondence between all parties involved and through Ardent Resources drilling the new water well and plugging the old water well they have fulfilled their obligation in this case. Sample results show that your water is back to the pre-drilling conditions and no further action is needed at this point.

Enclosed are the laboratory results of the last set of water samples collected at your residence on July 14, 2009, and a water analysis interpretation fact sheet.

If you have any questions please contact me at the above listed telephone number.

Sincerely,



Josh Shaffer
Water Quality Specialist
Oil & Gas Management

cc: J. Lux
J. Shaffer
R. Willey
File

JS:ll



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

February 3, 2010

[REDACTED]

Re: Act 223, Section 208 Determination
CID No. 260565
Cranberry Township, Venango County

Dear [REDACTED]

The Department's investigation into the possible contamination of your water supply is now complete. As of the week of January 25, 2010, all parties involved have signed and have come to an agreement to release liability of the water supply at the Delahunty home. The settlement amount is projected to be sufficient enough to cover the cost of adequate water treatment. At this time Ardent has fulfilled their obligation in this case.

Enclosed are the laboratory results of the last water sample collected at your residence on 11/09/2009 and a water analysis interpretation fact sheet.

If you have any questions, please contact me at this office.

Sincerely,

Josh Shaffer
Water Quality Specialist
Oil & Gas Management

cc: J. Lux
J. Shaffer
R. Willey
File

JS:lsj



Pennsylvania Department of Environmental Protection

P.O. Box 669
Knox, PA 16232-0669
January 20, 2010

Knox District Office

814-797-1191



Re: Act 223, Section 208 Determination
Complaint No. 267880
Elk Township, Clarion County

Dear [REDACTED]

As you are aware, the Department is investigating a stray gas migration complaint in your area. On November 24, 2009, I sampled your water supply, which was analyzed by our laboratory in Harrisburg. I have enclosed copies of the analysis reports for your samples. Also enclosed are fact sheets explaining maximum contaminant levels and interpretations of sample results.

As a result of our investigation and review of the sample analyses, the Department has determined that the drilling, alteration, or operation activities at the [REDACTED] gas well [REDACTED], which is operated by Exotic Oil and Gas, LLC, has affected your water supply.

Exotic Oil and Gas, LLC representatives have indicated that they will continue to provide you with bottled drinking water during our investigation. We will also continue to monitor your water supply and will keep you informed regarding this situation.

In the meantime, if you have any questions, please contact me at the above listed number.

Sincerely,

Chad A. Meyer
Water Quality Specialist
Oil and Gas Management

Enclosures

cc: Tony Arone (Exotic Oil and Gas, LLC), w/Enc.
NWRO File, w/Enc.
Tony Oprendeck, w/Enc.
Mark Ansell, w/Enc.
Don Cornell, w/Enc.
Chad Meyer, w/Enc.

CAM:rjw



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

August 8, 2011

[REDACTED]

Re: Water Sample Results/Hazards of Natural Gas in a Water Well
Complaint ID No. 281151
Act 223 Section 208 Determination
Jones Township, Elk County

Dear [REDACTED]

Our investigation of your area conducted on July 7, 2011, indicated there was natural gas (10.6 mg/l methane) in your water supply. At the headspace of your well there was a reading of 2.5 percent total gas. Your supply was resampled by DEP on August 1, 2011, with a result of 0.196 mg/l methane and no associated ethane or propane. The August results will be included with a future mailing. The analyses and other related information are enclosed for your records.

Methane is the predominant component of natural gas. Drinking water standard limitations have not been established for methane gas and we do not know of any associated health risks. In general, methane levels in water wells are under .5 mg/l (500 ug/l). The true level of concern begins above 28 mg/l (28,000 ug/l) methane, which is what we call the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional methane. The potential hazard occurs when the water is used for extended periods of time. 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 migration can also cause a threat of asphyxiation, although this is extremely rare.

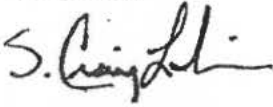
When the Department is made aware of methane levels greater than 7 mg/l, we notify the water supply owner of the hazards associated with methane in their water supply. Please be aware however, that the methane levels can fluctuate somewhat. This means that even with a relatively low level of methane, 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.

[REDACTED]

It has been determined that your water supply was affected by natural gas contamination which has now subsided, as well as elevated iron and manganese, as compared with the predrill. William Brawand has been informed of his liability for the replacement of your water supply under the Oil and Gas Act 223, Section 601.208 regarding the protection of water supplies. We will continue monitoring events in and around your area. Should you have any questions concerning this matter, please feel free to contact Christine Miner.

Sincerely,



S. Craig Lobins
Regional Manager
Oil and Gas Management

Enclosures

cc: Responsible Operator: William Brawand, [REDACTED]
Water Quality Specialist, John Thomas
Oil and Gas Inspector, Scott Motter
Christine Miner
File

SCL:CJM:mw

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF:

William Brawand d/b/a : The Clean Streams Law and
Brawand Oil Company : The Oil and Gas Act
2529 Rasselas Road :
Wilcox, PA 15870-9723 :

ORDER

NOW, this 14th day of December 2012, the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department") has made and determined the following FINDINGS and enters the following ORDER:

FINDINGS

A. The Department is the agency with the duty and authority to implement, administer, and enforce The Clean Streams Law, Act of June 22, 1937, P.L. 1987, *as amended*, 35 P.S. §§691.1-691.1001 ("Clean Streams Law"); the Oil and Gas Act, Act of February 14, 2012, P.L. 87, No. 13, 58 Pa.C.S. §§3201-3274 ("2012 Oil and Gas Act"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. §510-17 ("Administrative Code"); and the rules and regulations promulgated thereunder ("Regulations").

