



COMMONWEALTH OF PENNSYLVANIA
ENVIRONMENTAL HEARING BOARD



NOTICE OF APPEAL

By filing this Notice of Appeal with the Environmental Hearing Board, you are choosing to initiate a legal proceeding that asks the Board to review an action of the Department of Environmental Protection. Please read the instructions appended to this form in their entirety and follow closely the rules governing filing a Notice of Appeal, located at 25 Pa. Code § 1021.51. Failure to follow Board rules and orders may result in the dismissal of your appeal.

Pages 1 through 4 of the following form and any required attachments must be received by the Environmental Hearing Board within 30 days after your receipt of notice of the action of the Department that you are appealing. You may mail, fax, or hand-deliver your Notice of Appeal to:

**ENVIRONMENTAL HEARING BOARD
Rachel Carson State Office Building – 2nd Floor
400 Market Street, P.O. Box 8457
Harrisburg, PA 17105-8457
Fax: (717) 783-4738**

You may wish to send your appeal to the Environmental Hearing Board by certified mail, return receipt, so that you know your appeal was received within the required time.

Attorneys may electronically file a Notice of Appeal at
<https://ehb.courtapps.com/>



COMMONWEALTH OF PENNSYLVANIA
ENVIRONMENTAL HEARING BOARD

NOTICE OF APPEAL FORM
APPEAL INFORMATION

1. Name, address, telephone number, and email address (if available) of Appellant:

Bryan Latkanich
95 Hill Road
Fredericktown, PA 15333

2. Describe the subject of your appeal:

(a) What action of the Department do you seek to have the Board review (for example, a permit, license or order issued or denied by the Department, an assessment of a civil penalty or some other determination made by the Department)?

Negative Determination of Investigation Under §3218 of the Oil and Gas Act

(b) Which Department official took the action (usually the person identified on any written notice that you received)?

Daniel F. Counahan, District Oil and Gas Manager, Southwest District Oil and Gas Operations

(c) What is the location of the operation or activity which is the subject of the Department's action (the municipality and/or county where the activity takes place or will take place)?

Deemston Borough, Washington County

(d) How, and on what date, did you receive notice of the Department's action? Please specify whether through public notice, a letter or email from the Department, or some other source.

Notice was received pursuant to a letter dated April 20, 2023 emailed to Appellant's counsel, Lisa Johnson, Esq., a copy of which is attached hereto as Exhibit A ("Determination Letter").

(e) Did you receive written notification of the Department's action (for example, letter, order or permit that you are appealing)? If yes, you **must** attach a copy of the notification to this Notice of Appeal. If you are appealing a permit, you may attach the first page rather than the entire document. In lieu of attaching the document, you may provide a link to notice of the action in the *Pennsylvania Bulletin*. See filing instructions for further instruction.

Yes, please see attached Exhibit A.

3. Specify any related appeal(s) now pending before the Board. If you are aware of any such appeal(s) provide that information.

Appellant is not aware of any related appeals pending at this time.



**NOTICE OF APPEAL FORM
APPEAL INFORMATION, CONT.**

4. Describe your objections to the Department's action in separate, numbered paragraphs. Rather than use the space on this form, you may type your objections on separate paper if you require more space. **NOTE:** The objections may be factual or legal and must be specific. It is important that you include **ALL** your objections in this section. Although you may be able to amend your appeal to add new objections, you may require permission of the Board to do so, and you may not be able to raise omitted objections later in the appeal process.

Please see attached Schedule 1.

**NOTICE OF APPEAL FORM
PROOF OF SERVICE**

In addition to filing this form with the Environmental Hearing Board, the Appellant *must* certify, by indicating below, how the Notice of Appeal was served on the Department under numbers (2) and (3) below, and where applicable, upon other interested parties indicated by numbers (4) and (5). Failure to do so may result in dismissal of your appeal. Please check the box indicating the method by which you served the following:

- | | | |
|--|------------|---|
| (1) Environmental Hearing Board
2 nd Floor Rachel Carson State Office Bldg.
400 Market St., P.O. Box 8457
Harrisburg, PA 17105-8457 | <i>via</i> | <input type="checkbox"/> first class mail, postage paid
<input type="checkbox"/> overnight delivery
<input type="checkbox"/> personal delivery
<input checked="" type="checkbox"/> X electronic filing |
| (2) Department of Environmental Protection
Office of Chief Counsel
Attn: Administrative Officer
16 th Floor Rachel Carson State Office Bldg
400 Market Street, P.O. Box 8464
Harrisburg, PA 17105-8464 | <i>via</i> | <input type="checkbox"/> first class mail, postage paid
<input type="checkbox"/> overnight delivery
<input type="checkbox"/> personal delivery
<input checked="" type="checkbox"/> X electronic filing |
| (3) The officer of the Department
who took the action being appealed | <i>via</i> | <input type="checkbox"/> first class mail, postage paid
<input type="checkbox"/> overnight delivery
<input type="checkbox"/> personal delivery
<input checked="" type="checkbox"/> X electronic filing |

Note to Attorneys who electronically file a Notice of Appeal: A copy is automatically served on the Department’s Office of Chief Counsel and officer who took the action. There is no need for you to independently serve the Department.

(4) If your appeal is from the Department of Environmental Protection’s issuance of a permit, license, approval, or certification to another person, you *must* serve the following:

- | | | |
|---|------------|--|
| The entity to whom the permit, license approval, or certification was issued. | <i>via</i> | <input type="checkbox"/> first class mail, postage paid
<input type="checkbox"/> overnight delivery
<input type="checkbox"/> personal delivery |
|---|------------|--|

(5) Where applicable, you should also serve a copy of your appeal on any of the following:

- In appeals involving a decision under Sections 5 or 7 of the Sewage Facilities Act, 35 P.S. §§ 750.5, 750.7, any affected municipality, its municipal authority, and the proponent of the request, when applicable, and any municipality or municipal authority whose official plan may be affected by a decision of the Board in the appeal.
- A mining company, well operator, or owner or operator of a storage tank in appeals involving a claim of subsidence damage, water loss or contamination.



**NOTICE OF APPEAL FORM
SIGNATURE PAGE**

By filing this Notice of Appeal with the Environmental Hearing Board, I hereby certify that the information submitted is true and correct to the best of my information and belief. Additionally, I certify that a copy of this Notice of Appeal was served upon each of the individuals indicated on Page 3 of this form on the date hereof by electronic filing.

/s/ Lisa Johnson, Esq.
Signature of Appellant or Appellant's Counsel

Date: May 8, 2023

If you have authorized counsel to represent you, please supply the following information (*Corporations must be represented by counsel*):

Lisa Johnson, Esq.
Attorney Name (Type or Print)
Lisa Johnson & Associates
1800 Murray Ave., #81728
Pittsburgh, PA 15217
Telephone No.: (412) 913-8583
Email: lisa@lajteam.com

TDD users please contact the Pennsylvania Relay Service at 1-800-654-5984. If you require an accommodation or this information in an alternative form, please contact the Secretary to the Board at 717-787-3483.

Please see the attached Filing Instructions for additional information and requirements regarding the filing of this form.

SCHEDULE 1

1. Appellant requested that the Department investigate environmental complaints involving his property’s water, air, and soil commencing in April 2022.

2. The Department issued its determination letter to Appellant one year later on April 20, 2023, a copy of which is attached as Exhibit A.

3. Appellant owns and resides on the subject property at 95 Hill Road, Fredericktown, PA 15333 (the “**Property**”).

4. The Property consists of 33 acres and Mr. Latkanich acquired a portion of the Property in 1998 and the remainder of the Property in 2005.

5. The Property was to be used for residential, farming, hunting, and recreational purposes.

6. The home is a custom-built farmhouse with an attached 2.5 car garage and a wraparound porch and was constructed in 2000 (the “**Home**”).

7. The Property is served by a private groundwater well (“**Private Water Well**”), that was drilled 300 feet deep and the first 60 feet has plastic casing.

8. Appellant’s minor child, R. Latkanich, currently 13 years old, has always resided with Mr. Latkanich on the Property and Appellant’s other two children, now adults, had lived on the Property from time to time during the period in question as minor children.

9. The Latkanich family relied on the Private Water Well for drinking except from April 2013 to November 1, 2013, and after July 2017 when Appellant began purchasing safe drinking water for him and his children to drink.

10. The Latkanich family still uses the Private Water Well for all other uses, including bathing and household purposes.

11. Prior to the Operations (defined below), Appellant and his family had never experienced any problems with water supply, air quality, emissions, noises, dust, odors, or any other environmental issues impacting their health or the peaceful habitation of the Property and Home.

12. Appellant entered into oil and gas lease agreements dated December 7, 2009, and effective March 19, 2010 covering the two parcels comprising the Property (together, and as may have been amended from time to time, the "Gas Lease") with Phillips Exploration, Inc., copies of which are attached as Exhibit B and the Gas Lease was ultimately held by Chevron Appalachia, LLC, although now EQT CHAP, LLC has an ESCGP-3 permit covering the Property. *See infra*.

13. Appellant is legally blind, and at the time he was totally blind in his right eye and had impaired vision in his left eye from recent brain surgery, and could not read the Gas Lease and related documents; instead, a representative of the leasing agent read the Gas Lease to Appellant.

14. Efficiently extracting natural gas from unconventional formations requires both vertical and horizontal drilling, combined with a process known as ‘hydraulic fracturing,’ or ‘fracking.’ After the well is drilled, cased, and cemented to protect groundwater and prevent the escape of natural gas and other fluids, drillers pump large amounts of water mixed with sand and other fluids into the shale formation under high pressure to fracture the shale around the well, which allows the natural gas to flow freely to the wellbore. The amount of water typically required for hydraulic fracturing ranges from ten-to thirty-million gallons depending on the length of the horizontal lateral segment. Once the hydraulic fracturing process is completed, the used water, often referred to as “flowback,” is reused in the next well, injected in deep underground disposal wells or sent to an approved treatment facility. *See Exhibit C*, p. 1.

15. Large volumes of water are required to complete an unconventional well, and large volumes of wastewater are generated as part of the process. This wastewater is considered industrial wastewater and is a residual waste in Pennsylvania. *Id.* at p. 3.

16. Unconventional well operators must also identify where produced wastewater will be stored, treated, and disposed. *Id.*

17. Wastewater (fluids) must be recycled, treated at an authorized wastewater treatment facility, or disposed at an authorized waste disposal facility. *Id.*

18. Chevron Appalachia, its predecessors, parent company, affiliates, contractors, and other third parties in its control (as the case may be), engaged in significant drilling, exploration and extraction, pipeline construction, gas transportation, waste storage, waste transfer, fracking fluid transfer, transfer of other substances, venting, condensate tanks, construction of an access road, waste impoundments, drill pits, above ground waste water pipelines, bunk trailers, equipment storage, seismic testing, drilling, hydraulic fracturing, flaring, heavy equipment use, excessive

truck traffic and transportation of oversized loads, and/or related activities have occurred on or in close proximity to the Property (collectively, without limitation “**Operations**”).

19. The two wells referenced below were drilled, fracked, and operated on the Property, and like all oil and gas wells, generated “residual waste” (referred to herein as the “**Gas Wells**”):

a. Latkanich #1 Well

- i. Drilling commenced on September 14, 2011, with a horizontal spud date of January 11, 2012;
- ii. Drilling was completed on January 18, 2012 with a rig release date of January 23, 2012;
- iii. No gas block (or equivalent used) for the “Surface/Water” casing string;
- iv. Stimulation or “fracking” occurred from July 25, 2012 through August 25, 2012;
- v. 1,652,917 gallons of freshwater were used for “stimulation base fluid”, which was received from Southwestern PA Water Authority – Source #18, Pennsylvania American Water Company – Source #16, Westmoreland County Water Authority – Source #3, North Fayette Water Authority – Source #24, Marianna Municipal Water Works Source #21, North Fayette Water Authority – Source #8, Youghiogheny River – Source #5, Monongahela River – Source #14, Isabelle Lake – Source #6, Duquesne Light Mine Water Treatment Plant – Source #7; and
- vi. 27,825 gallons of “recycled” water were used for stimulation base fluid.
- vii. 12,180 pounds (6 tons) of drill cuttings were generated.
- viii. 575,610 gallons of drilling fluid waste was produced.
- ix. 1,524,390 gallons of fracing fluid waste was produced.
- x. 6,774 gallons of fracturing fluid waste was produced.
- xi. 10,105 gallons of other oil and gas wastes (RWC 899) were produced.
- xii. 362,691 gallons of produced fluid was generated.
- xiii. 244,294 gallons of total produced fluid were generated (RWC 802).
- xiv. 1,349 gallons of produced fluid was generated (RWC 802).
- xv. 163 gallons of synthetic liner materials were produced (RWC 806)
- xvi. 216 gallons of wastewater treatment sludge was generated (RW 804).
- xvii. Reported wellhead value of \$15,098,442.84 @ \$7.54 Mcf.
- xviii. Reported residential value of \$ 49,280,196.06 @ \$24.61 Mcf.

See Exhibit D.

b. Latkanich # 2 Well

- i. Drilling commenced on September 17, 2011, with a horizontal spud date of December 25, 2011;
- ii. Drilling was completed on January 8, 2012 with a rig release date of January 10, 2012;
- iii. No gas block (or equivalent used) for the “Water String” casing string or the cement plug;
- iv. Stimulation or “Fracking” occurred from July 26, 2012 through August 26, 2012;
- v. 2,282,600 gallons of freshwater were used for “stimulation base fluid”, which was received from Southwestern PA Water Authority – Source #18, Pennsylvania American Water Company – Source #16, Westmoreland County Water Authority – Source #3, North Fayette Water Authority – Source #24, Marianna Municipal Water Works Source #21, North Fayette Water Authority – Source #8, Youghiogheny River – Source #5, Monongahela River – Source #14, Isabelle Lake – Source #6, Duquesne Light Mine Water Treatment Plant – Source #7;
- vi. 37,411 gallons of “recycled” water were used as “stimulation base fluid”;
- vii. 12,180 pounds (6 tons) of drill cuttings were generated.
- viii. 270,480 gallons of drilling fluid waste was produced.
- ix. 1,107,666 gallons of fracing fluid waste was produced.
- x. 6,773 gallons of fracturing fluid waste was produced.
- xi. 10,105 gallons of other oil and gas wastes (RWC 899) were produced.
- xii. 340,473 gallons of produced fluid was generated.
- xiii. 239,464 gallons of total produced fluid were generated (RWC 802).
- xiv. 1,349 gallons of produced fluid was generated (RWC 802).
- xv. 163 gallons of synthetic liner materials were produced (RWC 806)
- xvi. 216 gallons of wastewater treatment sludge was generated (RW 804).
- xvii. Reported wellhead value of \$20,528,705.60 @ \$7.54 Mcf.
- xviii. Reported residential value of \$67,004,170.04 @ 24.61 Mcf.

See Exhibit E.

20. Chevron constructed, installed, and operated 3 impoundment pits on the Property, which were removed from the Property in the beginning of 2013 (“Pits”) (see Exhibit F) for which a blasting permit was obtained (see Exhibit G).

21. The Pennsylvania Attorney General’s 43rd Grand Jury Report (“Grand Jury Report”) (attached as Exhibit H) describes the use of pits:

“A prime example of the outmoded regulatory approach was the use of ‘impoundments,’ or pits for storing liquids at the well site. While pits certainly

existed at old-fashioned conventional well sites, the impoundments that were springing up around fracking sites dwarfed anything DEP had seen previously. These impoundments were now being used to store tens of thousands of gallons of fracking fluid, which contained varieties of exotic, complex chemical compounds, many of which may have serious health consequences. The Grand Jury heard testimony about consideration of new rules for such impoundments that would have required permits like those for landfills. In the end, DEP decided to let operators build impoundments as part of the well pad, making them exempt from permit requirements under the Solid Waste Management Act. In the mid-2010s, DEP recognized that impoundments were not safe, and they were phased out in favor of more secure storage methods. But by that time, DEP had years of knowledge about impoundment failures. The Grand Jury heard extensive testimony about leaks from impoundments that contaminated springs and wells which had served as the only source of water for many Pennsylvania families. We also heard about the effects on neighbors' living standards caused by the intense, rancid odors generated by the impoundments. The consequences of these under-regulated impoundments ruined property values, family finances and water supplies in many areas, and impacts on physical health are still being assessed. DEP's new regulatory approach is welcome, but for many Pennsylvanians it came too late. We heard from current DEP Deputy Secretary Scott Perry, who was also with the agency in those early fracking days. He testified that an initial decision made by DEP management to exempt impoundments from regulation under the Solid Waste Management Act was "wrong," but that his position was rejected. A former DEP employee testified that, based on his experience with the agency, the impoundment decision was likely made in deference to the oil and gas industry: "if they had to go through waste management, they were concerned that there were going to be delays in getting these permits issued.... [W]hat was consequential for [the industry] was time, not so much money.... They had a lot of resources. They could spend the money." pp. 50-51.

"Different homeowners described different ways in which the industry's operations affected their lives. We heard many accounts of impoundments; man made ponds, several acres in size, where oil and gas operators stored millions of gallons of fluids. In some instances the DEP permitted the use of an impoundment to hold fresh water for use in fracturing wells in the surrounding area. Over time, however, the industry sometimes would use these impoundments to store contaminated wastewater, even though they were not designed to store toxic fluids. Such impoundments lacked features like double liners and leak detection zones capable of detecting leaks. As a result some of these ponds of liquid waste failed, with devastating consequences. Dangerous chemicals and contaminants invaded the environment and affected public health." p. 32.

22. The Gas Wells and Pits were located approximately 500 feet from the Home and Private Water Well.

23. The photo on p. 1 of the attached Exhibit I shows one of the Pits with a liner removed and sitting on the edge of the Pit. (Exhibit I contains multiple photos of the Operations on the Property).

24. The Private Water Well, the Home, and the majority of Property are down-gradient of and sit at a lower elevation than the Gas Wells and the Pits as depicted in the photo attached as Exhibit J.

Violations and Consent Order

25. The Department issued numerous violations (collectively, “Chevron Violations”) to Chevron Appalachia with respect to the Operations:

1. On December 14, 2012, the Department issued a violation on the Latkanich #1 well to Chevron Appalachia for a violation of Section 401 of the Pennsylvania Clean Streams Law by pumping “pit water” to a non-vegetated area on the Property; and
2. On December 14, 2012, Department issued a violation on the Latkanich #1 well to Defendant Chevron Appalachia for a violation of 78 Pa. C.S. § 78.60B for unlawfully discharging tophole water.

See Exhibit K.

26. A Department violation report dated April 4, 2013 in regard to the above violations, included the following comment:

“The response letter gave a silly explanation and really didn’t change the facts or circumstances. These guys need a fine on this one.” *Id.* at p. 2.

This comment was in response to the below narrative from the inspection:

“On December 10, 2012, the Department received a complaint about discolored springs and drainage swales off of Hill Road in Deemston Borough (the site has a Fredericktown address). My investigation revealed that the nearby Latkanich pad probably changed the drainage patterns. Additionally, the discoloration was the result of iron bacteria in that water. To complete my inspection, I stopped at the pad itself. The site was well marked with signage, and E&S plan was on-site as was a PPC plan; I noted that the PPC plan needed updated to include the DEP’s emergency telephone numbers. All the paperwork was soaked and Chevron needs to consider better ways to protect it. On-site I found that a previously lined pond was being pumped into the E&S diversion ditch. When I first asked about the water in the pond, on-site personnel told me it was from precipitation in the pond, but they didn’t know the pH or conductivity. After some calls to Chevron’s environmental staff I was told that the pH was 6.0 and the conductivity 405µshmo. As stated, the water was pumped into the diversion ditch through a sediment bag. From there the water travelled down a rip-rap ditch to a sediment pond. The water then went under the outflow (it was short-circuited) flowed across a swampy area, through silt sox and

finally discharged to an UNT of Plum Run (Plum Run flows to Ten Mile Creek). The UNT was obviously discolored by this run-off. This is a violation of..." (The rest of this summary appears to be missing).

