Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**New**	Application No.	**PA0296104**
Facility Type	**Non-Municipal**	APS ID	**1132656**
Major / Minor	**Minor**	Authorization ID	**1518774**

Applicant and Facility Information

Applicant Name	**Cashdollar Development LLC**	Facility Name	**Cashdollar Sports Complex**
Applicant Address	438 Watters Station Road	Facility Address	438 Watters Station Road
	Evans City, PA 16033-7712		Evans City, PA 16033-7712
Applicant Contact	John Cashdollar	Facility Contact	
Applicant Phone	(724) 538-3502	Facility Phone	
Client ID	389693	Site ID	873154
Ch 94 Load Status		Municipality	Forward Township
Connection Status		County	Butler
Date Application Received	March 5, 2025	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: This is an application for a new privately owned Minor Sewage Treatment Plant that will serve a proposed sports complex.

Summary of Review

The proposed project includes the construction of a sports complex consisting of one full size outdoor soccer field, one outdoor pole vault run, and three buildings containing one small-size indoor soccer field, four pickleball courts, and two indoor pole vault runs. One existing structure on the property is proposed to be converted to a maintenance building. Sewage needs for all the buildings and outdoor facilities will be served by a packaged sewage plant proposed to be constructed on the same property.

Treatment at the proposed facility will consist of (WQM Permit No. 1025402): A packaged sewage plant including a flow equalization tank, extended aeration tank, clarifier, fixed media filters, and ultraviolet disinfection followed by aeration. The facility will have a sludge holding tank where sludge will be stored and ultimately disposed of in a location approved by Pa DEP.

Public Participation

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

Approve	Deny	Signatures	Date
X		Dustin Hargenrater Dustin Hargenrater / Project Manager	May 8, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	May 12, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0068
Latitude	40º 44' 57.17"	Longitude	-80º 0' 25.17"
Quad Name	Mars	Quad Code	40080F1
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Glade Run (WWF)	Stream Code	63652
NHD Com ID	126223641	RMI	0.4000
Drainage Area	0.15	Yield (cfs/mi^2)	0.0052
Q_{7-10} Flow (cfs)	0.000788	Q_{7-10} Basis	USGS - StreamStats
Elevation (ft)	1,077	Slope (ft/ft)	---
Watershed No.	20-C	Chapter 93 Class.	WWF
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	Default
Temperature (°F)	25	Default - WWF
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	Beaver Falls Municipal Authority		
PWS Waters	Beaver River	Flow at Intake (cfs)	561
PWS RMI	3.5	Distance from Outfall (mi)	44.3

Changes Since Last Permit Issuance: None, this is a new permit. Planning was approved on November 25, 2024.

Other Comments: When looking at 7.5 Minute Quadrangle Topographic maps from USGS it appears that the receiving stream is classified as an intermittent stream. During the planning approval process investigations were conducted by EcoTune and the PA DEP to determine if this classification of a dry stream was correct. Ultimately the goal of these studies were to find perennial conditions on site and evaluate other discharge alternatives in the event that perennial conditions were not found on the site. EcoTune originally finished their investigation and had thought they found perennial conditions to discharge to, based on flow, base material of the stream channel that was evident of perennial conditions, and macroinvertebrate discoveries. The biologists with the Clean Water Program wanted to verify these findings so they went out to the site on October 30, 2024, to conduct a Stream Evaluation Report. The conclusion of the Stream Evaluation Report stated that the perennial determination provided by EcoTune were not able to be verified however they were able to verify perennial conditions further down the stream channel and still within the site at the approximate coordinates of 40.74925 N -80.00676 W. The Stream Evaluation Report will be attached as Attachment 1 for the purpose of maintaining the record.