B. William H. Brawand ("Mr. Brawand") is an adult individual and is engaged in various oil and gas exploration and production activities in Pennsylvania, and maintains a mailing address of 2529 Rasselas Road, Wilcox, PA 15870-9723.

C. Mr. Brawand is the "owner" and "operator," as those terms are defined in Section 3203 of the 2012 Oil and Gas Act, 58 Pa.C.S. §3203, of the [REDACTED] Well, authorized under Permit No. [REDACTED] and the [REDACTED] Well, authorized under Permit No. [REDACTED] (collectively the "Brawand Wells") located near the village of Wilcox, in Jones Township, Elk County.

D. On October 22, 2010, the Department issued permits to Mr. Brawand to drill the Brawand Wells in Jones Township, Elk County, Pennsylvania.

E. On January 20, 2011, Mr. Brawand started drilling the Brawand Wells. The drilling of the Brawand Wells was completed on February 2, 2011.

Pollution of [REDACTED] Water Well

F. [REDACTED] ([REDACTED]) are adult individuals who reside at [REDACTED] [REDACTED] have a private drinking water well at their residence, which is located within 1,000 feet of the Brawand Wells ([REDACTED] Water Supply”).

G. On January 13, 2011, prior to commencing drilling of the Brawand Wells, Mr. Brawand sampled the [REDACTED] Water Supply ([REDACTED] Pre-Drill Survey”) which indicated a level of less than 0.001 milligrams per liter (“mg/l”) dissolved methane gas in the [REDACTED] Water Supply. The [REDACTED] Pre-Drill Survey further indicated that 0.27 mg/l of iron and 0.455 mg/l of manganese was present in the [REDACTED] Water Supply. A true and correct copy of the [REDACTED] Pre-Drill Survey is attached and incorporated herein as Exhibit A.

H. On June 30, 2011, [REDACTED] filed a complaint with the Department, regarding a gas odor in [REDACTED] residence and in the shed where [REDACTED] water well is located, and regarding the increased concentration of dissolved methane gas in the sample of the [REDACTED] Water Supply that was collected by [REDACTED] on June 9, 2011.

I. On July 7, 2011, the Department determined that combustible gas was present in the headspace of the water well serving the [REDACTED] Water Supply, and the Department collected samples of the [REDACTED] Water Supply for general chemistry and dissolved gas analysis ([REDACTED] Post-Drill Survey 1”).

J. The [REDACTED] Post-Drill Survey 1 indicated that 10.6 mg/l of dissolved methane gas was present in the [REDACTED] Water Supply. In addition, the [REDACTED] Post-Drill Survey 1 further indicated that 1.38 mg/l of iron and 1.076 mg/l of manganese was present in the [REDACTED] Water Supply. A true and correct copy of the [REDACTED] Post-Drill Survey 1 is attached and incorporated herein as Exhibit B.

K. On July 29, 2011, the Department notified Mr. Brawand of his obligation to investigate a potential natural gas migration in the vicinity of [REDACTED] Pennsylvania, in accordance with 25 Pa. Code §78.89.

L. On August 11, 2011, the Department issued a Notice of Violation to Mr. Brawand for discharging natural gas, a polluting substance, to waters of the Commonwealth without authorization, and for failing to prevent gas from entering fresh groundwater.

M. Subsequent sampling of the [REDACTED] Water Supply on August 1, 2011, August 23, 2011, September 15, 2011, January 9, 2012, and March 5, 2012 indicated a reduction to negligible levels of methane in the [REDACTED] Water Supply.

Violations

M. The groundwater supplying the [REDACTED] Water Supply is a "water of the Commonwealth" as that term is defined in Section 1 of the Clean Streams Law, 35 P.S. §691.1.

N. The elevated concentrations of iron and manganese dissolved in the groundwater serving the [REDACTED] Water Supply are "industrial wastes" and "pollution" as those terms are defined in Section 1 of the Clean Streams Law, 35 P.S. §691.1.

O. Section 3218(c) of the 2012 Oil and Gas Act, 58 Pa.C.S. §3218(c) establishes a rebuttable presumption that a well operator is responsible for the pollution of a water supply that is within 1,000 feet of an oil and gas well where the pollution occurs within six months after the completion of drilling or alteration of such well.

P. The [REDACTED] Water Supply became polluted with combustible free gas, and increased levels of iron, manganese, and dissolved methane within approximately five months of the completion of drilling of the Brawand Wells.

Q. Because the [REDACTED] Water Supply is within 1,000 feet of Brawand Wells, and became polluted within six months of completion of drilling of the Brawand Wells, Mr. Brawand is presumed to be responsible for the pollution to the [REDACTED] Water Supply pursuant to Section 3218(c) of the 2012 Oil and Gas Act, 58 Pa.C.S. §3218(c).

