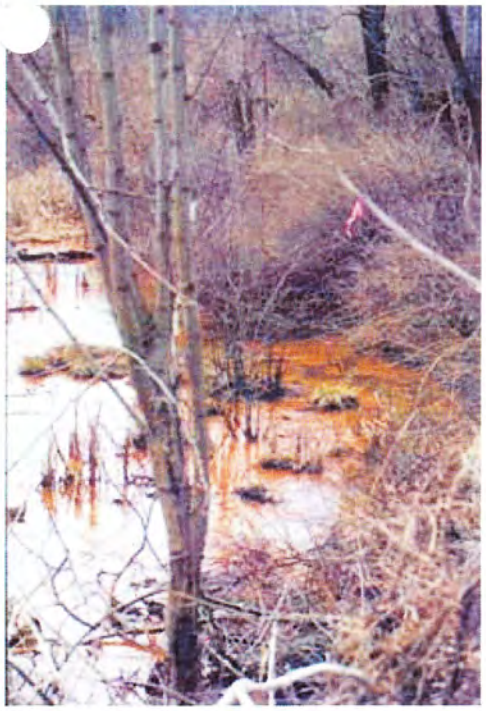
Posing in front of a mine drainage site along Route 286 are: John Somonick, founding member of AWARE; Shaun Buster, biologist with Stream Restoration Inc.; Malcolm Crittenden, Growing Greener program administrator; Fred Johnson, reclamation manager for AmeriKohl Mining; and State Rep. Dave Reed.



Iron pollution turns water orange before it flows into Aultman run.

PittsburghLIVE.com
TRIBUNE-REVIEW

Watershed will scrub away Aultman Run iron

By Joyce Shannon
TRIBUNE-REVIEW
Sunday, March 30, 2003

Some have heard stories about children of yesteryear who splashed and played in Aultman's Run in Indiana County, remaining stained rust-orange for days afterward.

Not many people swim or play in the Center Township iron-choked stream anymore; those stories evoke the past. And the Aultman's Run Watershed Association for Restoring the Environment is hoping the stream's orange color will also become a memory.

A section of the stream, along Route 286, will soon be restored after AWARE volunteers and others build a wetland there. The workhorses behind the project also include Stream Restoration Inc., of Cranberry Township, and Amerikohl Mining Inc.

A $93,000 Growing Greener grant is funding most of the project, with an additional $7,000 from the Western Pennsylvania Watershed Protection Program.

Most of the iron will settle into a retention area, which will be dug out around the area where water rises up from an abandoned mine. After that, native plants like cattails, soft rush, silky dogwood and three-way sedge will filter out the rest so the water becomes clear downstream.

Transplanting native animals and insects isn't planned, but project manager Shaun Busler, a biologist with Stream Restoration, doesn't doubt the new habitat will soon be honed in by those species that live in wetlands. "It's kind of like one of those things where if you build it, they will come," Busler said.

The plants that will be installed by the groups will remove the 11,000 pounds of iron that enter the stream each year. Healthy streams are usually free of iron.

The property belongs to Amerikohl owner John Stilley. They're helping to remedy a problem unknowingly caused by their counterparts long ago.

When mines are abandoned, often they become filled with water. Old mines were typically designed to drain upward to the surface.

The practice of building wetlands, or a passive treatment system, to filter streams began about 20 years ago, Busler said. It's a far more efficient and inexpensive way to clean streams than an active treatment system, which involves adding chemicals to the water to remedy the problem.

"The value of a wetland for mine treatment is its low cost and maintenance," said AWARE President Brian Okey. Wetlands can also help reduce flooding because they slow the flow of water.

Photo Gallery

click to enlarge

Brian Okey

The stream is free of aluminum, which is toxic to wildlife.

"Iron is not really that toxic," Okey said. "It's kind of a physical nuisance rather than a toxic nuisance."

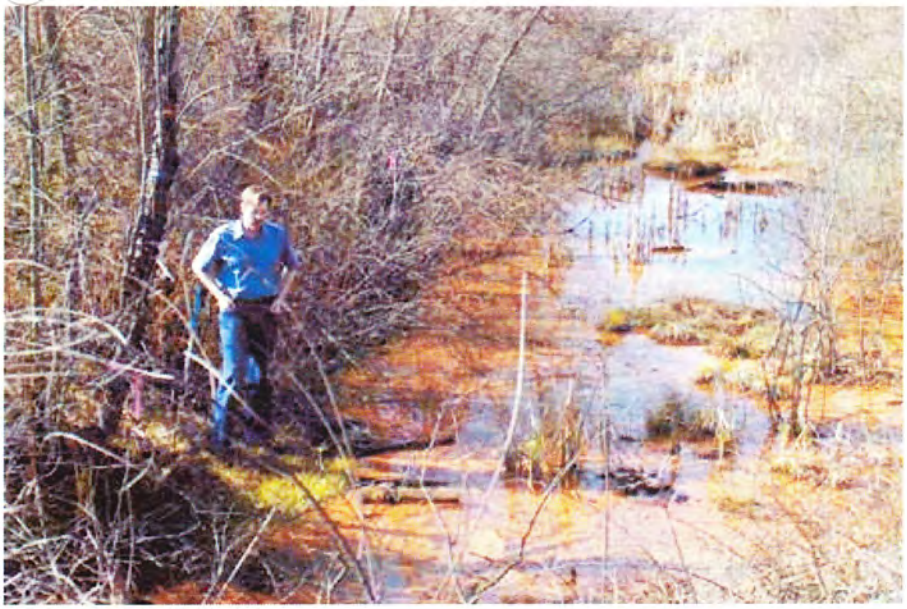
However, iron that gets into fishes' gills can choke them, which is the reason why Aultman's Run doesn't have that many fish. Some watershed members are hoping the stream can be restocked downstream after it gets cleaned up, Okey said.

Okey, a geography professor at Indiana University of Pennsylvania, is helping to coordinate volunteers for the project. He also helps with the annual cleanup in the watershed, to be held April 12. Those interested in volunteering can call 724-463-9636.

Okey sometimes brings students in his Freshwater Resources class to the site to see an example of how abandoned mines affect watersheds.

"It's a perfect laboratory," he said.

Joyce Shannon can be reached at jshannon@tribweb.com or (724) 463-8742.



Brian Okey, president of the Aultman Watershed Association, looks at the site of proposed watershed. Ken Brooks/Tribune-Review

"SR286 Passive Treatment System Constructed"

By Shaun Busler
Stream Restoration Inc.

April 2, 2004

(Aultman, PA) - Through a public-private partnership effort, the first passive treatment system in the Aultmans Run Watershed has been constructed and is successfully treating an alkaline, iron-bearing mine discharge known as the SR 286 Discharge. For the first time in over 75 years, this abandoned mine discharge will no longer flow untreated into Aultmans Run.

To tackle this discharge, the Aultman Watershed Association for Restoring the Environment partnered with Stream Restoration Incorporated, a non-profit organization experienced in the implementation of mine reclamation projects. Together with a mining company and environmental firms, the team received a Growing Greener grant to design, permit, and install a passive treatment system.

The SR 286 Discharge emanates from a large underground mine outside the town of Aultman, PA. Early PENNDOT design plans from the 1930's indicate that the discharge was moved to its current location with the construction of State Route 286. cording to this plan, an 18" vitreous clay pipe conveys the water beneath State Route 286 from the mine into a trench that mpties into Aultmans Run. Due to the impact of the discharge to Aultmans Run and the high visibility along heavily-traveled State Route 286, this discharge was chosen to be the first major restoration project.

Monitoring supplied by the Stream Team, AWARE, and BioMost, Inc., indicates that the discharge is net alkaline (67mg/L) with

a moderate iron concentration (17 mg/L) and a maximum flow of 200 gpm. During low-flow conditions, the discharge is the major source of water to the stream. Due to this pollution, aquatic organisms within Aultmans Run have been impacted. Aultmans Run is classified as a trout-stocked fishery. One of the main goals of AWARE is to improve the health of Aultmans Run to become a viable fishery throughout its entire length.

Macroinvertebrates are important indicators of the health of streams. In a study conducted by the PA Department of Environmental Protection, Bureau of Mining and Reclamation in the summer of 2001, macroinvertebrates with low tolerance to pollution were found upstream of the discharge, while none were found downstream. Every year, over 11,000 pounds of iron enter Aultmans Run suffocating macroinvertebrates and destroying their habitat. As a result of the iron deposition, this primary food source for trout is no longer available.

Based on the available monitoring data and the accepted principles in passive treatment technology, a system consisting of a 730 SF forebay and a 25,000 SF aerobic wetland was designed to treat the discharge for an estimated 25 years. Construction began by Amerikohl Mining, Inc. on December 17, 2003 and was completed within one month.

The forebay collects the discharge and equally distributes the flow to the wetland. The wetland has a large surface area to maximize the oxidation, precipitation, and accumulation of iron. In order to provide a high wetland plant diversity to increase habitat value, the wetland has small elevation variations, known as microtopographical relief. The innovative design also incorporates a 4,000-SF existing, degraded wetland to provide additional treatment area.

Samples taken on April 2, 2004 indicate that the system is successfully removing about 10 mg/L of iron with a flow of over 175 gpm, nearly the maximum flow ever seen at the site! Below is a table of field analysis of the results:

Sampling Point	Lab pH	Alkalinity	Acidity	D. Fe	D. Mn	D. Al
Raw	6.7	79	-55	14	<1	<1
Constructed WL Effluent	7.3	71	-57	6	<1	<1
Existing WL Effluent	7.3	77	-65	4	<1	<1

Note: Lab pH measure in S.U.; alkalinity, acidity, D. Fe, D. Mn, and D. Al measured in mg/L; D- Dissolved

Not only is this wetland expected to remove 5.5 tons of iron from Aultmans Run every year, it also provides beneficial wildlife habitat. Later this spring, the wetland will be planted with a variety of native species with the help of Indiana University of Pennsylvania students and the local community. These plants will encourage oxidation and help filter the iron particulates from the water.

This SR286 Passive Treatment System has been a valuable project for the community and will be the model for future restoration efforts. If you would like to be involved in this project or become a member of AWARE, please contact Brian Okey at (724) 357-3766.

For General Information or to Contact the Webmaster: sri@streamrestorationinc.org

Website Developed and Maintained by
Stream Restoration Incorporated

THE CATALYST

SLIPPERY ROCK WATERSHED COALITION MONTHLY ACTIVITIES UPDATE

THIS MONTH'S MEETING: Due to the symposium there will be no meeting this month. We hope to see you at the symposium!!! 3/13/03 Meeting Attendance: D. Johnson, C. Cooper, V. Kefeli, C. Denholm, W. Taylor, S. Busler, T. Danehy, M. Dunn, K. Lanich, J. Belgredan, S. Smith, C. Treter, and D. Treter

SRWC 8th Annual Symposium This Month April 10, 11, and 13!!

Thursday April 10th at Grove City College 6 pm to 9 pm

Investigating Watershed Issues: Supporting Student Research Through Public/Private Partnerships

The following are the students, titles, and topics that will be presented:

Suman Basyal (Slippery Rock University, SRU), "Poplar (*Populus nigra L.*) Cuttings in a Soil Model System." (Plant Propagation)

Todd Fleckenstein, John Greene, Kevin Hasbrouck, and **Gwen Kennedy** (Westminster College), "Phytoremediation: Can Duckweed and Parrot's Feather Effectively Reduce Concentrations of Aluminum and Manganese from Acid Mine Drainage to EPA Standards for Surface Water?" (Water Research)

Ryoko Funada (SRU), "Quantitative Determination of Hydroxy-coumarin (Umbelliferone) by a Combined Method of Chromatography and Color Change." (Soil Science)

Sarah Grabowski (Grove City College, GCC), "The Impact of Acid Mine Drainage on the Seaton Creek Watershed." (Water Research)

Michele Gauger and **Dr. Steven Doherty** (SRU), "Forest Stewardship Strategy and Assessment for Slippery Rock University Forest Properties." (Forest Stewardship)

Merina Manandhar (SRU), "Qualitative Reactions for the Determination of Phenolics in Willow and Poplar Composted Leaves." (Soil Science)

Molly Martinchek and **Joselyn Hohenwarter** (SRU), "Annual Report on the Vertical Flow Treatment System at the Jennings Environmental Education Center." (AMD)

Nicholas Morgan (GCC), "Macroinvertebrate Survey of Limestone Treated Streams in the Slippery Rock Watershed." (Ecosystem Recovery)

Mahesh Pun (SRU), "Willow (*Salix purpurea L*.) Propagation in the Fabricated Soil." (Plant Propagation)

Shawn Rummel (GCC), "The Relationship Between Vegetative Characteristics and Grassland Bird Communities Inhabiting an Old Field Community and Reclaimed Surface Mine in Clarion Co., Northwest PA." (Wildlife Biology)

Also Join Us for the Following Programs!!

Friday April 11th at Jennings Environmental Education Center 8:30 am to 3:30 pm

8th Annual Slippery Rock Watershed Coalition Symposium

The keynote speaker for this year is **Eric Thumma** Deputy Secretary for the PA DEP. This year's program will include a presentation and a "hands on" simulation to help those in attendance understand what is involved in designing and building a passive treatment system. A field tour of some of the SRWC's passive systems will round out the day (appropriate field attire recommended). Lunch is provided. Pre-registration is preferred but not required. Those who pre-register will receive a **free t-shirt** to commemorate the event. (See below for registration information.)

Sunday April 13th at Jennings Environmental Education Center at 2 pm

Community Day, "Richard Pawlings 'History Alive' Fire in the Hole!"

Learn of life in the "patch," the company store, the progression from breaker boy to "miner with papers," the Mollie Maguires, and the United Mine Workers Strike of 1902 through the talents of Pennsylvania's national award-winning, living-history performer Rich Pawling. This unique event will be a wonderful conclusion to this year's symposium, please be sure to join us!!!

For More Information:

If you have questions about any of the events listed above or would like to pre-register for April 11th, please call Deanna Treter at 724-776-0161 or e-mail sri@salsgiver.com. Hope to see you there!!!

PHOTO OF THE MONTH

PHOTO OF THE MONTH

SRWC Participants Posing with the Dominion Community Impact Award!
Front Row: Tim Danehy, Kim Lanich, Deanna Treter, Margaret Dunn, and Janice Belgredan
Back Row: Dave Johnson, Will Taylor, Cliff Denholm, Chris Treter, Shaun Busler, Valentine Kefeli, Steve Smith, and Charlie Cooper

Dominion Community Impact Award Luncheon at the Renaissance Hotel in Pittsburgh

On Wednesday March 12th, Stream Restoration Inc. employees headed downtown for a wonderful luncheon to receive the **Dominion Community Impact Award for 2002**. Stream Restoration was honored for its work in the Slippery Rock Creek Watershed, highlighting specifically the Goff Station Restoration Area Project. The award money will be used for education and outreach purposes. Those who attended were: **Margaret Dunn, Tim Danehy, Shaun Busler, Cliff Denholm,** and **Deanna Treter**. Congratulations to the other award winners: **The Progress Fund**, **Hosanna House**, **Homeless Children's Education Fund**, **Connect, Inc.**, **Nazareth Housing Services**, **Adams Memorial Library**, and **Conservation Consultants, Inc**. Everyone had a wonderful time getting to know the other award winners and the Dominion employees. There was delicious food and beautiful centerpieces comprised of cookie-flower bouquets with each award winners name on a cookie as well. In the photo above you can see SRWC participants posing with the award and great cookies, which we enjoyed during our monthly meeting. Thank you Dominion for the luncheon and award! All the hard work Dominion does to recognize and promote community programs is greatly appreciated!!!!

We Picked Up Trash Along I-79 Friday March 28th

Once again we were out picking up trash along our stretch of I-79. We met at the "park 'n ride" off of exit 99 and had our picnic lunch. The "treasures" that accumulated during the long hard winter were collected by a dedicated bunch of real garbage go-getters! No snow that day but plenty of trash. It was very windy and those who helped deserve a round of applause: **Margaret Dunn, Tim Danehy, Shaun Busler, Cliff Denholm, Charlie Cooper** and **Deanna Treter.** Thank you to all those who helped! Reserve June 27th on your calendar for the next trash pick up day!

Addition to Last Months Catalyst

We are deeply sorry for failing to include the names of all the people in the photo to the right. **Jim Mondok** is the Mercer County Conservation District Manager and he is on the far left of the picture. **John Schombert** is the Executive Director of the 3 Rivers Wet Weather Demonstration Program (www.3riverswetweather.org) he is on the far right of the picture. Both are leaders in environmental protection and conservation and deserving of more recognition than we alone can give!!!

