TABLE OF CONTENTS

I. INTRODUCTION AND DESCRIPTION OF THE PETITION AREA

A. Overview

This petition, submitted on behalf of the Mountain Watershed Association ("MWA" or "Petitioner") includes all required sections set out in the form application provided by the Pennsylvania Department of Environmental Protection ("DEP" or "Department),[1] as well as certain supplemental information. The petition begins with a description of the Petition Area and explanation of why the boundaries were chosen by the Petitioner.

Then, the petition describes the petition area ("Petition Area"), shown in Exhibit B, and discusses the important qualities within, as well as the ecologic impacts that would occur bassed on the assessment and report prepared by expert consultant, Gordon Johnson.[2] These possible impacts include: water quality loss due to changes in stream flow and subsequent increase in sedimentation, damage to aquatic habitats resulting from water temperature shifts, decreased critical macroinvertebrate populations (upon which fish and other aquatic species rely), potential devastation to native and stocked trout populations, impacts to various native "species of concern," and potential loss of critical wetland areas which provide habitat and protection from flooding and the possible degradation of the existing soil quality.

The petition then includes the required "statement of interest." This section describes the ways in which MWA's members' recreational and aesthetic interests are threatened, as well as MWA's mission to "protect, preserve, and restore the Youghiogheny and Indian Creek watersheds." The petition then provides analysis of various procedural considerations such as:

[1] *Petition for Designating Areas Unsuitable for Surface Mining Operations*, Dep't of Envtl. Protection, https://files.dep.state.pa.us/Mining/BureauOfMiningPrograms/BMPPortalFiles/Annual_Reports/Areas_Unsuitable_for_Mining/ufm_petition_form.doc (last visited Jan. 22, 2024).

[2] *See* Exhibit C "The Headwaters of Fourmile Run Assessment of Unsuitability for Mining," Gordon J. Johnson, M.Sc., P.Eng. (AB), Burgess Environmental Ltd., attached hereto as Exhibit C, at p. 5-2, (hereinafter the "Johnson Report").

clarifying that the Department is still permitted to review the petition, even though there is an administratively complete permit application in the Petition Area, and why the Department should consider underground mining impacts as well as those from surface mining. This section also includes discussion of why the existing permitting scheme would not be sufficient to protect harms to the Petition Area in this case.

The petition then proceeds with an analysis of why the Petition Area meets the legal criteria to be designated "unsuitable" both for the mandatory and discretionary criterias set out in section 25 Pa. Code § 86.122 of the Pennsylvania Code. Finally, the petition provides information on the various financial losses that could occur from mining in the Petition Area. These impacts include: significant losses to the annual "ecosystem service benefits" that currently exist to Jacobs Creek and Fourmile Run (currently valued at $378,157,073.00 per year), losses from impacts to health and property values, estimated net losses—even when compared to potential incomes from mining like royalties and wages—impacts to the area's multibillion dollar tourism industry, and impacts that could occur if pollution discharges moved south, to the Indian Creek watershed—within which MWA has invested millions in repairing the existing historical mining damage.

The petition concludes with a request that the Department designate the Petition Area as "Unsuitable for Surface Mining."

B. Introduction

Historically, mining in the area has resulted in unpredictable abandoned mine discharges (AMDs). Both history and a current review of conditions included in the Johnson Report, reveal that mining in the Petition Area is highly likely to immediately and irrevocably damage the

waterways.[3] For this reason and many others, the Department should grant this petition to deem the area unsuitable for mining.

The Petition Area boundaries were chosen because they are the watershed boundary streams that would be most immediately impacted by AMD and dewatering if the proposed mining activity were to occur.

C. Description of The Petition Area

The Study Area is roughly 11,000 acres and is defined by the watershed boundaries north and west of Donegal, Pennsylvania, as shown in Exhibit B. Most of the Study Area is located within the headwaters of the Fourmile Run watershed; however, the west edge of the Study Area is also located within the headwaters of the Jacobs Creek watershed. The Headwaters of Fourmile Run also abut the existing Rustic Ridge #1 Mine, operated by LCT Energy ("LCT").

LCT has also submitted applications for development of a Rustic Ridge #2 Mine, which would largely occur within the Petition Area. The #2 Mine would have 2,322.6 underground acres and also proposes the creation of a new, almost 70 acre, surface portal entry site, which would be located in the northwest portion of the Petition Area.[4] In addition, LCT has submitted an application for a 1,452 acre expansion of the Rustic Ridge # 1 Mine, the majority of which would be constructed in the Petition Area.[5] Presumably, the expansion would connect underground with the existing Rustic Ridge #1 Mine, creating a likey hydraulic connection between the Indian Creek watershed and the Fourmile Run and/or Jacobs Creek Watersheds.[6]

[3] *See* Exhibit A, Johnson CV.
[4] Johnson Report, at p. 3-1.
[5] LCT Rustic Ridge #1 Permit Amendment Application (9/30/2021).
[6] Johnson Report, at p. 3-4.

The Petition Area was thoroughly detailed in the Site Description of Consultant Johnson's report. An excerpt is included below:[7]

> The Headwaters of Fourmile Run are located northwest of Donegal, Pennsylvania, northeast of the Pennsylvania Turnpike, and east of Highway 2004 (Johnson Report, Figure 1-2). The approximate 17 square mile surface area currently consists of a mixture of agricultural and natural forest lands. Over 90% of the Study Area is located in the watershed of Fourmile Run, and groundwater is an important source of water for the rural residences and farms. There are a number of rural residences within and surrounding the Study Area, but generally the population density is low. The boundaries of "Headwaters of Fourmile Run" are defined by the watersheds of tributaries to Fourmile Run and Jacobs Creek.
>
> The Petition Area is located in southeast Westmoreland County, within an area of rolling hills and rural development. The uplands within this area are primarily forest covered and undeveloped. Agricultural land use and rural residential developments are primarily located in the lowlands and within stream valleys, and on gently sloping hillsides.
>
> Surface elevations vary between approximately 2,000 ft above sea level ("asl") along the ridges, to approximately 1,700 ft asl within numerous surface drainages located within and surrounding the Headwaters of Fourmile Run. Within the south and west portions of the area, water drains to the south and west, primarily to Tributary #37998, which in turn flows into Jacobs Creek, or directly into Jacobs Creek. Within the north and eastern portions of the area, water drains primarily to the northeast, and unnamed tributaries that flow into Fourmile Run, which ultimately confluences with, or runs into, Loyalhanna Creek. Based on a review of the surface topography of the Headwaters of Fourmile Run, more than 90% of the Petition Area is located in the Fourmile Run watershed, and less than 10% is located in the Jacobs Creek watershed (Johnson Report, Figure 2-1).

The Petition Area contains 215,712.88 feet of stream.[8] Of that, 208,657.8 feet are listed as "attaining" and only 7,055.08 are listed as "impaired."[9] Of those impaired, none are listed as being impaired due to AMD. This reflects an area with relatively healthy existing waterways.

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[7] *Id.*, at p. 2-1.
[8] Numbers based on calculations from data taken from the Pennsylvania Spatial Data Access website. *See Open GIS Data Access for the Commonwealth of Pennsylvania*, Pa. Spatial Data Access, https://www.pasda.psu.edu/ (last visited Jan. 18, 2024).
[9] *Id.*

The Petition Area includes Donegal Lake, a recreational area owned and operated by the PA Fish & Boat Commission. The majority of the streams in the Petition Area are listed as trout stocked fisheries and the lake is just one of many sites used regularly by residents and tourists for fishing and an array of other recreational activities. There are at least 758 parcels of land in the entire Petition Area and of those, 660 parcels are within at least a quarter of a mile of stream.[10] While it is difficult to discern an exact number, LCT's application materials and publicly available records reflect there are likely hundreds of wells and springs in the Petition Area that are at risk of contamination or dewatering from mining activity.[11]

Consultant Johnson's report found an array of negative impacts that are likely or almost certain (over 90% chance) to occur if mining is conducted in the Petition Area. The main negative impacts that are predicted in the report are: loss of water in Fourmile Run, water quality degradation in Jacobs Creek, water quality degradation in Fourmile Run, reduced groundwater, and large pollution impacts from eventual acid mine discharges.

Consultant Johnson also calculated the likelihood of these impacts which are as follows:

Summary of Impact Assessment

The Headwaters of Fourmile Run Impact Assessment Summary				
Potential Impact	**Likelihood**	**Magnitude**	**Duration**	**Mitigation, Reversibility**
Loss of Water in Fourmile Run	Definite	Moderate	Indefinite	None
Water Quality Degradation in Jacobs Creek	Definite	Large - Moderate	Indefinite	Treatment during operation
Water Quality Degradation in Fourmile Run	Definite	Small	Indefinite	None
Reduced Groundwater Quantity	Definite	Moderate	Indefinite	None
Acid Mine Drainage	Likely	Large	Indefinite	Possible

[10] Numbers based on calculations from data taken from the Pennsylvania Spatial Data Access website. *See Open GIS Data Access, supra* note 8.
[11] Johnson Report, at p. 2-9.

Given that these significant harms will occur with a high degree of certainty, mining should not be allowed in the Petition Area. In addition, the fact that mining threatens the Petition Area's unique ecology and its critical contribution to the local economy is reason enough for such a petition to be granted. And, as will be shown in this petition, the almost-certain-outcomes more than qualify for the legal standards which the Department must use in order to make an unsuitability determination.

II. ECOLOGY OF THE PETITION AREA

A. The Petition Area Must be Deemed Unsuitable for Mining Because of the Likelihood for Negative Impacts to Area Water Quality

a. Mining Activities in the Petition Area Will Result in Altered Stream Flow and Increased Sedimentation

According to the Johnson Report, stream flow is expected to approximately double in parts of the Petition Area, due to the diversion of groundwater from Fourmile Run into the mine.[12] From a biological perspective, a disruption in stream dynamic equilibrium of the magnitude connected to coal mining and its associated water discharges is concerning due to several factors. For example, the increased flow and resulting loss of natural fluctuation could result in a scour effect that would initially push many species of macroinvertebrate and fish downstream in a manner similar to the effects of a storm-related, high flow event. When a stream is at constant bankfull, flow dynamic equilibrium cannot be established and benthic[13] organisms cannot recolonize due to the physical effects of scouring and the changes in bed material particle size.[14]

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[12] Johnson Report, at p. 5-2. "Flows in the tributaries to Jacobs Creek, during normal flow conditions, would approximately double as a result of the mine discharge." *Id.*, at p. 5-4.
[13] The word "benthic" is used to describe organisms "relating to, or occurring at the bottom of a body of water." *Benthic*, Merriam-Webster, https://www.merriam-webster.com/dictionary/benthic (last visited Jan. 16, 2024).
[14] David D. Hart & Christopher M. Finelli, Physical-Biological Coupling in Streams: The Pervasive Effects on Flow on Benthic Organisms, 30 Annual Rev. of Ecology & Systematics 363 (Nov. 1999).

The second, though more chronic effect of the increased stream flows on biological communities, is the impending physical stream degradation (i.e., bank sloughing and resultant increased sedimentation and embeddedness) and the associated biological habitat impairment. Increased flow can result in erosional forces until the stream reaches a new dynamic equilibrium. This new dynamic would directly result in excessive sedimentation and increased embeddedness that would smother benthic species dependent upon clean substrate. Within fish communities, simple lithophilic taxa (e.g. stonerollers) that rely on sediment free substrate for reproduction would disappear from the stream. For benthic macroinvertebrates, a great majority of the EPT taxa (Ephemeroptera or mayflies, Plecoptera or stoneflies, and Trichoptera or caddisflies) have very low tolerances for sedimentation. Increases in embeddedness would result in significant drops in benthic metric quality scores for the stream as the diversity and abundance of EPT are primary constituents of those scoring criteria. According to Senior Ecologist Tony Miller, a drop in benthic index scoring is typically viewed as a violation of the Clean Water Act when tied directly to a permitted discharge.[15]

b. <u>Mining Activities in the Petition Area Will Likely Result in Altered Water Temperatures</u>

In addition to the alteration in discharge and the changes to dynamic equilibrium, the water from the deep mine outfalls could also likely be much cooler than normal groundwater discharge. According to a report organized by the Pennsylvania Department of Conservation and Natural Resources, the mean annual groundwater temperature in the Petition Area is 54.1 to 60 degrees Fahrenheit.[16] According to the NPDES permit application submitted by LCT Energy for the Rustic Ridge #2 Mine, two discharge points are proposed. The expected range of

[15] Please see Exhibit D for additional information on biological concerns due to hydrologic disruptions.
[16] Stuart O. Reese & Dennis W. Risser, *Summary of Groundwater-Recharge Estimates for Pennsylvania*, Pa. Dep't of Conservation & Nat. Res. (2010), https://www.nrc.gov/docs/ML1327/ML13276A043.pdf.

temperatures for the first discharge point is 39.2 to 53.6 degrees Fahrenheit and for the second discharge point is 37.4 to 78.8 degrees Fahrenheit.[17] As such, the water being discharged from the first discharge point would undoubtedly be cooler than the natural discharge, and the discharge from the second discharge point has a high potential to be cooler than the natural discharge given the lower end of the range estimate. A constant influx of the additional cold water quantities could inhibit seasonal temperature variations, in addition to maintaining constant bankfull conditions year round.[18] These two factors alone would be expected to have significant adverse effects on benthic communities. The elimination of natural water temperature fluctuation is a concern because this variation is necessary to allow for proper spatial distribution and to cue the developmental stages of aquatic insects.[19] Changes in temperature can affect growth, metabolism, reproduction, and incubation times of stonefly eggs,[20] in addition to hatching times of mayflies.[21]

Benthic species have also evolved varying physiological tolerances that allow for spatial distribution along a stream reach based on natural temperature ranges, flow rates, and habitat. For fish, many species have temperature specified cues that relegate reproduction with respect to spawning and egg hatching. Often referred to as "cold water pollution" in association with the discharges from dams, these depressed temperatures during warmer months can reduce the growth of fish and even reduce their chance of survival. Native warm-water fish may fail to breed, may breed too late in the season, fish eggs may fail to hatch, and/or young fish may die or

[17] LCT, 2023, Rustic Ridge II Pre-Application, Module 12, Application for Individual NPDES Permit Associated with Mining Activities.
[18] Stout, 2014.
[19] Stanley and Short, 1988.
[20] Brittain, 1977.
[21] Elliot, 1972.

develop more slowly. A disruption to this natural variation in water temperature would, therefore, alter the life cycle of stream biota[22] that would lead to further biological degradation.

In 2021, MWA partnered with the Western Pennsylvania Conservancy and the Pennsylvania Department of Conservation and Natural Resources to conduct sampling of freshwater mussels in the Youghiogheny River watershed. The Report documenting the sampling efforts noted, "Overall water quality trends in the Youghiogheny River watershed are excellent. All sites surveyed had water chemistry values which could support diverse aquatic communities, including freshwater mussels."[23] However, the Report also noted that the Youghiogheny River is much colder than other water bodies that were also sampled for freshwater mussels, likely inhibiting mussel populations. The report noted, "Not a single freshwater mussel was located during any of the surveys which can **most likely be attributed to the exceptionally cold-water** temperatures that are common in the Youghiogheny River (16.8 °C or 62.2 °F) from **prohibiting freshwater mussel colonization**."[24] If the water being discharged into Jacobs Creek is much colder than it naturally would be, this would likely further limit the ability of freshwater mussel populations to establish in the area. This is particularly critical given the possible resurgence of endangered mussel populations in the region, as is discussed in Part II (D), "Numerous Species of Concern Have Been Identified in the Petition Area."

Temperature pollution is just one of the many ways that anticipated impacts to the Petition Area would meet criteria for designation set out in 25 Pa. Code § 86.122(b)(3). Indeed, temperature changes from mining discharges, and the subsequent harms to aquatic life and

[22] The word "biota" is defined as "the flora and fauna of a region." *Biota*, Merriam-Webster, https://www.merriam-webster.com/dictionary/biota (last visited Jan. 16, 2024).
[23] Please see Western Pennsylvania Conservancy, Evaluating Ecosystem Sustainability: Biological Inventories of the Indian Creek Watershed, at 3 (Dec. 9, 2021), attached as Exhibit E.
[24] *Id.*, at 7.

habitat, almost certainly constitute a scenario in which, "mining operations could result in a substantial loss or reduction of long-range productivity of water supply."