Treatment Facility Summary				
Treatment Facility Name: Cashdollar Sports Complex				
WQM Permit No.	**Issuance Date**			
1025402	New Permit – Issuance Coordinated with NPDES Permit.			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Ultraviolet	0.0068
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0068	11.3	Not Overloaded	Aerobic Digestion	Unknown

The design flow of the proposed treatment facility was calculated using the estimated number of daily visitors of 800 using 5 gpd per person equaling 4,000 gpd. In addition, there is an existing maintenance building and an existing dwelling expected to be at 400 gpd totaling 800 gpd. A proposed concession stand is estimated to produce an additional 2 gallons per visitor for 1,600 gpd. There is also a proposed dwelling included in the calculation for another 400 gpd. The total design average flow from the existing and proposed uses has been calculated to be 6,800 gallons per day. The design organic loading was calculated using an influent BOD5 concentration of 200 mg/l which is a typical influent concentration for BOD5 of this type of application at the design average flow. Using this data the expected organic loading will be 11.3 lbs/day.

The flow equalization consists of a 9’ x 6’ 4” tank with a maximum capacity of 4,260 gallons with an available operating capacity of 3,763 gallons. The equalization tank will also house an M-Blast ejector pump to pump the effluent to the next stage of treatment. The plant influent will pass through a manual bar screen prior to entering the equalization tank. The manual bar screen will consist of 0.25” x 1” aluminum bars spaced at 0.75” clear spacing. The bar screen will also have a drying deck to allow the manually removed solids to drain and dry prior to solids removal. The proposed clarifier will be a 6’ 4” x 12’ tank with an effective surface area of 76.0 square feet.

The system will have one concrete aeration tank with an anoxic basin and an aerobic basin. The inside dimensions of the anoxic basin and aerobic basin are 14’ 6” long by 6’ 4” wide by 10’ 6” deep with a freeboard of 1’ 6”. The total volume of the aeration tank is approximately 7,209 gallons. The aeration basin has one diffuser drop pipe with a rate control valve and four 3/8 inch coarse bubble diffuser disks.

The fixed media filtration unit consist of a precast concrete tank with two Pyradeck fixed media grid with upflow filtration filters, each having 8 square feet of mixed media grid. The manufacturers stated capacity of the fixed media filters is 500 gpd per square foot with flow equalization. The calculated design loading rate is 425 gallons per day per square foot.

The disinfection unit will consist of a Model M3-8M UV Disinfection unit manufactured by Enaqua. Flow passes by gravity through a reactor tube holding two 75-Watt UV Disinfection Lamps and the disinfection unit will be installed in a pre-cast concrete tank. The UV system has a maximum flow capacity of 70 gallons per minute which is less than the equalized peak instantaneous flow. At this flow rate the unit provides 30 mJ/cm^2 UV Dosage, assuming 65% transmittance. The post aeration process consists of a pre-cast concrete tank having a volume of 832 gallons.

The system will also include one effluent pump station. The effluent pump station will consist of duplex submersible pumps, it is the intent that the design capacity be met with only one pump running. For the discharge force main, it is the design intent that the flow velocity with one pump running will be at least 2 feet per second which is recommended by the PA DEP Domestic Wastewater Facilities Manual to prevent solids from settling in the force main. The desired design flow is conservatively taken to be 40 gallons per minute based on the peak instantaneous flow projected to be less than the peak hourly flow of 23.6 gallons per minute. The minimum effective wet well capacity is 63 gallons, the proposed 4-foot diameter wet well, with minimum 12 inches between the lead pump on and pump off flow switches, provides 94 gallons effective capacity.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0068
Latitude 40º 44' 56.78" **Longitude** -80º 0' 24.97"
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 Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: Since UV Disinfection was proposed, TRC TBELs and WQBELs were not evaluated for this permit. UV Transmittance monitoring will be implemented in the permit in place of TRC limits at the same frequency as the TRC limits would be implemented at. In general, weekly average limits for CBOD5 and TSS will not be imposed where the sampling frequency is less than 1/week based on the SOP for Establishing Effluent Limitations in Individual Sewage Permits.

Water Quality-Based Limitations

Water quality modeling was conducted using WQM 7.0 v 1.1 to calculate limitations for CBOD5, Ammonia-Nitrogen, and Dissolved Oxygen. The model takes into consideration design flow, drainage area, Q_{7-10} flow, Yield, and background pH and Temperature into consideration to create a mass balance equation and calculate the limitations. Default values were used for the in-stream concentration of pH and temperature because there was no available data within the reach to assume an in-stream value. A discharge Dissolved Oxygen concentration of 4.0 mg/l was used due to that being the BPJ value the limit would be set to if the model did not calculate a more stringent limit for D.O. WQM 7.0 output files will be attached as Attachment 2.

