pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0253537** |
| Facility Type | **Industrial** | APS ID | **1092902** |
| Major / Minor | **Minor** | Authorization ID | **1447433** |

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

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Rolling Rock Club** | Facility Name | **Rolling Rock Club Trout Hatchery** |
| Applicant Address | PO Box 747 | Facility Address | 439 Fish Hatchery Lane |
| | Ligonier, PA 15658-0747 | | Laughlintown, PA 15655-2716 |
| Applicant Contact | Robert Fasce, COO | Facility Contact | Michael Allen, Fisheries Manager |
| Applicant Phone | (724) 238-5976 | Facility Phone | (724) 238-2182 |
| Applicant Email | rfasce@rollingrockclub.com | Facility Email | mallen@rollingrockclub.com |
| Client ID | 37296 | Site ID | 676572 |
| SIC Code | 0273, 0921 | Municipality | Ligonier Township |
| SIC Description | Animal Aquaculture | County | Westmoreland |
| Date Application Received | July 14, 2023 | EPA Waived? | Yes |
| Date Application Accepted | | If No, Reason | |
| Purpose of Application | Renewal of an NPDES for discharges from an aquatic animal production facility. | | |

## Summary of Review

Rolling Rock Club (RRC) submitted an application dated July 12, 2023 to renew the NPDES permit for discharges of treated wastewater from the Rolling Rock Club Trout Hatchery. The current permit was issued on November 2, 2018 with an effective date of December 1, 2018 and an expiration date of November 30, 2023. The renewal application was due by June 3, 2023. DEP received the renewal application on July 14, 2023. The application was not timely, so the terms and conditions of the current permit will not be continued automatically past the expiration date.

The RRC Trout Hatchery is a private cold-water fish production facility licensed for aquaculture propagation by the Pennsylvania Department of Agriculture (AQ-1068-65 (R)). The facility produces about 9,000 pounds of trout per year that is used to stock about 6.0 miles of trout stream. The primary water source for production operations is an onsite artesian well, which generates about 0.216 million gallons of water per day (about 150 gpm). Effluent from the hatchery is treated using a full flow settling basin. Solid waste is collected and transported for offsite disposal quarterly by a sanitary waste disposal contractor. More information on the treatment system is provided on Page 5 of this Fact Sheet.

Public Participation

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

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| ✓ | | Ryan C. Decker, P.E. / Environmental Engineer | August 22, 2023 |
| X | | Michael E. Fifth, P.E. / Environmental Engineer Manager | September 1, 2023 |

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 0.216 |
| Latitude | 40° 11' 26.47" | Longitude | -79° 12' 31.74" |
| Quad Name | Ligonier | Quad Code | 1712 |
| Wastewater Description: | Aquatic animal production facility wastewaters | | |
| Receiving Waters | Rolling Rock Creek (HQ-CWF) | Stream Code | 43783 |
| NHD Com ID | 125294176 | River Mile Index (RMI) | 2.09 |
| Drainage Area | 10 | Yield (cfs/mi$^2$) | 0.075 |
| $Q_{7-10}$ Flow (cfs) | 0.754 | $Q_{7-10}$ Basis | USGS StreamStats |
| Elevation (ft) | 1,383.45 | Slope (ft/ft) | 0.01966 |
| Watershed No. | 18-C | Chapter 93 Class. | HQ-CWF |
| Existing Use | | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Attaining Use(s) | | |
| Cause(s) of Impairment | | | |
| Source(s) of Impairment | | | |
| TMDL Status | | Name | |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7.0 | WQN Station 733 – Mill Run |
| Temperature (°F) | 16.2 | WQN Station 733 – Mill Run |
| Hardness (mg/L) | 21.3 | WQN Station 733 – Mill Run |
| Other: | | |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | Buffalo Township Municipal Authority – Freeport | | |
| PWS ID | 5030019 | PWS Withdrawal (MGD) | 1.25 (capacity & safe yield) |
| PWS Waters | Allegheny River | Flow at Intake (cfs) | 2,250 |
| PWS RMI | 29.4 | Distance from Outfall (mi) | 71.35 |

Changes Since Last Permit Issuance: None

Other Comments: Output from USGS's StreamStats web application consisting of a basin delineation at Rolling Rock Creek RMI 2.09 and corresponding low-flow statistics are on the following page.

## StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20230803182849729000
**Clicked Point (Latitude, Longitude):** 40.19073, -79.20877
**Time:** 2023-08-03 14:29:10 -0400


Collapse All

### Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 10 | square miles |
| ELEV | Mean Basin Elevation | 2289 | feet |
| PRECIP | Mean Annual Precipitation | 45 | inches |

### Low-Flow Statistics

#### Low-Flow Statistics Parameters [Low Flow Region 3]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 10 | square miles | 2.33 | 1720 |
| ELEV | Mean Basin Elevation | 2289 | feet | 898 | 2700 |
| PRECIP | Mean Annual Precipitation | 45 | inches | 38.7 | 47.9 |

#### Low-Flow Statistics Flow Report [Low Flow Region 3]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 1.57 | ft^3/s | 43 | 43 |
| 30 Day 2 Year Low Flow | 2.2 | ft^3/s | 38 | 38 |
| 7 Day 10 Year Low Flow | 0.754 | ft^3/s | 54 | 54 |
| 30 Day 10 Year Low Flow | 0.973 | ft^3/s | 49 | 49 |
| 90 Day 10 Year Low Flow | 1.41 | ft^3/s | 41 | 41 |