R. The Department has determined that the drilling activities of Mr. Brawand are responsible for the pollution to the [REDACTED] Water Supply, pursuant to Section 3218(b) of the 2012 Oil and Gas Act, 58 Pa.C.S. §3218(b).

S. The discharge of elevated concentrations of iron, manganese, and methane gas in the groundwater serving the [REDACTED] Water supply as a result of from drilling activities by Mr. Brawand, without first obtaining a permit or approval from the Department, violates Sections 301, 307, 401, and 402 of the Clean Streams Law, 35 P.S. §§691.301, 691.307, 691.401, and 691.402, and is contrary to the requirements of 25 Pa. Code §78.73(a).

T. Mr. Brawand's pollution of the [REDACTED] Water Supply violates 25 Pa. Code §78.73; constitutes unlawful conduct and a public nuisance pursuant to Sections 3259 and 3252 of the 2012 Oil and Gas Act, 58 Pa.C.S. §§3259 and 3252, and Section 611 of the Clean Streams Law, 35 P.S. §691.611; and subjects Mr. Brawand to civil penalty liability pursuant to Section 3256 of the 2012 Oil and Gas Act, 58 Pa.C.S. §3256, and Section 605 of the Clean Streams Law, 35 P.S. §691.605.

U. Mr. Brawand did not restore or replace the [REDACTED] Water Supply with an alternative source of water adequate in quantity and quality for the purposes served by the

Water Supply, in violation of Section 3218 of the 2012 Oil and Gas Act, 58 Pa.C.S. §3218, and 25 Pa. Code §78.51.

V. On October 26, 2011, informed the Department that they installed treatment to mitigate the pollution described above.

W. As indicated in Paragraph M, above, dissolved methane has been reduced to negligible levels in the Water Supply.

X. On January 9, 2012, the Department sampled the Water Supply and determined that the treatment installed on the Water Supply was effectively reducing the elevated levels of iron and manganese to drinking water standards established under the Pennsylvania Safe Drinking Water Act, 35. P.S. §§721.1-721.17.

Y. Pursuant to 25 Pa. Code §78.51(d)(1)(v), "if the operating and maintenance costs of the restored or replaced water supply are increased, the operator shall provide for permanent payment of the increased operating and maintenance costs of the restored or replaced water supply."

Z. As a result of installing treatment to mitigate the pollution described above, the have incurred increased costs to operate and maintain the treatment system for the Water Supply.

AA. As of the date of this Order, Mr. Brawand has not complied with the provisions of 25 Pa. Code §78.51(d)(1)(v), set forth in Paragraph Y, above.

ORDER

NOW, therefore, pursuant to Sections 3218(b) and 3253 of the 2012 Oil and Gas Act, 58 Pa.C.S. §§3218(b) and 3253 (former 58 P.S. §§601.208(b) and 503), Section 610 of the Clean Streams Law, 35 P.S. §691.610, 25 Pa. Code §78.51(c), and Section 1917-A of the Administrative Code, 71 P.S. §510-17, the Department hereby ORDERS that:

1. Compliance with the Law. Mr. Brawand shall take all actions necessary, including the corrective actions set forth in this Order, to attain and thereafter maintain compliance with all applicable environmental laws and regulations, including all applicable provisions of the Clean Streams Law, Oil and Gas Act, and the Regulations promulgated thereunder.

2. Operating and Maintenance Agreement.

a. Within ten (10) days after the date of this Order, Mr. Brawand shall meet with [REDACTED] to discuss options reimbursing them for all past and future increased operating and maintenance costs for the treatment system installed at the [REDACTED] Water Supply.

b. Within thirty (30) days after the date of this Order, Mr. Brawand shall submit to the Department, in writing, copies of any contracts or other documents that identify the executed agreement between Mr. Brawand and the [REDACTED] regarding reimbursing the [REDACTED] for all past and future increased operation and maintenance costs for the treatment system installed at the [REDACTED] Water's Supply.

3. Further Pollution/Diminution Prohibited. Mr. Brawand shall neither cause additional pollution to the waters of the Commonwealth nor affect any other water supply by pollution or diminution in the execution of this Order.

4. All correspondence with the Department concerning this Order shall be addressed as follows:

Susan Black
Oil and Gas Management
Department of Environmental Protection
230 Chestnut Street
Meadville, PA 16335-3481
Telephone: 814-332-6860
Fax: 814-332-6121

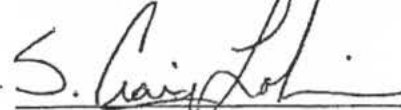
Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. §7514, and the Administrative Agency Law, 2 Pa.C.S.A. Chapter 5A, to

the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, Pennsylvania 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717-787-3483. This Paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.

FOR THE COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT OF ENVIRONMENTAL PROTECTION:



S. Craig Lobins
Regional Manager
Oil and Gas Management
Northwest Regional Office





Pennsylvania Department of Environmental Protection

230 Chestnut Street
Meadville, PA 16335-3481
May 19, 2008

Northwest Regional Office

814-332-6860
Fax: 814-332-6121



Re: Complaint ID No. 254900
Howe Township, Forest County

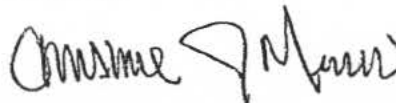
Dear 

Our investigation of your area conducted on April 22, 2008, indicates there is elevated iron, manganese and turbidity in your water supply which are above drinking water standards established by the EPA. Turbidity is basically a measure of how opaque the water is in appearance. There is also a very low count of background bacteria and no measurable count of fecal bacteria in your water supply. Testing was also done to determine if there were any crude oil compounds in your water supply. There were none measured at the time of sampling. These analyses are included for your records.

