pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0034185**
Facility Type	**Non-Municipal**	APS ID	**692814**
Major / Minor	**Minor**	Authorization ID	**1297917**

Applicant and Facility Information

Applicant Name	**High Meadows MHP**	Facility Name	**High Meadows MHP STP**
Applicant Address	4751 Kendor Drive	Facility Address	219 Leewood Drive
	Lower Burrell, PA 15068		Lower Burrell, PA 15068
Applicant Contact	Dean Hurlbut	Facility Contact	Same as Applicant
Applicant Phone	(724) 226-2159	Facility Phone	Same as Applicant
Client ID	45175	Site ID	244136
Ch 94 Load Status	Not Overloaded	Municipality	Allegheny Township
Connection Status		County	Westmoreland
Date Application Received	December 4, 2019	EPA Waived?	Yes
Date Application Accepted	December 5, 2019	If No, Reason	

Purpose of Application: Application for a renewal of an existing NPDES permit for the discharge of treated Sewage.

Summary of Review

The applicant has applied for a renewal of NPDES Permit No. PA0034185, which was previously issued by the Department on June 25, 2015. That permit expires on June 30, 2020. The applicant has complied with Act 14 Notifications, and no comments were received.

WQM Permit No. 6569433 A-2 was issued on 05/24/2004. The treatment plant is rated at an annual average design flow of 0.026 MGD and designed to serve 106 housing units. The treatment process consists of flow equalization, primary settling, rotating biological contactors, final clarification, and ultraviolet disinfection. A tablet chlorinator is available as a backup to the UV disinfection system.

The previous permit stated the Point of First Use was the Allegheny River, according to the site survey conducted on January 17, 1989. And the secondary limitations were imposed on the discharge be evaluated at the Allegheny River. However, the eMapPA shows that the STP discharge flows into a Tributary 42546 to the Allegheny River.

On February 3, 2020, a Point of First Surface Water Use (POFU) survey in the vicinity of the STP outfall was conducted by Jamie Detweiler and Richard Spear, the Aquatic Biologists of Clean Water Program. The study identified that Tributary 42546 to Allegheny River is capable of supporting an Aquatic Life Use as defined in 25 Pennsylvania Code §93.9q, where water quality standards must be met.

Findings from the POFU study suggest that effluent limitations in the renewal NPDES permit should be based on discharging to Tributary 42546 to Allegheny River rather than the Allegheny River. A copy of the POFU memo is attached.

Approve	Deny	Signatures	Date
X		*Curtis Holes* Curtis Holes, P.E. / Environmental Engineering Specialist	October 14, 2020
X		*Donald Leone* Donald J. Leone, P.E. / Environmental Engineer Manager	October 15, 2020

Summary of Review

The receiving stream, the Tributary 42546 to Allegheny River, is classified as a Warm Water Fishery (WWF) located in the Lower Allegheny River State Watershed No.18-A.

To establish the renewal effluent limitations, the Water Quality Based Effluent Limitations (WQBEL) are compared to the minimum technology-based and BPJ standards for individual sewage permits. The most stringent of those limitations are imposed on the renewal permit as per the SOP-Establishing Effluent Limitations for Individual Sewage Permits.

WQM 7.0 and TRC spreadsheet modeling results are enclosed.

It is recommended that a draft permit be published for public comment in response to this application.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.026
Latitude	40º 37' 24"	Longitude	-79º 41' 41"
Quad Name	New Kensington East	Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Tributary 42546 to Allegheny River	Stream Code	42546
NHD Com ID	123972443	RMI	0.91
Drainage Area	0.0671	Yield (cfs/mi^2)	0.0042
Q_{7-10} Flow (cfs)	0.000279	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1023	Slope (ft/ft)	0.064
Watershed No.	18-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	

Nearest Downstream Public Water Supply Intake	Harrison Township Water Authority (4.0 MGD)		
PWS Waters	Allegheny River	Flow at Intake (cfs)	6.20
PWS RMI	Approximately 25.5	Distance from Outfall (mi)	Approximately 1.5 (opposite side of Allegheny River)

Changes Since Last Permit Issuance:

According to the result of the Point of First Use survey, receiving waters have been identified as Tributary 42546 to Allegheny River, rather than Allegheny River stated in the previous permit.

Treatment Facility Summary

Treatment Facility Name: High Meadows MHP STP

WQM Permit No.	Issuance Date
6569433 A-2	05/24/2004
6569433	12/09/1969

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	RBC	UV and Chlorine	0.026

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.026		Not Overloaded	Holding Tank	Landfill

Changes Since Last Permit Issuance: None

Compliance History

Operations Compliance Check Summary Report

Facility: High Meadows STP

NPDES Permit No.: PA0034185

Compliance Review Period: 2/2015 – 2/2020

Inspection Summary:

Facility inspected on 2/11/2020. Effluent exceedances noted and will be tracked for any future exceedances.

Violation Summary:

Violation noted and resolved on 2/2020

Open Violations by Client ID:

No open violations for Client ID 66321

Enforcement Summary:

No enforcements in the last 5 years

DMR Violation Summary:

DMR exceedances from 1/1/2019 to present

January CBOD (avg&inst) TSS (avg)

March CBOD (avg)

April CBOD (avg), TSS (avg), Fecal

May CBOD (avg&inst) and fecal.

August CBOD (avg)

Facility started reporting via eDMR in June 2019.

Compliance Status:

Facility is in compliance.

