

April 2, 2018

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Department of Environmental Protection
Northcentral Regional Office
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Re: Coudersport Area Municipal Authority's Chapter 105 Water Obstruction and Encroachment Permit Application E53-453.

Dear Mr. Garg:

The Allegheny Defense Project and Adirondack Mountain Club respectfully urge you to deny the Coudersport Area Municipal Authority's ("CAMA") above-referenced Chapter 105 water obstruction and encroachment permit application for the Epiphany Centralized Waste Treatment Facility.¹ As we explain below, at a minimum, the Department should stay any further consideration of the Request's merits until CAMA meets the information requirements under federal and state law, including Article I, Section 27 of the Pennsylvania Constitution. These are commonsense look-before-you-leap requirements. They need to be vigorously enforced, especially now given the oil and gas industry's frenetic push to expand fracking in Pennsylvania.

I. Factual Background

In August 2017, Epiphany Allegheny, LLC ("Epiphany") filed an application with the Department of Environmental Protection ("DEP") for a Water Quality Management Permit for a Centralized Water Treatment Facility ("Fracking Wastewater Facility") proposed to be located on CAMA property adjacent to the CAMA Sanitary Sewer Plant in Eulalia Township in Potter

¹ See 48 Pa.B. 1263, 1311-1312 (Mar. 3, 2018) ("Chapter 105 Notice").

County.² The Fracking Wastewater Facility “consists of receiving oil and gas waste water (flowback and production brines) for processing in a multi-stage process.”³ “Following initial receipt and storage, chemical treatment will [allegedly] precipitate metals prior to processing via zero liquid discharge (ZLD) crystallizer separation of salts from distillate.”⁴ “Distillate will either be sold back to industry or discharged to the CAMA POTW for ultimate discharge to the Allegheny River.”⁵

On March 3, 2018, DEP published the instant notice regarding CAMA’s request that DEP consent to the construction, operation and maintenance of a 0.48-acre site for the proposed Fracking Wastewater Facility.⁶ The notice disclosed that the proposed facility would be located within the 100-year floodway and floodfringe of the Allegheny River.⁷ The notice did not identify the DEP’s and CAMA’s trustee obligations under Art. I, Sec. 27 of the Pennsylvania Constitution to “conserve and maintain” the Commonwealth’s resources. Rather, it simply notified the public of CAMA’s request, stated generally the area that would be directly impacted, and told the public where to submit comments.⁸

II. Legal Background

Article I, Section 27 of the Pennsylvania Constitution 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.

² See 48 Pa.B. 1, 93 (Jan. 6, 2018).

³ *Id.*

⁴ *Id.*

⁵ *Id.*

⁶ See Chapter 105 Notice.

⁷ *Id.*

⁸ *Id.*

The location of Section 27 in the Commonwealth’s Declaration of Rights signifies a particular constraint on Commonwealth actions because this portion of our charter “delineates the terms of the social contract between government and the people that are of such ‘general, great and essential’ quality as to be ensconced as ‘inviolable.’”⁹ Each of the “three mandatory clauses” in Section 27 establishe distinct “substantive” constraints, and they all reinforce the DEP’s duty to complete robust environmental reviews before taking action.¹⁰ These constraints and obligations bind not only DEP but “all government, state or local, concurrently[,]” including municipal authorities such as CAMA.¹¹

Following the plurality decision in *Robinson Township*, the Pennsylvania Supreme Court, in a majority opinion, decided *Pennsylvania Environmental Defense Foundation v. Commonwealth*.¹² In *PEDF*, the Court expressly “rel[ied] [] upon the statement of basic principles thoughtfully developed in [*Robinson Township*].”¹³ Thus, the Court in *PEDF* “reaffirmed and extended its landmark decision in *Robinson Township*[.]”¹⁴ As a result, the “Environmental Bill of Rights” located in Article I, Section 27 “is now indisputably the law of the land in Pennsylvania.”¹⁵

⁹ *Robinson Township, Delaware Riverkeeper Network, et al. v. Commonwealth*, 83 A.3d 901, 947 (Pa. 2013) (plurality) (citing PA. CONST. art. I, Preamble & § 25).

¹⁰ *Id.* at 950, 952, 957.

¹¹ *Id.* at 952.

¹² No. 10 MAP 2015 (Pa. June 20, 2017) (“*PEDF*”).

¹³ *PEDF* at 28.

¹⁴ See Ballard Spahr, LLP, “Pennsylvania Supreme Court Extends Its Landmark Robinson Township Decision in [*PEDF*],” July 11, 2017, available at <http://www.ballardspahr.com/alertspublications/legalalerts/2017-07-11-pa-supreme-court-extends-landmark-robinson-twp-decision-in-pedf-v-commonwealth.aspx>.

¹⁵ *Id.*

Article I, Section 27 “contains an express statement of the rights of the people and the obligations of the Commonwealth with respect to the conservation and maintenance of our public natural resources.”¹⁶ “The first right is contained in the first sentence, which is a prohibitory clause declaring the right of citizens to clean air and pure water, and to the preservation of natural, scenic, historic and esthetic values of the environment.”¹⁷ “This clause places a limitation on the state’s power to act contrary to this right” and “any laws that unreasonably impair the right are unconstitutional.”¹⁸

“The second right reserved by Section 27, set forth in the second sentence, is the common ownership by the people, including future generations, of Pennsylvania’s public natural resources.”¹⁹ “The third clause of Section 27 establishes a public trust, pursuant to which the natural resources are the corpus of the trust, the Commonwealth is the trustee, and the people are the named beneficiaries.”²⁰ “As a trustee, the Commonwealth must deal ‘with its citizens as a fiduciary, measuring its successes by the benefits it bestows upon all its citizens in their utilization of natural resources under law.’”²¹ DEP “has a duty to prohibit the degradation, diminution, and depletion of our public natural resources, whether these harms might result from direct state action or from the actions of private parties.”²²

Pennsylvania’s water obstruction and encroachment regulations expressly incorporate DEP’s trustee obligations pursuant to the Pennsylvania Constitution.²³ “A person may not

¹⁶ *PEDF* at 2.

¹⁷ *Id.* at 29.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.* at 30 (footnote omitted).

²¹ *Id.* at 31.

²² *Id.* at 32.

²³ *See* 25 Pa.Code § 105.2(4) (“The purposes of this chapter are to . . . [p]rotect the natural resources, environmental rights and values secured by PA. CONST. art. I, § 27 and conserve and

construct, operate, maintain, modify, enlarge or abandon a . . . water obstruction or encroachment without first obtaining a written permit from the Department.”²⁴ DEP will only review an application if it is “complete,” meaning that “the necessary information is provided and requirements under the act and this chapter have been satisfied by the applicant.”²⁵

In reviewing an application, DEP must “determine the proposed project’s effect on health, safety and the environment, in accordance with prevailing practices in the engineering profession and in accordance with current environmental principles.”²⁶ DEP also considers several factors to make a determination of the project’s impact, including: (i) effects on regimen and ecology of the watercourse or other body of water, water quality, stream flow, fish and wildlife, aquatic habitat, instream and downstream uses and other significant environmental factors; (ii) effects on nearby natural areas, wildlife sanctuaries, public water supplies, other geographical or physical features including cultural, archaeological and historical landmarks, National wildlife refuges, National natural landmarks, National, State or local parks or recreation areas or National, State or local historical sites; (iii) effects of reasonably foreseeable future development within the affected watershed upstream and downstream of the project; (iv) secondary impacts associated with but not the direct result of the project in the area of the project and in areas adjacent thereto; (v) cumulative impact of the project and other potential or existing projects; (vi) consistency with the federal Wild and Scenic Rivers Act and Pennsylvania Scenic

protect the water quality, natural regime and carrying capacity of watercourse.”) *see also* 25 Pa.Code § 105.21(a)(4) (“ . . . a permit application will not be approved unless the applicant demonstrates that . . . [t]he proposed project or action is consistent with the environmental rights and values secured by Pa. Const. Art. I, § 27 and with the duties of the Commonwealth as trustee to conserve and maintain public natural resources of this Commonwealth.”).

²⁴ 25 Pa.Code § 105.11(a).

²⁵ 25 Pa.Code § 105.13a.

²⁶ 25 Pa.Code § 105.14(a).

Rivers Act; (vii) consistency with State antidegradation requirements and the Clean Water Act; and (viii) impacts on wetlands values and functions.²⁷

These and other factors form the basis of an “Environmental Assessment.”²⁸ No construction, operation, maintenance, modification, enlargement or abandonment may occur until DEP approves this assessment.²⁹

III. CAMA’s Chapter 105 Application is Incomplete and Inaccurate

Applicants must submit complete applications before DEP begins its formal review of a proposed project.³⁰ An application is complete “when the necessary information is provided and requirements under the act and this chapter have been satisfied by the applicant.”³¹ If an application is incomplete or contains insufficient information, DEP must notify the applicant in writing of the deficiencies, in which case the applicant has 60 days to complete the application.³² As will be explained below, CAMA’s application is incomplete and inaccurate. DEP must notify CAMA of these deficiencies and provide additional opportunity for public comment upon the submission of a complete application.

Question 14 on the Application asks whether the “proposed regulated activity or area of indirect impact (secondary impact) extend[s] across state boundaries[.]?”³³ CAMA answered “NO” but there are at least two indirect impacts that may extend across state boundaries. The first is the potential for radioactive frack wastewater being discharged into the Allegheny River

²⁷ See 25 Pa.Code § 105.14(b).

²⁸ See 25 Pa.Code § 105.15.

²⁹ *Id.* § 105.15(a).

³⁰ See 25 Pa. Code § 105.13a.

³¹ *Id.* § 105.13a(a).

³² *Id.* § 105.13a(b).

³³ See Application at p. 42.

and then flowing north into New York. This almost certainly would occur if there are ever any problems with the distillation process that is proposed at the facility.

The second is the indirect impact of increased fracking in the area. Upon construction and operation of the proposed Frack Wastewater Facility, gas companies will know they have a local disposal site for their fracking waste. This will likely increase fracking operations nearby, which would mean more roads, pipelines, and well pads, all of which increases erosion and sedimentation, which then enters waterbodies that flow into New York. This type of cross-border pollution recently occurred in Cattaraugus County due to oil and gas drilling operations in Pennsylvania.

In 2012, the New York State Department of Environmental Conservation (“NYDEC”) filed an administrative complaint against U.S. Energy Development Corporation for “water quality violations associated with Pennsylvania drilling activities that affected Yeager Brook in Cattaraugus County” in New York.³⁴ State officials in New York had noticed increased turbidity in Yeager Brook following rain storms and found that “significant amounts of sediment from U.S. Energy’s mining roads and well pads in Pennsylvania’s Allegheny National Forest washed into nearby waterways, resulting in severe turbidity in the waters of Yeager Brook within [New York’s] Allegany State Park.”³⁵ This was an embarrassing situation as both the DEP and the U.S. Forest Service failed to properly regulate U.S. Energy’s oil and gas drilling activities in Pennsylvania, which led to pollution entering the waters of our neighbor to the north. New York should not have to rely on its enforcement mechanisms to hold oil and gas companies

³⁴ See NYDEC, DEC Seeks Fines of \$187,500 from U.S. Energy for Water Quality Violations in Allegany State Park Stream, Jan. 24, 2012, *available at* <https://www.dec.ny.gov/press/79850.html>.

