

Application Type Renewal  
Facility Type Municipal  
Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0244333  
APS ID 1049561  
Authorization ID 1372652

**Applicant and Facility Information**

Applicant Name	<u>East Brandywine Township Municipal Authority</u>	Facility Name	<u>Applecross WWTP (aka Overlook Road Farm WWTP)</u>
Applicant Address	<u>1214 Horseshoe Pike Downingtown, PA 19335-1132</u>	Facility Address	<u>101 Bolero Drive Downingtown, PA 19335</u>
Applicant Contact	<u>Jan Bednarchik</u>	Facility Contact	<u>Jan Bednarchik</u>
Applicant Phone	<u>(610) 269-8230</u>	Facility Phone	<u>(610) 942-3000</u>
Client ID	<u>226713</u>	Site ID	<u>480559</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>East Brandywine Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Chester</u>
Date Application Received	<u>October 4, 2021</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u></u>	If No, Reason	<u>TMDL</u>
Purpose of Application	<u>Permit renewal</u>		

**Summary of Review**

The applicant requests renewal of an NPDES permit to discharge treated sewage from the Applecross WWTP. The discharge through Outfall 001 to Beaver Creek is used as an emergency discharge for a spray and drip irrigation system located at the Applecross Golf Course.

The treatment plant consists of an influent pump station, an influent screen, an EQ tank, SBR treatment systems (3 trains, 100, 000 gpd each), a decant EQ tank, a tertiary disk filter, UV system, a filtrate tank, a sludge holding tank, three storage lagoons and a control building with chemical feed equipment, a spray irrigation system located on the Applecross Golf Course, a drip irrigation system and a stream discharge outfall. The effluent is disposed by one of the three discharge systems – drip irrigation, spray irrigation, or stream discharge. No upgrades are proposed for the next five years.

Aluminum Sulfate and Sodium Carbonate are used for Phosphorus Control only with stream discharge. Sodium Hypochlorite is used for filamentous control.

The facility does not routinely discharge through Outfall 001. Spray and drip irrigation are the two main discharge methods. Stream discharge is used only as a backup. There was no stream discharge occurred during the last one year. According to the applicant, the last day the facility discharged to the stream was May 25, 2020.

There are no significant industrial users discharging to the system.

The WQM permit No. 1506407 was originally issued on October 25, 2007 and was renewed on October 31, 2012. The latest amendment (1506407 A-1) was issued on January 30, 2020. The plant commenced operations in October 2012.

According to the inspection report (09/16/2021) the plant was operating well, and no violations were noted.

Approve	Deny	Signatures	Date
X		<i>Sara Abraham</i> Sara Reji Abraham, E.I.T. / Project Manager	October 28, 2021
X		<i>Pravin Patel</i> Pravin C. Patel, P.E. / Environmental Engineer Manager	10/28/2021

**Summary of Review**

Sludge use and disposal description and location(s): Facility is hauling away the sludge to other POTWs

This discharge is under Christina River Basin Watershed. The Environmental Protection Agency (EPA) Region III established Total Maximum Daily Loads (TMDLs) for nutrients and other oxygen demanding pollutants in order to attain and maintain the applicable Water Quality Standards for Dissolved Oxygen (DO) in the Christina River Basin under Low-Flow conditions. TMDL was issued on January 19, 2001 and revised in October 2002 and April 2006. Reallocation of the WLAs (Waste Load Allocations) for the Christina River Basin TMDL were published in the Pennsylvania Bulletin on March 12, 2012. The Department reallocated WLAs for the East Branch Brandywine sub-watershed from the former Sonoco Downingtown Papermill Facility (PA0012815) to the Overlook Road Farm WWTP (aka Applecross WWTP) (PA0244333). (ref: PADEP letter dated June 21, 2012 to Mr. Brian Trulear, EPA Region III)

This discharge is also listed on the Alternative Reduction Scenario for the Christina River Basin Low Flow TMDL (Table 14) which was approved by EPA on August 29, 2012.

The recommended effluent limits for the draft NPDES permit are similar to the limits in the existing permit and are consistent or more stringent compared to the WLAs listed in the Table 14 of the alternative reduction scenario for the Low Flow TMDL.

