Pennsylvania Department of Environmental Protection

**Southeast Regional Office**
**CLEAN WATER PROGRAM**

# NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0026964** |
| Facility Type | **Municipal** | APS ID | **1133227** |
| Major / Minor | **Major** | Authorization ID | **1519841** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Lower Perkiomen Valley Region Sewer Authority** | Facility Name | **Oaks WWTP** |
| Applicant Address | PO Box 297, 101 Station Avenue | Facility Address | 101 Station Avenue |
| | Oaks, PA 19456-0297 | | Oaks, PA 19456 |
| Applicant Contact | Michael McGann | Facility Contact | Michael McGann |
| Applicant Phone | (610) 676-9040 | Facility Phone | (610) 676-9040 |
| Client ID | 204815 | Site ID | 446153 |
| Ch 94 Load Status | Not Overloaded | Municipality | Upper Providence Township |
| Connection Status | No Limitations | County | Montgomery |
| Date Application Received | March 4, 2025 | EPA Waived? | No |
| Date Application Accepted | | If No, Reason | Major Facility, Pretreatment |

Purpose of Application: Permit Renewal

## Summary of Review

Applicant requests renewal of an NPDES permit to discharge 14.25 MGD annual average flow of treated sewage effluent from the Oaks WWTP to the Schuylkill River. The maximum monthly flow, used to prepare the annual Municipal Waste load Management Report to help determine whether a “hydraulic overload” situation exists, as defined in Title 25 Pa. Code Chapter 94, is 26 MGD. The organic design capacity is 26,000 lbs./day of BOD5.

Tributary municipalities to the system are Borough of Collegeville, Borough of Trappe, Lower Providence Township, Upper Providence Township, Perkiomen Township, and Skippack Township.

Influent enters through two mechanical bar screens, is metered and pumped to two primary grit separators, then to six primary settling tanks, followed by A/O Activated Sludge or Conventional Activated Sludge or Step Feed Activated Sludge, and Contact Stabilization Activated Sludge (a modification of Step Feed Activated Sludge) aeration processes, then to four final clarifiers, followed by two chlorine contact tanks, de-chlorination system by sodium bisulfite, post aeration by cascade and effluent discharge to the Schuylkill River. Outfall 001 is located immediately above the confluence with Perkiomen Creek.

Primary and secondary waste sludges are blended in a sludge day tank. The blended sludges are then dewatered through two belt filter presses, filter cake is lime stabilized, and ultimate disposal is primarily by land applications with landfill disposal as an alternative. Nonexceptional quality sludge is produced.

No upgrades are proposed at this renewal. Based on the DMRs review and the comments from operations section, the facility is in compliance with the permit requirements and operating well.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | *Sara Abraham*<br>Sara Reji Abraham, E.I.T. / Project Manager | August 12, 2025 |
| X | | *Pravin Patel*<br>Pravin C. Patel, P.E. / Environmental Engineer Manager | 08/13/2025 |

**Summary of Review**

Site stormwater is discharged through Outfalls 002 and 003. Outfall 002 drains the influent pump station, grit handling, primary settling, and sludge handling areas, and flows to a drainage swale to the Schuylkill River. Outfall 003 drains the aeration tanks, final clarifiers, and chlorine contact tank areas and flows to a drainage swale to Perkiomen Creek.

The Schuylkill River is listed as impaired for PCBs. In April 2007, EPA established the "PCB Total Maximum Daily Load for the Schuylkill River" to address the impairment. The TMDL was established using a water quality criterion of 0.044 ng/l for PCBs. The wasteload allocation assigned to this facility is $2.37 \times 10^{-3}$ grams/day. Facility submitted a PCB PMP on August 18, 2016, and was approved on March 17, 2017. An annul PCB PMP report for the year 2024 -2025 was submitted on May 28, 2025. Facility developed a baseline loading using the results of all PCB effluent sampling performed to date. Report shows an estimated normalized baseline loading to the Schuylkill River from Oaks WWTP is 0.025 gm/day.
Based on the review of the report, the requirement to continue implementation of the PMP and annual PCB monitoring similar to the existing permit is included in the new permit.

The facility currently implements an EPA approved Pretreatment Program. Industrial users include:

(i) Viant Collegeville, LLC
(ii) ADS/Transicoil
(iii) Glaxo SmithKline LLC
(iv) The Dow Chemical Company
(v) S.S. Industries Holdings, LLC
(vi) Allen-Bradley Company, LLC
(vii) PA DOC SCI-Pheonix
(viii) Graphic Packaging International, Inc.

DRBC docket no. D-2001-042 CP-6 was approved on June 10, 2020, for this facility's discharge.

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.

Act 14 Notifications:

Upper Providence Township - February 26, 2025
Montgomery County - February 26, 2025

Permit Conditions:

A. No Stormwater to Sanitary sewers
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Chlorine Optimization
E. Notification of Responsible Operator
F. Fecal Coliform Reporting
G. Operations and Maintenance Plan
H. Pretreatment Program Implementation
I. Solids Management
J. WET Requirement
K. Stormwater Requirements
L. PCB PMP and Monitoring

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 14.25 |
| Latitude | 40º 7' 13.54" | Longitude | -75º 27' 43.02" |
| Quad Name | Valley Forge | Quad Code | 1842 |
| Wastewater Description: | Treated Sewage Effluent | | |
| Receiving Waters | Schuylkill River (WWF, MF) | Stream Code | 00833 |
| NHD Com ID | 26003364 | RMI | 32.35 |
| Drainage Area | 1689.9 $mi^2$ | Yield ($cfs/mi^2$) | 0.203 |
| $Q_{7-10}$ Flow (cfs) | 343 * | $Q_{7-10}$ Basis | PA Stream Stats (previous fact sheet) |
| Elevation (ft) | 70.1 | Slope (ft/ft) | 0.0004 |
| Watershed No. | 3-D | Chapter 93 Class. | WWF, MF |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | POLYCHLORINATED BIPHENYLS (PCBS) | | |
| Source(s) of Impairment | SOURCE UNKNOWN | | |
| TMDL Status | Final, 04/07/2007 | Name | Schuylkill River PCB TMDL |
| Nearest Downstream Public Water Supply Intake | PA American- Norristown Intake | | |
| PWS Waters | Schuylkill River | Flow at Intake (cfs) | 350 |
| PWS RMI | 27.5 | Distance from Outfall (mi) | 4.85 |

*Outfall 001 is located on the upstream side of the confluence with Perkiomen Creek. Since flow from Perkiomen Creek mixes immediately below the outfall, the DA and Q7-10 include Perkiomen Creek.

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

| | | | |
|---|---|---|---|
| Outfall No. | 002 | Design Flow (MGD) | 0 |
| Latitude | 40º 7' 14.12" | Longitude | -75º 27' 42.73" |
| Wastewater Description: | Stormwater | | |
| Receiving Waters | Schuylkill River (WWF, MF) | Stream Code | 00833 |
| NHD Com ID | 26003364 | RMI | 32.5700 |
| Watershed No. | 3-D | Chapter 93 Class. | WWF, MF |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | POLYCHLORINATED BIPHENYLS (PCBS) | | |
| Source(s) of Impairment | SOURCE UNKNOWN | | |
| TMDL Status | Final,04/07/2007 | Name | Schuylkill River PCB TMDL |

## Discharge, Receiving Waters and Water Supply Information

| | | | |
|---|---|---|---|
| Outfall No. | 003 | Design Flow (MGD) | 0 |
| Latitude | 40º 7' 9.17" | Longitude | -75º 27' 28.35" |
| Wastewater Description: | Stormwater | | |
| Receiving Waters | Perkiomen Creek (WWF, MF) | Stream Code | 01017 |
| NHD Com ID | 26003370 | RMI | 0.0400 |
| Watershed No. | 3-E | Chapter 93 Class. | WWF, MF |
| Assessment Status | Attaining Use(s) | | |

## Treatment Facility Summary

**Treatment Facility Name:** Oaks WWTP

| WQM Permit No. | Issuance Date |
|---|---|
| 4698412 A3 | 09/01/2016 |
| 4698412 A2 | 08/21/2015 |
| 4698412 A1 | 03/04/2005 |
| 4698412 | 07/07/1998 |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Secondary | Activated Sludge | Sodium Hypochlorite | 14.25 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 26 | 26000 | Not Overloaded | Dewatering | Landfill |

