



October 3, 2017

Maria Bebenek
Manager, Clean Water Program
DEP, SCRO
909 Elmerton Avenue
Harrisburg, Pa 17110

RE: **September 2017** Monthly Report, Site-Specific Study Plan

Dear Ms. Bebenek;

In accordance with Section 3.e of the August 21, 2015 Consent Order and Agreement, the following is the September 2017 monthly report for the Site-Specific Methylmercury Water Quality Criterion Stream Study Plan (the Plan).

Activities Accomplished:

- The NPDES-01 and NPDES-02 samples were collected on September 12, 2017 and sent to Geochemical Testing for analysis.
- Stream water quality samples were collected on September 12, 2017. Samples were collected at stream stations RR-01 (identified in figure 3-1 of the Plan), Rambo Down (located in the mixed zone below NPDES-01), EC-02 (identified in figure 3-2 of Plan) and Ebaughs Down (located in the mixed zone below NPDES-02). Stream samples RR-01, Rambo Down, EC-02 and Ebaughs Down were sent to Brooks Applied Labs for analysis.
- Fish tissue samples were collected on September 12, 2017 at stream stations RR-01 and EC-02. Samples were shipped to Brooks Applied Labs for analysis.

Results:

- Attached are the analytical results as reported by Geochemical Testing from the September 12, 2017 samples for NPDES-01 and NPDES-02.
- Attached are the analytical results as reported by Brooks Applied Laboratory for stream samples collected on August 8, 2017. Included are results from RR-01, Rambo Down, EC-02 and Ebaughs Down.
- The August 8, 2017 equipment blank sample had a trace detection of 0.57 ng/l for total Hg which is above the Method Reporting Limit of 0.40 ng/l. Analysis performed by Brooks Applied Laboratory.

Stream discharge measurements were taken on September 12, 2017 in the area where stream samples are collected at RR-01 and EC-02. The following are the results.

- RR-01:
 - Measurement 1: 2.63 ft³/sec
 - Measurement 2: 2.89 ft³/sec
 - Measurement 3: 2.61 ft³/sec
 - Average: 2.71 ft³/sec

- EC-02:
 - Measurement 1: 1.88 ft³/sec
 - Measurement 2: 1.96 ft³/sec
 - Average: 1.92 ft³/sec

The September 2017 data collection was the final field work to be performed under the scope of the Plan. I will submit the September 2017 water quality data and fish tissue data upon receipt from Brooks Applied Labs. Feel free to contact me if you have any questions or comments on the information provided in this monthly report.

Respectfully,



Richard A. Hazenstab, P.G.
Coordinator
Operations and Environmental Programs

cc: D. Vollero; D. Jasitt; J. Beuschlein; J. Collins

Attached: Brooks Applied Laboratory analysis for stream samples, August 8, 2017
Geochemical Testing analysis for NPDES-01, September 12, 2017
Geochemical Testing analysis for NPDES-02, September 12, 2017
Stream Discharge, September 12, 2017
Field Data, September 12, 2017



Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
RR-01	1732021-01	Water	Sample	08/08/2017	08/09/2017
RR-01	1732021-02	Water	Sample	08/08/2017	08/09/2017
Rambo Down	1732021-03	Water	Sample	08/08/2017	08/09/2017
Rambo Down	1732021-04	Water	Sample	08/08/2017	08/09/2017
EC-02	1732021-05	Water	Sample	08/08/2017	08/09/2017
EC-02	1732021-06	Water	Sample	08/08/2017	08/09/2017
Ebaughs Down	1732021-07	Water	Sample	08/08/2017	08/09/2017
Ebaughs Down	1732021-08	Water	Sample	08/08/2017	08/09/2017
Equipment Blank	1732021-09	Water	Equip. Blank	08/08/2017	08/09/2017
Equipment Blank	1732021-10	Water	Equip. Blank	08/08/2017	08/09/2017

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
Hg	Water	EPA 1631 E	08/14/2017	08/22/2017	B171975	1701002
Hg	Water	EPA 1631 E	08/14/2017	08/24/2017	B171975	1701015
MeHg	Water	EPA 1630	08/22/2017	08/23/2017	B172017	1701004



Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
Ebaughs Down										
1732021-07	Hg	Water	TR	143		0.51	2.02	ng/L	B171975	1701015
1732021-08	MeHg	Water	D	≤ 0.020	U	0.020	0.050	ng/L	B172017	1701004
EC-02										
1732021-05	Hg	Water	TR	1.14		0.10	0.40	ng/L	B171975	1701015
1732021-06	MeHg	Water	D	≤ 0.020	U	0.020	0.049	ng/L	B172017	1701004
Equipment Blank										
1732021-09	Hg	Water	TR	0.57		0.10	0.40	ng/L	B171975	1701002
1732021-10	MeHg	Water	D	≤ 0.020	U	0.020	0.050	ng/L	B172017	1701004
Rambo Down										
1732021-03	Hg	Water	TR	92.1		0.51	2.02	ng/L	B171975	1701015
1732021-04	MeHg	Water	D	0.316		0.020	0.049	ng/L	B172017	1701004
RR-01										
1732021-01	Hg	Water	TR	1.10		0.10	0.40	ng/L	B171975	1701015
1732021-02	MeHg	Water	D	≤ 0.020	U	0.020	0.050	ng/L	B172017	1701004

Laboratory Results



**GEOCHEMICAL
TESTING**
Environmental and Energy Analysis

2005 N. Center Ave.
Somerset PA 15501

814-443-1671
814-445-6666
FAX:814-445-6729

Client:	YORK COUNTY SWA	Client Sample ID:	NPDES-1
Lab Order:	G1709601		
Project:	York 600 M	Sampled By:	YCSWA
Lab ID:	G1709601-001	Collection Date:	09/12/2017 11:10
Matrix:	Groundwater	Received Date:	09/13/2017 11:26

Analyses	Result	QL	Q	Units	DF	Date Analyzed
Total Metals		EPA 245.7		Analyst: LNG		
Mercury	334	20.0		ng/L	10	09/19/2017 10:23
Inorganic Metals		EPA 200.8		Analyst: JEK		
Antimony	< 2.0	2.0		µg/L	1	09/14/2017 17:13
Cadmium	< 0.2	0.2		µg/L	1	09/14/2017 17:13
Copper	< 4.0	4.0		µg/L	1	09/14/2017 17:13
Lead	< 1.0	1.0		µg/L	1	09/14/2017 17:13
Silver	< 0.4	0.4		µg/L	1	09/14/2017 17:13
Volatile Organic Compounds		EPA 624		Analyst: SJM		
1,1,1-Trichloroethane	< 0.5	0.5		µg/L	1	09/16/2017 02:53
1,1-Dichloroethane	< 0.5	0.5		µg/L	1	09/16/2017 02:53
1,1-Dichloroethene	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Chloroethane	< 0.5	0.5		µg/L	1	09/16/2017 02:53
cis-1,2-Dichloroethene	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Dichlorodifluoromethane	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Methylene Chloride	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Tetrachloroethene	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Tetrahydrofuran	< 1.0	1.0		µg/L	1	09/16/2017 02:53
Trichloroethene	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Trichlorofluoromethane	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Vinyl Chloride	< 0.5	0.5		µg/L	1	09/16/2017 02:53
Surr: Surr: 1,2-Dichloroethane-d4	103	80-120		%REC	1	09/16/2017 02:53
Surr: Surr: 4-Bromofluorobenzene	99.9	80-120		%REC	1	09/16/2017 02:53
Surr: Surr: Toluene-d8	99.2	80-120		%REC	1	09/16/2017 02:53
pH by SM 4500 H+B		SM 4500-H+ B		Analyst: AM		
Lab pH	7.60			H S.U.	1	09/14/2017 12:18



Laboratory Results



**GEOCHEMICAL
TESTING**

Environmental and Energy Analysis

2005 N. Center Ave.
Somerset PA 15501

814-443-1671
814-445-6666
FAX:814-445-6729

Client:	YORK COUNTY SWA	Client Sample ID:	NPDES-2
Lab Order:	G1709603		
Project:	York 600 M	Sampled By:	YCSWA
Lab ID:	G1709603-001	Collection Date:	09/12/2017 11:55
Matrix:	Groundwater	Received Date:	09/13/2017 11:30

