pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Northwest Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0218812** |
| Facility Type | **Municipal** | APS ID | **1038432** |
| Major / Minor | **Minor** | Authorization ID | **1354020** |

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Indiana County Municipal Service Authority** | Facility Name | **Hillsdale STP** |
| Applicant Address | 602 Kolter Drive | Facility Address | 893 Rowley Cemetery Road |
| | Indiana, PA 15701-3570 | | Indiana, PA 15701 |
| Applicant Contact | Tricia Lefko | Facility Contact | Robert Allenbaugh |
| Applicant Phone | (724) 349-6640 | Facility Phone | (724) 349-6640 |
| Client ID | 38534 | Site ID | 534659 |
| Ch 94 Load Status | | Municipality | Montgomery Township |
| Connection Status | | County | Indiana |
| Date Application Received | April 27, 2021 | EPA Waived? | Yes |
| Date Application Accepted | | If No, Reason | |

Purpose of Application: NPDES permit renewal for a municipal sewage treatment plant.

## Summary of Review

This is an existing discharge for a minor sewage treatment facility.

Act 14 – Proof of Notification was submitted and received.

Existing treatment consists of (WQM Permit No. 3202405): Flow enters lift station where it's pumped through a grinder to an equalization tank. A splitter box equally divides flow into two aeration tanks, then to two clarifiers. Clarifier sludge is either returned to aeration or sent to one waste tank. Clarifier effluent flows through an ultraviolet (UV) disinfection chamber, then is discharged.

There are 10 open violations in WMS for the subject Client ID (38534) as of 12/21/2023, all for Safe Drinking Water violations at facilities other than this one. *Permittee will be notified of open violations in the draft permit cover letter and given an opportunity to address the violations prior to final permit issuance. CWY 12/22/2023*

Annual monitoring for E. Coli has been added per Department SOP for new and reissued NPDES permits with design flows exceeding 2000 GPD.

The EPA Waiver is in effect.

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*

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Jordan A. Frey, E.I.T.<br>Jordan A. Frey, E.I.T. / Project Manager | December 21, 2023 |
| X | | Chad W. Yurisic<br>Chad W. Yurisic, P.E. / Environmental Engineer Manager | 12/22/2023 |

| **Summary of Review** |
| --- |
| *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) | .055 |
| Latitude | 40Âº 50' 16.76" | Longitude | -78Âº 52' 9.26" |
| Quad Name | | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Unnamed Tributary to Straight Run (HQ-CWF) | Stream Code | 27100 |
| NHD Com ID | 123854606 | RMI | 7.8 |
| Drainage Area | 1.54 | Yield (cfs/mi$^2$) | 0.1 |
| $Q_{7-10}$ Flow (cfs) | 0.154 | $Q_{7-10}$ Basis | Streamstats |
| Elevation (ft) | 1568 | Slope (ft/ft) | --- |
| Watershed No. | 17-D | Chapter 93 Class. | HQ-CWF |
| Existing Use | | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Attaining Use(s) | | |
| Cause(s) of Impairment | | | |
| Source(s) of Impairment | | | |
| TMDL Status | | Name | |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7.0 | Default |
| Temperature (°F) | 20 | Default |
| Hardness (mg/L) | 100 | Default |
| Other: | | |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | | PA American Water Company | |
| PWS Waters | West Branch – Susquehanna River | Flow at Intake (cfs) | |
| PWS RMI | | Distance from Outfall (mi) | |

Changes Since Last Permit Issuance: None.

Other Comments: None.

**Treatment Facility Summary**

**Treatment Facility Name:** Hillsdale STP

| WQM Permit No. | Issuance Date |
|---|---|
| 3202405 | 10/27/2003 |
| | |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Secondary with Ammonia Nitrogen removal | Extended Aeration | UV | 0.02 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 0.055 | 110 | Not Overloaded | Aerobic Digestion | |

Changes Since Last Permit Issuance: None

Other Comments: The Hillsdale STP consists of the following treatment units:

- A comminutor and automatic bypass bar screen.
- A 19,944 gallon capacity flow equalization basin.
- Two parallel aeration basins each having a capacity of 27,500 gallons.
- Two final clarifiers.
- A 10,233 gallon aerobic digester.
- An ultraviolet disinfection system.