27. On April 20, 2017, an "admin inspection" was performed by the Department and the following observations were made:

"Results from operator predrill samples taken 8/2/11 and post drill samples from 3/26/13 and 4/18/13 were analyzed in comparison to DEP samples obtained during inspection 2582952 on 2/22/17. *Increases in levels of multiple parameters were noted* but no conclusive indicators of oil and gas impact were observed." (emphasis added). See Exhibit K, p. 31.

28. In addition, the April 20, 2017 report stated the below, however, Chevron was previously issued violations for unlawfully discharging "pit water" onto the Property.

"The complainant reported suspected past improper disposal of fluids in former ponds on site. Previous inspections of site found no surface indications of spills or contamination."

29. Additional violations were issued in 2018:

- a. On September 5, 2018, the Department issued a violation on the Latkanich #2 well to Defendant Chevron Appalachia for a violation of 78 Pa. C.S. § 102.5(c) because it failed to obtain an erosion and sediment control permit prior to commencing earth disturbance activity;
- b. On September 5, 2018, the Department issued a violation on the Latkanich #2 well to Defendant Chevron Appalachia for a violation of 78 Pa. C.S. § 78.53 because it failed to design, implement, and maintain best management practices and an erosion and sediment control plan during and after earthmoving or soil disturbing activities, including the activities related to siting, drilling, completing, producing, servicing and plugging, constructing, utilizing and restoring the site and access road; and
- c. On September 5, 2018, the Department issued violations on the Latkanich #2 well to Defendant Chevron Appalachia for violations of 25 Pa. C.S. § 78.53, 25 Pa. Code § 102.5(c), and 25 Pa. Code § 102.5(m)(4) because multiple areas of the site, including sections of the entrance, access road, and pad were found to have been constructed contrary to permitted plans in that Defendant Chevron Appalachia failed to comply with permit conditions in constructing the site and failed to acquire required permits or permit modifications to alter the site from permitted plans.

See Exhibit L.

30. On February 26, 2019, Chevron Appalachia submitted an application for a new ESCGP permit to reclaim the site, specifically "the existing access road and well pad will be reclaimed to approximately original grade. The pipeline will be cut within the LOD associated with the well pad. The LOD associated with the pipeline will not be disturbed." See Exhibit M.

31. Chevron Appalachia received an authorization of coverage under the Erosion and Sediment Control General Permit (“ESCGP-3”) for Earth Disturbance Associated with Oil and Gas Exploration, Production, Processing, or Treatment Operations or Transmission Facilities No. ESG076320004-00 on the Latkanich #1H/#2H Unit Well Sites for receiving watersheds known as tributaries 40725 and 40726 of Plum Run with a “TSF” designation (Trout Stocking”), effective on April 6, 2020 and expiring on April 5, 2025 to conduct activities described “in the final approved Erosion and Sediment Control (E&S) Plan and the Post-Construction Stormwater Management (PCSM) Plan and permit application. See Exhibit N.

32. On April 22, 2020, the Department entered into a Consent Order and Agreement with Chevron with respect to violations of the Oil and Gas Act and the Clean Streams Law (“COA”) with respect to the Latkanich well site, which included the following:

- a. As part of their Operations, Chevron Appalachia previously had an Erosion and Sediment Control General Permit authorization for earth disturbance associated with the site, number ESX11-125-0026 (“Original ESCGP”).
- b. In December 2013, the Department amended the ESGCP to include the unpermitted areas provided that the Chevron Parties constructed, installed and maintained a post-construction stormwater management best management practices, which expired on December 8, 2018. (“PSCM BMP”).
- c. The COA documented the fact that the well site was not constructed as approved in the ESCGP, specifically including the fact that the access road was wider than approved and the well pad was larger than approved, and therefore located in unpermitted areas.
- d. The COA documented the fact that Chevron violated 25 Pa. Code §§ 78a.53, 102.5(c) and (m)(4), 102.7(a), and 102.8(a) by failing to comply with the terms of the Amended Latkanich ESCGP and by failing to install and maintain PCSM BMPs, as described in the COA. The Department issued Notices of Violation to Chevron pertaining to these matters at the Well Site on September 5, 2018 (as revised on September 26, 2018) and December 6, 2019.
- e. Chevron violated Section 3216(c) of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3216, by failing to restore the Well Site within nine months from the date that the drilling of the last well on the Latkanich Well Site was completed in 2012.
- f. Commencing in December 2013, Chevron violated the Amended Latkanich ESCGP, and thereby 25 Pa. Code § 102.5(m)(4), by failing to permanently stabilize the Well Site and submit a Notice of Termination (“NOT”).
- g. The violations described in Paragraphs H, I, and J set forth in the COA, constitute unlawful conduct under Section 3259 of the 2012 Oil and Gas Act, 58 Pa. C.S. § 3259, and Section 611 of The Clean Streams Law, 35 P.S. § 691.611; constitute a nuisance under 402(b) of The Clean Streams Law, 35 P.S. § 691.402(b); and subjected Chevron to a claim for civil penalties under 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.

- h. As of the date of the COA, April 22, 2020, Chevron had not installed the stormwater basin PCSM BMP.

See Exhibit O.

33. As required by the terms of the COA with respect to transfers, on October 29, 2020, Chevron Appalachia notified the Department that “on or around November 30, 2020, EQT Aurora LLC, a subsidiary of EQT Corporation, intended to purchase Chevron Northeast Upstream LLC, which owns all of the membership interests of Chevron Appalachia.” See Exhibit P.

34. The Department then issued the ESCGP-3 to EQT CHAPP LLC. See attached Exhibit Q.

35. Both Chevron Appalachia and EQT CHAP LLC submitted quarterly reports to the Department pursuant to “reporting obligations under the referenced consent orders inherited through the acquisition of Chevron Appalachia, LLC.” See Exhibit R.

36. Directly because of the Operations and the Department’s lack of regulatory and other oversight, and in addition to the fact that the well site was not stabilized, remediated, or otherwise made compliant with applicable laws for 8 years after the wells were completed, the Property and Home have been harmed and significantly diminished in value to wit, “pit water”, wastewater, and rainwater cascaded from the elevated well pad, flooding the backyard and leaving water pooled against the Home’s back wall, resulting in bowing, cracking and shifting of his home’s double cinder block foundation and 18.4 acres of the 33-acre Property and the Property has been made unsuitable for any other use.

Water Sampling and Testing for PFAS

37. The EPA has proposed rulemaking to include PFOA and PFOS as CERCLA hazardous substances. See Exhibit S.

38. The EPA has stated:

“The proposed designation of PFOA and PFOS as hazardous substances is based on significant evidence that PFOA and PFOS may present a substantial danger to human health or welfare and the environment. PFOA and PFOS can accumulate and persist in the human body for long periods of time and evidence from laboratory animal and human epidemiology studies indicate that exposure to PFOA and/or PFOS can cause cancer, reproductive, developmental (e.g., low birth weight), cardiovascular, liver, kidney, and immunological effects.”

39. The EPA has proposed drinking water regulation for six PFAS including perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorononanoic acid

(PFNA), hexafluoropropylene oxide dimer acid (HFPO-DA, commonly known as GenX Chemicals), perfluorohexane sulfonic acid (PFHxS), and perfluorobutane sulfonic acid (PFBS). *Id.*

40. The EPA has stated, with respect to the proposed drinking water regulation, “if fully implemented, the rule will prevent thousands of deaths and reduce tens of thousands of serious PFAS-attributable illnesses.” *Id.*

41. EPA’s proposed maximum contaminant level goal for PFOA and PFOS is zero and the proposed maximum containment level goal is 4.0 parts per trillion. *Id.*

42. The proposed maximum containment level goal for PFNA, PFHxS, PFBS, and HFPO-DA is 1 (unitless) and the proposed maximum level goal is 1.0 (unitless). *Id.*

43. The Department has published the MCL for PFOA at 14 parts per trillion and PFOS at 18 parts per trillion, which levels are not protective of human health and environment as compared to the EPA standards. See Exhibit T.

44. The University of Pittsburgh sampled water from the Private Water Well for PFAS from five sources within the Home, and the results are depicted below. See Exhibit U.

March 20, 2022:

PFAS	LLOD ng/L	TAP1-1	TAP1-2	TAP1-3	TAP2-1	TAP2-2	TAP2-3	TAP3-1	TAP3-2	TAP3-3	TAP4-1	TAP4-2	TAP4-3	TAP5-1	TAP5-2	TAP5-3	TAP6-1
PFPeA	50																
PFHpA	0.5																
PFHxA	0.1	0.11	0.25	0.50	0.42	0.39		0.30	0.60	0.72	0.61	0.39	0.23	0.42	0.27	0.56	0.57
PFOA	0.1	0.35	0.22		0.16		0.12			0.17		0.11		1.12	0.12	0.12	0.14
PFNA	0.1											0.12					
PFDA	0.1		0.27	0.25	0.55	0.34	0.53		0.17	0.18	0.46	0.36	0.51	0.48	0.30	0.76	0.41
PFUDA	0.5																
PFDoA	0.5																
PFTriA	0.5																
PFTreA	0.5																
PFHxS	0.25				0.25											0.53	0.28
PFHpS	0.5						0.65										
PFOS	0.5	0.87	0.88											0.72			7.57
PFDS	2.5		3.14			3.72			2.87					2.73	3.05		
PFAS	LLOD ng/L	first floor kitchen			first floor bathroom			Basement from well			Basement after filter			Second floor bathroom			first floor shower

November 7, 2021:

PFAS	LLOD ng/L	Retest1	Retest2	Retest3	Retest4	EWB-1 Kitchen sink	EWB-2 Basement source	EWB-3 Bathroom sink	EWB-4 Bathroom shower
PFPeA	50								
PFHpA	0.1		0.44			0.53			
PFHxA	0.5	3.98				3.49			
PFOA	0.1	1.07	0.87	1.08		0.66	0.74		
PFNA	0.1	0.26	0.21			0.13	0.18	0.11	0.18
PFDA	0.1	3.35	2.93			3.25	3.13	3.02	3.18
PFUDA	0.5								
PFDoA	0.5								
PFTriA	0.5								
PFTreA	0.5								
PFHxS	0.25	5.72	5.06	6.06	4.01	4.34	5.48	3.81	7.57
PFHpS	0.5	0.19	0.38						
PFOS	0.5			6.77	4.12				4.57
PFDS	2.5		10.90				10.23		
PFAS	LLOD ng/L	Sample from Amanda				Sample from Dr. Haig			

1, the unit for PFAS restuls is ng/L (or ppt).
 2, Samples of TAP X-X are sampled on 3/19/22 and analyzed on 3/21/2022.
 3, Samples of Retest X are sampled on 11/14/21 and reanalyzed on 3/30/2022.
 4, Samples of EWB X are from Dr. Haig (sampled on 11/7/2021) and analyzed on 3/30/2022.

The results are described in the report as follows:

“Figure 1 displays the results of water samples taken on March 20, 2022. Working from left to right: Tap 1 is the first floor kitchen, Tap 2 is the first floor bathroom, Tap 3 is from the storage tank, Tap 4 is from the basement after the filter, Tap 5 is the second floor bathroom, and Tap 6 is the first floor shower. The first test from each tap was taken immediately after turning the water on. The second test for each tap was taken after running the water for about 10-15 seconds. The third test for each tap was taken after at least a minute of letting the water run. Figure 2 displays the results of water samples taken on November 7, 2021. The results of the retest were significantly lower than what was found from the first round of testing and aligned much more closely with the results of the water samples from March 20, 2022.

Interpreting the PFAS results is more complicated because studying PFAS is so new that a lot of the chemicals do not have standards established. These are the main takeaways from the PFAS testing that we are able to interpret.

- PFOA has a known standard by the PA DEP of 14 ppt, and the results ranged from 0.11-1.12 ppt with the highest at the second floor bathroom.
- PFOS has a known standard by the PA DEP of 18 ppt, the results ranged from 0.65-7.57 ppt with the highest at the first floor shower.
- PFHxA results were high ranging from 3.49-3.98 ppt with the highest at the kitchen sink.”

45. The Department tested sampled water from the Private Water Well from only one source inside the home and the results are depicted below. See [Exhibit A](#).

Parameter	Acronym	02/01/2023 Results		LOQ	MDL
		Pre-Purge	Post Purge		
Perfluorohexanesulfonic acid	PFHxS	0.64 J	ND	4.1	0.56
Perfluorooctanesulfonic acid	PFOS	2.3 J	ND	4.1	2.0
Perfluorooctanesulfonamide	PFOSA	ND	1.3 J	4.1	0.62

Results are identified at parts per trillion or ng/L

LOQ: Limit of Quantitation

MDL: Method Detection Limit

ND: Not detected at or above the MDL

J: Estimated Result; less than LOQ and greater than or equal to MDL

The Department described the results as follows:

“Those results of PFAS compounds are below the limit of quantitation and are therefore estimated. The PFOS levels are below Pennsylvania’s maximum contaminant levels (MCLs) as well as a recently published Environmental Protection Agency proposed MCL. Compounds PFOSA and PFHxS do not have EPA or Pennsylvania proposed or current MCLs.”

46. The Determination Letter indicates that the Department disregarded the PFAS testing performed by the University of Pittsburgh.

47. The Determination Letter further states that:

“Review of documents related to the well site did not reveal any direct evidence that PFAS chemicals were used during site construction, well drilling or completion activity, well production, well plugging, or site restoration. However, review of records did indicate that fresh water was used in the fluid mixture for stimulation activity on the Latkanich unconventional wells. This fresh water was obtained from multiple sources including municipal water authorities, which source surface water from the Monongahela River, Youghiogheny River and/or Tenmile Creek. Review of sample results from sampling conducted on surface water sources across Pennsylvania by the United States Geological Survey in summer 2019, indicated that PFAS was identified at several locations on the Monongahela and Youghiogheny Rivers and Tenmile Creek. Based upon the widespread presence of PFAS in these freshwater sources, PFAS-containing water may have inadvertently been used on the well pad during stimulation. No indication of an incident during fracturing was identified that would cause a release to groundwater, *but because the Water Supply is located downgradient of the well site, an impact from surface spills is possible.*” pp. 2-3. (emphasis added).

and

“While there was no evidence of PFAS use at the Latkanich well site, as discussed above, it is possible that PFAS chemicals were present in the fresh water utilized during stimulation activity at the Latkanich well site.” p. 4.

48. Upon information and belief, the Chevron Defendants used PFAS in its Fracking Fluid in some of its wells between 2012 and 2020. See Exhibit V.

49. The Determination Letter did not reflect as to whether the Department *asked* Chevron and/or EQT used PFAS on the Property at any time for any purpose.

50. The Determination Letter also stated:

“While the Department did not determine that oil and gas activities polluted your Water Supply, please do note that your water quality does not meet (i.e., is worse than) health and/or aesthetic statewide standards. You may consider exploring remedial actions regarding the levels of hardness, sodium, total dissolved solids, and total coliform as identified above. Or, alternatively, you may consider replacing your water with the public water that is plumbed to your home already and, if desired, installation of filtration or treatment for any constituents of concern in that public water.”

Radiation Testing

51. In 2013, the Pennsylvania Department undertook a study to assess the environmental and public health impact of TENORM related to oil and natural gas production in Pennsylvania. The Department appointed Perma-Fix Environmental Services, Inc. (“Perma-Fix”) to undertake the study on Department’s behalf. The report was issued in January 2015 and updated in May 2016. To this day, the Department has not publicly identified the sites that were sampled. See Exhibit W (“DEP TENORM Study”).

52. Perma-Fix Environmental Services, Inc. is a publicly traded Delaware corporation incorporated in December 1990, and describes itself as “an environmental and environmental technology know-how company.” See Exhibit X, p. 1.

53. At the time Perma-Fix was appointed by the Department to perform the DEP TENORM Study, a Perma-Fix subsidiary, Perma-Fix of Pittsburgh, (*Id.* at p. 125) had a history of permitting and violations with the Department. See Exhibit Y.

54. The Department, Bureau of Radiation, also contracted with a subsidiary of Perma-Fix, Safety and Ecology Corporation (see Exhibit X, p. 124) (“Perma-Fix SECorp.”), in 2010 for “a consultant to provide health physics technical assistance on an as-needed basis.” See Exhibit Z. (“DEP RAD Contract”).

55. Perma Fix SECorp. received taxpayer dollars in the amount of \$869,343.46 through 2014 pursuant to the DEP RAD Contract. *Id.*

56. Upon information and belief, prior to the time Perma-Fix was appointed by the Department, throughout the period of the DEP TENORM Study, and subsequent thereto, Perma-Fix and/or its subsidiaries, received environmental and other violations from the EPA as well as from other states. *E.g. see* Exhibit AA.

57. The Delaware River Keeper Network commissioned a review of the DEP TENORM Study in 2015 by Dr. Marvin Resnikoff. See Exhibit BB (“DRKN Review”).

58. The DRKN Review noted that many measurements taken by unbiased agencies and entities lie outside the data range Perma-Fix measured in the DEP TENORM Study.

“For example, the New York State DEC has measured rock cuttings from Susquehanna County, Pennsylvania that far exceed the range of values Perma-Fix measured. And Duke University measured sediments downstream from a Pennsylvania Publicly Owned Treatment Works that far exceeded the range of values found by Perma-Fix.” *Id.* at p. 1.

59. Perma-Fix did not conduct any sampling of radon (described below) in homes, yet reached the conclusion in the DEP TENORM Study that radon exposure in homes is not an issue. See TENORM Study.

60. Radium-226 has a half-life of 1,600 years, so it will be present in the environment for thousands of years. It is also water soluble, meaning it easily travels with water via streams and rivers. One of its decay products, radon, is an inert but radioactive gas, allowing it to travel with natural gas from fugitive gas emissions throughout the natural gas distribution network. When natural gas is used in home furnaces or stoves, radon gas is released and creates an increase in radon in the home, exposing citizens and creating an increased risk of lung cancers. (Radon gas is the 2nd leading cause of lung cancer worldwide). See DRKN Review.

61. The Department never tested Appellant's Property or Home for radon gas.

62. In accordance with Pennsylvania regulations, including under Title 25, Chapter 287.54, Chevron Appalachia was required to test its waste for radioactivity at the wellhead; the Department has never provided those analyses or other information to Appellant with respect to the chemical makeup of the tons of waste generated at the well site.

63. The maximum contaminant limit for drinking water in a public water system is 5 pCi/L for combined Ra-226 + Ra-228 (40 CFR 141.66(b)) and the maximum ground contamination limit for combined Ra-226 + Ra-228 is 5 pCi/g in the top 15 cm of soil and 15 pCi/g below 15 cm (40 CFR 192.32(b)(2)).

64. Out of the well sites surveyed in the DEP's TENORM study, the average level of radium-226 in drilling fluids was 2,990 pCi/L. In fracturing fluid, the average level was 5,287.81 pCi/L; and in flowback fluid, the average was 8,489 pCi/L. See DEP TENORM Study.

65. The Department's prior radiation testing Appellant's Property only included water testing for radium 226 and 228 as follows: (08/02/11) (Exhibit PP, Part 1, p. 11)) (10/30/18, (Exhibit PP, Part 1, p. 155)), (12/03/19 (Exhibit PP, Part 2, p. 53)); no explanation of the results or discussions of testing for other radionuclides were ever provided by the Department.

66. Appellant has requested radiation testing from the Department on numerous occasions, including with respect to the most recent investigation; the Department refused to do any testing for radiation of the Property's air, water, or soil. See Exhibit CC.

67. In March 2021, Appellant's Property, including soil samples, was included in a study being performed by Wayne State University, and the results were provided to Appellant in

the form of an excel spreadsheet, which was sent to the Department on March 24, 2023. *See Exhibit DD.*

68. Instead of ordering radiation testing to confirm the results in the Wayne State Study, or assisting in the gathering of information related thereto, the Determination Letter stated:

“The Department understands from ongoing discussion that concern remains regarding soil and air on your property. Summaries of soil sampling were provided to the Department during this complaint investigation, but data to support those results has not yet been received, including location data, certified results, and quality control/quality assurance data documentation. The program assigned to this complaint (Southwest District Oil and Gas District) has informed the Regional Director of the Department’s Southwest Regional Office about continued concerns regarding soil and air that you have expressed during the course of this investigation.”

