

**PRE1(SFMU2)**



**Representative Water Quality**

<u>Flow</u> (gpm)		<u>pH</u> (s.u.)		<u>Alkalinity</u> (mg/l)		<u>Acidity</u> (mg/l)		<u>Iron</u> (mg/l)		<u>Manganese</u> (mg/l)		<u>Aluminum</u> (mg/l)	
avg.	max.	avg.	min.	avg.	min.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
31	55	6.7	6.4	76	48	3	19	16	30	8	9	0	0

**Site Conditions:** This discharge issues from the toe of spoil from an abandoned mine. This site is characterized by an impacted wetland area that drains to a watercourse that traverses a residential lawn area and flows into the South Fork Montour Run headwaters. This area is zoned Heavy Industrial.

**Preferred Treatment Method (req. area):** *2,000SF FB → 20,000SF WL (~1 ac).*

This system was previously evaluated with a public-private partnership effort with the Montour Run Watershed Association and was submitted under the Pennsylvania Department of Environmental Protection (PA DEP), Growing Greener Grant Program for funding. At the time of this report, the application is being reviewed by the PA DEP. Based on the location in the watershed and the quality and quantity of the discharge, this project could have a very significant impact on stream quality.

**Preliminary Cost Estimate Range:** \$100,000 - \$120,000

**Potentially Affected Landowners (Located in Findlay Township)**

<u>Name (bold if source location)</u>	<u>Address</u>
<b>KROPF, W. Keith &amp; Mary</b>	Property: 121 Boggs Road, Imperial, PA 15126 Mailing: 121 Boggs Road, Imperial, PA 15126

## SFMS6



### Representative Water Quality

<u>Flow</u> (gpm)		<u>pH</u> (s.u.)		<u>Alkalinity</u> (mg/l)		<u>Acidity</u> (mg/l)		<u>Iron</u> (mg/l)		<u>Manganese</u> (mg/l)		<u>Aluminum</u> (mg/l)	
avg.	max.	avg.	min.	avg.	min.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
25	75	3.4	3.0	0	0	263	308	3	7	3	3	35	43

**Site Conditions:** This is an abandoned underground mine discharge which issues from a terra cotta drain pipe located between a residential outbuilding and Crawford Street in the Village of Santiago. A road culvert collects the drainage that is conveyed to an unnamed tributary to South Fork Montour Run. The unnamed tributary is typically a gently sloping wetland area located in the center of the village. There is approximately one acre of potential construction area located in this stream channel/wetland area. It is bounded to the north and west by Crawford Street, to the east by a commercial business and to the south by numerous residential properties.

**Preferred Treatment Method (req. area):** *2,400T HFP → 6,000SF FP → 4,000SF WL (~2 ac).* In order to install this system as close to the source of the discharge as possible, numerous landowners would be affected with large portions of the relatively small residential lots being affected. In addition, the system would have to be installed above and below the commercial business (Imperial Truck Body & Equip., Inc.). Due to the location of the discharge in the center of the village, the construction area is extremely limited but this project could have significant impact on water quality in the stream.

**Preliminary Cost Estimate Range:** \$230,000 - \$250,000+

**Other Options:** Due to the location of SFMS6 & SFMS7 within the village of Santiago, further evaluation may indicate installation of a single passive system to treat both discharges. A portion of the stream could be diverted up to a given design flow into the system and allow excess flow associated with storm events to bypass the system. Based on preliminary observations during high flow (April 2003), stream pH is ~ 6 immediately downstream of the village and the streambed is only slightly stained with metal precipitates. Based on a preliminary review of available tax map and other information, installation of a system further downstream would potentially affect fewer landowners. Additional evaluation of the impact of this unnamed tributary on South Fork Montour Run may provide additional insight on the recommended course of action.

### Potentially Affected Landowners (Located in North Fayette Township)

<u>Name (bold if source location)</u>	<u>Address</u>
<b>ZAWACKI, Joseph F.</b>	Property: 547 Private Road (aka 3 Pyda Street), Imperial, PA 15126 Mailing: 3 Pyda Street RD1, Imperial, PA 15126
(possibility of numerous owners)	Numerous properties could be affected a system were to be constructed.

## SFMS7



### **Representative Water Quality**

<b>Flow</b> (gpm)		<b>pH</b> (s.u.)		<b>Alkalinity</b> (mg/l)		<b>Acidity</b> (mg/l)		<b>Iron</b> (mg/l)		<b>Manganese</b> (mg/l)		<b>Aluminum</b> (mg/l)	
avg.	max.	avg.	min.	avg.	min.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
45	60	4.4	3.8	6	0	89	121	2	3	2	3	9	14

**Site Conditions:** This drain from an abandoned underground mine issues in a diffuse seep zone generally bounded by the village of Santiago to the north, Old Steubenville Pike to the south, a completed strip mine/fill area to the west and Santiago Road to the east. Based on site topography and other cultural features, there is about ½ acre available for construction. The source area is zoned General Commercial.