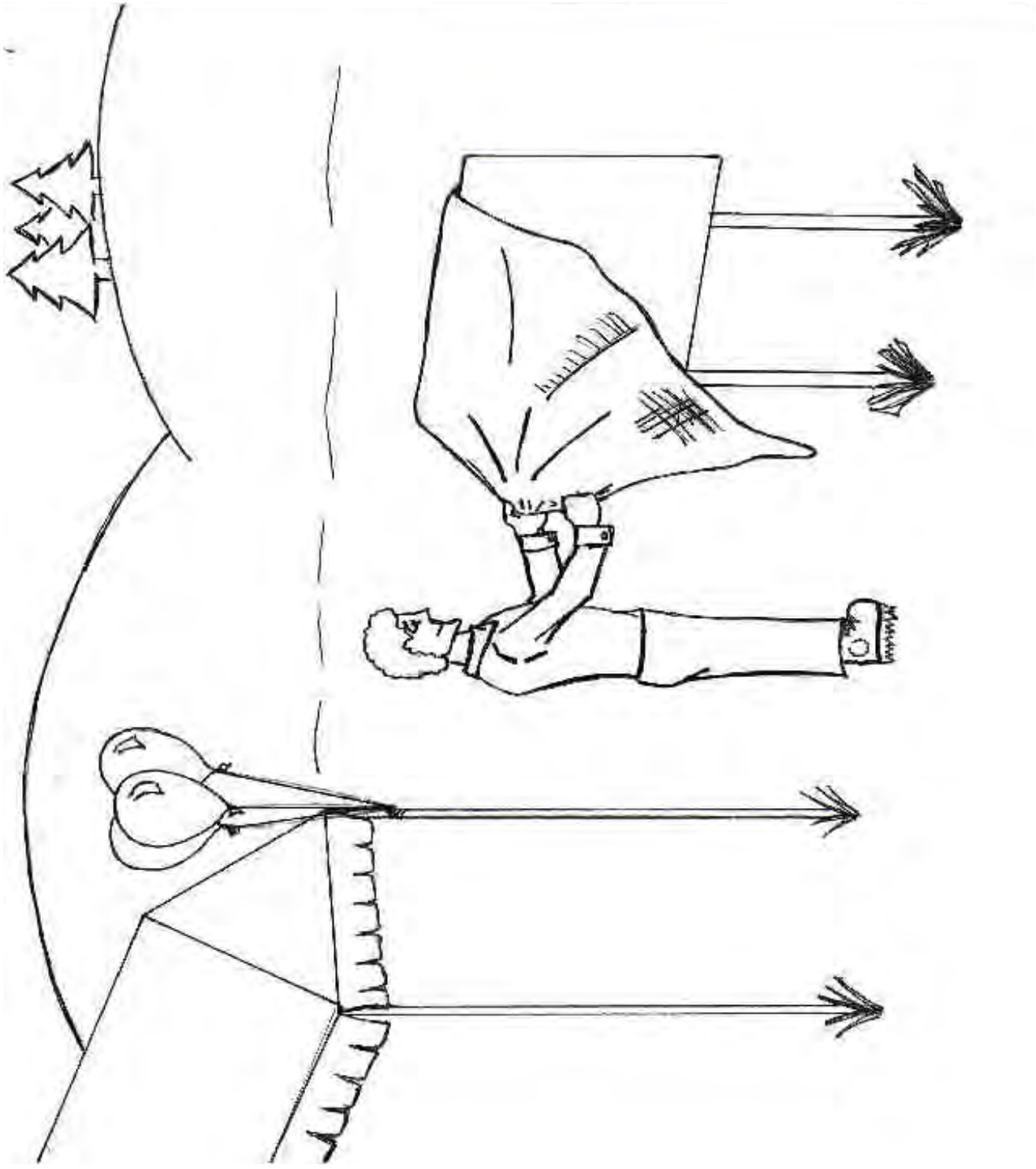
The KIDS Catalyst

SLIPPERY ROCK WATERSHED COALITION FUN ACTIVITY

Color your own groundbreaking!!!

On the back of this months catalyst there is an article about a groundbreaking with a sign unveiling. A groundbreaking is when people get together to start the work on a project. Color the picture below for your own groundbreaking!! When you are done send it back to us for a free gift certificate!

The first person to send back the word search from last month was Katrina Bonetti! Thanks Katrina!



Name _____ Age _____ Address _____

Slippery Rock Watershed Coalition c/o Stream Restoration Incorporated
A PA Non-Profit Organization
3016 Unionville Road
Cranberry Twp., PA 16066

NONPROFIT
ORGANIZATION
U.S. POSTAGE
PAID
PERMIT NO. 434
CRANBERRY, PA

Thanks to The William & Frances Aloe Charitable Foundation, Environmentally Innovative Solutions, LLC, Dominion, Amerikohl Mining, Inc., Quality Aggregates Inc., BioMost, Inc., Allegheny Mineral Corporation and PA DEP for their support. For more information contact: Slippery Rock Watershed Coalition, c/o Stream Restoration Incorporated (PA non-profit), 3016 Unionville Road, Cranberry Twp., PA 16066, (724)776-0161, fax (724)776-0166, sri@salsgiver.com, www.srwc.org. April Distribution: 1000 copies

Highlighting **O**ther **P**artnership **E**fforts (HOPE!)

Partnering with Aultman Watershed Association for Restoring the Environment (AWARE)

On Friday March 21st, residents, local and state officials, project partners and AWARE members came together for the groundbreaking of the Aultmans Run Restoration Area. The project will consist of a 1/2-acre wetland that will treat an iron-laden discharge from a gravity drain from an old, abandoned, underground coal mine. The wetland will be planted with native vegetation to promote wildlife habitat. [With the completion of the proposed work we expect to prevent approximately 11,000 lbs/year of iron from entering Aultmans Run helping to restore this Trout Stocked Fishery!] This project will be the first discharge treated in this watershed and is very visible along State Route 286. Many people attended the groundbreaking, which ended just as heavy rains were moving in! Here is a list of those who were in attendance for the event: **Brian Okey** AWARE and IUP; **Bill Shane** and **Bernie Smith**, Commissioners of Indiana County; PA State Rep. **Dave Reed**; **Joe Allison**, **Malcolm Crittenden**, **Scott Alexander**, and **Jeff Fliss** from the PA DEP; **Lee Roy Vatter** of the Crooked Creek Watershed Assoc.; **Fred Johnson**, Amerikohl Mining; **John Somonick**, **Judith Aker**, **Carol Cummins**, **William Frain Sr.**, **Donald Burkett**, **Ann Burtick**, **Paul Calvetti**, **Carl Trout, Ken Marshall, Beth Marshall,** and **Bill Altimus** of the Aultman Watershed Association for Restoring the Environment (AWARE); **Kim Lanich** and **Dave Jessloski**, Aquascape; **Margaret Dunn**, **Tim Danehy**, **Shaun Busler**, **Cliff Denholm**, and **Deanna Treter**, Stream Restoration Inc.; **Payton Harvey** and **Angela Walker**, area residents; as well as **Rebecca Coleman**. The photo shows everyone gathered as we unveil the sign that will be placed at the site. Thank you to

We are all in this together! The groups involved in this endeavor: Stilley (landowner); Aultman Watershed Association for Restoring the Environment (AWARE); PA DEP-Cambria DMO; PA DEP-BMR; Amerikohl Mining Inc.; Aquascape; BioMost, Inc.; Stream Restoration Inc.; Western Pennsylvania Watershed Protection Program; Volunteers.

THE CATALYST

SLIPPERY ROCK WATERSHED COALITION MONTHLY ACTIVITIES UPDATE

THIS MONTH'S MEETING: Thursday August 12 at 7pm Jennings Environmental Education Center, pizza and pop will be provided. 7/8/04 Meeting Attendance: S. Busler, C. Cooper, T. Danehy, C. Denholm, M. Dunn, D. Johnson, V. Kefeli

BC19/19B: A New Beginning for Blacks Creek

For nearly a century Blacks Creek has flowed red-orange with iron from the many sites where coal was extracted. According to a Total Maximum Daily Load (TMDL) Report for the Blacks Creek Watershed by the PA Department of Environmental Protection (Knox), all impairments related to high levels of metals were caused by abandoned mine drainage. A total of 7 discharges were documented to contribute to these elevated levels of metals.

In June 2004, the Slippery Rock Watershed Coalition began construction of its newest passive treatment system and is the first to be built in the 7-square mile Blacks Creek Watershed. This system will consist of an aerobic wetland that will treat two discharges. The alkaline, iron discharges, known as BC19 and BC19B, flow from abandoned oil wells creating large iron plumes in Blacks Creek. The wetland will help oxidize and settle the iron solids before entering Blacks Creek.

Thanks to **John Stoops, Mike Colossimo, and Wayne Fuchs of Quality Aggregates, Inc.** for all their hard work in constructing the wetland in less than ideal site conditions! To date, the site has been lowered to the approximate bottom elevation of the wetland basin and the outside berm next to Blacks Creek is nearly complete. This project would not be possible without the support of **PA DEP's Growing Greener Program, Butler County Commissioners, Western Pennsylvania Watershed Program,** and in-kind contributions from project partners.

Join Us on the 3rd Annual Riverboat Cruise!!!

Next month is the **3rd Annual Ohio Watershed Riverboat Cruise**, and we want ***you*** to be a part of the fun! Please join us for a ***free*** voyage on the Ohio River **September 16** aboard the Gateway Clipper Fleet's magnificent Majestic. Over 425 participated in this great event last fall and we know this year's cruise will be just as fun! Join watershed groups, professionals, local and state government officials, private business, industry, educators, and all those interested in learning more about the Ohio River Watershed. Pre-cruise festivities will begin at 11:00 AM, and boarding starts at 12:30 PM at Station Square in Pittsburgh. We will sail the Ohio from 1:00 PM until 4:00 PM. A guided narration including points of interest that we pass along the Ohio, a trip through a lock and dam, interesting presentations, networking opportunities, poster displays, free snacks, and great door prizes await you! Topics to be presented and discussed include the history of Neville Island, river ecology, the workings of a lock and dam, water wells, sediment control, the new water resources law, and more! Hopefully we can duplicate the perfect weather we enjoyed last year! **UPDATE!!! A producer of PBS documentaries has just asked if he could film some of the festivities for his latest project!!!**

If your group would like to bring a poster display, limited space is available at no cost on a first-come first-serve basis. For additional information or to register for the cruise, visit **www.streamrestorationinc.org/rsvp** or call Margaret Dunn at 724-776-0161 or Maggie Hall at 412-442-4000. We hope to see you there!!

PHOTO OF THE MONTH

Have you ever wondered how The Catalyst gets done? Here is the mastermind behind your monthly update newsletter on the happenings of the Slippery Rock Watershed Coalition! Look for next month's special feature: an article on Gerber rice cereal vs. sweet potatoes! (Pictured here is Isaac Busler, 7 months old, son of the SRWC's Melissa Busler, who helps Isaac just a little with The Catalyst).

PHOTO OF THE MONTH

It Was a 'Diverse' Workshop at Jennings

The diversity of life on this planet is astounding and vitally important to the health of the environment. Yet, biodiversity at all levels—genetic, species, and ecosystem—is a current issue that few understand. On June 23 at **Jennings Environmental Education Center**, twenty-three local educators had the opportunity to explore Pennsylvania's biodiversity by participating in hands-on activities that investigated the concepts of biodiversity and examined local and global issues related to biodiversity. **Theresa Alberici, Pennsylvania Game Commission**, and **Terri Kromel, Pennsylvania Bureau of State Parks**, unveiled a brand new teacher resource entitled Window on the Wild: Biodiversity Basics, A Pennsylvania Supplement. This informative activity guide is designed to be a local supplement to the World Wildlife Fund's national curriculum. Teachers received both publications. Excited teachers were amazed at the wealth of information found in this valuable new resource and everyone had fun participating in the creative, educational, and entertaining activities. "It's in the Genes", "Creature Connection", "Pennsylvania Biodiversity I.Q." and "The Case of the Endangered Species" are the titles of just a few activities the teachers got to experience. A tour of the unique Jennings prairie and an introduction to the resident endangered species, the Massasauga rattlesnake, were also provided. This workshop will be offered throughout the state this summer. For more information about how to attend, please contact Theresa Alberici at **talberici@state.pa.us**.

Diverse Experiences for an Intern

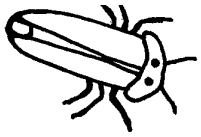
This week a new intern from **Quality Aggregates Inc.** has graced us with her presence. Her name is **Maggie Tilson** and she travels all the way from sunny and beautiful Neville Island to learn more about stream restoration. She will be helping out in the office and observing some field work. While not interning, Maggie attends the University of North Carolina-Chapel Hill, where she is currently in her Sophomore year studying biology. Although her passion is mainly medicine, Maggie attended a Duke summer camp at which she learned to love ecology and geology as well. For the remainder of the summer, Maggie will continue to intern for Quality Aggregates and Aquascape. So far this summer, she has helped plant a wetland and maintain the nursery for Aquascape. These past few months have been a tremendous learning experience for Maggie; participating in everything from the business aspect of a company to the manual labor involved in making a company a success, she now has skills and memories that will come in handy in the future.

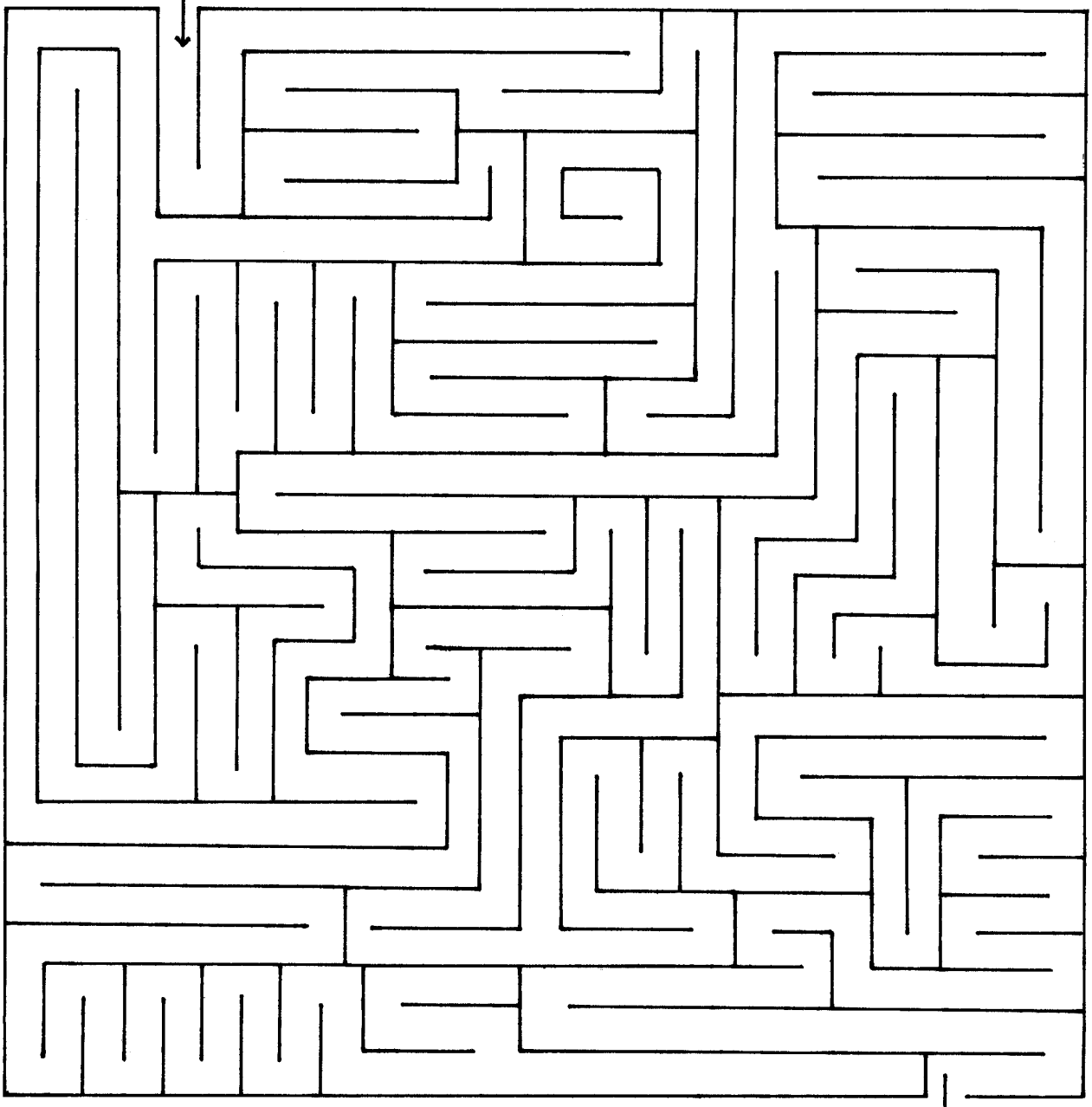
The KIDS Catalyst

SLIPPERY ROCK WATERSHED COALITION FUN ACTIVITY

Mighty Maze

Have you noticed lots of fireflies at night this summer? Did you know the firefly is the official state insect of PA? "Bioluminescence" is the scientific word that describes how these insects produce light to glow—a chemical reaction is taking place. Fireflies give off light to warn predators to stay away and also to attract other fireflies of the opposite sex by flashing certain patterns of light like a signal. It's fun to try to catch fireflies and watch them glow. In the maze below, see if you can get the firefly into the jar! Send us your paper and we'll mail you a free gift certificate! Good luck!

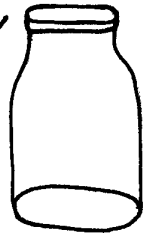




Name: _____ Age: _____

Street Address: _____

City: _____ State: _____ Zip: _____



Slippery Rock Watershed Coalition c/o Stream Restoration Incorporated
A PA Non-Profit Organization
3016 Unionville Road
Cranberry Twp., PA 16066

NONPROFIT
ORGANIZATION
U.S. POSTAGE
PAID
PERMIT NO. 434
CRANBERRY, PA

Thanks to The William & Frances Aloe Charitable Foundation, Environmentally Innovative Solutions, LLC, Dominion Peoples, Amerikohl Mining, Inc., Quality Aggregates Inc., BioMost, Inc., Allegheny Mineral Corporation and PA DEP for their support. For more information contact: Slippery Rock Watershed Coalition, c/o Stream Restoration Incorporated (PA non-profit), 3016 Unionville Road, Cranberry Twp., PA 16066, (724)776-0161, fax (724)776-0166, sri@streamrestorationinc.org, www.srwc.org. August Distribution: 1219 copies

Highlighting **O**ther **P**artnership **E**fforts (HOPE!)

Wetland Planting in the Aultmans Run Watershed

On the cool, overcast Saturday of July 17, **Bob Beran** and **Maggie Allio** of **Beran Environmental Services** and **Shaun Busler** of **Stream Restoration Incorporated** met with about a half dozen volunteers at the SR286 Passive Treatment System in Center Township, Indiana County, to plant an aerobic wetland. The volunteers, from the **Aultman Watershed Association for Restoring the Environment (AWARE)**, diligently worked for four hours planting hundreds of plants and reconfiguring a portion of the wetland. **Thanks to Brian Okey, Michael Poage, Carol Cummins, Carl Trout, and Harry Charles of AWARE** for making a difference in their watershed! Only native species were planted including: smart weed, three-way sedge, spatterdock, and burreed. The work on the 17th helped to quickly establish plant growth, which helps to treat the water that has been severely degraded due to an abandoned mine. In addition, the volunteers added new species of plants to those that had naturally established themselves within the wetland to create diversity.

