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17 December 2014

Dana Aunkst, Acting Secretary
Pennsylvania Department of Environmental Protection
P.O. Box 2063
Harrisburg, PA 17105-2063

Submitted electronically
at RA-EPEQB@pa.gov

In re: Petition to Environmental Quality Board for Redesignation of the Upper Browns Creek Watershed, Greene County, Pennsylvania

Dear Acting Secretary Aunkst,

On behalf of the Citizens Coal Council (CCC), we are submitting the enclosed petition to redesignate streams in the upper Browns Creek watershed of Greene County from High Quality Warm Water Fishery (HQ-WWF) to Exceptional Value (EV).

The Petition Area encompasses approximately 9,500 acres in Morris Township and Washington Township in northern Greene County, Pennsylvania (Figures 1 and 2). The area is largely rural and undeveloped, with at least 60% forest cover (Figure 3.)

The Petition Area includes sections of Browns Creek mainstem (#40492), Patterson Creek mainstem (#40547), Bates Fork mainstem (#40512), and unnamed tributaries to those waterways (Figures 4 and 5). Several of the Petition Area streams have been found to exhibit existing EV uses; others are believed to qualify as well. All of the streams in the Petition Area are at imminent risk of irreparable degradation by underground longwall coal mining. Some of these streams overlie ongoing coal mining that recently was permitted; others are in areas where coal mine expansion applications currently are under review by the Department.

On 21 February 2014, the Department approved a major expansion of the Bailey Mine, an underground bituminous coal mine operated by Consol Pennsylvania Coal Company, LLC (as noticed in the *Pennsylvania Bulletin* on 8 March 2014). That permit authorized longwall (full extraction) mining beneath approximately 2,500 acres in Morris Township ("A" on Figure 6) in watersheds that previously had been undisturbed by mining or other industrial activities. No final determination of existing use was made by the Department for any of these streams as required by 25 Pa. Code 93.4c(a)(1)(iv) before that permit was approved. Undermining in that area has begun and is ongoing.

As noticed in the *Pennsylvania Bulletin* on 17 March 2012, Consol submitted an application to expand its underground coal operations at the Bailey Mine into an additional 7,000+ acres in the same general vicinity ("B", "C", and "D" on Figure 6). Most of the largely-forested headwater streams in this section of Greene County have

not previously been disturbed by coal mining operations. Part of the 7,000-acre area (encompassing about 1,500 acres, "C" on Figure 6,) subsequently was split off from the rest into a separate application by Consol for a new mine referred to as "BMX Mine" (per *Pennsylvania Bulletin* notice on 5 October 2013). Approval of those mine applications is pending.

The three Five-Year Assessment Reports prepared to date by the Department in accordance with Section 18.1 of Act 54[1] document the significant damages occurring to streams and other surface features from the longwall mining method of coal extraction, as opposed to the traditional room-and-pillar coal mining method. As the Reports[2] illustrate, those damages have been increasing steadily not only in numbers, but also in severity. Many streams are being damaged by pooling or dewatering as a direct consequence of intentional surface subsidence following longwall mining.

The Department has concluded (in two separate letters dated 27 December 2012, see Enclosure A) that six streams dewatered as a result of longwall mining by Consol at the Bailey Mine have been irreparably damaged (Figure 7). Those extraordinary determinations were made after multiple years of unsuccessful attempts by the mine operator to restore the premining flow and biological conditions in the streams. None of those streams was HQ, much less EV, as are the nearby streams in this Petition Area.

To date very few streams in southwestern Pennsylvania have been recognized as having attained EV existing uses (none in Washington County and only seven in Greene County). This is not because such streams do not exist, but because there have been few instances where streams have been investigated for attained uses. Five of the seven EV streams in Greene County are located less than 5 miles to the south of the Petition Area (Figure 7). Those streams were upgraded from their previous HQ-WWF designations in 2009, after a mine operator petitioned EQB to *downgrade* them to WWF. Stream assessment data collected and presented by the mine operator's consultant suggested relatively poor water quality and macroinvertebrate habitat in those streams.

On behalf of local watershed groups, however, Dr. Benjamin Stout[3] independently investigated those same streams. Dr. Stout determined that none of the streams qualified for downgrading from HQ, but that several of them were attaining EV existing uses[4]. The Bureau of Water Quality Standards subsequently confirmed Dr. Stout's

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[1] Act 54, passed by the Pennsylvania General Assembly in 1994, amended the 1966 underground coal mining law known as the Bituminous Mine Subsidence and Land Conservation Act.

[2] The first three 5-year Reports, covering the period 1993 to 2008, can be found on the Department's website: http://www.portal.state.pa.us/portal/server.pt/community/act_54/20876 The fourth 5-year Report, covering 2008 to 2013, is expected to be released soon.

[3] Dr. Benjamin M. Stout III is an experienced aquatic ecologist and Professor of Biology at Wheeling Jesuit University, Wheeling, West Virginia.

4 "Review of a petition to redesignate tributaries to South Fork Tenmile Creek from HQ-WWF to WWF." Prepared by Schmid and Company, Inc for Citizens for Pennsylvania's Future, Center for Coalfield Justice, and Mountain Watershed Association. June 2009. http://www.schmidco.com/SchmidCo_Report.pdf

findings, and the Department formally upgraded them to EV existing use.

Earlier this year, CCC retained Dr. Stout to investigate several streams in the subject Petition Area where surface landowner access could be secured. Based on Dr. Stout's bioassessments, conducted in accordance with the Department's protocols and procedures (including comparison with a nearby EV reference stream in Ryerson Station State Park; Figure 7), at least two streams in the Petition Area qualify as Exceptional Value waters. A copy of Dr. Stout's report (2014) is attached as Enclosure B.

Further evidence of excellent quality in the streams of the Petition Area is contained in the permit applications for the recently-approved Bailey Mine expansion and for the additional expansions that currently are under review. The coal operator reported that all of the streams are attaining their designated (HQ) uses. Yet the premining bioassessment data provided as part of those mine applications identified Total Biological Scores (TBSs) ranging from 45 to 90. Presumably, if the applicant's TBS of 45 suggests that a waterway is attaining HQ use, scores at the higher end of the reported range are likely to suggest attainment of EV uses, especially given the discrepancies sometimes found in mine consultants' stream assessment data (as noted above).

The premining data provided in an underground mine permit application are not adequate by themselves for making a formal existing use determination, but those bioassessment documents from the Bailey Mine expansion strongly suggest that at least some of the Petition Area streams may be attaining EV existing uses. High TBSs (75 or above) were documented by Consol's consultant in many Petition Area streams (blue circles in Figure 8; consultant data in Enclosure C). Depending upon the accuracy and representativeness of the data, any of the streams overlying the proposed mine operation may actually be found to be attaining EV uses. All warrant formal existing use determinations so that the Department can protect their quality from degradation.

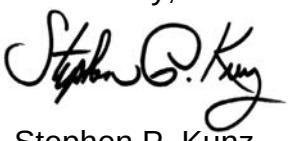
The suggested change in the regulatory language at 25 Pa. Code §93.9v is provided in Enclosure D. We are confident that some of the tributaries to Patterson Creek, Bates Fork, and Browns Creek qualify as having EV existing uses. Indeed, Dr. Stout has documented EV quality in two such tributaries. Because of limited resources, limited time (Dr. Stout was not able to conduct his fieldwork during the most optimal season), and limited access to surface properties, we were able to sample only a tiny proportion of the Petition Area waterways. However, because of the general similarity of these watersheds, in terms of their high proportion of forest cover, minimal impervious cover, and low-intensity land uses, plus the fact that coal mining and other industrial activities have been absent to date (at least until the recently approved longwall mining in the southwestern section of the Petition Area), it is highly likely that many tributaries, if not the entire basins, qualify as having EV existing uses. Therefore, for simplicity, the proposed language we have suggested pertains to the entire upper Browns Creek watershed. Once the Department has completed its investigation of additional streams within the Petition Area, the revised regulatory language may become more specific.

Enclosure E includes a letter of support from the Greene County Watershed Alliance.

The information provided above and on the several attachments addresses all of the items listed on the Petition Form. Consideration of this Petition by the Department and the EQB will afford the subject streams recognition of their existing uses and help provide them appropriate protection.

Please let us know if you have any questions.

Yours truly,



Stephen P. Kunz
Senior Ecologist

cc: Aimee Erickson (CCC Executive Director)
Benjamin M. Stout III, Ph.D.

Attachments

Figures 1 through 8 (referenced above)
Petition Form
Enclosure A: 27 December 2012 letters from the Department to Consol
Enclosure B: Bioassessment report by Dr. B. Stout (5 June 2014)
Enclosure C: Consol bioassessment scores for selected streams
Enclosure D: Suggested amended regulatory language
Enclosure E: Letters of support

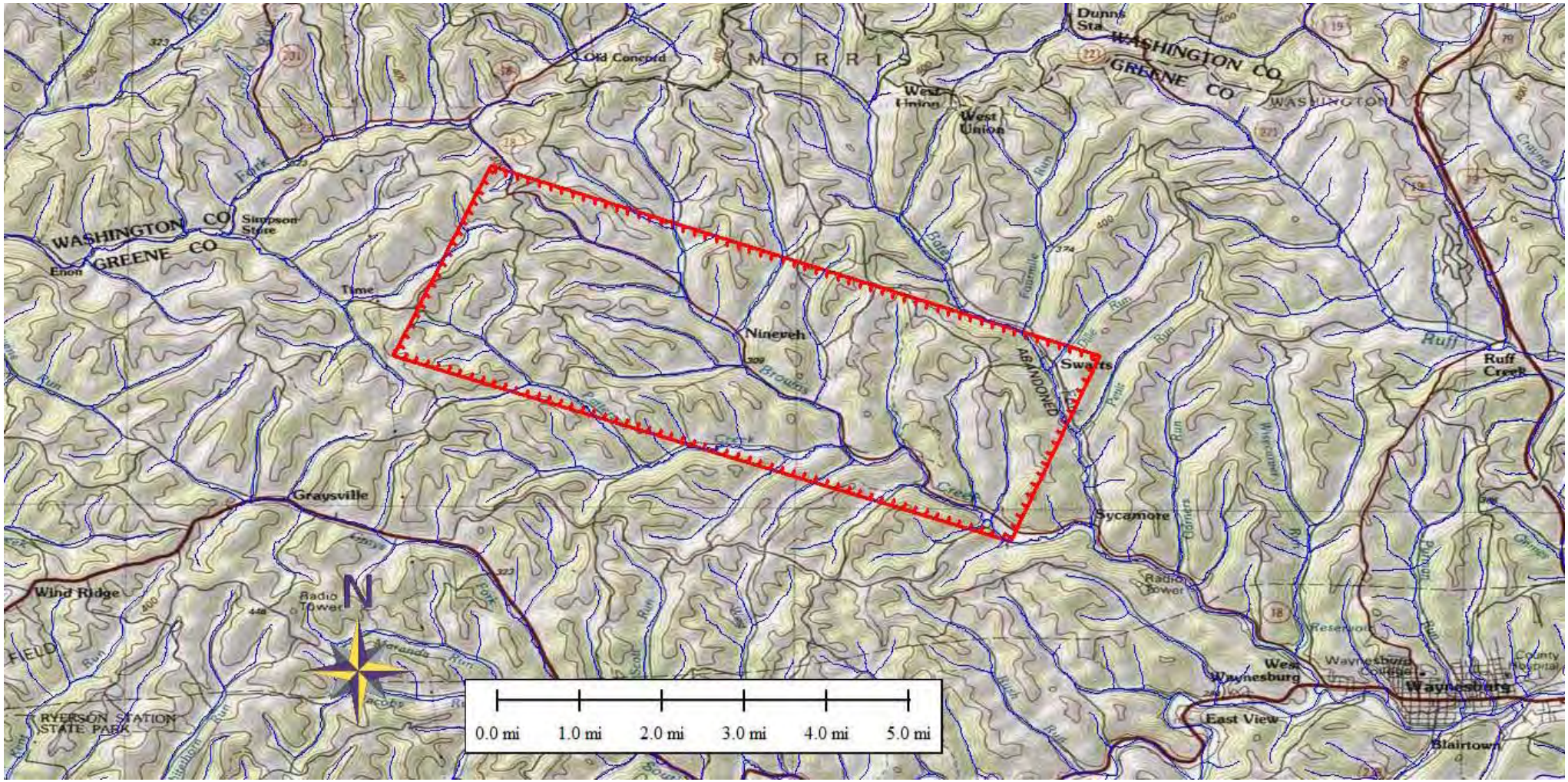


FIGURE 1. Location of the Petition Area (red toothed outline) in northern Greene County, Pennsylvania as depicted on a USGS topographic basemap. It is located northwest of Waynesburg and includes streams in the upper Browns Creek watershed.