I have enclosed a DEP fact sheet which will help you in interpreting your water analysis and a fact sheet describing chlorination of your water supply. At this time, your water supply complaint is still under investigation by DEP, and I will return to resample your supply on May 22nd.

Thank you for your patience in this matter. Please let me know if you have any questions or if I can be of further assistance.

Sincerely,



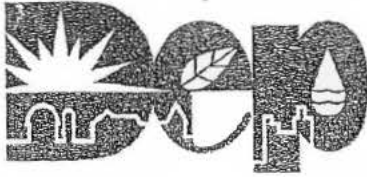
Christine J. Miner, P.G.
Licensed Professional Geologist
Oil & Gas Management

Enclosure

cc: J. Thomas
C. Miner
File

CJM:ls1





Pennsylvania Department of Environmental Protection

230 Chestnut Street
Meadville, PA 16335-3481
July 24, 2008

Northwest Regional Office

814-332-6860
Fax: 814-332-6121



Re: Complaint ID No. 254900
Act 223 Section 208 Determination
Howe Township, Forest County

Dear [Redacted]

Our investigation of your area conducted on June 23, 2008, indicates there is an increase in the level of manganese and a decrease in the level of iron in your water supply as compared to the previous sample taken April 22, 2008. Iron, Manganese and Total Dissolved Solids are all above the drinking water standards.

The Department acknowledges that your water supply was affected by the drilling of East Resources, Inc. gas well permit 37-053-28677 on April 21, 2008. At that time, the gas well drilling caused your water well to flow artesian out the top of the casing, and also caused your basement to flood; however, these issues resolved themselves quickly.

Since the drilling of the gas well was 1600' away, there was no predrill sample taken. Also, there is a water treatment system in your home, although it is not in use. Because of this and the history relating to the conditioner being installed on the water system, the Department cannot prove that East Resources, Inc. caused the elevated levels of Iron, Manganese, and Total Dissolved Solids in your water supply.

Enclosed you will find your analyses and a fact sheet which will help you interpret your results. Thank you for your patience. Please contact me if you have any questions.

Sincerely,

Christine J. Miner, P.G.
Licensed Professional Geologist
Oil and Gas Management

Enclosures

cc: John Thomas
Tony Oprendeck
C. Miner
File

CJM:sp:jb





pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHCENTRAL REGIONAL OFFICE

9/2/2010

[REDACTED]
[REDACTED]
[REDACTED]
CERTIFIED MAIL NO. [REDACTED]

Re: Act 223, Section 208 Determination
Complaint No. 272604
Granville Twp., Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply in response to your 7/8/2010 complaint that recent gas well drilling activities may have affected your water well. On 7/14/2010, I collected samples from your home water supply. The sample was submitted to the Department's laboratory in Harrisburg for analysis. The analytical report for the sample is included, as well as documents that will assist you with interpreting the sample results. The investigation of your water well indicates methane is present at 56.3 mg/l in your water supply. Pre-drill sample analysis of your water supply did not find the presence of the methane gas. The sample results indicate that gas well drilling has impacted your home water supply.

Methane is the predominant component of natural gas. Drinking water standard limitations have not been established for methane gas and we do not know of any associated health risks. The true level of concern begins above 28 mg/l methane, which is what we call the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional methane. The potential hazard occurs when the water is used for extended periods of time. 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 3 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 somewhat. 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

9/2/2010

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.

The Department will be in contact with Chesapeake in order to help resolve this issue. Should you have any questions concerning this matter, please feel free to contact me at 570-327-0546.

Sincerely,



Caleb Woodraver
Geologic Specialist
Oil and Gas Management

Enclosures

cc:

Jennifer Means
Randy Farmerie
Chesapeake Energy
Complaint File



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

November 19, 2013

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]
[REDACTED]
[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 methane gas contamination of your water supply located at the above listed address. On July 2, 2012, 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 indicated there was natural gas found in the shallow subsurface in your area. This gas migration has since been mitigated, and all the levels of gas found in the area are well below levels 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.

Additionally, results showed the recent total dissolved solids level was above predrilling level, which was already elevated above drinking water standards. It is likely that your water well is deeper than other nearby wells, due to the fact that it had elevated sodium, chloride, and total dissolved solids levels in the predrilling samples. Your water softener is not designed treat the total dissolved solids, so this would involve an additional or alternate system. Otherwise, your water softener is effectively treating other parameters, which were apparently temporarily affected immediately after drilling. These elevated parameters were iron and manganese, and they are no longer elevated in the raw water.

The Department also obtained an isotopic sample of the headspace gas from your 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 water well 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.



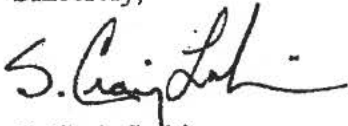
November 19, 2013

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 to address the elevated TDS concentrations in 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.