## Compliance History

**DMR Data for Outfall 001 (from February 1, 2024 to January 31, 2025)**

| Parameter | JAN-25 | DEC-24 | NOV-24 | OCT-24 | SEP-24 | AUG-24 | JUL-24 | JUN-24 | MAY-24 | APR-24 | MAR-24 | FEB-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 6.291 | 7.179 | 5.841 | 5.318 | 5.49 | 6.587 | 6.043 | 5.947 | 6.746 | 10.958 | 12.17 | 9.081 |
| Flow (MGD) Daily Maximum | 9.187 | 10.948 | 10.231 | 5.726 | 6.086 | 12.451 | 7.836 | 8.17 | 7.938 | 35.527 | 26.368 | 11.76 |
| pH (S.U.) Instantaneous Minimum | 6.5 | 6.7 | 6.8 | 6.7 | 6.7 | 6.7 | 6.8 | 6.7 | 6.7 | 6.7 | 6.6 | 6.6 |
| pH (S.U.) Instantaneous Maximum | 6.9 | 7.2 | 7.2 | 7.1 | 7.3 | 7.3 | 7.1 | 7.1 | 7.2 | 7.0 | 7.2 | 6.9 |
| DO (mg/L) Instantaneous Minimum | 10.0 | 9.9 | 7.3 | 6.6 | 8.8 | 9.9 | 7.8 | 10.5 | 11.2 | 11.6 | 12.1 | 12.5 |
| DO (mg/L) Average Monthly | 10.6 | 10.7 | 9.6 | 9.4 | 9.5 | 10.4 | 10.1 | 11.0 | 11.6 | 12.2 | 12.6 | 12.8 |
| TRC (mg/L) Average Monthly | < 0.04 | < 0.1 | < 0.04 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.04 | 0.04 | < 0.04 | < 0.05 | 0.03 |
| TRC (mg/L) Instantaneous Maximum | 0.11 | 0.42 | 0.1 | 0.17 | 0.51 | 0.23 | 0.14 | 0.1 | 0.09 | 0.2 | 0.44 | 0.07 |
| CBOD5 (lbs/day) Average Monthly | 166 | 203 | 159 | 130 | 115 | 150 | 146 | 155 | 146 | 468 | 436 | 247 |
| CBOD5 (lbs/day) Raw Sewage Influent <br/> Average Monthly | 10390 | 11488 | 10719 | 7731 | 8325 | 8434 | 8753 | 9480 | 9457 | 9357 | 9986 | 9639 |
| CBOD5 (lbs/day) Weekly Average | 201 | 276 | 162 | 159 | 140 | 189 | 187 | 171 | 178 | 1489 | 618 | 253 |
| CBOD5 (mg/L) Average Monthly | 3.2 | 3.4 | 3.3 | 3 | 3 | 3 | 3.0 | 3.0 | 3.0 | 3.3 | 3.7 | 3.3 |
| CBOD5 (mg/L) Raw Sewage Influent <br/> Average Monthly | 201 | 200 | 219 | 174 | 182 | 156 | 175 | 191 | 169 | 122 | 104 | 130 |
| CBOD5 (mg/L) Weekly Average | 3.0 | 5.0 | 3.0 | 4 | 3 | 3 | 4.0 | 4.0 | 3.0 | 7.0 | 5.0 | 3.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BOD5 (lbs/day)<br>Raw Sewage Influent<br><br/> Average<br>Monthly | 14480 | 14092 | 13426 | 11068 | 11783 | 11947 | 10709 | 13164 | 14449 | 13664 | 14814 | 13313 |
| BOD5 (mg/L)<br>Raw Sewage Influent<br><br/> Average<br>Monthly | 274 | 265 | 292 | 246 | 262 | 223 | 213 | 272 | 262 | 156 | 164 | 180 |
| TSS (lbs/day)<br>Average Monthly | 318 | 356 | 353 | 257 | 227 | 253 | 239 | 261 | 242 | 952 | 696 | 492 |
| TSS (lbs/day)<br>Raw Sewage Influent<br><br/> Average<br>Monthly | 13603 | 15575 | 12956 | 12758 | 13069 | 13691 | 12520 | 14456 | 16110 | 15440 | 17509 | 15534 |
| TSS (lbs/day)<br>Weekly Average | 403 | 378 | 417 | 333 | 263 | 273 | 311 | 282 | 333 | 3150 | 972 | 495 |
| TSS (mg/L)<br>Average Monthly | 6.0 | 6.0 | 7.0 | 6.0 | 5 | 5 | 5.0 | 5.0 | 4.0 | 6.0 | 6 | 6.0 |
| TSS (mg/L)<br>Raw Sewage Influent<br><br/> Average<br>Monthly | 263 | 264 | 267 | 288 | 285 | 253 | 249 | 293 | 288 | 196 | 177 | 208 |
| TSS (mg/L)<br>Weekly Average | 7.0 | 7.0 | 8.0 | 7.0 | 6 | 6 | 6.0 | 6.0 | 6.0 | 14.0 | 7 | 7.0 |
| Total Dissolved Solids<br>(mg/L)<br>Average Monthly | 687 | 600 | 715 | 723 | 718 | 661 | 675 | 646 | 616 | 484 | 506 | 631 |
| Total Dissolved Solids<br>(mg/L)<br>Daily Maximum | 762 | 663 | 763 | 785 | 758 | 727 | 740 | 725 | 635 | 600 | 530 | 655 |
| Fecal Coliform<br>(No./100 ml)<br>Geometric Mean | < 2.0 | < 7.0 | 8.0 | 8 | 7 | 12 | 11 | 14 | < 4 | < 3.0 | 7 | < 4.0 |
| Fecal Coliform<br>(No./100 ml)<br>Instantaneous<br>Maximum | 261 | 155 | 22 | 93 | 41 | 30 | 46 | 77 | 30 | 921 | 141 | 30 |
| Total Nitrogen (mg/L)<br>Average Monthly | < 19.48 | < 19.19 | 20.33 | < 21.24 | < 20.1 | < 18.87 | < 17.92 | < 19.16 | < 17.85 | < 13.97 | 13.15 | < 15.25 |
| Ammonia (lbs/day)<br>Average Monthly | 159 | 164 | 226 | 81 | 35 | 23 | 45 | 93 | 108 | 178 | 325 | 150 |
| Ammonia (mg/L)<br>Average Monthly | 3.18 | 3.03 | 4.71 | 1.81 | 0.74 | 0.44 | 0.85 | 1.82 | 1.92 | 1.56 | 2.86 | 2.05 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Phosphorus (mg/L) Average Monthly | 4.11 | 3.17 | 4.35 | 4.64 | 5.22 | 3.82 | 4.06 | 4.02 | 2.9 | 1.98 | 1.94 | 1.93 |
| Total Cadmium (mg/L) Average Monthly | < 0.001 | < 0.001 | < 0.0001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.0010 | < 0.001 | < 0.001 | < 0.001 |
| Total Copper (mg/L) Average Monthly | 0.010 | 0.010 | 0.010 | 0.020 | 0.010 | 0.009 | 0.009 | 0.010 | 0.009 | 0.020 | 0.010 | 0.020 |
| Total Copper (mg/L) Daily Maximum | 0.013 | 0.010 | 0.013 | 0.015 | 0.010 | 0.009 | 0.009 | 0.014 | 0.009 | 0.017 | 0.013 | 0.019 |
| Sulfate (mg/L) Average Monthly | 56.2 | 65.4 | 67.1 | 61.7 | 61.5 | 50.5 | 53.8 | 48.6 | 45.5 | 21.2 | 32.7 | 41.3 |
| Chloride (mg/L) Average Monthly | 278 | 234 | 250 | 232 | 249 | 200 | 214 | 208 | 211 | 96.1 | 191 | 227 |
| Bromide (mg/L) Average Monthly | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1 | < 1.0 | < 1.0 | < 1.0 | < 1 | < 1.0 | < 1.0 | < 1.0 |
| Total Phenolics (mg/L) Average Monthly | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0.006 | < 0.002 | < 0.002 | < 0.002 | 0.002 | < 0.002 |
| PCBs (Dry Weather) (pg/L) Daily Maximum | | 305 | | | | | | | | | | |
| PCBs (Wet Weather) (pg/L) Daily Maximum | | 299 | | | | | | | | | | |
| Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum | | GG | | | GG | | | 12.5 | | | GG | |
| Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum | | GG | | | GG | | | 12.5 | | | GG | |
| Chronic WET - Pimephales Survival (TUc) Daily Maximum | | GG | | | GG | | | 12.5 | | | GG | |
| Chronic WET - Pimephales Growth (TUc) Daily Maximum | | GG | | | GG | | | 12.5 | | | GG | |

**DMR Data for Outfall 002 (from February 1, 2024 to January 31, 2025)**

| Parameter | JAN-25 | DEC-24 | NOV-24 | OCT-24 | SEP-24 | AUG-24 | JUL-24 | JUN-24 | MAY-24 | APR-24 | MAR-24 | FEB-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH (S.U.)<br>Daily Maximum | | 7.9 | | | | | | | | | | |
| CBOD5 (mg/L)<br>Daily Maximum | | 8.7 | | | | | | | | | | |
| COD (mg/L)<br>Daily Maximum | | 49 | | | | | | | | | | |
| TSS (mg/L)<br>Daily Maximum | | 18.0 | | | | | | | | | | |
| Oil and Grease (mg/L)<br>Daily Maximum | | < 5 | | | | | | | | | | |
| Fecal Coliform<br>(No./100 ml)<br>Daily Maximum | | < 2420 | | | | | | | | | | |
| TKN (mg/L)<br>Daily Maximum | | 1.66 | | | | | | | | | | |
| Total Phosphorus<br>(mg/L)<br>Daily Maximum | | 0.377 | | | | | | | | | | |
| Dissolved Iron (mg/L)<br>Daily Maximum | | 0.03 | | | | | | | | | | |

**DMR Data for Outfall 003 (from February 1, 2024 to January 31, 2025)**

| Parameter | JAN-25 | DEC-24 | NOV-24 | OCT-24 | SEP-24 | AUG-24 | JUL-24 | JUN-24 | MAY-24 | APR-24 | MAR-24 | FEB-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH (S.U.)<br>Daily Maximum | | 7.5 | | | | | | | | | | |
| CBOD5 (mg/L)<br>Daily Maximum | | 6.2 | | | | | | | | | | |
| COD (mg/L)<br>Daily Maximum | | 28 | | | | | | | | | | |
| TSS (mg/L)<br>Daily Maximum | | 6.0 | | | | | | | | | | |
| Oil and Grease (mg/L)<br>Daily Maximum | | < 5 | | | | | | | | | | |
| Fecal Coliform<br>(No./100 ml)<br>Daily Maximum | | < 2420 | | | | | | | | | | |
| TKN (mg/L)<br>Daily Maximum | | 0.85 | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Phosphorus (mg/L) Daily Maximum | | 0.196 | | | | | | | | | | |
| Dissolved Iron (mg/L) Daily Maximum | | 0.03 | | | | | | | | | | |

## Compliance History

None

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 14.25
**Latitude** 40º 7' 13.00" **Longitude** -75º 27' 43.00"
**Wastewater Description:** Treated 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) |
| Total Residual Chlorine | 0.5 | Average Monthly | - | 92a.48(b)(2) |