Completed by: John Murphy

Completed date: 2/21/2020

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.026
Latitude 40º 37' 24" **Longitude** -79º 41' 41"
Wastewater Description: Treated Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/L)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40.0	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
Total Suspended Solids	45.0	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
(5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
(10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/L)	SBC	Model
Ammonia Nitrogen	2.0	Average Monthly	WQM 7.0 Version 1.0
(May 1 to Oct 31)	4.0	IMAX	WQM 7.0 Version 1.0
Ammonia Nitrogen	3.0	Average Monthly	WQM 7.0 Version 1.0
(Nov 1 - Apr 30)	6.0	IMAX	WQM 7.0 Version 1.0
Dissolved Oxygen	5.0	Minimum	WQM 7.0 Version 1.0
Total Residual Chlorine	0.01	Average Monthly	TRC_CALC
Total Residual Chlorine	0.03	IMAX	TRC_CALC

Comments:

The proposed discharge was evaluated using WQM 7.0 to evaluate the $CBOD_5$, Ammonia Nitrogen, and Dissolved Oxygen parameters. The modeling results show technology-based effluent limitations for $CBOD_5$ are appropriate. The modeling results also confirm that Ammonia-Nitrogen and Dissolved Oxygen limitations are necessary to meet in-stream water quality criterion.

In-stream and discharge chlorine demand of 0.3 mg/l and 0 mg/l respectively are to be used as default values in the TRC spreadsheet model to calculate water quality-based TRC limits unless site-specific data supporting different values have been collected in accordance with the Implementation Guidance Total Residual Chlorine Regulation. A TRC limit of 0.01 mg/l will be imposed as an average monthly limit.

The applicant will be given 36 months to comply with the new limits.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

Anti-Backsliding

N/A

Additional Comments:

Monitoring frequencies for the proposed effluent limits are based upon Table 6-3 Self-Monitoring Requirements for Sewage Dischargers of the DEP's Technical Guidance for the Development and Specification of Effluent Limitations.

For STPs with Ultraviolet (UV) disinfection, routine monitoring of UV transmittance, UV dosage, or UV intensity at the same monitoring frequency used for TRC should be contained in the permit as per the SOP-Establishing Effluent Limitations for Individual Sewage Permits.

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). Sewage discharges with design flow greater than 2,000 gpd require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits. A 1/year monitoring and report requirement for Total Nitrogen and Total Phosphorus has been added to the permit as per Chapter 92.a.61.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through 36th Month.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	Report	XXX	Report	1/day	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab

Compliance Sampling Location: Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: 37th Month through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.01	XXX	0.03	1/day	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab

Compliance Sampling Location: Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.026	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

Other Comments: None

Warmer Period

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42546	Trib 42546 to Allegheny River	0.913	1023.00	0.07	0.06400	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.004	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
High Meadows	PA0034185	0.0000	0.0000	0.0260	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42546	Trib 42546 to Allegheny River	0.001	747.00	0.42	0.06400	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.006	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.913	0.00	0.00	0.00	.0402	0.06400	.347	1.5	4.32	0.08	0.714	20.03	7.00
Q1-10 Flow												
0.913	0.00	0.00	0.00	.0402	0.06400	NA	NA	NA	0.08	0.715	20.02	7.00
Q30-10 Flow												
0.913	0.00	0.00	0.00	.0402	0.06400	NA	NA	NA	0.08	0.713	20.05	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.913	High Meadows	9.66	9.7	9.66	9.7	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.913	High Meadows	1.91	1.93	1.91	1.93	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.91	High Meadows	25	25	1.93	1.93	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.913	0.026	20.035	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.496	0.347	4.315	0.078
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.84	1.498	1.92	0.702
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.023	27.928	Owens	5
Reach Travel Time (days)			
0.714			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.071	22.32	1.82	6.79
0.143	20.05	1.73	7.21
0.214	18.01	1.65	7.42
0.285	16.18	1.57	7.59
0.357	14.54	1.49	7.74
0.428	13.06	1.42	7.87
0.500	11.74	1.35	7.99
0.571	10.54	1.28	8.10
0.642	9.47	1.22	8.20
0.714	8.51	1.16	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.913	High Meadows	PA0034185	0.000	CBOD5	25		
				NH3-N	1.93	3.86	
				Dissolved Oxygen			5

Colder Period

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42546	Trib 42546 to Allegheny River	0.913	1023.00	0.07	0.06400	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.008	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
High Meadows	PA0034185	0.0000	0.0000	0.0260	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42546	Trib 42546 to Allegheny River	0.001	747.00	0.42	0.06400	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.013	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.913	0.00	0.00	0.00	.0402	0.06400	.347	1.5	4.32	0.08	0.711	14.86	7.00
Q1-10 Flow												
0.913	0.00	0.00	0.00	.0402	0.06400	NA	NA	NA	0.08	0.713	14.91	7.00
Q30-10 Flow												
0.913	0.00	0.00	0.00	.0402	0.06400	NA	NA	NA	0.08	0.709	14.81	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.913	High Meadows	14.11	14.24	14.11	14.24	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.913	High Meadows	2.82	2.87	2.82	2.87	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.91	High Meadows	25	25	2.87	2.87	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.913	0.026	14.862	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.499	0.347	4.317	0.078
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.68	1.497	2.83	0.471
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.045	24.707	Owens	5
Reach Travel Time (days)			
0.711			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.071	22.69	2.74	7.66
0.142	20.86	2.65	8.23
0.213	19.18	2.56	8.24
0.284	17.63	2.48	8.24
0.355	16.21	2.39	8.24
0.427	14.90	2.32	8.24
0.498	13.70	2.24	8.24
0.569	12.60	2.17	8.24
0.640	11.58	2.09	8.24
0.711	10.65	2.03	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18A	42546	Trib 42546 to Allegheny River