69. Appellant arranged for Appellant’s water to be sampled for radiation on September 30, 2022 and for one sample, the total norm gamma was 124.196 and total norm was 332.428 and for the second sample, total norm gamma was 129.282 and total norm was 136.265; One of the samples detected 121.670 pCi/L of K(potassium)-40. *See Exhibit EE.*

70. These results were also sent to the Department yet were not included in the Department’s investigation as outlined in the Determination Letter nor was any other follow-up performed. *See Grand Jury Report, p. 55 “Failure to Test”:*

“We heard much testimony, however, indicating that DEP employees often approached these issues with less gravity than, in our view, they deserved. In many cases, DEP water quality specialists, relying on outmoded or overly restrictive testing parameters, would declare water to be clean and would “close” the investigation in the face of a homeowner’s knowledge that something was wrong. We remember one employee in particular who admitted in his testimony that, as he saw it, his duty prevented him from putting a “monetary hit” on an operator unless he could “prove that this water is being impacted by this activity.””

71. Chevron sent its radioactive waste from the Latkanich 1H and the Latkanich 2H to various locations, including radioactive sludge delivered across state lines to the AMS Martins Ferry Facility in Ohio, produced water for reuse at various well sites in Pennsylvania and across state lines in West Virginia, produced water for road spreading in Crawford County, Pennsylvania, and to various landfills and wastewater treatment facilities, all as reported to the Department by the Chevron Defendants, and all of which may have contained PFAS. *See infra; see Exhibit FF.*

Appellant’s Air and Water Testing Results

72. Appellant sent the Department test results from the sampling of the Property’s air

and Private Water Well that was performed in July and August 2019 as part of a health study (“Study”) as recently as March 16, 2023; the Department did not include this testing in its investigation or in the Determination Letter. See Exhibit GG.

73. The water test results from the Study are as follows (p. 11):

Measurements are in parts per billion (ppb)

Chemical	Potential Health Effects*	Your Kitchen Tap	Your Bathtub	Your Outdoor Hose	Median for Our study
Benzene	Anemia; decrease in blood platelets; increased risk of cancer	—	—	—	2.28
2-pentanone	Digestive tract irritation	—	—	—	.
Heptane	Nervous system problems	—	—	5.89	9.36
Methyl Cyclohexane	Irritation of nose, throat, and digestive tract; lung damage	—	—	—	—
Toluene	Nervous system, kidney, or liver problems	—	—	—	23.6
Octane	Irritation of nose, throat, and lungs; headache, dizziness	—	—	—	1.94
Ethyl Cyclohexane	Headache, dizziness, tiredness, nausea, vomiting	—	—	—	1.16
Ethylbenzene	Liver or kidneys problems	—	—	—	1.11
M-xylene	Nervous system damage	—	—	—	0.52
P-xylene	Nervous system damage	—	—	—	0.52
4-heptanone	Irritation of eyes and skin, central nervous system depression, dizziness, drowsiness, decreased breath, liver damage	—	—	—	—
Allyl-isothiocyanate	Irritation of eyes, throat, nose, and skin	—	—	—	—
2-heptanone	Irritation to the skin, eyes, and, respiratory system; headaches, vomiting, and nausea.	—	—	—	—
Styrene	Liver, kidney, or circulatory system problems	—	—	—	—
O-xylene	Nervous system damage	—	1.16	—	1.16
N-nonane	Skin irritation, dizziness, liver damage	—	—	—	4.06
Cumene	Nervous system and kidney problems	—	—	—	—
Propylbenzene	Irritation of eyes nose, throat, and skin; headache, nausea, dizziness, drowsiness	—	—	—	—
M-ethyltoluene	Unknown	—	—	—	—
P-ethyltoluene	Unknown	—	—	—	—
1,3,5-trimethylbenzene	Skin and eye irritation, liver and respiratory damage, anemia	—	—	—	0.97
4-isothiocyanate-1-butene	Unknown	—	—	—	—
1,2,4-trimethylbenzene	Respiratory, nervous, and blood system problems	—	—	—	—
N-decane	Irritation of nose, throat, and lungs; dizziness	—	—	—	—
2-ethylhexanol-1	Irritation of nose, throat, and lungs; dizziness, nausea, headache, nervous system problems	—	—	—	1.47
1,2,3-trimethylbenzene	Nervous system damage	—	—	—	1.12
D-limonene	Eye, skin, and gastrointestinal irritation	—	—	—	1.98
Butyl Cyclohexane	Unknown	1.12	—	1.18	1.13
Diethylbenzenes	Irritation of skin, nose, and throat; headache, nausea, vomiting, dizziness; liver and kidney damage	—	—	—	—
Diethylbenzene Isomer	Unknown	—	—	—	—
N-undecane	Skin and eye irritation	—	1.16	1.18	2.34
1,2,4,5-tetramethylbenzen	Unknown	—	—	1.18	1.09

N-dodecane	Nausea, vomiting, dizziness, weakness, central nervous system and respiratory damage	2.25	3.48	2.36	3.37
Naphthalene	Damage to blood cells, increased cancer risk	4.5	6.96	4.71	5.83
Carvone	Skin irritation	—	—	—	—
Tridecane	Skin irritation, headache	2.25	3.48	2.355	3.21
2-methylnaphthalene	Skin irritation	4.5	9.29	5.888	5.97
1-methylnaphthalene	Skin irritation	2.25	3.48	2.355	3.41
Tetradecane	Nausea, vomiting and diarrhea; central nervous system problems	3.37	4.64	3.533	4.4
Pentadecane	Skin and eye irritation	4.5	5.8	4.711	5.62

74. Multiple of the chemicals detected are listed on the attached spreadsheet prepared by the EPA detailing chemicals reportedly used in hydraulic fracturing fluids and/or detected in hydraulic fracturing wastewater. *See Exhibit HH.*

75. Appellant wore an air monitor on July 23, 2019 and on August 5, 2019, and those results are listed below. Appellant’s air monitor recorded the highest level of 4-Heptanone seen in the study on July 24, 2019. *See Study at 9.*

Measurements are in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Chemical	Potential Health Effects*	Level in your air		Median for Our Study
		July 23, 2019	August 5, 2019	
1,2,3-Trimethylbenzene	Dizziness; headaches; tiredness; blood clotting issues; lung irritation; eye and skin irritation; increased cancer risk	0.071	0.236	0.79
1,2,4,5-Tetramethylbenzene	Nervous system problems; respiratory irritation	0.022	0.136	0.26
1,2,4-Trimethylbenzene	Respiratory, nervous, and blood system problems; increased cancer risk	0.234	0.661	1.98
1,3,5-Trimethylbenzene	Nervous system damage; increased cancer risk	0.062	0.139	0.51
1-Dodecanol	Skin, eye, and respiratory irritation	0.186	0.175	1.22
1-Methylnaphthalene	Skin irritation	0.016	0.022	0.13
2 Ethyl 1 Hexanol	Respiratory irritation; nervous system damage; liver and kidney problems	0.504	0.607	3.81
2-Heptanone	Skin and eye irritation; respiratory and nervous system problems	0.026	0.039	0.3
2-Methylnaphthalene	Skin irritation	0.029	0.045	0.27
4-Heptanone	Eye and skin irritation; central nervous system damage; liver problems	0.012	—	0.11
Alpha-Pinene	Headache; nausea; vomiting; central nervous system issues; skin, eye, and respiratory irritation; kidney damage	0.026	0.031	0.74
Benzaldehyde	Eye, skin, and respiratory irritation; dizziness	0.768	1.192	3.4
Benzene	Anemia; decrease in blood platelets; increased cancer risk	0.635	0.698	1.01
Butylcyclohexane	Respiratory irritation; central nervous system problems; drowsiness and dizziness; lung damage	0.043	0.031	0.18
Cumene	Headache; dizziness and drowsiness; central nervous system problems; eye and skin irritation; kidney and liver damage; increased cancer risk	0.026	0.041	0.14
Decanal	Eye and skin irritation; respiratory problems; gastrointestinal problems	8.744	6.555	3.74
Decane	Irritation of nose, throat, and lungs; dizziness	0.099	0.194	1.95
D-Limonene	Skin irritation	0.136	0.098	5.51

Dodecane	Skin and respiratory irritation	0.112	0.335	1.24
Ethylbenzene	Liver or kidneys problems; increased cancer risk	0.283	0.403	1.11
Ethylcyclohexane	Skin, eye, and respiratory irritation; dizziness and drowsiness; central nervous system problems	0.088	0.069	0.25
Heptanal	Skin, eye, and respiratory irritation	0.652	0.841	1.55
Hexanal	Headache; respiratory, eye, and skin irritation	0.899	0.828	2.01
M/P-Diethylbenzene	Irritation of skin, nose, and throat; headache, nausea, vomiting, dizziness; liver and kidney damage	0.041	0.127	0.42
M/P-Ethyltoluene	Eye, skin, and respiratory irritation	0.435	0.779	2.26
m/p-Xylene	Nervous system damage; increased cancer risk	0.45	0.946	1.88
Methyl salicylate	Eye, skin, and respiratory irritation; central nervous system and gastrointestinal problems; liver and kidney damage	0.162	0.204	0.4
Naphthalene	Neurological damage, liver damage, eye damage, increased cancer risk	0.2	0.11	0.53
N-Nonane	Skin irritation, dizziness, liver damage	0.389	0.422	1.3
N-Octanal	Headache, nausea, dizziness, eye and skin irritation, pulmonary tract irritation, central nervous system problems	1.438	1.834	2.81
N-Propylbenzene	Skin and eye irritation, headache, nausea, vomiting	0.056	0.128	0.36
Octane	Respiratory, skin, and eye irritation; dizziness and headache	1.355	—	2.54
O-Diethylbenzene	Respiratory, skin, and eye irritation	0.123	0.59	1.22
O-Xylene	Nervous system damage; increased cancer risk	0.331	0.589	1.43
Pentadecane	Skin and eye irritation	0.179	0.166	0.94
Styrene	Liver, kidney, or circulatory system problems; increased cancer risk	0.029	0.021	0.58
Tetradecane	Nausea, vomiting and diarrhea; central nervous system problems	0.15	0.269	1.54
Toluene	Nervous system, kidney, or liver problems; increased cancer risk	1.856	4.539	16.21
Tridecane	Skin irritation, headache	0.139	0.321	0.6
Undecane	Skin and eye irritation	0.21	0.28	1.3

76. Appellant's son, 9 years old at the time, also wore an air monitor on July 23, 2019 and August 5, 2019, and those results are listed below. Ryan's air monitor recorded the highest levels of Benzaldehyde, m/p-Ethyltoluene, and 1-Dodecanol seen in the Study on August 5, 2019. See Study at 10.

Measurements are in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Chemical	Potential Health Effects*	Level in your air		Median for Our Study
		July 23, 2019	August 5, 2019	
1,2,3-Trimethylbenzene	Dizziness; headaches; tiredness; blood clotting issues; lung irritation; eye and skin irritation; increased cancer risk	0.313	0.216	0.79
1,2,4,5-Tetramethylbenzene	Nervous system problems; respiratory irritation	0.096	0.262	0.26
1,2,4-Trimethylbenzene	Respiratory, nervous, and blood system problems; increased cancer risk	1.011	0.488	1.98
1,3,5-Trimethylbenzene	Nervous system damage; increased cancer risk	0.306	—	0.51
1-Dodecanol	Skin, eye, and respiratory irritation	2.864	17.632	1.22
1-Methylnaphthalene	Skin irritation	0.066	0.059	0.13
2 Ethyl 1 Hexanol	Respiratory irritation; nervous system damage; liver and kidney problems	4.499	10.095	3.81

	Skin and eye irritation; respiratory and nervous system problems	0.183	—	0.3
2-Heptanone				
2-Methylnaphthalene	Skin irritation	0.141	0.062	0.27
4-Heptanone	Eye and skin irritation; central nervous system damage; liver problems	0.118	—	0.11
Alpha-Pinene	Headache; nausea; vomiting; central nervous system issues; skin, eye, and respiratory irritation; kidney damage	0.148	—	0.74
Benzaldehyde	Eye, skin, and respiratory irritation; dizziness	6.064	31.89	3.4
Benzene	Anemia; decrease in blood platelets; increased cancer risk	0.748	4.079	1.01
Butylcyclohexane	Respiratory irritation; central nervous system problems; drowsiness and dizziness; lung damage	—	—	0.18
Cumene	Headache; dizziness and drowsiness; central nervous system problems; eye and skin irritation; kidney and liver damage; increased cancer risk	0.078	—	0.14
Decanal	Eye and skin irritation; respiratory problems; gastrointestinal problems	20.046	24.697	3.74
Decane	Irritation of nose, throat, and lungs; dizziness	0.403	—	1.95
D-Limonene	Skin irritation	1.272	4.056	5.51
Dodecane	Skin and respiratory irritation	1.566	—	1.24
Ethylbenzene	Liver or kidneys problems; increased cancer risk	0.455	0.324	1.11
Ethylcyclohexane	Skin, eye, and respiratory irritation; dizziness and drowsiness; central nervous system problems	—	—	0.25
Heptanal	Skin, eye, and respiratory irritation	0.372	—	1.55
Hexanal	Headache; respiratory, eye, and skin irritation	1.253	—	2.01
M/P-Diethylbenzene	Irritation of skin, nose, and throat; headache, nausea, vomiting, dizziness; liver and kidney damage	0.196	—	0.42
M/P-Ethyltoluene	Eye, skin, and respiratory irritation	2.37	9.475	2.26
m/p-Xylene	Nervous system damage; increased cancer risk	1.348	0.491	1.88
Methyl salicylate	Eye, skin, and respiratory irritation; central nervous system and gastrointestinal problems; liver and kidney damage	0.503	0.473	0.4
Naphthalene	Neurological damage, liver damage, eye damage, increased cancer risk	0.392	0.323	0.53
N-Nonane	Skin irritation, dizziness, liver damage	0.487	—	1.3
N-Octanal	Headache, nausea, dizziness, eye and skin irritation, pulmonary tract irritation, central nervous system problems	3.176	—	2.81
N-Propylbenzene	Skin and eye irritation, headache, nausea, vomiting	0.245	0.112	0.36
Octane	Respiratory, skin, and eye irritation; dizziness and headache	—	—	2.54
O-Diethylbenzene	Respiratory, skin, and eye irritation	0.419	1.224	1.22
O-Xylene	Nervous system damage; increased cancer risk	0.976	0.291	1.43
Pentadecane	Skin and eye irritation	0.433	0.471	0.94
Styrene	Liver, kidney, or circulatory system problems; increased cancer risk	0.333	0.74	0.58
Tetradecane	Nausea, vomiting and diarrhea; central nervous system problems	0.533	0.765	1.54
Toluene	Nervous system, kidney, or liver problems; increased cancer risk	5.575	21.183	16.21
Tridecane	Skin irritation, headache	0.423	0.828	0.6
Undecane	Skin and eye irritation	0.5	0.49	1.3

77. In 2019, Flir video was taken on the well site with a Flir GF320 camera, which detects and captures hydrocarbon and volatile organic compound (VOC) emissions from natural gas production and use; the Flir video clearly captures emissions that came from the well site in 2019. See <https://www.youtube.com/watch?v=GJJuAhKIS3M> (August 2019),

<https://www.youtube.com/watch?v=xx3HTq8BTC4> (November 2019), and
<https://www.youtube.com/watch?v=Ni0BhCvGzTA> (December 2019).

Toxicology Testing of Appellant and Minor Child Ryan Latkanich

78. The Study also included toxicology testing for Appellant and his son, Ryan.

79. Appellant and his son Ryan have had ongoing medical issues and health complications while living next to the Operations.

80. Most recently, Appellant had a heart attack on March 11, 2023 and his diagnosis of stage IV kidney failure was confirmed; Appellant has suffered with neuropathy and has unexplainedly not been able to walk at times.

81. Toxicology results from six urine samples taken over 3 visits from Appellant in July and August 2019 and as set forth on p. 5 of the Study were:

Urine Testing Results - Metabolites: Bryan Latkanich

All measurements are creatinine-adjusted parts per million (ppm)

Metabolite	Parent Chemical (s)	Potential Health Effects*	Metabolite levels in your urine			Median for U.S. Population	95th percentile for U.S. Population	Median for Our Study
			7/24/19	8/5/19	8/19/19			
Hippuric acid	Toluene, Cinnamaldehyde	Nervous system, kidney, or liver problems; skin irritation; increased cancer risk	304.048	104.885	226.938	18,000	360.000	170.783
2-hydroxy-N-methylsuccinimide	N-Methyl-2-pyrrolidone (NMP)	Skin, eye, and respiratory irritation; kidney, liver, and nervous system problems; reproductive harm in pregnant individuals	410.674	381.153	322.324	N/A	N/A	250.594
Mandelic acid	Ethylbenzene, Styrene	Liver, kidney, or circulatory system problems; increased cancer risk	1,492	3,096	1,229	124	408	2,315
4-Methylhippuric acid	Xylene	Headache, dizziness, drowsiness, nausea, tiredness, nervous system damage; eye, skin, and lung irritation; increased cancer risk	442	167	317	210	1500	230
2-Methylhippuric acid	Xylene	Headache, dizziness, drowsiness, nausea, tiredness, nervous system damage; eye, skin, and lung irritation; increased cancer risk	165	194	224	40	276	106
3-Methylhippuric Acid	Xylene	Headache, dizziness, drowsiness, nausea, tiredness, nervous system damage; eye, skin, and lung irritation; increased cancer risk	85	193	135	210	1500	96
Alpha-Naphthyl Glucuronide	Naphthalene	Skin and eye irritation; nausea, vomiting, abdominal cramps, diarrhea; nervous system problems, kidney problems, jaundice, anemia	191	297	362	N/A	N/A	264
Beta-Naphthyl Sulphate	Naphthalene	Skin and eye irritation; nausea, vomiting, abdominal cramps, diarrhea; nervous system problems, kidney problems, jaundice, anemia	46	43	71	N/A	N/A	61
Phenylglyoxylic Acid	Ethylbenzene, Styrene	Liver, kidney, or circulatory system problems; increased cancer risk	940	1,971	1,488	210	520	741
Trans, Trans-Muconic Acid	Benzene	Anemia; decrease in blood platelets; increased risk of cancer	354	1,052	797	77	470	436
2-Pyrrolidone	N-Methyl-2-pyrrolidone (NMP)	Skin, eye, and respiratory irritation; kidney, liver, and nervous system problems; birth defects in pregnant individuals	5,040	6,884	6,941	N/A	N/A	4,239

Urine Testing Results - Parent Compounds: Bryan Latkanich

All measurements are creatinine-adjusted parts per million (ppm)

