pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Southwest Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0035360** |
| Facility Type | **Municipal** | APS ID | **662882** |
| Major / Minor | **Major** | Authorization ID | **1237281** |

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Plum Borough Municipal Authority** | Facility Name | **Holiday Park STP** |
| Applicant Address | 4555 New Texas Road | Facility Address | 1848 Golden Mile Highway |
| | Pittsburgh, PA 15239-1197 | | Pittsburgh, PA 15239-2828 |
| Applicant Contact | Jeffrey Long | Facility Contact | Jeffrey Long |
| Applicant Phone | (724) 327-6866 | Facility Phone | (724) 327-6866 |
| Client ID | 28773 | Site ID | 4475 |
| Ch 94 Load Status | Not Overloaded | Municipality | Plum Borough |
| Connection Status | | County | Allegheny |
| Date Application Received | July 17, 2018 | EPA Waived? | No |
| Date Application Accepted | July 23, 2018 | If No, Reason | Major Facility |

Purpose of Application: Renewal of NPDES Permit

## Summary of Review

The Authority has submitted its renewal application on July 17, 2018 for its NPDES Permit which was to expire on January 31, 2019. The discharge is to Abers Creek which is classified as a trout stocked fishery.

The facility has a seasonal design flow due to changes in the quantity and quality of the raw wastewater that results from inflow/infiltration. The specific design capacity has been established at 1.8 MGD and 2.24 MGD for the periods of June 1 to October 31, and November 1 to May 31, respectively. Effluent limits are based on these two flows as necessary. However, any effluent limits developed through PENTOXSD Modeling are based on average design flow of 1.8 MGD, since 2.24 MGD design flow is not the result of an increase in wastewater flow but I/I induced.

The STP consists of the following: Grit removal, SBRs, aerobic digesters and UV disinfection.

Outfalls 010, 011, 012 and 013 are permitted for the discharge of uncontaminated storm water runoff and conditions will be added to Part C of the permit.

**Water – Quality Based Effluent Limitations**

WQM 7.0 was run to determine if the limits $CBOD_5$, $NH_3$ – N, and DO change. The limits remain the same as previous permit. The limits for these parameters are shown below:

WQM7.0 Effluent Limits Warm Weather

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | /s/<br>Harris Mahmud / Permit Reviewer | 8/24/2019 |
| X | | /s/<br>Donald J. Leone, P.E. / Environmental Engineer Manager | 8/26/2019 |

**Summary of Review**

| Parameter | Average Monthly mg/l | Maximum mg/l | Minimum mg/l |
|---|---|---|---|
| $CBOD_5$ | 10 | | |
| $NH_3$ - N | 1.9 | 3.8 | |
| DO | | | 6 |

WQM7.0 Effluent Limits Cold Weather

| Parameter | Average Monthly mg/l | Maximum mg/l | Minimum mg/l |
|---|---|---|---|
| $CBOD_5$ | 20 | | |
| $NH_3$ - N | 3 | 6 | |
| DO | | | 6 |

TSS limit is kept the same as in the previous permit.

**Toxics Screening Analysis**

The applicant submitted analysis results tables for Pollutant Group 1 to 6, along with the permit renewal application. The concentration values of submitted parameters were entered in Toxics Screening Analysis and found Total Copper, and Total Zinc as candidates for PENTOXSD Modeling. The modeling was run. From PENTOXSD Modeling results, the most stringent WQBEL values were entered into the Toxics Screening Analysis and Total Copper and Total Zink were cited for monitoring for the permit. However, as monitoring for Total Copper was already imposed in the amended permit for Holiday Park STP issued on 8/30/2018, the monitoring will also be imposed in the renewal permit. This renewal permit will also include the following Part C Condition from the said amended permit:

A. The permittee shall monitor for copper concentrations at Outfall 001 on a calendar quarterly basis. The monitoring shall, at a minimum, consists of 2 samples per one month of each quarter. If any average monthly value exceeds 20 µg/l, then the permittee shall conduct a site-specific copper criteria study at Turtle Creek, below the confluence with Abers Creek, to ensure that no further degradation occurs in Turtle Creek. The study for the site-specific copper criteria at Turtle Creek shall be in accordance with Chapter 93.8d. The proposed study plan shall be submitted to the PA DEP within 120 days from the end of the month in which the monthly average copper concentration discharged from Outfall 001 exceeds 20 µg/l. The proposed study plan must include an implementation schedule. The implementation schedule must reflect a schedule that will provide for the completion of the study in a reasonably expedient manner. The proposed study plan must be approved by PA DEP before any work begins on the site-specific copper criteria at Turtle Creek. Upon PA DEP's approval of the proposed study plan, the permittee shall implement the plan in accordance with the implementation schedule.

   Refer to the Fact Sheet for the 8/30/2018 Amendment for a more detailed explanation for the basis of this condition.

The review of eDMR reported values for concentrations of Total Copper showed that the plant did not exceed average monthly concentration of 20 µg/l for Total Copper.

The applicant was notified about Total Zinc being candidate for monitoring in the permit, the permittee decided to sample and analyze the results for Total Zinc at three different events in one month. The analysis results are shown below:

The analyses summary for Total Zinc is as follows:

Sample 1, June 3, 2019 = 55 ug/L
Sample 2, June 6, 2019 = 39 ug/L
Sample 3, June 17, 2019 = 57 ug/L

The highest concentration value for Total Zinc from this analysis was entered in Toxics Screening Analysis and it was not cited as a candidate for PENTOXSD Modeling. As such, the permit will not include Total Zinc for monitoring.

**Concerns for TDS, Sulfate, Chloride, Bromide and 1,4-Dioxane**

**Summary of Review**

The Department determined in 2014 that Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems. In addition, as a consequence of actions associated with Triennial Review 13, the Environmental Quality Board has directed DEP to collect additional data related to sulfate, chloride, and 1,4-dioxane. Furthermore, in an August 2013 letter from Jon Capacasa of the Region III Water Protection Program to DEP , EPA has expressed concern related to bromide and the importance of monitoring all point sources for bromide when it may be present.

Based on these concerns and under the authority of §92a.61, DEP has determined it should implement increased monitoring in NPDES permits for these parameters: TDS, sulfate, chloride, bromide, and 1,4-dioxane.

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.

This applicant has the following values of concentrations for TDS, sulfate, chloride, bromide, and 1,4-dioxane per Analysis Results Table submitted to the Department:

| Parameters | Discharge Concentrations (mg/l) | Candidate for monitoring |
|---|---|---|
| TDS | 427 | No |
| Bromide | 0.08 | No |
| Chloride | 132 | No |
| Sulfate | 54 | No |
| 1,4-Dioxane | <0.00066 | No |

Based on the monitoring criteria stated above, TDS, Bromide, Chloride, Sulfate and 1,4-Doxane are not to be monitored for this permit. The discharge flow for this plant is 1.8 MGD. The TDS concentration (427 mg/l) in discharge is much lower than the criteria concentration of 1,000 mg/l.

**Whole Effluent Toxicity (WET) Test and Analysis**

The applicant submitted the WETT analysis results for several quarters for duration of 2015 – 2016. The data from the last 4 quarters of 2016 were entered in DEP's WET Analysis Spreadsheet. In the previous permit, a limit of 1.0 Acute Toxicity – Ceriodaphnia Survival (TUa) was given. But this limit will not be carried over to this permit as the result from the spreadsheet indicated no reasonable potential for WET Effluent Limit in the permit. Permit Recommendations are given below:

Test Type: Chronic
TWIC: 97%
Dilution Series: 100%, 97%, 73%, 49%, 24%
Permit Limit: None

The details of testing and monitoring for WET will be detailed in the Part C Conditions of the permit.

**Monitoring of TN and TP**

**Summary of Review**

Nutrient monitoring is required to establish the nutrient load from the waste water treatment facility and the impacts that load may have on the quality of the receiving stream. Sewage discharges with design flows greater than 2,000 gpd require monitoring, at a minimum, for TN and TP in new and reissued permits.

**Aluminum and Iron**

A once per quarter Monitor and Report requirement for Total Aluminum and Iron was incorporated into this renewal because of the facility discharges to the Turtle Creek Watershed, which has TMDL for aluminum and iron, TMDL was final on 7/7/09.

**MASS LOADINGS**

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for CBOD5, TSS, and $NH_3$-N and average weekly mass loading limits be established for CBOD5 and TSS. The previous permit contained average monthly mass loading limits for NH3-N and will be carried over to be consistent with the previous permit.

Average monthly mass loading limits (lbs/day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

Mass loading limits are not applicable for non-publicly owned treatment works.

**Influent Monitoring**

For POTWs with design flows greater than 2,000 gpd, influent Raw Sewage $BOD_5$ and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters. This is consistent with the previous permit.