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.913	High Meadows	PA0034185	0.000	CBOD5	25		
				NH3-N	2.87	5.74	
				Dissolved Oxygen			5

TRC_CALC_High Meadows

TRC EVALUATION

0.000279	= Q stream (cfs)	0.5	= CV Daily
0.026	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.995	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

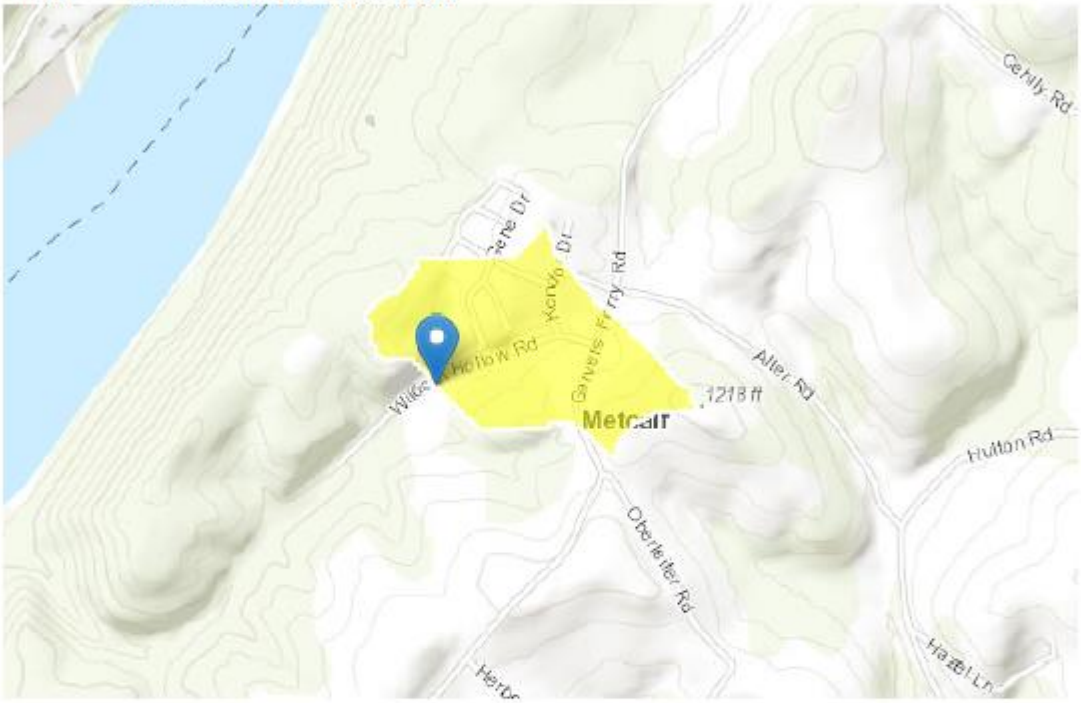
Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.021	1.3.2.iii	WLA cfc = 0.013
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.008	5.1d	LTA_cfc = 0.008

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.009	CFC
		INST MAX LIMIT (mg/l) = 0.031	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

StreamStats Report - High Meadows MHP STP

Region ID: PA
Workspace ID: PA20200604161205244000
Clicked Point (Latitude, Longitude): 40.62234, -79.69474
Time: 2020-06-04 12:12:22 -0400



Point of First Use

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0671	square miles
ELEV	Mean Basin Elevation	1098.3	feet

Low-Flow Statistics Parameters[Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0671	square miles	2.26	1400
ELEV	Mean Basin Elevation	1098.3	feet	1050	2580

Low-Flow Statistics Disclaimers[Low Flow Region 4]

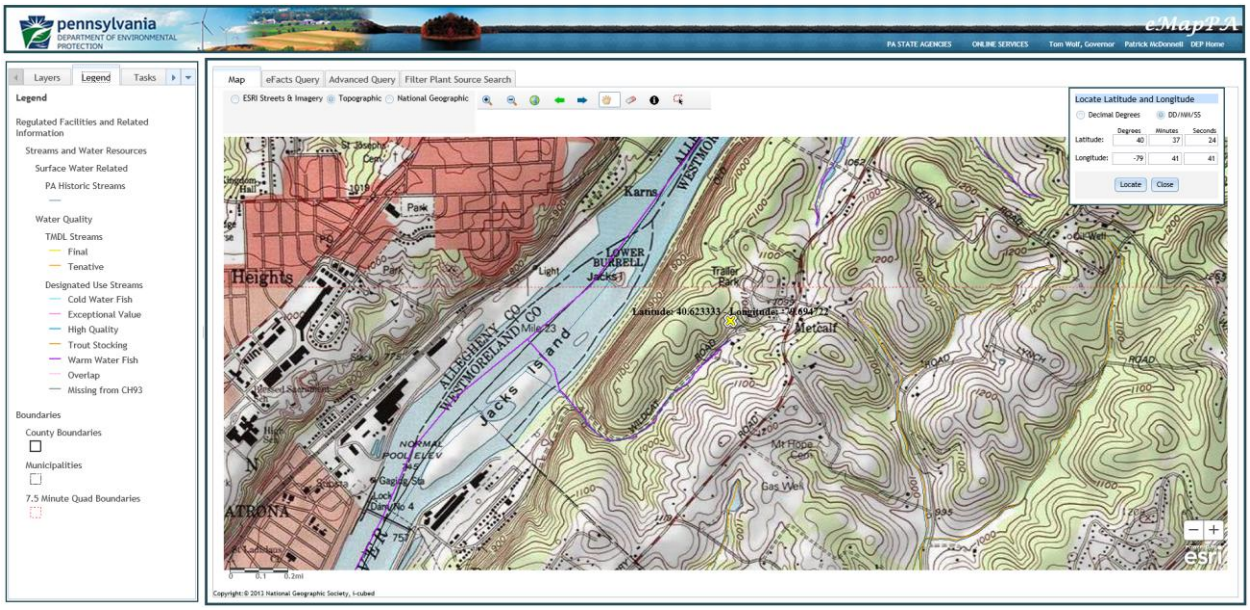
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0012	ft^3/s
30 Day 2 Year Low Flow	0.00261	ft^3/s
7 Day 10 Year Low Flow	0.000279	ft^3/s
30 Day 10 Year Low Flow	0.000727	ft^3/s
90 Day 10 Year Low Flow	0.00166	ft^3/s

