

Silver Creek Discharge



Silver Creek Treatment System



Neumeister Discharge

- “ Submitted grant app 2006
 - . Requested \$776,560
- “ July 2007
 - . Section 319 Nonpoint Source Management Grant
 - . \$690,060
- “ Started design/ permitting Oct 2007

Neumeister Discharge

















WATER QUALITY IMPROVEMENT EASEMENT

THIS WATER QUALITY IMPROVEMENT EASEMENT (this "Easement") dated as of _____ (the "Easement Date") is by and between _____ (the "Undersigned Owners") and _____ (the "Holder").

Background

Property

The undersigned Owners are the sole owners in fee simple of the Property described in Exhibit "A" (the "Property"). The Property is also described as:

Project

The undersigned Owners desire Holder to undertake a project (the "Project") to remediate effects of abandoned mine drainage to improve the quality of water passing through or discharging from the Property. The Project is more fully described in Exhibit "B". The facilities to be installed by Holder in connection with the Project are also described in Exhibit "C" (the "Facilities").

Plan

Attached as Exhibit "D" is a survey or other graphic depiction of the Property (the "Plan") showing the location of an area (the "Treatment Area") within which Holder intends to undertake the Project. The Plan may also show one or more of the following areas: an area (the "Temporary Construction Area") to be used as a staging area during construction of Facilities; an area (the "Access Corridor") to provide ingress and egress to and from the Treatment Area and the public right of way; and an area (the "Utility Corridor") to provide power or other utility services to service Facilities.

Grant of Easements

I. Grant of Easement: Treatment Area

The undersigned Owners grant to Holder an easement over the Treatment Area for the purpose



**Schuylkill Headwaters Association, Inc.
Silver Creek Mine Tunnel Acid Mine Drainage Restoration Project
Upper Schuylkill Watershed
Blythe Township, Schuylkill County, Pennsylvania**

EXECUTIVE SUMMARY

Abandoned mine drainage (AMD) from the Silver Creek Mine tunnel shaft contributes aluminum, iron, manganese, and acidity to main branch of the Schuylkill River in Schuylkill County. Hence, River in Schuylkill County is designated "impaired because of metals" on the 303(d) list. The proposed project will implement and evaluate a passive treatment system consisting of a flushable, anoxic limestone drain (ALD) followed by an aerobic wetland basin to neutralize acidity and reduce metals loadings from the discharge. Underdrain networks and outflow pipes within the ALD will enable flushing of accumulated metals from the limestone bed to the wetland where final oxidation, precipitation, and settling of metallic-rich particles will occur. Because of the large flow rate and corresponding large size of the proposed treatment system, "cubitainer" testing was conducted last year to evaluate the rate of limestone dissolution and any effects of the metal precipitate on limestone dissolution rates. Furthermore, intensive monitoring and evaluation of treatment efficiency will be conducted during the project. Hence, this project will reduce AMD loadings from the Silver Creek discharge to the Schuylkill River, and it will demonstrate the effectiveness of using an ALD for treatment of a large volume, near-neutral-pH, iron-contaminated discharge.



STATEMENT OF NEED AND JUSTIFICATION OF FUNDING

AMD from the Silver Creek Mine Tunnel (lat 40°44'30" N., long 76°07'24" W.), located in Blythe Township, Schuylkill County, degrades the Schuylkill River near its headwaters in the Southern Anthracite Coalfields. Consequently, the Schuylkill River is designated "impaired because of metals" on the 303(d) list. A recently completed assessment focusing on AMD nonpoint source problems in the Upper Schuylkill River basin ranked the Silver Creek Mine Tunnel discharge as one of the most severe in the watershed (L. Robert Kimball & Associates,

Silver Creek Discharge



Section 319
Grants Guidance Document
For
Project Sponsors

“So You Have A Grant”

Project: Silver Creek Mine Tunnel Acid Mine Drainage Restoration

Project Sponsor: Schuylkill Headwaters Association, Inc.