The model calculated limitations of 25 mg/l for CBOD5 so the Technology Based limit of 25 mg/l is appropriate. Ammonia-Nitrogen limits calculated by the model were 1.51 mg/l average monthly and 3.02 mg/l Instantaneous Maximum. Dissolved Oxygen limitations calculated by the model based on a discharge BPJ value of 4.0 mg/l were 4.0 mg/l so therefore the D.O. BPJ Limit of 4.0 mg/l is appropriate for the discharge.

Ammonia-Nitrogen limits will be rounded down in accordance with the round-off guidelines in the Permit Writers Manual and will be 1.5 mg/l and 3.0 mg/l respectively. Based on the SOP for Establishing Effluent Limitations in Individual Sewage Permits Ammonia-Nitrogen will be subject to a seasonal multiplier of 3 times the summer limit for the winter period limit. Therefore the 1.5 mg/l average monthly and 3.0 mg/l instantaneous max limit will be implemented for May – September and the winter period limits of 4.5 mg/l average monthly and 9.0 instantaneous maximum will be established from October – April. Based on Table 6-3 in DEPs Permit Writers Manual Ammonia-Nitrogen testing should be established on a 2/month frequency using a grab sample.

For Total Nitrogen and Total Phosphorous in general, sewage discharges with design flows > 2,000 GPD will include monitoring, at a minimum, for Total Phosphorous and Total Nitrogen in new an reissued permits, with a monitoring frequency equivalent to conventional pollutants in Table 6-3 of the Permit Writer's Manual where the facility discharges to nutrient-impaired waters, or a lesser frequency for discharges to waters not impaired for nutrients, at the discretion of the application manager.

Based on the SOP for Establishing Effluent Limitations in Sewage Discharges, sewage discharges will include monitoring, at a minimum, for E. Coli, in new and reissued permits with a monitoring frequency of 1/year for design flows of 0.002 – 0.05 MGD.

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen concentration of 4.0 mg/l will be established as a BPJ limit to ensure adequate operation and maintenance.

Anti-Backsliding

N/A

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
UV Transmittance (%)	XXX	XXX	XXX	Report	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia Oct 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9.0	2/month	Grab
Ammonia May 1 - Sep 30	XXX	XXX	XXX	1.5	XXX	3.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO: Cynthia Selby *Cynthia A. Selby*
Environmental Group Manager
Clean Water Program

FROM: Josh Grassi
Aquatic Biologist II *James Grassi*
Clean Water Program

THROUGH: Joe Brancato *Joe Brancato*
Aquatic Biologist Supervisor
Clean Water Program

DATE: October 30, 2024

RE: Stream Evaluation Report Review
Cashdollar Sports Complex Site
Forward Township, Butler County

Ecotune Environmental Consultants Report Review

A survey to determine the flow status (i.e. perennial, intermittent, etc.) was conducted by Ecotune Environmental Consultants on an Unnamed Tributary (UNT) of Glade Run in Forward Township, Butler County, Pennsylvania. The findings of the stream survey were submitted to the Department in a report dated July 2024. During the review of this Report, additional information was requested by the Department. Ecotune submitted a revision of the Report dated September 2024. The revised Report was reviewed to determine the flow status of the UNT within the property. The stream evaluation was conducted to evaluate onsite wastewater disposal options for an on-site sewage treatment facility.

Guidance for this determination is located in the Department of Environmental Protection's guidance document number 391-2000-014, Policy and Procedures for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales and Storm Sewers (revised April 12, 2008). Specifically, Appendix B of the document provides additional guidance when making the determination. Ecotune referenced in the Report that the Department's Guidance Document was considered during the survey and flow status determination. The Report used an assessment of the watercourses found on the property and biology (i.e. aquatic macroinvertebrates) to determine the flow status of UNT of Glade Run.