The plant was designed for an organic capacity of 81.2 lbs. BOD5/day but has an actual available organic capacity of 110.3 lbs. BOD5/day

| Compliance History | |
|---|---|
| | |
| **Summary of DMRs:** | Facility exceeded Ammonia-Nitrogen both monthly average and IMAX limits in one month (May 2017) since the previous permit was issued<br><br>Facility fell below the minimum for Dissolved Oxygen five times during the same period, 4/2019, 4/2022, 5/2022, 7/2022, 10/2022 |
| **Summary of Inspections:** | Facility has not been inspected in several years. |

Other Comments: Client has 10 Open Violations as of 12/7/2023, but none for this facility

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** .055
**Latitude** 40º 50' 26.00" **Longitude** -78º 52' 9.00"
**Wastewater Description:** 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 | 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) |
| E. Coli | Report | IMAX | | 92a.61 |

Comments: E. Coli monitoring is based on the Department's SOP for new and reissued permits

### Water Quality-Based Limitations

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

| Parameter | Limit (mg/l) | SBC | Model |
|---|---|---|---|
| $CBOD_5$ | 25 | Average Monthly | WQM 7.0, v1.1b |
| $NH_3$-N (May 1 – Oct 31) | 5.98 | Average Monthly | WQM 7.0, v1.1b |
| $NH_3$-N (Nov 1 – Apr 31) | 17.94 | Average Monthly | WQM 7.0, v1.1b |
| Dissolved Oxygen | 3.0 | Minimum | WQM 7.0, v1.1b |

Comments: Dissolved Oxygen, Ammonia-Nitrogen and CBOD5 limits calculated by WQM were less stringent than existing limits, so the existing limits will be kept due to anti-backsliding policies (see below).

### Best Professional Judgment (BPJ) Limitations

Comments: Previous permit cycles gave less stringent CBOD5 limits for months November-April. CBOD5 limits of 9.2 lbs/day, 20.0 mg/l monthly average, and 40.0 mg/l IMAX are now imposed year-round. The facility's eDMR data shows the facility is easily capable of meeting these limits all year, which makes the previously less-stringent winter limits unnecessary.

### Anti-Backsliding

Less stringent limits for Dissolved Oxygen, Ammonia-Nitrogen and CBOD5 were calculated by WQM, but since the facility has demonstrated an ability to meet the current limits they will be retained in accordance with the EPA anti-backsliding policy.

## Disinfection

Ultraviolet (UV) disinfection is used therefore Total Residual Chlorine (TRC) limits are not applicable. Routine monitoring of UV intensity will be at the same monitoring frequency that is used for TRC.

## MASS LOADINGS

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for $CBOD_5$, TSS, and $NH_3$-N. Average monthly mass loading limits (lbs./day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

## TN and TP MONITORING

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 flows > 2,000 gpd require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus. Annual monitoring is used for facilities that are not in impaired waters for nutrients.

## Monitoring Frequency Considerations

Monitoring frequencies were established in accordance with Table 6-3, Self-Monitoring Requirements for Sewage Discharges, Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, 362-0400-001

## Chesapeake Bay and further TN and TP Monitoring

According to Phase 3 Watershed Implementation Plan (WIP) Wastewater Supplement Revised July 29, 2022, Section II, pg. 17, the Hillsdale STP is considered a non-significant Phase 5 facility because its design annual average daily flow of 0.055 mgd is less than 0.2 mgd and greater than 0.002 mgd. The permittee has no plans to expand the Hillsdale STP. Annual monitoring for TN and TP will be retained in accordance with Section II, pg. 17 of the Phase 3 WIP.