Analyses	Result	QL	Q	Units	DF	Date Analyzed
Total Metals		EPA 245.7		Analyst: LNG		
Mercury	194	4.0		ng/L	2	09/19/2017 10:25
Inorganic Metals		EPA 200.8		Analyst: JEK		
Antimony	< 2.0	2.0		µg/L	1	09/14/2017 17:15
Cadmium	< 0.2	0.2		µg/L	1	09/14/2017 17:15
Copper	< 4.0	4.0		µg/L	1	09/14/2017 17:15
Lead	< 1.0	1.0		µg/L	1	09/14/2017 17:15
Silver	< 0.4	0.4		µg/L	1	09/14/2017 17:15
Volatile Organic Compounds		EPA 624		Analyst: SJM		
1,1,1-Trichloroethane	< 0.5	0.5		µg/L	1	09/16/2017 03:41
1,1-Dichloroethane	< 0.5	0.5		µg/L	1	09/16/2017 03:41
1,1-Dichloroethene	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Chloroethane	< 0.5	0.5		µg/L	1	09/16/2017 03:41
cis-1,2-Dichloroethene	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Dichlorodifluoromethane	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Methylene Chloride	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Tetrachloroethene	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Tetrahydrofuran	< 1.0	1.0		µg/L	1	09/16/2017 03:41
Trichloroethene	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Trichlorofluoromethane	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Vinyl Chloride	< 0.5	0.5		µg/L	1	09/16/2017 03:41
Surr: Surr: 1,2-Dichloroethane-d4	101	80-120		%REC	1	09/16/2017 03:41
Surr: Surr: 4-Bromofluorobenzene	97.8	80-120		%REC	1	09/16/2017 03:41
Surr: Surr: Toluene-d8	99.7	80-120		%REC	1	09/16/2017 03:41
pH by SM 4500 H+B		SM 4500-H+ B		Analyst: AM		
Lab pH	7.46			H S.U.	1	09/14/2017 12:21





**STREAM DISCHARGE MEASUREMENT
YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY**

Study Area: _____

Transect: EC

Date: 9/12/2017

Operator: BILL JONES

Weather (Circle)

Air Temp (°F): _____

Current: Storm (heavy rain) Rain (steady rain) Showers (intermittent) Partly Cloudy Clear/Sunny

Past 24 Hours: Storm (heavy rain) Rain (steady rain) Showers (intermittent) Partly Cloudy Clear/Sunny

SITE DESCRIPTION

	Yes ✓	No ✓
Straight reach	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Streambed uniform	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flow uniform	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reduced flow near edges	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Large woody debris present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Aquatic vegetation present	<input checked="" type="checkbox"/> & <u><5%</u>	<input type="checkbox"/>

NOTES:

CLEAR FLOW
FISH COLLECTION THIS DAY

Approx. stream width

17'
16'

*No subsection should contain >10% of total discharge, ideal <5%

Approx. number of verticals

*10-25 verticals recommended but adjust to conditions and objectives

OTT MF Pro

Measurement 1

Filename	<u>EC SEPT 1</u>
Start time	<u>01:40</u>
End time	<u>1:15</u>
Total stream discharge (Q)	<u>2.630</u>

IN CASE OF EMERGENCY:

- 1) Administer first aid if necessary
- 2) Call 911 and state your location in the following order of preference:
 - a) With a GPS-enabled phone if available
 - b) Use nearest road intersections as displayed on maps
 - c) Coordinates and coordinate system of nearest 'T' point as identified on the maps
 - d) With coordinates off of GPS

Measurement 2

Filename	<u>EC SEPT 2</u>
Start time	<u>1:15</u>
End time	<u>1:30</u>
Total stream discharge (Q)	<u>2.887</u>

Measurement 3

Filename	<u>EC SEPT 3</u>
Start time	<u>1:30</u>
End time	<u>1:43</u>
Total stream discharge (Q)	<u>2.608</u>

Notes:



**STREAM DISCHARGE MEASUREMENT
YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY**

Study Area: _____

Transect: RR 1

Date: 9/12/17

Operator: Bill Jones

Weather (Circle)

Air Temp (°F): _____

Current: Storm (heavy rain) Rain (steady rain) Showers (intermittent) Partly Cloudy Clear/Sunny

