pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0104426** |
| Facility Type | **Industrial** | APS ID | **1062707** |
| Major / Minor | **Minor** | Authorization ID | **1395187** |

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

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Corner Water Supply & Service Corp** | Facility Name | **Corner Water WTP** |
| Applicant Address | 113 Oakwood Lane | Facility Address | 400 Weaver Lane |
| | Shippenville, PA 16254-8614 | | Shippenville, PA 16254 |
| Applicant Contact | Thomas Weaver | Facility Contact | Thomas Weaver |
| Applicant Phone | (814) 226-5523 | Facility Phone | (814) 226-5523 |
| Client ID | 7130 | Site ID | 449689 |
| SIC Code | 4941 | Municipality | Elk Township |
| SIC Description | Trans. & Utilities - Water Supply | County | Clarion |
| Date Application Received | May 3, 2022 | EPA Waived? | No |
| Date Application Accepted | | If No, Reason | DEP Discretion |

Purpose of Application: NPDES renewal for a treated industrial waste discharge from a public water supply.

## Summary of Review

Act 14 Proof of Notification was received.

Facility not subject to ELGs.

There are no open violations in WMS for the subject Client ID (7130) as of 8/24/2023. *9/22/2023 CWY*

Filter backwash water is treated with caustic soda is utilized to flocculate iron. The generated sludge is dewatered, bagged and hauled to a landfill for disposal.

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.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Jordan A. Frey, E.I.T.<br>Jordan A. Frey, E.I.T. / Project Manager | September 25, 2023 |
| X | | Chad W. Yurisic<br>Chad W. Yurisic, P.E. / Environmental Engineer Manager | 9/25/2023 |

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | .0014 |
| Latitude | 41º 15' 0.25" | Longitude | -79º 26' 32.65" |
| Quad Name | Fryburg | Quad Code | 41079C4 |
| Wastewater Description: | IW Process Effluent without ELG, Water Treatment Effluent | | |

| | | | |
|---|---|---|---|
| Receiving Waters | Paint Creek (CWF) | Stream Code | 49424 |
| NHD Com ID | 102669877 | RMI | 0.3800 |
| Drainage Area | 43 | Yield (cfs/mi$^2$) | 0.11392 |
| $Q_{7-10}$ Flow (cfs) | 4.89 | $Q_{7-10}$ Basis | Mahoning Creek |
| Elevation (ft) | 1178 | Slope (ft/ft) | 0.00188 |
| Watershed No. | 17-B | Chapter 93 Class. | CWF |
| Existing Use | | Existing Use Qualifier | none |
| Exceptions to Use | | Exceptions to Criteria | none |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | METALS, PH, SILTATION | | |
| Source(s) of Impairment | ACID MINE DRAINAGE, ACID MINE DRAINAGE, ACID MINE DRAINAGE | | |
| TMDL Status | Final | Name | Deer Creek (Clarion) |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 4.05 | 3.6 to 4.5 averaged |
| Temperature (°F) | 20 | Default |
| Hardness (mg/L) | 41.9 | NPDES Application, pg. 1 |
| Aluminum (mg/L): | 0.98 | Deer Creek TMDL; PC01 – Mouth of Paint Creek at Route 322 |
| Iron (mg/L): | 1.33 | Deer Creek TMDL; PC01 – Mouth of Paint Creek at Route 322 |
| Manganese (mg/L): | 1.76 | Deer Creek TMDL; PC01 – Mouth of Paint Creek at Route 322 |
| Acidity (mg/L): | 22.45 | Deer Creek TMDL; PC01 – Mouth of Paint Creek at Route 322 |
| Alkalinity (mg/L) | 2.60 | Deer Creek TMDL; PC01 – Mouth of Paint Creek at Route 322 |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | | Parker Area Water Authority | |
| PWS Waters | Allegheny River | Flow at Intake (cfs) | 951 |
| PWS RMI | 83.94 | Distance from Outfall (mi) | >25 |

Changes Since Last Permit Issuance: None.