*Low-Flow Statistics Citations*

**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

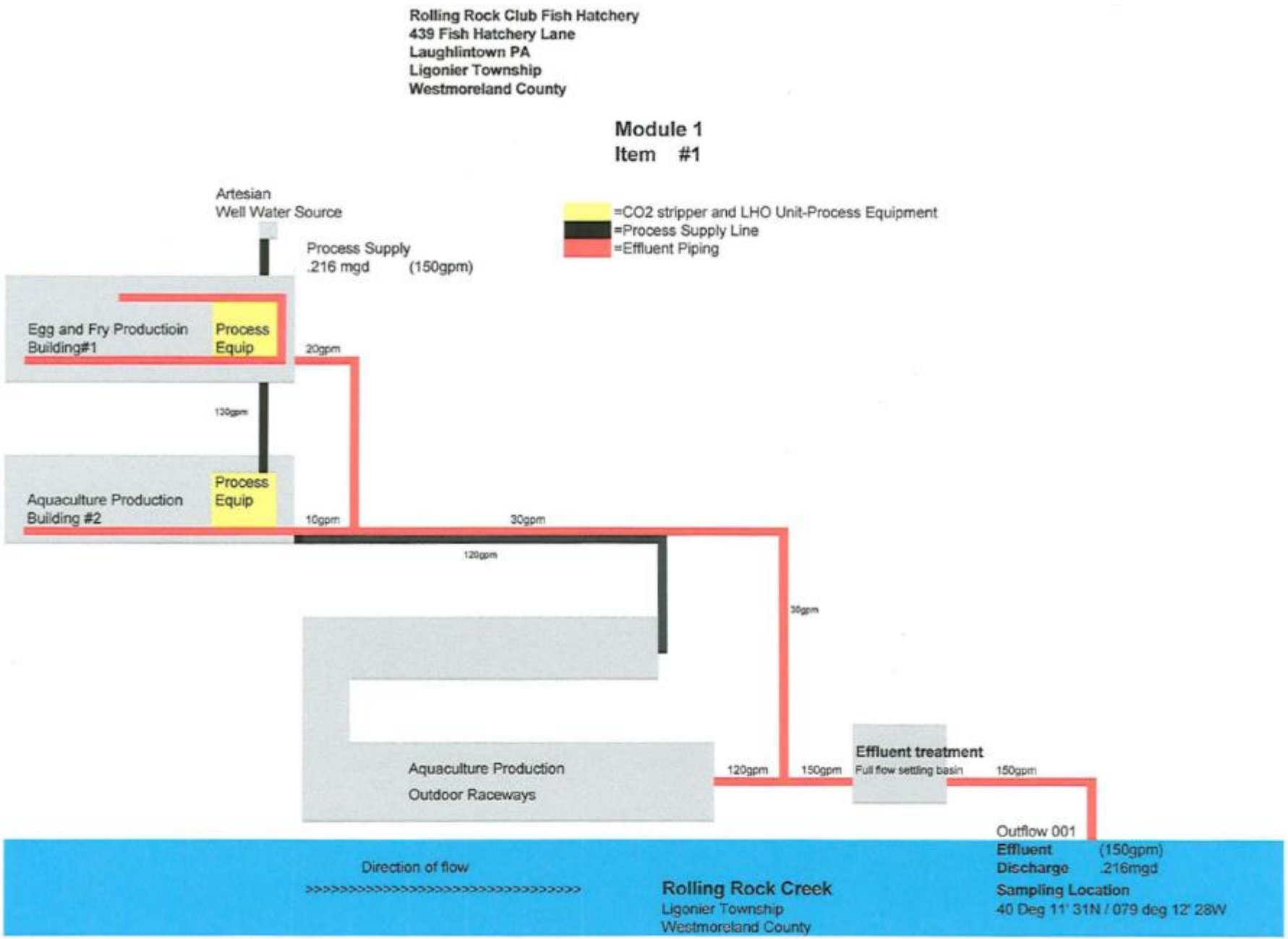
| Treatment Facility Summary | | |
|---|---|---|
| **Treatment Facility:** Rolling Rock Club Trout Hatchery – Settling Basin | | |
| **WQM Permit No.** | **Issuance Date** | **Purpose** |
| 6507203 | December 13, 2007 | Permit issued to Rolling Rock Club by the Pennsylvania Department of Environmental Protection for one 6,700-gallon in-ground, continuous flow settling basin (20'L × 8'W × 10'D with 3' of freeboard) for the removal of suspended solids from fecal matter and uneaten fish feed. The bottom of the settling basin slopes upwards towards the outlet pipe to aid in solids removal (the water depth near the outlet is designed to be four-and-a-half feet deep compared to seven feet near the inlet). Two weirs inside the basin located three feet from the inlet and outlet pipes and six inches below the design water level reduce turbulence in the basin and allow for even distribution of flow across the cross-section of the basin so that solids are effectively removed from the wastewater stream.<br><br>Small sediment traps are installed between successive circular rearing tanks in the two fish culture buildings to remove suspended solids from the water prior to use in the raceways. The piping layout is designed to route approximately 30 gpm of flow from the fish culture buildings directly to the settling basin with the remaining 120 gpm of flow passing to the raceways first. Quiescent zones in the raceways also allow for some solids removal before discharging to the settling basin. The entire system is based on gravity-flow to eliminate the operation and maintenance costs associated with pumps. Water from the artesian well also is pretreated to increase the oxygen level in the otherwise oxygen deficient groundwater, and to settle out solids and iron.<br><br>Accumulated solids levels in the settling basin are monitored to determine the necessity for cleanout. Removed solids are vacuumed out of the basin and disposed of offsite. A program for feed management also is instituted as recommended by the US EPA (Compliance Guide for the Concentrated Aquatic Animal Production Point Source Category, the CAAP ELG under 40 CFR 451 – Subpart A and its associated Development Document) to minimize food waste and solids levels in the wastewater stream. |

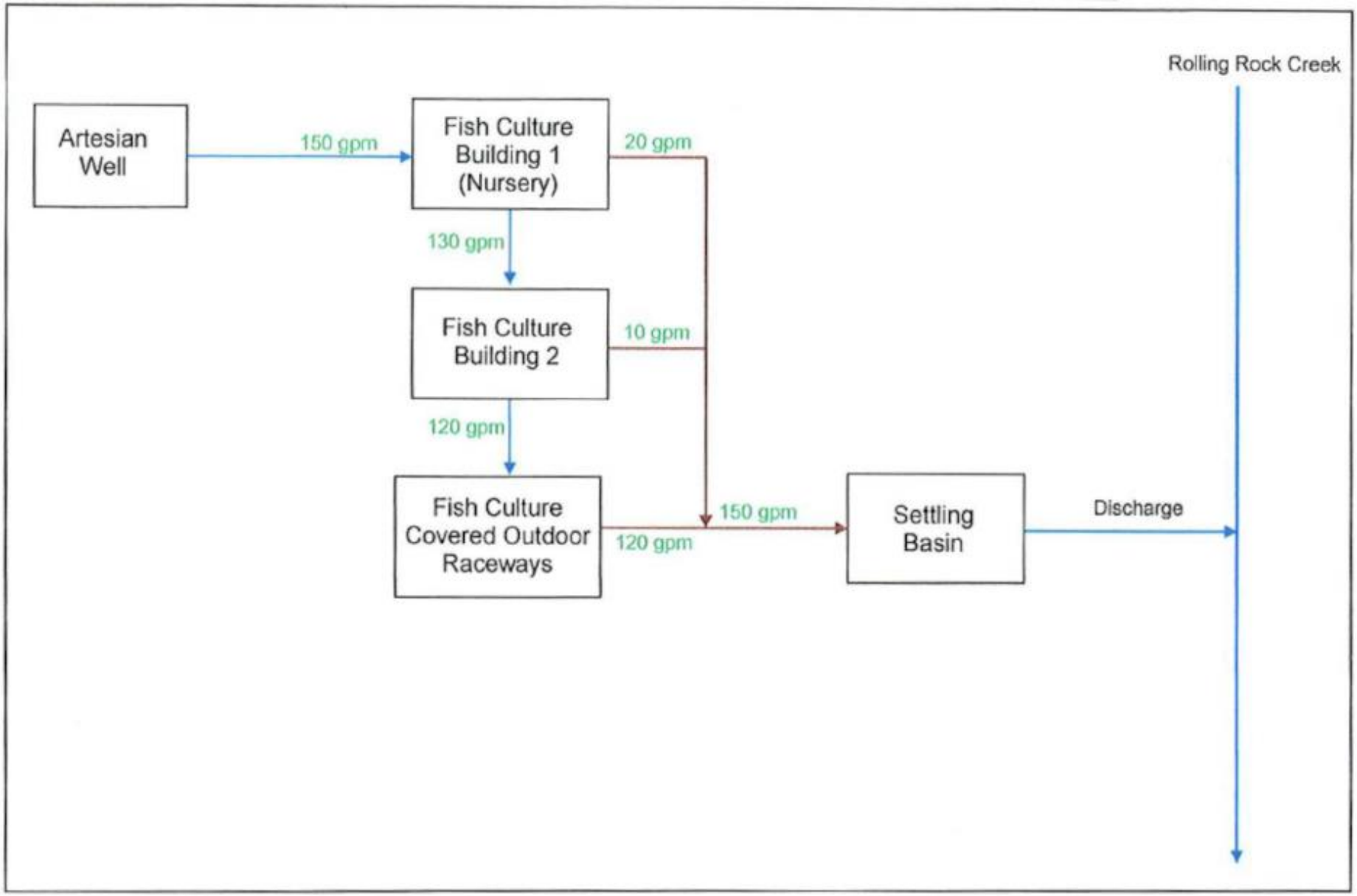
| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Industrial | Primary/Physical (Industrial Waste) | Sedimentation | N/A | 0.216 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 0.216 | N/A | Not Overloaded | N/A | N/A |

Changes Since Last Permit Issuance: None

Other Comments: Formalin is used as a fungicide daily during seasonal egg incubation (October/November). The usage rate is 1,000-2,000 mg/L. Only the portion of the overall flow that is used in egg incubation trays is treated.