### Water Quality-Based Limitations

| Parameter | Limit (mg/l) | SBC | Basis |
|---|---|---|---|
| CBOD5 | 18 | Average Monthly | WQM 7.0 |
| NH3-N | 7.2 | Average Monthly | WQM 7.0 |
| DO | 5 | IMIN | WQM 7.0 |
| TSS | 30 | Average Monthly | DRBC |
| Fecal Coliform | 200 col/100ml | Geo Mean | Ch. 92a.47(a)(4) and DRBC |
| | 1,000 col/100ml | IMAX | |
| TRC* | 0.178 mg/l | Average Monthly | Spreadsheet |
| Total Phosphorus | Report | Average Monthly | SOP/Data collection |
| Total Nitrogen | Report | Average Monthly | SOP/Data collection |
| Total Dissolved Solids | 1,000 | Average Monthly | DRBC |
| E.Coli** | Report | Inst. Max. | Chapter 92.a/SOP |

For the conventional parameters, CBOD5, NH3-N, and DO, limits are carried over from the current permit. In 2002, the Department conducted a Schuylkill River Reallocation Study for all POTWs between Black Rock and Norristown Dams. The proposed revised limits, taking into account future growth for Montgomery County Sewer Authority and a design annual average flow of 12.8 MGD, were CBOD5 = 20 mg/l (summer), NH3-N = 8 mg/l (summer), and DO min = 5 mg/l. The proposed revisions were submitted to EPA for approval 5/1/2002 and were public noticed in the PA Bulletin1/18/2003. For the earlier permit in 2009, the limits were reduced to CBOD5 = 18 mg/l (summer) and NH3-N = 7.2 (summer), reflecting a no-net increase in permitted load at an expanded flow of 14.25 MGD.

*This is more stringent than the existing limit in the permit. Based on the review, this limit is achievable by the facility.

** E. Coli monitoring is included in the draft permit according to the DEP SOP guidance (Chapter 92.a.61). This is a new requirement and is consistent with the requirements of other similar discharges in the area.

All other limits are existing and carried over to the draft permit.

TDS: The maximum TDS concentration reported in the application is 785 mg/l which is higher than the state water quality criterion. The current limit is recommended to continue in the draft permit.

PFAS: As part of the permit renewal, facility provided the PFAS sampling results. The reported maximum concentrations for Outfall 001 are 12 ng/l for PFOA, 5.2 ng/l for PFOS, 7.9 ng/l for PFBS and 1.6 for HFPO-DA. Quarterly monitoring for these PFAS parameters is included in the permit.

The following footnote is also included in Part A of the permit according to DEP guidance: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results for all these parameters at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs

A Reasonable Potential Analysis was conducted using DEP's Toxic Management Spreadsheet (TMS) and the following limits are recommended:

| Parameter | Maximum Concentration in Application (ug/l) | WQBEL from TMS (ug/l) | Comments |
|---|---|---|---|
| Total Cadmium | <1 | Report | Recommend existing monitoring |
| Total Copper | 19 | 30.6 (Ave. Mo.) | Limit* |
| Total Zinc | 57 | Report | Monitoring, New parameter |
| 3,3-Dichlorobenzidine | <5.5 | 1.47 (Ave. Mo.) | Monitoring, New parameter** |
| Heptachlor | 0.009 | 0.0002 (Ave. Mo.) | Monitoring, New parameter*** |

*Recommended copper limits are more stringent than the existing limits. Based on the review, the facility is able to achieve the proposed limits.

** 6 results are reported for 3,3- Dichlorobenzidine and all of them are ND. The MDL used for the analyses is 5.5 ug/l while the DEP recommended Target QL is 5 ug/l. Monitoring is recommended for draft permit. We suggest using more stringent test method using DEP recommended Target QL for future analyses.

*** 6 results are reported for Heptachlor; three results are ND using a TQL less than the DEP recommended TQL. One is estimated value. Two detectable results are above the criteria but lower than the DEP recommended TQL. Monitoring is recommended for draft permit.

For the parameter 4,4-DDT, two results were estimated, and one result was ND reported in the application. Facility provided 3 additional results and all three were ND using a TQL less than the DEP recommended TQL and shows no concern.

We are informed that there is no indication that 3,3-Dichlorobenzidine, Heptachlor or 4,4-DDT are used in processes or stored at industrial user facilities that would lead to their presence in the industrial wastewater discharged to the sanitary sewer system. We will reevaluate the reasonable potential for these parameters at the next permit renewal.

TMS report, WQM report and TRC spreadsheet are attached for reference.

**Anti-Backsliding**

Chloride, Bromide, Sulfate: Monitoring for Chloride, Bromide, and Sulfate are eliminated. No reasonable potential for these parameters is determined based on TMS model. Historically PADEP was implementing monitoring for these special parameters and since PADEP has more than 7 years' worth of data, a monitoring is no longer implemented unless required by other agencies, e.g. DRBC. Therefore, it is recommended that the existing monitoring requirements for Chloride, Sulfate and Bromide to be removed. This is justified by the anti-backsliding prohibition exception as stated in 40 CFR 122.44(l)(2)(i)(B)(1).

Phenolics, Total is eliminated from the permit. No reasonable potential for this parameter. New monitoring data constitute new information, and this satisfies the anti-backsliding prohibition exception as stated in 40 CFR 122.44(l)(2)(i)(B)(1).

## Development of Effluent Limitations

| | | | |
|---|---|---|---|
| **Outfall No.** | 002 | **Design Flow (MGD)** | 0 |
| **Latitude** | 40º 7' 14.10" | **Longitude** | -75º 27' 42.70" |
| **Wastewater Description:** | Stormwater | | |

| | | | |
|---|---|---|---|
| **Outfall No.** | 003 | **Design Flow (MGD)** | 0 |
| **Latitude** | 40º 7' 9.20" | **Longitude** | -75º 27' 28.40" |
| **Wastewater Description:** | Stormwater | | |

For stormwater discharges, the current monitoring requirements are continued to the new permit. The following parameters are monitored annually: pH, CBOD5, COD, TSS, Oil and Grease, Fecal Coliform, TKN, Total Phosphorus, and Dissolved Iron.

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**Whole Effluent Toxicity (WET)**

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☒ Other: annual

The dilution series used for the tests was: 100%, 60%, 30%, 8%, and 4%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 8%.

## WET Summary and Evaluation

| | |
|---|---|
| **Facility Name** | Oaks WWTP |
| **Permit No.** | PA0026964 |
| **Design Flow (MGD)** | 14.25 |
| **$Q_{7-10}$ Flow (cfs)** | 343 |
| **$PMF_a$** | 0.103 |
| **$PMF_c$** | 0.711 |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 6/15/21 | 6/14/22 | 6/13/23 | 6/13/24 |
| Pimephales | Survival | PASS | PASS | PASS | PASS |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 6/15/21 | 6/14/22 | 6/13/23 | 6/13/24 |
| Pimephales | Growth | PASS | PASS | PASS | PASS |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 6/15/21 | 6/13/22 | 6/13/23 | 6/12/24 |
| Ceriodaphnia | Survival | PASS | PASS | PASS | PASS |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 6/15/21 | 6/13/22 | 6/13/23 | 6/12/24 |
| Ceriodaphnia | Reproduction | PASS | PASS | PASS | PASS |

**Reasonable Potential?** NO

**Permit Recommendations**

| | | |
|---|---|---|
| Test Type | **Chronic** | |
| TIWC | **8** | % Effluent |
| Dilution Series | **4, 8, 30, 60, 100** | % Effluent |
| Permit Limit | **None** | |
| Permit Limit Species | | |

**WET Limits**

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

Based on the review of the WET test reports, there is no reasonable potential, and no WET limits are recommended. The standard WET condition based on the DEP WET SOP is incorporated in Part C of the draft permit.

## 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) | Required |
| | Average Monthly | Weekly Average | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | Measurement Frequency | Sample Type |
| Flow (MGD) | 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 |
| Dissolved Oxygen | XXX | XXX | 5.0 Inst Min | Report | XXX | XXX | 1/day | Grab |
| Total Residual Chlorine (TRC) | XXX | XXX | XXX | 0.18 | XXX | 0.42 | 1/day | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30 | 2668 | 4002 | XXX | 22.5 | 33.7 Wkly Avg | 45 | 1/day | 24-Hr Composite |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31 | 2135 | 3202 | XXX | 18 | 27 Wkly Avg | 36 | 1/day | 24-Hr Composite |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent | Report | XXX | XXX | Report | XXX | XXX | 1/day | 24-Hr Composite |
| Biochemical Oxygen Demand (BOD5) Raw Sewage Influent | Report | XXX | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| Total Suspended Solids | 3565 | 5348 | XXX | 30 | 45 Wkly Avg | 60 | 1/day | 24-Hr Composite |
| Total Suspended Solids Raw Sewage Influent | Report | XXX | XXX | Report | XXX | XXX | 1/day | 24-Hr Composite |
| Total Dissolved Solids | XXX | XXX | XXX | 1000 | 2000 | 2500 | 1/week | 24-Hr Composite |

**Outfall 001, Continued (from 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 | Weekly Average | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 1/day | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 1/day | Grab |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/month | Grab |
| Total Nitrogen | XXX | XXX | XXX | Report | XXX | XXX | 1/week | Calculation |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 960 | XXX | XXX | 8.1 | XXX | 16.2 | 1/day | 24-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | 854 | XXX | XXX | 7.2 | XXX | 14.4 | 1/day | 24-Hr Composite |
| Total Phosphorus | XXX | XXX | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| Cadmium, Total | XXX | XXX | XXX | XXX | Report | XXX | 1/month | 24-Hr Composite |
| Copper, Total | 3.62 | 5.65 Daily Max | XXX | 0.031 | 0.048 | 0.077 | 1/month | 24-Hr Composite |
| Zinc, Total | XXX | XXX | XXX | XXX | Report | XXX | 1/month | 24-Hr Composite |
| 3,3-Dichlorobenzidine (ug/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | 24-Hr Composite |
| Heptachlor (ug/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | 24-Hr Composite |
| PCBs Dry Weather Analysis (pg/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | 24-Hr Composite |
| PCBs Wet Weather Analysis (pg/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | 24-Hr Composite |
| PFOA (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |
| PFOS (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |
| PFBS (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |
| HFPO-DA (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |

**Outfall 001, Continued (from 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 | Weekly Average | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Toxicity, Chronic - Ceriodaphnia Survival (TUc) | XXX | XXX | XXX | XXX | Report | XXX | See Permit | 24-Hr Composite |
| Toxicity, Chronic - Ceriodaphnia Reproduction (TUc) | XXX | XXX | XXX | XXX | Report | XXX | See Permit | 24-Hr Composite |
| Toxicity, Chronic - Pimephales Survival (TUc) | XXX | XXX | XXX | XXX | Report | XXX | See Permit | 24-Hr Composite |
| Toxicity, Chronic - Pimephales Growth (TUc) | XXX | XXX | XXX | XXX | Report | XXX | See Permit | 24-Hr Composite |

**Proposed Effluent Limitations and Monitoring Requirements**

**Outfall 002, 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 | | |
| pH (S.U.) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Chemical Oxygen Demand (COD) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Total Suspended Solids | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Oil and Grease | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Fecal Coliform (No./100 ml) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Total Kjeldahl Nitrogen | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Total Phosphorus | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Iron, Dissolved | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |

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**Proposed Effluent Limitations and Monitoring Requirements**

**Outfall 003, 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 | | |
| pH (S.U.) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Chemical Oxygen Demand (COD) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Total Suspended Solids | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Oil and Grease | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Fecal Coliform (No./100 ml) | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Total Kjeldahl Nitrogen | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Total Phosphorus | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |
| Iron, Dissolved | XXX | XXX | XXX | XXX | Report | XXX | 1/year | Grab |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

# Discharge Information

Instructions | Discharge | Stream

Facility: Oaks WWTP NPDES Permit No.: PA0026964 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Sewage Effluent

| Discharge Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 14.2 | 241 | 7 | | | | | | |

| | | | | | *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 | Stream CV | Fate Coeff | FOS | Criteria Mod | Chem Transl |
| Group 1 | Total Dissolved Solids (PWS) | mg/L | | 785 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 305 | | | | | | | | | |
| | Bromide | mg/L | < | 1 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | < | 67.1 | | | | | | | | | |
| | Fluoride (PWS) | mg/L | | | | | | | | | | | |
| Group 2 | Total Aluminum | µg/L | | 20 | | | | | | | | | |
| | Total Antimony | µg/L | < | 2 | | | | | | | | | |
| | Total Arsenic | µg/L | | 1 | | | | | | | | | |
| | Total Barium | µg/L | | 176 | | | | | | | | | |
| | Total Beryllium | µg/L | < | 0.3 | | | | | | | | | |
| | Total Boron | µg/L | | 100 | | | | | | | | | |
| | Total Cadmium | µg/L | < | 1 | | | | | | | | | |
| | Total Chromium (III) | µg/L | | 0.8 | | | | | | | | | |
| | Hexavalent Chromium | µg/L | < | 0.25 | | | | | | | | | |
| | Total Cobalt | µg/L | < | 1 | | | | | | | | | |
| | Total Copper | µg/L | < | 19 | | | | | | | | | |
| | Free Cyanide | µg/L | | 2 | | | | | | | | | |
| | Total Cyanide | µg/L | < | 10 | | | | | | | | | |
| | Dissolved Iron | µg/L | | 50 | | | | | | | | | |
| | Total Iron | µg/L | | 70 | | | | | | | | | |
| | Total Lead | µg/L | < | 0.4 | | | | | | | | | |
| | Total Manganese | µg/L | | 40 | | | | | | | | | |
| | Total Mercury | µg/L | < | 0.06 | | | | | | | | | |
| | Total Nickel | µg/L | | 3 | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | | 6 | | | | | | | | | |
| | Total Selenium | µg/L | | 0.9 | | | | | | | | | |
| | Total Silver | µg/L | < | 0.4 | | | | | | | | | |
| | Total Thallium | µg/L | < | 0.3 | | | | | | | | | |
| | Total Zinc | µg/L | | 57 | | | | | | | | | |
| | Total Molybdenum | µg/L | | 4 | | | | | | | | | |
| | Acrolein | µg/L | < | 2 | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | 2 | | | | | | | | | |
| | Benzene | µg/L | < | 0.5 | | | | | | | | | |
| | Bromoform | µg/L | < | 0.5 | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 3 | Carbon Tetrachloride | µg/L | < | 0.5 | | | | | | | | | |
| | Chlorobenzene | µg/L | | 0.5 | | | | | | | | | |
| | Chlorodibromomethane | µg/L | < | 0.5 | | | | | | | | | |
| | Chloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 2-Chloroethyl Vinyl Ether | µg/L | < | 5 | | | | | | | | | |
| | Chloroform | µg/L | | 1 | | | | | | | | | |
| | Dichlorobromomethane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1-Dichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,2-Dichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1-Dichloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,2-Dichloropropane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,3-Dichloropropylene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,4-Dioxane | µg/L | < | 5 | | | | | | | | | |
| | Ethylbenzene | µg/L | < | 0.5 | | | | | | | | | |
| | Methyl Bromide | µg/L | < | 0.5 | | | | | | | | | |
| | Methyl Chloride | µg/L | < | 0.5 | | | | | | | | | |
| | Methylene Chloride | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1,2,2-Tetrachloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | Tetrachloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | Toluene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,2-trans-Dichloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1,1-Trichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1,2-Trichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | Trichloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | Vinyl Chloride | µg/L | < | 0.5 | | | | | | | | | |
| Group 4 | 2-Chlorophenol | µg/L | < | 5 | | | | | | | | | |
| | 2,4-Dichlorophenol | µg/L | < | 5 | | | | | | | | | |
| | 2,4-Dimethylphenol | µg/L | < | 5 | | | | | | | | | |
| | 4,6-Dinitro-o-Cresol | µg/L | < | 10 | | | | | | | | | |
| | 2,4-Dinitrophenol | µg/L | < | 10 | | | | | | | | | |
| | 2-Nitrophenol | µg/L | < | 10 | | | | | | | | | |
| | 4-Nitrophenol | µg/L | < | 5 | | | | | | | | | |
| | p-Chloro-m-Cresol | µg/L | < | 5 | | | | | | | | | |
| | Pentachlorophenol | µg/L | < | 10 | | | | | | | | | |
| | Phenol | µg/L | < | 2.5 | | | | | | | | | |
| | 2,4,6-Trichlorophenol | µg/L | < | 5 | | | | | | | | | |
| Group 5 | Acenaphthene | µg/L | < | 2.5 | | | | | | | | | |
| | Acenaphthylene | µg/L | < | 2.5 | | | | | | | | | |
| | Anthracene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzidine | µg/L | < | 50 | | | | | | | | | |
| | Benzo(a)Anthracene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzo(a)Pyrene | µg/L | < | 2.5 | | | | | | | | | |
| | 3,4-Benzofluoranthene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzo(ghi)Perylene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzo(k)Fluoranthene | µg/L | < | 2.5 | | | | | | | | | |
| | Bis(2-Chloroethoxy)Methane | µg/L | < | 5 | | | | | | | | | |
| | Bis(2-Chloroethyl)Ether | µg/L | < | 5 | | | | | | | | | |
| | Bis(2-Chloroisopropyl)Ether | µg/L | < | 5 | | | | | | | | | |
| | Bis(2-Ethylhexyl)Phthalate | µg/L | < | 5 | | | | | | | | | |
| | 4-Bromophenyl Phenyl Ether | µg/L | < | 5 | | | | | | | | | |
| | Butyl Benzyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | 2-Chloronaphthalene | µg/L | < | 5 | | | | | | | | | |
| | 4-Chlorophenyl Phenyl Ether | µg/L | < | 5 | | | | | | | | | |
| | Chrysene | µg/L | < | 2.5 | | | | | | | | | |
| | Dibenzo(a,h)Anthrancene | µg/L | < | 2.5 | | | | | | | | | |
| | 1,2-Dichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,3-Dichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,4-Dichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| | 3,3-Dichlorobenzidine | µg/L | < | 5.5 | | | | | | | | | |
| | Diethyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | Dimethyl Phthalate | µg/L | < | 2.5 | | | | | | | | | |
| | Di-n-Butyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | 2,4-Dinitrotoluene | µg/L | < | 5 | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2,6-Dinitrotoluene | µg/L | < | 5 | | | | | | | | | |
| | Di-n-Octyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | 1,2-Diphenylhydrazine | µg/L | < | 5 | | | | | | | | | |
| | Fluoranthene | µg/L | < | 2.5 | | | | | | | | | |
| | Fluorene | µg/L | < | 2.5 | | | | | | | | | |
| | Hexachlorobenzene | µg/L | < | 5 | | | | | | | | | |
| | Hexachlorobutadiene | µg/L | < | 0.5 | | | | | | | | | |
| | Hexachlorocyclopentadiene | µg/L | < | 5 | | | | | | | | | |
| | Hexachloroethane | µg/L | < | 2.5 | | | | | | | | | |
| | Indeno(1,2,3-cd)Pyrene | µg/L | < | 2.5 | | | | | | | | | |
| | Isophorone | µg/L | < | 5 | | | | | | | | | |
| | Naphthalene | µg/L | < | 0.5 | | | | | | | | | |
| | Nitrobenzene | µg/L | < | 5 | | | | | | | | | |
| | n-Nitrosodimethylamine | µg/L | < | 5 | | | | | | | | | |
| | n-Nitrosodi-n-Propylamine | µg/L | < | 5 | | | | | | | | | |
| | n-Nitrosodiphenylamine | µg/L | < | 5 | | | | | | | | | |
| | Phenanthrene | µg/L | < | 2.5 | | | | | | | | | |
| | Pyrene | µg/L | < | 2.5 | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| Group 6 | Aldrin | µg/L | < | 0.007 | | | | | | | | | |
| | alpha-BHC | µg/L | < | 0.005 | | | | | | | | | |
| | beta-BHC | µg/L | < | 0.003 | | | | | | | | | |
| | gamma-BHC | µg/L | < | 0.006 | | | | | | | | | |
| | delta BHC | µg/L | < | 0.01 | | | | | | | | | |
| | Chlordane | µg/L | < | 0.129 | | | | | | | | | |
| | 4,4-DDT | µg/L | < | 0.007 | | | | | | | | | |
| | 4,4-DDE | µg/L | < | 0.006 | | | | | | | | | |
| | 4,4-DDD | µg/L | < | 0.006 | | | | | | | | | |
| | Dieldrin | µg/L | < | 0.004 | | | | | | | | | |
| | alpha-Endosulfan | µg/L | < | 0.003 | | | | | | | | | |
| | beta-Endosulfan | µg/L | < | 0.004 | | | | | | | | | |
| | Endosulfan Sulfate | µg/L | < | 0.005 | | | | | | | | | |
| | Endrin | µg/L | | 0.015 | | | | | | | | | |
| | Endrin Aldehyde | µg/L | < | 0.008 | | | | | | | | | |
| | Heptachlor | µg/L | | 0.009 | | | | | | | | | |
| | Heptachlor Epoxide | µg/L | < | 0.005 | | | | | | | | | |
| | 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 | < | 0.492 | | | | | | | | | |
| | 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 1.4, May 2023