Other Comments: Ambient stream conditions were established using the Deer Creek TMDL. The Paint Creek receiving waters are impacted by Acid Mine Drainage.

**Treatment Facility Summary**

**Treatment Facility Name:** Corner Water WTP

| WQM Permit No. | Issuance Date |
|---|---|
| 1677202 | Sedimentation |
| 1693201 | Water Softening |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Industrial | Physical (Industrial Waste) | Sedimentation | No Disinfection | 0.0014 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 0.0014 | | | Concentration | Landfill |

Changes Since Last Permit Issuance: None

Other Comments:

## Compliance History

**DMR Data for Outfall 001 (from July 1, 2022 to June 30, 2023)**

| Parameter | JUN-23 | MAY-23 | APR-23 | MAR-23 | FEB-23 | JAN-23 | DEC-22 | NOV-22 | OCT-22 | SEP-22 | AUG-22 | JUL-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.0017 | 0.0016 | 0.0015 | 0.0014 | 0.0014 | 0.0013 | 0.0015 | 0.0014 | 0.0014 | 0.0014 | 0.0016 | 0.0017 |
| Flow (MGD) Daily Maximum | 0.0021 | 0.0021 | 0.0021 | 0.0021 | 0.0021 | 0.0021 | 0.0021 | 0.0014 | 0.0014 | 0.0024 | 0.0021 | 0.0024 |
| pH (S.U.) Minimum | 12.0 | 11.80 | 12.1 | 12.0 | 11.10 | 11.88 | 11.4 | 12.0 | 12.1 | 11.07 | 11.4 | 11.90 |
| pH (S.U.) Instantaneous Maximum | 12.20 | 12.04 | 12.2 | 12.4 | 12.69 | 11.90 | 12.58 | 12.10 | 12.2 | 12.0 | 12.2 | 12.36 |
| TRC (mg/L) Average Monthly | 0.14 | 0.12 | 0.01 | 0.18 | 0.12 | 0.18 | 0.01 | 0.20 | 0.15 | 0.46 | 0.17 | 0.42 |
| TRC (mg/L) Instantaneous Maximum | 0.14 | 0.12 | 0.01 | 0.18 | 0.12 | 0.18 | 0.01 | 0.20 | 0.15 | 0.46 | 0.17 | 0.42 |
| TSS (mg/L) Average Monthly | 17 | 3 | 10 | 10 | 3 | 5 | 3 | 5 | 31 | 3 | 5 | 21 |
| TSS (mg/L) Daily Maximum | 17 | 3 | 10 | 10 | 3 | 5 | 3 | 5 | 31 | 3 | 5 | 21 |
| Total Aluminum (lbs/day) Average Monthly | < 0.0014 | < 0.0013 | < 0.0013 | < 0.0012 | < 0.0012 | < 0.0011 | < 0.0013 | < 0.0012 | < 0.0012 | < 0.0012 | < 0.0013 | < 0.0014 |
| Total Aluminum (lbs/day) Daily Maximum | < 0.0014 | < 0.0013 | < 0.0013 | < 0.0012 | < 0.0012 | < 0.0011 | < 0.0013 | 0.0012 | < 0.0012 | < 0.0012 | < 0.0013 | < 0.0014 |
| Total Aluminum (mg/L) Average Monthly | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.1 | < 0.1 | < 0.1 |
| Total Aluminum (mg/L) Daily Maximum | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.1 | < 0.1 | < 0.1 |
| Total Iron (lbs/day) Average Monthly | 0.0026 | 0.0025 | 0.0019 | 0.0019 | 0.0013 | 0.0006 | 0.0015 | 0.0016 | 0.0020 | 0.0022 | 0.0007 | 0.0007 |
| Total Iron (lbs/day) Daily Maximum | 0.0026 | 0.0025 | 0.0019 | 0.0019 | 0.0013 | 0.0006 | 0.0015 | 0.0016 | 0.0020 | 0.0022 | 0.0007 | 0.0007 |
| Total Iron (mg/L) Average Monthly | 0.18 | 0.19 | 0.15 | 0.16 | 0.11 | 0.06 | 0.12 | 0.14 | 0.17 | 0.19 | 0.05 | 0.05 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Iron (mg/L)<br>Daily Maximum | 0.18 | 0.19 | 0.15 | 0.16 | 0.11 | 0.06 | 0.12 | 0.14 | 0.17 | 0.19 | 0.05 | 0.05 |
| Total Manganese (lbs/day)<br>Average Monthly | 0.0006 | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0004 | 0.0003 | 0.0003 |
| Total Manganese (lbs/day)<br>Daily Maximum | 0.0006 | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0004 | 0.0003 | 0.0003 |
| Total Manganese (mg/L)<br>Average Monthly | 0.04 | 0.04 | 0.04 | 0.03 | 0.04 | 0.02 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 |
| Total Manganese (mg/L)<br>Daily Maximum | 0.04 | 0.04 | 0.04 | 0.03 | 0.04 | 0.02 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** .0014
**Latitude** 41º 15' 0.00" **Longitude** -79º 26' 33.00"
**Wastewater Description:** IW Process Effluent without ELG, Water Treatment Effluent