B. Macroinvertebrate Populations Are Already Low in the Petition Area and Mining Activities Will Impair Macroinvertebrate Repopulation

Macroinvertebrates are commonly used as indicators to assess water quality and the potential impacts of various chemical and physical stressors. The Pennsylvania Department of Environmental Protection ("DEP") conducts macroinvertebrate sampling which it then shares with the public via its Macroinvertebrate Taxa Data Map.[25] In 2008, the DEP conducted a macroinvertebrate survey in Fourmile Run north of Donegal Lake within the Petition Area.[26] According to the DEP, there are 17 different taxa present within the sampling area.[27] The macroinvertebrate condition score given to this sampling point was "poor," based on biological conditions assessed.[28]

While the current status of macroinvertebrate conditions within the Petition Area today are not known, the 2008 survey results are still persuasive given the long residence time of many macroinvertebrates, and that data indicates that water quality in the immediate vicinity has room for improvement. Streams impacted by mining activities have been shown to be associated with lower levels of macroinvertebrate community complexity.[29] Not surprisingly then, fish populations which rely on macroinvertebrates also suffer. For example, in September of 2014, a report found that fish abundance and diversity in a mountaintop removal mining area was

[25] *Looking Below the Surface*, PA Dep't Envtl. Prot., https://www.depgis.state.pa.us/macroinvertebrate/index.html (last visited Dec. 21, 2023).
[26] *Id.*
[27] *Id.*
[28] *Id.*
[29] Mi-Jung Bae, Jeong-Ki Hong & Eui-Jin Kim, *Evaluation of the Impacts of Abandoned Mining Areas: A Case Study with Benthic Macroinvertebrate Assemblages*, 18 (21) Int'l J. Envtl. Res. Pub. Health 11132 (Oct. 22, 2022).

approximately half of those in unmined streams, "probably because of osmoregulatory stress caused by increased ionic strength of surface waters."[30]

Given that the physical and chemical waterway conditions supporting macroinvertebrates in the area are already fragile, it is logical to conclude that if mining activities were to impact the streams in the Petition Area, macroinvertebrates and, in turn, water quality would further decrease. Because the Fourmile Run watershed is expected to have reduced stream flows, this will likely result in reduced macroinvertebrate populations. Additionally, it is expected that as freshwater from the tributaries to Fourmile Run is intercepted by the mine, Fourmile Run will lose the diluting effect of that groundwater further downstream, thus impacting water quality downstream.[31] Because macroinvertebrates are directly related to water quality, the negative impacts to water quality in the Fourmile Run watershed will also reduce macroinvertebrate populations.

C. Fish Impacts Are Expected to Occur if Mining Activities Are Conducted in the Petition Area Because of Habitat Loss

a. Native Trout are Present Within the Petition Area and Should Be Protected for Ecological and Recreational Purposes

Mountain Watershed Association (MWA) has numerous members that live and recreate within the Petition Area, which is detailed more thoroughly in Part III, Statement of Interest. During conversations with these individuals, members have reported on the quality of the water in Fourmile Run and the exceptional fishing opportunities therein. Specifically, members have reported seeing and fishing for native trout in Fourmile Run. Fishing for native, rather than

[30] Nathaniel P. Hitt & Douglas B. Chambers, *Temporal Changes in Taxonomic and Functional Diversity of Fish Assemblages Downstream from Mountaintop Mining* 33(3) Freshwater Science 915 (June 30, 2014), https://freshwater-science.org/sites/default/files/file-downloads/hitt_chambers_2014_markup.pdf.
[31] Johnson Report, at p. 5-4.

stocked, trout is a source of pride among local anglers, and many anglers fish specifically for wild trout.

The presence of wild trout in a stream is a solid indicator of a stream being a clean coldwater habitat. According to the Department of Conservation and Natural Resources, conservation of brook trout in Pennsylvania is a high priority, which is evidenced by the species' listing as a "species of greatest conservation need" by the PA Fish and Boat Commission in its State Wildlife Action Plan.[32]

If mining operations were allowed to take place within the Petition Area, it is certain that water quality and quantity would decrease in the Fourmile Run watershed.[33] Native and wild trout populations are particularly sensitive to degraded water quality due to their need for high quality cold water habitats.[34] Additionally, if flow decreases in those streams, this will reduce the habitat availability for the fish simply due to the lack of adequate water levels. Reduction in habitat could reduce or eliminate the native populations present in the area.

b. <u>The Petition Area Is Home to a Variety of Water Bodies that Are Stocked with Fish and Support Recreational Fishing</u>

According to the Pennsylvania Department of Environmental Protection's eMap webpage, all stream segments within the Petition Area were given a designated use of "trout stocking" or "cold water fish."[35] The portion of Fourmile Run that leads into Donegal Lake is identified as a stocked trout stream according to the Pennsylvania Fish and Boat Commission, and was stocked with brown trout, golden trout, and rainbow trout on numerous occasions in

[32] Department of Conservation and Natural Resources, *Wild About Native Trout!*, Dep't of Conservation and Nat. Res. (Aug. 24, 2018), https://www.dcnr.pa.gov/GoodNatured/Pages/Article.aspx?post=54.
[33] Johnson Report, at pp. 5-2–5-5.
[34] Jack E. Williams, et al., *State of the Trout*, Trout Unlimited, https://www.tu.org/wp-content/uploads/2019/02/State_of_the_Trout_2015_web.pdf.
[35] *eMapPA*, PA Dep't Envtl. Prot., https://gis.dep.pa.gov/emappa/ (last visited Dec. 21, 2023).

2023.[36] The entirety of Fourmile Run within the Petition Area is noted as "approved trout waters," according to the Pennsylvania Department of Environmental Protection's eMap webpage.[37]

Donegal Lake, which is included in its entirety in the Petition Area, is stocked annually with a variety of fish. Donegal Lake is a 90-acre impoundment that is managed by the Pennsylvania Fish and Boat Commission and owned by the Commonwealth of Pennsylvania. In 2016, the lake was drained when the dam was deemed unsafe, and a $5.5 million rehabilitation project was completed in 2019, with the lake being refilled for public recreational use in 2020.[38] In 2021, the lake was stocked with bluegill, channel catfish, golden shiner, largemouth bass, and white crappie.[39] In 2022, the lake was stocked with those same fish species, as well as the fathead minnow.[40] And finally, in 2023, the lake was stocked with channel catfish.[41] According to the Pennsylvania Fish and Boat Commission's Adult Trout Stocking website, Donegal Lake was stocked with golden trout and/or rainbow trout four times throughout the 2023 calendar year.[42]

Additionally, while not located within the Petition Area, Acme Dam falls just outside of the Petition Area and is fed by Jacobs Creek, a waterbody whose watershed does lie within the Petition Area and which is expected to suffer impacts from surface mining activities. While Acme Dam is not a stocked lake, it is used widely by the public for recreational fishing. In 2021,

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[36] *Trout Streams*, PA Fish & Boat Comm'n, https://pfbc.maps.arcgis.com/apps/webappviewer/index.html?id=65a89f6592234019bdc5f095eaf5c6ac (last visited Dec. 21, 2023); *Adult Trout Stocking by County*, PA Fish & Boat Comm'n, https://fbweb.pa.gov/stocking/troutstockingdetails_gis.aspx (last visited Dec. 21, 2023).
[37] *eMapPA*, *supra* note 35.
[38] *Refilling of Donegal, Minsi Lakes Underway Following Dam Rehabilitation Projects*, PA Media (Feb. 12, 2020), https://www.media.pa.gov/Pages/fish-and-Boat-Commission-Details.aspx?newsid=308.
[39] *Warmwater Coolwater Stockings*, PA Fish & Boat Comm'n, https://fbweb.pa.gov/stocking/WWCWStockingDetailsHistorical_RFP.aspx (last visited Dec. 21, 2023).
[40] *Id.*
[41] *Id.*
[42] *Adult Trout Stocking by County*, *supra* note 36.

the Pennsylvania Fish and Boat Commission surveyed the lake to get a sense of the fish population. A total of 11 species were captured during the survey, and the survey concluded that the lake provided great fishing opportunities for sunfish, crappies, largemouth bass, and brown bullheads.[43]

If mining were to occur in the Petition Area, Jacobs Creek, Fourmile Run, Donegal Lake, and Acme Dam (which encompass all of the large and public surface water bodies in the Chestnut Ridge Area), would all suffer impacts that would likely lead to a diminution in the number of fish and variety of species within the area. It is predicted that mining in the area will cause the Fourmile Run watershed to be dewatered, and the Jacobs Creek watershed will receive the excess water diverted from the mine.[44] As noted in the previous sections, this alteration in natural water flow has the potential to deteriorate both water quality due to sedimentation impacts, water quantity, and water temperature. Many of the fish species present in the Petition Area are sensitive to drastic changes in their environment, and impacts to water quality, quantity, and temperature will likely result in reducing the availability of adequate habitat for many of these fish species.

These stocked water bodies provide a variety of benefits to both the ecology of the area, as well as the residents and visitors to the area looking for recreation opportunities. The Laurel Highlands are well known as one of the best locations in the Commonwealth of Pennsylvania for outdoor recreation, and many individuals come to the area specifically for the purpose of fishing. Additionally, the presence of these fish species aid in maintaining a prosperous level of biodiversity for the area. The addition of these species to the waterways of the region help to

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[43] Christina Edwards, *Acme Dam Westmoreland County, April/Map 2021 Trap Net and Night Electrofishing Survey*, PA Fish & Boat Comm'n, https://www.fishandboat.com/Conservation/Plans/Management-Plans/BiologistReports/Documents/Bio2021/8x07-02-AcmeDam.pdf (last visited Dec. 21, 2023).

[44] Johnson Report, at p. 5-2.

maintain the food chain and general ecology of the area. Accordingly, it is vastly important that these stocked waterways remain protected for both ecological benefits and recreation purposes.

While petitioners were not able to access complete records, it appears that risks to trout stocked streams has been relied upon as a principle rationale for granting UFM petitions. For example, in the DEP's "Areas Designated Unsuitable for Mining" summary document,[45] one summary concludes:

> Paddy Run is annually stocked with trout by the PA Fish Commission to provide a recreational fishery. Any changes in the hydrologic system that would cause increases in acidity to either Paddy Run or Drury Run would have significant potential to adversely affect, or possibly eliminate, the native trout populations and the stocked trout fishery.

The same DEP document points to a similar rationale as to why the Goss Run Watershed petition was ultimately approved. The summary concludes that, along with threats to water supplies, AMD, "could adversely affect, or possibly eliminate, the native trout population and the stocked trout fishery."[46]

Threats to stocked fisheries were likely relied upon because they seem to clearly meet the criteria set out in 25 Pa. Code § 86.122(b)(2). AMD would decrease or destroy the potential for fish stocking, which the recreational fishing industry largely relies upon. It is clear, therefore, that mining-related pollutional threats--such as those in the Petition Area--would almost certainly, "affect fragile or historic lands in which mining operations could result in significant damage to important historic, cultural, scientific, or esthetic values or natural systems."

[45] *Areas Designated Unsuitable for Mining*, at p. 6, Pa. Dep't Envtl. Protection, https://files.dep.state.pa.us/Mining/BureauOfMiningPrograms/BMPPortalFiles/UFM/ufm_designated_areas_summaries.pdf (last visited Jan. 22, 2024).
[46] *Id.*, at p. 5.

D. Numerous Species of Concern Have Been Identified in the Petition Area and Mining Activities Threaten and Serve as Stressors for These Species

A review of the Petition Area was conducted in conjunction with the Pennsylvania Natural Heritage Program ("PNHP") database to determine if any species of concern were located within the region.[47] The PNHP exists "to gather and provide information on the location and status of important ecological resources."[48] It is a partnership comprising the Pennsylvania Department of Natural Resources, the Pennsylvania Fish and Boat Commission, the Pennsylvania Game Commission, and the Western Pennsylvania Conservancy.[49] The review found five species of concern in close proximity to the Petition Area. Information on the five species of concern is provided below, and additional details may be found in the Natural Heritage Area documents associated with each species, compiled in Exhibit F.

The Allegheny Woodrat was spotted in the Freeman Falls area, more specifically, at the following latitude and longitude, 40.149376, -79.426458, which lies just outside of the Petition Area boundary. Due to the presence of the Allegheny Woodrat, a globally vulnerable (G3) species in this area, it has been given a designation as a site of "regional significance." The Allegheny Woodrat is threatened by buffer forest reduction and changes in food availability. Specifically, the PNHP recommends avoiding mining or quarrying in this area, as it can result in the removal of the rocky habitat that the woodrats rely on.

In addition, the Least Brook Lamprey and Bronze Copper Butterfly have been spotted in the area surrounding Donegal Lake. The Bronze Copper is a wetland butterfly that is found along the edges of the lake in the wet meadow habitat. The Least Brook Lamprey is also supported by the lake and surrounding stream's aquatic habitat. Donegal Lake and its surrounding wetlands

[47] Pennsylvania Natural Heritage Program, https://www.naturalheritage.state.pa.us/Default.aspx (last visited Dec. 21, 2023).
[48] *Id.*
[49] *Id.*

and streams have been given a designation as a site of "state significance." The site was given this designation because the species are considered secure (G5) or apparently secure (G4) at the global level, and the species have reduced numbers in the state. The PNHP has noted that maintaining riparian buffers and ensuring healthy water quality are key to preserving these species of concern. If mining were to occur in the Petition Area, it is expected that Fourmile Run would have water quality impacts due to a reduction in fresh groundwater discharging to the watershed.[50] Fourmile Run runs into Donegal Lake and as such, mining in the Petition Area has the potential to impact the water quality that the Least Brook Lamprey and Bronze Copper Butterfly rely on.

The Appalachian Blue Violet has also been observed in the outflow of Donegal Lake, specifically in a spot referred to as "Randall Reserve." The area has been given a designation as a site of "state significance" because the Appalachian Blue Violet is considered secure (G5) or apparently secure (G4) at the global level, and the species have reduced numbers in the state. The PNHP notes that large disruptive disturbances like mining which disturb the bedrock is a significant threat to this species because it impairs the bedrock and substrate it relies upon. Blasting, which would likely occur to construct the proposed surface area of Rustic Ridge #2, is not the only disturbance that has the potential to impact the bedrock in the area. Shifts in the geology underlying the area of concern for the Appalachian Blue Violet have the potential to negatively impact the substrate above. Accordingly, any mining in the Petition Area near the Natural Heritage Area for the Appalachian Blue Violet has the potential to threaten this species.

Another plant at risk is the Buffalo Nut, which has been observed along the northern border of the Petition Area and Fourmile Run off of Hoods Mill Road just outside of the Petition Area. The Buffalo Nut is a rare plant population, and the Buffalo Nut Sanctuary, which lies just

[50] Johnson Report, at p. 5-4.

outside the Petition Area, is a site of "state significance." Specific threats to the species include physical disturbance, disturbance to nearby soil and root systems, and changes in the tree habitat of the surrounding area. The Buffalo Nut Sanctuary lies within the Fourmile Run watershed. If mining were to occur in the Petition Area, water levels in the Fourmile Run watershed are expected to decrease.[51] If the Buffalo Nut does not have an adequate water supply to rely on, it could result in this species being eliminated within its Natural Heritage Area.

Additional species of concern were identified using the iNaturalist database, a crowdsourced species identification system and an organism occurrence recording tool.[52] Additional species found within the Petition Area or within the immediate vicinity of the Petition Area include: two Timber Rattlesnakes (one north of I-76 on Rock Canyon Road and one north of Jones Mills Stahlstown Road, although there are likely more unreported cases); one Eastern Box Turtle (north of Donegal Lake, although there are likely more unreported cases); one Wood Turtle (east of Donegal Lake just north of PA-711, although there are likely more unreported cases); and one Brook Trout (an apparent record from the headwaters of Loyalhanna Creek near Stahlstown).[53] Many of these species are reliant upon wetlands and healthy freshwater streams. If mining occurs in the Petition Area and water loss occurs for streams and wetlands in the Petition Area, but specifically the Fourmile Run watershed where Donegal Lake is located, it has the potential to reduce the habitat available for these species of concern.