Compound	Potential Health Effects*	Levels in your urine			Median for Our study
		7/23/19	8/6/19	8/19/19	
1,2,3-Trimethylbenzene	Skin and eye irritation, liver and respiratory damage, anemia, increased cancer risk	—	—	—	0.32
1,2,4,5-Tetramethylbenzene	Nervous system problems; respiratory irritation	—	—	—	—
1,2,4-Trimethylbenzene	Skin and eye irritation, liver and respiratory damage, anemia, increased cancer risk	—	—	—	1.07
1,3,5-Trimethylbenzene	Skin and eye irritation, liver and respiratory damage, anemia, increased cancer risk	—	—	—	—
1-Methylnaphthalene	Skin irritation	—	—	—	—
2-Ethylhexanol-1	Irritation of nose, throat, and lungs; dizziness, nausea, headache, nervous system problems	—	—	47.36	14.83
2-Heptanone	Irritation to the skin, eyes, and, respiratory system; headaches, vomiting, and nausea.	—	—	—	14.25
2-Methylnaphthalene	Skin irritation	—	—	—	1.92
2-Pentanone	Digestive tract irritation	62.75	218.52	11.00	182.26
4-Heptanone	Irritation of eyes and skin, central nervous system depression, dizziness, drowsiness, decreased breath, liver damage	10.11	—	—	42.53
4-isothiocyanato-1-butene	Skin, eye, and respiratory irritation or damage; difficulty breathing, kidney, urinary tract, and bladder problems, reproductive harm in pregnant individuals	—	—	—	—
Allyl isothiocyanate	Skin, eye, and respiratory irritation; difficulty breathing	—	—	—	51.13
Alpha-Pinene	Headache; nausea; vomiting; central nervous system issues; skin, eye, and respiratory irritation; kidney damage	—	—	—	—
Benzene	Anemia; decrease in blood platelets; increased cancer risk	1.36	2.41	1.83	0.72
Butylcyclohexane	Respiratory irritation; central nervous system problems; drowsiness and dizziness; lung damage	—	—	—	—
Carvone	Skin irritation	—	—	—	80.26
Cumene	Eye, skin, gastrointestinal and respiratory irritation; tiredness, irritability; kidney, urinary tract, and bladder problems; reproductive harm in pregnant individuals; increased cancer risk	—	—	—	—
Decane	Irritation of nose, throat, and lungs; dizziness	6.22	—	12.67	4.54
D-Limonene	Eye, skin, and gastrointestinal irritation	—	—	—	1.13
Dodecane	Skin and respiratory irritation	—	—	—	2.73
Ethylbenzene	Eye and skin irritation; liver or kidney problems; reproductive harm in pregnant individuals; increased cancer risk	—	—	—	0.49
Ethylcyclohexane	Skin, eye, and respiratory irritation; dizziness and drowsiness; central nervous system problems	—	—	—	2.86
Heptane	Nervous system problems	3.83	9.77	24.30	3.86
M/P-Diethylbenzene	Irritation of skin, nose, and throat; headache, nausea, vomiting, dizziness; liver and kidney damage	—	—	—	—
M/P-Ethyltoluene	Eye, skin, and respiratory irritation	—	—	—	—
M/P-Xylene	Nervous system damage; increased cancer risk	—	—	—	0.33
Methyl Salicylate	Eye, skin, and respiratory irritation; central nervous system and gastrointestinal problems; liver and kidney damage	—	—	—	3.71
Methylcyclohexane	Skin and eye irritation; dizziness or drowsiness	—	—	—	0.73
Naphthalene	Damage to blood cells, increased cancer risk	—	2.84	—	1.77
Nonane	Skin irritation, dizziness, liver damage	—	—	—	0.66
N-Propylbenzene	Skin and eye irritation, headache, nausea, vomiting	—	—	—	—
Octane	Irritation of nose, throat, and lungs; headache, dizziness	2.18	—	6.30	2.35
O-Diethylbenzene	Respiratory, skin, and eye irritation	—	—	—	—
O-Xylene	Nervous system damage; increased cancer risk	—	—	—	1.19
Pentadecane	Skin and eye irritation	—	—	—	10.04
Styrene	Liver, kidney, or circulatory system problems; increased cancer risk	—	—	—	—
Tetradecane	Nausea, vomiting and diarrhea; central nervous system problems	—	—	—	1.47
Toluene	Nervous system, kidney, or liver problems; increased cancer risk	2.38	5.41	4.72	1.65
Tridecane	Skin irritation, headache	—	—	—	—
Undecane	Skin and eye irritation	14.68	46.90	57.60	19.42

82. Appellant’s results are summarized from the Study as follows:

- a. All six of Appellant’s samples exceeded the U.S. 95th percentile for Mandelic acid, a metabolite for Ethylbenzene and Styrene, as high as 25 times as the U.S. median and eight times as high as the 95th percentile, and for Phenylglyoxylic acid, a metabolite of Ethylbenzene and Styrene.
- b. Four of the six samples exceeded the U.S. 95th percentile for trans, trans-muconic acid, a metabolite for Benzene.
- c. All six of the samples exceeded the U.S. median for Hippuric acid (a metabolite for Toluene and Cinnamaldehyde), Mandelic acid (a metabolite for Ethylbenzene and Styrene), 2-Methylhippuric acid (a metabolite for Xylene), Phenylglyoxylic acid (a metabolite for Ethylbenzene and Styrene), and Trans, trans-Muconic acid (a metabolite for Benzene).

83. Toxicology results from six urine samples taken from Ryan Latkanich, who was 9 years old at the time, in July and August 2019 were reported in the Study on p. 6 as:

Urine Testing Results - Metabolites: Ryan Latkanich
All measurements are creatinine-adjusted parts per million (ppm)

Metabolite	Parent Chemical (s)	Potential Health Effects*	Metabolite levels in your urine			Median for U.S. Population	95th percentile for U.S. Population
			7/24/19	8/5/19	8/19/19		
Hippuric acid	Toluene, Cinnamaldehyde	Nervous system, kidney, or liver problems; skin irritation; increased cancer risk	1,646,215	85,062	327,594	18,000	360,000
2-hydroxy-N-methylsuccinimide	N-Methyl-2-pyrrolidone (NMP)	Skin, eye, and respiratory irritation; kidney, liver, and nervous system problems; reproductive harm in pregnant individuals	526,248	453,510	257,164	N/A	N/A
Mandelic acid	Ethylbenzene, Styrene	Liver, kidney, or circulatory system problems; increased cancer risk	5,193	2,272	3,891	124	408
4-Methylhippuric acid	Xylene	Headache, dizziness, drowsiness, nausea, tiredness, nervous system damage; eye, skin, and lung irritation; increased cancer risk	2,723	148	727	210	1500
2-Methylhippuric acid	Xylene	Headache, dizziness, drowsiness, nausea, tiredness, nervous system damage; eye, skin, and lung irritation; increased cancer risk	178	81	544	40	276
3-Methylhippuric Acid	Xylene	Headache, dizziness, drowsiness, nausea, tiredness, nervous system damage; eye, skin, and lung irritation; increased cancer risk	304	78	272	210	1500
Alpha-Naphthyl Glucuronide	Naphthalene	Skin and eye irritation; nausea, vomiting, abdominal cramps, diarrhea; nervous system problems, kidney problems, jaundice, anemia	1,928	249	266	N/A	N/A
Beta-Naphthyl Sulphate	Naphthalene	Skin and eye irritation; nausea, vomiting, abdominal cramps, diarrhea; nervous system problems, kidney problems, jaundice, anemia	58	21	45	N/A	N/A
Phenylglyoxylic Acid	Ethylbenzene, Styrene	Liver, kidney, or circulatory system problems; increased cancer risk	1,826	956	3,266	210	520
Trans, Trans-Muconic Acid	Benzene	Anemia; decrease in blood platelets; increased risk of cancer	1,129	264	2,112	77	470
2-Pyrrolidone	N-Methyl-2-pyrrolidone (NMP)	Skin, eye, and respiratory irritation; kidney, liver, and nervous system problems; birth defects in pregnant individuals	9,633	5,009	6,736	N/A	N/A

Urine Testing Results - Parent Compounds: Ryan Latkanich

All measurements are creatinine-adjusted parts per million (ppm)

Compound	Potential Health Effects*	Levels in your urine			Median for Our study
		7/23/19	8/6/19	8/19/19	
1,2,3-Trimethylbenzene	Skin and eye irritation, liver and respiratory damage, anemia, increased cancer risk	—	—	—	0.32
1,2,4,5-Tetramethylbenzene	Nervous system problems; respiratory irritation	—	—	—	—
1,2,4-Trimethylbenzene	Skin and eye irritation, liver and respiratory damage, anemia, increased cancer risk	—	—	—	1.07
1,3,5-Trimethylbenzene	Skin and eye irritation, liver and respiratory damage, anemia, increased cancer risk	—	—	—	—
1-Methylnaphthalene	Skin irritation	—	—	—	—
2-Ethylhexanol-1	Irritation of nose, throat, and lungs; dizziness, nausea, headache, nervous system problems	—	10.24	—	14.83
2-Heptanone	Irritation to the skin, eyes, and, respiratory system; headaches, vomiting, and nausea.	—	—	—	14.25
2-Methylnaphthalene	Skin irritation	—	—	—	1.92
2-Pentanone	Digestive tract irritation	109.53	74.56	—	182.26
4-Heptanone	Irritation of eyes and skin, central nervous system depression, dizziness, drowsiness, decreased breath, liver damage	65.50	—	20.62	42.53
4-isothiocyanato-1-butene	Skin, eye, and respiratory irritation or damage; difficulty breathing, kidney, urinary tract, and bladder problems, reproductive harm in pregnant individuals	—	—	—	—
Allyl isothiocyanate	Skin, eye, and respiratory irritation; difficulty breathing	53.14	—	—	51.13
Alpha-Pinene	Headache; nausea; vomiting; central nervous system issues; skin, eye, and respiratory irritation; kidney damage	—	—	—	—
Benzene	Anemia; decrease in blood platelets; increased cancer risk	—	0.93	1.84	0.72
Butylcyclohexane	Respiratory irritation; central nervous system problems; drowsiness and dizziness; lung damage	—	—	—	—
Carvone	Skin irritation	—	—	—	80.26
Cumene	Eye, skin, gastrointestinal and respiratory irritation; tiredness, irritability; kidney, urinary tract, and bladder problems; reproductive harm in pregnant individuals; increased cancer risk	—	—	—	—
Decane	Irritation of nose, throat, and lungs; dizziness	29.90	—	6.31	4.54
D-Limonene	Eye, skin, and gastrointestinal irritation	—	—	—	1.13
Dodecane	Skin and respiratory irritation	—	—	—	2.73
Ethylbenzene	Eye and skin irritation; liver or kidney problems; reproductive harm in pregnant individuals; increased cancer risk	—	—	—	0.49
Ethylcyclohexane	Skin, eye, and respiratory irritation; dizziness and drowsiness; central nervous system problems	—	—	11.22	2.86
Heptane	Nervous system problems	7.65	3.23	24.00	3.86
M/P-Diethylbenzene	Irritation of skin, nose, and throat; headache, nausea, vomiting, dizziness; liver and kidney damage	—	—	—	—
M/P-Ethyltoluene	Eye, skin, and respiratory irritation	—	—	—	—

84. Ryan’s results are summarized from the Study as follows:

- d. Hippuric acid in Ryan’s urine were more than 91 times as high as the U.S. median and nearly five times as high as the U.S. 95th percentile. Hippuric acid is a metabolite for Toluene and Cinnamaldehyde.
- e. Mandelic acid in his samples was nearly 42 times as high as the U.S. median and nearly 13 times as high as the U.S. 95th percentile. Mandelic acid is a metabolite for Ethylbenzene and Styrene.
- f. 2-Methylhippuric acid, a metabolite of Xylene, in his samples were at a level nearly 14 times as high as the U.S. median, nearly five times as high as the median detected in families in non-fracking regions, and nearly twice as high as the U.S. 95th percentile.
- g. Phenylglyoxylic acid is a metabolite of Ethylbenzene and Styrene and Ryan’s level of this compound was nearly 16 times as high as the U.S. median and more than six times higher than the U.S. 95th percentile.
- h. Trans, transmuconic acid, a metabolite for benzene, was detected nearly 32 times

as high as the U.S. median and more than five times as high as the U.S. 95th percentile.

Toxicology Testing from UPMC

85. Appellant took his son Ryan to UPMC for toxicology testing when Ryan was 8 years old out of continued concern for Ryan's health. See Exhibit II.

86. On May 1, 2018 Ryan was diagnosed with "#1 hydraulic fracking/volatile hydrocarbon exposure" with differential diagnoses of "#1 respiratory irritation from hydrocarbon exposure, #2 neurotoxicity, # 3 radiation exposure." *Id.* at pp. 6 and 7.

87. Ryan had previously been chemically burned when taking a bath using the water from the Private Water Well in April 2013, and had also developed rashes. See Exhibit JJ.

88. Appellant sought immediate medical care for his child at the time.

89. On November 8, 2017, Dave McDermott, John Carson, and Mr. Eichenlaub visited the property to take water samples; Appellant described his ongoing concerns and showed them the photos of his son's rashes and chemical burns from 2013.

90. Later that day at 2:55 pm, Mr. Carson called Appellant and advised Appellant that Mr. Carson was going to contact the DOH and that Appellant should talk to his physician and his son's physician about what was occurring on the Property, that Appellant needed a reverse osmosis filter for their water supply, and that the Department did not have enough information to force Chevron to provide Appellant water.

91. On November 9, 2017, Appellant received a call from a representative of Children and Youth Services ("CYS"), who stated that they had received a call from someone who had seen pictures of Appellant's son with welts and sores from oil and gas operations.

92. The representative from CYS visited the Property, and Appellant showed her the photos, copies of his files on this matter, and names of those within the Department who had been at the Property.

93. The representative immediately closed the file and advised Appellant that she believed the report CYF received was "retaliatory in nature."

94. The Grand Jury's exhaustive investigation and findings support Appellant's concerns and the treatment that he and his child were receiving:

“We learned that kids get sick from airborne contamination not just because of some faulty industry operation, such as a malfunctioning compressor station, or practices that are no longer commonplace, like the use of wastewater impoundments. We know that air contamination is not limited to anomalous, outdated, or unintended industry activities. Indeed, the exact opposite is true. Standard operating procedure under Pennsylvania’s current legal and regulatory regime exposes those living in close proximity to fracking operations to possible exposure and health risks. Pennsylvania needs to resolve this problem by requiring industry sites be far more distant from where we live and work. The current 500 foot standard is woefully inadequate.” p. 39

Parents invariably feared what exposure to fracking operations posed to their children's health and future, as any parent would. There are simply too many people who have suffered similar harms in communities throughout Pennsylvania where fracking occurs to disregard the damage caused by this industry's operations. This reality necessitates laws and regulations capable of protecting those put at risk by fracking, and a government willing to enforce them. For too long, Pennsylvania has failed to live up to its responsibility to its people in both respects. p. 22.

One witness recounted:

“I took my son [] to the doctor and he referred me to Children’s Hospital for his rash. . . . I went in there and after several times of going to [the doctor’s] office, she said that there was nothing she could do for me. Then she said her advice was to get an attorney or move. And then that’s when I thought, I can’t live – why is this happening? And that’s when I thought, I can’t move. I’m going to sell this house to somebody else and let this happen to somebody else or somebody else’s kid? I couldn’t do it. So that’s when we just decided we really have to, as a family, just watch out for one another and my two neighbors and just not go outside.” p. 45

Environmental testing at their homes, when properly conducted, would confirm the presence of airborne contaminants. Medical testing would likewise reveal that chemicals associated with industry operations were inside of their bodies. P. 37.

We heard the same account from witness after witness about the rashes their families would get from exposure to air contaminants. These rashes would appear on the frequently exposed parts of their bodies – their hands and arms, necks and faces – and would go away when they were away from home for a long enough period of time. P. 38

A constant theme in the stories we heard was that children suffered health effects from nearby oil and gas operations more than adults. In addition to severe and chronic rashes, headaches, and nosebleeds, we heard accounts of children experiencing lethargy, bruising, intense cramping, difficulty sleeping, and painful stomach problems, including nausea and vomiting. They had eye problems ranging from frequent burning sensations and conjunctivitis to partial blindness. We heard of young people suffering symptoms associated with neurological problems, like twitching and tremors, erratic and uncontrollable eye movements, and neuropathy, which involves weakness, numbness, and stabbing or burning sensations throughout the body. P. 39.

We heard clear and convincing evidence that leads us to conclude that industry operations in Pennsylvania have made our children sick. That is not a reality we are willing to accept, and the recommendations we propose will help to alleviate this problem. *Id.*

95. Almost four years ago, a group of parents whose children have been affected by rare cancers, including Ewing sarcoma, asked the state Department of Health to investigate

childhood cancers being diagnosed at disproportionately high rates in Southwestern Pennsylvania, where shale gas drilling, fracking, and infrastructure buildout have occurred. See Exhibit KK.

96. In 2019, the administration allocated \$3 million of taxpayer money on a pair of studies to explore the potential health effects of the natural gas industry, taking action after months of impassioned pleas by the families of childhood cancer patients who live in the most heavily drilled region of the state. *Id.*

97. Those studies, called the PA Health and Environment Studies, are purportedly still underway. *Id.*

98. On September 30, 2022 it was reported that the University of Pittsburgh School of Public Health and the state Department of Health said they would not participate in an October 5 public meeting they helped convene on studies looking at links between natural gas development and childhood cancer; four members of the studies' External Advisory Board resigned their positions, citing resistance to accountability and transparency to community members. *Id.*

Ongoing Failures and Improper Actions by the Department

99. In the midst of the issues at the Property, Chevron Appalachia's operations resulted in the death of an oil and gas worker in 2014 due to the lack of oversight by both the operator and the Department.

100. Specifically, the Department issued violations and entered into a Consent Agreement for Civil Penalty with Chevron Appalachia in connection with a well fire and the death of a worker from an incident ("Lanco Incident") stemming from February 11, 2014 through March 3, 2014 at the Lanco well site in Greene County, PA. See Exhibit LL ("Lanco Exhibit").

101. Hazardous chemicals, or their variants, detected during the investigation of the air testing in the Lanco Incident ("Well Fire Site") have also been detected in this matter.

102. However, the Lanco Incident and the issues at the Well Fire Site, the Chevron Violations, and the COA did not deter Chevron's actions on the Property and the contamination and health effects described herein continued because of the Department's failures to regulate and protect.

103. Appellant has kept a detailed file of this matter, and certain of the communications with the Department are as follows:

- a. In July 2016, Department representative Daniel Counahan advised Rodney Frezee of Chevron to fix Appellant's problems and for Rodney Frezee to contact

Chevron's civil department to take care of these problems.

- b. In January 2017, Appellant contacted the Department for an investigation, and the representative advised Appellant that the Department could not take any action because Chevron was "in talks" with Appellant.
- c. In February 2017, Chevron advised Appellant that Chevron would not pay to fix Appellant's foundation unless Appellant allowed Appellant to place ditches and pond on the Property.
- d. On February 9, 2017, Appellant contacted the Department to obtain a 21 day drip test for radiation, which was never performed.
- e. On February 10, 2017, Kristof Eichenlaub from the Department called Appellant at 1:41 pm and advised Appellant to get an attorney because Chevron was going to "try and take" Appellant's farm.
- f. On April 13, 2017, Mr. Eichenlaub called Appellant to advise Appellant of the bromide level and other compounds in the results, and that these were "indicative of contamination from gas drilling operations."
- g. On October 2, 2018, Mr. McDermott called Appellant to discuss additional testing. Appellant inquired about the violation from September 2018, and Mr. McDermott stated that there would be even more violations for improperly constructing the driveway to the pad, and that John Carson's violations from 2012 would be reopened with respect to the materials being discharged from the Pits.
- h. On June 5, 2019, Mr. McDermott sent Appellant a letter notifying Appellant that a "Section 3251 Conference" would be held six days later on June 11, 2019 to discuss the "Latkanich Well Restoration" at the Department's office located at 25 Technology Drive, Coal Center, PA 15423, which notification did not include any language regarding settlement under Rule 408. See attached Exhibit MM.
- i. Multiple Chevron representatives and multiple Department representatives, including counsel for each of the Department and Chevron attended this meeting.
- j. Appellant was not advised to obtain counsel prior to the meeting, nor was Appellant allowed to bring anyone into the meeting with him; once in the meeting, Appellant was advised that it was "binding arbitration."
- k. On February 21, 2020, Chevron representative Rodney Frazee visited Appellant

and advised Appellant that Chevron was planning to plug and abandon the wells; permission was sought for an alternate method of plugging and to leave the “sales line” on the Property.

- l. Appellant sent written correspondence to both the Department and Chevron with respect to these issues on March 6, 2020 and August 30, 2020, clearly objecting to the proposed plans and requesting that all waste and infrastructure be removed from the Property. *See* Exhibit NN.
- m. The Department sent a letter to Appellant dated May 18, 2022 with respect to an investigation, which is attached hereto as Exhibit OO.
- n. Appellant had requested follow-up from the Department multiple times, including with respect to an investigation plan for the Property, as well as to the status of the investigation. *See also* Exhibit OO.