### 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 |
|---|---|---|---|---|
| $CBOD_5$ | 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 – 14.0 S.U. | Min – Max | 133.102(c) | 95.2(1)(i) |
| 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) |

Comments: An Instantaneous Maximum pH higher than 9.0 is allowed per Chapter 95.2 (1)(i), so the 14.0 limit will be retained.

### Water Quality-Based Limitations

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

| Parameter | Limit (mg/l) | SBC | Model |
|---|---|---|---|
| Total Aluminum | 4.0 | Average Monthly | Deer Creek TMDL |
| Total Iron | 2.0 | Average Monthly | Deer Creek TMDL |
| Total Manganese | 1.0 | Average Monthly | Deer Creek TMDL |

Comments: None.

### Best Professional Judgment (BPJ) Limitations

Comments: DEP's TRC Spreadsheet recommends an Average Monthly limit of 0.5 mg/L and an Instantaneous Maximum limit of 1.6 mg/L, but the existing Instantaneous Maximum limit of 1.2 mg/L will be retained due to anti-backsliding policy

### Anti-Backsliding

See above comments on TRC limits.

## 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 | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | 1/day | Measured |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 14.0 | 2/month | Grab |
| TRC | XXX | XXX | XXX | 0.5 | XXX | 1.2 | 1/month | Grab |
| TSS | XXX | XXX | XXX | 30 | 60 | 75 | 1/month | 8-Hr Composite |
| Total Aluminum | 0.03 | 0.06 Daily Max | XXX | 4.0 | 8.0 | 10 | 1/month | 8-Hr Composite |
| Total Iron | 0.02 | 0.04 Daily Max | XXX | 2.0 | 4.0 | 5 | 1/month | 8-Hr Composite |
| Total Manganese | 0.01 | 0.02 Daily Max | XXX | 1.0 | 2.0 | 2.5 | 1/month | 8-Hr Composite |

Compliance Sampling Location: Outfall 001, after disinfection.

Other Comments: The mass limits for Total Aluminum, Total Iron, and Total Manganese were established in the Deer Creek TMDL on Table 52. Waste Load Allocation for permitted Industrial discharge. TSS limits are technology-based on potable water treatment backwash wastewater from the NPDES Permit Writers' Manual.

An Instantaneous Maximum pH higher than 9.0 is allowed per Chapter 95.2 (1)(i), so the 14.0 limit will be retained.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

## Discharge Information

Instructions | Discharge | Stream

Facility: **Corner Water WTP** NPDES Permit No.: **PA0104406** Outfall No.: **001**