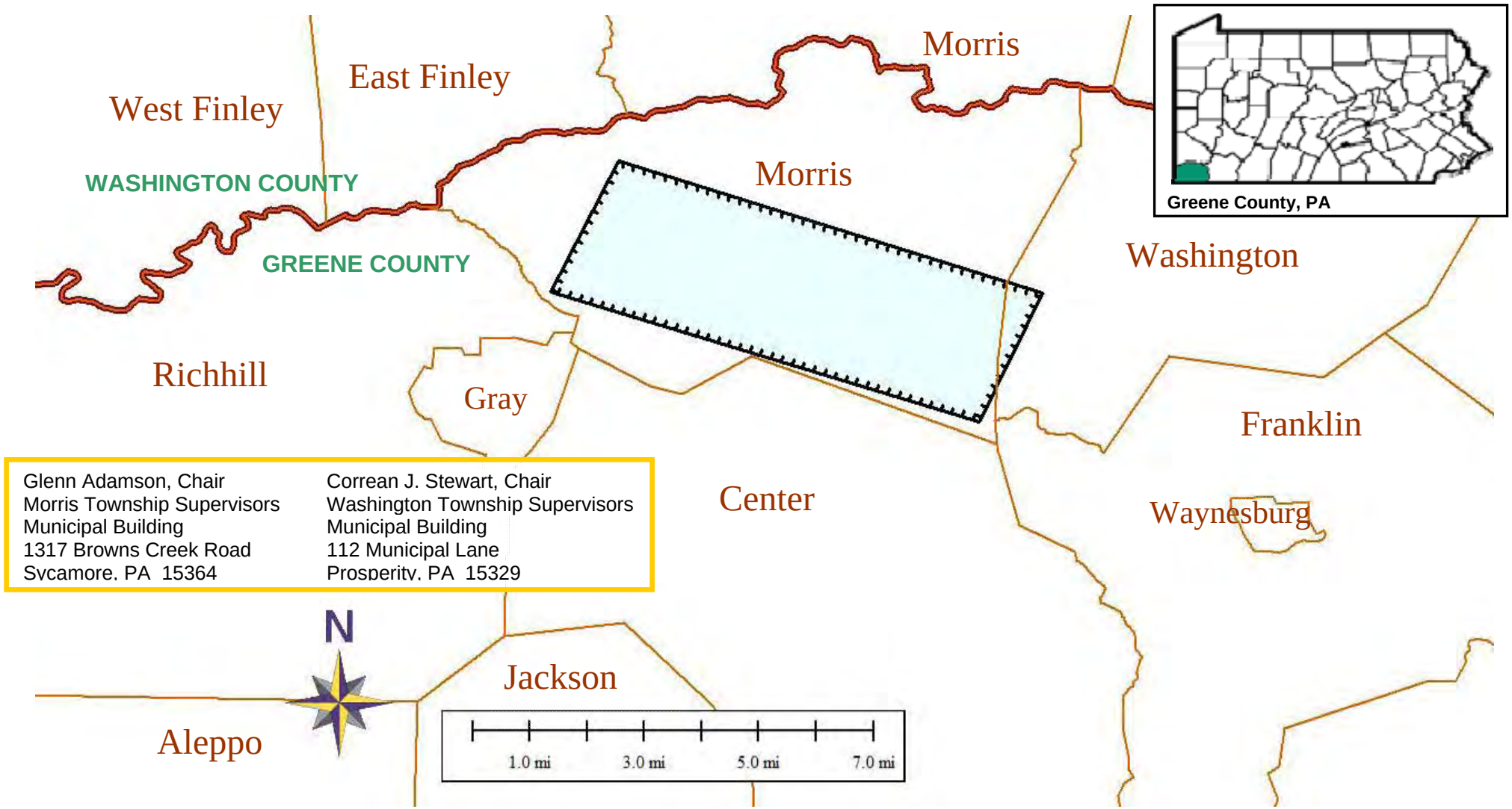


FIGURE 2. Municipalities in the vicinity of the Petition Area (blue shading), which is largely in Morris Township and partly in Washington Township, Greene County. The contact name and address for the Chair of the Board of Supervisors in each municipality is provided.

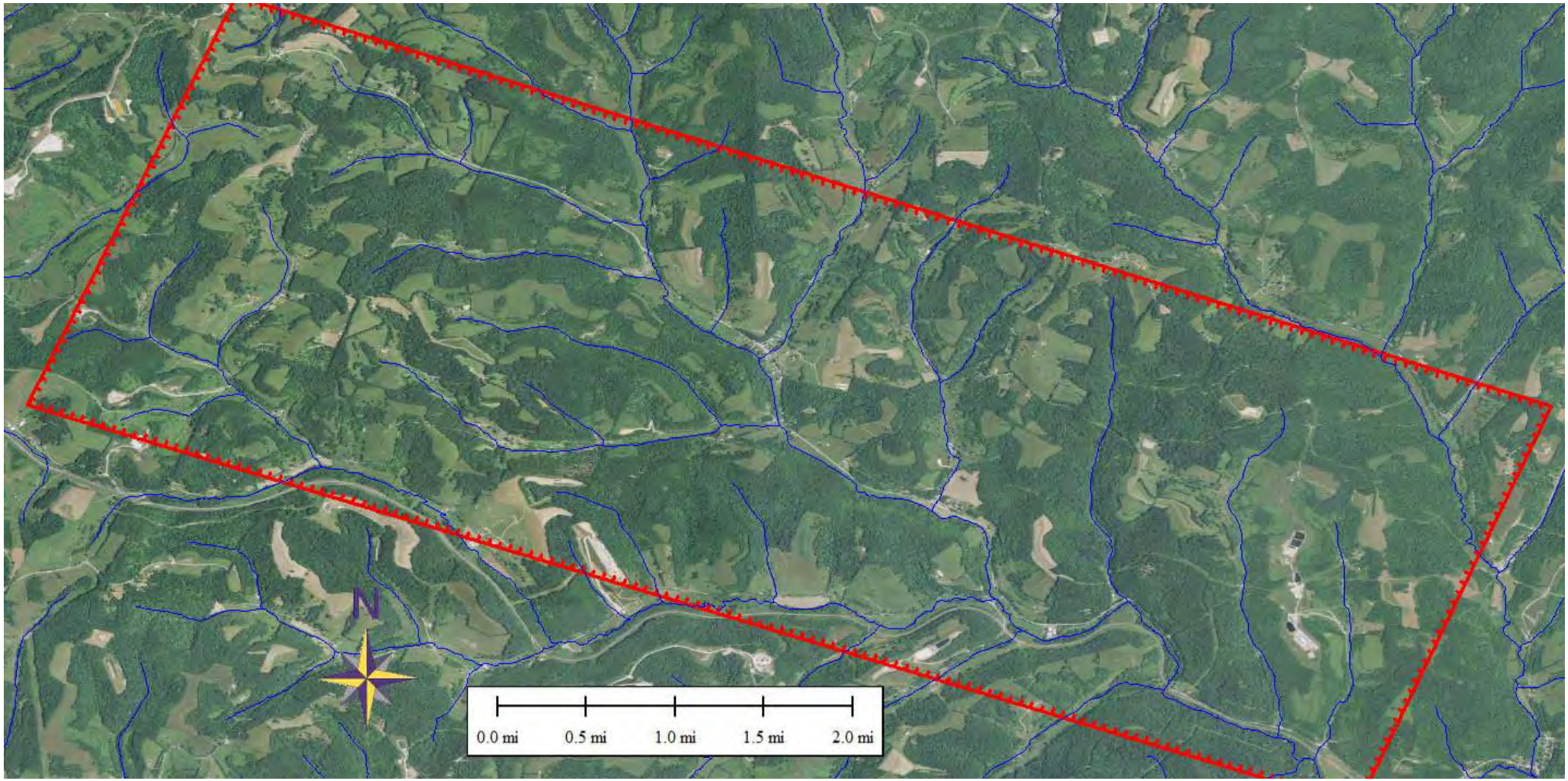


FIGURE 3. Land use and development patterns within the Petition Area (red outline) are illustrated on this 2010 aerial photograph from the NAIP (National Agriculture Imagery Program). This rural, undeveloped area is largely forested (60% according to the USGS Pennsylvania StreamStats database), with scattered farmland and low-density residential uses. The very small amount of impervious area is a contributing factor in the high quality of local streams. Most of the land is in private ownership -- there are no State Parks, State Forests, or State Game Lands within the Petition Area. There currently are no known point source discharges in the streams within the Petition Area; the Department should have information in its files of proposed discharges associated with the mine operations still under review here.

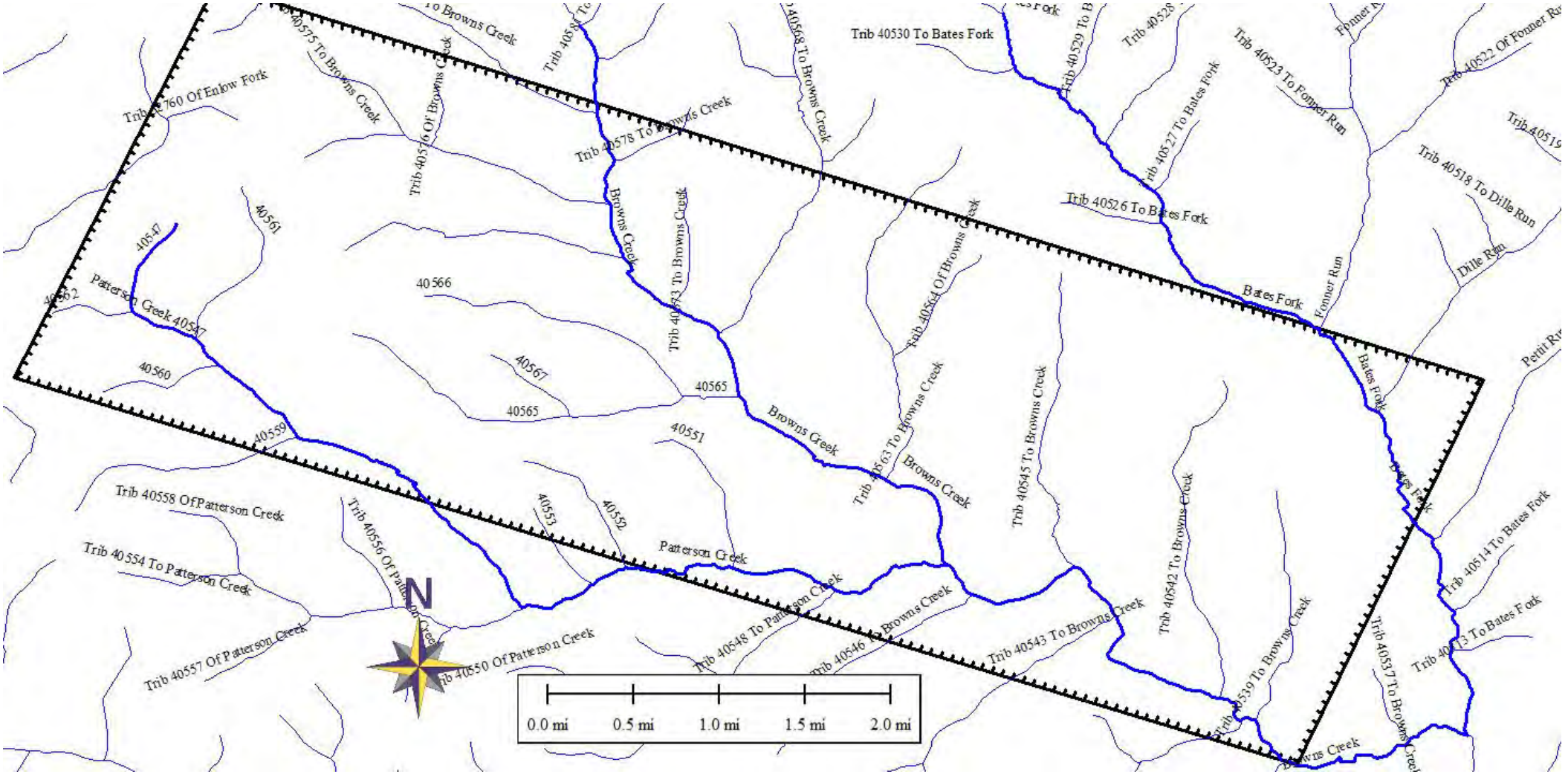


FIGURE 4. Identification of the Petition Area (toothed outline) and streams within it and nearby. The primary streams of interest (dark blue) are Browns Creek [40492] and Patterson Creek [40547], which is a tributary to Browns Creek, as well as their unnamed tributaries (thin lines). Bates Fork [40512] and several of its unnamed tributaries cross the eastern section of the Petition Area. The source of this figure is the PA Hydrography dataset known as "historic streams". This dataset does not identify the numerous small headwater tributaries of streams, although mine applicants now typically delineate those additional streams (Figure 5).