³⁵ *Id.*

responsible for operations occurring in Pennsylvania, especially when Pennsylvania has environmental protection built into its constitution while New York does not. If Pennsylvania regulators had been fulfilling their obligations as a trustee under Article I, Section 27, New York likely would not have had to file a complaint against U.S. Energy.

Increased fracking is a reasonably foreseeable indirect effect of the fracking wastewater facility. This will increase the amount of erosion and sedimentation that will then enter streams and rivers, which will then enter New York. Thus, it was improper for CAMA to select “NO” for Question 14. This comment letter will discuss the indirect and cumulative impact of fracking in greater detail below.

Another reason the application is deficient is the lack of information regarding potential impacts to threatened and endangered species. DEP must ensure “[c]ompliance . . . with applicable laws administered by the . . . Fish and Boat Commission[.]”³⁶ This includes laws and regulations that the Pennsylvania Fish and Boat Commission (“PFBC”) administers for the protection of threatened and endangered species.

On August 28, 2017, Epiphany’s consultant, Tetra Tech, Inc. (“Tetra Tech”), submitted a letter to PFBC stating that its Pennsylvania Natural Diversity Index (“PNDI”) search indicated potential impacts to the endangered burbot, threatened bigmouth shiner, and an additional unidentified endangered species.³⁷ On September 25, 2017, PFBC sent a letter to Tetra Tech acknowledging that “[a]n element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project.”³⁸ “However,” PFBC continues, “given the nature of the proposed project, the immediate location, *or* the

³⁶ 25 Pa. Code § 105.14(b)(6).

³⁷ See Epiphany, WQM Permit Application at p. 126.

³⁸ See Application, Section F, requirement g (PNDI Receipt).

current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.”³⁹ No additional information is provided about the potential impacts on these species or their habitat.

This is woefully insufficient. DEP cannot rely on a vague, 1-page PFBC letter to ensure compliance with the laws that agency administers or to satisfy DEP’s trustee obligations pursuant to Article I, Section 27, especially since PFBC does not even identify a specific reason for its “no adverse impacts” determination. Instead, PFBC says its determination is based on one of three reasons. This is not a multiple-choice exam – which reason is it? This kind of “trust us” administrative process is the antithesis of what it means to be a trustee on behalf of the people of the Commonwealth, including future generations. DEP must require the applicants and PFBC to provide further information about the potential impacts to these species and their habitat either provide a revised determination or provide a detailed explanation for the current “no adverse impacts” determination.

Finally, on the “Chapter 105 Environmental Assessment Form,” only two boxes are checked.⁴⁰ Thirty other boxes are left blank. Did DEP waive these requirements? If so, why? In light of the decisions in *Robinson Township* and *PEDF*, DEP must consider revising its permitting processes so that they reflect its trustee obligations.

For the reasons explained above, DEP must consider CAMA’s application incomplete. DEP must notify CAMA of these deficiencies and require the submission of accurate and complete information before CAMA’s application may be considered administratively complete.

³⁹ *Id.* (emphasis added).

⁴⁰ *See* Application, Section F, requirement *l*.

IV. The impacts of the proposed Fracking Wastewater Facility would be substantial and DEP must prepare a robust and transparent environmental analysis consistent with its obligations as a trustee under Article I, Section 27 of the Pennsylvania Constitution.

DEP must consider multiple factors in reviewing CAMA's application.⁴¹ This review must be done "in accordance with prevailing practices in the engineering profession and in accordance with current environmental principles."⁴² The "current environmental principles" with which the DEP must conduct its review begins with Article I, Section 27 of the Pennsylvania Constitution, as interpreted by the Pennsylvania Supreme Court in *Robinson Township* and *PEDF*. This requires a paradigm shift in how the DEP perceives its role in regulating various aspects of the oil and gas industry in Pennsylvania.

To date, DEP has seen its role as a facilitator of oil and gas development across Pennsylvania, including shale gas development. For example, the current DEP website states that part of the job of the Office of Oil and Gas Management ("OOGM") is "to facilitate" oil and gas drilling in the Commonwealth.⁴³ Indeed, DEP considers the entities it regulates, including companies in the oil and gas industry, as "clients."⁴⁴ But the job of the DEP and OOGM is not "to facilitate" oil and gas drilling; it 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."⁴⁵ And oil and gas companies must not be viewed as "clients" as this implies that it is DEP's job to represent their interests, which is decidedly *not* the role of the trustee of Pennsylvania's environmental resources.

⁴¹ See 25 Pa. Code § 105.14(b).

⁴² *Id.* § 105.14(a).

⁴³ See DEP, Oil and Gas Programs, available at <http://www.dep.pa.gov/Business/Energy/OilandGasPrograms/Pages/default.aspx>.

⁴⁴ See, DEP, Welcome to eFACTS, available at <http://www.ahs.dep.pa.gov/eFACTSWeb/default.aspx/default.aspx>.

⁴⁵ See DEP, Mission Statement, available at <http://www.dep.pa.gov/About/Pages/default.aspx>.

This cozy relationship that DEP has with the regulated community can be seen playing out in this case. For example, on December 20, 2017, David Shimmel, Chief of the New Source Review Section for the North Central Regional Office, sent an email to various DEP officials regarding a phone conference with Epiphany.⁴⁶ According to Mr. Shimmel’s email, Epiphany “provided some very important clarifications on their project at [CAMA].”⁴⁷ Those clarifications were as follows:

- [Epiphany] will be processing **ONLY** produced fluids from producing wells.
- [Epiphany] will **NOT** be processing frac fluid or flowback water.
- [Epiphany] will be receiving produced fluids from one customer only: JKLM Energy
- Reportedly, JKLM Energy does **NOT** use methanol for deicing or as a hydrate inhibitor.
- [Epiphany] will use electric motor driven vapor recompression units, not natural gas-fired engines.
- [Epiphany] will only need a 500 bbl/day throughput limit, not 1,000 bbl/day.⁴⁸

Mr. Shimmel then explained that “[t]hese clarifications change our approach and it sets the table for exemption to be possible.”⁴⁹ In other words, DEP was working with the applicant (*i.e.*, its “client”) to find a way to exempt the project from certain permitting requirements.

One day later, however, Mr. Shimmel sent a follow-up email stating that “JKLM could not guarantee there would be no frac fluid and flowback in the wastewater that Epiphany will receive” and that, as a result, “Epiphany recanted on the first four bullet items” identified above. This is a significant clarification. Nevertheless, Mr. Shimmel reiterated that DEP was still working with Epiphany to navigate the application process on “[t]he road to exemption[.]”⁵⁰ It is not the role of a trustee to bend over backwards to find ways to exempt industrial activities from environmental regulation.

⁴⁶ See Ex. 1.

⁴⁷ *Id.* at 1.

⁴⁸ *Id.* at 1-2 (emphasis in original).

⁴⁹ *Id.* at 2.

⁵⁰ *Id.* at 1.

These discrepancies are the result of the DEP still viewing itself as a proprietor rather than a trustee of the Commonwealth's environmental resources. In *Robinson Township*, the Pennsylvania Supreme Court explained the distinction between the roles of proprietor and trustee:

Under the proprietary theory, government deals at arms['] length with its citizens, measuring its gains by the balance sheet profits and appreciation it realizes from its resources operations. Under the trust theory, it deals with its citizens as a fiduciary, measuring its successes by the benefits it bestows upon all its citizens in their utilization of natural resources under law.⁵¹

The Court also favorably cited the California Supreme Court's statement that:

[P]ublic trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands, and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust.⁵²

The Pennsylvania Supreme Court reiterated these views in *PEDF*.⁵³ The Court concluded that opinion emphasizing that "[t]he Commonwealth (including the Governor and General Assembly) may not approach our public natural resources as a proprietor, and instead must *at all times* fulfill its role as a trustee."⁵⁴ Thus, DEP must stop helping "to facilitate" oil and gas development in Pennsylvania and stop thinking of oil and gas companies as "clients." Such views are antithetical to DEP's fiduciary duties as a trustee.

With these principles in mind, we discuss the factors in § 105.14(b) below.

⁵¹ *Robinson Twp.*, 83 A.3d at 956 (citing 1970 Pa. Legislative Journal-House at 2273).

⁵² *Id.* (citing *Nat'l Audubon Soc'y v. Superior Court*, 33 Cal.3d 419 (1983)).

⁵³ See No. 10 MAP 2015, pp. 30-31 (Pa. June 20, 2017)

⁵⁴ *Id.* at 44.

A. Potential threats to life, property, or navigation and impacts to property/riparian rights, ecology of the Allegheny River, and special designated areas, including public water supplies (§§ 105.14(b)(1) – (5))

DEP must consider the potential threats to life, property, and navigation created by the proposed Fracking Wastewater Facility.⁵⁵ DEP must also consider the impacts of the proposed facility on property and riparian rights of owners upstream, downstream or adjacent to the project.⁵⁶ DEP must also consider the impacts of the proposed facility on the Allegheny River, including its regimen and ecology, water quality, fish and wildlife, aquatic habitat, instream and downstream uses and other significant environmental factors.⁵⁷ DEP must also consider the impact of the proposed facility on nearby natural areas, wildlife sanctuaries, public water supplies, and other geographical or physical features (including public lands).⁵⁸ The facility, if constructed and placed into service, will discharge up to 42,000 gpd of treated oil and gas wastewater into the Allegheny River. Such a facility raises significant concern for impacts to the above-referenced resources.

Researchers at Duke University recently found that “high levels of radioactivity persist in stream sediments at three disposal sites” in Pennsylvania.⁵⁹ “The level of radiation found in stream sediments at the disposal sites was about 650 times higher than radiation in upstream sediments” and in some cases, “exceeded the radioactivity level that requires disposal only at federally designated radioactive disposal sites.”⁶⁰ According to one of the researchers, even

⁵⁵ See 25 Pa.Code § 105.14(b)(1)-(2).

⁵⁶ *Id.* § 105.14(b)(3).

⁵⁷ *Id.* § 105.14(b)(4).

⁵⁸ *Id.* § 105.14(b)(5).

⁵⁹ See Nancy E. Lauer, et al., Sources of Radium Accumulation in Stream Sediments near Disposal Sites in Pennsylvania: Implications for Disposal of Conventional Oil and Gas Wastewater. *Environmental Science & Technology*, 2018; DOI: 10.1021/acs.est.7b04952; see also <https://www.sciencedaily.com/releases/2018/01/180119141157.htm>.