## Stream / Surface Water Information

**Oaks WWTP, NPDES Permit No. PA0026964, Outfall 001**

Instructions | Discharge | Stream

Receiving Surface Water Name: **Schuylkill River**

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 | 000833 | 32.35 | 70.1 | 1689 | | | Yes |
| End of Reach 1 | 000833 | 32 | 69.4 | 1690 | | | Yes |

$Q_{7-10}$

| Location | RMI | LFY ($cfs/mi^2$)* | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time (days) | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness* | pH* | Hardness | pH |
| Point of Discharge | 32.35 | 0.1 | 343 | | | | | | | | | 141 | 7 | | |
| End of Reach 1 | 32 | 0.1 | 343.1 | | | | | | | | | 141 | 7 | | |

$Q_h$

| Location | RMI | LFY ($cfs/mi^2$) | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time (days) | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness | pH | Hardness | pH |
| Point of Discharge | 32.35 | | | | | | | | | | | | | | |
| End of Reach 1 | 32 | | | | | | | | | | | | | | |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

# Model Results

**Oaks WWTP, NPDES Permit No. PA0026964, Outfall 001**

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ ***AFC*** CCT (min): 15 PMF: 0.052 Analysis Hardness (mg/l): 196.38 Analysis pH: 7.00

| Pollutants | Stream Conc (µg/L) | 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 | |
| Total Aluminum | 0 | 0 | | 0 | 750 | 750 | 1,354 | |
| Total Antimony | 0 | 0 | | 0 | 1,100 | 1,100 | 1,986 | |
| Total Arsenic | 0 | 0 | | 0 | 340 | 340 | 614 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 21,000 | 21,000 | 37,919 | |
| Total Boron | 0 | 0 | | 0 | 8,100 | 8,100 | 14,626 | |
| Total Cadmium | 0 | 0 | | 0 | 3.880 | 4.24 | 7.65 | Chem Translator of 0.916 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 990.244 | 3,134 | 5,658 | Chem Translator of 0.316 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 16 | 16.3 | 29.4 | Chem Translator of 0.982 applied |
| Total Cobalt | 0 | 0 | | 0 | 95 | 95.0 | 172 | |
| Total Copper | 0 | 0 | | 0 | 25.382 | 26.4 | 47.7 | Chem Translator of 0.96 applied |
| Free Cyanide | 0 | 0 | | 0 | 22 | 22.0 | 39.7 | |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | 133.526 | 193 | 348 | Chem Translator of 0.693 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 1.400 | 1.65 | 2.97 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 828.755 | 830 | 1,499 | 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 | 10.269 | 12.1 | 21.8 | Chem Translator of 0.85 applied |
| Total Thallium | 0 | 0 | | 0 | 65 | 65.0 | 117 | |
| Total Zinc | 0 | 0 | | 0 | 207.586 | 212 | 383 | Chem Translator of 0.978 applied |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 5.42 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Acrylonitrile | 0 | 0 | | 0 | 650 | 650 | 1,174 | |
| Benzene | 0 | 0 | | 0 | 640 | 640 | 1,156 | |
| Bromoform | 0 | 0 | | 0 | 1,800 | 1,800 | 3,250 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 2,800 | 2,800 | 5,056 | |
| Chlorobenzene | 0 | 0 | | 0 | 1,200 | 1,200 | 2,167 | |
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | 18,000 | 18,000 | 32,502 | |
| Chloroform | 0 | 0 | | 0 | 1,900 | 1,900 | 3,431 | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 15,000 | 15,000 | 27,085 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 7,500 | 7,500 | 13,543 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 11,000 | 11,000 | 19,863 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 310 | 310 | 560 | |
| Ethylbenzene | 0 | 0 | | 0 | 2,900 | 2,900 | 5,236 | |
| Methyl Bromide | 0 | 0 | | 0 | 550 | 550 | 993 | |
| Methyl Chloride | 0 | 0 | | 0 | 28,000 | 28,000 | 50,559 | |
| Methylene Chloride | 0 | 0 | | 0 | 12,000 | 12,000 | 21,668 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 1,000 | 1,000 | 1,806 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 700 | 700 | 1,264 | |
| Toluene | 0 | 0 | | 0 | 1,700 | 1,700 | 3,070 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 6,800 | 6,800 | 12,279 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 3,000 | 3,000 | 5,417 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 3,400 | 3,400 | 6,139 | |
| Trichloroethylene | 0 | 0 | | 0 | 2,300 | 2,300 | 4,153 | |
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 560 | 560 | 1,011 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 1,700 | 1,700 | 3,070 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 660 | 660 | 1,192 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 80 | 80.0 | 144 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 660 | 660 | 1,192 | |
| 2-Nitrophenol | 0 | 0 | | 0 | 8,000 | 8,000 | 14,445 | |
| 4-Nitrophenol | 0 | 0 | | 0 | 2,300 | 2,300 | 4,153 | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | 160 | 160 | 289 | |
| Pentachlorophenol | 0 | 0 | | 0 | 8.723 | 8.72 | 15.8 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 460 | 460 | 831 | |
| Acenaphthene | 0 | 0 | | 0 | 83 | 83.0 | 150 | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 300 | 300 | 542 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.5 | 0.5 | 0.9 | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | 30,000 | 30,000 | 54,171 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 4,500 | 4,500 | 8,126 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | 270 | 270 | 488 | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 140 | 140 | 253 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2-Chloronaphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chrysene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | 820 | 820 | 1,481 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 350 | 350 | 632 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 730 | 730 | 1,318 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 4,000 | 4,000 | 7,223 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 2,500 | 2,500 | 4,514 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 110 | 110 | 199 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 1,600 | 1,600 | 2,889 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 990 | 990 | 1,788 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 15 | 15.0 | 27.1 | |
| Fluoranthene | 0 | 0 | | 0 | 200 | 200 | 361 | |
| Fluorene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobutadiene | 0 | 0 | | 0 | 10 | 10.0 | 18.1 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 5 | 5.0 | 9.03 | |
| Hexachloroethane | 0 | 0 | | 0 | 60 | 60.0 | 108 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 10,000 | 10,000 | 18,057 | |
| Naphthalene | 0 | 0 | | 0 | 140 | 140 | 253 | |
| Nitrobenzene | 0 | 0 | | 0 | 4,000 | 4,000 | 7,223 | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 17,000 | 17,000 | 30,697 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 300 | 300 | 542 | |
| Phenanthrene | 0 | 0 | | 0 | 5 | 5.0 | 9.03 | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 130 | 130 | 235 | |
| Aldrin | 0 | 0 | | 0 | 3 | 3.0 | 5.42 | |
| alpha-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| gamma-BHC | 0 | 0 | | 0 | 0.95 | 0.95 | 1.72 | |
| Chlordane | 0 | 0 | | 0 | 2.4 | 2.4 | 4.33 | |
| 4,4-DDT | 0 | 0 | | 0 | 1.1 | 1.1 | 1.99 | |
| 4,4-DDE | 0 | 0 | | 0 | 1.1 | 1.1 | 1.99 | |
| 4,4-DDD | 0 | 0 | | 0 | 1.1 | 1.1 | 1.99 | |
| Dieldrin | 0 | 0 | | 0 | 0.24 | 0.24 | 0.43 | |
| alpha-Endosulfan | 0 | 0 | | 0 | 0.22 | 0.22 | 0.4 | |
| beta-Endosulfan | 0 | 0 | | 0 | 0.22 | 0.22 | 0.4 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | 0.086 | 0.086 | 0.16 | |
| Endrin Aldehyde | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor | 0 | 0 | | 0 | 0.52 | 0.52 | 0.94 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.5 | 0.5 | 0.9 | |
| Toxaphene | 0 | 0 | | 0 | 0.73 | 0.73 | 1.32 | |