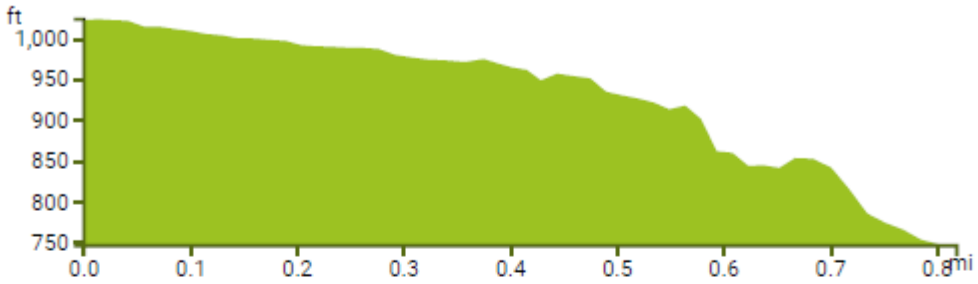
Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)



Tributary 42546 to Allegheny River

Elevation profile



Latitude	Longitude	Elevation (ft)	Distance (mi)
40.62236	-79.69478	1023.38	0.00
40.62224	-79.69497	1024.66	0.01
40.62213	-79.69517	1023.65	0.03
40.62197	-79.69536	1022.71	0.04
40.62180	-79.69555	1015.62	0.06
40.62164	-79.69575	1015.35	0.07
40.62150	-79.69595	1012.41	0.09
40.62136	-79.69615	1010.11	0.10
40.62122	-79.69635	1006.54	0.11
40.62107	-79.69657	1004.78	0.13
40.62093	-79.69679	1001.21	0.14
40.62079	-79.69701	1000.95	0.16
40.62065	-79.69723	999.24	0.17
40.62050	-79.69742	997.95	0.19
40.62035	-79.69761	992.80	0.20
40.62021	-79.69780	991.42	0.22

Point of First Use

Latitude	Longitude	Elevation (ft)	Distance (mi)
40.62006	-79.69799	990.83	0.23
40.61991	-79.69818	989.82	0.25
40.61977	-79.69836	989.54	0.26
40.61961	-79.69858	988.23	0.28
40.61946	-79.69879	980.90	0.29
40.61930	-79.69901	977.72	0.31
40.61915	-79.69922	975.19	0.32
40.61892	-79.69937	973.97	0.34
40.61869	-79.69951	972.16	0.36
40.61846	-79.69965	975.73	0.37
40.61833	-79.69983	970.17	0.39
40.61819	-79.70001	965.34	0.40
40.61805	-79.70018	962.49	0.41
40.61791	-79.70036	949.61	0.43
40.61776	-79.70057	957.74	0.44
40.61761	-79.70079	954.74	0.46
40.61745	-79.70100	952.12	0.47
40.61745	-79.70129	935.60	0.49
40.61744	-79.70157	931.16	0.50
40.61743	-79.70185	927.34	0.52
40.61742	-79.70213	922.40	0.53
40.61741	-79.70242	914.00	0.55
40.61741	-79.70270	918.60	0.56
40.61753	-79.70293	902.19	0.58

Latitude	Longitude	Elevation (ft)	Distance (mi)
40.61766	-79.70315	862.65	0.59
40.61778	-79.70338	860.60	0.61
40.61791	-79.70361	844.73	0.62
40.61803	-79.70383	845.20	0.64
40.61816	-79.70406	842.15	0.65
40.61829	-79.70429	854.20	0.67
40.61848	-79.70449	853.24	0.68
40.61867	-79.70469	842.36	0.70
40.61886	-79.70489	816.02	0.72
40.61905	-79.70509	786.26	0.73
40.61924	-79.70529	774.79	0.75
40.61943	-79.70549	766.35	0.77
40.61962	-79.70569	754.08	0.78
40.61981	-79.70589	748.29	0.80
40.62000	-79.70609	746.54	0.82

End of Reach

Elevation data provided by: **ESRI Elevation Analysis services**
(https://developers.arcgis.com/rest/elevation/api-reference/profile.htm)

MEMO

TO Yingmin Xue
Environmental Engineering Specialist
Clean Water Program

FROM Jamie Detweiler
Aquatic Biologist 2
Clean Water Program

THROUGH Richard Spear
Aquatic Biologist 3
Clean Water Program

DATE April xx, 2020

RE Point of First Use Survey
Tributary 42546 to the Allegheny River
State Water Plan: 18A
Hydrologic Unit Code: 05010009
Stream Code: 42546
Aquatic Use Designation:WWF
High Meadows Mobile Home Park Sewage Treatment Plant
Allegheny Township, Westmoreland County

INTRODUCTION

On February 3, 2020, at the request of Yingmin Xue of the Clean Water Program, a Point of First Surface Water Use (POFU) survey was conducted on Tributary 42546 to the Allegheny River, located in Allegheny Township, Westmoreland County. The objective of the survey was to determine if the tributary was capable of supporting an Aquatic Life Use as defined in 25 Pennsylvania Code §93.9q in the vicinity of the High Meadows Mobile Home Park (MHP) Sewage Treatment Plant (STP) outfall located at approximately Latitude: 40.623272, Longitude: -79.694745.