⁶⁰ *Id.*

though the wastewater was treated to reduce its radium content, they “still found high levels of radioactive build-up in the stream sediments [that were] sampled” and “over time even a small amount of radium being discharged into a stream accumulates to generate high radioactivity in the stream sediments.”⁶¹

In addition to radiation, fracking wastewater contains numerous other chemical pollutants that are dangerous to human health and wildlife. We incorporate by reference the comments submitted by Delaware Riverkeeper Network filed on February 5, 2018 regarding Epiphany’s WQM permit application as these comments explain how fracking wastewater is contaminated with toxic chemicals and radiation.

B. Compliance with other applicable laws (§ 105.14(b)(6))

DEP must ensure “[c]ompliance . . . with applicable laws administered by the . . . Fish and Boat Commission[.]”⁶² This includes laws and regulations that the Pennsylvania Fish and Boat Commission (“PFBC”) administers for the protection of threatened and endangered species. As explained above, DEP cannot rely on PFBC’s vague, 1-page letter to ensure compliance with the laws that agency administers or to satisfy DEP’s trustee obligations pursuant to Article I, Section 27, especially since PFBC did not even identify a specific reason for its “no adverse impacts” determination. DEP must require the applicants and PFBC to disclose what species and habitat are potentially impacted by the proposed facility and either provide a revised determination or provide a detailed explanation for the current “no adverse impacts” determination.

⁶¹ *Id.*

⁶² 25 Pa. Code § 105.14(b)(6).

C. Demonstrated unavailability of any alternative (§ 105.14(b)(7))

DEP must consider “[t]he extent to which a project is water dependent and thereby requires access or proximity to . . . water to fulfill the basic purposes of the project.”⁶³ “The dependency *must* be based on the demonstrated unavailability of *any* alternative location, route or design[.]”⁶⁴ Neither Epiphany nor CAMA have met the requirements of this regulation.

The proposed Fracking Wastewater Facility is obviously “water dependent” as Epiphany wants to use the Allegheny River as a dumping site for up to 42,000 gpd of wastewater from oil and gas drilling operations. Thus, Epiphany (and CAMA) must be able to demonstrate that there are no other alternative locations, routes, or designs available; if there are and those alternatives minimize the adverse impacts of the project to a greater degree than the proposed location, then DEP must deny CAMA’s application for a Chapter 105 permit. DEP must require Epiphany and/or CAMA to disclose to the public whether they have considered alternative locations, routes, or designs and whether those alternatives could minimize the impacts of the proposed project to a greater degree.

D. Present conditions and the effects of reasonably foreseeable future development within the affected watershed; secondary impacts; and cumulative impacts (§§ 105.14(b)(8); (12); (14))

DEP must consider the “[p]resent conditions and the effects of reasonably foreseeable future development within the affected watershed upstream and downstream” of the proposed Fracking Wastewater Facility.⁶⁵ “In assessing the impact of future development . . . [DEP] may require the applicant to submit data regarding estimated development potentials and municipal,

⁶³ *Id.* § 105.14(b)(7).

⁶⁴ *Id.* (emphasis added).

⁶⁵ 25 Pa.Code § 105.14(b)(8).

county and regional planning related to the affected watershed.”⁶⁶ DEP must also consider “[s]econdary impacts associated with but not the direct result of” the proposed facility.⁶⁷ Finally, DEP must consider the “cumulative impact of this project and other potential or existing projects.”⁶⁸ Importantly, “[i]n evaluating the cumulative impact, [DEP] will consider whether numerous piecemeal changes may result in a major impairment of the wetland resources.”⁶⁹

Any review of secondary and cumulative impacts must include a comprehensive analysis of past, present, and reasonably foreseeable oil and gas development, including fracking and related shale gas development. As explained at the outset, the proposed Fracking Wastewater Facility would use chemical treatment to precipitate metals prior to processing via zero liquid discharge (“ZLD”) crystallizer separation of salts from distillate. According to NYDEC:

ZLD treatment is a relatively rare, expensive treatment process, and while some vendors suggest that the unit can be setup on the well pad, a more cost-effective use of ZLD treatment will be at a centralized treatment plant located near users of the systems’ byproducts.⁷⁰

The selection of the CAMA property for proposed facility indicates that the Coudersport area was chosen, at least in part, because it is located in an area of reasonably foreseeable fracking

⁶⁶ *Id.* § 105.14(b)(8)(ii).

⁶⁷ 25 Pa.Code § 105.14(b)(12).

⁶⁸ 25 Pa.Code § 105.14(b)(14).

⁶⁹ *Id.* While the regulations speak of “piecemeal changes” in regards to wetlands, DEP must broaden the requirement to all trust resources. As explained in *Robinson Township*, Article I, Section 27 “offers protection equally against actions with immediate severe impact on public natural resources and against actions with minimal or insignificant present consequences that are actually or likely to have significant or irreversible effects in the short to long term.” 83 A.3d at 959. Thus, the Court held that the Commonwealth has a duty to analyze whether numerous piecemeal changes may result in significant impacts to all trust resources, not just wetlands. This includes, but is not limited to, water, air, land, wildlife, and public health.

⁷⁰ NYDEC, Final SGEIS, 5-122 (2015), available at <https://www.dec.ny.gov/energy/75370.html> (scroll down for “2015 Final SGEIS Documents”).

and shale gas development. Thus, DEP must consider the impacts to trust resources of past, present, and reasonably foreseeable oil and gas development.

1. Watershed impacts

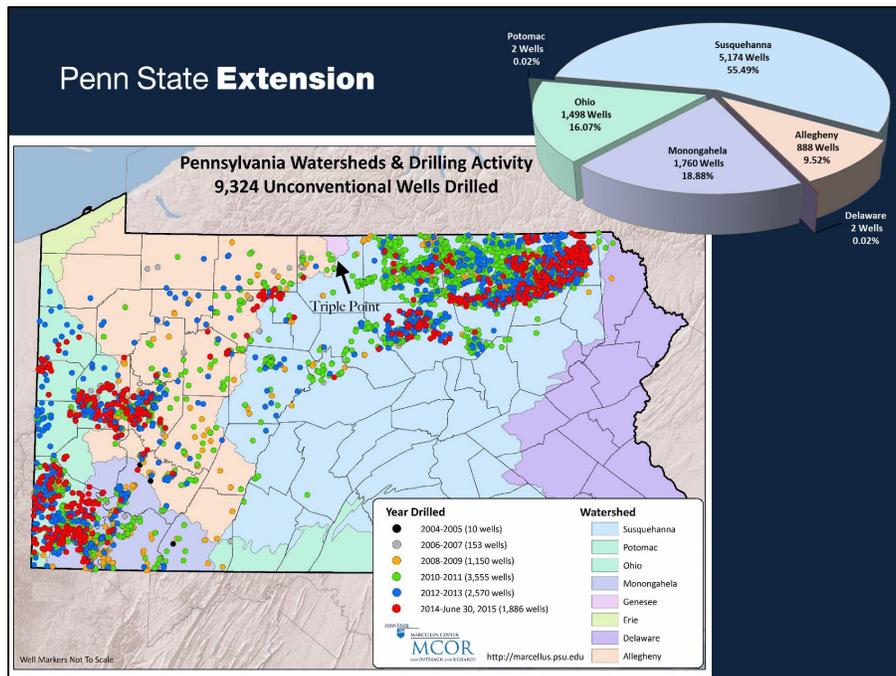
DEP must consider the impacts of past, present and reasonably foreseeable oil and gas development on the Allegheny River, Susquehanna River, and Genesee River watersheds. While the proposed facility would discharge through the POTW and into the Allegheny River, this part of Potter County:

has a unique geographical distinction and can be considered the starting point, (triple point) of three major U.S. watersheds. The north side of this triple point is where the Genesee River originates and flows north eventually emptying into Lake Ontario, the Saint Lawrence River and Atlantic Ocean. The western slope of this triple point forms the Allegheny River, flowing into the Ohio River in Pittsburgh; which flows to the Mississippi and the Gulf of Mexico. Pine Creek, which flows south of the triple point, drains into the West Branch of the Susquehanna at Jersey Shore at an elevation of 520 feet. The West Branch flows into the Susquehanna River at Sunbury and eventually empties into the Chesapeake Bay, the largest estuary in the United States.⁷¹

This “triple point” can be seen in the image below in northcentral Potter County.

⁷¹ DCNR-Community Partnership Program, Pine Creek Watershed Rivers Conservation Plan, 48 (Oct. 2005), *available at* http://www.dcnr.state.pa.us/cs/groups/public/documents/document/D_001481.pdf.

**Figure 1: Pennsylvania Watersheds & Drilling Activity
9,324 Unconventional Wells Drilled (2004 – mid-2015)⁷²**



As Figure 1 above reveals, shale gas development has already impacted substantial portions of Pennsylvania’s watersheds. What this map does not show, however, is all the associated development that is part and parcel of shale gas development.⁷³ In addition to the well pads, there are roads and pipelines (gathering lines and interstate pipelines) that are carved into the landscape, all of which result in increased erosion and sedimentation into streams and rivers. Despite the fact that gas companies have drilled over 9,300 unconventional shale gas wells in Pennsylvania, DEP has never comprehensively analyzed the impacts of all of this infrastructure (well pads, roads, interstate pipelines, gathering lines, compressor stations, etc.) on these and

⁷² See Penn State Extension, Marcellus Center for Outreach and Research, *available at* <http://www.marcellus.psu.edu/resources/images/watershed-map-20150630.jpg>. Note: the number of unconventional wells drilled is undoubtedly much higher now since this map is based on data ending June 30, 2015.

⁷³ It also does not show the thousands of existing and recently drilled conventional oil and gas wells.

other watersheds in the Commonwealth. DEP must do that now before it can approve CAMA's application. This is especially important to do because, as Figure 1 shows, Potter County (where the "triple point" watersheds meet) has not been as heavily impacted by fracking as areas to the east. What will be the impact to these watersheds if CAMA's application is approved and the number of wells, roads, and pipelines in Potter County begins to reflect how counties to the east look? DEP must analyze these substantial watershed impacts before proceeding any further on CAMA's application.