☑ ***CFC*** CCT (min): 720 PMF: 0.357 Analysis Hardness (mg/l): 156.19 Analysis pH: 7.00

| Pollutants | Stream Conc (µg/L) | 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 | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 220 | 220 | 1,448 | |
| Total Arsenic | 0 | 0 | | 0 | 150 | 150 | 987 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 4,100 | 4,100 | 26,986 | |
| Total Boron | 0 | 0 | | 0 | 1,600 | 1,600 | 10,531 | |
| Total Cadmium | 0 | 0 | | 0 | 0.335 | 0.38 | 2.48 | Chem Translator of 0.89 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 106.785 | 124 | 817 | Chem Translator of 0.86 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 10 | 10.4 | 68.4 | Chem Translator of 0.962 applied |
| Total Cobalt | 0 | 0 | | 0 | 19 | 19.0 | 125 | |
| Total Copper | 0 | 0 | | 0 | 13.109 | 13.7 | 89.9 | Chem Translator of 0.96 applied |
| Free Cyanide | 0 | 0 | | 0 | 5.2 | 5.2 | 34.2 | |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 0 | 0 | | 0 | 1,500 | 1,500 | 24,921 | WQC = 30 day average; PMF = 1 |
| Total Lead | 0 | 0 | | 0 | 4.075 | 5.61 | 36.9 | Chem Translator of 0.726 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 0.770 | 0.91 | 5.96 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 75.840 | 76.1 | 501 | 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 | 32.8 | 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 | 85.6 | |
| Total Zinc | 0 | 0 | | 0 | 172.378 | 175 | 1,151 | Chem Translator of 0.986 applied |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 19.7 | |
| Acrylonitrile | 0 | 0 | | 0 | 130 | 130 | 856 | |
| Benzene | 0 | 0 | | 0 | 130 | 130 | 856 | |
| Bromoform | 0 | 0 | | 0 | 370 | 370 | 2,435 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 560 | 560 | 3,686 | |
| Chlorobenzene | 0 | 0 | | 0 | 240 | 240 | 1,580 | |
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | 3,500 | 3,500 | 23,037 | |
| Chloroform | 0 | 0 | | 0 | 390 | 390 | 2,567 | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 3,100 | 3,100 | 20,404 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 1,500 | 1,500 | 9,873 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 2,200 | 2,200 | 14,480 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 61 | 61.0 | 401 | |
| Ethylbenzene | 0 | 0 | | 0 | 580 | 580 | 3,818 | |
| Methyl Bromide | 0 | 0 | | 0 | 110 | 110 | 724 | |
| Methyl Chloride | 0 | 0 | | 0 | 5,500 | 5,500 | 36,201 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 0 | 0 | | 0 | 2,400 | 2,400 | 15,797 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 210 | 210 | 1,382 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 140 | 140 | 921 | |
| Toluene | 0 | 0 | | 0 | 330 | 330 | 2,172 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 1,400 | 1,400 | 9,215 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 610 | 610 | 4,015 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 680 | 680 | 4,476 | |
| Trichloroethylene | 0 | 0 | | 0 | 450 | 450 | 2,962 | |
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 110 | 110 | 724 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 340 | 340 | 2,238 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 130 | 130 | 856 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 16 | 16.0 | 105 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 130 | 130 | 856 | |
| 2-Nitrophenol | 0 | 0 | | 0 | 1,600 | 1,600 | 10,531 | |
| 4-Nitrophenol | 0 | 0 | | 0 | 470 | 470 | 3,094 | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | 500 | 500 | 3,291 | |
| Pentachlorophenol | 0 | 0 | | 0 | 6.693 | 6.69 | 44.1 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 91 | 91.0 | 599 | |
| Acenaphthene | 0 | 0 | | 0 | 17 | 17.0 | 112 | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 59 | 59.0 | 388 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.1 | 0.1 | 0.66 | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | 6,000 | 6,000 | 39,492 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 910 | 910 | 5,990 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | 54 | 54.0 | 355 | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 35 | 35.0 | 230 | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chrysene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | 160 | 160 | 1,053 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 69 | 69.0 | 454 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 150 | 150 | 987 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 800 | 800 | 5,266 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 500 | 500 | 3,291 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 21 | 21.0 | 138 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 320 | 320 | 2,106 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 200 | 200 | 1,316 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 3 | 3.0 | 19.7 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Fluoranthene | 0 | 0 | | 0 | 40 | 40.0 | 263 | |
| Fluorene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobutadiene | 0 | 0 | | 0 | 2 | 2.0 | 13.2 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 1 | 1.0 | 6.58 | |
| Hexachloroethane | 0 | 0 | | 0 | 12 | 12.0 | 79.0 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 2,100 | 2,100 | 13,822 | |
| Naphthalene | 0 | 0 | | 0 | 43 | 43.0 | 283 | |
| Nitrobenzene | 0 | 0 | | 0 | 810 | 810 | 5,331 | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 3,400 | 3,400 | 22,379 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 59 | 59.0 | 388 | |
| Phenanthrene | 0 | 0 | | 0 | 1 | 1.0 | 6.58 | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 26 | 26.0 | 171 | |
| Aldrin | 0 | 0 | | 0 | 0.1 | 0.1 | 0.66 | |
| alpha-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| gamma-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlordane | 0 | 0 | | 0 | 0.0043 | 0.004 | 0.028 | |
| 4,4-DDT | 0 | 0 | | 0 | 0.001 | 0.001 | 0.007 | |
| 4,4-DDE | 0 | 0 | | 0 | 0.001 | 0.001 | 0.007 | |
| 4,4-DDD | 0 | 0 | | 0 | 0.001 | 0.001 | 0.007 | |
| Dieldrin | 0 | 0 | | 0 | 0.056 | 0.056 | 0.37 | |
| alpha-Endosulfan | 0 | 0 | | 0 | 0.056 | 0.056 | 0.37 | |
| beta-Endosulfan | 0 | 0 | | 0 | 0.056 | 0.056 | 0.37 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | 0.036 | 0.036 | 0.24 | |
| Endrin Aldehyde | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor | 0 | 0 | | 0 | 0.0038 | 0.004 | 0.025 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.0038 | 0.004 | 0.025 | |
| Toxaphene | 0 | 0 | | 0 | 0.0002 | 0.0002 | 0.001 | |