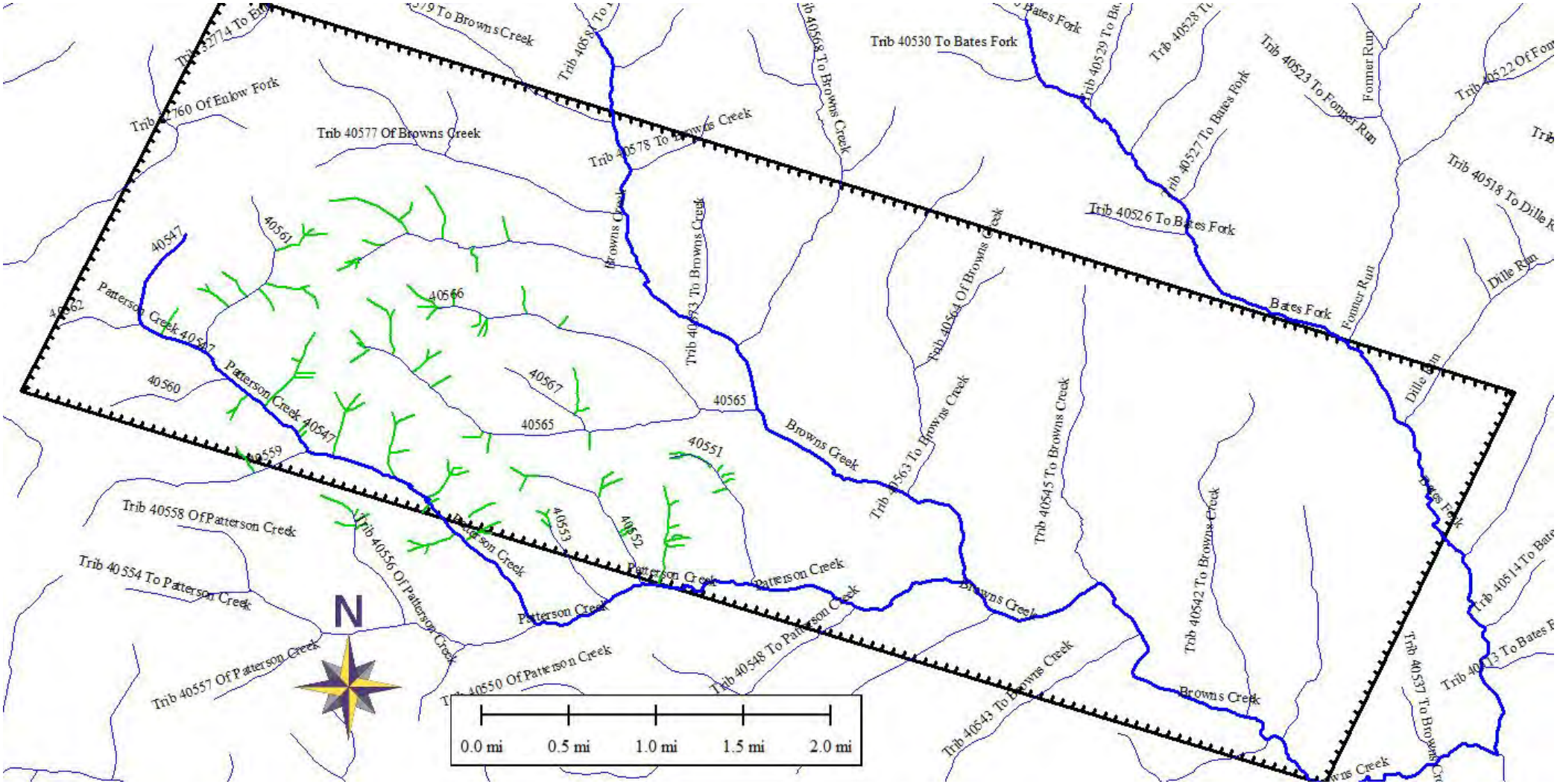


FIGURE 5. Identification of the Petition Area (toothed outline) and streams within it and nearby (as on Figure 4). Smaller tributaries and non-ephemeral headwater streams (green lines) also are shown, although only in a portion of the western section of the Petition Area where such mapping was available to us. Small headwater streams comprise a large percentage of any watershed's total stream-miles, and their quantity and quality of flow are vitally important to the health of the downstream watershed. In accordance with Technical Guidance Document 563-2000-655, underground coal mine applicants are supposed to identify all streams that are "biologically diverse" and "biologically variable", the latter being the most upstream section subject to PADEP regulation.

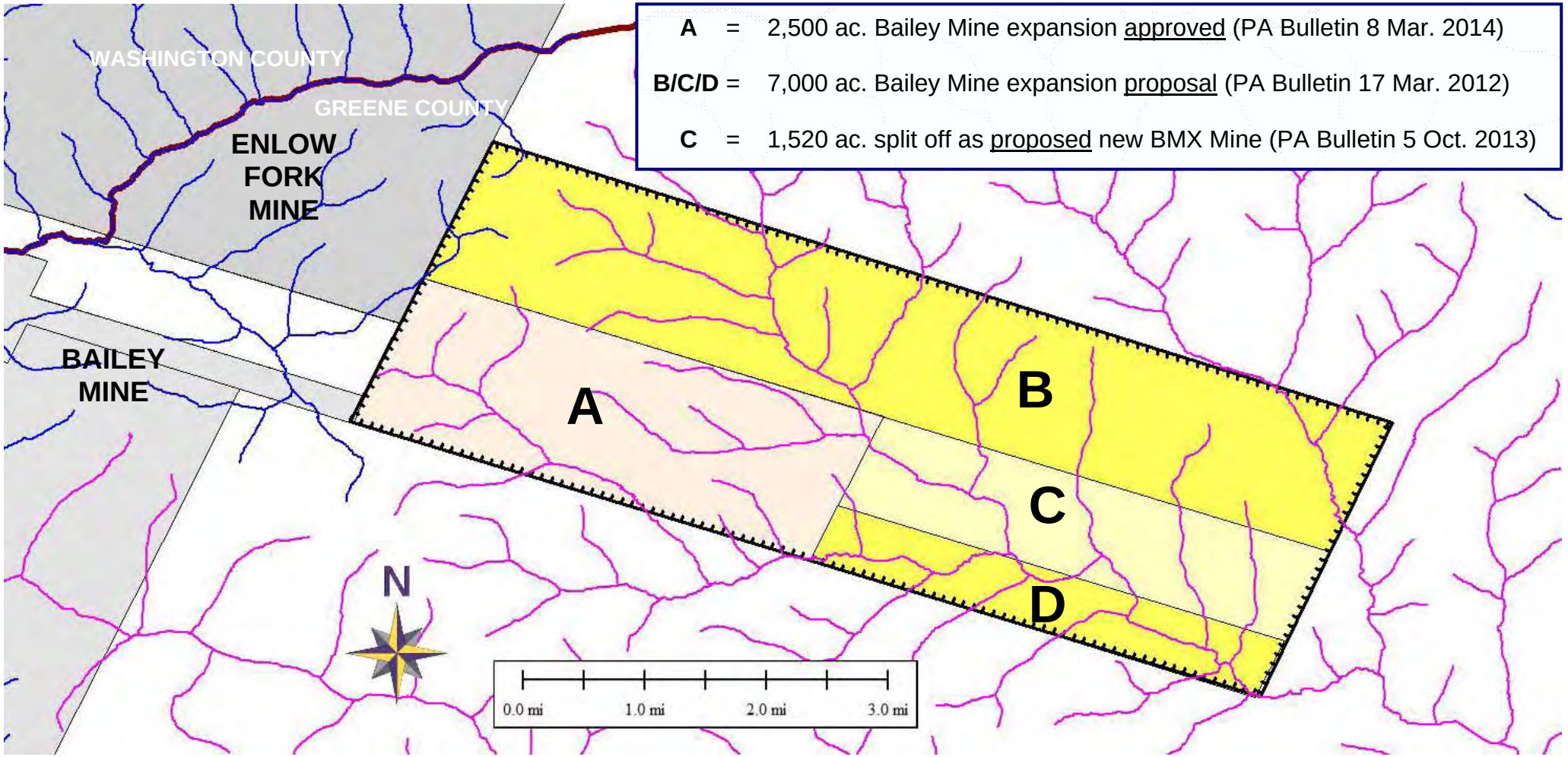


FIGURE 6. Identification of the Petition Area (toothed outline), which is located adjacent to existing Bailey Mine and Enlow Fork Mine (shaded gray), both operated by Consol. The Petition Area encompasses about 9,500 acres in total, and includes both recently approved new longwall mining (**A**, tan) and proposed new mining still under review by the Department (**B**, **C**, and **D**; dark and light yellow). Areas A and C are sometimes referred to as "BMX Mine", and more recently, as "Harvey Mine".

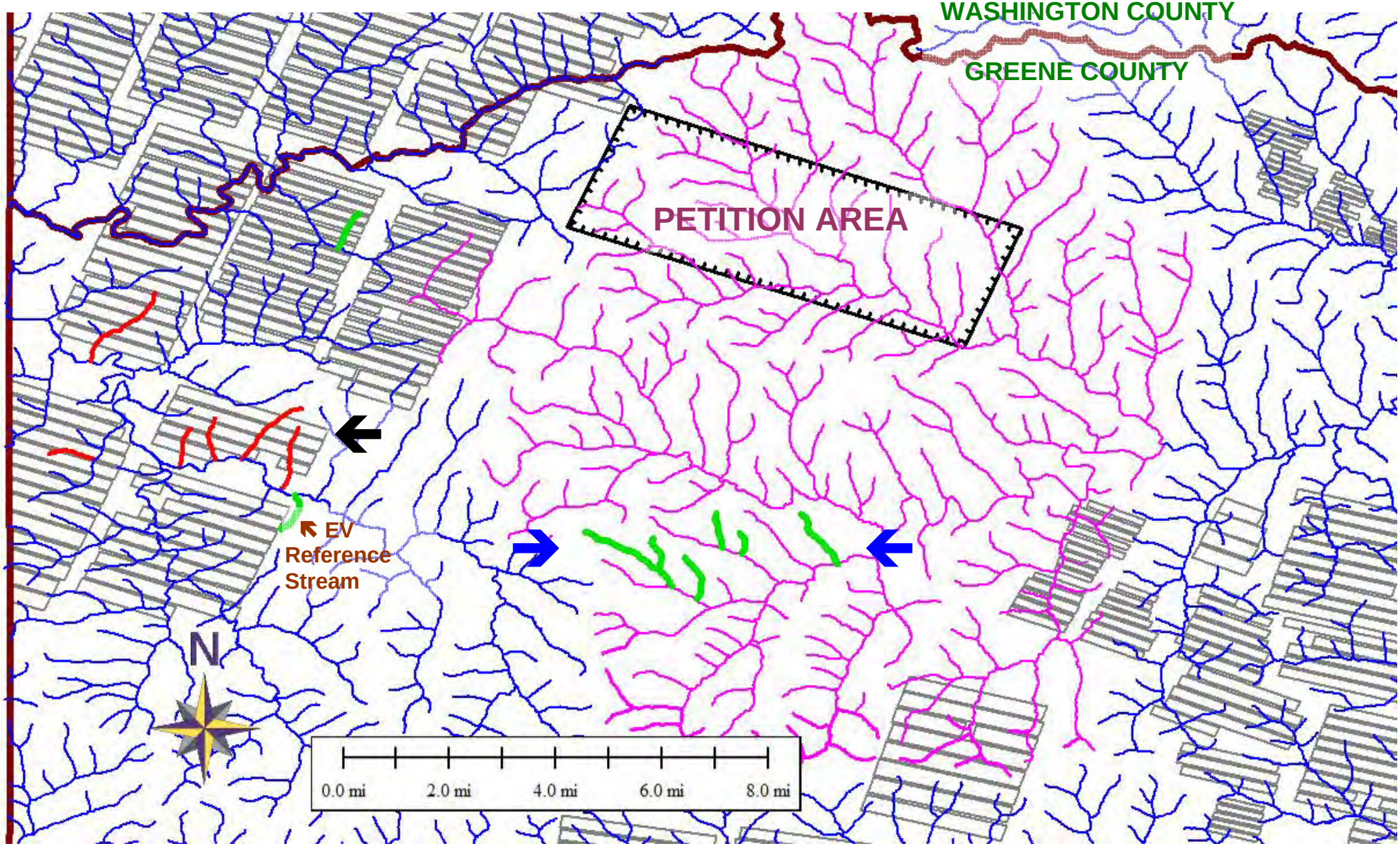


FIGURE 7. Location of Petition Area (toothed outline) in relation to nearby streams and longwall panels already mined (gray rectangles). High Quality streams (purple) and Exceptional Value streams (green) are considered "Special Protection" waters in Pennsylvania. Non-Special Protection streams are shown in blue. The several EV streams to the south of the Petition Area (between blue arrows) were upgraded to that status in 2009 after a mine operator had requested a *downgrade* of those streams to WWF, but the Department found otherwise. In 2012, the Department concluded that 6 nearby streams (red, left of black arrow) had been irreparably dewatered by longwall mining associated with Consol's Bailey Mine (Enclosure A).