Evaluation Type **Major Sewage / Industrial Waste** Wastewater Description: **Filter Backwash Wastewater**

| Discharge Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 0.0014 | 13.61 | 10.4 | | | | | | |

| | | | | | 0 if left blank | | 0.5 if left blank | | 0 if left blank | | | 1 if left blank | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Discharge Pollutant | Units | Max Discharge Conc | | Trib Conc | Stream Conc | Daily CV | Hourly CV | Strea m CV | Fate Coeff | FOS | Criteri a Mod | Chem Transl |
| Group 1 | Total Dissolved Solids (PWS) | mg/L | | 3220 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 9370 | | | | | | | | | |
| | Bromide | mg/L | < | 0.1 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 9.1 | | | | | | | | | |
| | Fluoride (PWS) | mg/L | < | 0.02 | | | | | | | | | |
| Group 2 | Total Aluminum | µg/L | < | 0.1 | | 0.98 | | | | | | | |
| | Total Antimony | µg/L | | 2.19 | | | | | | | | | |
| | Total Arsenic | µg/L | < | 20 | | | | | | | | | |
| | Total Barium | µg/L | | 37700 | | | | | | | | | |
| | Total Beryllium | µg/L | < | 1 | | | | | | | | | |
| | Total Boron | µg/L | | 0.3 | | | | | | | | | |
| | Total Cadmium | µg/L | < | 20 | | | | | | | | | |
| | Total Chromium (III) | µg/L | < | 2 | | | | | | | | | |
| | Hexavalent Chromium | µg/L | | | | | | | | | | | |
| | Total Cobalt | µg/L | < | 1 | | | | | | | | | |
| | Total Copper | µg/L | | 0.003 | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | | 1 | | | | | | | | | |
| | Dissolved Iron | µg/L | < | 0.02 | | | | | | | | | |
| | Total Iron | µg/L | | 0.17 | | 1.33 | | | | | | | |
| | Total Lead | µg/L | < | 1 | | | | | | | | | |
| | Total Manganese | µg/L | | 0.07 | | 1.76 | | | | | | | |
| | Total Mercury | µg/L | | 0.0001 | | | | | | | | | |
| | Total Nickel | µg/L | | 16.8 | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | | 40 | | | | | | | | | |
| | Total Selenium | µg/L | < | 0.005 | | | | | | | | | |
| | Total Silver | µg/L | < | 0.4 | | | | | | | | | |
| | Total Thallium | µg/L | < | 0.05 | | | | | | | | | |
| | Total Zinc | µg/L | < | 5 | | | | | | | | | |
| | Total Molybdenum | µg/L | < | 2 | | | | | | | | | |
| | Acrolein | µg/L | < | | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | | | | | | | | | | |
| | Benzene | µg/L | < | | | | | | | | | | |
| | Bromoform | µg/L | < | | | | | | | | | | |
| | Carbon Tetrachloride | µg/L | < | | | | | | | | | | |
| | Chlorobenzene | µg/L | | | | | | | | | | | |
| | Chlorodibromomethane | µg/L | < | | | | | | | | | | |
| | Chloroethane | µg/L | < | | | | | | | | | | |
| | 2-Chloroethyl Vinyl Ether | µg/L | < | | | | | | | | | | |
| | Chloroform | µg/L | < | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 3 | Dichlorobromomethane | µg/L | < | | | | | | | | | | |
| | 1,1-Dichloroethane | µg/L | < | | | | | | | | | | |
| | 1,2-Dichloroethane | µg/L | < | | | | | | | | | | |
| | 1,1-Dichloroethylene | µg/L | < | | | | | | | | | | |