The High Meadows MHP is located on top of a hill, adjacent to the Allegheny River (Figure 1). A pond is located onsite but does not appear to directly receive the discharge from the MHP. The POFU of Tributary 42546 to the Allegheny River is located downslope of the STP discharge, the aforementioned pond, and a relatively large wetland (Figure 2). Water from these sources flows into a culvert. Downslope of this culvert, the stream exhibits characteristics that would typically support an aquatic life use, such as a defined bed and bank and definite substrate. The previous permit stated that the STP discharges directly to the Allegheny River and the limits were based on the discharge being to the river. However, maps indicated that this was not the case.

The High Meadows MHP STP is a Minor Sewage Facility (MISF1), which is a designation for STPs that discharge less than 0.05 Million Gallons Per Day (MGD). This STP's annual average design flow is 0.026 MGD, and it was designed to serve 106 housing units. The treatment consists of flow equalization, primary settling, biological treatment using Geo-Form rotating reactors, final clarification, and ultraviolet disinfection. A tablet chlorinator is available as a backup to the UV disinfection system. Sludge from the primary and

secondary clarifiers is pumped to an aerated sludge holding tank. The digested sludge is removed for appropriate disposal at a landfill.

Ms. Xue is currently reviewing a permit renewal of the STP's National Pollution Discharge Elimination System (NPDES) Permit (PA0034185). The plant also has a Water Quality Management Permit (659433 A2). During the past permitting cycle, the STP had 3 DMR exceedances during 2018 and 8 DMR exceedances (COBD, TSS and fecal) from 1/1/2019 through 4/23/2020. During a facility inspection on 2/11/2020, a violation was noted and resolved. There are no open violations and there have been no enforcements actions taken for this client in the last 5 years. The facility is currently in compliance.

According to USGS StreamStats, at the location of sampling, the drainage area is 0.13 square miles. The drainage area is 46% developed; 14.7 % is impervious. Tributary 42546 to the Allegheny River is in the Lower Allegheny River State Water Plan (18A), and the Lower Allegheny River Hydrologic Unit (Hydrologic Unit Code 05010009). Tributary 42546 to the Allegheny River (Stream Code 42546) is listed as attaining its designated Aquatic Life Use for Warm Water Fishery (WWF). However, it appears that it was never surveyed.

SAMPLING METHODOLOGY

The point of first aquatic life use is the location at which a body of water is capable of supporting aquatic life as defined in 25 Pennsylvania Code §93. Guidance for determining the point of first aquatic life use is in the Department's guidance document #391-2000-014, Policy and Procedures for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (revised April 12, 2008). Specifically, Appendix B of the guidance document provides additional guidance when making a point of first use determination.

On February 3, 2020, basic water quality (Table 1) and macroinvertebrates (Table 2) were examined in the stream that receives the discharge from the outfall. The station was established at the point downslope from the permitted discharge where distinct bed and banks were found (Figures 3,4). Basic water quality parameters were examined using a field meter and additional water chemistry and macroinvertebrates were collected and subsampled according to the Department's Water Quality Monitoring Protocols for Streams and Rivers 2018 (Monitoring Book), which can be found by following this link: http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Technical%20Documentation/MONITORING_BOOK.pdf

RESULTS

Upslope from the survey location, a relatively flat wetland area was located adjacent to Wildcat Hollow Road. A small channel was found within the wetland, but it did not appear to have characteristics that would support aquatic life. Water draining out of the wetland entered a culvert. The survey location was just downstream of the culvert. At the survey location, the stream was incised, with heavily eroded banks that were approximately 3 feet high. The stream was about 5 feet wide, with a 4 ft wetted width. The riparian area at the sampling location and downstream was forested, with a dirt road located adjacent to the stream.

A relatively large number of macroinvertebrates were collected during the study. In subsampling the composited sample, I used option 1 from the Monitoring Book, which is the appropriate protocol for suspected high abundance samples. In using option 1, the material and organisms from four grids were taken from the first sample pan and placed into a second gridded pan. Organisms from four grids of the second gridded pan resulted in reaching the target number of 200 +/- 10%.

Six macroinvertebrate taxa were found in the subsample. The Index of Biotic Integrity (IBI), calculated for the stream size and time of year (Table 3), indicates that the aquatic life use in this segment of stream channel is not being attained (IBI score = 14.4, less than 50 is not attaining). The water quality results did not show any exceedances of the Chapter 93 water quality criteria. However, the total habitat score was 129, which is below the threshold (140) for aquatic life use impairment for riffle/run dominated streams. In addition, the combined scores of embeddedness and sediment deposition (21) and condition of banks and bank vegetative protection (8) are below the impairment threshold (24) for each combination.

DISCUSSION AND CONCLUSIONS

The objective of this study was to examine aquatic life, water quality, and physical characteristics of the Tributary 42546 to the Allegheny River to determine if and where the stream is capable of supporting an aquatic life use as defined in 25 Pennsylvania Code §93.9q, where water quality standards must be met.

Findings from this study suggest that the Tributary 42546 to the Allegheny River at the point of sampling is capable of supporting aquatic life. Two long-lived taxa were identified in the macroinvertebrate sample and the stream exhibited defined bed and bank. Therefore, when issuing the NPDES permit renewal, limits should be based on the STP discharging to Tributary 42546 to the Allegheny River, rather than the Allegheny River, as in the previous permit.