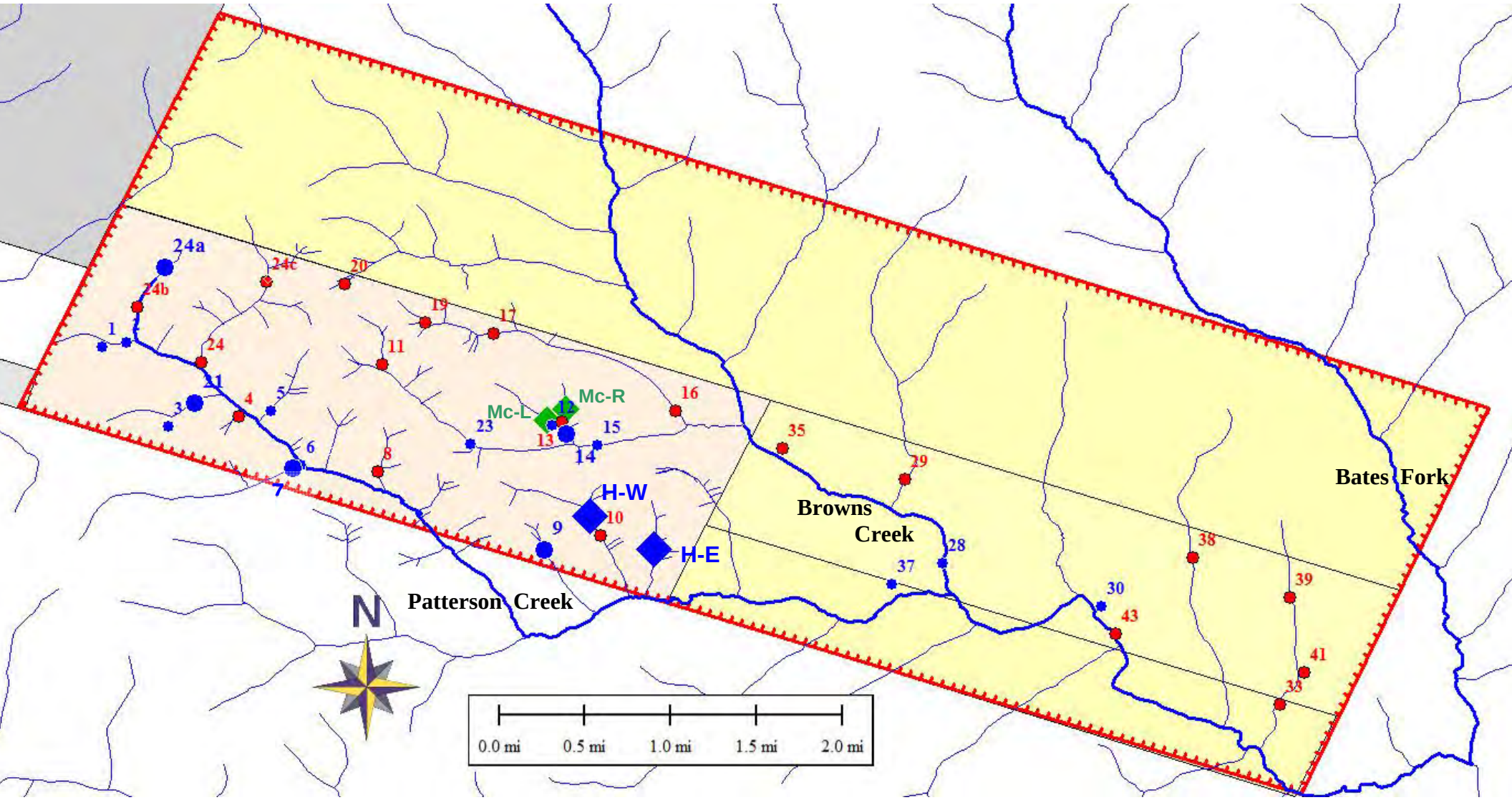


FIGURE 8. Stream bioassessment locations within Petition Area (red outline with tan and yellow shading).

Circles are premining stream assessments available to us which were conducted by Consol's consultant to determine Total Biological Scores (TBSs) but not to specifically determine existing Special Protection uses. A blue circle represents a TBS of 75 or higher, a red circle is a TBS of less than 75. Summary data for each station is provided in Enclosure C. The five stations with the highest average TBS scores were: 7, 14, 21, 24a, and 9.

Diamonds are locations sampled by Dr. Stout. Large blue diamonds were found to meet EV existing uses; green diamonds did not. See Enclosure B.

0120-FM-PY0004 Rev. 3/2003

COMMONWEALTH OF PENNSYLVANIA
ENVIRONMENTAL QUALITY BOARD

PETITION FORM

I. PETITIONER INFORMATION

Name: Citizens Coal Council

Mailing Address: 605 Taylor Way

Bridgeville, PA 15017

Attn: Aimee Erickson, Executive Director

Telephone Number: 412-257-2223

Date: December 17, 2014

II. PETITION INFORMATION

A. The petitioner requests the Environmental Quality Board to (check one of the following):

☐ Adopt a regulation

☒ Amend a regulation (Citation 25 Pa.Code 93.9v)

☐ Repeal a regulation (Citation)

Please attach suggested regulatory language if request is to adopt or amend a regulation.

B. Why is the petitioner requesting this action from the Board? (Describe problems encountered under current regulations and the changes being recommended to address the problems. State factual and legal contentions and include supporting documentation that establishes a clear justification for the requested action.)

This petition requests the examination of certain streams within the upper Browns Creek basin (including sections of Browns Creek mainstem, Patterson Creek mainstem, Bates Fork mainstem, and unnamed tributaries to those waterways). All of the subject streams currently have the designated use classification of HQ-WWF. Several of the Petition Area streams demonstrate existing uses of EV (Exceptional Value) and others are believed to qualify as well. All of the streams are at risk of damage from longwall coal mining, which has recently been approved and is underway in part of the Petition Area. Additional mining is proposed and will proceed as soon as pending permits are issued. PADEP in 2012 determined that longwall mining irreparably dewatered six nearby streams (Enclosure A). EQB is requested to amend its Chapter 93 Drainage List V of designated uses to reflect the actual attained EV uses of the subject streams so they may be fully protected.

Based on in-stream bioassessment data collected from several of the subject streams by a qualified aquatic biologist using existing PADEP protocols for stream assessment during April 2014 (Enclosure B), as well as on in-stream bioassessment data provided as part of underground coal mine permit applications (Enclosure C), certain of these streams appear to warrant a designated use of EV in accordance with 25 Pa. Code 93.4b.

Detailed information on the location and nature of the affected watersheds is provided in the accompanying transmittal letter and the several attachments.

C. Describe the types of persons, businesses and organizations likely to be impacted by this proposal.

The protection of the subject waterways at their current, higher existing uses will have a positive impact on the farmers, residents, visitors, outdoor enthusiasts, and businesses who depend and rely on clean water for their use and enjoyment. A letter in support of this Petition from the Greene County Watershed Alliance is included as Enclosure E.

D. Does the action requested in the petition concern a matter currently in litigation? If yes, please explain.

No.

The data requested in Section E below are included in the accompanying transmittal letter and the several attachments to the extent that they are available. Detailed maps and stream sampling data also are included.

E. For stream redesignation petitions, the following information must be included for the petition to be considered complete. Attach supporting material as necessary.

1. A clear delineation of the watershed or stream segment to be redesignated, both in narrative form and on a map.
2. The current designated use(s) of the watershed or segment.
3. The requested designated use(s) of the watershed or segment.
4. Available technical data on instream conditions for the following: water chemistry, the aquatic community (benthic macroinvertebrates and/or fishes), or instream habitat. If such data are not included, provide a description of the data sources investigated.
5. A description of existing and proposed point and nonpoint source discharges and their impact on water quality and/or the aquatic community. The names, locations, and permit numbers of point source discharges and a description of the types and locations of nonpoint source discharges should be listed.
6. Information regarding any of the qualifiers for designation as high quality waters (HQ) or exceptional value waters (EV) in §93.4b (relating to qualifying as High Quality or Exceptional Value waters) used as a basis for the requested designation.
7. A general description of land use and development patterns in the watershed. Examples include the amount or percentage of public lands (including ownership) and the amount or percentage of various land use types (such as residential, commercial, industrial, agricultural and the like).
8. The names of all municipalities through which the watershed or segment flows, including an official contact name and address.
9. Locational information relevant to items 4-8 (except for contact names and addresses) displayed on a map or maps, if possible.

All petitions should be submitted to the
Secretary of the Department of Environmental Protection
P.O. Box 2063
Harrisburg, PA 17105-2063

CITIZENS COAL COUNCIL

Petition to EQB

To Redesignate Certain Streams
in Upper Browns Creek Watershed
From HQ-WWF to EV
Greene County, Pennsylvania

ENCLOSURE A

Two letters from the Department to Consol, both dated 27 December 2012, regarding unsuccessful restoration of six separate streams dewatered by Consol's Bailey Mine approximately 6 miles to the southwest of the Petition Area. See Figure 7.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CALIFORNIA DISTRICT MINING OFFICE

December 27, 2012

Mr. Josh Silvis
CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, PA 15317-6506

RE: Stream Restoration Unnamed Tributary 32596
CO&A and Amendment
Docket # 066008 and 076010

Dear Mr. Silvis;

The California Office Technical Staff, has completed the review of the stream flow information submitted by Consol and other relevant data assembled by the CDMO staff for Unnamed Tributary 32596. The attached report indicates that UT-32596 has not returned to normal stream flow conditions.

The Department hereby finds that the underground mining operations of Consol's Bailey Mine adversely affected the hydrologic balance of UT-32596 and although Consol has completed all the remediation efforts required by the September 19, 2007 COA and the Amendment of April 24, 2008, UT- 32596 has not been restored to conditions that existed prior to undermining. We feel any additional remediation activities on UT-32596 would be futile; therefore, we are requiring Consol to provide appropriate mitigation and/or compensation for the loss of Commonwealth resources. Please contact me at 724.769.1030 to set up a meeting to discuss your plans.

Please be advised that the Department may require the operator to file revised mining plans, or provide other data, to demonstrate that future underground mining operations will not result in a similar outcome to streams that are proposed to be undermined with full extraction mining.

Sincerely,

Wm. S. Plassio

FOR Gregory Prentice
Compliance Manager
District Mining Operations

Enclosure

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CALIFORNIA DISTRICT MINING OFFICE

December 27, 2012

Mr. Josh Silvis
CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, PA 15317-6506

RE: 2012 Annual Bailey Mine Stream Recovery Report
Bailey Global Consent Order & Agreement of June 11, 2008 and
Amendment of September 8, 2008
Docket # 086003

Dear Mr. Silvis;

The California Office technical staff has completed a review of Consol's 2012 Annual Report for the streams affected by Consol's underground mining activities at the Bailey Mine and for which remediation was required by the CO&A of June 11, 2008. Based upon our evaluation of the average non-flowing stream length percentages of control streams 32604, 32606, 32619, and 32620 and the non-flowing stream length percentages of the affected streams, we have concluded that undermined lengths of Polly Hollow, Unnamed Tributary 32511, Unnamed Tributary 32595, the Crows Nest and Unnamed Tributary 32534 have not recovered from the effects of underground mining activities of the Bailey Mine. I have enclosed a copy of our evaluation.

In reference to Paragraph 6 of the June 2008 CO&A; (1) Consol has performed various remediation efforts over the past 48 months on the affected streams. (2) The Department is unaware of any additional efforts that Consol could be required to take to remediate the affected streams. (3) The Department now requires Consol to perform compensatory mitigation or enhancement measures pursuant to Paragraph 7.

The Department recognizes, that previous correspondence allows for work on Unnamed Tributary 32511 to continue until May 2013; however, there have been no remediation efforts on this stream in the past 12 months. We are aware of negotiations between Consol and Mark McMillen for the purchase of all, or portions, of his property to allow for additional work. The company and landowner have indicated that these negotiations are tentative at best. We do not believe it is purposeful to delay the determination that the affected stream has not recovered and we will not require Consol to perform any additional remediation activities to UT-32511 at this time.

Please be advised that the Department may require the operator to file revised mining plans, or other data, to demonstrate that future underground mining operations will not result in a similar outcome to streams that are proposed to be undermined with full extraction mining.

We wish to meet to discuss your plans for compensatory mitigation; please contact me at 724.769.1030 to set up an agreeable date and time

Sincerely,

Wm. S. Rossi

FOR Gregory Prentice
Compliance Manager
District Mining Operations

Enclosure

CITIZENS COAL COUNCIL

Petition to EQB

To Redesignate Certain Streams in Upper Browns Creek Watershed From HQ-WWF to EV Greene County, Pennsylvania

ENCLOSURE B

Biological Conditions in Headwater Streams in the Proposed Bailey Mine Expansion Area, Greene County, Pennsylvania

June 5, 2014

Prepared by:
Dr. Ben M. Stout III, Ph.D.

Biological Conditions in Headwater Streams in the Proposed Bailey Mine Expansion Area, Greene County, Pennsylvania

Prepared on:
June 5, 2014

Prepared for:
Citizens Coal Council

Prepared by:
Dr. Ben M. Stout III, Ph.D.
Professor of Biology
Wheeling Jesuit University
Wheeling, WV 26003
(304) 243-2316
bens@wju.edu

EXECUTIVE SUMMARY

The biological condition of 4 headwater streams in Greene County, Pennsylvania was measured (Map 1). The streams, all designated High Quality - Warm Water Fishery (HQ-WWF), are within a recently approved 2,538-acre longwall coal mine expansion area. The following question was addressed: Are there streams in the proposed expansion area that merit reclassification to Exceptional Value? Benthic macroinvertebrates were sampled and the fauna in the streams were compared to a nearby PA DEP Exceptional Value reference stream in Ryerson Station State Park (Map 2). Based on their biological condition scores, 2 of the 4 potential candidate streams achieved Exceptional Value scores (100% attainment) compared to the Exceptional Value reference stream. The other 2 candidate streams harbored more pollution-tolerant fauna and their scores indicated retaining their existing HQ uses (65% attainment).