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**Daily Monitoring**

A monitoring frequency of once per year is considered acceptable. For pH, Dissolved Oxygen (DO), and UV Light Dosage, a monitoring frequency of “1/day” has been imposed. In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on the days when monitoring is not required. The permittee may remain in compliance with the permit by using a No Discharge on the “Daily Effluent Monitoring” supplemental form to identify the lack of discharge on a particular day.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP’s discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 1.8 |
| Latitude | 40º 26' 55.35" | Longitude | -79º 42' 47.58" |
| Quad Name | Murrysville | Quad Code | 1508 |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Abers Creek (TSF) | Stream Code | 37372 |
| NHD Com ID | 99407122 | RMI | 3.07 |
| Drainage Area | 4.57 sq.mi. | Yield (cfs/mi$^2$) | 0.02 |
| $Q_{7-10}$ Flow (cfs) | 0.09 | $Q_{7-10}$ Basis | USGS StreamStats – Previous Pollution Report |
| Elevation (ft) | 950 | Slope (ft/ft) | 0.00793 |
| Watershed No. | 19-A | Chapter 93 Class. | TSF |
| Existing Use | | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | Flow Alterations | | |
| Source(s) of Impairment | Channelization | | |
| TMDL Status | Final | Name | Turtle Creek Watershed |

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

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

Changes Since Last Permit Issuance: None

Other Comments: None

**Treatment Facility Summary**

**Treatment Facility Name:** Holiday Park STP

| WQM Permit No. | Issuance Date |
|---|---|
| 0273424-A4 | 08/30/2005 |
| | |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Tertiary | SBRs | UV | 1.8 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 1.8 | 3378 | Not Overloaded | Dewatering by Belt press | Disposed at Landfills |

Changes Since Last Permit Issuance: None

Other Comments: None

| Compliance History | |
|---|---|
| | |
| **Summary of DMRs:** | The permittee uses eDMR for reporting effluent concentration of permitted parameters. No open violations of effluent limits have been found in eDMR. |
| **Summary of Inspections:** | The facility has one open violation in 2019 from ACHD. |

