

**Into Basin Diversion Permit Application for Marcellus Shale Gas Well  
Development Utilizing an AMD Source**

**SYKESVILLE, JEFFERSON COUNTY AMD BORE HOLES**



Prepared By:

Winner Water Services

32 W State Street

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## 1.0 Introduction

The Sykesville Acid Mine Drainage (AMD) boreholes are artesian flowing relief wells discharging from the abandoned Sykesville Mine. The wells were drilled by the Jefferson County Conservation District in October 2010 to relocate a large pollution load to Stump Creek. A treatment plant was constructed in 2012 to neutralize acidity and remove iron from the large volume discharge (figure 1). The AMD water is currently flowing from multiple 10-inch boreholes, through the treatment system and conveyed, via a lined channel, to a lined settling impoundment. The size of the impoundment is approximately 105,000 gallons and the overflow discharges to Stump Creek.

The Sykesville AMD project began in 2005. The Borough of Sykesville, the Upper Mahoning Creek Watershed Association and two local civic groups met with the Jefferson County Conservation District to discuss the possibility of treating a large volume AMD discharge. The specific AMD source in question is at the Sugar Camp Run Air Shaft deep mine discharge located along Sugar Camp Run, north of the Sykesville corporate boundary.

*Phase I* of this project, which was completed in 2008, was funded by a PA Growing Greener Grant. The mine pool was investigated and assessed. Data indicated that relocation of the shaft discharge would yield three distinct benefits to the program: 1) Water quality within the mine pool improved toward the geological syncline. 2) Lowering the mine pool may eliminate additional outfalls at higher elevations. 3) A larger amount of land is available for construction of treatment systems. An access road and drill pad were constructed in preparation of Phase II – Boring into the mine pool.

*Phase II* completed the installation of four large-diameter mine pool access wells at a location with topographic elevation lower than any of the known AMD discharges. This site will permit treatment, and lower the Regional Mine Pool to eliminate most (if not all) of the existing AMD discharges. In September, 2010 two access wells were drilled and resulted in significant lowering of the regional mine pool, such that the mine flow associated with the Air Shaft was eliminated. Following a rainy winter, snow melt and an unusually wet spring, the discharge started to flow again. Two additional wells were drilled and are producing in excess of 1,300 gpm bringing the total well production to > 3,000 gpm. The amount of water discharging from the Air Shaft has been significantly eliminated at this time.

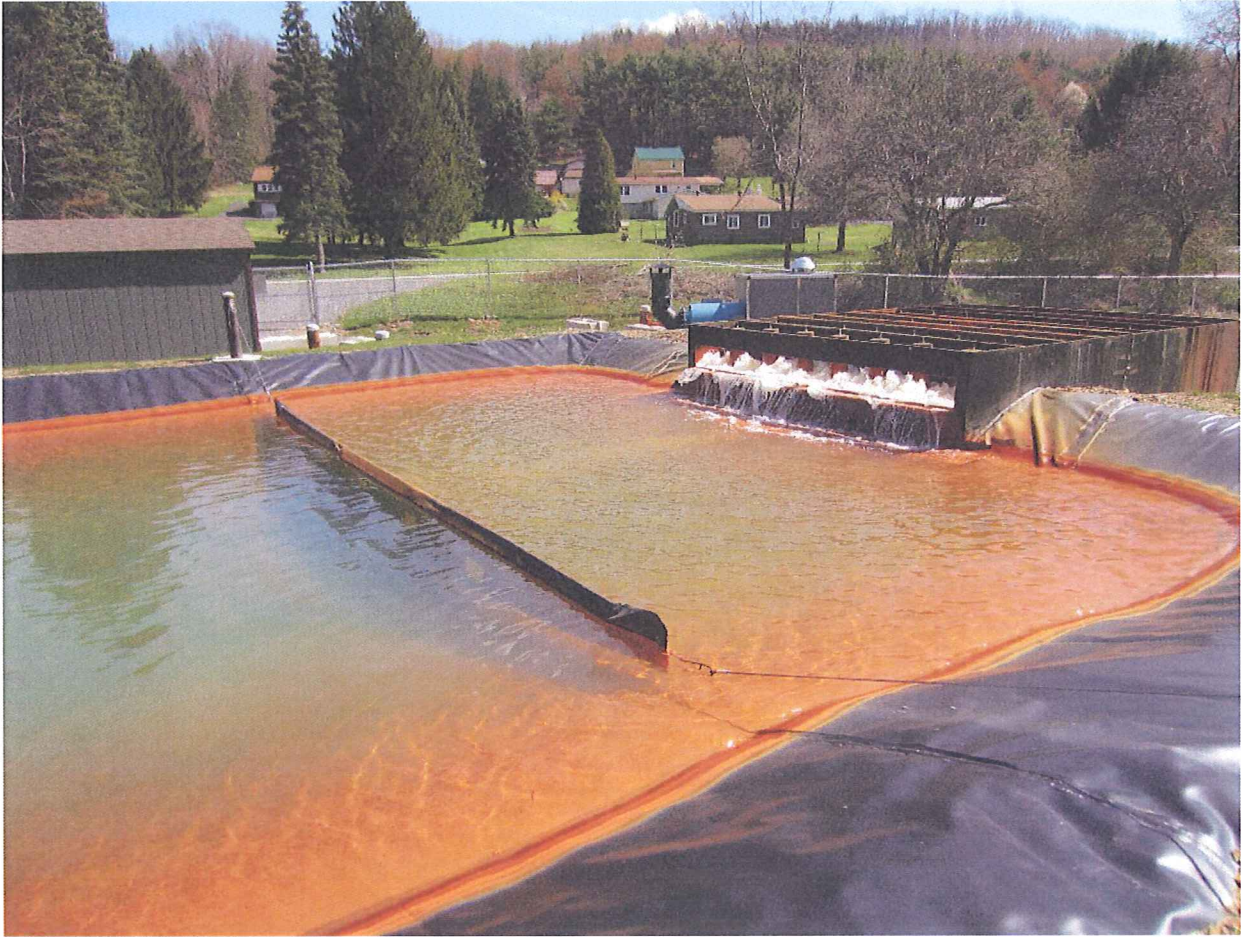
We are continuing these efforts to develop a cost effective and long term treatment of the large volume AMD discharge. Reusing the water is critically important to the long term validity of operating the Sykesville site. Using this water will positively impact the environment in Jefferson and adjacent counties including Clearfield, Elk and Cambria.

