pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Southcentral Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0081850** |
| Facility Type | **Industrial** | APS ID | **1084** |
| Major / Minor | **Minor** | Authorization ID | **1255156** |

# NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Gettysburg Borough Municipal Authority Adams County** | Facility Name | **Gettysburg Municipal Authority Water System** |
| Applicant Address | 601 E Middle Street, PO Box 3307 | Facility Address | Water Works Road |
| | Gettysburg, PA 17325-1951 | | Gettysburg, PA 17325 |
| Applicant Contact | Mark Guise | Facility Contact | Mark Guise |
| Applicant Phone | (717) 334-6738 | Facility Phone | (717) 334-6738 |
| Client ID | 78262 | Site ID | 239068 |
| SIC Code | 4941 | Municipality | Cumberland Township |
| SIC Description | Trans. & Utilities - Water Supply | County | Adams |
| Date Application Received | November 30, 2018 | EPA Waived? | Yes |
| Date Application Accepted | December 13, 2018 | If No, Reason | |
| Purpose of Application | NPDES permit renewal. | | |

## Summary of Review

Gettysburg Municipal Authority has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit No. PA0081850 was last reissued on May 23, 2014 and became effective on June 1, 2014. The permit expired on May 31, 2019 but the terms and conditions of the permit have been extended since that time.

The treatment plant is designed for 100% recycle of filter backwash water and treatment plant overflow. However, in the event that 100% recycle is not possible, the authority has chosen to continue to renew the NPDES permit for the discharge. Outfall 001 discharges to a dry swale which flows to Marsh Creek. The point of first use is the confluence with Marsh Creek approximately 8.14 miles.

Marsh Creek is classified as Cold-Water Fishes (CWF) according to chapter 93. The design flow is 0.215 MGD. According to previous protection reports, inspection reports, and DMR data, there has been only one discharge from this facility (on December 2018) since June 01, 2014.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and publish in the Pennsylvania Bulletin for public comments for 30 days.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Hilary H. Le / Environmental Engineering Specialist | December 23, 2019 |
| | | Daniel W. Martin, P.E. / Environmental Engineer Manager | |
| | | Maria D. Bebenek, P.E. / Clean Water Program Manager | |

| **Discharge, Receiving Waters and Water Supply Information** | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 0.215 |
| Latitude | 39º 47' 49.8" | Longitude | -77º 16' 28.7" |
| Quad Name | Fairfield | Quad Code | |
| Wastewater Description: | Sludge thickener decant | | |
| Receiving Waters | Marsh Creek (CWF) | Stream Code | NA (dry swale) (58903) |
| NHD Com ID | 53320624 | RMI | 8.14 mile |
| Drainage Area | 56.4 mi.$^2$ | Yield (cfs/mi$^2$) | 0.05 cfs/mi.$^2$ |
| $Q_{7-10}$ Flow (cfs) | 2.85 | $Q_{7-10}$ Basis | USGS StreamStats |
| Elevation (ft) | 460.67 | Slope (ft/ft) | |
| Watershed No. | 13-D | Chapter 93 Class. | CWF |
| Existing Use | | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Not Assessed | | |
| Cause(s) of Impairment | | | |
| Source(s) of Impairment | | | |
| TMDL Status | | Name | |
| Nearest Downstream Public Water Supply Intake | City of Frederick, Maryland | | |
| PWS Waters | Monocacy River | Flow at Intake (cfs) | |
| PWS RMI | | Distance from Outfall (mi) | Approximate 40 miles |

*Drainage Area*
The discharge is to Marsh Creek at RMI 8.14 miles. A drainage area upstream of the discharge is estimated to be 56.4 mi.$^2$, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

*Stream Flow*
According to the previous protection report, the discharge is to a dry swale to Marsh Creek (58903). According to USGS StreamStats available at https://streamstats.usgs.gov/ss/, the discharge point has a $Q_{7-10}$ of 2.85 cfs and a drainage area of 56.4 mi.$^2$, which results in a theoretical low flow yield of 0.05 cfs/mi.$^2$ (2.85 cfs / 56.4 mi.$^2$).