Rolling Rock Club Fish Hatchery
439 Fish Hatchery Lane
Laughlintown PA
Ligonier Township
Westmoreland County
Module 1
Item #1
Artesian
Well Water Source
Process Supply
.216 mgd (150gpm)
=CO2 stripper and LHO Unit-Process Equipment
=Process Supply Line
=Effluent Piping
Egg and Fry Productioin Building#1
Process Equip
20gpm
130gpm
Aquaculture Production Building #2
Process Equip
10gpm
30gpm
120gpm
30gpm
Aquaculture Production
Outdoor Raceways
120gpm
150gpm
Effluent treatment
Full flow settling basin
150gpm
Outflow 001
Effluent (150gpm)
Discharge .216mgd
Sampling Location
40 Deg 11' 31N / 079 deg 12' 28W
Direction of flow
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
Rolling Rock Creek
Ligonier Township
Westmoreland County


Rolling Rock Creek
Artesian Well
150 gpm
Fish Culture Building 1 (Nursery)
20 gpm
130 gpm
Fish Culture Building 2
10 gpm
120 gpm
Fish Culture Covered Outdoor Raceways
150 gpm
120 gpm
Settling Basin
Discharge

## Compliance History

**DMR Data for Outfall 001 (from June 1, 2022 to May 31, 2023)**

| Parameter | MAY-23 | APR-23 | MAR-23 | FEB-23 | JAN-23 | DEC-22 | NOV-22 | OCT-22 | SEP-22 | AUG-22 | JUL-22 | JUN-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 |
| Flow (MGD) Daily Maximum | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 | 0.216 |
| pH (S.U.) Daily Minimum | 7.96 | 7.64 | 7.8 | 7.65 | 7.68 | 7.61 | 7.53 | 8.11 | 7.81 | 7.72 | 7.67 | 7.60 |
| pH (S.U.) Daily Maximum | 7.96 | 7.64 | 7.8 | 7.65 | 7.68 | 7.61 | 7.53 | 8.11 | 7.81 | 7.72 | 7.67 | 7.60 |
| DO (mg/L) Daily Minimum | 7.4 | 7.9 | 6.7 | 7.8 | 8.7 | 9.0 | 8.7 | 7.5 | 7.2 | 6.5 | 8.0 | 3.6 |
| BOD5 (mg/L) Daily Maximum | | | 3.0 | | | 4.0 | | | 4.0 | | | 6.0 |
| TSS (mg/L) Average Monthly | 4.0 | 5.0 | 2.0 | 3.0 | 2.5 | < 2.0 | 2.5 | 3.0 | 3.0 | 3 | 2.5 | 5 |
| TSS (mg/L) Daily Maximum | 5.0 | 6.0 | 2.0 | 4.0 | 3.0 | < 2.0 | 3.0 | 4.0 | 4.0 | 4 | 3.0 | 8 |
| Total Nitrogen (mg/L) Daily Maximum | | | < 1.27 | | | < 1.44 | | | < 1.44 | | | 1.64 |
| Ammonia (mg/L) Daily Maximum | | | 0.42 | | | 0.42 | | | 0.42 | | | 0.96 |
| Total Phosphorus (mg/L) Daily Maximum | | | 0.22 | | | 0.22 | | | 0.22 | | | 0.33 |
| Total Cadmium (mg/L) Average Monthly | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 |
| Total Cadmium (mg/L) Daily Maximum | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 0.216
**Latitude** 40° 11' 26.47" **Longitude** -79° 12' 31.74"
**Wastewater Description:** Aquatic animal production facility wastewaters

Discharges from Outfall 001 are currently subject to the following effluent limits and monitoring requirements.

**Table 1. Outfall 001 – Current Effluent Limits and Monitoring Requirements**

| Parameter | Daily Minimum | Average Monthly | Daily Maximum | Units | Measurement Frequency | Sample Type | Limit Basis |
|---|---|---|---|---|---|---|---|
| Flow | — | Report | Report | MGD | 2/month | Estimate | PAG-11 |
| pH | 6.0 | 9.0 | — | S.U. | 1/month | Grab | PAG-11 |
| Dissolved Oxygen | Report | — | — | mg/L | 1/month | Grab | PAG-11 |
| BOD5 | — | — | 20.0 | mg/L | 1/quarter | Grab | PAG-11 |
| TSS | — | Report | Report | mg/L | 2/month | Grab | PAG-11 |
| Total Nitrogen | — | — | 20.0 | mg/L | 1/quarter | Grab | PAG-11 |
| Ammonia-Nitrogen | — | — | Report | mg/L | 1/quarter | Grab | PAG-11 |
| Total Phosphorus | — | — | Report | mg/L | 1/quarter | Grab | PAG-11 |
| Cadmium, Total | — | 0.0007 | 0.0014 | mg/L | 2/month | Grab | WQBEL |

The effluent limits in Table 1 will remain in effect at Outfall 001 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44) [1]—unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).

### 001.A. Technology-Based Effluent Limitations (TBELs)

Discharges from Concentrated Aquatic Animal Production facilities are regulated by the Concentrated Aquatic Animal Production (CAAP) Point Source Category Federal Effluent Limitations Guidelines (ELG) promulgated under 40 CFR part 451. According to the applicability requirements in 40 CFR § 451.1, and Appendix C to 40 CFR part 122, the CAAP ELG does not apply to the RRC's Trout Hatchery. RRC's Trout Hatchery only produces 9,000 pounds of aquatic animals per year, which is less than the 100,000-pounds-per-year production threshold for applicability in § 451.1, which states:

> **§ 451.1 General Applicability**
> As defined more specifically in each subpart, this part applies to discharges from concentrated aquatic animal production facilities as defined at 40 CFR 122.24 and appendix C of 40 CFR part 122. This part applies to the discharges of pollutants from facilities that produce 100,000 pounds or more of aquatic animals per year in a flow-through, recirculating, net pen or submerged cage system."

RRC's production also is less than the 20,000-pounds-per-year cold water fish production threshold for classification as a CAAP facility according to 40 CFR Part 122, Appendix C, which states:

> **Appendix C to Part 122—Criteria for Determining a Concentrated Aquatic Animal Production Facility (§122.24)**
> A hatchery, fish farm, or other facility is a concentrated aquatic animal production facility for purposes of §122.24 if it contains, grows, or holds aquatic animals in either of the following categories:
>
> (a) Cold water fish species or other cold water aquatic animals in ponds, raceways, or other similar structures which discharge at least 30 days per year but does not include:
> (1) Facilities which produce less than 9,090 harvest weight kilograms (approximately 20,000 pounds) of aquatic animals per year; and
> (2) Facilities which feed less than 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding.