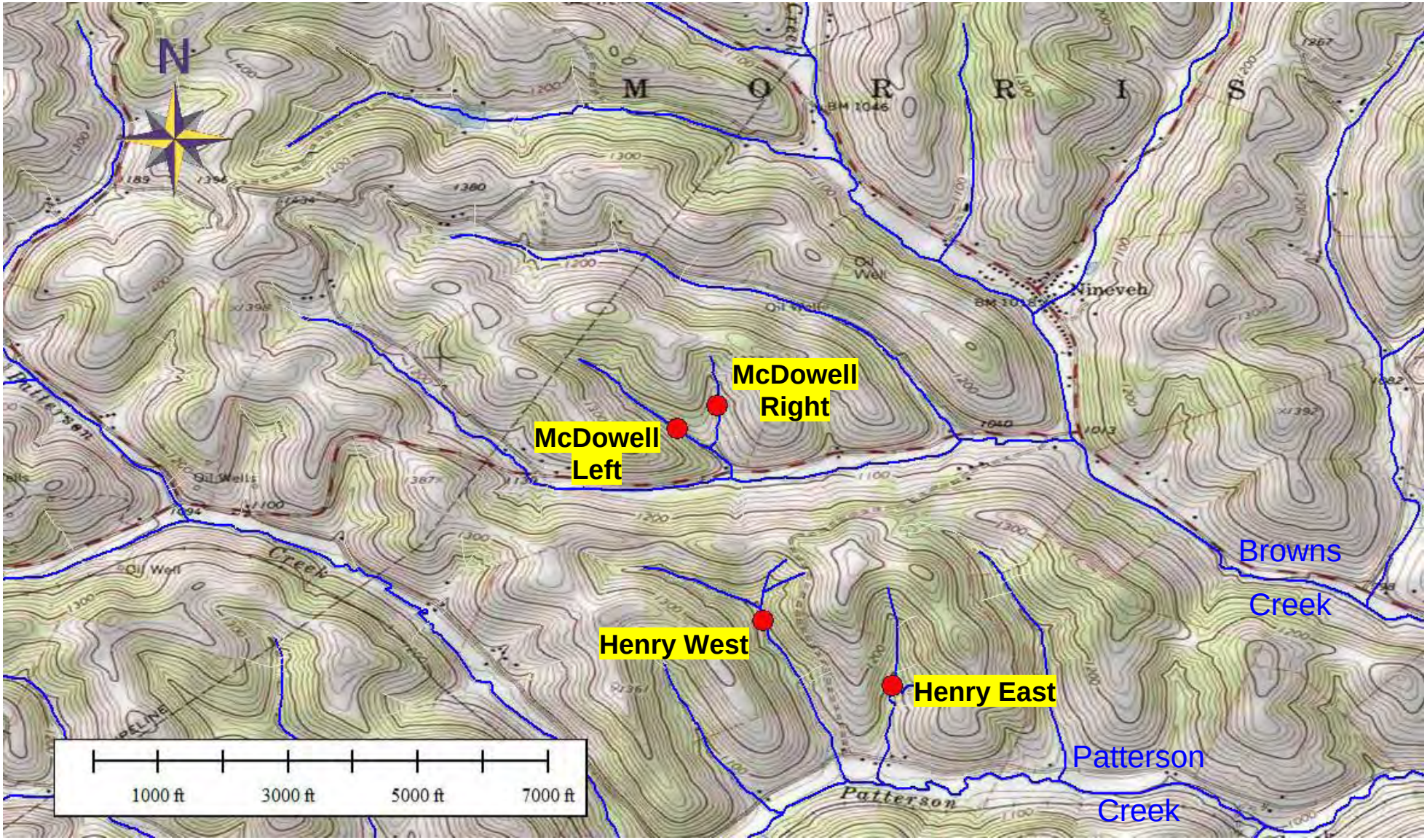
INTRODUCTION

The objective of this study was to assess the biological conditions of four headwater streams within the recently approved longwall expansion area of Bailey Mine (Revision 173 of Mining Activity Permit No. 30842316). The purpose was to determine whether streams in the permit area might merit redesignation to Exceptional Value status in accordance with the Pennsylvania Department of Environmental Protection stream assessment methodology.

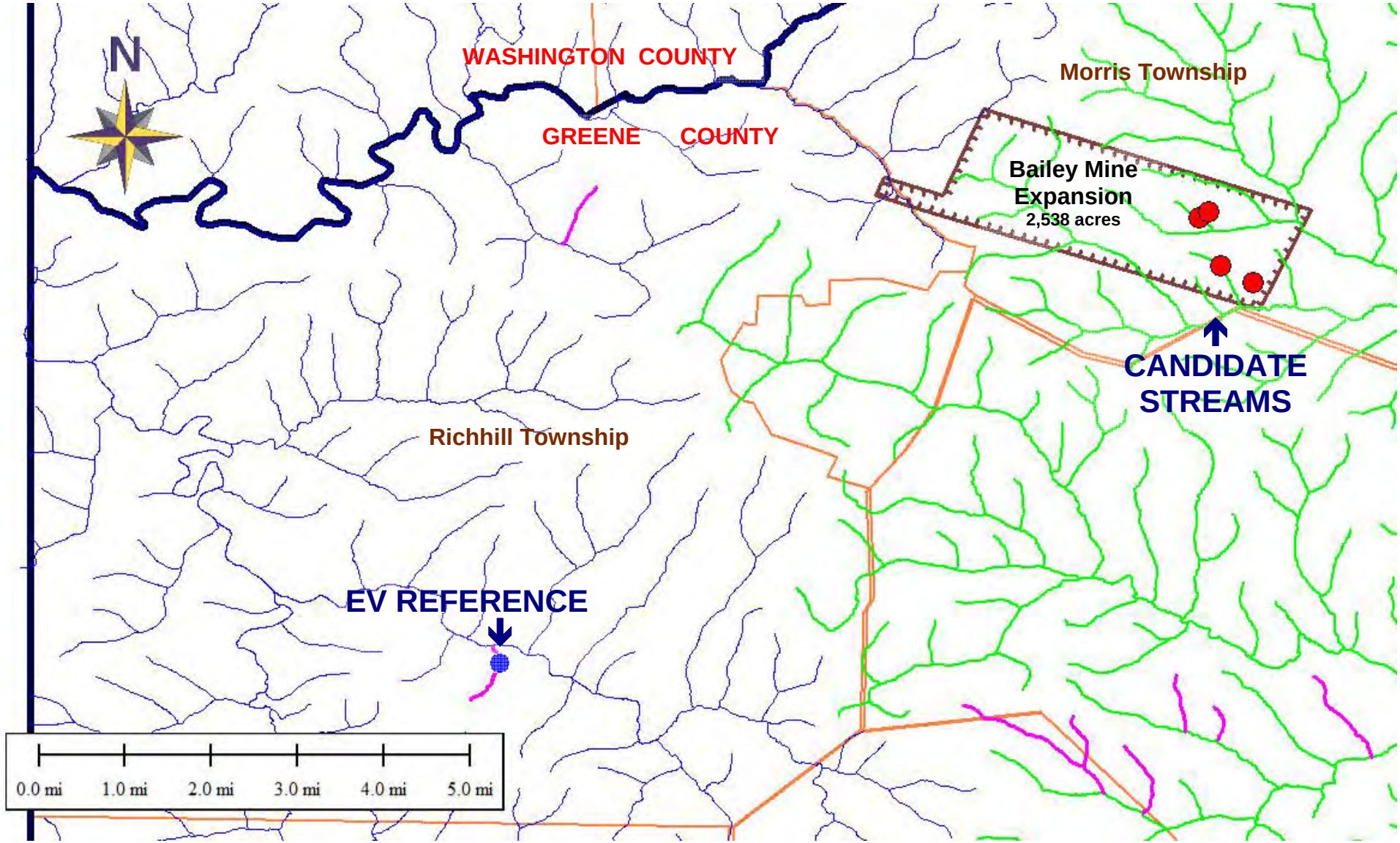
METHODS

Experimental design

Each of 4 potential "candidate streams" was compared with the PA DEP Exceptional Value "reference stream" using standard Pennsylvania Department of Environmental Protection metrics and biological sampling methods. Results of each were standardized to determine



MAP 1. Identification of the four sampling locations (red dots) on the candidate streams. The two McDowell streams are tributaries to Browns Creek (PA DEP-designated use HQ-WWF). The two Henry streams are tributaries to Patterson Creek (PA DEP-designated use HQ-WWF). Basemap is the Rogersville PA 7.5-minute USGS topographic quadrangle, with the streams highlighted in blue.



MAP 2. Sampling locations of four Candidate Streams (red dots) in Morris Township in relation to the EV Reference Stream (blue dot) in Ryerson Station State Park in Richhill Township, in northwestern Greene County, Pennsylvania. Municipal boundaries are in orange. The recently approved 2,538-acre longwall expansion for Bailey Mine is indicated. Streams designated "EV" are shown in purple; those designated "HQ" are shown in green; all others are shown in blue.

Biological Condition Scores which were then used to calculate Percent Attainment of the reference condition (PA DEP, 2003; PA DEP, 2009).

Physical and chemical conditions

These streams appeared to be in good physical condition with partial canopy, cobble substrate, moss, and salamanders as top vertebrate predators.

A YSI 556 MPS water quality meter was used to measure pH, conductance, temperature, and dissolved oxygen at 8 Sites (Table 1). Water quality was measured once at each site at the downstream end of a 100 meter stream reach coinciding with the location of biological sampling. The meter had just been serviced and was checked against laboratory standards for pH and conductivity. Dissolved oxygen was recalibrated at each site to adjust for changes in temperature and pressure.

Biological conditions

Standard Pennsylvania Department of Environmental Protection field and laboratory methods were used for assessing water quality status of streams at each site (PA DEP, 2003). The method consisted of collecting 6, 1 meter-square benthic macroinvertebrate (500 micron mesh net) kick samples at random intervals along a 100 meter transect. The 6 samples were then composited into a single container, numbered with inner and outer labels, preserved with 95% ethanol, and returned to the laboratory for processing.

In the laboratory each sample was handled independently beginning with rinsing the sample contents into a #30 sieve to remove the preservative. The contents of the sieve were then placed into a 20x35cm white enamel pan gridded into 28, 5x5cm cells. A goldfish bowl with 28 pieces of paper numbered 1 through 28 was used to randomly select each grid for picking macroinvertebrates from the sample. For 4 of the streams 4 to 5 grids were picked as needed to accomplish the 200+/- 20% number of the individuals required to complete the method. In one stream, "McDowell Left", 8 grids were required. A 5x5cm grid cutter was used to segregate the material in the randomly selected grid from the surrounding sample.

Aquatic macroinvertebrate taxa were identified using Merritt & Cummins (1996) as the primary taxonomic reference and to supplement the functional group assignments of those taxa not listed for Pennsylvania in Appendix D: Pollution tolerance values and functional feeding group designations (PA DEP, 2009). Appendix B of the US EPA Rapid Bioassessment Protocol (Barbour, et al, 1997) was used to determine pollution tolerance values for uncommon taxa not listed in Appendix D (PA DEP, 2009). Stewart & Stark (1988) and Wiggins (1996) were used as supplemental taxonomic references.

The metrics 1) Taxa richness, 2) Modified EPT, 3) Modified Hilsenhoff Index, 4) Percent dominant, and 5) Percent modified mayflies were calculated for each Site (Table 2). Metrics from each Site were compared to those of the Exceptional Value Reference Stream in Ryerson Station State Park, about 8 miles to the southwest.

Study sites

Two potential candidate streams were sampled on the McDowell property, "McDowell Left" and "McDowell Right" looking upstream (Map 1). Two potential candidate streams were sampled on the Henry property, dubbed "Henry East" and "Henry West". The 4 candidate streams were compared to the Exceptional Value reference stream at Ryerson Station State Park.

RESULTS

Physical and chemical conditions of candidate streams in the Study Area

Streams sampled on April 27, 2014 were comparable in terms of circumneutral pH (7.4 - 8.5) and conductivity ranging from 207 to 395 S/cm (Table 1). Total dissolved solids and pH were somewhat higher in the reference stream compared to the candidate streams. Streams at the Henry property had greater dissolved solids than the streams at the McDowell property. All streams were well oxygenated.

Table 1. Physical (latitude, longitude, water temperature) and chemical (specific conductance, conductivity, total dissolved solids, dissolved oxygen, pH, oxidation-reduction potential, Orp) conditions during field sampling.