2. Impacts to Public Land

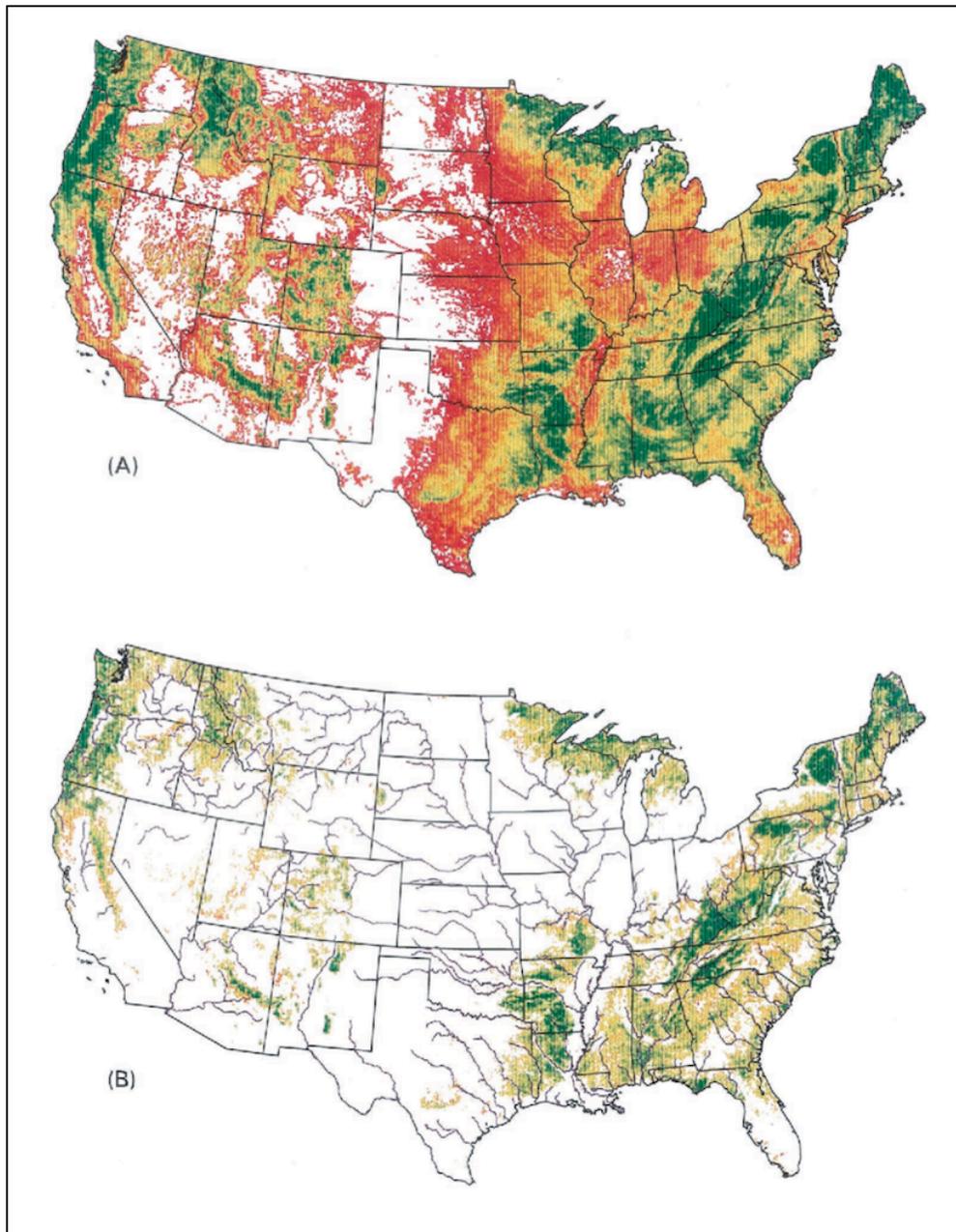
The land use changes caused by shale gas development are having and, if not properly regulated, will continue to have profound and long-term ecological consequences in Pennsylvania. While many of these impacts have occurred on private lands, the gas industry continues encroaching on Pennsylvania's public lands, which provide some of the most remote, forested area important for wildlife and dispersed recreation not only in Pennsylvania but in the eastern United States. DEP has an obligation to "conserve and maintain" Pennsylvania's public resources, including public lands, and must consider and disclose how its approval of CAMA's application and related oil and gas development would further degrade Pennsylvania's state forests and other public lands.

In 2002, researchers modeled the extent of forest fragmentation in the United States. The results underscore the importance of Pennsylvania's public lands. For example, the researchers used "[a] lattice of 56.25 km² cells . . . to summarize forest area and fragmentation statistics."⁷⁴ Based on this, the researchers created two maps of forest cover.⁷⁵

⁷⁴ Riitters, et al., *Fragmentation of Continental United States Forests, Ecosystems* (2002) 5: p. 820, available at https://www.srs.fs.usda.gov/pubs/ja/ja_riitters002.pdf.

⁷⁵ *Id.*; see also Figure 2 below.

Figure 2: Spatial Distribution of U.S. forest and “interior” forest.⁷⁶



In the first map, “[t]he relative amount of forest area within each cell is shaded from low (red) to high (green), for the 106,316 cells that contained more than 0.5% forest.”⁷⁷ The second map

⁷⁶ See <https://www.semanticscholar.org/paper/Fragmentation-of-Continental-United-States-Forests-Riitters-Wickham/41ce16207c6ad10e9511e2cf62b20eabaa027180>.

⁷⁷ Riitters at 820.

identified “[t]he relative amount of ‘interior’ forest (7-ha landscapes) from low (red) to high (green) for the 38,169 cells that contained at least 60% forest.”⁷⁸

The second map clearly shows that northern Pennsylvania not only has the highest amount of “interior forest” in the state but some of the highest amounts of interior forest remaining in the eastern United States. As the researchers point out:

Only a few locations (constituting a subset of the green cells in Figure 4B) had relatively large amounts of core forest: the Ouachita, Ozark, southern Appalachian, Adirondack, and *Allegheny mountains*, the northern parts of New England and the Lake States, and the Pacific Northwest.”⁷⁹

The majority of these remaining “interior forests” are “*concentrated in public ownership* and/or landforms that are not suitable for agriculture or urban development.”⁸⁰ The dark green area on the second map clearly shows the general outline of the Allegheny National Forest and Pennsylvania’s State Forests. It is imperative that DEP and other agencies “conserve and maintain” Pennsylvania’s invaluable public lands, which are largely co-extensive with its remaining interior forest habitat.

Pennsylvania’s public lands not only provide some of the most remote, interior forest left in the Commonwealth, they also are an invaluable source for low-impact outdoor recreation. Pennsylvania’s “[s]tate forests provide unique opportunities for dispersed, low-density outdoor recreation that can be obtained only through large blocks of forest.”⁸¹ Pennsylvania’s state

⁷⁸ *Id.*

⁷⁹ *Id.* at 821 (emphasis added).

⁸⁰ *Id.* (emphasis added).

⁸¹ DCNR, 2015 Draft State Forest Management Plan, p. 166, *available at* http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20031287.pdf.

forests contain “some of the most remote and wild forest in the Mid-Atlantic Region.”⁸² “The largest and most remote areas are found . . . in the Northcentral portion of the state.”⁸³

These remote, critically important public forests are threatened by shale gas development.

According to the DCNR:

The majority of [shale gas] development [on state forests] has occurred in the Devonian-aged Marcellus Shale. Approximately 1.5 million acres of state forest lands lie within the prospective limits of the Marcellus Shale. Assuming a drainage area of 120 acres per well, the [DCNR’s Bureau of Forestry (Bureau)] expects that approximately *3,000 wells may be drilled* to fully develop the lands it currently has leased . . . In recent years, there has been a marked increase in the development of the Ordovician-aged Utica Shale in western Pennsylvania and eastern Ohio . . . As development moves eastward from the Pennsylvania-Ohio border, the [Bureau] has seen an increased interest in the Utica Shale on state forest lands. Development of the Utica has become increasingly prevalent adjacent to state forest lands, primarily in Tioga County and the northwestern section of the state forest system.⁸⁴

DCNR further explains how shale gas development would cause long-term impacts on state

forest lands:

Unconventional shale-gas development can cause short-term or long-term conversion of existing natural habitats to gas infrastructure. The footprint of shale-gas infrastructure is a byproduct of shale-gas development. The use of existing transportation infrastructure on state forest lands, such as roads and bridges, increase considerably due to gas development . . . Shale-gas development requires extensive truck traffic by large vehicles, which may require upgrades to existing roads to support this use. These upgrades may affect the wild character of roads, a value that is enjoyed by state forest visitors . . . Noise from compressors can dramatically affect a state forest user’s recreational experience and generate conflict. Unlike compressors, most sources of potential noise on state forest land are temporary in nature . . . The development of oil and gas resources requires pipelines for delivering the product to market. When compared to other aspects of gas development, pipeline construction has the greatest potential to cause forest conversion and fragmentation due to the length and quantity of pipelines required.⁸⁵

⁸² DCNR, Impacts of Leasing Additional State Forest for Natural Gas Development, 14, available at http://www.dcnr.state.pa.us/cs/groups/public/documents/document/d_000603.pdf.

⁸³ *Id.*

⁸⁴ DCNR, 2015 Draft State Forest Management Plan, 134-35 (emphasis added).

⁸⁵ *Id.* at 136-38.

DEP has an obligation to consider how its decision on CAMA's and Epiphany's applications will facilitate further Marcellus and Utica shale gas development on state forest lands.

DCNR has modeled how shale gas development in nearby Tioga State Forest could quickly erode the forest's "wild character" with new roads and well pads.⁸⁶ First, the model shows this portion of Tioga State Forest as it exists with no gas wells.⁸⁷ Next, DCNR states that an "estimated 54 new well pads could be developed within the next 5-10 years in this ~ 65,000 acre landscape view."⁸⁸ Next, DCNR ranks the existing landscape in terms of its "wild character" before drilling, ranging from "primitive" and "semi-primitive" to "semi-developed."⁸⁹ When DCNR overlays new roads and well pads, it results in "significant decreases in Primitive and Semi-Primitive" forests and "a dramatic increase in semi-developed [] areas."⁹⁰ DCNR says that 54 new well pads in this part of Tioga State Forest would result in a net loss of 8,171 acres of primitive forest, a net loss of 5,274 acres of semi-primitive forest, and a net gain of 13,545 acres of semi-developed area.⁹¹ DCNR concludes that any "additional natural gas development involving surface disturbance would *significantly damage the wild character of the state forest.*"⁹²

The kind of significant damage DCNR described regarding Tioga State Forest can also be seen in Tiadaghton State Forest in western Lycoming County as shown in Figure 3 below.

⁸⁶ See DCNR, Impacts of Leasing Additional State Forest for Natural Gas Development, 20-28.

⁸⁷ *Id.* at 20.

⁸⁸ *Id.* at 21.