Additionally, an assessment of migratory birds on Donegal Lake was also conducted via eBird.[54] For water-associated birds, approximately 45 species are commonly occurring on Donegal Lake, including the Great Egret, which is a Pennsylvania state endangered species.

[51] *Id.*, at p. 5-2.
[52] iNaturalist, https://www.inaturalist.org/ (last visited Dec. 21, 2023).
[53] *Id.*
[54] *Donegal Lake*, eBird, https://ebird.org/hotspot/L794032?yr=all&m=&rank=mrec&hs_sortBy=taxon_order&hs_o=asc (last visited Dec. 21, 2023).

Approximately 14 species of water-associated birds are identified as occasional or rare on Donegal Lake, including the Common tern and the American bittern, which are both Pennsylvania state endangered species. Finally, non-water bird species in the area totaled at seven, including the Northern Harrier, which is a Pennsylvania state threatened species, and the Yellow-bellied Flycatcher, a Pennsylvania state endangered species. In summary, there are four Pennsylvania state endangered bird species found at Donegal Lake within the Petition Area and one Pennsylvania state threatened bird species. If mining were to occur within the Petition Area and Fourmile Run dewatered, a main source of water for Donegal Lake would be impacted. If the water levels of Donegal Lake are reduced, this could limit the availability of the lake as a habitat for these migratory birds.

Finally, Eric J. Chapman, Senior Director of Aquatic Science at the Western Pennsylvania Conservancy, stated his team found, "numerous eastern hellbenders, Wood turtles, and mussel species in Fourmile Run." He also confirmed: "The mussels we have found, one [is a] Federally Endangered species," and "five other species including Spike, Kidneyshell, Wavyray Lampmussel, Pocketbook, and Creeper. We found mussels at seven different sites." Mr. Chapman also confirmed the existence of native eastern brook trout in the watershed, which Mr. Chapman identified as a Species of Greatest Conservation Need.[55]

E. Mining Activities Have the Potential to Reduce or Eliminate the Water Source of the Wetlands Within the Petition Area

Per the United States Geological Survey, wetlands are one of the most productive habitats on earth.[56] Wetlands not only provide shelter for a variety of aquatic and terrestrial creatures,

[55] Please see Exhibit G for a copy of an email from Eric Chapman to Mountain Watershed Association Executive Director Ashley Funk.

[56] *Why Are Wetlands Important?*, U.S. Geological Survey, https://www.usgs.gov/faqs/why-are-wetlands-important#:~:text=Wetlands%20provide%20habitat%20for%20thousands,products%2C%20recreation%2C%20and%20aesthetics. (last visited Dec. 21, 2023).

they are also vastly important for "flood protection, water quality improvement, shoreline erosion control, natural products, recreation, and aesthetics."[57] According to the United States Fish and Wildlife Service's National Wetlands Inventory, there are approximately eight acres of habitat classified as freshwater emergent wetland within the Petition Area.[58] There are also slightly more than 33 habitat acres classified as freshwater forested/shrub wetland within the Petition Area.[59] Per the Pennsylvania DEP, adverse impacts of coal mining on wetlands include wetlands losses and their role as significant habitats.[60]

Land fractures created during mining activities have the potential to reduce or eliminate the water source associated with a given wetland, causing them to lose moisture along with the variety of flora and fauna that were dependent upon the saturated soils. If mining were to occur within the Petition Area, it is predicted that there will be permanent flow loss in wetlands.[61] Specifically, wetlands in the Fourmile Run watershed will experience flow loss due to dewatering of the uppermost aquifers, which supply water to the surface.[62] Almost all of the wetlands identified by the Fish and Wildlife Service are located in the headwater region of Fourmile Run. Accordingly, if mining were to occur in the Petition Area, it is expected that the wetlands in the area would experience flow loss and potentially cease to exist.

Wetlands like those in the Petition Area provide critical flood protection and are very likely what the unsuitability criteria set out in 25 Pa. Code § 86.122(b)(4) intended to protect. That criteria allows for an unsuitability designation when mining would, "affect natural hazard

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[57] *Id.*
[58] *National Wetlands Inventory*, U.S. Fish & Wildlife Serv., https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/ (last visited Dec. 21, 2023).
[59] *Id.*
[60] *Wetlands*, PA Dep't Envtl. Prot., https://www.dep.pa.gov/Business/Land/Mining/BureauofMiningPrograms/Act-54-Yearly-Data/Pages/Wetlands.aspx#:~:text=The%20adverse%20effect%20of%20coal,a%20wetland%20through%20land%20fractures. (last visited Dec. 21, 2023).
[61] Johnson Report, at p. 5.2.
[62] *Id.*

lands in which the mining operations could substantially endanger life and property, the lands to include areas subject to frequent flooding and areas of unstable geology."

F. Much of the Soil in the Petition Area is Identified as Prime Farmland and Farmland of Statewide Importance and Should Be Protected for Agricultural Uses

If mining were to occur within the Petition Area, large amounts of land that are currently designated as prime farmland or farmland of statewide importance could be lost. Rules for prime and unique farmland and farmland of statewide and local importance were developed to determine "the extent and location of the best land for producing food, feed, fiber, forage, and oilseed crops."[63] In Pennsylvania, prime farmland holds great importance, and the legislature evidenced its desire to protect such lands, especially with respect to surface mining of coal. Under Section 1396.4 of the Pennsylvania Surface Mining Conservation and Reclamation Act, permits impacting prime farmland may not be issued unless there is consultation with the United States Department of Agriculture.[64] Further, the permit may not be issued unless the Department finds that the land can be restored to equivalent or higher yield levels.[65] This is indicative of the importance of protecting and preserving prime farmland to the state.

"Prime farmland is land that has the best combination of physical and chemical characteristics for producing" crops, and can sustain high yields when treated and managed per acceptable farming methods.[66] As such, the best use of any lands identified as having soil that supports a prime farmland designation is agricultural use. There are approximately 11,067 acres in the Petition Area. Within the Petition Area, approximately 2,907 acres of land are considered

[63] Prime and Unique Farmlands, 43 Fed. Reg. 3993, 4030 (Jan. 31, 1978).
[64] 52 P.S. § 1396.4(a)(2)(J) (West 2023).
[65] *Id.*
[66] *Prime and Unique Farmlands,* at 4032.

prime farmland, which accounts for approximately 26% of the Petition Area.[67] Additionally, approximately 2,624 acres are considered farmland of statewide importance.[68] Together, these account for approximately 5,531 acres, or 49.8% of the Petition Area.

If surface mining were to occur within the Petition Area, it is predicted that the uppermost aquifer surrounding the mine would likely be dewatered, reducing the availability of groundwater supplies.[69] Additionally, groundwater discharges to Fourmile Run will reduce due to the diversion of the groundwater to the Jacobs Creek watershed, thus reducing the availability of groundwater in the Fourmile Run watershed.[70] Prime farmland and farmland of statewide importance designations are made in large part due to water availability in the area and the moisture level found within the soil. Generally, prime farmlands "have an adequate and dependable water supply," however, they also "are not excessively erodible or saturated with water for a long period of time."[71] If mining were to occur and the uppermost aquifers were dewatered, that would heavily impact the availability and dependability of the area's water supply. Additionally, the Fourmile Run watershed has the potential to be dewatered and the Jacobs Creek watershed would, in turn, take on that excess water, reducing the availability and dependability of the water supply in the Fourmile Run watershed, thereby causing saturated soils in the Jacobs Creek watershed. Accordingly, allowing mining in the Petition Area has the potential to change the designation and eliminate the prime farmland and farmland of statewide importance currently present and used for agricultural purposes.

More specifically, the surface area associated with the Rustic Ridge #2 Mine pre-application falls within the Petition Area. Of the 65.6 acres that compromise the surface area

[67] *Web Soil Survey*, U.S. Dep't of Agric., Nat. Res. Conservation Serv., https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (last visited Dec. 13, 2023).
[68] *Id.*
[69] Johnson Report, at p. 5-6.
[70] *Id.*, at p. 5-2.
[71] *Prime and Unique Farmlands,* at 4032.

proposed for the Rustic Ridge #2 Mine, 44.4 acres, or 67.6% of that acreage, is considered prime farmland or farmland of statewide importance. Within the surface area of the proposed Rustic Ridge #2 Mine, substantial amounts of soil within the 65.6 acres would be disturbed and potentially removed from the area. Substantial blasting occurs around a surface portal for a mine, and soil is moved around to construct necessary surface appurtenances. Accordingly, if mining were to occur within this area, 44.4 acres of prime farmland and farmland of statewide importance would likely be permanently lost.

The presence of prime agricultural soils has also been relied on in the past as a rationale making an "unsuitable" designation. The DEP's document, "Areas Designated Unsuitable for Mining" explains that for the "Pequea Twp. Cherry Hill Orchard" petition, the potential loss of 194 acres of prime farmland soils could have impacts on the long-range productivity of the Petition Area.[72] Presumably, this is mentioned because the loss of fertile farm soil impairs potential agricultural growth and so meets the criteria set out in 25 Pa. Code § 86.122, which allows for designation if mining, "could result in a substantial loss or reduction of long-range productivity of water supply or of food or fiber products."

III. STATEMENT OF INTEREST

A. Petitioner Has a Substantial Interest in the Petition Area

Under the Unsuitable for Mining Program, petitions may be submitted by persons who have "an interest which is, or may be, adversely affected."[73] "A person having an interest which is or may be adversely affected shall demonstrate an 'injury in fact' by describing the injury to the specific affected interest and demonstrating how they are among the injured."[74]

[72] *Areas Designated Unsuitable for Mining, supra* note 45.
[73] 25 Pa. Code § 86.123(a) (West 2023).
[74] 25 Pa. Code § 86.123(c)(5) (West 2023).

The Mountain Watershed Association ("MWA") is a nonprofit, community-led, environmental organization that works to protect, preserve and restore the Indian Creek and greater Youghiogheny River watersheds, representing approximately 2,500 members. The vast majority of MWA's members live, work, and recreate in the Youghiogheny River watershed, with a high concentration living in Westmoreland County. Created in 1994, MWA was formed by citizens dedicated to helping to sustain and enjoy the land in and around the Laurel Highlands of Southwestern Pennsylvania.[75] MWA has an interest in the Petition Area through its members' interests as well as its own interest in upholding its organizational mission.

a. Petitioner Has an Interest in Its Members' Recreational and Aesthetic Interests, Which Would Be Impacted by Ground and Surface Water Changes and Acid Mine Drainage Discharges if Mining Took Place

Individuals and organizations may become members of MWA in a variety of ways, including: making donations, paying annual dues, participating in events, helping distribute MWA information, volunteering, assisting with MWA's restoration projects, or actively communicating with MWA about its work and issues of concern. For the purposes of tracking membership for reporting purposes, MWA often looks at its annual dues-paying members database. As of January 2024, MWA has approximately 2,500 dues-paying members, and approximately 20 of those members live directly within the Petition Area discussed in this petition. These members that live within the Petition Area have a substantial interest due to owning land there. In addition to those approximately 20 members, many other MWA members that gained membership in other ways -- such as participating in events and volunteering -- live within the Petition Area as well.

[75] *About*, Mountain Watershed Ass'n, https://mtwatershed.com/about/ (last visited Jan. 2, 2024).

Additionally, many MWA members use and enjoy the area to be designated as unsuitable for mining, and those members will be adversely affected by any surface coal mining operations in the area. Within the Petition Area, members have reported actively participating in hunting, fishing, and foraging activities. Members also note their use of the various water bodies within the Petition Area, such as Jacobs Creek, Fourmile Run, and Donegal Lake, for purposes such as swimming, kayaking, canoeing, paddleboarding, and bird watching. The surrounding land is utilized for cycling (including road, gravel, and mountain biking), hiking, walking, cross country skiing, horseback riding, dog training, and landscape and nature photography. Members also reported deriving aesthetic pleasure from viewing the water bodies and associated land in the Petition Area.

If coal mining operations were conducted within the Petition Area, MWA members' recreational and aesthetic interests would be injured. Mining in the Petition Area will likely cause substantial changes in the two watersheds that intersect there. With the high potential for the Fourmile Run watershed to be dewatered and the Jacobs Creek watershed to receive extra flow,[76] the nature of those areas would change dramatically, as much of an area's constitution is determined by the availability, or lack thereof, of water. Changes in water availability, both surface and groundwater, have the potential to change soil conditions, thus changing the flora species it can support, which in turn impacts the fauna species that may be present in the area. Fluctuations in water levels in currently existing water bodies has the potential to eliminate these sources, as well as alter the various species they can support. Impacts to stream flow, water quality, and groundwater levels will alter members' ability to engage in almost all of the recreational activities in which they participate.

[76] Johnson Report, at p. 5-2.

Of particular concern would be the dewatered or newly contaminated streams that would have diminished or destroyed capacity for supporting aquatic habitat and recreation. Members and the surrounding community would not be able to, for example, fish or paddle as they did before mining occurred. Moreover, the high likelihood of acid mine drainage discharges from coal mining operations in the Petition Area would substantially impact the local waterways, making fishing and other water-based recreation activities difficult or impossible. With some members who fish Fourmile Run having spotted native trout in the area previously, which are especially sensitive to ecological changes, the potential for dewatering of Fourmile Run and the potential for acid mine drainage could wipe out any native trout which currently exist there. If the petition were to be approved, however, these members' recreational and aesthetic interests in the Petition Area would be protected from the adverse effects of coal mining operations.

Additionally, the surface mining activities associated with a coal mine are often unsightly, as well as being disruptive to the land and nearby water supplies. If coal mining were permitted within the Petition Area, this would limit, and potentially eliminate, members' ability to engage in recreational nature photography as well as enjoying the aesthetic benefits of the area.

b. <u>Petitioner Has an Interest in Its Members' Interest to Prevent the Expansion of Mining in the Area, Which Would Be Injured if Mining Took Place</u>

Certain MWA members also have an interest in limiting the expansion of coal mining operations within the Petition Area, as well as the surrounding area as a whole. There is currently an underground coal mine, with approximately 70 acres of surface activity, which extends to the southern border of the Petition Area. The mine, Rustic Ridge #1, has been associated with causing a variety of injuries to neighboring communities. Members of MWA have reported degradation of local roads, traffic safety concerns, and a diminution in their quality of life due to

the coal mine in the area. In response to this mine, a committee of MWA members was formed, known as the Rustic Ridge Committee, to fight coal mining expansion in the Youghiogheny River watershed and its broader communities, with a focus on the Donegal and Acme areas. Members of the committee have devoted substantial time, energy, and resources to fighting coal mining expansion in the area. Classifying the Petition Area as unsuitable for mining would ensure that their interests are protected. If surface mining were to occur within the Petition Area, it would cause a direct impact to the interests of these members.

c. Petitioner Has an Interest in Upholding its Organizational Mission and if Mining Took Place, MWA's Mission to Protect and Preserve the Land Would Be Violated

MWA also has an interest in the Petition Area due to its need to uphold its organizational mission. MWA's mission is to protect, preserve and restore the Youghiogheny River watershed and its broader communities through conservation, recreation, education, and advocacy. Jacobs Creek is a tributary to the Youghiogheny River and, thus, the Jacobs Creek watershed is a part of the Youghiogheny River watershed. The Jacobs Creek watershed extends into the western portion of the Petition Area and as such, is directly related to the mission of MWA. The mission also addresses the broader communities associated with the Youghiogheny River watershed, which the remainder of the Petition Area outside of the watershed would be included in.

MWA's duty with respect to the Youghiogheny River watershed and its broader communities is protection, preservation, and restoration. As such, engaging in said actions within the Petition Area falls directly within MWA's duty under its mission. MWA has already invested almost $10 million into acid mine drainage treatment systems within the watershed, and devoted substantial resources and time protecting the land and clean water. Johnson Report discusses the possibility of mining to create new pollutional discharges south of the site, which would likely be

the Indian Creek watershed.[77] New discharges in the watershed could impair or diminish our treatment systems' ability to remove contaminants, which would have devastating effects on the ecosystem and surrounding community.

If coal mining operations were to occur within the Petition Area, it would violate MWA's mission of protecting, preserving, and restoring the Youghiogheny River watershed and its broader communities and would threaten to diminish or destroy its ability to treat polluted water at certain facilities. If the petition were to be granted, however, MWA's interest in upholding its organizational mission would be protected in the Petition Area in perpetuity.