The area was mined extensively for coal by R & P in the early 1900s. The discharge, a gravity drain from an abandoned underground mine, is conveyed by a clay pipe from the mine under S.R. 286. The discharge was then conveyed by a ditch to Aultman Run. With numerous partners, the ditch was expanded into a large aerobic wetland from mid-December 2003 through January 2004. Data gathered from the last sampling event, June 10, indicated the wetland is indeed performing as hoped. The raw mine water contained 13.8 mg/L dissolved iron, while the treated water contained only 1.6 mg/L dissolved iron.

It is encouraging to see the beautiful wetland emerging at this very fertile site! Thank you AWARE volunteers for your help in creating a habitat sure to be utilized by many types of wildlife! **Matt Beran**, age 9, also attended the event and verified that wildlife was indeed using the wetland already. He caught one of the numerous toads hopping around the vegetation. If you are interested in joining AWARE or volunteering with future projects such as this one, please contact Brian Okey of AWARE at (724) 357-3766 or Shaun Busler of Stream Restoration Inc. at (724) 776-0161.

The Village of Aultman

By:

Donald E. Burkett

The Village of Aultman

By: Donald E. Burkett (A resident of Aultman since 1940)
Taken from recollections of older residents of the village.

Aultman is a small ex-coal mining town located approximately 7 miles south and east of Indiana, Pa. and approximately one half mile north of Traffic Route 286. Construction of this town was began in the year 1912 on a 187 acre tract of land formerly owned by Elizabeth Rhea and was completed in the early 1920's. Aultman was named by the local farmers who lived in the area for a small stream called Aultman's Run. The village, when completed, consisted of one hundred seven wooden frame houses, three brick homes, a mine shop, a mine office, a community hall, a doctor's office and a company store. The brick homes were for the superintendent and foreman and the wooden homes were to house the miners and their families. These homes were of two sizes, either a four room small house or a larger seven-room home. The Hyde Murphy Construction Company did construction of these homes. There were no double houses in Aultman. It is the only mining town in the area without a double home. Aultman has one other feature not seen in many coal mining towns. That feature being a suburb. This suburb is widely known as the Ten Commandments as there are 10 houses along route 286. We local people refer to this as No. 5 having reference to the No. 5 mine Shaft in that area.

The company store was the source of our being while I was growing up in Aultman. They sold anything and everything from foodstuffs and meats to furniture and even boats motors and trailers. As most of you already know everything was bought on books and when payday came around they just took the money owed them and gave you whatever was left from your wages. Most people know that not much was left. Most of the men on payday received a statement with what they called "snakes" on them meaning that they received no money. At some point it became a law that they had to give you at least five dollars for wages. People have poked fun at company stores, but if you were brought up during that period, it was not all-bad . The quality of the products they sold was good and they did have the best meat that money could buy at that time. The town's post office was housed in the company store. This made the company store a community meeting place where everyone met and had a good time. The store shut its doors in 1957and the post office was moved into a private home. Jennie Bloomquist from where the Post office operated owned the first home. In remained there until 1960. In 1960, Janet Fairbanks became the postmistress and the post office remained in her home until 1988. When she retired the postal department erected the post mounted boxes along the main road where everyone now walks to receive the mail.

The mines were at their peak production in the year of 1928 with 2000 tons mined daily when the mines were working at full capacity. It was shortly after this that the mines hit a fault and was closed although the shafts are still visible today if you know where to look for them. At its peak there were five shafts. The BR&P Railroad transported the coal from the mines to its final destination. This railroad also brought goods to the company store. After the closing of the Aultman mines, most of the miners were transferred to the McIntire mines and this same railway then was used to transport the miners to their workplace. I have still to find out what year they quit running the railroad to Aultman. Mr. Lanich of Coal Run Pennsylvania purchased his first buses and took over the transporting of miners to McIntire and from this the Lanich Buslines came into being. To this day they are still in operation in Jacksonville, Pa.

The year of 1921 is an important year in the history of our community. It was in this year that the original water system was put into operation. Prior to this time, a gas-operated pump was located in the front of house no. 363; the concrete slab is still there. This is where all the people drew their water. The new well was drilled just east of the mine office and a 22,500-gallon wooden tank was constructed on the hill near where the ball diamond would be constructed at a later date. The R&P Coal Company provided a person to maintain this water system. His name was G.W Kinter whom also took care of the repairs to the houses. This water was the best in the area until after the town was sold and some mine water infiltrated through the deteriorating pipes. A new Water System was installed in Aultman by I.C.M.S.A. This was the first water system that they were responsible for construction and operating.

Around the year 1946, the ball diamond was constructed near the old water tank. Aultman, as did most other coal mining towns, had a company sponsored ball team. They were called the Aultman Terriers. They were not the best of the teams but they all had fun playing the game. The ball field is now just a memory of the past.

In the year 1947, the R&P Coal Company gave the miners living in the homes the opportunity to purchase these homes. The houses were sold for the price of 700 dollars for a small house and eleven hundred dollars for the larger houses. The remaining homes that were not bought by the renters were sold to Kovalchick Salvage Company in 1949.

Aultman had it's own elementary school like all other coal mining towns. It housed all eight grades for primary education and then it was off to Homer City High School then Laura Lamar high school and now Homer Center High School. The original school burned down and the new school was constructed on its present site in 1932. Unfortunately that school was closed for cost cutting reasons in 1960. To this day I cannot understand why at that time they would close a perfectly good brick school building and send our children to some wooden frame schools, such as Rissinger School and Lucerne School. The Aultman School building now houses TiJohn Industries

Electricity as we know it today was brought into Aultman in 1950. Prior to that time, the electricity was provided to the town at no cost by the Coal Company. It was 25 cycle and all the lights glowed yellow and all motors had to be changed to accommodate the 25 cycle and then changed back when 60-cycle electricity was introduced. The Christmas of 1950 was when I received my Lionel Electric Train, which I still have in my possession today.

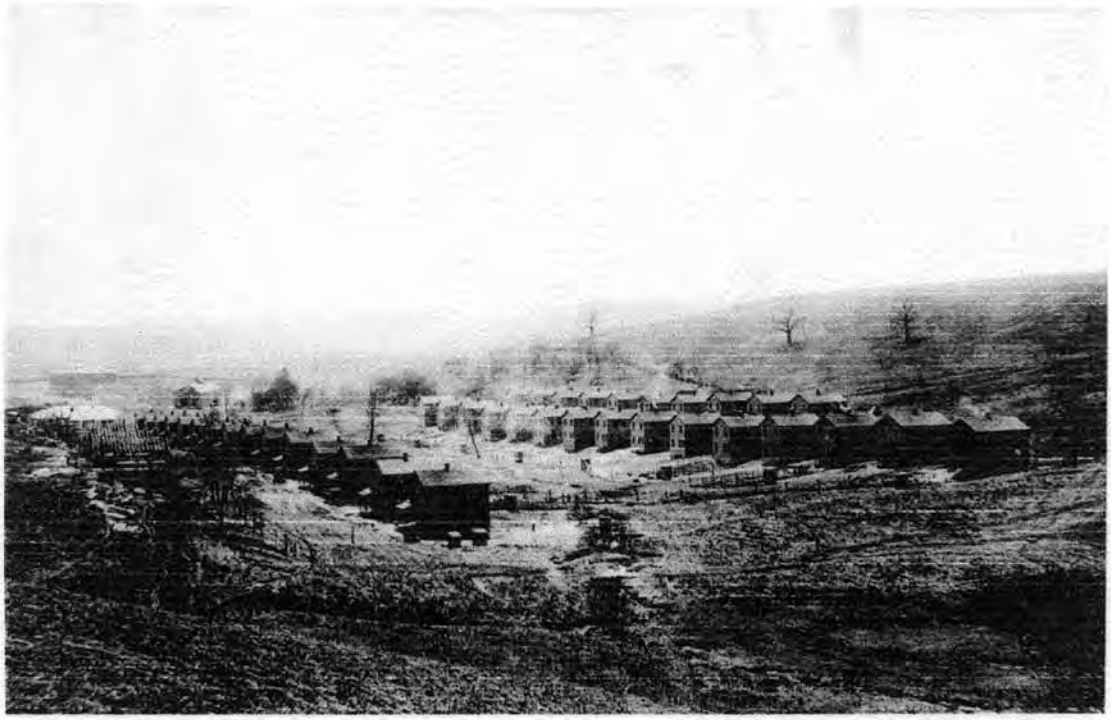
The Fire Company was started in the 1960's after some serious fires had destroyed some homes in the town. It is still in existence today. The irony is that the Fire Company had to bounce back from of all things a fire that completely destroyed all of the building and equipment.

T. W. Phillips Gas and Oil Company of Butler Pennsylvania brought natural gas to our community in 1967. Prior to this, the houses were heated by coal. At this juncture, coal was becoming increasingly scarce, so an alternative-heating source had to be found. Few homes at this time were being heated with oil and even fewer were using L.P. gas.

In the early 1970's a group of ladies from the town of Aultman formed a group calling themselves "Parents for Playground". Through the efforts of these Ladies the town of Aultman opened it's own Playground. The Aultman Volunteer Fire Association donated the land on which it was built. This was the first playground in the Homer Center area and through the effort of these ladies a new group was spurred. This new organization is called the Homer Center Parks and Recreation Department.

Aultman was the first coal mining community to have it's own sewage system . This pilot project was started the summer of 1979 and was in service in December of that year. This plant was initiated with a HUD grant of 114,000 dollars obtained by the county commissioners. The tap in fee for Aultman was set at 150 dollars . Compare this to the fee that you in the Homer City area paid this year.

TOWN - AULTMAN, PA - - INDIANA COUNTY AROUND 1912-1914 OR 20

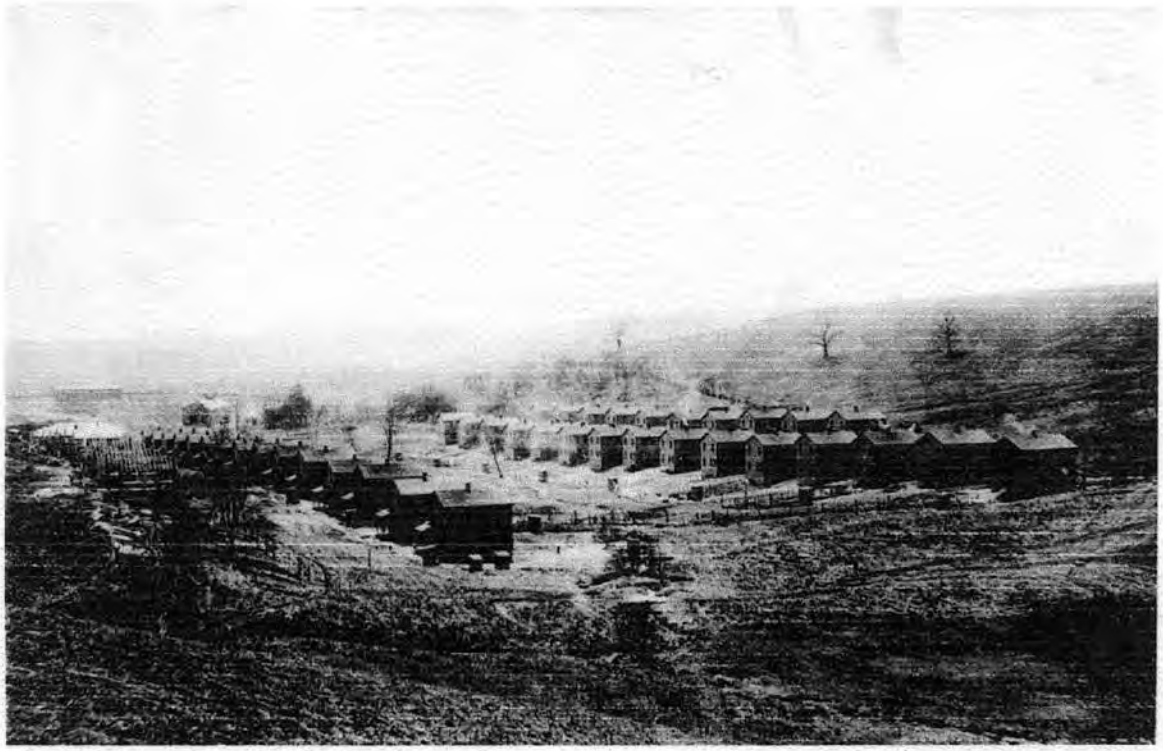


1ST - 50 homes built in 1912 - 1) on left, near middle between top and bottom, are some of houses going up;

2) top left is the coal tipple and to its right is the machine shop for the mine (which sometimes included the substation).

3) "Out-houses" were small buildings back of the houses.

TOWN – AULTMAN, PA – – INDIANA COUNTY AROUND 1912–1914 OR SO



1ST – 50 HOMES BUILT IN 1912 – 1) ON left, NEAR middle BETWEEN top AND bottom, ARE SOME OF houses going up;

2) top left is the COAL tipple AND to its right is the MACHINE shop FOR the MINE (which SOMETIMES INCLUDED the substation).

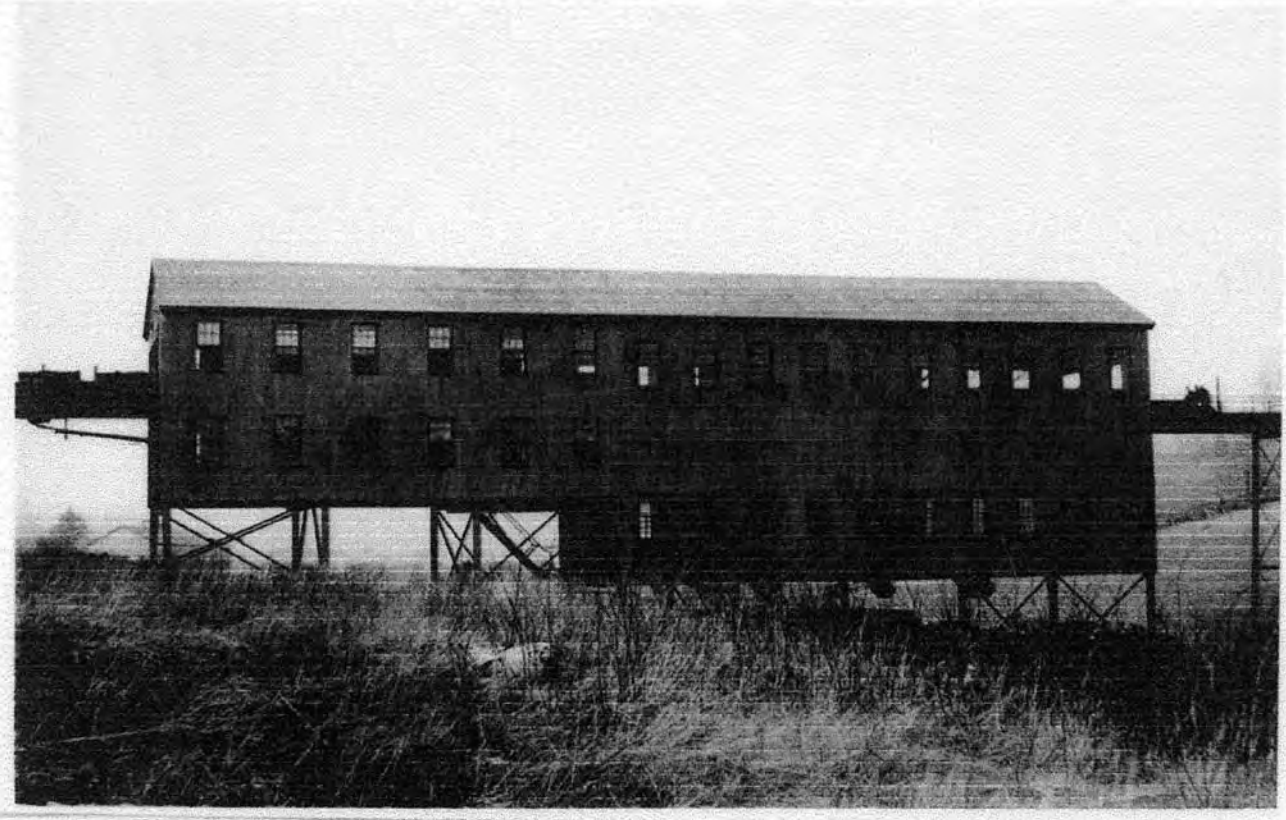
3) "Out-houses" WERE small buildings BACK OF the houses.

Aultman Bridge - "Old Route 80 - much later Rte 286"

Old Route 80 bridge went over the railroad tracks which went to the tipple. The track went across the road (by now, 1998 is Pete Fancella's home) across a small creek and behind homes "called 10 Commandments" and up to, New Route 217, and behind (now) Ed Sledzik's garage - then on to Jacksonville (Kent) railroad station. Behind railroad station, past some houses and across road below Golden Pheasant Inn/Bar - between "Harvey's House" and the road to Coal Run. Switch located here and track went left past "Valyo/Campitella house and right to Coal Run and McIntyre mines.

1912-1914

Aultman Tipple



Coal cleaned, dumped into railroad cars and on for delivery.
Located on outskirts of town (Aultman) and near railroad and Route 80.

1912-1914

Aultmans Run Watershed, Indiana County, Pennsylvania
Qualitative Watershed Assessment

(Draft)

PA Department of Environmental Protection,
Bureau of Mining and Reclamation

October 2001

Aultman Run Watershed
Indiana County
Pennsylvania

Qualitative Watershed Assessment
Conemaugh River/Blacklick State Water Plan Watershed – 18D
Stream Code – 43913

Environmental Studies Section
Division of Environmental Analysis and Support
Department of Environmental Protection

October 2001

INTRODUCTION

During August 16,17, 30, and 31, 2001, a qualitative watershed assessment was conducted on Aultman Run, Indiana County. The Bureau of Mining and Reclamation, in conjunction with interested parties (Aultman Watershed Association for Restoring the Environment, Stream Restoration Inc., and the Cambria DMO), initiated a preliminary, baseline study of the watershed for future planning and remediation work. One tributary of Aultman Run, Reeds Run, is on the 303 (d) list for determination of Total Daily Maximum Load (TMDL). In response, Bureau of Mining and Reclamation and SRI staff planned and implemented collection of data at approximately twenty sites. The sampling stations include main-stem, unnamed tributaries, and mine drainage discharges. A map labeling the sites are on page 1 through 4.

GENERAL WATERSHED DESCRIPTION

Aultman Run is a tributary of the Conemaugh River in the Ohio River basin. The watershed lies in Blacklick and Center Townships, Indiana County, PA. The drainage encompasses 28.3 square miles and flows in a southerly direction. The headwaters of Aultman Run are a series of spring/wetland fed tributaries that flows approximately 13.0 stream miles into Blacklick Creek. Elevations range from 1002 to 1201 feet and contain relatively flat rural and forested lands with some gently rolling hills of low relief.

METHODS

At each sampling station, water samples were collected by the grab method using a 500 ml bottle and two 125 ml bottles (Nitric and Hydrochloric acid fixed). Field meters were used to measure air and water temperature, specific conductance, dissolved oxygen, pH, and flow.

Benthic macroinvertebrates were collected at sites with a potential for life using a qualitative "kick screen" method. Relative abundances of each taxon were examined and representative specimens were preserved in alcohol and returned to the lab for identification.

WATER QUALITY

Water quality data is summarized on Table 1 and 2. This section will discuss chemical trends in Big Run from the headwaters to the mouth. Stations AUL10, UNT16, AUL09, and UNT15 represent the headwaters. AUL10 was not sampled due to the lack of substantial flow. UNT16, AUL09, and UNT15 lab analysis indicate nothing that would impact Big Run. UNT16 and downstream station AUL09 shows an increased value in total iron. The segment of Big Run between AUL09 and AUL08, does not differ much in parameter values. UNT14 enters between AUL08 and AUL07. It was not sampled due to the lack of substantial flow. Likewise, water quality does not change much upstream from AUL07. One exception is the almost doubling of total iron values. Just downstream from AUL07, is a mine discharge aside Route 286 (UNT08A). UNT08 is an alkaline discharge with high concentrations of metals, especially Iron. UNT13 represents a station on an unnamed tributary flowing south through the town of Aultman. It's values show clean water quality. UNT12 is an accumulation of UNT12A, UNT12B, and UNT12C. A moderately low pH and elevated levels of metals indicate a possible influence from

mining along the tributary labeled UNT12C. UNT11 and UNT09 have water quality values associated with clean streams. UNT10 and UNT08 were not sampled due to the lack of substantial flow and therefore made sampling in-stream station, AUL06, unnecessary. Despite the impact of UNT08A (Rt. 286 discharge, under powerlines), water quality actually improves down to station AUL05. Alkalinity, pH, and acidity remain roughly the same. Metal concentrations decrease greatly, especially total iron.

A comparison of lab analysis data between AUL05 and AUL04 describes the impact of Reeds Run on Aultman Run. Although pH and alkalinity decrease minutely, total iron nearly doubles, total manganese, aluminum, and sulfates nearly triple. UNT07 is a station on a tributary that enters below AUL04 and exhibits good water quality values for pH, alkalinity, and metal concentrations. UNT06 shows the impact of this tributary flowing through an old strip mine. Alkalinity and pH are moderately low. While values for acidity and sulfates are up. There is also a noticeable increase in total manganese and aluminum. An unnamed tributary, station UNT15, enters downstream in a southeasterly direction. Values for alkalinity are relatively high in the tributary when compared to the rest of the stream. Water quality changes very little from AUL04 to AUL03. Coal Run, station COA1, has a low pH, but total iron, ferrous iron, manganese, and sulfates have high concentrations. The only major changes, between AUL03 to AUL02, are lower concentration values of total iron, ferrous iron, aluminum, and an increase in sulfates. UNT04, UNT03, UNT02, and UNT01 lacked substantial flow to sample and can be illustrated by examining the segment between AUL02 and AUL01. AUL01 has virtually identical values to AUL02.

AQUATIC BIOTA

The indigenous aquatic community is an excellent indicator of long-term conditions and is used as a measurement of both water quality and ecological significance. Habitat and benthic macroinvertebrate data was collected during August 16, 17, 30 and 31, 2001.

Habitat

The habitat assessment data is summarized on Table 3 and 4. In-stream habitat conditions were evaluated at each station. The habitat evaluation consists of rating twelve habitat parameters to derive a station habitat score (EPA Rapid Bioassessment Protocol for Use in Wadeable Streams and Rivers). The range of habitat score totals for Aultman Run stations were 138 to 184, generally considered to be a majority of sub-optimal to optimal habitat conditions.

Benthos

Benthic macroinvertebrate collection efforts included the PA-DEP Rapid Bioassessment Protocol III benthic sampling methodology. The PA-DEP RBPIII method is a modification of EPA's Rapid Bioassessment Protocols (RBPs; Plafkin, et al 1989). The collected and processed benthic samples serve as a basis for analysis and comparison of tolerance values to generally accepted water quality predictive scoring ranges. Low scores are indicative of poor quality and higher scores better quality (1-10). Due to stream degradation and lack of consistent numbers, the results were limited to a qualitative analysis (family and tolerance index).

Potential aquatic insect life was sampled at all stations. The numbers of individuals and kind of taxa were somewhat lower than could be found in physically similar stream systems. This could be attributed to past and current mining. A qualitative inventory was done and summarized here. The following stations: AUL02, COA1, AUL03, AUL08, and UNT13 were the only sites having populations. Families found at AUL02 are Hydropshychidae (TI 4), Polycentripodidae (TI 6), and Tipulida (TI 3). Hydropshychidae (TI 4) was the only group found at COA1 and AUL03. AUL08 had Corydalidea (TI 0), Decapoda (TI 6), Hydropshychidae (TI 4). Only one family, Tipulida (TI 3), was observed at station UNT13.

Fish

Fish were not sampled because of limited resources. Aultman Run does have adequate water quality and habitat to support fish populations.

TABLE 1 - WATER QUALITY SUMMARY

* Metal concentrations are measured in micrograms per liter; all others are in milligrams per liter, unless stated otherwise.

Station / Sample ID	UNT16	AUL09	UNT15	AUL09	AUL08	UNT13	UNT12	UNT11	UNT09	UNT08A	AUL04
Field Parameters											
Air T (°C)	26.9	21.1	27.8	21.1	32.3	19.2	28.3	23.2	23.2	22.1	30.3
Water T (°C)	19	22.6	20.7	22.6	23.7	15.4	19.1	19.5	19.5	16.5	23.3
pH	7.4	7.4	7.5	7.4	7.3	7.7	5.9	7.6	7.6	4	7.5
Cond (µmhos)	16	302	92	302	462	277	428	877	743	1120	1230
Dissolved O_2	5.9	6.4	7.4	6.4	7.5	6.7	6.7	7.3	Too Low	8.4	9.6
Flow (g/min.)	12.3	73.6	N/A	73.6	276.5	N/A	132.5	Too Low	Too Low	N/A	234.2
Laboratory Parameters											
pH	7.4	7	6.8	7	6.8	7	5	7.5	7.2	3.7	6.8
Alkalinity	108	90	48	90	58	78	7.8	128	88	0	60
Acidity	0	0	0	0	0	0	46.2	0	0	149.8	0
TSS	32	12	40	12	38	6	22	28	118	16	16
SO_4	26.1	28.3	29.5	28.3	35.8	155	214	49.3	332	459	393
Fe - tot.*	2420	1150	479	1150	1120	697	779.9	273	832	4710	1370
Ferrous Fe*	190	80	70	80	50	130	280	90	80	1570	150
Mn - tot.*	720	157	33	157	261	333	1430	48	131	6210	1160
Al - tot.*	342	219	410	219	869	< 200	1230	< 200	742	20400	755

TABLE 2 - WATER QUALITY SUMMARY

* Metal concentrations are measured in micrograms per liter; all others are in milligrams per liter, unless stated otherwise.

Station / Sample ID	UNT07	UNT06	UNT05	AUL03	COA01	AUL02	AUL01				
Field Parameters											
Air T (°C)	22.7	23.1	23.5	25.4	25.5	31	25.4				
Water T (°C)	18.6	13.6	16.4	25.4	25.2	21.3	18.9				
pH	7.9	5	7	7.5	6.5	7.5	7.5				
ond (µmhos)	832	805	843	1130	0	1026	1150				
Dissolved O_2	N/A	Too Low	Too Low	9.1	7.1	8.6	8.1				
Flow (g/min.)	57.8	0.2	Too Low	N/A	9.7	268.8	298.6				
Laboratory Parameters											
pH	8	4.7	7.2	6.8	6.8	6.8	6.8				
Alkalinity	192	8	374	60	60	64	60				
Acidity	0	24	0	0	0	0	0				
TSS	29	14	18	14	14	2	10				
SO_4	414	472	310	397.8	397.8	491	479.6				
Fe - tot.*	105	156	1340	1690	1690	566	524				
Ferrous Fe*	30	40	310	240	240	160	100				
Mn - tot.*	102	1090	2550	1280	1280	1280	852				
Al - tot.*	< 200	1250	< 200	876	876	< 200	< 200				

TABLE 3 - HABITAT ASSESSMENT SUMMARY

HABITAT PARAMETER	scoring range	STATIONS									
		AUL01	AUL02	COA01	AUL03	UNT05	UNT07	AUL04	UNT09	UNT11	UNT12
1 . epifaunal substrate 2 and upstream cover	0 - 40	36	32	20	34	36	36	32	36	36	36
3 . embeddedness (HG)/ pool substrate characterization (LG)	0 - 20	12	12	13	12	19	17	12	17	17	17
4 . velocity/depth (HG)/ pool variablility (LG)	0 - 20	15	15	2	15	10	4	15	4	4	4
5 . sediment deposition	0 - 20	9	9	8	9	12	20	9	20	20	20
6 . channel flow status	0 - 20	17	17	7	17	15	15	17	15	15	15
7 . channel alteration	0 - 20	18	17	20	20	20	20	20	20	20	20
8 . frequency of riffles (HG)/ channel sinousity (LG)	0 - 20	13	13	14	13	10	17	13	17	17	17
9 . bank stability	0 - 20	14	14	14	14	18	18	14	18	18	18
10 . vegetative protection 11 & grazing/disruptive pressures	0 - 40	18	21	24	21	24	21	21	21	21	21
12 . riparian vegetative zone width	0 - 20	18	14	16	12	14	14	12	14	14	14
Total Score [1]	**0 - 240**	**170**	**164**	**138**	**167**	**178**	**182**	**165**	**182**	**182**	**182**

TABLE 4 - HABITAT ASSESSMENT SUMMARY

HABITAT PARAMETER	scoring range	STATIONS					
		AUL07	AUL08	UNT15	AUL09	UNT16	
1 . epifaunal substrate 2 and upstream cover	0 - 40	34	34	36	34	36	240-181 OPTIMAL 180-121: SUB-OPTIMAL 120-61: MARGINAL <=60: POOR *Not all monitoring sites are listed; only sites with habitat assessments done
3 . embeddedness (HG)/ pool substrate characterization (LG)	0 - 20	17	17	17	17	17	
4 . velocity/depth (HG)/ pool variablility (LG)	0 - 20	4	4	4	4	4	
5 . sediment deposition	0 - 20	20	20	20	20	20	
6 . channel flow status	0 - 20	15	15	15	15	15	
7 . channel alteration	0 - 20	20	20	20	20	20	
8 . frequency of riffles (HG)/	0 - 20	17	17	17	17	17	
channel sinousity (LG)							
9 . bank stability	0 - 20	16	16	18	16	18	
10 . vegetative protection 11 & grazing/disruptive pressures	0 - 40	21	21	21	21	21	
12 . riparian vegetative zone width	0 - 20	16	16	16	16	16	
Total Score [1]	**0 - 240**	**180**	**180**	**184**	**180**	**184**	

Monitoring Site Demographics	**Site ID** AUL02	**Surface Elevation** 1095'	**River Mile** N/A	**Latitude** 40 30 49	**Longitude** 79 17 17	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/16/2001
Weather Conditions	**Now** Cloudy	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 31.0° C				
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mix of Origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** Low			
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** Moderate					
Riparian Vegetation	**Dom. Type** Trees	**Dom. Species** American Hornbeam , beech, and hemlock						
Instream Features	**Reach Length** N/A	**Stream Width** 14.0'	**Sampling Reach** N/A	**Avg, Depth** 0.73'	**Velocity** 268.6 Gal/Min	**Canopy Cover** Partly Open	**Stream Morph.** Majority of deep pools and shallow pools; minority of shallow riffles and runs	**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A						
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A					
Water Quality	**Temperature** 21.3°C	**Spec. Conductance** 1026	**Dissolved Oxygen** 8.6 MG/L	**Field pH** 7.5	**Turbidity** None	**Odors** None	**Oil** None	
	Lab pH 6.8	**Alkalinity** 64.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 2.0 MG/L	**Total FE** 566.0 UG/L	**Ferrous FE** 160.0 UG/L	**Total MN** 1280.0 UG/L	**Total AL** <200.0 UG/L	**Total Sulfates** 491.0 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** Silt					
Inorganic/Organic Substrate	**Inorganic** Majority of cobble and boulders; minority of gravel and silt			**Organic** Moderate number of Sticks, Woods, Coarse Plant Materials				
Epifaunal Substrate and Instream Cover	50% or more of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential - 32							
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characterization - Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetatiom present - 12							
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools large-deep; very few shallow - 15							
Sediment Deposition	Moderate deposition of new gravel, sand or fine sediment on old or new bars; 50-80% of the bottom affected; sediment deposits at bends; moderate deposition of pool prevalent-9							
Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed - 17							
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern - 17							
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line - 13							
Bank Stability	Left- Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7 Right - Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7							
Veg. Protection, Grazing/ Dis. Pressure, & Rip Zone	Left and Right - 70-90% of streambank surfaces covered by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth potential to any great extent; more than one half of the potential plant stubble height remaining - 21 Left and Right - Width of of riparian zone 12-18 meters; human activities have impacted zone only minimally - 14							
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks					
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** Common	**Fish** None		
Macrobenthos Abundance- Family and Tolerance Index	None Hydropshychidae 4	 Polycentripodidae 6	 Tipulida 3					
Fish Composition-	None							

Monitoring Site Demogr s	**Site ID** COA01	**Surface Elevation** 1095.0'	**River Mile** N/A	**Latitude** `0 51	**Longitude** 79 17 16	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/16/2001	
Weather C ons	**Now** Cloudy	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Temperature** 25.5*C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mix of Origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** Low				
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** Moderate						
Riparian Vegetation	**Dom. Type** Trees	**Dom. Species** Red Maple, Beech							
Instream Features	**Reach Length** N/A	**Stream Width** 2.0'	**Sampling Reach** N/A	**Avg, Depth** 0.12'	**Velocity** 9.69 Gal/Min Meter	**Canopy Cover** Partly Shaded	**Stream Morph.** Majority of shallow riffles and runs; minority of shallow pools		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 25.2*C	**Spec. Conductance** 0.004	**Dissolved Oxygen** 7.1 MG/L	**Field pH** 6.5	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 6.8	**Alkalinity** 60.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 14.0 MG/L	**Total FE** 1690.0 UG/L	**Ferrous FE** 240.0 UG/L	**Total MN** 1280.0 UG/L	**Total AL** 876.0 UG/L	**Total Sulfates** 397.8 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** Majority of silt and iron precipitation						
Inorganic/Organic Substrate	**Inorganic** Majority of cobble, gravel, silt, and iron			**Organic** Moderate number of Sticks, Woods, Coarse Plant Materials					
Epifaunal Substrate and Instream Cover	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed- 20								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characterization - Mixture of soft sand, mud, or clay; mud may be dominant; no root mat or submerged vegetation - 13								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent- 2								
Sediment Deposition	Moderate deposition of new gravel, sand or fine sediment on old or new bars; 50-80% of the bottom affected; sediment; sediment deposits at bends; moderate deposition of pool prevalent - 8								
Channel Flow Status	Water fills 25-75% of the available channel; and /or riffle substrates are exposed - 7								
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line - 14								
Bank Stability	Left- Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7 Right - Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of streambank surfaces covered by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth potential to any great extent; more than one half of the potential plant stubble height remaining - 24 Left and Right - Width of of riparian zone 6-12 meters; human activities have impacted zone only minimally - 16								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** Rare	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index (1-10, EPA RBP)	Hydropshychidae 4								
Fish Composition-	None								

Monitoring Site Demographics	**Site ID** AUL03	**Surface Elevation** 1095'	**River Mile** N/A	**Latitude** 40 30 01	**Longitude** 79 17 17	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/16/2001
Weather Conditions	**Now** Cloudy	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 25.4*C				
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mix of Origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** Low			
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** Moderate					
Riparian Vegetation	**Dom. Type** Trees	**Dom. Species** American Hornbeam , beech, and hemlock						
Instream Features	**Reach Length** N/A	**Stream Width** N/A	**Sampling Reach** N/A	**Avg, Depth** N/A	**Velocity** N/A because of	**Canopy Cover** Partly Open	**Stream Morph.** Majority of deep pools and shallow pools; minority of shallow riffles and shallow, runs, and pools	**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A			lack of flow in COA01			
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A					
Water Quality	**Temperature** 25.4*C	**Spec. Conductance** 1130	**Dissolved Oxygen** 9.1 MG/L	**Field pH** 7.5	**Turbidity** None	**Odors** None	**Oil** None	
	Lab pH 6.8	**Alkalinity** 60.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 14.0 MG/L	**Total FE** 1690.0 UG/L	**Ferrous FE** 240.0 UG/L	**Total MN** 1280.0 UG/L	**Total AL** 876.0 UG/L	**Total Sulfates** 397.8 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** Silt and some metals precipitate					
Inorganic/Organic Substrate	**Inorganic** Majority of cobble and boulders; minority of gravel and silt			**Organic** Moderate number of Sticks, Woods, Coarse Plant Materials				
Epifaunal Substrate and Instream Cover	50% or more of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential - 34							
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characterization - Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetatiom present - 12							
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools large-deep; very few shallow - 15							
Sediment Deposition	Moderate deposition of new gravel, sand or fine sediment on old or new bars; 50-80% of the bottom affected; sediment deposits at bends; moderate deposition of pool prevalent - 9							
Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed - 17							
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern - 20							
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line - 13							
Bank Stability	Left- Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7 Right - Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7							
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of streambank surfaces covered by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth potential to any great extent; more than one half of the potential plant stubble height remaining - 21 Left and Right - Width of of riparian zone 6-12 meters; human activities have impacted zone only minimally - 12							
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks					
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None		
Macrobenthos Abundance-Family and Tolerance Index	None Hydropyshychidae 4							
Fish Composition-	None							

Monitoring Site Demogr s	**Site ID**	**Surface Elevation**	**River Mile**	**Latitude**	**Longitude**	**Stream #**	**River Basin**	**Date**
	UNT05	1095.0'	N/A	0 52	79 17 14	43913	Conemaugh River	8/16/2001
Weather C ons	**Now**	**Past 24 Hours**	**Heavy Rain Last 7 Days**	**Temperature**				
	Cloudy	None	None	23.5*C				
Stream Characterization	**Stream Subsystem**	**Stream Origin**	**Stream Type**	**Catchment Area**	**Gradient**			
	Perrential	Mix of Origins	Warmwater	N/A	Low			
Watershed Features	**Dom. Landuse**	**Local NPS Pollution**	**Erosion**					
	Forest/Mining	Mine Drainage/Silt	Moderate					
Riparian Vegetation	**Dom. Type**	**Dom. Species**						
	Trees	Beech, shagbark hickory, sumac						
Instream Features	**Reach Length**	**Stream Width**	**Sampling Reach**	**Avg, Depth**	**Velocity**	**Canopy Cover**	**Stream Morph.**	**Channelized/Dam**
	N/A	N/A	N/A	N/A	Too low	Partly shaded	Even amount of shallow-deep/shallow rrffles, runs and pools	No
Large Woody Debris	**Area**	**Density**						
	N/A	N/A						
Aquatic Vegetation	**Dom. Type**	**Dom. Species**	**% Reach w/ AV**					
	N/A	N/A	N/A					
Water Quality	**Temperature**	**Spec. Conductance**	**Dissolved Oxygen**	**Field pH**	**Turbidity**	**Odors**	**Oil**	
	16.4 *C	843	Flow too low	7	None	None	Not oil, but shimmery - AMD?	
	Lab pH	**Alkalinity**	**Acidity**	**TSS**	**Total FE**	**Ferrous FE**	**Total MN**	**Total AL**
	7.2	374.0 MG/L	0.0 MG/L	18.0 MG/L	1340.0 UG/L	310.0 UG/L	2550.0 UG/L	<200.0 UG/L
Sediment/Substrate Deposition	**Odors**	**Oils**	**Deposits**					
	None	None	Silt and some metals precipitate					
Inorganic/Organic Substate	**Inorganic**			**Organic**				
	Majority of cobble, gravel, sand, and silt; some metals precipitation			A lot of leaves and other detrifus material				
Epifaunal Substrate and Instream Cover	50% or more of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential - 36							
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characterization - Mixture of substrate materials, with gravel and firm sand prevalent - 19							
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Shallow pools much more prevalent than deep pools - 10							
Sediment Deposition	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 20-50% of the bottom affected; slight deposition in pools - 12							
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15							
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern - 20							
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line - 10							
Bank Stability	Left- Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9							
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of streambank surfaces covered by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth potential to any great extent; more than one half of the potential plant stubble height remaining - 24; Left and Right - Width of rip. zone 12-18 meters; human activities have impacted zone only minmally - 14							
Bioassessment Collection	**Gear Used**	**Where Sampled**	**# of Kicks or Jabs**					
	1 M Squared Kick Net	Fast/Slow Riffles/Runs	2.0 Kicks					
General Biota Abundance	**Periphyton**	**Filamentous Algae**	**Macrophytes**	**Slimes**	**Macrobenthos**	**Fish**		
	None	None	None	None	None	None		
Macrobenthos Abundance-Family and Tolerance Index	None							
Fish Composition-								

Monitoring Site Demographics	**Site ID** UNT06	**Surface Elevation** 1090.0'	**River Mile** N/A	**Latitude** 40 31 45	**Longitude** 79 17 08	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/16/2001	
Weather Conditions	**Now** Cloudy	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 23.1*C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Spring	**Stream Type** Coldwater	**Catchment Area** N/A	**Gradient** N/A	*piped with tag "Spring Run ST"			
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** N/A						
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** Black Cherry, Multifloral Rose Bush							
Instream Features	**Reach Length** N/A	**Stream Width** N/A	**Sampling Reach** N/A	**Avg, Depth** N/A	**Velocity** 1.0 Gal/6.0 Min Bucket	**Canopy Cover** Shaded	**Stream Morph.** N/A		**Channelized/Dam** Yes
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 13.6*C	**Spec. Conductance** 805	**Dissolved Oxygen** Flow too low	**Field pH** 5	**Turbidity** None	**Odors** None	**Oil**		
	Lab pH 4.7	**Alkalinity** 8.0 Mg/L	**Acidity** 24.0 MG/L	**TSS** 14.0 MG/L	**Total FE** 156.0 UG/L	**Ferrous FE** 40.0 UG/L	**Total MN** 1090.0 UG/L	**Total AL** 1250.0 UG/L	**Total Sulfates** 472.0 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** N/A						
Inorganic/Organic Substrate	**Inorganic** N/A			**Organic** N/A					
Epifaunal Substrate and Instream Cover	N/A								
Embeddedness (HG) or Pool Substrate Char. (LG)	N/A N/A								
Velocity/Depth Regime (HG) or Pool Variability (LG)	N/A N/A								
Sediment Deposition	N/A								
Channel Flow Status	N/A								
Channel Alteration	N/A								
Frequency of Riffles (HG) or Channel Sinousity (LG)	N/A N/A								
Bank Stability	N/A								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	N/A N/A								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** None	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition-									

Monitoring Site Demographics	**Site ID** UNT07	**Surface Elevation** 1090.0'	**River Mile** N/A	**Latitude** 32 02	**Longitude** 79 16 58	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/16/2001	
Weather Conditions	**Now** Cloudy	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 22.7°C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mixture of origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** low	*piped with tag "Spring Run ST"			
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None						
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** Black Cherry, Multifloral Rose Bush							
Instream Features	**Reach Length** N/A	**Stream Width** 3.0'	**Sampling Reach** N/A	**Avg, Depth** 0.23'	**Velocity** 57.8 Gal/Min	**Canopy Cover** Partly Shaded	**Stream Morph.** Majroity of shallow-riffle and runs		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A			Meter				
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 18.6°C	**Spec. Conductance** 832	**Dissolved Oxygen** Flow too low	**Field pH** 7.9	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 8	**Alkalinity** 192.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 29.0 MG/L	**Total FE** 105.0 UG/L	**Ferrous FE** 30.0 UG/L	**Total MN** 102.0 UG/L	**Total AL** <200.0 UG/L	**Total Sulfates** 414.0 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** N/A						
Inorganic/Organic Substrate	**Inorganic** Majority of cobble, gravel, and silt			**Organic** Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization ; mix of cobble or other stable habitat and at a stage to allow full colonization potential - 36								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate Characteristics - Mixture of substrate materials, with gravel or other material and firm sand prevalent - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left and Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 18								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any great extent- 21; Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally- 14								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** None	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition-									

Monitoring Site Demographics	**Site ID** AUL04	**Surface Elevation** 1099.0'	**River Mile** N/A	**Latitude** 40 30 01	**Longitude** 79 17 17	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/16/2001	
Weather Conditions	**Now** Cloudy	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 30.3*C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mix of Origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** Low				
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** Moderate						
Riparian Vegetation	**Dom. Type** Trees	**Dom. Species** American Hornbeam , beech, and hemlock							
Instream Features	**Reach Length** N/A	**Stream Width** 19.0'	**Sampling Reach** N/A	**Avg, Depth** 0.65'	**Velocity** 234.2 Gal/Min	**Canopy Cover** Partly Open	**Stream Morph.** Majority of deep pools and and shallow pools; minority of shallow riffles and runs		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 23.3*C	**Spec. Conductance** 1230	**Dissolved Oxygen** 9.6 MG/L	**Field pH** 7.5	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 6.8	**Alkalinity** 60.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 16.0 MG/L	**Total FE** 1370.0 UG/L	**Ferrous FE** 150.0 UG/L	**Total MN** 1160.0 UG/L	**Total AL** 755.0 UG/L	**Total Sulfates** 393.0 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** Silt and some metals precipitate						
Inorganic/Organic Substrate	**Inorganic** Majority of cobble and boulders; minority of gravel and silt			**Organic** Moderate number of Sticks, Woods, Coarse Plant Materials					
Epifaunal Substrate and Instream Cover	50% or more of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full full colonization potential - 32								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characterization - Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetatiom present - 12								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools large-deep; very few shallow - 15								
Sediment Deposition	Moderate deposition of new gravel, sand or fine sediment on old or new bars; 50-80% of the bottom affected; sediment deposits at bends; moderate deposition of pool prevalent - 9								
Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed - 17								
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line - 13								
Bank Stability	Left- Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7 Right - Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion - 7								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of streambank surfaces covered by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth potential to any great extent; more than one half of the potential plant stubble height remaining - 21 Left and Right - Width of of riparian zone 6-12 meters; human activities have impacted zone only minimally - 12								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition-	None								

Monitoring Site Demo[illegible]tics	**Site ID** UNT08A	**Surface Elevation** 1111.0'	**River Mile** N/A	**Latitude** 40 32 19	**Longitude** 79 16 53	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 9/5/2001
Weather C[illegible]ions	**Now** Cool, clear	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 22.1*C				
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mine Drainage	**Stream Type** N/A	**Catchment Area** N/A	**Gradient** N/A	*Discharge amongst a field under power lines		
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None					
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** Multifloral Rose Bush, Jewel Weed, Black Locust, Red Maple; logs, snags, dead plants, roots						
Instream Features	**Reach Length** N/A	**Stream Width** 13.0'	**Sampling Reach** N/A	**Avg, Depth** 0.33'	**Velocity** N/A	**Canopy Cover** Open	**Stream Morph.** N/A	**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A						
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A					
Water Quality	**Temperature** 16.5*C	**Spec. Conductance** 1120	**Dissolved Oxygen** 8.3 MG/L	**Field pH** 4	**Turbidity** None	**Odors** Sulfur	**Oil** None	
	Lab pH 3.7	**Alkalinity** 0.0 MG/L	**Acidity** 149.8 MG/L	**TSS** 16.0 MG/L	**Total FE** 4710.0 UG/L	**Ferrous FE** 1570.0 UG/L	**Total MN** 6210.0 UG/L	**Total AL** 20400.0 UG/L	**Total Sulfates** 459.0 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** Metals precipitation					
Inorganic/Organic Substrate	**Inorganic** N/A			**Organic** N/A				
Epifaunal Substrate and Instream Cover	N/A							
Embeddedness (HG) or Pool Substrate Char. (LG)	N/A N/A							
Velocity/Depth Regime (HG) or Pool Variability (LG)	N/A N/A							
Sediment Deposition	N/A							
Channel Flow Status	N/A							
Channel Alteration	N/A							
Frequency of Riffles (HG) or Channel Sinousity (LG)	N/A N/A							
Bank Stability	N/A N/A							
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	N/A N/A							
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks					
General Biota Abundance	**Periphyton** None	**Filamentous Algae** None	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None		
Macrobenthos Abundance-Family and Tolerance Index	None							
Fish Composition-								

Monitoring Site Demographics	**Site ID** UNT09	**Surface Elevation** 1122.0'	**River Mile** N/A	**Latitude** 40 32 52	**Longitude** 79 16 32	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/31/2001	
Weather Conditions	**Now** Cloudy and cool	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 23.2*C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mixture of origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** low				
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None						
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** Black Cherry, Multifloral Rose Bush							
Instream Features	**Reach Length** N/A	**Stream Width** N/A	**Sampling Reach** N/A	**Avg, Depth** N/A	**Velocity** Too low	**Canopy Cover** Partly Shaded	**Stream Morph.** Majroity of shallow-riffle and runs		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 19.5*C	**Spec. Conductance** 743	**Dissolved Oxygen** Flow too low	**Field pH** 7.6	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 7.2	**Alkalinity** 88.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 118.0 MG/L	**Total FE** 832.0 UG/L	**Ferrous FE** 80.0 UG/L	**Total MN** 131.0 UG/L	**Total AL** 742.0 UG/L	**Total Sulfates** 332.0 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** N/A						
Inorganic/Organic Substrate	**Inorganic** Majority of cobble, gravel, and silt			**Organic** Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization ; mix of cobble or other stable habitat and at a stage to allow full colonization potential - 36								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate Characteristics - Mixture of substrate materials, with gravel or other material and firm sand prevalent - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left and Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 18								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any extent - 21; Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 14								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** None	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition-	None								

Monitoring Site Demo s	**Site ID**	**Surface Elevation**	**River Mile**	**Latitude**	**Longitude**	**Stream #**	**River Basin**	**Date**	
	UNT11	1101.0'	N/A	32 53	79 16 02	43913	Conemaugh River	8/31/2001	
Weather ons	**Now**	**Past 24 Hours**	**Heavy Rain Last 7 Days**	**Temperature**					
	Cloudy and cool	None	None	23.2°C					
Stream Characterization	**Stream Subsystem**	**Stream Origin**	**Stream Type**	**Catchment Area**	**Gradient**				
	Perrential	Mixture of origins	Warmwater	N/A	low				
Watershed Features	**Dom. Landuse**	**Local NPS Pollution**	**Erosion**						
	Forest/Mining	Mine Drainage/Silt	None						
Riparian Vegetation	**Dom. Type**	**Dom. Species**							
	Trees/Herb. Plants	Black Cherry, Multifloral Rose Bush							
Instream Features	**Reach Length**	**Stream Width**	**Sampling Reach**	**Avg, Depth**	**Velocity**	**Canopy Cover**	**Stream Morph.**		**Channelized/Dam**
	N/A	N/A	N/A	N/A	Too low	Partly Shaded	Majroity of shallow-riffle and runs		No
Large Woody Debris	**Area**	**Density**							
	N/A	N/A							
Aquatic Vegetation	**Dom. Type**	**Dom. Species**	**% Reach w/ AV**						
	N/A	N/A	N/A						
Water Quality	**Temperature**	**Spec. Conductance**	**Dissolved Oxygen**	**Field pH**	**Turbidity**	**Odors**	**Oil**		
	19.5*C	877	7.3 MG/L	7.6	None	None	None		
	Lab pH	**Alkalinity**	**Acidity**	**TSS**	**Total FE**	**Ferrous FE**	**Total MN**	**Total AL**	**Total Sulfates**
	7.5	128.0 MG/L	0.0 MG/L	28.0 MG/L	273.0 UG/L	90.0 UG/L	48.0 UG/L	<200.0 UG/L	49.3 MG/L
Sediment/Substrate Deposition	**Odors**	**Oils**	**Deposits**						
	None	None	N/A						
Inorganic/Organic Substrate	**Inorganic**			**Organic**					
	Majority of cobble, gravel, and silt			Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization ; mix of cobble or other stable habitat and at a stage to allow full colonization potential - 36								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate Characteristics - Mixture of substrate materials, with gravel or other material and firm sand prevalent - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth								
	growth to any great extent - 21; Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 14								
Bioassessment Collection	**Gear Used**	**Where Sampled**	**# of Kicks or Jabs**						
	1 M Squared Kick Net	Fast/Slow Riffles/Runs	2.0 Kicks						
General Biota Abundance	**Periphyton**	**Filamentous Algae**	**Macrophytes**	**Slimes**	**Macrobenthos**	**Fish**			
	None	Minimal	None	None	None	None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition-	None								

Monitoring Site Demographics	**Site ID** UNT12	**Surface Elevation** 1099.0'	**River Mile** N/A	**Latitude** 40 33 14	**Longitude** 79 16 55	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/31/2001	
Weather Conditions	**Now** Cloudy and cool	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 28.3*C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mixture of origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** low	*Travels through old strip mine			
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None						
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** N/A							
Instream Features	**Reach Length** N/A	**Stream Width** 4.0'	**Sampling Reach** N/A	**Avg, Depth** 0.55['	**Velocity** 132.5 Gal/Min	**Canopy Cover** Partly Shaded	**Stream Morph.** Majroity of shallow-riffle and runs		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 19.1*C	**Spec. Conductance** 428	**Dissolved Oxygen** 6.7 MG/L	**Field pH** 5.9	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 5	**Alkalinity** 7.8 MG/L	**Acidity** 46.2 MG/L	**TSS** 22.0 MG/L	**Total FE** 779.9 UG/L	**Ferrous FE** 280.0 UG/L	**Total MN** 1430.0 UG/L	**Total AL** 1230.0 UG/L	**Total Sulfates** 214.0 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** N/A						
Inorganic/Organic Substate	**Inorganic** Majority of cobble, gravel, and silt			**Organic** Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization ; mix of cobble or other stable habitat and at a stage to allow full colonization potential - 36								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate Characteristics - Mixture of substrate materials, with gravel or other material and firm sand prevalent - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any great extent - 21; Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 14								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition	None								