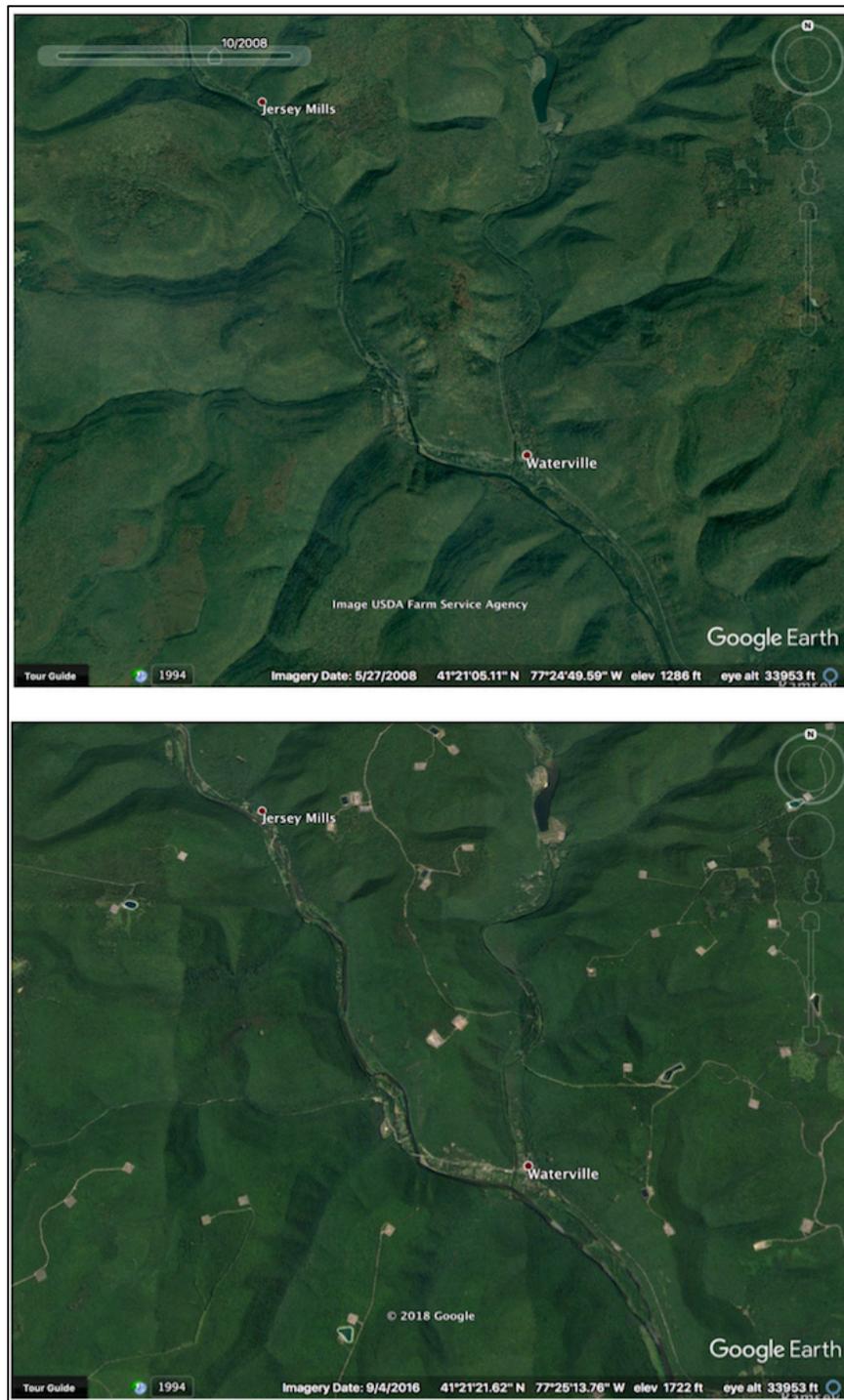
⁸⁹ *Id.* at 22.

⁹⁰ *Id.* at 23-25.

⁹¹ *Id.* at 27.

⁹² *Id.* at 28 (emphasis added).

Figure 3: Tiadaghton State Forest in 2008 (before fracking) and 2016 (after fracking).⁹³



⁹³ These images were created using Google Earth and shows part of Tiadaghton State Forest in Lycoming County near the towns of Jersey Mills and Waterville on May 27, 2008 (top image) and September 4, 2016 (bottom image).

Figure 3 reveals with unmistakable clarity how fracking and shale gas development fragments forests with roads, well pads, impoundments, and related infrastructure. In 2008, this part of Tiadaghton State Forest was incredibly remote with very little infrastructure development outside of the towns of Jersey Mills and Waterville. Less than a decade later, however, the gas industry has fracked its way across the landscape, with DEP's blessing, cutting trees and carving roads, well pads, and impoundments into the previously wild forests. More than two dozen well pads have been constructed, each one with a new road leading to it. This rapid degradation of trust resources must stop. DEP cannot continue allowing the gas industry to degrade trust resources that the Commonwealth has a duty to "maintain and conserve" under Article I, Section 27 of the Pennsylvania Constitution. DEP must consider and disclose to the public the impacts of past, present, and reasonably foreseeable fracking and shale gas development to the "wild character" of Pennsylvania's state forests before proceeding any further on CAMA's and Epiphany's applications.

Another area whose "wild character" is threatened is the Pine Creek Gorge, also known as the Pennsylvania Grand Canyon. According to PFBC, Pine Creek "truly is a Commonwealth treasure."⁹⁴ PFBC continues:

Carving its way through the mountains of Potter, Tioga, and Lycoming counties, Pine Creek is the second largest tributary (based on watershed size) to the West Branch Susquehanna River (Figure 1). The Pine Creek watershed is *resplendent with a bounty of natural resources*. It is *primarily forested and publicly owned* and drains 2,536 sq km (979 sq miles). The free-flowing mainstem of Pine Creek which anchors this *predominantly wild and relatively undeveloped region of northcentral Pennsylvania* is a *special destination for anglers and outdoor recreationists alike and truly is a Commonwealth treasure as evidenced by its 1992 classification as a Scenic River under the Pennsylvania Scenic River Act.*⁹⁵

⁹⁴ PFBC, Pine Creek Fisheries Management Plan, 1. (Mar. 2012), *available at* <http://www.fishandboat.com/Fish/Fisheries/PineCreek/Documents/pine-creek-plan.pdf>.

⁹⁵ *Id.*

In the 1970s, Pine Creek was recommended for inclusion in the National Wild and Scenic River System.⁹⁶ Unfortunately, the Pennsylvania Department of Environmental Resources (now, the Department of Conservation and Natural Resources (“DCNR”)) opposed that designation.⁹⁷ DCNR did, however, recommend that “Pine Creek be included in the State Scenic River Program which was made official in 1992.”⁹⁸

Pine Creek is one of only thirteen rivers designated under Pennsylvania’s Scenic Rivers Program.⁹⁹ Portions of Pine Creek are designated “scenic” while others are designated “wild.”¹⁰⁰ “Scenic” rivers include “those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and undeveloped, but accessible in places by roads.”¹⁰¹ “Wild” rivers include “those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.”¹⁰²

In addition to being a designated State Scenic River, Pine Creek Gorge is a National Natural Landmark.¹⁰³

⁹⁶ *Id.* at 4.

⁹⁷ *Id.* at 5.

⁹⁸ *Id.*

⁹⁹ See DCNR, Scenic Rivers, available at

<http://www.dcnr.state.pa.us/brc/conservation/rivers/scenicrivers/index.htm>.

¹⁰⁰ See <http://www.dcnr.state.pa.us/brc/conservation/rivers/scenicrivers/pinecreek/index.htm> (click on “Map 1” and “Map 2” to see designations).

¹⁰¹ 32 P.S. § 820.24(b)(2).

¹⁰² *Id.* at § 820.24(b)(1).

¹⁰³ See National Park Service, Pine Creek Gorge, available at

<http://www.nature.nps.gov/nnl/site.cfm?Site=PICR-PA>.

Figure 4: Pine Creek Gorge in Tioga County, Pennsylvania.¹⁰⁴



These are the “Commonwealth treasures” that agencies like DEP and DCNR are allowing to be marred with well pads, roads, pipelines, compressor stations, and wastewater impoundments in violation of their trust obligations pursuant to Article I, Section 27 of the Pennsylvania Constitution.

Much of the land to the west of Pine Creek Gorge has already been leased for gas drilling or is underlain by private mineral rights.¹⁰⁵ Ultra Resources has leased Tract 1040 for gas

¹⁰⁴ Marie Cusick / StateImpact Pennsylvania, *available at* <https://stateimpact.npr.org/pennsylvania/2015/07/13/project-would-bring-400000-tons-of-drilling-waste-to-pa-s-grand-canyon/>.

¹⁰⁵ See DCNR, Tract 1040 Map (Ex. 2). This map was created using DCNR’s State Forest Shale Gas Infrastructure Interactive Map, which is available at <http://www.gis.dcnr.state.pa.us/maps/index.html?shaledata=true>. The leased area is shaded in blue and shale gas wells are identified as red squares. Private mineral rights underlie the teal-shaded area.

drilling.¹⁰⁶ Ultra Resources' lease permits it to disturb up to 500 acres on Tract 1040, a substantial amount of land just to the west of Pine Creek Gorge, a National Natural Landmark.¹⁰⁷ According to DCNR, Ultra Resources has constructed at least two well pads on Tract 1040.¹⁰⁸ The expansion of shale gas development surrounding Pine Creek Gorge is a testament to the fact that the Commonwealth's agencies, including DEP, are failing to "conserve and maintain" these vital public resources for "all the people, including generations yet to come."¹⁰⁹ Approving CAMA's and Epiphany's permit applications will only help to facilitate more shale gas development in this region, which means more fragmentation and impacts to Pennsylvania's incomparable state forest lands. DEP must address these secondary and cumulative impacts before making any decision on CAMA's and Epiphany's applications.

3. Impacts to aquatic and terrestrial wildlife

Research on the impacts of shale gas drilling on wildlife habitat (terrestrial and aquatic) underscores the importance of considering these impacts *before* acting on CAMA's and Epiphany's applications. For example, studies indicate that "shale-gas development will affect ecosystems on a broad scale" but that "site-specific or single variable risk assessments likely underestimate threats to ecological health."¹¹⁰ In order to bridge this divide, these researchers

¹⁰⁶ See DCNR, Index to Existing Oil and Gas Leases on Pennsylvania State Forest Lands, p. 3 (last updated Aug. 26, 2014), *available at* http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20029754.pdf.

¹⁰⁷ *See id.*

¹⁰⁸ *Id.*

¹⁰⁹ PA. CONST. art. I, § 27.

