

Application Type Renewal  
Facility Type Municipal  
Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0052035  
APS ID 1088222  
Authorization ID 1439246

**Applicant and Facility Information**

Applicant Name	<u>Upper Makefield Township</u>	Facility Name	<u>Heritage Hills WWTP</u>
Applicant Address	<u>1076 Eagle Road</u> <u>Newtown, PA 18940-2818</u>	Facility Address	<u>1135 Taylorsville Road</u> <u>Newtown, PA 18940</u>
Applicant Contact	<u>David Nyman</u>	Facility Contact	<u>Dan Scholl</u>
Applicant Phone	<u>(215) 968-3340</u>	Facility Phone	<u>(215) 795-2626</u>
Client ID	<u>63613</u>	Site ID	<u>255629</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Upper Makefield Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Bucks</u>
Date Application Received	<u>March 29, 2023</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u></u>	If No, Reason	<u></u>
Purpose of Application	<u>Permit Renewal.</u>		

**Summary of Review**

The applicant requests a renewal of an existing permit to discharge 172,544 gallons per day of treated sewage into on-site groundwater recharge basins and to the Delaware River.

An existing treatment plant was built in 1985 and was permitted to discharge 100,000 gpd of treated sewage from the Heritage Hills Subdivision. In 2002, the applicant requested to accept, treat, and discharge an additional flow of 72,522 gpd from the "The Arbors at Washington Crossing," an age-restricted residential development. At the request of the township and as required under Act 537 approval, the applicant is allowed to discharge 50,000 gpd directly to the Delaware River via Outfall 001, while the remaining 122,544 gpd will be discharged to groundwater recharge basins within the development. Any overflow from the recharge basins will flow into the Pennsylvania Canal and Hough's Creek via Outfall 002. WQM permit 0984422 A2 was issued on September 26, 2002, for upgrade and modifications to the treatment plant.

The previous NPDES permit had two sets of effluent limits. One for direct discharge to the Delaware River with secondary treatment and the other set for the recharge basin with tertiary treatment. Since then, this part of the Delaware River has been designated as "Special Protection Waters" by the Delaware River Basin Commission. Therefore, any increase or expansion in the flow will result into stringent effluent limits to reflect SPW discharge.

The effluent limits for discharge into recharge basins are calculated assuming groundwater discharge. As the treatment plant is designed for tertiary treatment, this permit renewal includes the same limits for discharge to the Delaware River and to groundwater recharge basins.

The treatment plant is designed for 172,544 gpd. Based on the allowable discharge to the 14 recharge basins, the maximum total discharge to the basins would be 159,020 gpd. The maximum flow of 50,000 gpd can be discharged to the Delaware River via Outfall 001. The remaining effluent can be discharged to any number of primary or secondary basins at the

Approve	Deny	Signatures	Date
X		<i>Ketan Thaker</i> Ketan Thaker / Project Manager	3/4/2024
X		<i>Pravin Patel</i> Pravin C. Patel, P.E. / Environmental Engineer Manager	03/04/2024

**Summary of Review**

discretion of the plant operator and Upper Makefield Township. However, during an emergency situation when the permitted effluent cannot be discharged to recharge basin areas, the maximum discharge to the Delaware River will be 172,544 GPD.

The sewage treatment plant consists of a sewage pumping station, a grinder, an equalization tank, two oval-shape extended aeration with mechanical aerators, two anoxic tanks, one oxygen uptake tank, two final clarifiers, gravity sand filters, UV disinfection, a chlorination and de-chlorination tank, a sludge holding tank, sludge drying beds, a recharge pump station, and a distribution system.

Department issued WQM Permit 0917402 for installation of UV disinfection system at sewage treatment plant on November 9, 2017. The UV disinfection system has replaced the gas chlorination system. However, the chlorine disinfection system will remain in place as an emergency along with sodium bisulfite.

The applicant is in generally compliance with existing permit limits. Effluent limits for all the parameters will remain the same for this permit renewal. Monitoring requirement for E. Coli is added for this permit renewal and is consistent with SOP.

The current NPDES permit allows direct discharge of 50,000 gpd of treated sewage into Delaware River through outfall 001 and 122,544 gpd of treated sewage into 14 groundwater recharge basins through outfall 002. Permittee has indicated that they have difficulties with recharge basins, and they would like to discharge all treated sewage to Delaware River. However, permittee has not received the required planning approval yet. The permittee must get their 537 Plan amended/approved from our Planning Section for this change. The permittee then can apply for NPDES permit amendment after their planning approval.