Based on regulatory criteria, RRC is not a CAAP facility. However, for DEP's purposes, RRC is an aquatic animal production facility (AAPF), which includes both CAAP and non-CAAP facilities.

[1] *Reissued permits.* (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under § 122.62.)

Notwithstanding inapplicability of the CAAP ELGs to RRC's hatchery, the narrative requirements of the CAAP ELGs were imposed as conditions in RRC's previous NPDES permits pursuant to DEP's best professional judgement under the authority of 25 Pa. Code § 92a.48(a)(3) and 40 CFR § 125.3. The permit conditions include, among other things: requirements for the proper disposal of manure; requirements for solids control using efficient feed management practices to minimize potential discharges of uneaten feed and waste products to waters of the Commonwealth; proper operation and maintenance requirements; and requirements for drug and chemical usage.

The CAAP ELGs do not identify any numerical effluent limits. However, effluent limits and monitoring requirements were imposed at Outfall 001 in RRC's 2018 NPDES permit based, in part, on effluent limits and monitoring requirements for AAPFs from DEP's PAG-11 "NPDES General Permit for Discharges from Aquatic Animal Production Facilities". Facilities like RRC's Trout Hatchery are not eligible for coverage under the PAG-11 because the PAG-11 does not authorize discharges from AAPFs to waters classified as either High Quality or Exceptional Value. The lack of authorization for such point sources under the PAG-11 General Permit is consistent with the prohibition in 25 Pa. Code § 92a.54(a)(8).[2]

Even though RRC's Trout Hatchery is ineligible for coverage under the PAG-11, the requirements of the PAG-11 are reasonable to impose on RRC (at a minimum). That is, requirements for AAPFs that discharge to waters designated as High Quality or Exceptional Value should at least be as stringent as the requirements for AAPFs that discharge to waters with less stringent designations. The effluent limits from the PAG-11 are summarized in Table 2 with corresponding footnotes.

**Table 2. PAG-11 General Permit Effluent Limitations and Monitoring Requirements**

| Parameter | Mass | Concentrations | | | Units | Minimum Measurement Frequency | Required Sample Type |
|---|---|---|---|---|---|---|---|
| | Average Monthly | Minimum | Average Monthly | Daily Maximum | | | |
| Flow | Report | — | — | — | MGD | 1/week | Estimated (4) |
| BOD5 (2) | | — | — | 10 | mg/L | 1/quarter | Grab |
| Total Suspended Solids (2) | | — | — | 20 | mg/L | 1/quarter | Grab |
| Total Nitrogen (2)(3) | | — | — | 20 | mg/L | 1/quarter | Grab |
| Ammonia-Nitrogen | | — | — | Report | mg/L | 1/quarter | Grab |
| Total Phosphorus | | — | — | Report | mg/L | 1/quarter | Grab |
| pH | | 6.0 | 9.0 | — | S.U. | 1/month | Grab |
| Dissolved Oxygen | | 6.0 | — | — | mg/L | 1/month | Grab |

*Footnotes*

*(1) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events.*

*(2) For BOD5, Total Suspended Solids and Total Nitrogen, the specified effluent limitations are "net" limitations. The permittee shall monitor and report influent and effluent results for these parameters and subtract influent concentrations from effluent concentrations in order to demonstrate compliance.*

*(3) Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN), Nitrite-Nitrogen (NO2-N) and Nitrate-Nitrogen (NO3-N) concentrations in the same sample.*

*(4) To estimate effluent flow rate, use any accurate measurement technique based on a technical evaluation of the sources contributing to the discharge. The use of a flow meter or similar technology to measure flow rate is preferred.*

The BOD5, TSS, and Dissolved Oxygen limits from the PAG-11 were not imposed in RRC's 2018 NPDES permit. There was no explanation for the exclusion despite the apparent adoption of the PAG-11's requirements for RRC's NPDES permit. In addition, there was no basis for backsliding to reporting only for TSS from the previously imposed limits on TSS.

The Fact Sheet for the 2018 permit listed the PAG-11's 10 mg/L daily maximum limit for BOD5 as the proposed effluent limit, but the draft and final permits identified the limit as 20 mg/L. The limit will be corrected to 10 mg/L for this renewal. Based on Discharge Monitoring Report data collected since January 2019, RRC would have achieved the 10 mg/L limit 94% of the time had the limit been in effect (there would have been one exceedance among eighteen quarterly results).

The 20 mg/L TSS limit in the PAG-11 is achievable using the solids management practices required by the permit in combination with RRC's use of a settling basin for treatment. Therefore, the 20 mg/L maximum daily limit for TSS will be

[2] (a) *Coverage and purpose*. The Department may issue a general permit, in lieu of issuing individual permits, for a clearly and specifically described category of point source discharges, if the point sources meet the following conditions: (…)

(8) Do not discharge to a surface water classified as a High Quality Water or an Exceptional Value Water under Chapter 93.

imposed at Outfall 001. Based on Discharge Monitoring Report data collected since January 2019, RRC would have achieved the 20 mg/L limit 94% of the time (there would have been three exceedances among fifty-six monthly results).

Dissolved oxygen concentrations are low in the artesian groundwater source and those concentrations are increased by RRC for use in the hatchery. Since RRC already maintains the facilities necessary to increase dissolved oxygen concentrations, the 6.0 mg/L minimum limit for dissolved oxygen from the PAG-11 will be imposed at Outfall 001. DEP observes that the dissolved oxygen concentration necessary to produce trout in a hatchery corresponds to the level of dissolved oxygen necessary to protect and sustain cold water fish in waters of the Commonwealth, so the permit's dissolved oxygen limit of 6.0 mg/L should align with RRC's target dissolved oxygen concentration for trout production. Based on Discharge Monitoring Report data collected since January 2019, RRC would have achieved the 6.0 mg/L limit 96% of the time (there would have been two exceedances among fifty-six monthly results).

In response to RRC's request, RRC was given the option of reporting BOD5, TSS, and Total Nitrogen results as "net" results in the 2018 permit. The PAG-11's limits for those pollutants are specified as net limits (see Table 2, Footnote 2 above). Reporting "net" results requires both influent and effluent results but RRC did not want to collect influent samples. Reporting effluent results instead of net results is more conservative because there is no allowance for pollutants in the source water. The option for net results will be maintained, but the limits otherwise apply to RRC's effluent without accounting for influent concentrations. Net results likely would not help RRC anyway because the hatchery's influent source is groundwater and most of the pollutants regulated by the NPDES permit are unlikely to be present in significant concentrations in groundwater.

### 001.B. Water Quality-Based Effluent Limitations (WQBELs)

Discharges from AAPFs are only required to report analytical results for General Chemistry (Group 1) parameters. Analytical results for toxic inorganics (metals) and toxic organics are not required. Generally, AAPFs do not exhibit pollution from toxic inorganics and toxic organics because water flowing through the hatchery must be of good quality to allow for fish rearing. Also, the process of aquatic animal production generally does not introduce toxic inorganics or toxic organics. Since there are no analytical data for any parameters other than general chemistry parameters and cadmium from Discharge Monitoring Report data, the water quality analysis will focus on parameters with available data.[3]

Antidegradation

The designated use of Rolling Rock Creek is High-Quality Cold-Water Fishes (HQ-CWF). 25 Pa. Code § 93.4a(c) requires the following:

> (c) *Protection for High Quality Waters*—The water quality of High Quality Waters shall be maintained and protected, except as provided in § 93.4c(b)(1)(iii) (relating to implementation of antidegradation requirements).