¹¹⁰ Souther et al. (2014), Biotic impacts of energy development from shale: research priorities and knowledge gaps. *Frontiers in Ecology and the Environment* 12(6): 334, *available at* http://www.morgantingley.com/wp-content/uploads/2014/08/SoutherEtAl_FREE2014.pdf.

emphasized the urgent need to better understand a host of variables, including the “cumulative ecological impacts of shale development.”¹¹¹

A U.S. Geological Survey (“USGS”) report documents how shale gas development has already significant impacted habitat in Pennsylvania:

A recent analysis of Marcellus well permit locations in Pennsylvania found that well pads and associated infrastructure (roads, water impoundments, and pipelines) required nearly 3.6 hectares (9 acres) per well pad with an additional 8.5 hectares (21 acres) of indirect edge effects (Johnson, 2010). This type of extensive and long-term habitat conversion has a greater impact on natural ecosystems than activities such as logging or agriculture, given the great dissimilarity between gas-well pad infrastructure and adjacent natural areas and the low probability that the disturbed land will revert back to a natural state in the near future (high persistence) (Marzluff and Ewing, 2001).¹¹²

This “extensive and long-term habitat conversion” not only impacts the terrestrial ecosystem but also the aquatic ecosystem since “[f]orest loss as a result of disturbance, fragmentation, and edge effects has been shown to negatively affect water quality and runoff (Wickham and others, 2008)[.]”¹¹³

Indeed, according to recent research that was published in Environmental Science & Technology:

Potential effects [of shale gas drilling] on terrestrial and aquatic ecosystems can result from many activities associated with the extraction process and the rate of development, such as road and pipeline construction, well pad development, well drilling and fracturing, water removal from surface and ground waters, establishment of compressor stations, and by unintended accidents such as spills or well casing failures . . . The cumulative effect of these potential stressors will depend in large part on the rate of development in a region. Depending on extent of development, oil and gas extraction has the potential to have a large effect on associated wildlife, habitat and aquatic life.¹¹⁴

¹¹¹ *Id.* at 337.

¹¹² Milheim, L.E. et al., 2014, Landscape consequences of natural gas extraction in Cameron, Clarion, Elk, Forest, Jefferson, McKean, Potter, and Warren Counties, Pennsylvania, 2004-2010: U.S. Geological Survey Open File Report 2014-1152, at 10. (“USGS Report”), available at <https://pubs.usgs.gov/of/2014/1152/pdf/of2014-1152.pdf>.

¹¹³ *Id.* at 8, 10.

¹¹⁴ Brittingham, M.C., et al., Ecological Risks of Shale Oil and Gas Development to Wildlife, Aquatic Resources and their Habitats, Environmental Science & Technology, pp. 11035-11037

The impacts of shale gas development are significant because it “changes the landscape” as “[I]and is cleared for pad development and associated infrastructure, including pipelines, new and expanded roads, impoundments, and compressor stations[.]”¹¹⁵ “Seismic testing, roads, and pipelines bisect habitats and create linear corridors that fragment the landscape.”¹¹⁶

“Habitat fragmentation is one of the most pervasive threats to native ecosystems and occurs when large contiguous blocks of habitat are broken up into smaller patches by other land uses or bisected by roads, transmission lines, pipelines or other types of corridors.”¹¹⁷ “Habitat fragmentation is a direct result of shale development with roads and pipelines having a larger impact than the pads.”¹¹⁸ In Bradford County, Pennsylvania, “forests became more fragmented primarily as a result of the new roads and pipelines associated with shale development, and development resulted in more and smaller forest patches with loss of core forest (forest > 100 m from an edge) at twice the rate of overall forest loss.”¹¹⁹ “Pipelines and roads not only resulted in loss of habitat but also created new edges.”¹²⁰ “Fragmentation from linear corridors such as pipelines, seismic lines, and roads can alter movement patterns, species interactions and ultimately abundance depending on whether the corridor is perceived as a barrier or territory boundary or used as an avenue for travel and invasion into habitats previously inaccessible.”¹²¹

(Sept. 4, 2014) (citations omitted), *available at*

https://www.researchgate.net/publication/265343414_Ecological_Risks_of_Shale_Oil_and_Gas_Development_to_Wildlife_Aquatic_Resources_and_their_Habitats.

¹¹⁵ *Id.* at 11037 (citations omitted).

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.* (citations omitted).

¹¹⁹ *Id.* (citation omitted).

¹²⁰ *Id.*

¹²¹ *Id.* (citations omitted).

According to the NYDEC, “development of one horizontal [shale] well requires over 3300 one-way truck trips.”¹²² “This is a concern because roads of all types have a negative effect on wildlife through direct mortality, changes in animal behavior, and increased human access to areas, and these negative effects are usually correlated with the level of vehicular activity.”¹²³ “Even after a well is drilled and completed, new roads and pipelines provide access for more people, which results in increased disturbance.”¹²⁴ “In Wyoming, Sawyer et al. found that mule deer migratory behavior was influenced by disturbance associated with coal bed gas development and observed an increase in movement rates, increased detouring from established routes, and overall decreased use of habitat along migration routes with increasing density of well pads and roads.”¹²⁵

Shale gas development “is associated with both short-term and long-term increases in noise.”¹²⁶ “In the short term, site clearing and well drilling, [high volume hydraulic fracturing], and construction of roads, pipelines and other infrastructure are a limited time disturbance similar to disturbance and sound associated with clearing land and home construction.”¹²⁷ “Depending on number of wells drilled, construction and drilling can take anywhere from a few months to multiple years.”¹²⁸

“Compressor stations, which are located along pipelines and are used to compress gas to facilitate movement through the pipelines, are a long-term source of noise and continuous

¹²² *Id.* at 11038 (citation omitted).

¹²³ *Id.* (citations omitted).

¹²⁴ *Id.*

¹²⁵ *Id.* (citation omitted).

¹²⁶ *Id.*

¹²⁷ *Id.* (citation omitted).

¹²⁸ *Id.*

disturbance.”¹²⁹ “Because chronic noise has been shown to have numerous costs to wildlife, compressors have potential to have long-term effects on habitat quality.”¹³⁰ “For many species of wildlife, sound is important for communication, and noise from compressors can affect this process through acoustical masking and reduced transmission distances.”¹³¹ “Studies on effects of noise from compressors on songbirds have found a range of effects including individual avoidance and reduced abundance, reduced pairing success, changes in reproductive behavior and success, altered predator-prey interactions, and altered avian communities . . . Greater sage-grouse (*Centrocercus urophasianus*) gather at leks where males display in order to attract females.”¹³² “Lek attendance declined in areas with chronic natural gas-associated noise and, experimentally, sage-grouse were shown to experience higher levels of stress when exposed to noise.”¹³³

“Because of the large overlap between the Appalachian shale play and core forest habitat in the East, many forest species are vulnerable to development.”¹³⁴ “Area-sensitive forest songbirds are primarily insect-eating Neotropical migrants, are an important component of forest ecosystems, and, as a group, many have declined in numbers in response to forest fragmentation.”¹³⁵ “These birds are area-sensitive because breeding success and abundance are highest in large blocks of contiguous forest, and numerous research studies have documented

¹²⁹ *Id.* (citation omitted).

¹³⁰ *Id.* (citation omitted).

¹³¹ *Id.*; see also U.S. Fish and Wildlife Service Letter January 27, 2015 Letter to FERC (FERC Docket CP14-112-000, Accession No. 20150202-0104) (“[n]oise levels over background levels can adversely affect wildlife, particularly songbirds, that rely on call identification for successful breeding.”).

¹³² *Id.*

¹³³ *Id.* (citations omitted).

¹³⁴ *Id.* at 11040.

¹³⁵ *Id.* (citations omitted).

negative effects of fragmentation on abundance and productivity[.]”¹³⁶ “The impact that shale development has on this group of species will depend on the scale and extent of development.”¹³⁷

“By some estimates, less than 10% of potential shale gas development has occurred in the Appalachian basin [and] [i]f this is the case, there is the potential for a 10-fold increase in the amount of shale gas development which would likely have negative impacts on area-sensitive forest songbirds and other forest specialists.”¹³⁸

“Development of shale resources, which clears land for well pads and roads, is occurring across a large portion of the native range of brook trout, *especially in Pennsylvania*.”¹³⁹ “If remaining high-quality stream reaches become unsuitable to brook trout, there may be further fragmentation of the larger meta-population.”¹⁴⁰

“Rare species with limited ranges are always a concern when development occurs” and any type of disturbance can be very detrimental to them.”¹⁴¹ “Freshwater mussels are an additional taxonomic group of interest because of already high numbers of listed species and relative sensitivity to toxicants.”¹⁴² “Gillen and Kiviat 2012 reviewed 15 species that were rare and whose ranges overlapped with the Marcellus and Utica shale by at least 35%.”¹⁴³

“Habitat fragmentation, effects on water quality and quantity, and cumulative effects on habitats and species of concern have already been identified as problems and are expected to increase in magnitude as shale resource development continues to expand.”¹⁴⁴ Brittingham et al.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.* (emphasis added) (citation omitted).

¹³⁹ *Id.* (emphasis added) (citation omitted).

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.* (citation omitted).

¹⁴³ *Id.*

¹⁴⁴ *Id.* at 11043.

(2014) “suggests that species and habitats most at risk are ones where there is an extensive overlap between a species range or habitat type and one of the shale plays (leading to high vulnerability) coupled with intrinsic characteristics such as limited range, small population size, specialized habitat requirements, and high sensitivity to disturbance.”¹⁴⁵ “Examples include core forest habitat and forest specialists, sagebrush habitat and specialists, vernal pond inhabitants, and stream biota.”¹⁴⁶ Brittingham et al. (2014) demonstrates the substantial impact that shale gas drilling is having and will continue to have on terrestrial and aquatic habitats and wildlife throughout the Marcellus and Utica shale region. Such impacts will only worsen if DEP continues facilitating such drilling by authorizing infrastructure projects such as the one proposed here without analyzing their secondary and cumulative impacts.

One species of special concern here is the burbot (*Lota lota*). The burbot is listed as an endangered species in Pennsylvania¹⁴⁷ and was identified in Epiphany’s WQM permit application as one of the species identified in the PNDI search.¹⁴⁸ Outside of Lake Erie, the only known Pennsylvania population of burbot “is restricted to Allegheny River headwaters and tributaries[,]” which is where the proposed Fracking Wastewater Facility is located.¹⁴⁹ Burbot “is our only fresh water representative of the primarily ocean-dwelling species of the Codfish Family.”¹⁵⁰ “The Allegheny River population represents a relic/distribution” and “is *more vulnerable* to some of the environmental changes (pollution, competition with other species,

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ See 58 Pa.Code § 75.1(b)(22) (inland populations only).

¹⁴⁸ See Epiphany, WQM Application at p. 126.

¹⁴⁹ Tzilkowski, C., et al., Final Report for Grant Agreement ME#381152: Survey of Inland Populations of Burbot (*Lota lota*) in Pennsylvania, Pennsylvania State University, Abstract (Jan. 2004), available at <https://research.dcnr.pa.gov/GetPDF.ashx?306+R>.