The following are the effluent limits for discharge to the Delaware River (Outfall 001) and to the recharge basins (Outfall 002) and are based on protection of groundwater:

Parameters	Effluent Limits (av. mo. mg/l)	Basis
CBOD5	10	Groundwater Protection
Total Suspended Solids	10	Groundwater Protection
Ammonia as N	3.0	Groundwater Protection
Fecal Coliform	200 #/100 ml	Pa 92a.47
Dissolved Oxygen	5.0 (minimum)	BPJ
pH (STD units)	6.0 to 9.0 SU	Pa 92a.47, 95.2
Total Residual Chlorine	0.23	TRC Spreadsheet
Total Phosphorus	Report	Pa 92a.61
Total Nitrogen	Report	Pa 92a.61
UV Intensity (mW/cm <sup>2</sup> )	Report	BPJ
E. Coli	Report	Pa 92a.47

Upper Makefield Township and Bucks County received Act-14 written notification on January 27, 2023 by certified mail regarding this application to the Department.

Sludge use and disposal description and location(s): 1-2% liquid sludge sent to Hatfield WWTP for further treatment and disposal and the rest of sludge sent to for incineration.

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.	<u>001</u>	Design Flow (MGD)	<u>0.172</u>
Latitude	<u>40° 17' 42.60"</u>	Longitude	<u>-74° 52' 5.94"</u>
Quad Name	_____	Quad Code	_____
Wastewater Description: <u>Sewage Effluent</u>			

Receiving Waters	<u>Delaware River (WWF, MF)</u>	Stream Code	<u>00002</u>
NHD Com ID	<u>26066826</u>	RMI	<u>142.4700</u>
Drainage Area	_____	Yield (cfs/mi <sup>2</sup> )	_____
Q <sub>7-10</sub> Flow (cfs)	_____	Q <sub>7-10</sub> Basis	_____
Elevation (ft)	_____	Slope (ft/ft)	_____
Watershed No.	<u>2-E</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	_____	Existing Use Qualifier	_____
Exceptions to Use	_____	Exceptions to Criteria	_____

Assessment Status	<u>Impaired</u>
Cause(s) of Impairment	<u>MERCURY</u>
Source(s) of Impairment	<u>SOURCE UNKNOWN</u>
TMDL Status	<u>Final</u> Name <u>Delaware River Estuary PCB TMDLs</u>

Background/Ambient Data	Data Source
pH (SU)	_____
Temperature (°F)	_____
Hardness (mg/L)	_____
Other:	_____

Nearest Downstream Public Water Supply Intake	
PWS Waters	_____ Flow at Intake (cfs) _____
PWS RMI	_____ Distance from Outfall (mi) _____

**Discharge, Receiving Waters and Water Supply Information**

Outfall No.	<u>002</u>	Design Flow (MGD)	<u>.159</u>
Latitude	<u>40° 17' 6.60"</u>	Longitude	<u>-74° 53' 7.98"</u>
Quad Name	_____	Quad Code	_____
Wastewater Description: <u>Sewage Effluent</u>			

Receiving Waters	<u>Houghs Creek (WWF, MF)</u>	Stream Code	_____
NHD Com ID	<u>26043924</u>	RMI	_____
Drainage Area	_____	Yield (cfs/mi <sup>2</sup> )	_____
Q <sub>7-10</sub> Flow (cfs)	_____	Q <sub>7-10</sub> Basis	_____
Elevation (ft)	_____	Slope (ft/ft)	_____
Watershed No.	<u>2-E</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	_____	Existing Use Qualifier	_____
Exceptions to Use	_____	Exceptions to Criteria	_____
Assessment Status	<u>Attaining Use(s)</u>		

Cause(s) of Impairment \_\_\_\_\_

Source(s) of Impairment \_\_\_\_\_

TMDL Status \_\_\_\_\_ Name \_\_\_\_\_

Background/Ambient Data	Data Source
pH (SU)	_____
Temperature (°F)	_____
Hardness (mg/L)	_____
Other:	_____

Nearest Downstream Public Water Supply Intake \_\_\_\_\_

PWS Waters	_____	Flow at Intake (cfs)	_____
PWS RMI	_____	Distance from Outfall (mi)	_____

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Heritage Hills WWTP				
<b>WQM Permit No.</b>		<b>Issuance Date</b>		
0917402		11/9/2017		
0984422 A2		9/26/2002		
<b>Waste Type</b>	<b>Degree of Treatment</b>	<b>Process Type</b>	<b>Disinfection</b>	<b>Avg Annual Flow (MGD)</b>
Sewage	Secondary	Activated Sludge	Ultraviolet	0.1725
<b>Hydraulic Capacity (MGD)</b>	<b>Organic Capacity (lbs/day)</b>	<b>Load Status</b>	<b>Biosolids Treatment</b>	<b>Biosolids Use/Disposal</b>
0.1		Not Overloaded		