Grant Amount: \$853,402.00

Document #: 4100046209

Start Date: June 1, 2008

End Date: September 30, 2010

Project Advisors: Donna Carnahan and Dan Koury

**Produced by: Nonpoint Source Management Section
DEP, Bureau of Watershed Management**

OCTOBER 2003 (Revised 1/2007)



Document Number

LANDOWNER - GRANTEE

This Agreement, made this March 18, 2009

by and between

BK 2365PG1770

Revised through 3/12/11

REMEDATION EASEMENT

THIS REMEDIATION EASEMENT (this "Easement") dated as of 3/18/09 to Alderney Coal Company Inc. (the "Owners") and Schuylkill

ARTICLE I. BACKGROUND

The Property is in fee simple of the Property described in Exhibit "A" (the "Property").

Creek Road
Township
Schuylkill
132.000

The Project (the "Project") is a project for the purpose of installation, construction, and replacement (collectively, "Construction") of Facilities; maintenance and repair of Facilities; monitoring water quality, and other activities in furtherance of the goals of the Project. This easement may be exercised at any time and from time to time by Holder. Except as otherwise provided in this Easement with respect to notice prior to commencement of Construction, no notice to Owner is required prior to entry onto the Project Area pursuant to the rights granted under this Article.

The Project is more fully described in Exhibit B- Initial Concept Plan (the "Facilities").

Other graphic depiction ("the Proposed Easement") within which Holder intends to undertake the Project.

REMEDATION EASEMENT

THIS REMEDIATION EASEMENT (this "Easement") dated as of 3/18/09 to Alderney Coal Company Inc. (the "Owners") and Schuylkill Headwaters Association, Inc. (the "Holder").

ARTICLE I. BACKGROUND

The Property is in fee simple of the Property described in Exhibit "A" (the "Property"). The Property is described as: Route T-0748 Blythe Township Schuylkill 02-07-0010.000

The Project (the "Project") is a project for the purpose of installation, construction, and replacement (collectively, "Construction") of Facilities; maintenance and repair of Facilities; monitoring water quality, and other activities in furtherance of the goals of the Project. This easement may be exercised at any time and from time to time by Holder. Except as otherwise provided in this Easement with respect to notice prior to commencement of Construction, no notice to Owner is required prior to entry onto the Project Area pursuant to the rights granted under this Article.

ARTICLE II. GRANT OF EASEMENTS

- 2.01 Grant of Easement: Treatment Area**
Owners grant to Holder an easement over the Treatment Area for the purpose of installation, construction, and replacement (collectively, "Construction") of Facilities; maintenance and repair of Facilities; monitoring water quality, and other activities in furtherance of the goals of the Project. This easement may be exercised at any time and from time to time by Holder. Except as otherwise provided in this Easement with respect to notice prior to commencement of Construction, no notice to Owner is required prior to entry onto the Project Area pursuant to the rights granted under this Article.
- (a) Access Corridor**
This grant of easement over the Treatment Area includes an easement for pedestrian (and, if reasonably necessary for Project activities, vehicular) access to and from the public right-of-way over the Access Corridor designated on the Plan (if any) or, if no Access Corridor is designated on the Plan, then over a path to be designated in a location reasonably satisfactory to Owners and Holder.
- (b) Educational Purposes**
During the term of this easement (10 years) Holder is permitted to invite other Persons, accompanied by an authorized representative of Holder, to enter the Project Area to view the Treatment Area and Facilities within the Treatment Area for scientific and educational purposes related to the Project. Holder is permitted to install signage identifying the Project and/or the interest of Holder and Beneficiaries with respect to the Project within the Treatment Area and/or Access Corridor. Any signage will include an acknowledgement of Alderney Coal Company Inc.
- 2.02 Term**
The term of the easements granted in this Article is 10 years provided, however, that Holder may terminate Holder's rights to enter the Project Area under the grant of this Easement at any time following notice to Owners. Upon notice of termination, Owners and Holder must sign and record in the Public Records a notice of termination.

REMEDATION EASEMENT

THIS REMEDIATION EASEMENT (this "Easement") dated as of 3/18/11 to Alderney Coal Company Inc. (the "Owners") and Schuylkill Headwaters Association, Inc. (the "Holder").