The resulting $Q_{7-10}$ dilution ratio is: $Q_{stream}$ / $Q_{discharge}$ = 2.85 cfs / [0.215 MGD * (1.55 cfs/MGD)] = 8.55:1

*Public Water Supply*
The nearest downstream public water supply intake is for the city of Frederick, Maryland on the Monocacy River, approximately 40 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

| Treatment Facility Summary | | | | |
|---|---|---|---|---|
| **Treatment Facility Name:** Gettysburg Water Treatment Plant | | | | |
| **WQM Permit No.** | **Issuance Date** | | | |
| | | | | |
| | | | | |
| **Waste Type** | **Degree of Treatment** | **Process Type** | **Disinfection** | **Avg Annual Flow (MGD)** |
| Industrial | Primary | Sedimentation Tanks | No Disinfection | 0.215 |
| | | | | |
| **Hydraulic Capacity (MGD)** | **Organic Capacity (lbs/day)** | **Load Status** | **Biosolids Treatment** | **Biosolids Use/Disposal** |
| 0.215 | | Not Overloaded | | |

Changes Since Last Permit Issuance: none

Other Comments: The treatment facility consists only of a gravity sludge thickener (used to treat filter backwash). Supernatant from the sludge thickener is designed to be recycled back through the water treatment plant with a discharge only occurring in emergency situations. Sludge is hauled out periodically.

| Compliance History | |
|---|---|
| **Summary of DMRs:** | There were Discharge Monitoring Reports (DMRs) reports but there were no data because there has been only one discharge from the facility (on December 2018) since June 1, 2014. |
| **Summary of Inspections:** | 10/30/2017: Mr. Bowen, DEP WQS, conducted compliance evaluation inspection. There were no violations noted during inspection. NPDES permitted outfall receives flow from a gravity overflow standpipe on the water treatment plant backwash gravity thickener. Filters are generally backwashed once per three days. Sludge is removed from the thickener approximately every 12 weeks and hauled to Maryland for land application. |
| **Other Comments:** | There are no open violations associated with this facility or permittee. |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 0.215
**Latitude** 39º 47' 49.8" **Longitude** -77º 16' 28.7"

**Wastewater Description:** Sludge thickener decant

### Technology-Based Limitations

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

| Parameter | Limit (mg/l) | SBC | Federal Regulation | State Regulation |
|---|---|---|---|---|
| pH | 6.0 – 9.0 S.U. | Min – Max | 133.102(c) | 95.2(1) |
| Total Residual Chlorine | 0.5 | Average Monthly | - | 92a.48(b)(2) |

### Water Quality-Based Limitations

***Effluent Limitations Evaluation:***
The previous protection report developed limitations based on Best Practicable Control Technology Currently Available (BPT), according to guidance document 362-2183-003 (*Technology-Based Control Requirements for Water Treatment Plant Wastes*).

The attached Total Residual Chlorine (TRC) Excel spreadsheet calculator, which uses the equations and calculations from guidance document 391-2000-015, was also used (Pages # 6). However, the limits from the existing permit will remain in the proposed permit since they are more stringent.

The Department's guidance document for discharges to "dry streams" (391-2000-014) states that "for wastewater discharges other than discharges of treated sewage and similar oxygen-consuming wastes, no additional treatment requirements are applicable under this guidance. However, federal Effluent Limitation Guidelines (ELGs) are still applicable, and other technology-based requirements may be applied consistent with regional requirements."

As noted in the previous protection report, document 362-2183-003 states that due to the cost of finished water quality concern, Best Available Technology Economically Achievable (BAT) options may not be feasible. Therefore, it may not be appropriate to require further effluent reduction to controls beyond BPT options. Except where the recycle of wastewater is feasible, BAT and Best Conventional Pollutant Control Technology (BCT) should be equivalent to BPT.

This facility has chosen to recycle as the first option for disposal of the backwash water and overflow. Therefore, BPT-based limitations are appropriate for this facility.

The guidance document defines BPT technology-based effluent control requirements as follows:

| Parameter | Monthly Average (mg/L) | Daily Maximum (mg/L) |
|---|---|---|
| Total Suspended Solids | 30 | 60 |
| Total Iron | 2 | 4 |
| Total Aluminum | 4 | 8 |
| Total Manganese | 1 | 2 |
| Flow | Monitor | |
| pH | 6 to 9 at all times | |
| Total Residual Chlorine | 0.5 | 1.0 |

The limits in the above table are equivalent to the existing permit limits. It is recommended that all existing effluent limitations remain in effect.

***Toxics:***
An evaluation of the data submitted with the permit application and the previous protection reports indicates that there are no additional parameters of concern.