| | 1,2-Dichloropropane | µg/L | < | | | | | | | | | | |
| | 1,3-Dichloropropylene | µg/L | < | | | | | | | | | | |
| | 1,4-Dioxane | µg/L | < | | | | | | | | | | |
| | Ethylbenzene | µg/L | < | | | | | | | | | | |
| | Methyl Bromide | µg/L | < | | | | | | | | | | |
| | Methyl Chloride | µg/L | < | | | | | | | | | | |
| | Methylene Chloride | µg/L | < | | | | | | | | | | |
| | 1,1,2,2-Tetrachloroethane | µg/L | < | | | | | | | | | | |
| | Tetrachloroethylene | µg/L | < | | | | | | | | | | |
| | Toluene | µg/L | < | | | | | | | | | | |
| | 1,2-trans-Dichloroethylene | µg/L | < | | | | | | | | | | |
| | 1,1,1-Trichloroethane | µg/L | < | | | | | | | | | | |
| | 1,1,2-Trichloroethane | µg/L | < | | | | | | | | | | |
| | Trichloroethylene | µg/L | < | | | | | | | | | | |
| | Vinyl Chloride | µg/L | < | | | | | | | | | | |
| Group 4 | 2-Chlorophenol | µg/L | < | | | | | | | | | | |
| | 2,4-Dichlorophenol | µg/L | < | | | | | | | | | | |
| | 2,4-Dimethylphenol | µg/L | < | | | | | | | | | | |
| | 4,6-Dinitro-o-Cresol | µg/L | < | | | | | | | | | | |
| | 2,4-Dinitrophenol | µg/L | < | | | | | | | | | | |
| | 2-Nitrophenol | µg/L | < | | | | | | | | | | |
| | 4-Nitrophenol | µg/L | < | | | | | | | | | | |
| | p-Chloro-m-Cresol | µg/L | < | | | | | | | | | | |
| | Pentachlorophenol | µg/L | < | | | | | | | | | | |
| | Phenol | µg/L | < | | | | | | | | | | |
| | 2,4,6-Trichlorophenol | µg/L | < | | | | | | | | | | |
| Group 5 | Acenaphthene | µg/L | < | | | | | | | | | | |
| | Acenaphthylene | µg/L | < | | | | | | | | | | |
| | Anthracene | µg/L | < | | | | | | | | | | |
| | Benzidine | µg/L | < | | | | | | | | | | |
| | Benzo(a)Anthracene | µg/L | < | | | | | | | | | | |
| | Benzo(a)Pyrene | µg/L | < | | | | | | | | | | |
| | 3,4-Benzofluoranthene | µg/L | < | | | | | | | | | | |
| | Benzo(ghi)Perylene | µg/L | < | | | | | | | | | | |
| | Benzo(k)Fluoranthene | µg/L | < | | | | | | | | | | |
| | Bis(2-Chloroethoxy)Methane | µg/L | < | | | | | | | | | | |
| | Bis(2-Chloroethyl)Ether | µg/L | < | | | | | | | | | | |
| | Bis(2-Chloroisopropyl)Ether | µg/L | < | | | | | | | | | | |
| | Bis(2-Ethylhexyl)Phthalate | µg/L | < | | | | | | | | | | |
| | 4-Bromophenyl Phenyl Ether | µg/L | < | | | | | | | | | | |
| | Butyl Benzyl Phthalate | µg/L | < | | | | | | | | | | |
| | 2-Chloronaphthalene | µg/L | < | | | | | | | | | | |
| | 4-Chlorophenyl Phenyl Ether | µg/L | < | | | | | | | | | | |
| | Chrysene | µg/L | < | | | | | | | | | | |
| | Dibenzo(a,h)Anthrancene | µg/L | < | | | | | | | | | | |
| | 1,2-Dichlorobenzene | µg/L | < | | | | | | | | | | |
| | 1,3-Dichlorobenzene | µg/L | < | | | | | | | | | | |
| | 1,4-Dichlorobenzene | µg/L | < | | | | | | | | | | |
| | 3,3-Dichlorobenzidine | µg/L | < | | | | | | | | | | |
| | Diethyl Phthalate | µg/L | < | | | | | | | | | | |
| | Dimethyl Phthalate | µg/L | < | | | | | | | | | | |
| | Di-n-Butyl Phthalate | µg/L | < | | | | | | | | | | |