¹⁵⁰ Pennsylvania Natural Heritage Program, Burbot (*Lota lota*), available at <http://www.naturalheritage.state.pa.us/factsheets/11379.pdf>.

overfishing) causing a reduction of Great Lakes populations in the past.”¹⁵¹ “Watershed management practices that *maintain or enhance* the physical and chemical conditions required by this species are necessary to assure its continued existence as a part of our fauna.”¹⁵²

Certainly, the construction of a Fracking Wastewater Facility that can dump 42,000 gpd of treated fracking wastewater into the Allegheny River and continued shale gas development in the surrounding watershed are not the kinds of activities that will “maintain or enhance the physical and chemical conditions required” by burbot for their continued existence in this part of Pennsylvania. Under Article 1, Section 27, DEP has a duty to “conserve and maintain” burbot in the upper Allegheny River. DEP must therefore consider how the proposed facility and continued permitting of shale gas development in this part of Pennsylvania threaten the continued existence of this relic burbot population and disclose that information to the public before proceeding any further on CAMA’s and Epiphany’s applications.

It is also likely that the dramatic increase in shale gas drilling in this region of Pennsylvania has disrupted bobcat populations in a manner similar to that documented in the Brittingham et al. (2014) research regarding mule deer. In 2012, NYDEC revised its “Bobcat Management Plan” because:

Observations by hunters and trappers, and reports from the general public suggest that bobcat populations are increasing and expanding throughout New York State outside of their historic core range in the Taconic, Catskill, and Adirondack mountains and into central and western New York. *In addition, emigration of bobcats from Pennsylvania has likely fostered growth of the bobcat population in the southern tier of the state* (Matt Lovallo, Pennsylvania Game Commission, personal communication).¹⁵³

The plan further stated:

¹⁵¹ *Id.* (emphasis added)

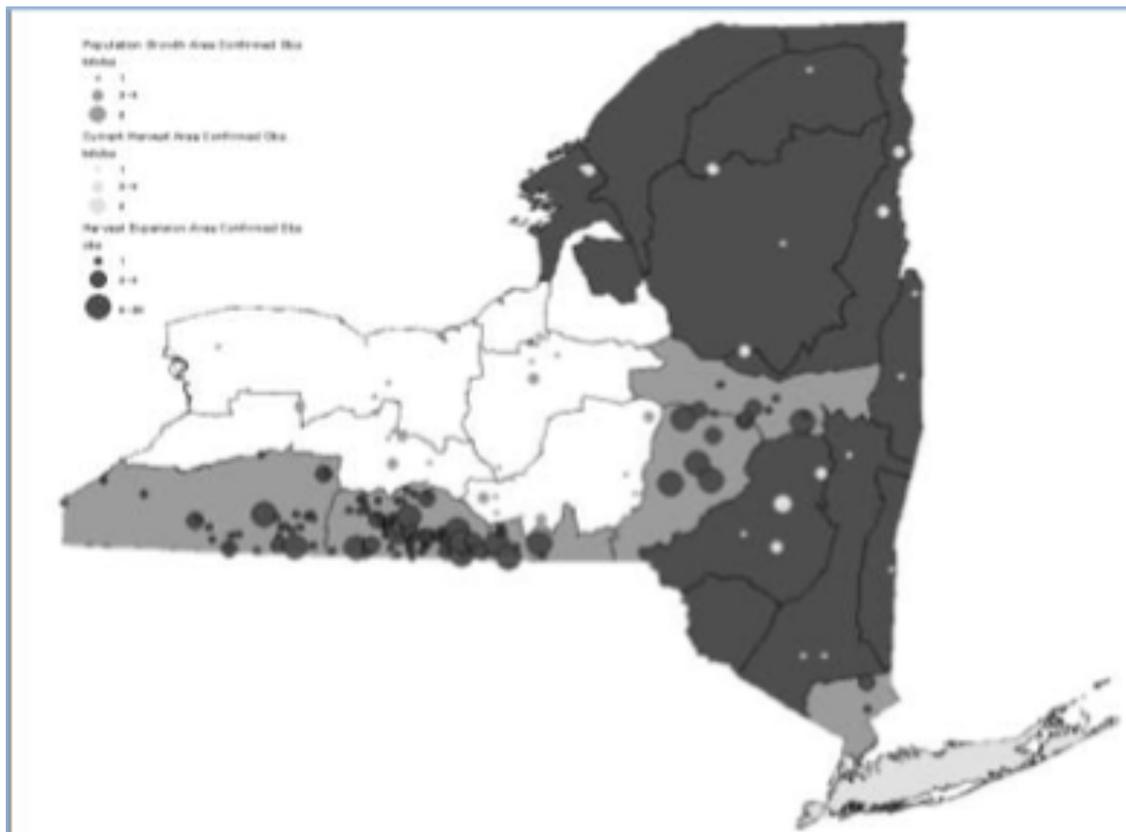
¹⁵² *Id.* (emphasis added)

¹⁵³ NYDEC. Management Plan for Bobcat in New York State 2012-2017. p. 8. 2012 (emphasis added). available at: http://www.dec.ny.gov/docs/wildlife_pdf/finalbmp2012.pdf.

The presence of bobcat in New York's Southern Tier has *increased dramatically* over the past decade. What began as occasional sightings along the New York/Pennsylvania border has progressed to large numbers of observations, trail camera photos, and incidental captures and releases by trappers. *Over the past five years* there have been 332 bobcat observations documented in the harvest expansion area[.]¹⁵⁴

The following figure, showing the number confirmed bobcat observations in New York from 2006-2011, reveals a concentration of observations along the Pennsylvania border:

Figure 5: Total Confirmed Bobcat Observations, 2006-2011.¹⁵⁵



While NYDEC was documenting an increase in bobcat observations in the southern tier of New York between 2006-2011, thousands of shale gas wells were being drilled in the northern tier of Pennsylvania. Thus, at the same time the gas industry began and then rapidly escalated gas drilling across the northern tier of Pennsylvania, the bobcat population in the southern tier of

¹⁵⁴ *Id.* at 17 (emphasis added).

¹⁵⁵ *Id.*

New York “increased dramatically.” Since there has been no shale gas development in New York throughout this time period due to a moratorium (and now ban) on shale gas development, this suggests that the rapid increase in shale gas development in Pennsylvania may be causing “emigration of bobcats from Pennsylvania” into southern New York.

A report from National Fuel suggests why such impacts may be happening. For example, National Fuel stated that the drilling operations of its exploration and production subsidiary, Seneca Resources, occur *24-hours a day*.¹⁵⁶ If Seneca Resources and other shale gas drilling companies are operating in remote, forested areas 24-hours a day (in addition to new compressor stations, which also operate 24/7), then it is reasonable to assume that those operations are having significant impacts on wildlife that depend on remote, forested habitat for survival. DEP must examine the impacts that 24-hour shale gas drilling operations are having on wildlife populations in Pennsylvania.

Concurrent with the sharp rise of gas drilling in Pennsylvania’s northern tier, several companies began expanding their pipeline systems in Pennsylvania. For example, between 2009 – 2011, the Federal Energy Regulatory Commission (“FERC”) approved four Tennessee Gas expansion projects along that company’s 300 Line in northern Pennsylvania.¹⁵⁷ Thus, construction of these projects overlapped with the substantial increase in shale gas development and the “emigration of bobcats from Pennsylvania” into southern New York.

It is important to reiterate that, as of 2014 when the Brittingham research was published, “less than 10% of potential shale gas development has occurred in the Appalachian basin [and] [i]f this is the case, there is the potential for a 10-fold increase in the amount of shale gas

¹⁵⁶ See National Fuel 2013 Annual Report, p. 3 (emphasis added), *available at* http://s2.q4cdn.com/766046337/files/doc_financials/2013/NFG_SAR_13_Final.pdf.

¹⁵⁷ See *Tennessee Gas Pipeline, L.L.C.*, 153 FERC ¶ 61,215, P 3 (Nov. 19, 2015).

development which would likely have negative impacts on area-sensitive forest songbirds and other forest specialists.”¹⁵⁸ In other words, if wildlife populations are already being displaced when “less than 10% of potential shale gas development has occurred in the Appalachian basin,” then it is very likely that wildlife will be far more impacted if agencies like DEP continue issuing permits for shale gas development and pipelines.

In a 2012 presentation provided through the Penn State Cooperative Extension, The Nature Conservancy (“TNC”) estimated that *60,000 shale gas* wells could eventually be drilled in Pennsylvania.¹⁵⁹ TNC further reviewed how these projected wells would be distributed on the landscape under various well pad development scenarios.¹⁶⁰ TNC also analyzed where Marcellus Shale drilling was likely to occur and how many miles of new pipelines and the direct and indirect effects of those pipelines on forests by 2030.¹⁶¹

By 2030, TNC estimated that there could be 10,000 – 25,000 miles of new gathering pipelines causing an estimated *60,000 to 150,000 acres of direct forest clearing and 300,000 to 900,000 acres of forest edge effects*.¹⁶² According to TNC, pipeline mileage in Pennsylvania will at least double if not quadruple by 2030.¹⁶³ The footprint from pipelines alone is projected to be larger than the “cumulative area impacted by all other Marcellus gas infrastructure combined.”¹⁶⁴

These are enormous impacts that will have long-term consequences that will not only impact Pennsylvania’s terrestrial habitat but also Pennsylvania’s waterbodies since construction

¹⁵⁸ Brittingham et al. at 11040.

¹⁵⁹ TNC, Marcellus Gas Well & Pipeline Projections, p. 13 (2012), *available at* <http://extension.psu.edu/natural-resources/forests/private/training-and-workshops/2012-goddard-forum-oil-and-gas-impacts-on-forest-ecosystems/marcellus-gas-well-and-pipeline-projections>.

¹⁶⁰ *Id.* at 13.

¹⁶¹ *Id.* at 15-17; 21.

¹⁶² *Id.* (emphasis added).

¹⁶³ *Id.* at 22.

¹⁶⁴ *Id.*

of shale gas wells, pipelines, and roads requires extensive surface-disturbing activities that cause erosion and sedimentation into water. State officials have already documented the impacts of recent shale gas drilling on fisheries in the Pine Creek watershed, including wild trout populations. According to the PFBC:

Looking beyond the mainstem of Pine Creek is where we may have the greatest opportunity to improve management and protection. There are many unassessed streams in the Pine Creek watershed that likely harbor wild trout populations. Many of these streams are located on State Forest Land and were, until recently, considered “safe” from development and mineral extraction. *However, with the recent Marcellus Shale boon [sic], much of the Pine Creek watershed has been leased for natural gas drilling . . . Our observations of several township roads in the Pine Creek watershed during winter 2009/2010 that were being used to access Marcellus well sites was that the roads were not built to handle the heavy truck traffic, and were not improved in any manner prior to well development. The roads were heavily rutted and much erosion was occurring. The impacts of sedimentation can be severe, especially for brook trout[.]*¹⁶⁵

According to the Susquehanna River Basin Commission (“SRBC”), there are at least 81 natural gas drilling pads¹⁶⁶ in the Pine Creek watershed.¹⁶⁷ A lot of this development is in the lower Pine Creek watershed in Tiadaghton State Forest. What was once a mostly intact part of the Pine Creek watershed on state-owned public lands is now fragmented by roads, well pads, and associated shale gas infrastructure. Each new road and well pad converts forest land to impervious surface, which increases the amount of erosion and sedimentation entering Pine Creek and its tributaries, which impacts habitat for species like brook trout. DEP must account for these secondary and cumulative impacts before proceeding any further on CAMA’s and Epiphany’s applications.