**Compliance History**

**DMR Data for Outfall 001 (from February 1, 2023 to January 31, 2024)**

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Total Dissolved Solids (mg/L) Average Quarterly		584			611			598			612	

**DMR Data for Outfall 002 (from February 1, 2023 to January 31, 2024)**

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (GPD) Average Monthly	0.047	0.0485	0.0469	0.0431	0.0383	0.0381	0.0374	0.0352	0.035	0.0362	0.0382	0.0405
Flow (GPD) Daily Maximum	0.0765	0.853	0.0778	0.0596	0.0745	0.0573	0.0618	0.0511	0.0652	0.0672	0.0625	0.0525
pH (S.U.) Instantaneous Minimum	7.48	6.98	7.05	7.01	7.11	7.28	7.21	7.16	7.27	7.17	7.06	7.44
pH (S.U.) Instantaneous Maximum	8.15	7.69	7.82	7.84	8.01	8.14	8.05	7.95	7.96	7.97	7.84	8.02
DO (mg/L) Instantaneous Minimum	7.86	7.43	8.38	8.07	7.41	7.48	7.13	7.16	7.61	7.45	7.27	8.21
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (lbs/day) Average Monthly	2.7	< 0.8	< 0.8	< 0.6	< 0.7	< 0.6	< 0.5	< 0.6	< 0.7	< 0.5	< 0.9	< 0.7
CBOD5 (mg/L) Average Monthly	8	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
BOD5 (lbs/day) Raw Sewage Influent   Average Monthly	109	128	134	78	45	64	99	91	352	60	120	158

**NPDES Permit Fact Sheet  
Heritage Hills WWTP**

**NPDES Permit No. PA0052035**

BOD5 (mg/L) Raw Sewage Influent   Average Monthly	306	311	345	266	140	229	381	274	335	253	302	472
TSS (lbs/day) Average Monthly	2.8	1.3	1.6	< 0.4	< 0.3	< 0.3	< 0.8	< 0.3	0.3	< 0.7	< 0.7	0.3
TSS (lbs/day) Raw Sewage Influent   Average Monthly	127	181	151	111	< 55	115	76	142	143	86	148	454
TSS (mg/L) Average Monthly	8	4	5	< 2	< 1	< 1	< 3	< 1	1	< 3	< 2	1
TSS (mg/L) Raw Sewage Influent   Average Monthly	339	444	399	378	< 177	405	290	427	472	362	383	152
Fecal Coliform (No./100 ml) Geometric Mean	> 796.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	> 20000.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
UV Intensity (mW/cm <sup>2</sup> ) Daily Minimum	0.9	1.1	0.8	1.5	1.8	1.9	3.0	2.0	2.3	1.6	0.7	0.7
Total Nitrogen (mg/L) Average Monthly	27.48	< 16.06	< 29.34	< 28.07	26.93	< 20.15	< 14.89	< 18.72	< 18.83	< 18.72	< 21.47	< 20.21
Ammonia (lbs/day) Average Monthly	5.4	< 0.008	< 0.01	< 0.006	0.02	0.006	0.03	0.02	< 0.02	< 0.01	< 0.008	< 0.007
Ammonia (mg/L) Average Monthly	17.2	< 0.02	< 0.04	< 0.02	0.1	0.02	0.1	0.1	< 0.1	< 0.1	< 0.02	< 0.02
Total Phosphorus (mg/L) Average Monthly	4.41	4.46	5.89	6.06	6.8	7.13	5.92	7.31	5.89	5.66	5.4	5.13

**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” (386-0400-001), 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	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (GPD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.23	XXX	0.45	1/day	Grab
CBOD5	14.3	XXX	XXX	10	XXX	20	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	14.3	XXX	XXX	10	XXX	20	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
UV Intensity (mW/cm <sup>2</sup> )	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered



Outfall001 , 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	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Ammonia	4.3	XXX	XXX	3.0	XXX	6	2/month	24-Hr Composite
Nitrate May 1 - Sep 30	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Compliance Sampling Location:

Other Comments:

**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” (386-0400-001), SOPs and/or BPJ.

**Outfall 002, 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	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (GPD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.23	XXX	0.45	1/day	Grab
CBOD5	13.3	XXX	XXX	10	XXX	20	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	13.3	XXX	XXX	10	XXX	20	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
UV Intensity (mW/cm <sup>2</sup> )	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Outfall 002, 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	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Ammonia	4.0	XXX	XXX	3.0	XXX	6	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite