WATERSHED PLAN

AND

ENVIRONMENTAL ASSESSMENT

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
HARRISBURG, PENNSYLVANIA

IN COOPERATION WITH

BLAIR COUNTY COMMISSIONERS
BLAIR CONSERVATION DISTRICT

WITH ASSISTANCE
FROM THE

HORSESHOE CURVE RESOURCE COALITION

JULY 1997

United States
Department of
Agriculture

Natural Resources
Conservation
Service

Suite 340
One Credit Union Place
Harrisburg, PA 17110-2993

February 13, 1998

Manager
Altoona City Authority
20 Greenwood Road
Altoona, Pennsylvania 16602

Dear Sir:

We are pleased to inform you that the acting Chief of the Natural Resources Conservation Service (NRCS) authorized financial assistance for installing works of improvement in the Glenwhite Run Watershed Project in Blair and Cambria Counties, Pennsylvania. This assistance is provided under authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566.

A copy of the final Watershed Plan - Environmental Assessment for this water quality improvement project is enclosed for your information. The project is sponsored by the Blair County Commissioners, and the Blair Conservation District.

Thank you for your review and comments regarding the draft Watershed Plan - Environmental Assessment. We incorporated your comments into this final watershed plan. If you need additional information, please contact Daniel R. Seibert, Resource Conservationist at (814) 445-8979.

Sincerely,

Janet L. Oertly

JANET L. OERTLY
State Conservationist

Enclosure

cc: Thomas Matticks, ASTC Field Operations West, NRCS, Clarion, PA
Joseph E. Shevchik, Supervisory District Conservationist, Ebensburg, PA
Rob Clauto, District Conservationist, Hollidaysburg, PA
Jeffrey Mahood, Environmental Planning Specialist, NRCS, Harrisburg, PA

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WATERSHED PLAN and ENVIRONMENTAL ASSESSMENT

for the

GLENWHITE RUN WATERSHED AREA
BLAIR AND CAMBRIA COUNTIES, PENNSYLVANIA

ABSTRACT:

The Glenwhite Run Watershed Plan and Environmental Assessment describes a plan for treating mine drainage discharges to improve water quality and restore aquatic habitat. The project area is located in Blair and Cambria Counties, Pennsylvania. The Glenwhite Run project area drains into Burgoon Creek, a tributary to the Frankstown Branch of the Juniata River in the Susquehanna River Basin. Alternative plans developed included No Action and the Recommended Plan. Other alternatives were also considered. The recommended plan is to construct 8 passive treatment systems to treat acid mine drainage. Economic benefits will exceed the costs. Sponsors will incur about fifty one percent (51%) of the total project cost of $1,569,000. The project will improve water quality and restore or enhance aquatic habitat on 3.2 miles of Glenwhite Run, and the water supply reservoir for the City of Altoona. Other project benefits include increased property values, enhanced aesthetics, improved recreation potentials, diversified wildlife habitats, technology transfer, and enhancement of environmental education opportunities . There are no significant adverse environmental impacts from this project. The document is intended to fulfill requirements of the National Environmental Policy Act (NEPA) of 1969, as amended.

FOR ADDITIONAL INFORMATION CONTACT:

Janet L. Oertly
State Conservationist
USDA,
Natural Resources Conservation Service
Suite 340, One Credit Union Place
Harrisburg, Pennsylvania 17110-2993

PREPARED BY:

United States Department of Agriculture
Natural Resources Conservation Service
Somerset, Pennsylvania

In cooperation with

Blair County Commissioners
Blair Conservation District

GLENWHITE RUN

WATERSHED AGREEMENT

Between the

The Blair County Commissioners
and
The Blair Conservation District

(Referred to herein as Sponsors)

and the
United States Department of Agriculture
Natural Resources Conservation Service
(Referred to herein as NRCS)

Whereas, application has heretofore been made to the Secretary of Agriculture by the Sponsors for assistance in preparing a plan for works of improvement for the Glenwhite Run project area, Commonwealth of Pennsylvania, under the authority of the Watershed Protection and Flood Prevention Act (16 U.S.C. 1001-1008); and

Whereas, the responsibility for administration of the Watershed Protection and Flood Prevention Act (PL 83-566), as amended, has been assigned by the Secretary of Agriculture to NRCS; and

Whereas, there has been developed through the cooperative efforts of the Sponsors and NRCS a plan for works of improvement for the Glenwhite Run project area, Commonwealth of Pennsylvania, hereinafter referred to as the Watershed Plan and Environmental Assessment, which plan is annexed to and made a part of this agreement;

Now, therefore, in view of the foregoing considerations, the Secretary of Agriculture, through NRCS, and the Sponsors hereby agree on this plan and that the works of improvement for this project will be installed, operated, and maintained in accordance with the terms, conditions, and stipulations provided for in this Watershed Plan and Environmental Assessment, including the following:

1. The Sponsors will acquire, with other than PL 83-566 funds, such land rights as will be needed in connection with the works of improvement. (Estimated cost $ 29,000.00.)

   The Sponsors agree that all land acquired or improved with PL 83-566 financial or credit assistance will not be sold or otherwise disposed of for the evaluated life of the project except to a public agency which will continue to maintain and operate the development in accordance with the Operation and Maintenance Agreement.

2. The Sponsors hereby agree that they will comply with all of the policies and procedures of the Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 U. S. C. 4601 et seq. as implemented by 7 CFR, Part 21) when acquiring real property interests for this federally-assisted project. If the Sponsors are legally unable to comply with the real property acquisition requirements of the Act, they agree that, before any federal financial assistance is furnished, they will provide a statement to that effect, supported by an opinion of the chief legal officer of the state containing a full discussion of the facts and law involved. This statement may be accepted as constituting compliance. In any event, the Sponsors agree that they will reimburse owners for necessary expenses as specified in 7 CFR, Part 21, 1006 (c) and 21.1007.

   The cost of relocation payments in connection with the displacements under the Uniform Act will be shared by the Sponsors and NRCS as follows:

	Sponsors	NRCS	Estimated Relocation Payment Costs
	(percent)	(percent)	(dollars)
Relocation Payments	51%	49%	$0[1]

3. The Sponsors will acquire or provide assurance that landowners or water users have acquired such water rights pursuant to state law as may be needed in the installation and operation of the works of improvement.

4. The Sponsors will obtain all necessary federal, state, and local permits required by law, ordinance, or regulation for installation of the works of improvement.

5. The percentages of construction costs to be paid by the Sponsors and by the NRCS are as follows:

Works of Improvement	Sponsors	NRCS	Estimated Construction Costs
	(percent)	(percent)	(dollars)
All Treatment Sites	50%	50%	$1,288,000

[1] Investigation of the watershed project area indicates that no displacements will be involved under present conditions. However, in the event that displacement becomes necessary at a later date, the cost of relocation assistance and payments will be cost shared in accordance with the percentages shown.

NOTE: The percentage of construction cost that the Sponsors pay may vary by site, as long as they bear fifty percent (50%) of the total construction cost. Effort will be made to keep the percentages as close to 50/50 as possible, as continued funding cannot be guaranteed by either party.

6. The Sponsors and NRCS will bear the costs of engineering services, estimated to be $64,000.00 each.

7. The Sponsors and NRCS will bear the costs of project administration that each incurs, estimated to be $62,000.00 each.

8. The Sponsors will be responsible for the operation, maintenance, and replacement of all the works of improvement described in this plan by actually performing the work or arranging for such work, in accordance with agreements to be entered into before issuing invitations to bid for construction work, regardless of the Agency actually performing the work. The estimated O&M cost are $7,800 per year.

9. The Sponsors will encourage landowners and operators to operate and maintain land treatment measures for the protection and improvement of the watershed.

10. The costs shown in this plan are preliminary estimates. Final costs to be borne by the parties hereto, will be the actual costs incurred in the installation of works of improvement.

11. This agreement **is not** a fund-obligating document. Financial and other assistance to be furnished by NRCS in carrying out the plan is contingent upon the fulfillment of applicable laws and regulations and the availability of appropriations for this purpose. Participation by the Blair County Commissioners as Sponsors is contingent upon obtaining funding sources other than the County General Fund to pay for the Sponsors' share of the project costs.

12. A separate agreement will be entered into between NRCS and Sponsors before either party initiates work involving funds of the other party. Such agreement will set forth in detail the financial and working arrangements and other conditions that are applicable to the specific works of improvement. In the event that adequate funding sources for the Sponsors' share of the project costs cannot be obtained in a timely fashion, the County shall have the right to terminate the agreement and withdraw as a project Sponsor, as long as they have met their obligations as outlined in #5 above.

13. This plan may be amended or revised only by mutual agreement of the parties hereto, except that NRCS may deauthorize or terminate funding at any time it determines that the Sponsors have failed to comply with the conditions of this agreement. In this case, NRCS shall promptly notify the Sponsors in writing of the determination and the reasons for the deauthorization of the project funding, together with the effective date. Payments made to the Sponsors or recoveries by

NRCS shall be in accord with the legal rights and liabilities of the parties when project funding has been deauthorized. An amendment to incorporate changes affecting a specific measure may be made by mutual agreement between NRCS and the Sponsor(s) having specific responsibilities for the measure involved.

14. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this plan, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

15. The program conducted will be in compliance with the nondiscrimination provisions as contained in Titles VI and VII of the Civil Rights Act of 1964, as amended, the Civil Rights Restoration Act of 1987 (Public Law 100-259) and other nondiscrimination statues, namely, Section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, and in accordance with the regulations of the Secretary of Agriculture (7 CFR 15, Subparts A & B), which provide that no person in the United States shall, on the grounds of race, color, national origin, age, sex, religion, marital status, or handicap be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance from the Department of Agriculture or any agency thereof.

16. Certification Regarding Drug-Free Workplace Requirements (7 CFR 3017, Subpart F).

    By signing this watershed agreement, the Sponsors are providing the certification set out below. If it is later determined that the Sponsors knowingly rendered a false certification, or otherwise violated the requirements of the Drug-Free Workplace Act, the NRCS, in addition to any other remedies available to the Federal Government, may take action authorized under the Drug-Free Workplace Act.

    Controlled substance means a controlled substance in Schedules I through V of the Controlled Substances Act (21 U.S.C. 812) and as further defined by regulation (21 CFR 1308.11 through 1308.15);

    Conviction means a finding of (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statues;

    Criminal drug statute means a Federal or non-Federal criminal statute involving the manufacturing, distribution, dispensing, use, or possession of any controlled substance;

    Employee means the employee of a grantee directly engaged in the performance of work under a grant, including: (1) all

direct charge employees; (ii) all indirect charge employees unless their impact or involvement is insignificant to the performance of the grant; and, (iii) temporary personnel and consultants who are directly engaged in the performance of work under the grant and who are on the grantee's payroll. This definition does not include workers not on the payroll of the grantee (e.g. volunteers, even if used to meet a matching requirement; consultants or independent contractors not on the grantees' payroll; or employees of subrecipients or subcontractors in covered workplaces).

Certification:

A. The Sponsors certify that they will provide or they will continue to provide a drug-free workplace by:

(1) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(2) Establishing an ongoing drug-free awareness program to inform employees about --

(a) The danger of drug abuse in the work-place;

(b) The grantee's policy of maintaining a drug-free workplace;

(c) Any available drug counseling, rehabilitation, and employee assistance programs; and

(d) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.

(3) Making it a requirement that each employee to be engaged in performance of the grant be given a copy of the statement required by paragraph (1);

(4) Notifying the employee in the statement required by paragraph (1) that, as a condition of employment under the grant, the employee will --

(a) Abide by the terms of the statement; and

(b) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

(5) Notifying the NRCS in writing, within ten calendar days after receiving notice under paragraph (4)(b) from an employee or otherwise receiving actual notice

of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

(6) Taking one of the following actions, within 30 calendar days of receiving notice under paragraph (4)(b), with respect to any employee who is so convicted --

(a) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

(b) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency.

(7) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (1), (2), (3), (4), (5), and (6).

B. The Sponsors may provide a list of the site(s) for the performance of work done in connection with a specific project or other agreement.

C. Agencies shall keep the original of all disclosure reports in the official files of the agency.

17. Certification Regarding Lobbying (7 CFR 3018) (applicable if this agreement exceeds $100,000).

(1) The Sponsors certify to the best of their knowledge and belief, that:

(a) No federal appropriated funds have been paid or will be paid, by or on behalf of the Sponsors, to any person for influencing or attempting to influence an officer or employee of an agency, Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(b) If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(c) The Sponsors shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

(2) This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

18. Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions (7 CFR 3017).

(1) The Sponsors certify to the best of their knowledge and belief, that they and their principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency.

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (federal, state, or local) terminated for cause or default.

(2) Where the primary Sponsors are unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this agreement.

SIGNATURE SHEET

PL 83-566 WATERSHED AGREEMENT
GLENWHITE RUN PROJECT AREA, PENNSYLVANIA

The signing of this PL 83-566 Watershed Agreement by an authorized representative of the Sponsors indicates that the Sponsors have reviewed the Glenwhite Run (PL 83-566) Plan for water quality improvement and concur with the intent and contents of the Plan.

The signing of this agreement was authorized by a resolution of the governing body of the Blair County Commissioners adopted at a meeting held on 9/16/97.

COUNTY OF BLAIR
BOARD OF COMMISSIONERS

ATTEST:

Chief Clerk

John J. Ebersole, President

John H. Eichelberger, Jr., Vice President

Donna D. Gority, Secretary

SIGNATURE SHEET

PL 83-566 WATERSHED AGREEMENT
GLENWHITE RUN PROJECT AREA, PENNSYLVANIA

The signing of this agreement was authorized by a resolution of the governing body of the Blair Conservation District adopted at a meeting held on September 15, 1997.

Blair Conservation District
1407 Blair Street
Hollidaysburg, Pennsylvania 16648

By: Franklin D Long

Title: Chairman

Date: September 15, 1997

SIGNATURE SHEET

PL 83-566 WATERSHED AGREEMENT
GLENWHITE RUN PROJECT AREA, PENNSYLVANIA

Natural Resources Conservation Service
United States Department of Agriculture

Approved by: Janet L Oertly

JANET L. OERTLY
STATE CONSERVATIONIST

Date: 9-23-97

1 - EXECUTIVE SUMMARY

The Natural Resources Conservation Service (NRCS) began work on the Glenwhite Run project early in 1995, in cooperation with the Horseshoe Curve Resource Coalition (HCRC). The HCRC is a group of individuals and local organizations whose interest is improving the water quality in Glenwhite Run and its tributaries. The coalition is guided by the Blair Conservation District. The individuals and groups who make up the coalition represent a wide range of interests and technical disciplines. The Glenwhite Run project area is in a sub-basin which is a medium priority on Pennsylvania's Degraded Watershed List. The Blair Conservation District requested assistance in treating severely degraded surface water quality in the project area.

The purpose of this project will be to improve water quality and aquatic habitat in Glenwhite Run and Kittanning Point reservoir. The water quality in this stream and lake will be improved by decreasing concentrations of acid, aluminum, iron and manganese.

This Watershed Plan and Environmental Assessment (Plan-EA) identifies problems, objectives, and alternatives, evaluates the effects of the alternatives, and recommends solutions to the identified problems.

The sites have a combination of problems that will be corrected. They include deep mine discharges that have large flows of mine drainage, smaller flows of nonpoint mine seepage, and large, poorly vegetated areas that are eroding at excessive rates.

The sites are located in the Glenwhite Run watershed in the central portion of Blair County, just to the west of the City of Altoona Pennsylvania. All sites are located north of U.S. Route 22 and are just west of the Horseshoe Curve, National Historic Landmark. The Glenwhite Run project area is within 120 miles of Pittsburgh, population 2.25 million, and within 30 miles of Johnstown, Ebensburg and Bedford. The population in Blair County is 130,542. The Population of Altoona is 51,881.

Treatment will be accomplished through the construction of Successive Alkalinity Producing Systems (SAPS), anoxic limestone drains, aerobic wetlands, limestone waterways, and settling ponds, that will neutralize acidity, and enhance the precipitation of iron, aluminum and manganese. Sizing of the treatment systems will be done by analyzing water samples and measuring flow at the major mine drainage sites that have been identified in the Glenwhite Run project area. Approximately 37 acres of abandoned mine land will be treated with alkaline materials to neutralize acid and promote permanent vegetative cover. The addition of alkaline material will also increase alkalinity levels in the receiving streams and improve water quality that will result in enhanced aquatic habitat. Riparian forest buffers will be maintained to protect water quality and aquatic habitat.

Diversions and waterways will be used to manage surface water flows around and through the sites. All disturbed areas will be limed, fertilized, mulched and seeded. Erosion and sediment control practices will be used during construction.

No existing jurisdictional wetlands occur at any proposed site locations.

Total estimated costs for all eight sites are as listed below:

	PL 83-566 Funds	Other Funds	Total Costs
Construction	$644,000	$644,000	$1,288,000
Engineering	64,000	64,000	128,000
Project Admin.	62,000	62,000	124,000
Land Rights	0	29,000	29,000
Total Costs	$770,000	$799,000	$1,569,000

It is not expected that there will be any housing or utility relocation costs. Operation and maintenance costs for the eight sites is estimated at $7,800 per year.

The social and ecological benefits of this project will improve the public water supply for Altoona, improve water quality with regards to aquatic life in Glenwhite Run, it's tributaries and Kittanning Point reservoir. Some specific social and ecological benefits include the revegetation of 37 acres of existing abandoned mine land, restoration of 3.2 miles of cold water trout fishery, enhancement of water quality and aquatic habitat in the 20 acre Kittanning Point reservoir and the creation of approximately nine acres of wetland habitat.

The Total Average Annual Benefits are $168,400. This compares with the Total Average Annual Costs of $147,800. The calculated benefit to cost ratio is 1.14:1.0.

Obviously recognized but difficult to quantify economic benefits such as the value of aesthetics on Glenwhite Run and at the visitor center for the Horseshoe Curve, operated by the Altoona Railroaders Memorial Museum along with unquantified values for industrial benefits make the benefits of this project clearly exceed the costs.

2 - SUMMARY OF THE GLENWHITE RUN RESOURCE PLAN AND ENVIRONMENTAL ASSESSMENT

PROJECT NAME: Glenwhite Run Counties: Blair and Cambria State: PA

SPONSORS: Blair County Commissioners
Blair Conservation District

DESCRIPTION OF THE RECOMMENDED PLAN:

The recommended plan will treat acid mine drainage from several drainage discharge points. Successive Alkalinity Producing Systems (SAPS) anoxic limestone drains, aerobic wetlands, limestone waterways, settling ponds, addition of alkaline materials to abandoned mine land and revegetation will be used to improve water quality.

RESOURCE INFORMATION:

Size of watershed (acres)	3540
Land cover - Total cropland (acres)	0
Pastureland (acres)	0
Woodland (acres)	3090
Mined land (acres)	450

Land ownership-Private(%) 99 State-Local(%) 1 Federal(%) 0
Prime and important farmland (620 acres)
Wetlands (acres): 0 (U.S. Fish and Wildlife Service, 1987)
Project beneficiary profile:

1990 CENSUS DATA

	Project Area	State	Nation
Per-capita income	$10,398	$14,068	$14,420
Unemployment	7.0%	6.0%	6.3%
Property value (median)	$41,100	$69,900	$79,100

Cultural Resources: Literature search and on-site investigation by the Pennsylvania Historical and Museum Commission indicate that there is no archaeological significance at any proposed treatment site.

PROBLEM IDENTIFICATION:

1. Mine drainage from abandoned coal mines is degrading the quality and quantity of aquatic habitat on 3.2 miles of Glenwhite Run and 20 acres of Kittanning Point reservoir.

2. Increased operating costs for the treatment of drinking water for the residents of Altoona.

3. Visual quality and aesthetics on Glenwhite Run is adversely affected by iron staining of Glenwhite Run and aluminum discoloration of Kittanning Point reservoir.

SPONSORS OBJECTIVES: Return Glenwhite Run to a productive aesthetically pleasing stream that supports a cold water fishery. Improve the aesthetics of Kittanning Point reservoir and reduce domestic water treatment costs.

ALTERNATIVE PLANS CONSIDERED: No action
Recommended Plan

PROJECT PURPOSE: Aquatic biology restoration through water quality improvement.

PRINCIPAL PROJECT MEASURES: Successive alkalinity producing systems (SAPS), anoxic limestone drains (ALD), Aerobic wetlands, settling ponds surface water controls, surface addition of alkaline material, seeding, and access roads.

PROJECT COSTS[1]:

PL 83-566 Funds	Other Funds	Total Costs
$770,000 (49%)	$799,000 (51%)	$1,569,000 (100%)

Average annual total costs are $147,800.

PROJECT BENEFITS: Average annual water quality improvement benefits are $168,400.

Net Economic Benefits are $21,000.[2]

OTHER BENEFITS: Improved fish habitat, improved educational opportunities and technology transfer, and enhanced recreation.