ARTICLE I. BACKGROUND

1.01 Property

The Owners are the sole owners in fee simple of the Property described in Exhibit "A" (the "Property"). The Property is described as:

Street Address:
Municipality:
County:
Parcel Identifier:

N/A
Blythe Township
Schuylkill
02-10-0001.002

1.02 Project

Owners desire Holder to undertake a project (the "Project") to remediate effects of abandoned mine drainage to improve the quality of water passing through or discharging from the Project. The facilities to be installed by Holder are more fully described in Exhibit B- Initial Concept Plan. The facilities to be installed by Holder in connection with the Project are also described in Exhibit B- Initial Concept Plan (the "Facilities").

1.03 Plan

Attached as Exhibit "C-3" is a survey or other graphic depiction of the Project Area (the "Project") to remediate effects of abandoned mine drainage to improve the quality of water passing through or discharging from the Project. The facilities to be installed by Holder are more fully described in Exhibit B- Initial Concept Plan. The facilities to be installed by Holder in connection with the Project are also described in Exhibit B- Initial Concept Plan (the "Facilities").

ARTICLE II. GRANT OF EASEMENTS

2.01

Grant of Easement: Treatment Area
Owners grant to Holder an easement over the Treatment Area for the purpose of installation, construction, and replacement (collectively, "Construction") of Facilities; maintenance and repair of Facilities; monitoring water quality, and other activities in furtherance of the goals of the Project. This easement may be exercised at any time and from time to time by Holder. Except as otherwise provided in this Easement with respect to notice prior to commencement of Construction, no notice to Owner is required prior to entry onto the Project Area pursuant to the rights granted under this Article.

(a)

Access Corridor
This grant of easement over the Treatment Area includes an easement for pedestrian (and, if reasonably necessary for Project activities, vehicular) access to and from the public right-of-way over the Access Corridor designated on the Plan (if any) or, if no Access Corridor is designated on the Plan, then over a path to be designated in a location reasonably satisfactory to Owners and Holder.

(b)

Educational Purposes
During the term of this easement (10 years) Holder is permitted to invite other Persons, accompanied by an authorized representative of Holder, to enter the Project Area to view the Treatment Area and Facilities within the Treatment Area for scientific and educational purposes related to the Project. Holder is permitted to install signage identifying the Project and/or the interest of Holder and Beneficiaries with respect to the Project within the Treatment Area and/or Access Corridor. Any signage will include an acknowledgement of Alderney Coal Company Inc.

2.02

Term
The term of the easements granted in this Article is 10 years provided, however, that Holder may terminate Holder's rights to enter the Project Area under the grant of this Easement at any time following notice to Owners. Upon notice of termination, Owners and Holder must sign and record in the Public Records a notice of termination.













Permitting



Design phase



Pine Forest Discharge











Elevations and final as built
measurements confirmed







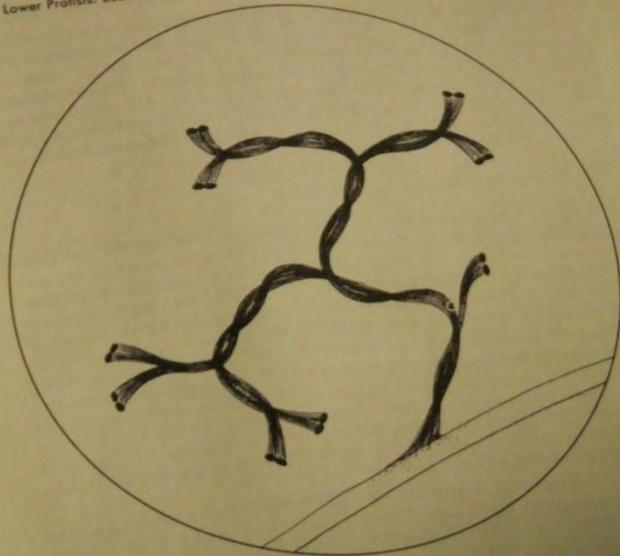


Fig. 8-10. Gallionella, habit sketch to show structure of a stalked colony. After Cholodny.

living material with an incon-



Re-visit concept plan



Construction begins!!!





















































Well, not quite finished