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

CJM:lsl



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

OIL & GAS MANAGEMENT

COPY

December 16, 2013

CERTIFIED MAIL NO. [REDACTED]

Re: Complaint ID 281911, [REDACTED]
58 Pa. C.S § 3218 Determination
Donegal Township, Westmoreland County

Dear [REDACTED]

The Department of Environmental Protection ("DEP") has investigated the alleged pollution of your water supply well located at [REDACTED]. Samples from your water supply were collected by a qualified third party on 4/12/2011, 10/4/2012, 3/22/13, and by DEP on 11/13/2013 and submitted to accredited laboratories for analysis.

DEP compared an April 12, 2011 "pre-drill" survey test of your water supply with the October 2012 and November 2013 tests. The comparison shows that in November 2013, Chlorides, Barium, Calcium, Hardness, Iron, Magnesium, Manganese, and Total Dissolved Solids (TDS) were present in your water supply in concentrations that exceed those observed in the pre-drill survey, and several are elevated above the drinking water standards. As a result of our investigation, DEP has determined that nearby oil and gas operations are responsible for the pollution in your water supply.

Enclosed are copies of the analytical test results of the samples taken and a fact sheet to assist you in interpreting the results. If you have any questions about this determination, or if you would like to discuss this further, please contact Jeffrey Dewey, Environmental Protection Compliance Specialist, at 412.442.4012 or via email at jdewey@pa.gov. The Department will keep you apprised of future developments.

Sincerely,

Alan Eichler
Environmental Program Manager
District Oil and Gas Operations

Enclosures:

cc: Complaint File # 301088
April Weiland
Richard Thomas
Jeffrey Dewey
Amanda Sluss



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL & GAS MANAGEMENT

June 17, 2014

Certified Mail No. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

Re: Complaint ID 281911
Township: Donegal
County: Westmoreland

Dear [REDACTED]

Enclosed please find an executed copy of an order of the Pennsylvania Department of Environmental Protection directed to WPX Energy Appalachia, LLC for restoration or replacement of your water supply.

If you have any questions or concerns regarding this matter please feel free to contact Jeff Dewey at 412.442.4012.

Sincerely,

Amanda Sluss
Environmental Protection Compliance Specialist

cc: Enforcement File
Ms. April Weiland

JUL - 1 2014

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF:

WPX Energy Appalachia, LLC : 2012 Oil and Gas Act
6000 Town Center Boulevard : Affected Water Supply
Suite 300 : Donegal Township,
Canonsburg, PA 15317-5838 : Westmoreland County

ORDER

NOW, this 17th day of June, 2014, the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department") has made and determined the following FINDINGS and enters the following ORDER:

A. The Department is the agency with the duty and authority to implement, administer, and enforce the Oil and Gas Act, Act of February 14, 2012, P.L. 87, No. 13, 58 Pa. C.S. §§ 3201-3274 ("2012 Oil and Gas Act"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 ("Administrative Code"); and the rules and regulations promulgated thereunder.

WPX Energy Appalachia, LLC

B. WPX Energy Appalachia, LLC ("WPX") is a Delaware limited liability company engaged in various oil and gas well activities in Pennsylvania. WPX's business address is 6000 Town Center Boulevard, Suite 300, Canonsburg, PA 15317-5838.

C. WPX is the "well operator" as that term is defined in Section 3203 of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3203, of the Gas Well, as defined herein.

The Gas Well Site

D. On June 6, 2011, the Department issued Well Permit No. [REDACTED] to WPX authorizing WPX to drill and operate the [REDACTED] gas well ("Gas Well") in Donegal Township,

Westmoreland County. The Gas Well is an **unconventional well** as that term is defined in Section 3203 of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3203. **The Gas Well is located on a well pad** **that includes a temporary drilling and flowback fluids pit ("Impoundment").**

E. WPX commenced drilling the Gas Well on October 19, 2011, and completed drilling on November 11, 2011. WPX completed **stimulation of the Gas Well** on May 29, 2012.

F. On September 12, 2012, the Department sampled the fluids in the Impoundment. The results from that sampling are included in the table of Paragraph L, herein.

G. On or before September 19, 2012, **flowback fluid leaked from the Impoundment into the ground ("Release").**

Water Supply

H. Two individuals (the "Complainant") reside at **Donegal Township, Westmoreland County.** A private water well ("Water Well") serves as the water supply at the Complainant's residence for all domestic purposes ("Water Supply"). The Complainant described the Water Well as ninety (90) feet deep. The Water Well is a "water supply" as that term is defined by section 78.1 of the rules and regulations, 25 Pa Code § 78.1. The Water Well is 425 feet from the Impoundment and 1003 feet from the Gas Well.

I. WPX conducted a pre-drilling survey of the Water Supply on April, 12, 2011 ("Pre-Drilling Survey").

J. The laboratory analyses of the Pre-Drill Survey showed that the Water Supply's quality met or exceeded the standards for barium, chloride, and total dissolved solids ("TDS") set forth in the Pennsylvania Safe Drinking Water Act, 35 P.S. §§ 721.1–721.17, 25 Pa. Code § 109.202 (hereinafter, "SDWA Standards"). The hardness, iron, and manganese levels in the Pre-Drill Survey

did not meet the SDWA Standards. The results from that Pre-Drill Survey, as well as the SDWA Standards, are included in the table of Paragraph N, herein.