*Phase III* Construction of the treatment facility was completed in the fall of 2012. Work continues on the site. A clean large quantity water source will be utilized to market industries in need of such a supply. Table 1 below demonstrates raw water and projected treated water quality.

Table 1.

	pH	Dissolved iron	Total iron
Raw water	6.83	9.2 mg/l	12.5 mg/l
Maelstrom Oxidizer	7.54	0.0 mg/l	< 1 mg/l

Figure 1: Treatment system





## 2.0 Identification of Project Sponsor

Winner Water Services  
32 West State Street  
Sharon PA, 16146  
(724) 981-1152

John Ontiveros, CEO, [ontiverosj@winnerh2oservices.com](mailto:ontiverosj@winnerh2oservices.com)  
Todd Beers, COO, [beerst@winnerh2oservices.com](mailto:beerst@winnerh2oservices.com)

## 3.0 Project Description

Information included in this section is provided in accordance with 806.14- Contents of Application and includes the project purpose, status of application with other governmental regulatory bodies, and project location.

### 3.1 Purpose

The purpose of this diversion is to provide AMD water to exploration and production (E&P) companies developing the Marcellus shale in the Susquehanna River Basin (SRB). Providing a constant, reliable source to E&P firms will have multiple environmental benefits: 1) The AMD source will reduce fresh water consumption in the SRBC and 2) proceeds from the operation will aid in the long term operation of the AMD treatment facility.