Other Comments: None

## Compliance History

**DMR Data for Outfall 001 (from April 1, 2018 to March 31, 2019)**

| Parameter | MAR-19 | FEB-19 | JAN-19 | DEC-18 | NOV-18 | OCT-18 | SEP-18 | AUG-18 | JUL-18 | JUN-18 | MAY-18 | APR-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 1.44 | 2.27 | 1.91 | 2.00 | 2.03 | 1.60 | 1.81 | 1.07 | 1.17 | 1.82 | 1.27 | 2.09 |
| Flow (MGD) Daily Maximum | 2.79 | 3.18 | 3.14 | 3.20 | 2.79 | 2.92 | 3.70 | 2.59 | 2.06 | 2.93 | 2.63 | 3.33 |
| pH (S.U.) Instantaneous Minimum | 6.53 | 6.92 | 6.70 | 6.74 | 6.98 | | | | | | | |
| pH (S.U.) Minimum | | | | | | 6.80 | 6.90 | 6.98 | 7.00 | 7.00 | 6.90 | 6.70 |
| pH (S.U.) Instantaneous Maximum | 7.04 | 7.11 | 7.17 | 7.27 | 7.29 | | | | | | | |
| pH (S.U.) Maximum | | | | | | 7.21 | 7.18 | 7.29 | 7.20 | 7.24 | 7.15 | 7.31 |
| DO (mg/L) Instantaneous Minimum | 7.8 | 7.56 | 7.08 | 7.18 | 7.28 | | | | | | | |
| DO (mg/L) Minimum | | | | | | 7.01 | 7.08 | 6.95 | 6.96 | 6.71 | 6.48 | 6.70 |
| CBOD5 (lbs/day) Average Monthly | < 46 | < 54 | < 50 | < 54 | < 93 | < 44.8 | < 59.6 | < 57 | < 51 | < 65 | < 52 | < 84 |
| CBOD5 (lbs/day) Weekly Average | 66 | < 75 | < 79 | 88 | 109 | < 76.8 | 104 | 93 | 88 | 93 | 66 | 128 |
| CBOD5 (mg/L) Average Monthly | < 4.3 | < 3.1 | < 3.3 | < 3.7 | < 6.5 | < 3.7 | < 3.4 | < 6.1 | < 5.8 | < 4.3 | < 5.5 | < 4.5 |
| CBOD5 (mg/L) Weekly Average | 6.7 | < 3.3 | < 4.0 | 5.9 | < 8.7 | < 4.8 | 4.1 | 9.0 | 10.1 | 5.2 | 7.6 | 6.0 |
| BOD5 (lbs/day) Raw Sewage Influent <br/> Average Monthly | 1161 | 1773 | 1294 | 1238 | 1575 | 1170 | 1280 | 1287 | 1231 | 1808 | 1326 | 1365 |
| BOD5 (lbs/day) Raw Sewage Influent <br/> Daily Maximum | 2310 | 3389 | 1811 | 1725 | 2779 | 1594 | 3347 | 2850 | 1863 | 5471 | 1930 | 2194 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BOD5 (mg/L) Raw Sewage Influent <br/> Average Monthly | 132 | 119 | 116 | 103 | 126 | 117 | 98 | 173 | 156 | 137 | 167.0 | 105 |
| TSS (lbs/day) Average Monthly | < 55 | < 89 | < 71 | < 73 | < 78 | < 61 | < 84.8 | < 47 | < 45 | < 75 | < 48 | < 94 |
| TSS (lbs/day) Raw Sewage Influent <br/> Average Monthly | 1488 | 1895 | 1828 | 1449 | 1665 | 1365 | 1418 | 950 | 884 | 951 | 1554 | < 866 |
| TSS (lbs/day) Raw Sewage Influent <br/> Daily Maximum | 6229 | 7495 | 7092 | 2256 | 4121 | 3350 | 4778 | 2257 | 1271 | 2906 | 7806 | 1349 |
| TSS (lbs/day) Weekly Average | < 63 | < 125 | < 109 | < 102 | < 113 | < 86 | < 125 | < 76 | < 49 | < 90 | < 61 | < 134 |
| TSS (mg/L) Average Monthly | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| TSS (mg/L) Raw Sewage Influent <br/> Average Monthly | 174 | 125 | 182 | 134 | 137 | 137 | 120 | 127 | 114 | 69 | 201 | 64 |
| TSS (mg/L) Weekly Average | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Fecal Coliform (CFU/100 ml) Geometric Mean | < 1 | < 2 | < 2 | < 2 | < 3 | 17 | < 26 | 15 | < 4 | < 7 | 12 | > 15 |
| Fecal Coliform (No./100 ml) Geometric Mean | < 1 | < 2 | < 2 | < 2 | < 3 | 17 | < 26 | 15 | < 4 | < 7 | 12 | > 15 |
| Fecal Coliform (CFU/100 ml) Instantaneous Maximum | 1 | 20 | 12 | 5 | 8 | 148 | 276 | 141 | 10 | 140 | > 2420 | > 2420 |
| Fecal Coliform (No./100 ml) Instantaneous Maximum | 1 | 20 | 12 | 5 | 8 | 148 | 276 | 141 | 10 | 140 | > 2420 | > 2420 |
| UV Transmittance (%) Instantaneous Minimum | 00 | 00 | 00 | 00 | 00 | | | | | | | |
| UV Transmittance (%) Minimum | | | | | | 00 | 00 | 72 | 103 | 102 | 100 | 101 |
| UV Transmittance (%) Average Monthly | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 77 | 110 | 110 | 107 | 108 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Nitrogen (mg/L) Daily Maximum | 5.95 | | | 8.84 | | | 6.28 | | | 7.23 | | |
| Ammonia (lbs/day) Average Monthly | < 8.7 | < 15 | < 12 | < 19 | < 13 | < 9.7 | < 14 | < 7.6 | < 7.3 | < 12 | < 7.8 | 24 |
| Ammonia (mg/L) Average Monthly | < 0.8 | < 0.85 | < 0.8 | < 1.3 | < 0.8 | < 0.800 | < 0.8 | < 0.800 | < 0.800 | < 0.800 | < 0.81 | < 1.29 |
| Ammonia (mg/L) Instantaneous Maximum | < 0.8 | 1.10 | 0.84 | 4.4 | < 0.8 | | | | | | | |
| Total Phosphorus (mg/L) Daily Maximum | 2.21 | | | 1.65 | | | 1.73 | | | 1.17 | | |
| Total Aluminum (mg/L) Daily Maximum | < 0.010 | | | < 0.010 | | | < 0.010 | | | < 0.010 | | |
| Total Copper (lbs/day) Average Monthly | 0.20 | 0.21 | 0.17 | 0.16 | 0.20 | < 0.12 | 0.21 | 0.16 | 0.17 | 0.12 | 0.11 | 0.13 |
| Total Copper (lbs/day) Daily Maximum | | | | | | 0.18 | 0.33 | 0.18 | 0.22 | 0.16 | 0.13 | 0.14 |
| Total Copper (mg/L) Average Monthly | 0.017 | 0.014 | 0.013 | 0.012 | 0.012 | < 0.010 | 0.012 | 0.019 | 0.018 | 0.009 | 0.011 | 0.007 |
| Total Copper (mg/L) Daily Maximum | | | | | | 0.015 | 0.018 | 0.021 | 0.021 | 0.011 | 0.014 | 0.010 |
| Total Iron (mg/L) Daily Maximum | 0.027 | | | 0.026 | | | 0.049 | | | 0.029 | | |
| Acute WET - Ceriodaphnia Survival (TUa) Daily Maximum | 1.0 | | | 1.0 | | | 1.0 | | | 0.0 | | |