Results from this study suggest that the stream has an aquatic life use at the point where the study was performed (Latitude: 40.62133380, Longitude: -79.69631730), and this use should be protected.

Also, the stream will be listed as not attaining its protected use under Section 303d of the Clean Water Act. The cause of the impairment is habitat alteration and siltation and the sources of the impairments are Highway/Road/Bridge Runoff and Urban Runoff/Storm sewers, respectively.

cc: Stream File – Tributary 42546 to the Allegheny River
Donald Leone – SWRO, Environmental Group Manager
Christopher Kriley – SWRO, Environmental Program Manager
Michael (Josh) Lookenbill – CO, Environmental Group Manager

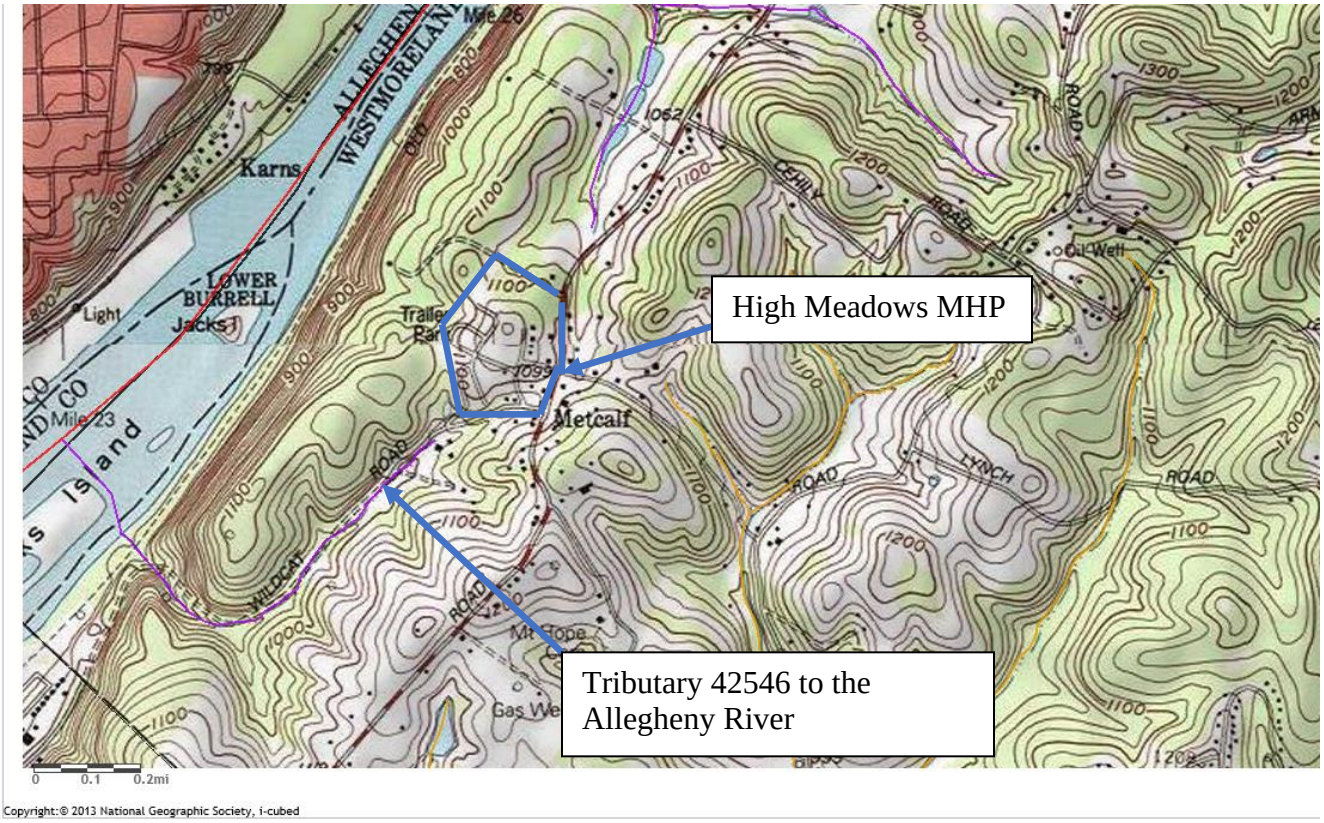


Figure 1. USGS Topographical map of High Meadows MHP and Tributary 42546 to the Allegheny River.