Water Supply Pollution Investigation

K. On November 6, 2013, the Complainant notified the Department that the quality of the Water Supply changed and that the Water Supply was no longer adequate for domestic uses, specifically noting a change in taste.

L. Following the November 2013 complaint, the Department initiated an investigation. The Department and WPX each collected samples of the Water Supply for laboratory analyses to test for gas-well-related contaminants (“Post-Release Samples”). Results from that sampling, as well as the other results described above, are set forth in this table:

Contaminant or Parameter	Unit	SDWA Standards	Pre-Drill Survey 4/12/11	DEP Post-Release Sample Result 11/13/13	WPX Post-Release Sample Result 03/14/2014	DEP Impoundment Fluid Sample Result 9/12/2012
Chloride	mg/L	250	85.70	283	207	8574
Barium	mg/L	2	0.34	0.68	0.58	169
Calcium	mg/L	75	52.80	111	95.3	1110
Hardness	mg/L	30-150	188	385	Not analyzed	3185
Iron	mg/L	0.30	0.51	0.68	0.40	0.311
Manganese	mg/L	0.05	0.16	0.32	0.26	0.608
TDS	mg/L	500	298	924	607	16,198

M. The levels of the following gas-well-related contaminants in the Post-Release Samples were above the levels in the Pre-Drill Survey and SDWA Standards: chloride, calcium, iron, hardness, manganese, and TDS. Of those, the pre-drill levels of Hardness, Iron, and Manganese that did not meet the SDWA Standards were exacerbated. The SDWA Standards applicable to those analytes and parameters were developed to protect on aesthetics/taste. These increases correlate to changes in taste affecting domestic usage as identified by Complainant.

N. In addition, another gas-well-related contaminant, barium, had levels in the Post-Release Samples higher than the Pre-Drill Survey level.

O. The gas-well-related contaminants identified in Paragraphs M and N, above, were also found in sample results from the Impoundment's fluids.

P. The Water Supply was and continues to be polluted from WPX's gas well drilling, alteration, or operation activities at the [REDACTED] Site, and is not of adequate quality for the purposes served by the Water Supply.

Responsibility for Pollution

Q. WPX is responsible for the pollution of the Water Supply under Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3218(a), as the result of drilling, alteration or operation of an oil and gas well.

R. On December 16, 2013, the Department sent a letter to the Complainant notifying WPX that WPX is responsible for the pollution of the Water Supply.

S. Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. §3218(a), and 25 Pa. Code § 78.51(d), set forth the criteria for adequate reliability, cost, maintenance, control, quality, and quantity of the restored or replaced water supply.

T. As of the date of this Order, WPX has not restored or replaced the Water Supply with an alternative source of water that is adequate for the purposes served by the Water Supply in violation of Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa.C.S. § 3218(a), and 25 Pa. Code §78.51(a).

U. The pollution of the Water Supply from the drilling of the Gas Well and WPX's failure to restore or replace the affected Water Supply with an alternate source of water adequate for

the purposes served by the Water Supply constitute a public nuisance and unlawful conduct pursuant to Sections 3252 and 3259(2) of the 2012 Oil and Gas Act, 58 Pa. C.S. §§ 3252 and 3259(2).

ORDER

NOW, THEREFORE, pursuant to Sections 3218(b) and 3253 of the 2012 Oil and Gas Act, 58 Pa. C.S. §§ 3218(b) and 3253, 25 Pa. Code § 78.51(c), and Section 1917-A of the Administrative Code, 71 P.S. § 510-17, the Department hereby ORDERS that:

1. Restore or Replace the Water Supply.

a. Temporary Drinking Water Supply. If the Complainant accepts temporary water, WPX shall provide the owners of the Water Supply with a temporary drinking water supply of adequate and reliable quantity and quality for the purposes served within fifteen days of notice of the Complainant's acceptance. WPX shall continue to provide temporary water until the Department notifies WPX, in writing, that the requirements of this Order have been satisfied. If the Complainant refuses temporary water, WPX shall immediately provide documentation of that refusal to the Department.

b. Restoration/Replacement Plan. Within thirty (30) days of the date of this Order, WPX shall submit to the Department, in writing, a plan to permanently restore or replace the Water Supply ("Restoration/Replacement Plan") that, at a minimum, shall identify the:

- i. proposed corrective actions (*e.g.* treatment, drill new water supply well, hook into public water supply, and/or other corrective actions) to permanently restore or replace the Water Supply in compliance with Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3218(a), and 25 Pa. Code § 78.51(d);
- ii. proposed schedule to implement the corrective actions so that the Water Supply is restored or replaced within forty-five (45) days of receipt of the Department's written approval of the Restoration/Replacement Plan or of the modified Restoration/Replacement Plan;

- iii. the independent laboratory, certified by the Department, that WPX will use to analyze samples from the restored or replaced Water Supply;
- iv. proposed or executed agreements/contracts between WPX and the Complainant to provide for all plumbing, conveyance, pumping, or auxiliary facilities necessary for the use of the permanently restored or replaced Water Supply;
- v. proposed or executed contracts/agreements between WPX and the Complainant documenting how WPX will compensate on a permanent basis for any increased operating and maintenance costs for the replaced or restored Water Supply; and
- vi. plan for confirmatory samples of the restored and/or replaced Water Supply after WPX asserts that it has permanently restored or replaced the Water Supply, or after WPX asserts that the Water Supply is no longer affected. Such samples will be used to determine whether the Water Supply meets the standards set forth in Section 3218(a) of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3218(a), and 25 Pa. Code § 78.51(d). The confirmatory sampling plan should provide for: split samples with the Department; that sampling would only take place Monday through Friday during Department working hours; and should specify that WPX will notify the Department at least three (3) working days before any scheduled sampling of the Water Supply.