The UNT, referred to as R001 within the Report, is located on the western edge of the property as two swales converge. The UNT does not show up as a solid or even dotted blue line on the Evans City or Mars USGS 7.5-minute quadrangle map. The Report map depicts the watercourse following a small

Northwest Regional Office
230 Chestnut Street | Meadville, PA 16335 | 814.332.6942 | Fax. 814.332.6121 | www.dep.pa.gov

hollow as it crosses back and forth of the property line. This UNT joins with UNT 63652 to Glade Run and then eventually Glade Run.

The Report indicated that the UNT was evaluated at two sampling locations. At sampling point 1, it was observed that R001 did not have visible flow, substrate consisting predominantly of soils, and no aquatic macroinvertebrates or fish were present. It was determined that UNT at this location was considered ephemeral.

At sampling point 2, the UNT was joined by a second watercourse (R002) and would include a larger drainage area. Physical characteristics noted within the Report included substrate that was more developed with a diversity of habitats and observed flow. Benthic macroinvertebrates were also observed during the survey and included Turbellaria, *Psephenus*, *Agnetina*, *Hexagenia*, and Isonychiidae. The macroinvertebrates that were used to indicate perennial flow included the mayfly genus *Hexagenia*, the water-penny beetle genus *Psephenus*, and the stonefly genus *Agnetina*. *Hexagina* and *Agnetina* are more typically collected in much larger streams than what was encountered at sampling point 2. Photographs 5 and 6 within the Report depict the underside of rocks and these observed macroinvertebrates were not visibly apparent. Photographs 5 and 6 appear to show flatworms (Turbellaria) which are not consistent with perennial flow.

The Report determined that the UNT should be considered perennial at sampling point 2 based on the presence of flow and the assemblage of macroinvertebrates that require water for multi-year life cycles. Based on the information provided by Ecotune this point of perennial flow conditions could not be verified.

Department Aquatic Biology Investigation

To verify the conditions described within the Report, Department Aquatic Biologists conducted a site visit on October 29, 2024. The Report indicated that the UNT was not perennial at the upstream sampling point 1 (40.7506 -80.0098) but should be considered a perennial stream at the downstream sampling point 2 (40.7497 -80.0094). During this site visit, the sampling points detailed in the Report were examined to verify the point of perennial flow conditions (**Figure 1**).

At sampling point 1, Department Aquatic Biologists found a dry channel with no typical cobble and gravel substrate (**Photograph 1**). There was no visible flowing water observed at this time. It was determined the UNT was ephemeral at this point, which is consistent with the findings of the Report.

At sampling point 2, Department Aquatic Biologists found an approximate 4-foot-wide channel with limited cobble substrate that was covered with a significant amount of leaf litter (**Photographs 2 and 3**). Water was not observed to be flowing at this point and was restricted to a small pool at the lowest-lying area of the stream channel. Using a kick-net, areas containing water were disturbed in an attempt to collect macroinvertebrates. At this location flatworms (Turbellaria), midges (Chironomidae), worms (Clittelata), and craneflies (*Tipula*) were collected. These observed taxa are not indicative of perennial flow. The taxa listed within the Report were not able to be verified except for the flatworms (Turbellaria) being present during both events.

When perennial conditions were not able to be verified at the two other locations Department Aquatic Biologists evaluated the third watercourse (i.e. sampling point 3) located on the property at approximate coordinates 40.74925, -80.00676. This location was depicted on the Report map (R003) but was not evaluated for perennial conditions. This location includes UNT 63652 to Glade Run which is a solid blue line on the Mars and Butler USGS 7.5-minute quadrangle map. At sampling point 3, the UNT has an approximate drainage area of 0.15 square miles (USGS StreamStats 2024). The UNT 63652 to Glade Run is currently designated and protected as Warm Water Fishes (WWF) according to Title 25, Chapter 93, Water Quality Standards, Drainage List W. The UNT is also within the Slippery Rock Creek State Water Plan 20C.