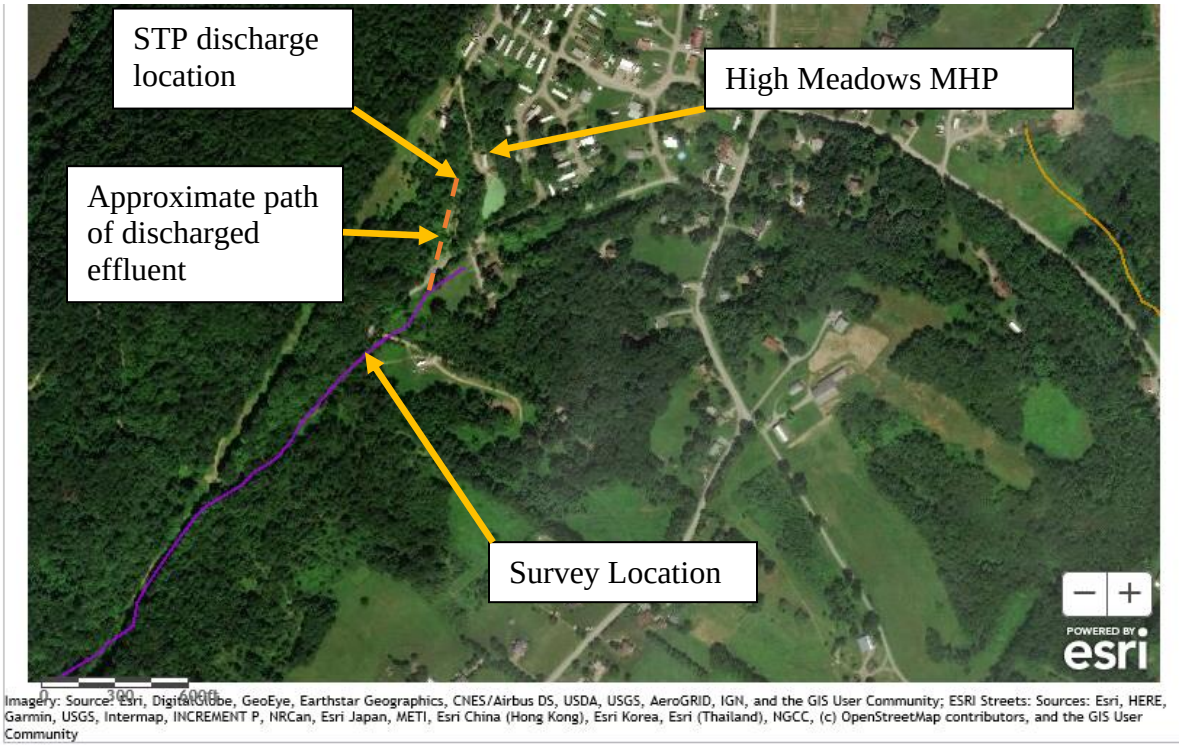


Figure 2. Aerial map showing the High Meadows MHP STP and survey location.

Table 1. Water quality parameters from the Tributary 42546 to the Allegheny River.

PARAMETER	DESCRIPTION	RESULTS
pH	FIELD	6.34 pH units
TEMPERATURE	FIELD	4.8 C
DISSOLVED OXYGEN	FIELD	11.61 mg/L
SPECIFIC CONDUCTANCE	FIELD	463.0 umhos/cm
ALKALINITY	AS CaCO3 @ pH 4.5	95.6 mg/L
ALUMINUM	DISSOLVED (WATER & WASTE) BY ICPMS	16.500 ug/L
ALUMINUM	TOTAL (WATER & WASTE) ICPMS	72.500 ug/L
AMMONIA	DISSOLVED AS NITROGEN	1.5480 mg/L
AMMONIA	TOTAL AS NITROGEN	1.51 mg/
BARIUM	TOTAL (WATER & WASTE) BY ICP	29.00 ug/L
BORON	TOTAL (WATER & WASTE) BY ICP	<200. ug/L
CADMIUM	DISSOLVED (WATER & WASTE) BY ICPMS	<0.200 ug/L
CALCIUM	TOTAL (WATER & WASTE) BY ICP	43.600 mg/L
COPPER	DISSOLVED (WATER & WASTE) BY ICPMS	<4.00 ug/L
COPPER	TOTAL (WATER & WASTE) BY ICPMS	<4.00 ug/L
Dissolve Nitrate & Nitrite Nitrogen		1.50 mg/L
Dissolve Ortho Phosphorus		0.203 mg/L
Dissolved Nitrogen as N		3.351 mg/L
Dissolved Phosphorus as P		0.261 mg/L
HARDNESS	TOTAL (CALCULATED)	146 mg/L
IRON	DISSOLVED (WATER & WASTE) BY ICP	104.00 ug/L
IRON	TOTAL (WATER & WASTE) BY ICP	228.00 ug/L
LEAD	DISSOLVED (WATER & WASTE) BY ICPMS	<1.00 ug/L
LEAD	TOTAL (WATER & WASTE) BY ICPMS	<1.00 ug/L
LITHIUM	DISSOLVED (WATER &WASTE) BY ICP	<25.0 ug/L
LITHIUM	TOTAL (WATER & WASTE) BY ICP	<25.0 ug/L
Low Bromide	by IC	27.27 ug/L
MAGNESIUM	TOTAL (WATER & WASTE) BY ICP	8.94 mg/L
MANGANESE	DISSOLVED (WATER & WASTE) BY ICP	233.00 ug/L
MANGANESE	TOTAL (WATER & WASTE) BY ICP	238.00 ug/L
NICKEL	DISSOLVED (WATER & WASTE) BY ICP	<50.0 ug/L
NICKEL	TOTAL (WATER & WASTE) BY ICP	<50.0 ug/L
OSMOTIC PRESSURE		6 mos/kg
POTASSIUM	TOTAL (WATER & WASTE) BY ICP	2.50 mg/L
SELENIUM	TOTAL (WATER & WASTE) BY ICPMS	<7.00 ug/L
SODIUM	TOTAL (WATER & WASTE) BY ICP	30.20 mg/L
STRONTIUM	TOTAL (WATER & WASTE) BY ICP	138.00 ug/L
Temperature	at which pH is measured	18.67 C
Total Chloride-Ion	Chromatograph	61.59 mg/L
TOTAL DISSOLVED SOLIDs	@ 180C BY USGS-I-1750	276 mg/L
Total Nitrate & Nitrite Nitrogen		1.47 mg/L
Total Nitrogen as N		3.30 mg/L

Total Organic Carbon		3.14 mg/L
Total Ortho Phosphorus as P		0.207 mg/L
Total Phosphorus as P		0.261 mg/L
Sulfate-Ion	Chromatograph	29.73 mg/L
TOTAL SUSPENDED SOLIDS		<5 mg/L
ZINC	DISSOLVED (WATER & WASTE) BY ICP	<30.0 ug/L
ZINC	TOTAL (WATER & WASTE) BY ICP	<30.0 ug/L

< indicates result is below reporting limit

Table 2. Macorinvertebrates observed in Tributary 42546 to Allegheny River.