104. The Department performed the testing on the Property as described in the Determination Letter attached as Exhibit A, and in addition to the PFAS that were detected, sampling from February 1, 2023 detected hardness above statewide standards or recommended levels, sodium above statewide standards or recommended levels, TDS above statewide standards or recommended levels, total coliform above statewide standards or recommended levels, iron bacteria, slime bacteria, and sulfur bacteria.

105. Appellant requested that the Department also test the Property’s air and soil on multiple occasions, which the Department did not perform, and the Determination Letter states:

“The Department understands from ongoing discussion that concern remains regarding soil and air on your property. Summaries of soil sampling were provided to the Department during this complaint investigation, but data to support those results has not yet been received, including location data, certified results, and quality control/quality assurance data documentation. The program assigned to this complaint (Southwest District Oil and Gas District) has informed the Regional Director of the Department’s Southwest Regional Office about continued concerns regarding soil and air that you have expressed during the course of this investigation.”

106. The Grand Jury Report further discusses the Department’s response with respect to communications with residents:

We heard, for example, from a homeowner who personally observed a spill occurring into the creek near his property. He saw the creek change color. He took video. He called DEP and described what was happening in real time. But nothing he said would convince the employee to come and look for himself. The employee said he had already talked to the

operators of the well, that they had assured him there was no danger to the creek, and that he therefore had no need of the homeowner's evidence. He threatened to have the homeowner prosecuted for filing a false report.

We heard testimony from other citizens who could get nowhere even when they went to the expense of hiring their own consultants to offer scientific analyses to DEP. The Department declined to review third party data from citizens, although we know that employees often accepted evidence from oil and gas operators. We heard from a DEP water quality specialist that he could not consider lab results provided by a homeowner, even when they came from the same lab regularly used by the industry. We heard from another homeowner that DEP not only refused to review her lab report, but also refused to do its own analysis to look for the compounds her report had revealed. P. 65

We also heard from a hydrologist at Penn State who had been called in to investigate well water that was milk-colored and frothing. The scientist performed extensive forensic lab testing to confirm that the foam had the same chemical signature as a drilling foam that was then being used at a nearby well site. But even this expert made no progress with DEP. P. 66

107. The Department has provided no follow-up to Appellant with respect to testing the Property's air and soil.

108. In Defendant Chevron Corporation's 2012 Annual 10-K Statement to the Securities and Exchange Commission, the year the Gas Wells were "fracked," the 10-K stated:

"The company's operations have inherent risks and hazards that require significant and continuous oversight. Chevron's results depend on its ability to identify and mitigate the risks and hazards inherent to operating in the crude oil and natural gas industry. The company seeks to minimize these operational risks by carefully designing and building its facilities and conducting its operations in a safe and reliable manner. However, failure to manage these risks effectively could result in unexpected incidents, including releases, explosions or mechanical failures resulting in personal injury, loss of life, environmental damage, loss of revenues, legal liability and/or disruption to operations. Chevron has implemented and maintains a system of corporate policies, behaviors and compliance mechanisms to manage safety, health, environmental, reliability and efficiency risks; to verify compliance with applicable laws and policies; and to respond to and learn from unexpected incidents. Nonetheless, in certain situations where Chevron is not the operator, the company may have limited influence and control over third parties, which may limit its ability to manage and control such risks." (emphasis added)

109. Chevron Corporation also stated in its 2022 Annual 10-K statement to the Securities and Exchange Commission that: "The company's operations have inherent risks and hazards that require significant and continuous oversight."

110. As evidenced by the Lanco Incident, the Chevron Violations and Consent Order, the Chevron Parties did not perform "significant and continuous oversight" of its operations in

Pennsylvania, and specifically not over its Operations on the Property, resulting in harm to Pennsylvania’s environment, the Property, and the health of Appellant and his family; the Department similarly failed and in doing so, violated applicable laws and the Pennsylvania Constitution.

111. Historical testing done by the Department, and as provided to Appellant by the Department, is attached hereto as Exhibit PP.

112. As noted in ¶ 28 above, the Department has known for many years that the water quality at the Appellant’s Property had deteriorated from baseline conditions.

113. It also bears repeating that the Department stated in its Determination Letter that PFAS could have been introduced by Chevron’s use of *fresh public water supplies having a widespread presence of PFAS* for fracking on the well site:

“Review of documents related to the well site did not reveal any direct evidence that PFAS chemicals were used during site construction, well drilling or completion activity, well production, well plugging, or site restoration. However, review of records did indicate that fresh water was used in the fluid mixture for stimulation activity on the Latkanich unconventional wells. This fresh water was obtained from multiple sources including municipal water authorities, which source surface water from the Monongahela River, Youghiogheny River and/or Tenmile Creek. Review of sample results from sampling conducted on surface water sources across Pennsylvania by the United States Geological Survey in summer 2019, indicated that PFAS was identified at several locations on the Monongahela and Youghiogheny Rivers and Tenmile Creek. Based upon the widespread presence of PFAS in these freshwater sources, PFAS-containing water may have inadvertently been used on the well pad during stimulation. No indication of an incident during fracturing was identified that would cause a release to groundwater, *but because the Water Supply is located downgradient of the well site, an impact from surface spills is possible.*” pp. 2-3. (emphasis added).

and

“While there was no evidence of PFAS use at the Latkanich well site, as discussed above, it is possible that PFAS chemicals were present in the fresh water utilized during stimulation activity at the Latkanich well site.” p. 4.

114. The implications surrounding the introduction of PFAS in private water supplies by oil and gas operators using public “fresh water” supplies for fracking are without precedent, and the lack of a meaningful response of the Department, while shocking, is not surprising, especially in light of the findings of the Grand Jury Report.

115. The Department has also publicly commented on this matter on multiple occasions. See Exhibit QQ.

ADDITIONAL OBJECTIONS

1. Appellant incorporates the above paragraphs herein.

2. This Appellant’s burden of proof in connection with this appeal is by a “preponderance of the evidence.” See *Kiskadden v. DEP*, 1167 C.D. 2015, (Pa. Commw. Ct 2016) citing:

"A preponderance of the evidence is such proof as leads the trier of fact to find that the existence of a contested fact is more probable than its nonexistence..." *Al Hamilton Contracting Co. v. Department of Environmental Resources*, 659 A.2d 31, 39 (Pa. Cmwlth. 1995). "A preponderance of the evidence standard, the lowest evidentiary standard, is tantamount to 'a more likely than not' inquiry." *Helwig v. Department of Transportation, Bureau of Driver Licensing*, 99 A.3d 153, 158 (Pa. Cmwlth. 2014) (quoting *Carey v. Department of Corrections*, 61 A.3d 367, 374 (Pa. Cmwlth. 2013))."

“Where the issues require scientific or specialized knowledge or experience to understand, such as the intricacies of drilling and the science of hydrogeology, expert testimony is required. *Brockway*, 131 A.3d at 587; *Department of Transportation v. Agricultural Lands Condemnation Approval Board*, 5 A.3d 821, 828-29 (Pa. Cmwlth. 2010). Notwithstanding, a party may meet its burden of proof with circumstantial evidence if it so preponderates in favor of a conclusion as to outweigh in the mind of the fact-finder any other evidence. *Al Hamilton*, 659 A.2d at 40.”

Here, the Private Water Well is hydrologically connected to the well site, but moreover, the evidence of this matter far exceeds a preponderance of the evidence standard – there simply is no other evidence that could lead a fact-finder to conclude that the pollution of Appellant’s water and air wasn’t from the Operations; there are also documented erosion sediment and control issues and discharges from the well site that directly affected the Private Water Well and Home.

3. The Department’s determination is arbitrary, capricious, unreasonable, an abuse of discretion, and in violation of the law and Appellant objects to the determination that the contamination of his water supply and the pollution of his air was not caused by oil and gas operations.

4. The Department made its determination after it omitted critical information in the Department’s possession as well information provided by Appellant while at the same time failing

to undertake a complete analysis of the entire set of facts at the time the determination was written.

5. Appellant's basis for objections is further supported by the Chevron Violations, the Consent Order, and Chevron's course of conduct in the Lanco Incident.

6. The Department failed to include the Chevron Violations and the Consent Order in its determination.

7. The Department admitted in its Determination that surface spills could impact and contaminate the Private Water Well, which is immediately adjacent to and downgradient of the well site.

8. The Department's own admission that a potential source of PFAS contamination of Appellant's water supply was as a direct result of Chevron's Operations was more likely than not the source of the PFAS contamination of Appellant's water supply.

9. The Department's lack of credible explanations as to why Appellant's high sodium levels were not caused by drilling activities is unsound and not supported by scientific evidence of a plausible rationale and defies and ignores the clear source of contamination.

10. The only plausible sources of the contamination of the Appellant's water supply with PFAS, VOCs, and other hazardous contaminants are the emissions, discharges, and other pollution from Operations.

11. The only plausible sources for the pollution of the Property's air with VOCs and hazardous pollutants are the emissions from the Operations.

12. The Pits were built without oversight, or information related to, among other things, liner/chemical compatibility as described in the Grand Jury Report, and there is evidence that drill cuttings and other radioactive oil and gas waste had run from the site to the Private Water Well and Home, which the Department admits in its determination would occur as the Private Water Well is downgradient of the well site.

13. The Department failed to require Chevron to restore the wellsite within 9 months of completion; instead, the wellsite, which was improperly built outside of the permitted area and larger than permitted, was left in an unstable condition, causing significant erosion and sediment damage over the course of 8 years and creating pathways for the pollution of the Appellant's water supply.

14. The Department violated its obligations under the Oil and Gas Act.

- The Oil and Gas Act requires the Department to make a determination on a water supply complaint within 45 days of notification. 58 Pa.C.S. § 3218(b). Here, the Department took over one year to make its determination.

- The Department failed to act in accordance with a statutory mandate, and that failure affected Appellant’s personal and property rights.

- In Section 3218 of the Oil and Gas Act, the General Assembly limited the Department’s enforcement discretion and imposed a *mandatory duty* on the Department to take action if it determined that the water supply was affected by oil and gas operations; here, the Department’s blatant disregard of the facts in issuing its negative determination, has deprived Appellant of the remedies he is entitled to by virtue of the Department’s obligations that are triggered upon a finding that oil and gas operations affected his water supply.

- The Department’s delay has deprived Appellant of his right to be heard in a timely fashion.

15. The Department violated its obligations under the Clean Streams Law.

- §7(a) of the CSL states: “Any person or municipality having an interest which is or may be adversely affected by any action of the department under this act shall have the right to appeal such action to the Environmental Hearing Board.”

- The Department has the duty to review and act up on complaints under 5(b)(6) of the Pennsylvania Clean Streams Law. Here, the Department did not properly review and act on Appellant’s complaints.

- The Department has the duty to make inspections of private property as are necessary to determine compliance with the Clean Streams Law. § 5(b)(8) of the Clean Streams Law. The Department did not adequately inspect the Property to determine whether the Clean Streams Law had been or is being violated by Chevron and/or EQT, as applicable.

- Section 305 of the Clean Streams Law requires the Department to investigate and ascertain, as far as practicable, all facts in relation to the pollution of the waters of the Commonwealth by industrial waste. The Department did not fully investigate all facts in relation to the pollution of Appellant’s water supply by contaminants known to be industrial waste, nor did it ascertain the sources of such pollution.

- Pursuant to § 601(d) of the Clean Streams Law, whenever any person presents information to the Department which gives the Department reason to believe that any

person is in violation of any requirement of the Clean Streams Law, the Department shall immediately order inspection of the operation at which the alleged violation is occurring, and the Department shall notify the person presenting such information and such person shall be allowed to accompany the inspector during the inspection. Appellant has presented information to the Department that should have given the Department to believe that the Clean Streams Law had been violated by Chevron and/or EQT as applicable.

- Section 604 of the Clean Streams Law requires the Department, through its agents, to investigate any alleged source of pollution of the waters of the Commonwealth, and to institute appropriate proceedings under the provisions of the Clean Streams Law to discontinue any such pollution if the offense complained of constitutes a violation of the provisions of the Clean Streams Law. The Department did not fully investigate the pollution of Appellant’s water supply or institute appropriate proceedings under the Clean Streams Law.

- Section 606 of the Clean Streams Law states that the Department is not estopped to perform its duties in a new investigation under the Clean Streams Law if waters of the Commonwealth are polluted from other sources. The Department is required to investigate all sources of pollution, and has failed to do so here.

16. The Department Violated its Obligations under the Hazardous Sites Cleanup Act

- The Department did not investigate as is its obligation under Section 501(a) and (d).
- The Department abused its discretion by not acting further under 502(c)(2).
- The Department has not required that Chevron and/or EQT remediate the site.

17. The Department violated the Air Pollution Control Act (35 P. S. § § 4001—4015)

- The Department failed to abate the air pollution caused by the Operations, which has been inimical to public health, safety and welfare and which is and was injurious to Appellant, his family, and the Property and such air pollution unreasonably interfered with Appellant and his family’s comfortable enjoyment of their lives and the Property.

- The Department had a mandatory duty under Section 4(8) and with respect to the Operations, receive, initiate and investigate Appellant’s complaints, institute and conduct surveys and testing programs, conduct general atmospheric sampling programs, make observations

of conditions which may or do cause air pollution, make tests or other determinations at air contamination sources, and assess the degree of abatement required.

- Nothing in the documentation provided by the Department exempted the Operations from air quality and pollution regulations under Title V or otherwise.

18. The Department Violated the Pennsylvania Constitution

- Pennsylvania's Environmental Rights Amendment at Article 1, Section 27 states: The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.

- The Department violated the Environmental Rights Amendment both by its actions and its failures to act.

- The Department was obligated to first review Appellant's environmental complaints and to perform investigations in response thereto under the Environmental Rights Amendment and this obligation is self-executing.

- The Property is located in an area that is already overburdened by pollution and is medically underserved, and the Department should be exercising increased scrutiny in its exercise of fiduciary duties of loyalty, impartiality, and prudence in protecting Pennsylvania's natural resources. *See Exhibit RR.*

- The Department's own records reflect that the Operations contaminated Appellant's air, water, and soil by virtue of the underlying facts of the Chevron Violations, the Consent Order, and the PFAS test results.

- The Department cannot credibly dispute the testing that has been performed on the Property and presented by the Appellant.

- The Department, well aware of the health impacts on Appellant and his minor child, proceeded in a wanton, negligent, and knowingly reckless disregard for their health, and its actions have contributed to the worsening of the health of Appellant and his child.

- The Department has admitted that freshwater sources used by oil and gas operators contain PFAS, and that the use of such water in oil and gas operations is spreading PFAS contamination throughout the state, yet the Department has taken no further action to halt such practices or to remediate the same, including on Appellant's Property.

- The Department’s actions and failures to act deprived Appellant and his family of the full use and enjoyment of the Property and Home, both on a temporary and permanent basis.

- The Department’s actions and failures deprived Appellant and his family of a right to be timely heard.

- Appellant makes and urges the Board to undertake an analysis of a takings claim and in connection therewith, inverse condemnation in this matter.

- Appellant and his family are not “outlier” cases; the Grand Jury Report and other documented cases across the state reveal that the Department’s knowing actions and failures have endangered and continue to endanger the environment and human health.

19. The Department Violated its Mission, and the underlying Constitutional, regulatory, and statutory obligations attendant thereto.

- The DEP’s Mission Statement is: The Department of Environmental Protection’s mission is to protect Pennsylvania’s air, land and water from pollution and to provide for the health and safety of its citizens through a cleaner environment. We will work as partners with individuals, organizations, governments and businesses to prevent pollution and restore our natural resources.

- The Department clearly did not protect the air, land, and water from the pollution caused by the Operations.

- The Department’s actions and failures to act harmed and jeopardized Appellant and his family’s health and safety.

- The Department did not work with Appellant to prevent pollution and to restore his Property and Home.

- The Department failed to abate the nuisances caused by the Operations in violation of applicable law.

20. Appellant reserves all other claims to the extent not specifically set forth herein under the Pennsylvania Constitution, the Pennsylvania Clean Streams Law, 35 P.S. §§691.1, *et seq.*, the Pennsylvania Solid Waste Management Act, 35 P.S. §§ 6018.101, *et seq.*, the Pennsylvania Oil and Gas Act, 58 P.S. §§ 601.101, *et seq.*, the Pennsylvania Hazardous Sites Cleanup Act, 35 P.S. §§ 6020.101, *et seq.*; the Federal Solid Waste Disposal Act, 42 USC §§ 6901, *et seq.*; the Federal Comprehensive Environmental Response, Compensation, and Liability Act,

42 USC §§ 9601, *et seq.*; and the Federal Water Pollution Control Act, 33 USC §§ 1251, *et seq.*, the Dam Safety and Encroachments Act (32 P.S. § § 693.1—693.27); The Air Pollution Control Act (35 P. S. § § 4001—4015); The Federal Clean Air Act (42 U.S.C.A. § 7401 *et seq.*); Title 40 of the Federal Code of Regulations; and 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").

21. Appellant reserves the right to raise with greater specificity any issue covered by general objections. *See Croner, Inc. v. DER*, 589 A.2d 1183, 1187 (Pa. Commw. Ct. 1991). Appellant also reserves the right to amend this notice of appeal or to introduce additional objections, both factual and legal, in this proceeding based upon subsequent investigation and/or discovery of relevant information.

VERIFICATION

I, Bryan Latkanich, verify that I have read the foregoing Notice of Appeal and that the information contained therein is true and correct to the best of my knowledge and belief. This Notice of Appeal is filed with my authorization. I understand that false statements made herein are subject to the penalties of 18 Pa.C.S. Section 4904, relating to unsworn falsification to authorities.


Bryan Latkanich

Dated: May 8, 2023



EXHIBIT A



April 20, 2023

CERTIFIED MAIL NO. 7019 1120 0000 5008 0325
VIA EMAIL: lisa@lajteam.com

Re: Water Supply Request for Investigation 366639
Negative Determination – 58 Pa. C.S § 3218
Deemston Borough, Washington County

Dear Lisa Johnson:

The Department has completed its investigation of your client’s (Bryan Latkanich) water supply listed in Exhibit A (“Water Supply”). Based on the sample results and other information obtained to date, the Department cannot conclude that the Water Supply was adversely affected by oil and gas activities including but not limited to the drilling, alteration, or operation of an oil or gas well. This information is summarized below.

CASE INFORMATION

Date of Complaint	Nature of Complaint	Sample Results Above Statewide Standards or Recommended Levels*
April 22, 2022	PFAS contamination	Hardness* – 7 mg/L Sodium* – 248.4 mg/L Total dissolved solids – 626 mg/L Total Coliform – 3.1 colonies/mL

On April 22, 2022, after being notified of your client’s concern about PFAS contamination of the Water Supply, the Department began investigating your complaint. On September 30, 2022, the Department conducted a site visit to inspect the Water Supply. On February 1, 2023, the Department collected samples from the Water Supply. The following provides some background to your complaint, and then evaluates proximate oil and gas activities and the 2023 sampling results.

The Department has previously issued two determinations regarding prior complaints concerning this Water Supply on May 5, 2019 and May 1, 2020. Those 2019 and 2020 determinations addressed levels of hardness, sodium, total dissolved solids (TDS), and bacteria (total coliform) in the Water Supply. The complaint submitted on April 22, 2022 (“2022 Complaint”) differs from prior complaints because it includes concern regarding perfluoroalkyl and polyfluoroalkyl (PFAS) substances in water from the Water Supply, and describes PFAS in detail, including some summaries of PFAS related laboratory results. The 2022 Complaint also describes dissatisfaction with the Department, the Environmental Hearing Board, a Common Pleas Judge, radioactivity regulations, and the oil and gas industry regarding several topics not specifically associated with water from your Water Supply that are not addressed in this letter, which is a water supply

complaint determination letter issued pursuant to Section 3218 of the Oil and Gas Act, 58 Pa.C.S. § 3218. PFAS chemicals are addressed in this determination letter. Because the levels of hardness, sodium, TDS, and total coliform have been addressed in prior determinations, any references in this letter are for your information only.