ENVIRONMENTAL VALUES CHANGED:

Water Quality - (+) mine drainage contaminants will be controlled, resulting in stream renovation that will support aquatic life in 3.2 miles of Glenwhite Run, and 20 acres of Kittanning Point reservoir

Flood plain - No effect

Wetland (acres) -	(+) About 9 acres of wetlands will be created.
Fish Habitat (miles) -	(+) 3.2 miles of Glenwhite Run will be restored to support a high quality cold water sport fishery.
Fish Habitat (acres) -	(+) 20 acres of Kittanning Point reservoir will be restored to a trout fishery.
Threatened and Endangered Species -	No effect.
Wildlife Habitat (units) -	(+) The cover types affected by the project are woodland and poorly vegetated abandoned mine land. Ten habitat units will be created for wood duck and six for Canada goose. (one habitat unit equals one acre of optimum habitat)
Erosion and Sediment (acres) -	(+) 37 acres of existing strip mine and deep mine refuse piles will be revegetated and planted to a grass-legume mixture. Erosion will be reduced by 500 tons per year. Sediment will be reduced by 300 tons per year. (-) Earth disturbance during construction may cause a temporary increase in erosion and sedimentation.
Flood Prevention -	No effect.
Agricultural Water Management:	
Irrigation	No effect.
Drainage	No effect.
Rural Water Supply	(+) Increase of quality.
Important Farmland -	No effect.
Recreation -	(+) Increase of 3.2 miles of sport fishery in Glenwhite Run.
Cultural Resources -	No Effect.
Municipal & Industrial Water -	(+) Improve the water supply of Altoona and reduce operating costs of the Altoona City Authority by $89,000 per year.
Civil Rights -	(+) All people, including economically disadvantaged groups, minorities, women and persons with disabilities will be positively benefited by the project.

Visual Resources -	(+) There will be a visual enhancement of the stream and reservoir viewed by the public at the Horseshoe Curve National Historic Landmark.
Land Use Changes -	(+) 15 acres of woodland will be changed to wetland and open water. 10 acres of woodland will be transformed to grassland. 37 acres of abandoned mine land will be converted to grassland.
Information and Education -	(+) The constructed treatment wetlands will enhance educational opportunities for local residents, local school districts and Penn State University.
MITIGATION:	None required.
MAJOR CONCLUSIONS:	A feasible project can be installed
AREAS OF CONTROVERSY:	None.
ISSUES TO BE RESOLVED:	None.

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[1]1997 Price Base
[2]1997 Price Base, amortized over 25 years at 7.3750% discount rate.

3 - INTRODUCTION

The Watershed Plan and Environmental Assessment for the Glenwhite Run project area have been combined into a single document Plan-EA. The document identifies the problems in the project area, describes plan formulation, discloses the expected impacts, and provides the basis for authorizing federal assistance for implementation. The purpose of the Plan-EA is aquatic biology restoration and water quality improvement through the establishment of successive alkalinity producing systems (SAPS), anoxic limestone drains, aerobic wetlands, limestone waterways, and settling ponds. Approximately 37 acres of abandoned mine land will be treated with alkaline materials to neutralize acid and promote permanent vegetative cover. Riparian forest buffers will be maintained to protect water quality and aquatic habitat.

The sponsoring local organizations are:

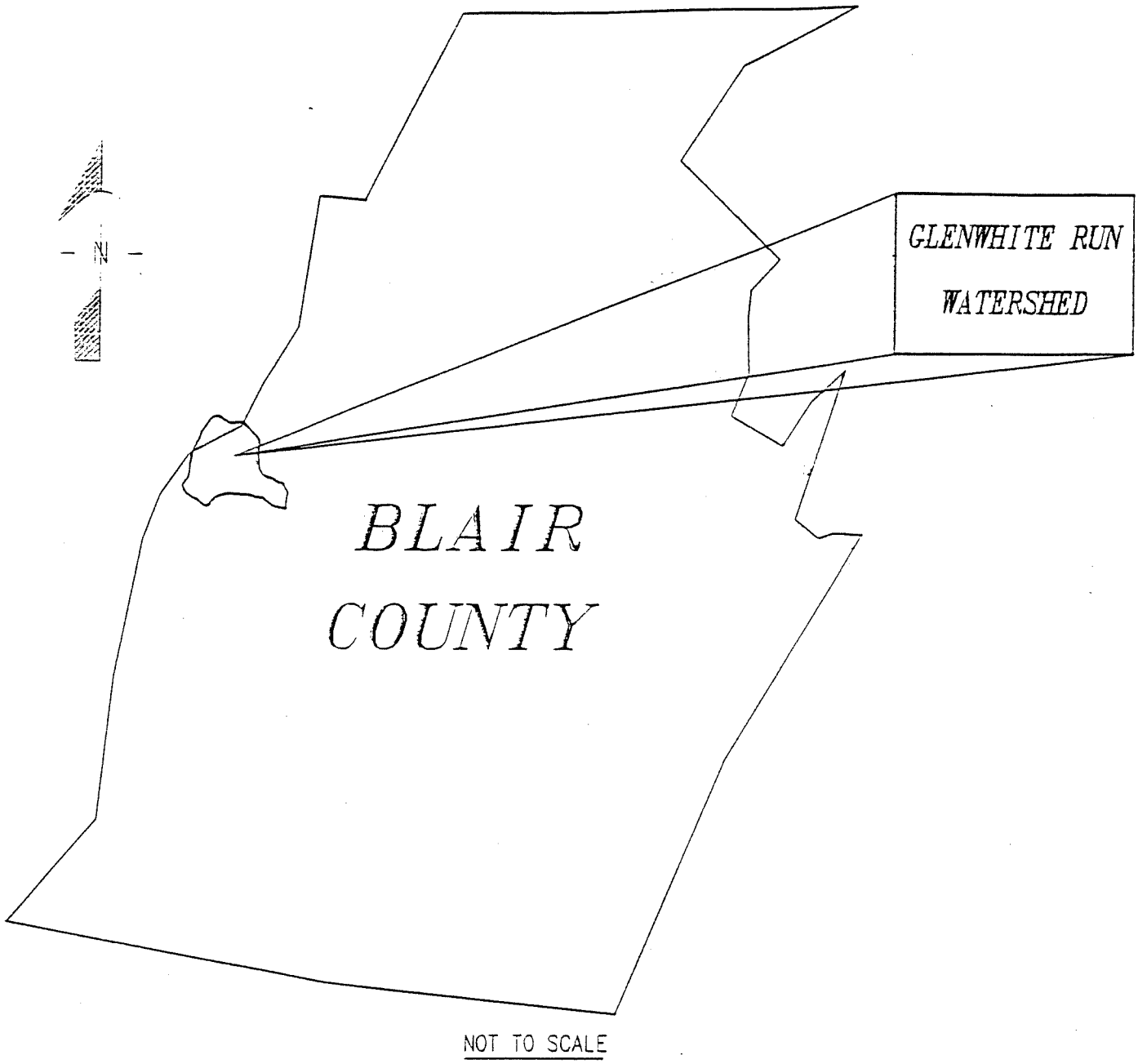
Blair County Commissioners

Blair Conservation District

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) and Pennsylvania Department of Environmental Protection's, Bureau of Abandoned Mine Reclamation provided assistance to the sponsors in the development of this plan.

The plan was prepared under authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, as amended (16-USC-1001-1008) and in accordance with Section 102-(2)(c) of the National Environmental Policy Act of 1969 (NEPA), Public Law 91-190, as amended (42-USC-4321 et seq.). Responsibility for compliance with NEPA rests with NRCS.

FIGURE 1



GLENWHITE RUN LOCATION MAP

4 - PROJECT SETTING

The Glenwhite Watershed constitutes a portion of the western reaches of the Chesapeake Bay Drainage Area. Of more importance locally however, this headwater watershed drains in an easterly direction and into the impounding dam associated with the Altoona City Authority's water supply system at Kittanning Point reservoir. Glenwhite Run, today, is nearly void of aquatic life, and is a significant and very costly source of public water for the Altoona City Authority. Previous mining endeavors as early as the late 1800's for coal and fire clay have rendered the water highly acidic, laden with toxic metals, and created substantial "dead zones" within the watershed. The watershed appears on the *State's Medium Priority List of Degraded Watersheds*, as published in March 1996, being part of watershed 11A, Frankstown Branch of the Juniata River. Due to the watersheds location, just west of the Historic Horseshoe Curve, the Glenwhite Watershed has several ties to Blair County's and Pennsylvania's Industrial Heritage. Located within the watershed are over 100 coke ovens in a linear series along State Route 4008 and the abandoned mining town known formerly as Glenwhite.

Several federal, state and local government agencies including the USDA, Natural Resources Conservation Service, USDI, Office of Surface Mining, Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamation and Bureau of Mining and Reclamation, along with the Blair County Conservation District and Cambria County Conservation District have come together to mutually work toward remediating the natural resource problems in the watershed.

The Horseshoe Curve Resource Coalition has been the local forum for bringing together these agencies with local groups interested in enhancing and preserving the local natural resources. The local groups that have provided extensive assistance in this watershed planning effort include the:

Altoona City Authority
Juniata Valley Audubon Society
Blair County Trout Unlimited
Horseshoe Curve National Historic Landmark
Altoona Campus, Penn State University
Americorp, Pennsylvania Mountain Service Corp
Southwestern Pennsylvania Heritage Preservation Commission
Southern Alleghenies Conservancy

Federal, state and local legislators have also taken an active interest in the initiatives undertaken by the coalition.

Location and Size

Glenwhite Run, is a 5.8 mile stream with headwaters in Gallitzin Township, at the Cambria/Blair County Boundary and leading through Logan and Allegheny Townships, Blair County, finally leading into the Kittanning point reservoir, the first water body in the series of three dams associated with Altoona City Authority's water supply system. Glenwhite Run serves as a significant daily source of water for the water supply system. From the water supply system, the water flows into Burgoon Run, and then

the Beaverdam Branch of the Juniata River and eventually enters the Frankstown Branch of the Juniata before exiting into Huntingdon County. The watershed encompasses approximately 3,500 acres primarily of mixed hardwood forest with 12 percent mined land, and designed as USGS/NRCS hydrologic unit code #02050302020240.

Soils

The Glenwhite Watershed primarily lies within the Laidig-Hazelton-Clymer Association. Soils in this association are gently sloping to very steep, deep, well drained to somewhat poorly drained and weathered from acid sandstone, quartzite, and conglomerate on broad mountain tops. The very eastern reaches of the watershed, immediately south of the Horseshoe Curve, are in the Leck Kill-Meckesville-Albrights Association. These soils are found to be gently sloping to very steep, deep, well drained to somewhat poorly drained and weathered from red acid shale and sandstones found on ridges, foot slopes and drainageways.

The mine discharges within the Glenwhite Watershed are located in relatively close proximity to streams and tributaries. Therefore, the mine drainage has not significantly altered the soil characteristics that were described above.

Geology

Situate on the eastern flank of the Allegheny Front, the Glenwhite Watershed, is underlain by Mississippian and Pennsylvanian age bedrock in a cyclic sequence of shale, siltstone, sandstone, some limestone and coal. Geologically, this is the youngest area within the county boundary. The Mississippian Pocono Group, Mauch Chunk Formation and the lower Pennsylvanian, Pottsville and Allegheny Groups are composed of resistant sandstones; found consistently along and thus forming the Allegheny Front.

Coals of the Allegheny Group also underlay this area and historically have been mined within the watershed. Evidence of deep mine workings exist on the Brookville, Clarion, lower Kittanning and the upper and lower Freeport seams. The Brookville, Clarion, and lower Kittanning, as well as the upper Freeport, coal seams have been surfaced mined in portions of the watershed. It is likely that the upper Freeport coal seam is associated with the upper Freeport Limestone, at least in some portions of the watershed where water samples exhibit the presence of alkalinity.

The mining of the coal and the disturbance of the associated acidic sandstones, clays and shales have led to the water quality degradation that is apparent within the watershed today.

Climate

The climate is humid continental with a wide range of temperatures between cold winters and warm humid summers. Continentality of the climate is attributed to the prevailing winds coming from the west, hence the area receives very little influence from the Atlantic Ocean. The county total annual precipitation is 36 inches. Of this, 20 inches or 60 percent, usually falls in April through September. The average length of growing

season is 151 days. The county average winter temperature is 29 degrees Fahrenheit and the average summer temperature is 70 degrees Fahrenheit. Due to the elevation of the watershed and its location below the edge of the Allegheny Plateau, this area receives more precipitation and experiences cooler temperatures than the valley located in eastern Blair County.

Forests

The predominant forest types in the watershed are mixed oak and northern hardwoods. Sawtimber is predominantly red oak, maple and black cherry.

The Altoona City Authority and Cooney Brothers Coal Co. are the two primary forest landowners in the watershed. Both of these landowners retain professional foresters to manage the forest resources for watershed protection and timber production.

Socioeconomics

The total number of residents of the City of Altoona in 1990 was 51,881. The total number of housing units was 22,698, and 99.2% of these units were supplied by Altoona City Authority water, a large portion of which comes from the Glenwhite Run Watershed. The City of Altoona is economically, socially and environmentally a diverse community. The largest employers in the city are Conrail, Altoona Hospital, Altoona Area School District, Home Nursing Agency, and Mercy Hospital, respectively. The median income per household within the City in 1990 was $20,695, a decrease of 8.9% from the median income per household in 1980. The poverty level per individual was 18% and 14% by family.

Minority Populations

According to the 1990 census, the City of Altoona had the following population percentages, 98% were white, 1.5% were African American, 0.5% are other races & Hispanic origin.

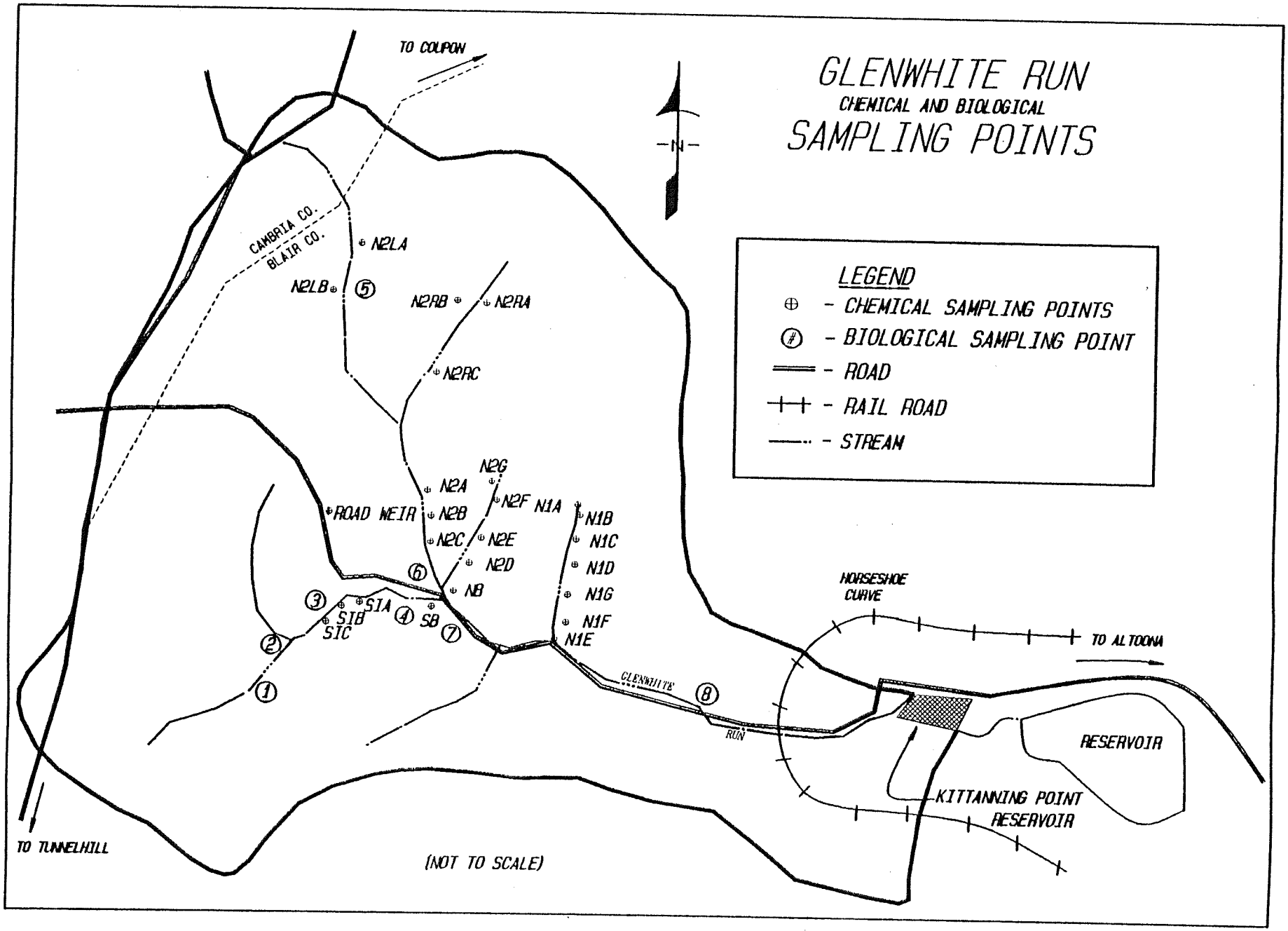

GLENWHITE RUN
CHEMICAL AND BIOLOGICAL
SAMPLING POINTS
TO COUPON
N
CAMBRIA CO.
BLAIR CO.
N2LA
N2LB
5
N2RB
N2RA
N2RC
N2G
N2A
N2F
N1A
ROAD MEIR
N2B
N1B
N2C
N2E
N1C
N2D
N1D
6
N3
N1G
3
S1A
4
SB
N1F
S1B
S1C
7
N1E
2
1
GLENWHITE
RUN
8
HORSESHOE
CURVE
TO ALTOONA
RESERVOIR
KITTANNING POINT
RESERVOIR
TO TUNNELHILL
(NOT TO SCALE)
LEGEND
⊕ - CHEMICAL SAMPLING POINTS
(#) - BIOLOGICAL SAMPLING POINT
- ROAD
- RAIL ROAD
- STREAM

FIGURE 2

5 - PROBLEMS AND OPPORTUNITIES

Three problems have been identified in the Glenwhite Run project area:

1. Mine drainage from abandoned coal mines is degrading the quality and quantity of aquatic habitat in 3.2 miles of Glenwhite Run and 20 acres of Kittanning Point reservoir.

2. Increased operating costs for the treatment of drinking water for the residents of Altoona.

3. Visual quality and aesthetics on Glenwhite Run is adversely affected by iron staining of Glenwhite Run and aluminum discoloration of Kittanning Point reservoir.

IMPAIRED WATER QUALITY

GLENWHITE RUN

All mine water discharges along Glenwhite Run outlet onto upland areas through abandoned mine openings or where the hydraulic pressure forces the acid drainage to the surface creating large unvegetated seep areas.

Water quality and quantity was sampled monthly at 25 locations in 1995 and 1996 at mine drainage sites along Glenwhite Run (see Figure 2) by NRCS, with assistance from Americorp - Pennsylvania Mountain Service Corp and the Department of Environmental Protection, Bureau of Abandoned Mine Reclamation. This sampling level provides quality and quantity data on all mine water discharge points on Glenwhite Run.

The following chemical parameters were tested: pH, acidity, alkalinity, sulfate, total iron, ferrous iron, manganese, aluminum, and hardness. Levels of acidity, aluminum, total iron and flow are shown on Figures 3,4,5 and 6.

These quantities of acidity, iron, and aluminum substantially exceeded habitat thresholds as evidenced by the lack of aquatic life in significant reaches of Glenwhite Run. (See Site Location Map, Appendix C)

Kay Spyker from the PADEP, Bureau of Abandoned Mine Reclamation completed an *Aquatic Survey of the Glenwhite Run Watershed.* The survey clearly documents the acid mine drainage from mining has a negative impact on both water quality and the macroinvertebrate community in the Glenwhite Run watershed.

The report documents that the headwaters of the south branch of Glenwhite Run had 17 macroinvertebrate taxa (211 individuals) and the north branch headwaters had 22 macroinvertebrate taxa (127 individuals). In contrast the main stem of Glenwhite Run below the impact area of all mine drainage had three macroinvertebrate taxa (5 individuals), (Table A).

Spyker concluded in her survey report that an abandoned mine reclamation project that includes surface reclamation and passive treatment would have a significant beneficial

Table A Benthic macroinvertebrates collected from the North and South Branches of Glenwhite Run (Logan Township, Blair County) on 14 May 1996 using a D-frame net. Sampling was conducted to determine the effects of mine drainage on Glenwhite Run. (Sample point locations are marked on the Figure 2)

LOCATION	1	2	3	4	5	6	7	8
TAXA								
EPHEMEROPTERA (MAYFLIES)								
Ephemerellidae								
Eurylophella sp.	---	---	---	---	1	---	---	---
Siphlonuridae								
Ameletus sp.	27	1	---	---	2	---	---	---
PLECOPTERA (STONEFLIES)								
Chloroperlidae								
Sweltsa sp.	---	---	---	7	---	---	1	---
Haploperla sp.	---	---	---	---	3	---	---	---
Nemouridae sp.								
Amphinemura sp.	6	96	125	25	40	1	12	3
Ostrocerca sp.	14	54	82	1	5	---	2	---
Leuctridae								
Leuctra sp.	34	150	82	3	10	---	5	1
Peltoperlidae sp.	---	20	2	2	5	---	---	---
Perlodidae	---	20	2	2	5	---	---	---
Isoperla sp.	12	---	12	---	4	---	---	---
TRICHOPTERA (CADDISFLIES)								
Polycentropodidae								
Polycentropus sp.	---	3	---	---	---	---	1	---
Leptoceridae								
Oecetis sp.	1	---	---	---	---	---	---	---
Triaenodes sp.	---	---	1	---	---	---	---	---

Table A (Cont.)

LOCATION	1	2	3	4	5	6	7	8
TAXA								
TRICHOPTERA (CADDISFLIES)								
Hydropsychidae								
Homoplectra sp.	---	---	---	---	---	1	---	---
Diplectrona sp.	---	---	1	---	3	1	---	---
Rhyacophilidae								
Rhyacophila sp.	2	8	33	1	5	---	1	---
Philopotamidae								
Wormaldia sp.	1	2	---	---	6	---	---	---
Limnephilidae								
Ironoquia sp.	---	---	---	---	---	---	3	---
Lepidostomatidae								
Lepidostoma sp.	47	3	11	9	5	---	7	---
Uenoidae								
Neophylax sp.	1	2	4	---	1	---	---	---
DIPTERA (FLIES, MIDGES)								
Tipulidae								
Ormosia sp.	---	---	---	---	2	---	---	---
Hexatoma sp.	3	6	2	9	3	1	1	---
Dicranota sp.	---	---	---	2	---	---	---	---
Tipula sp.	3	---	1	---	---	---	---	---
Empididae sp.	---	---	---	1	---	---	---	---
Chelifera sp.	1	---	---	---	---	---	---	---
Oreogeton sp.	---	---	7	---	---	---	---	---
Simulidae								
Simulium sp.	---	---	6	---	---	---	---	---
Prosimulium sp.	---	---	12	---	7	---	---	---
Chironomidae sp.	56	27	11	6	12	2	1	---
Ceratopogonidae sp.	1	---	---	1	---	---	---	---

Table A (Cont.)

LOCATION	1	2	3	4	5	6	7	8
TAXA								
COLEOPTERA								
(BEETLES)								
Dytiscidae sp.	---	---	---	---	---	---	1	---
ODONATA								
(DRAGONFILES)								
Corulegastridae								
Cordulegaster sp.	1	---	1	---	1	---	---	---
Gomphidae sp.	---	---	---	---	1	---	---	---
Lanthus sp.	---	---	---	2	---	---	1	---
MEGALOPTERA								
(ALDERFLIES)								
Corydalidae								
Nigronia sp.	---	---	1	---	---	---	---	---
Chauliodes sp.	---	---	---	---	1	---	---	---
Neohermes sp.	---	---	---	---	---	2	---	---
MISC. TAXA								
Oligochaeta sp	---	1	---	---	---	---	---	---
Crustacea								
Crayfish	2	1	1	1	5	---	---	1
Isopoda sp.	---	---	---	1	---	---	---	---
TOTAL TAXA	17	15	20	16	22	6	12	3

FIGURE 3

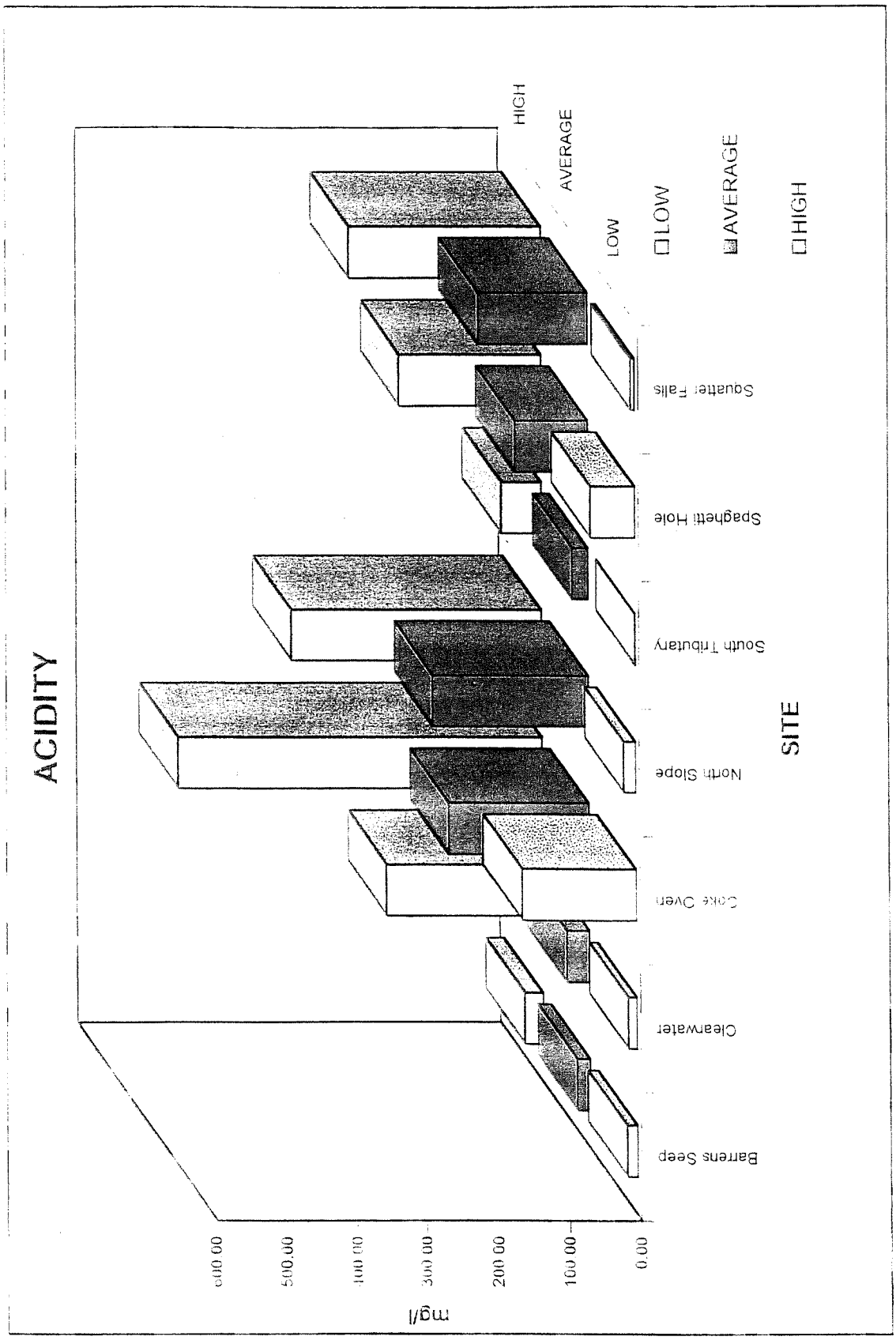

ACIDITY
mg/l
600.00
500.00
400.00
300.00
200.00
100.00
0.00
Barrens Seep
Clearwater
Coke Oven
North Slope
South Tributary
Spaghetti Hole
Squatter Falls
SITE
HIGH
AVERAGE
LOW
LOW
AVERAGE
HIGH

FIGURE 4

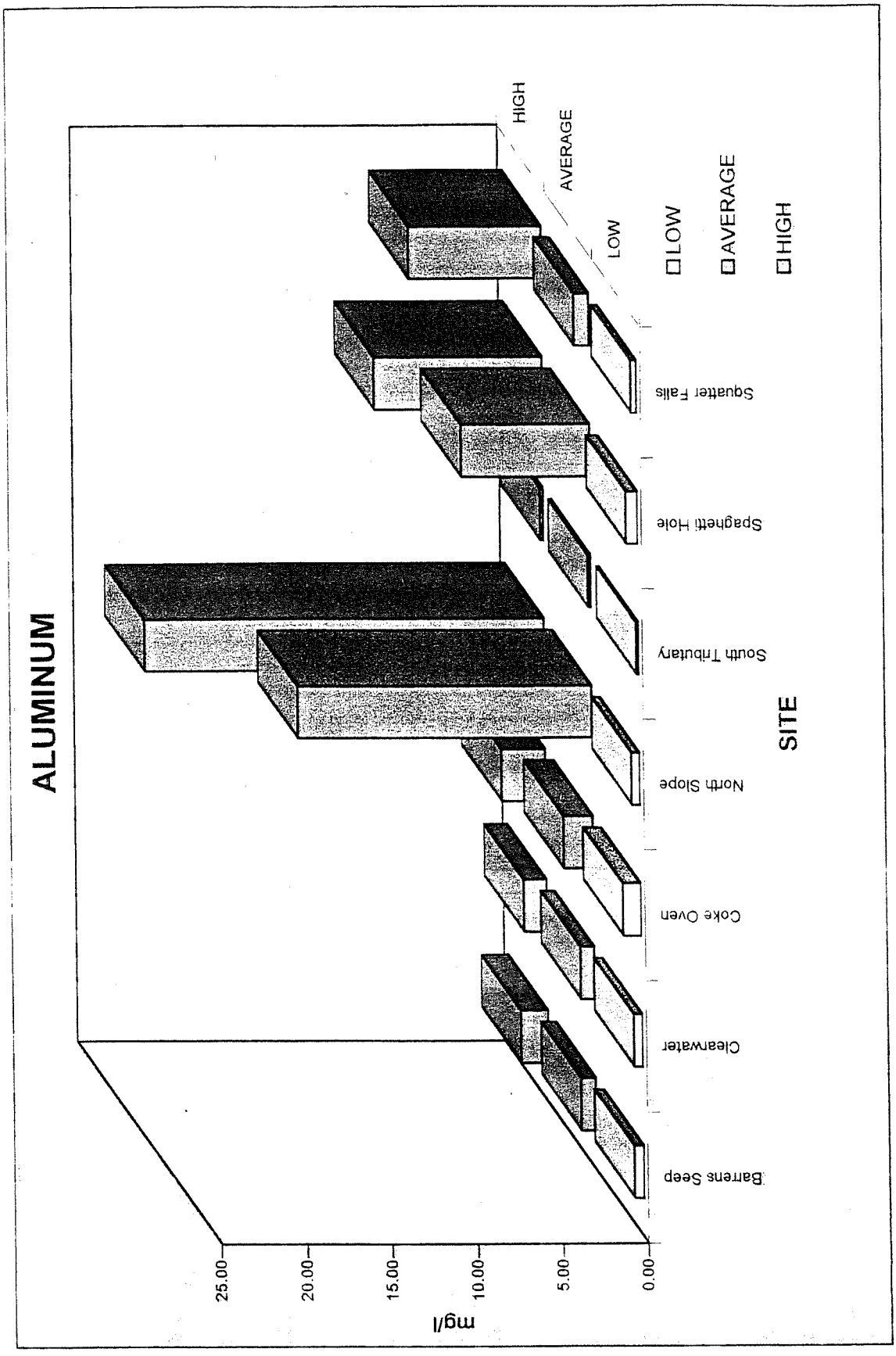

ALUMINUM
mg/l
25.00
20.00
15.00
10.00
5.00
0.00
Barrens Seep
Clearwater
Coke Oven
North Slope
South Tributary
Spaghetti Hole
Squatter Falls
SITE
HIGH
AVERAGE
LOW
LOW
AVERAGE
HIGH

FIGURE 5

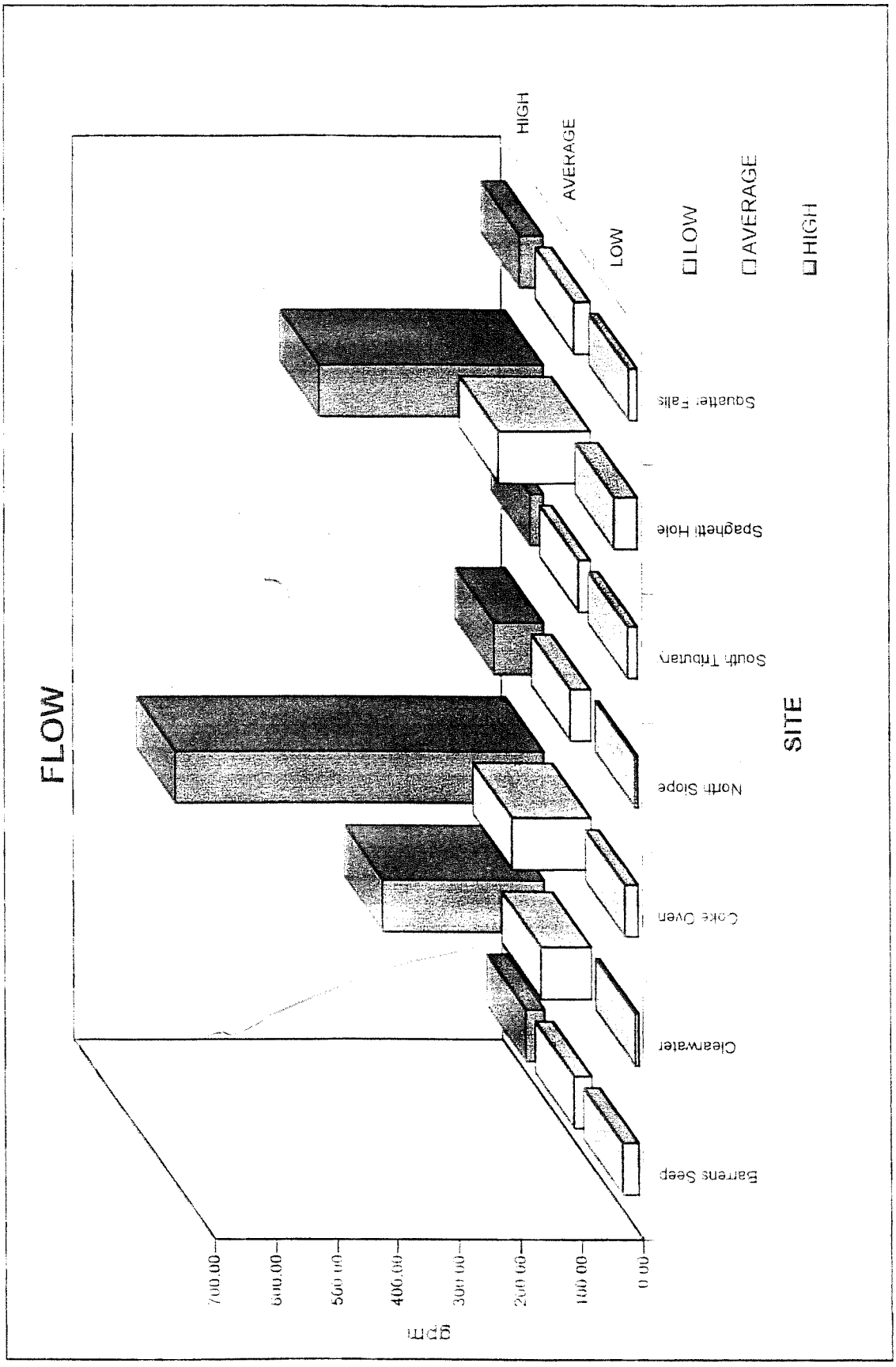
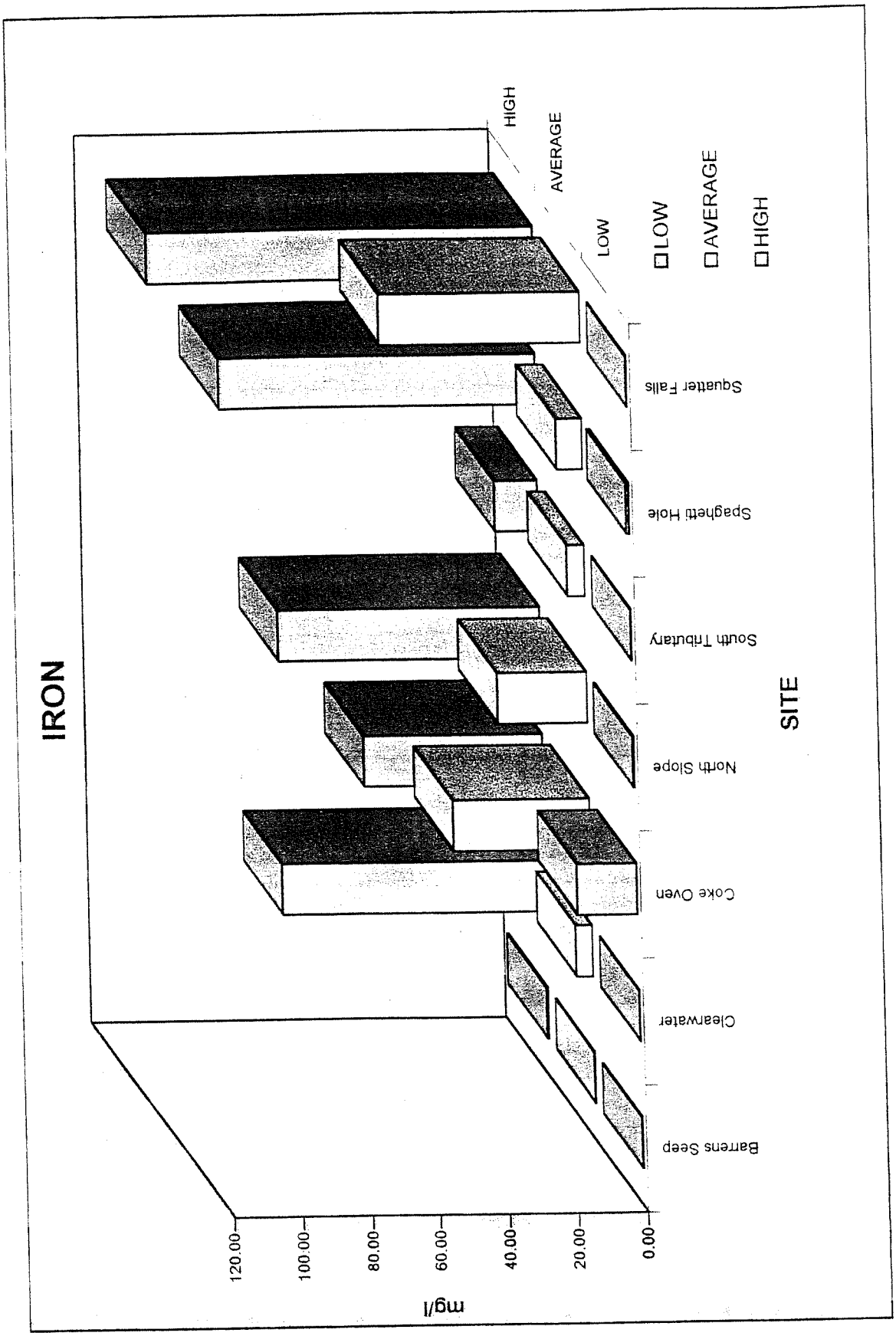

FLOW
gpm
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
Barrens Seep
Clearwater
Coke Oven
North Slope
South Tributary
Spaghetti Hole
Squatter Falls
SITE
HIGH
AVERAGE
LOW
LOW
AVERAGE
HIGH

FIGURE 6


IRON
mg/l
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Barrens Seep
Clearwater
Coke Oven
North Slope
South Tributary
Spaghetti Hole
Squatter Falls
SITE
HIGH
AVERAGE
LOW
LOW
AVERAGE
HIGH

impact on Glenwhite Run. Positive impacts would occur due to a reduction in metals and acidity concentrations and an increase in pH as a result of passive treatment and surface reclamation. Habitat improvement would occur as a result of reduced metals precipitate accumulation and less cementing of the stream bottom. Improvement in water quality and habitat would enlarge the macroinvertebrate community that would allow for creation of a cold water fishery.

As part of a comprehensive watershed plan, other water quality problems have been identified. There is sediment generated from abandoned mine land. The reduction in aquatic habitat, due to sediment caused by abandoned mine land is difficult to determine due to the overwhelming impacts of the discharges. The benthic studies completed on Glenwhite Run did not directly attribute reduced macroinvertebrate populations to sedimentation of the stream.