At sampling location 3, Department Biologists found a 4-6-foot-wide channel with cobble and gravel substrate (**Photographs 4 and 5**). Water was observed to be flowing and included areas of riffle and pools. Using kick nets, areas of submerged substrate were kicked in a downstream manner. Aquatic macroinvertebrates collected at this location included midges (Chironomidae), caddisflies (*Cheumatopsyche*), a dragonfly (*Aeshna*), a mayfly (*Baetis*), craneflies (*Tipula*), a snail (*Physa*), and flatworms (Turbellaria). During macroinvertebrate sampling, numerous fish were also observed in two separate pool locations. A complete fish community survey was not conducted at this time. In addition to the UNT appearing as a solid blue line on USGS topographic maps a combination of biological indicators (taxa requiring water for multi-year lifecycles i.e. *Cheumatopsyche, Aeshna,* and minnow spp.) and physical characteristics (flowing water, defined bed and bank with cobble/gravel substrate) were used to determine this to be the point of perennial flow conditions.

Conclusion

The stream survey (at sampling point 2) and perennial determination provided by Ecotune were not able to be verified during the review of the Report and corresponding site visit. Department Aquatic Biologists determined the point of perennial flow conditions and the point of first surface water use was at sampling point 3 and approximate coordinates 40.74925, -80.00676. The point of first surface water use establishes where Chapter 93 Water Quality Standards must be protected and represents the location where continuous stream flow may be available for treated waste assimilation. This would also represent a point where the WWF Water Quality Standards are to be protected.

cc: Stream File – Connoquenessing Creek (SC 34025)
Justin Dickey, DEP – Northwest Regional Office, Clean Water Program Manager (e-mail)
Dustin Shull, DEP – Central Office, Environmental Group Manager (e-mail)
Josh Lookenbill, DEP – Central Office, WQS Monitoring Chief (e-mail)

- 4 -

Figure 1: Approximate flow path and sampling locations.

- 5 -

Photograph 1. Sampling point 1 looking upstream.

- 6 -

Photograph 2. Sampling point 2 looking upstream at a small pool of water.

- 7 -

Photograph 3. Sampling point 2 looking downstream.

- 8 -

Photograph 4. Sampling point 3 looking upstream.

- 9 -

Photograph 5. Sampling point 3 looking downstream.

Attachment 2
WQM 7.0 v 1.1 Modeling Output Files

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
20C	63652	Trib 63652 to Glade Run	**0.783**	1077.00	0.15	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.005	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Cashdollar Spor	PA0296104	0.0068	0.0068	0.0068	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20C	63652	Trib 63652 to Glade Run	**0.144**	983.00	0.50	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.007	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	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
20C	63652	Trib 63652 to Glade Run

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												
0.783	0.00	0.00	0.00	.0105	0.02785	.252	1.5	5.95	0.03	1.307	25.00	7.00
Q1-10 Flow												
0.783	0.00	0.00	0.00	.0105	0.02785	NA	NA	NA	0.03	1.326	25.00	7.00
Q30-10 Flow												
0.783	0.00	0.00	0.00	.0105	0.02785	NA	NA	NA	0.03	1.289	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	4		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20C	63652	Trib 63652 to Glade Run

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
0.783	Cashdollar Spor	11.07	11.6	11.07	11.6	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
0.783	Cashdollar Spor	1.37	1.51	1.37	1.51	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)		
0.78	Cashdollar Spor	25	25	1.51	1.51	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20C	63652	Trib 63652 to Glade Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.783	0.007	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.500	0.252	5.950	0.030
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.40	1.462	1.40	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
4.296	29.745	Owens	4
Reach Travel Time (days)			
1.307			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.131	18.40	1.23	6.32
0.261	14.47	1.07	6.77
0.392	11.37	0.94	7.10
0.523	8.94	0.82	7.36
0.654	7.03	0.72	7.54
0.784	5.53	0.63	7.54
0.915	4.35	0.55	7.54
1.046	3.42	0.48	7.54
1.176	2.69	0.42	7.54
1.307	2.11	0.37	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20C	63652	Trib 63652 to Glade Run

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)
0.783	Cashdollar Spor	PA0296104	0.007	CBOD5	25		
				NH3-N	1.51	3.02	
				Dissolved Oxygen			4