## Compliance History

**Effluent Violations for Outfall 001, from: May 1, 2018 To: March 31, 2019**

| Parameter | Date | SBC | DMR Value | Units | Limit Value | Units |
|---|---|---|---|---|---|---|
| Fecal Coliform | 05/31/18 | IMAX | > 2420 | CFU/100 ml | 1000 | CFU/100 ml |
| Total Copper | 07/31/18 | Avg Mo | 0.018 | mg/L | 0.016 | mg/L |
| Total Copper | 08/31/18 | Avg Mo | 0.019 | mg/L | 0.016 | mg/L |

Summary of Inspections: No effluent limit violations. Total Copper exceedances occurred before the amendment permit was effective.
Other Comments: None

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 1.8
**Latitude** 40º 26' 55.42" **Longitude** -79º 42' 46.58"
**Wastewater Description:** Sewage Effluent

### Technology-Based Limitations

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

| Pollutant | Limit (mg/l) | SBC | Federal Regulation | State Regulation |
|---|---|---|---|---|
| $CBOD_5$ | 25 | Average Monthly | 133.102(a)(4)(i) | 92a.47(a)(1) |
| | 40 | Average Weekly | 133.102(a)(4)(ii) | 92a.47(a)(2) |
| Total Suspended Solids | 30 | Average Monthly | 133.102(b)(1) | 92a.47(a)(1) |
| | 45 | Average Weekly | 133.102(b)(2) | 92a.47(a)(2) |
| pH | 6.0 – 9.0 S.U. | Min – Max | 133.102(c) | 95.2(1) |
| Fecal Coliform (5/1 – 9/30) | 200 / 100 ml | Geo Mean | - | 92a.47(a)(4) |
| Fecal Coliform (5/1 – 9/30) | 1,000 / 100 ml | IMAX | - | 92a.47(a)(4) |
| Fecal Coliform (10/1 – 4/30) | 2,000 / 100 ml | Geo Mean | - | 92a.47(a)(5) |
| Fecal Coliform (10/1 – 4/30) | 10,000 / 100 ml | IMAX | - | 92a.47(a)(5) |
| Total Nitrogen | Report | Daily Max | - | 92a.61 |
| Total Phosphorous | Report | Daily Max | - | 92a.61 |
| $BOD_5$ Raw Sewage Influent | Report | Monthly Average | - | 92a.47(3) |
| TSS Raw Sewage Influent | Report | Monthly Average | - | 92a.47(3) |
| Total Aluminum | Report | Daily Max | - | 93.7(a) |
| Total Iron | Report | Daily Max | - | 93.7(a). |
| Ultraviolet light dosage ($mjoules/cm^2$) | Report | Monthly Average | - | Statewide Policy |

Comments: None

### Water Quality-Based Limitations

A “Reasonable Potential Analysis determined the following parameters were candidates for limitations: Total Copper and Total Zinc. The determination of monitoring ang reporting for Total Copper was discussed earlier in this Fact Sheet. The additional samplings and analysis for Total Zinc found it was not a candidate for PENTOXSD Modeling and no monitoring was required.

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

| Parameter | Limit (mg/l) | SBC | Model |
|---|---|---|---|
| CBOD5 May 1 - Oct 31 | 10 | Average Monthly | WQM 7.0 |
| CBOD5 Nov 1 - Apr 30 | 20 | Average Monthly | WQM 7.0 |
| Ammonia-Nitrogen May 1 - Oct 31 | 1.9 | Average Monthly | WQM 7.0 |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 3.0 | Average Monthly | WQM 7.0 |
| Dissolved Oxygen | 6.0 | Instant. Minimum | WQM 7.0 |

Comments: None

**Anti-Backsliding**
None of the effluent limits imposed in this permit is less stringent than the previously imposed limits.