Past 24 Hours: Storm (heavy rain) Rain (steady rain) Showers (intermittent) Partly Cloudy Clear/Sunny

SITE DESCRIPTION

Yes	No
✓	✓
✓	
✓	
✓	
	✓
✓ & 85%	

NOTES:

clear flow
fish collection this day

Approx. stream width

16 1/2

*No subsection should contain >10% of total discharge, ideal <5%

Approx. number of verticals

17

*10-25 verticals recommended but adjust to conditions and objectives

OTT MF Pro

Measurement 1

Filename	<u>RR-SEPT-1</u>
Start time	<u>10:50</u>
End time	<u>11:05</u>
Total stream discharge (Q)	<u>1.878</u>

IN CASE OF EMERGENCY:
 1) Administer first aid if necessary
 2) Call 911 and state your location in the following order of preference:
 a) With a GPS-enabled phone if available
 b) Use nearest road intersections as displayed on maps
 c) Coordinates and coordinate system of nearest 'T' point as identified on the maps
 d) With coordinates off of GPS

Measurement 2

Filename	<u>RR-SEPT-2</u>
Start time	<u>11:15</u>
End time	<u>11:30</u>
Total stream discharge (Q)	<u>1.963</u>

Measurement 3

Filename	_____
Start time	_____
End time	_____
Total stream discharge (Q)	_____

Notes:



**SURFACE WATER SAMPLE CHARACTERIZATION
YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY**

SAMPLE IDENTIFICATION: <i>Rambo Down</i>	NORTHING:	EASTING:
INVESTIGATORS: <i>TG/FK</i>	DATE: <i>8/12/17</i>	WATER DEPTH: <i>6"</i>
FORM COMPLETED BY: <i>FK</i>	TIME: <i>1100</i>	

WEATHER CONDITIONS	Now	Past 24 hours	Has there been a heavy rain in the last 7 days? Yes / <input checked="" type="radio"/> No
	<input type="checkbox"/>	<input type="checkbox"/> storm	
	<input type="checkbox"/>	<input type="checkbox"/> rain	
	<input type="checkbox"/>	<input type="checkbox"/> showers	
	<input checked="" type="checkbox"/>	<input type="checkbox"/> partly cloudy	
	<input type="checkbox"/>	<input checked="" type="checkbox"/> clear/sunny	Air Temperature <i>70</i> °F
			Other: <i>NA</i>

WATER QUALITY PARAMETERS

Parameter	Measurement	Surface Water Characteristics:
Temperature (°C):	<i>15.7°</i>	
DO (mg/L):		Color:
DO (% Saturation):		
pH:	<i>7.08</i>	Odor:
Conductivity (µS/cm):	<i>256</i>	
ORP (mV):		Other:

SURFACE WATER ANALYSES		QA/QC:
Parameter	Unfiltered Filtered	Duplicate Sample Station? (Y/ <input checked="" type="radio"/> N)
Total Mercury (THg)	<input checked="" type="checkbox"/> <input type="checkbox"/>	
Methylmercury (MeHg)	<input type="checkbox"/> <input checked="" type="checkbox"/>	MS/MSD Sample Station? (Y/ <input checked="" type="radio"/> N)
Sample Depth (feet):	<i>3.5</i>	

NOTES: *TG sampler*



**SURFACE WATER SAMPLE CHARACTERIZATION
YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY**

SAMPLE IDENTIFICATION: RR-01	NORTHING:	EASTING:
INVESTIGATORS: FK ITG	DATE: 7/12/17 TIME: 1030	WATER DEPTH: 8"
FORM COMPLETED BY: FK		

WEATHER CONDITIONS	Now	Past 24 hours	Has there been a heavy rain in the last 7 days? Yes <input checked="" type="radio"/> No <input type="radio"/> Air Temperature <u>62</u> °F Other:	
	<input type="checkbox"/>	<input type="checkbox"/>		storm
	<input type="checkbox"/>	<input type="checkbox"/>		rain
	<input type="checkbox"/>	<input type="checkbox"/>		showers
	<input checked="" type="checkbox"/>	<input type="checkbox"/>		partly cloudy
<input type="checkbox"/>	<input checked="" type="checkbox"/>	clear/sunny		