| | 2,4-Dinitrotoluene | µg/L | < | | | | | | | | | | |
| | 2,6-Dinitrotoluene | µg/L | < | | | | | | | | | | |
| | Di-n-Octyl Phthalate | µg/L | < | | | | | | | | | | |
| | 1,2-Diphenylhydrazine | µg/L | < | | | | | | | | | | |
| | Fluoranthene | µg/L | < | | | | | | | | | | |
| | Fluorene | µg/L | < | | | | | | | | | | |
| | Hexachlorobenzene | µg/L | < | | | | | | | | | | |
| | Hexachlorobutadiene | µg/L | < | | | | | | | | | | |
| | Hexachlorocyclopentadiene | µg/L | < | | | | | | | | | | |
| | Hexachloroethane | µg/L | < | | | | | | | | | | |
| | Indeno(1,2,3-cd)Pyrene | µg/L | < | | | | | | | | | | |
| | Isophorone | µg/L | < | | | | | | | | | | |
| | Naphthalene | µg/L | < | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nitrobenzene | µg/L | < | | | | | | | | | | |
| | n-Nitrosodimethylamine | µg/L | < | | | | | | | | | | |
| | n-Nitrosodi-n-Propylamine | µg/L | < | | | | | | | | | | |
| | n-Nitrosodiphenylamine | µg/L | < | | | | | | | | | | |
| | Phenanthrene | µg/L | < | | | | | | | | | | |
| | Pyrene | µg/L | < | | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | µg/L | < | | | | | | | | | | |
| Group 6 | Aldrin | µg/L | < | | | | | | | | | | |
| | alpha-BHC | µg/L | < | | | | | | | | | | |
| | beta-BHC | µg/L | < | | | | | | | | | | |
| | gamma-BHC | µg/L | < | | | | | | | | | | |
| | delta BHC | µg/L | < | | | | | | | | | | |
| | Chlordane | µg/L | < | | | | | | | | | | |
| | 4,4-DDT | µg/L | < | | | | | | | | | | |
| | 4,4-DDE | µg/L | < | | | | | | | | | | |
| | 4,4-DDD | µg/L | < | | | | | | | | | | |
| | Dieldrin | µg/L | < | | | | | | | | | | |
| | alpha-Endosulfan | µg/L | < | | | | | | | | | | |
| | beta-Endosulfan | µg/L | < | | | | | | | | | | |
| | Endosulfan Sulfate | µg/L | < | | | | | | | | | | |
| | Endrin | µg/L | < | | | | | | | | | | |
| | Endrin Aldehyde | µg/L | < | | | | | | | | | | |
| | Heptachlor | µg/L | < | | | | | | | | | | |
| | Heptachlor Epoxide | µg/L | < | | | | | | | | | | |
| | PCB-1016 | µg/L | < | | | | | | | | | | |
| | PCB-1221 | µg/L | < | | | | | | | | | | |
| | PCB-1232 | µg/L | < | | | | | | | | | | |
| | PCB-1242 | µg/L | < | | | | | | | | | | |
| | PCB-1248 | µg/L | < | | | | | | | | | | |
| | PCB-1254 | µg/L | < | | | | | | | | | | |
| | PCB-1260 | µg/L | < | | | | | | | | | | |
| | PCBs, Total | µg/L | < | | | | | | | | | | |
| | Toxaphene | µg/L | < | | | | | | | | | | |
| | 2,3,7,8-TCDD | ng/L | < | | | | | | | | | | |
| Group 7 | Gross Alpha | pCi/L | | | | | | | | | | | |
| | Total Beta | pCi/L | < | | | | | | | | | | |
| | Radium 226/228 | pCi/L | < | | | | | | | | | | |
| | Total Strontium | µg/L | < | | | | | | | | | | |
| | Total Uranium | µg/L | < | | | | | | | | | | |
| | Osmotic Pressure | mOs/kg | | | | | | | | | | | |
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pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Stream / Surface Water Information