Monitoring Site Demogr	Site ID UNT13	Surface Elevation 1129.0'	River Mile N/A	itude 33	Longitude 79 16 49	Stream # 43913	River Basin Conemaugh River	Date 9/5/2001	
Weather Co ns	Now Cool, clear, warm	Past 24 Hours None	Heavy Rain Last 7 Days None	emperature 19.2°C					
Stream Characterization	Stream Subsystem Perrential	Stream Origin Mixture of origins	Stream Type Warmwater	Catchment Area N/A	Gradient Low				
Watershed Features	Dom. Landuse Forest/Mining	Local NPS Pollution Mine Drainage/Silt	Erosion None						
Riparian Vegetation	Dom. Type Trees/Herb. Plants	Dom. Species Ferns, and berry bushes							
Instream Features	Reach Length N/A	Stream Width 10.0'	Sampling Reach N/A	Avg, Depth 0.34'	Velocity N/A	Canopy Cover Partly open	Stream Morph. Majroity ofshallow-riffle, runs, and pools; Minority of deep run and pools		Channelized/Dam No
Large Woody Debris	Area N/A	Density N/A							
Aquatic Vegetation	Dom. Type N/A	Dom. Species N/A	% Reach w/ AV N/A						
Water Quality	Temperature 15.4°C	Spec. Conductance 277	Dissolved Oxygen 6.7 MG/L	Field pH 7.7	Turbidity None	Odors None	Oil None		
	Lab pH 7	Alkalinity 78.0 MG/L	Acidity 0.0 MG/L	TSS 6.0 MG/L	Total FE 697.0 UG/L	Ferrous FE 130.0 UG/L	Total MN 333.0 UG/L	Total AL <200.0 UG/L	Total Sulfates 155.0 MG/L
Sediment/Substrate Deposition	Odors None	Oils None	Deposits N/A						
Inorganic/Organic Sibstrate	Inorganic Majority of cobble, gravel, and silt; minority of boulders			Organic Sticks, wood, coarse plant material					
Epifaunal Substrate	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of cobble or other stable habitat and at any stage to allow full colonization potential - 17								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characteristics - Mixture of substrate materials, with gravel and firm sand prevalent; - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8								
Veg. Protection/Riparian Width	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any extent - 7 Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 8								
Bioassessment Collection	Gear Used 1 M Squared Kick Net	Where Sampled Fast/Slow Riffles/Runs	# of Iticks or Jabs 2.0 Kicks						
General Biota Abundance	Periphyton None	Filamentous Algae None	Macrophytes None	Slimes None	Macrobenthos Rare	Fish None			
Macrobenthos Abundance-Family and Tolerance Index	Tipulida 3								
Fish Composition-									

Monitoring Site Demographics	**Site ID** AUL07	**Surface Elevation** 109.0'	**River Mile** N/A	**Latitude** 40 38 29	**Longitude** 79 15 18	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/30/2001	
Weather Conditions	**Now** Cool, clear	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 23.9°C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mixture of origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** Low				
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None						
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** Ferns, and berry bushes							
Instream Features	**Reach Length** N/A	**Stream Width** 10.0'	**Sampling Reach** N/A	**Avg, Depth** 0.62'	**Velocity** N/A	**Canopy Cover** Partly open	**Stream Morph.** Majority of shallow-riffle, run, pool; ; minority of deep run and pools		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 23.9°C	**Spec. Conductance** 261	**Dissolved Oxygen** 7.13 MG/L	**Field pH** 7.3	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 6.8	**Alkalinity** 74.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 24.0 MG/L	**Total FE** 2030.0 UG/L	**Ferrous FE** 150.0 UG/L	**Total MN** 382.0 UG/L	**Total AL** 364.0 UG/L	**Total Sulfates** 54.6 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** N/A						
Inorganic/Organic Substrate Substrate	**Inorganic** Majority of cobble, gravel, and silt; minority of boulders			**Organic** Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of cobble or other stable habitat and at any stage to allow full colonization potential - 34								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characteristics - Mixture of substrate materials, with gravel and firm sand prevalent; - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any extent - 21 Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 16								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition-	None								

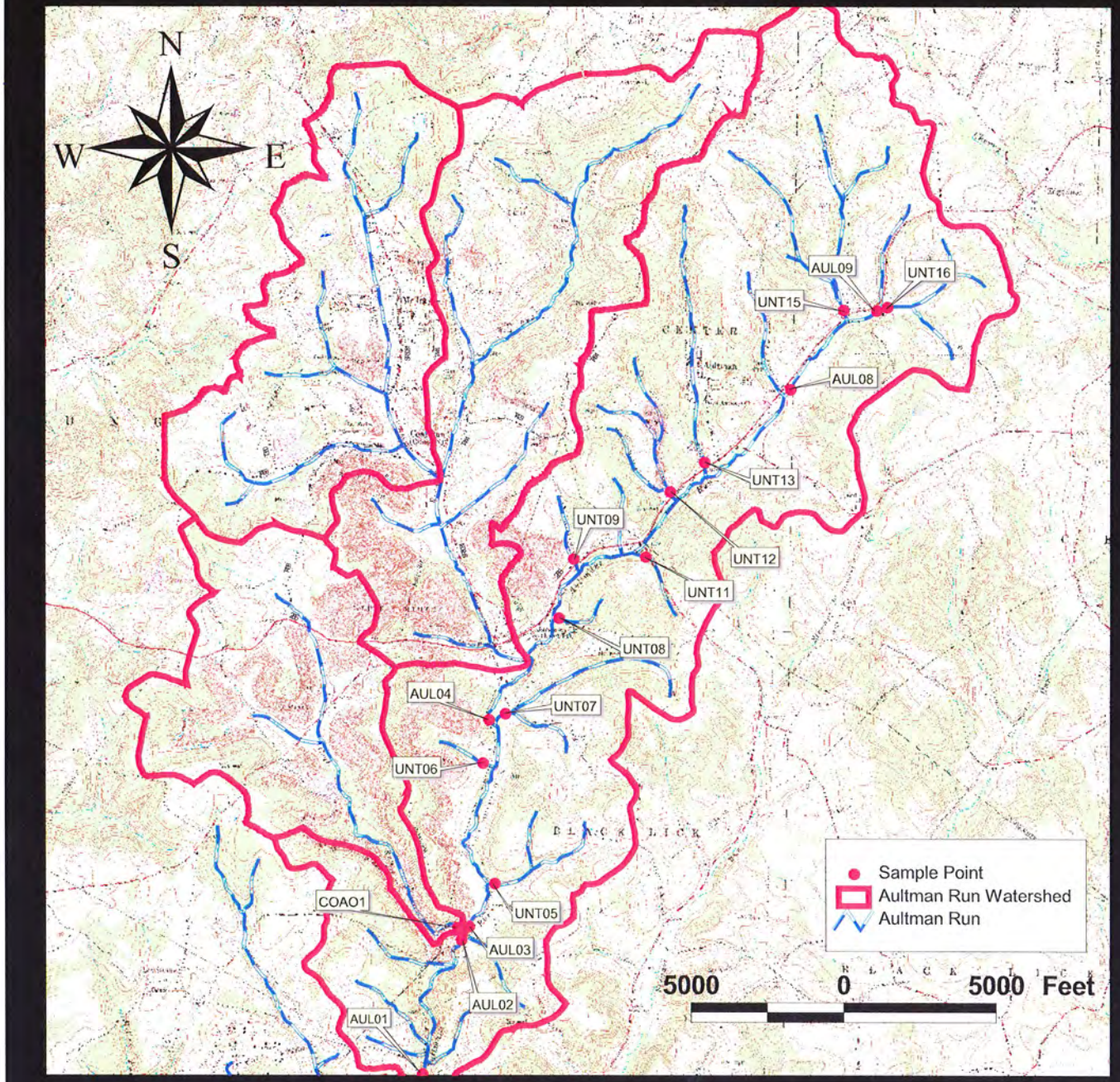
Monitoring Site Demog s	**Site ID** AUL08	**Surface Elevation** 1099.0'	**River Mile** N/A	**Latitude** 1 38 49	**Longitude** 79 16 39	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/30/2001	
Weather C ons	**Now** Cool, clear	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**.ir Temperature** 32.3°C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mixture of origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** Low				
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None						
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** N/A							
Instream Features	**Reach Length** N/A	**Stream Width** 6.0'	**Sampling Reach** N/A	**Avg, Depth** 0.15'	**Velocity** 276.5 Gal/Min	**Canopy Cover** Partly open	**Stream Morph.** Majority of shallow-riffle, run, pool; minority of deep-run and pools		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 23.7°C	**Spec. Conductance** 462	**Dissolved Oxygen** 7.5 MG/L	**Field pH** 7.3	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 6.8	**Alkalinity** 58.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 38.0 MG/L	**Total FE** 1120.0 UG/L	**Ferrous FE** 50.0 UG/L	**Total MN** 261.0 UG/L	**Total AL** 869.0 UG/L	**Total Sulfates** 35.8 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** Silt						
Inorganic/Organic Substrate	**Inorganic** Majority of cobble, gravel, and silt; minority of boulders			**Organic** Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of cobble or other stable habitat and at any stage to allow full colonization potential - 34								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characteristics - Mixture of substrate materials, with gravel and firm sand prevalent; - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any extent - 21 Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 16								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index (1-10, EPA RPB)	Corydalidae 0	Decapoda (Order) 6	Hydropshychidae 4						
Fish Composition-	None								

Monitoring Site Demographics	**Site ID** UNT15	**Surface Elevation** 1169.0'	**River Mile** N/A	**Latitude** 40 34 14	**Longitude** 79 14 39	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/30/2001
Weather Conditions	**Now** Cool, clear	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 27.6*C				
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mixture of origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** low			
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None					
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** Black Locust, Red Maple, Black Cherry, and Red Oak						
Instream Features	**Reach Length** N/A	**Stream Width** 7.5'	**Sampling Reach** N/A	**Avg, Depth** 0.39'	**Velocity** N/A	**Canopy Cover** Partly Shaded	**Stream Morph.** Majroity of shallow-riffle and runs	**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A						
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A					
Water Quality	**Temperature** 20.7*C	**Spec. Conductance** 92	**Dissolved Oxygen** 7.4 MG/L	**Field pH** 7.5	**Turbidity** None	**Odors** None	**Oil** None	
	Lab pH 6.8	**Alkalinity** 48.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 40.0 MG/L	**Total FE** 479.0 UG/L	**Ferrous FE** 70.0 UG/L	**Total MN** 33.0 UG/L	**Total AL** 410.0 UG/L	**Total Sulfates** 29.5 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** N/A					
Inorganic/Organic Substrate	**Inorganic** Majority of cobble, gravel, and silt			**Organic** Sticks, wood, coarse plant material				
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization ; mix of cobble or other stable habitat and at a stage to allow full colonization potential - 36							
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate Characteristics - Mixture of substrate materials, with gravel or other material and firm sand prevalent - 17							
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4							
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20							
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15							
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20							
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17							
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9							
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any extent - 21; Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 16							
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks					
General Biota Abundance	**Periphyton** None	**Filamentous Algae** Minimal	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None		
Macrobenthos Abundance-Family and Tolerance Index	None							
Fish Composition-	None							

Monitoring Site Demographics	Site ID AUL09	Surface Elevation 1182.0'	River Mile N/A	titude '4 11	Longitude 79 14 35	Stream # 43913	River Basin Conemaugh River	Date 8/30/2001	
Weather Conditions	Now Cool, clear, warm	Past 24 Hours None	Heavy Rain Last 7 Days None	Temperature 21.1°C					
Stream Characterization	Stream Subsystem Perrential	Stream Origin Mixture of origins	Stream Type Warmwater	Catchment Area N/A	Gradient Low				
Watershed Features	Dom. Landuse Forest/Mining	Local NPS Pollution Mine Drainage/Silt	Erosion None						
Riparian Vegetation	Dom. Type Trees/Herb. Plants	Dom. Species Shagbark Hickory, Yellow Poplar, Black Cherry, Witch Hazel							
Instream Features	Reach Length N/A	Stream Width 4.0'	Sampling Reach N/A	Avg, Depth 0.13'	Velocity 73.6 Gal/Min	Canopy Cover Partly open	Stream Morph. Majroity ofshallow-riffle, run, pool run, pool; minority of deep runs and pools		Channelized/Dam No
Large Woody Debris	Area N/A	Density N/A							
Aquatic Vegetation	Dom. Type N/A	Dom. Species N/A	% Reach w/ AV N/A						
Water Quality	Temperature 22.6°C	Spec. Conductance 302	Dissolved Oxygen 6.4 MG/L	Field pH 7.4	Turbidity None	Odors None	Oil None		
	Lab pH 7	Alkalinity 90.0 MG/L	Acidity 0.0 MG/L	TSS 12.0 MG/L	Total FE 1150.0 UG/L	Ferrous FE 80.0 UG/L	Total MN 157.0 UG/L	Total AL 219.0 UG/L	Total Sulfates 28.3 MG/L
Sediment/Substrate Deposition	Odors None	Oils None	Deposits Silt						
Inorganic/Organic Substrate	Inorganic Majority of cobble, gravel, and silt; minority of boulders			Organic Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of cobble or other stable habitat and at any stage to allow full colonization potential - 34								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate characteristics - Mixture of substrate materials, with gravel and firm sand prevalent; - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 8								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any extent - 21; Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 16								
Bioassessment Collection	Gear Used 1 M Squared Kick Net	Where Sampled Fast/Slow Riffles/Runs	# of Kicks or Jabs 2.0 Kicks						
General Biota Abundance	Periphyton None	Filamentous Algae Minimal	Macrophytes None	Slimes None	Macrobenthos None	Fish None			
Macrobenthos Abundance-Famly and Tolerance Index	None								
Fish Composition-	None								

Monitoring Site Demographics	**Site ID** UNT16	**Surface Elevation** 1201.0'	**River Mile** N/A	**Latitude** 40 34 15	**Longitude** 79 14 21	**Stream #** 43913	**River Basin** Conemaugh River	**Date** 8/30/2001	
Weather Conditions	**Now** Cool, clear	**Past 24 Hours** None	**Heavy Rain Last 7 Days** None	**Air Temperature** 26.9*C					
Stream Characterization	**Stream Subsystem** Perrential	**Stream Origin** Mixture of origins	**Stream Type** Warmwater	**Catchment Area** N/A	**Gradient** low				
Watershed Features	**Dom. Landuse** Forest/Mining	**Local NPS Pollution** Mine Drainage/Silt	**Erosion** None						
Riparian Vegetation	**Dom. Type** Trees/Herb. Plants	**Dom. Species** Red Maple, Hickory, Black Locust, Black Cherry, Touch-Me-Not							
Instream Features	**Reach Length** N/A	**Stream Width** N/A	**Sampling Reach** N/A	**Avg, Depth** N/A	**Velocity** 1 Gal/ 4.89 S	**Canopy Cover** Partly Shaded	**Stream Morph.** Majroity of shallow-riffle and runs		**Channelized/Dam** No
Large Woody Debris	**Area** N/A	**Density** N/A							
Aquatic Vegetation	**Dom. Type** N/A	**Dom. Species** N/A	**% Reach w/ AV** N/A						
Water Quality	**Temperature** 19.0*C	**Spec. Conductance** 302	**Dissolved Oxygen** 5.9 MG/L	**Field pH** 7.4	**Turbidity** None	**Odors** None	**Oil** None		
	Lab pH 7.2	**Alkalinity** 108.0 MG/L	**Acidity** 0.0 MG/L	**TSS** 32.0 MG/L	**Total FE** 2420.0 UG/L	**Ferrous FE** 190.0 UG/L	**Total MN** 720.0 UG/L	**Total AL** 342.0 UG/L	**Total Sulfates** 26.1 MG/L
Sediment/Substrate Deposition	**Odors** None	**Oils** None	**Deposits** N/A						
Inorganic/Organic Sibstrate	**Inorganic** Majority of cobble, gravel, and silt			**Organic** Sticks, wood, coarse plant material					
Epifaunal Substrate and Instream Cover	Greater than 50% of substrate favorable for epifaunal colonization ; mix of cobble or other stable habitat and at a stage to allow full colonization potential - 36								
Embeddedness (HG) or Pool Substrate Char. (LG)	Pool substrate Characteristics - Mixture of substrate materials, with gravel or other material and firm sand prevalent - 17								
Velocity/Depth Regime (HG) or Pool Variability (LG)	Pool variability - Majority of pools small-shallow or pools absent - 4								
Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition - 20								
Channel Flow Status	Water fills >75% of the available channel; or <25% of channel substrate is exposed - 15								
Channel Alteration	Channelization or dredging absent or minmal; stream with normal pattern - 20								
Frequency of Riffles (HG) or Channel Sinousity (LG)	Channel sinousity - The bends in the stream increase of the stream length 3 to 4 times longer than if it was in a straight line - 17								
Bank Stability	Left - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9 Right - Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems; <5% of bank affected - 9								
Veg. Protection, Grazing/ Dis. Pressure, & Rip. Zone	Left and Right - 70-90% of the streambank surfaces coverd by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth to any extent - 21; Left and Right - Width of rip. Zone 12-18 meters; human activities have impacted zone only minimally - 16								
Bioassessment Collection	**Gear Used** 1 M Squared Kick Net	**Where Sampled** Fast/Slow Riffles/Runs	**# of Kicks or Jabs** 2.0 Kicks						
General Biota Abundance	**Periphyton** None	**Filamentous Algae** None	**Macrophytes** None	**Slimes** None	**Macrobenthos** None	**Fish** None			
Macrobenthos Abundance-Family and Tolerance Index	None								
Fish Composition-	None								