WATER QUALITY PARAMETERS

Parameter	Measurement	Surface Water Characteristics:
Temperature (°C):	13.9	
DO (mg/L):		Color: clear
DO (% Saturation):		
pH:	6.50	Odor: NA
Conductivity (µS/cm):	170	
ORP (mV):		Other: NA

SURFACE WATER ANALYSES	QA/QC:									
<table border="0"><tr><td>Parameter</td><td>Unfiltered</td><td>Filtered</td></tr><tr><td>Total Mercury (THg)</td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>Methylmercury (MeHg)</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table>	Parameter	Unfiltered	Filtered	Total Mercury (THg)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Methylmercury (MeHg)	<input type="checkbox"/>	<input type="checkbox"/>	Duplicate Sample Station? (Y/N) <input checked="" type="radio"/>
Parameter	Unfiltered	Filtered								
Total Mercury (THg)	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
Methylmercury (MeHg)	<input type="checkbox"/>	<input type="checkbox"/>								
Sample Depth (feet):	MS/MSD Sample Station? (Y/N) <input checked="" type="radio"/>									

NOTES: TG - Sampler



**SURFACE WATER SAMPLE CHARACTERIZATION
YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY**

SAMPLE IDENTIFICATION: <i>Ebaugh Down</i>	NORTHING:	EASTING:
INVESTIGATORS: <i>TG / FK</i>	DATE: <i>9/12/17</i> TIME: <i>1140</i>	WATER DEPTH: <i>8"</i>
FORM COMPLETED BY: <i>FK</i>		

WEATHER CONDITIONS	Now	Past 24 hours	Has there been a heavy rain in the last 7 days? Yes / No <input checked="" type="radio"/> No Air Temperature <i>74</i> °F Other: <i>NA</i>	
	<input type="checkbox"/>	<input type="checkbox"/>		storm
	<input type="checkbox"/>	<input type="checkbox"/>		rain
	<input type="checkbox"/>	<input type="checkbox"/>		showers
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		partly cloudy
			clear/sunny	

WATER QUALITY PARAMETERS

Parameter	Measurement	Surface Water Characteristics:
Temperature (°C):	<i>14.4</i>	
DO (mg/L):		Color: <i>Clear</i>
DO (% Saturation):		
pH:	<i>7.67</i>	Odor: <i>NA</i>
Conductivity (µS/cm):	<i>198</i>	
ORP (mV):		Other: <i>NA</i>

SURFACE WATER ANALYSES		QA/QC:
Parameter	Unfiltered	Filtered
Total Mercury (THg)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Methylmercury (MeHg)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Depth (feet):		
		Duplicate Sample Station? (Y/N) <input checked="" type="radio"/> N
		MS/MSD Sample Station? (Y/N) <input checked="" type="radio"/> N

NOTES: *TG - Sampler*



**SURFACE WATER SAMPLE CHARACTERIZATION
YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY**

SAMPLE IDENTIFICATION: EE-02	NORTHING:	EASTING:
INVESTIGATORS: TG / FK	DATE: 9/12/17 TIME: 1130	WATER DEPTH: 8"
FORM COMPLETED BY: FK		

WEATHER CONDITIONS	Now	Past 24 hours	Has there been a heavy rain in the last 7 days? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	rain
	<input type="checkbox"/>	<input type="checkbox"/>	showers
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	partly cloudy
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	clear/sunny
			Air Temperature <u>72</u> °F
			Other: <u>NA</u>

WATER QUALITY PARAMETERS

Parameter	Measurement	Surface Water Characteristics:
Temperature (°C):	15.4	
DO (mg/L):		Color: <u>clear</u>
DO (% Saturation):		
pH:	7.55	Odor: <u>NA</u>
Conductivity (µS/cm):	221	
ORP (mV):		Other: <u>NA</u>

SURFACE WATER ANALYSES		QA/QC:
Parameter	Unfiltered	Filtered
Total Mercury (THg)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Methylmercury (MeHg)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Depth (feet):		
		Duplicate Sample Station? (Y/N) <input checked="" type="checkbox"/>
		MS/MSD Sample Station? (Y/N) <input checked="" type="checkbox"/>

NOTES: TG - Sampler