**Corner Water WTP, NPDES Permit No. PA0104406, Outfall 001**

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Paint Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

| Location | Stream Code* | RMI* | Elevation (ft)* | DA ($mi^2$)* | Slope (ft/ft) | PWS Withdrawal (MGD) | Apply Fish Criteria* |
|---|---|---|---|---|---|---|---|
| Point of Discharge | 049424 | 1.5 | 1172 | 43 | | | Yes |
| End of Reach 1 | 049424 | 0 | 1155 | 62.5 | | | Yes |

$Q_{7-10}$

| Location | RMI | LFY ($cfs/mi^2$)* | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness* | pH* | Hardness | pH |
| Point of Discharge | 1.5 | 0.1 | | | | | | | | | | 100 | 7 | | |
| End of Reach 1 | 0 | 0.1 | | | | | | | | | | | | | |

$Q_h$

| Location | RMI | LFY ($cfs/mi^2$) | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness | pH | Hardness | pH |
| Point of Discharge | 1.5 | | | | | | | | | | | | | | |
| End of Reach 1 | 0 | | | | | | | | | | | | | | |

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Toxics Management Spreadsheet
Version 1.3, March 2021

## Model Results

**Corner Water WTP, NPDES Permit No. PA0104406, Outfall 001**

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.507 Analysis Hardness (mg/l): 99.914 Analysis pH: 7.00

| Pollutants | Stream Conc | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0.98 | 0 | | 0 | 750 | 750 | 755,344 | |
| Total Antimony | 0 | 0 | | 0 | 1,100 | 1,100 | 1,109,286 | |
| Total Arsenic | 0 | 0 | | 0 | 340 | 340 | 342,870 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 21,000 | 21,000 | 21,177,287 | |
| Total Boron | 0 | 0 | | 0 | 8,100 | 8,100 | 8,168,382 | |
| Total Cadmium | 0 | 0 | | 0 | 2.012 | 2.13 | 2,149 | Chem Translator of 0.944 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 569.364 | 1,802 | 1,816,995 | Chem Translator of 0.316 applied |
| Total Cobalt | 0 | 0 | | 0 | 95 | 95.0 | 95,802 | |
| Total Copper | 0 | 0 | | 0 | 13.428 | 14.0 | 14,106 | Chem Translator of 0.96 applied |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 1.33 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | 64.521 | 81.6 | 82,245 | Chem Translator of 0.791 applied |
| Total Manganese | 1.76 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 1.400 | 1.65 | 1,661 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 467.896 | 469 | 472,792 | Chem Translator of 0.998 applied |
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Selenium | 0 | 0 | | 0 | N/A | N/A | N/A | Chem Translator of 0.922 applied |
| Total Silver | 0 | 0 | | 0 | 3.212 | 3.78 | 3,811 | Chem Translator of 0.85 applied |
| Total Thallium | 0 | 0 | | 0 | 65 | 65.0 | 65,549 | |
| Total Zinc | 0 | 0 | | 0 | 117.095 | 120 | 120,740 | Chem Translator of 0.978 applied |

☑ ***CFC*** CCT (min): 58.257 PMF: 1 Analysis Hardness (mg/l): 99.957 Analysis pH: 7.00

| Pollutants | Stream | Stream | Trib Conc | Fate | WQC | WQ Obj | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|

| Pollutants | Conc | CV | (µg/L) | Coef | (µg/L) | (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0.98 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 220 | 220 | 437,010 | |
| Total Arsenic | 0 | 0 | | 0 | 150 | 150 | 297,961 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 4,100 | 4,100 | 8,144,279 | |
| Total Boron | 0 | 0 | | 0 | 1,600 | 1,600 | 3,178,255 | |
| Total Cadmium | 0 | 0 | | 0 | 0.246 | 0.27 | 537 | Chem Translator of 0.909 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 74.088 | 86.1 | 171,127 | Chem Translator of 0.86 applied |
| Total Cobalt | 0 | 0 | | 0 | 19 | 19.0 | 37,742 | |
| Total Copper | 0 | 0 | | 0 | 8.952 | 9.33 | 18,524 | Chem Translator of 0.96 applied |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 1.33 | 0 | | 0 | 1,500 | 1,500 | 2,976,974 | WQC = 30 day average; PMF = 1 |
| Total Lead | 0 | 0 | | 0 | 2.515 | 3.18 | 6,316 | Chem Translator of 0.791 applied |
| Total Manganese | 1.76 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 0.770 | 0.91 | 1,799 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 51.987 | 52.1 | 103,579 | Chem Translator of 0.997 applied |
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Selenium | 0 | 0 | | 0 | 4.600 | 4.99 | 9,911 | Chem Translator of 0.922 applied |
| Total Silver | 0 | 0 | | 0 | N/A | N/A | N/A | Chem Translator of 1 applied |
| Total Thallium | 0 | 0 | | 0 | 13 | 13.0 | 25,823 | |
| Total Zinc | 0 | 0 | | 0 | 118.095 | 120 | 237,917 | Chem Translator of 0.986 applied |