Another minor water quality concern addressed by the coalition was the impact of acid precipitation. Discussions with faculty at the Altoona Campus, Pennsylvania State University, concluded that acid precipitation does occur in the watershed but the impacts will be offset by the proposed passive treatment systems. The planned treatment systems will generate excess alkalinity that will be available to neutralize acid from atmospheric deposition.

Glenwhite Run is the source for over 90 percent of the water supply for the City of Altoona. To remove the pollutants associated with the mine drainage in Glenwhite Run, the Altoona City Authority currently has an increased operating cost of $89,000 per year.

VISUAL RESOURCE PROBLEMS

A dramatic, visually displeasing event occurs at each of the mine water discharge points when the iron and acid laden waters flow across the earth surface, and kills all vegetation, and then turn the streams red with iron precipitate. The heavy iron deposits coat the stream bottom and smother most aquatic life in Glenwhite Run.

The 37 acres of nearly barren, eroding strip mine spoil and the barren, eroding deep mine refuse piles at the Coke Oven, Clearwater, and South Tributary sites present visual images that are inconsistent with the upland hardwood forest surrounding them.

PROBLEM SITES

There are eighteen acid mine water discharge points flowing into Glenwhite Run that need to be treated. Eight treatment sites will be used to treat these discharges. The discharges are the result of seepages and direct flows from abandoned deep mine drainage. these discharges are a result of the same deep mine pool, and have similar water qualities.

These treatment sites have been identified as follows: (see Site Location Map, Appendix C)

1. North Slope
2. Barrens
3. Barrens West Seep
4. Coke Oven

5. Squatter Falls
6. Clearwater
7. Spaghetti Hole
8. South Tributary

These names are the local "given names" of these projects areas that are recognized by the local sponsors and the HCRC.

North Slope - is located on the first tributary on the north side of Glenwhite Run. There are five acid discharges flowing from abandoned deep mine openings and large, denuded seepage areas. Approximately two acres of upland forest has been destroyed by this mine drainage. The mine drainage at this site has the highest levels of aluminum and acid of any discharges in the watershed. The total acid production from this site is 68 tons per year. The cumulative flow for all of these discharges is approximately 140 gallons per minute.

Barrens - consists of two abandoned strip mine areas that are eroding at excessive rates. Approximately 500 tons of sheet, rill and gully erosion is occurring on these two disturbed areas. The sediment delivery to the streams is estimated at 300 tons per year.

The mine spoil material that is being eroded has high levels of salt, acid, aluminum, iron and manganese. The salt, acid and aluminum occur at levels that are toxic to most plants.

Barrens West Seep - located adjacent to the southwest corner of the Barrens site. The majority of this discharge occurs in the stream bottom. It is very obvious in this tributary where this polluted water enters the stream. The flow here is estimated at around 20 gallons per minute. Sampling of the stream flow above and below the discharge shows a flow difference of approximately 11 gallons per minute. This flow added to the seepage occurring on the surface will make the 20 GPM flow. Representative chemistry for this discharge is pH 4.4, acidity 14 mg/l, iron 215 mg/l, and aluminum 1 mg/l. The total acid production from this site is 26 tons per year.

Coke Oven - is located at the former mining town of Glenwhite and has two deep mine openings with a combined flow that fluctuates between 8 and 295 gallons per minute. Representative chemistry for this site is pH 3.2, acidity 190 mg/l, iron 50 mg/l, aluminum 2 mg/l, and manganese 9 mg/l. The average acid production from this site is 21 tons per year.

Associated with one of the openings is a deep mine refuse pile. The 3:1 side slopes of this pile are barren and eroding.

Squatter Falls - is adjacent to the Coke Oven site. The two sites are separated by a small tributary of Glenwhite Run. Two deep mine openings and a seep are the sources of the acid mine drainage that needs to be treated at this site. Large deltas of red, iron precipitate have accumulated downslope of the mine openings. The representative flow rate from this site is 70 gallons per minute. The average acid production from this site is 30 tons per year.

Clearwater - is a spring that has been mildly contaminated by mining operations. The flow is fairly consistent and has a pH of 4.1, acidity of 20 mg/l and metals all under 1 mg/l. Minimal treatment will be needed to correct these water quality problems. This site will provide an opportunity to provide excess alkalinity to the receiving stream and neutralize any acidity that may be present in this tributary as a result of atmospheric deposition. There is a small deep mine refuse pile at this site. The average acid production from this site is six tons per year.

Spaghetti Hole - is located in the headwaters of a tributary flowing from the north into Glenwhite Run. The flow from this deep mine is fairly large at 200 gallons per minute. Since this site is in the upper reaches of the watershed, there is adequate area to treat this large flow using passive treatment. Representative chemistry for this site is pH 3.5, acidity 90 mg/l, iron 2 mg/l, aluminum 8 mg/l, and manganese 2 mg/l. The average acid production from this site is 34 tons per year.

South Tributary - involves two deep mine openings, a mine water seep and a deep mine refuse pile. The refuse pile is located in the headwaters of the south tributary. There are no visible point discharges associated with this pile, but stream sampling indicates that the pile is having a negative impact on aquatic life in the stream. The discharges from the deep mine openings have higher pH's, lower acidities and in some cases net alkalinities. The average acid production from this site is .5 tons per year.

EDUCATIONAL OPPORTUNITIES

Several opportunities exist to use the Glenwhite Run watershed restoration as an educational tool. These opportunities exist currently in the monitoring of existing conditions to document baseline conditions in the watershed. During the implementation phase of this project there will be opportunities to expand monitoring to document changes in water quality. Once the watershed plan is completely implemented there will be educational opportunities to document and evaluate changes in water quality, stream biology, wildlife habitat and diversity, and geologic influences.

The Altoona Campus of the Pennsylvania State University is currently a member of the HCRC. Dr. Brian Tormey represents the University on the HCRC. In all phases of data gathering, from establishing base line conditions to monitoring and evaluating the implemented plan, the University can provide students for these activities. The completed plan will also provide an excellent outdoor classroom for many of the majors at the Altoona Campus.

The Greater Altoona Career and Technology Center has a Environmental Resources Management curriculum that is for high school seniors. This curriculum is currently implemented at Prince Gallitzin State Park in Cambria County. The Glenwhite Run area would provide a closer, comprehensive and dynamic state of the art learning opportunity for this curriculum.

The Horseshoe Curve National Historic Landmark has approximately 120,000 visitors every year. Glenwhite Run flows through this national historic landmark. An enormous potential exists to educate the general public about the resource problems, and the solutions associated with Glenwhite Run. The executive director of the Altoona Railroaders Museum and the Horseshoe Curve National Historic Landmark is a member of the HCRC

OTHER OPPORTUNITIES

Solutions to the water quality will provide many incidental effects. These effects include increased property values, economic development, enhanced educational and recreational opportunities, and improved aesthetics. Experience has shown that mine reclamation also stimulates community pride. This pride is often reflected in improved property maintenance.

Opportunities exist at a number of locations within the Glenwhite Run project area to re-establish upland wildlife habitats. Development of wetlands for the treatment of mine drainage will enhance wetland habitats for waterfowl, migratory birds and amphibians and upland wildlife.

The matchless historical assets associated with the Horse Shoe Curve and the Altoona rail yards will provide symbiotic opportunities for project funding, information and education.

6 - SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The purpose of this section is to document the range of issues and impacts considered in developing the Resource Plan and Environmental Assessment. Table C outlines the concerns identified during project scoping. The degree of concern and significance to decision making were determined by consensus of the technical specialists and managers involved in project development.

TABLE B - IDENTIFIED CONCERNS

ECONOMIC, SOCIAL ENVIRONMENTAL AND CULTURAL CONCERNS	DEGREE OF CONCERN	DEGREE OF SIGNIFICANCE TO DECISION MAKING	REMARKS
Public Health & Safety	High	High	
Surface Water Quality	High	High	Principal objective, severe degradation
Ground Water Quality	High	High	Determines treatment methodology
Aquatic Biology	High	High	
Flood Water Damages	Medium	Low	
Sediment Damages	Medium	Medium	
Threatened & Endangered Species	High	Low	None identified in watershed
Cultural Resources	High	High	Phase 1 study not needed. Cultural Resources documented
Wild & Scenic River	High	Low	
Water Conservation	Low	Low	
Important Farmland	High	Low	No Important Farmland in Project Area
Wetlands	High	High	Project will enlarge and enhance
Flood Plains	High	Medium	
Air Quality	High	Low	
Soil Resource Base	High	Medium	
Fish & Wildlife	High	High	
Visual & Aesthetics	High	High	
Water Quantity	High	High	
Socioeconomics	High	High	
Land Use Changes	High	High	
Civil Rights	High	High	

7 - FORMULATION OF ALTERNATIVES

FORMULATION PROCESS

The Horseshoe Curve Resource Coalition along with cooperating agencies and groups provided resource data, analysis and evaluation needed to make decisions on alternative analysis.

The formulation process involved evaluation of alternatives to solve the principal problem of degraded aquatic habitat due to impaired water quality primarily caused by acid mine drainage. Economic, environmental, social, cultural and civil rights impacts were considered in the analysis. In compliance with Executive Order 11988, Flood Plain Management, alternatives were developed which avoid adverse effects and incompatible development in the base flood plain. In compliance with Executive Order 11990, Protection of Wetlands, alternatives were developed which avoid adverse effects to wetlands. Effects on water quality, ground water recharge and discharge, maintenance of natural systems, and the recreational, scientific and educational uses of wetlands were considered. Few viable alternatives were identified.

Physical Chemical Treatment Plants

Installation of a physical/chemical treatment plant with a stream discharge at each site would be impractical. High initial construction costs along with annual operation and maintenance costs which would include labor, electricity, chemicals, equipment repair, and other ancillary costs would be prohibitive. This alternative may require additional discharge permits and would entail the costs of sludge removal.

The Pennsylvania Department of Environmental Protection has used physical/chemical treatment facilities in the past to treat mine drainage discharges. In the early 1960's Operation Scarlift was established by the Pennsylvania Legislature to reclaim abandoned mine land and water. A bond issue was used to fund Operation Scarlift. One of the major endeavors of Operation Scarlift was the construction of physical/chemical mine drainage treatment plants. These treatment plants generally were effective in removing pollutants but the yearly maintenance costs were excessive and the State has abandoned all but two of these facilities due to the excessive operating costs.

Some of the major treatment plants that have been abandoned due to excessive operation costs include: Hawk Run in Clearfield County, the Carl White plant on Crooked Creek, Indiana County, Slippery Rock Creek, Butler County, Glenwhite and Kittanning Runs in Blair County, and Smith Run in Washington County. Yearly operating costs for these plants ranged between $90,000 and $500,000 per year.

Excessive yearly operation and maintenance costs associated with chemical/physical treatment plants make the construction of a treatment plant an unacceptable alternative for the sponsors.

To supply the City of Altoona with drinking water the Altoona City Authority currently spends $89,000.00 per year treating the mine water

contaminants in Glenwhite Run. By treating the water with passive technology, at its source, the Authority can eliminate its mine water treatment costs, and a trout fishery can be restored to Glenwhite Run.

Remining

The concept of remining was also explored as a potential technology for eliminating the source of mine drainage and resulting polluted discharges. In some situations, improved strip mining techniques, methods and equipment utilized in areas that have been previously deep mined, have allowed the reduction and/or elimination of mine drainage discharges.

The HCRC explored this potential reclamation methodology with Cooney Brothers Coal Co. Inc. The Barrens East project could possibly benefit from this alternative. The area has been deep mined, and the existing cover over the remaining coal is not limiting. The extent of the coal reserves is not known.

The barriers for a timely implementation of this technology include: 1. the coal operators cost of exploratory drilling, 2. coal market limitations, and 3. uncertainty about the geologic response of the geologic overburden on water quality and quantity.

At this time, the uncertainties listed above do not allow this alternative to be utilized in this plan. The HCRC will continue discussions with the coal industry, DEP, Bureau of Mining and Reclamation and the Altoona City Authority to completely explore the potentials and possibilities of this alternative treatment. In the event that the current barriers to using this approach are eliminated, remining will provide a cheaper, longer-term solution to the mine drainage treatment on the Barrens East site.

Passive Treatment Technologies

The mechanics of using the only viable alternative, passive treatment technology, produced many treatment scenarios at each site.

Once the quantity and quality of the water needing treatment was determined and the chemical/physical alternative was eliminated, the consideration of viable alternatives centered around the evaluation of methodologies for capturing the acid mine water, treatment and preventing clean surface water from entering the passive treatment system.

Treatment alternatives were evaluated at each discharge location. The treatments were assessed in relation to the water quality benefit vs. cost, effectiveness and appropriateness for treating the discharge water chemistry and flow rate. The environmental impacts of each alternative were considered. The treatment methodologies and components that were evaluated at each discharge include: Successive Alkalinity Producing Systems (SAPS), Anoxic Limestone Drains (ALD), aerobic wetlands, alkaline addition, settling ponds, limestone drains and seeding.

Successive Alkalinity Producing Systems (SAPS) are water filled ponds that have limestone rock placed in them to react with the acid in the mine water and neutralize it. An organic layer is placed over the rock to convert all iron in the discharge water to a ferrous form that will not coat the limestone and allow the acid to readily react with the limestone.

Three to five feet of water is maintained above the compost to provide head pressure to move the water through the compost and limestone into outlet pipes located below the limestone. Once the water has traveled through the SAPS it has acquired increased alkalinity and pH that allows the iron and aluminum to precipitate.

With the water qualities of the mine water discharges in the Glenwhite Run watershed, the following water quality improvements are expected with SAP technology. Acidity will be completely neutralized and net alkalinities will be produced. Iron and aluminum levels will be reduced to 1 mg/l or less and manganese levels will be reduced by 1/3.

Anoxic Limestone Drains (ALD) are similar to SAPS except the limestone is placed under ground and the mine water flows through limestone rock. They have somewhat limited application because water with high levels of ferric iron and aluminum will tend to clog the drains, coat the rock with precipitate and make them less effective. Water with ferrous iron and low aluminum levels can be effectively treated with ALD technology.

When the above water quality conditions can be met, the water quality improvement potentials for ALD's are similar to SAPS.

Aerobic wetlands can only fully treat water that is net alkaline. This does not preclude their use in systems that incorporate other treatment components to generate alkalinity to treat acid water. Their use in Glenwhite Run will be to enhance the effectiveness of other treatment measures. Wetlands will promote oxidation, precipitation and settling of iron and aluminum. They accomplish these tasks by generating alkalinity, especially in summer months, filtering the water flowing through them, and slowing the flow of water.

Water quality improvements achieved by aerobic wetlands are variable. The do enhance the function of other treatment compents by acting as a filter for precipitates. Aerobic wetlands can add some alkalinity through sulfate reduction.

Settling ponds provide many of the same functions as wetlands, but provide a much larger capacity for collecting and storing precipitates. Most often, settling ponds are placed to collect the flow from SAPS or ALDS where precipitation is most likely to occur.

Limestone drains are used to provide oxygen to the water and add small amounts of alkalinity to the water. As the water flows down a limstone drain, the velocity of water causes riffles that bring about increases in the dissolved oxygen content in the water. The water flow over the limestone also causes dissolution of calcium from the rock, which results in increased alkalinity in the water. The increased oxygen and alkalinity levels promote the precipitation of the metals in the water.

Limestone drains provide variable treatment results depending on the velocity of the water flow. Experience has shown that limestone drains can remove 25% of aluminum levels and reduce acidity if the water is flowing at eight feet per second or faster.

Alkaline addition is used to neutralize acid producing rocks and minerals associated with some seams of coal. On Glenwhite Run, alkaline addition will be used on the Barrens areas and on the deep mine refuse piles at the South Tributary, Coke Oven and Clearwater sites. Ground limestone will be added to these areas in quantities sufficient to bring the pH of the material to seven or higher. These levels of alkaline addition will stop the production of acid and add alkalinity to runoff water.

Summary of Alternatives Considered

Physical Chemical Treatment Plants

1. Physical/Chemical Treatment Plant - This alternative was not chosen due to excessive operation and maintenance costs. The Altoona City Authority is currently using this technology to treat the water supply for Altoona and wishes to reduce and/or eliminate the costs of treating acid mine drainage at their existing plant.

Passive Treatment Technologies

The mechanics of using the only viable alternative, passive treatment technology, produced many treatment scenarios at each site. Extensive data gathering and technical evaluation of the data reduced the number of potential treatment methodologies at each site to the most economical and effective treatments.

DESCRIPTION OF ALTERNATIVE PLANS

As a result of the formulation process, two alternatives were evaluated, the No Action Alternative and the Recommended Plan.

No Action Alternative

This alternative represents conditions that will likely prevail 25 years in the future, if no project action is taken. The identified mine discharges will continue to impair water quality and aquatic habitat.

The local community will be denied the positive economic, environmental, social and cultural benefits which could be realized by improved water quality in Glenwhite Run.

In short, conditions will remain much the same as exist today. Only slight improvements in water quality could be expected with time.

Recommended Plan

This alternative is being evaluated over a 25 year period. Chemical and biological treatment via passive treatment technologies will be utilized to improve water quality. Design of the treatment system will be based on experience from other sites. An effort will be made to research design data and use the most current technology at the time of design of each component. Components that may be used at each site, depending on water chemistry are: Successive Alkalinity Producing Systems (SAPS), Anoxic Limestone Drains (ALD), aerobic wetlands, alkaline addition, settling ponds, limestone drains and seeding. The passive treatment systems will remove acid, iron, aluminum and reduce manganese from the water by promoting chemical and microbial processes. Oxidation and precipitation will continually increase as the drainage water flows through the treatment systems. Wetland vegetation will be planted to promote oxidation and prevent channelized flow through constructed wetlands. Treated water will then be released through diversions and rock-lined waterways to the receiving streams.

The total cost of the Recommended Plan is $1,569,000. The average annual cost is $147,800. The total operation and maintenance cost is estimated to be $7,800 per year.

EFFECTS OF ALTERNATIVE PLANS

Water Quality

No Action - Without the project, the water quality in Glenwhite Run below the planned project is expected to improve only slightly due to a slow natural depletion of iron and acid-bearing materials. The 3.2 miles of the stream that is currently degraded by mine drainage would continue to be contaminated and have impaired water quality. Kittanning Point reservoir will also have degraded water quality. The Altoona City Authority would need to continue the costly treatment of the mine water at their current treatment facility.

Alternative 1 (Recommended) - The implementation of this technology will reduce iron, acid and aluminum levels entering Glenwhite Run and Kittanning Point reservoir by 95 to 99 percent. These projections are made based on research and experiences of the HCRC. Also, this projection is supported by experience gained by the USDA, Natural Resources Conservation Service through constructing passive treatment systems on RAMP (Rural Abandoned Mine Program) sites and PL-566 (Watershed Protection and Flood Prevention Program) sites. The Department of Environmental Protection, Bureau of Mining and Reclamation, a partner in this watershed, also has experience in treating mine water with passive treatment systems.

Aquatic Habitat

No Action - Glenwhite Run will continue to be severely degraded and nearly void of aquatic life. The 3.2 mile reach of the stream that is currently degraded, along with Kittanning Point reservoir, will continue to have reduced quality of benthic organisms.

Alternative 1 (Recommended) - Reduction of mine water pollution in Glenwhite Run will allow the return of aquatic life to the stream. The improvement will allow the return of sustained aquatic life and an enhanced cold water fishery.

Enhancement and maintenance of riparian forest buffers will improve aquatic habitat by maintaining favorable water temperatures and providing a food source for aquatic organisms. This will occur at the Barrens East site where strip mining has eliminated the forest cover.

Wildlife Habitat

No Action - Without the project, there will be no change in wildlife species that utilize woodland as habitat. A slight increase in woodland landuse is expected due to natural reforestation of abandoned mine lands over the life of the project. The Altoona City Authority and Cooney Brothers Coal Co. Inc. own the majority of the watershed and manage it for wood production and watershed protection. The steep terrain over much of the area precludes it's use for development purposes.

Alternative 1 (Recommended) - With the project, there will be a diversity of wildlife present that does not currently exist. The Pennsylvania Modified Habitat Evaluation Procedure (PAM-HEP) was used to assess wildlife habitat. The project will create approximately 15 acres of wetland and open water that will be productive waterfoul habitat. From past experience on similar projects, it is known that wood duck and Canada goose utilize these project areas. Wild turkey will also utilize the open areas created by this project.

Approximately ten wood duck habitat units and six Canada goose habitat units will be created as a result of the project. The PAM-HEP model did not show significant increases in turkey habitat units. It is expected that the open areas created by constructing the treatment systems will increase the forage for young turkey poults (one habitat unit equals one acre of optimum habitat).

Threatened and Endangered Species

No. Action - No endangered species are known to occur within the project area. The Pennsylvania Fish and Boat Commission has been contacted and they have stated that none of the fish, amphibians or reptiles listed by them occur at or in the immediate project area.

The Pennsylvania Game Commission has reviewed the project area and has stated that no state listed threatened or endangered species are known to exist within the proposed project area. No change is expected.