25 Pa. Code § 93.4c requires a person proposing a new, additional, or increased discharge to High Quality or Exceptional Value Waters to evaluate non-discharge alternatives (§ 93.4c(b)(1)(i)) and, if a non-discharge alternative is not environmentally sound and cost-effective, to use the best available combination of cost-effective treatment, land disposal, pollution prevention, and wastewater reuse technologies (generally referred to as "antidegradation best available combination of technologies" or "ABACT"). Section 93.4c(b)(1)(iii) allows for a reduction of water quality in a High Quality Water if DEP finds that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located; this is referred to as a social or economic justification (SEJ).

There have been no changes to the discharge since the permit was last renewed, so RRC is not obligated to consider non-discharge alternatives. However, antidegradation requirements were never evaluated for RRC, including when the discharge was new. To date, DEP has not identified adverse impacts to Rolling Rock Creek. Although, site-specific data on the water quality and biological communities of Rolling Rock Creek downstream of Outfall 001 are limited. Notwithstanding the lack of a historical antidegradation evaluation, the effluent limits for TSS, BOD-5, and Dissolved Oxygen at Outfall 001 (as updated by this permit renewal) based on the PAG-11 are consistent with ABACT limits for wastewater discharges identified in Appendix B of DEP's "Water Quality Antidegradation Implementation Guidance" [Doc. No. 391-0300-002]. ABACT limits are intended to help maintain existing water quality in High Quality Waters.

ABACT limits from Appendix B of the antidegradation guidance are summarized in Table 3 below. The guidance states the following with respect to the numerical effluent limits:

[3] RRC reports results for cadmium under the current NPDES permit based on cadmium WQBELs imposed in the permit issued to RRC on December 13, 2007. RRC was required to report results for metals on the permit application at that time and cadmium concentrations exhibited a reasonable potential to cause or contribute to excursions above water quality criteria in Rolling Rock Creek.

"ABACT requirements, such as those defined below for sewage discharges, are designed to help maintain existing water quality. Requirements for industrial waste discharges will be determined by DEP on a case-by-case basis after review of the proposed activity and its associated pollutants. All treatment/disposal facilities must be enhanced with pollution prevention technologies applied to the raw waste streams as well as water conservation or water reuse technologies designed to minimize the volume of wastewater discharged.

"ABACT for municipal, non-municipal, and small flow sewage discharges is defined below. This listing is intended to represent the desired long-term performance level of constructed treatment facilities. It does not represent an exact statement of effluent limitations as they would appear in a NPDES permit, where DEP may also require short-term effluent limitations as well as other controls or practices such as minimum treatment requirements established by Interstate River Basin Compacts or the EPA Chesapeake Bay Program."

**Table 3. ABACT for Municipal, Non-Municipal, and Small Flow Sewage Discharges**

| Parameter | Treatment Process Performance Expectation (mg/L) | | |
|---|---|---|---|
| | **<2,000 gpd** | **2,000 to 50,000 gpd** | **>50,000 gpd** |
| CBOD5 (May 1 – Oct. 31) | 10 | 10 | 10 |
| CBOD5 (Nov 1 – Apr. 30) | 20 | 20 | 10 |
| Suspended Solids | 20 | 10 | 10 |
| $NH_3$-N (May 1 – Oct. 31) | 5.0 | 3.0 | 1.5 |
| $NH_3$-N (Nov. 1 – Apr. 30) | 15.0 | 9.0 | 4.5 |
| Effective Disinfection | Disinfection should be accomplished using a method that leaves no detectable residual. Disinfection using ultra-violet light or other non-chlorine based systems is encouraged and must be considered. | | |
| Other Parameters as needed | Determined by the size and characteristics of the proposed discharge, may include: TDS, $NO_2$/$NO_3$-N, Total Phosphorus, Chlorides, Sulfate, heavy metals | | |

The ABACT limits in Table 3 are for sewage discharges but are consistent with ABACT limits for other types of discharges in the antidegradation guidance and are appropriate for a fish hatchery with similar biological pollutants-of-concern including BOD5, TSS, and ammonia-nitrogen. The discharge flow rate of RRC's hatchery is 216,000 gpd, which would be subject to limits for the >50,000 gpd tier. In place of the antidegradation guidance's average limits, Outfall 001 will be subject to short-term effluent limitations (the maximum daily limits from the PAG-11) as well as other controls or practices including, among other things, solids control using efficient feed management practices and requirements for drug and chemical usage.

As a supplement to the maximum daily limits from the PAG-11, to help maintain existing quality in Rolling Rock Creek, discharges from RRC's Trout Hatchery will be subject to a maximum daily ammonia-nitrogen limit of 3.0 mg/L. The maximum daily effluent limit is calculated using a multiplier of two times the long-term average effluent limit from May 1 through October 31 in Table 3: 2 × 1.5 mg/L = 3.0 mg/L. The multiplier is based on the multiplier listed in DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001, Chapter 3, pp. 15, 16] for determining a maximum daily limit from an average monthly limit for an industrial waste. The limit from May 1 through October 31 is used because quarterly sampling for ammonia-nitrogen will be maintained in the renewed permit and the quarterly sampling periods do not align with the ABACT seasonal limiting periods.

Separately, RRC's discharges must comply with water quality criteria after mixing and dilution in Rolling Rock Creek. Water quality criteria in 25 Pa. Code Chapter 93 are generally less stringent than the water quality objectives necessary to protect High Quality Waters. DEP's WQM 7.0 modeling program is used to evaluate general chemistry pollutants of concern like ammonia-nitrogen and DEP's Toxics Management Spreadsheet is used to evaluate cadmium.

<u>WQM 7.0 Water Quality Modeling Program</u>

WQM 7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("$CBOD_5$"), ammonia-nitrogen, and dissolved oxygen ("DO") for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the ammonia-nitrogen module, the model simulates the mixing and degradation of ammonia-nitrogen in the stream and compares calculated instream ammonia-nitrogen concentrations to ammonia-nitrogen water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and ammonia-nitrogen, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

Water Quality Modeling with WQM 7.0

The WQM 7.0 model is run using the discharge flow rate of 0.216 MGD to determine whether WQBELs are necessary for $CBOD_5$, ammonia-nitrogen, and/or dissolved oxygen at Outfall 001. Input values for the WQM 7.0 model are shown in Table 4.

**Table 4. 001 WQM 7.0 Inputs**

| **Discharge Characteristics** | |
|---|---|
| **Parameter** | **Value** |
| River Mile Index | 2.09 |
| Discharge Flow (MGD) | 0.216 |
| Discharge Temp. (°C) (Summer) | 20.0 |
| Discharge pH (s.u.) | 7.59 |
| **Basin/Stream Characteristics** | |
| **Parameter** | **Value** |
| Area in Square Miles | 10.0 |
| $Q_{7-10}$ (cfs) | 0.754 |
| Low-flow yield (cfs/mi$^2$) | 0.075 |
| Elevation (ft) | 1383.45 |
| Slope | 0.01966 |
| Stream Temp. (°C) (Summer) | 16.2 |
| Stream pH (s.u.) | 7.0 |

DEP's modeling using WQM 7.0 is a two-step process. First, a discharge is modeled for the summer period (May through October) using warmer temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia-nitrogen concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures. The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period.