☑ ***THH*** CCT (min): 58.257 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | 500,000 | 500,000 | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | 2,000 | 2,000 | N/A | |
| Total Aluminum | 0.98 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 5.6 | 5.6 | 11,124 | |
| Total Arsenic | 0 | 0 | | 0 | 10 | 10.0 | 19,864 | |
| Total Barium | 0 | 0 | | 0 | 2,400 | 2,400 | 4,767,383 | |
| Total Boron | 0 | 0 | | 0 | 3,100 | 3,100 | 6,157,870 | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cobalt | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dissolved Iron | 0 | 0 | | 0 | 300 | 300 | 595,923 | |
| Total Iron | 1.33 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Manganese | 1.76 | 0 | | 0 | 1,000 | 1,000 | 1,982,915 | |
| Total Mercury | 0 | 0 | | 0 | 0.050 | 0.05 | 99.3 | |
| Total Nickel | 0 | 0 | | 0 | 610 | 610 | 1,211,710 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | 5 | 5.0 | N/A | |
| Total Selenium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Silver | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Thallium | 0 | 0 | | 0 | 0.24 | 0.24 | 477 | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ ***CRL*** CCT (min): 17.525 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0.98 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Arsenic | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Barium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Boron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cobalt | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 1.33 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Manganese | 1.76 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Nickel | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Selenium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Silver | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Thallium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ ***Recommended WQBELs & Monitoring Requirements***

**No. Samples/Month:** 4

| | *Mass Limits* | | *Concentration Limits* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutants | AML (lbs/day) | MDL (lbs/day) | AML | MDL | IMAX | Units | Governing WQBEL | WQBEL Basis | Comments |
| | | | | | | | | | |

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

| Pollutants | Governing WQBEL | Units | Comments |
|---|---|---|---|
| Total Dissolved Solids (PWS) | N/A | N/A | PWS Not Applicable |
| Chloride (PWS) | N/A | N/A | PWS Not Applicable |
| Bromide | N/A | N/A | No WQS |
| Sulfate (PWS) | N/A | N/A | PWS Not Applicable |
| Fluoride (PWS) | N/A | N/A | Discharge Conc < TQL |
| Total Aluminum | N/A | N/A | Discharge Conc < TQL |
| Total Antimony | 11,124 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Arsenic | 19,864 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Barium | 4,767,383 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium | N/A | N/A | No WQS |
| Total Boron | 3,178,255 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cadmium | 537 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Chromium (III) | 171,127 | µg/L | Discharge Conc < TQL |
| Total Cobalt | 37,742 | µg/L | Discharge Conc < TQL |
| Total Copper | 9,041 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cyanide | N/A | N/A | No WQS |
| Dissolved Iron | 595,923 | µg/L | Discharge Conc < TQL |
| Total Iron | 2,976,974 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Lead | 6,316 | µg/L | Discharge Conc < TQL |
| Total Manganese | 1,982,915 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury | 99.3 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Nickel | 103,579 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Phenols (Phenolics) (PWS) | | µg/L | PWS Not Applicable |
| Total Selenium | 9,911 | µg/L | Discharge Conc < TQL |
| Total Silver | 2,443 | µg/L | Discharge Conc < TQL |
| Total Thallium | 477 | µg/L | Discharge Conc < TQL |
| Total Zinc | 77,390 | µg/L | Discharge Conc < TQL |
| Total Molybdenum | N/A | N/A | No WQS |

TRC - Corner Water WTP

## TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 4.89 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.0014 | = 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 = 720.266 | 1.3.2.iii | WLA cfc = 702.195 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 268.388 | 5.1d | LTA_cfc = 408.223 |

| 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)** |