***Chesapeake Bay Strategy:***
The Supplement to Phase II Watershed Implementation Plan states the following (Pages # 19): "*For non-significant Industrial Waste (IW) facilities, monitoring and reporting of Total Nitrogen (TN) and Total Phosphorus (TP) will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. In general, facilities that discharge groundwater and cooling water with no addition of chemicals containing N or P do not require monitoring.*"

This is a non-significant industrial discharge facility that will not need a phosphorus or nitrogen loading cap. TN and TP "Monitor & Report" requirement will not be necessary since this facility discharges groundwater without any chemical additives containing nitrogen or phosphorus.

**Antidegradation (93.4)**

The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

**303d Listed Streams**

The discharge is not located on a 303d listed stream segment.

**Class A Wild Trout Fisheries**

No Class A Wild Trout Fisheries are impacted by this discharge.

**TRC Spreadsheet:**

## TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 2.85 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.215 | = Q discharge (MGD) | 0.5 | = CV Hourly |
| 30 | = no. samples | 1 | = 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) |
| 0 | = % Factor of Safety (FOS) | | =Decay Coefficient (K) |

| Source | Reference | AFC Calculations | Reference | CFC Calculations |
|---|---|---|---|---|
| TRC | 1.3.2.iii | WLA afc = 2.752 | 1.3.2.iii | WLA cfc = 2.676 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 1.026 | 5.1d | LTA_cfc = 1.556 |

| Source | | Effluent Limit Calculations | |
|---|---|---|---|
| PENTOXSD TRG | 5.1f | AML MULT = 1.231 | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = 0.500 | BAT/BPJ |
| | | INST MAX LIMIT (mg/l) = 1.635 | |

| | |
|---|---|
| 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)** |

## Existing Effluent Limitations and Monitoring Requirements

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) | | Concentrations (mg/L) | | | | Minimum Measurement Frequency | Required Sample Type |
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report | XXX | XXX | XXX | XXX | Daily when Discharging | Estimate |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | Daily when Discharging | Grab |
| Total Residual Chlorine | XXX | XXX | XXX | 0.5 | XXX | 1.0 | Daily when Discharging | Grab |
| Total Suspended Solids | XXX | XXX | XXX | 30 | 60 | 75 | 2/month | 8-Hr Composite |
| Total Aluminum | XXX | XXX | XXX | 4.0 | 8.0 | 10.0 | 2/month | 8-Hr Composite |
| Total Iron | XXX | XXX | XXX | 2.0 | 4.0 | 5.0 | 2/month | 8-Hr Composite |
| Total Manganese | XXX | XXX | XXX | 1.0 | 2.0 | 2.5 | 2/month | 8-Hr Composite |

## 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 | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report | XXX | XXX | XXX | XXX | Daily when Discharging | Estimate |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | Daily when Discharging | Grab |
| TRC | XXX | XXX | XXX | 0.5 | XXX | 1.0 | Daily when Discharging | Grab |
| TSS | XXX | XXX | XXX | 30 | 60 | 75 | 2/month | 8-Hr Composite |
| Total Aluminum | XXX | XXX | XXX | 4.0 | 8.0 | 10 | 2/month | 8-Hr Composite |
| Total Iron | XXX | XXX | XXX | 2.0 | 4.0 | 5 | 2/month | 8-Hr Composite |
| Total Manganese | XXX | XXX | XXX | 1.0 | 2.0 | 2.5 | 2/month | 8-Hr Composite |

Compliance Sampling Location:

Other Comments: No changes are being made to the existing permit limits.

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☐ | WQM for Windows Model (see Attachment ) |
| ☐ | PENTOXSD for Windows Model (see Attachment ) |
| ☒ | TRC Model Spreadsheet (see Attachment ) |
| ☐ | Temperature Model Spreadsheet (see Attachment ) |
| ☐ | Toxics Screening Analysis Spreadsheet (see Attachment ) |
| ☐ | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| ☒ | Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98. |
| ☐ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97. |
| ☐ | Pennsylvania CSO Policy, 385-2000-011, 9/08. |
| ☐ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97. |
| ☒ | Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 391-2000-006, 9/97. |
| ☐ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004. |
| ☐ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004. |
| ☐ | Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97. |
| ☐ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008. |
| ☒ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09. |
| ☐ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97. |
| ☐ | Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99. |
| ☐ | Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999. |
| ☐ | Design Stream Flows, 391-2000-023, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97. |
| ☒ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☐ | SOP: |
| ☐ | Other: |