### 3.2 Status of Application with Other Governmental Regulatory Bodies

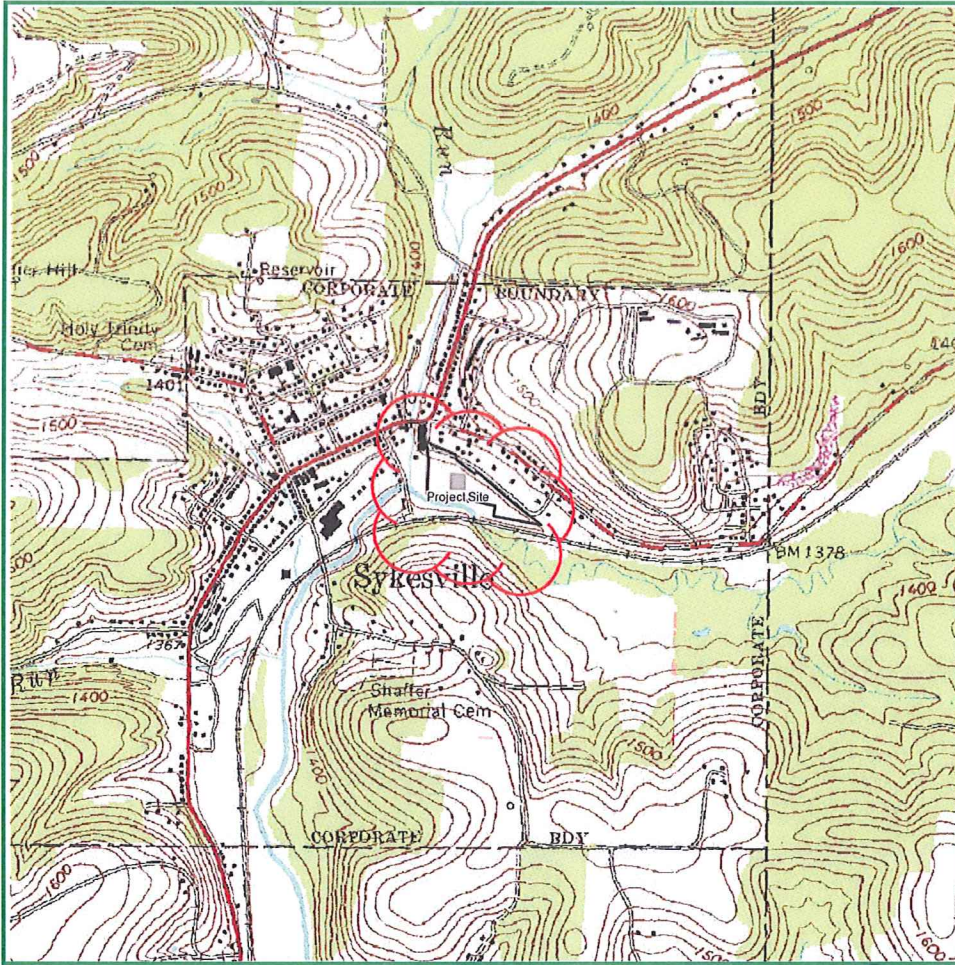
This source has been submitted and approved to be utilized in the Ohio Basin for frac water, by the Pennsylvania Department of Environmental Protection, Northwest Regional office in Meadville. A copy of an approval letter is attached in appendix A.

### 3.3 Foreseeable need for the treated water

Currently 3 companies have listed this site to their approved water management plan: EXCO, EQT, and Mieka LLC. Winner water services servicing these companies and adding additional clients if approved to serve the demand for water in Clearfield County. The high volume source can meet the needs of industry while conserving fresh water in the SRB, particularly during low flow conditions.

### 3.4 Project location

The **Sugar Camp Run Discharge Project** is located in the Stump Creek watershed HUC 05010006 within the Borough of Sykesville, Jefferson County. Coordinates for this site are -78.8128914 Longitude; 41.0497859 Latitude.



### 4.0 Environmental Factors

A TMDL study has been completed for this watershed. It has been well-established that the principal non-point pollution sources for this area are abandoned mine discharges. The Sykesville Sugar Camp Run air shaft discharge is among the uppermost AMD outfalls, contributing an average of 750 pounds/day of iron to the upper reaches of Mahoning Creek. The AMD discharge is the largest single contributor to HUC05010006 not meeting Chapter 93 designated use and a main reason for segments of Stump Creek and Sugar Camp Run being listed on the 305(b) impaired water list.

Although the aluminum, manganese and acidity concentrations from this AMD location are not as high as is typical for some Western Pennsylvania bituminous mine discharges, the high flows lead to substantial iron loadings into Sugar Camp Run, and subsequently to Stump Creek, and on to Mahoning Creek. In addition to being a significant source of surface water pollution, the dangerous mine opening is also in close proximity to the local elementary school and the Town of Sykesville. For that reason, it has been designated as a priority site for the watershed, with respect to remediation.

Using the average measured mine discharge iron concentration of roughly 25 mg/l and the average flow of 2,500 gpm, Fe loadings of 750 pounds per day are typical. This continuous loading has devastated the downstream riparian ecosystem for many stream miles.