☑ ***THH*** CCT (min): 720 PMF: 0.357 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | 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 | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 5.6 | 5.6 | 36.9 | |
| Total Arsenic | 0 | 0 | | 0 | 10 | 10.0 | 65.8 | |
| Total Barium | 0 | 0 | | 0 | 2,400 | 2,400 | 15,797 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Boron | 0 | 0 | | 0 | 3,100 | 3,100 | 20,404 | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexavalent Chromium | 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 | |
| Free Cyanide | 0 | 0 | | 0 | 4 | 4.0 | 26.3 | |
| Dissolved Iron | 0 | 0 | | 0 | 300 | 300 | 1,975 | |
| Total Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Manganese | 0 | 0 | | 0 | 1,000 | 1,000 | 6,582 | |
| Total Mercury | 0 | 0 | | 0 | 0.050 | 0.05 | 0.33 | |
| Total Nickel | 0 | 0 | | 0 | 610 | 610 | 4,015 | |
| 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 | 1.58 | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 19.7 | |
| Acrylonitrile | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bromoform | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Carbon Tetrachloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlorobenzene | 0 | 0 | | 0 | 100 | 100.0 | 658 | |
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloroform | 0 | 0 | | 0 | 5.7 | 5.7 | 37.5 | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 33 | 33.0 | 217 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Ethylbenzene | 0 | 0 | | 0 | 68 | 68.0 | 448 | |
| Methyl Bromide | 0 | 0 | | 0 | 100 | 100.0 | 658 | |
| Methyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methylene Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Tetrachloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Toluene | 0 | 0 | | 0 | 57 | 57.0 | 375 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 100 | 100.0 | 658 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 10,000 | 10,000 | 65,820 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Trichloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 30 | 30.0 | 197 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 10 | 10.0 | 65.8 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 100 | 100.0 | 658 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 2 | 2.0 | 13.2 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 10 | 10.0 | 65.8 | |
| 2-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pentachlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Phenol | 0 | 0 | | 0 | 4,000 | 4,000 | 26,328 | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acenaphthene | 0 | 0 | | 0 | 70 | 70.0 | 461 | |
| Anthracene | 0 | 0 | | 0 | 300 | 300 | 1,975 | |
| Benzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | 200 | 200 | 1,316 | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 0.1 | 0.1 | 0.66 | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | 800 | 800 | 5,266 | |
| Chrysene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | 1,000 | 1,000 | 6,582 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 7 | 7.0 | 46.1 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 300 | 300 | 1,975 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 600 | 600 | 3,949 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 2,000 | 2,000 | 13,164 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 20 | 20.0 | 132 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoranthene | 0 | 0 | | 0 | 20 | 20.0 | 132 | |
| Fluorene | 0 | 0 | | 0 | 50 | 50.0 | 329 | |
| Hexachlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobutadiene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 4 | 4.0 | 26.3 | |
| Hexachloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 34 | 34.0 | 224 | |
| Naphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Nitrobenzene | 0 | 0 | | 0 | 10 | 10.0 | 65.8 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| n-Nitrosodimethylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Phenanthrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pyrene | 0 | 0 | | 0 | 20 | 20.0 | 132 | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 0.07 | 0.07 | 0.46 | |
| Aldrin | 0 | 0 | | 0 | N/A | N/A | N/A | |
| alpha-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| gamma-BHC | 0 | 0 | | 0 | 4.2 | 4.2 | 27.6 | |
| Chlordane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,4-DDT | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,4-DDE | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,4-DDD | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dieldrin | 0 | 0 | | 0 | N/A | N/A | N/A | |
| alpha-Endosulfan | 0 | 0 | | 0 | 20 | 20.0 | 132 | |
| beta-Endosulfan | 0 | 0 | | 0 | 20 | 20.0 | 132 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | 20 | 20.0 | 132 | |
| Endrin | 0 | 0 | | 0 | 0.03 | 0.03 | 0.2 | |
| Endrin Aldehyde | 0 | 0 | | 0 | 1 | 1.0 | 6.58 | |
| Heptachlor | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor Epoxide | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Toxaphene | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ ***CRL*** CCT (min): 720 PMF: 0.513 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | 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 | |
| Total Aluminum | 0 | 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 | |
| Hexavalent Chromium | 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 | |
| Free Cyanide | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Manganese | 0 | 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 | |
| Acrolein | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acrylonitrile | 0 | 0 | | 0 | 0.06 | 0.06 | 1.77 | |
| Benzene | 0 | 0 | | 0 | 0.58 | 0.58 | 17.1 | |
| Bromoform | 0 | 0 | | 0 | 7 | 7.0 | 206 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 0.4 | 0.4 | 11.8 | |
| Chlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlorodibromomethane | 0 | 0 | | 0 | 0.8 | 0.8 | 23.6 | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloroform | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dichlorobromomethane | 0 | 0 | | 0 | 0.95 | 0.95 | 28.0 | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 9.9 | 9.9 | 292 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 0.9 | 0.9 | 26.5 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 0.27 | 0.27 | 7.96 | |
| Ethylbenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methyl Bromide | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methylene Chloride | 0 | 0 | | 0 | 20 | 20.0 | 590 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 0.2 | 0.2 | 5.9 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 10 | 10.0 | 295 | |
| Toluene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 0.55 | 0.55 | 16.2 | |
| Trichloroethylene | 0 | 0 | | 0 | 0.6 | 0.6 | 17.7 | |
| Vinyl Chloride | 0 | 0 | | 0 | 0.02 | 0.02 | 0.59 | |
| 2-Chlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pentachlorophenol | 0 | 0 | | 0 | 0.030 | 0.03 | 0.88 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 1.5 | 1.5 | 44.2 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.003 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.029 | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.003 | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.029 | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | 0.01 | 0.01 | 0.29 | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | 0.03 | 0.03 | 0.88 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 0.32 | 0.32 | 9.44 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chrysene | 0 | 0 | | 0 | 0.12 | 0.12 | 3.54 | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.003 | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | 0.05 | 0.05 | 1.47 | |
| Diethyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dimethyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 0.05 | 0.05 | 1.47 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 0.05 | 0.05 | 1.47 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 0.03 | 0.03 | 0.88 | |
| Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluorene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobenzene | 0 | 0 | | 0 | 0.00008 | 0.00008 | 0.002 | |
| Hexachlorobutadiene | 0 | 0 | | 0 | 0.01 | 0.01 | 0.29 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachloroethane | 0 | 0 | | 0 | 0.1 | 0.1 | 2.95 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.029 | |
| Isophorone | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Naphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Nitrobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 0.0007 | 0.0007 | 0.021 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | 0.005 | 0.005 | 0.15 | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 3.3 | 3.3 | 97.3 | |
| Phenanthrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Aldrin | 0 | 0 | | 0 | 0.0000008 | 8.00E-07 | 0.00002 | |
| alpha-BHC | 0 | 0 | | 0 | 0.0004 | 0.0004 | 0.012 | |
| beta-BHC | 0 | 0 | | 0 | 0.008 | 0.008 | 0.24 | |
| gamma-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlordane | 0 | 0 | | 0 | 0.0003 | 0.0003 | 0.009 | |
| 4,4-DDT | 0 | 0 | | 0 | 0.00003 | 0.00003 | 0.0009 | |
| 4,4-DDE | 0 | 0 | | 0 | 0.00002 | 0.00002 | 0.0006 | |
| 4,4-DDD | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.003 | |
| Dieldrin | 0 | 0 | | 0 | 0.000001 | 0.000001 | 0.00003 | |
| alpha-Endosulfan | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-Endosulfan | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin Aldehyde | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor | 0 | 0 | | 0 | 0.000006 | 0.000006 | 0.0002 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.00003 | 0.00003 | 0.0009 | |
| Toxaphene | 0 | 0 | | 0 | 0.0007 | 0.0007 | 0.021 | |

☑ ***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 |
| Total Cadmium | Report | Report | Report | Report | Report | µg/L | 2.48 | CFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Copper | 3.62 | 5.65 | 30.6 | 47.7 | 76.5 | µg/L | 30.6 | AFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Total Zinc | Report | Report | Report | Report | Report | µg/L | 246 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| 3,3-Dichlorobenzidine | 0.17 | 0.27 | 1.47 | 2.3 | 3.69 | µg/L | 1.47 | CRL | Discharge Conc ≥ 50% WQBEL (RP) |
| Heptachlor | 0.00002 | 0.00003 | 0.0002 | 0.0003 | 0.0004 | µg/L | 0.0002 | CRL | Discharge Conc ≥ 50% WQBEL (RP) |
| | | | | | | | | | |

☑ ***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 |
| Total Aluminum | 868 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Antimony | N/A | N/A | Discharge Conc < TQL |
| Total Arsenic | 65.8 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Barium | 15,797 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium | N/A | N/A | No WQS |
| Total Boron | 9,375 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Chromium (III) | 817 | µg/L | Discharge Conc ≤ 10% WQBEL |

| | | | |
|---|---|---|---|
| Hexavalent Chromium | 18.9 | µg/L | Discharge Conc < TQL |
| Total Cobalt | 110 | µg/L | Discharge Conc < TQL |
| Free Cyanide | 25.5 | µg/L | Discharge Conc ≤ 25% WQBEL |
| Total Cyanide | N/A | N/A | No WQS |
| Dissolved Iron | 1,975 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Iron | 24,921 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Lead | 36.9 | µg/L | Discharge Conc < TQL |
| Total Manganese | 6,582 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury | 0.33 | µg/L | Discharge Conc < TQL |
| Total Nickel | 501 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Phenols (Phenolics) (PWS) | | µg/L | PWS Not Applicable |
| Total Selenium | 32.8 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Silver | 14.0 | µg/L | Discharge Conc < TQL |
| Total Thallium | 1.58 | µg/L | Discharge Conc < TQL |
| Total Molybdenum | N/A | N/A | No WQS |
| Acrolein | 3.47 | µg/L | Discharge Conc < TQL |
| Acrylonitrile | 1.77 | µg/L | Discharge Conc < TQL |
| Benzene | 17.1 | µg/L | Discharge Conc < TQL |
| Bromoform | 206 | µg/L | Discharge Conc < TQL |
| Carbon Tetrachloride | 11.8 | µg/L | Discharge Conc < TQL |
| Chlorobenzene | 658 | µg/L | Discharge Conc ≤ 25% WQBEL |
| Chlorodibromomethane | 23.6 | µg/L | Discharge Conc < TQL |
| Chloroethane | N/A | N/A | No WQS |
| 2-Chloroethyl Vinyl Ether | 20,833 | µg/L | Discharge Conc < TQL |
| Chloroform | 37.5 | µg/L | Discharge Conc ≤ 25% WQBEL |
| Dichlorobromomethane | 28.0 | µg/L | Discharge Conc < TQL |
| 1,1-Dichloroethane | N/A | N/A | No WQS |
| 1,2-Dichloroethane | 292 | µg/L | Discharge Conc < TQL |
| 1,1-Dichloroethylene | 217 | µg/L | Discharge Conc < TQL |
| 1,2-Dichloropropane | 26.5 | µg/L | Discharge Conc < TQL |
| 1,3-Dichloropropylene | 7.96 | µg/L | Discharge Conc < TQL |
| 1,4-Dioxane | N/A | N/A | No WQS |
| Ethylbenzene | 448 | µg/L | Discharge Conc < TQL |
| Methyl Bromide | 637 | µg/L | Discharge Conc < TQL |
| Methyl Chloride | 32,406 | µg/L | Discharge Conc < TQL |
| Methylene Chloride | 590 | µg/L | Discharge Conc < TQL |
| 1,1,2,2-Tetrachloroethane | 5.9 | µg/L | Discharge Conc < TQL |
| Tetrachloroethylene | 295 | µg/L | Discharge Conc < TQL |
| Toluene | 375 | µg/L | Discharge Conc < TQL |
| 1,2-trans-Dichloroethylene | 658 | µg/L | Discharge Conc < TQL |
| 1,1,1-Trichloroethane | 3,472 | µg/L | Discharge Conc < TQL |
| 1,1,2-Trichloroethane | 16.2 | µg/L | Discharge Conc < TQL |
| Trichloroethylene | 17.7 | µg/L | Discharge Conc < TQL |
| Vinyl Chloride | 0.59 | µg/L | Discharge Conc < TQL |
| 2-Chlorophenol | 197 | µg/L | Discharge Conc < TQL |