**Preferred Treatment Method (req. area):** *1,200T HFP → 4,000SF FP (~1 ac).* There is a potential for the installation of the system above the village of Santiago. However, preliminary evaluation indicates that the space is very limited for the construction of a passive system. The proximity of the village directly downgradient is also a notable constraint. This project could make a significant impact on stream quality.

**Preliminary Cost Estimate Range:** \$130,000 – 160,000

**Other Options:** Due to the location SFMS6 & SFMS7 within the village of Santiago, further evaluation may indicate the installation of a single passive system to treat both discharges. This system could divert a given design flow from the stream into the system and allow excess flow associated with high flow periods to bypass the system. Based on preliminary observations during high flow (April 2003), stream pH is ~6 leaving the village with only little metal staining observed on the streambed. Based on a preliminary review of available tax map and other information, the further downstream a system is installed the fewer the number of potentially affected owners. Further evaluation of the impact of this unnamed tributary on the South Fork Montour Run may provide additional insight on the recommended course of action.

It may be potentially viable to install a passive system on the SFMS7 discharge (over-size if feasible) and allow the effluent from this system to mix with the SMFS6 discharge. The natural wetlands located in Santiago could allow for particulate settling. Minor wetland enhancements made with hand-tools and haybales could help to maximize retention time within the natural wetlands.

### **Potentially Affected Landowners (Located in North Fayette Township)**

<b>Name (bold if source location)</b>	<b>Address</b>
<b>VALENTI, Theodore J.</b>	Property: Steubenville Pke, Imperial, PA 15126 Mailing: 8175 Steubenville Pike, Imperial, PA 15126

## SFMD7



### **Representative Water Quality**

<b>Flow</b> (gpm)		<b>pH</b> (s.u.)		<b>Alkalinity</b> (mg/l)		<b>Acidity</b> (mg/l)		<b>Iron</b> (mg/l)		<b>Manganese</b> (mg/l)		<b>Aluminum</b> (mg/l)	
avg.	max.	avg.	min.	avg.	min.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
8	30	3.2	3.0	0	0	174	194	3	5	2	3	18	21

**Site Conditions:** This discharge from an abandoned underground mine issues from a drain located near Wilson School and upgradient of a townhouse complex accessed from Meander Street. The area below the discharge is a gently sloping wooded area that is generally well suited for construction of a passive treatment system. Reportedly, the coal associated with this drainage has been permitted to be surfaced mined. However, the mine reported was not activated due to the proximity of the public school and related safety concerns. There is a potential for future coal extraction coincident with the construction of athletic fields on the school property. This area is zoned Medium Density Residential.

**Preferred Treatment Method (req. area):** *1,000T HFP → 4,000SF FP → 1,000SF WL (~1½ ac).* This system would be located on school property near the Wilson School, a potential exists for this site to function as a “real-life” watershed restoration project that could be incorporated into the science and/or environmental curriculum. This discharge flows in a watercourse to South Fork Montour Run and has less stream impact compared to larger discharges located further upstream.

**Preliminary Cost Estimate Range:** \$120,000 - \$140,000

### **Potentially Affected Landowners (Located in Findlay Township)**

<b>Name</b> (bold if source location)	<b>Address</b>
<b>West Allegheny School Dist.</b>	Property: Boggs Road, Imperial, PA 15126 Mailing: PO Box 55, Imperial, PA 15126

## SFMD3



### **Representative Water Quality**

<b>Flow</b> (gpm)		<b>pH</b> (s.u.)		<b>Alkalinity</b> (mg/l)		<b>Acidity</b> (mg/l)		<b>Iron</b> (mg/l)		<b>Manganese</b> (mg/l)		<b>Aluminum</b> (mg/l)	
avg.	max.	avg.	min.	avg.	min.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
8	17	6.2	4.0	56	112	18	116	0	2	2	4	7	21

**Site Conditions:** This abandoned mine discharge issues from a drain/seep area along the Montour Trail and North Star Road. A concrete culvert conveys the drainage under North Star Road and to a watercourse that drains directly to South Fork Montour Run. Potential construction area exists in a vacant wooded area between North Star Road and the stream. This area is generally bounded by South Fork Montour Run to the north and east, North Star Road to the south, and a residential property to the west. This area is zoned Rural Residential.