Aultsmans Run Watershed Assessment



AUL01
Surface Elevation: 1002'
Latitude: 40 30 01
Longitude: 79 17 37

AUL02
Surface Elevation: 1095'
Latitude: 40 30 49
Longitude: 79 17 17

COA01
Surface Elevation: 1095'
Latitude: 40 30 51
Longitude: 79 17 16

UNT05
Surface Elevation: 1095'
Latitude: 40 30 52
Longitude: 79 17 14

UNT06
Surface Elevation: 1099'
Latitude: 40 31 45
Longitude: 79 17 08

AUL04
Surface Elevation: 1099'
Latitude: 40 31 59
Longitude: 79 17 06

UNT07
Surface Elevation: 1099'
Latitude: 40 32 02
Longitude: 79 16 58

UNT08
Surface Elevation: 1128'
Latitude: 40 32 33
Longitude: 79 16 38

UNT09
Surface Elevation: 1122'
Latitude: 40 32 52
Longitude: 79 16 32

UNT11
Surface Elevation: 1101'
Latitude: 40 32 53
Longitude: 79 16 02

UNT12
Surface Elevation: 1099'
Latitude: 40 33 14
Longitude: 79 16 55

UNT13
Surface Elevation: 1099'
Latitude: 40 33 24
Longitude: 79 15 37

AUL08
Surface Elevation: 1099'
Latitude: 40 33 48
Longitude: 79 15 02

UNT15
Surface Elevation: 1169'
Latitude: 40 34 14
Longitude: 79 14 39

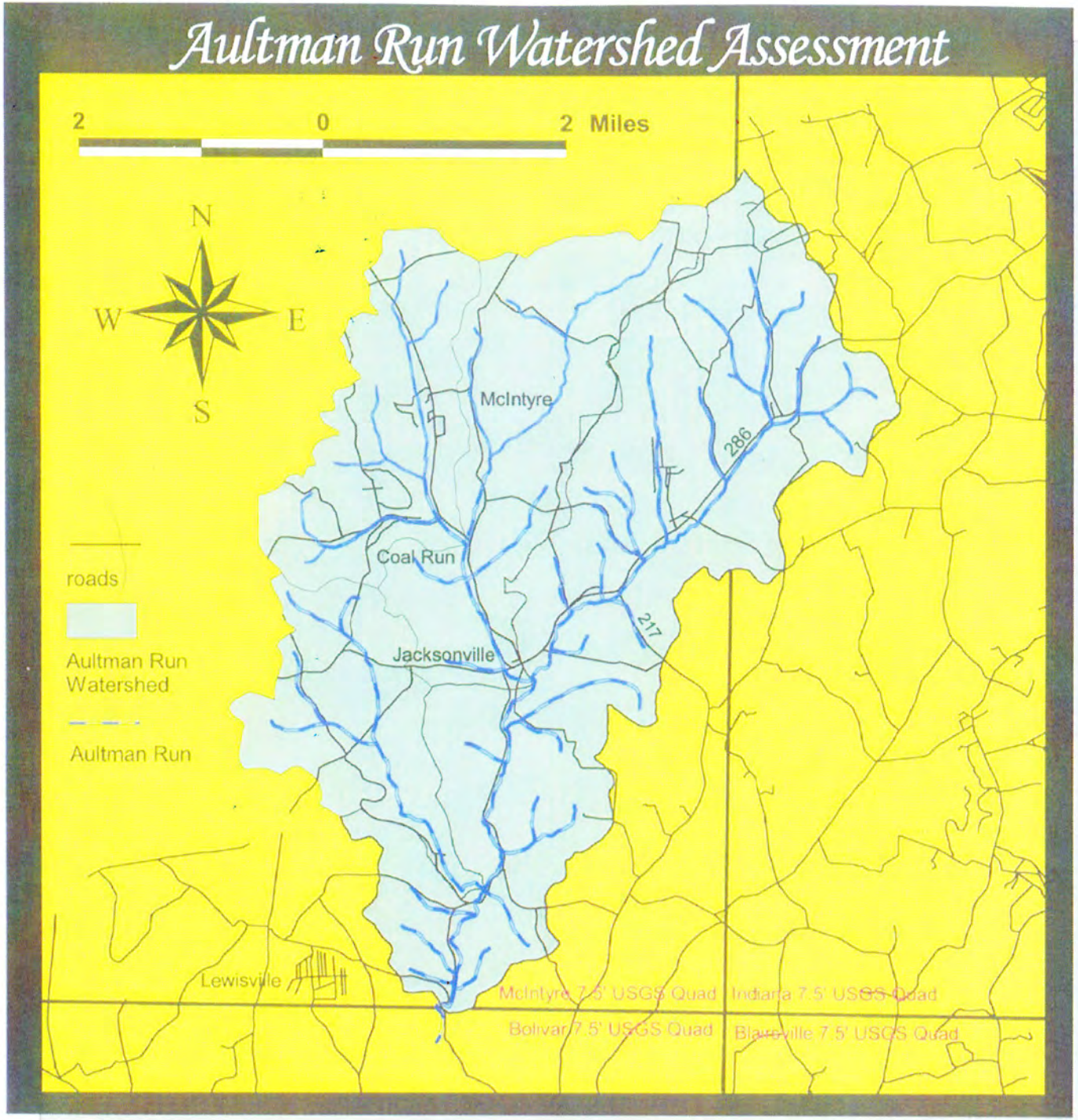
AUL09
Surface Elevation: 1182'
Latitude: 40 34 11
Longitude: 79 14 35

UNT16
Surface Elevation: 1201'
Latitude: 40 34 15
Longitude: 79 14 21

August 2001
Scott Alexander

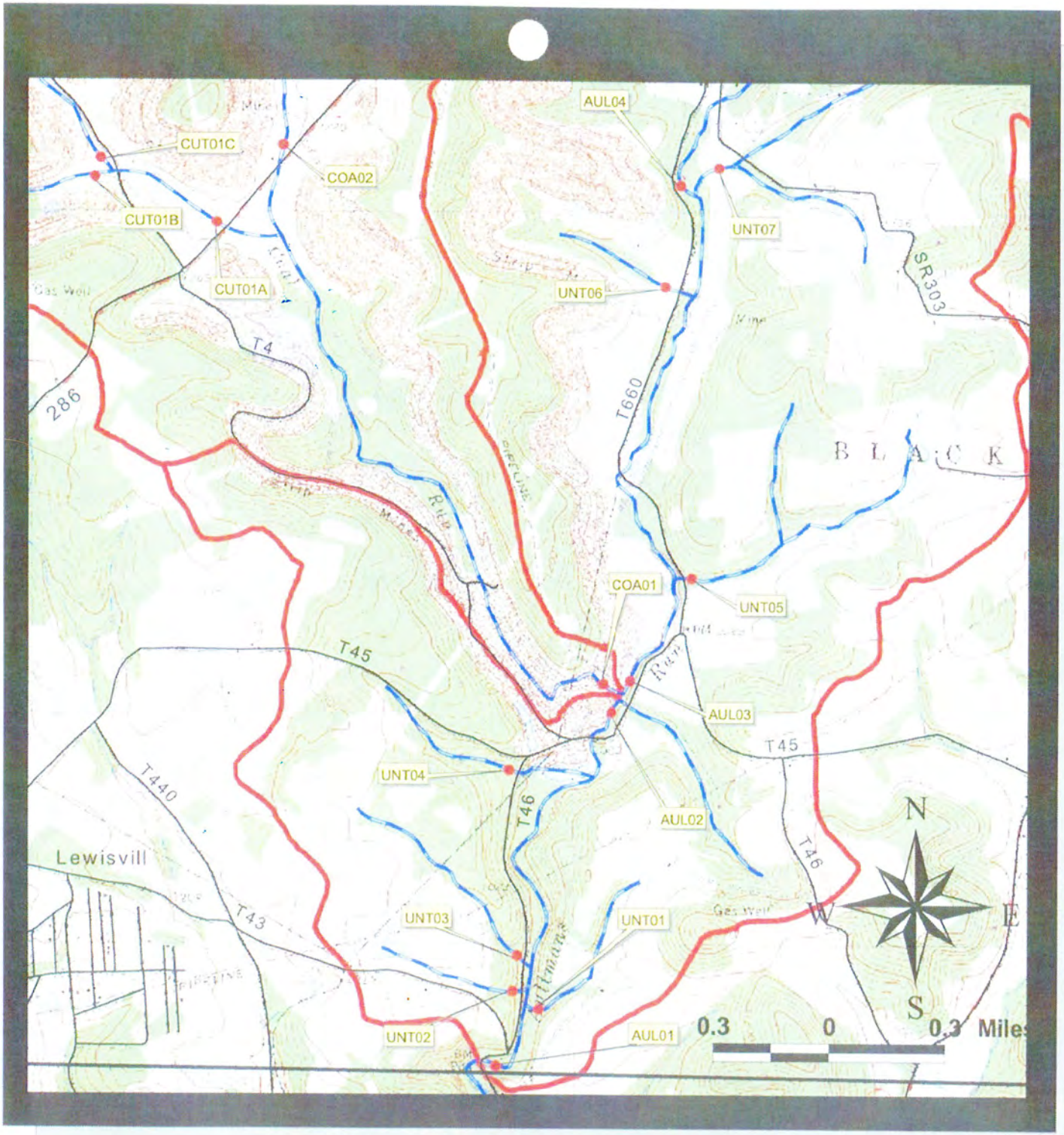
Watershed Monitoring and Assistance Initiative

Aultman Run Watershed Assessment



Watershed Monitoring and Assistance Initiative

July 2001
Scott Alexander



Watershed Monitoring and Assistance Initiative

AUL01
Surface Elevation: 1002'
Latitude: 40 30 01
Longitude: 79 17 37

UNT00
Surface Elevation: 1072'
Latitude: 40 30 09
Longitude: 79 17 31

UNT01
Surface Elevation: 1075'
Latitude: 40 30 11
Longitude: 79 17 34

UNT02
Surface Elevation: 1093'
Latitude: 40 30 16
Longitude: 79 17 33

UNT03
Surface Elevation: 1098'
Latitude: 40 30 51
Longitude: 79 17 36

AUL02
Surface Elevation: 1095'
Latitude: 40 30 49
Longitude: 79 17 17

UNT04
Surface Elevation: 1095'
Latitude: 40 30 49
Longitude: 79 17 16

COA01
Surface Elevation: 1095'
Latitude: 40 30 51
Longitude: 79 17 16

CUT01A
Surface Elevation: 1199'
Latitude: 40 31 53
Longitude: 79 18 29

CUT01B
Surface Elevation: 1252'
Latitude: 40 31 59
Longitude: 79 18 49

CUT01C
Surface Elevation: 1236'
Latitude: 40 32 01
Longitude: 79 18 48

COA02
Surface Elevation: 1214'
Latitude: 40 32 03
Longitude: 79 18 16

UNT05
Surface Elevation: 1095'
Latitude: 40 30 52
Longitude: 79 17 14

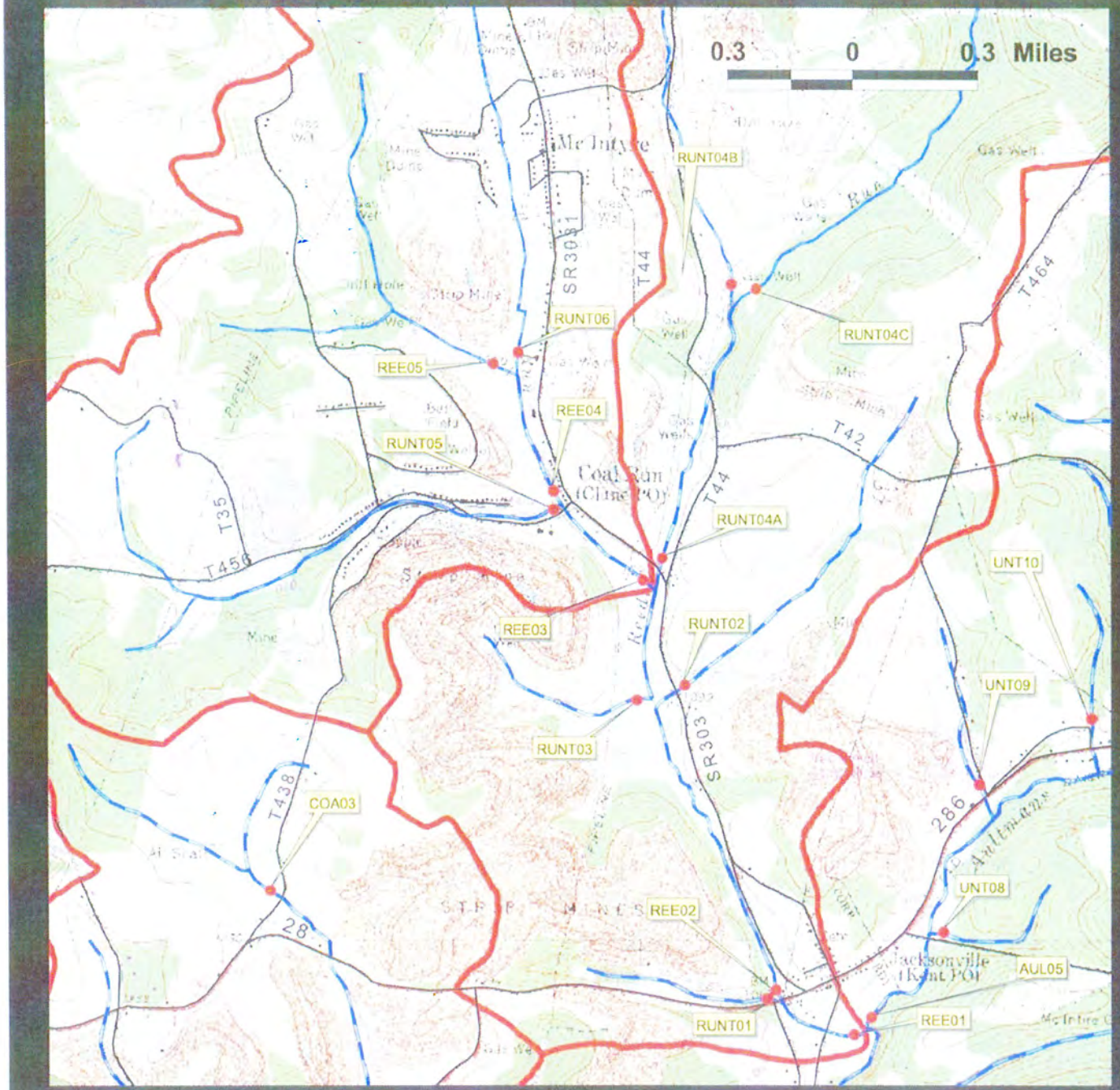
UNT06
Surface Elevation: 1099'
Latitude: 40 31 45
Longitude: 79 17 08

UNT07
Surface Elevation: 1099'
Latitude: 40 32 02
Longitude: 79 16 58

AUL04
Surface Elevation: 1099'
Latitude: 40 31 59
Longitude: 79 17 06

July 2001
Scott Alexander

Aultman Run Watershed Assessment



COA03
Surface Elevation: 1299'
Latitude: 40 32 37
Longitude: 79 18 34

REE01
Surface Elevation: 1111'
Latitude: 40 32 19
Longitude: 79 16 53

RUNT01
Surface Elevation: 1109'
Latitude: 40 32 24
Longitude: 79 17 09

REE02
Surface Elevation: 1112'
Latitude: 40 32 25
Longitude: 79 17 06

RUNT02
Surface Elevation: 1103'
Latitude: 40 33 03
Longitude: 79 17 26

RUNT03
Surface Elevation: 1099'
Latitude: 40 33 03
Longitude: 79 17 31

REE03
Surface Elevation: 1100'
Latitude: 40 33 04
Longitude: 79 17 29

RUNT04A
Surface Elevation: 1009'
Latitude: 40 33 21
Longitude: 79 17 27

RUNT04B
Surface Elevation: 1159'
Latitude: 40 33 55
Longitude: 79 17 14

RUNT04C
Surface Elevation: 1148'
Latitude: 40 33 56
Longitude: 79 17 16

REE04
Surface Elevation: 1102'
Latitude: 40 33 19
Longitude: 79 17 31

Watershed Monitoring and Assistance Initiative

RUNT05
Surface Elevation: 1156'
Latitude: 40 33 27
Longitude: 79 17 47

REE05
Surface Elevation: 1159'
Latitude: 40 33 29
Longitude: 79 17 46

RUNT06
Surface Elevation: 1197'
Latitude: 40 33 46
Longitude: 79 17 52

REE06
Surface Elevation: 1197'
Latitude: 40 33 45
Longitude: 79 17 54

RUNT07
Surface Elevation: 1197'
Latitude: 40 33 54
Longitude: 79 18 15

REE07
Surface Elevation: 1200'
Latitude: 40 33 51
Longitude: 78 18 16

AUL05
Surface Elevation: 1129'
Latitude: 40 32 33
Longitude: 79 16 49

UNT08
Surface Elevation: 1128'
Latitude: 40 32 33
Longitude: 79 16 38

UNT09
Surface Elevation: 1122'
Latitude: 40 32 52
Longitude: 79 16 32

UNT10
Surface Elevation: 1109
Latitude: 40 32 59
Longitude: 79 16 12

July 2001
Scott Alexander

UNT11
Surface Elevation: 1101'
Latitude: 40 32 53
Longitude: 79 16 02

AUL06
Surface Elevation: 1099'
Latitude: 40 32 59
Longitude: 79 10 01

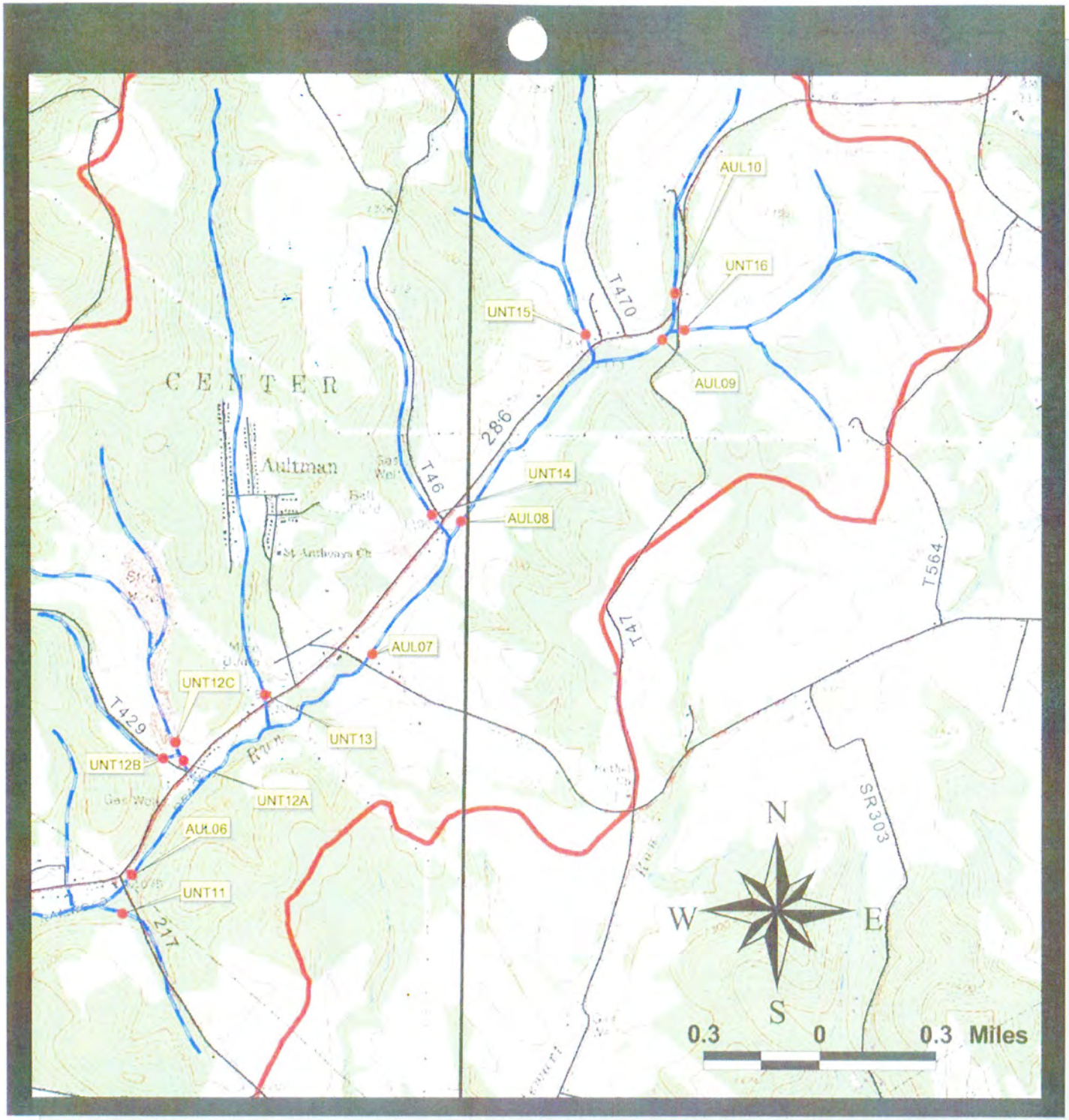
UNT12A
Surface Elevation: 1099'
Latitude: 40 33 14
Longitude: 79 16 55