| | | | |
|---|---|---|---|
| 2,4-Dichlorophenol | 65.8 | µg/L | Discharge Conc < TQL |
| 2,4-Dimethylphenol | 658 | µg/L | Discharge Conc < TQL |
| 4,6-Dinitro-o-Cresol | 13.2 | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrophenol | 65.8 | µg/L | Discharge Conc < TQL |
| 2-Nitrophenol | 9,259 | µg/L | Discharge Conc < TQL |
| 4-Nitrophenol | 2,662 | µg/L | Discharge Conc < TQL |
| p-Chloro-m-Cresol | 185 | µg/L | Discharge Conc < TQL |
| Pentachlorophenol | 0.88 | µg/L | Discharge Conc < TQL |
| Phenol | 26,328 | µg/L | Discharge Conc < TQL |
| 2,4,6-Trichlorophenol | 44.2 | µg/L | Discharge Conc < TQL |
| Acenaphthene | 96.1 | µg/L | Discharge Conc < TQL |
| Acenaphthylene | N/A | N/A | No WQS |
| Anthracene | 1,975 | µg/L | Discharge Conc < TQL |
| Benzidine | 0.003 | µg/L | Discharge Conc < TQL |
| Benzo(a)Anthracene | 0.029 | µg/L | Discharge Conc < TQL |
| Benzo(a)Pyrene | 0.003 | µg/L | Discharge Conc < TQL |
| 3,4-Benzofluoranthene | 0.029 | µg/L | Discharge Conc < TQL |
| Benzo(ghi)Perylene | N/A | N/A | No WQS |
| Benzo(k)Fluoranthene | 0.29 | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroethoxy)Methane | N/A | N/A | No WQS |
| Bis(2-Chloroethyl)Ether | 0.88 | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroisopropyl)Ether | 1,316 | µg/L | Discharge Conc < TQL |
| Bis(2-Ethylhexyl)Phthalate | 9.44 | µg/L | Discharge Conc < TQL |
| 4-Bromophenyl Phenyl Ether | 312 | µg/L | Discharge Conc < TQL |
| Butyl Benzyl Phthalate | 0.66 | µg/L | Discharge Conc < TQL |
| 2-Chloronaphthalene | 5,266 | µg/L | Discharge Conc < TQL |
| 4-Chlorophenyl Phenyl Ether | N/A | N/A | No WQS |
| Chrysene | 3.54 | µg/L | Discharge Conc < TQL |
| Dibenzo(a,h)Anthrancene | 0.003 | µg/L | Discharge Conc < TQL |
| 1,2-Dichlorobenzene | 949 | µg/L | Discharge Conc < TQL |
| 1,3-Dichlorobenzene | 46.1 | µg/L | Discharge Conc < TQL |
| 1,4-Dichlorobenzene | 845 | µg/L | Discharge Conc < TQL |
| Diethyl Phthalate | 3,949 | µg/L | Discharge Conc < TQL |
| Dimethyl Phthalate | 2,893 | µg/L | Discharge Conc < TQL |
| Di-n-Butyl Phthalate | 127 | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrotoluene | 1.47 | µg/L | Discharge Conc < TQL |
| 2,6-Dinitrotoluene | 1.47 | µg/L | Discharge Conc < TQL |
| Di-n-Octyl Phthalate | N/A | N/A | No WQS |
| 1,2-Diphenylhydrazine | 0.88 | µg/L | Discharge Conc < TQL |
| Fluoranthene | 132 | µg/L | Discharge Conc < TQL |
| Fluorene | 329 | µg/L | Discharge Conc < TQL |
| Hexachlorobenzene | 0.002 | µg/L | Discharge Conc < TQL |
| Hexachlorobutadiene | 0.29 | µg/L | Discharge Conc < TQL |
| Hexachlorocyclopentadiene | 5.79 | µg/L | Discharge Conc < TQL |
| Hexachloroethane | 2.95 | µg/L | Discharge Conc < TQL |

| | | | |
|---|---|---|---|
| Indeno(1,2,3-cd)Pyrene | 0.029 | µg/L | Discharge Conc < TQL |
| Isophorone | 224 | µg/L | Discharge Conc < TQL |
| Naphthalene | 162 | µg/L | Discharge Conc < TQL |
| Nitrobenzene | 65.8 | µg/L | Discharge Conc < TQL |
| n-Nitrosodimethylamine | 0.021 | µg/L | Discharge Conc < TQL |
| n-Nitrosodi-n-Propylamine | 0.15 | µg/L | Discharge Conc < TQL |
| n-Nitrosodiphenylamine | 97.3 | µg/L | Discharge Conc < TQL |
| Phenanthrene | 5.79 | µg/L | Discharge Conc < TQL |
| Pyrene | 132 | µg/L | Discharge Conc < TQL |
| 1,2,4-Trichlorobenzene | 0.46 | µg/L | Discharge Conc < TQL |
| Aldrin | 0.00002 | µg/L | Discharge Conc < TQL |
| alpha-BHC | 0.012 | µg/L | Discharge Conc < TQL |
| beta-BHC | 0.24 | µg/L | Discharge Conc < TQL |
| gamma-BHC | 1.1 | µg/L | Discharge Conc < TQL |
| delta BHC | N/A | N/A | No WQS |
| Chlordane | 0.009 | µg/L | Discharge Conc < TQL |
| 4,4-DDT | 0.0009 | µg/L | Discharge Conc < TQL |
| 4,4-DDE | 0.0006 | µg/L | Discharge Conc < TQL |
| 4,4-DDD | 0.003 | µg/L | Discharge Conc < TQL |
| Dieldrin | 0.00003 | µg/L | Discharge Conc < TQL |
| alpha-Endosulfan | 0.25 | µg/L | Discharge Conc < TQL |
| beta-Endosulfan | 0.25 | µg/L | Discharge Conc < TQL |
| Endosulfan Sulfate | 132 | µg/L | Discharge Conc < TQL |
| Endrin | 0.1 | µg/L | Discharge Conc ≤ 25% WQBEL |
| Endrin Aldehyde | 6.58 | µg/L | Discharge Conc < TQL |
| Heptachlor Epoxide | 0.0009 | µg/L | Discharge Conc < TQL |
| Toxaphene | 0.001 | µg/L | Discharge Conc < TQL |

## 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 |
|---|---|---|---|---|---|---|---|---|
| 03F | 833 | SCHUYLKILL RIVER | **32.350** | 70.10 | 1689.90 | 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 | 343.00 | 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 |
|---|---|---|---|---|---|---|---|
| Oaks WWTP | PA0026964 | 0.0000 | 0.0000 | 14.2500 | 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 | 18.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 7.20 | 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 |
|---|---|---|---|---|---|---|---|---|
| 03F | 833 | SCHUYLKILL RIVER | **32.000** | 69.40 | 1690.00 | 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 | 343.10 | 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 |
|---|---|---|---|---|---|---|---|
| VFSA WWTP | PA0043974 | 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 | 16.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 6.30 | 0.00 | 0.00 | 0.70 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 03F | 833 | SCHUYLKILL RIVER |

| 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** | | | | | | | | | | | | |
| 32.350 | 343.00 | 0.00 | 343.00 | 22.0448 | 0.00038 | 1.164 | 337.34 | 289.77 | 0.93 | 0.023 | 20.30 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 32.350 | 219.52 | 0.00 | 219.52 | 22.0448 | 0.00038 | NA | NA | NA | 0.74 | 0.029 | 20.46 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 32.350 | 466.48 | 0.00 | 466.48 | 22.0448 | 0.00038 | NA | NA | NA | 1.09 | 0.020 | 20.23 | 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 | | |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 03F | 833 | SCHUYLKILL RIVER |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 32.350 | 14.250 | 20.302 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 337.342 | 1.164 | 289.769 | 0.930 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 2.97 | 0.544 | 0.43 | 0.716 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 8.047 | 1.654 | Tsivoglou | 6 |
| **Reach Travel Time (days)** | | | |
| 0.023 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.002 | 2.96 | 0.43 | 8.04 |
| 0.005 | 2.96 | 0.43 | 8.04 |
| 0.007 | 2.95 | 0.43 | 8.03 |
| 0.009 | 2.95 | 0.43 | 8.03 |
| 0.012 | 2.95 | 0.43 | 8.02 |
| 0.014 | 2.94 | 0.43 | 8.02 |
| 0.016 | 2.94 | 0.43 | 8.01 |
| 0.018 | 2.94 | 0.43 | 8.01 |
| 0.021 | 2.93 | 0.43 | 8.00 |
| 0.023 | 2.93 | 0.43 | 8.00 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 03F | 833 | SCHUYLKILL RIVER |

## 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 |
|---|---|---|---|---|---|---|---|
| 32.350 | Oaks WWTP | 16.14 | 14.4 | 16.14 | 14.4 | 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 |
|---|---|---|---|---|---|---|---|
| 32.350 | Oaks WWTP | 1.86 | 7.2 | 1.86 | 7.2 | 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) | | |
| 32.35 | Oaks WWTP | 18 | 18 | 7.2 | 7.2 | 5 | 5 | 0 | 0 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 03F | 833 | SCHUYLKILL RIVER |

| 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) |
|---|---|---|---|---|---|---|---|
| 32.350 | Oaks WWTP | PA0026964 | 0.000 | CBOD5 | 18 | | |
| | | | | NH3-N | 7.2 | 14.4 | |
| | | | | Dissolved Oxygen | | | 5 |

## TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9 — Oaks WWTP

| | | | |
|---|---|---|---|
| 343 | = Q stream (cfs) | 0.5 | = CV Daily |
| 14.25 | = Q discharge (MGD) | 0.5 | = CV Hourly |
| 4 | = no. samples | 0.052 | = AFC_Partial Mix Factor |
| 0.3 | = Chlorine Demand of Stream | 0.357 | = CFC_Partial Mix Factor |
| 0 | = Chlorine Demand of Discharg | 15 | = AFC_Criteria Compliance Time (min) |
| 0.5 | = BAT/BPJ Value | 720 | = CFC_Criteria Compliance Time (min) |
| 0 | = % Factor of Safety (FOS) | 0 | =Decay Coefficient (K) |

| Source | Reference | AFC Calculations | | Reference | CFC Calculations | |
|---|---|---|---|---|---|---|
| TRC | 1.3.2.iii | WLA afc = | 0.277 | 1.3.2.iii | WLA cfc = | 1.738 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = | 0.373 | 5.1c | LTAMULT cfc = | 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= | 0.103 | 5.1d | LTA_cfc = | 1.011 |

| Source | | Effluent Limit Calculations | | |
|---|---|---|---|---|
| PENTOXSD TRG | 5.1f | AML MULT = | 1.720 | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = | 0.178 | AFC |
| | | INST MAX LIMIT (mg/l) = | 0.416 | |

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