PFAS chemicals are not found naturally in the environment, but have been extensively produced for use in cookware, carpeting, personal care products, plastic pipes, firefighting foams, industrial processes, clothing and other fabrics, food packaging and other materials for water, grease or stain resistance. Because that widespread use has come into contact with the natural environment for decades, PFAS chemicals have been detected in groundwater and surface water in various parts of the world, including rivers in Southwest Pennsylvania and water from some Pennsylvania public water supplies.

The 2022 Complaint includes a summary of PFAS sampling results of water from the Water Supply. That sampling and analysis is associated with Engineers Without Borders and the University of Pittsburgh. However, the University of Pittsburgh determined that those results were invalid due to cross contamination by the laboratory where the samples were analyzed. The University of Pittsburgh provided updated data upon request by the Department. However, that data was also not utilized in this investigation due to a lack of quality control/quality assurance data documentation and analysis performed by a non-accredited laboratory.

The 2022 Complaint was referred to the Department of Health because it included health concerns and requests for treatment. In addition, the complaint included a request that the EPA and the United Nations investigate real property owned by Mr. Latkanich and other Pennsylvanians. The Department did contact EPA to confirm that it received the 2022 Complaint. The Department has also communicated with you, through counsel, during the investigation to arrange site visits, share information, and arrange the 2023 sampling.

The Department investigated whether oil and gas activities have occurred in the recent past that may be associated with an impact to your Water Supply. The closest oil and gas activity to your Water Supply is the Latkanich unconventional gas well pad, previously operated by Chevron, located about 500 feet northwest of your Water Supply. No recent activity appears to have occurred at this well site. After the wells on this well pad were plugged in 2020, earth was moved in large volumes and then seeded to fully restore the site. The Department reviewed historic activity at this well site to determine any evidence of the use of PFAS substances. The Department also reviewed compliance records which included violations in 2012 for releases that were addressed at the time and did not note any PFAS related chemicals.

Review of documents related to the well site did not reveal any direct evidence that PFAS chemicals were used during site construction, well drilling or completion activity, well production, well plugging, or site restoration. However, review of records did indicate that fresh water was used in the fluid mixture for stimulation activity on the Latkanich unconventional wells. This fresh water was obtained from multiple sources including municipal water authorities, which source surface water from the Monongahela River, Youghiogheny River and/or Tenmile Creek. Review of sample results from sampling conducted on surface water sources across Pennsylvania by the United States Geological Survey in summer 2019, indicated that PFAS was identified at several

locations on the Monongahela and Youghiogheny Rivers and Tenmile Creek. Based upon the widespread presence of PFAS in these freshwater sources, PFAS-containing water may have inadvertently been used on the well pad during stimulation. No indication of an incident during fracturing was identified that would cause a release to groundwater, but because the Water Supply is located downgradient of the well site, an impact from surface spills is possible.

Results of Department sampling of the Water Supply, which was conducted with the assistance of a third-party consulting firm, Mountain Research, LLC (MRI) on February 1, 2023, are summarized in the attached tables. Historic sample result data, collected by the Department during previous complaint investigations and pre-drills collected prior to drilling at the Latkanich well site, were used for comparison for this determination. The results of the 2023 sampling suggest that the water quality of the Water Supply is comparable to past sample results which did not indicate an impact by oil and gas activity.

Total coliform bacteria levels in the Water Supply were in exceedance of the primary drinking water standards, which may suggest influence by surface water allowing bacteria into the wellbore. Bacteria may have also been introduced into the Water Supply during the replacement of the well pump.

TDS in the Water Supply exceeded secondary drinking water standards, which may cause aesthetic effects but are not necessarily associated with a health concern. TDS is a measurement of all the dissolved constituents in water including natural minerals and appears to have been in exceedance of the standard in all samples collected from the Water Supply, including the pre-drill sample collected prior to any nearby oil and gas activity at the Latkanich well site. This indicates that levels of elevated TDS may be naturally occurring or due to other causes unrelated to oil and gas activities.

Hardness, pH and sodium levels were outside of recommended ranges for drinking water. Prior sample results from the Water Supply show that the hardness values have been consistently lower than the recommended range of 30-150 mg/L indicating that the water is very soft which may result in the water feeling slippery. The pH level of the Water Supply is consistently slightly over the recommended range of 6.5-8.5 which may result in poor tasting water. The sodium levels in the Water Supply have been consistently in exceedance of the recommended level of 20 mg/L which can be harmful for those on a low sodium diet. Sodium is a common naturally occurring element especially in soft water because the calcium and magnesium is typically replaced by sodium. Low hardness paired with elevated pH and sodium appears to indicate that the water from the Water Supply is being naturally softened by the limestone bedrock layers in which it is completed.

Results of glycol and VOC analyses indicate that no parameters were detected.

Three PFAS compounds were identified in the samples collected by MRI and analyzed by Pace Analytical Laboratory. The PFAS analysis indicates that perfluorohexanesulfonic acid (PFHxS) and perfluorooctanesulfonic acid (PFOS) were detected in the pre-purge sample and perfluorooctanesulfonamide (PFOSA) was detected in the post purge sample. PFHxS and PFOS were detected in the pre-purge sample, but not the post purge sample, which may indicate the source is

from some part of the plumbing components of the Water Supply, not the groundwater. The opposite is true of PFOSA, which may indicate that the source may be within well bore, pump system and/or the groundwater and not the plumbing. All of the detections are below the laboratory limit of quantification but greater than the detection limit, so the results are estimated. The level of PFOS detected in the water supply was 2.3 ppt, less than Department maximum contaminant level (MCL) for PFOS of 18 ppt. Currently, the Department has no recognized drinking water standard for PFHxS or PFOSA.

While there was no evidence of PFAS use at the Latkanich well site, as discussed above, it is possible that PFAS chemicals were present in the fresh water utilized during stimulation activity at the Latkanich well site. Given that PFAS chemicals are found in many products and materials, it is possible that the PFAS detected in your Water Supply came from a different source, such as a cleaning product, piping, parts or liquids associated with a mechanical pump, wires, or plumbing, or anything that came into contact with plastic piping or hoses or other materials manufactured or that came into contact with PFAS chemicals. With only these possibilities, the Department was unable to conclude that the presence the PFAS chemicals in the Water Supply is related to oil and gas activities or some other source.

While the Department did not determine that oil and gas activities polluted your Water Supply, please do note that your water quality does not meet (*i.e.*, is worse than) health and/or aesthetic statewide standards. You may consider exploring remedial actions regarding the levels of hardness, sodium, total dissolved solids, and total coliform as identified above. Or, alternatively, you may consider replacing your water with the public water that is plumbed to your home already and, if desired, installation of filtration or treatment for any constituents of concern in that public water.

The Department understands from ongoing discussion that concern remains regarding soil and air on your property. Summaries of soil sampling were provided to the Department during this complaint investigation, but data to support those results has not yet been received, including location data, certified results, and quality control/quality assurance data documentation. The program assigned to this complaint (Southwest District Oil and Gas District) has informed the Regional Director of the Department's Southwest Regional Office about continued concerns regarding soil and air that you have expressed during the course of this investigation.

Mr. Latkanich may contact me with any questions regarding this matter. Because you are Mr. Latkanich's legal counsel, we ask that your communications be with Department counsel assigned to this matter, Rick Watling at 412-442-4262.

Any person aggrieved by this action may appeal the action to the Environmental Hearing Board (Board), 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. The Board's address is:

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457

Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at <http://ehb.courtapps.com> or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. 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 AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

Sincerely,



Daniel F. Counahan
District Oil and Gas Manager
Southwest District Oil and Gas Operations

Enclosures:

Exhibit A
Water Sample Results Summary Tables
Sample Results
Fact Sheet – Interpreting Water Supply Results

cc: James Miller – Southwest Regional Director
Complaint File
OCC



CONFIDENTIAL

Exhibit A

95 Hill Road
Fredericktown, PA 15333

Water Sample Results Summary Tables

Contaminant or Parameter	Unit	Statewide Standard or Rec. Level*	DEP/MRI Sample 02/01/2023
Alkalinity	mg/L	30-500*	477.4
Total Aluminum	mg/L	0.20	0.0159
Total Arsenic	mg/L	0.010	< 0.003 U
Total Barium	mg/L	2	0.097
Bromide	mg/L	No Standard	< 0.2 U
Total Calcium	mg/L	75*	1.425
Hardness	mg/L	30-150*	6
Total Iron	mg/L	0.3	< 0.100 U
Total Lithium	µg/L	No Standard	< 25 U
Total Magnesium	mg/L	No Standard	0.59
Total Manganese	mg/L	0.05	< 0.010 U
pH		6.5-8.5*	8.6
Total Potassium	mg/L	No Standard	< 1.00 U
Total Selenium	mg/L	0.05	< 0.004 U
Total Sodium	mg/L	20*	248.4
Specific Conductivity	µmhos/cm	No Standard	1008
Total Strontium	mg/L	No Standard	0.147
Total Chloride	mg/L	250	35.82
TDS	mg/L	500	626
Sulfate	mg/L	250	34.33
TSS	mg/L	No Standard	< 20 U
Turbidity	NTU	1 [^]	< 1
Total Zinc	mg/L	5	< 0.03 U
E. coli	Col/100mL	Absent	< 1
Total Coliform	Col/100mL	Absent	3.1
Iron Bacteria	Col/ mL	No Standard	2200
Slime Bacteria	Col/ mL	No Standard	13000
Sulfur Bacteria	Col/ mL	No Standard	325
1, 2-Propanediol	mg/L	1	0.250 U
Diethylene glycol	mg/L	No Standard	0.500 U
Ethylene glycol	mg/L	20	0.250 U

Bold font indicates an exceedance of standard or recommended level.

U indicates analysis was performed for the test, but it was not detected. The sample quantitation limit is reported.

[^] The turbidity standard is applicable only to unfiltered water sources.

Parameter	Acronym	DEP MCL	LOQ	MDL	02/01/2023 Results	
					Pre-Purge	Post Purge
Perfluorobutanoic acid	PFBA		4.1	0.61	ND	ND
Perfluoropentanoic acid	PFPeA		4.1	0.55	ND	ND
Perfluorohexanoic acid	PFHxA		4.1	0.70	ND	ND
Perfluoroheptanoic acid	PFHpA		4.1	0.45	ND	ND
Perfluorooctanoic acid	PFOA	14	4.1	0.84	ND	ND
Perfluorononanoic acid	PFNA		4.1	0.47	ND	ND
Perfluorodecanoic acid	PFDA		4.1	0.53	ND	ND
Perfluoroundecanoic acid	PFUdA		4.1	0.64	ND	ND
Perfluorododecanoic acid	PFDoA		4.1	0.48	ND	ND
Perfluorotridecanoic acid	PFTTrDA		4.1	0.54	ND	ND
Perfluorotetradecanoic acid	PFTeDA		4.1	0.61	ND	ND
Perfluorohexadecanoic acid	PFHxDA		8.1	0.83	ND	ND
Perfluorooctadecanoic acid	PFODA		8.1	1.0	ND	ND
Perfluorobutanesulfonic acid	PFBS		4.1	0.42	ND	ND
Perfluoropentanesulfonic acid	PFPeS		4.1	0.60	ND	ND
Perfluorohexanesulfonic acid	PFHxS		4.1	0.56	0.64 J	ND
Perfluoroheptanesulfonic acid	PFHpS		4.1	0.51	ND	ND
Perfluorooctanesulfonic acid	PFOS	18	4.1	2.0	2.3 J	ND
Perfluorononesulfonic acid	PFNS		4.1	0.72	ND	ND
Perfluorodecanesulfonic acid	PFDS		4.1	0.79	ND	ND
Perfluorododecanesulfonic acid	PFDoS		8.1	1.1	ND	ND
Perfluorooctanesulfonamide	PFOSA		4.1	0.62	ND	1.3 J
N-ethyl perfluorooctane sulfonamide	NEtFOSE		8.1	0.97	ND	ND
N-methyl perfluorooctane sulfonamide	NMeFOSE		8.1	1.3	ND	ND
N-ethyl perfluorooctane sulfonamide	NEtFOSA		8.1	1.4	ND	ND
N-methyl perfluorooctane sulfonamide	NMeFOSA		16	1.3	ND	ND
N-ethyl perfluorooctanesulfonamide	NEtFOSAA		8.1	0.76	ND	ND
N-methyl perfluorooctanesulfonamide	NMeFOSAA		8.1	0.95	ND	ND
4:2 Fluorotelomer sulfonic acid	4:2 FTS		8.1	0.89	ND	ND
6:2 Fluorotelomer sulfonic acid	6:2 FTS		8.1	2.0	ND	ND
8:2 Fluorotelomer sulfonic acid	8:2 FTS		8.1	1.6	ND	ND
10:2 Fluorotelomer sulfonic acid	10:2 FTS		8.1	1.2	ND	ND
Hexafluoropropylene oxide dimer acid	GenX		8.1	2.1	ND	ND
4,8-dioxo-3H-perfluorononanoic acid	ADONA		8.1	0.49	ND	ND
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS		8.1	0.49	ND	ND
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS		8.1	0.67	ND	ND

MCL: Maximum contaminant level

LOQ: Limit of quantification

MDL: Method detection limit (The lowest level that provides 99% confidence that the analyte is detected. Any reported results values that are less than the reporting limit are considered estimated values.)

ND: Not detected at or above the MDL

J: Estimated result; Less than the LOQ and greater than or equal to the MDL.



Date of Issue: 02/17/2023 04:18:45

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Contact Phone Number: (717) 346-7200

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 001

Date Collected: 02/01/2023 10:47:00 AM

Lab Sample ID: I2023001507

Status: Completed

Name of Sample Collector: Jessica M Hirsch

Date Received: 02/02/2023

County: Washington

State:

Municipality: Deemston Boro

BRYAN LATKANICH
95 HILL RD
FREDERICKTOWN PA. 15333

Sample Medium: Ground Water

Sample Medium Type: Water

Location: Pressure Tank

Reason: Complaint

Project: NOT INDICATED

Standard Anlysis: 946

Matrix: Water

Legal Seal:	1177312	Intact:	Yes
Legal Seal:	1177315	Intact:	Yes
Legal Seal:	1177313	Intact:	Yes

Stream Condition:

Appearance: Clear with no noticable odor

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 001

Date Collected: 02/01/2023 10:47:00 AM

Lab Sample ID: I2023001507

Status: Completed



Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
00410 ALKALINITY AS CaCO3 @ pH 4.5	477.4 mg/L	02/02/2023 12:46 PM	JAHOQUE	SM 2320B
** Comment ** Sample bottle had headspace present before analysis				
01105H ALUMINUM, TOTAL (WATER & WASTE) ICPMS	15.900 ug/L	02/03/2023 10:11 AM	SCHOY	EPA 200.8
01002H ARSENIC, TOTAL (WATER & WASTE) BY ICPMS	<3.00 ug/L (U)	02/03/2023 10:11 AM	SCHOY	EPA 200.8
01007M BARIUM, TOTAL in MG/L (WATER & WASTE) BY ICP	0.097 mg/L	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
71870 BROMIDE BY ION CHROMATOGRAPHY	<0.2 mg/L (U)	02/08/2023 03:25 PM	TVOROBAYCH	EPA 300.0
00916A CALCIUM, TOTAL (WATER & WASTE) BY ICP	1.425 mg/L	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
00900 HARDNESS, TOTAL (CALCULATED)	6 mg/L	02/03/2023 10:33 AM	CWINDLE	SM 2340 B
** Comment ** Accredited by NJ only - accreditation not available from PA				
01045M IRON, TOTAL IN MG/L (WATER & WASTE) BY ICP	<0.100 mg/L (U)	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
01132A LITHIUM, TOTAL (WATER & WASTE) BY ICP	<25.0 ug/L (U)	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
00927A MAGNESIUM, TOTAL (WATER & WASTE) BY ICP	0.59 mg/L	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
01055M MANGANESE, TOTAL in MG/L (WATER & WASTE) BY ICP	<0.010 mg/L (U)	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
00403 pH, Lab (Electrometric)	8.6 pH units	02/02/2023 12:46 PM	JAHOQUE	SM 4500-H+ B
** Comment ** Holding Time Exceeded				
00937A POTASSIUM, TOTAL (WATER & WASTE) BY ICP	<1.00 mg/L (U)	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
01147H SELENIUM, TOTAL (WATER & WASTE) BY ICPMS	<4.00 ug/L (U)	02/03/2023 10:11 AM	SCHOY	EPA 200.8
00929A SODIUM, TOTAL (WATER & WASTE) BY ICP	248.40 mg/L	02/03/2023 11:24 AM	CWINDLE	EPA 200.7
00095 SPECIFIC CONDUCTIVITY @ 25.0 C	1008.00 umhos/cm	02/08/2023 02:27 PM	MTUZINSKI	SM 2510B
01082M STRONTIUM, TOTAL in MG/L (WATER & WASTE) BY ICP	0.147 mg/L	02/03/2023 10:33 AM	CWINDLE	EPA 200.7
00403T Temperature at which pH is measured	19.06 C	02/02/2023 12:46 PM	JAHOQUE	SM 4500-H+ B
00940 Total Chloride-Ion Chromatograph	35.82 mg/L	02/03/2023 06:08 PM	TVOROBAYCH	EPA 300.0
70300 TOTAL DISSOLVED SOLIDS @ 180C	626 mg/L	02/07/2023 11:20 AM	JMULHOLLEM	SM 2540C-15
00945 Total Sulfate-Ion Chromatograph	34.33 mg/L	02/02/2023 05:00 PM	TVOROBAYCH	EPA 300.0
00530 TOTAL SUSPENDED SOLIDS	<20 mg/L (U)	02/02/2023 02:53 PM	CLONTZ	USGS I-3765-85
82079 TURBIDITY, NEPHELMETRIC	<1 NTU	02/02/2023 11:59 AM	JAHOQUE	EPA 180.1
01092A ZINC, TOTAL (WATER & WASTE) BY ICP	<30.0 ug/L (U)	02/03/2023 10:33 AM	CWINDLE	EPA 200.7

**Analytical Report For
Oil And Gas Mgmt**

Sample ID: 9542 001

Date Collected: 02/01/2023 10:47:00 AM

Lab Sample ID: I2023001507

Status: Completed



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* denotes tests that the laboratory is not accredited for

U - Indicates analysis was performed for the test but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Jennifer Fesler, Technical Director, Bureau of Laboratories



Date of Issue: 02/10/2023 04:15:33

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Contact Phone Number: (717) 346-7200

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 002

Date Collected: 02/01/2023 10:48:00 AM

Lab Sample ID: B2023000358

Status: Completed

Name of Sample Collector: Jessica M Hirsch

Date Received: 02/02/2023

County: Washington

State:

Municipality: Deemston Boro

BRYAN LATKANICH
95 HILL RD
FREDERICKTOWN PA. 15333

Sample Medium: Ground Water

Sample Medium Type: Water

Location: Pressure Tank

Reason: Complaint

Project: NOT INDICATED

Standard Anlysis: B016

Matrix: Water

Legal Seal: 1177317	Intact: Yes
----------------------------	--------------------

Stream Condition:

Appearance: Clear with no noticable odor

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 002

Date Collected: 02/01/2023 10:48:00 AM

Lab Sample ID: B2023000358

Status: Completed



Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
99031 Iron Bacteria* Analysis using HACH-BART methodology, results are estimated.	2200 cfu/mL	02/02/2023 08:51 AM	ABMICKEY	BOL 7025
99033 Slime Bacteria* Analysis using HACH-BART methodology, results are estimated.	13000 cfu/mL	02/02/2023 08:51 AM	ABMICKEY	BOL 7025
99032 Sulfur Bacteria* Analysis using HACH-BART methodology, results are estimated.	325 cfu/mL	02/02/2023 08:51 AM	ABMICKEY	BOL 7025

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Jennifer Fesler, Technical Director, Bureau of Laboratories



Date of Issue: 02/05/2023 04:07:31

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 003

Date Collected: 02/01/2023 10:49:00 AM

Lab Sample ID: B2023000357

Status: Completed

Name of Sample Collector: Jessica M Hirsch

Date Received: 02/02/2023

County: Washington

State:

Municipality: Deemston Boro

BRYAN LATKANICH
95 HILL RD
FREDERICKTOWN PA. 15333

Sample Medium: Ground Water

Sample Medium Type: Water

Location: Pressure Tank

Reason: Complaint

Project: NOT INDICATED

Standard Anlysis: B017

Matrix: Water

Legal Seal: 1177316	Intact: Yes
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Stream Condition:

Appearance: Clear with no noticable odor

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 003

Date Collected: 02/01/2023 10:49:00 AM

Lab Sample ID: B2023000357

Status: Completed



Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
MMOECT E. coli MPN	<1.0 cf/100mL	02/02/2023 08:44 AM	ABMICKEY	SM 9223B
MMO-T Total Coliform MPN	3.1 cf/100mL	02/02/2023 08:44 AM	ABMICKEY	SM 9223B

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Jennifer Fesler, Technical Director, Bureau of Laboratories



Date of Issue: 02/05/2023 04:09:23

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Contact Phone Number: (717) 346-7200

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 004

Date Collected: 02/01/2023 10:50:00 AM

Lab Sample ID: O2023000118

Status: Completed

Name of Sample Collector: Jessica M Hirsch

Date Received: 02/02/2023

County: Washington

State:

Municipality: Deemston Boro

BRYAN LATKANICH
95 HILL RD
FREDERICKTOWN PA. 15333

Sample Medium: Ground Water

Sample Medium Type: Water

Location: Pressure Tank

Reason: Complaint

Project: NOT INDICATED

Suite: WSOLX

Matrix: Water

Legal Seal:	1177321	Intact:	Yes
Legal Seal:	1177320	Intact:	Yes

Stream Condition:

Appearance: Clear with no noticable odor

**Analytical Report For
Oil And Gas Mgmt**

Sample ID: 9542 004

Date Collected: 02/01/2023 10:50:00 AM

Lab Sample ID: O2023000118

Status: Completed



Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
57556 1,2-Propanediol	0.250 mg/L (U)	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
111762 2-Butoxyethanol	Cancelled	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
111466 Diethylene glycol	0.500 mg/L (U)	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
107211 Ethylene Glycol	0.250 mg/L (U)	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
EXTRACTED DATE	02022023 Day	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
112276 Triethylene glycol	Cancelled	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D

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Jennifer Fesler, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the test but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.