¹⁶⁵ Pine Creek Fisheries Management Plan, 24-25 (emphasis added).

¹⁶⁶ A drilling “pad” is the area cleared for drilling and fracking operations. There can be multiple wells drilled on a single pad. Thus, if there are 81 drilling “pads” in the Pine Creek watershed, there could be more than 81 wells.

¹⁶⁷ See SRBC, Pine Creek Watershed Profile, available at <http://mdw.srbc.net/remotewaterquality/assets/downloads/pdf/Pine%20CreekBlackwellWatershedProfile.pdf>.

4. Impacts on special status species.

In addition to wildlife in general, DEP must consider the secondary and cumulative impacts of fracking and shale gas development on special-status species, including state-listed threatened, endangered, and candidate species. We discussed above the potential impacts on one endangered species, the burbot. Below, we discuss potential impacts on other species, including timber rattlesnake and northeastern bulrush. DEP has a constitutional duty under to conserve and maintain these species.¹⁶⁸ Before DEP can issue any permits, it must comprehensively examine the secondary and cumulative impacts of fracking and shale gas development on these species.

a. Timber Rattlesnake

DEP must consider the secondary and cumulative impacts of fracking and shale gas development on the timber rattlesnake. It is important to note that the timber rattlesnake is already “extirpated from Maine, Rhode Island, and Ontario,” listed as “state endangered in New Hampshire, Vermont, Massachusetts, Connecticut, Ohio, and New Jersey,” listed as “threatened in New York, and considered a species of concern in West Virginia and Maryland.”¹⁶⁹ In comparison, the timber rattlesnake “continues to persist in relatively large population densities across some regions of Pennsylvania, though these populations are highly disjunct.”¹⁷⁰ “Consequently, Pennsylvania may function as a stronghold for the **continued survival of this species.**”¹⁷¹

¹⁶⁸ PA. CONST. art. I, § 27.

¹⁶⁹ PFBC, Species Action Plan – Timber Rattlesnake, p. 4 (June 2011), *available at* <http://fishandboat.com/water/amprep/species-plan-timber-rattlesnake.pdf>.

¹⁷⁰ *Id.*

¹⁷¹ *Id.* (emphasis added, citation omitted). Considering that shale gas drilling has increased substantially across Pennsylvania since PAFBC’s Action Plan for timber rattlesnakes was published in 2011, the population density figures could be outdated.

According to DCNR, “[t]he largest populations of timber rattlesnakes occur in remote, heavily forested regions of Pennsylvania, *which means they often call state forests home.*”¹⁷² Pennsylvania’s “2.2 million acres of State Forest lands provide the *largest blocks of timber rattlesnake range remaining in the Northeastern states.*”¹⁷³

Pipeline construction and shale gas drilling could permanently change that, however. According to PFBC, some of the leading threats to timber rattlesnakes include “natural resource extraction and associated infrastructure development,” “habitat destruction or disturbance in hibernacula areas,” “increase of human activity within habitat range,” “new road construction,” and “high vehicular traffic on previously low volume roadways.”¹⁷⁴ These are precisely the kinds of impacts that result from pipeline construction and shale gas drilling.

DEP has an obligation to conserve and maintain timber rattlesnake and other threatened, endangered, candidate and sensitive species. According to the PFBC, “in the past decade, encroachment by oil and gas development into Timber Rattlesnake strongholds has increased significantly with the relatively new shale gas industry in this Commonwealth.”¹⁷⁵ “The northcentral portions of the range, once considered the core undisturbed populations, have been subject to high volume of exploration, well pad construction, pipeline construction, associated roads and infrastructure.”¹⁷⁶

In light of PFBC’s statements, it is astonishing that the agency has removed timber rattlesnake from the candidate species list.¹⁷⁷ Unfortunately, the rule change was not grounded in

¹⁷² DCNR, Rattlesnakes in Pennsylvania State Forests (emphasis added), *available at* <http://dcnr.state.pa.us/forestry/wildlife/rattlesnakes/index.htm>.

¹⁷³ *Id.* (emphasis added).

¹⁷⁴ *Id.* at 5.

¹⁷⁵ 45 Pa.B. 47, 6661, 6694 (Nov. 21, 2015).

¹⁷⁶ *Id.*

¹⁷⁷ *See* 46 Pa.B. 36, 5733 – 5734 (Sept. 3, 2016).

science but rather custom-made to make it easier for the oil and gas industry to destroy timber rattlesnake habitat. For example, PFBC claimed that even though “there are increasing threats to Timber Rattlesnakes through exposure to human disturbance,” shale gas well pads “thus far are on the top of slopes and plateaus and do not directly interfere directly with den habitat” and pipelines “can provide important additional basking habitat in areas where canopy closure has posed problems for available basking and gestating habitat.”¹⁷⁸ There are at least five major problems with PFBC’s assumptions that DEP must consider as part of its analysis of secondary and cumulative impacts.

First, PFBC’s claims were based on “anecdotal evidence” and “Commission observations,” not peer-reviewed research.¹⁷⁹ Second, as the Brittingham study discussed above noted, shale gas drillers have drilled approximately 10% of the shale wells that could be drilled in Pennsylvania. The fact that existing well pads “thus far” have allegedly not directly interfered with den habitat is no indication that substantial interference will not occur if the remaining 90% of shale gas wells are drilled. It is decidedly premature to delist a species when the “*relatively new shale gas industry*” is “encroach[ing] . . . into Timber Rattlesnake strongholds[.]”¹⁸⁰ Third, PFBC did not weigh the corresponding risks to timber rattlesnake from road construction, increased heavy-truck traffic, and increased human access into previously remote areas. Even if a new pipeline corridor may provide artificial basking habitat, what does that matter if there is increased road mortality? Fourth, PFBC admitted that “[l]arge portions (estimated 50%) of the

¹⁷⁸ 45 Pa.B. 47, 6661, 6694 (Nov. 21, 2015).

¹⁷⁹ *Id.*

¹⁸⁰ *Id.* (emphasis added).

Timber Rattlesnake range remain unassessed due to lack of landowner permissions or access difficulty.”¹⁸¹ Thus, PFBC’s rule change was based on incomplete data and anecdotal evidence.

Regardless of PFBC’s ill-advised rule change, DEP has a continuing obligation to “conserve and maintain” this species under Article I, Section 27 of the Pennsylvania Constitution. Before DEP makes a decision on CAMA’s or Epiphany’s applications, it must consider how the secondary and cumulative impacts of shale gas development have impacted and will impact timber rattlesnake and ensure that this species is conserved and maintained.

b. Northeastern Bulrush

Northeastern bulrush is a state-listed and federally-listed endangered species in Pennsylvania.¹⁸² According to the Pennsylvania Natural Heritage Program (“PNHP”), northeastern bulrush occurs in Tioga County and Clinton County, two counties near the proposed Epiphany facility and where extensive shale gas development has occurred and is reasonably foreseeable to occur in the future. Northeastern bulrush is a “wetland plant . . . [o]ccurring in isolated areas scattered across seven states [that] is difficult to find and difficult to recognize.”¹⁸³ “[H]abitat alternations that make a site [consistently drier or wetter could make life impossible for northeastern bulrush.”¹⁸⁴ Even “[s]light variations in the natural fluctuation in the water level can harm this plant.”¹⁸⁵ “Activities such as filling or ditching in a wetland can destroy or degrade this species’ habitat and pose a threat.”¹⁸⁶ The key to recovery for northeastern bulrush is “preventing

¹⁸¹ *Id.*

¹⁸² See Pennsylvania Natural Heritage Program, Northeastern Bulrush (*Scirpus ancistrochaetus*), available at <http://www.naturalheritage.state.pa.us/factsheets/15236.pdf> (“PNHP Bulrush”).

¹⁸³ U.S. Fish and Wildlife Service, Northeastern Bulrush, available at <https://www.fws.gov/northeast/pdf/bulrush.pdf> (“FWS Bulrush”).

¹⁸⁴ *Id.*

¹⁸⁵ PNHP Bulrush.

¹⁸⁶ FWS Bulrush.

habitat destruction and deterioration at sites where the plant now grows and any additional locations as they are found.”¹⁸⁷ “[E]nhanced protection from nearby road construction,” a major contributing factor of shale gas development, is also critical to recovery.¹⁸⁸ Before DEP makes a decision on CAMA’s or Epiphany’s applications, it must consider how the secondary and cumulative impacts of shale gas development have impacted and will impact northeastern bulrush and ensure that this species is conserved and maintained.

V. DEP should deny CAMA’s and Epiphany’s applications and place a moratorium on fracking and shale gas development.

As explained above, DEP has failed to consider the impact of fracking and shale gas development on a myriad of trust resources. It is incumbent on DEP, as a trustee under Article I, Section 27 of the Pennsylvania Constitution, to protect these resources for the beneficiaries, the citizens of Pennsylvania (including future generations). Until such time that DEP can prepare a comprehensive environmental impact analysis to inform the citizens of Pennsylvania about the substantial impacts to trust resources caused by past, present, and reasonably foreseeable fracking and shale gas development, DEP should deny CAMA’s and Epiphany’s applications and place a moratorium on any further fracking and shale gas development.

A moratorium would be consistent with what states on either side of Pennsylvania have done to protect their environment from fracking and shale gas development. In 2012, New York banned high-volume hydraulic fracturing.¹⁸⁹ In 2017, the governor of Maryland signed legislation banning fracking in that state.¹⁹⁰ It is ironic, to say the least, that two states without

¹⁸⁷ *Id.*

¹⁸⁸ PNHP Bulrush.

¹⁸⁹ See New York State Department of Conservation and Natural Resources, High-Volume Hydraulic Fracturing in NYS, available at <http://www.dec.ny.gov/energy/75370.html>.

¹⁹⁰ See Samantha Page, GOP governor signs fracking ban into law, ThinkProgress, Apr. 4, 2017, available at <https://thinkprogress.org/fracking-law-maryland-signed-b5c82e4cb48c/>.

the kind of constitutional provision like Article I, Section 27 have acted more like a trustee than Pennsylvania, one of the few states with such a constitutional provision. The executive and legislative branches of the Commonwealth have allowed the gas industry to loot trust resources throughout Pennsylvania for nearly 15 years without ever providing a comprehensive public accounting regarding the short- or long-term consequences of fracking on trust resources, including impacts to water, land, air, wildlife, and public health. That accounting must take place now in order to establish an environmental baseline so that, moving forward, Pennsylvania's citizens understand what is at stake if fracking continues.

Sincerely,

/s/ Ryan Talbott

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