The Pennsylvania Natural Diversity Inventory (PNDI) maintained by the Department of Conservation and Natural Resources (DCNR), Bureau of Forestry was contacted and the PNDI staff did not anticipate any impact on rare, threatened or endangered species at the project location.

Alternative 1 (Recommended) - No endangered species are known to occur within the project area. The Pennsylvania Fish and Boat Commission has been contacted and they have stated that none of the fish, amphibians or reptiles listed by them occur at or in the immediate project area.

The Pennsylvania Game Commission has reviewed the project area and has stated that no state listed threatened or endangered species are known to exist within the proposed project area. No change is expected.

The Pennsylvania Natural Diversity Inventory (PNDI) maintained by DER Bureau of Forestry was contacted and the PNDI staff did not anticipate any impact on rare, threatened or endangered species at the project location.

Cultural Resources

No Action - Preliminary investigations by the Pennsylvania Historical and Museum Commission indicate that there are no archaeological concerns associated with any of the treatment sites

There are historical resources at the former town of Glenwhite. The town no longer exists but there are a few remaining foundations and 110 deteriorating coke ovens. The HCRC is currently compiling existing maps and photographs of the former town. The existing foundations are also being documented photographically.

Alternative 1 (Recommended) - Preliminary investigations by the Pennsylvania Historical and Museum Commission indicate that there are no archaeological concerns associated with any of the site locations. With the project, this condition will remain the same.

There are historical resources at the former town of Glenwhite. The town no longer exists but there are a few remaining foundations and 110 deteriorating coke ovens. The HCRC is currently compiling existing maps and photographs of the former town. The existing foundations and coke ovens are being documented photographically.

The site labeled "Coke Oven" (Appendix C) will potentially affect some of the remaining foundations and a small number of the coke ovens.

Wetlands

No Action - There are no wetlands within any of the proposedtreatment sites.

Alternative 1 (Recommended) - There are no existing wetlands within any of the proposed project areas. The project when fully implemented will create approximately nine acres of constructed wetlands. The Recommended Plan is in compliance with Executive Order 11990, Protection of Wetlands.

Flood Plains

No Action - Without the project, the existing flood plain will continue to provide natural flooding area for Glenwhite Run.

Alternative 1 (Recommended) - The Recommended Plan will have no significant impact on the Glenwhite Run flood plain or downstream flooding. The Recommended Plan is in compliance with Executive Order 11988, Flood Plain Management.

Visual Resources

No Action - The degraded visual resources associated with the iron deposits on the stream bottom of Glenwhite Run, will continue to have a negative impact if the project is not completed.

Alternative 1 (Recommended) - The visual appearance of 3.2 miles Glenwhite Run will be returned to a natural condition.

Land Use

No Action - Without the project, it is anticipated that the existing woodland will increase over the next 25 years.

Alternative 1 (Recommended) - Nine acres of woodland will be changed to wetland and six acres of woodland will be changed to open water. Ten acres of woodland will be converted to grassland. Thirty seven acres of abandoned mine land will become grassland.

There are 620 acres of Prime and Statewide Important Farmland in the Glenwhite Run watershed, but none of it is farmed. Implementation of this project will have no adverse effect on farmland.

Socioeconomics

No Action - Without the project, Glenwhite Run would remain contaminated by mine drainage and no recreational fishing opportunities would be available. Economic opportunities associated with a restored trout fishery would continue to be absent. Fishing, and other related outdoor activities will continue to be adversely affected.

The increased operating expense incurred by the Altoona City Authority for the treatment of the acid mine drainage in Glenwhite Run would continue without the project. The residents of Altoona would continue to bear these treatment costs through elevated water rates.

Land values will continue to be depressed due to the adverse effects of mine drainage.

All of these negative impacts will be shared equally by all local residents including any economically disadvantaged groups, minorities, women and persons with disabilities.

Alternative 1 (Recommended) - The economic benefits of improving water quality and restoring aquatic habitat to the impacted area is displayed on Table C.

TABLE C - ECONOMIC BENEFITS
Recommended Plan

Defined Area	Miles of Restored Stream	Annual Value
Glenwhite Run	3.2	$168,400
Total	3.2	$168,400

The dollar value is obtained from two sources, increased economic activity, i.e., sales of goods and services in the area and reduced treatment costs for the Altoona City Authority. The project will allow a more intensive use of the recreation area drawing more people to use the commercial services in the area (Walsh et al., 1988).

Although the stream recreation activities were the primary source of benefit dollars, other public benefits can be noted. At the Horseshoe Curve National Historic Landmark, the degraded stream aesthetics currently viewed by the 120,000 annual visitors will be enhanced by the implementation of this plan.

The positive impacts of the Recommended Plan will benefit all local residents including any economically disadvantaged groups, minorities, women and persons with disabilities.

Educational Opportunities

No Action - Without the project the potential for educational use will be limited. The area will be a good outdoor learning area for showing the impacts of acid mine drainage on streams. The educational use of the area to show the impacts of passively treating the mine water will not be present.

Alternative 1 (Recommended) - Implementation of the Recommended Plan will create educational opportunities. The passive treatment systems will be easily accessed for field studies. Flow measuring devices will be installed that will allow quantitative chemical analysis. The passive treatment systems will have a more diverse plant community that will enhance and expand the animal community, creating enhanced opportunities for ecological studies.

Other Effects

No Action - All of the short term and temporary impacts of increased noise, air and water disturbances normally associated with a project action will not occur in the No Action alternative. Other short term effects that would be impacted in a project action that will not be impacted with this alternative include disruption to wildlife resources, traffic delays and minor disruption of utilities.

Enhancements and improvements that would be realized through the Recommended Plan will not occur with this alternative. No irreversible or irretrievable uses to the resource base will occur in this alternative.

Alternative 1 (Recommended) - Some temporary effects could occur involving usual short term increased noise, air and water disturbance. Wildlife resources may experience temporary disturbance during the installation of the works of improvement. These wildlife values will be restored or enhanced in value within one growing season. Additional short term effects may involve traffic delays and minor disruption of utility services in and around the construction areas.

By altering the short term uses of man's environment, the project will retain and enhance the environments long-term productivity. None of the works of improvement associated with the recommended plan will cause any irreversible or irretrievable uses of the existing resource base.

Relationship to Local and Regional Plans

No Action - Implementing the No Action Alternative will prevent the local sponsors from realizing the objective of restoring aquatic habitat by improving water quality in Glenwhite Run and Kittanning Point reservoir.

Alternative 1 (Recommended) - The Glenwhite Run Watershed project is compatible with the comprehensive plans for Blair County, the Southern Alleghenies Regional Planning Commission and other local municipalities. The project supplements the Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamations Title IV, mine reclamation program and the Title IV, 10% set aside program.

COMPARISON OF ALTERNATIVE PLANS

Table D - Comparison of Alternative Plans presents the impacts of each alternative on key economic, environmental, social and cultural concerns.

TABLE D - COMPARISON OF ALTERNATIVE PLANS

NO ACTION ALTERNATIVE	RECOMMENDED PLAN
Measures	Measures
NONE	9 ac. new constructed wetlands. 37 ac. mine land reclaimed. 57 ac. seeding. 5,900 ft. runoff controls. 39 ac. clearing and grubbing. 8 successive alkalinity producing systems. 1 anoxic limestone drain. 8 access roads. 6 constructed wetlands. 13 settling basins. 4500 feet limestone channels.
Project Investment	Project Investment
$0	$1,566,000
Average Annual Benefit	Average Annual Benefit
$0	$168,400
Average Annual Cost	Average Annual Cost
$0	$147,800
Net Economic Benefit	Net Economic Benefit
$0	$21,000
Water Quality	Water Quality
Mine Drainage continues to pollute Glenwhite Run and Kittanning Point reservoir Point	Mine drainage is treated, and 3.2 miles of Glenwhite has improved water quality. Water quality in Kittanning reservoir is improved.

COMPARISON OF ALTERNATIVE PLANS
(continued)

NO ACTION ALTERNATIVE	RECOMMENDED PLAN
Wetlands	Wetlands
NONE	9 acres of wetland will be constructed to enhance pollutant removal.
Habitat	Habitat
3.2 miles of riverine aquatic habitat remains severely degraded.	3.2 miles of riverine aquatic habitat enhanced.
No waterfoul habitat.	Ten wood duck habitat units will be created. Six Canada geese habitat units will be created.
Less than 1 habitat unit change for any upland specie.	Less than 1 habitat unit change for any upland specie.
Erosion and Sedimentation	Erosion and Sedimentation
No change	Erosion will be reduced by 500 tons per year. Sedimentation will be reduced by 300 tons per year.
Land use	Land use
No change	15 acres of woodland will be converted to wetland and open water. 10 ac woodland converted to grassland 37 acres of abandoned mine land converted to grassland.
Recreation	Recreation
Sport fishing opportunities severely impacted by mine drainage	Sport fishing opportunities enhanced on 3.2 miles of stream

Aesthetics	Aesthetics
No change	The visual appearance of 3.2 miles of stream will be returned to a natural condition.
Civil Rights	Civil Rights
All people, including economically disadvantaged groups, minorities women and persons with disabilities will continue to be adversely impacted by degraded water quality	All people, including economically disadvantaged groups, minorities women and persons with disabilities will be positively benefitted by the project

RISK AND UNCERTAINTY

The treatment of acid mine drainage water using passive technology is a relatively basic concept that is well proven. The criteria used in sizing the wetlands were developed from monitoring of systems built during the last few years.

The chemistry of the mine water in the Glenwhite watershed has not changed dramatically over the past 25 years. Future changes in water chemistry are not expected to be significant.

Deep mine subsidence within the watershed is not apparent at this time. Future subsidence within deep mine workings may alter ground water hydrology along with chemical reactions within the mine. These potential changes may cause current discharge flow rates to increase or decrease with time (Bradford and Dzombak, 1994).

RATIONALE FOR PLAN SELECTION

All of the identified mine water pollution sources will need to be treated by passive treatment systems to reach a water quality threshold in Glenwhite Run which will allow restoration of the sport fishery. Kittanning Point reservoir will also support increased aquatic life. This level of treatment will also substantially increase local property values, improve aesthetics and enhance educational opportunities and allow for technology transfer. Non-water based recreation would also be enhanced.

Many different alternatives for treatment were considered by the Horseshoe Curve Resource Coalition. Measures such as conventional mechanical treatment are costly to construct and maintain. Water collection for this type of treatment would also be costly and difficult to achieve. This treatment methodology, although considered, was discarded as an alternative due to high cost.

Numerous passive treatment scenarios were considered before arriving at the proposed plan. Most of these scenarios dealt with the collection, and treatment the discharges at each treatment site.

The selected plan meets the sponsors objectives and solves the identified resource problems with the combined ecological, social and economic benefits clearly exceeding costs. Obviously recognized but difficult to quantify economic benefits such as aesthetics at the Horseshoe Curve National Historic Landmark, along with ecological, social and unquantified industrial benefits make the benefits of this project exceed the costs.

8 - CONSULTATION AND PUBLIC PARTICIPATION

GENERAL

The total resource management approach to water resource planning in the Glenwhite Run Basin first began with the establishment of the Horseshoe Curve Resource Coalition (HCRC) in 1995. The HCRC has actively pursued the collection and interpretation of resource information to quantify and qualify the resource problems in the Glenwhite Run Watershed. Initially the coalition gathered land use, chemical, biological and flow information in the watershed to determine the kind and extent of all water quality problems. The major resource problem in the watershed is due to acid mine drainage, erosion and sedimentation occurring on abandoned surface mines is a secondary concern.

The coalition currently consists of the following organizations:

Blair Conservation District
Cambria Conservation District
Blair County Commissioners
Juniata Valley Audubon Society
Altoona City Authority
Altoona Enterprises Inc.
Blair County Chapter, Trout Unlimited
Allegheny Railroaders Memorial Museum
Horseshoe Curve National Historic Landmark
Southwestern PA Heritage Preservation Commission
Southern Alleghenies RC&D
Southern Alleghenies Conservancy
Americorp, Pa Mountain Service Corp
Penn State University, Altoona Campus
USDA, Natural Resources Conservation Service
DEP, Bureau of Abandoned Mine Reclamation
DEP, Bureau of Mining and Reclamation
USDI, Office of Surface Mining

These groups and agencies were very supportive of the comprehensive planning concept and proceeded to organize. They formed a steering committee, and a technical needs committee.

The steering committee objectives are to guide the overall cleanup effort by searching out and developing local support, coordinating funding efforts and identifying action items for project implementation.

The technical committee gathered and evaluated technical resource information to guide the development of a technically sound stream restoration plan.

Various other agencies, groups and individuals have been involved in the HCRC effort and are prepared to support water quality efforts in the area, including the Glenwhite Run project. They are:

U.S. Congressman John P. Murtha
U.S. Congressman Bud Shuster

U.S. Senator Rick Santorum
State Senator Robert Jubelirer
State Representative Richard Geist
U.S.D.A., Forest Service
U.S. Environmental Protection Agency
Pennsylvania Department of Environmental Protection,
Bureau of Watershed Conservation
Bureau of Water Quality
Pennsylvania Fish and Boat Commission

PLAN REVIEW

The following is a list of agencies, organizations, and persons to whom copies of this document will be sent for review.

Congressman John P. Murtha
Congressman Bud Shuster
U.S. Senator Rick Santorum
State Senator Robert Jubelirer
State Representative Richard Geist
Ducks Unlimited
U. S. Environmental Protection Agency
Susquehanna River Basin Commission
Pennsylvania Association of Conservation
District Directors
Pennsylvania Department of Agriculture
Pennsylvania Department of Environmental Protection
Office of Policy
Harrisburg Regional Office
Pittsburgh Regional Office
Bureau of Abandoned Mine Reclamation
Bureau of Mining and Reclamation
Bureau of Water Quality Protection
Deputy Secretary for Water Management
Sp. Asst. for Secretary for Intergovernmental Affairs
Bureau of Watershed Conservation
Pennsylvania Department of Conservation and Natural Resources,
Bureau of Recreation and Conservation
Pennsylvania Fish and Boat Commission
Pennsylvania Game Commission
Commonwealth of Pennsylvania, Governors Policy Office
Blair County Conservation District
Cambria County Conservation District
Altoona City Authority
Blair County Planning Commission
Southern Alleghenies Regional Planning Commission
Pennsylvania Historical & Museum Commission
Logan Township
Allegheny Township
Juniata Valley Audubon Society
Blair County Chapter Trout Unlimited
State Conservation Commission

U.S. Army Corps of Engineers
U.S.D.A. Farm Service Agency
U.S.D.A. Forest Service
U.S.D.I. Fish & Wildlife Service
U.S.D.I. Office of Surface Mining
U.S.D.A., Rural Economic and Community Development
Appalachian Regional Commission
Ohio River Basin Commission
Horseshoe Curve National Historic Landmark
SW Pennsylvania Heritage Preservation Commission
Cooney Brothers Coal Co.
Southern Alleghenies Conservancy
PA State University, Altoona Campus

REVIEW COMMENTS AND RESPONSES

The following session summarizes comments received during the interagency review of the draft Watershed Plan - EA and the NRCS response. Letters of comment received are found in Appendix A.

Horseshoe Curve National Historic Landmark & Railroaders Memorial Museum

Comment: The Horseshoe Curve National Historic Landmark (HSC NHL)is referred to as being operated by the National Park Service. This is not the case. The HSC NHL is operated and managed by the Altoona Railroaders Memorial Museum, a private, not-for-profit, Pennsylvania Corporation with Federal 501(c)3 status. On page 2-1, under "cultural resources," the correct agency name is the Pennsylvania Historical and Museum Commission.

Response: Changes made to correct the document.

Juniata Valley Audubon Society

Comment: Our only recommendation is that the grasses used to revegetate the barren areas be of the native warm season type, specifically, big bluestem (Andropogon gerardii) and switchgrass (Panicum virgatum).

Response: We agree with the recommendation and will incorporate the use of warm season grasses in the revegetation of the barren areas.

Pennsylvania Game Commission

Comment: We would like to be involved in the development of the planting scheme for proposed improvements to wetland and grassland habitats.

Response: We welcome your participation in the development of a planting plan for the revegetation of the barren areas.

Pennsylvania Department of Environmental Protection, Ebensburg District Mining Office

Comment: Passive treatment may not be the best solution for several discharges (with high aluminum) in this watershed.

Response: The North Slope site is the only site with aluminum levels that could be a concern for passive treatment technology. Careful attention to passive treatment component design and the incorporation of flushing technologies in SAPS has removed the concern of aluminum plugging SAP systems. NRCS's has a high degree of confidence in the ability of passive treatment systems to treat the mine water discharge problems in this watershed.

Comment: The SAP system design indicates a wetland between the settling basin and SAP. The wetland in not necessary at that stage of treatment.

Response: In existing SAP systems designed and constructed by NRCS'S, the use of cattail wetlands between settling basins and SAP have been very effective in reducing iron levels before entering the SAP. The cattail wetlands add oxygen to the water and provides increased surface area for the precipitation of metals. Also, during the summer, sulfate reduction reactions produce alkalinity. We intend to use cattail wetlands as a component of the planned treatment systems because of favorable past performance of the wetlands in previously constructed systems.

Comment: Uncertainty in obtaining a permit on a public water supply watershed is listed as a barrier to remining. This consideration could more accurately be explained. The real uncertainty is, given the site conditions, whether further mining can take place without additional pollution. This is an important distinction. Stating the problem in terms of the ability to obtain a permit erroneously suggests that there may be a legislative or regulatory solution to the problem. Stating it in terms of the geologic conditions correctly identifies the problem as a scientific one, which may not have a solution given current economics and technology.

Response: Wording changed in the document to reflect the geologic nature of the concern.

Pennsylvania Department of Environmental Protection, Southcentral Regional Office, Harrisburg

Comment: An NPDES Part I permit will be required. Please contact Mr. Martin Ferry of the Water Management Program at the above address or telephone 717-541-7995 for additional information.

Response: All required local, state and federal permits will be acquired before the construction of any site begins.

USDA, Forest Service, Morgantown WV

Comments 1, 2 &3: These three comments deal with reference made in the plan about establishing riparian buffers.

Response: The document has been revised to remove statements about establishing riparian buffers. No new riparian buffers will be established. Existing buffers will be maintained.

Comment: I would like to see maps to scale.

Response: The base maps used to develop the maps for the Watershed Plan were 1:24,000 scale. The maps in the plan were reduced so they would fit on 81/2 X 11 paper for publication. The exact scale of the maps, after reduction is difficult to state due to distortions created in the reduction process. The maps accurately show locations within the watershed.

Comment: Page 5-1 refers to figures 3,4,5, and 6. These figures need better titles, which are descriptive, and explanation in the text. Being the forester that I am, I don't understand why there are 3 bars at each stream. Does this denote 3 locations along each stream? How do these figures tie into figure 2?

Response: Each graph shows the low, average and high levels of each pollutant listed at the top of the graph. The color coded legend on each graph indicates that the three columns are low, average and high levels of each pollutant. The Y axis of the graph is labeled "SITES", these are treatment site names, not stream names. Figure 2 shows where the data was gathered in the watershed that was used to create figures 3,4,5, and 6.

Comment: Page 5-10. There is a page(s) missing after 5-10.

Response: Page 5-11 and 5-12 will be in the final Watershed Plan - EA.

Comment: Page 7-2 Use its, not it's.

Response: Final document is corrected.

Comment: Page 7-13. In figure 7, change SAP to SAPS.

Response: Final document is corrected.

Comment: Page 10-1. References should be in alphabetical order.

Response: Final document is corrected to have references in alphabetical order.

Comment: Appendix C - Site Location Map. I think this would be better in the text.

Response: We find it useful for the Site Location Map to be at the end of the report. There are many times throughout the report where it is useful to refer to the Site Location Map, having it at the end makes finding it for reference much easier.

The Glenwhite Run public meeting was held on August 20, 1997 in Altoona Pennsylvania. All public comments made during that meeting were answered. The comments and responses did not necessitate any changes to the Glenwhite Run document.

9 - RECOMMENDED PLAN

PURPOSE AND SUMMARY (See Site Location Map, Appendix C)

This plan is designed to meet the Sponsor's objectives to improve water quality in 3.2 miles of Glenwhite Run and Kittanning Point reservoir. The Recommended Plan will improve the water quality and restore or enhance aquatic habitat in the stream and reservoir which are now impaired due to acid mine drainage. The planned action will treat eighteen acid mine drainage discharges at eight sites and revegetate approximately 37 acres of abandoned mine land. The most current technology available at the time of implementation will be utilized to insure the most effective and efficient treatment of the mine water.