For the summer period, the discharge temperature is assumed to be 20°C. The flow used for modeling is 0.216 MGD, as described previously. The pH is the median pH reported on DMRs between December 2018 and May 2023. The design stream temperature is 16.2°C, which is the median temperature from July through October at representative Water Quality Network Station 733 – Mill Run in Fayette County.[4] Input discharge concentrations for $CBOD_5$ and Ammonia-Nitrogen are the model's default concentrations (25 mg/L for both). The dissolved oxygen of the discharge is the 6.0 mg/L minimum limit. $Q_{7-10}$ is calculated using USGS StreamStats for a drainage basin delineated at the point of discharge. The elevation was determined using USGS's National Map Viewer point elevation tool.[5] Stream slope is interpolated from a USGS 7.5-minute topographic map. The width-to-depth ratio is assumed to be 10.

The results of the WQM 7.0 modeling (see Attachment A) indicate that the following limits are necessary to comply with water quality criteria in-stream.

**Table 5. WQBELs for Ammonia-Nitrogen (May 1 – October 31)**

| Parameter | Monthly Average (mg/L) | Instant. Maximum (mg/L) |
|---|---|---|
| Ammonia-Nitrogen May 1 – Oct 31 | 8.81 | 17.62 |

Even though WQBELs are recommended for Ammonia-Nitrogen, the WQBELs are less stringent than the year-round maximum daily ABACT limit of 3.0 mg/L, so the ABACT limit will control. WQBELs for winter conditions are not evaluated.

Toxics Management Spreadsheet Water Quality Modeling Program and Procedures for Evaluating Reasonable Potential

WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." The Department of Environmental

[4] DEP maintains a network of water quality monitoring stations—the Water Quality Network ("WQN")— to assess both the quality of Pennsylvania's surface waters and the effectiveness of the water quality management program by monitoring, among other things, temporal trends in selected reference waters. WQN reference stations are selected to represent minimally disturbed waters within Pennsylvania's various bioregions. Even though Pennsylvania arguably has no unaffected waters (e.g., by atmospheric deposition), WQN reference stations reasonably describe water quality that could be achieved in the absence of point source discharges and in the presence of minimal or typical non-point source impacts.

WQN Station 733 is a reference station located on Mill Run in Fayette County. The existing/designated use of Mill Run is HQ-CWF. WQN Station 733 data from the last ten years was used as a surrogate dataset to develop the design stream temperature of Rolling Rock Creek for the summer period (July through October).

[5] https://apps.nationalmap.gov/viewer/

Protection developed the DEP Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling. Ammonia-nitrogen, CBOD-5, and dissolved oxygen are analyzed separately using DEP's WQM 7.0 model.

The TMS evaluates each pollutant by computing a wasteload allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits (Target QLs) are eliminated as candidates for WQBELs and water quality-based monitoring.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

**Table 6. TMS Inputs for 001**

| Parameter | Value |
|---|---|
| River Mile Index | 2.09 |
| Discharge Flow (MGD) | 0.216 |
| Discharge Hardness (mg/L) | 63.5 |
| Discharge pH (s.u.) | 7.59 |
| **Basin/Stream Characteristics** | |
| **Parameter** | **Value** |
| Drainage Area (sq. mi.) | 10.0 |
| $Q_{7-10}$ (cfs) | 0.754 |
| Low-flow yield (cfs/mi$^2$) | 0.075 |
| Elevation (ft) | 1,383.45 |
| Slope | 0.01966 |
| Stream Hardness (mg/L) | 21.3 |

Discharges from Outfall 001 are evaluated based on the maximum concentrations reported on the permit renewal application and, in the case of cadmium, the long-term average effluent concentration. The TMS model is run with the modeled discharge and receiving stream characteristics shown in Table 6. The discharge and stream characteristics are the same as those used for the WQM 7.0 analysis. For modeling inputs used in the TMS model and not in WQM 7.0: discharge hardness is the discharge hardness reported on the application and stream hardness is the long-term average hardness at representative Water Quality Network Station 733 – Mill Run in Fayette County (see p.13, footnote 4).

Parameters analyzed include TDS, chloride, bromide, sulfate, fluoride, and cadmium. Bromide and cadmium are the only parameters with water quality criteria that apply after local mixing. Criteria for the other parameters apply at the nearest potable water supply intake, which is the Buffalo Township Municipal Authority's Freeport intake at river mile index 29.4 on the Allegheny River (over 70 miles downstream).

**Table 7. Water Quality-Based Effluent Limits for Outfall 001**

| Parameter | Permit Limits | | | Long-Term Avg. Discharge Conc. (µg/L) † | Target QL (µg/L) | Governing WQBEL Basis‡ |
|---|---|---|---|---|---|---|
| | Avg Mo. (µg/L) | Max Daily (µg/L) | IMAX (µg/L) | | | |
| Cadmium, Total | 0.4 | 0.62 | 0.99 | 0.2163 | 0.2 | CFC |

† Calculated as the long-term average of a delta lognormal distribution of maximum daily DMR results (Dec. 2018 – May 2023)
‡ CFC = Chronic Fish Criterion

RRC has reported detections of cadmium during the last permit term. The detections occurred during the first year of the last permit term. Subsequent results through May 2023 were not detectable at DEP's Target Quantitation limit of 0.2 µg/L. Based on RRC's reported results, discharges will comply with the new WQBELs. Therefore, the new cadmium WQBELs will take effect on the effective date of the permit.

### 001.C. Effluent Limitations and Monitoring Requirements for Outfall 001

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit, subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits and monitoring requirements are summarized below.

**Table 8. Effluent Limits and Monitoring Requirements for Outfall 001**

| Parameter | Mass (pounds) | | Concentration (mg/L) | | | Basis |
|---|---|---|---|---|---|---|
| | Average Monthly | Daily Maximum | Average Monthly | Daily Maximum | Instant. Maximum | |
| Flow (MGD) | Report | Report | — | — | — | 25 Pa. Code § 92a.61(d)(1) |
| BOD5 | — | — | — | 10.0 | — | BPJ TBELs; PAG-11 |
| Total Suspended Solids | — | — | Report | 20.0 | — | BPJ TBELs; PAG-11 |
| Total Nitrogen | — | — | — | 20.0 | — | BPJ TBELs; 40 CFR 122.44(l) |
| Total Phosphorus | — | — | — | Report | — | BPJ TBELs; 40 CFR 122.44(l) |
| Dissolved Oxygen | — | — | 6.0 (minimum) | — | — | BPJ TBELs; 40 CFR 122.44(l) |
| Ammonia Nitrogen | — | — | — | 3.0 | — | WQBELs; 25 Pa. Code § 92a.12 |
| Cadmium, Total (µg/L) | — | — | 0.4 | 0.0006 | 0.00099 | BPJ TBELs; 40 CFR 122.44(l) |
| pH (s.u.) | not less than 6.0 nor greater than 9.0 standard units | | | | — | 25 Pa. Code § 92a.47(a)(7) |

Existing monitoring frequencies and sample types will be maintained for TSS, Total Cadmium, BOD5, Total Nitrogen, Ammonia-Nitrogen, and Total Phosphorus including 2/month grab sampling for TSS and Total Cadmium; and 1/quarter grab sampling for dissolved oxygen, BOD5, Total Nitrogen, Ammonia-Nitrogen, and Total Phosphorus. The monitoring frequency for Dissolved Oxygen and pH will be increased to 2/month, which is more frequent than the 1/month frequency in the current permit, but not as frequent as the 1/week frequency required in the PAG-11 General Permit. Flow should be estimated 2/month at the time of sampling.