**Preferred Treatment Method (req. area):** *500T HFP → 3,000 SF FP (~1 ac).* This would be a relatively small system located within viewing distance from the Montour Trail. Based on the position in the downstream portion of South Fork Montour Run, the stream should maintain a significant flow year round in this area and the potential to incorporate public stream access may be pertinent. However, based on the relative low flow and pollutant loadings, this project would have a lesser impact on stream quality than larger discharges located further upstream.

**Preliminary Cost Estimate Range:** \$90,000 - \$120,000

### **Potentially Affected Landowners (Located in North Fayette Township)**

<b>Name (bold if source location)</b>	<b>Address</b>
<b>CHERNIK, CHARLES &amp; CONSTANCE (?)</b>	Property: Along North Star Road, Imperial, PA 15126 Mailing: 250 North Star Road, Imperial, PA 15126

## MKR3



### **Representative Water Quality**

<b>Flow</b> (gpm)		<b>pH</b> (s.u.)		<b>Alkalinity</b> (mg/l)		<b>Acidity</b> (mg/l)		<b>Iron</b> (mg/l)		<b>Manganese</b> (mg/l)		<b>Aluminum</b> (mg/l)	
avg.	max.	avg.	min.	avg.	min.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
117	300	3.4	3.0	0	0	140	184	1	2	1	2	14	24

**Site Conditions:** A terra cotta deep mine drain pipe discharges directly to the headwaters of Milk Run. The potential construction area located immediately downgradient is bounded by Mahoney Road on the east, a steep stream valley wall on the west and an entrance road to a mobile home park to the north. Due to the location in the uppermost headwaters of the stream and limited contributory drainage area (<100ac), a passive system could be installed directly in the stream channel. This area is located along a relatively highly traveled road and is zoned Mobile Home Park.

**Preferred Treatment Method (req. area):** *20,000SF FB → 6,000T HFP → 14,000SF FP (~6 ac)* This system would utilize a Hybrid Flow Pond (HFP) that does not require compost and will not have standing water. The forebay (FB) and Flush Pond (FP) would have standing water and a safety fence would be recommended. This system is located in the headwaters of Milk Run and would make a very significant improvement in the water quality of the stream.

**Preliminary Cost Estimate Range:** \$450,000 - \$500,000

### **Potentially Affected Landowners (Located in North Fayette Township)**

<b>Name (bold if source location)</b>	<b>Address</b>
<b>NAGODE, DONALD &amp; MARGARET</b>	Property: Along Steubenville Pike (and Mahoney Road), North Fayette, PA 15234 Mailing: Harvester Drive, Oakdale, PA 15071
The Hall Family Trust	Property: Along Maloney Road (aka Mahoney Road), Oakdale, PA, 15071 Mailing: Maloney Road (aka Mahoney Road), North Fayette, PA 15234

## PRE2(CLINTON RD)



### Representative Water Quality

<u>Flow</u> (gpm)	<u>pH</u> (s.u.)	<u>Alkalinity</u> (mg/l)	<u>Acidity</u> (mg/l)	<u>Iron</u> (mg/l)	<u>Manganese</u> (mg/l)	<u>Aluminum</u> (mg/l)
44	3.6	0	238	4	11	26

### Site Conditions:

Severely degraded mine drainage issues from numerous small discharges on an abandoned strip mine in the headwaters of the West Fork of Enlow Run. Due to the diffuse nature of the seep zone, an anoxic collection system will be used to direct the flow into the proposed treatment system. The potential construction area is generally bounded by Route 60 to the south and strip mine spoils to the North, East and West. This project is located on Airport Authority property and is zoned Business Park.

**Preferred Treatment Method (req. area):** *SB → SAPS → ALD → LWL → AWL (~10 ac)* This conceptual passive treatment system design was developed by USFilter, Engineering and Construction and includes a Stilling Basin/Sediment Trap (SB), Successive Alkaline Producing System (SAPS), Anoxic Limestone Drain (ALD), Lined Wetlands (LWL) and Aerobic Wetlands (AWL). Additional monitoring will be used to determine the final design of the treatment system.

**Preliminary Cost Estimate Range:** \$272,000 - \$282,000

### Potentially Affected Landowners (Located in Findlay Township)

<u>Name (bold if source location)</u>	<u>Address</u>
<b>ALLEGHENY COUNTY AIRPORT AUTHORITY</b>	Property: East of Clinton Road/North of Route 60, Findlay Township, PA Mailing: 1000 Airport Boulevard, Suite 4000, Pittsburgh, PA 15231

Please note: Information included for the PRE2(CLINTON ROAD) site pertaining to Site Conditions, Treatment Method, Cost Estimate and Landowner was taken from a 2003 Growing Greener grant application prepared with assistance from USFilter and provided by the Montour Run Watershed Association. Water quality information was provided by the Montour Run Watershed Association (sample analyses by the PA DEP).