Table 14 of Low Flow TMDL lists the following for PA0244333:

Flow	CBOD5	NH3-N	TN	TP	DO	CBOD5	NH3-N	TN	TP	DO
MGD	mg/l	mg/l	mg/l	mg/l	mg/l	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.138	25	3.0	15	2.0	3.0	29	3.5	17.0	2.3	0.263

High Flow TMDL for Nutrients and Low Dissolved Oxygen: Former Sonoco Downingtown Papermill Facility (PA0012815) is listed under Table 2-2 of this TMDL. The WLAs were reallocated from this facility to the Overlook Road Farm WWTP (aka Applecross WWTP). The High Flow TMDL allocations were not adjusted at the time when low flow TMDL allocations were adjusted under the Alternative Reduction Scenario. Since the Christina River Low-Flow TMDL is the driver for the Christina River High-Flow TMDL, especially for nutrients, it is assumed that compliance with the low flow TMDL, satisfies the compliance of the high flow TMDL. Therefore, the effluent limits recommended for this draft permit are also consistent with the Christina River Basin High Flow TMDL for Nutrients and Low Dissolved Oxygen.

High Flow TMDL for Bacteria and Sediment: The draft permit includes a fecal coliform limit of # 200 /100 ml which is consistent with the WLA that was allocated to the former Sonoco Downingtown Papermill Facility (PA0012815). Also, the permit includes TSS limits which are more stringent than the WLAs allocated to the former Sonoco Downingtown Papermill Facility. Therefore, the effluent limits for this draft permit are consistent with the Christina River Basin High Flow TMDL for Bacteria and Sediment.

Influent monitoring requirements for CBOD5, TSS and BOD5 are included in the draft permit to check compliance with the 85% removal requirement and Chapter 94 requirement. This requirement is consistent with other similar dischargers in the area.

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.

**Summary of Review**

Act 14 Notifications:

East Brandywine Township - September 22, 2021  
Chester County - September 13, 2021

Permit Conditions:

- A. No Stormwater
- B. Acquire Necessary Property Rights
- C. Proper Sludge Disposal
- D. Operator Notification
- E. Chlorine Optimization
- F. Fecal Coliform Reporting
- G. Solids Management

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.137
Latitude	40° 1' 42.43"	Longitude	-75° 46' 39.01"
Quad Name	Wagontown	Quad Code	1839
Wastewater Description: Treated Sewage Effluent			
Receiving Waters	Beaver Creek (CWF, MF)	Stream Code	00297
NHD Com ID	26105672	RMI	6.1
Drainage Area	3.27 mi <sup>2</sup>	Yield (cfs/mi <sup>2</sup> )	0.043
Q <sub>7-10</sub> Flow (cfs)	0.14 *	Q <sub>7-10</sub> Basis	USGS Streamstats 3.0
Watershed No.	3-H	Chapter 93 Class.	CWF, MF
Assessment Status	Attaining Use(s)		
TMDL Status	Final	Name	Christina River Basin

\* from the previous fact sheet

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Applecross WWTP (aka Overlook Road Farm WWTP)				
<b>WQM Permit No.</b>	<b>Issuance Date</b>			
1506407 A-1	01/30/2020			
<b>Waste Type</b>	<b>Degree of Treatment</b>	<b>Process Type</b>	<b>Disinfection</b>	<b>Avg Annual Flow (MGD)</b>
Sewage	Tertiary	Sequencing Batch Reactor W/Sol Removal	Ultraviolet	0.13768
<b>Hydraulic Capacity (MGD)</b>	<b>Organic Capacity (lbs/day)</b>	<b>Load Status</b>	<b>Biosolids Treatment</b>	<b>Biosolids Use/Disposal</b>
0.3	1351	Not Overloaded	Gravity Thickening	Other WWTP

Compliance History

DMR Data for Outfall 001 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
BOD5 (lbs/day) Raw Sewage Influent   Average Monthly	114	136	216	201	296	102	106	140	159	74	92	124
BOD5 (mg/L) Raw Sewage Influent   Average Monthly	102	129	211	191	281	102	99	129	140	73	67	120
TSS (lbs/day) Raw Sewage Influent   Average Monthly	72	117	219	226	309	81	119	181	103	63	67	78
TSS (mg/L) Raw Sewage Influent   Average Monthly	65	111	211	213	293	82	110	164	91	63	48	76

DMR Data for Outfall 002 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Flow (GPD) Average Monthly	0.112	0.115	131000	127000	129000	120000	119000	0.109	121000	111000	0.112	0.103
Flow (GPD) Raw Sewage Influent   Average Monthly	0.134	0.124	133000	128000	129000	133000	136000	130000	140000	132000	0.129	0.124
Flow (GPD) Daily Maximum	0.148	0.185	175000	180000	160000	173000	144000	0.148	158000	153000	0.154	0.126
Flow (GPD) Raw Sewage Influent   Daily Maximum	0.184	0.150	215000	156000	154000	176000	216000	178000	257000	181000	0.183	0.161
pH (S.U.) Daily Minimum	6.7	7.1	7.1	7.0	6.8	6.9	6.9	7.0	7.1	7.2	7.2	7.3