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☒ | WQM for Windows Model (see Attachment A) |
| ☒ | Toxics Management Spreadsheet (see Attachment B) |
| ☐ | TRC Model Spreadsheet (see Attachment ) |
| ☐ | Temperature Model Spreadsheet (see Attachment ) |
| ☐ | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| ☒ | Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98. |
| ☐ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97. |
| ☐ | Pennsylvania CSO Policy, 386-2000-002, 9/08. |
| ☒ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97. |
| ☐ | Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 386-2000-007, 9/97. |
| ☐ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004. |
| ☐ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004. |
| ☐ | Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97. |
| ☐ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008. |
| ☐ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09. |
| ☐ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97. |
| ☐ | Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99. |
| ☐ | Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999. |
| ☐ | Design Stream Flows, 386-2000-003, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97. |
| ☐ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☐ | SOP: |
| ☐ | Other: |

# ATTACHMENT A

# WQM 7.0 Modeling Results

# 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 |
|---|---|---|---|---|---|---|---|---|
| 18C | 43783 | ROLLING ROCK CREEK | **2.090** | 1383.45 | 10.00 | 0.01966 | 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** | 0.075 | 0.00 | 0.00 | 0.000 | 0.000 | 10.0 | 0.00 | 0.00 | 16.20 | 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 |
|---|---|---|---|---|---|---|---|
| Outfall 001 | PA0253537 | 0.2160 | 0.0000 | 0.0000 | 0.000 | 20.00 | 7.59 |

**Parameter Data**

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 25.00 | 1.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 6.00 | 9.91 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.02 | 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 |
|---|---|---|---|---|---|---|---|---|
| 18C | 43783 | ROLLING ROCK CREEK | **1.090** | 1278.73 | 11.60 | 0.01966 | 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 | 0.075 | 0.00 | 0.00 | 0.000 | 0.000 | 10.0 | 0.00 | 0.00 | 16.20 | 7.00 | 0.00 | 0.00 |
| Q1-10 | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |
| Q30-10 | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |

**Discharge Data**

| Name | Permit Number | Existing Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| | | 0.0000 | 0.0000 | 0.0000 | 0.000 | 0.00 | 7.00 |

**Parameter Data**

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 25.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 3.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 18C | 43783 | ROLLING ROCK CREEK |

| RMI | Stream Flow (cfs) | PWS With (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 2.090 | 0.75 | 0.00 | 0.75 | .3342 | 0.01966 | .534 | 13.68 | 25.61 | 0.15 | 0.412 | 17.37 | 7.11 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 2.090 | 0.48 | 0.00 | 0.48 | .3342 | 0.01966 | NA | NA | NA | 0.13 | 0.483 | 17.76 | 7.16 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 2.090 | 1.02 | 0.00 | 1.02 | .3342 | 0.01966 | NA | NA | NA | 0.17 | 0.364 | 17.14 | 7.09 |

# 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 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 18C | 43783 | ROLLING ROCK CREEK |

## NH3-N Acute Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 2.090 | Outfall 001 | 17.3 | 42.12 | 17.3 | 42.12 | 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 |
|---|---|---|---|---|---|---|---|
| 2.090 | Outfall 001 | 2.19 | 8.81 | 2.19 | 8.81 | 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) | | |
| 2.09 | Outfall 001 | 25 | 25 | 8.81 | 8.81 | 6 | 6 | 0 | 0 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 18C | 43783 | ROLLING ROCK CREEK |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 2.090 | 0.216 | 17.371 | 7.113 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 13.680 | 0.534 | 25.614 | 0.148 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 8.40 | 1.340 | 2.73 | 0.572 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 8.705 | 26.043 | Tsivoglou | 6 |
| **Reach Travel Time (days)** | | | |
| 0.412 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.041 | 8.00 | 2.66 | 8.67 |
| 0.082 | 7.61 | 2.60 | 8.67 |
| 0.124 | 7.25 | 2.54 | 8.67 |
| 0.165 | 6.90 | 2.48 | 8.67 |
| 0.206 | 6.58 | 2.43 | 8.67 |
| 0.247 | 6.26 | 2.37 | 8.67 |
| 0.288 | 5.96 | 2.31 | 8.67 |
| 0.329 | 5.68 | 2.26 | 8.67 |
| 0.371 | 5.41 | 2.21 | 8.67 |
| 0.412 | 5.15 | 2.16 | 8.67 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 18C | 43783 | ROLLING ROCK CREEK |

| RMI | Name | Permit Number | Disc Flow (mgd) | Parameter | Effl. Limit 30-day Ave. (mg/L) | Effl. Limit Maximum (mg/L) | Effl. Limit Minimum (mg/L) |
|---|---|---|---|---|---|---|---|
| 2.090 | Outfall 001 | PA0253537 | 0.216 | CBOD5 | 25 | | |
| | | | | NH3-N | 8.81 | 17.62 | |
| | | | | Dissolved Oxygen | | | 6 |

# ATTACHMENT B

# Toxics Management Spreadsheet for Outfall 001

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

# Discharge Information

Instructions | Discharge | Stream

Facility: **Rolling Rock Club Trout Hatcher** NPDES Permit No.: **PA0253537** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **AAPF wastewaters**

| Discharge Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 0.216 | 63.5 | 7.59 | | | | | | |

| | | | | | *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 | | 104 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 11.4 | | | | | | | | | |
| | Bromide | mg/L | < | 0.2 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 8.9 | | | | | | | | | |
| | Fluoride (PWS) | µg/L | < | 0.1 | | | | | | | | | |
| Group 2 | Total Aluminum | µg/L | | | | | | | | | | | |
| | Total Antimony | µg/L | | | | | | | | | | | |
| | Total Arsenic | µg/L | | | | | | | | | | | |
| | Total Barium | µg/L | | | | | | | | | | | |
| | Total Beryllium | µg/L | | | | | | | | | | | |
| | Total Boron | µg/L | | | | | | | | | | | |
| | Total Cadmium | µg/L | < | 0.2102 | | | | | | | | | |
| | Total Chromium (III) | µg/L | | | | | | | | | | | |
| | Hexavalent Chromium | µg/L | | | | | | | | | | | |
| | Total Cobalt | µg/L | | | | | | | | | | | |
| | Total Copper | µg/L | | | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | | | | | | | | | | | |
| | Dissolved Iron | µg/L | | | | | | | | | | | |
| | Total Iron | µg/L | | | | | | | | | | | |
| | Total Lead | µg/L | | | | | | | | | | | |
| | Total Manganese | µg/L | | | | | | | | | | | |
| | Total Mercury | µg/L | | | | | | | | | | | |
| | Total Nickel | µg/L | | | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | | | | | | | | | | | |
| | Total Selenium | µg/L | | | | | | | | | | | |
| | Total Silver | µg/L | | | | | | | | | | | |
| | Total Thallium | µg/L | | | | | | | | | | | |
| | Total Zinc | mg/L | | | | | | | | | | | |
| | Total Molybdenum | µg/L | | | | | | | | | | | |
| | Acrolein | µg/L | < | | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | | | | | | | | | | |
| | Benzene | µg/L | < | | | | | | | | | | |
| | Bromoform | µg/L | < | | | | | | | | | | |