IV. PROCEDURAL CONSIDERATIONS

A. An Administratively Complete Permit Application Does Not Bar the Department from Reviewing an Unsuitable for Mining Petition

Petitioners understand that an administratively complete application has been accepted for the expansion of the Rustic Ridge #1 Mine which, if granted, would extend into the Petition Area. However, both the federal and state regulatory language make it clear that the Department retains the discretion to accept petitions in such scenarios. Because of the extreme and immediate nature of the risks presented in this sensitive area and the irrevocable damage that would likely occur if mining were allowed in the Petition Area, this is an appropriate occasion for the Department to exercise such discretion.

The Pennsylvania regulation states:

> (6) The Department **may** determine not to process any petition for a designation under § 86.122 (relating to criteria for designating lands as unsuitable) insofar as it pertains to an area for which an administratively complete surface mining

[77] *Id.,* at p. 5-9.

> operation permit application has been filed and the first newspaper notice has been published . . .[78]

This language directly mirrors the federal regulation which states:

> The regulatory authority **may** determine not to process any petition received insofar as it pertains to lands for which an administratively complete permit application has been filed and the first newspaper notice has been published." (30 C.F.R. § 764.15).

In its promulgation of rules in 1983, OSM specifically rejected a rule dictating categorical denial of petitions where an administratively complete permit application existed. OSM explained:

> A few commenters…recommended that it be mandatory, not discretionary, for the regulatory authority not to process any petition received which pertains to lands for which a complete permit application has been filed and the first newspaper notice has been published.
>
> The filing of a permit application does not confer statutory immunity from the filing of unsuitability petitions. Such a right exists only where an operation satisfies the criteria set forth in § 762.13.[79] This rule is the result of the reasonable exercise of OSM's discretion in implementing the Act. OSM has determined that the State regulatory authority should have the discretion to consider petitions filed after the publication of the first newspaper notice on a permit application if the regulatory authority believes the area warrants review.[80]

As the attached Johnson Report thoroughly outlines, mining in this area is likely to result in such decreased water levels that it could result in loss of water supplies and impairment of designated uses in Fourmile Run. Furthermore, mining in the Petition Area will likely cause dewatering and acid mine drainage impacts such that future reclamation attempts would be neither technologically nor economically feasible. It is hard to imagine a more appropriate time

[78] 25 Pa. Code § 86.124 (a)(6) (West 2024) (emphasis added).
[79] Section 762.13 includes only exceptions for land with existing permits and for lands where substantial legal and financial commitments in surface coal mining operations were in existence prior to January 4, 1977.
[80] 48 FR 41312-01, 1983 WL 105192.

for the Department to employ the discretion that the federal regulators specifically preserved when promulgating the rules.

B. An Unsuitable For Mining Petition Is Appropriate Because The Proposed Surface Facility Incidental To Underground Mining Operations Falls Under The Definition Of Activities Considered For Petition Review

While the legislation implementing the UFM scheme originally required reviewers to take into consideration any surface impacts caused by underground mining, it was later limited so that only impacts from surface operations could be considered. However, the definition of "surface operations" includes those surface activities that occur incidental to underground mining operations.

While no surface mining is proposed within the Petition Area, there is a proposed surface facility that would be developed in order to provide portal access for the Rustic Ridge #2 Mine.

According to LCT's permit application materials, the surface facility would also be the site of the treatment and storage of water pumped from the underground mine workings. The surface facility would therefore become the site of significant discharge into the Jacobs Creek watershed. Furthermore, because the Rustic Ridge #2 and #1 underground mine workings would likely be hydrologically connected, the surface point could be discharging an enormous amount of water from their combined -- about 4,286 total - underground acreage.[81]

In their applications, LCT has not estimated the amount of water that would be transferred between watersheds and nor, presumably, the resulting impacts such as AMD or water loss. And while LCT has not yet addressed this issue in their permitting materials, it is certainly possible that after mining has occurred, the discharge could become acidic and the portal could serve as the site of a perpetual AMD treatment system.

[81] Johnson Report, at p. 3-4.

Because the underground mining will have eventual impacts at the surface in the form of discharges, it is required that the Department consider such impacts in their review. The relevant definition under 30 C.F.R. § 761.5 reads:

> Surface operations and impacts incident to an underground coal mine mean **all activities involved in or related to underground coal mining which** are either conducted on the surface of the land, **produce changes in the land surface** or including all activities listed in section 701(28) of the Act and the definition of surface coal mining operations appearing in § 700.5 of this chapter.

Section 700.5 reads:

> Surface coal mining operations mean—
>
> (a) Activities conducted on the surface of lands in connection with a surface coal mine or, subject to the requirements of section 516 of the Act, surface operations and surface impacts **incident to an underground coal mine**, the products of which enter commerce or the operations of which directly or indirectly affect interstate commerce. Such activities include excavation for the purpose of obtaining coal, including such common methods as contour, strip, auger, mountain top removal, box cut, open pit, and area mining; the use of explosives and blasting; in situ distillation or retorting; leaching or other chemical or physical processing; and the cleaning, concentrating, or other processing or preparation of coal. Provided…
>
> (b) The areas upon which the activities described in paragraph (a) of this definition occur or where such activities disturb the natural land surface. These areas shall also include any adjacent land the use of which is incidental to any such activities, all lands affected by the construction of new roads or the improvement or use of existing roads to gain access to the site of those activities and for haulage and excavation, workings, **impoundments**, dams, ventilation shafts, entryways, refuse banks, dumps, stockpiles, overburden piles, spoil banks, culm banks, tailings, holes or depressions, repair areas, storage areas, processing areas, shipping areas, and other areas upon which are sited structures, facilities, or other property or material on the surface, resulting from or incident to those activities.
>
> Surface coal mining and reclamation operations means surface coal mining operations and **all activities necessary or incidental to the reclamation of such**

> **operations**. This term includes the term surface coal mining operations. (30 C.F.R. § 700.5).[82]

According to LCT, the surface portion of an underground mine would typically include the mine access "pit with slope entries, mine fan, supply yard, coal stockpile area, power substation, **mine discharge treatment facilitie**s, office/bathhouse and laydown areas."[83]

It is clear that "impoundments" and "mine discharge treatment facility" fall under the definition of surface operations. LCT's application for RR # 2 includes a discharge point, from which the Department must consider impacts in their review of this petition.

The surface facility is constructed only in conjunction with the underground mining that would inherently occur. There is no logical scenario in which a 70-acre surface portal is constructed without underground mining activity. Therefore, we must also analyze the conditions of underground mining in order to correctly assess the full impacts of the discharge. For example, because of underground mining, any discharge leaving the surface site to the east, will very likely enter a much lower-flow stream than it otherwise would, creating significantly different, and more severe, impacts.

Furthermore, once mining is complete, if a treatment system is constructed at the surface portal, it would mean the surface facility may be discharging AMD that ultimately reaches a reduced flow stream, which in turn would be less diluted, and impacts would be even more devastating. It would be highly inaccurate to assess impacts of a surface facility's discharge

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[82] PA Analog rule: According to the definitions associated with the relevant legislation, "surface mining operations" includes: The extraction of coal from the earth or from waste or stock piles or from pits or banks by removing the strata or material which overlies or is above or between them or otherwise exposing and retrieving them from the surface, including, but not limited to, strip and auger mining, dredging, quarrying and leaching and surface activity connected with surface or underground coal mining, including, but not limited to, exploration, site preparation, entry, tunnel, slope, drift, shaft and borehole drilling and construction and activities related thereto, coal refuse disposal, coal processing and preparation facilities. 25 Pa. Code § 86.101 (West 2023) (emphasis added).

[83] LCT, 2023, Rustic Ridge II Pre-Application, Module 10, Section 10.1(a)(i).

without holistically assessing and taking into account the changed circumstances that would occur from the proposed underground mining.

C. The Department Assured MWA Staff It Will Take into Consideration Impacts from Underground Mining when Reviewing an Unsuitable for Mining Petition

On August 8, 2023, MWA staff met with Department representatives, including John Stefanko, Deputy Secretary for the Office of Active and Abandoned Mine Operations. MWA staff conveyed concerns that, if permitted, the Rustic Ridge #1 expansion would cause significant damage to an ecologically sensitive area. MWA staff inquired whether there might be potential changes to the state's regulatory scheme, so that such risks could be avoided in the future and to help ensure that such areas would be protected.

Mr. Stefanko replied that there is no need for any rule changes, since there is already a regulatory scheme in place to protect such areas by designating them as unsuitable for mining. When MWA staff responded that the UFM regulations only applied to preventing surface mining activities, Mr. Stefanko stated that their Department would also strongly consider the impacts of deep mining when reviewing an Unsuitable for Mining Petition.

MWA trusts that Department staff will, therefore, consider the underground mining impacts described in Johnson Report. It is for this reason that Petitioners also wish to note the subsidence events that have already occurred during operations of RR #1. Even though the rules technically do not permit reviewers to consider subsidence, it is hard to imagine that the ongoing risk of further subsidence would not have significant impacts on the waterways of the Petition Area.

It also seems plausible that further subsidence could occur. Originally, no subsidence impacts were anticipated for the Rustic Ridge #1 Mine. However, to date, MWA has been

informed of at least four homes that suffered such extreme structural damage that LCT, either through mortgage transfer or deed, agreed to purchase the homes. In addition, DEP records show that at least 10 subsidence complaints of structural damage have been filed.[84] Even though LCT initially classified the area as "low risk," updated permit materials indicate there may be areas within the proposed expansion that could have similar geologic conditions as those which caused previous subsidence.[85] This would indicate a very real risk of subsidence in the Petition Area and the risks to the waterways that come with it.

D. The Unsuitable For Mining Petition Is The Appropriate Forum To Address Concerns For The Petition Area Because It Outlines A Higher Standard Than That Considered During The Permitting Process

While it is true that many potential issues associated with coal mining permits are addressed during the permitting process, the UFM program provides a tool that allows areas to be protected in their entirety, rather than protected to only the level required under the permitting regulations. If the permitting process were able to completely cover and consider all potential reasons why mining should not be permitted in a certain area, it stands to reason there would be no need for the UFM petition process. As such, it is evident that the legislature intended to provide an additional protective measure for certain areas of land.

Under the permitting process, the Department of Environmental Protection may not approve a permit for surface or underground coal mining unless "[t]he applicant has demonstrated that there is no presumptive evidence of potential pollution of the waters of this

[84] *Structures*, Dep't of Envtl. Protection, https://www.dep.pa.gov/Business/Land/Mining/BureauofMiningPrograms/Act-54-Yearly-Data/Pages/Structures.aspx (last visited Jan. 19, 2024).
[85] "The floor geology was the main factor related to the floor heave/subsidence. Therefore, in SE Mains, and future areas of the mine that show similar floor conditions, floor stability is more critical than coal pillar stability." LCT Rustic Ridge #1 Permit Amendment Application, Module 22 (revised 01/31/2023).

Commonwealth."[86] Under this standard, the applicant is required "to demonstrate by a preponderance of evidence that pollution of the surface and groundwater will not result from its proposed mining."[87] This is an affirmative requirement on the part of the applicant. Under the UFM program, however; areas may be designated as unsuitable for mining if certain negative environmental impacts "could result."[88]

Here, a petitioner is not required to provide affirmative evidence that the mining operations will result in damage, they are only required to show that they could result in damage. If an individual were to attempt to have a permit not be issued for coal mining under the permitting process, they must show presumptive evidence of pollution to overcome the standard provided in the PA statutes. Accordingly, the UFM program provides a higher standard for protecting areas from risks because it provides a process to deny permits for an area due to the potential for negative impacts, rather than only denying permits for an area if evidence of negative impacts affirmatively exists. Furthermore, in practice, the standard for proving such pollution will not occur is relatively low. For example, in one of the Department's technical guidance documents, the permit reviewers are prompted to confirm whether, "based on the Department's evaluation of the information presented in Modules 6 through 23, there is no presumptive evidence of **unpreventable or untreatable pollution** of the waters of the Commonwealth."[89] This indicates the possibility of scenarios in which the Department would

[86] 25 Pa. Code § 86.37 (West 2023).
[87] Magnum Mineral v. DER, 1988 EHB 867 (1988).
[88] "Upon petition, an area may be designated as unsuitable for all or certain types of surface mining operations if the surface mining operations will: (1) Be incompatible with existing Commonwealth or local land use plans or programs; (2) Affect fragile or historic lands in which the surface mining operations *could result* in significant damage to important historic, cultural, scientific or esthetic values or natural systems; (3) Affect renewable resource lands in which the surface mining operations *could result* in a substantial loss or reduction of long-range productivity of water supply or of food or fiber products; or (4) Affect natural hazard lands in which the surface mining operations *could* substantially endanger life and property, the lands to include areas subject to frequent flooding and areas of unstable geology." 25 Pa. Code § 86.122 (West 2023) (emphasis added).
[89] *Review Guide and Written Findings*, Dep't of Envtl. Protection (Oct. 31, 1977), https://greenport.pa.gov/elibrary/GetDocument?docId=7988&DocName=REVIEW%20GUIDE%20AND%20WRIT

permit mining with presumptive evidence of pollution, as long as such pollution is "unpreventable" or assumed to be "treatable." The UFM standards encourage protection where such pollution "could" exist, therefore creating a different, and much higher, standard of protection. Presumably the legislature understood this when creating the UFM scheme, because if all risks were regularly addressed through the permitting process, there would be no need for the petition process at all.

Moreover, the UFM program provides an opportunity for the DEP to be proactive in denying permits for an area, rather than requiring applicants to go through the entire permit process before determining that the area proposed for mining is unsuitable. There have surely been instances where a mine operator has submitted an application for a permit and in the permitting process, the DEP determined that the area was unsuitable for mining for one reason or another under the permitting regulations. However, the UFM process allows an opportunity to make a determination that applications for permits will not be successful in a given area due to the surrounding environment and circumstances.

Additionally, portions of the UFM process are discretionary. The program outlines certain areas where mining is outright prohibited, but also gives the DEP discretion to determine if a certain area is not suitable for mining. Congress, in debating the goals of the Surface Mining Control and Reclamation Act ("SMCRA") on the House floor, premised the unsuitable for mining designation process on the "notion that successful management of surface mining depends, in large part, on the application of rational planning principles."[90] Congress described the intent of the designation process as follows:

TEN%20FINDINGS.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E%3C%2Fspan%3E.

[90] House of Representatives Report No. 95-218, 95th Congress, 1st Session 94 (1977).

> While coal surface mining may be an important and productive use of land, it also involves certain hazards and is but one of many alternative land uses. In some circumstances, therefore, coal surface mining should give away (sic) to competing uses of higher benefit.[91]

Though this represents the federal viewpoint, SMCRA is an excellent example of cooperative federalism. Cooperative federalism is a system whereby the federal government establishes statutory minimum standards and procedural requirements for which the states then enact implementation and enforcement schemes subject to EPA approval and oversight.[92] In this case, Pennsylvania implemented a state SMCRA program in the mold of the federal system, taking on its standards and objectives. While the idea of "rational planning principles" is taken from a federal Congressional debate, the Commonwealth's surface mining regulatory scheme has inherited the same principles of rational planning and, for that reason, includes a petition process to designate certain areas unsuitable for mining.

As the evidence outlined herein reflects, this Petition presents the very situation where the "higher benefit" to the public-at-large, by maintaining the water quality and visual beauty of the Petition Area, as well as the biological integrity of the watershed areas implicated, and so such land use should be afforded primacy over the competing use of surface coal mining.

V. LEGAL ARGUMENT

A. The Petition Area Must Be Deemed Unsuitable for Mining Because the Impacts from Surface Mining in the Area Cannot be Reclaimed

Surface mining in the Petition Area will cause impacts such that future reclamation attempts would be neither technologically nor economically feasible. Under such circumstances, the Department is required to designate the area as unsuitable for mining. Section 86.122(a)

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[91] *Id.*
[92] Lieutenant Colonel (Ret.) Harry M. Hughes, *Master Environmental Edition II: Sovereign Immunity Versus State Environmental Fines*, 58 A.F. L. Rev 207, 209 (2006).

states that: "Upon petition, an area **shall be** designated as unsuitable for all or certain types of surface mining operations if the Department determines that reclamation is not technologically and economically feasible."[93] Pennsylvania law mandates that the Department "shall" make an unsuitability designation when adequate reclamation cannot be accomplished; the unsuitability designation represents a mandatory obligation upon the Department.[94] Once reclamation infeasibility is established, the Department is without discretion whether or not to designate the area as unsuitable.