UNT12B
Surface Elevation: 1099'
Latitude: 40 33 15
Longitude: 79 16 55

UNT12C
Surface Elevation: 1099'
Latitude: 40 33 16
Longitude: 79 15 53

UNT13
Surface Elevation: 1099'
Latitude: 40 33 24
Longitude: 79 15 37

AUL07
Surface Elevation: 1099'
Latitude: 40 38 29
Longitude: 79 15 18



Watershed Monitoring and Assistance Initiative

UNT14
Surface Elevation: 1099'
Latitude: 40 38 49
Longitude: 79 16 39

AUL08
Surface Elevation: 1099'
Latitude: 40 33 48
Longitude: 79 15 02

UNT15
Surface Elevation: 1169'
Latitude: 40 34 14
Longitude: 79 14 39

AUL09
Surface Elevation: 1182'
Latitude: 40 34 11
Longitude: 79 14 35

UNT16
Surface Elevation: 1201'
Latitude: 40 34 15
Longitude: 79 14 21

AUL10
Surface Elevation: 1195'
Latitude: 40 34 16
Longitude: 79 14 23

July 2001
Scott Alexander

Aultmans Run Water Quality Database

Sample Point	Date	Method of Flow Meas.	Flow (gpm)	Field pH	Lab pH	Spec. cond. (umhos/cm)	Field Temp (C)	Alk. (F) (mg/L)	Alk. (L) (mg/L)	Acid. (mg/L)	Fe (mg/L)	D. Fe (mg/L)	Mn (mg/L)	D. Mn (mg/L)	Al (mg/L)	D. Al (mg/L)	Sulfate (mg/L)	Susp. Solids (mg/L)
286 Discharge	11/17/1999	Cross-section	120	6.0	6.3	473	11		48	30	17.1		0.9		0.0		160	41
286 Discharge	12/17/1999	Cross-section	196	5.5	6.5	500	5		0	9	19.8		1.1		0.0		146	24
286 Discharge	4/5/2000				6.3				88	0	16.7		0.8		0.0		250	8
286 Discharge	7/13/2000				6.3				94	0	15.9		0.9		0.0		132	18
286 Discharge	10/11/2000				6.3				74	0	24.7		0.9		0.2		167	14
286 Discharge	1/29/2001		103	6.5	6.7	444	12		76	0	15.8	13.6	0.8	0.7	0.2	0.1	122	5
286 Discharge	2/19/2001			5.9	6.5	471	11		84	0	12.7	11.8	0.7	0.7	1.4	0.9	121	13
286 Discharge	8/30/2001	Bucket	36	6.2	6.4	424	13		73	0	14.3	13.3	0.6	0.6	0.1	0.0	186	17
286 Discharge	10/3/2002			5.9	6.6	482	12		72	-54	19.4	18.7	0.7	0.7	0.2	0.1	207	6
286 Discharge	10/17/2002			6.1	6.6	527	12		66	-44	21.0	20.3	0.8	0.8	0.2	0.1	213	11
286 Discharge	12/19/2002	Bucket	108	6.0	6.0	493	10		60	-33	19.1	18.8	0.8	0.8	0.2	0.1	177	2
286 Discharge	4/2/2004	Assumed	167	6.2	6.7	476	11	85	79	-55	14.4	14.2	0.6	0.6	0.2	0.2	120	12
286 Discharge	6/10/2004	Assumed	131	6.2	6.3	455	12	91	80	-51	14.9	13.8	0.6	0.6	0.2	0.0	133	8
286 Discharge	7/29/2004	Assumed	97	6.2	6.5	477	12	98	73	-36	14.7	13.8	0.6	0.6	0.2	0.1	131	1
286 Discharge	10/18/2004	Assumed	119	6.1	6.5	472	11	95	85	-42	14.4	13.5	0.6	0.6	0.1	0.0	142	10
286 Discharge	2/21/2005	Assumed	187	6.2	6.5	523	11	86	64	-22	18.0	17.6	0.6	0.6	0.3	0.0	194	8
286 Discharge	4/18/2005	Assumed	156	6.4	6.5	480	12	89	84	-42	15.8	15.2	0.7	0.6	0.1	0.0	183	4
Min			36	5.5	6.0	424	5	85	0	-55	12.7	11.8	0.6	0.6	0.0	0.0	120	1
Max			196	6.5	6.7	527	13	98	94	30	24.7	20.3	1.1	0.8	1.4	0.9	250	41
Avg			129	6.1	6.4	478	11	91	71	-20	17.0	15.4	0.7	0.7	0.2	0.1	164	12
Range			160	1.0	0.7	103	8	13	94	84	12.0	8.6	0.5	0.2	1.4	0.9	130	40

Description: Deep mine gravity drain; North East side of electric lines and South of SR-286

Aultmans Run Water Quality Database

Sample Point	Date	Method of Flow Meas.	Flow (gpm)	Field pH	Lab pH	Spec. cond. (umhos/cm)	Field Temp (C)	Alk. (F) (mg/L)	Alk. (L) (mg/L)	Acid. (mg/L)	Fe (mg/L)	D. Fe (mg/L)	Mn (mg/L)	D. Mn (mg/L)	Al (mg/L)	D. Al (mg/L)	Sulfate (mg/L)	Susp. Solids (mg/L)
85-13	8/30/2001			7.3	6.9	353	20		68	0	1.4		0.3		0.2		85	10
85-13	10/3/2002			7.1	7.3	537	15		81	-68	6.5	0.8	0.5	0.5	0.2	0.1	165	6
85-13	10/17/2002			7.0	7.2	232	11		42	-38	0.7	0.3	0.1	0.1	0.3	0.0	48	4
85-13	4/2/2004			7.0	7.1	168	8		21	-14	0.4	0.1	0.1	0.1	0.3	0.2	43	4
85-13	6/10/2004			7.1	6.8	344	20	55	64	-49	2.4	0.0	0.5	0.2	0.4	0.0	93	17
85-13	7/29/2004			7.0	7.0	181	19		27	-16	0.4	0.1	0.1	0.0	0.1	0.1	31	2
85-13	10/18/2004			7.0	7.0	335	9		51	-39	2.7	1.5	0.4	0.4	0.1	0.0	84	7
85-13	2/21/2005			6.7	6.9	177	5		20	-11	0.5	0.2	0.1	0.1	0.3	0.1	37	10
85-13	4/18/2005			7.3	7.2	57	18	28	39	-30	0.8	0.4	0.1	0.1	0.0	0.0	18	7
Min				6.7	6.8	57	5	28	20	-68	0.4	0.0	0.1	0.0	0.0	0.0	18	2
Max				7.3	7.3	537	20	55	81	0	6.5	1.5	0.5	0.5	0.4	0.2	165	17
Avg				7.1	7.0	265	14	42	46	-29	1.7	0.4	0.2	0.2	0.2	0.1	67	7
Range				0.6	0.5	480	15	27	61	68	6.1	1.5	0.5	0.4	0.4	0.2	146	15

Description: Aultman Run directly downstream of 286 discharge and unnamed tributary (Old 13a).

Aultmans Run Water Quality Database

Sample Point	Date	Method of Flow Meas.	Flow (gpm)	Field pH	Lab pH	Spec. cond. (umhos/cm)	Field Temp (C)	Alk. (F) (mg/L)	Alk. (L) (mg/L)	Acid. (mg/L)	Fe (mg/L)	D. Fe (mg/L)	Mn (mg/L)	D. Mn (mg/L)	Al (mg/L)	D. Al (mg/L)	Sulfate (mg/L)	Susp. Solids (mg/L)
85-14	11/17/1999	Cross-section	96	5.9	7.1	198	10		35	2	0.2		0.1		0.0		29	8
85-14	12/16/1999	Cross-section	7405	5.7	7.2	133	4		13	2	0.3		0.1		0.0		23	2
85-14	1/26/2000	Estimated	110	6.2	7.4	207	3		22	4	0.3		0.1		0.0		23	3
85-14	2/25/2000	Cross-section	4299	6.5	7.3	172	12		15	2	0.1		0.0		0.0		21	7
85-14	3/29/2000	Cross-section	3541	5.9	7.4	130	10		18	4	0.6		0.0		0.3		22	3
85-14	4/24/2000	Cross-section	5386	6.1	7.4	122	16		15	3	0.1		0.0		0.0		21	2
85-14	8/30/2001			7.3	6.9	215	24		52	0	0.5		0.2		0.2		41	5
85-14	10/3/2002			7.1	7.4	281	16		60	-54	0.6	0.4	1.2	0.7	0.4	0.1	70	3
85-14	10/17/2002			7.0	7.2	236	11		39	-35	0.4	0.2	0.1	0.1	0.3	0.0	50	7
85-14	4/2/2004			7.1	7.1	133	8		17	-9	0.3	0.0	0.1	0.0	0.2	0.1	31	3
85-14	6/10/2004			7.1	6.9	227	20	53	56	-39	1.0	0.1	0.2	0.2	0.4	0.0	34	13
85-14	7/29/2004			7.0	7.0	162	19		24	-10	0.4	0.0	0.1	0.1	0.1	0.0	23	1
85-14	10/18/2004			7.0	7.0	192	9		42	-29	0.5	0.3	0.2	0.1	0.1	0.0	38	23
85-14	2/21/2005			6.8	7.0	166	4		21	-11	0.3	0.1	0.0	0.0	0.1	0.0	30	7
85-14	4/18/2005			7.6	18.0	149	18	28	25	-19	0.0	0.0	0.0	0.0	0.0	0.0	34	2
Min			96	5.7	6.9	122	3	28	13	-54	0.0	0.0	0.0	0.0	0.0	0.0	21	1
Max			7405	7.6	18.0	281	24	53	60	4	1.0	0.4	1.2	0.7	0.4	0.1	70	23
Avg			3473	6.7	7.9	182	12	41	30	-13	0.4	0.1	0.2	0.1	0.1	0.0	33	6
Range			7309	1.9	11.1	159	21	25	47	59	1.0	0.4	1.2	0.7	0.4	0.1	49	22

Description: Aultman Run upstream of 286 discharge

Aultmans Run Water Quality Database

Sample Point	Date	Method of Flow Meas.	Flow (gpm)	Field pH	Lab pH	Spec. cond. (umhos/cm)	Field Temp (C)	Alk. (F) (mg/L)	Alk. (L) (mg/L)	Acid. (mg/L)	Fe (mg/L)	D. Fe (mg/L)	Mn (mg/L)	D. Mn (mg/L)	Al (mg/L)	D. Al (mg/L)	Sulfate (mg/L)	Susp. Solids (mg/L)
85-15	10/3/2002			7.4	7.9	603	12		109	-96	0.2	0.1	0.2	0.2	0.2	0.2	112	1
85-15	10/17/2002			7.4	7.6	390	12		66	-61	0.3	0.2	0.4	0.3	0.3	0.1	97	6
Min				7.4	7.6	390	12		66	-96	0.2	0.1	0.2	0.2	0.2	0.1	97	1
Max				7.4	7.9	603	12		109	-61	0.3	0.2	0.4	0.3	0.3	0.2	112	6
Avg				7.4	7.8	497	12		87	-79	0.3	0.1	0.3	0.2	0.3	0.1	105	4
Range				0.0	0.3	213	0		43	36	0.1	0.1	0.2	0.2	0.0	0.1	15	5

Description: Unnamed tributary entering Aultmans Run near mouth of 286 Discharge

Aultmans Run Water Quality Database

Sample Point	Date	Method of Flow Meas.	Flow (gpm)	Field pH	Lab pH	Spec. cond. (umhos/cm)	Field Temp (C)	Alk. (F) (mg/L)	Alk. (L) (mg/L)	Acid. (mg/L)	Fe (mg/L)	D. Fe (mg/L)	Mn (mg/L)	D. Mn (mg/L)	Al (mg/L)	D. Al (mg/L)	Sulfate (mg/L)	Susp. Solids (mg/L)
85-16	10/3/2002	Bucket	50	6.9	6.9	470	14		57	-51	12.9	10.4	0.7	0.7	0.1	0.0	198	4
85-16	10/17/2002	Bucket	60	6.9	6.8	488	12		55	-46	14.8	13.9	0.8	0.7	0.1	0.0	193	10
85-16	4/2/2004	Bucket	167	7.0	7.3	448	12	78	77	-65	6.9	4.4	0.7	0.7	0.2	0.2	158	2
85-16	6/10/2004	Bucket	131	7.0	6.9	406	19	73	72	-59	4.3	1.6	0.8	0.7	0.2	0.0	105	10
85-16	7/29/2004	Bucket	97	7.0	7.1	475	23	77	70	-56	0.9	0.7	0.7	0.5	0.2	0.0	127	5
85-16	10/18/2004	Bucket	119	7.1	6.8	443	11	77	66	-42	8.2	5.3	0.6	0.6	0.1	0.1	121	11
85-16	2/21/2005	Bucket	187	6.9	6.8	494	9	65	52	-37	10.3	9.9	0.7	0.7	0.0	0.0	177	13
85-16	4/18/2005	Bucket	156	7.0	6.8	438	19	77	70	-58	6.3	4.6	0.6	0.5	0.0	0.0	144	8
Min			50	6.9	6.8	406	9	65	52	-65	0.9	0.7	0.6	0.5	0.0	0.0	105	2
Max			187	7.1	7.3	494	23	78	77	-37	14.8	13.9	0.8	0.7	0.2	0.2	198	13
Avg			121	7.0	6.9	458	15	75	65	-52	8.1	6.3	0.7	0.6	0.1	0.0	153	8
Range			137	0.2	0.5	88	14	13	25	28	13.9	13.2	0.2	0.2	0.2	0.2	93	11

Description: 286 Discharge at the end of the constructed channel before entering Aultman Run

Aultmans Run Water Quality Database

Sample Point	Date	Method of Flow Meas.	Flow (gpm)	Field pH	Lab pH	Spec. cond. (umhos/cm)	Field Temp (C)	Alk. (F) (mg/L)	Alk. (L) (mg/L)	Acid. (mg/L)	Fe (mg/L)	D. Fe (mg/L)	Mn (mg/L)	D. Mn (mg/L)	Al (mg/L)	D. Al (mg/L)	Sulfate (mg/L)	Susp. Solids (mg/L)
WL	4/2/2004	Assumed	167	6.9	7.3	445	12	78	71	-57	9.0	5.9	0.7	0.7	0.2	0.1	123	5
WL	6/10/2004	Assumed	131	6.7	6.7	403	19	73	67	-52	4.9	2.2	0.8	0.7	0.3	0.0	89	9
WL	7/29/2004	Assumed	97	6.5	6.9	478	23	72	68	-51	3.1	1.7	0.6	0.6	0.0	0.0	143	1
WL	10/18/2004	Assumed	119	6.7	6.7	437	11	77	67	-46	8.8	6.4	0.6	0.6	0.0	0.0	129	5
WL	2/21/2005	Assumed	187	6.7	6.7	500	9	78	53	-35	12.5	11.6	0.7	0.7	0.2	0.2	181	16
WL	4/18/2005	Assumed	156	6.6	6.7	443	17	80	70	-56	7.9	7.1	0.7	0.6	0.0	0.0	153	6
Min			97	6.5	6.7	403	9	72	53	-57	3.1	1.7	0.6	0.6	0.0	0.0	89	1
Max			187	6.9	7.3	500	23	80	71	-35	12.5	11.6	0.8	0.7	0.3	0.2	181	16
Avg			143	6.7	6.8	451	15	76	66	-50	7.7	5.8	0.7	0.6	0.1	0.0	136	7
Range			90	0.4	0.6	97	14	8	17	23	9.3	9.9	0.2	0.2	0.3	0.2	92	15

Description: Effluent of constructed aerobic wetland at rip-rap spillway.