Stream	Date	Time	Lat (39^o)	Long (60^o)
Location	M/D/Y	hour	(Deg/Min/Sec)	(Deg/Min/Sec)
McDowell Left	4/27/2014	11:12:50	39 57 20	80 19 22
McDowell Right	4/27/2014	11:48:02	39 57 22	80 19 18
Henry East	4/27/2014	12:56:33	39 56 40	80 18 51
Henry West	4/27/2014	13:39:22	39 56 54	80 19 12
Ryerson EV Reference	4/27/2014	15:05:36	39 52 54	80 26 32

Location	Temp	SpCond	Cond	TDS	Sal	DOsat	DO	pH	Orp
Location	C	uS	mS	g/L	ppt	%	mg/L		mV
McDowell Left	13.18	207	0.16	0.135	0.1	99.2	10.4	7.38	134.7
McDowell Right	13.18	232	0.179	0.151	0.11	100.8	10.57	7.91	109.4
Henry East	17.46	361	0.309	0.234	0.17	98.4	9.41	8.46	92.7
Henry West	14.91	303	0.244	0.197	0.15	101.8	10.28	7.98	128.8
Ryerson EV Reference	15.83	395	0.326	0.257	0.19	104.3	10.32	8.52	113.7

Biological condition of stream communities within the Study Area

The five samples collected from 5 different streams yielded a total of 894 individual macroinvertebrates representing 31 taxa collected during the study (Table 2). The majority of taxa belonged to the insect orders Plecoptera (stoneflies), with 8 taxa and the most abundant macroinvertebrate *Amphinemura delosa*, and Ephemeroptera (mayflies) with 7 taxa and the

second most abundant organism *Epeorus*. I also note an abundance of *Sweltsa* (near *S. lateralis*) particularly at the McDowell property. This is the best population of *Sweltsa* that I have seen in the region, albeit part of that is the late April sampling yielding well-developed pre-emergent naiads. But as a consequence of late April sampling I missed the mature cohort of the pollution intolerant mayfly *Ameletus* due to emergence prior to sampling. I collected a few larger *Ameletus* , particularly in McDowell Left, and a few tiny individuals of the next cohort in all streams except McDowell Right.

The 2 dominant pollution intolerant taxa collected were the mayflies *Epeorus* and *Ephemerella*. Both of these taxa were abundant in the reference stream and the Henry property streams, but not as abundant in the McDowell property streams. The McDowell property streams had more abundant amphipods and stoneflies (*Sweltsa* and *Amphinemura*). While these are seemingly subtle differences in relative abundance, they produce lower scores for pollution tolerance indexes in the McDowell property streams versus the other streams.

Between 3 and 7 semivoltine taxa were collected in streams indicating water permanence in these spring-fed systems (Table 3). Semivoltine taxa included the stoneflies *Peltoperla* and *Sweltsa* with 2-year larval life cycles, and the dobsonfly *Nigronia serricornis* which undergoes 3 years in the aquatic larval stage prior to pupation and emergence to the adult stage. Other semivoltine taxa included cohorts of the crayfish *Cambarus*, and the stoneflies *Cultus* and *Yugus bulbosus*. Additionally, northern 2-lined and seal salamanders were observed in all streams.

Function of stream macroinvertebrate communities

Functionally, the majority of taxa collected were leaf shredders (Table 4) followed closely by collectors and grazers in some streams. Numerically, the samples were dominated by 45% collectors, 26% shredders, 21% grazers, and 9% predators. Leaf shredders were numerically dominated by the stoneflies *Sweltsa, Ostrocerca, Amphinemura delosa, Peltoperla arcuata,* and the cranefly *Tipula abdominalis.*

The dominant grazer was the Heptageniid mayfly *Epeorus*. *Epeorus* was particularly abundant in the reference and Henry property streams. The mayfly M*cCaffertium* (mostly *M. fuscum* and *M. vicarium*) was also an important grazer.

Collectors were dominated by the collector/gatherer mayfly Ephemerella which also was abundant in the reference and Henry property streams. Other important collectors included the net-spinning caddisfly *Diplectrona,* and midge larvae (Diptera: Chironomidae).

Dominant predators included the caddisfly *Rhyacophila*, the stoneflies *Yugus* and *Acroneuria,* and the dobsonfly *Nigronia serricornis*.

At the ecosystem scale these streams provide a link between the surrounding forest and the downstream river ecosystem. The leaf shredder based communities in these headwater streams provide energy and nutrient flow to the downstream ecosystem by converting coarse leaves and sticks into fine particles that wash downstream. Shredders also convert

Table 2. Benthic macroinvertebrates collected April 27, 2014 in samples from the Exceptional Value (EV) reference stream in Ryerson Station State Park and 4 candidate streams, 2 each on the McDowell (McD) and Henry Properties, Greene County, PA.

Order	Taxa	Ryerson EV	McD Right	McD Left	Henry East	Henry West	Total #
Amph	Gammarus	0	19	21	2	1	43
C	Dubraphria	0	1	1	0	0	2
C	Ectopria	0	0	0	1	0	1
D	Chironominae	5	12	9	5	19	50
D	Dixa	0	0	0	0	1	1
D	Hexatoma	0	1	1	0	0	2
D	Limnophila	2	0	5	2	2	11
D	Prosimulium	5	1	0	0	0	6
D	Tabanus	0	0	1	0	0	1
D	Tipula abdonimalis	1	1	1	2	2	7
Dec	Cambarus	0	1	0	3	1	5
E	Ameletus	1	0	12	1	1	15
E	Baetis	9	1	0	2	1	13
E	Epeorus	67	6	5	35	44	157
E	Ephemerella	22	1	0	28	15	66
E	Eurylophelia	0	0	2	2	0	4
E	Paraleptophlebia	2	5	4	7	0	18
E	McCaffertium	0	2	6	0	4	12
P	Allocapnia	3	0	0	2	0	5
P	Amphinem. delosa	20	39	71	38	27	195
P	Cultus	0	1	4	4	0	9
P	Isoperla	2	0	3	2	8	15
P	Leuctra	0	8	1	2	1	12
P	Ostrocerca	0	0	1	0	2	3
P	Sweltsa	11	71	23	2	31	138
P	Yugus	3	4	1	4	3	15
T	Diplectrona	34	4	1	31	6	76
T	Pycnopscye gentilis	0	0	0	0	1	1
T	Rhyacophila	0	5	4	0	0	9
M	Nigronia	0	0	1	0	0	1
M	Sialis	0	1	0	0	0	1
	sum	187	184	178	175	170	894

Table 3. Number of semivoltine taxa, individuals, and percent of population that are semivoltine in the reference (EV) and candidate streams.

Semivoltine:	Ryerson EV	McDowell Right	McDowell Left	Henry East	Henry West
Taxa collected	3	6	7	7	6
Number of individuals	16	87	39	18	48
Percent semivoltine	8.6	47.3	21.9	10.3	28.2

Table 4. Functional group composition (percent numerical abundance) in streams.

Percent	Ryerson EV	McDowell Right	McDowell Left	Henry East	Henry West
shredder	19.8	64.7	57.3	27.4	38.8
collector	40.6	21.2	25.3	42.3	26.5
grazer	36.9	7.6	9.0	24.6	28.2
predator	2.7	6.5	8.4	5.7	6.5

carbohydrates to fats and proteins that are exported back to the forest during emergence of the adult insect forms. These biomolecules are rare in the forest ecosystem and highly utilized owing to their consumable size and high food value. In addition to reptiles and amphibians, aquatic insect emergence from these streams coincides with the return of migratory birds during nesting and rearing season.

Do streams within the Study Area meet Exceptional Value standards?

The McDowell property streams were somewhat cooler than the other streams when sampled. This is consistent with the abundance of amphipods in these streams (Table 2) and the late emerging cohort of *Ameletus*. These proportions could change significantly if streams were sampled earlier in the season, perhaps near the beginning of April. I suspect that earlier in the season *Ameletus*, a pollution intolerant mayfly, would partially or proportionally replace the more tolerant amphipods because of overwhelming abundance. I note that in the past when I have sampled the Ryerson EV reference stream, *Ameletus* was often the most abundant organism. I also note that only 15 taxa were collected in the Ryerson EV reference stream whereas I have typically collected 20-25 taxa there in the past.

The relatively low richness (number of kinds, or taxa) of the reference stream sample set the bar fairly low for other streams to achieve the diversity of the reference stream. Both richness and modified EPT taxa exceeded the reference condition in all 4 candidate streams (Table 5). Likewise, percent dominance was comparable in all streams owing to the rich diversity and relatively even proportions (apportionment, or evenness) of all of these streams.

Table 5. Comparative metrics and Biological Condition Scores of potential "candidate streams" compared with the PA DEP Exceptional Value Reference Stream in lower reaches of an unnamed tributary of North Fork of Dunkard Fork in Ryerson Station State Park.

Biotic index:	Ryerson EV	McDonald Right	McDonald Left	Henry East	Henry West
Richness	15	20	22	20	19
modified EPT	10	11	14	12	12
Hilsenhoff index	1.15	2.33	2.81	1.55	1.84
Percent dominant	35.83	38.59	39.89	21.71	25.88
percent modified mayflies	49.20	7.61	16.29	41.71	37.65

Compare streams to EV stream:	McD Right vs EV	McD Left vs EV	HenryEast vs EV	HenryWest vs EV
Richness	133.33	146.67	133.33	126.67
modified EPT	110	140	120	120
Hilsenhoff index	1.18	1.66	0.40	0.69
Percent dominant	2.76	4.06	-14.11	-9.95
percent modified mayflies	41.59	32.91	7.48	11.55

Biotic Conditions scores:	McD Right vs EV	McD Left vs EV	HenryEast vs EV	HenryWest vs EV
Richness	8	8	8	8
modified EPT	8	8	8	8
Hilsenhoff index	2	0	8	8
Percent dominant	8	8	8	8
percent modified mayflies	0	2	8	8
Sum Biotic Condition scores	26	26	40	40

	McD Right vs EV	McD Left vs EV	HenryEast vs EV	HenryWest vs EV
Percent attainment (%):	65	65	100	100
Indicated Stream Classification:	existing use	existing use	EV	EV

The difference in biological condition of the McDowell property streams compared to the reference (or Henry property) streams is due mostly to the Hilsenhoff index and the Percent Modified Mayflies. The Hilsenhoff index takes into account the higher proportion of pollution tolerant taxa in the McDowell property streams versus the reference stream. In particular, higher abundance of *Amphinemura delosa* (pollution tolerance index value=3), midges (Chironomidae=6), and especially amphipods (index=6) in the McDowell property streams resulted in higher Hilsenhoff index scores compared to the reference stream and the Henry property streams.

There were fewer pollution intolerant mayflies in the McDowell property streams compared to others. Thus the Percent Modified Mayflies index values were lower in McDowell property streams compared to other streams. This was primarily due to the paucity of *Epeorus* and *Ephemerella* in McDowell property streams compared to other streams. *Epeorus* has a pollution tolerance index value of zero; *Ephemerella* has an index value of 1.

CONCLUSION

Two of the four streams surveyed had biological conditions indicative of Exceptional Value status. The remaining two streams indicated existing status with attainment scores of 65%. While 65% appears distant from the 83% attainment needed for their current High Quality status, sampling earlier in the season prior to the emergence of *Ameletus* could have improved the biological scores of these two streams.

CREDENTIALS

Dr. Benjamin M. Stout III is a Professor of Biology at Wheeling Jesuit University where he has taught and conducted stream ecosystem research since 1990. His contributions to peer-reviewed literature address impacts from road building, forest management, and mining on the structure and function of Appalachian headwater stream ecosystems. Dr. Stout's early studies contributed to the elimination of off road vehicle impacts on wetlands and the creation of the Nation's 500th National Wildlife Refuge in Canaan Valley, West Virginia. He has described the distribution of aquatic insect species and their interactions with other species in wetland and stream ecosystems. His 1990 testimony in the case of Bragg *et al* in United States Federal Court Southern District in Charleston, West Virginia regarding valley fill impacts on streams catalyzed an on-going national debate about the specific tenets of the Clean Water Act. His recent testimonies before Legislative Subcommittee's in West Virginia have contributed to water line extensions for whole communities and a legislatively mandated study of environmental and health impacts of coal slurry underground injection. Citing his work on water quality issues critical to national policy, Dr. Stout was named an Environmental Steward by the North American Benthological Society in 2007and received the 2013 Don Gasper award from The West Virginia Environmental Council. Dr. Stout has recently attracted significant funding to work with communities to address pressing environmental and health needs in Appalachia.

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CITIZENS COAL COUNCIL

Petition to EQB

To Redesignate Certain Streams in Upper Browns Creek Watershed From HQ-WWF to EV Greene County, Pennsylvania

ENCLOSURE C

Bioassessment summary scores for 34 stream segments are provided on the following pages. Station numbers correspond with red or blue numbered circles on Figure 8 in Petition. Those stations which had one or more TBS of 75 or higher are highlighted in yellow on the following pages and are shown as blue circles on Figure 8. The five stations with the highest average TBS were: 7, 14, 21, 24a, and 9.