First, as is established in the Johnson Report, if surface mining occurs, significant environmental damage will follow. With a high degree of certainty, the Petition Area will be impacted by: 1) acid mine drainage ("AMD"); 2) degradation of water quality and quantity in streams; and 3) degradation of water quality and quantity of groundwater resources. Second, each of these impacts would occur indefinitely within the Petition Area. Aside from permanently rerouting flow from one watershed to another, there are no measures in existence that could prevent or mitigate the eventual loss of water—or the water quality degradation—that would occur in Fourmile Run.[95] Similarly, there are no measures that could mitigate the overall reduced groundwater quality which the Johnson Report predicts.[96] Theoretically, there are costly treatment systems that could be developed to mitigate some degree of impacts from the AMD. However, treatment systems must be maintained in perpetuity and, as the Johnson Report shows, AMD treatment systems in the region have struggled to meet the needs of ever-changing

[93] 25 Pa. Code. § 86.122(a) (West 2024) (emphasis added).
[94] *See*, *Lorino v. Workers' Comp. Appeal Bd.*, 266 A.3d 487, 493 (Pa. 2021) ("The term 'shall' establishes a mandatory duty, whereas the term 'may' connotates an act that is permissive, but not mandated or required."); *see also*, *Maine Community Health Options v. U.S.*, 140 S.Ct. 1308, 1320 (2020) ("The first sign that the statute imposed an obligation is its mandatory language: 'shall'. Unlike the word 'may', which implies discretion, the word 'shall' usually connotes a requirement.").
[95] Johnson Report, at p. 5-3, 5-6.
[96] *Id.*, at p. 5-7.

discharges and have never returned all contaminants to pre-mining levels.[97] For these reasons, discussed in detail below, the Department must declare the Petition Area as unsuitable for mining pursuant to its non-discretionary, mandatory duty.[98]

a. <u>The Data Demonstrates that the Petition Area Will be Impacted by Surface Mining Because Analogous Impacts Have Already Occurred</u>

The Petition Area sits within a surrounding geographic area that has already been impacted indefinitely by mining. As a result, anticipated environmental impacts from mining within the Petition Area are neither speculative nor hypothetical. The anticipated impacts within the Petition Area include: 1) additional acid mine drainage; 2) water quality degradation in surrounding streams; 3) water flow loss in surrounding streams; and 4) reduced groundwater quantity. Each of these impacts have been observed in surrounding areas following mining of the Kittanning coal seam—the same coal seam proposed to be mined by the future Rustic Ridge mining operations—and recognized by the Department, particularly through the irreparable harm within the Indian Creek watershed. With analogous hydrology and hydrogeology, the Petition Area would be susceptible to the same impacts. The predicted environmental impacts from surface mining in the Petition Area are indisputable based upon the impacts that have been objectively established.

i. Acid Mine Drainage Will Seep Out of Abandoned and/or Flooded Mines and Irreversibly Pollute the Water in the Petition Area

Demonstrated AMD in areas both within and surrounding the Petition Area provide a high level of certainty that AMD in the Petition Area cannot be avoided if surface mining would occur. Additionally, the presence of acid-forming geologic materials in the Petition Area is

[97] *Id.*, at pp. 4-7, 4-8.
[98] *See*, 25 Pa. Code. § 86.122(a) (West 2024).

evidence that presumptively indicates that pollution will occur. It is commonly known that AMD will likely seep out of an abandoned and/or flooded mine causing uncontained water contamination.

Pennsylvania coal mines are known to create AMD.[99] Acid mine drainage (AMD) results from the formation of sulfuric acid when iron sulfide minerals such as pyrite (FeS_2) are oxidized. Pyrite is commonly found in the coal seam and shale and sandstone strata adjacent to coal beds.[100] During coal mining, pyrite exposed to air and water oxidizes to form ferrous sulfate, ferric sulfate, ferric hydroxide, and sulfuric acid. The following equations[101] show the reactants and products of the oxidation reaction:

$$2FeS_2 + 7O_2 + 2H_2O \rightarrow 2Fe^{2+} + 4SO_4^{2-} + 4H^+ \qquad \text{Equation 1.}$$

$$4Fe^{2+} + O_2 + 4H^+ \rightarrow 4Fe^{3+} + 2H_2O \qquad \text{Equation 2.}$$

$$4Fe^{3+} + 12H_2O \rightarrow 4Fe(OH)_3 + 12H^+ \qquad \text{Equation 3.}$$

$$\text{Adding: } FeS_2 + 14Fe^{3+} + 8H_2O \rightarrow 15Fe^{2+} + 2SO_4^{2-} + 16H^+ \qquad \text{Equation 4.}$$

The AMD chemical reactions produce elevated concentrations of the insoluble precipitate ferric hydroxide [$Fe(OH)_3$], dissolved sulfate [SO_4^{2-}], and hydrogen ion [H^+]. Furthermore, the inorganic chemical reaction can be accelerated in the presence of the microbial bacteria *Thiobacillus ferroxidans*.[102] Once sulfuric acid forms, the acid reacts with the base minerals in

[99] Johnson Report, at p. 3-4.
[100] James I. Sams III & Keven M. Beer, *Effects of Coal-Mine Drainage on Stream Water Quality in the Allegheny and Monongahela River Basins—Sulfate Transport and Trends*, USGS Report, 3 (2000).
[101] U.S. Office of Surface Mining, 1998.
[102] P.C. Singer & Werner Stumm, *Acidic Mine Drainage—The Rate-Determining Step*, Science v. 167, 1,121-1,123 (1970).

the bedrock or mine spoil and leaches aluminum, iron, manganese, zinc, and other cations commonly present in dissolved mine drainage waters.[103]

Infiltrating precipitation transports the dissolved solutes via groundwater and ultimately discharges into streams, lakes, or other surface water bodies.[104] Surface runoff following a storm event transports the leached cations even more effectively into streams and lakes in the watershed, thus increasing the total dissolved solid ("TDS") concentration in water. If available in the dissolving materials, sufficient alkalinity will neutralize the acid water produced due to AMD.[105] However, this alkalinity "does not remove metals, such as iron and manganese."[106]

Five (5) historic mines with demonstrated AMD contamination are located in the areas surrounding the Petition Area and included mining operations from the Kittanning coal seam:[107]

1) Hoyman Mine #1

    a) The Hoyman Mine is located at the south edge of the Petition Area. AMD was identified in mine seepages. Significant impact to Jacobs Creek associated with AMD is evidenced in the treated Hoyman Mine discharge. An engineered wetland was constructed in an attempt to treat the AMD prior to its discharge into Jacobs Creek. The treatment system has proven ineffective at removing heavy metals within the water, including elevations of iron, manganese, and sulfate. This data was collected in 2021, indicating that the AMD seepage remains for approximately four (4) decades since the mine closed.

2) Melcroft Mine No. 3 Mine

    a) Melcroft No. 3 Mine is the documented source of AMD pollution to the Indian Creek watershed. The Department worked with MWA to implement a mitigation program. This program attempts to collect the AMD through a horizontal well. The collected AMD is then pumped into a treatment facility that purports to neutralize the pH and remove the heavy metals. The mitigation program cost over $1 million to construct. Ongoing operating costs are also required to repair or replace the neutralizing components.

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[103] L.G. Toler, *Some Chemical Characteristics of Mine Drainage in Illinois*, U.S. Geological Survey Water-Supply: Paper 1078, 47 (1982).
[104] Sams and Beer, 2000.
[105] *Id.*
[106] Johnson Report, at p. 3-5 (*citing*, Pennsylvania, 1997, EHB Docket No. 95-161-R Adjudication, Issued April 1, 1997).
[107] Johnson Report, at p. 4-1.

3) Melcroft # 1 Mine (Kalp Discharge)

a) The Melcroft No. 1 Mine is the "largest" documented source of AMD pollution to the Indian Creek watershed. The mine consisted of approximately 2300 acres that drain into the Kalp discharge. The Department described the pollution as follows: "The Kalp discharge is the largest AMD discharge in the Indian Creek watershed. It is acidic, with elevated metals concentrations, producing approximately 40% of the total AMD pollution load in the watershed. Indian Creek receives 447 tons of acid, 128 tons of iron, and 20 tons of aluminum from the Kalp discharge every year, impacting the stream for a distance of approximately seven miles."[108] The treatment system for the Kalp discharge mirrors that instituted for the Melcroft No. 3 Mine. Notwithstanding treatment, the data demonstrates no notable improvement to the AMD seepages.

4) Fulton Mine

a) The Fulton Mine sits adjacent to the Melcroft # 1 Mine. There are two (2) primary seepages from the mine that are acidic and contain elevated levels of iron, manganese, aluminum, and sulfate. There is no treatment for the AMD draining from this mine.

5) Gallentine

a) The Gallentine Mine discharges AMD into the Indian Creek watershed. It now houses a passive treatment system that includes two vertical flow ponds and two settling basins.

These historic mines contributed to the Indian Creek watershed's inclusion onto the Department's 303(d) list due to AMD.[109] The Indian Creek River Conservation Plan ("ICRC Plan"), a report published by the Pennsylvania Department of Conservation and Natural Resources in conjunction with MWA, local townships, the Western Pennsylvania Conservancy, and the Indian Creek Valley Water Authority, determined that impacts from AMD have occurred

[108] Johnson Report, at p. 4-3 (*citing*, PADEP 2007, The Kalp and Melcroft Abatement Projects, March 27, 2007).
[109] "Section 303(d) of the federal Clean Water Act (CWA) requires Pennsylvania to identify all waters within the Commonwealth for which effluent limitations required by the CWA are not stringent enough to implement any water quality standard applicable to such waters." *See*, Information Sheet, 303(d) List, *available at*: https://www.dep.state.pa.us/dep/deputate/watermgt/wqp/wqstandards/info_sheet.doc

in the Indian Creek watershed for 150 years.[110] The ICRC Plan also states that there are over 100 discharge points flowing into Indian Creek and its tributaries.[111]

The Indian Creek watershed has been designated by the Department as an impaired watershed due to AMD. If mining is allowed, the Petition Area will suffer the same fate as the Indian Creek watershed which has been destroyed beyond repair by AMD. In addition to the foregoing historic mines within the Indian Creek watershed, former mines sitting directly within the Petition Area provide evidence of anticipated water quality from mine seepages, following closure. In its application for the Rustic Ridge Mine, LCT Energy summarized the AMD impacts:

> Three (3) seeps located near the proposed mine plan area exhibited elevated levels of iron, manganese, and sulfate concentrations. Seeps MD2014 and MD2016 are located within the 1,000-foot offset and MD2015 located approximately 500 feet north of the 1,000-foot offset boundary. These seeps were observed to be rich in oxidized iron based on water discoloration during field observations. Water samples reported elevated iron, manganese, and sulfate concentrations ranging from 0.68 mg/L to 17.6 mg/L, 0.23mg/L to 2.57 mg/L, and 493 mg/L to 728 mg/L, respectively. Seep MD2015 is located within the reclaimed Patual Surface Mine (SMP No. 6579104) previously mined by Holliday Constructors, Inc. (Mine ID – S6 on Exhibit 8.2) on the Middle Kittanning, Lower Kittanning, and Clarion coal seams. Seeps MD2014 and MD2016 are located approximately 500 feet down gradient of the previous mined extents. Two (2) seeps located within or near the surface site boundary were observed to be rich in oxidized iron based on water discoloration during field observations.[112]

Furthermore, the Vasinko Mine sits along the edges of the Petition Area.[113] The Vasinko Mine drains into Tributary 43587 within Fourmile Run.[114] Tributaries within Fourmile Run demonstrate elevated concentrations of total iron and manganese due to mine seepages.[115]

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[110] Mountain Watershed Association, Indian Creek River Conservation Plan, at 5 (Sept. 2001), https://spcwater.org/wp-content/uploads/2020/01/IndianCreek_RCP_090101.pdf.
[111] *Id.*
[112] Johnson Report, at p. 3-3 (*citing*, LCT, 2023, Rustic Ridge II Pre-Application).
[113] *Id.*, at p. 2-10.
[114] *Id.*, at p. 2-4.
[115] *Id.*, at p. 2-3.

Again, these seepages evidence AMD impacts that will be unavoidable if mining is permitted in the Petition Area.

The elevated levels of iron, manganese, and sulfate demonstrate that AMD is a persistent problem stemming from water discharged from closed mines. The study completed by Winters *et al*. investigated long term seepages from closed and flooded coal mines located approximately 10 miles from the Petition Area.[116] Winters *et al*. concluded that all major streams in the study area were impacted by polluted mine drainage resulting in contaminated water.[117] The water quality data gathered by the Winters *et al*. study is summarized in the table below:[118]

Table 3.1
Mine Seepage Water Quality (Winters et al, 2001)

Table 1. Geochemistry and strontium isotope composition of Irwin basin discharges. Location numbers are keyed to Figure 5.

	Location	Date	pH S.U.	HCO_3	Fe	Al	SO_4	Na	Si	Sr	$^{87}Sr/^{86}Sr$
							ppm				
1	Delmont #1	03/99	3.4	0	38.3	1.3	406	23	13.8	0.7	0.71253
		07/99	5.2	27	31.2	0.7	375	23	10.5	0.6	0.71260
2	Delmont #2	07/99	4.9	0	40.6	1.9	447	27	13.0	0.7	0.71254
3	Export	03/99	2.8	0	1.3	13.4	550	19	24.3	0.7	0.71243
		07/99	3.2	0	1.5	18.2	599	22	22.3	0.7	0.71240
4	Coal Run	03/99	5.8	148	16.0	0.2	298	83	8.6	1.5	0.71237
		07/99	6.2	181	18.7	0.2	305	91	6.0	1.1	0.71237
5	Irwin	03/99	6.0	133	70.4	0.1	715	125	12.7	1.6	0.71263
		07/99	6.0	161	62.1	0.2	589	137	10.7	1.2	0.71262
6	Guffey-Up	07/99	6.2	427	21.5	0.2	463	281	7.3	1.1	0.71220
7	Guffey-Low	03/99	6.3	315	22.0	0.1	456	235	8.5	1.4	0.71214
		07/99	6.0	234	23.6	0.1	284	133	7.1	1.2	0.71223
8	Lowber	03/99	6.1	405	78.3	0.1	1338	483	11.0	2.6	0.71257
		07/99	6.0	439	75.0	0.2	1315	426	9.5	1.9	n/a
9	Douglas Run	03/99	6.4	371	13.1	0.1	412	222	7.4	1.6	0.71222
		07/99	6.0	339	25.3	0.1	427	204	6.0	1.3	0.71223

In summary, the water quality data collected from all of the pre-existing mines establish the following as it relates to potential surface mining in the Petition Area:

[116] *Id.*, at p. 3-3 (*citing*, Winters, R.W., Capo, R.C., Weaver, T.J., Stafford, S.L., Hedin, R.S., and Stewart, B.W., 2001, Hydrologic and Geochemical Evolution of Deep Mine Discharges, Irwin Syncline, Pennsylvania).
[117] *Id*.
[118] *Id*.

- AMD is commonly associated with mining the Kittanning coal seam;
- AMD has continued, unabated, for decades following mine closures; and
- Treatment is not fully effective in reclaiming the water pollution caused by AMD.

The conclusions that are drawn from past AMD seepages are further confirmed by testing performed to evaluate the acid generating potential of the Lower Kittanning coal seam, including its overlying and underlying strata. The data is summarized in the following Table:[119]

Table 5.1
Acid Base Accounting (LCT, 2023, Module 7)

Strata Layer	Thickness (ft)	Sulfur (%)	Neutralization Potential (t/kt)
Roof Strata	1.0	1.23	32.6
Lower Kittanning Coal	>3.5	4.41	9.7
Floor Strata	1.0	2.04	15.9

Strata will have significant potential for AMD if the total sulfur content exceeds 0.5% and the neutralization potential is less than 30 kt/t.[120] The data indicates that the Lower Kittanning seam falls within the range for extreme likelihood for AMD to occur.