2. Submission of Documents.

a. With regard to any document that WPX submits to the Department pursuant to Paragraph 1.b., above, WPX shall submit to the Department, in writing, additional information and/or correct deficiencies within ten (10) days of receipt of the Department's written request for additional information and/or notice of deficiencies.

b. Upon receipt of a complete document in compliance with the requirements Paragraph 1.a., above, or a revised document that addresses the Department's request(s) under Paragraph 2.a., above, the Department will approve or modify and approve the document in writing.

c. Upon receipt by WPX of the Department's written approval under this Order of a document or modified document, the approved document shall be incorporated herein and enforceable hereunder.

3. **Implementation of Approved Plan(s).**

a. WPX shall implement the Department-approved Restoration/Replacement Plan in accordance with the approved schedule therein.

b. In all cases, WPX shall complete the approved corrective actions to permanently restore or replace the Water Supply within forty-five (45) days of receipt of the Department's written approval of the Restoration/Replacement Plan.

4. In complying with this Order, WPX shall not cause pollution of any waters of the Commonwealth and shall not affect by pollution or diminution any other water supply.

5. All correspondence with the Department concerning this Order shall be addressed as follows:

Jeffrey Dewey; Compliance Specialist
Oil and Gas Operations
Pennsylvania Department of Environmental Protection
400 Waterfront Drive
Pittsburgh, PA 15222-4745

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. §7514, and the Administrative Agency Law, 2 Pa.C.S.A. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, Pennsylvania 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action

unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717-787-3483. This Paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD. IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.

**FOR THE COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT OF ENVIRONMENTAL PROTECTION:**



_____ *rev*

Southwest District Manager
District Oil and Gas Operations



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS


8/13/2012

CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 290009
Leroy Township, Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 6/12/2012 complaint that recent gas well drilling activities may have affected your water well. On 5/21/2012, the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples were previously submitted to you in a letter dated 6/29/2012.

The sample results showed iron, turbidity, and aluminum exceeded secondary maximum contaminate levels (MCLs). Secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.). Additionally, the sample results showed methane is present at 27.8 mg/L in your water supply. While it does not appear that a change in water quality has occurred compared to baseline water quality samples collected from your water supply, a change in hydraulic head pressure from artesian to non-artesian flow was observed. At this time, the Department's investigation indicates that gas well drilling has impacted your water supply. 

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.

8/13/2012

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.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,



Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

cc:

Jennifer Means
William J. Kosmer, P.G.
Jeremy Daniel
Complaint File 290009



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

1/4/2013

[REDACTED]

CERTIFIED MAIL NO. [REDACTED]

Re: 58 Pa.C.S § 3218 Determination
Complaint No. 290009
Leroy Township, Bradford County

Dear [REDACTED]

The Department has investigated the degradation of your water supply well located at [REDACTED] in response to a 6/12/2012 complaint that gas well drilling activities may have affected your water well. On several occasions, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. While it was unclear if a change in water quality had occurred compared to baseline water quality samples collected from your water supply, a change in hydraulic head pressure from artesian to non-artesian flow was observed, , and on August 13, 2012, the Department issued a letter of positive determination describing this impact.

Subsequent to the issuance of the August 13, 2012 determination letter, additional samples and observation was conducted on your water supply as part of an intensive investigation. The samples were collected by the Department and a qualified third party, and submitted to accredited laboratories for analysis. The analytical reports for those samples were previously submitted to you. The Department's investigation indicates that the previous impact to your water supply appears to have been temporary, and that water quality has returned to background conditions.

Based on water quality sample results to date, the Department does not anticipate requiring any further action in relation to this matter. Should you have any questions, please feel free to contact William J. Kosmer, P.G. at 570-974-2613.

Sincerely,

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

cc:

Jennifer Means
William J. Kosmer, P.G.
Dave Engle
Complaint File 290009
[REDACTED]



Pennsylvania Department of Environmental Protection

321 North State Street
North Warren, PA 16365
April 4, 2008

Warren District Office

814-723-3273
Fax: 814-723-0964

CERTIFIED MAIL NO. [REDACTED]

[REDACTED]

Re: CID NO. 252818
[REDACTED] Water Supply
Act 223 Section 208 Determination
Foster Township, McKean County

Dear [REDACTED]

The Department has investigated, in response to your February 19, 2008 complaint, the possible contamination of your water supply by nearby oil and gas activities. Section 208 of the Oil and Gas Act requires that I make a determination concerning the possible contamination of your water supply within forty-five days of your request for an investigation.

After reviewing the results of your spring water analysis, the Department has concluded that recent oil and gas activity has caused your water supply to become contaminated.

US Energy Development Corporation was in the process of drilling [REDACTED] (API No. [REDACTED]) when the water flowing into your spring became very cloudy in nature. This well is located less than 1000 feet from your spring.