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## 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) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Average Monthly | Average Monthly | Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | XXX | XXX | XXX | XXX | XXX | 2/month | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 1/day | Grab |
| DO | XXX | XXX | 6.0 | XXX | XXX | XXX | 1/day | Grab |
| CBOD5 | 9.2 | XXX | XXX | 20.0 | XXX | 40 | 2/month | Grab |
| BOD5<br>Raw Sewage Influent | Report | XXX | Report | XXX | XXX | XXX | 2/month | Grab |
| TSS | 13.8 | XXX | XXX | 30.0 | XXX | 60.0 | 2/month | Grab |
| TSS<br>Raw Sewage Influent | Report | XXX | Report | XXX | XXX | XXX | 2/month | Grab |
| Fecal Coliform (No./100 ml)<br>Oct 1 - Apr 30 | XXX | XXX | XXX | 2000<br>Geo Mean | XXX | 10000 | 2/month | Grab |
| Fecal Coliform (No./100 ml)<br>May 1 - Sep 30 | XXX | XXX | XXX | 200<br>Geo Mean | XXX | 1000 | 2/month | Grab |
| E. Coli (No./100 ml) | XXX | XXX | XXX | Report<br>Avg Qrtly | XXX | XXX | 1/quarter | Grab |
| UV Transmittance (%) | XXX | XXX | Report<br>Min Mo Avg | Report | XXX | XXX | 1/day | Recorded |
| Total Nitrogen | XXX | XXX | XXX | Report<br>Daily Max | XXX | XXX | 1/year | Grab |
| Ammonia<br>Nov 1 - Apr 30 | 1.3 | XXX | XXX | 2.8 | XXX | 5.6 | 2/month | Grab |
| Ammonia<br>May 1 - Oct 31 | 0.9 | XXX | XXX | 1.9 | XXX | 3.8 | 2/month | Grab |
| Total Phosphorus | XXX | XXX | XXX | Report<br>Daily Max | XXX | XXX | 1/year | Grab |

Compliance Sampling Location: Outfall 001, after disinfection.
Other Comments: None.

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 08B | 27100 | CUSH CREEK |

## 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 |
|---|---|---|---|---|---|---|---|
| 7.800 | Hillsdale STP | 8.18 | 17.66 | 8.18 | 17.66 | 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 |
|---|---|---|---|---|---|---|---|
| 7.800 | Hillsdale STP | 1.73 | 5.98 | 1.73 | 5.98 | 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) | | |
| 7.80 | Hillsdale STP | 25 | 25 | 5.98 | 5.98 | 3 | 3 | 0 | 0 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| 08B | 27100 | CUSH CREEK | **7.800** | 1568.00 | 1.54 | 0.00000 | 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** | 0.100 | 0.00 | 0.15 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 20.00 | 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 |
|---|---|---|---|---|---|---|---|
| Hillsdale STP | PA0218812 | 0.0270 | 0.0550 | 0.0550 | 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 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| 08B | 27100 | CUSH CREEK | **4.100** | 1377.00 | 5.82 | 0.00000 | 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** | 0.100 | 0.00 | 0.58 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 20.00 | 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 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 08B | 27100 | CUSH CREEK |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 7.800 | 0.055 | 21.779 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 6.588 | 0.400 | 16.456 | 0.091 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 10.19 | 0.601 | 2.13 | 0.803 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 6.377 | 24.641 | Owens | 6 |
| **Reach Travel Time (days)** | | | |
| 2.495 | | | |

Subreach Results

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.249 | 8.66 | 1.74 | 7.98 |
| 0.499 | 7.35 | 1.43 | 7.98 |
| 0.748 | 6.25 | 1.17 | 7.98 |
| 0.998 | 5.31 | 0.95 | 7.98 |
| 1.247 | 4.51 | 0.78 | 7.98 |
| 1.497 | 3.84 | 0.64 | 7.98 |
| 1.746 | 3.26 | 0.52 | 7.98 |
| 1.996 | 2.77 | 0.43 | 7.98 |
| 2.245 | 2.35 | 0.35 | 7.98 |
| 2.495 | 2.00 | 0.29 | 7.98 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 08B | 27100 | CUSH CREEK |

| 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) |
|---|---|---|---|---|---|---|---|
| 7.800 | Hillsdale STP | PA0218812 | 0.027 | CBOD5 | 25 | | |
| | | | | NH3-N | 5.98 | 11.96 | |
| | | | | Dissolved Oxygen | | | 3 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 08B | 27100 | CUSH CREEK |

| 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** | | | | | | | | | | | | |
| 7.800 | 0.15 | 0.00 | 0.15 | .0851 | 0.00978 | .4 | 6.59 | 16.46 | 0.09 | 2.495 | 21.78 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 7.800 | 0.10 | 0.00 | 0.10 | .0851 | 0.00978 | NA | NA | NA | 0.08 | 2.892 | 22.32 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 7.800 | 0.21 | 0.00 | 0.21 | .0851 | 0.00978 | NA | NA | NA | 0.10 | 2.220 | 21.44 | 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 | 6 | | |