As it relates specifically to the Petition Area, it is clear that mining operations will, "result in the production of mine drainage which would cause significant environmental damage."[121] The Pennsylvania Environmental Hearing Board determined: "[t]he best predictor of the water quality effects of future mining is past mining in the area."[122] For this reason, because

[119] Johnson Report, at p. 5-8 (*citing*, LCT, 2023, Rustic Ridge II Pre-Application).
[120] Johnson Report, at pp. 5-7, 5-8.
[121] James M. Auslander, *Reversing the Flow: The Interconnectivity of Environmental Law in Addressing External Threats to Protected Lands and Waters*, 30 Harv. Envtl. L. Rev. 481 (2006).
[122] Rand Am, Inc., et al. v. Com. of Pa., et al., 1997 EHB 351 (Pa.Env.Hrg. Bd. April 1, 1997).

AMD impacts have been definitively established, the Petition Area must be deemed unsuitable for mining.

Furthermore, in the Department's document "Areas Designated Unsuitable for Mining" which summarizes previous designations, threats to public water supplies were noted as being a rationale for 16 of the 19 designations (and once merely because of a threat to waters that *may* be developed for public use in the future).[123] This clearly indicates that a risk to public water supplies such as those Petitioners have outlined, meets the criteria set out in 25 Pa. Code § 86.122(b)(3) (stating that a designation can be made when mining "could result in a substantial loss or reduction of long-range productivity of water supply."[124]

ii. Water Quality Will Degrade and Be Adversely Affected in Jacobs Creek and Fourmile Run

Water quality degradation to streams in the Petition Area will occur both during active mining and after the mine is closed. Water quality degradation to Jacobs Creek and Fourmile Run will occur primarily through mine discharges. Water degradation from mining activities occur through three (3) principal mechanisms:[125]

- Deeper groundwater with poorer water quality can be diverted to surface streams after mining occurs. The poor-quality groundwater degrades the water quality in the receiving streams.
- Dewatering and drainage from either active or closed mines diverts clean water through the mine, thereby reducing the clean water available for surface water recharge.

[123] *Areas Designated Unsuitable for Mining, supra* note 45.
[124] 25 Pa. Code § 86.122(b)(3) (West 2024).
[125] Johnson Report, at p. 3-6.

- Following mining, groundwater and surface water is diverted through the coal, again adversely impacting the water quality from the receiving stream and often resulting in AMD (discussed above).

If mining in the Petition Area occurred, the surface operations would occur where the Lower Kittanning coal seam is closest to the surface. Within the Petition Area, this falls on the west side adjacent to tributaries that flow into Jacobs Creek.[126] Impact to Jacobs Creek is expected because the water discharging from the mine will flow into the stream. The existing data indicates that the seepage into Jacobs Creek would be destructive. The water seeping out of the former Patual Coal Mine (located in the Headwaters of Fourmile Run) can be used as a reference:

> These seeps were observed to be rich in oxidized iron based on water discoloration during field observations. Water samples reported elevated iron, manganese, and sulfate concentrations ranging from 0.68 mg/L to 17.6 mg/L, 0.23mg/L to 2.57 mg/L, and 493 mg/L to 728 mg/L, respectively.[127]

The water quality for the anticipated seepage into Jacobs Creek can also be forecasted based upon the discharges from the Hoyman Mine #1. These discharges averaged concentrations of iron, manganese, and sulfate of 29 mg/L, 7.5 mg/L, and 570 mg/L, respectively.[128] Similar and equivalent impacts would be expected to Fourmile Run following mining.

Groundwater quality data for springs in the Petition Area was collected as recently as 2023 by LCT. The results demonstrate that springs within the area have been impacted by pre-existing mining, demonstrated through abnormal elevations of iron and manganese.[129]

Table 2.2[130]
Summary of Water Quality from Spring Samples (LCT, 2023)

[126] *Id.*, at p. 3-1.
[127] *Id.*, at p. 5-5 (*citing*, LCT, 2023, Rustic Ridge II Pre-Application).
[128] *Id*.
[129] Johnson Report, at p. 2-8.
[130] *Id.*, at p. 2-9 (*citing*, LCT, 2023, Rustic Ridge II Pre-Application).

Well Number		**S2021**	**S2022**	**S2023**
Name		**US 002**	**US 001**	**DS 001**
Watershed		**Jacobs**	**Jacobs**	**Jacobs**
Flow (gpm)	High	56	47	56
	Median	47	39	56
	Low	47	37	37
pH	High	7.3	7.4	7.8
	Median	7.1	7.1	7.3
	Low	6.9	6.9	7.1
Alkalinity (mg/L)	High	57	54	51
	Median	--	--	--
	Low	46	43	42
Iron (mg/L)	High	3	2.3	1
	Median	--	--	--
	Low	1.4	1.2	0.5
Manganese (mg/L)	High	1.4	1.8	1.1
	Median	--	--	--

	Low	1	1.5	1

These existing impacts provide certainty that additional water quality impacts will occur and/or be exacerbated if surface mining within the Petition Area is permitted. The susceptibility of the streams renders the Petition Area unsuitable for mining.

iii. Water Flow Loss Will Occur in the Upper Tributaries to Fourmile Run

Flow loss within the upper tributaries of Fourmile Run will occur as a result of dewatering from the surface mine.[131] In particular, flow loss occurs as a result of water diversions required for mining operations.[132] Mining requires that surface water and groundwater be removed and discharged away from active mining areas.[133] This diversion reduces the groundwater that replenishes streams, particularly when precipitation is low.[134] The reduction in groundwater is particularly problematic in the Petition Area because it is in the headwaters of Fourmile Run; hence, the reductions in groundwater discharge have the greatest impacts.[135]

Water from the south and west within the Petition Area drains into Tributary #37998 which then flows into Jacobs Creek.[136] Water from the north and east drains into unnamed tributaries which then flow into Fourmile Run.[137] If mining were to occur in the Petition Area, groundwater discharges to the Fourmile Run watershed would be reduced because of groundwater being diverted to the Jacobs Creek watershed.[138] The unnamed tributaries within Fourmile Run will be impacted by this diversion and changes to the hydrologic cycle caused by

[131] Johnson Report, at p. 5-2.
[132] *Id.*
[133] *Id.*
[134] *Id.*
[135] *Id.*, at p. 3-5.
[136] *Id.*, at p. 2-1.
[137] *Id.*
[138] *Id.*, at p. 5-2.

mining. This disruption is because hydrology in Southwestern Pennsylvania is, "dominated by interactions between the bedrock, which is composed of extensive strata of sedimentary rock, and relatively rugged topography, which results from the incision of the surface water drainage network."[139]

The water flow loss is further evidenced by mine seepages from other area mines.[140] Three (3) monitoring wells were installed at the entry portal to the existing Rustic Ridge mine.[141] In August of 2018, all three (3) wells simultaneously indicated that dewatering of the Kittanning coal seam had occurred.[142] The seepages and dewatering that have already occurred provide definitive evidence that dewatering will occur under similar conditions within the Petition Area.

iv. Groundwater Yields in Freshwater Aquifers Will be Reduced

Groundwater in the Petition Area will be reduced by downward seepage resulting from dewatering within the coal seam and the surface mine.[143] Surface disturbances from mining will diminish groundwater availability, resulting in dry water wells that previously drew from these aquifers.[144] Fresh groundwater will be drawn downward into lower zones.[145] "This occurs because the underground mine and the surface component of the underground mine create a preferential flow path, which can drain overlying aquifers, and divert otherwise unimpacted, fresh groundwater through coal, refuse, and mine workings."[146] A study south of the Petition

[139] *Id.*, at p. 3-6.
[140] *See*, *supra*.
[141] *Id.*, at p. 5-2.
[142] *Id.*
[143] *Id.*, at pp. 5-6, 5-7.
[144] *Id.*
[145] *Id.*
[146] *Id.*, at p. 3-7.

Area determined that, "the water quality of existing individual wells and springs have been degraded by mining or no longer provide sufficient quantities of water."[147]

b. <u>Surface Mining Impacts in the Petition Area Will Be Permanent and Not Capable of Reclamation</u>

The impacts from surface mining in the Petition Area will manifest and persist in perpetuity. For this reason, there are no effective mitigation measures that can fully reclaim the area to its pre-mining status. The Petition Area can no longer support the stream and groundwater uses that it did prior to surface mining. Accordingly, reclamation in the Petition Area cannot meet environmental protection standards while also being technologically and economically feasible.

Reclamation is accomplished under SMCRA when an operator, "restore[s] the land affected to a condition capable of supporting the uses which it was capable of supporting prior to any mining, or higher or better uses of which there is reasonable likelihood."[148] Mining and reclamation activities must be done in a manner that is protective of the environment.[149] Any mining reclamation done must "ensure the protection of the quality and quantity of surface and groundwater systems, both within the proposed permit and adjacent areas, from the adverse effects of the proposed surface mining activities."[150] Those conducting mining and reclamation must also, to the extent possible using the best technology currently available, minimize disturbance and adverse impacts, and attempt to enhance resources like fish and wildlife and related environmental resources.[151]

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[147] *Id.*, at p. 3-7 (*citing*, PADER, 1995, Technical Study Document for a Petition to Designate Areas Unsuitable for Mining, Petition 26949901 Indian Creek).
[148] 30 U.S.C.A. § 1265(b)(2) (West 2024).
[149] *See generally*, 25 Pa. Code § 87 (subchapters D & E) (West 2024).
[150] 25 Pa. Code § 87.69 (West 2024).
[151] *See*, 25 Pa. Code § 87.138 (West 2024).

Additionally, meeting the feasibility standard in the context of an unsuitable for mining petition must be considered through the different objectives of 25 Pa. Code § 86 *et seq*. In the context of unsuitable for mining petitions, the "higher benefit" to the public-at-large of the maintenance and enhancement of the water quality and biodiversity within the Petition Area should be afforded primacy over the competing land use of surface coal mining. Therefore, the "technologically and economically feasible" standard must comport with the goals underwriting Chapter 86 Subchapter D. Any feasibility assessment related to mining reclamation must maintain the overall goal of an unsuitable for mining petition, which is to decide, *in advance*, that a Petition Area's environmental value is too high to risk the negative impacts of surface mining.

i. Treatment Systems for Acid Mine Drainage Are Ineffective and Require Significant Maintenance and Monitoring

AMD requires active chemical treatment and release, in perpetuity. Even when treatment measures are undertaken (whether active or passive), they are not fully effective at containing or preventing water pollution. Summaries from existing AMD monitoring data demonstrate the fallible nature of existing treatment systems:

1) Melcroft[152]

    a) Iron concentrations are reduced, but removal efficiency varies
    b) Manganese removal is poor

2) Kalp[153]

    a) Treatment for pH, aluminum, iron, and manganese concentrations showing limited to no reduction

3) Gallentine[154]

[152] Johnson Report, at p. 4-6.
[153] *Id.*
[154] *Id.*

a) Iron and manganese concentrations are reduced, but removal efficiency varies

The AMD monitoring data for these mines is provided in the following Table:[155]

Table 4.1
AMD Treatment Monitoring (MWA, last 5 years)

Facility	pH	Aluminum (mg/L)	Iron (mg/L)	Manganese (mg/L)	Sulphate (mg/L)
Melcroft – Main Influent	3 to 6	1 to 8	7 to 45	3 to 4	370 to 430
Melcroft – New Kalp Influent	3 to 3.3	7 to 11	1 to 3	1.1 to 1.5	7 to 11
Melcroft – Well Influent	6.2 to 6.6	<0.5	55 to 70	8 to 9	600 to 750
Melcroft – Effluent	6.5 to 7	<0.5	<0.3 to 1.6	0.5 to 8	350 to 600
Kalp – Influent	3 to 3.5	5 to 7	6 to 18	1.1 to 1.5	300 to 600
Kalp – Effluent	4 to 7	<0.5 to 7	<0.3 to 7	0.1 to 1.8	<20 to 400
Gallentine – Influent	3 to 5	1 to 13	20 to 110	30 to 40	200 to 600
Gallentine – Effluent	7 to 7.5	<0.5	<0.3 to 20	0.1 to 2.6	330 to 400

Similarly, mine seepage into Jacobs Creek from the Hoyman #1 Mine was monitored following treatment that attempted to neutralize the AMD. The data demonstrates that—even after treatment—the water discharged into Jacobs Creek is high in concentrations of total iron and

[155] *Id.*, at p. 4-7 (*citing*, MWA, 2023, Supplemental Errors Found Within LCT's Permit Amendment Application Materials for the Expansion to the Rustic Ridge I Mine, Letter to PADEP dated October 12, 2023).

manganese.[156] It is also of note that the Hoyman Mine treatment system is located just over a quarter mile from the proposed Rustic Ridge #2 surface facility.

The treatment systems for historic mines also provide evidence that AMD discharges will occur indefinitely, making the impacts from AMD permanent. Reclamation is neither technologically or economically feasible when removal and restoration cannot be successfully accomplished. As noted above, for example, discharges from the Hoyman #1 Mine continue to persist even four (4) decades following the mine's closure.[157] Even more notable, AMD discharges from Melcroft No. 1 Mine began as early as the 1920s and now continue over 100 years later.[158] There has been no dissipation. Because the treatment systems are required to operate in perpetuity, their efficiency diminishes with time rendering them unreliable and entirely ineffective.[159] The required maintenance for a treatment system's long term operability is impractical.[160] In summary, the systems are not effective in removing all AMD pollutants such that the treated water cannot support the same pre-mining uses.

ii. Water Quality Degradation Cannot Be Prevented Because Mine Water Will Seep Out of the Mine at the Onset of Mining in Perpetuity

Following adverse impacts, water quality within the Petition Area will not return to its pre-mining levels.[161] Discharges from the mine will be permanent as the mine will act as a preferential flow and seepage path for groundwater, in perpetuity.[162]

Mitigation measures would likely include monitoring and treatment of the discharges while the mine remains operable. However, these mitigation measures would likely conclude

[156] Johnson Report, at p. 2-2.
[157] *Id.*, at pp. 4-1, 4-2.
[158] *Id.*, at pp. 4.2,4-3.
[159] *Id.*, at p. 4-7.
[160] *Id.*
[161] *Id.*, at p. 5-5.
[162] *Id.*

following the mine's closure.[163] Additionally, the data demonstrates that the treatment systems are ineffective.[164] Following treatment, pollution into the streams will continue through high concentrations of manganese, iron, aluminum, and sulfate.[165] Multiple streams within the vicinity of the Petition Area evidence impact from these pollutants. Reclamation cannot be accomplished when such water quality degradation is both ongoing, unpreventable, and untreatable. Therefore the Petition Area meets the mandatory criteria set out in 25 Pa. Code. § 86.122(a) and must be designated as unsuitable, as reclamation is clearly not technologically or economically feasible.

iii. Water Flow Loss and Reduction in Groundwater and Surface Waters Cannot be Reclaimed Because the Mine Will Create a New Preferential Water Pathway

The anticipated water flow loss in the Petition Area will be permanent because the surface mine will act as a preferential flow and seepage path for groundwater, in perpetuity.[166] Irreversible water loss will occur in Fourmile Run because water that is pumped out of the mine would normally discharge into the headwater of Fourmile Run through springs and groundwater discharge.[167] This impact occurs both during mine operation and following mine closure; because the pathway has been created, it cannot be reversed.[168] Additionally, mining will permanently drain aquifers that are relied upon for local water supplies.[169] Water losses within the Petition Area are significant because groundwater in the area is used to supply private water wells for domestic and agricultural purposes.[170] This impact is similarly permanent and cannot be reversed.[171]

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[163] *Id*.
[164] *See*, *supra*.
[165] Johnson Report, at p. 5-5.
[166] *Id.*, at p. 5-3.
[167] *Id.*
[168] *Id.*
[169] *Id.*, at p. 5-6.
[170] *Id.*, at p. 2-9.
[171] *Id.*, at p. 5-6.

Mine operators do not undertake any mitigation measures to protect against or correct dewatering, water losses, or downward seepages caused by new groundwater flows.[172] Regardless, any mitigation measures would be impractical as they would require continuous transfer of water to streams and wetlands or transfer of water across watersheds. The permanent nature of these impacts renders reclamation *per se* infeasible. There are no feasible treatment methods for dewatering a stream or water loss from groundwater aquifers. The Petition Area falls squarely within the mandatory criteria for an unsuitability designation.

According to LCT's application materials for expansion of Rustic Ridge #1, there are 125 water supplies within the proposed expansion boundary, and another 92 in the Rustic Ridge #2 boundary.[173] Of these 200+ wells, only 9 are described as reaching deep enough to potentially withdraw from below the lower kittanning coal seam.[174] This means that, while they may not all be located within the Petition Area, the vast majority of these water supplies likely draw from the upper aquifers the Johnson Report predicts to lose approximately half their existing quantity.[175] If such dewatering occurs, mitigation is not possible, as it is not feasible to drill the hundreds of new wells necessary to replace all the impacted water supplies. It would also not be possible for users to get comparable replacement water supplies via public water connections, as there are no water authorities in the area with the capacity and/or ability to take on such a large infrastructure project. This means that, not only does the water loss meet the mandatory criteria for designation but also clearly falls within the discretionary criteria of 25 Pa. Code § 86.122(b)(3), which calls for designation of "unsuitable" if mining, "could result in a substantial loss or reduction of long-range productivity of water supply."

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[172] *Id.*, at pp. 5-3, 5-6.
[173] LCT, 2023, Rustic Ridge II Pre-Application, Module 8, Exhibit 8.3A.
[174] *Id.*
[175] Johnson Report, at p. 5-7.

In conclusion, the impacts that will result from surface mining in the Petition Area have been proven through pre-existing mining within the Kittanning coal seam in areas both within and around the Petition Area. The gathered data results in the conclusion that the Petition Area would be subject to the same adverse impacts caused by past mining. These adverse impacts have not been and cannot be alleviated. Due to their permanence, reclamation is neither technologically nor economically feasible. Pennsylvania law dictates that the Petition must be granted.

B. Because the Petition Area Satisfies the Mandatory Criteria of Section 86.122(a), an Unsuitability Designation Is Appropriate Pursuant to the Discretionary Criteria Within Section 86.122(b)

As outlined above, the Petition Area must be deemed unsuitable for mining because the expected impacts cannot be reclaimed through any means that are both technologically and economically feasible.[176] In conjunction with this mandatory designation, the Department may also use its discretion to designate an area as unsuitable for mining if it determines that surface mining will:

> (1) Be incompatible with existing Commonwealth or local land use plans or programs.
>
> (2) Affect fragile or historic lands in which the surface mining operations could result in significant damage to important historic, cultural, scientific, or esthetic values or natural systems.
>
> (3) Affect renewable resource lands in which the surface mining operation could result in a substantial loss or reduction of long-range productivity of water supply or of food or fiber products.

[176] *See*, 25 Pa. Code. § 86.122(a) 9West 2024) (stating that an area "shall be" designated as unsuitable for mining if reclamation is not technologically and economically feasible).

> (4) Affect natural hazard lands in which the surface mining operation could substantially endanger life and property, the lands to include areas subject to frequent flooding and areas of unstable geology.[177]

There is little doubt that if surface mining occurs, environmental damage will occur in two primary forms: 1) degradation of water quality, including through Acid Mine Drainage ("AMD"); and 2) degradation of water quantity, including through loss of streams and groundwater resources. Because the expected impacts from mining cannot be reclaimed in any satisfactory manner (as demonstrated above), the Petition Area *per se* falls within the criteria established by Section 86.122(b). Both the AMD and dewatering that is expected to occur—with a high degree of certainty—will also have detrimental effects upon: 1) fragile or historic lands (86.122(b)(2)); 2) renewable resource lands (86.122(b)(3)); and 3) natural hazard lands (86.122(b)(4)). In particular, the anticipated water pollution renders the Petition Area unsuitable for mining because:

- The Petition Area is a fragile land in which mining will degrade and destroy biological habitats that support unique ecological diversity;
- The Petition Area is a renewable resource land in which mining will degrade and destroy critical water supplies and farmlands; and
- The Petition Area contains natural hazard lands in which mining will threaten the environmental stability.

First, "fragile lands" are "geographic areas containing natural, ecologic, scientific or esthetic resources that could be significantly damaged or destroyed by surface mining operations."[178] Examples of such geographic areas include fish and wildlife habitat, "critical habitat for endangered or threatened species of animals or plants" and "environmental corridors

[177] 25 Pa. Code § 86.122(b) (West 2024).
[178] 25 Pa. Code § 86.101 (West 2024).

containing a concentration of ecologic and esthetic features and areas of recreational value due to high environmental quality."[179] The Petition Area constitutes a fragile land because it contains valuable habitats for fish, plants, and wildlife.[180] The Petition Area contains a natural ecosystem of tremendous scientific and esthetic value where numerous unique, threatened, and endangered plant and animal species live.[181] It is anticipated that these species would decline due to degraded water quality and inevitable changes to their environment.[182] Mining will damage and destroy these important natural systems and esthetic values.

Second, "renewable resource lands" are "areas which contribute significantly to the long-range productivity of water supply or of food or fiber products."[183] This includes, "aquifers and aquifer recharge areas."[184] The Petition Area constitutes a renewable resource land because it contains wetlands that are supported by aquifers supplying water to the surface, serving as an important water source.[185] Additionally, the Petition Area encompasses land designated as prime farmland and farmland of statewide importance, all of which will be reduced or eliminated by the anticipated dewatering from mining.[186] As evidence of these facts, prior coal mining operations in the Petition Area as well as within adjacent watersheds have already resulted in a substantial loss or reduction of viable water supplies.[187] Groundwater supplies have already been degraded by acid mine drainage.[188] Surface mining will result in a substantial loss or reduction of long-range water and food supply productivity.

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[179] *Id*.
[180] *See supra*, Part II(A)--(D).
[181] *Id.*
[182] *Id.*
[183] 25 Pa. Code § 86.101 (West 2024).
[184] *Id*.
[185] *See supra*, Part II(E).
[186] *See supra*, Part II(F).
[187] *See supra*, Part V(A).
[188] *Id*.

Third, "natural hazard lands" are "geographic areas in which natural conditions exist which pose, or as a result of surface mining operations, may pose a threat to the health, safety or welfare of people, property or the environment, including areas subject to landslides, cave-ins, severe wind or soil erosion, frequent flooding, avalanches and areas of unstable geology."[189] By definition, the land need only *pose a threat* to health, safety, or welfare due to surface mining operations. Mining and reclamation activities in the Petition Area are expected to cause major land disturbances, including altered stream flow, erosion and sedimentation, each of which would negatively harm the plants and animals that are native to the environment.[190] These natural conditions that will result from mining operations threaten significant environmental degradation.

Furthermore, the mere threat or risk to a watershed has repeatedly been cited as the rationale for granting previous unsuitable petitions. For example, the Squaw Run petition was approved largely due to the Technical Study's finding that "wells and springs which derive recharge from aquifers at or above the Middle Kittanning coal seam have high potential to be degraded by surface coal mining."[191] This Petition Area presents analogous circumstances, albeit with more certain degradation. For these reasons, the Department should use its discretion—as it has done so in the past—to deem the Petition Area unsuitable for mining.

[189] 25 Pa. Code § 86.101 (West 2024).
[190] *See supra*, Part II(A)--(D).
[191] 26 Pa.B. 5960, Rules and Regulations, Envtl. Quality Bd., https://www.pacodeandbulletin.gov/Display/pabull?file=/secure/pabulletin/data/vol26/26-50/2090.html&search=1&search unit keywords=unsuitable%20for%20 mining.

VI. ECONOMIC ANALYSIS

Prior to making a determination of "unsuitable" for mining, the DEP is required to conduct "an analysis of potential economic impacts" that could result from the designation.[192] Traditionally, the DEP has taken the opportunity to largely calculate economic losses that would occur if the Petition Area were never developed for mining. However, because the Mountain Watershed Association ("MWA") is uniquely familiar with many economic aspects of the region, Petitioners have also included the following section on economic impacts, containing an array of resources. MWA hopes the breadth of information will shed a more well rounded light on any cost benefit analysis. Petitioners believe that, given all available information, the potential economic losses would outweigh any benefits by an order of magnitude.

A. The Baseline Water Quality Represents Hundreds of Millions Lost (or Diminished) Annually From Mining

In 2019, Key-Log Economics prepared a study for MWA and the Laurel Highlands Conservation Landscape on the economic value of clean water to the region.[193] The study found that Laurel Highland's 21 watersheds generated a combined $3.7 billion annually in "ecosystem service benefits" or "benefits provided by nature."[194] Examples of ecosystem services are "clean

[192] Prior to designating land areas unsuitable for surface mining operations, the Department will prepare a detailed statement, using existing and available information on the potential resources of the area, the demand for resources, and the impact of the designation on the environment, the economy and the supply of coal. 25 Pa. Code § 86.124 (West 2024).

[193] Anna Perry, Sonia Wang, Spencer Phillips & Carolyn Alkire, *Valuing Clean Water: Ecosystem Service Values in the Loyalhanna, Conemaugh, and Youghiogheny River Watersheds of the Laurel Highlands Region*, Key-Log Economics (Oct. 15, 2019), http://www.keylogeconomics.com/uploads/1/1/9/5/119575398/lhfinal_ecosystemservicesvalues20191016.pdf.

[194] "Service benefits" comes from "services like recreation, aesthetics & scenery, water quality, and flood protection, and can continue to grow if the region invests in watershed restoration and conservation." *Id.*, at 3. "Ecosystem services" are those that "people receive from nature, such as clean air and water, scenic views, experiences in nature, and fertile soil to grow food. People often receive these benefits for free; ecosystems filter air and water, absorb harmful toxins, and provide a natural buffer to extreme weather events, all at no cost." *Id.*, at 4. "These costs can take the form of spending on man-made means of providing the same services (for example, by installing more expensive water treatment systems), or in the form of spending on health care to treat illnesses resulting from pollution." *Id.*

air, clean water, scenic views, experiences in nature, and fertile soil to grow food."[195]

Along with that overall estimate, the study examined specific values for the two watersheds within the study area. The report found that those watersheds within the Petition Area—the Loyalhanna and Jacobs Creek watersheds—already have enormous value to the region. For example, Jacobs Creek watershed's baseline value was $99,878,314.00, annually and the Loyalhanna watershed was valued at $278 million.[196] Taken together, the watersheds represent a total baseline value of $378,157,073.00, a significant portion of which stands to be lost if mining occurs.[197]

a. <u>Water Quality in Jacobs Creek Could Be Impacted if Mining Operations Were to Occur, Thus Impacting its Ecosystem Value As Well</u>

Jacobs Creek watershed includes two subwatersheds, Headwaters Jacobs Creek and Jacobs Creek.[198]

The subbasin of Headwaters of Jacobs Creek would almost certainly be impacted by mining in the Petition Area. The Johnson Report shows that, accounting for the specific hydrogeology and common occurrence of historical mining discharges in the region, it is likely that AMD could occur in Jacobs Creek.[199] These impacts could be devastating and would likely go on in perpetuity.

While the two Jacobs Creek subbasins have a combined baseline value of $99,878,314.00, it is "Headwaters Jacobs Creek" which is closest to the potential discharge site that is most likely to suffer more extreme losses if AMD occurs. "Headwaters Jacobs Creek" was determined to have an annual baseline ecosystem service value of $59,841,071.00. Adjusting for

[195] Perry, *supra* note 193, at 25.
[196] This estimate, like all others in the report, are based off of 2017 calculations.
[197] All numbers have 2017 value unless specified otherwise.
[198] Perry, *supra* note 193, at 32.
[199] Johnson Report, at p. 5-4, "Impact to the water quality in Jacobs Creek would definitely occur, as the quality of water discharged from an operating mine is poorer than that of a natural stream."

inflation, this would mean a current value of $75,664,373.08/year, a significant portion of which stands to be lost once mining occurs.

The Johnson Report showed that not only will impacts occur in "Headwaters Jacob Creek," but also that "water-related impacts from further mining that could occur in the Headwaters of Fourmile Run indicates . . . the quality of water would be adversely affected in the *upper reaches of Jacobs Creek*."[200] Thus, it is possible that losses may impact both subbasins and waterways beyond those, posing the threat of larger possible losses from the $1 billion in value represented by the Jacobs Creek watershed.

b. <u>Fourmile Run and Donegal Lake Would Likely Suffer Impacts if Mining Were to Occur in the Petition Area, Reducing its Annual Value</u>

Within the Loyalhanna Creek watershed, the study found that the annual value of Fourmile Run was $34,948,679.00. Adjusting for inflation, that comes to $44,189,882.34, annually. According to the Johnson Report, it is definite that Fourmile Run will almost certainly suffer from some degree of negative impacts from mining. Most likely, significant dewatering—at least 25% decrease in surface water and 50% loss of groundwater above the coalseam—is expected if mining occurs in the Petition Area.[201] The Report also predicts that such flow loss of Fourmile Run would almost certainly be permanent if mining occurs in the Petition area.[202] Such a significant decrease could impact the stream enough so that it no longer supports the criteria for its current designated use of "Trout Stocking Fishery."[203] A significant part of its ecosystem benefits from recreational fishing opportunities there.

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[200] *Id.*, at p. 7-1.
[201] *Id.*, at p. 5-3.
[202] *Id.*
[203] *Water Quality Standards*, Pa. Dep't Envtl. Prot., https://www.epa.gov/sites/default/files/2014-12/documents/pawqs-chapter93.pdf (last visited Jan. 18, 2024).

According to one study, each stream mile classified as Trout Stocked Fishery (TSF) creates an economic benefit from recreational fishing of $89,960 annually. Contrastingly, Warm Water Fisheries create just $18,800, annually.[204] The Petition Area includes 186,010.8 feet, or roughly 35 miles, of (TSF) designated stream.[205] This represents at least $3 million in potential losses from recreational fishing, alone. Considering that 90% of the Petition Area is in the Fourmile Run watershed and that water loss and AMD would greatly, if not entirely, inhibit many stream's ability to support aquatic life—along with degrading all other ecosystem benefits—it is possible that mining the Petition Area will result in losing a large portion of Fourmile Run's $44 annual value.

Donegal Lake, which is fed by the headwaters for Fourmile Run, is owned and operated by the PA Fish & Boat Commission. The lake was drained in 2016 when the previous dam was deemed unsafe. A $5.5 million rehabilitation project was completed in December 2019, which included lake dredging.[206] If Fourmile Run, and hence Donegal Lake, is significantly dewatered as is predicted in the Johnson Report, it could essentially render the state's $5.5 million investment, essentially worthless.

B. Mining In the Petition Area Would Result in Economic Impacts to Health & Quality of Life

Numerous studies have found that the impacts from mining cost the surrounding community by increasing health problems and decreasing property values.

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[204] *Perry, supra* note 193, at 102–03.
[205] *Open GIS Data Access, supra* note 8.
[206] *Refilling of Donegal, supra* note 38; *Refilling of Donegal Lake Underway Following Dam Rehabilitation Project*, Mountain Laurel Chamber of Commerce (Feb. 12, 2020), https://mlchamber.com/refilling-of-donegal-lake-underway-following-dam-rehabilitation-project/.

a. Coal Mining Operations Are Associated with Substantial Impacts to Human Health

Mortality rates in Appalachian coal-mining counties have shown to be persistently higher than those in non-mining counties. Controlling for other factors, mining is associated with 126 excess deaths per 100,000 in the national population.[207] This excess mortality alone is estimated to cost more (in terms of a range of values of statistical life) than the anticipated economic benefit of mining in Appalachia. In the entire Appalachian region it was estimated that in 2005, the benefits of mining were $7.8 billion, while the cost estimates ranged from $8.2 billion to $18.2 billion.[208]

b. Property Values Will Decrease Significantly Due to Diminished Water Quality & Increased Noise and Traffic

Common sense dictates—and scores of research supports—that property owners place a premium on living near clean water. The Value of Water Report summarizes that:

> Certain dimensions of water quality are more likely to be capitalized in property values, including flood protection, capacity and habitat for wildlife, and recreation potential (Nicholls & Crompton, 2018). While many factors contribute to the degradation of water quality, turbidity, or how murky the water is, has been shown to reduce property values. Many studies examining the relationship between water clarity and property values focus on the depth of clarity in lakes and lakeside properties; a study on dozens of lakes in Northern Minnesota found that a one-meter change in **water clarity corresponds with millions of dollars in shoreline property value** (Krysel et al., 2008). Water clarity is also a motivating factor for prospective residents, and homebuyers are willing to pay more to live near clearer water (Krysel et al., 2008).[209]

[207] Michael Hendryx & Melissa M. Ahern, *Mortality in Appalachian Coal Mining Regions: The Value of Statistical Life Lost,* 124(4) Pub. Health Reports 541 (2009), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2693168/.
[208] *Id.*
[209] Perry, *supra* note 193, at 69–70.

Property devaluation near contaminated AMD water was also confirmed in a 2008 economic analysis of the West Branch Susquehanna River watershed.[210] It was found that plots within 200 feet of discharge-impacted streams were diminished in value by approximately 5%, or $2,500 per acre (accounting for inflation, $3,636.67/acre). A similar study done in the Cheat River watershed in West Virginia found that properties within a quarter mile of AMD-impaired streams experienced a 12.8% value discount.[211]

In the Petition Area, there are roughly 11,000 acres[212] which contains 186,010.8 feet of stream designated as Trout Stocked Fisheries and 25,139 feet of Cold Water Fisheries.[213] Of that, the vast majority (almost 97%) are segments currently considered "attaining," not impaired.[214] If AMD stream impacts occur, as the Johnson Report predicts they likely will, this would mean many, if not most, parcels could suffer this 5-12% devaluation impact.[215]

Noise pollution and traffic from the mine will also decrease property value. A 1982 study in Southern Ontario estimated road noise depressed housing values by between $870.00 and $1,068.00 per decibel in current US dollars.[216] A noisy street is roughly around 70 decibels, which represents a potential decrease of almost $70,000.00.[217] A study of Swedish house prices found a 30% value cost for proximity to loud roadways.[218] Thus, just coal transportation from a

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[210] Downstream Strategies, LLC, *An Economic Benefit Analysis For Abandoned Mine Drainage Remediation In The West Branch Susquehanna River Watershed, Pennsylvania* (July 3, 2008), https://clu-in.org/conf/tio/mining-pt_111416/WB_Econ_Ben_report.pdf
[211] Perry, *supra* note 193, at 101.
[212] Applicant converted to acres from square miles, per statement that study area is, "approximate 17 square mile surface area." Johnson Report, at p. 2-1.
[213] *Open GIS Data Access, supra* note 8.
[214] *Id.*
[215] Johnson Report, at pp. 5-7–5-8.
[216] S.M. Taylor, B.E. Breston & F.L. Hall, *The Effect of Road Traffic Noise on House Prices*, 80(4) J. of Sound & Vibration 523 (1982).
[217] *Typical Noise Levels*, Caltrans, https://dot.ca.gov/programs/maintenance/pavement/noise-levels (last visited Jan. 18, 2024).
[218] Mats Wilhelmsson, *The Impact of Traffic Noise on the Values of Single-Family Houses*, 43(6) J. of Envtl. Planning & Mgmt. 799 (2000).

mine to a processor through the Petition Area could create a significant decrease on home values along the route.

C. Economic Benefits From Mining In The Petition Area Are Greatly Outweighed by the Potential Costs

Previous technical studies conducted by the Department for unsuitable petitions have considered various factors when estimating economic impacts of mining. For example, studies often referred to: potential amounts of royalties from extractable coal, mine employee wages, and costs of direct and indirect support services. Petitioners will use the Rustic Ridge #1 Mine as a point of comparison to show that even taking into account incomes from mining, the losses would far outweigh any economic gains made by mining in the Petition Area.

a. <u>The Value of Ecosystem Service Benefits Greatly Outweighs the Value of Potential Royalties</u>

Although royalty rates are variable, Pennsylvania has enacted laws that guarantee a minimum royalty rate to private landowners, usually set at 12.5 percent.[219] If we use this as a baseline for calculations—along with the 2021 market rate of $61.28/ton[220] for bituminous coal— royalties for 2022 would have totaled about $3.7 million.[221] This does not even come close to the $44 million in annual ecosystem service benefits that would be lost if the Fourmile Run headwaters were impaired. The $44 million also does not begin to acknowledge the additional impacts from the larger watersheds. Even if petitioners conservatively estimate that

[219] Jayni Foley Hein & Caroline Cecot, *Coal Royalties: Historical Uses and Justifications*, Inst. for Policy Integrity (Sept. 2016), https://policyintegrity.org/files/publications/Coal_Royalties.pdf.
[220] *Coal Explained: Coal Prices and Outlook*, U.S. Energy information Ass'n, https://www.eia.gov/energyexplained/coal/prices-and-outlook.php (last visited Jan. 18, 2024)/
[221] In 2022, the U.S. Energy Information Information reported that LCT removed 488,687 tons of coal from Rustic Ridge #1 Mine.

far-reaching impacts from mining would only decrease the watersheds' baseline value by 10%, this would result in a total annual loss of $37,815,707.00.[222]

It is also of note that these comparisons are relatively favorable to the mine operator, since the amount of coal removed—and hence amount of royalties—in 2022 was the largest ever. In 2022, the U.S. Energy Information reported that LCT removed 488,687 tons of coal from Rustic Ridge #1 Mine. However, the previous year's production are as follows:

Year	**Tons of Coal**
2021	441,806
2020	362,861
2019	120,133

b. <u>Mine Employee Wages, Even when Considered in Conjunction with Royalties, Are Outweighed by the Potential Loss of Ecosystem Service Benefits</u>

In 2022, LCT reported having 93 full time employees at the Rustic Ridge #1 Mine. Rustic Ridge is a non-union mine and their exact payscale is not available publicly. However, in a community presentation given in 2017, LCT relayed that they estimated each job would pay $100,000/year. This would bring total wages to, very roughly, $9.3 million in the year 2022.[223] If one were to combine 2022's royalties *and* employee wages, it would equal roughly $13 million/year. This would still not come close to the $44 million in annual ecosystem service

[222] Calculations based on information accessed from the Value of Water Report. *See* Perry, *supra* note 193.
[223] *Rustic Ridge #1 Mine Project*, LCT Energy, https://drive.google.com/file/d/0B6ERT-FfIDaaMFhCeU5URmlCRTg/view?resourcekey=0-n0UlgugX_L1G1WnsqCI3oQ (last visited Jan. 18, 2024).

benefits from the Fourmile Run headwaters or the almost $38 million lost, if impacts resulted in a 10% decrease of benefits from the Loyalhannah and Fourmile Run watersheds.

c. The Economic Value of the Petition Area Outweighs the Value of Any Indirect & Direct Support Services Associated with a Coal Mining Operation

Also in their 2017 community presentation, LCT conveyed spending an anticipated $250 million with vendors and suppliers over the original life of the Rustic Ridge # mine. If the life of the life of the mine is 14 years (as it was estimated for Rustic Ridge #1)[224] then the total annual losses from a destroyed-or-severely-diminished-Fourmile Run come to roughly $600 million. Furthermore, if the losses are combined for 14 years of Loyalhannah and Jacobs Creek functioning at a 10% less beneficial rate, it results in a roughly $530 million loss.[225] Both figures greatly outweigh the $250 million in direct and indirect services that LCT may spend over that time.

Although it is unlikely to be spent at such a rate, if the $250 million was divided evenly by the 14 years of operation, we find that a very rough annual estimate for what Rustic Ridge #1 Mine spent on services would be $17.9 million/year. If we then combine: the amount spent on direct and indirect services in one year, the estimated wages for one year, and estimated royalties for 2022, we find that the Rustic Ridge mine would create an annual economic impact of $30.9 million. This is far less than the $44 million lost for each year that Fourmile Run is dewatered or impaired, to say nothing of the cost of damages beyond that watershed, to health, and to property values.

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[224] LCT Rustic Ridge #1 Permit Application, Module 10 (revised May 2013).

[225] Calculations done based on data accessed via the Valuing Clean Water report and associated materials. *See Valuing Clean Water*, Key-Log Economics, http://www.keylogeconomics.com/laurel-highlands--valuing-clean-water.html (last visited Jan. 18, 2024).

D. Mining In The Petition Area Would Create Negative Economic Impacts On Tourism Industry

The Donegal area, within which the Petition Area is located, is widely branded as the "Gateway to the Laurel Highlands." While it is a gateway, it is also somewhat of a bottleneck. The Petition Area includes roadways which are some of the very few access points to the larger Laurel Highlands region. Much of the Petition Area falls within the beloved—and heavily traveled—Laurel Highlands Scenic Byway (Routes 711 and 381).

The Petition Area includes primary routes to access regional state parks such as Ohiopyle State Park, Laurel Ridge State Park, Laurel Hill State Park, Linn Run State Park, Kooser State Park, and Forbes State Forest. These parks make up nearly 100,000 acres of state-protected public lands. It also includes a primary route to UNESCO World Heritage Site Fallingwater which is managed by the Western Pennsylvania Conservancy and is visited by 135,000 domestic and international visitors annually.

Because of the Petition Area's unique location, mining-related activity such as truck traffic, coal dust/dirt, road damage, and subsidence could act as a deterrent for the public's ability or interest in recreating in the region. This could have huge consequences for the overall economy of the region, which is largely dependent on a year-round tourism industry.

Regional tourism in the Laurel Highlands brings billions of dollars in visitor spending and drives the availability of local jobs. In 2019, travelers spent more than $1.92 billion in the Laurel Highlands region, a record high and the fastest rate of growth for the region since 2011.[226] Also in 2019, tourism brought in money in several ways:

- Total Jobs Supported: 15,185

[226] *Tourism Statistics*, GO Laurel Highlands, https://www.golaurelhighlands.com/press/story-ideas-facts/tourism-statistics/#:~:text=Travelers%20spent%20more%20than%20%241.92,%24329.5%20million%20on%20shopping (last visited Jan. 18, 2024).

- $272.3 million spent in overnight lodging
- $329.5 million on shopping
- $359.7 million spent on recreation
- $446.1 million on food and beverage[227]

If mining decreased the area's economy by even a fraction, it could result in millions lost each year. This would be *in addition* to the many millions lost to degraded ecosystem benefits—the cost of which, as previously discussed, would range from $10's to $100's of millions each year.

a. <u>Additional Economic Losses Would Occur if The Melcroft Treatment System Is Impacted</u>

In 2011, the Mountain Watershed Association ("MWA") partnered with several state and federal agencies to construct the Melcroft Mine Drainage Treatment System, at a cost over $1.1 million. As the Johnson Report states, one possible outcome of mining in the Petition Area is increased AMD flowing to the former Melcroft mines, due to the hydrologic connection between the Petition Area, the Rustic Ridge #1, and the Melcroft Treatment System.[228] This would result in increased flows into the abandoned mines in the Melcroft area, which would ultimately flow out to the larger watershed and ecosystems, through the existing AMD treatment system. This would occur after mine closure and would continue in perpetuity. This scenario could mean that mine waters from the expansion area overwhelm the existing system's treatment capacity. Which would, in turn, result in a severely decreased—if not fully destroyed—treatment capacity.

[227] *Id.*
[228] Johnson Report, at pp. 5-9, ES-3.

If AMD were to increase discharge rates or overwhelm the existing Melcroft Treatment System, it would likely necessitate a costly redesign.[229] Furthermore, it is possible that accommodating the new quantity of mine water, via a redesign, would not even be financially feasible, meaning a total loss of the $1.1 million system.

If the Treatment System were degraded or irreparably damaged, not only would there be economic loss in terms of system repairs but also—and perhaps most importantly—there would be economic loss created from the destruction that results when untreated (or undertreated) discharges move through the rest of the watershed and all the ecosystem benefit value created by the treated AMD.

For example, several recreational resources exist in the Indian Creek watershed for the purpose of, in large part, of allowing the public to enjoy views and access a clean Indian Creek.

b. <u>The Use and Value of the Indian Creek Trail Would Likely Decrease if Mining Operations Were to Take Place</u>

One such resource is the Indian Creek Valley Trail, a 19-mile hiking and biking trail extending from Route 31 in Donegal Township to the Youghiogheny River. The trail gains much of its appeal from its ability to grant visitors near-constant views of Indian Creek. It also goes through parks, has several public and private fishing access points, is available for hunting, and has a boat launch for paddlers. MWA documented the trail had at least 20,257 users in 2022.[230]

If treatment fails, and Indian Creek once again turns orange as a result of untreated AMD pollutants, it is logical to presume the draw for tourists will degrade. Not many visitors would want to hike or bike along a ravine of orange sludge and there would be no draw for

[229] For example, MWA is currently working to update the system—to date, the cost for creating and designing a plan, alone, cost $98,000—to say nothing of actual construction and implementation costs.
[230] Visitation numbers were determined using an online survey which trail visitors filled out for each year, trail map orders, manual estimates based on MWA staff experience and survey results from the Indian Creek Conservation Plan: The Sequel (2021).

wildlife-observers who would then see only a stream so polluted it could not support aquatic habitats and suffered from regular fishkills.

E. The Local Water Authority Could Suffer Economic Damages if Mining is Allowed Within the Petition Area

In their approval of the Muddy Run (Reade Township, Cambria County) Unsuitable for Mining petition, the Environmental Quality Board relied on economic benefits to the local water authority as one reason why the area should be designated unsuitable. In the 2010 Bulletin, the EQB stated:

> The proposed amendments would benefit the RTMA's [Reade Township Municipal Authority] customers by restricting mining on coal seams with high acid mine drainage potential in areas in close proximity to the RTMA water supply aquifers. Mining in close proximity could pollute the public water supply wells. The RTMA presently provides potable water to approximately 550 service accounts and provides water for local fire protection to Reade Township, including the towns of Blandburg, Hollentown, Fallentimber, Flinton and Van Ormer. The RTMA wells were drilled in 1993 and 1994, using part of a nearly $5 million grant provided by the Rural Economic Development Agency. The location and construction of the Reade Township Municipal Authority water supply wells was the result of several years of effort. Two previous attempts to develop water supply wells were not successful because of insufficient quantity or quality of local groundwater resources, in part due to aquifer degradation from previous surface coal mining. Based on available information, alternative well sites would be limited or nonexistent should the existing wells become contaminated.[231]

A very similar situation exists in Indian Creek. The Indian Creek Valley Water Authority pulls from locations downstream of the Melcroft Treatment System. If mining operations were to occur in the Petition Area, it could alter the natural path that groundwater in the region flows. One possible flow path for groundwater could be into the "labyrinth" of abandoned and currently

[231] 40 Pa.B. 2425, Proposed Rulemaking, Envtl. Quality Bd., https://www.pacodeandbulletin.gov/Display/pabull?file=/secure/pabulletin/data/vol40/40-19/828.html&search=1&searchunitkeywords=unsuitable%20for%20mining.

operating mines that are south of the Petition Area.[232] If groundwater were to seep from a mine in the Petition Area into those southern mines, it could increase the amount of AMD already being discharged from those mines, overwhelming the Melcroft Treatment System.[233] This could put further strain, or totally impair, the authority's ability to properly treat the water.

When public water supply authorities withdraw surface water from AMD-impaired streams, they may pay more in water treatment costs to remove heavy metals and reduce acidity in the water.[234] The cost-differential for public water suppliers to treat AMD-impaired water has not been extensively studied. In a survey sent to water suppliers in the West Branch Susquehanna Basin, many suppliers were unsure of how much treating AMD-sourced water costs, although some were worried that they would soon need to start drawing water from AMD-impaired streams. One supplier estimated that they would soon need to intake from a severely impaired AMD stream due to drought conditions, which would cost an additional $1 per 1,000 treated gallons to remove heavy metals.[235] With the Indian Creek Valley Water Authority providing water to over 2,500 customers in the area, an increase in costs for the local public water supply has the potential to negatively impact a large number of residents.

VII. CONCLUSION

For the foregoing reasons, Petitioners strongly recommend that the Petition Area receive a designation of Unsuitable For Surface Mining.

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[232] "The preferential flow path created by the mine could ultimately drain through the labyrinth of operating and closed underground coal mines to the south of the Study area, which would ultimately increase AMD in the former Melcroft mines that have impacted Indian Creek for over a century." Johnson Report, at p. ES-3.
[233] Johnson Report, at p. 5-9.
[234] Hansen et al., 2008.
[235] Hansen et al., 2008; Perry, *supra* note 193, at p. 49.