These TBS Summaries (Form 8.8D) were part of Module 8 in Consol's underground coal mine permit applications for the subject expansions of underground mining beneath streams in the Petition Area. These were the only data readily available to us from the Bailey Mine expansion permit applications.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40562

Stream ID#: 05020005003084 Segment ID: Station 1

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/7/09 A. Greathouse, B. Watson

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**24**	78.7	**78.7**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**50**	81.2	**81.2**
Intolerant Taxa Richness	**18**	112.5	**100.0**
FC + PR Taxa Richness	**11**	81.5	**81.5**
		Total Biological Score 1 (mean of adjusted values)	75.9

Score 2 - Sample Date 3/5/2010 Bob Likar, Greg Moore

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**19**	62.3	**62.3**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**57.9**	94.0	**94.0**
Intolerant Taxa Richness	**15**	93.8	**93.8**
FC + PR Taxa Richness	**5**	37.0	**37.0**
		Total Biological Score 1 (mean of adjusted values)	66.9

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 13 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 71.4

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40562

Stream ID#: 05020005003084 Segment ID: Station 2

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/26/09 G. Geisinger, M. Peugeot

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**29**	95.1	**95.1**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**62**	100.6	**100.0**
Intolerant Taxa Richness	**19**	118.8	**100.0**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	80.8

Score 2 - Sample Date 12/7/2009 A. Greathouse, B. Watson

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**52.2**	84.7	**84.7**
Intolerant Taxa Richness	**15**	93.8	**93.8**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	73.6

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 9 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 77.2

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40560-R3

Stream ID#: 05020005003106 Segment ID: Station 3

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/14/09 A. Greathouse, A. Crow, S. Schreck, L. Dombrowski

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**24**	78.7	**78.7**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**54.2**	88.0	**88.0**
Intolerant Taxa Richness	**18**	112.5	**100.0**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	73.2

Score 2 - Sample Date 3/5/10 B. Likar / G. Moore

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**28**	91.8	**91.8**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**39.3**	63.8	**63.8**
Intolerant Taxa Richness	**16**	100.0	**100.0**
FC + PR Taxa Richness	**13**	96.3	**96.3**
		Total Biological Score 1 (mean of adjusted values)	81.8

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 11 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 77.5

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40547-R4

Stream ID#: 05020005001395 Segment ID: Station 4

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/27/09 G. Geisinger, G. Moore

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**22**	72.1	**72.1**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**36.4**	59.1	**59.1**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	58.2

Score 2 - Sample Date 12/15/09 A. Greathouse, A. Crowe, J. Lewis, B. Watson

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**22**	72.1	**72.1**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**45.5**	73.9	**73.9**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	66.2

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 13 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 62.2

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40547-L5

Stream ID#: 05020005001395 Segment ID: Station 5

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/27/09 G. Geisinger, G. Moore

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**29**	95.1	**95.1**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**58.6**	95.1	**95.1**
Intolerant Taxa Richness	**19**	118.8	**100.0**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	77.9

Score 2 - Sample Date 12/15/09 A. Greathouse, A. Crowe, J. Lewis, B. Watson

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**21**	68.9	**68.9**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**57.1**	92.7	**92.7**
Intolerant Taxa Richness	**18**	112.5	**100.0**
FC + PR Taxa Richness	**4**	29.6	**29.6**
		Total Biological Score 1 (mean of adjusted values)	67.8

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 14 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 72.8

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40547

Stream ID#: 05020005001395 Segment ID: Station 6

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/7/2009 A. Greathouse, B. Watson, S. Gill, A. Crowe

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**52.2**	84.7	**84.7**
Intolerant Taxa Richness	**11**	68.8	**68.8**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	70.5

Score 2 - Sample Date 3/9/2010 B. Burford, A. Greathouse

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**26**	85.2	**85.2**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**53.8**	87.3	**87.3**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**12**	88.9	**88.9**
		Total Biological Score 1 (mean of adjusted values)	81.2

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 14 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 75.9

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40559

Stream ID#: 05020005003162 Segment ID: Station 7

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/7/09 A. Greathouse, B. Watson

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**60.9**	98.9	**98.9**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**11**	81.5	**81.5**
		Total Biological Score 1 (mean of adjusted values)	80.1

Score 2 - Sample Date 3/9/2010 B. Burford, A. Greathouse

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**31**	101.6	**100.0**
Trichoptera Richness	**7**	66.7	**66.7**
Percent EPT Richness	**51.6**	83.8	**83.8**
Intolerant Taxa Richness	**20**	125.0	**100.0**
FC + PR Taxa Richness	**17**	125.9	**100.0**
		Total Biological Score 1 (mean of adjusted values)	90.1

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 12 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 85.1

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40547-L11

Stream ID#: 05020005001395 Segment ID: Station 8

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/27/09 G. Geisinger, G. Moore

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**21**	68.9	**68.9**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**47.6**	77.3	**77.3**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	65.8

Score 2 - Sample Date 12/14/09 A. Greathoues, A. Crowe, S. Schreck, L. Dombrowski

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**20**	65.6	**65.6**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**50**	81.2	**81.2**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	59.8

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 10 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 62.8

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40553

Stream ID#: 05020005003165 Segment ID: Station 9

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/16/09 A. Greathouse, A. Crowe, M. Lee, W. Reichard

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**26**	85.2	**85.2**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**53.8**	87.3	**87.3**
Intolerant Taxa Richness	**19**	118.8	**100.0**
FC + PR Taxa Richness	**10**	74.1	**74.1**
		Total Biological Score 1 (mean of adjusted values)	80.8

Score 2 - Sample Date 3/5/2010 R. Paulenich, L. Budinski

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**25**	82.0	**82.0**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**56**	90.9	**90.9**
Intolerant Taxa Richness	**19**	118.8	**100.0**
FC + PR Taxa Richness	**11**	81.5	**81.5**
		Total Biological Score 1 (mean of adjusted values)	78.5

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 3 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 79.6

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40552

Stream ID#: 05020005003158 Segment ID: Station 10

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/27/09 G. Geisinger, G. Moore

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**18**	59.0	**59.0**
Trichoptera Richness	**1**	9.5	**9.5**
Percent EPT Richness	**66.7**	108.3	**100.0**
Intolerant Taxa Richness	**11**	68.8	**68.8**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	57.8

Score 2 - Sample Date 12/16/09 A. Greathouse, A. Crowe, W. Reichard, M. Lee

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**22**	72.1	**72.1**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**40.9**	66.4	**66.4**
Intolerant Taxa Richness	**12**	75.0	**75.0**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	65.6

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 13 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 61.7

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40565

Stream ID#: 05020005001393 Segment ID: Station 11

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/27/09 Josh Kelly, Bob Likar

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**19**	62.3	**62.3**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**47.4**	76.9	**76.9**
Intolerant Taxa Richness	**9**	56.3	**56.3**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	56.7

Score 2 - Sample Date 12/15/09 A. Greathouse, A. Crowe, J. Lewis, B. Watson

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**20**	65.6	**65.6**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**30**	48.7	**48.7**
Intolerant Taxa Richness	**9**	56.3	**56.3**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	53.2

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 6 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 54.9

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40567

Stream ID#: 05020005003098 Segment ID: Station 12

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/28/09 B. Fleming, R. Paulenich

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**22**	72.1	**72.1**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**63.6**	103.2	**100.0**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**6**	44.4	**44.4**
		Total Biological Score 1 (mean of adjusted values)	66.5

Score 2 - Sample Date 12/8/09 A. Greathouse, A. Crowe, J. Lewis

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**27**	88.5	**88.5**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**44.4**	72.1	**72.1**
Intolerant Taxa Richness	**17**	106.3	**100.0**
FC + PR Taxa Richness	**12**	88.9	**88.9**
		Total Biological Score 1 (mean of adjusted values)	77.5

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 15 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 72.0

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40567 - L12

Stream ID#: 05020005003098 Segment ID: Station 13

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/28/2009 B. Fleming, R. Paulenich

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**24**	78.7	**78.7**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**45.8**	74.4	**74.4**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	65.3

Score 2 - Sample Date 3/5/2010 R. Paulenich, L. Budinski

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**18**	59.0	**59.0**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**38.9**	63.1	**63.1**
Intolerant Taxa Richness	**11**	68.8	**68.8**
FC + PR Taxa Richness	**10**	74.1	**74.1**
		Total Biological Score 1 (mean of adjusted values)	62.5

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 4 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 63.9

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40567

Stream ID#: 05020005003098 Segment ID: Station 14

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/28/09 B. Fleming, R. Paulenich

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**29**	95.1	**95.1**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**55.2**	89.6	**89.6**
Intolerant Taxa Richness	**17**	106.3	**100.0**
FC + PR Taxa Richness	**13**	96.3	**96.3**
		Total Biological Score 1 (mean of adjusted values)	81.9

Score 2 - Sample Date 3/5/2010 R. Paulenich, L. Budinsky

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**27**	88.5	**88.5**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**48.1**	78.1	**78.1**
Intolerant Taxa Richness	**20**	125.0	**100.0**
FC + PR Taxa Richness	**15**	111.1	**100.0**
		Total Biological Score 1 (mean of adjusted values)	82.8

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 1 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 82.4

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40565

Stream ID#: 05020005001393 Segment ID: Station 15

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/27/09 J. Kelly, B. Likar

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**24**	78.7	**78.7**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**50**	81.2	**81.2**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**10**	74.1	**74.1**
		Total Biological Score 1 (mean of adjusted values)	70.0

Score 2 - Sample Date 12/14/09 A. Greathouse, S. Schreck, A. Crowe, L. Dombrowski

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**27**	88.5	**88.5**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**55.6**	90.3	**90.3**
Intolerant Taxa Richness	**15**	93.8	**93.8**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	79.3

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 12 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 74.6

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40566

Stream ID#: 05020005001394 Segment ID: Station 16

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/29/09 J. Kelly, B. Likar

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**19**	62.3	**62.3**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**42.1**	68.3	**68.3**
Intolerant Taxa Richness	**11**	68.8	**68.8**
FC + PR Taxa Richness	**5**	37.0	**37.0**
		Total Biological Score 1 (mean of adjusted values)	51.1

Score 2 - Sample Date 12/8/09 A. Greathouse, S. Gill, J. Lewis, A. Crowe

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**17**	55.7	**55.7**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**64.7**	105.0	**100.0**
Intolerant Taxa Richness	**11**	68.8	**68.8**
FC + PR Taxa Richness	**4**	29.6	**29.6**
		Total Biological Score 1 (mean of adjusted values)	58.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 13 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 54.8

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40566

Stream ID#: 05020005001394 Segment ID: Station 17

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/18/2009 S. Gill, B. Likar

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**29**	95.1	**95.1**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**44.8**	72.7	**72.7**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**13**	96.3	**96.3**
		Total Biological Score 1 (mean of adjusted values)	74.8

Score 2 - Sample Date 3/5/2010 S. Gill, M. Wachob

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**22**	72.1	**72.1**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**40.9**	66.4	**66.4**
Intolerant Taxa Richness	**8**	50.0	**50.0**
FC + PR Taxa Richness	**13**	96.3	**96.3**
		Total Biological Score 1 (mean of adjusted values)	66.5

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 12 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 70.6

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40566

Stream ID#: 05020005001394 Segment ID: Station 19

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/29/09 J. Kelly, B. Likar

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**15**	49.2	**49.2**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**40**	64.9	**64.9**
Intolerant Taxa Richness	**6**	37.5	**37.5**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	44.5

Score 2 - Sample Date 12/16/09 A. Greathouse, A. Crowe, W. Reichard, M. Lee

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**16**	52.5	**52.5**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**43.8**	71.1	**71.1**
Intolerant Taxa Richness	**9**	56.3	**56.3**
FC + PR Taxa Richness	**5**	37.0	**37.0**
		Total Biological Score 1 (mean of adjusted values)	51.0

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 14 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 47.7

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40574

Stream ID#: 05020005001391 Segment ID: Station 20

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/27/09 J. Kelly, B. Likar

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**21**	68.9	**68.9**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**42.9**	69.6	**69.6**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	67.0

Score 2 - Sample Date 12/16/09 A. Greathouse, W. Reichard, A. Crowe, M. Lee

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**21**	68.9	**68.9**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**47.6**	77.3	**77.3**
Intolerant Taxa Richness	**15**	93.8	**93.8**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	69.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 3 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 68.2

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40560

Stream ID#: 05020005003106 Segment ID: Station 21

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/15/2009 A. Greathouse, B. Watson, A. Crowe, J. Lewis

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**27**	88.5	**88.5**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**51.9**	84.3	**84.3**
Intolerant Taxa Richness	**19**	118.8	**100.0**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	77.8

Score 2 - Sample Date 3/5/2010 B. Likar, G. Moore

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**30**	98.4	**98.4**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**50**	81.2	**81.2**
Intolerant Taxa Richness	**21**	131.3	**100.0**
FC + PR Taxa Richness	**17**	125.9	**100.0**
		Total Biological Score 1 (mean of adjusted values)	85.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 9 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 81.6

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40565

Stream ID#: 05020005001393 Segment ID: Station 23

Sampler(s): See Below Length of Sampled Reach: 100 meters

[x] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 12/8/09 A. Greathouse, S. Gill, J. Lewis, A. Crowe

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**19**	62.3	**62.3**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**57.9**	94.0	**94.0**
Intolerant Taxa Richness	**8**	50.0	**50.0**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	66.0

Score 2 - Sample Date 3/5/2010 S. Gill, M. Wachob

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**47.8**	77.6	**77.6**
Intolerant Taxa Richness	**12**	75.0	**75.0**
FC + PR Taxa Richness	**13**	96.3	**96.3**
		Total Biological Score 1 (mean of adjusted values)	76.3

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 14 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 71.2

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: 40561

Stream ID#: 05020005003089 Segment ID: Station 24

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/17/2010 A. Greathouse / S. Schreck

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**27**	88.5	**88.5**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**40.7**	66.1	**66.1**
Intolerant Taxa Richness	**10**	62.5	**62.5**
FC + PR Taxa Richness	**10**	74.1	**74.1**
		Total Biological Score 1 (mean of adjusted values)	63.9

Score 2 - Sample Date J. Lewis, B. Likar 3/3/2011

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**43.5**	70.6	**70.6**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	63.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 1 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 63.7

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine-Upper East Longwall A1-A3

Stream Name: 40547 Patterson Creek

Stream ID#: 05020005003078

Segment ID: BSW 24a

Sampler(s): See Below

Length of Sampled Reach: 100 meters

[ ] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 3/2/2012 L. Budinsky / A. VanDruff

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**69.6**	113.0	**100.0**
Intolerant Taxa Richness	**19**	118.8	**100.0**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	79.8

Score 2 - Sample Date 5/14/2012 G. Moore / T. Black

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**29**	95.1	**95.1**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**55.2**	89.6	**89.6**
Intolerant Taxa Richness	**15**	93.8	**93.8**
FC + PR Taxa Richness	**10**	74.1	**74.1**
		Total Biological Score 1 (mean of adjusted values)	81.9

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 3 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 80.9

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: CONSOL Bailey Mine - Upper East Longwall A1-A3 Stream Name: Patterson Creek 40547

Stream ID#: 05020005003078 Segment ID: BSW 24 b

Sampler(s): See Below Length of Sampled Reach: 100 meters

[ ] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 2/6/2013 L. Budinsky / T. Malecki

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**12**	39.3	**39.3**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**50**	81.2	**81.2**
Intolerant Taxa Richness	**6**	37.5	**37.5**
FC + PR Taxa Richness	**6**	44.4	**44.4**
		Total Biological Score 1 (mean of adjusted values)	46.2

Score 1 - Sample Date 5/30/2013 G. Moore / J. Lewis

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**16**	52.5	**52.5**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**56.25**	91.3	**91.3**
Intolerant Taxa Richness	**8**	50.0	**50.0**
FC + PR Taxa Richness	**5**	37.0	**37.0**
		Total Biological Score 1 (mean of adjusted values)	50.0

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 8 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 48.1

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

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FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Browns Creek 40492

Stream ID#: 05020005000164 Segment ID: BSW 28

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 10/18/2011 L. Budinsky / S. Schreck

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**26**	85.2	**85.2**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**50**	81.2	**81.2**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**12**	88.9	**88.9**
		Total Biological Score 1 (mean of adjusted values)	76.8

Score 2 - Sample Date 11/18/2011 W. Reichard / M. Grimm

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**28**	91.8	**91.8**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**46.4**	75.3	**75.3**
Intolerant Taxa Richness	**16**	100.0	**100.0**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	74.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 3 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 75.6

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40563 To Browns Creek

Stream ID#: 05020005001384 Segment ID: BSW 29

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 4/21/2011 G. Moore, M. Peugeot

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**20**	65.6	**65.6**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**40.0**	64.9	**64.9**
Intolerant Taxa Richness	**10**	62.5	**62.5**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	54.7

Score 2 - Sample Date 11/17/2011 K. Drennen / M. Grimm

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**17**	55.7	**55.7**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**41.2**	66.9	**66.9**
Intolerant Taxa Richness	**9**	56.3	**56.3**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	51.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 6 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 53.1

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40492-L13 To Browns Creek

Stream ID#: No Reach Code Segment ID: BSW 30

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/10/2011 N. Trivelli, K. Drennen

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**29**	95.1	**95.1**
Trichoptera Richness	**6**	57.1	**57.1**
Percent EPT Richness	**55.2**	89.6	**89.6**
Intolerant Taxa Richness	**19**	118.8	**100.0**
FC + PR Taxa Richness	**10**	74.1	**74.1**
		Total Biological Score 1 (mean of adjusted values)	83.2

Score 2 - Sample Date 5/23/2011 M. Peugeot, T. Black

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**25**	82.0	**82.0**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**64.0**	103.9	**100.0**
Intolerant Taxa Richness	**17**	106.3	**100.0**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	74.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 11 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 78.8

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40539 To Browns Creek

Stream ID#: 05020005001381 Segment ID: BSW 33

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/9/2011 B. Watson, K. Drennen

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**25**	82.0	**82.0**
Trichoptera Richness	**1**	9.5	**9.5**
Percent EPT Richness	**56.0**	90.9	**90.9**
Intolerant Taxa Richness	**16**	100.0	**100.0**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	66.9

Score 2 - Sample Date 11/17/2011 K. Drennen / M. Grimm

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**21**	68.9	**68.9**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**47.6**	77.3	**77.3**
Intolerant Taxa Richness	**12**	75.0	**75.0**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	61.4

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 9 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 64.1

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40492-L1 To Browns Creek

Stream ID#: No Reach Code Segment ID: BSW 35

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/10/2011 N. Trivelli, K. Drennen

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**20**	65.6	**65.6**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**70.0**	113.6	**100.0**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**5**	37.0	**37.0**
		Total Biological Score 1 (mean of adjusted values)	62.5

Score 2 - Sample Date 5/24/2011 N. Trivelli, W. Reichard

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**24**	78.7	**78.7**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**62.5**	101.5	**100.0**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**4**	29.6	**29.6**
		Total Biological Score 1 (mean of adjusted values)	66.8

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 7 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 64.6

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40547-L20 To Patterson Cree

Stream ID#: No Reach Code Segment ID: BSW 37

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/10/2011 N. Trivelli, K. Drennen

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**26**	85.2	**85.2**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**53.8**	87.3	**87.3**
Intolerant Taxa Richness	**16**	100.0	**100.0**
FC + PR Taxa Richness	**11**	81.5	**81.5**
		Total Biological Score 1 (mean of adjusted values)	78.4

Score 2 - Sample Date 11/2/2011 L. Budinsky / T. Black

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**25**	82.0	**82.0**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**52**	84.4	**84.4**
Intolerant Taxa Richness	**18**	112.5	**100.0**
FC + PR Taxa Richness	**9**	66.7	**66.7**
		Total Biological Score 1 (mean of adjusted values)	74.2

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 6 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 76.3

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40542 To Browns Creek

Stream ID#: 05020005001382 Segment ID: BSW 38

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/9/2011 B. Watson, K. Drennen

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**22**	72.1	**72.1**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**50.0**	81.2	**81.2**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	62.3

Score 2 - Sample Date 5/23/2011 M. Peugeot, T. Black

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**26**	85.2	**85.2**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**50.0**	81.2	**81.2**
Intolerant Taxa Richness	**16**	100.0	**100.0**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	68.9

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 10 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 65.6

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40539 To Browns Creek

Stream ID#: 05020005001381 Segment ID: BSW 39

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 5/9/2011 B. Watson, K. Drennen

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**56.5**	91.7	**91.7**
Intolerant Taxa Richness	**15**	93.8	**93.8**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	68.3

Score 2 - Sample Date 5/23/2011 M. Peugeot, T. Black

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**23**	75.4	**75.4**
Trichoptera Richness	**2**	19.0	**19.0**
Percent EPT Richness	**47.8**	77.6	**77.6**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	61.0

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 11 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 64.7

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Trib 40539-L2 To Browns Creek

Stream ID#: No Reach Code Segment ID: BSW 41

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 10/3/2011 J. Lewis / G. Moore / L. Danos

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**26**	85.2	**85.2**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**11**	17.9	**17.9**
Intolerant Taxa Richness	**16**	100.0	**100.0**
FC + PR Taxa Richness	**11**	81.5	**81.5**
		Total Biological Score 1 (mean of adjusted values)	64.5

Score 2 - Sample Date 11/17/2011 K. Drennen / M. Grimm

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**16**	52.5	**52.5**
Trichoptera Richness	**3**	28.6	**28.6**
Percent EPT Richness	**62.5**	101.5	**100.0**
Intolerant Taxa Richness	**14**	87.5	**87.5**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	64.1

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 1 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 64.3

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

FORM 8.8D BIOMETRIC AND TOTAL BIOLOGICAL SCORE SUMMARY

Mine Name: Bailey Upper East Longwall 2 Stream Name: Browns Creek 40492

Stream ID#: 05020005000161 Segment ID: BSW 43

Sampler(s): See Below Length of Sampled Reach: 100 meters

[X] Pre-Mining [ ] Post-Mining

Score 1 - Sample Date 11/9/2011 J. Lewis / N. Renaudin

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**22**	72.1	**72.1**
Trichoptera Richness	**5**	47.6	**47.6**
Percent EPT Richness	**54.5**	88.5	**88.5**
Intolerant Taxa Richness	**11**	68.8	**68.8**
FC + PR Taxa Richness	**8**	59.3	**59.3**
		Total Biological Score 1 (mean of adjusted values)	67.2

Score 2 - Sample Date 12/2/2011 J. Lewis / L. Kunkel / J. Sabol

Biologic Metric	Observed Value	Normalized Score (observed value / 95th percentile value) * 100	Adjusted Value
Taxa Richness	**25**	82.0	**82.0**
Trichoptera Richness	**4**	38.1	**38.1**
Percent EPT Richness	**52**	84.4	**84.4**
Intolerant Taxa Richness	**13**	81.3	**81.3**
FC + PR Taxa Richness	**7**	51.9	**51.9**
		Total Biological Score 1 (mean of adjusted values)	67.5

1.) Quality Assurance Check (% difference between Score 1 and Score 2):* 0 %

2.) Mean Total Biological Score (Average of Score 1 and Score 2): 67.4

* If percentage difference is greater than 16%, reach should be re-sampled to obtain additional set of metrics.

CITIZENS COAL COUNCIL

Petition to EQB

To Redesignate Certain Streams in Upper Browns Creek Watershed From HQ-WWF to EV Greene County, Pennsylvania

ENCLOSURE D

Suggested regulatory language for request to amend a regulation

We are confident that some of the tributaries to Patterson Creek, Bates Fork, and Browns Creek qualify as having EV existing uses. Indeed, Dr. Stout has documented EV conditions in two such tributaries. Because of limited resources, limited time (Dr. Stout was not able to conduct his fieldwork during the most optimal season), and limited access to surface properties, we were able to sample only a tiny proportion of the Petition Area waterways. However, because of the general similarity of these watersheds, in terms of their high proportion of forest cover, minimal impervious cover, and low-intensity land uses, plus the fact that coal mining and other industrial activities have been absent to date (at least until the recently approved longwall mining in the southwestern section of the Petition Area), it is highly likely that many tributaries, if not the entire basins, qualify as having EV existing uses.

Therefore, for simplicity, the proposed language we have suggested pertains to the entire upper Browns Creek watershed. Once the Department has completed its investigation of additional streams within the Petition Area, the revised regulatory language may become more specific.

The current regulation, 25 Pa. Code §93.9v (“Drainage List V.”), currently contains the following text relating to the designation of the subject streams:

Ohio River Basin in Pennsylvania
Monongahela River

Stream	**Zone**	**County**	**Water Uses Protected**	**Exceptions To Specific Criteria**
[omitted]	*[omitted]*	*[omitted]*	*[omitted]*	*[omitted]*
5---Browns Creek	Basin	Greene	HQ-WWF	None
[omitted]	*[omitted]*	*[omitted]*	*[omitted]*	*[omitted]*

After redesignation, the suggested regulatory language would be as follows:

Ohio River Basin in Pennsylvania
Monongahela River

[omitted]	*[omitted]*	*[omitted]*	*[omitted]*	*[omitted]*
5---Browns Creek	Basin, Source to Bates Fork	Greene	EV	None
6---Bates Fork	Basin	Greene	EV	None
5---Browns Creek	Basin, Bates Fork to Mouth	Greene	HQ-WWF	None
[omitted]	*[omitted]*	*[omitted]*	*[omitted]*	*[omitted]*

CITIZENS COAL COUNCIL

Petition to EQB

To Redesignate Certain Streams
in Upper Browns Creek Watershed
From HQ-WWF to EV
Greene County, Pennsylvania

ENCLOSURE E

Letters of Support

- Greene County Watershed Alliance

GREENE COUNTY
WATERSHED ALLIANCE
PO Box 1002
Waynesburg, PA 15370

December 17, 2014

Citizens Coal Council
Attn:Aimee Erickson, Executive Director
605 Taylor Way
Bridgeville, PA 15017

Dear Citizens Coal Council:

We are pleased to support your Petition to change the designation of the upper Browns Creek watershed from High Quality - Warm Water Fishery (HQ-WWF) to Exceptional Value (EV). We believe that these waters should be given the highest level of protection and that the EV designation more accurately reflects its current uses.

We feel it is important to protect this valuable watershed. The headwater streams located within the upper Browns Creek watershed are work-horses in providing cleaner water to Ten Mile Creek. This section of northern Greene County is beautiful, has excellent water quality to sustain aquatic life and provides trout stocked fishing opportunities for local and regional residents of Pennsylvania.

Please convey our support for your Petition to the relevant decision making bodies.

Yours truly,

Terri Davin
President