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

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2,6-Dinitrotoluene | µg/L | < | | | | | | | | | | | |
| | Di-n-Octyl Phthalate | µg/L | < | | | | | | | | | | | |
| | 1,2-Diphenylhydrazine | µg/L | < | | | | | | | | | | | |
| | Fluoranthene | µg/L | < | | | | | | | | | | | |
| | Fluorene | µg/L | < | | | | | | | | | | | |
| | Hexachlorobenzene | µg/L | < | | | | | | | | | | | |
| | Hexachlorobutadiene | µg/L | < | | | | | | | | | | | |
| | Hexachlorocyclopentadiene | µg/L | < | | | | | | | | | | | |
| | Hexachloroethane | µg/L | < | | | | | | | | | | | |
| | Indeno(1,2,3-cd)Pyrene | µg/L | < | | | | | | | | | | | |
| | Isophorone | µg/L | < | | | | | | | | | | | |
| | Naphthalene | µg/L | < | | | | | | | | | | | |
| | Nitrobenzene | µg/L | < | | | | | | | | | | | |
| | n-Nitrosodimethylamine | µg/L | < | | | | | | | | | | | |
| | n-Nitrosodi-n-Propylamine | µg/L | < | | | | | | | | | | | |
| | n-Nitrosodiphenylamine | µg/L | < | | | | | | | | | | | |
| | Phenanthrene | µg/L | < | | | | | | | | | | | |
| | Pyrene | µg/L | < | | | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | µg/L | < | | | | | | | | | | | |
| Group 6 | Aldrin | µg/L | < | | | | | | | | | | | |
| | alpha-BHC | µg/L | < | | | | | | | | | | | |
| | beta-BHC | µg/L | < | | | | | | | | | | | |
| | gamma-BHC | µg/L | < | | | | | | | | | | | |
| | delta BHC | µg/L | < | | | | | | | | | | | |
| | Chlordane | µg/L | < | | | | | | | | | | | |
| | 4,4-DDT | µg/L | < | | | | | | | | | | | |
| | 4,4-DDE | µg/L | < | | | | | | | | | | | |
| | 4,4-DDD | µg/L | < | | | | | | | | | | | |
| | Dieldrin | µg/L | < | | | | | | | | | | | |
| | alpha-Endosulfan | µg/L | < | | | | | | | | | | | |
| | beta-Endosulfan | µg/L | < | | | | | | | | | | | |
| | Endosulfan Sulfate | µg/L | < | | | | | | | | | | | |
| | Endrin | µg/L | < | | | | | | | | | | | |
| | Endrin Aldehyde | µg/L | < | | | | | | | | | | | |
| | Heptachlor | µg/L | < | | | | | | | | | | | |
| | Heptachlor Epoxide | µg/L | < | | | | | | | | | | | |
| | PCB-1016 | µg/L | < | | | | | | | | | | | |
| | PCB-1221 | µg/L | < | | | | | | | | | | | |
| | PCB-1232 | µg/L | < | | | | | | | | | | | |
| | PCB-1242 | µg/L | < | | | | | | | | | | | |
| | PCB-1248 | µg/L | < | | | | | | | | | | | |
| | PCB-1254 | µg/L | < | | | | | | | | | | | |
| | PCB-1260 | µg/L | < | | | | | | | | | | | |
| | PCBs, Total | µg/L | < | | | | | | | | | | | |
| | Toxaphene | µg/L | < | | | | | | | | | | | |
| | 2,3,7,8-TCDD | ng/L | < | | | | | | | | | | | |
| Group 7 | Gross Alpha | pCi/L | | | | | | | | | | | | |
| | Total Beta | pCi/L | < | | | | | | | | | | | |
| | Radium 226/228 | pCi/L | < | | | | | | | | | | | |
| | Total Strontium | µg/L | < | | | | | | | | | | | |
| | Total Uranium | µg/L | < | | | | | | | | | | | |
| | Osmotic Pressure | mOs/kg | | | | | | | | | | | | |
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Toxics Management Spreadsheet
Version 1.4, May 2023

# Stream / Surface Water Information

**Rolling Rock Club Trout Hatcher, NPDES Permit No. PA0253537, Outfall 001**

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Rolling Rock Creek**

No. Reaches to Model: **1**

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

| Location | Stream Code* | RMI* | Elevation (ft)* | DA ($mi^2$)* | Slope (ft/ft) | PWS Withdrawal (MGD) | Apply Fish Criteria* |
|---|---|---|---|---|---|---|---|
| Point of Discharge | 043783 | 2.09 | 1383.45 | 10 | 0.019658 | | Yes |
| End of Reach 1 | 043783 | 1.09 | 1278.73 | 11.6 | 0.019658 | | Yes |

$Q_{7\text{-}10}$

| 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 | 2.09 | 0.075 | | | | | | | | | | 21.3 | 7 | | |
| End of Reach 1 | 1.09 | 0.075 | | | | | | | | | | | | | |

$Q_h$

| 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 | 2.09 | | | | | | | | | | | | | | |
| End of Reach 1 | 1.09 | | | | | | | | | | | | | | |

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Toxics Management Spreadsheet
Version 1.4, May 2023

# Model Results

**Rolling Rock Club Trout Hatcher, NPDES Permit No. PA0253537, Outfall 001**

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

☑ ***Hydrodynamics***

***$Q_{7-10}$***

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.09 | 0.75 | | 0.75 | 0.334 | 0.02 | 0.534 | 13.68 | 25.614 | 0.148 | 0.412 | 2.243 |
| 1.09 | 0.87 | | 0.87 | | | | | | | | |

***$Q_h$***

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.09 | 5.78 | | 5.78 | 0.334 | 0.02 | 1.143 | 13.68 | 11.967 | 0.391 | 0.156 | 1.338 |
| 1.09 | 6.579 | | 6.58 | | | | | | | | |

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 2.243 PMF: 1 Analysis Hardness (mg/l): 34.307 Analysis pH: 7.11

| 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 | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cadmium | 0 | 0 | | 0 | 0.711 | 0.72 | 2.33 | Chem Translator of 0.989 applied |

☑ ***CFC*** CCT (min): 2.243 PMF: 1 Analysis Hardness (mg/l): 34.307 Analysis pH: 7.11

| 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 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cadmium | 0 | 0 | | 0 | 0.117 | 0.12 | 0.4 | Chem Translator of 0.954 applied |

☑ ***THH*** CCT (min): 2.243 PMF: 1 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 | |
| Fluoride (PWS) | 0 | 0 | | 0 | 2,000 | 2,000 | N/A | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ ***CRL*** CCT (min): 1.338 PMF: 1 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 | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |

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

**No. Samples/Month:** 4

| | *Mass Limits* | | *Concentration Limits* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutants | AML (lbs/day) | MDL (lbs/day) | AML | MDL | IMAX | Units | Governing WQBEL | WQBEL Basis | Comments |
| Total Cadmium | 0.0007 | 0.001 | 0.4 | 0.62 | 0.99 | µg/L | 0.4 | CFC | 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 |
| Fluoride (PWS) | N/A | N/A | Discharge Conc < TQL |