## 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:

The dilution series used for the tests was: 100%, 90%, 70%. 50%, and 25%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 100%.

**Summary of Four Most Recent Test Results**

TST Data Analysis

*(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).*

| Test Date | *Ceriodaphnia* Results (Pass/Fail) | | *Pimephales* Results (Pass/Fail) | |
|---|---|---|---|---|
| | Survival | Reproduction | Survival | Growth |
| 2/2016 | Pass | | Pass | |
| 6/2016 | Pass | | Pass | |
| 9/2016 | Pass | | Pass | |
| 10/2016 | Pass | | Pass | |

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

**Comments: None**

**Evaluation of Test Type, IWC and Dilution Series for Renewed Permit**

Acute Partial Mix Factor (PMFa):1 Chronic Partial Mix Factor (PMFc): 1

**1. Determine IWC – Acute (IWCa)**:

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(1.8 MGD x 1.547) / ((0.09 cfs x 1) + (1.8 MGD x 1.547))] x 100 = **97%**

Is IWCa < 1%? ☐ **YES** ☒ **NO** **(YES - Acute Tests Required OR NO - Chronic Tests Required)**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

**N/A**

**Type of Test for Permit Renewal**: **Chronic**

**2a. Determine Target IWCa (If Acute Tests Required)**

**TIWCa =** 97/ 0.3 = 323.33**%.**
**As this end point of 323.33% is impossible to test, the highest dilution of 100% is accepted as TIWCa.**

**2b. Determine Target IWCc (If Chronic Tests Required)**

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(1.8 MGD x 1.547) / ((0.09 cfs x 1) + (1.8 MGD x 1.547))] x 100 = **97%**

**3. Determine Dilution Series**

*(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).*

Dilution Series = 100%, 97%, 73%, 49%, and 24%.

**WET Limits**

Has reasonable potential been determined? ☐ YES ☒ NO

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

If WET limits will be established, identify the species and the limit values for the permit (TU).

**N/A**

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

**N/A**

WQM7.0_PENTOXSD_WET ANALYSIS

## 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, 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 | Instantaneous Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Recorded |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 1/day | Grab |
| DO | XXX | XXX | 6.0 | XXX | XXX | XXX | 1/day | Grab |
| CBOD5 Nov 1 - Apr 30 | 374 | 561 | XXX | 20.0 | 30.0 | 40 | 2/week | 24-Hr Composite |
| CBOD5 May 1 - Oct 31 | 150 | 225 | XXX | 10.0 | 15.0 | 20 | 2/week | 24-Hr Composite |
| BOD5 Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| TSS Nov 1 - Apr 30 | 467 | 701 | XXX | 25.0 | 38.0 | 50 | 2/week | 24-Hr Composite |
| TSS Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| TSS May 1 - Oct 31 | 376 | 563 | XXX | 25.0 | 38.0 | 50 | 2/week | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 2/week | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 2/week | Grab |
| Ultraviolet light dosage (mjoules/cm²) | XXX | XXX | Report | Report | XXX | XXX | 1/day | Measured |
| Total Nitrogen | XXX | XXX | XXX | XXX | Report Daily Max | XXX | 1/quarter | 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 | Instantaneous Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Ammonia - Nitrogen Nov 1 - Apr 30 | 56 | XXX | XXX | 3.0 | XXX | 6.0 | 2/week | 24-Hr Composite |
| Ammonia - Nitrogen May 1 - Oct 31 | 29 | XXX | XXX | 1.9 | XXX | 3.8 | 2/week | 24-Hr Composite |
| Total Phosphorus | XXX | XXX | XXX | XXX | Report Daily Max | XXX | 1/quarter | 24-Hr Composite |
| Total Aluminum | XXX | XXX | XXX | XXX | Report Daily Max | XXX | 1/quarter | 24-Hr Composite |
| Total Copper | Report (3) | XXX | XXX | Report (3) | XXX | XXX | 2/month (3) | 24-Hr Composite |
| Total Iron | XXX | XXX | XXX | XXX | Report Daily Max | XXX | 1/quarter | 24-Hr Composite |

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at Outfall 001

(3) The applicant shall on a calendar quarterly basis monitor and report the copper concentration. Each quarterly monitoring period shall consist of 2 samples per one month of the quarter as a minimum, refer to Part C condition of the permit for copper.