MEASURES TO BE INSTALLED (See Table 3C, Structural Summary and Figure 7)

North Slope

Three SAPS, two wetlands, four settling basins, and 700 feet of limestone channel will be used to treat five acid mine drainage discharges. A thousand feet of diversion will be constructed to prevent surface water from entering the passive treatment system. Approximately 2800 feet of pollution control barriers will be installed to prevent sedimentation from entering the stream. All disturbed areas wil be limed, fertilized, seeded and mulched.

Barrens (East & West)

Approximately 37 acres of eroding abandoned mine land will be reclaimed on two separate areas. Two sediment basins, 3600 feet of diversions and 2300 feet of limstone rock channel will be installed to control surface runoff and add alkalinity to the water. Perimeter pollution control will be used to keep sediment from entering the stream. All disturbed areas will be limed, fertilized, seeded and mulched.

Barrens West Seep

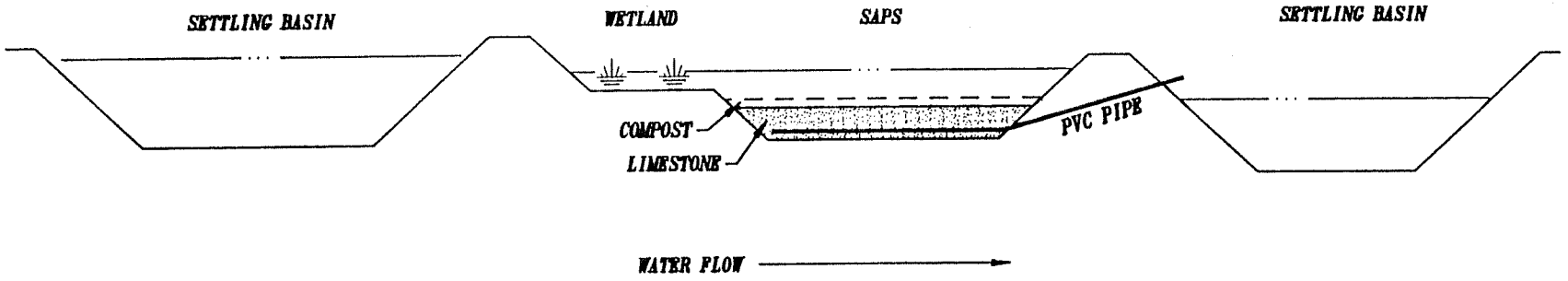
Part of this discharge comes up in the bottom of the stream. A stone cutoff drain will be installed to intercept the mine flow before it reaches the stream. Two SAPS, two wetlands, three settling basins and a rock channel will be constructed to ameleorate this discharge. Perimeter pollution control will be used to prevent sediment from entering the stream. Lime, fertilizer, seed and mulch will be applied to all disturbed areas.

Coke Oven

A treatment sequence of settling basin, wetland, SAPS and settling basin will be used for this discharge. The mine opening will be exposed to allow free flow of the mine drainage out of the mine. A limestone rock channel will be used to direct the discharge around a deep mine refuse pile. The pile will be graded. Approximately 1600 feet of perimeter polution control will be used to control sediment. Lime, fertilizer, seed and mulch will be applied to all disturbed areas.

TYPICAL PASSIVE TREATMENT SYSTEM
GLENWHITE RUN

PROFILE



PLAN VIEW

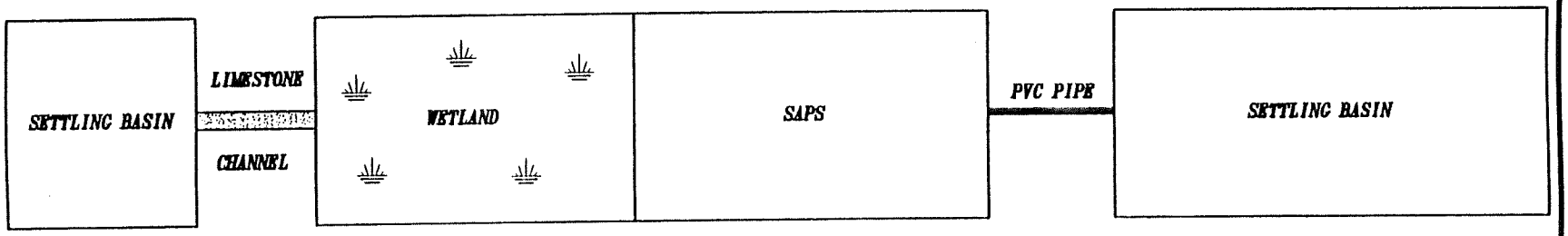


FIGURE 7

Squatter Falls

Three discharges will be treated with a SAPS, and settling basin. Eight hundred feet of diversion will be installed to prevent surface runoff from entering the passive treatment system. The mine openings will be exposed to allow a free flow of the water out of the mine. Approximately 1600 feet of perimeter polution control will be used to control sediment. All disturbed areas wil be limed, fertilized, seeded and mulched.

Clearwater

This discharge will be treated with a 300 foot long limestone channel. The water from this discharge is mildly acid with slight traces of iron and aluminum. The limestone channel will add alkalinity to neutralize the acid. Two small deep mine refuse piles will also be graded and seeded at this site.

Spaghetti Hole

This large volume discharge will be treated with a SAPS, wetland and settling basin. Approximately 500 feet of diversion will be used to keep surface water from entering the passive treatment system. Approximately 1600 feet of perimeter polution control will be used to control sediment. All disturbed areas wil be limed, fertilized, seeded and mulched.

South Tributary

An anoxic limestone drain, two limestone channels and a settling basin are proposed to treat three discharges. A deep mine refuse pile will also be graded and seeded. Addition of alkaline material will be incorporated into the refuse pile to improve the quality of the runoff water from the pile. Approximately 300 feet of limstone rock will be added to the south tributary channel to provide additonal alkalinity in the stream. Erosion control barriers will be installed to prevent sedimentation from entering the south tributary. All disturbed areas wil be limed, fertilized, seeded and mulched.

PERMITS AND COMPLIANCE

The Sponsors will acquire any necessary deed restrictions, permits and water rights to install the project. Applications for permits shall be filed with the U.S. Army Corps of Engineers, Baltimore District (404); the Pennsylvania Department of Environmental Protection (PADEP), Bureau of Water Quality Protection, Division of Dams, Waterways, Wetlands and Erosion Control, the PADEP, Bureau of Watershed Conservation; and other agencies, as required.

COSTS

Table 1 displays total estimated project costs by site for the project. PL-566 funds will total $770,000 or 49 percent of the total costs. Locally acquired funds will total $799,000 or 51 percent of the total costs. The Total costs are $1,569,000.

The distribution of project costs is shown in Table 2. These include construction costs, engineering services, project administration, and land rights costs.

Construction cost estimates are based on estimated quantities. Unit prices reflect the values obtained from previous work for similar materials and work. Construction costs include grading and seeding disturbed areas. A contingency allowance was added. PL-566 funds will bear fifty percent (50%) of the total construction costs estimated at $644,000. The Sponsors will bear fifty percent (50%) of the total construction costs, **however, the percentage may vary from site to site.**

Engineering costs include the direct cost of engineering, surveys, investigations, and the design and specifications of structural measures. PL-566 funds and the sponosrs will bear fifty percent (50%) of these costs or $64,000 each. The total engineering cost estimated at $128,000.

Project administration costs include contract administration, review of engineering plans prepared by others, contract administrators, inspection services during construction, advisory services, and administration of relocation payments, if necessary. The total estimated cost of project administration is $124,000. The Sponsors will bear $62,000 and PL-566 funds will bear $62,000.

Land rights costs include purchasing or acquiring easements for the treatment sites. Land rights costs, based on local estimates will be $29,000 and will be incurred locally.

Utility relocations and modifications are considered a part of land rights costs. For this Glenwhite Run project area there are no known utility relocations. If utility relocation is needed, locally acquired funds must be used to relocate and modify all utilities.

Relocation payments are applicable to displaced persons or businesses. There are no relocations anticipated. If displacement becomes necessary, PL-566 funds will bear 49 percent of the costs and locally acquired funds will bear 51 percent of the costs.

Table 4 contains Average Annual project costs. Costs are based on a 1997 price base and are discounted at an interest rate of 7.3570 percent over a 25 year evaluation period. It is the sponsors responsibility to bear all operation and maintenance costs which are estimated to be $7,800 per year.

Table 5A shows the source of the Estimated Averge Annual Economic Benefits.

Table 6 combines the Average Annual Benefits and Costs to establish a project benefit to cost ratio. The expected B:C ratio is 1.14 : 1.0.

INSTALLATION AND FINANCING

The framework for implementing the plan is described in this section. The planned sequence of installation; responsibilities of the Sponsors; NRCS; and others; protection of cultural resources; and methods of financing are described.

Sequence of Installation

Installation of the works of improvement described in this plan consist of eight project sites. The sites are proposed to be constructed in the following order based on resource information and local funding availability. The first year of implementation will include the South Tributary. The completion of this site will remove all mine water pollutants from the South Tributary. The second year of construction will ameliorate the Squatter Falls discharges. The third construction season will complete the Coke Oven site. In the fourth year of implementation the Barrens West Seep will be treated. The fifth construction season will complete the Clearwater and Spaghetti Hole sites. The sixth year the Barrens will be reclaimed. The final year of implementation will complete the watershed plan with the installation of the North Slope project. This project sequence from the top of the watershed to the bottom provides a logical sequence for construction that will allow a sequential cleaning of Glenwhite Run and Kittanning Point reservoir. However, in the event that an unforeseen problem would arise that would alter this sequence of project implementation no adverse consequences are expected.

TABLE E

YEAR	SITE	ITEM	PL-566 FUNDS ($)	OTHER FUNDS ($)	TOTAL FUNDS ($)
1st	South Tributary	construction	43,000	43,000	86,000
		engineering	4,000	4,000	8,000
		project admin.	4,000	4,000	8,000
		land rights	0	3,000	3,000
2nd	Squatter Falls	construction	49,000	49,000	98,000
		engineering	5,000	5,000	10,000
		project admin.	5,000	5,000	10,000
		land rights	0	1,000	1,000
3rd	Coke Oven	construction	81,000	81,000	162,000
		engineering	8,000	8,000	16,000
		project admin.	8,000	8,000	16,000
		land rights	0	2,000	2,000
4th	Barrens West Seep	construction	39,000	39,000	78,000
		engineering	4,000	4,000	8,000
		project admin.	4,000	4,000	8,000
		land rights	0	2,000	2,000
5th	Clearwater & Spaghetti Hole	construction	125,000	125,000	250,000
		engineering	12,000	12,000	24,000
		project admin.	12,000	12,000	24,000
		land rights	0	3,000	3,000
6th	Barrens	construction	135,000	135,000	270,000
		engineering	14,000	14,000	28,000
		project admin.	13,000	13,000	26,000
		land rights	0	16,000	16,000

TABLE E (continued)

YEAR	SITE	ITEM	PL-566 FUNDS ($)	OTHER FUNDS ($)	TOTAL FUNDS ($)
7th	North Slope	construction	172,000	172,000	344,000
		engineering	17,000	17,000	34,000
		project admin.	16,000	16,000	32,000
		land rights	0	2,000	2,000
	SUBTOTALS	construction	$644,000	$ 644,000	$1,288,000
		engneering	64,000	64,000	128,000
		project admin.	62,000	62,000	124,000
		land rights	0	29,000	29,000
	TOTAL		770,000	799,000	$1,569,000

Responsibilities

Responsibilities for carrying out a project will be shared between the Natural Resources Conservation Service (NRCS) and the Sponsors.

NRCS responsibilities will be as follows:

a. Provide overall project administration.

b. Provide a government representative for each NRCS construction contract.

c. Provide up to 50 percent of construction costs, and provide engineering design and construction inspection for works contracted by NRCS.

The Sponsors will:

a. Provide funding for fifty percent (50%) of total construction costs.

b. Be responsible for their own project administration costs.

c. Acquire all necessary land and water rights to install and maintain all works of improvement.

d. Enter into agreements with the appropriate utilities and others for relocating utilities and modifying roads or other public works affected by all works of improvement.

e. Bear the costs of relocating or modifying utilities.

f. Secure all required federal, state, and local permits.

g. Be responsible for operation and maintenance of all components of the systems.

Contracting

The project will be installed by means of a federal contract administered by NRCS, as requested by the Sponsors and by cooperating agencies. NRCS and cooperating agencies will perform construction inspection and contract administration at their own expense.

Land Rights and Relocation

The Sponsors will be responsible for acquiring the land rights, water rights, and rights-of-way necessary to install, operate and maintain the structural measures. The Sponsors will also be responsible for the satisfactory relocation or modification of all utilities disturbed as a result of the project.

Solid and Hazardous Waste

The Sponsors will assure that any solid or potential hazardous wastes at the treatment sites are identified and disposed of in accordance with all applicable federal, state and local rules and regulations. The Sponsors will be responsible for entering into agreements with affected landowners for waste identification and disposal, and if warranted, testing of soil and ground water and remediation plans. These activities will generally require the services of a hazardous waste consultant certified by the Pennsylvania Department of Environmental Protection, Bureau of Waste Management.

Cultural Resources

A preliminary archaeological review has been conducted in the Glenwhite Run project area to determine the presence and significance of prehistoric and historic archaeological resources. No prehistoric archaeological resources are documented in any of the project areas. Historical resources at the former village of Glenwhite are being documented through literature search and photographically. If cultural resources are discovered during construction, NRCS will take action to mitigate the resources in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980, and the regulations (36 CFR, Part 800) of the Advisory Council on Historic Preservation. NRCS will continue to work closely with the State Historic Preservation Officer on ways to reduce project effects on cultural resources.

Financing

The NRCS share of installation costs will be provided from funds appropriated under the authority of Public Law 83-566, the Watershed Protection and Flood Prevention Act. This is not a fund-obligating document and federal financial assistance is subject to the availability of congressional appropriations.

The Sponsors will bear the remaining costs for project administration, construction, land rights and relocation or modification of utilities. Their source of funds can include cash reserves, loans, bonds, grants, and/or annually appropriated tax revenues.

Cost allocation will be based on total project costs rather than by individual treatment sites. For construction costs, efforts will be made to keep the percentages of NRCS/Sponsor costs as close to 50/50 as possible, since continued funding cannot be guaranteed by either party. Sponsors must bear at least fifty percent (50%) of construction costs.

The Sponsors have analyzed the scheduled installation of works of improvement and will acquire funds when needed in cooperation with NRCS.

Conditions for Providing Assistance

Federal assistance, including financial, engineering assistance, and other to be furnished by NRCS, is contingent on the appropriation of funds for this purpose.

Before federal construction funds are made available, the Sponsor will:

a. Give written assurance that they have the legal authority, sufficient funding, and are willing and able to obtain all necessary land rights, easements, permits, and operate and maintain the structural measures.

b. Execute an Operation and Maintenance Agreement.

c. Execute a Project Agreement.

d. Assure that any solid or hazardous wastes at the treatment sites are identified and disposed of in accordance with applicable rules and regulations.

e. Prior to construction, certify that all required land rights, water rights, permits, and licenses were acquired and other related actions were taken to obtain the legal authority to install the project measures.

All construction will be in accordance with Occupational Safety and Health Administration Standards.

OPERATION AND MAINTENANCE

The components of the passive treatment system will be designed to minimize maintenance. The treatment wetlands will be sized to maximum size based on existing available treatment areas. It is anticipated that a minimum 25 year lifespan is expected for all treatment areas.

Periodic maintenance will be needed to reseed and or repair parts of diversions and dikes that may be damaged by severe storms. Rock riprap in outlet structures that may be dislodged during severe storms will need to be replaced. Cutting of unwanted vegetation on the dikes is also anticipated. Total annual maintenance cost is estimated at $7,800 per year. This annual operation and maintenance cost is the sponsors responsibility.

An operation and maintenance agreement will be executed between NRCS and the Sponsors prior to the signing of a land rights, relocation, or project agreement for each site. This agreement will contain, in addition to specific responsibilities for structural project measures, specific provisions for retention and disposal of real and personal property acquired or improved with PL 83-566 funds. An operation and maintenance plan will be prepared in accordance with the NRCS Pennsylvania Watershed Operation and Maintenance Handbook.

PUBLIC REVIEW CHANGES

Responses to the public review comments in Section VIII - Consultation and Public Participation will be incorporated into the final design of each site.

TABLE 1 - ESTIMATED INSTALLATION COST[1]

Glenwhite Run, Blair and Cambria Counties, Pennsylvania

(Dollars)

Evaluation Unit	ESTIMATED COSTS		
	PL - 566	OTHER	TOTAL
<u>Treatment Sites</u>			
South Tributary	51,000	54,000	105,000
North Slope	205,000	207,000	412,000
Barrens	162,000	178,000	340,000
Clearwater	14,000	15,000	29,000
Spaghetti Hole	135,000	137,000	272,000
Squatter Falls	59,000	60,000	119,000
Coke Oven Site	97,000	99,000	196,000
Barren West Seep	47,000	49,000	96,000
Total	770,000	799,000	1,569,000

[1]Price Base 1997

TABLE 2 - ESTIMATED COST DISTRIBUTION

Glenwhite Run, Blair and Cambria Counties, PA

INSTALLATION COST
(Dollars)[1]

Evaluation Unit	PL - 566 FUNDS				OTHER FUNDS					TOTAL COST
	Construct-ion	Engi-neering	Project Admin.	Total P.L. 566	Construct-ion	Sponsor Eng. Costs	Land Rights	Project Admin.	Total Other	
Treatment Site	$	$	$	$	$	$	$	$	$	$
South Tributary	43,000	4,000	4,000	51,000	43,000	4,000	3,000	4,000	54,000	105,000
North Slope	172,000	17,000	16,000	205,000	172,000	17,000	2,000	16,000	207,000	412,000
Barrens	135,000	14,000	13,000	162,000	135,000	14,000	16,000	13,000	178,000	340,000
Clearwater	12,000	1,000	1,000	14,000	12,000	1,000	1,000	1,000	15,000	29,000
Spaghetti Hole	113,000	11,000	11,000	135,000	113,000	11,000	2,000	11,000	137,000	272,000
Squatter Falls	49,000	5,000	5,000	59,000	49,000	5,000	1,000	5,000	60,000	119,000
Coke Oven Site	81,000	8,000	8,000	97,000	81,000	8,000	2,000	8,000	99,000	196,000
Barren West Seep	39,000	4,000	4,000	47,000	39,000	4,000	2,000	4,000	49,000	96,000
Treatment Sites	644,000	64,000	62,000	770,000	644,000	64,000	29,000	62,000	799,000	1,569,000

[1] Price Base 1997

TABLE 3C - STRUCTURAL SUMMARY FOR GLENWHITE RUN

SITE NAME	NUMBER ANOXIC DRAINS	NUMBER SAPS	NUMBER WETLANDS	NUMBER SETTLING BASINS	FEET LIMESTONE CHANNELS	FEET DIVERSION	FEET ACCESS ROADS	ACRES CLEARING GRUBBING	ACRES SEEDING	FEET POLLUTION CONTROL
SOUTH TRIBUTARY	1	0	0	1	400	0	1000	4	5	1600
NORTH SLOPE	0	3	2	4	700	1000	1000	8	3	2800
BARRENS	0	0	0	2	2300	3600	1000	15	37	2000
CLEARWATER	0	0	0	0	300	0	1000	1	1	800
SPAGHETTI HOLE	0	1	1	1	0	500	1000	3	3	1600
SQUATTER FALLS	0	1	0	1	0	800	500	2	2	1600
COKE OVEN SITE	0	1	1	2	500	0	500	3	3	1600
BARREN WEST SEEP	0	2	2	2	300	0	500	3	3	1600
TOTAL	1	8	6	13	4500	5900	6500	39	57	13600

TABLE 4 - ESTIMATED AVERAGE ANNUAL COSTS

Glenwhite Run, Blair and Cambria Counties, Pennsylvania

(Dollars)[1]

Evaluation Unit	Project Amortization [2] of Installation Cost	Outlays Operation [3] Maintenance & Replacement Cost	Other Direct Cost	Total Average Annual Cost	Total Installation Cost
Structural measures					
South Tributary	$ 9,000	$ 900	$ 0	$ 9,900	$ 105,000
North Slope	$ 37,000	$1,700	$ 0	$ 38,700	$ 412,000
Barrens	$ 30,000	$ 500	$ 0	$ 30,500	$ 340,000
Clearwater	$ 3,000	$ 200	$ 0	$ 3,200	$ 29,000
Spaghetti Hole	$ 24,000	$1,100	$ 0	$ 25,100	$ 272,000
Squatter Falls	$ 11,000	$1,000	$ 0	$ 12,000	$ 119,000
Coke Oven Site	$ 17,000	$1,600	$ 0	$ 18,600	$ 196,000
Barren West Seep	$ 9,000	$ 800	$ 0	$ 9,800	$ 96,000
Total	$140,000	$7,800	$ 0	$147,800	$1,569,000

[1]Price Base 1997, Amortized over 25 years at a 7.375% discount rate
[2]Costs for Project Administration, Engineering and Landrights are included
[3]There are no anticipated replacement costs over the 25 year period of analysis

TABLE 5A - ESTIMATED AVERAGE ANNUAL ECONOMIC BENEFITS[1]
Glenwhite Run, Blair and Cambria Counties, Pennsylvania

BENEFIT ITEM	BENEFIT
OFF SITE	
Fishery	$ 79,400.00
Water Supply	$ 89,000.00
TOTAL AVERAGE ANNUAL BENEFITS	$168,400.00

TABLE 6 -COMPARISON OF RECOMMENDED PLAN BENEFITS AND COSTS

Glenwhite Run, Blair and Cambria Counties, Pennsylvania

(Dollars)[1]

Item	Average Annual Benefits Water Quality	Average Annual Costs	Benefit Cost Ratio
Water Quality Evaluation Unit 1	$ 168,400	$ 147,800	1.14 : 1.00
Grand Total	$ 168,400	$ 147,800	1.14 : 1.00

[1] Base Price 1997, amortized over 25 years at 7.375% discount rate

10 - REFERENCES

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Watzlaf, G. R. D.M. Hyman, 1995, Limitations of Passive Systems for the Treatment of Mine Drainage, U.S. Bureau of Mines, Pittsburgh Research Center, Pittsburgh, PA

NAME	PRESENT TITLE	YEARS IN POSITION	EDUCATION
Donna Fisher	District Manager, BCD	10	BS-Biogeology
Thedora Kreitz	Resource Conservation Specialist	7	BS-Geology
David Barr	Supervisor of Water Treatment Plants	25	BS-Chemistry
John Kennedy			
Peter Barton	E.D.-Altoona RR Mem. Museum	7	BA-History
Dr. Stan Kotala	Medical Doctor	10	MD
Mary Vibostok	Resource Specialist	3	BS-Microbiology
Mark Chegwidden	Americorp Member	1	
Johnathan Derr	Americorp Member	1	BS-Geography
Chris Clouser	Americorp Member	1	BS-Wildlife Biology
Rusty Fluke	Americorp Member	1	Assoc-Wildlife Technology
Walt Jerz	Americorp Member	2	
Jerry Horwath	Americorp Member	2	BS-Environmental Science
Charles Meyers	District Engineer, DEP/BAMR	29	Civil Engineering
Eric Cavazza	Design Section Chief, DEP/BAMR	12	BS-Civil Engineering MS-Environmental Engineering
Pamela Milavec	Water Pollution Biologist III DEP/BAMR	13	BS-Env. Biology
Kay Spyker	Water Pollution Biologist II DEP/BAMR	2	BS-Marine Biology MS-Fisheries Biology
Wayne Bogovich	Area Engineer, NRCS	17	BS-Agricultural Engineer
Ildefonso Chavez	Planning Engineer, NRCS	16	BS-Civil Engineer
George Skovran	Civil Engineer, NRCS	11	BS-Agricultural Engineering
William L. Towns	Civil Eng. Technician, NRCS	20	
Rob Clauto	Field Conservationist, NRCS	9	BS-Agricultural Science
Jeff Mahood	Environmental Planning Specialist, NRCS	9	BS-Environmental Resources Management
Karen Powell	Ag Economist, NRCS	3	BS-Agricultural Economics
Daniel Seibert	Resource Conservationist, NRCS	16	BS-Agronomy
Barry Isaacs	Biologist-NRCS	8	BS-Forestry
Lisa Walker	Clerk-Typist, NRCS	9	

The draft watershed plan and environmental assessment was reviewed and concurred in by a team of NRCS technical specialists having responsibilities in administration, agronomy, biology, engineering, geology, resource conservation, soils, water quality and watershed planning.

APPENDIX A

LETTERS

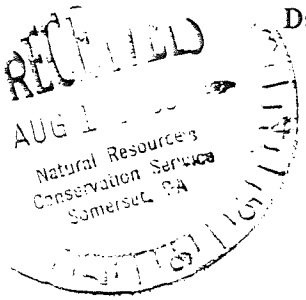
of

COMMENT

United States Department of Agriculture | Forest Service | Northeastern Area State & Private Forestry | 180 Canfield Street Morgantown, WV 26505 304-285-1531

Reply to: 3510

Date: August 6, 1997



Mr. Daniel R. Seibert
USDA-NRCS
1590 North Center Avenue
Suite 105
Somerset, PA 15501

Dear Dan:

I have reviewed the Draft Watershed Plan for the Glenwhite Run Watershed on behalf of the Forest Service, and I found it to be very interesting. You and your partners have done a fine job putting it together. I have only a few comments to make, as follows:

- page 1-1. "Riparian forest buffers will be maintained or established..." leads me to believe that buffers will be planted as part of the project. Since this does not appear to be the case, I would delete "or established". It is good to see the importance of riparian forests mentioned in the plan.
- page 2-2. Under "principal project measures", "riparian buffer areas" is listed, but I did not see that practice in the recommended plan. I do not understand what is meant here.
- page 3-1. "Riparian forest buffers will be maintained" is great, but is inconsistent with what is stated above, in reference to page 1-1.
- I would like to see the maps to scale.
- page 5-1 refers to figures 3,4,5, and 6. These figures need better titles, which are descriptive, and explanation in the text. Being the forester that I am, I don't understand why there are 3 bars at each stream. Does this denote 3 locations along each stream? How do these figures tie into figure 2?
- page 5-10. There is a page(s) missing after 5-10.
- page 7-2. Use its, not it's.
- page 7-13. In figure 7, change SAP to SAPS.
- page 10-1. References should be in alphabetical order.
- Appendix C-Site Location Map. I think this would be better in the text.

Thank you for this opportunity to comment on your plan. Keep up the good work. It is always a pleasure to work with you. If you need further assistance, or have questions, please call me at the above number.

Sincerely,

MRS. ROXANE S. PALONE
Watershed Specialist
Forest Resources Management

cc: Jeff Mahood

SEP - 2 1997

Pennsylvania Department of Environmental Protection
One Ararat Blvd.
Harrisburg, PA 17110-9333
August 28, 1997

Southcentral Regional Office

717-541-7969
FAX 717-657-4446

Ms. Janet L. Oertly
State Conservationist USDA
Natural Resources Conservation Service
Suite 340, One Credit Union Place
Harrisburg, PA 17110-2993

Dear Ms. Oertly:

The Pennsylvania Department of Environmental Protection has reviewed the information provided regarding the proposed draft watershed plan for Glenwhite Run, Blair and Cambria Counties, Pennsylvania.

This proposed project, to the best of our knowledge, will have no adverse effect on the environment.

Before proceeding with this project, please consider the following comments:

1. An NPDES Part I permit will be required. Please contact Mr. Martin Ferry of the Water Management Program at the above address or telephone 717-541-7995 for additional information.

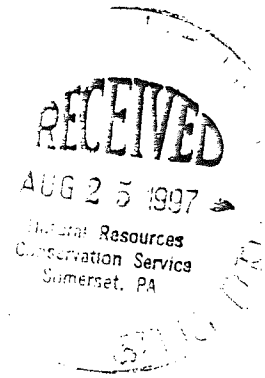
Thank you for the opportunity to provide comments on this project.

Sincerely,

Karen Bassett

Karen Bassett
Assistant Regional Director

COMMONWEALTH OF PENNSYLVANIA
Department of Environmental Protection
District Mining Operations
August 22, 1997
814-472-1900



SUBJECT: Comments on Glenwhite Run Draft Watershed Plan

TO: Daniel R. Seibert, USDA
Natural Resources Conservation Service
North Ridge Building
1590 North Center Avenue, Suite 105
Somerset, PA 15501

FROM: P. J. Shah, P.E.
Chief, Permit Review Section
Ebensburg District Office
P J Shah

Following are comments from my staff in regards to the above-referenced subject:

Bill Dadamo from my staff has designed a number of passive treatments. If you need his help, please let me know. Passive treatment may not be the best solution for several discharges (with high Aluminum) in this watershed.

The SAP system design indicates a wetland between the settling basin and SAP. The wetland is not necessary at that stage of treatment.

<u>On Page 7-2, the Section on Remining</u>

Uncertainty in obtaining a permit on a public water supply watershed is listed as a barrier to remining. This consideration could more accurately be explained. The real uncertainty is, given the site geologic conditions, whether further mining can take place without producing additional pollution. This is an important distinction. Stating the problem in terms of the ability to obtain a permit erroneously suggests that there may be a legislative or regulatory solution to the problem. Stating it in terms of the geologic conditions correctly identifies the problem as a scientific one, which may not have a solution given current economics and technology. The public water supply is an additional risk factor which must be considered.

COMMONWEALTH OF PENNSYLVANIA

PENNSYLVANIA GAME COMMISSION

2001 ELMERTON AVENUE
HARRISBURG, PA 17110-9797

ADMINISTRATIVE BUREAUS:

ADMINISTRATION	717-787-5670
AUTOMOTIVE AND PROCUREMENT DIVISION	717-787-6594
LICENSE DIVISION	717-787-2084
PERSONNEL DIVISION	717-787-7836
WILDLIFE MANAGEMENT	717-787-5529
INFORMATION & EDUCATION	717-787-6286
LAW ENFORCEMENT	717-787-5740
LAND MANAGEMENT	717-787-6818
REAL ESTATE DIVISION	717-787-6568
MANAGEMENT INFORMATION SYSTEMS	717-787-4076

Copy to Dan Seber

AUG 8 1997

TO DAN SEBER

SOMERSET PC

August 7, 1997

Ms. Janet L. Oertly:
U.S. Department of Agriculture
One Credit Union Place, Suite 340
Harrisburg, PA 17110-2993

In re: Draft Watershed Plan and Environmental Assessment
Glenwhite Run Area
Blair County, PA

Dear Ms. Oertly:

This is in response to your letter of July 25, 1997, requesting our review of the Draft Watershed Plan and Environmental Assessment.

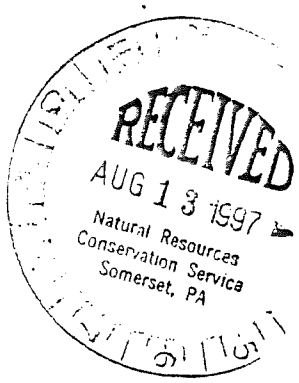
The proposed water quality and habitat improvement plan for the Glenwhite Run Watershed appears to provide a solution to current adverse impacts resulting from past mining activities. We would like to be involved in the development of the planting scheme for proposed improvements to wetland and grassland habitats.

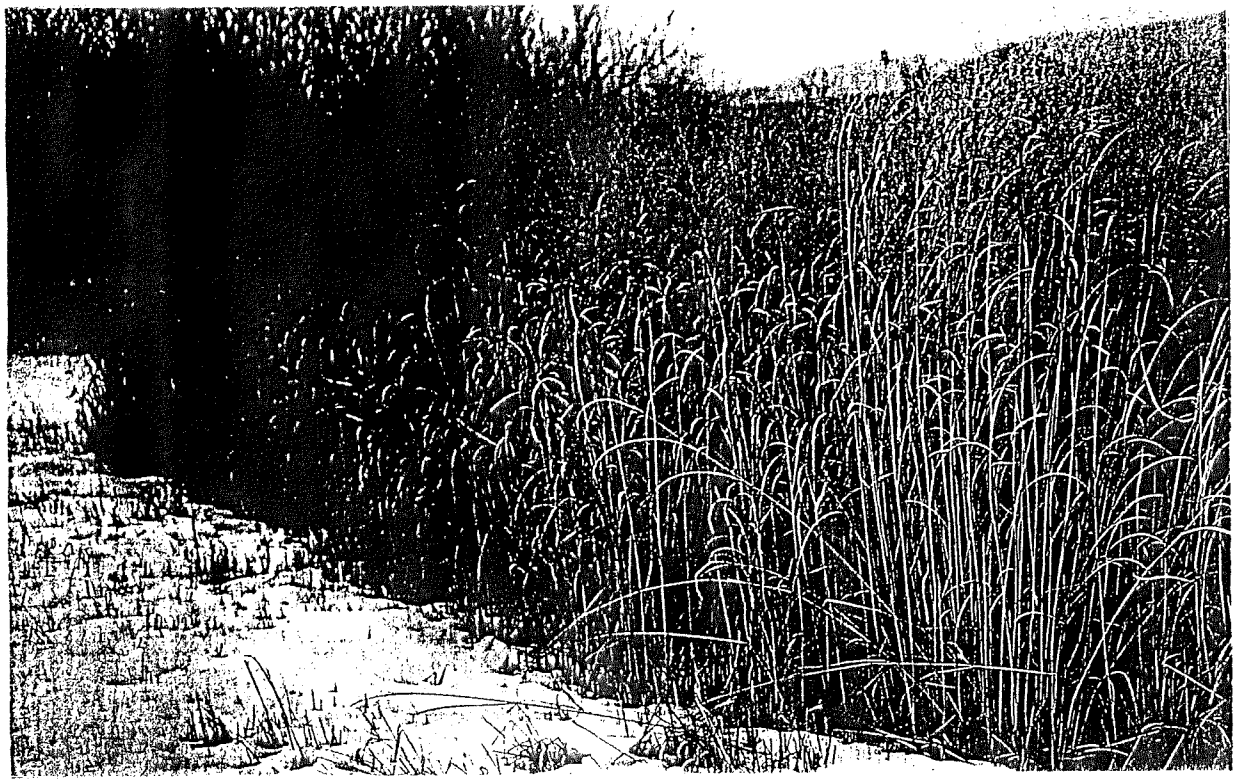
If you have any questions, please contact Tony Ross of my staff at (717) 783-5957.

Very truly yours,

Denver A. McDowell, Chief
Division of Environmental
Planning and Habitat Protection
Bureau of Land Management

DAM/tr





'Shelter' switchgrass
Panicum virgatum

Zones: 3, 4, 5, 6, 7, 8
Uses: Food for songbirds, food and cover for upland ground birds and small mammals, and revegetation of gravel pits and mine spoil.
Growth rate: Requires 1 to 2 years to become totally effective. Little or no management required after establishment.
Site conditions: Grows in low-fertility, acid, sands, clays, and loams. Has excellent heat and drought tolerance, low shade tolerance, and does well on moderately well drained soils.

Besides being a good plant for revegetation of surface mine spoil, sand and gravel pits, and steep, sandy roadside cuts, 'Shelter' is an excellent wildlife plant that provides year-round cover and food during the fall and winter. Its stiff stems resist lodging and will recover to an upright position after winter snowstorms.

'VA-70' shrub lespedeza
Lespedeza thunbergii

Zones: 6, 7, 8
Uses: Wildlife food and cover, borders, hedges, and revegetating steep banks along banks and channels.
Growth rate: Produces desired cover during the second growing season.
Site conditions: Moderately well drained, acid, sandy, loamy, and clayey soils. Good drought, poor shade tolerance.

'VA-70' is an excellent source of food for wildlife, including pheasant, bobwhite quail, rabbits, and deer. It can be used alone as a shrub border or in combination with other plants. 'VA-70' works especially well when planted with switchgrass. Can be established from seed or 1-year-old seedlings.

Stan Kotala, M.D.
President
Juniata Valley Audubon Society
RR 3 Box 866
Altoona, PA 16601-9206

10 August 1997

Dan Seibert
Resource Conservationist
NRCS
North Ridge Bldg.
1590 N. Central AV
Suite 105
Somerset, PA 15501

Dear Dan:

The Board of Directors and general membership of the Juniata Valley Audubon Society have reviewed the Draft Technical Review Plan for the Glenwhite Run Restoration Project in Blair County, Pennsylvania. We are wholeheartedly in support of the plans outlined therein.

Our only recommendation is that the grasses used to revegetate the barren areas be of the native warm season type, specifically, big bluestem (Andropogon gerardii) and switchgrass (Panicum virgatum). These species also are recommended highly by the Pennsylvania Game Commission.

Both these species have excellent value as wildlife food and cover. They have outstanding tolerance for hot, droughty sites and are tolerant of low-fertility acid, sandy, loamy, and clayey soils. I have attached descriptions of these grasses from the USDA's Conservation Plants for the Northeast.

We look forward to seeing you again at the next Horseshoe Curve Resource Coalition meeting.

Sincerely,

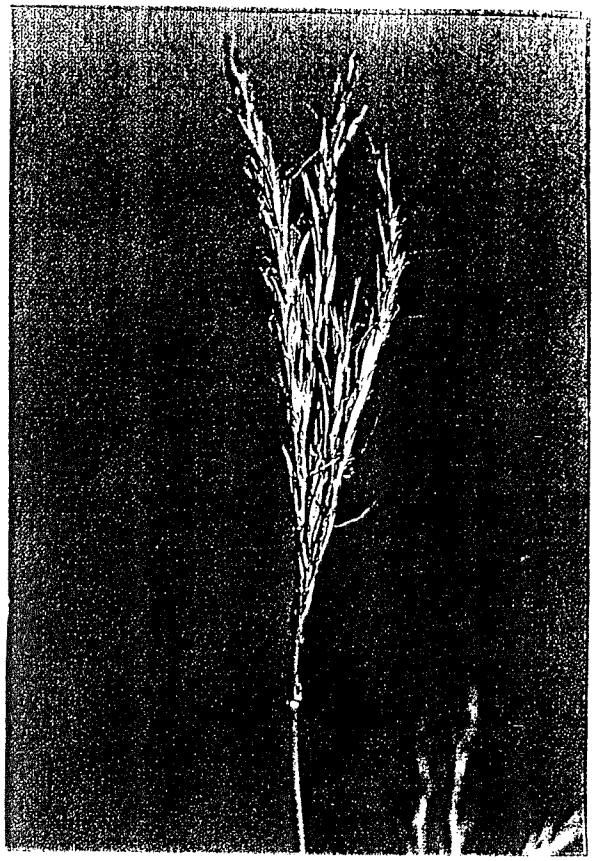
Stan Kotala

Stan Kotala, M.D.

President
Juniata Valley Audubon Society

'Niagara' big bluestem

Andropogon gerardii

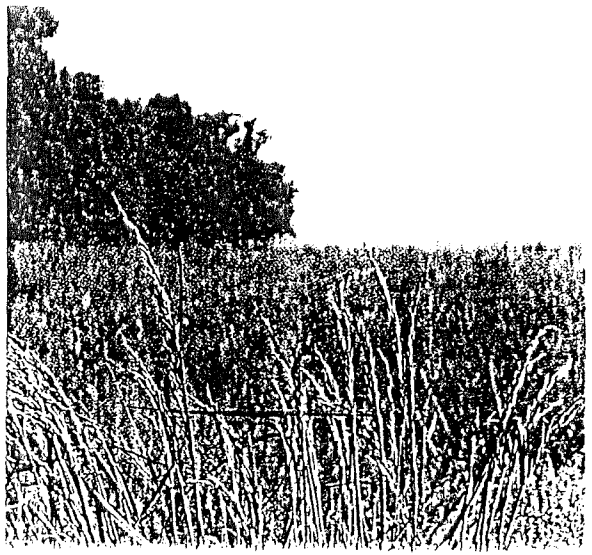


Zones: 4, 5, 6, 7
Uses: Long-lived erosion control plant for sand and gravel pits, mine spoil, and roadsides; excellent forage for livestock and cover for wildlife.
Growth rate: Slow to germinate and establish the first year. Produces fair to good cover by the end of the second year.
Site conditions: Grows well on hot, droughty sites. Tolerates medium- to low-fertility, acid, sandy, loamy, and clayey soils; has poor shade tolerance; and prefers well-drained sites.

'Niagara' big bluestem is a perennial, warm-season grass that has excellent drought resistance. It is being used in critical area seedings where cool season species cannot tolerate the high temperatures or coarse soils. It grows from 5 to 7 feet tall and is very leafy. Plant seed in the early spring, taking care to compact the soil after seeding.

Tall fescue

Festuca arundinacea



Zones: 4, 5, 6, 7, 8
Uses: Stabilizing grassed waterways, slopes, and roadbanks; lawns for recreation areas; food for geese, deer, and cottontail; cover for birds; forage for winter grazing; the most versatile and widely used grass for conservation in the Northeast.
Growth rate: Produces effective ground cover the first year.
Site conditions: Grows in low-fertility, acid, clayey, loamy, and sandy soils; good drought tolerance; fair shade tolerance; tolerates somewhat poorly drained

HORSESHOE CURVE
NATIONAL HISTORIC LANDMARK
RAILROADERS MEMORIAL MUSEUM
ALTOONA, PA

July 31, 1997

1300 Ninth Avenue, Altoona, Pennsylvania 16602

Mr. Daniel R. Seibert
USDA
Natural Resources Conservation Service
North Ridge Building
1590 North Center Avenue
Suite 105
Somerset, PA 15501

Dear Mr. Seibert:

On behalf of the Altoona Railroaders Memorial Museum and the Horseshoe Curve National Historic Landmark, I have reviewed the Draft Watershed Plan and Environmental Assessment (Plan-EA) for the Glenwhite Run Watershed area in Blair and Cambria Counties, PA.