TAXA	Family	Number in subsample	Long lived taxa
Diplectrona	Hydropsychidae (Net-spinning Caddisfly)	1	Yes
Hydropsyche	Hydropsychidae (Net-spinning Caddisfly)	1	Yes
Tipula	Tipulidae (Crane Fly)	1	Yes
Simulium	Simulidae (Black Fly)	31	No
Chironomidae	Chirononimdae (Non-biting Midge)	48	No
Oligochaeta	N/A (Segmented Worm)	129	No

Table 3. Bureau of Clean Water Macroinvertebrate Sample Summary.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF CLEAN WATER
MACROINVERTEBRATE SAMPLE SUMMARY
3/4/2020 3:15:24 PM

Export Data to Excel

SAMPLE SUMMARY				
STATION ID: 20200203-1000-jadetweile	**SECONDARY STATION ID:** UNT 42546 to Allegheny River, Downstream of Highmeadows MHP STP.	**LATITUDE:** 40.62133380	**LONGITUDE:** -79.69631730	
STREAM NAME:		**HUC8** 05010009 Lower Allegheny. Pennsylvania.		
SURVEY ID: 71877		**METHOD:** 6-Dframe Composite, 200 subsample		
SUBSAMPLED BY: Jamie Detweiler	**IDENTIFIED BY:** Jamie Detweiler	**QUALITY ASSURED:** N	**QUALITY ASSURED BY:**	**PASSED QUALITY ASSURANCE:** N
STATION LOCATION COMMENT: Station is located along Wildcat Hollow Road on UNT 42546 to Allegheny River. Location is downstream of an open area/ yard/wetland and receives the discharge from the High Meadow MHP STP.				
BIOLOGY / HABITAT COMMENT: A dirt road follows the stream down to the Allegheny River. other than the road, the area is forested. However the stream must receive flashy storms, since the banks are eroded. Downstream of this site, algae was growing on the substrate				
LAND USE COMMENT:				
IMPAIRMENT COMMENT:				

TAXA					
	# grids from first pan = 4	**# grids from second pan = 4**		**Subsample Size =**	**211**
TAXA NAME	**INDIVIDUALS**	**PTV**	**FFG**	**BCG COLD**	**BCG WARM**
Diplectrona	1	0	FC	2	2
Hydropsyche	1	5	FC	5	5
Tipula	1	4	SH	5	5
Simulium	31	6	FC	5	5
Chironomidae	48	6	CG	5	5
Oligochaeta	129	10	CG	5	5

SSRS_SLIMS_043 Ver 1.1

Page 1 of 2

STATION ID: 20200203-1000-jadetweile

METRICS						
		Freestone Riffle-Run 6D200				
METRIC NAME	RAW VALUE	2013 SMALL	2013 LARGE	2D100	MULTIHABITAT POOL GLIDE	LIMESTONE 2009
Total Richness	6	18.2	19.4		19.4	33.3
Ephemeroptera Richness	0				0.0	
Trichoptera Richness	2				18.2	
EPT Richness	2			13.1	11.8	25.0
Trichoptera Richness (PTV 0-4)	1			27.8		
EPT Richness (PTV 0-4)	1	5.3	6.3			
Becks Index (version 3)	3	7.9	13.6			
Becks Index (version 4)	3			15.1	13.6	25.0
FC + PR + SH Richness	4			34.5		
Hilsenhoff Biotic Index	8.40	19.7	23.0	23.7		26.0
% Sensitive Individuals (PTV 0-3)	0.50	0.6	0.7			
% Tolerant Individuals (PTV 7-10)	61.10					39.5
Shannon Diversity	1	35.0	35.0		41.2	46.9
	IBI SCORE	14.4	16.3	22.8	17.3	32.6

% Ephemeroptera	0.0	% Ephemeroptera (PTV 0-4)	0.0	% Dominant Taxon	61.1	BCG Richness Ratio	0.20
% Plecoptera	0.0	Ephemeroptera Richness (PTV 0-4)	0	% Chironomidae	22.7	BCG Individuals Ratio	0
% Trichoptera	0.9	Plecoptera Richness	0	% Simulidae	14.7		

IMPAIRMENT			
Not Impaired	Y	Insufficient Data	Y

HABITAT							
Instream Cover	14	Substrate / Cover		Frequency of Riffles	17	Bank Vegetation	6
Epifaunal Substrate	15	Velocity/Depth Regimes	10	Channel Flow Status	12	Disruptive Pressure	15
Embeddedness	11	Pool Variability		Channel Alteration	8	Riparian Zone	9
Pool Substrate		Sediment Deposition	10	Condition of Banks	2		
Pool-Glide Assessment? N		Instream Score = 50		Riparian Score = 17		Total Score = 129	

FIELD MEASUREMENTS					
Temperature (°C)	4.80	Dissolved Oxygen (mg/L)	11.61	Flow (CFS)	
pH	6.34	Total Alkalinity (mg/L as CaCO3)		Conductivity (uS/cm)	463

WATER CHEMISTRY			
Collector ID	0725	Sequence Number	087

Figure 3. Sampling location, facing upstream.

Figure 4. Sampling location, facing downstream.