Low flow stream discharge rates for Stump Creek below the existing mine discharge of the Sykesville Mine in Sykesville, PA were computed using the U.S. Geological Survey StreamStats website at: <http://streamstats.usgs.gov/paststreamstats/index.asp> (Appendix B). The Q HO low flow near the discharge of the AMD is 237.8 gallons per minute (gpm) (0.53 cubic feet per second (cfs)) and the average daily flow (ADF) is approximately 11,890,000 gallons per day (gpd) (18.4 cfs). E&P companies will withdraw from the Sykesville mine drainage water at a rate of 695 gpm (1,000,000 gpd) from the settling impoundment before the overflow discharge to Stump Creek. Volumes removed will be measured by the number of trucks per day times their respective volume. No water will be withdrawn from Stump Creek. The existing flow from the Sykesville acid mine drainage boreholes is approximately 1,600-3,000 gpm. Removing the discharge from Stump Creek will allow for the overall quality of the stream to improve and will enable Stump Creek to meet its classified use as a Cold Water Fishery.

#### 4.1 Water Quality

Water quality was sampled by the Jefferson County Conservation District and Winner Water Services the data is attached in Appendix C.

#### 4.2 Invasive Species

The Water is artesian flowing from a deep mine and no invasive species has been noted or expected due to source.

#### 4.3 Impacts to Susquehanna River Basin Resources

The AMD water will be transported into the basin for consumptive use by the E&P industry. As such, no negative impacts are expected. A positive impact to the SRB is a reduction in the consumption of higher quality waters.

#### 4.3.1 Management of Diverted Surface Water Surface Water Withdrawal and Transport Surface Water Input to Gas Well locations

Water will be drawn through a steel intake structure via a high capacity pump and conveyed to tank trucks for travel on established and unrestricted highways including State routes 119, 255 and 322.

In 806.24 the SRBC establishes specific standards for Diversions. For the development and the proposed IBD, Winner Water Services has conducted the following:

Winner has made good faith efforts to develop, conserve, and recycle this AMD source in the importing basin the Ohio River Basin, and considers this diversion a responsible replacement for withdrawals within the SRB. We expect the project to supply a sustainable solution to providing frac water, while minimizing pressures on streams in the adjacent watersheds.

#### 5.0 Standards For Diversions

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#### 6.0 Notifications

Notifications will be sent within 10 days of application as described on the SRBC website and return receipts along with a copy submitted to SRBC.

#### 7.0 SRBC Permit Application Fee Worksheet Fee waiver requested under separate cover.



# Online Applications and Registrations

Susquehanna River Basin Commission

## Form 72 - Project Sponsor Information

Complete

### - Owner Info

#### Owner Information

**Owners Name:** Winner Water Services, Inc  
**Address 1:** 32 W. State St  
**Address 2:**  
**City:** Sharon  
**State:** PA  
**Zip:** 16146  
**Organization Type:** Joint Venture  
**Partners (if any):**  
**Authorized Representative:** Todd Beers  
**Title:** COO  
**Rep Address 1:** 32 W. State St  
**Rep Address 2:**  
**Rep City:** Sharon  
**Rep State:** PA  
**Rep Zip:** 16146  
**Rep Phone:** 724-981-1152  
**Rep Fax:**  
**Rep Email:** beerst@winnerh2o.com

### - Operator Info

#### Operator Information

**Operator Name:** Winner Water Services  
**Address 1:** 32 W. State St  
**Address 2:**  
**City:** Sharon  
**State:** PA  
**Zip:** 16146  
**Organization Type:** Joint Venture  
**Authorized Representative:** John Ontiveros  
**Title:** President and CEO  
**Rep Address 1:** 32 W. State St  
**Rep Address 2:**  
**Rep City:** Sharon  
**Rep State:** PA  
**Rep Zip:** 16146  
**Rep Phone:** 724-983-4063  
**Rep Fax:** 614-458-4851  
**Rep Email:** ontiverosj@winnerh2o.com

### - Parent Company Info



**Parent Company Information**

**Parent Name:** Winner Global, LLC  
**Corporate Entity Num:** 3690418  
**Registration State:** PA  
**Address 1:** 32 W. State St  
**Address 2:**  
**City:** Sharon  
**State:** PA  
**Zip:** 16146  
**Person Receiving Notices:** John Ontiveros

**+ Hydrogeologist Info**

**+ Engineer Info**

**+ Attorney Info**

**- Signature Info**

**Signature Information**

**Officer Name:** Jared Hawkins  
**Date:** 5/23/2013 12:00:00 AM  
**Title:** Researcher  
**Company:**  
**Signature:** Jared Hawkins

**Authorized Rep Signature:**  
**Date:**  
**Title:**  
**Company:**