**NPDES Permit Fact Sheet  
Applecross WWTP**

**NPDES Permit No. PA0244333**

pH (S.U.) Instantaneous Maximum	7.2	7.2	7.2	7.1	7.1	7.2	7.1	7.3	7.3	7.4	7.4	7.5
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	5.0	3.0	< 19.0	3.0	3.0	2.0	< 2.0	< 2.0	< 6.0	< 2.0
TSS (mg/L) Average Monthly	2.0	4.0	9.0	< 4.0	23.0	4.0	3.0	< 6.0	< 1.0	< 2.0	1.0	< 1.0
Fecal Coliform (No./100 ml) Geometric Mean	< 2	< 2	< 21	< 3	< 4	< 2	< 2	< 2	< 2	< 3	< 3	< 2
Total Nitrogen (mg/L) Average Monthly	< 3.0	< 4.0	6.0	5.0	5.0	< 4.0	< 5.0	< 5.0	< 4.0	< 3.0	< 3.0	< 3.0
Total Phosphorus (mg/L) Average Monthly	3.8	4.4	4.9	4	4.8	3.7	3.7	4.9	3.1	3.9	6	6.2
Total Phosphorus (mg/L) Instantaneous Maximum	6.5	5.4	7.3	5	6.7	5.8	6.1	7.6	4.9	6.3	7	8.2

**Compliance History**

**Effluent Violations for Outfall 002, from: October 1, 2020 To: August 31, 2021**

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	04/30/21	Avg Mo	< 19.0	mg/L	10.0	mg/L
CBOD5	04/30/21	Avg Mo	< 19.0	mg/L	10.0	mg/L
TSS	04/30/21	Avg Mo	23.0	mg/L	10.0	mg/L
TSS	04/30/21	Avg Mo	23.0	mg/L	10.0	mg/L

\*Outfall 002 data is generated from the WQM permit information.

**Development of Effluent Limitations**

<b>Outfall No.</b> <u>001</u>	<b>Design Flow (MGD)</b> <u>.137</u>
<b>Latitude</b> <u>40° 1' 44.00"</u>	<b>Longitude</b> <u>-75° 46' 39.00"</u>
<b>Wastewater Description:</b> <u>Sewage Effluent</u>	

**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 <sub>5</sub>	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	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 (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (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**

Parameter	Limit (mg/l)	SBC	Basis
CBOD <sub>5</sub> *	10	Average Monthly	Existing
Dissolved Oxygen	5.0	Inst. Minimum	Existing
TSS*	10	Average Monthly	Existing
TDS**	Report	Average Monthly	Data collection
NH <sub>3</sub> -N	3	Average Monthly	Existing
Total Nitrogen*	10	Average Monthly	Existing
Total Phosphorus	2.0	Average Monthly	Existing
Fecal Coliform	# 200/1000	Geo.Mean/Inst. Max.	Chapter 92a & DRBC
E.Coli***	Report (#)	Inst. Max	Chap. 92a**
UV light transmittance	Report	Daily Min.	Existing
Nitrate-Nitrite as N	Report	Average Monthly	Existing
pH	6.0 to 9.0 STD units		Ch. 93

\*Previous fact sheet mentioned that these limits were revised to be consistent with the limits outlined in the WQM permit.

\*\* Application reported a maximum TDS Concentration of 522 mg/l; therefore, a quarterly monitoring is included in the permit. This is a new requirement.

\*\*\* E. Coli monitoring is a new requirement for the Sewage dischargers based on the latest revised SOP for Establishing Effluent limitations for Individual Sewage Permits.

A Reasonable Potential Analysis of the effluent testing information reported in the application shows no other pollutants of concern.

Anti-Backsliding

N/A

**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) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (GPD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Weekly when Discharging	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	11.5	17.3	XXX	10.0	15.0	20	1/week	8-Hr Composite
CBOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	11.5	17.3	XXX	10.0	15.0	20	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 – Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 – Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Daily Min. Report	XXX	XXX	XXX	1/day	Measured
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date )

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Nitrogen	11.5	XXX	XXX	10.0	XXX	20	1/week	8-Hr Composite
Ammonia	3.5	XXX	XXX	3.0	XXX	6	1/week	8-Hr Composite
Total Phosphorus	2.3	XXX	XXX	2.0	XXX	4	1/week	8-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	8-Hr Composite