My only comments relate to the Executive Summary, page 1-2, last paragraph. The Horseshoe Curve National Historic Landmark (HSC NHL) is referred to as being operated by the National Park Service. That is not the case. The HSC NHL is operated and managed by the Altoona Railroaders Memorial Museum, a private, not-for-profit Pennsylvania Corporation with Federal 501(c)3 status. On page 2-1, under "cultural resources," the correct agency name is the Pennsylvania Historical and Museum Commission.

Aside from those two comments I concur with the Watershed Plan and Environmental Assessment as presented. The multiple, diverse reasons for pursuing this effort are presented clearly and succinctly throughout the document.

Thank you for giving the Altoona Railroaders Memorial Museum / Horseshoe Curve National Historic Landmark an opportunity to be a part of the process and review the draft plan. Clearly the Horseshoe Curve will be a better place to visit with improvements to the Glenwhite Run Watershed. Horseshoe Curve is a significant historical landscape that has been degraded by the extraction of minerals in the Glenwhite Watershed. Restoring the Watershed and Run to its natural state will enhance the visitor experience in this significant regional asset area.

Sincerely,

Peter D. Barton
Executive Director
Altoona Railroaders Memorial Museum
Horseshoe Curve National Historic Landmark

Railroaders Memorial Museum
Phone (814) 946-0834 Fax (814) 946-9457
Horseshoe Curve Visitors Center
Phone (814) 941-7960 Fax (814) 941-3594

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

CED - ICCT

September 12, 1997

Planning Division

Ms. Janet L. Oertly
State Conservationist
U.S. Department of Agriculture
Natural Resources Conservation Service
Suite 340
One Credit Union Place
Harrisburg, Pennsylvania 17110-2993

Dear Ms. Oertly:

I am providing Baltimore District's comments on the *Draft Watershed Plan and Environmental Assessment*. The comments provided below address the Corps of Engineers' (Corps) areas of concern, including direct and indirect impacts on existing and/or proposed Corps projects, flood control hazard potential, and regulatory requirements under Section 404 of the Clean Water Act.

Review of the information you provided indicates that there are no existing or proposed Corps projects that would be affected by the proposed project.

The proposed project could have a significant impact on the floodplain. In accordance with the subject document, portions of the proposed project will be located within the floodplain. New construction or major replacement within the floodplain requires full compliance with Executive Order (E.O.) No. 11988, May 24, 1977, Flood Plain Management; Federal Emergency Management Agency regulations; and other Federal, state, and local floodplain regulations. The objectives of the E.O. No. 11988 and other floodplain regulations are to avoid the adverse effects of occupying and modifying the floodplain and to avoid direct and indirect support of development in the floodplain. The order requires that activities not be located in the floodplain unless it is the only practicable alternative. Activities which must be-located in the floodplain must incorporate measures to: (1) reduce the hazard and risk associated with floods; (2) minimize the adverse effects on human health, safety, and welfare; and (3) restore and preserve the natural and beneficial values of the floodplain.

Based on the information you provided, the District's Regulatory Branch was unable to determine if the proposed action will require a Department of the Army authorization pursuant to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Once detailed designs have been made for the proposed project, coordination should be initiated with Baltimore District to determine permit requirements. If it is determined that work associated with the proposed project will impact Waters of the United States or jurisdictional wetlands, then Department of the Army permits may be required. If you have any questions or need additional information on regulatory requirements, please contact Ms. Linda Morrison, Chief, Regulatory Branch, Baltimore District, at (410) 962-3670.

If you have any other questions on this matter, please call me or my action officer, Ms. Andrea E. Walker, at (410) 962-3027.

Sincerely,

for Robert F. Gore
Chief, Planning and Environmental
Services Branch

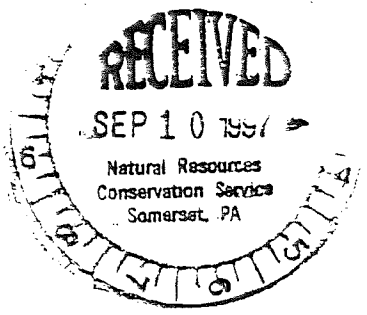
Pennsylvania Department of Environmental Protection

P.O. Box 149
Ebensburg, PA 15931

Bureau of Abandoned Mine Reclamation

September 8, 1997

(814) 472-1800



Daniel R. Seibert, USDA
Natural Resources Conservation Services
1590 North Center Avenue, Suite 105
Somerset, PA 15501

RE: Draft Watershed Plan and Environmental Assessment for the Glenwhite Run Watershed

Dear Dan:

Thank you and Janet L. Oertly for the opportunity to review the watershed plan and environmental assessment for the Glenwhite Run Watershed located in Blair and Cambria Counties.

The Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamation, continues to support the plan's proposed action to improve water quality in Glenwhite Run.

It is my belief that the watershed plan is in keeping with the guiding principles and goals as set forth in Pennsylvania's Comprehensive Plan for Abandoned Mine Reclamation.

Sincerely,

C. H. Meyers
District Engineer
Ebensburg District Office

SEP - 3 1997

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Suite 322
315 South Allen Street
State College, PA 16801-4850

September 2, 1997

Ms. Janet L. Oertly
State Conservationist
Natural Resources Conservation Service
Suite 340, One Credit Union Place
Harrisburg, PA 17110-2993

Dear Ms. Oertly:

This responds to your July 25, 1997, letter requesting our review and comment on the draft Watershed Plan and Environmental Assessment for the Glenwhite Run Watershed in Blair and Cambria Counties, Pennsylvania.

We have reviewed the document and support your effort to reduce acid mine drainage problems in the Glenwhite Run Watershed.

Thank you for the opportunity to review the document. If you have any questions regarding this matter, please contact Edward Perry of my staff at 814-234-4090.

Sincerely,

David Densmore
Supervisor

SEP - 2 1997

Pennsylvania Department of Environmental Protection

One Ararat Blvd.
Harrisburg, PA 17110-9333

August 28, 1997

Southcentral Regional Office

717-541-7969
FAX 717-657-4446

Ms. Janet L. Oertly
State Conservationist USDA
Natural Resources Conservation Service
Suite 340, One Credit Union Place
Harrisburg, PA 17110-2993

Dear Ms. Oertly:

The Pennsylvania Department of Environmental Protection has reviewed the information provided regarding the proposed draft watershed plan for Glenwhite Run, Blair and Cambria Counties, Pennsylvania.

This proposed project, to the best of our knowledge, will have no adverse effect on the environment.

Before proceeding with this project, please consider the following comments:

1. An NPDES Part I permit will be required. Please contact Mr. Martin Ferry of the Water Management Program at the above address or telephone 717-541-7995 for additional information.

Thank you for the opportunity to provide comments on this project.

Sincerely,

Karen Bassett

Karen Bassett
Assistant Regional Director

STIFFLER, McGRAW & ASSOCIATES, INC.

19 N. Juniata Street P.O. Box 462
Hollidaysburg, PA 16648

CONSULTING ENGINEERS & SURVEYORS

PH. (814) 696-6280
FAX (814) 696-6240

August 22, 1997

Daniel R. Seibert
USDA, Natural Resources Conservation Service
North Ridge Building
1590 North Center Avenue, Suite 105
Somerset, PA 15501

RE: Glenwhite Run
Watershed Plan and Environmental Assessment
Blair and Cambria Counties
Project No. 90003.334

Dear Mr. Seibert:

On behalf of the Allegheny Township Supervisors (Blair County), please accept this letter of support for the recommended alternative contained in the above-referenced plan to treat acid mine drainage along Glenwhite Run. This estimated 1.6 million dollar project, consisting of eight proposed passive treatment systems, should significantly improve water quality, not only within Glenwhite Run, but also within Burgoon Run and the Beaverdam Branch of the Juniata River which travel through Allegheny Township.

If you have any questions, please contact our office.

Sincerely,

Christopher L. Dutrow, P.E.

CLD/kd
Enclosures
cc: Blair County Conservation District
Blair County Commissioners

E:\90003\Seibert.334

ENGINEERS SURVEYORS

SOUTHERN ALLEGHENIES PLANNING AND DEVELOPMENT COMMISSION
541 58TH STREET, ALTOONA, PENNSYLVANIA 16602
TELEPHONE (814) 949-6500
FAX (814) 949-6505
A LOCAL DEVELOPMENT DISTRICT
SERVING BEDFORD, BLAIR, CAMBRIA, FULTON, HUNTINGDON AND SOMERSET COUNTIES

August 22, 1997

Mr. Daniel R. Seibert
USDA
Natural Resources Conservation Service
North Ridge Building
1590 North Center Avenue
Suite 105
Somerset, Pennsylvania 15501

Dear Mr. Seibert:

In response to your correspondence of July 25, 1997, the Southern Alleghenies Planning and Development Commission concurs with the **Draft Watershed Plan and Environmental Assessment** (Plan-EA) for the Glenwhite Run Watershed in Blair and Cambria Counties, Pennsylvania, dated July, 1997.

Should you have any questions regarding this response, please feel free to contact the Commission's Natural Resource Specialist, Mr. Fred Querry at (814) 949-6523.

Sincerely,

Michele Adams

Michele Adams
Director of Planning and Program Management

SUSQUEHANNA RIVER BASIN COMMISSION

1721 North Front Street • Harrisburg, Pennsylvania 17102-2391
Phone (717) 238-0423 • Fax (717) 238-2436
Web http://www.srbc.net

AUG 19 1997

August 15, 1997

Ms. Janet L. Oertly, State Conservationist
Natural Resources Conservation Service
Suite 340
One Credit Union Place
Harrisburg, PA 17110-2993

Re: Comments on Draft Watershed Plan and Environmental Assessment for the Glenwhite Run Watershed, Blair and Cambria Counties, Pa.

Dear Ms. Oertly:

We have reviewed the Draft Watershed Plan and Environmental Assessment for the Glenwhite Run Watershed. We encourage project implementation, which would improve water quality and aquatic habitat in Glenwhite Run and Kittanning Point Reservoir. Water quality will be improved by decreasing concentrations of acid, aluminum, iron, and manganese that presently occur due to mine discharges.

The Commission has included the project in the Early Action Program of the Commission's Comprehensive Plan for Management and Development of the Water Resources of the Susquehanna River Basin. We look forward to the water quality and habitat improvements that will result.

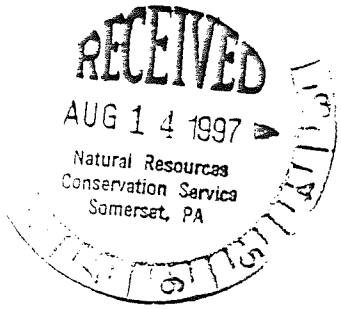
Sincerely yours,

Paul O. Swartz
Executive Director

Pennsylvania Department of Conservation and Natural Resources
Rachel Carson State Office Building
PO Box 8475
Harrisburg, PA 17105-8475
August 12, 1997

Bureau of Recreation and Conservation

717-783-8526



Mr. Daniel R. Seibert, USDA
Natural Resources Conservation Service
North Ridge Building
1590 North Center Avenue, Suite 105
Somerset, PA 15501

RE: Glenwhite Run Draft Watershed Plan and Environmental Assessment

Dear Mr. Seibert:

The Scenic Rivers staff has reviewed your letter concerning Glenwhite Run in Blair County, PA. Since there are no designated Scenic Rivers or 1-A priority candidate waterways in the Pennsylvania Scenic Rivers Inventory involved, we have no comments regarding this project.

A great deal of our staff time is spent administering the PA Rivers Conservation Program. In the process of assisting program grantees, we have run across and dealt with numerous passive treatment systems and are pleased that the plan implements this effective technique. The NRCS, through the PL-566 and other resource programs has done a tremendous job in reducing pollutants to Pennsylvania's rivers and streams. Keep up the good work.

Should you have any additional scenic river questions or comments, please feel free to contact me at the above telephone number.

Sincerely,

R. Donald Dreese

R. Donald Dreese
Acting Chief
PA Rivers Section
Division of Conservation Partnerships

cc: R. Sprenkle
L. Williamson
J. Nagy
J. Barto

COMMONWEALTH OF PENNSYLVANIA

PENNSYLVANIA GAME COMMISSION

2001 ELMERTON AVENUE
HARRISBURG, PA 17110-9797

ADMINISTRATIVE BUREAUS:

ADMINISTRATION	717-787-5670
AUTOMOTIVE AND PROCUREMENT DIVISION	717-787-6594
LICENSE DIVISION	717-787-2084
PERSONNEL DIVISION	717-787-7836
WILDLIFE MANAGEMENT	717-787-5529
INFORMATION & EDUCATION	717-787-6286
LAW ENFORCEMENT	717-787-5740
LAND MANAGEMENT	717-787-6818
REAL ESTATE DIVISION	717-787-6568
MANAGEMENT INFORMATION SYSTEMS	717-787-4076

Copy to Dan Seibert

AUG 8 1997

August 7, 1997

Ms. Janet L. Oertly:
U.S. Department of Agriculture
One Credit Union Place, Suite 340
Harrisburg, PA 17110-2993

In re: Draft Watershed Plan and Environmental Assessment
Glenwhite Run Area
Blair County, PA

Dear Ms. Oertly:

This is in response to your letter of July 25, 1997, requesting our review of the Draft Watershed Plan and Environmental Assessment.

The proposed water quality and habitat improvement plan for the Glenwhite Run Watershed appears to provide a solution to current adverse impacts resulting from past mining activities. We would like to be involved in the development of the planting scheme for proposed improvements to wetland and grassland habitats.

If you have any questions, please contact Tony Ross of my staff at (717) 783-5957.

Very truly yours,

Denver A. McDowell, Chief
Division of Environmental
Planning and Habitat Protection
Bureau of Land Management

DAM/tr

APPENDIX B

INVESTIGATIONS AND ANALYSES REPORT

INTRODUCTION

The Investigations and Analyses Report presents information that supports the formulation, evaluation, and conclusions of the Glenwhite Run Watershed Plan and Environmental Assessment (Plan-EA). This report contains information required by the U.S. Water Resources Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies." Duplication of information presented in the Plan-EA was avoided unless required for clarity. The report is intended for use by reviewers in the United States Department of Agriculture, Office of Management and Budget, and Congressional Staffs.

PROBLEM IDENTIFICATION

Resource problems in the Glenwhite Run project area were determined by a group of technical specialists and included input from Pennsylvania Department of Environmental Protection (PADEP), Bureau of Abandoned Mine Reclamation, the Bureau of Mining and Reclamation, the Blair Conservation District, the Pennsylvania Fish and Boat Commission (PFBC), and the Horseshoe Curve Resource Coalition (HCRC). A scoping process was used to determine the degree of concern and importance to decision making for each resource consideration.

Surface water quality problems were documented by the PFBC, the USDA-Natural Resources Conservation Service (NRCS), PADEP, Bureau of Abandoned Mine Reclamation and Americorp - Pennsylvania Mountain Service Corp. The PFBC, NRCS, PADEP, Bureau of Abandoned Mine Reclamation and Americorp documented the deleterious impacts of the mine drainage on aquatic life.

COMPARISON OF ALTERNATIVE PLANS

Comparison of the No Action and Recommended Plan alternatives was based on conditions expected to exist 25 years into the future. Professional judgement was used to predict future conditions if No Action was taken, since little change in conditions is likely.

Estimates of with-project impacts were determined by several methods. Water quality from constructed treatment wetlands is predictable due to data from similar sites treated using this technology and studies by the U.S.D.I.- Bureau of Mines. The projected water quality and yield from identified discharge points was used to estimate water quality in Glenwhite Run. The PFBC assisted in predicting improvements in aquatic habitat which would result from reduced concentrations and yield of iron.

Changes in wildlife habitat were estimated using the Pennsylvania Modified Habitat Evaluation procedures. Changes in wildlife food and cover in wetland and upland habitat were the most important factors in the evaluation.

RECOMMENDED PLAN

The Recommended Plan is the chosen alternative. There will be no known interactions between this plan and other federal and non-federal projects. The effects of the plan on resources of principal national recognition are shown on the accompanying table.

Engineering

Eight project sites were identified in this plan. The eight sites were chosen based on their detrimental loads of acid, iron, aluminum and manganese, to Glenwhite Run and Kittanning Point reservoir.

Samples and flow measurements taken at each location are the basis for this plan. Each sample was analyzed using the following report which was presented at the Thirteenth Annual West Virginia Surface Mine Drainage Task Force Symposium, April 8-9, 1992, in Morgantown, West Virginia: Designing and Sizing Passive Mine Drainage Treatment Systems by Robert S. Hedin and Robert W. Nairn, U.S. Bureau of Mines, Pittsburgh Research Center, Pittsburgh, PA. 15236.

From the analysis of each sample a method of treatment was determined for each site. The final treatment included those items necessary to control surface water as well as seepage and deep mine drainage from each site.

The construction cost included costs for clearing and grubbing, pollution control, seeding, drainfill, rockfill, diversion, rock-lined waterways, plastic pipe conduit, loose rock riprap, grading, water control structure, access roads, and constructed wetlands. Non-construction costs were estimated for engineering, project administration, land rights, and operation and maintenance.

Economics

The primary problem in Glenwhite Run is degraded aquatic habitat due to impaired water quality. The primary economic benefit in restoring the water quality is the restoration of aquatic habitat, and reducing water treatment costs for the Altoona City Authority. The economic benefit that this can bring to the area is revenue from fishing including lodging, food, restaurants, recreation, fishing supplies and equipment. We contacted the PFBC to determine a dollar value to reflect the economic benefits. Some of the data provided was based on a publication entitled, "Review of Outdoor Recreation Demand Studies with Non-Market Benefit Estimates." (Walsh, et al, 1988)

In addition, studies by the National Forest Service evaluated Recreational Units related to cold water fish. This study found a range of $10.07 to $118.12 per angler day. The PFBC recommended $49.63 per angler day and 500 angler visits per mile per year for Glenwhite Run.

The Altoona City Authority has estimated they will save $89,000 per year in acid mine drainage treatment costs when this plan is implemented.

The costs and benefits were annualized over a 25 year period using the established water resources discount rate for 1997 which is 7.375%. For this project, the annualized benefits are $107,100 and the annualized costs are $104,400. The net economic benefits

are $2,700. This amount does not include the additional benefits for which economic values were not quanitified. Other benefits, including improved aesthetics, enhanced educational facilities, business and industry were not specifically evaluated at this time.

EFFECTS OF THE RECOMMENDED PLAN ON RESOURCES OF PRINCIPAL NATIONAL RECOGNITION
GLENWHITE RUN, BLAIR AND CAMBRIA COUNTIES, PENNSYLVANIA

TYPES OF RESOURCES	PRINCIPAL SOURCES OF NATIONAL RECOGNITION	MEASUREMENT OF EFFECTS
Air Quality	Clean Air Act, as amended (42 U.S.C. 7401 et seq.)	Temporary increase in particulates during construction. Controls will be used.
Areas of Particular Concern within the Coastal Zone	Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1451 et seq.)	Not present in planning area
Endangered and Threatened Species Critical Habitat	Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)	No effect
Fish and Wildlife Habitat	Fish and Wildlife Coordination Act (16 U.S.C. Sec. 661 et seq.)	3.2 miles of aquatic habitab improved 9 acres of wetland gained
Flood Plain	Executive Order 11988, Flood Plain Management	No effect
Historic and Cultural Properties	National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.)	No effect[1]
Prime and Unique Farmland	CEQ Memorandum of August 1, 1980; Analysis of Impacts of Prime or Unique Agricultural Lands in implementing the National Environmental Policy Act	No effect
	Farmland Protection Policy Act of 1981 (PL-97-98)	No effect
	Food Security Act of 1985 (PL-99-198)	Complies with law

EFFECTS OF THE RECOMMENDED PLAN ON RESOURCES OF PRINCIPAL NATIONAL RECOGNITION
GLENWHITE RUN, BLAIR AND CAMBRIA COUNTIES, PENNSYLVANIA

TYPES OF RESOURCES	PRINCIPAL SOURCES OF NATIONAL RECOGNITION	MEASUREMENT OF EFFECTS
Water Quality	Clean Water Act of 1977 (33 U.S.C. 1251 et seq.)	Improves surface water quality
Wetlands	Executive Order 11990, Protection of Wetlands, Clean Water Act of 1977 (33 U.S.C. 1251 et seq.) Food Security Act of 1985	Wetland will be created to address mine drainage problem
Wild and Scenic Rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271 et seq.)	Not present in planning area

[1] Refer to Recommended Plan, Installation and Financing, Cultural Resources

APPENDIX C

SITE

LOCATION

MAP

GLENWHITE RUN
SITE LOCATION MAP