A water sample from within the spring reservoir was taken on February 19, 2008, and indicated iron concentrations of 6410 $\mu\text{g/L}$ and a manganese concentration of 98 $\mu\text{g/L}$ which both exceed the secondary drinking water standards. The Total Dissolved Solids test indicated a concentration of 180 mg/L . On February 25, 2008, a sample was taken when the inflow running into the springhouse was clear and revealed an iron concentration of 140 $\mu\text{g/L}$, a manganese concentration of < 10 $\mu\text{g/L}$, and a TDS concentration of 70 mg/L .

The contamination of your spring has continued to reoccur since the initial instance, and US Energy has been supplying drinking water as necessary. The Department will continue to monitor the situation until the problem is rectified.



April 4, 2008

Enclosed are the complete water sample analysis results from the initial sample taken on February 19, 2008. I previously delivered a fact sheet to help you interpret the report. If you have any questions, please contact me at 814-723-3273.

Sincerely,



Brian B. Ayers
Water Quality Specialist
Oil & Gas Management

Enclosure

cc: NWRO
WDO

BBA:rm



Pennsylvania Department of Environmental Protection

P.O. Box 669
Knox, PA 16232-0669
October 19, 2009

Knox District Office

814-797-1191

[REDACTED]

Re: Act 223 Section 208 Determination
[REDACTED] CID No. 266017
Warsaw Township, Jefferson County

Dear [REDACTED]

The Department has investigated the pollution of your water supply in response to your call of August 31, 2009. Laboratory analysis of samples taken from your spring were compared to a pre-drilling analysis supplied by Seneca Resources Corporation (Seneca). This comparison reveals increased levels of sodium, chlorides, and total dissolved solids.

The Pa. Oil and Gas Act creates a presumption of responsibility for a water supply that is polluted, is within 1,000 feet of an oil or gas well, and the pollution occurs within six months of the completion of drilling the oil and gas well.

Therefore, Seneca is presumed responsible for your water supply and is required by the Oil and Gas Act to restore or replace the affected water supply.

As you are aware, Seneca has removed the drill pit and cuttings from the well site and has backfilled the excavation. The Department and Seneca believe that your spring will clear, following several significant precipitation events. Seneca has, and continues to, supply bottled water for drinking and cooking. The Department will continue to monitor the clearing of your spring. The laboratory analysis reports for samples taken by the Department have been provided to you and should be retained for your records.

Should you have questions, please contact me.

Sincerely,

Douglas J. Neely
Water Quality Specialist
Oil and Gas Management

cc: NWRO file - Oil and Gas
Don Cornell
Tony Opredek
~~Diane Neely~~

DJN:dlb



Pennsylvania Department of Environmental Protection

P.O. Box 669
Knox, PA 16232-0669
December 24, 2009

Knox District Office

814-797-1191

[REDACTED]

Re:

[REDACTED]
CID No. 266017
Warsaw Township, Jefferson County

Dear [REDACTED]

Enclosed is the laboratory report of analysis for the water sample collected from your spring on December 8, 2009.

Comparison of this analysis with that of a "pre-drill" sample from June 9, 2009, shows that your spring has returned to similar quality.

You may wish to keep this analysis for your records. Please contact me if you have any questions.

Sincerely,

Douglas L. Neely
Water Quality Specialist
Oil and Gas Management

Enclosure

cc: NWRO - OG
Tony Oprendek
Don Cornell
Doug Neely

DJN:rjw



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DISTRICT OIL AND GAS OPERATIONS

March 25, 2013

[REDACTED]
[REDACTED]
Re: 58 Pa.C.S § 3218 Determination
Complaint No. 294115
Wilmot Township, Bradford County

Dear [REDACTED]

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 1/2/2013 complaint that recent gas well drilling activities may have affected your water supply well. On 1/4/2013 the Department collected samples from your home water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results.

The sample results show iron was detected in your water at 5.66 mg/L on 1/4/2013 exceeding the Secondary Maximum Contaminant Level (SMCL) of 0.3 mg/L and manganese was detected in your water at 0.35 mg/L on 1/4/2013 exceeding the SMCL of 0.05 mg/L. Iron was not detected above the laboratory detection limits in your water during the pre-drilling sampling while manganese was detected at 0.018 mg/L. In addition, aluminum was detected in your water at 4.62 mg/L on 1/4/2013 exceeding the secondary maximum contaminant level (SMCL) of 0.2 mg/L. Aluminum was not included in the laboratory analysis during the pre-drilling sampling. SMCLs are guidelines regulating compounds that may cause aesthetic effects (taste, odor, color) in drinking water.

Because drilling activities occurred at a gas well within two thousand five hundred feet of the your water supply, and the pollution occurred and was reported within one year after completion of the well, under Section 3218 of the Oil and Gas Act (58 Pa C.S. §3218), the gas well operator is presumed to be responsible for the degradation of your water supply. The Department's investigation indicates that your water well has been impacted by gas drilling activity.

The Department is continuing to work to permanently resolve this issue. Should you have any questions concerning this matter, please feel free to contact Eric Rooney, P.G. at 570-346-5543.

Sincerely,

Jennifer W. Means
Environmental Program Manager
Oil and Gas Management

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