Date of Issue: 02/05/2023 04:13:36

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Contact Phone Number: (717) 346-7200

Analytical Report For
Oil And Gas Mgmt

Sample ID: 9542 005

Date Collected: 02/01/2023 10:51:00 AM

Lab Sample ID: O2023000119

Status: Completed

Name of Sample Collector: Jessica M Hirsch

Date Received: 02/02/2023

County: Washington

State:

Municipality: Deemston Boro

BRYAN LATKANICH
95 HILL RD
FREDERICKTOWN PA. 15333

Sample Medium: Ground Water

Sample Medium Type: Water

Location: Field blank filled in basement

Reason: Complaint

Project: NOT INDICATED

Suite: WSOLX

Matrix: Water

Legal Seal:	1177318	Intact:	Yes
Legal Seal:	1177319	Intact:	Yes

Stream Condition:

Appearance: Clear, no odor

**Analytical Report For
Oil And Gas Mgmt**

Sample ID: 9542 005

Date Collected: 02/01/2023 10:51:00 AM

Lab Sample ID: O2023000119

Status: Completed



Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
57556 1,2-Propanediol	0.250 mg/L (U)	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
111762 2-Butoxyethanol	Cancelled	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
111466 Diethylene glycol	0.500 mg/L (U)	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
107211 Ethylene Glycol	0.250 mg/L (U)	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
EXTRACTED DATE	02022023 Day	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D
112276 Triethylene glycol	Cancelled	02/03/2023 02:00 AM	DACLEMENS	EPA 8015D

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J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Jennifer Fesler, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

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J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

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B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.



2019 Ninth Avenue
 PO Box 1925
 Altoona, PA 16603
 (814) 946-4306

NELAP: PA 07-062, VA 460212
 State Certifications: MD 275, WV 364



Mountain Research LLC
 825 25th Street
 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
PRE-PURGE	AXB0149-01	Water	Grab	02/01/23 10:30	02/01/23 13:51
POST-PURGE	AXB0149-02	Water	Grab	02/01/23 10:40	02/01/23 13:51
BLANK	AXB0149-03	Water	Grab	02/01/23 10:45	02/01/23 13:51
TRIP BLANK	AXB0149-04	Water	Grab	02/01/23 10:45	02/01/23 13:51

AXB0149 Reported down to MDLs. This report replaces the report issued on 03/02/23 at 1118. 03/09/23 RB

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Ron Bollman

Project Manager

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



2019 Ninth Avenue
 PO Box 1925
 Altoona, PA 16603
 (814) 946-4306

NELAP: PA 07-062, VA 460212
 State Certifications: MD 275, WV 364



Mountain Research LLC
 825 25th Street
 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Client Sample ID: POST-PURGE

Date/Time Sampled: 02/01/23 10:40

Laboratory Sample ID: AXB0149-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Purgeable Organic Compounds by EPA Method 524.2								
Benzene	<0.160	0.160	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Carbon tetrachloride	<0.250	0.250	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Chlorobenzene	<0.360	0.360	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Naphthalene	<0.400	0.400	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,2-Dichlorobenzene	<0.400	0.400	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,3-Dichlorobenzene	<0.390	0.390	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,2-Dichloroethane	<0.210	0.210	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,1-Dichloroethene	<0.270	0.270	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
cis-1,2-Dichloroethene	<0.330	0.330	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
trans-1,2-Dichloroethene	<0.240	0.240	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,2-Dichloropropane	<0.300	0.300	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Ethylbenzene	<0.410	0.410	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Methylene chloride	<0.440	0.440	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Methyl tert-butyl ether	<0.210	0.210	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Styrene	<0.400	0.400	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Tetrachloroethene	<0.400	0.400	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Toluene	<0.250	0.250	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,2,4-Trichlorobenzene	<0.390	0.390	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,1,2-Trichloroethane	<0.290	0.290	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
1,1,1-Trichloroethane	<0.310	0.310	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U

Fairway Laboratories, Inc.

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2019 Ninth Avenue
 PO Box 1925
 Altoona, PA 16603
 (814) 946-4306

NELAP: PA 07-062, VA 460212
 State Certifications: MD 275, WV 364



Mountain Research LLC
 825 25th Street
 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Client Sample ID: POST-PURGE

Date/Time Sampled: 02/01/23 10:40

Laboratory Sample ID: AXB0149-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Purgeable Organic Compounds by EPA Method 524.2								
Trichloroethene	<0.190	0.190	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Vinyl chloride	<0.310	0.310	0.500	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Xylenes (total)	<0.950	0.950	1.00	ug/l	02/01/23 17:34	EPA 524.2/4.1	JML	U
Surrogate: 4-Bromofluorobenzene		89.4 %	70-130		02/01/23 17:34	EPA 524.2/4.1	JML	
Surrogate: 1,2-Dichlorobenzene-d4		95.0 %	70-130		02/01/23 17:34	EPA 524.2/4.1	JML	

Fairway Laboratories, Inc.

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2019 Ninth Avenue
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 (814) 946-4306

NELAP: PA 07-062, VA 460212
 State Certifications: MD 275, WV 364



Mountain Research LLC
 825 25th Street
 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Project Manager: Jason Floyd

Collector: CLIENT

Reported:

Number of Containers: 17

03/09/23 13:00

Client Sample ID: BLANK

Date/Time Sampled: 02/01/23 10:45

Laboratory Sample ID: AXB0149-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Purgeable Organic Compounds by EPA Method 524.2								
Benzene	<0.160	0.160	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Carbon tetrachloride	<0.250	0.250	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Chlorobenzene	<0.360	0.360	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Naphthalene	<0.400	0.400	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,2-Dichlorobenzene	<0.400	0.400	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,3-Dichlorobenzene	<0.390	0.390	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,2-Dichloroethane	<0.210	0.210	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,1-Dichloroethene	<0.270	0.270	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
cis-1,2-Dichloroethene	<0.330	0.330	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
trans-1,2-Dichloroethene	<0.240	0.240	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,2-Dichloropropane	<0.300	0.300	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Ethylbenzene	<0.410	0.410	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Methylene chloride	<0.440	0.440	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Methyl tert-butyl ether	<0.210	0.210	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Styrene	<0.400	0.400	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Tetrachloroethene	<0.400	0.400	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Toluene	<0.250	0.250	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,2,4-Trichlorobenzene	<0.390	0.390	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,1,2-Trichloroethane	<0.290	0.290	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
1,1,1-Trichloroethane	<0.310	0.310	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U

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2019 Ninth Avenue
 PO Box 1925
 Altoona, PA 16603
 (814) 946-4306

NELAP: PA 07-062, VA 460212
 State Certifications: MD 275, WV 364



Mountain Research LLC
 825 25th Street
 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Client Sample ID: BLANK

Date/Time Sampled: 02/01/23 10:45

Laboratory Sample ID: AXB0149-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Purgeable Organic Compounds by EPA Method 524.2								
Trichloroethene	<0.190	0.190	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Vinyl chloride	<0.310	0.310	0.500	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Xylenes (total)	<0.950	0.950	1.00	ug/l	02/01/23 18:03	EPA 524.2/4.1	JML	U
Surrogate: 4-Bromofluorobenzene		86.6 %	70-130		02/01/23 18:03	EPA 524.2/4.1	JML	
Surrogate: 1,2-Dichlorobenzene-d4		90.8 %	70-130		02/01/23 18:03	EPA 524.2/4.1	JML	



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 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Client Sample ID: TRIP BLANK

Date/Time Sampled: 02/01/23 10:45

Laboratory Sample ID: AXB0149-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Purgeable Organic Compounds by EPA Method 524.2								
Benzene	<0.160	0.160	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Carbon tetrachloride	<0.250	0.250	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Chlorobenzene	<0.360	0.360	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Naphthalene	<0.400	0.400	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,2-Dichlorobenzene	<0.400	0.400	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,3-Dichlorobenzene	<0.390	0.390	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,2-Dichloroethane	<0.210	0.210	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,1-Dichloroethene	<0.270	0.270	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
cis-1,2-Dichloroethene	<0.330	0.330	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
trans-1,2-Dichloroethene	<0.240	0.240	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,2-Dichloropropane	<0.300	0.300	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Ethylbenzene	<0.410	0.410	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Methylene chloride	<0.440	0.440	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Methyl tert-butyl ether	<0.210	0.210	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Styrene	<0.400	0.400	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Tetrachloroethene	<0.400	0.400	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Toluene	<0.250	0.250	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,2,4-Trichlorobenzene	<0.390	0.390	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,1,2-Trichloroethane	<0.290	0.290	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
1,1,1-Trichloroethane	<0.310	0.310	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U

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NELAP: PA 07-062, VA 460212
 State Certifications: MD 275, WV 364



Mountain Research LLC
 825 25th Street
 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Client Sample ID: TRIP BLANK

Date/Time Sampled: 02/01/23 10:45

Laboratory Sample ID: AXB0149-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Purgeable Organic Compounds by EPA Method 524.2								
Trichloroethene	<0.190	0.190	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Vinyl chloride	<0.310	0.310	0.500	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Xylenes (total)	<0.950	0.950	1.00	ug/l	02/01/23 18:32	EPA 524.2/4.1	JML	U
Surrogate: 4-Bromofluorobenzene		89.0 %	70-130		02/01/23 18:32	EPA 524.2/4.1	JML	
Surrogate: 1,2-Dichlorobenzene-d4		90.6 %	70-130		02/01/23 18:32	EPA 524.2/4.1	JML	

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State Certifications: MD 275, WV 364



www.fairwaylaboratories.com

Mountain Research LLC
825 25th Street
Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Notes

U Analysis has been reported to the Method Detection Limit (MDL). All reported result values that are less than the Reporting Limit (RL) are considered estimated values.



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Mountain Research LLC	Project: PA DEP PFAS SAMPLING
825 25th Street	Project Number: [none]
Altoona, PA 16601	Collector: CLIENT
Project Manager: Jason Floyd	Number of Containers: 17
	Reported: 03/09/23 13:00

Definitions:

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

+ MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory; and should be considered as analyzed outside the EPA holding time.

^ The following analytes are to be filtered immediately upon sampling: Hexavalent Chromium. Filtration through a 0.45 micron filter within 15 minutes of sampling is required for compliance with the Clean Water Act (CWA) for reporting of hexavalent chromium to prevent interconversion of chromium species.

* **Analysis location indicator:**

D: Indicates analysis performed by Fairway Laboratories, Inc., 40 Hoover Ave., DuBois, PA 15801. PA DEP Chapter 252 certification: PA 33-00258.

E: Indicates analysis performed by Fairway Laboratories, Inc., 1920 East 38th Street, Erie, PA 16510. NELAP certification: PA 25-05907.

P: Indicates analysis performed by Fairway Laboratories, Inc., 89 Kristi Rd., Pennsdale, PA 17756. PA DEP Chapter 252 certification: PA 41-04684.

W: Indicates analysis performed by Fairway Laboratories, Inc., 1851 Golden Mile Rd., Wysox, PA 18854. NELAP certification: PA 08-05622 and NY 12127.

< Represents "less than" - indicates that the result was less than the RL, or the MDL if indicated for the parameter.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values. If Radiological results are reported, the MDC - Minimum Detectable Concentration is shown in the MDL column.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

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Mountain Research LLC
 825 25th Street
 Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Definitions Continued:

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

ND Non Detect. The noted analyte was not detected in the sample.

(-) Method Revision Indicator - West Virginia Samples

- EPA 8270D - : Indicates that samples collected in West Virginia are analyzed by Method SW 8270E.
- EPA 8260B - : Indicates that samples collected in West Virginia are analyzed by Method SW 8260D.
- EPA 8015D - : Indicates that samples collected in West Virginia are analyzed by Method SW 8015C.
- EPA 1010 - : Indicates that samples collected in West Virginia are analyzed by Method SW 1010B.
- EPA 6010B - : Indicates that samples collected in West Virginia are analyzed by Method SW 6010D.

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Mountain Research LLC
825 25th Street
Altoona, PA 16601

Project: PA DEP PFAS SAMPLING

Project Number: [none]

Collector: CLIENT

Reported:

Project Manager: Jason Floyd

Number of Containers: 17

03/09/23 13:00

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody. Samples received at the laboratory after business hours are verified on the next business day. Discrepancies are documented on the Receiving Document.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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Report of Analysis

Pace Analytical
2019 Ninth Ave
Altoona, PA 16602
Attention: Michelle Fye

Project Name: AXB0149

Lot Number: **YB10024**

Date Completed: 03/08/2023
Revision Date: 03/08/2023

03/08/2023 5:14 PM
Approved and released by:
Project Coordinator 1: **Jenna S. Holliday**



The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639



Case Narrative Pace Analytical Lot Number: YB10024

Report revision 03/08/2023: This PDF report has been revised to include an updated reporting format. This report supersedes and replaces any prior reports issued under this lot number.

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.



Sample Summary
Pace Analytical
Lot Number: YB10024

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	AXB0149-01	Aqueous	02/01/2023 1030	02/10/2023
002	AXB0149-02	Aqueous	02/01/2023 1040	02/10/2023
003	AXB0149-03	Aqueous	02/01/2023 1045	02/10/2023

(3 samples)



Detection Summary Pace Analytical Lot Number: YB10024

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	AXB0149-01	Aqueous	PFHxS	PFAS by ID	0.64	J	ng/L	5
001	AXB0149-01	Aqueous	PFOS	PFAS by ID	2.3	J	ng/L	5
002	AXB0149-02	Aqueous	PFOSA	PFAS by ID	1.3	J	ng/L	7

(3 detections)

PFAS by LC/MS/MS



Client: **Pace Analytical**

Laboratory ID: **YB10024-001**

Description: **AXB0149-01**

Matrix: **Aqueous**

Date Sampled: **02/01/2023 1030**

Date Received: **02/10/2023**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	02/17/2023 1956	MMM	02/13/2023 1102	67392

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.1	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.1	0.67	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.1	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		8.1	1.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.1	0.89	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.1	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.1	0.49	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.1	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.1	0.76	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.1	0.97	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.1	0.95	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.1	1.3	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.42	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.79	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.72	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.62	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.60	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.1	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.64	J	4.1	0.56	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.53	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	0.45	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		8.1	0.83	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.70	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	0.47	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		8.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	0.84	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	0.55	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.64	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.3	J	4.1	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		103	25-150
13C2_6:2FTS		110	25-150
13C2_8:2FTS		93	25-150
13C2_PFDaA		78	25-150
13C2_PFHxDA		78	25-150
13C2_PFTeDA		78	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS



Client: **Pace Analytical**

Laboratory ID: **YB10024-001**

Description: **AXB0149-01**

Matrix: **Aqueous**

Date Sampled: **02/01/2023 1030**

Date Received: **02/10/2023**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBs		106	25-150
13C3_PFHxS		108	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		88	25-150
13C8_PFOA		104	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		101	25-150
d-EtFOSA		63	10-150
d5-EtFOSAA		83	25-150
d9-EtFOSE		63	10-150
d-MeFOSA		69	10-150
d3-MeFOSAA		92	25-150
d7-MeFOSE		71	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS



Client: **Pace Analytical**

Laboratory ID: **YB10024-002**

Description: **AXB0149-02**

Matrix: **Aqueous**

Date Sampled: **02/01/2023 1040**

Date Received: **02/10/2023**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	02/17/2023 2018	MMM	02/13/2023 1102	67392

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.0	0.66	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.0	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		8.0	1.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.0	0.87	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.0	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.0	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.0	0.75	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.0	0.95	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.0	0.93	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.0	1.3	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.0	0.41	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.78	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.50	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.71	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	1.3	J	4.0	0.61	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.0	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.0	0.55	ng/L	1
Perfluoro-n-butanefluoronic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.0	0.60	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.0	0.45	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		8.0	0.81	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.0	0.69	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.46	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		8.0	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.0	0.83	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.0	0.54	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.60	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.53	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.63	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.0	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		93	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		86	25-150
13C2_PFDa		79	25-150
13C2_PFHxDA		84	25-150
13C2_PFTeDA		81	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS



Client: **Pace Analytical**

Laboratory ID: **YB10024-002**

Description: **AXB0149-02**

Matrix: **Aqueous**

Date Sampled: **02/01/2023 1040**

Date Received: **02/10/2023**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBs		111	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBa		99	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		96	25-150
13C7_PFUdA		86	25-150
13C8_PFOA		111	25-150
13C8_PFOS		101	25-150
13C8_PFOsA		98	10-150
13C9_PFNA		104	25-150
d-EtFOSA		63	10-150
d5-EtFOSAA		79	25-150
d9-EtFOSE		66	10-150
d-MeFOSA		73	10-150
d3-MeFOSAA		90	25-150
d7-MeFOSE		70	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS



Client: **Pace Analytical**

Laboratory ID: **YB10024-003**

Description: **AXB0149-03**

Matrix: **Aqueous**

Date Sampled: **02/01/2023 1045**

Date Received: **02/10/2023**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	02/17/2023 2040	MMM	02/13/2023 1102	67392

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	0.68	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		8.2	1.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.2	0.90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.2	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	0.77	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.2	0.98	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	0.96	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.2	1.3	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.43	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.80	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.73	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.1	0.57	ng/L	1
Perfluoro-n-butanefluoronic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.1	0.62	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.49	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	0.46	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		8.2	0.84	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.71	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		8.2	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	0.56	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.62	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.55	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.65	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.1	2.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		90	25-150
13C2_6:2FTS		105	25-150
13C2_8:2FTS		99	25-150
13C2_PFDaA		94	25-150
13C2_PFHxDA		91	25-150
13C2_PFTeDA		94	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS



Client: **Pace Analytical**

Laboratory ID: **YB10024-003**

Description: **AXB0149-03**

Matrix: **Aqueous**

Date Sampled: **02/01/2023 1045**

Date Received: **02/10/2023**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBs		106	25-150
13C3_PFHxS		110	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBa		100	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		108	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		104	25-150
13C8_PFOS		109	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		105	25-150
d-EtFOSA		61	10-150
d5-EtFOSAA		88	25-150
d9-EtFOSE		91	10-150
d-MeFOSA		58	10-150
d3-MeFOSAA		97	25-150
d7-MeFOSE		95	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Chain of Custody and Miscellaneous Documents

PACE ANALYTICAL SERVICES, LLC



SUBCONTRACT ORDER
Fairway Laboratories, Inc.
AXB0149

SENDING LABORATORY:

Fairway Laboratories, Inc.
 2019 Ninth Avenue
 Altoona, PA 16602
 Phone: 814.946.4306
 Fax: 814.946.8791
 Project Manager: Ron Boilman

RECEIVING LABORATORY:

Pace Analytical Services, Inc. - South Carolina
 106 Vantage Point Drive
 West Columbia, SC 29172
 Phone :1(803) 376-9625
 Fax:



Rush **Due 2/14/2023**

Water Type: Drinking Water State: **PA** WV VA OH MD
 Non Potable Water RADS only - Non potable Water - Gamma

PWS ID Number:
Contact Name:

Name of System:
Contact Number:

Sample ID: AXB0149-01	Water	Grab	Location ID	Comments:
Analysis	Sample Begin	Sample End		Due 2/14/2023
SUB-PFAS	2/1/2023 10:30	02/01/23 10:30		
<i>Containers Supplied:</i>				
250 mL Poly Unpres (A) 250 mL Poly Unpres (B) 250 mL Poly Unpres (C) 250 mL Poly Unpres (D)				

Sample ID: AXB0149-02	Water	Grab	Location ID	Comments:
Analysis	Sample Begin	Sample End		Due 2/14/2023
SUB-PFAS	2/1/2023 10:40	02/01/23 10:40		
<i>Containers Supplied:</i>				
250 mL Poly Unpres (A) 250 mL Poly Unpres (B) 250 mL Poly Unpres (C) 250 mL Poly Unpres (D)				

Sample ID: AXB0149-03	Water	Grab	Location ID	Comments:
Analysis	Sample Begin	Sample End		Due 2/14/2023
SUB-PFAS	2/1/2023 10:45	02/01/23 10:45		
<i>Containers Supplied:</i>				
250 mL Poly Unpres (A) 250 mL Poly Unpres (B)				

1/31/23 Update to Pace email address
***NEW* Email PDF Report & Excel EDD to:**
ALTO.SubContract@pacelabs.com
For questions call:
 Troy Tyler - Ext: 133
 Michella Fye - Ext: 106

CLIENT

Sampled By _____

Released By _____ Date _____ Received By _____ Date _____

Released By _____ Date _____ Received By _____ Date _____

Sampler signatures provided on original COC.



PACE ANALYTICAL SERVICES, LLC
 106 Vantage Point Drive • West Columbia, SC 29172
 Telephone No. 803-791-9700 Fax No. 803-791-9111
 www.pacelabs.com

Number 143070
 AXB0149

Client <i>Mountain Research LLC</i> <small>(formerly Shealy Environmental Services, Inc.)</small>		Report to Contact <i>Jason Floyal</i>		Telephone No. / E-mail <i>J.Floyal@mountainresearch.com</i>		Quote No.	
Address <i>825 25th Street</i>		Sampler's Signature <i>[Signature]</i>		Analysis (Attach list if more space is needed)		Page <i>1</i> of <i>2</i>	
City <i>Altoona</i>	State <i>PA</i>	Zip Code <i>16601</i>	Printed Name <i>Jonathan Cunningham</i>		Lot # Bar Code (Sub use only)		
Project Name <i>PA DEP PFAS Sampling</i>		Remarks / Cooler I.D.					
Project No. <i>5326.23.01</i>	P.O. No.		Matrix		No of Compounds by Preservative Type		
Sample ID / Description <small>(Containers for each sample may be combined on one line.)</small>	Collection Date(s)	Collection Time (Military)	Agarose	SO ₂	Ascorbic Acid	Hydroquinone	None
<i>Pre - Purge</i>	<i>02/01/2023</i>	<i>10:30</i>	<i>6</i>	<i>K</i>	<i>4</i>	<i>3</i>	<i>X</i>
<i>Post - Purge</i>	<i>↓</i>	<i>10:40</i>	<i>6</i>	<i>K</i>	<i>4</i>	<i>3</i>	<i>X X</i>
<i>Blank</i>	<i>↓</i>	<i>10:45</i>	<i>6</i>	<i>K</i>	<i>2</i>	<i>2</i>	<i>X K</i>
<i>Trip Blank</i>	<i>1/24/23</i>	<i>1401</i>				<i>2</i>	

Turn Around Time Required (Prior lab approval required for expedited TAT.) <input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)		Sample Disposal <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab		Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown		QC Requirements (Specify)	
1. Relinquished by <i>[Signature]</i>	Date <i>2/1/2023</i>	Time <i>13:51</i>	1. Received by <i>[Signature]</i>	Date <i>2/1/23</i>	Time <i>13:51</i>		
2. Relinquished by	Date	Time	2. Received by	Date	Time		
3. Relinquished by	Date	Time	3. Received by <i>[Signature]</i>	Date <i>2.8.23</i>	Time <i>10:10</i>		
4. Relinquished by <i>[Signature]</i>	Date <i>2.8.23</i>	Time <i>10:10</i>	4.	Date	Time		
Note: All samples are retained for four weeks from receipt unless other arrangements are made.				IA	Temp Blank <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		



AXB0149

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PAC



DC# Title: ENV-FRM-WCOL-0286 v02 Samples Receipt Checklist (SRC)
 Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Pace Cooler Inspected by/date: HRB / 02/10/2023 Lot # YB10024

Means of receipt:		<input type="checkbox"/> Pace	<input type="checkbox"/> Client	<input type="checkbox"/> UPS	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> Other:
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?				
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?			
pH Strip ID: <u>NA</u>		Chlorine Strip ID: <u>NA</u>		Tested by: <u>NA</u>		
Original temperature upon receipt / Derived (Corrected) temperature upon receipt						%Solid Snap-Cup ID: <u>NA</u>
<u>2.2</u>	<u>/2.2</u>	<u>>C</u>	<u>NA</u>	<u>/NA</u>	<u><C</u>	<u>NA</u>
Method: <input checked="" type="checkbox"/> Temperature Blank		<input type="checkbox"/> Against Bottles		IR Gun ID: <u>8</u> IR Gun Correction Factor: <u>0</u> °C		
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None						
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		5. Were proper custody procedures (relinquished/received) followed?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		6. Were sample IDs listed on the COC and all sample containers?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		7. Was collection date & time listed on the COC and all sample containers?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		8. Did all container label information (ID, date, time) agree with the COC?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		9. Were tests to be performed listed on the COC?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		11. Was adequate sample volume available?			
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?			
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		13. Were all samples containers accounted for? (No missing/excess)			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA	14. Were VOA, \$015C and RSK-175 samples free of bubbles > "pen-size" (¼" or 6mm in diameter) in any of the VOA vials?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA	17. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?			
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> NA	18. Was the quote number listed on the container label? If yes, Quote #			
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)						
Sample(s) <u>NA</u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u>NA</u> mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # <u>NA</u> . Time of preservation <u>NA</u> . If more than one preservative is needed, please note in the comments below.						
Sample(s) <u>NA</u> were received with bubbles > 6 mm in diameter.						
Sample(s) <u>NA</u> were received with TRC > 0.5 mg/L (if #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Unique ID: <u>NA</u> .						
Comments:						



PACE ANALYTICAL SERVICES, LLC

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 Telephone No. 803-791-9700 Fax No. 803-791-9111
 www.pacelabs.com

Number **143070**

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Client Mountain Research LLC			Report to Contact Jason Floyd										Telephone No. / E-mail J.Floyd@mountainresearch.com					Quote No.				
Address 825 25th Street			Sampler's Signature <i>[Signature]</i>										Analysis (Attach list if more space is needed)					Page 1 of 2				
City Altoona		State PA	Zip Code 16601		Printed Name Jonathan Cunningham															Lot # Bar Code (lab use only)		
Project Name PA DEP PFAS Sampling																						
Project No. 5326.23.01			P.O. No.		Matrix			No of Containers by Preservative Type														
Sample ID / Description (Containers for each sample may be combined on one line.)			Collection Date(s)	Collection Time (Military)	Ge-Grab C=Composite	Aqueous	Solid	Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered						Remarks / Cooler I.D.	
Pre - Purge			02/01/2023	10:30	G	X			4			3				X						2.6
Post - Purge			↓	10:40	G	X			4			3				X	X					4.4
Blank			↓	10:45	G	X			2			2				X	X					4.9
Trip Blank			1/24/23	1401								2										4.9

RG5

Turn Around Time Required (Prior lab approval required for expedited TAT.) <input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)			Sample Disposal <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab				Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown					QC Requirements (Specify)			
1. Relinquished by <i>[Signature]</i>			Date 2/1/2023	Time 13:51	1. Received by <i>[Signature]</i>		Date 2/1/23	Time 13:51							
2. Relinquished by			Date	Time	2. Received by		Date	Time							
3. Relinquished by			Date	Time	3. Received by		Date	Time							
4. Relinquished by			Date	Time	4.		Date	Time							
Note: All samples are retained for four weeks from receipt unless other arrangements are made.						LA					Temp Blank <input type="checkbox"/> Y <input type="checkbox"/> N				





Chain of Custody Receiving Document

Receiver: EB

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Date/Time of this check: 2/1/23 @ 1354 Client: Mountain Research Lab # AXB049

Received on ICE? * Sample Temperature when delivered to the Lab: 4.9 °C Acceptable? * or In cool down process? *

Custody Seals? no Intact? NA

Morning Temperature Verification <6°C (if applicable):

COC/Labels on bottles agree? * Correct containers for all the analysis requested? * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other <input type="checkbox"/> *	Properly Preserved <input type="checkbox"/> *	Bacti	
	250ml										<input checked="" type="checkbox"/> * Internal notification completed for deviations
Pre-purge	4								NA		
Post-purge	4					3 AA/HCL			I		
Blank	2					2 HCL/AA			I		
TB						2-HCL/AA					

<p>* DEVIATION PRESENT:</p> <p><input checked="" type="checkbox"/> No Ice ()</p> <p><input checked="" type="checkbox"/> Not at Proper Temperature ()</p> <p><input checked="" type="checkbox"/> Wrong Container ()</p> <p><input checked="" type="checkbox"/> Missing Information: ()</p>	<p>CLIENT CALLED:</p> <p>YES ()</p> <p>By Whom: _____</p> <p>Date: _____</p>	<p>CLIENT RESPONSE:</p> <p>Proceed with analysis; qualify data ()</p> <p>Will Resample ()</p> <p>Provided Information ()</p> <p>No Response; Proceed and qualified ()</p> <p>Client Contact: _____ Date: _____</p>
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* Comments: _____



How to Interpret a Water Analysis Report

F 103

Paul D. Robillard, Assistant Professor of Agricultural Engineering
William E. Sharpe, Professor of Forest Hydrology
Bryan R. Swistock, Extension Associate

Whether your water causes illness, stains on plumbing, scaly deposits, or a bad taste, a water analysis (see F 105 *Where to Have Your Water Tested*) identifies the problem and enables you to make knowledgeable decisions about water treatment. What is the significance of the parameters listed in the water test report? This fact sheet outlines some of the major parameters you may see on the analysis and assists you in understanding the report.

Features of a Sample Report

Once the lab has completed testing your water, you will receive a report that looks similar to Figure 1. It will contain a list of contaminants tested, the concentrations, and, in some cases, highlight any problem contaminants. An important feature of the report is the **units** used to measure the contaminant level in your water. Milligrams per liter (mg/l) of water are used for substances like metals and nitrates. A milligram per liter is also equal to one part per million (ppm)—that is one part contaminant to one million parts water. About 0.03 of a teaspoon of sugar dissolved in a bathtub of water is an approximation of one ppm. For extremely toxic substances like pesticides, the units used are even smaller. In these cases, parts per billion (ppb) are used. Another unit found on some test reports is that used to measure radon—picocuries per liter. Some values like pH, hardness, conductance, and turbidity are reported in units specific to the test.

In addition to the test results, a lab may make notes on any contaminants that exceeded the PaDEP drinking water standards. For example, in Figure 1 the lab noted that total coliform bacteria and iron both exceeded the standards.

Retain your copy of the report in a safe place as a record of the quality of your water supply. If polluting activities such as mining occur in your area, you may need a record of past water quality to prove that your supply has been damaged.

*** ANALYTICAL LABORATORY REPORT ***		
Client: Client's name	Collected by: KM	
Project: Analytical Laboratory Services	Project Number: CL000001	
Date Collected: 08/28/90	Time Collected: 7:35 am	
Sample Identification: Kitchen Tap	Lab Number: 01000	
Analysis	Results	Units
Total Coliform Bacteria	50	# /100ml
Nitrate-Nitrogen	4.55	mg/l
pH	7.50	units
Iron	0.55	mg/l
Hardness as CaCo3	280	mg/l
Sulfate Sulfur	32.0	mg/l
Chloride	25.4	mg/l
Specific Conductance	344	umhos/cc
On the basis of the above test result(s), this water sample DOES NOT MEET PaDER drinking water standards		
The following notes apply to this sample:		
The Total Coliform Bacteria exceeded the max. lev. of 1 colony/100ml.		
The Iron level exceeded the limit of 0.3 mg/l.		
Submitted by: _____ Laboratory Manager		

Figure 1. A sample water analysis report

Water test parameters

The following tables provide a general guideline to common water quality parameters that *may* appear on your water analysis report. The parameters are divided into three categories: health risk parameters, general indicators, and nuisance parameters. These guidelines are by no means exhaustive. However, they will provide you with acceptable limits and some information about symptoms, sources of the problem and effects. To find out more about how to treat the water or eliminate the contaminant at the source, see related publication F 103 *How to Interpret a Water Analysis Report*. See the end of this publication for information on how to obtain additional publications.

Table 1 *Health Risk Parameters*. The parameters in Table 1 are some common ones that have known health effects. The table lists acceptable limits, potential health effects, and possible uses and sources of the contaminant.

Table 2 *General Water Quality Indicators* are parameters used to indicate the presence of harmful contaminants. Testing for indicators can eliminate costly tests for specific contaminants. Generally, if the indicator is present, the supply may contain the contaminant as well. For example, turbidity or the lack of clarity in a water sample usually indicates that bacteria may be present. The **pH** value is also considered a general water quality indicator. High or low pHs can indicate how corrosive water is. Corrosive water may further indicate that metals like lead or copper are being dissolved in the water as it passes through distribution pipes. Table 2 shows some of the common general indicators.

Table 1: Standards, symptoms, and potential health effects of regulated contaminants.

Contaminant	Acceptable Limit	Sources/Uses	Potential Health Effects at High Concentrations
Atrazine	3ppb or .003 ppm	used as a herbicide; surface or groundwater contamination from agricultural runoff or leaching	heart and liver damage
Benzene	5ppb or .005 ppm	gasoline additive; usually from accidental oil spills, industrial uses, or landfills	blood disorders like aplastic anemia; immune system depression; acute exposure affects central nervous system causing dizziness, headaches; long term exposure increases cancer risks
Lead at tap	0.01 mg/l	used in batteries; lead gasolines and pipe solder; may be leached from brass faucets, lead caulking, lead pipes, and lead soldered joints	nervous disorders and mental impairment, especially in fetuses and infants; kidney damage; blood disorders and hypertension; low birth weights
Nitrates (NO ₃)	10 mg/l (nitrate-N) 45 mg/l (nitrate)	soil by-product of agricultural fertilization; human and animal waste leaching to groundwater	methemoglobinemia (blue baby disease) in infants (birth-6 months); low health threat to children and adults
Total Coliform	<1 coliform/100 ml	possible bacterial or viral contamination from human sewage or animal manure	diarrheal diseases, constant high level exposure can lead to cholera and hepatitis
Radon	300 pCi/l*	naturally occurring gas formed from uranium decay; can seep into well water from surrounding rocks and be released in the air as it leaves the faucet	breathing gas increases chances of lung cancer; may increase risk of stomach, colon and bladder cancers

* Recommended level in water at which remedial action should be taken. No mandatory standards have been set.

Table 2. General water quality indicators.

Indicator	Acceptable Limit	Indication
pH value	6.5 to 8.5	An important overall measure of water quality, pH can alter corrosivity and solubility of contaminants. Low pH will cause pitting of pipes and fixtures or a metallic taste. This may indicate that metals are being dissolved. At high pH, the water will have a slippery feel or a soda taste.
Turbidity	<5 TU	Clarity of sample can indicate contamination.
Total Dissolved Solids (TDS)	500 mg/l	Dissolved minerals like iron or manganese. High TDS also can indicate hardness (scaly deposits) or cause staining, or a salty, bitter taste.

Nuisance contaminants are a third category of contaminants. While these have no adverse health effects, they may make water unpalatable or reduce the effectiveness of soaps and detergents. Some nuisance contaminants also cause staining. Nuisance contaminants may include **iron bacteria, hydrogen sulfide, and hardness**. Table 3 shows some typical nuisance contaminants you may see on your water analysis report.

Hardness is one contaminant you will also commonly see on the report. Hard water is a purely aesthetic problem that causes soap and scaly deposits in plumbing and decreased cleaning action of soaps and detergents. Hard water can also cause scale buildup in hot water heaters and reduce their effective lifetime. Table 4 will help you interpret the hardness parameters cited on your analysis. Note that the units used in this table differ from those indicated in Figure 1. Hardness can be expressed by either mg/l or a grains per gallon (gpg). A gpg is used exclusively as a hardness unit and equals approximately 17 mg/l or ppm. Most people object to water falling in the "hard" or "very hard" categories in Table 4. However, as with all water treatment, you should carefully consider the advantages and disadvantages to softening before making a purchasing a water softener.

Additional Resources

For more detailed information about water

testing ask for publication *Water Tests: What Do the Numbers Mean?* at your local extension office or from the following sources.

Please access:

Website: <http://wqext.psu.edu>

Email: mxh16@psu.edu

Fax: (814) 863-1031

Phone: (814) 865-7685

For more information about other Outreach Publications and Resources from the Department of Agricultural and Biological Engineering:

Website: <http://www.age.psu.edu>

Email: aqm5@psu.edu

Address: Penn State

246 Agricultural Engineering Bldg.
University Park, PA 16802

Phone: (814) 865-7685

Fax: (814) 863-1031

Table 3. Common nuisance contaminants and their effects.

Contaminant	Acceptable Limit	Effects
Chlorides	250 mg/l	salty or brackish taste; corrosive; blackens and pits stainless steel
Copper (Cu)	1.3 mg/l	blue-green stains on plumbing fixtures; bitter metallic taste
Iron (Fe)	0.3 mg/l	metallic taste; discolored beverages; yellowish stains, stains laundry
Manganese (Mn)	0.05 mg/l or 5 ppb	black stains on fixtures and laundry; bitter taste
Sulfates (SO ₄)	250 mg/l	greasy feel, laxative effect
Iron Bacteria	present	orangeish to brownish slime in water

Table 4. Hardness classifications.

Concentration of hardness minerals in grains per gallon (GPG)	Hardness Level
below 1.0	soft
1.0 to 3.5	slightly hard
3.5 to 7.5	moderately hard
7.5 to 10.5*	hard
10.5 and above	very hard

* level at which most people find hardness objectionable

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